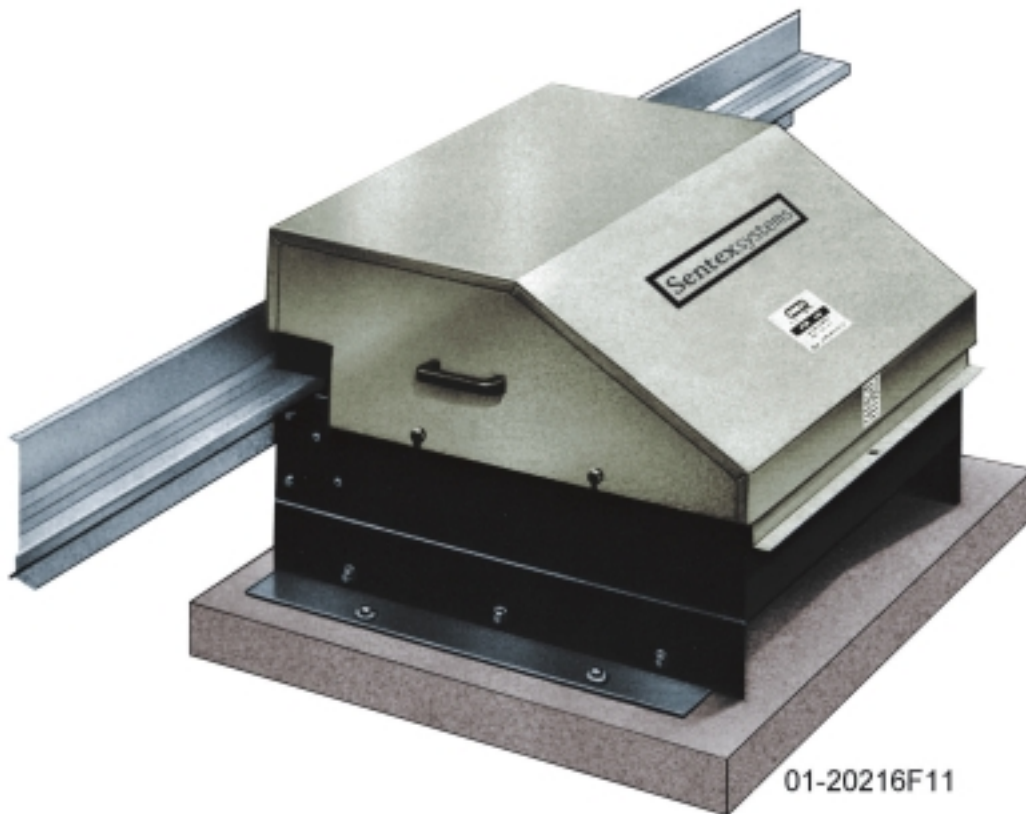


Installation Instructions



**Hydraulic Models: HS670-100-S1
 HS670-200-S1**

Vehicular Slide Gate Operator

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General Information

Supplied Parts



Inspect the operator for any possible shipping damage and any shortage of parts. Please note that if accessories were ordered with this unit, some may be packed separately.

* Install **Gate Warning Plates** on both sides of the gate where they can be easily seen.



** **Do not** run operator without vent cap installed.

Part Description	Qty.
1/4 -20 Bolt	4
1/4 Lockwasher	4
1/4 -20 Hex Nut	4
10-24 Screw	4
10 Lockwasher	4
10-24 Hex Nut	4
Limit Shoe	2
Gate Warning Plate *	2
Gate Safety Flyer	1
Vent Cap **	1

Table 1

Specifications

	MODEL HS670-100-S1	MODEL HS670-200-S1
Horsepower	1 H.P.	2 H.P.
Pump P.S.I.	600	1500
Gate Size & Weight	Designed For Most Lengths & Weights of Slide Gates	
Frequency of Use	Designed for High Cycle Rates	
Primary Voltages	120-230-460 1Ø & 3Ø	230-460 3Ø Only
Secondary Voltages	24 Vac/12 Vac	24 Vac/12 Vac

Table 2

Dimensional Outline

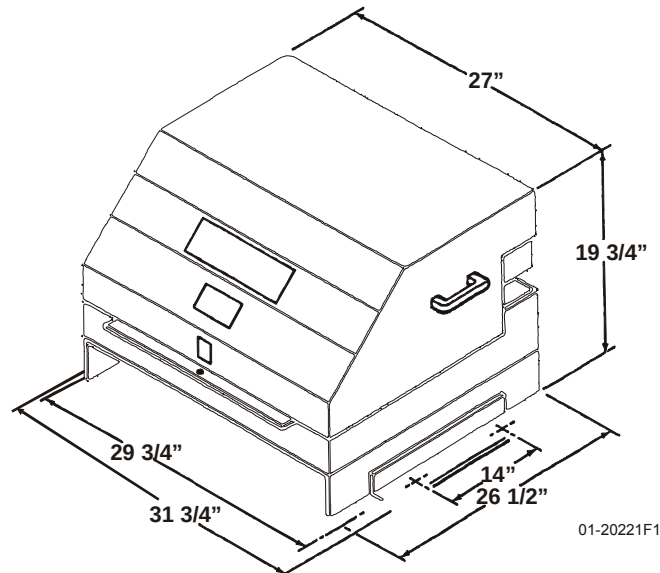


Figure 1

Safety Information

Vehicular gate systems provide convenience and security. Gate systems are comprised of many component parts. The gate operator is only one component. Each gate system is specifically designed for an individual application.

Gate operating system designers, installers and users must take into account the possible hazards associated with each individual application. Improperly designed, installed or maintained systems can create risks for the user as well as the bystander. Gate systems design and installation must reduce public exposure to potential hazards.

A gate operator can create high levels of force, in its function as a component part of a gate system. Therefore, safety features must be incorporated into every design. Specific safety features include:

- Gate Edges
- Enclosed Track
- Vertical Posts
- Guards for exposed rollers
- Photo-electric Sensors
- Instructional and Precautionary Signage
- Screen Mesh

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

Safety Instructions



Select instructions are highlighted with this precautionary symbol (see left margin). Failure to follow these selected instructions can result in serious injury or death.

STEP 1: BEFORE INSTALLATION

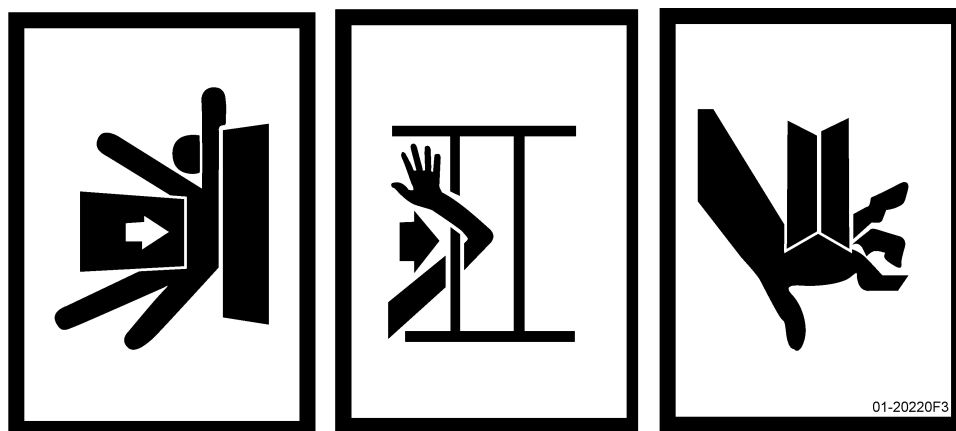
- 1 Confirm gate operator model is specified by Installation and Maintenance Manual for application type, gate size and frequency or use.
-  2 Confirm ALL appropriate safety features, such as gate edges, photo-electric sensors, vertical posts and enclosed tracks, are specified.
-  3 Confirm gate system design reduces pinch points and protects against entrapment.
- 4 Confirm gate system design has pedestrian access separate from vehicular entrance.
- 5 Confirm gate system design reduces traffic backup.
- 6 Confirm warning signage is included in design.
- 7 Confirm gate moves freely before installation of operator
- 8 Repair or service worn or damaged gate hardware before installation of operator.
- 9 To avoid installation hazards, review the gate system operation and installation procedures, such as manual disconnect mechanism procedure.
- 10 Confirm control design prohibits unauthorized use.

STEP 2: DURING INSTALLATION

-  1 Disconnect power at service panel before making any electrical connection.
-  2 Avoid pinch points, be aware of all moving parts.
-  3 Adjust clutch or load sensing device to minimum force setting.
-  4 Do not over-tighten clutch or adjust force setting above minimum.
-  5 Install controls where user cannot touch gate while operating controls.
- 6 Install controls where user has full view of gate operation.
- 7 Install two or more warning signs on the gate to alert persons in the area of automatic gate operation. Warning signs must be conspicuous.
- 8 Install operator inside fence line. **Do not** install operator on public side of fence line.
- 9 Secure gate operator cover.

STEP 3: AFTER INSTALLATION

-  1 Test all safety features.
- 2 Train end user about basic functions and safety features of gate system.
- 3 Leave Installation and Maintenance Manual and Safety Instructions with end user.





Safety Precautions for Open-Roller Gates and Ornamental “Grill Type” Gates

OPEN-ROLLER GATES

Injuries occur when people get their or feet caught between the top or bottom of the gate and the gate roller. This potential pinch-point should be guarded against at all times. Enclosed style gate tracks are available for refitting of these rollers from many fence suppliers. Also, roller guards are available for installing over the rollers.

One or more contact sensors shall be located at the leading edge, trailing edge, and post-mounted both inside and outside of a vehicular horizontal slide gate.

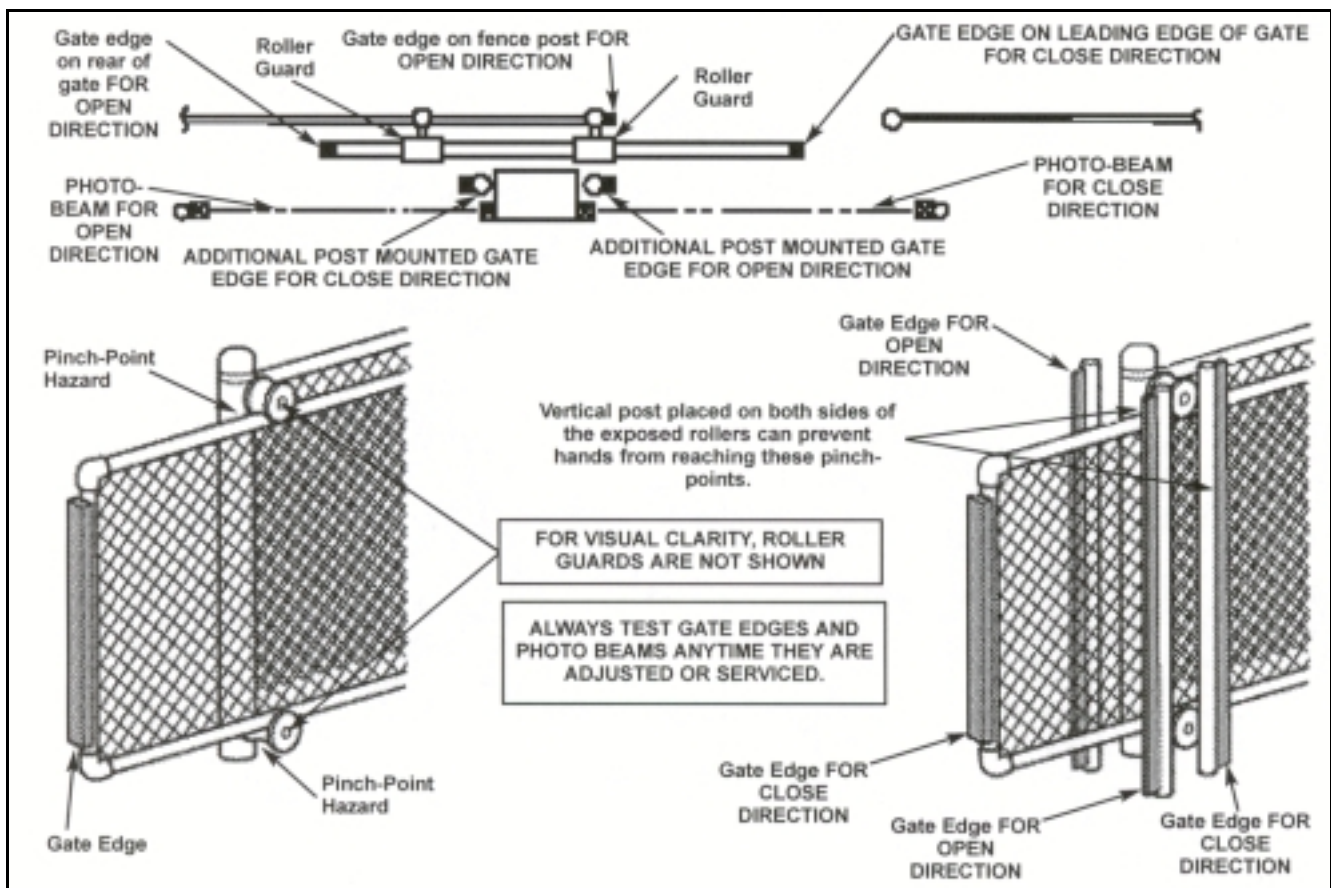
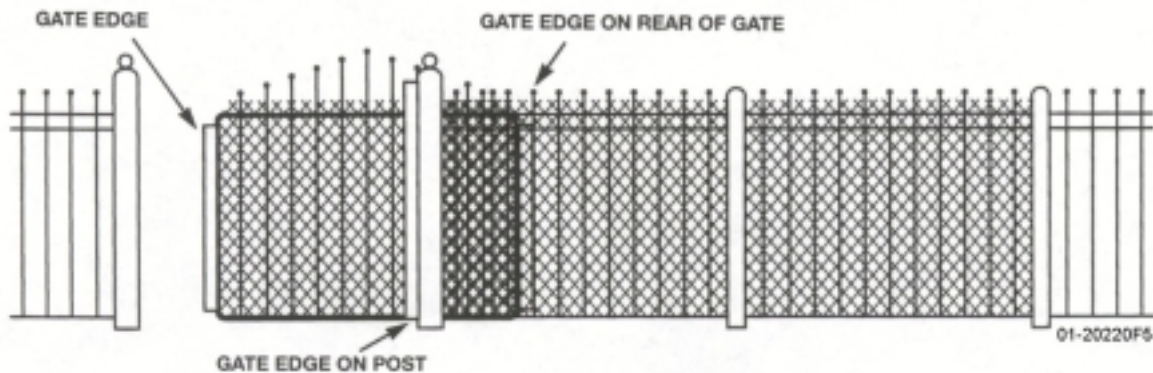


Figure 2

ORNAMENTAL “GRILL TYPE” GATES

Injuries occur when people put their hands and arms through openings in the grill and the gate is operated. They cannot retract their arms and it gets caught between the moving gate grill and the stationary fence post or fence. This potential hazard can be averted by placing a screen mesh on the gate to prevent access through openings anywhere the gate may travel.

**Figure 3**

Pre-Installation Check-List

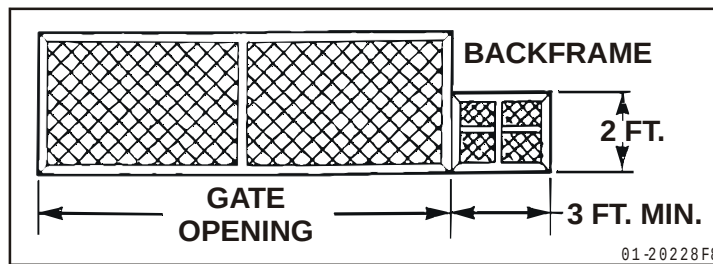


Figure 4

- Φ Check the gate. It **must** operate smoothly and freely. If necessary, lubricate, adjust or repair the gate prior to operator installation. The gate **must** be level and plumb.
- Φ Some gates may only be as wide as the gate opening. They may require a backframe to be constructed to allow for chain attachments See Figure 4.
- Φ Double check the size and weight of the gate to make sure that this operator is proper for this application.
- Φ If wiring has already been installed, check to make sure it meets the following specifications and requirements.

Wiring Specifications

- A. The distances shown are measured in feed from the operator to the power source.
- B. These calculations are based on the National Electrical Code and allows for a 5% voltage drop.
- C. Supply voltage must be within 10% of the operator's rating under load conditions.
- D. These calculations are based on stranded copper wire.
- E. It is highly recommended that only 90% of the distances shown be used; this will allow for a 10% safety factor.
- F. For dual units, the distance shown should be cut in half.
- G. When wire larger than 12 gauge is used, a separate junction box will be required for operator power connections (not supplied).
- H. All local codes must be strictly adhered to.
- I. Do not run control wires in the same conduit with power wires.
- J. Do not run parallel conductor cable for controls.

POWER WIRING

THREE PHASE MAX. DIST. (FT.)			
VOLT. H.P.	SINGLE UNIT	DUAL UNIT	WIRE GAUGE
230 1HP	343	171	12
	546	273	10
	868	434	8
	1381	690	6
460 1HP	1593	796	12
	2533	1266	10
	4029	2014	8
	6407	3203	6
230 2HP	181	90	12
	289	144	10
	459	229	8
	731	365	6
460 2HP	796	398	12
	1266	633	10
	2014	1007	8
	3203	1601	6

Table 3

SINGLE PHASE MAX. DIST. (FT.)			
VOLT H.P.	SINGLE UNIT	DUAL UNIT	WIRE GAUGE
115 HP	56	28	12
	89	44	10
	143	71	8
	227	113	6
230 1HP	226	113	12
	359	113	10
	572	179	8
	909	286	6

Table 4**CONTROL WIRING**

DIST./FT.	WIRE GAUGE
800	18
1200	16
2000	14

Table 5

FORMULA
$$L = \frac{(V) \times (D)}{(2K) \times (I)}$$

L = Max. one way dist.

V = Voltage Drop (5%)

D = Cross Section area of conductor (cir.mil.)

K= Resistivity of conductor (24)

I = Motor F.L.A. (NEMA suggested)

WIRE GAUGE	DIAMETER	OHMS/1000FT.
16	1/20"	4 Ω
14	1/16"	2.5 Ω
12	1/12"	1.6 Ω
10	1/10"	1 Ω
8	1/8"	.6 Ω

Table 6

Operator Features

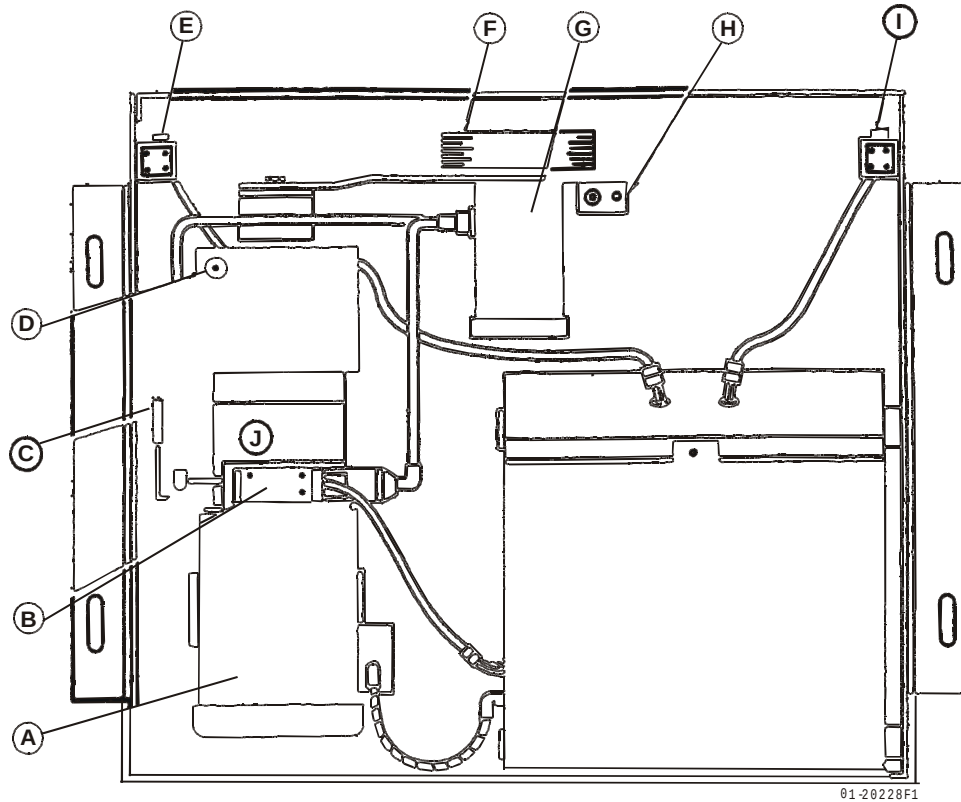


Figure 5

A. MOTOR 1 AND 2 H.P.

The motors used in the HS670-100 and HS670-200 are T.E.F.C. (totally enclosed, fan cooled) 3450 R.P.M. They incorporate a built-in manual reset thermal overload.

B. DIRECTIONAL VALVE

3 position, 4 way. It incorporates 2 solenoids which are 24 Vdc. Rectified from 24 Vac.

C. BYPASS VALVE

Incorporates a handle at side of pump. When positioned downward, it will allow manual operation of the gate.

D. VENT CAP

When removed, you may add ATF Transmission fluid. **Must** be on during operator operation.

E. LIMIT SWITCH

Oiltight and watertight. Nema 3, 4, & 13 construction. Open switch for right hand, close switch for left hand.

F. DRIVE WHEELS

Polyurethane material on a steel or aluminum hub. HS670-100 = 1 - 1/2" wide 6" dia. HS670-200 = 2" wide 6" dia.

G. HYDRAULIC MOTOR

Roller vane, free wheeling type with a displacement of 12 in./3.

H. SUSPENSION SYSTEM

Incorporates two compression springs. See also page 19.

I. LIMIT SWITCH

Close switch for right hand and open switch for left hand.

J. RELIEF VALVE

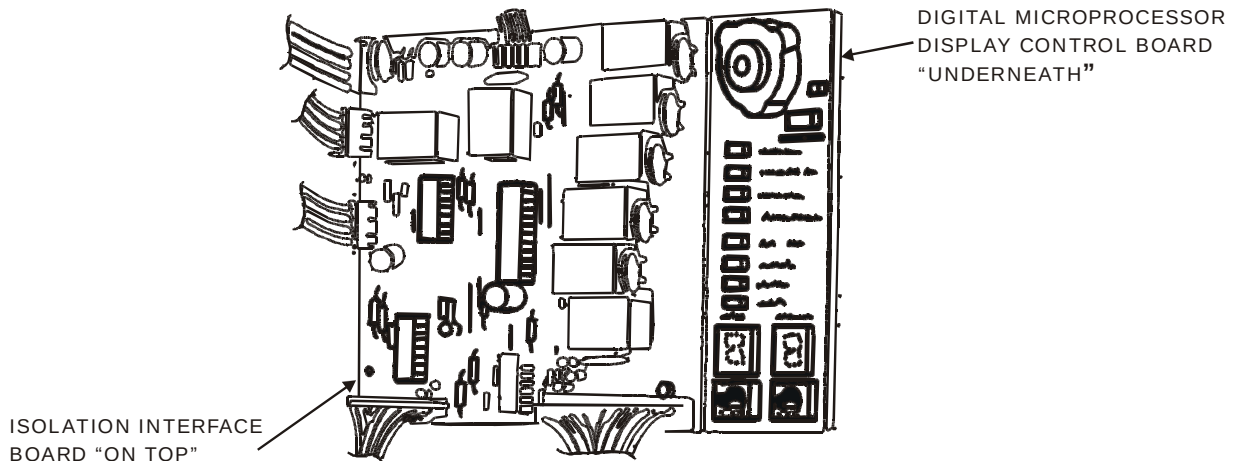
Built into pump. Set at 600 p.s.i. for HS670-100 and 1500 p.s.i. for HS670-200.

DIGITAL MICROPROCESSOR DISPLAY CONTROL BOARD

This is the main circuit board for the gate system (see Figure 5). It contains all the logic and intelligence for the system. It is isolated from voltage spikes and surges by the isolation interface board and also by an isolation transformer. This board contains all the LED's and the programming buttons and display.

ISOLATION INTERFACE BOARD

This circuit board (see Figure 5) protects the digital microprocessor display control board. All the inputs and outputs go through this board. This board contains all the relays that send and receive signals that are processed by the digital control board.



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Figure 5

MAXIMUM RUN SHUT OFF CIRCUIT

This is a self learning circuit. It will take the average amount of time between the opening cycle and the closing cycle and add 10 seconds to it. If this time should be reached during operation, then this circuit will shut off the operator.

REVERSAL DELAY CIRCUIT

Built in sounder will activate four seconds prior to and during gate movement. Sound level is adjustable. Four second delay is programmable.



NOTE: The four second delay is programmable. See program information.

MID OPEN CIRCUIT

When a control device is wired into this circuit, it will open the gate to a position slightly greater than $\frac{1}{2}$ way from the full closed position or if gate is less than $\frac{1}{2}$ way open. If gate should be more than $\frac{1}{2}$ way open, then the control device will open the gate to the full open position. If the time delay to close is enabled, the operator will automatically close from the "mid-open" position.

VEHICLE REVERSE CIRCUIT

If this circuit is energized while gate is closing, gate will stop and reverse to full open position. If energized while gate is at the full open or stopped between limits, it will not allow the gate to be closed.

VEHICAL OPEN CIRCUIT

A device connected to this circuit will only open the gate. If gate is closing, it will cause the gate to stop and reverse to the full open position.

EXTERNAL WARNING CIRCUITS

Many different types of signaling systems can be connected to the operator to act as external warnings. See the electrical diagram supplied with operator for more information.

THREE BUTTON CONTROL CIRCUIT

Sequence of operation is, open/stop/close. Stop will override all other functions. If closing, open will cause operator to stop and reverse to full open. If opening, close will cause operator to stop and reverse to full close position.

ONE BUTTON CONTROL CIRCUIT

Sequence of operation – open, stop, close, stop. If power has been interrupted, will always open with first activation.

Programmable Features

PROGRAM 1 (R.H./L.H.)

Will automatically set up motor rotation, limit switch functions and directional logic for the operator.

PROGRAM 2 (MASTER/SLAVE)

Will set up two (2) operators to act as one, using common controls.

**PROGRAM 3 (4 SECOND DELAY)**

This program will allow you to enable or disable the 4 sec. delay before the gate begins its open or close direction. See the Warning on page 14.

**PROGRAM 4 (OBSTRUCTION SENSING CLOSE)**

Will determine the response the operator will make when the gate meets an obstruction while closing.

**PROGRAM 5 (OBSTRUCTION SENSING OPEN)**

Will determine the response the operator will make when the gate meets an obstruction while opening.

**PROGRAM 6 (EXTERNAL REVERSE DEVICE)**

Will program the system to accept either a normally open or normally closed contact type external obstruction sensing device.

PROGRAM 7 & 8 (TIME DELAY TO CLOSE)

These two independent programs will allow the gate to automatically close from the full open or mid open position after a programmed amount of time.

PROGRAM 9 (GATE LOCK)

This program will allow the use of different types of gate locks to be used with the system.

Led Descriptions

Color	Name	Description
Green	Program	"ON" when in program mode, "OFF" when in operational mode.
Red	External Reverse	"ON" when an external reverse device was activate, "OFF" with next input.
Red	Maximum Run	"ON" when maximum run circuit shut operator off, "OFF" with next input.
Red	N/A	
Red	Right Hand/Left Hand	"ON" when operator is programmed R.H., "OFF" when operator is programmed L.H., "BLINKS" when operator has not been programmed for either.
Red	Gate Closing	"ON" anytime sounder is activated prior to and during closing.
Red	Gate Opening	"ON" anytime sounder is activated prior to and during opening.
Red	Power	"ON" when operator electric power is on. "OFF" when the operator has no power. "BLINKS" when the control voltage of the operator drops below 18 VAC, or if power was lost then restored.

Table 7



NOTES: Program 2 (Master/Slave)

- If for some reason both operators must be handed the same (both R.H. or L.H.). Then both operators must be programmed as SLAVES. All controls will be connected to either operator. You will still need the three (3) wire interconnect between the two operators.
- Please be aware that these operators are transmitting data through the master/slave interconnection. It is very similar to a RS232 connection. It is **very important** that these three wires be shielded from any and all power wires and positioned far away from power lines or conduits. If the mater/slave interconnection receives any type of voltage interference or noise, neither of the two operators will function properly.



WARNING

It is **very important** that the four second delay be enabled for most applications. The only situations where the delay would be disabled is for extreme security installations where the need for the gate to immediately open or close is required.



IMPORTANT NOTE: The time delay to close feature will NOT activate if the gate was reversed to open by either of the external obstruction circuits, (ref. adoptions 6 & 7 on wiring diagram). The operator will require a manual signal to close the gate. The time delay to close will function normally after the manual signal.

Installation

INSTALLATION NOTES

- Installation shown is for a right-handed unit (on right side of gate opening when inside looking out). Left-handed is opposite.
- If there is existing concrete at area of unit mounting, use dimensioning procedure described in step 1. You may need to modify any conduit locations to suit your application.

Step 1: Concrete Pad

- 1 Layout concrete pad as detailed.
- 2 Locate conduit, as required, prior to pouring concrete.
- 3 Pour concrete, insuring that pad is level and above the ground line. Pad must be a minimum of 24 inches in depth or below the frost line, whichever is greater.
- 4 Allow concrete to set at lease 2 days before installing unit.
- 5 Locate four (4) ½" threaded anchors (not supplied) or other means of fastening as shown. Anchors must be positioned accurately and be secure in the concrete.



NOTES

- Always use separate conduits for power wiring and control wiring.
- For detailed information on the emergency disconnect system, see instructions supplied with it.
- This is only a suggested layout, other pad layouts are possible.
- You may want to install extra conduit for future wiring considerations.

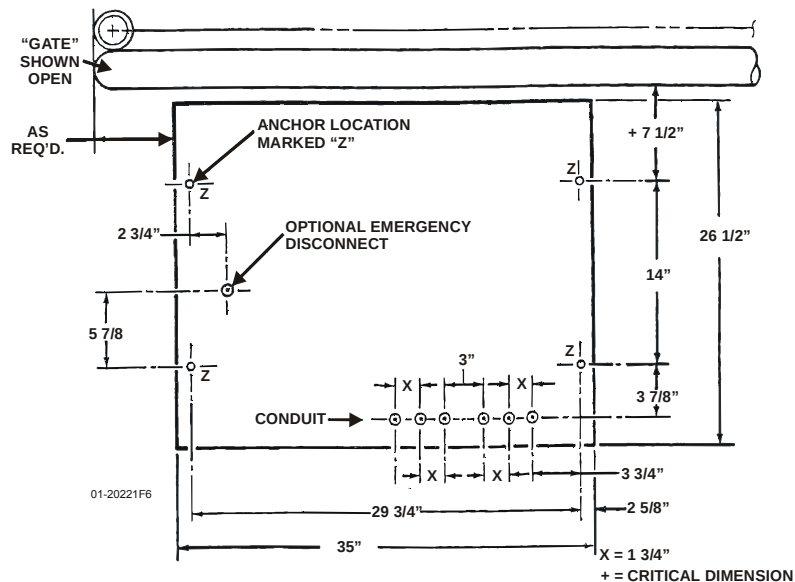


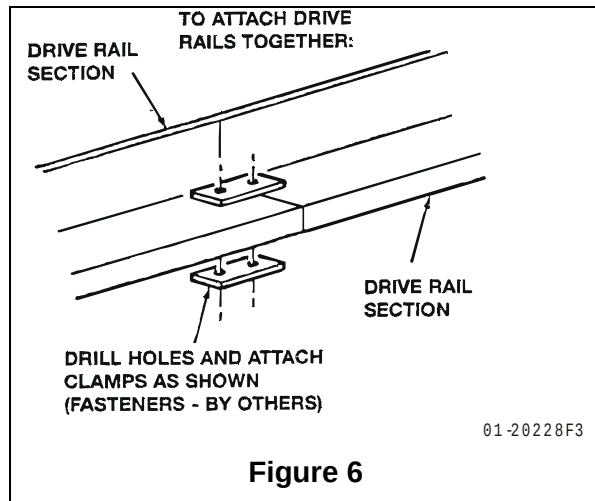
Figure 7

Step 2: Drive Rail

Important: The drive should be:

- Level and parallel to the gate and operator.
- As close as possible to the 11-1/2" dimension.
- Very securely mounted to the gate and backframe.

The length of the drive rail should be the gate opening width plus 2 to 3 feet.



Step 3: Operator Mounting

- 1 Remove the outer cover from the operator.
- 2 Carefully secure the concrete pad with the drive wheels facing the gate.

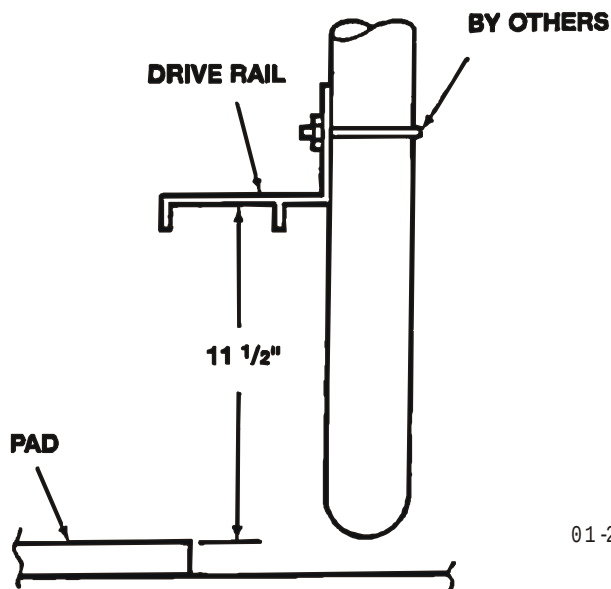


IMPORTANT NOTE: The operator **must** be lever the parallel with the gate and drive rail. By loosening the bolts securing the mounting logs to the unit, the operator can be slightly adjusted up or down. Retighten bolts.



CAUTION

Make sure that the drive rail and wheels are aligned properly (see Figure 8).



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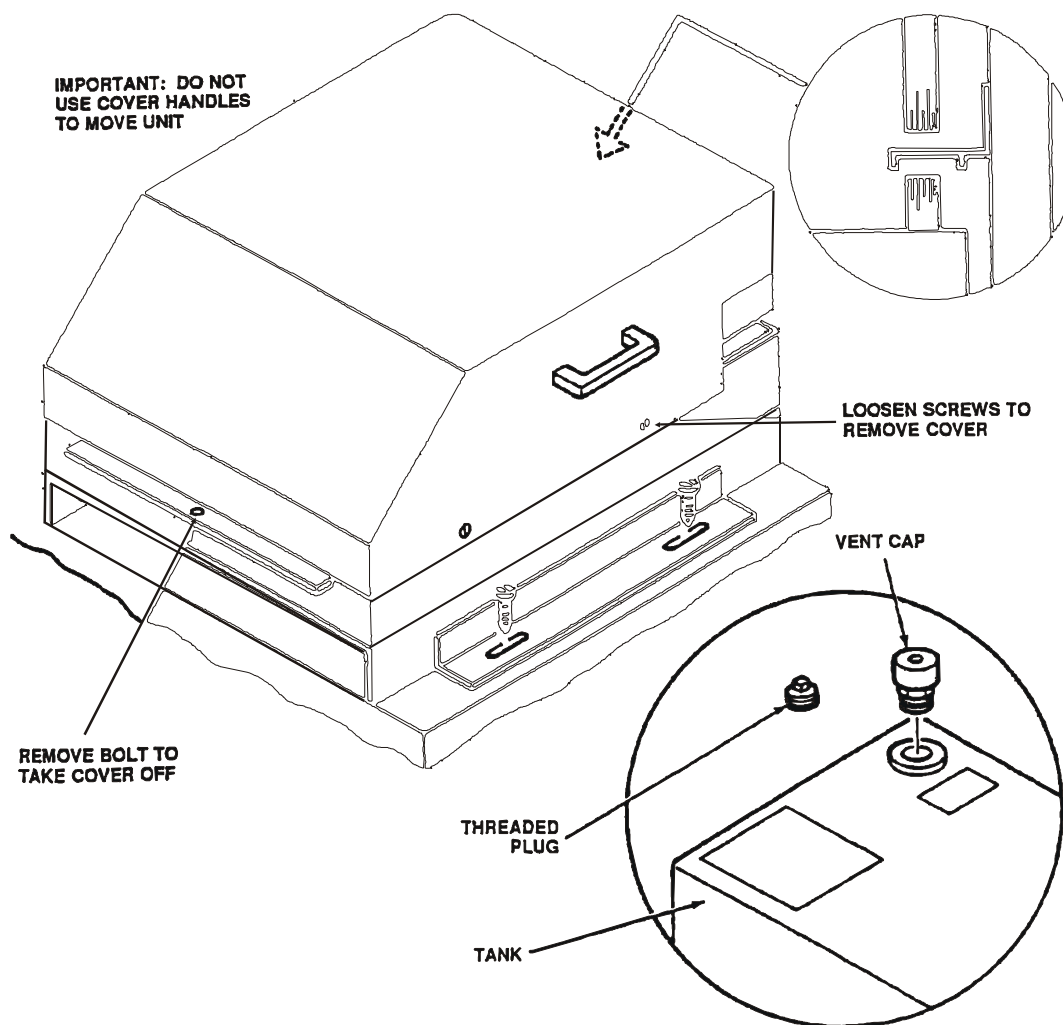
Figure 7

Step 4: Vent Cap

Remove the threaded plug from the pump tank and install the vent cap in its place.



IMPORTANT NOTE Never run the operator without the vent cap in place.



01-20221F8

Figure 8

Step 5: Limit Shoes

- 1 Manually open the gate to the full open position.
- 2 Locate the open limit switch lever and mark its position on the drive rail.
- 3 Manually close the gate to the full close position.
- 4 Locate the close limit switch lever and mark its position on the drive rail.
- 5 Manually open the gate about halfway. Per drawings below, measure and drill holes. Mount both limit shoes to underside of drive rail.

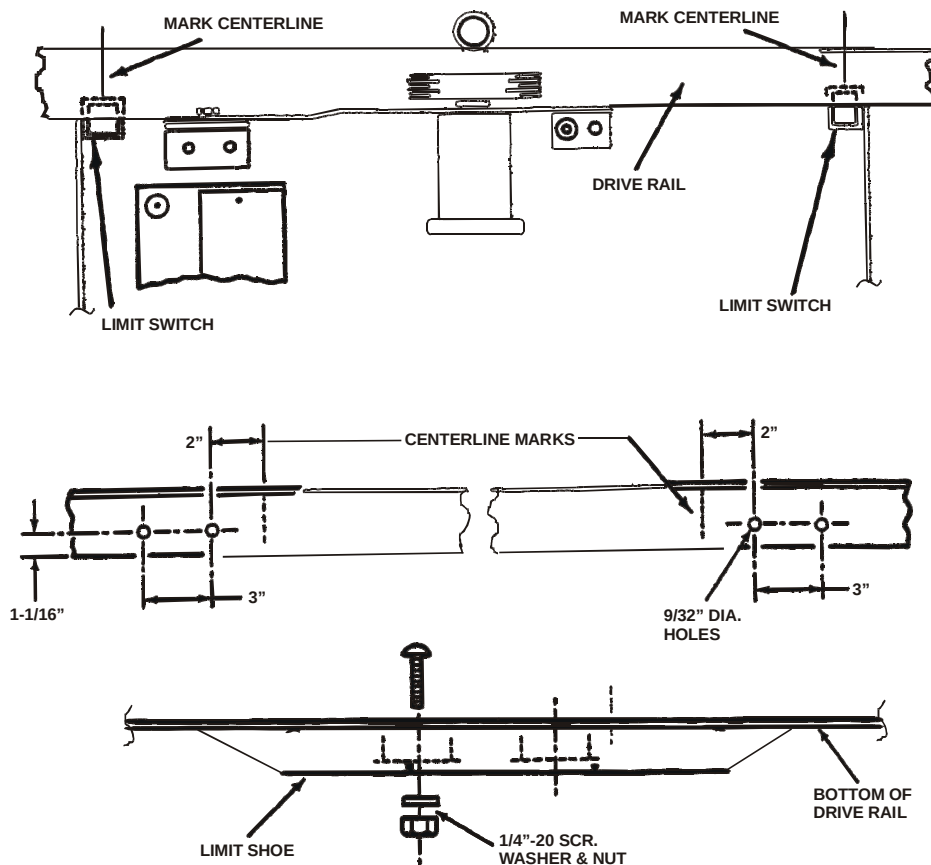


IMPORTANT NOTES

The limit shoes are slotted, so minor adjustments may be made later for fine tuning of the full open and close positions. Also, note that the limit switches themselves may be slightly adjusted up or down.

It is highly suggested that gate stops be installed to the gate at the full open and closed positions.

Due to the fact that this unit has no brake, there will be some gate coasting and, depending on gate weight, it could be considerable, so it might drift past the limits.



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Figure 11

Step 6: Suspension System

The suspension system is semi-factory set; simply loosen the suspension separator bolt completely. This will allow both wheels to pinch the drive rail.



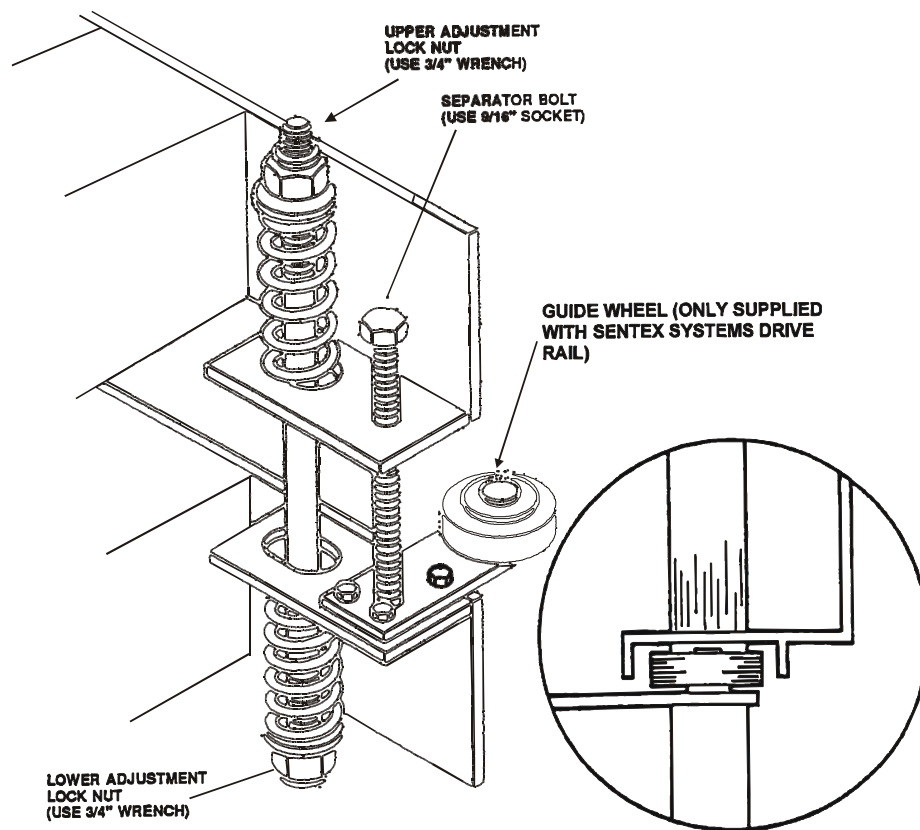
NOTE: It is suggested that the separator bolt be removed and left with unit. If it is not removed, make sure that it can not interfere with suspension system.

If more or less pressure is required, adjust both upper and lower suspension spring lock nuts as desired.



IMPORTANT NOTES

- Both springs should apply about the same amount of pressure.
- If using the LiftMaster drive rail, make sure that the drive rail guide wheel is positioned properly. See Figure 9.
- **Important:** Adjust the suspension system properly. This system puts pressure on the drive wheels so they can pinch together on the drive rail. This system also allows the drive wheels to “float” so the can follow any slight misalignment of the drive rail. If the springs are over tightened, it will reduce their life span. But, on the other hand, if they are under tightened, the drive wheels may slip on the drive rail.



01-20221F10

Figure 9

Step 7: Power Wire Connections



CAUTION

Make sure power is disconnected at main power supply and at power disconnect switch on the unit before proceeding.

- 1 Secure all electrical power connections to the power wiring terminal strip. Single phase to L1, L2 and GROUND. Three phase to L1, L2, L3 and GROUND.
- 2 Connect all controls to the control wiring terminal strip. Refer to the electrical diagram supplied with the unit.



IMPORTANT NOTE: On three-phase units, when unit is first run, if you can hear the pump running by the gate does not move:

- Make sure the manual bypass valve is in the automatic operation position.
- If the bypass valve is OK, disconnect the main power supply and reverse any two wire connections at the power terminal strip.

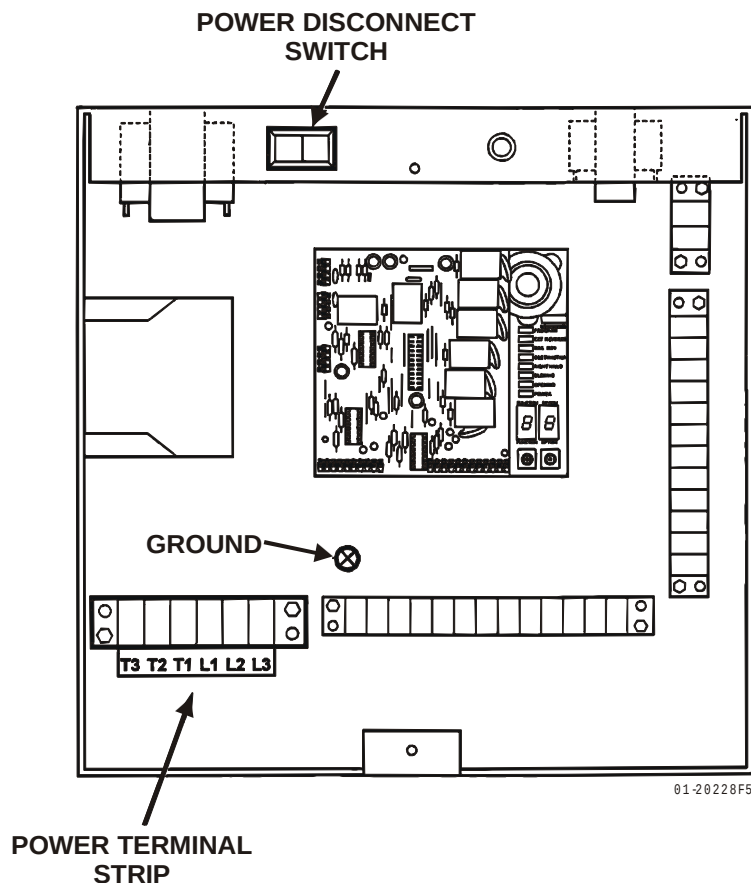


Figure 10

Do not operator until instructed! Operator must be programmed before operation.

MANUAL OPERATION

The pump is equipped with a manual bypass valve. By positioning the valve handle down (manual operation), the gate can be back-driven open or closed.

A back-up to this is the suspension separator bolt. By tightening this bolt, the drive wheels will be pushed off by the drive rail.

NOTE: When manually opening or closing the gate, it is not, in the beginning, easy to get the gate started. Since fluid has accumulated in the drive motors, it will take a good size push to get the gate started.

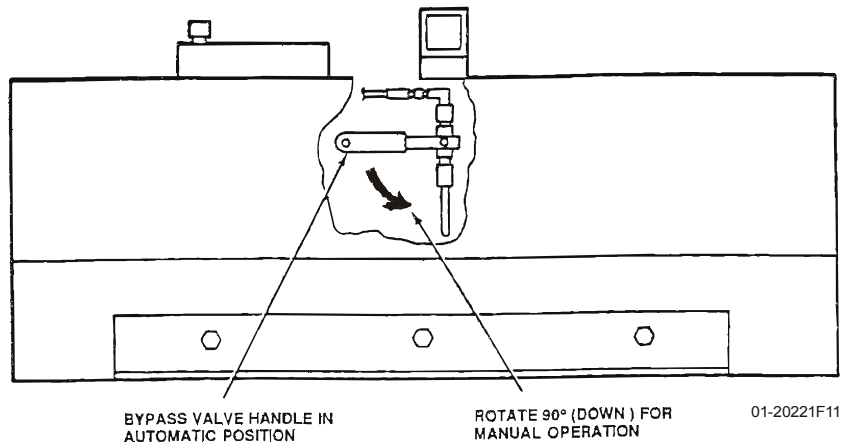


Figure 13

FACTORY INSTALLED ACCESSORIES

Most factory-installed accessories are located on or under the control panel and are already wired into it.

NOTE: By removing one bolt, the entire control panel can be pivoted out of the way.

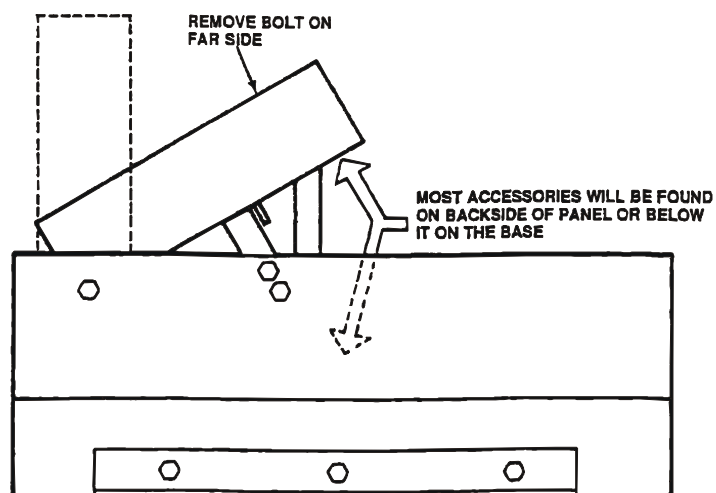


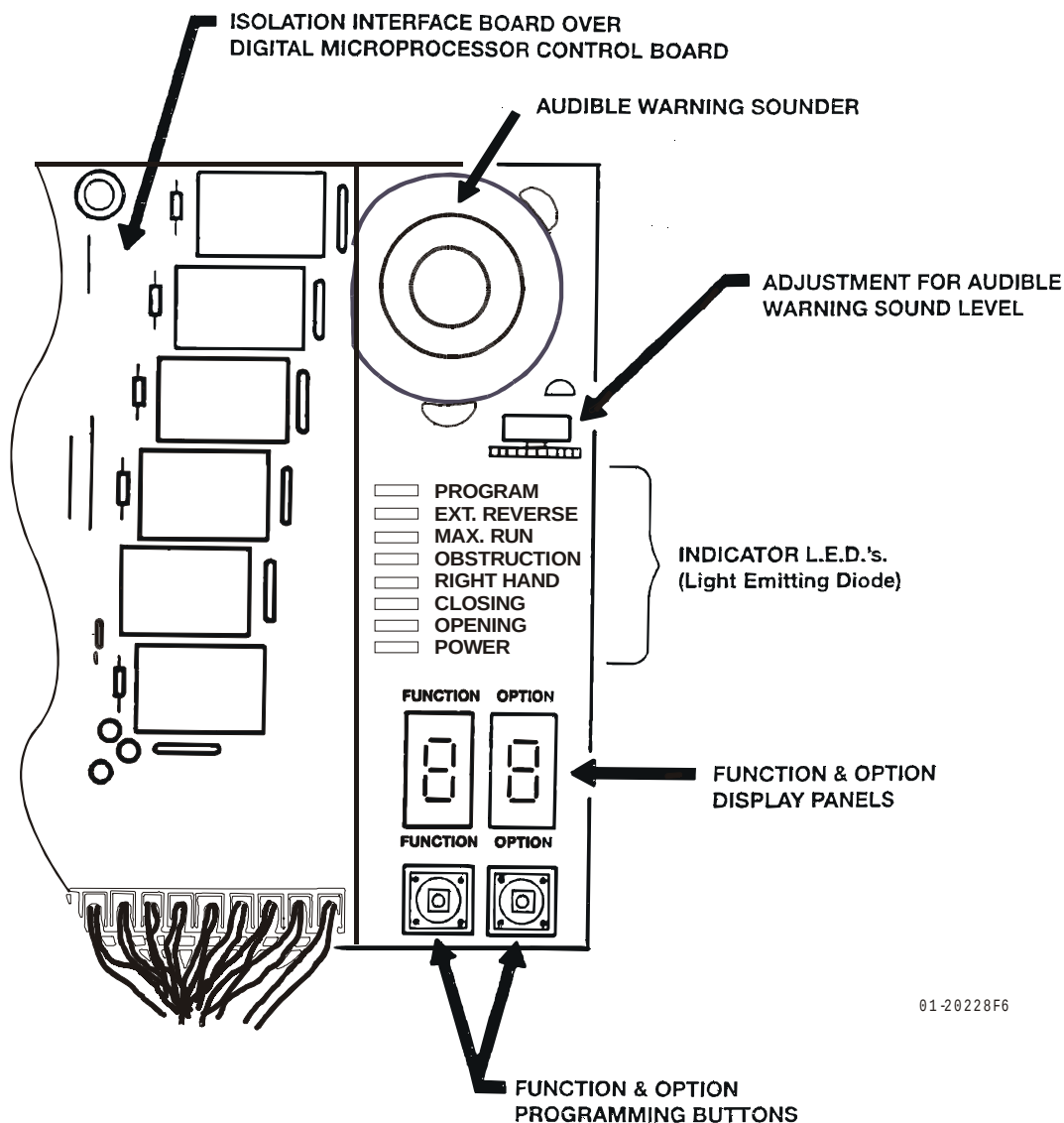
Figure 14

Step 8: Programming

This gate controller has (9) programmable options which must be set prior to gate operation. To program the controller, press and hold the "FUNCTION" select push button for 2 seconds. When the board enters the program mode, the green program LED will turn on and the two display panels will become active.

When the controller enters the program mode and the program LED turns on, the "FUNCTION" display panel will display "0" (zero) and the "OPTION" display panel will display "0" (zero).

To exit the program mode, at any time, press and hold the "FUNCTION" select push button for 2 seconds. The program LED will turn off, indicating that you are out of the program mode. The board will reset as if first powered on.



01-20228F6

Figure 11

PROGRAM 1:RIGHT HAND/LEFT HAND OPERATION

0 = NOT SELECTED - OPERATOR WILL NOT FUNCTION IN THIS MODE.

1 = RIGHT HANDED - OPERATOR WILL MOVE GATE FROM LEFT TO RIGHT TO OPEN.

2 = LEFT HANDED - OPERATOR WILL MOVE GATE FROM RIGHT TO LEFT TO OPEN.

Program 1 determines whether the operator is “right handed” or “left handed”. To determine which type your gate controlled needs to be set to, observe the installation from the operator side of the gate. If the operator is on the right side of the gate. If the operator is on the right side of the opening, the operator is “right handed”. If the operator is on the left side of the opening, it is “left handed”.

Press the FUNCTION select button to set the function to “1”. The option display will show a “0”, “1” or “2”. Option “0” is the factory setting and does not allow gate movement. This option must be changed to either a “1” for right hand or “2” for left hand. Pressing the “OPTION” button will change the option between “1” and “2”. When the correct option for your application is indicated, press the “FUNCTION” select button to save this selected option and to step to the next program.

PROGRAM 2:MASTER/SLAVE OPERATION

0 = SINGLE GATE OPERATOR INSTALLATION.

1 = MASTER GATE OPERATOR – PROGRAMS THE SLAVE AT POWER UP.

2 = SLAVE GATE OPERATOR – PROGRAMMED BY THE MASTER AT POWER UP.

Program 2 selects whether the installation is a single operator or dual operators with common controls.

If the “FUNCTION” display shows “2”, proceed on as follows. If it does not show “2” then press the “FUNCTION” select button to set the display to “2”. The “OPTION” display will indicate a “0”, “1” or “2”. The “0” option is the factory setting and is for single operation gates. This option can be changed to “1” or “2” for dual gate operators. Pressing the “OPTION” select button will change the option between “0”, “1” or “2”, where option “1” is for master operation and “2” is for slave operation.

A master operator will automatically program its slave when it is powered up and when the program mode is ended. The master will automatically set the slave up as a slave. If the master was programmed for right hand, the slave will be set for left hand and visa versa. All other programmed options (i.e. time delay to close, reversal options, etc.), will be copied directly from the master to the slave. When the correct option for your application is indicated, press the “FUNCTION” select button to save this selected option and to step to the next program.



IMPORTANT NOTE: The two operators (master/slave) must have the 3 interconnection wires in place between the two operators for the master/slave system to work. Reference the wiring diagram supplied with units.



PROGRAM 3:FOUR SECOND PRE-OPERATION DELAY

0 = FOUR SECOND DELAY "OFF".

1 = FOUR SECOND DELAY "ON".

Program 3 selects whether or not there will be a four (4) second delay prior to gate movement. During the delay, the sounder will beep.

If the "FUNCTION" display shows "3", proceed on as follows. If it does not show "3" then press the "FUNCTION" select button to set the display to "3". The "OPTION" will indicate a "0" or "1". The "1" option is the factory setting. By pressing the "OPTION" select button you can change this setting to "0".



WARNING

Unless the job site is an extremely high security installation, program 3 should always be set to "ON".



PROGRAM 4:REVERSE WHEN CLOSING

0 = REVERSE FOR 2 SECONDS THEN STOP

1 = REVERSE TO FULL OPEN POSITION

Program 4 determines the response of the gate operator to an obstruction from the external obstruction signal while closing.

With "FUNCTION" display showing "4", press the "OPTION" select button to select either "0" or "1". The factory setting is "1".

PROGRAM 5:REVERSE WHEN OPENING

0 = REVERSE FOR 2 SECONDS THEN STOP.

1 = STOP

Program 5 determines the response of the gate operator to an obstruction from the external obstruction circuit, (#6 on wiring diagram), while opening.

With "FUNCTION" display showing "5", press the "OPTION" select button to choose either "0" or "1". The factory setting is "1".



IMPORTANT NOTE: Programs 4 & 5 are only for the external obstruction device (adaption #6 on wiring diagram). Adaption #5, shown on wiring diagram (vehicle reverse device), will always stop and reverse a closing gate to the full open position. Adaption #7, will only react in the closing direction.



PROGRAM 6:EXTERNAL REVERSE DEVICE SELECT

0 = External reverse device with normally closed contacts.

1 = External reverse device with normally open contacts.

This program determines which polarity of signal on the external obstruction device will cause the gate operator to react. If a device with normally open contacts is used, then this option should be set to "1". If the device has normally closed contacts then this option should be set to "0". The factory setting is "1".

When the correct option is displayed, press the "FUNCTION" select button to save the choice and to step to the next program.

PROGRAM 7:TIME DELAY TO CLOSE ENABLE/DISABLE

0 = Time delay to close "OFF".

1 = Time delay to close "ON".

This program enables or disables the automatic time delay to close option.

When the correct option is displayed, press the "FUNCTION" select button to save the choice and to step to the next program.



NOTE: If timer to close option is set to disable, you will not need to do program 8. By pressing the "FUNCTION" select button twice you will go to program 9.

PROGRAM 8:TIME DELAY TO CLOSE "TIME"

0 = 2 SECONDS

1 = 15 SECONDS

2 = 30 SECONDS

3 = 60 SECONDS (1 MINUTE)

4 = 90 SECONDS (1-1/2 MINUTES)

5 = 120 SECONDS (2 MINUTES)

6 = 180 SECONDS (3 MINUTES)

7 = 240 SECONDS (4 MINUTES)

This program sets the time from when the gate is fully open to the time when it will automatically begin to close.

By pressing the "OPTION" select button, choose the time that will be required for this gate application. Once the selection has been made, press the "FUNCTION" select button to save this selection and to step to the next program.

PROGRAM 9: GATE LOCK TYPE SELECT

0 = LOCK OUTPUT NORMALLY "OFF".

1 = LOCK OUTPUT NORMALLY "ON".

If a gate lock is to be used with the operator, this program determines the state of the built-in lock relay contacts and how they will turn on and off.

By pressing the "OPTION" select button, choose either option "0" or "1". Option "0" would normally be selected if you are using a solenoid activated type lock system. The built-in lock relay's contacts will be open when gate is closed. They will close for one second before the gate begins to open, and open up two seconds after the gate has begun moving. Option "1" would normally be selected if you are using a magnetic type lock system. The built-in lock relay's contacts will be closed while the gate is closed. They will open up one second before the gate begins to open and remain open. With either selection the contacts will be closed when the gate begins to close.



NOTE: For wiring information see electrical diagram supplied with operator. If no lock system is to be used, it does not matter which option is shown in the display.

This was the last programming option. To exit program mode, press and hold the "FUNCTION" select button for 2 seconds. The green program LED will turn off. You may not proceed to step 8.



IMPORTANT NOTE: The operator **MUST** be run one full cycle, (to the full open and to the full closed positions), before the maximum run timer and the R.P.M. sensor will function. They both must learn their proper settings. Also, anytime the operator is reprogrammed it **MUST** be run one complete cycle.

Step 9: Preliminary System Check Out

Before adding any options, accessories or adaptations, it is highly recommended that you check out the system and its programs. If you have not already done so, temporarily connect a 3 button station to the control terminal strip, see below or see wiring diagram supplied with operator. Test for proper open, stop and closing of the gate. Test for proper operation of all programs that were programmed into the system. Once everything checks out okay, then proceed to adding on the accessory items for this job site.



NOTE: We recommend that, if more than one accessory item is used, after each one is attached check it for proper operation before adding the next.

Step 10: Accessory Installation

See page 8 for wiring distance and wire gauge information.
See wiring diagram for more information.

Important: Make sure that the two (2) gate caution signs are secured to the gate: one on the inside and one on the outside. They must be easily visible.



WARNING

If exterior controls such as keyswitch, card reader or pushbutton station are to be incorporated into this system, make sure the controls are installed where the user cannot touch the gate while operating controls. Install the controls where the user had full view of gate operation.

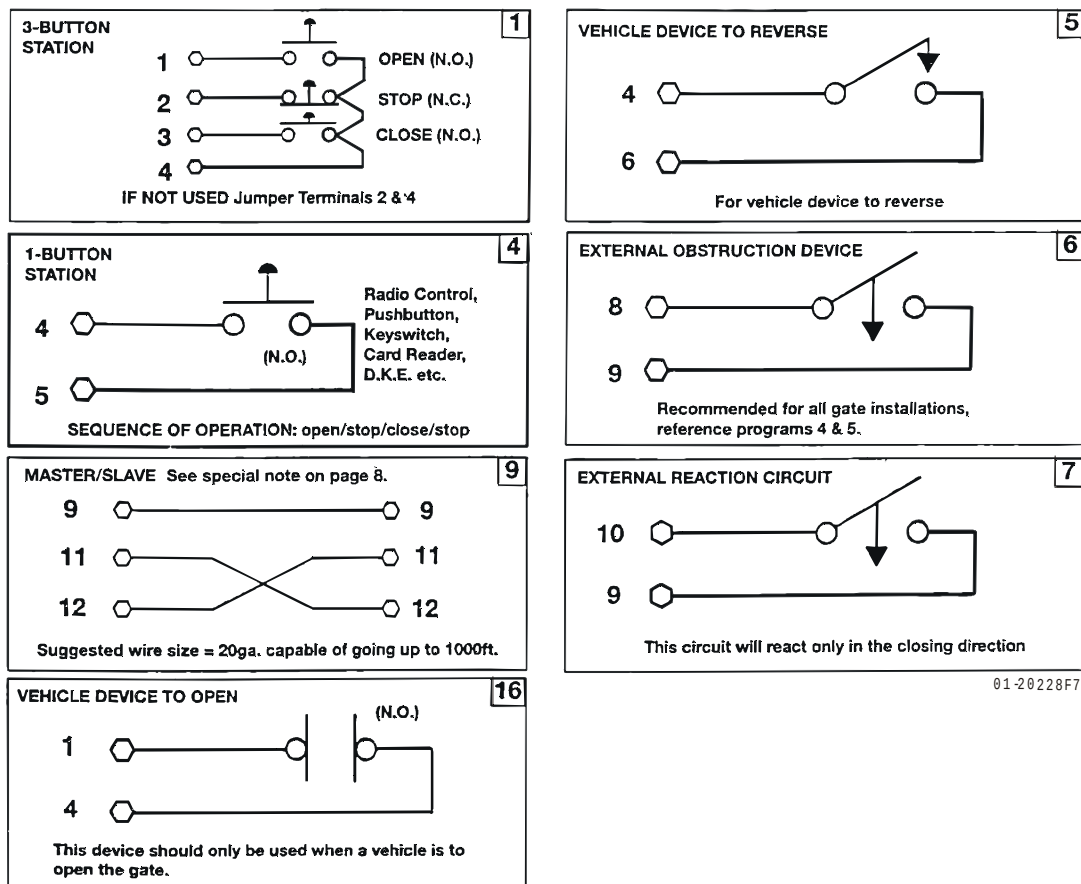


Figure 12



NOTES

- Both item 6 & 7 can be programmed for the close direction, reference program #4.
- Only item 6 can be programmed for the open direction, reference program #5.
- Item 7 is for use with photo-beam type systems. Item 6 is for use with gate edge type systems.

Required Maintenance

Normal Usage



ITEM	MAINTENANCE	Check at least once every				
		1 Month	3 Months	6 Months	12 Months	
External safety systems	Check for proper operation	✓				COMPLETE CHECK
Gate caution signs	Make sure they are present	✓				
Manual operation	Check & operate by-pass valve			✓		
Gate	Inspect for wear or damage			✓		
Accessories	Check all for proper operation			✓		
Electrical	Inspect all wire connections			✓		
Frame bolts	Check for tightness			✓		
Total unit	Inspect for wear or damage					
Fluid levels (D)	Keep at least $\frac{3}{4}$ full			✓		
Fittings	Check for leaks			✓		
Drive rail	Check for damage			✓		
Drive wheels	Check for wear			✓		

Table 8



NOTES:



- When servicing, always disconnect operator from electrical power supply.
- Severe or high cycle usage will require more frequent maintenance checks.
- Inspection and service should be performed anytime a malfunction is observed or suspected.
- Use only "ATF" automatic transmission fluid. If using the optional cold weather fluid (Royco 756) only replace with the same.
- When servicing, please do some "house cleaning" of the operator and the area around the operator. Pick up any debris in the area. Clean the operator if needed.

Warranty

LIMITED ONE-YEAR WARRANTY

LiftMaster gate operators are warranted against deficiencies in material and workmanship for a period of one (1) year from date of purchase, providing recommended installation and maintenance procedures are followed. This warranty is in lieu of all other warranties expressed or implied (some states do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you) and shall be considered void if damage was caused by fire, flood or lightening. The manufacturer will not be responsible for any labor charges incurred in the removal or replacement of deficient parts.

In case of failure due to deficiencies in material or workmanship during the warranty period, the complete gate operator will be repaired or replaced items in warranty.



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FOR TECHNICAL SUPPORT

Call our toll free numbers:

(800) 323-2276

(800) 998-9197

Installation and service information is
available six days a week.

TO ORDER REPAIR PARTS

Call our toll free numbers:

(800) 528-2806

(800) 998-9197

Prepare to provide the following
information when ordering repair parts:

- **Part Number**
 - **Part Name**
 - **Model Number**
-
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