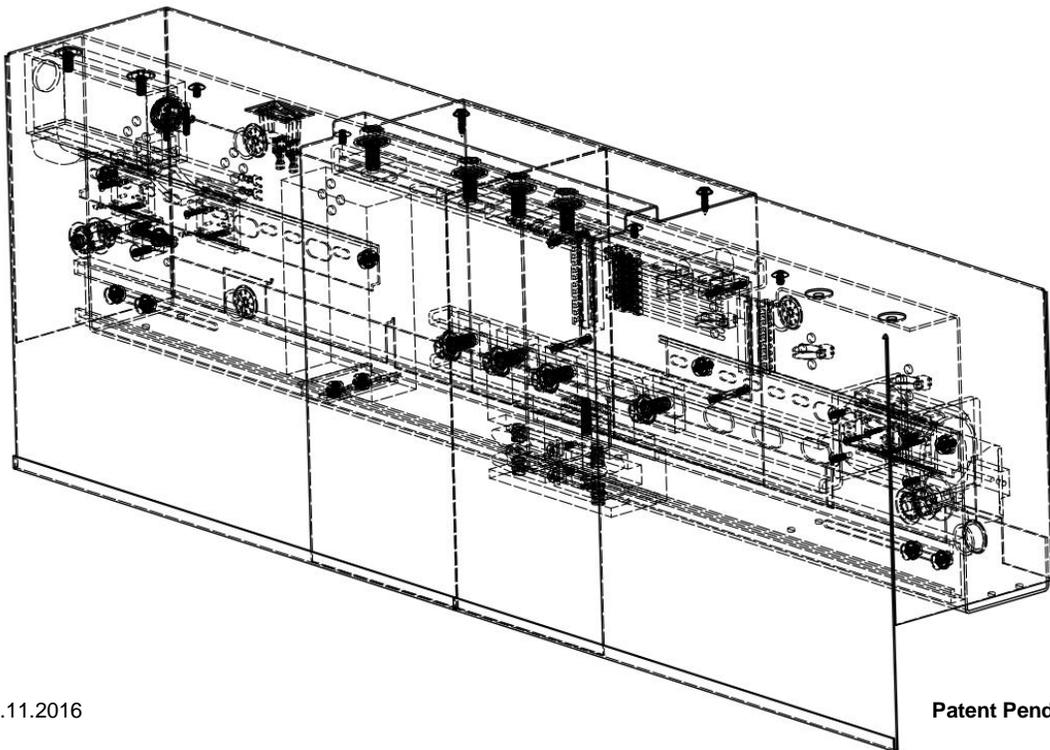




**ROCKY MOUNTAIN
ELEVATOR PRODUCTS**
LIVE LIFE ELEVATED

RMEP RESIDENTIAL GATE OPERATOR

INSTALLATION AND OPERATION



Rev B 4.11.2016

Patent Pending

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INTRODUCTION

The RMEP Residential Gate Operator is a timing belt driven unit capable of moving large doors smoothly. The standard RMEP Gate Operator has a unique split frame design with that is field adjustable from 36" to 42" to accommodate mounting on various width cabs. The RMEP Gate Operator is capable of a 36" maximum clear opening. The open/close limits as well as the slowdown limits are field adjustable for position. The high and low speeds are adjustable through a wide range of speed. The door catch is designed to automatically disengage if a gate obstruction occurs. The door catch can be re-engaged automatically by the elevator control board (if equipped) or manually by moving the gate into the latched position. If disengaged from the latch, the passenger retains the ability to manually open or close the gate as needed.

***NOTE:** An internal timer will shut the motor down if the limit switch is not made in 10 to 25 seconds. This applies to both open and close operations. The timers will reset as soon as the "Pilot Open" or "Pilot Close" signal cycles. Some elevator controllers have their own timers that will try to cycle the door several times if the gate switch is not seen activating within in a certain amount of time. Consult your controller's documentation on this feature if available.

OPERATION

Power: Control the power to the unit using the ON/OFF switch on the top left of the unit.

Turning the unit on: Switching the power switch to the ON position will enable the operator. If the units auto close feature is enabled the door will attempt to close unless the door open pilot signal is present. If the auto close feature is disabled, the door will do nothing unless there is a pilot signal to open or close.

Turning the unit off: Switching the power switch to the OFF position will leave the gate in its current state. The gate can be opened and closed manually, albeit with some force to pass through the latch, by the passenger. (If the gate is in motion it will immediately stop once input power is lost.) The gate can be opened and closed manually with minimal force exerted by the passenger.

Gate latching: The gate latch is designed to work for both open and closing obstructions. The latch is designed to re-engage automatically as the door cycles, or manually by positioning the gate to where the shuttle is located.

TOOLS

- 3/32" flathead screwdriver
- Socket set
- Screw driver set
- Wrench set
- Wire strippers
- 18awg wire
- Allen wrench set
- Cutters

WARNING!

This installation requires access to the top of the elevator car and hoistway. Observe all safety precautions required when entering a hoistway. After positioning the cab where you have access to the top and underside of the cab, secure all sources of power to the elevator that can allow it to move. Follow all lockout/tag-out safety procedures. Place rated jack-stands to secure the elevator from falling while working under the cab.

PARTS IDENTIFICATION

Figure 1
Gate Operator

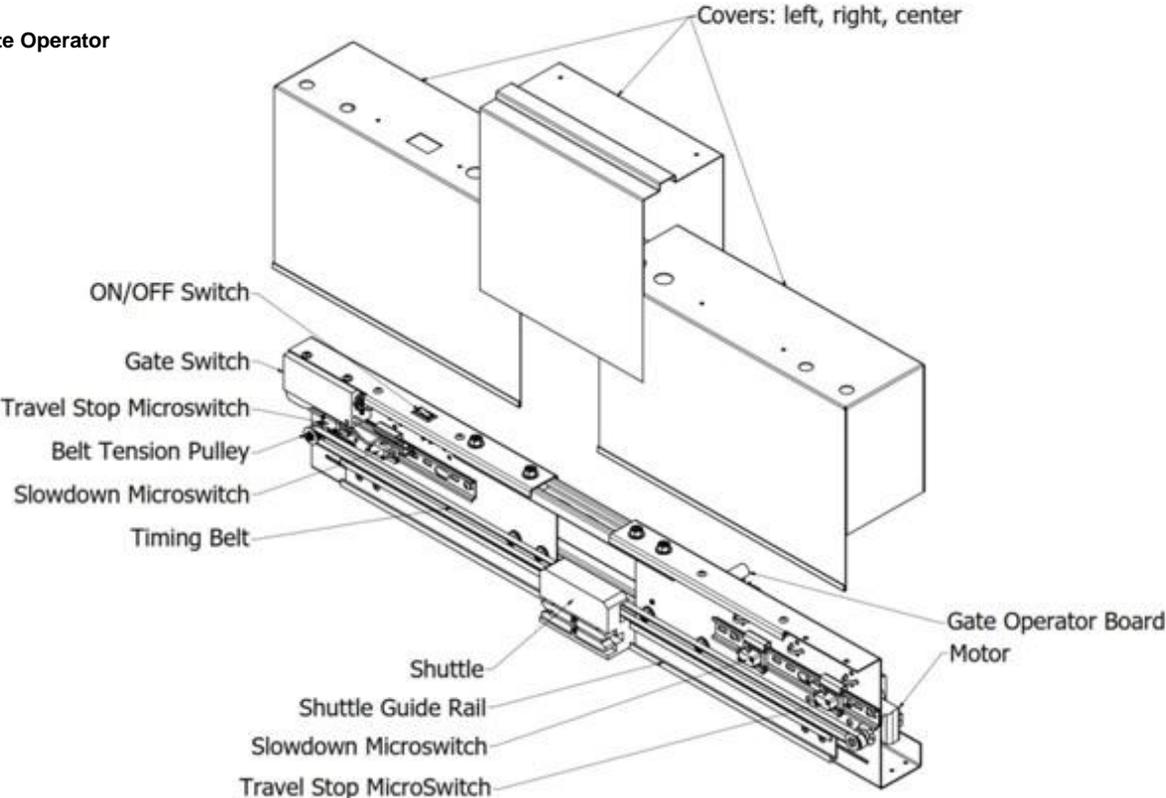
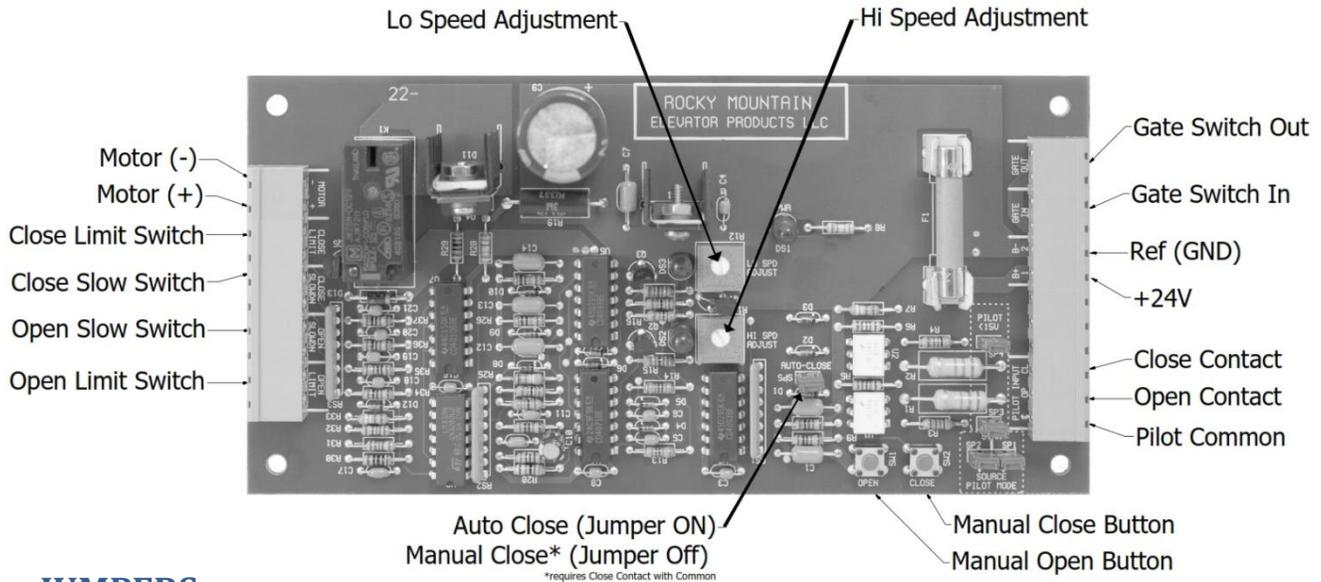


Figure 2. RMEP Gate Operator Control Board



JUMPERS

AUTO CLOSE

Configure the auto close feature with jumper "SP5" labeled "AUTO-CLOSE". See Figure 2.

Auto Close On (Jumper Present)

When using an elevator controller that only gives a signal to open & hold open, but no signal to close, jumper "SP5, AUTO-CLOSE" should be in place.

The 'Auto Close' feature being enabled results in the gate closing whenever the Gate Operator Board senses the Close Limit Switch is not activated and the signal to "Pilot Open" is not active. The door will open when the signal to the "Pilot Open" is active and will stay open only as long as the "Pilot Open" is active. This is also true when pressing the "Manual Open" button on the Gate Operator Board. The gate will close as soon as the "Pilot Open" signal is removed or the "Manual Open" button is released.

'Auto Close' Off (Jumper Removed)

Use the auto closed off setting when the elevator controller gives an open signal long enough to open the door, then delivers a close signal to close the door*. Remove jumper "SP5, AUTO-CLOSE" to enable this feature.

***NOTE: With the auto close disabled (jumper "SP5" removed), the gate opener (and gate) will (stop if it is in motion) and remain in the position it is in when the "Open Pilot" or the "Closed Pilot" signals are removed.**

DRY CONTACTS (PILOT JUMPERS)

When using the internal 15v pilot voltage to control the gate, jumpers "SP1" and "SP2" (labeled "SOURCE") should be in place. In this configuration, the common from the "Pilot Input" will activate the "OP" (open) or the "CL" (close) inputs. This is used when relays are used to buffer the elevator controller's door operator signals, or dry contacts are provided on the controller. See Figure 3.

***NOTE: "SP4, PILOT 15V" must be in place to provide the board with its signal voltage in this configuration.**

24 VDC INPUT

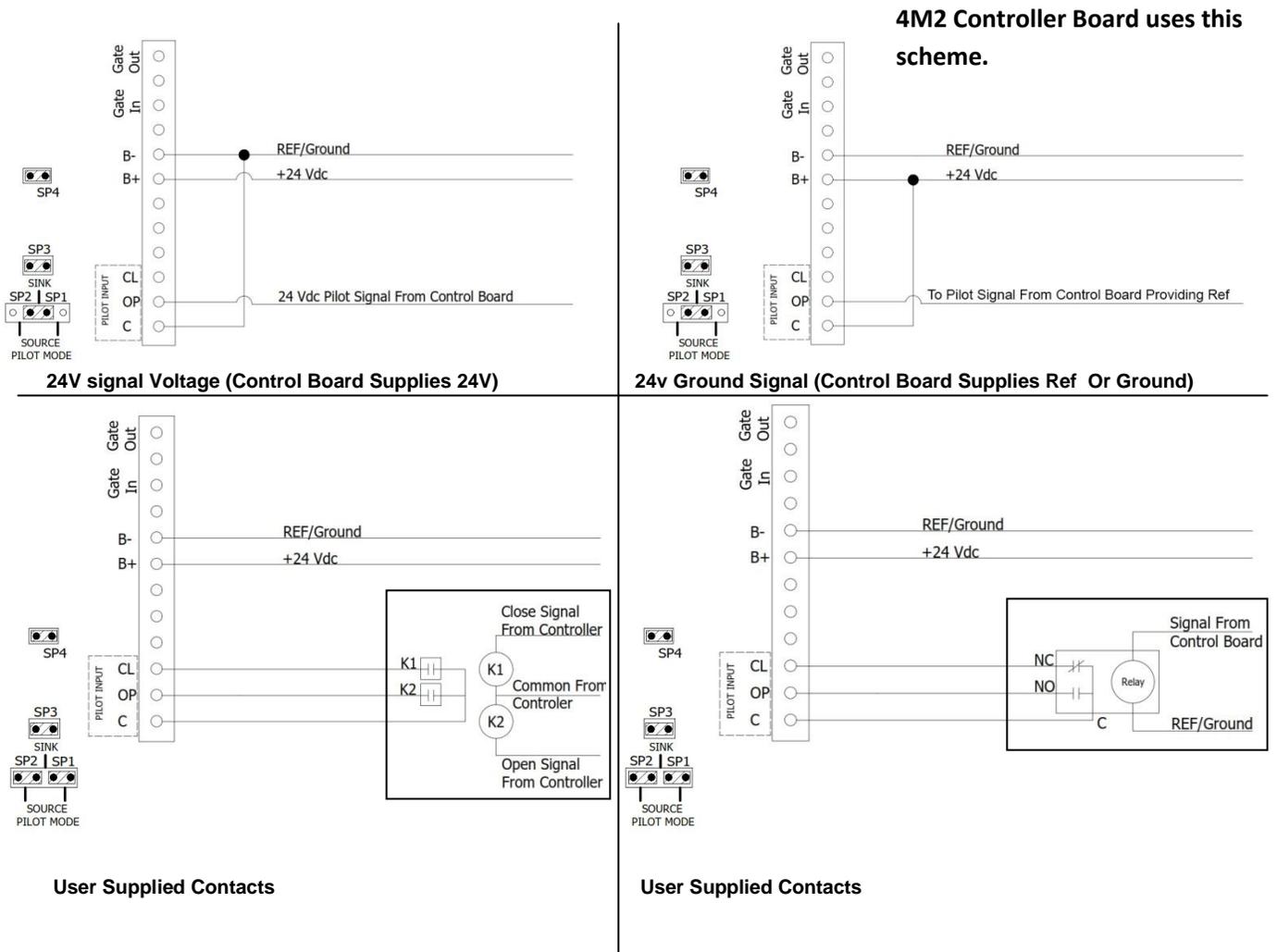
When utilizing a 24 VDC output from the elevator control board to signal the gate operator, jumpers "SP1" (labeled "SOURCE") and "SP2" (labeled "SINK") are removed, and a jumper is placed **between "SP1" and "SP2"** (labeled "SINK") connecting pin 1 of "SP1" and pin 2 of "SP2". **See Figure 3.**

***NOTE: Jumper "SP5, AUTO CLOSE" must be in place.**

In this configuration a 24 VDC signal provided by the elevator control board will activate the "OP" (door open) pilot input and the gate will open and remain open as long as the 24 VDC signal is present. Pilot input "C" (common) should be tied to "B-" (Ref). **See Figure 3.**

*NOTE: SP3 and SP4 jumper is always on.

Figure 3
Jumper configurations and pilot signal wire diagrams



WIRING

POWER

The unit requires 24 VDC with a minimum 2 amp source. Attach +24 VDC to 'B+' and REF (GND) to 'B-' on the control board.

***NOTE:** If using an existing 24v source, ensure that the unit can provide the necessary amperage to power the RMEP Gate Operator and the supporting equipment, such as the elevator controller, lights, and various accessories. If necessary, add a separate regulated 24 VDC power supply to power the gate operator.

LIMIT SWITCHES

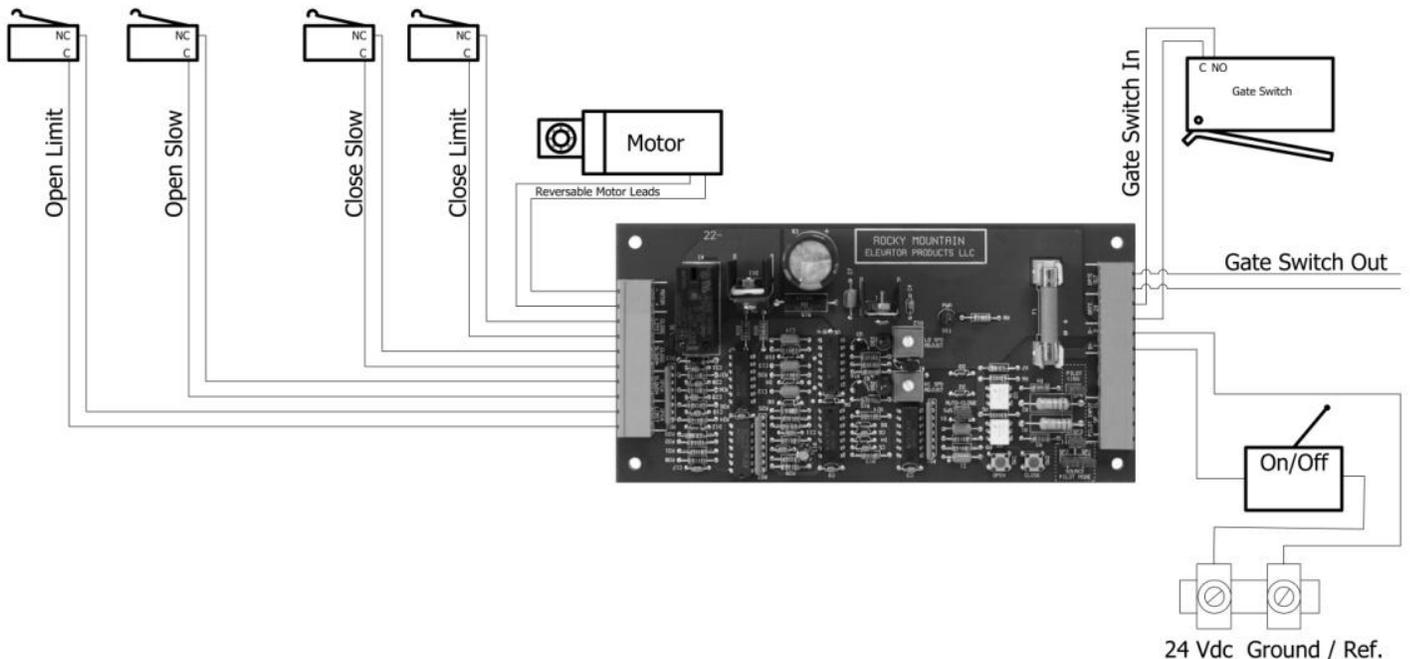
The open and close limit switches (as well as the open and close slow down switches) and gate switch are prewired from the factory for a left hand strike close. The board is labeled with the locations for the slowdown and limit switch connections. They are wired to be normally closed (N.C.) and open when operated. See Figure 3.

MOTOR

The motor is prewired from the factory with a left-hand close strike in mind. Motor wires are reversible to change operating direction of the gate.

Figure 4

Wire Diagram

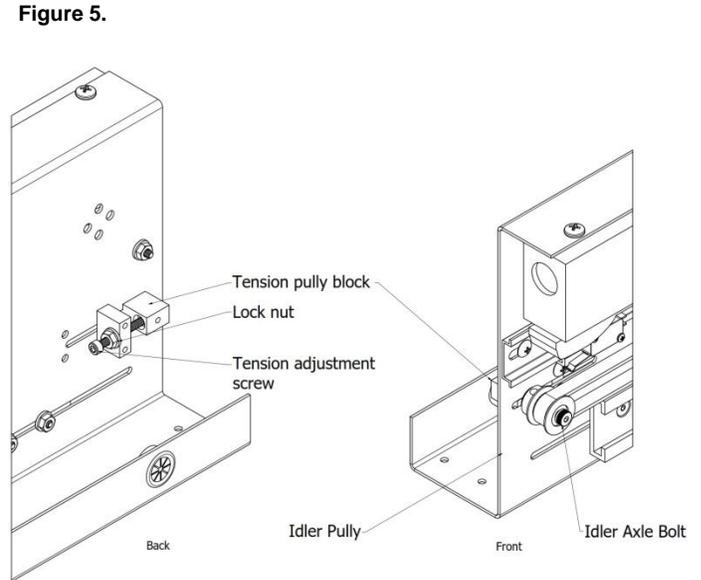


BELT TENSIONING AND REPLACEMENT

The belt is a timing belt design that is resistant to stretching and should only need minimal maintenance or adjustment.

BELT TENSION

1. Loosen idler axle bolt $\frac{1}{2}$ to $1\frac{1}{2}$ turn. **See Figure 5.**
2. Break lock nut free and loosen two or three turns.
3. Using a $\frac{5}{32}$ " Allen wrench, turn adjusting screw clockwise to tighten the belt. Adjust the tension so that the upper belt is just level, and not drooping with any slack. Do not over-tighten.
4. Tighten the idler axle bolt
5. Recheck the tension, if the tension increased beyond an acceptable amount, loosen idler axle bolt and relieve the tension a turn and tighten the axle bolt. Recheck the tension, if acceptable move to step 6.
6. Tighten lock nut.
7. Obstruct the door jam, allow door to close. The shuttle should uncouple from the latch pin without the belt jumping teeth on the drive sprocket.



BELT REPLACEMENT

1. To pre-cut the belt to length, measure the width of the frame and consult Table 1 to determine the length to cut the belt. Do not cut the belt short of the stated length.
2. Loosen idler axle bolt with a $\frac{5}{32}$ " Allen wrench.
3. Loosen lock nut, with $\frac{5}{32}$ " Allen wrench turn the tension adjustment screw counterclockwise to relieve the tension on the belt. **Figure 5.**
4. Remove idler axle bolt and the idler pulley.
5. Remove the belt from the drive pulley.
6. Minding the loose belt so it does not catch or drag, pull the shuttle off the end of the guide rail, this will free the belt and shuttle from the frame.
7. Remove the belt from the drive pulley.

Table 1

| Frame length | Belt length | Travel |
|--------------|-------------|--------|
| 36 | 70 | 31 |
| 36 1/2 | 71 | 31 1/2 |
| 37 | 72 | 32 |
| 37 1/2 | 73 | 32 1/2 |
| 38 | 74 | 33 |
| 38 1/2 | 75 | 33 1/2 |
| 39 | 76 | 34 |
| 39 1/2 | 77 | 34 1/2 |
| 40 | 78 | 35 |
| 40 1/2 | 79 | 35 1/2 |
| 41 | 80 | 36 |
| 41 1/2 | 81 | 36 1/2 |
| 42 | 82 | 37 |

8. Remove the four switch actuator screws that hold the switch actuator onto the shuttle. The Allen wrench will fit through the holes in the top to allow easy access. Remove the Switch Actuator and flip it upside down. Loosen the belt hold down screw/bolt (See **Figure 6**) and remove the belt ends.
9. Replace the old belt with the new belt, ensuring that the new belt is of the proper length compared to the old one if the operator width has not changed. Place the belt into the hold down ensuring that two teeth of each end of the belt is captured. Tighten the hold down screw/bolt.
10. Replace the switch actuator onto the shuttle. Do not over tighten the switch actuator screws.
11. Slide the shuttle back onto the guiderail, position the shuttle so that you can access the pulleys.
12. Replace the idler pulley.
13. Loop the belt over the idler pulley and the drive pulley.
14. Adjust the belt tension. (**See BELT TENSION**)

Figure 6

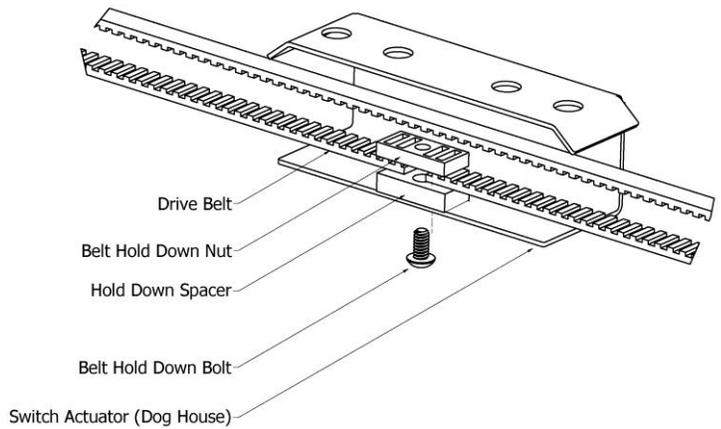
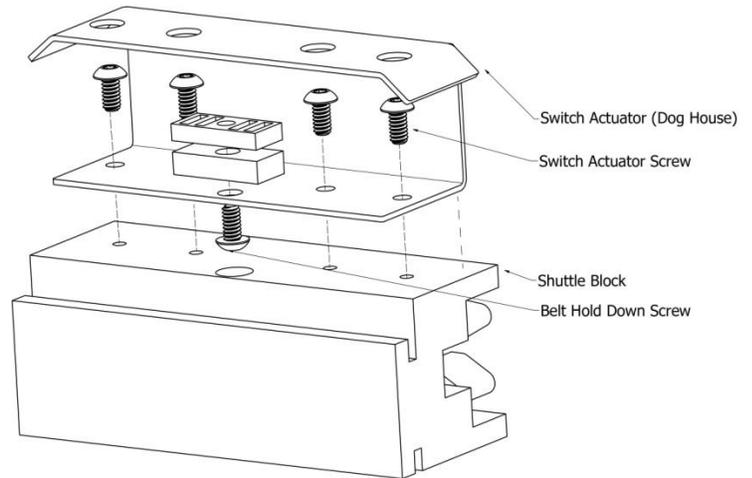


Figure 7



CHANGING THE OPEN/CLOSE DIRECTION

PREPERATION

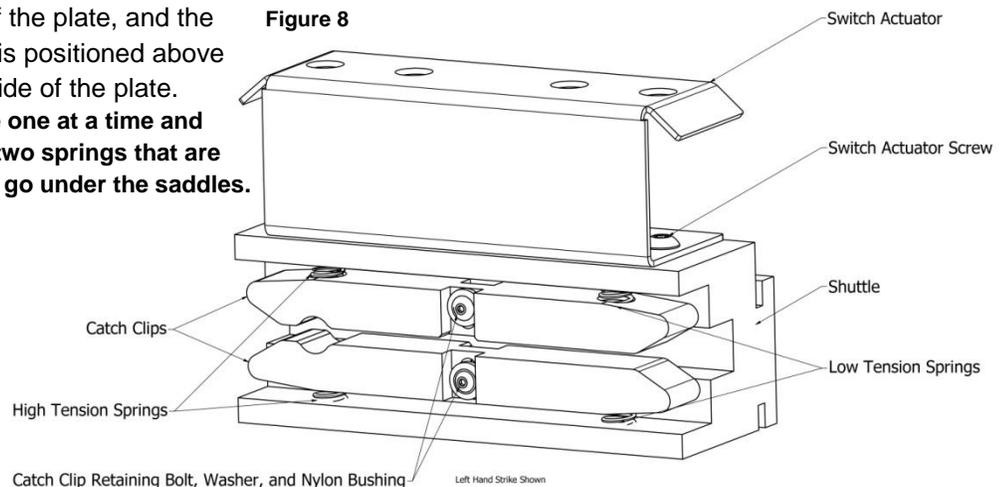
The RMEP Residential Gate Operator is shipped left hand strike unless requested otherwise when purchased separately. The operator is field reversible. Before changing the direction of operation, verify that a change is indeed needed. The gate switch position on the left side or the right side of the operator frame (see **Figure 1**) determines the close strike direction. **The micro switches on the gate switch side of the operator must be connected to the "CLOSE SLOW" and "CLOSE LIMIT" switches.**

REVERSING DIRECTION

To change the direction of the operator:

1. Remove the "CLOSE SLOW" and "CLOSE LIMIT" wires from the gate operator board.
2. Move the "OPEN SLOW" and the "OPEN LIMIT" wires to the "CLOSE SLOW" and "CLOSE LIMIT" positions on the gate operator board.
3. Then move the "CLOSE SLOW" and "CLOSE LIMIT" wires that were removed in the first step to the now vacant "OPEN SLOW" and "OPEN LIMIT" positions on the gate operator board.
4. Reverse the wires on the motor connections to the board. (Right hand close strike: black wire to "-", red wire to "+". Left hand close strike: red wire to "-", black wire to "+".)
5. Move the gate switch to the strike side of the operator. Remove the wires from the switch and re-route them along the back of the operator frame, reattach the wires to the gate switch and reattach the gate switch to the frame with the spur of the gate switch lever on the inside of the operator. Secure the wires with zip ties so that the wires will not interfere with the movement of the shuttle and gate arm.
6. Verify the operation of the system. If it does not function properly, check that the slowdown and limit switches are configured "Normally Closed" and wired to the appropriate connections for the switches position.
7. Remove the catch clips in the shuttle and reverse them so that the saddles are on the close strike side of the shuttle. **See figure 8.**

- The heavier spring stays with the saddle side of the plate, and the lighter spring is positioned above the smooth side of the plate.
***Hint: Remove one at a time and watch for the two springs that are heavier, these go under the saddles.**

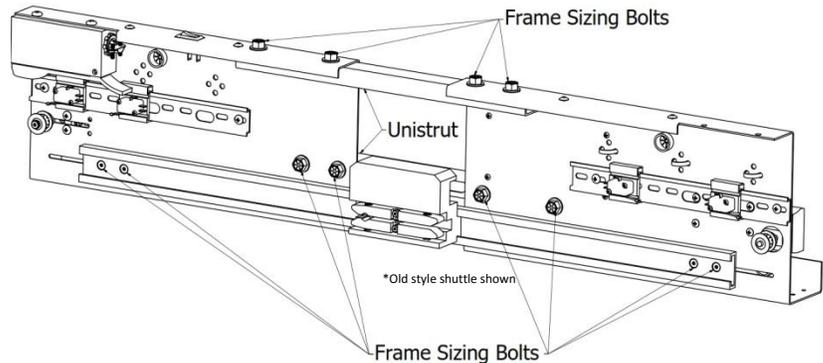


SIZING THE FRAME

The frame is designed to accommodate different cab widths. This allows the Gate Operator to fit on a small cab and maintain running clearance, or large enough to open a 36" door. There should be no need to open the frame any larger than 42".

1. Remove the covers.
2. Loosen but do not remove the 8 bolts that hold the Unistrut to the frames.
3. Loosen the 4 bolts that hold the shuttle rail to the frame.
4. Resize the frame to the needed width.
5. Center the Unistrut and shuttle rail, retighten the 12 bolts.
6. Install the belt. **(See Belt Replacement and then Belt Tension.**

Figure 9

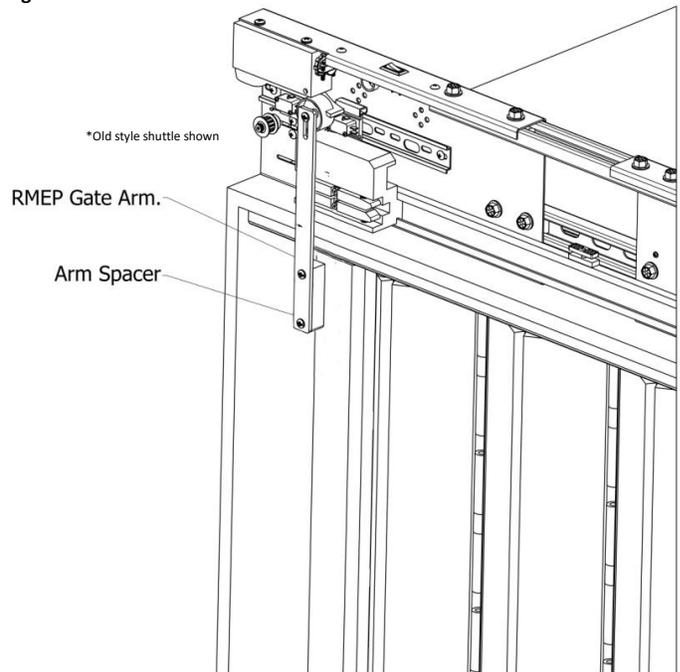


INSTALLATION ON ACCORDIAN GATES

Measure the running clearance from the sill to sill to ensure that there is room enough (about 1-1/4" is appropriate. No more than 1-1/2", no less than 3/4") Verify this at all stops. In rare cases it may be necessary to move the cab on the sling to adjust running clearances. If there are obstructions in the hoistway, (door trim, wires, door locks) verify clearances and correct any issues. It may also be necessary in some cases to trim the top of the cab to allow clearance for the arm and operator.

1. Position elevator in-between floors in order to facilitate access to the front of the cab top and the roof of the car.
2. **Disable the ability of the cab to move by actuating the run-stop switch or the pit switch. Lock/tag switches. If under cab work is required place jacks stands or other appropriate stopping devices under the cab to make the pit safe.**
3. Remove covers from the gate operator unit and set them aside.
4. Remove the existing gate switch from the elevator and remove the old wires to the car-top box, Depending on the installation, the original flex conduit may be able to be re-used.
5. Remove the gate switch arm from the top of the existing gate.

Figure 10



6. Install the new gate arm on to the existing gate. Re-use the gate switch roller if necessary.
7. Place the gate operator frame on to the car top and place it into rough position by inserting the gate arm catch pin into the catch on the shuttle (you may need to adjust the height of the catch pin on the gate arm). **See Figure 10.** Insert catch pin into guide shoes on the shuttle. Position the gate operator to where the gate arm and catch pin is freely positioned into the guide shoes (no binding or force on the pin or gate), loosen the screw holding the catch pin to allow it to float freely. Align the gate operator frame parallel to the front of the cab.
8. Secure the "close" end of the gate operator with a 1/2" long wood screw (for a 3/4" or greater wood roof) placed in a mounting hole. This will hold the unit in place until final positioning. **See Figure 11.**
9. Attach 24 VDC power to the "B-" and ON/OFF whip by pulling power through hard or flex conduit from the car-top box and power supply.
10. Turn the gate operator on using the power switch. Press the manual gate open button and allow the gate to open fully, and then turn off the power.
11. Verify the alignment of the gate operator by checking the position of the catch pin in the shuttle guide shoes. (Evenly positioned and free floating). **See Figure 12.** Secure "Open" end of gate operator frame with 1/2" long screw placed in a mounting hole.
12. Turn the power back on and verify that the movement of the shuttle from open to close does not cause the catch pin to bind or move significantly. If it does, adjust the position of the gate operator frame.
13. Adjust the gate switch actuator wheel/pin to where it just clears the return spur on the switch lever.
14. Test the movement several times. When satisfied that the gate switch and operator function properly, attach the covers. The left and right covers attach first then the center. Use self-tapping screws to attach the center cover if the length of the unit has changed.

Figure 11

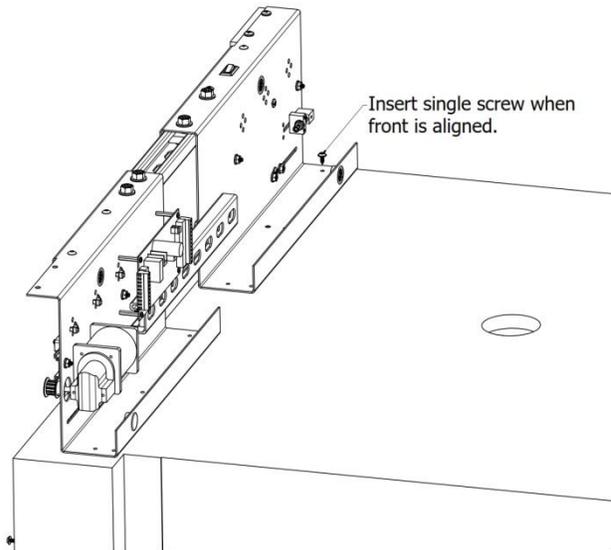
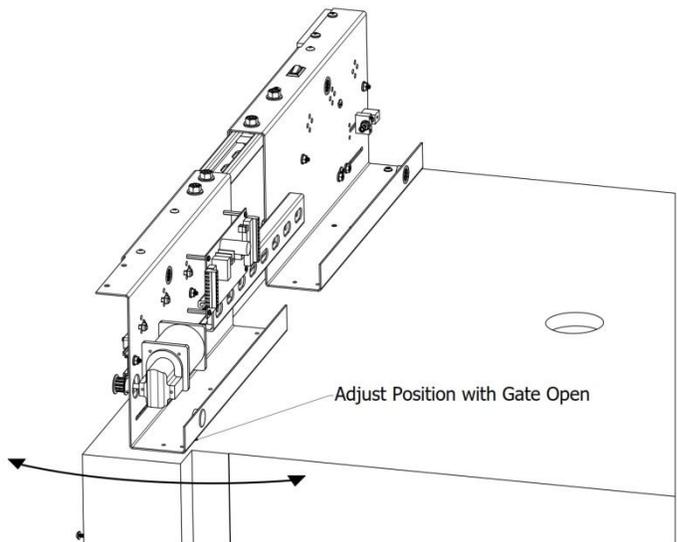


Figure 12



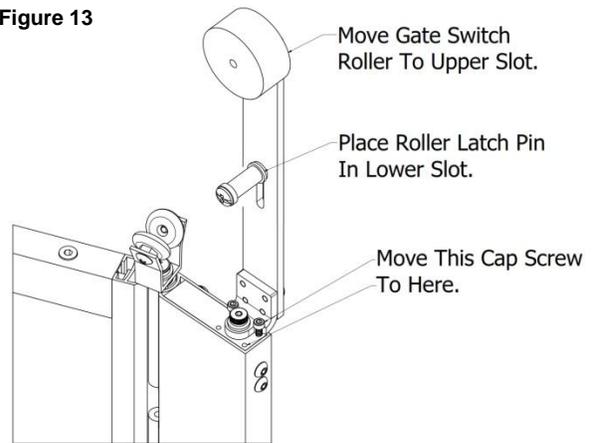
INSTALLATION ON RMEP WRAP AROUND GATE

This unit is designed to work with the RMEP Wrap Around Gate. The RMEP Wrap Around Gate is configurable to work with the RMEP Gate Operator even if it was originally installed as a manual gate. Simple modifications to the gate allow the RMEP Gate Operator to be mounted and used.

Your RMEP Wrap Around Gate is already equipped to handle the RMEP Gate Operator with only a few modifications.

1. Move the Gate Switch Roller to the upper slot. Place the Roller Latch Pin (this part needs to be specified when ordering the Gate Operator) into the lower slot, and finally moving a screw on the Gate Mounting Block. **See Figure 13.**
2. Remove lower guide pin on lead panel by removing the screw that holds it in, and then work it out laying it down. Back the gate up and the pin and block should be able to be lifted out of the track.
3. Mount the Gate Operator Starting at step 7 in the INSTALLATION ON ACCORDIAN GATES section above.

Figure 13



TROUBLESHOOTING

| Problem | Possible Cause | Possible Solution |
|--|---|---|
| Gate opens but only closes when “manual close” button is pressed | Auto close is not enabled. Close door signal not active. Jumpers are not configured properly. | Jumper SP5 should be on if “Auto Close” function is desired. Check contacts and/or voltage to the “Pilot Close” connection. Verify the jumpers are placed properly for your configuration. |
| Gate “moves the wrong direction” when the manual open and manual close switches are pressed. | Motor is wired backwards for the installation. Gate operator is not configured for the proper strike side. | Reverse the “-“ and “+” connections to the motor at the gate operator board. Verify the gate operator is configured for the proper close strike direction. The gate switch should be on the close strike side. Verify the limit and slowdown switches are wired to the Gate Operator Board correctly. (See: CHANGING THE OPEN CLOSE DIRECTION p6.) |
| Unit does not function | “ON/OFF” switch is “OFF”. Power supply is off. Fuse is blown. Limit and slowdown switches are wired “Normally Open”. | Turn unit “ON”, check wires to “ON/OFF” switch. Verify power supply is producing 24 VDC, check 110 Vac line in. Verify 24 VDC power at “B+” and “B-“. Replace fuse if blown. Verify that the limit and slowdown switches are connected to “Normally Closed” and “Common”. |
| Gate seems to drag | Debris in the lower track. Gate Operator not mounted properly | Clean lower track. Check that the roller latch pin “floats” in the catch clips throughout movement and does not pull or push the catch clips in or out. |

For assistance, please contact Rocky Mountain Elevator Products at: 1-866-482-4472 during normal business hours. (8am-5pm MST)