



Owner's Manual

MODEL 905 AND 907 VEHICULAR SLIDE GATE OPERATORS

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USE THIS MANUAL WITH THE FOLLOWING MODELS ONLY

**Model 0905-080 and 0907-080
With circuit board 4701-010**

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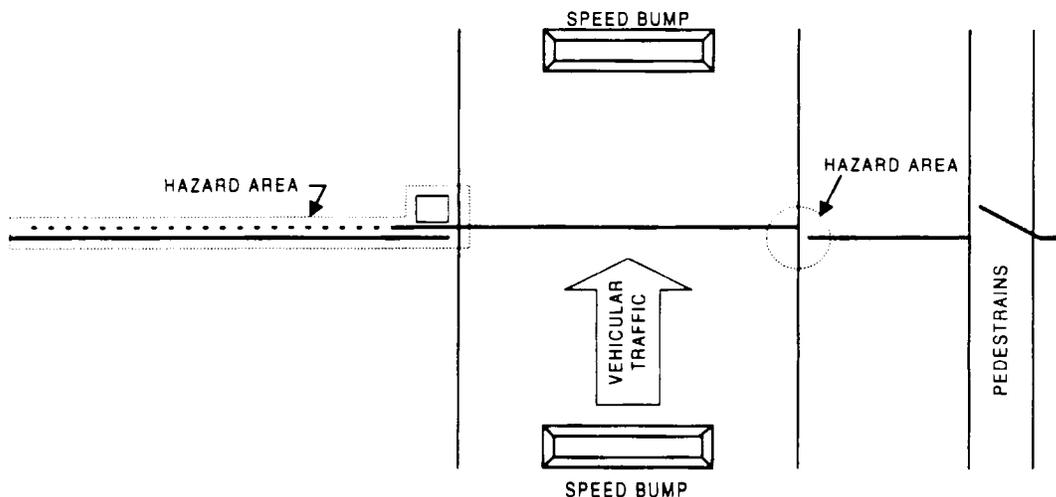
IMPORTANT NOTICES

Vehicular gate systems provide convenience to their users and limit vehicular traffic onto your property. These systems can produce high levels of force, therefore it is important that you are aware of possible hazards associated with your gate operating system. These hazards may include pinch points, entrapment, absence of controlled pedestrian access or traffic backup.

Be sure that the installer has instructed you on the proper operation of the gate and gate operator system. Be sure that the installer has trained you about the basic functions of the reversing systems associated with your gate operating system and how to test them. These include reversing loops, inherent reversing system, and may include electric edges, photo electric cells, or other external devices.

This Owner's Manual is your property. Keep it in a safe place for future reference.

- The speed limit for vehicular traffic through the gate area is 5 MPH. Install speed bumps and signs to keep vehicular traffic from speeding through the gate area. Failure to adhere to posted speed limits can result in damage to the gate, gate operator, and to the vehicle.
- Be sure that all residents are familiar with the proper use of the gate and gate operator. Be sure that all residents are familiar with the possible hazards associated with the gate system.
- Be sure that all warning signs are permanently installed on both sides of the gate in an area where they are fully visible to traffic.
- It is your responsibility to periodically check all reversing devices. If any of these devices are observed to function improperly, remove the operator from service immediately and contact your installing or servicing dealer.
- Follow the recommended maintenance schedule.
- Do not allow children to play in the area of the operator or to play with any gate operating device.
- Be sure that all activating devices are installed a minimum distance of 10 feet away from the gate and gate operator, or in such a way that a person cannot touch the gate or gate operator while using the activating device. If activating devices are installed in violation of these restrictions, immediately remove the gate operator from service and contact your installing dealer.
- To remove the gate operator from service, operate the gate to the full open position and then shut off power to the gate operator at the service panel.



Chapter 1 - Installation

SECTION

1.1	Glossary.....	1
1.2	Restrictions, Warnings and Safety Instructions.....	2
1.3	Specifications.....	3
1.4	Mounting Positions.....	4
1.4.1	Adjusting Chain Idlers.....	5
1.5	Mounting Options	
1.5.1	Pad Mount Operators.....	6
1.5.2	Post Mounted Operators.....	7
1.6	Front Mount Operator Installation	
1.6.1	Pad Mounted Operators.....	8
1.6.2	Post Mounted Operators.....	8
1.7	Rear Mount Operator Installation	
1.7.1	Pad Mounted Operators.....	9
1.7.2	Post Mounted operators.....	9
1.8	Center Mount Operator Installation	
1.8.1	Post Mounted Operators.....	10
1.9	Chain Installation	
1.9.1	Front Mount Operators - Pad Mounted.....	11
1.9.2	Front Mount Operators - Post Mounted.....	12
1.9.3	Rear Mount Operators - Pad and Post Mounted.....	13
1.9.4	Center Mount operators - Post Mounted Only.....	14
1.10	Warning Sign Installation.....	15

Chapter 2 - Electrical / Wiring

SECTION

2.1	Conduits.....	17
2.2	High Voltage.....	18
2.3	Control Wiring.....	19
2.4	Loop Detector Wiring.....	20
2.5	Main Terminal Identification and Description.....	21
2.6	Master / Slave Control Wiring.....	22

Chapter 3 - Adjustments

SECTION

3.1	Circuit Board Adjustments.....	23
3.2	Switch Settings and Description.....	24
3.3	Inherent Reverse Adjustment.....	25
3.3.1	Clutch Adjustment.....	25
3.3.2	Reverse Sensitivity Adjustment.....	25
3.4	Automatic Limit Adjustment.....	26
3.5	Inherent Reverse Feature.....	26
3.6	Operator Testing.....	27

Chapter 4 - Maintenance, Trouble Shooting and Accessories

SECTION

4.1	Maintenance.....	29
4.2	Trouble Shooting.....	30
4.3	Accessories.....	33
	Wire Diagram Model 905 and 907.....	34
	Illustrated Parts Breakdown Model 905.....	35
	Illustrated Parts Breakdown Model 907.....	36

Prior to beginning the installation of the slide gate operator, we suggest that you become familiar with the instructions, illustrations, and wiring guidelines in this manual. This will help insure that your installation is performed in an efficient and professional manner.

The proper installation of the vehicular slide gate operator is an extremely important and integral part of the overall access control system. Check all local building ordinances and building codes prior to installing this operator. Be sure your installation is in compliance with local codes.

SECTION 1.1

GLOSSARY

RESIDENTIAL VEHICULAR GATE OPERATOR-CLASS I - A vehicular gate operator (or system) intended for use in a home of one-to four single family dwelling, or garage or parking area associated therewith.

COMMERCIAL / GENERAL ACCESS VEHICULAR GATE OPERATOR-CLASS II - A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units), hotels, garages, retail store, or other building servicing the general public.

INDUSTRIAL / LIMITED ACCESS VEHICULAR GATE OPERATOR-CLASS III - A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not intended to service the general public.

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

SYSTEM - In the context of these requirements, a system refers to a group of interacting devices intended to perform a common function.

WIRED CONTROL - A control implemented in a form of fixed physical interconnections between the control, the associated devices, and an operator to perform predetermined functions in response to input signals.

WIRELESS CONTROL - A control implemented in means other than fixed physical interconnections (such as radio waves or infrared beams) between the control, the associated devices, and an operator to perform predetermined functions in response to input signals.

INHERENT ENTRAPMENT SENSOR SYSTEM - An automatic sensor system which senses entrapment of a solid object and is incorporated as a permanent and integral part of the operator.

SECTION 1.2

RESTRICTIONS AND WARNINGS

Install The Gate Operator Only If:

- The operator is appropriate for the construction of the gate and usage Class of the gate.
- 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.
- All exposed pinch points are eliminated or guarded.
- Guarding is provided for exposed rollers.
- This operator is intended for installation only on slide gates used to control vehicular traffic. Pedestrians must be provided with a separate access opening.
- The gate must be installed in a location so that sufficient clearance is provided between the gate and adjacent structures when opening and closing to reduce the risk of entrapment. Sliding gates should not open into public access areas.
- The gate must be properly installed and work freely in both directions prior to the installation of the gate operator. Do not over-tighten the operator clutch to compensate for a damaged gate.
- 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. Outdoor or easily accessible controls should have a security feature to prevent unauthorized use.
- All warning signs and placards must be installed where visible in the area of the gate.

IMPORTANT SAFETY INSTRUCTIONS

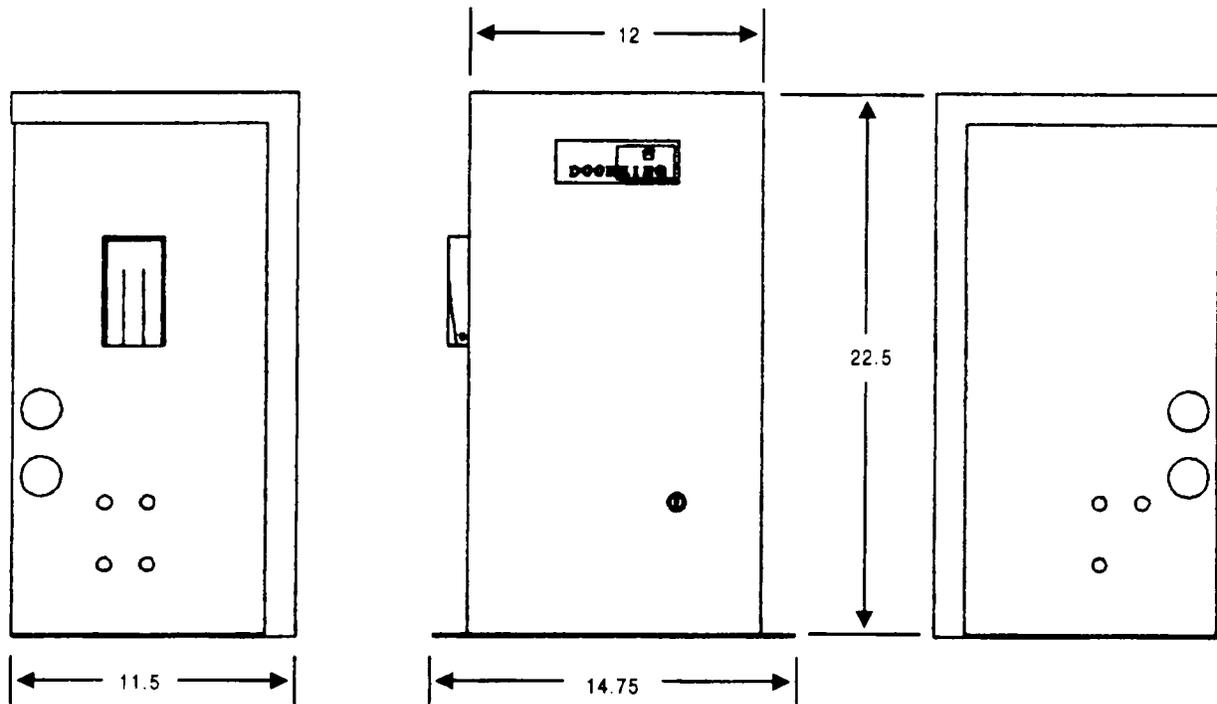
WARNING - To reduce the risk of injury or death:

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

SECTION 1.3

SPECIFICATIONS

Class of Operation:	905 - Class I 907 - Class I, II
Type of Gate:	Vehicular Slide Gates Only
Horsepower:	905 - 1/3 H.P., 907 - 1/2 H.P.
Voltage / Phase:	115 VAC / 1 ^Ø
Current:	905 - 4.0 Amps, 907 - 5.2 Amps
Max Gate Weight:	905 - 300 Lbs., 907 - 750 Lbs.
Max Gate Length:	905 - 20 Feet, 907 - 22 Feet
Cycles / Hr:	905 - 10 Max, 907 - 60 Max
Speed:	Approximately 1 Ft. / sec



SECTION 1.4

MOUNTING POSITIONS

The model 905 / 907 operator can be mounted in any of the mounting positions shown below. Each method has its own advantages.

Front Mount

- Chain is attached across the gate and is visible when the gate is closed.
- Single chain is required.
- Operator is up front.
- Requires the gate to be wider than the opening.

Rear Mount

- Chain is attached to rear of gate and is not visible when gate is closed.
- Double chain required.
- Operator is mounted back, away from traffic.
- Requires installation of an idler sprocket.

Center Mount

- Chain is attached to rear of gate and is not visible when gate is closed.
- Double chain required.
- Operator must be post mounted.
- Requires installation of two idler sprockets.

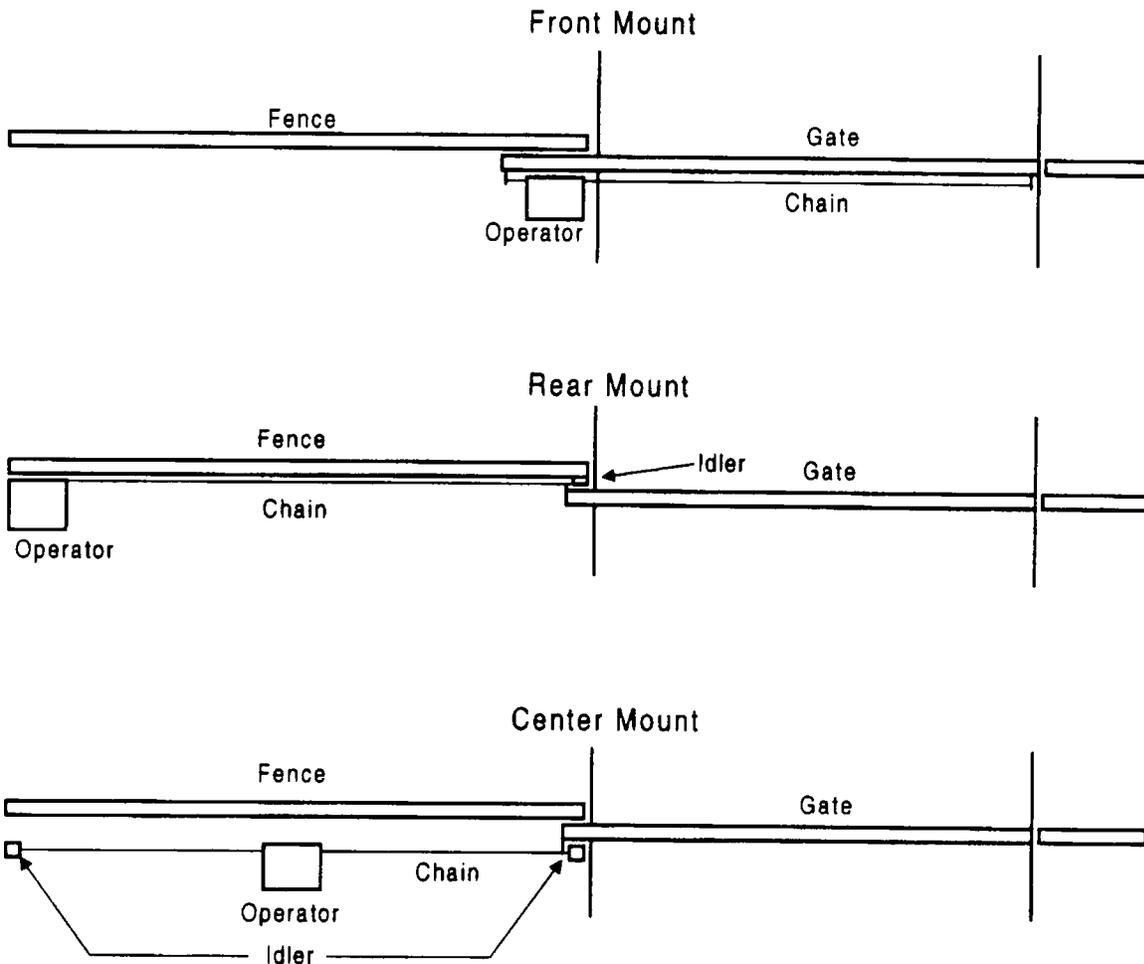


FIGURE 1.4

**1.4.1
ADJUSTING CHAIN IDLERS**

Once the mounting position has been determined, the chain idlers in the operator must be adjusted to accommodate the mounting position chosen. Refer to the figures below to adjust the chain idlers. NOTE: The idlers are factory set for the front mounting position.

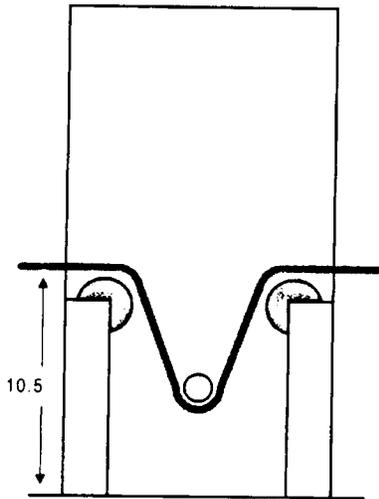


FIGURE 1.4.1A

FIGURE 1.4.1A

- Use this idler configuration when the operator is in the front position and is pad mounted.
- Remove the two top chain knockouts from each side of the operator.

FIGURE 1.4.1B

- Use this idler configuration when the operator is in the rear position and is either pad or post mounted.
- Remove both the upper and lower chain knockout from the side of the operator that the chain will enter and exit the unit.

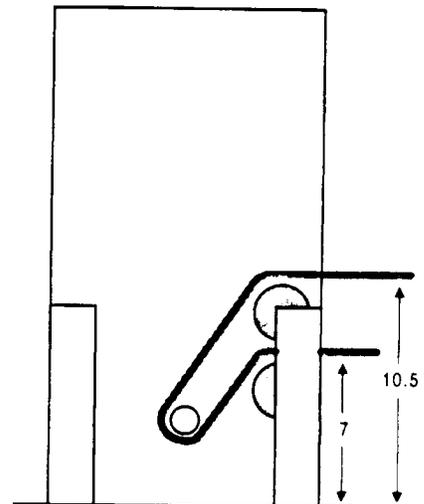


FIGURE 1.4.1B

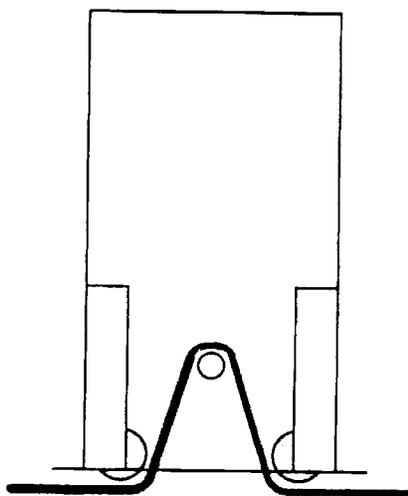


FIGURE 1.4.1C

FIGURE 1.4.1C

- Use this idler configuration when the operator is in the center position and is post mounted, or when the operator is in the front position and is post mounted.
- Do not remove any chain knockouts. The chain will enter and exit the unit from the bottom.

SECTION 1.5

MOUNTING OPTIONS

1.5.1

PAD MOUNTED OPERATORS

Pad mounting can be used when the operator will be installed using either the front or rear mounting position. If the operator is to be center mounted, the post mounting method must be used.

1. Construct a form for the mounting pad according to the specifications shown in figure 1.5.1. Be sure to level the top edge of the form and that the top of the form is a minimum of four (4) inches above ground level.

We suggest that you contact the local building department to determine the required depth of the pad since soil conditions and code requirements vary from city to city.

2. Set conduits, reinforcing bars and/or wire mesh if required. The number of conduits is determined by the application requirements. We suggest using a minimum of four (4) conduits.

- 1 - High voltage power lines
- 2 - Low voltage control lines
- 3 - Loop lead-in wires (open loop)
- 4 - Loop lead-in wires (reverse loops)

Set additional conduits as required for your application.

NOTE: If conduits are not set in the pad, they can be routed to a J box where connections to the operator can be made after it is installed. There are three (3) 1/2 inch knockouts and one (1) 3/4 inch knockout on each side of the operator for this purpose.

NOTE: Be sure to contact the local building department regarding conduit requirements since electrical codes can vary from city to city.

3. Mix the concrete according to the manufacturers instructions. Pour the mixture into the form and tamp. Level and finish the surface after pouring is complete. Do not set anchor bolts in the concrete.

Sleeve anchors should be used to secure the operator to the pad. This allows greater flexibility in positioning the operator on the pad.

4. Allow the pad to cure for 48 hours before removing the forms or mounting the operator.

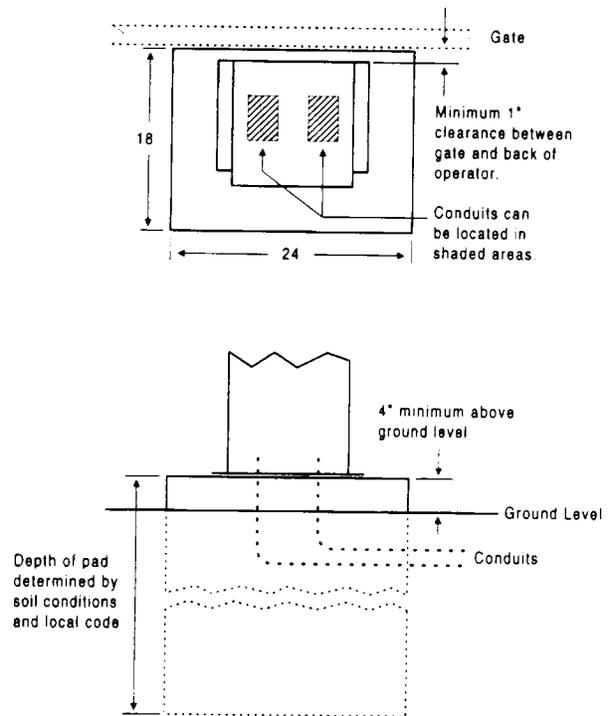


FIGURE 1.5.1

1.5.2

POST MOUNTED OPERATORS

Post mounting can be used when the operator will be installed in any of the three mounting positions, and must be used if the operator is to be center mounted.

1. Post mounting the operator requires the use of an operator base plate (P/N 2600-418) and two (2) 4 X 4 steel post (not supplied) welded to the base plate as shown in figure 1.5.2A.

The length of the steel post and the depth of the pad are determined by soil conditions and local code requirements.

We suggest that you contact the local building department to determine the required depth of the pad since soil conditions and code requirements vary from city to city.

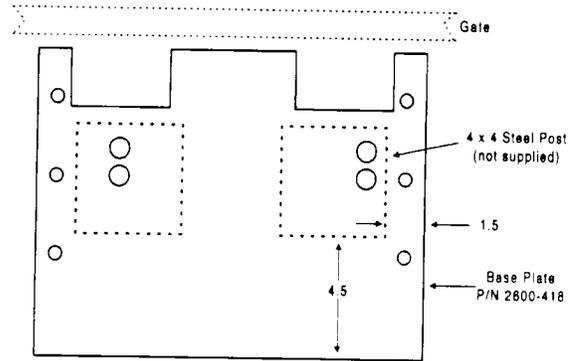


FIGURE 1.5.2A

2. After the posts have been welded to the base plate to form the mounting plate assembly, construct a form for the assembly according to the specifications in figure 1.5.2B.
3. Position the mounting plate assembly into the form. Be sure that the base plate is a minimum of four (4) inches above ground level.

Set conduits, reinforcing bars and/or wire mesh if required. The number of conduits is determined by the application requirements. We suggest using a minimum of four (4) conduits.

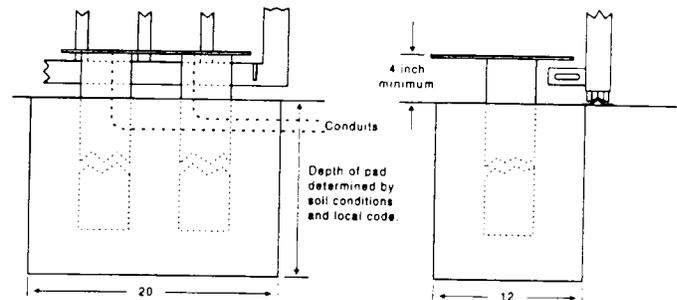


FIGURE 1.5.2B

- 1 - High voltage power lines
- 2 - Low voltage control lines
- 3 - Loop lead-in wires (open loop)
- 4 - Loop lead-in wires (reverse loops)

Set additional conduits as required for your application.

NOTE: If conduits are not set in the pad, they can be routed to a J box where connections to the operator can be made after it is installed. There are three (3) 1/2 inch knockouts and one (1) 3/4 inch knockout on each side of the operator for this purpose.

NOTE: Be sure to contact the local building department regarding conduit requirements since electrical codes can vary from city to city.

IMPORTANT!! Be sure that the mounting plate is level and parallel with the gate.

4. Secure the mounting plate assembly in the form. Mix the concrete according to the manufacturers instructions. Pour the mixture into the form and tamp. Level and finish the surface after pouring is complete.
5. Allow the pad to cure for 48 hours before removing the forms or mounting the operator.

SECTION 1.6

FRONT MOUNT OPERATOR INSTALLATION

1.6.1

PAD MOUNTED OPERATORS

1. Before mounting the operator to the pad, position the chain idlers as shown in figure 1.6.1A.
2. Remove the chain knockouts on each side of the operator.
3. Position the operator on the pad so that there is a minimum clearance of one (1) inch between the back of the operator and the gate.

IMPORTANT!! Be sure that the operator is parallel to the gate! (Fig. 1.6.1B) Installing the operator in any other manner will cause excessive chain noise, chain wear, and premature chain idler failure.

4. Mark the holes on the mounting pad. Use a concrete drill bit to drill the mounting holes to the size and depth required for the anchors being used. We recommend 1/2 x 3 sleeve anchors. Anchors are not supplied with the operator.
5. After the mounting holes are drilled, clean them out and install the sleeve anchors. Position the operator over the anchors and tighten.

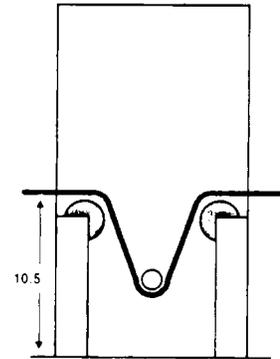


FIGURE 1.6.1A

1.6.2

POST MOUNTED OPERATORS

1. Before mounting the operator to the pad, position the chain idlers as shown in figure 1.6.2A.
2. Do not remove any chain knockouts from the operator when using this method of installation. The chain will enter and exit the operator from the bottom.
3. Position the operator on the mounting plate. If the mounting plate assembly has been installed correctly, there should be a minimum clearance of one (1) inch between the back of the operator and the gate, and the back of the operator should be parallel with the gate. **If these conditions do not exist, make corrections now!**

IMPORTANT!! Be sure that the operator is parallel to the gate! (Fig. 1.6.1B) Installing the operator in any other manner will cause excessive chain noise, chain wear, and premature chain idler failure.

4. Secure the operator to the mounting plate assembly using six (6) 1/2-13 x 1 1/2 bolts (or equivalent), lock washers and nuts (hardware is not supplied).

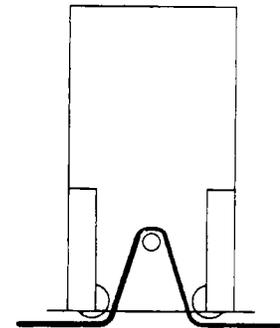


FIGURE 1.6.2A

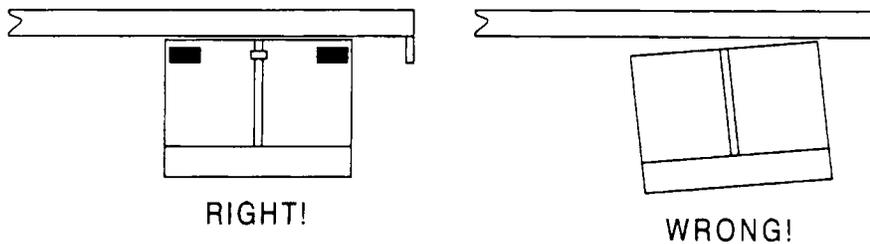


FIGURE 1.6.1B

SECTION 1.7

REAR MOUNT OPERATOR INSTALLATION

1.7.1

PAD MOUNTED OPERATORS

1. Before mounting the operator to the pad, position the chain idlers as shown in figure 1.7.1A.
2. Remove the chain knockouts from the side of the operator where the chain will enter and exit the unit.
3. Position the operator on the pad so that there is a minimum clearance of one (1) inch between the back of the operator and the fence.

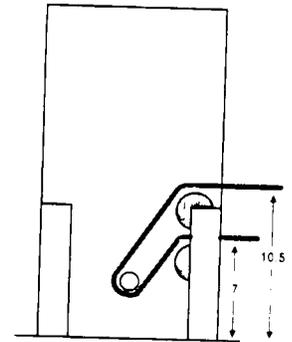


FIGURE 1.7.1A

IMPORTANT!! Be sure that the operator is parallel to the gate! (Fig. 1.7.1B) Installing the operator in any other manner will cause excessive chain noise, chain wear, and premature chain idler failure.

4. Mark the holes on the mounting pad. Use a concrete drill bit to drill the mounting holes to the size and depth required for the anchors being used. We recommend 1/2 x 3 sleeve anchors. Anchors are not supplied with the operator.
5. After the mounting holes are drilled, clean them out and install the sleeve anchors. Position the operator over the anchors and tighten.

1.7.2

POST MOUNTED OPERATORS

1. Before mounting the operator to the pad, position the chain idlers as shown in figure 1.7.1A.
2. Remove the chain knockouts from the side of the operator where the chain will enter and exit the unit.
3. Position the operator on the mounting plate. If the mounting plate assembly has been installed correctly, there should be a minimum clearance of one (1) inch between the back of the operator and the fence, and the back of the operator should be parallel with the gate. **If these conditions do not exist, make corrections now!**

IMPORTANT!! Be sure that the operator is parallel to the gate! (Fig. 1.7.1B) Installing the operator in any other manner will cause excessive chain noise, chain wear, and premature chain idler failure.

4. Secure the operator to the mounting plate assembly using six (6) 1/2-13 x 1 1/2 bolts (or equivalent), lock washers and nuts (hardware is not supplied).

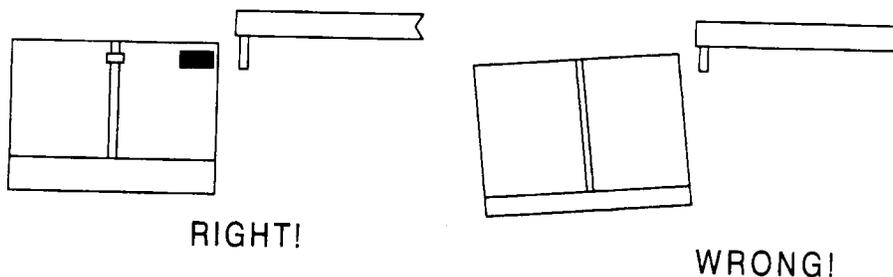


FIGURE 1.7.1B

SECTION 1.8

CENTER MOUNT OPERATOR INSTALLATION

Center mounted operators must be post mounted. There is no pad mounting method for this type of installation.

1.8.1

POST MOUNTED OPERATORS

1. Before mounting the operator to the pad, position the chain idlers as shown in figure 1.8.1A.
2. Do not remove any chain knockouts from the operator when using this method of installation. The chain will enter and exit the operator from the bottom.
3. Position the operator on the mounting plate. If the mounting plate assembly has been installed correctly, there should be a minimum clearance of one (1) inch between the back of the operator and the gate, and the back of the operator should be parallel with the gate. **If these conditions do not exist, make corrections now!**

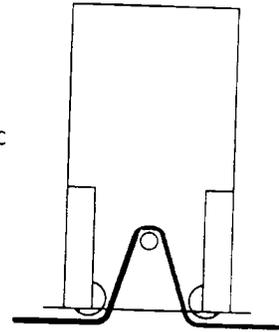


FIGURE 1.8.1A

IMPORTANT!! Be sure that the operator is parallel to the gate!

(Fig. 1.8.1B) Installing the operator in any other manner will cause excessive chain noise, chain wear, and premature chain idler failure.

4. Secure the operator to the mounting plate assembly using six (6) 1/2-13 x 1 1/2 bolts (or equivalent), lock washers and nuts (hardware is not supplied).

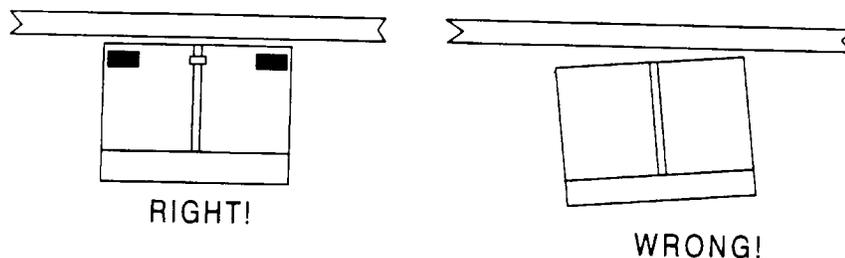


FIGURE 1.8.1B

SECTION 1.9

CHAIN INSTALLATION

1.9.1

FRONT MOUNT OPERATORS

PAD MOUNTED

1. Secure the chain brackets to each end of the gate so that the brackets are level with the top chain knockouts in the operator housing.
2. Route the chain through the gate operator: over the chain guide idlers and under the drive sprocket (Figure 1.9.1C).
3. Slide each end of the chain through a chain stop (optional). Chain stops are not required if the gate has physical stops.

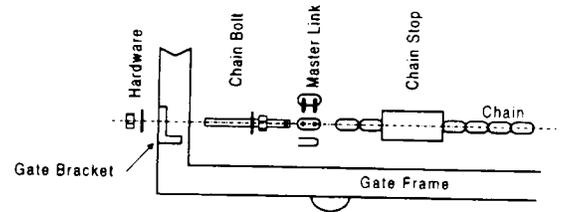


FIGURE 1.9.1A

4. Attach the chain to the chain bolts using the master links supplied, then attach the chain bolts to the chain brackets using the hardware supplied (figure 1.9.1A). Make any adjustments to the chain length at this time.
5. Adjust the chain bolts to tighten the chain. The chain should sag no more than one (1) inch per 10 feet of travel. Do not over tighten the chain.

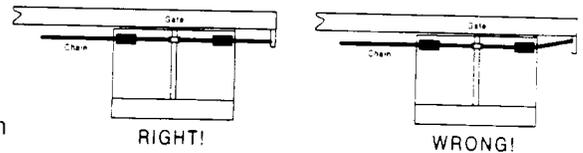


FIGURE 1.9.1B

IMPORTANT!! Be sure that the chain is parallel to the gate (figure 1.9.1B). Installing the chain in any other manner will cause excessive noise, chain idler wear and chain stretching.

6. Manually open the gate to the full open position and secure the chain stop (if installed) to the chain so that it is in contact with the operator housing.
7. Manually close the gate to the full closed position and secure the chain stop (if installed) to the chain so that it is in contact with the operator housing.

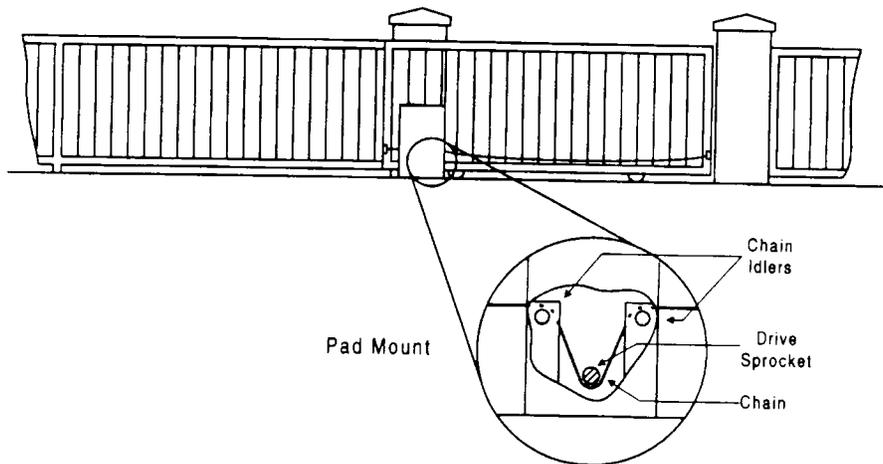


FIGURE 1.9.1C

**1.9.2
FRONT MOUNT OPERATORS
POST MOUNT**

1. Secure the chain brackets to each end of the gate so that the brackets are level with the bottom chain idler.
2. Route the chain through the gate operator: under the chain guide idlers and over the drive sprocket (Figure 1.9.2C).
3. Slide each end of the chain through a chain stop (optional). Chain stops are not required if the gate has physical stops.
4. Attach the chain to the chain bolts using the master links supplied, then attach the chain bolts to the chain brackets using the hardware supplied (figure 1.9.2A). Make any adjustments to the chain length at this time.

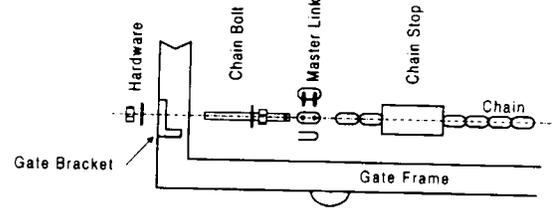


FIGURE 1.9.2A

5. Adjust the chain bolts to tighten the chain. The chain should sag no more than one (1) inch per 10 feet of travel. Do not over tighten the chain. **IMPORTANT!! Be sure that the chain is parallel to the gate (figure 1.9.2B). Installing the chain in any other manner will cause excessive noise, chain idler wear and chain stretching.**

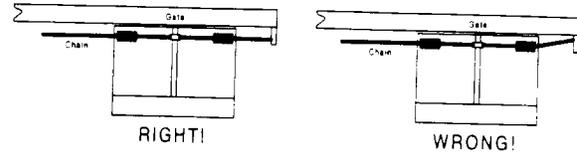


FIGURE 1.9.2B

6. Manually open the gate to the full open position and secure the chain stop (if installed) to the chain so that it is in contact with the operator housing.
7. Manually close the gate to the full closed position and secure the chain stop (if installed) to the chain so that it is in contact with the operator housing.

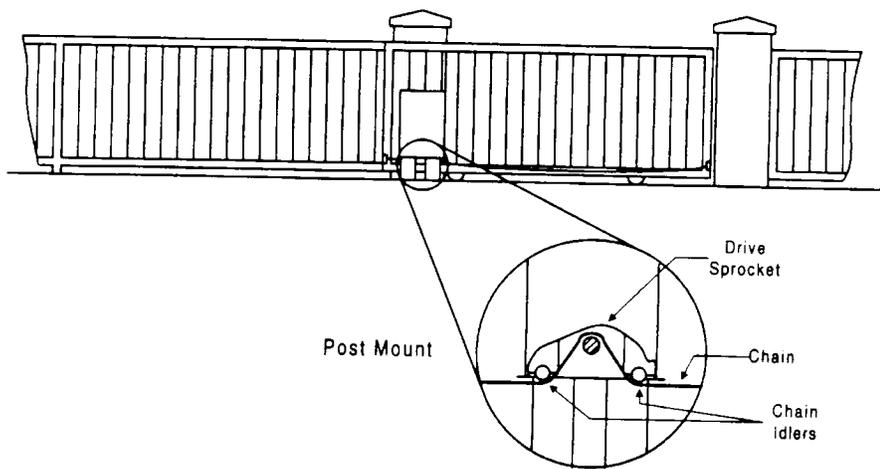


FIGURE 1.9.2C

**1.9.3
REAR MOUNT OPERATORS
PAD AND POST MOUNT**

1. Install an endless idler assembly (p/n 2600-818) at the gate opening between the gate and fence (figure 1.9.3A & C). Note that the chain is routed between the fence and the gate in this type of installation.

IMPORTANT!! Be sure that the idler assembly is securely attached to the gate post, pilaster, etc.

2. Secure the chain brackets to the gate as shown in figure 1.9.3A. The chain brackets should be attached to the gate frame so that they are approximately one (1) inch apart.
3. Route the chain through the gate operator: over the chain guide idlers and around the drive sprocket (Figure 1.9.2C), and around the idler assembly.

4. Attach the chain to the chain bolts using the master links supplied, then attach the chain bolts to the chain brackets using the hardware supplied (figure 1.9.3A). Make any adjustments to the chain length at this time.

5. Adjust the chain bolts to tighten the chain. The chain should sag no more than one (1) inch per 10 feet of travel. Do not over tighten the chain.
IMPORTANT!! Be sure that the chain is parallel to the gate (figure 1.9.3B). Installing the chain in any other manner will cause excessive noise, chain idler wear and chain stretching.

6. Manually operate the gate to be sure that the chain is not binding and that the gate operates easily.

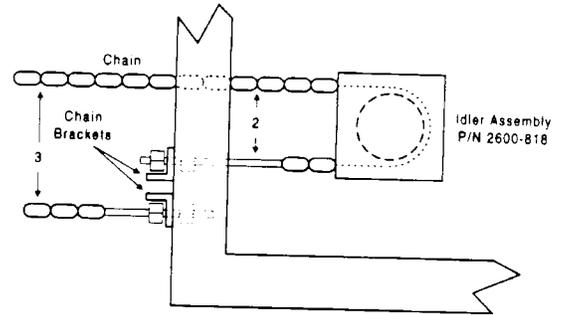


FIGURE 1.9.3A

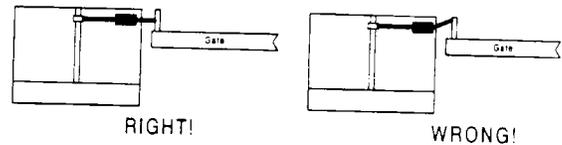


FIGURE 1.9.3B

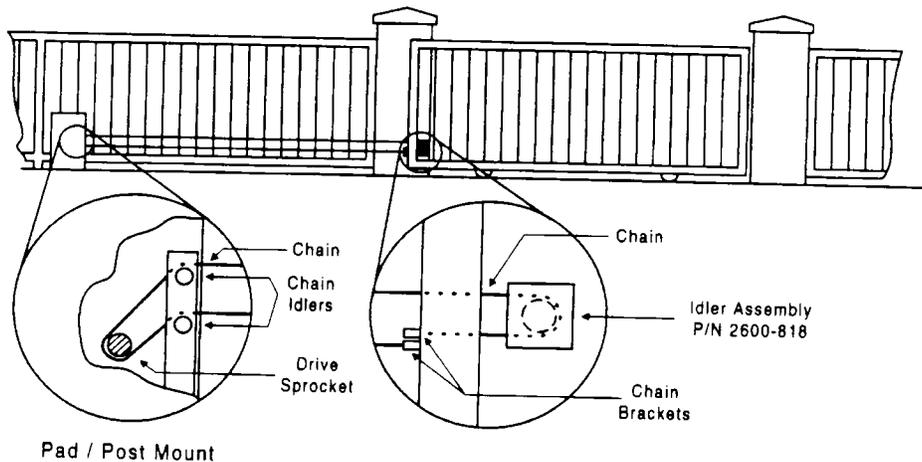


FIGURE 1.9.3C

**1.9.4
CENTER MOUNT OPERATORS
POST MOUNT ONLY**

1. Install an endless idler assembly (p/n 2600-818) at each end of the gate opening (figure 1.9.4A & D). Note that the gate travels between the fence and the chain in this type of installation (figure 1.9.4B). **IMPORTANT!! Be sure that the idler post/mount assembly is secure.**
2. Secure the chain brackets to the gate as shown in figure 1.9.4A. The chain brackets should be attached to the gate frame so that they are approximately one (1) inch apart.
3. Route the chain through the gate operator: under the chain guide idlers and over the drive sprocket (Figure 1.9.2D), and then around the two idler assemblies.
4. Attach the chain to the chain bolts using the master links supplied, then attach the chain bolts to the chain brackets using the hardware supplied (figure 1.9.4A). Make any adjustments to the chain length at this time.
5. Adjust the chain bolts to tighten the chain. The chain should sag no more than one (1) inch per 10 feet of travel. Do not over tighten the chain. **IMPORTANT!! Be sure that the chain is parallel to the gate (figure 1.9.4C). Installing the chain in any other manner will cause excessive noise, chain idler wear and chain stretching.**
6. Manually operate the gate to be sure that the chain is not binding and that the gate operates easily.

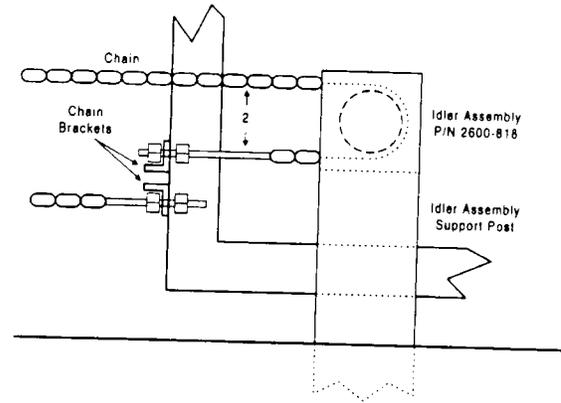


FIGURE 1.9.4A

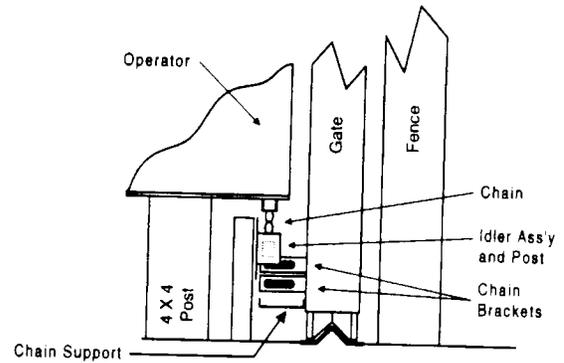


FIGURE 1.9.4B

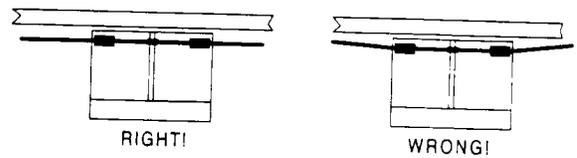


FIGURE 1.9.4C

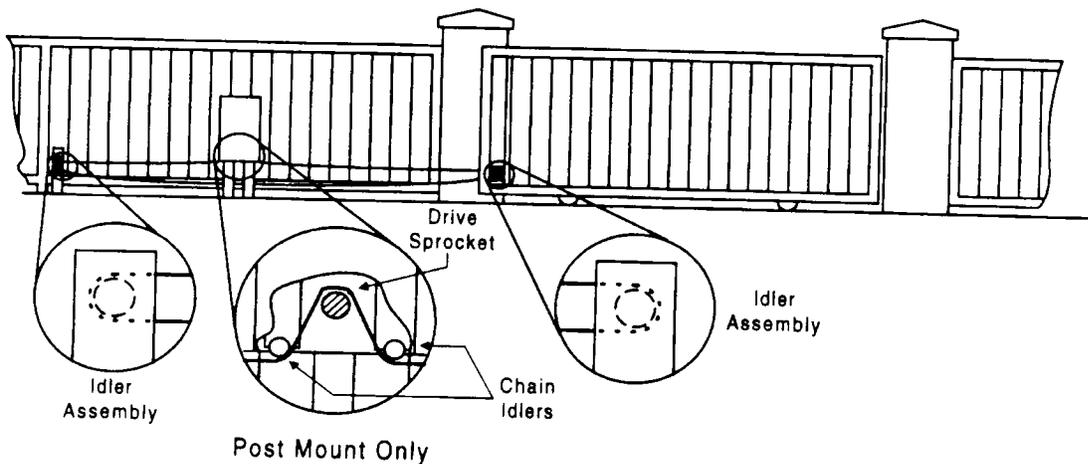


FIGURE 1.9.4D

SECTION 1.10

WARNING SIGN INSTALLATION

This DoorKing slide gate operator is shipped with two warning signs. The purpose of the warning signs is to alert ununiformed persons, and to remind persons familiar with the system, that a potential hazard may exist so that appropriate action can be taken to avoid the hazard or to reduce exposure to the hazard.

1. Permanently install the supplied warning signs in locations so that the signs are visible by persons on both sides of the gate.
2. Use appropriate hardware such as wood or metal screws (not supplied) to install the warnings.



Before attempting to connect any wiring to the operator, be sure that the circuit breaker in the electrical panel is in the OFF position. Permanent wiring must be installed to the operator as required by local electrical codes. It is recommended that such work be performed by a licensed electrical contractor.

Since building codes vary from city to city, we highly recommend that you check with your local building department prior to installing any permanent wiring to be sure that all wiring to the operator (both high and low voltage) complies with local code requirements.

THIS GATE OPERATOR MUST BE PROPERLY GROUNDED!!

SECTION 2.1

CONDUITS

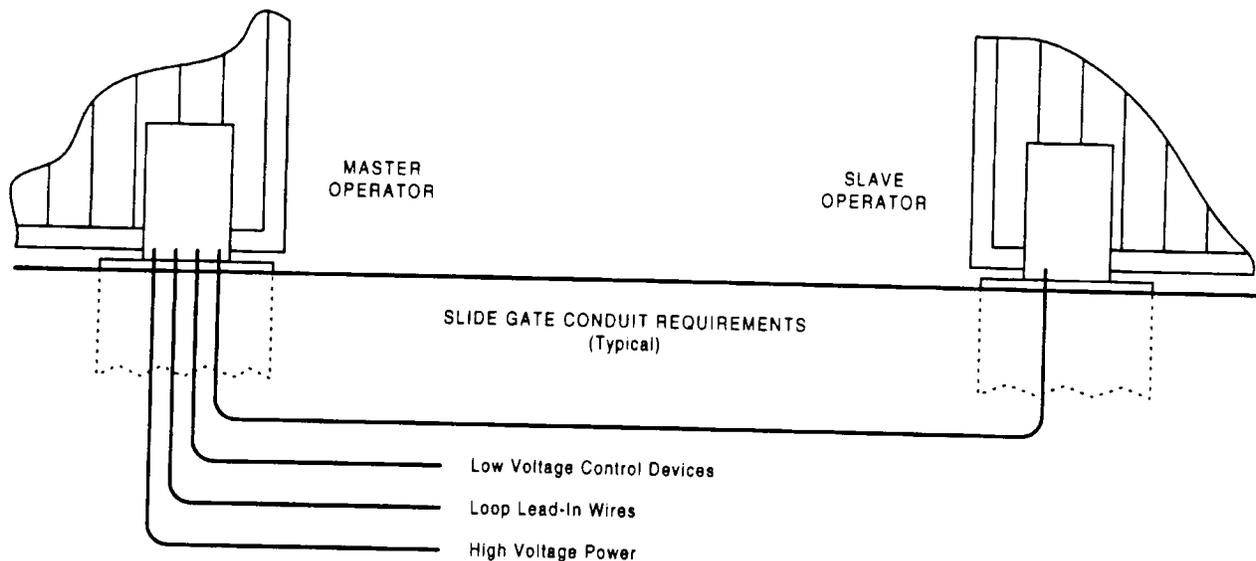


FIGURE 2.1

- The conduit requirements shown in figure 2.1 are for a typical slide gate operator installation (the slave operator is shown for those applications where a slave operator may be used). The conduit requirements for your application may vary from this depending on your specific needs.
- Use only sweeps for conduit bends. Do not use 90° connectors as this will make wire pulls very difficult and can cause damage to wire insulation.
- We suggest that minimum 3/4 inch conduit be used.
- Be sure that all conduits are installed in accordance with local codes.

SECTION 2.2

HIGH VOLTAGE

Use the chart below to determine high voltage wire size requirements. The distance shown in the chart is measured in feet from the operator to the power source. If power wiring is greater than the maximum distance shown, it is recommended that a service feeder be installed. When large gauge wire is used, a separate junction box must be installed for the operator connection. The wire table is based on stranded copper wire. Wire run calculations are based on National Electrical Code allowing a 5% voltage drop on the power line. The supply voltage must be within 10% of the operator rating, measured at the operator under load conditions.

MODEL	AMPS	WIRE SIZE			
		12 AWG	10 AWG	8 AWG	6 AWG
905 Single Unit	4.0	235	375	600	950
907 Single Unit	5.2	200	320	500	650
905 Master / Slave	8.0	115	185	300	475
907 Master / Slave	10.4	100	160	250	325

- Route incoming high voltage power through conduit and into the operator as shown in figure 2.2A.
- Be sure wiring is installed in accordance with local codes. Be sure to color code all wiring.
- Connect the power wires to the high voltage terminal strip as shown in figure 2.2B.
- Connect **BLACK** power wire to the high voltage terminal as shown.
- Connect **WHITE** neutral wire to high voltage terminal as shown.
- Connect **GREEN** ground wire to ground lug.

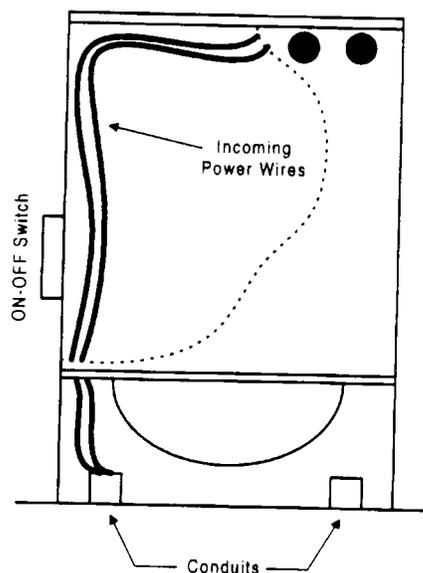


FIGURE 2.2A

- It is recommended that a surge suppresser be installed on the high voltage power lines to help protect the operator and circuit board from surges and power fluctuations.

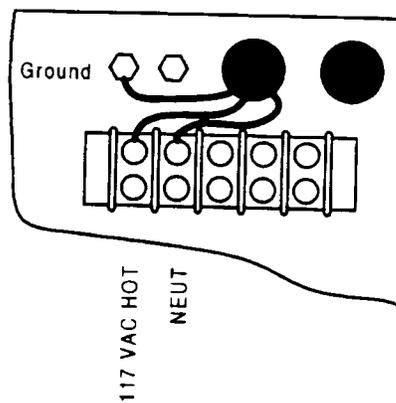


FIGURE 2.2B

SECTION 2.3

CONTROL WIRING

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. Outdoor or easily accessible controls should have a security feature to prevent unauthorized use.

- Connect optional control devices to the operator terminal strip as shown in figure 2.3. Be sure that all electrical connections are made in accordance with local electrical codes. Use 18 AWG wire for all low voltage wiring, maximum distance 3000 feet. Use a low voltage surge suppresser, DoorKing P/N 1878-010 if low voltage wire runs exceed 1000 feet. All inputs to the terminal strip must be NORMALLY OPEN.
- Do not power any devices from the circuit board other than a low voltage radio receiver as shown in 2.3.

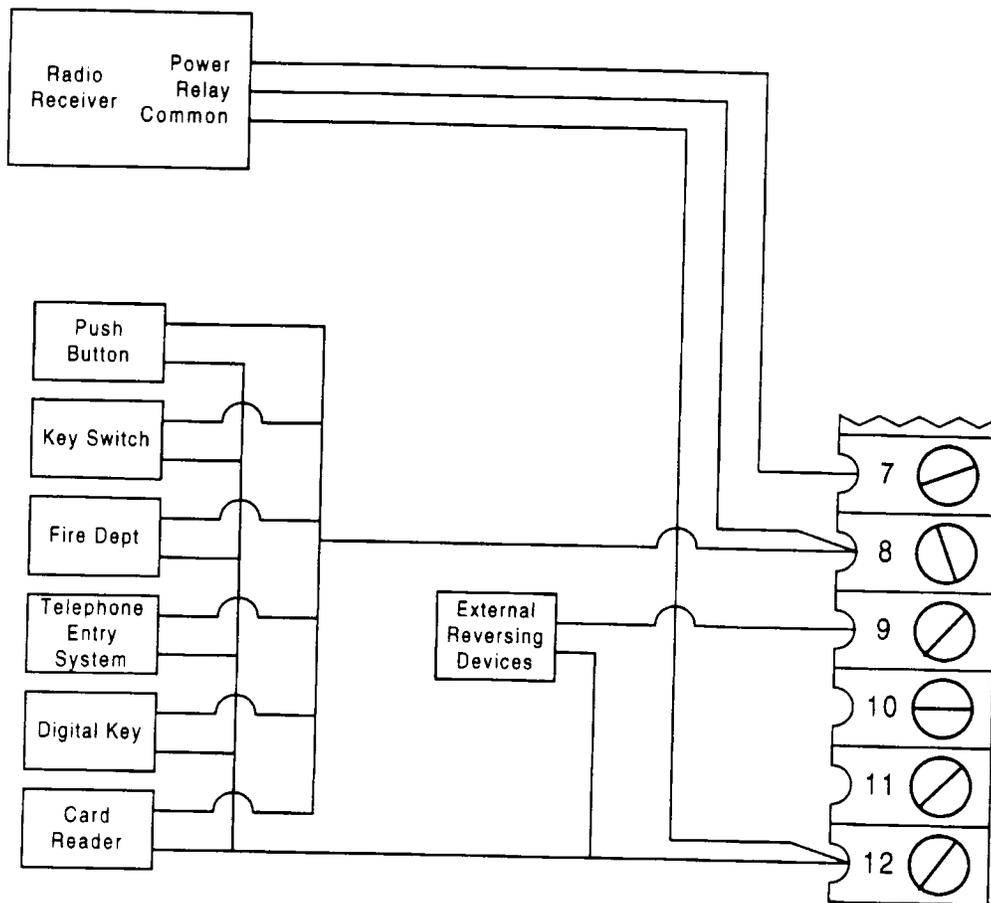


FIGURE 2.3

SECTION 2.4

LOOP DETECTOR WIRING

- Loop detector wiring is shown for DoorKing model 9406 Plug-In loop detector only. If other loop detectors are used, refer to the control wiring diagram.
- Be sure that power is turned off prior to making any connections to the terminal strip.
- If other loop detectors are used, all inputs to the terminal strip are NORMALLY OPEN.
- Loop layout shown is for a typical slide gate application with two way traffic or one way exit only traffic. For one way entry only traffic, the open loop and loop detector are not used.
- Reverse loops are wired in SERIES! See detail A.
- Refer to the separate Loop Information Manual (available from DoorKing) for instructions on installing loops or preformed loops.

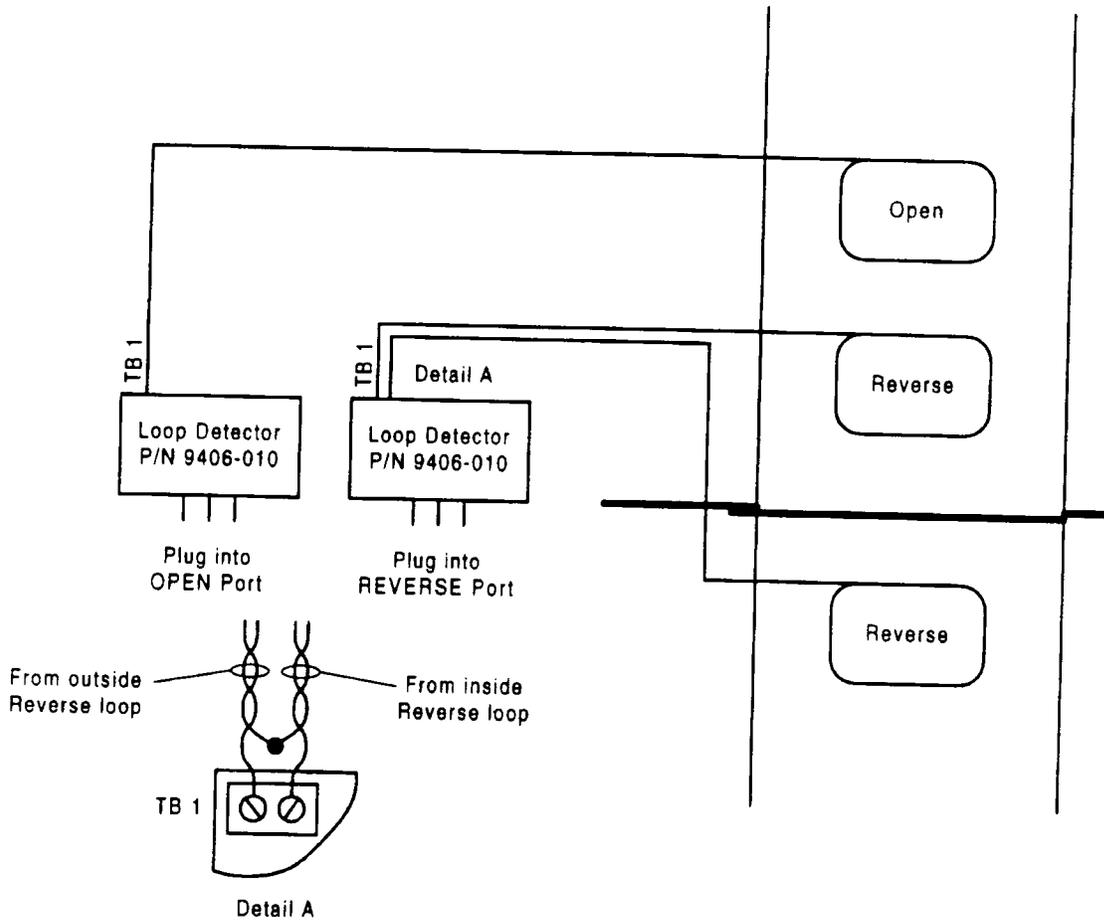


FIGURE 2.4

SECTION 2.5

MAIN TERMINAL IDENTIFICATION AND DESCRIPTION

- 1 EARTH GROUND
- 2 115 VAC NEUTRAL
- 3 115 VAC HOT
- 4 MOTOR WINDING
- 5 MOTOR WINDING
- 6 SOLENOID LOCK POWER
- 7 24 VAC RADIO POWER, 250 MA. MAXIMUM
- 8 FULL OPEN / CLOSE INPUT
When gate is closed, input will open gate to full position.
When gate is open and auto close timer is turned on, input will re-set and hold timer.
When gate is open and auto close timer is turned off, input will close gate.
When gate is closing, input will reverse gate.
- 9 REVERSE INPUT
When gate is fully closed or in the opening cycle, this input has no affect on the gate operator.
When gate is open and auto close timer is turned ON, input will re-set and hold timer.
When gate is open and auto close timer is turned OFF, input will prevent gate from closing.
When gate is closing, input will reverse gate.
- 10 DRY RELAY CONTACT
Operation of relay is dependent on setting of switch 3. When switch 3 is OFF, the relay is activated when the gate is in the full open position. When switch 3 is ON, the relay is activated when the gate is not closed. Relay contacts can be set for Normally Open (NO) or Normally Closed (NC) operation. Contact rating is 1 amp maximum at 24 Volts.
- 11 DRY RELAY CONTACT
- 12 LOW VOLTAGE COMMON

SECTION 2.6

MASTER / SLAVE CONTROL WIRING

The interface wiring between the two operators requires three (3) 18 AWG wires for control, and one (1) 14 AWG wire for ground. Each operator must be connected to its own power source as described in section 2.2.

IMPORTANT!! Plug in loop detectors cannot be used in master / slave applications with these operators. Use external detectors that have a normally open (N.O.) dry contact relay as a signal device.

1. Connect the master / slave wiring (terminals 8, 9 and 12) as shown in figure 2.6. Be sure that power to both operators is OFF. Be sure to ground the operators!
2. Connect the common (C) and normally open (N.O.) relay contacts from the OPEN loop detector to terminals 8 and 12.
3. Connect the common (C) and normally open (N.O.) relay contacts from the REVERSE loop detector to terminals 9 and 12.
4. Connect any other activating device(s) to terminals 8 and 12.
5. Connect any other reversing device(s) to terminals 9 and 12.

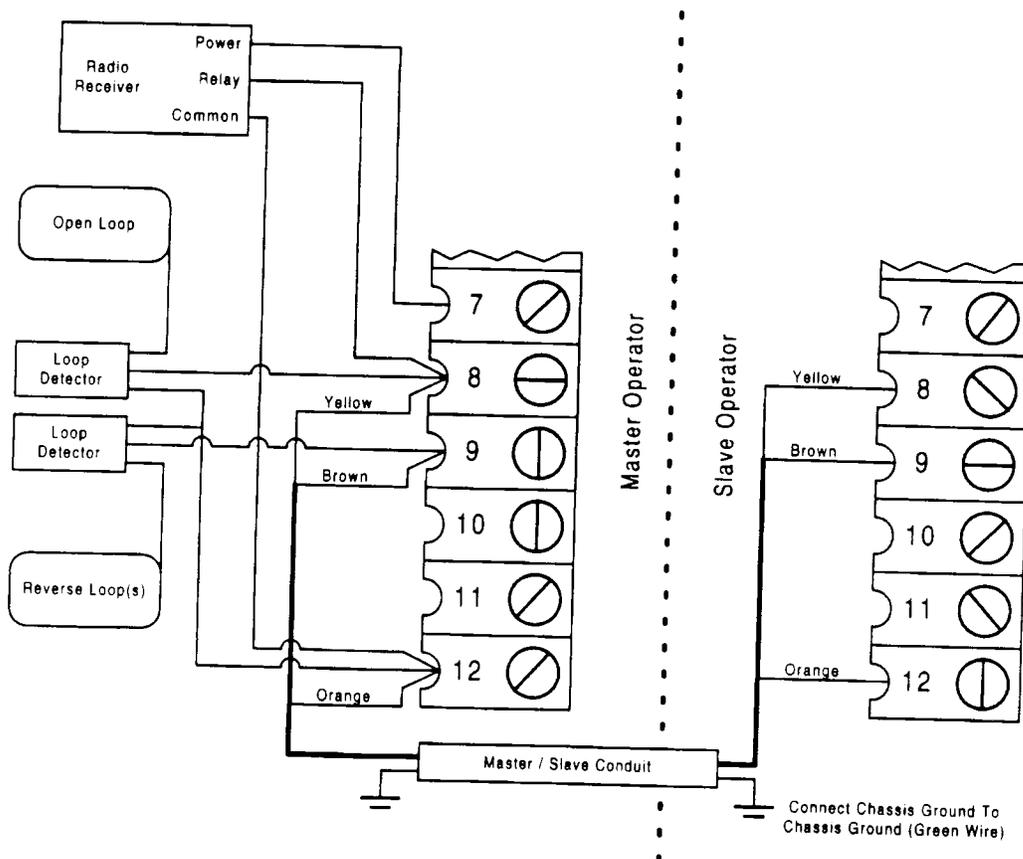


FIGURE 2.6

The switch settings and adjustments in this chapter should be made after your installation and wiring to the operator(s) is complete. Whenever any of the programming switches on the circuit board are changed, power must be shut-off, and then turned back on for the new setting to take effect.

SECTION 3.1

CIRCUIT BOARD ADJUSTMENTS

- Set the DIP switches on the circuit board to the desired setting. See switch setting charts in section 3.2.
- Auto close timer (when turned on) can be set from 1 second (full counter clockwise) to approximately 23 seconds (full clockwise).
- Dry contact relay (terminals 10-11) can be set for Normally Open (NO) or Normally Closed (NC) operation by placing the relay shorting bar on the NO or NC pins respectively.
- Self test jumper must be in normal setting for normal gate operation. Self test feature is for bench test only.
- Power LED indicates that low voltage power is applied to the circuit board. The input LEDs should be OFF and will only illuminate when the input is activated. The pulse LEDs will blink as the operator is running. They can be either ON or OFF when the operator is stopped.

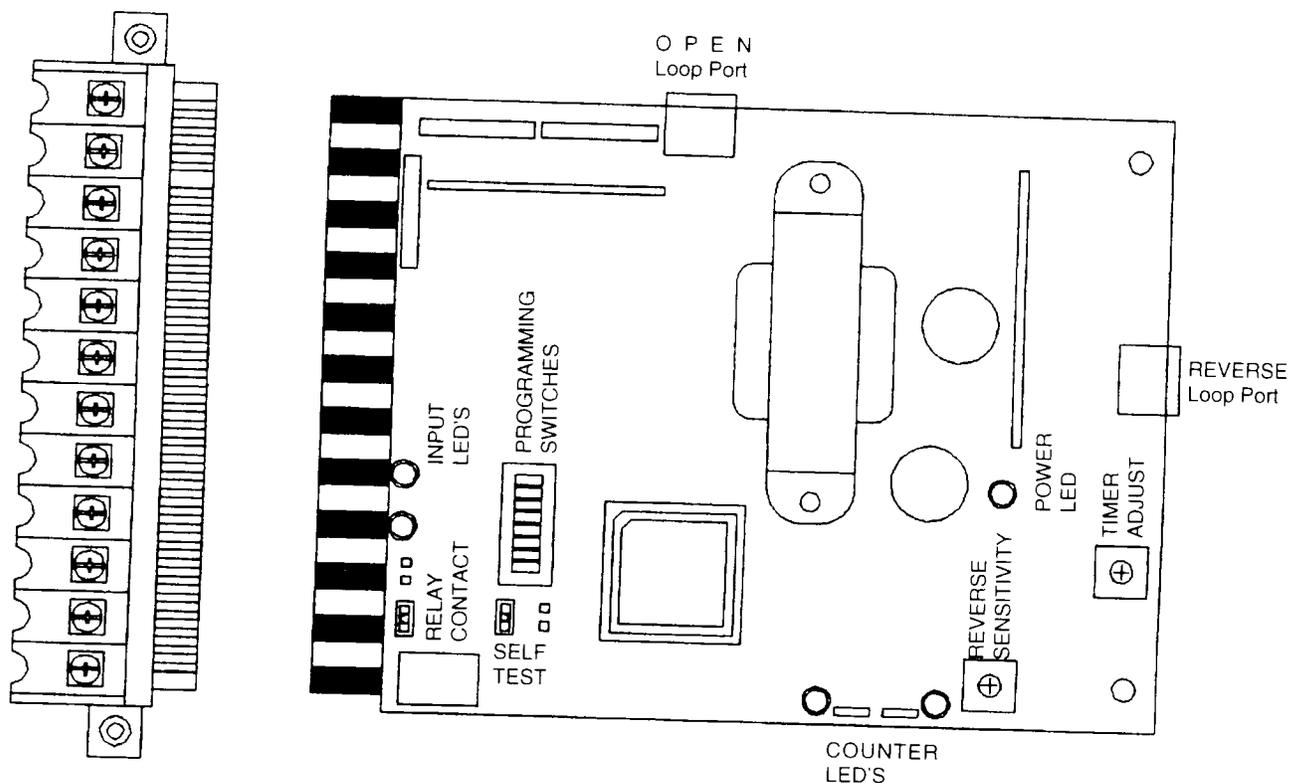


FIGURE 3.1

SECTION 3.2

SWITCH SETTINGS

The two DIP switches located on the circuit board are used to program the operator to operate in various modes and to turn on or off various operating features. Typical switch settings are labeled (Typ). Whenever a switch setting is changed, power must be turned OFF to the operator, and then turned back on for the new setting to take affect. **Check and review ALL switch settings prior to applying power to the operator.**

PROGRAMMING SWITCHES			
Switch	Function	Setting	Description
1	Direction	OFF ON	Changes open / close direction of operator.
2	Auto Close Timer	OFF ON (Typ)	Auto close timer is turned OFF. Manual input required to close gate. Auto close timer is turned ON.
3	Relay	OFF ON	Relay activated when gate is full open. Relay activated when gate is not closed.
4	Solenoid Lock	OFF ON (Typ)	Fail safe. Lock only engages only if attempt is made to force gate open. Fail secure. Lock engages after each cycle.
5 & 6	Open Back Off	Sw 5 Sw 6	Back off 0 inches from full open position (Typ). Back off 1 inch from full open position. Back off 2 inches from full open position. Back off 3 inches from full open position.
		OFF OFF	
		OFF ON	
		ON OFF	
7 & 8	Close Back Off	Sw 7 Sw 8	Back off 0 inches from full close position (Typ). Back off 1 inch from full close position. Back off 2 inches from full close position. Back off 3 inches from full close position.
		OFF OFF	
		OFF ON	
		ON OFF	
		ON ON	

Switch 1: Sets direction of the operator so that the operator cycles open upon initial power up and open command. If the operator begins to cycle close upon initial power up and open command, turn power off and change the setting on this switch.

Switch 2: Turns the auto close timer on or off. Maximum time that the close timer can be set for is 23 seconds.

Switch 3: This switch determines when the relay on the control board will activate. When this switch is OFF, the relay will activate only when the gate reaches the full open position, and will deactivate when the gate begins to close. When this switch is ON, the relay will activate when the gate begins to open, and will remain activated until the gate reaches the full closed position.

Switch 4: This switch determines the operation of the solenoid lock and is factory set. **CAUTION: Do not change the setting of this switch unless the solenoid / lock assembly has been repositioned for the operation desired. Changing the setting of this switch without physically changing the lock assembly will damage the operator.**

Switches 5-6: These work in conjunction with each other and determine if the operator will stop the gate at the full open position, or if the gate should stop 1, 2 or 3 inches short of the full open position.

Switches 7-8: These work in conjunction with each other and determine if the operator will stop the gate at the full closed position, or if the gate should stop 1, 2 or 3 inches short of the full closed position.

SECTION 3.3

INHERENT REVERSE ADJUSTMENT

3.3.1

CLUTCH ADJUSTMENT

The gate must be properly installed and work freely in both directions. A good set of ball bearing wheels (or rollers) is essential for proper slide gate operation. Do not over tighten the clutch in this gate operator to compensate for a damaged or poorly constructed gate, or to compensate for a gate that is too heavy or that has damaged wheels or rollers. Doing this can create an entrapment hazard which can result in serious injury or death to persons who may become entrapped.

1. Set the reverse sensitivity adjustment full counter clockwise (least sensitive position).
2. Be sure power to the operator is turned OFF whenever adjustments to the clutch are being made. Loosen the center hex lock screw to "un-lock" the jamb nut (an allen wrench is provided in the operator), then loosen the jamb nut. You may have to hold the large pulley to loosen this nut.
3. Tighten the jamb nut so that it is finger tight, then tighten it one turn with a wrench. Tighten the center hex lock screw to lock the jamb nut in place.

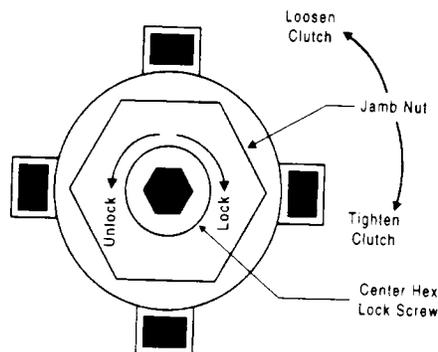


FIGURE 3.3.1

4. Apply power to the gate operator and activate a keying device. If the gate begins to close, turn power OFF and change the direction switch on the circuit board (see limit adjustment section 3.4). When the gate begins to open, determine if the clutch is slipping. If the clutch is slipping, turn power OFF and tighten the jamb nut one more turn as described in step 2. This process may have to be repeated several times to get the right clutch adjustment.
5. After adjusting the clutch so that the gate opens and closes without it slipping, grab hold of the end of the gate while it is in the opening or closing cycle. The clutch should slip with no more than 40 Lbs of force for approximately 1-2 seconds, and then the operator should reverse the direction of travel of the gate. If the clutch does not slip, it is too tight. Repeat step 4 and re-adjust the clutch.
6. The ideal clutch adjustment will allow the operator to move the gate through its entire travel cycle without slipping, but will slip upon contact with an obstruction with no more than 40 Lbs of force. This force can be measured with a gate scale, DoorKing P/N 2600-225.

3.3.2

REVERSE SENSITIVITY ADJUSTMENT

1. Be sure that the clutch has been adjusted as described in 3.3.1.
2. While the gate is running, slowly rotate the reverse sensitivity potentiometer clockwise until the gate reverses travel, then rotate the potentiometer 1/8 turn counter clockwise.
3. Operate the gate a few times to be sure that it cycles completely.

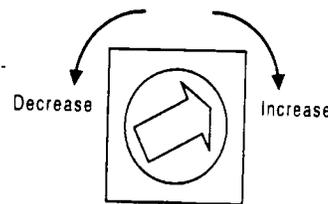


FIGURE 3.3.2

SECTION 3.4

AUTOMATIC LIMIT ADJUSTMENT

This gate operator does not use any limit switches or run timers to adjust the gate open and close positions. The gate open and close positions are determined by the physical stops (or chain stops) of the gate. Each time that power is removed from the operator, the limits are automatically reset upon initial power up and activation of the operator. This is normal operation and should be of no concern to the installer or to the end user.

1. The limit adjustment is automatic and relies on the physical stop of the gate or on the chain stops installed on the chain.
2. Turn power to the operator ON. Activate an open device (or momentarily jumper between terminals 8 and 12). The gate operator should begin to cycle the gate to the OPEN position.
- 2a. If the gate operator begins to cycle the gate to the CLOSED position, turn power to the operator OFF. Change the setting of the direction switch, switch 1.
3. After the gate reaches the full open position, the gate operator will shut off. Activate a keying device to close the gate (or allow the timer to close the gate if it is turned on). When the gate reaches the full closed position, the gate operator will shut off.

NOTE: During this initial setup, be sure that the operator clutch does not slip while the gate is cycling from the full open to the full closed position. If the clutch slips during this period, the limits will be misadjusted.

4. Activate the operator again. The gate will open and stop approximately one foot from the open position, and then will continue to the full open position. Activate a keying device to close the gate (or allow the timer to close it if it is turned on). The gate will close and stop approximately one foot from the full closed position, and then will continue to the full close position.
5. The operator limits and coast settings are now set. Cycle the gate again. The operator should reach the full open and full close positions and then shut off automatically.

SECTION 3.5

INHERENT REVERSE FEATURE

This operator is equipped with an inherent reverse feature that is activated if the gate meets an obstruction in either the opening or closing cycle. This reversing feature is not intended to replace loops, photo eyes, or reverse edges associated with protecting vehicular traffic.

The inherent reverse feature is automatic if the clutch slips prior to the gate reaching the full open or full closed position, or if the output shaft rotation speeds falls below a threshold that is set by the reverse sensitivity. The clutch and reverse sensitivity must be properly adjusted for the inherent reverse system to operate properly (see section 3.3).

In the closing cycle, the operator will reverse the travel of the gate five times in succession. On the sixth cycle, the operator will reverse the gate to the full open position and hold there until another activation is received.

In the opening cycle, the operator will reverse the travel of the gate to the full closed position.

SECTION 3.6

OPERATOR TESTING

Be sure that power to the operator is OFF before making any clutch adjustments, changing any programming switches, or wiring any control devices to the operator.

1. Set the programming selection switches on the circuit board for the desired operation. Anytime the programming switches are changed, power to the operator must be turned OFF, and then turned back ON for the changes to take affect.
2. Be sure the clutch and reverse sensitivity have been adjusted as described in section 3.3.
3. Turn the power ON. The operator should not start. The power LED on the control board should be illuminated. The pulse 1 and pulse 2 LEDs may or may not be illuminated. All input LEDs should be OFF.
4. Operate a keying device. The operator should start and the gate should slide in the open direction. If the gate begins to slide in the close direction, shut power OFF and change the direction switch (see 3.2). Turn power back ON and operate a keying device. The operator should start and the gate should begin to open.
5. Be sure that there are no obstructions in the path of the gate during the first two open and close cycles. The circuit board is measuring the travel and setting the operator limits and any coast adjustments during this initial operation.
6. Operate all keying devices (radio control, key switch, card reader, telephone entry system, digital lock, Fire Department lock box, open loop, etc.) to be sure that they open the gate.
7. Check the operation of the reverse loop(s). While the gate is closing, activation of the reverse loop(s) should reverse the gate to the full open position. If the auto close timer is turned ON, activation of the reverse loop(s) should hold the timer and not allow the gate to close as long as a vehicle is present on the loop(s).
8. Adjust the auto close timer for the desired time that the gate will remain open before automatically closing (1-23 seconds).
9. While the gate is closing or opening, carefully obstruct the gate to verify that the inherent reverse system is functioning and that the clutch is set for adequate pressure. Make adjustments to the clutch if necessary.

Chapter 4

MAINTENANCE, TROUBLE SHOOTING AND ACCESSORIES

Inspection and service of this gate operator by a qualified technician should be performed anytime a malfunction is observed or suspected. High cycle usage may require more frequent service checks.

SECTION 4.1

MAINTENANCE

When servicing the gate operator, always check any external reversing devices (loops, photo eyes, etc.) for proper operation. If external reversing devices cannot be made operable, do not place this operator in service until the malfunction can be identified and corrected.

Always check the inherent reversing system when performing any maintenance. If the inherent reversing system cannot be made operable, remove this operator from service until the cause of the malfunction is identified and corrected. Keeping this operator in service when the inherent reversing system is malfunctioning creates a hazard for persons which can result in serious injury or death should they become entrapped in the gate.

When servicing this gate operator, always turn power OFF!! If the gate system is powered from a battery back-up system, be sure the back-up system switch is in the OFF position.

Maintenance Schedule		Monthly Interval		
		3	6	12
Belt	Check for alignment, tightness and wear.		X	
Chain	Check for sagging. Tighten if necessary.		X	
Clutch	Check for proper slippage when obstruction is encountered.	X		
Fire Dept.	Check emergency vehicle access device for proper operation.	X		
Gate	Inspect gate for damage. Check gate wheels, rollers and guides for wear and grease if necessary.		X	
Grease	Wheels and guide rollers.			X
Inherent Reverse	Check operator inherent reverse system.	X		
Loop(s)	Check reverse loops for proper operation.	X		
Pulleys	Check for alignment. Check set screws.		X	
Release	Check manual release for proper operation.	X		
Complete Check	Complete check of gate and gate operating system.			X

SECTION 4.2

TROUBLE SHOOTING

Have a good VOM meter to check voltages and continuity. A Meg-Ohm meter capable of checking up to 500 megohms of resistance is necessary to properly check the integrity of the ground loops. When a malfunction occurs, isolate the problem to one of three areas: 1) the operator, 2) the loop system, 3) the keying devices. **Use caution when checking high voltage wiring, the motor capacitor and the motor.**

1. Check the input indicator LEDs. They should only come ON when a keying device (card reader, push button, etc.) is activated. If any of the input LEDs are ON continuously, this will cause the gate operator to hold open. Disconnect the keying devices one at a time until the LED goes OFF.
2. A malfunction in a loop or loop detector can cause the gate operator to hold open, or to not detect a vehicle when it is present over the loop. Pull the loop detector circuit boards from the loop ports on the operator circuit board. If the malfunction persists, the problem is not with the loop system. For more information on trouble shooting loops and loop detectors, refer to your loop detector instruction sheet and to the DoorKing Loop and Loop Detector Information Manual.
3. Check to be sure that there are no shorted or open control wires from the keying devices to the gate operator. If a keying device fails to open the gate, momentarily jumper across terminals 4 and 18 on the gate operator circuit board. If the gate operator starts, this indicates that a problem exist with the keying device and not with the gate operator.
4. Check the high voltage supply. A voltage drop on the supply line (usually caused by using too small supply voltage wires) will cause the operator to malfunction. Refer to the wire size chart in section 2.2.

Trouble Shooting	
Symptom	Possible Solution
Operator will not run. Power indicator LED on circuit board is OFF	<ol style="list-style-type: none">1. Check that power to the operator is turned ON.2. Check for 115 VAC at the high voltage terminals. If voltage measures 0, check power supply to operator.3. Check for 115 VAC at control board terminals 2 and 3. If voltage measures 0, check wiring from high voltage terminal strip to control board terminal strip. If voltage measures OK, check terminal strip then replace control board.
Operator will not run. Power indicator LED on circuit board is ON	<ol style="list-style-type: none">1. Momentarily jumper terminal 8 to terminal 12. If input LED does not come ON, check terminal strip or replace control board. If input LED does come on, go to step 2.2. Be sure the chain is not too tight. A too tight chain may cause the operator to stall.3. Turn power switch OFF and remove control board.4. Jumper terminal 3 to terminal 4 (CAUTION-HIGH VOLTAGE) and momentarily turn power ON. Motor should run. Turn power OFF and remove jumper.5. Jumper terminal 3 to terminal 5 (CAUTION-HIGH VOLTAGE) and momentarily turn power ON. Motor should run. Turn power OFF and remove jumper.6. If motor runs in both steps 4 and 5, replace the control board. If motor does not run in step 4 and/or step 5, bad motor, motor capacitor or wiring to motor.

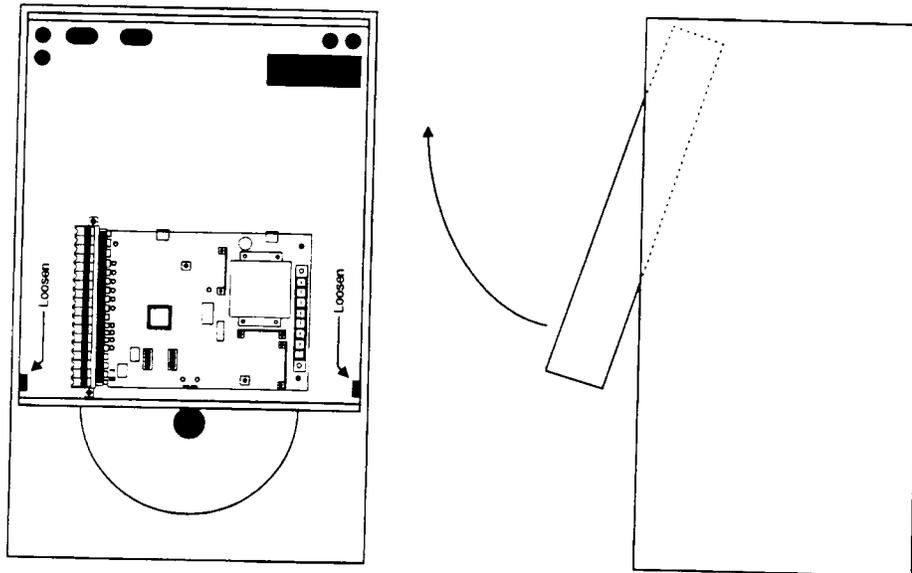
Trouble Shooting	
Symptom	Possible Solution
Gate opens a short distance, then stops and reverses.	<ol style="list-style-type: none"> 1. Check that the clutch is adjusted properly and is not slipping. 2. Check that the chain is not too tight and that the gate operates freely without any binding. 3. Re-adjust the reverse sensitivity. 4. Check the counter LEDs on the control board. They should blink on and off as the gate is moving. If the counter LEDs are not blinking, check that the magnetic pickup transistors are within 1/8 inch of the plastic protective cover above the magnet assembly on the output shaft. 5. Replace the board.
Gate opens but will not close.	<ol style="list-style-type: none"> 1. Check the input LEDs. Any ON will hold the gate open and indicates a problem with the keying device. 2. Check the call LEDs on the loop detector boards. Any ON will hold the gate open and indicates a problem with the loop or loop detector. 3. If automatic close is desired, check that switch 2 is ON. 4. Go to symptom 2 on preceding page to check motor. 5. Replace circuit board.
Gate closes but will not open.	<ol style="list-style-type: none"> 1. Check to be sure gate operator is running in correct direction. Turn power OFF and then back ON. Activate a keying device. Operator should run open. If operator runs closed, turn power OFF and change direction switch. 2. Check the input LEDs. If LED lights, but gate does not open, check the terminal strip for good connection to circuit board. 3. Go to symptom 2 on preceding page to check motor. 4. Replace circuit board.
Gate starts to close, then reverses to open.	<ol style="list-style-type: none"> 1. Check the gate at the point of reversal to be sure that it is not binding on anything. 2. Check that the clutch is adjusted properly and is not slipping. 3. Re-adjust the reverse sensitivity. 4. Check input and loop detector LEDs. Any that flash ON will cause gate to reverse travel. 5. Check the COUNTER LEDs on the circuit board. 6. Replace the circuit board.
Gate closes, then re-opens.	<ol style="list-style-type: none"> 1. Check for any input or loop detector LEDs that are ON. 2. Check that operator is traveling in proper direction (third symptom above). 3. Turn power off, then back on and reset the operator limits (section 3.4).
Solenoid lock is not working.	<ol style="list-style-type: none"> 1. If operator was order as FAIL-SECURE, check switch 4. If operator was ordered as FAIL-SAFE, proceed to step 2. 2. Turn power OFF and remove control board. 3. Place a jumper wire from terminal 3 to terminal 6. 4. Momentarily turn power on. If solenoid does not activate, replace solenoid. If solenoid activates, replace control board.

Trouble Shooting	
Symptom	Possible Solution
Loop detector LED is on continuously.	<ol style="list-style-type: none"> 1. Activate the reset switch on the loop detector. 2. Decrease loop detector sensitivity. 3. Check loop wire for resistance to ground with a meg-ohm meter. Resistance should be 100 megohms or greater. If less than 75 megohms, replace the loop wire. 4. Be sure that the lead-in wire from the loop is twisted at least six turns per foot. 5. If there are any connections in the loop wire, they must be soldered. 6. Replace the loop detector board.
Loop detector LED never activates - loop never detects vehicles.	<ol style="list-style-type: none"> 1. Increase loop detector sensitivity. 2. Move the loop detector to the other loop port on the control board. If loop detector operates normally, replace the control board. If loop detector still fails, proceed to step 3. 3. Check continuity of loop wire. Resistance should be 0 ohms. If continuity check indicates anything other than 0 ohms, check to be sure that all connections are soldered. 4. Replace the loop wire. 5. If continuity of loop checks OK, replace the loop detector.
Loop detectors operate intermittently.	<ol style="list-style-type: none"> 1. Check for loops in close proximity to each other. be sure different loop detectors are set to operate at different frequencies. 2. Reset loop sensitivity.

MOTOR / BELT ACCESS

To gain access to the inside of the gate operator, loosen the two bolts on each side of the electrical panel at the bottom. The entire panel can then swing up for easy access into the operator.

CAUTION!! Be sure power is OFF before accessing the inside of the operator. Be sure that the electrical panel is secured in the up position - it will not stay in this position by itself.



SECTION 4.3

ACCESSORIES

The following accessory items are available for the model 905 / 907 slide gate operators.

Loop Detector	Detectors plug directly into ports on circuit board simplifying wiring. P/N 9405-010 - Single channel detector P/N 9406-010 - Two channel detector
Reverse Edge	Reverse edges can be used as a secondary entrapment protection system. 5 foot edge includes mounting bracket for mounting on 2 x 2 inch frame. P/N 8080-015.
Photo Cell	Photo cells can be used as a secondary entrapment protection system. P/N 8080-018
Time Clock	7 day and 365 day time clocks can be used to automatically open gate at pre-set time and days. Compact clock fits inside the operator. P/N 2600-791 - 7 day clock P/N 2600-795 - 365 day clock
Surge Devices	High and low voltage surge suppressers help prevent circuit board failure caused by lightning strikes and power surges. P/N 1876-010 - High Voltage P/N 1878-010 - Low Voltage
Gate Scale	Use to test torque required to move gate. P/N 2600-225
Speed Bumps	Prefabricated six foot speed bump reduces traffic speed through gate system. P/N 1610-150
Endless Idler	Use when gate operator is rear or center mounted. P/N 2600-818
Base Plate	Required if operator is to be post mounted. P/N 2600-418
Nickel Chain	Nickel plated chain. P/N 2600-443 (10 ft. #41), P/N 2600-444 (10 ft. #40)
Stainless Chain	Stainless steel chain. P/N 2600-475 (20 ft. #41)

