

TROUBLESHOOTING PATRIOT SWING GATE OPERATOR



TROUBLESHOOTING SECTION

OUTLINE

- 1 Single gate will not operate.
- 2 Dual gate will not operate.
- 3 Single or Dual gate opens or closes very slow.
- 4 Gate will not automatically close.
- 5 Gate begins to open or close, but stops and reverses after a couple of seconds.
- 6 Single Gate opens correctly then closes immediately or single Gate closes correctly and then opens immediately.
- 7 Dual Gate opens correctly then closes immediately or dual Gate closes correctly then opens immediately.
- 8 Control board 15 amp fuse blows when open/close command is given.
- 9 Transmitter (Remote control) will not operate the gate.
- 10 Photo eye, safety loop or other safety accessory will not reverse the gate when closing.
- 11 Pressing the “RESET” button only, causes the gate to operate.

Terms and Definitions

- Led - Light emitting diode, small red lights on control board.
- Control board- Located inside the metal box just above the battery.
- Receiver - Located inside the metal box in the upper right corner, coax cable connected to it.
- Transmitter - Hand held push button, which is used to operate the gate, sends signal to receiver.
- Actuator - Connected to gate and hinge post, contains the motor, gearbox and extension tube.
- Connector - Control board has two types. Two white 8-pin connectors (X1 and X2) are used to connect actuator to control board and one green 12-pin connector (J2) (located bottom center of control board) to connect receiver and accessories to control board. Both are plug type and can be disconnected (unplugged from control board) without disconnecting wires.
- Dip Switches - Small switches, which are located on the control board in two places. The primary set DS1 is located in the upper left corner and the secondary set DS2 are located in the lower right corner of the control board with functions listed beside each. See manual (page 15, 16) for more information.
- Push Buttons - Three are located on the control board. “Open/Close command” used to operate the gate, “Led Indicator” used to activate the leds and the “Reset” used to reset the control board after current sensing twice before a limit is reached.

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1. My single gate will not operate Patriot I:

- STEP 1 Remove control box cover locate the “Open/Close Command” push button and press it to operate the gate.
- STEP 2 Press the “Reset” push button located above the open close command, then push the “open/close command” push button to operate the gate.
- STEP 3 When pressing the “open/close command” push button, listen for a clicking sound, if click is heard then verify: The 15-amp fuse located on the control board is good if not replace it using the spare located on the control board. Also check the dipswitches (3 and 4) for correct switch settings based on where the actuator is connected to the control board (Master or Slave). If switches and fuse are good and clicking sound is heard the battery needs to be load tested to determine its condition. Charge or replace depending on results.
- STEP 4 Press and hold the “Led Indicator” push button and observe all of the red leds (see page 18 for location):
- If the two limit leds located below the actuator plug are both on the operator will not operate, you must adjust the limit switch (see page 10) Example- if both limit leds are on when the gate is in the closed position (and actuator is connected to the gate) the problem is with the open limit switch, adjust the open limit until the light goes off and adjust the gate to the desired stopping position. Both leds should never be on simultaneously.
 - If any of the leds in the lower left corner of the control board are on then this must be corrected. Locate the accessory, which is activated, and repair or replace. Disconnecting this device will allow the operator to work, without the disconnected accessory function.
- STEP 5 Disconnect the green J2 connector. Once disconnected, press the “open/close command” button. If gate operates go to step 4 b above.
- STEP 6 Verify that DS1 switch 8 is off.
- STEP 7 Call the factory for more information if the above steps have not worked.

2. My dual gate will not operate Patriot II:

- STEP 1 Follow steps 1 through 6 above.
- STEP 2 Disconnect the actuator connectors plugged into the control board (X1 and X2). Then locate the DS1 dipswitches on the control board. Turn off switch 4 (slide to the left) and turn on switch 3 (slide to right).
- Reconnect the connector from the actuator that goes to the gate closest to you; connect it to the Master (X1) connector on the control board. Press the “open/close command” button and verify that the gate operates.
- STEP 3 If the gate operates correctly, disconnect the actuator plug and connect the other actuator plug into the X1 connector, and press the “open/close command” button and verify that the gate operates correctly. At this point you have tested each actuator individually. If both worked correctly then go back to DS1 and turn switch 3 off and switch 4 on. Then repeat step 2 and 3 again using X2 connector on control board in place of X1.

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STEP 4 If a problem is observed in steps 2 or 3 above most likely it was when the slave actuator (located the greatest distance from control box) was being tested, if this is correct check wiring splices for moisture, correct wiring and etc. If the wiring is not in watertight conduit and this is most likely the problem. Tape is not watertight.

3. My gate opens/closes very slow:

NOTE: When the gate is running slow the reason is low battery voltage, two things need to be considered. Battery condition (replace or charge) and what caused the battery to become discharged.

STEP 1 Determine which situation your operator falls into below:

Solar charged, ensure that you have a deep cycle battery installed and if accessories are connected (keypads, loop detectors, any device powered by the battery) verify that the current draw needed to power them does not exceed the charging power of the solar panel. Verify that solar panel leads are connected to the battery correctly; panel is facing a southwest direction and is not located in a completely shaded area. Inspect panel surface and wires for damage.

Test solar panel for correct voltage and current output, disconnect panel wires from battery and using a DC voltmeter measure the dc voltage (should measure about 22 volts) and the dc current (should read about 250 ma) in the peak sun period. If either, of these readings is incorrect panel maybe defective.

If none of the above check bad then remove battery and have it load tested at a battery shop. Replace if bad.

AC charged, ensure that you have a deep cycle battery rated at a minimum of 60 amp-hour installed. If accessories are connected (keypads, loop detectors, any device powered by the battery) verify that the current draw needed to power them does not exceed the charging power of the charger. Verify that charger leads are connected to the battery correctly; charger is connected to an approved 110 VAC receptacle. Inspect charger and wires for damage.

NOTE: The USA Automatic multi stage charger does not output any voltage or current when disconnected from the battery, you cannot check charger by disconnecting from battery and measuring voltage output. To check charger output disconnect from battery, measure battery voltage and note. Reconnect charger and monitor battery voltage it should rise above the battery voltage noted above.

STEP 2 The charger has led indicators (lights) on the faceplate, observe the leds that are on or not and refer to the troubleshooting directions furnished with the charger for definitions of different led indicators.

STEP 3 If none of the above check bad then remove battery and have it load tested at a battery shop. Replace if bad.

4. My gate will not automatically close:

NOTE: If DS1 switch 1 is on and switch 2 is off then the gate should automatically close from any position, but if switch 2 is also on the gate will only automatically close if the “open limit” led (both “open limit” leds for dual gate) is on.

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- STEP 1 Locate the “Open/Close Command “ push button; press the button to verify that the gate will close. If gate closes correctly then proceed to the steps below.
- STEP 2 Verify that DS1 switch 1 is on. If not turn it on and recheck gate operation. If gate remains open continue with step 3.
- STEP 3 If your installation is a single gate, then only DS1 switch 3 or 4 can be on. If both are on the gate will not automatically close. Turn off the one that is not being used and recheck gate operation.
- STEP 4 Locate the “Led Indicator” push button and depress and hold. While pushing the button inspect the led indicators located just below the X1, X2 (master, slave) actuator plugs, note which leds are on. Read note below.

NOTE: The two leds located below the X1, X2 actuator plug when on represent the closure of the limit switch. If the left led is on then the gate should be in the open position, if the led on the right is on then the gate should be in the closed position. If DS1 switch 9 (operating direction reverse) is on then this is reversed. If the led for the open position is not on when the gate is fully opened then the auto close will not work. The limit switches need to be adjusted.

- STEP 5 Locate the “Led Indicator” push button and depress and hold. While pushing the button inspect the led indicators located on the control board (lower left corner) and note which ones are on. If any leds are on disconnect the green J2 connector from the control board. Press the “Open/Close Command “ push button to close the gate, and then press the button again to open the gate fully and verify the automatic close is working.
- STEP 6 If gate automatically closes correctly then the accessory connected to the J2 connector that is activated (led is on) needs to be repaired.

5. Gate begins to open or close but stops and reverses after a couple of seconds.

- STEP 1 Remove control box cover and locate the Patriot control board. Locate the sensitivity adjustment (see page 12) potentiometer located on the control board. The white center is adjustable and needs to be turned in a clockwise direction.
- STEP 2 Normally a setting of 5 will operate most gates; if your gate requires a setting above 8 there is a good chance that your gate has a problem, which needs to be corrected. Possible causes are incorrect hinges, gate touching the ground; gate not level or the actuator arm connected to the gate has been bent. Identify and correct problem.

6. Single Gate opens or closes correctly then immediately reverses direction:

- STEP 1 This is most likely caused by an incorrect limit switch adjustment. The limit switch adjustments are located on the bottom of the actuator motor housing, behind the removable rubber plug. Locate the limit switch adjustment screws and determine which one needs to be adjusted (see page 12). Operate the gate and once it reaches the desired open or close position stop the gate in that position, using the transmitter or “Open/Close Command” push button located on the Patriot control board.
- STEP 2 Locate the “Led Indicator” push button located on the left side of the Patriot control board. Also locate the open and close led indicators (red lights) below the actuator plug on the Patriot control board. The left led represents the open position and the right led represents the close position. (See note below)

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STEP 3 With the gate in the desired open or close position press and hold the “Led Indicator” and observe which of the led lights come on. If your gate is in the desired open position then the led on the left should be on, if not adjust the retract limit switch (see page 13) until the led comes on. If gate was in the close position adjust the extend limit switch until the close led comes on.

NOTE: If DS1 switch 9 is turned on, then the open and close led lights are reversed. Open led represents the closed position and the close led represents the open position.

STEP 4 Once adjusted correctly the open led light should be on when the gate is opened and the close led light should be on when the gate is closed.

STEP 5 If the led lights will not come on then contact the factory.

7. **Dual Gate opens or closes correctly then immediately reverses direction:**

STEP 1 This is most likely caused by an incorrect limit switch adjustment. First determine which gate is in need of adjustment.

STEP 2 Locate the DS1 switches on the Patriot control board. Switch 3 and 4 should be turned on for a dual gate, turn off switch 4 this will disable one gate.

STEP 3 Operate the gate and verify that it stops in the correct position, if so then turn switch 4 back on and turn off switch 3. Operate the other gate now and verify that it stops in the correct position. One or both should not stop in the correct position.

STEP 4 Once the gate that needs adjustment is identified (possibly both) refer to problem 6 above steps 1 through 5 for instructions.

8. **Control board 15 amp fuse blows when open/close command is given.**

STEP 1 Fuses blow primarily for one reason, the gate cannot move. Causes might be something keeping the gate from moving, the gate is trying to move in the wrong direction due to incorrect limit switch setting or there might be a wiring problem. A wiring problem is most likely in a splice that might have been made during installation or it could be in the actuator housing.

STEP 2 Open the control box and locate the Patriot control board, locate the 2 led lights under the actuator connector on the control board. Press the “led indicator” push button and hold it in, observe the led lights and determine if the open limit or close limit led light is on. Then determine if the correct led is on for the gate position. For example if the left led is on that is the open limit and the gate should be in the open position. The right led represents the closed position.

See note under problem 4 above.

STEP 3 If the open limit led is on and the gate is closed if a command to operate is given the gate will try to close more, which can blow a fuse. If the close limit led is on and the gate is opened a command to operate will try to open the gate more, which can blow a fuse. In either case the limit switches need to be adjusted and then the cause for them becoming misadjusted needs to be determined. The cause generally has to do with wiring; bad actuator plug connection at the Patriot control board or too much adjustment has been made during installation.

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STEP 4 If a wiring problem is suspected the orange, white and green wires are the ones to concentrate on. Check all splices and verify actuator connector is connected at the control board.

STEP 5 If the actuator is suspected of being bad either due to an internal wiring problem or a motor problem, call the factory for further troubleshooting and return information.

9. Transmitter will not operate the gate

STEP 1 Open the control box and locate the Patriot control board. Locate the “Led Indicator” push button and the “Push Button Input” led. Push the “led indicator” push button and hold, then press the transmitter button and observe the “push button led”. The led should come on while the transmitter button is depressed.

STEP 2 If the “Push Button Led” did not come on then make sure that the green J2 connector on the control board is securely connected, replace the 9 volt battery in the transmitter and verify that the dip switches located in the transmitter (above battery) are set identical to the ones located in you receiver. Remove the receiver cover by squeezing the sides and the switches are located inside.

STEP 3 If the “Push Button Input” led in step 1 did come on and the gate did not operate then locate the “Open/Close Command” button located at the bottom center of the Patriot control board. Press the “Open/Close Command” button and note gate operation.

STEP 3 If the gate did not operate in step 3 verify that the 15-amp fuse on the Patriot control board adjacent to the actuator plug being used is not blown, (a fuse can be blown and look good) replacing is the best way to verify fuse is good.

STEP 4 If the gate did not operate in step 3 and the fuse was good in step 4 then most likely a safety accessory connected to the green J2 connector is active. Verify this by depressing the “Led Indicator” push button and observe the led’s located in the lower left corner of the Patriot control board. If a light is on identify the accessory connected to the corresponding J2 connector pin and correct the problem.

STEP 5 Other causes are possible, both the open and close limit leds are on at the same time, if so adjust limit switches. Control board could be defective; battery could be too weak to operate the gate. Please call the factory for help identifying the cause.

10 Photo-eye, safety loop or other safety accessory will not reverse the gate when closing or hold the gate open

STEP 1 The first thing to check is the accessory wiring. The accessory needs power (+12vdc) wired to battery positive terminal or to J2 pin 1 on the Patriot control board. It also needs ground, which can be wired to the battery or to J2 pin 2 or 7 on the Patriot control board. The other two connections are the “N/O and Common ground”. The common ground can be connected to the battery or to J2 pin 2 or 7 on the Patriot control board. The N/O connection must be connected to J2 pin 11 “Safety Loop / Reversing Edge Input”. If the accessory is connected as described above it should reverse a closing gate or hold a gate open if the accessory is activated.

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- STEP 2 Now to determine if the accessory is working correctly and that the Patriot control board is receiving the signal locate the “Led Indicator” push button and the “Safety Loop / Reversing Edge Input” led (located in the lower left corner of the Patriot control board).
- STEP 3 Press and hold the “led indicator” push button and observe the “Safety Loop / Reversing Edge Input” led. Activate the accessory in question (if photo-eye break the beam) if the accessory is working properly the led light should come on when the device is activated. If the device does not turn on the led light then check wiring, J2 connector connection at the Patriot control board. If wiring is good then the accessory is not operating correctly. Repair accessory and retest.
- STEP 4 If the “Safety Loop / Reversing Edge Input” led comes on and the gate does not reverse direction when closing, call the factory for other possible causes and return information.

11 Pressing the “RESET” button only, causes the gate to operate

- STEP 1 This problem is probably due to a bad receiver. First locate the “Led Indicator” push button on the Patriot control board. Then locate the “Push Button Input” led located in the lower left corner of the Patriot control board.
- STEP 2 Press the “Led Indicator” button and observe the “Push Button Input” led. If the light comes on then the receiver relay is stuck closed and needs to be repaired or replaced.
- STEP 3 If the “Push Button Input” led does not come on, call the factory for further troubleshooting and return information.