



ServerLift Motor System Trouble Shooting Guide

February 17, 2009

This document contains proprietary information belonging to ServerLift Corporation. The information herein may not be disclosed, copied or transmitted without prior permission of ServerLift Corporation.

Copyright 2009



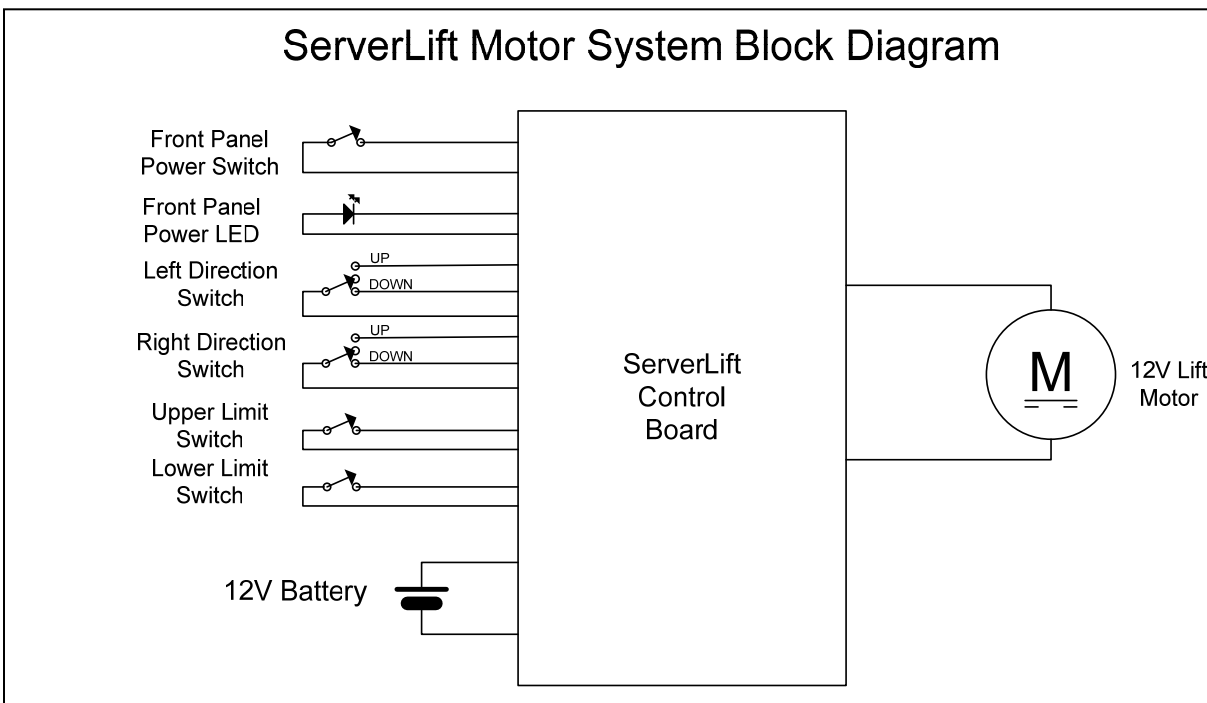
Tel (602) 254-1557 Fax (602) 254-1975
821 North 2nd Street Phoenix, AZ 85004

www.serverlift.com

Contents

How the ServerLift Motor System Works	1
What you will need	3
Before You Begin.....	3
Safety Precautions	3
Troubleshooting.....	4
No Power	4
Motor Won't Run at All.....	5
Motor Runs in One Direction Only.....	6
Motor Runs Past Top or Bottom Limit	7

How the ServerLift Motor System Works



The motor system consists of all the components to raise and lower the platform. These are:

Motor: A 12V motor connected to the lift mechanics with a cable. The motor will go up when 12V is applied to it in one polarity and it will go down when 12V is applied in the opposite polarity. When the voltage is less than 12V, the motor will go slower

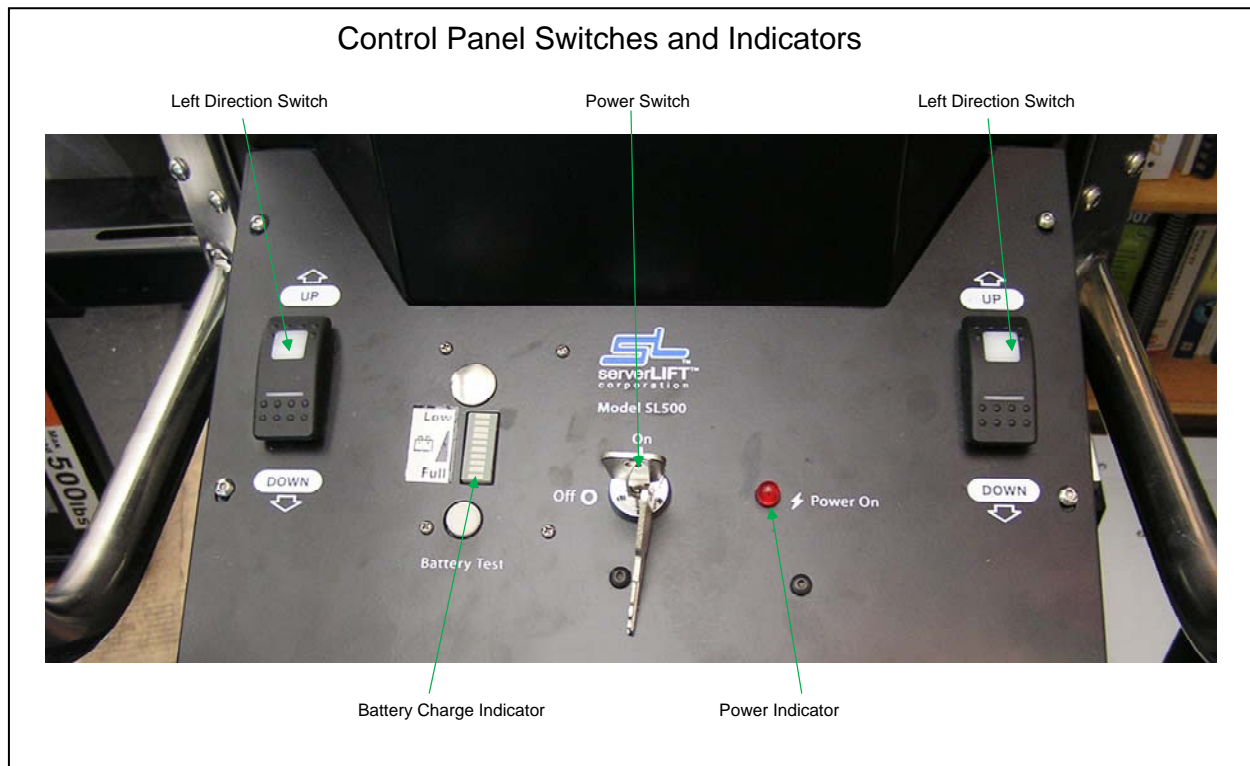
Battery: Supplies 12V used to run the motor, indicators and control board. It is a 80 Amp Hour absorbed glass mat type.

Control Board: This controls the motor up and down motion with power from the 12V battery. When the operator starts a motion, power is applied to the motor with slowly increasing voltage, to make the motor start out slowly and increase in speed.

Power Switch: A key switch located on the control panel that applies power to the control board. When power is on, the power LED located on the control panel lights.

Right and Left Direction Switches: When pressed on the top will raise the platform, and when pressed on the bottom, will lower the platform. Either switch can initiate a motion.

Limit Switches: Detect when the platform is all the way up or down. When the platform is all the way up, the upper limit switch causes the motor controller to not allow further upward motion. Similarly, when the platform is all the way down, the lower limit switch causes the motor controller to not allow further downward motion.



What you will need

To Trouble shoot the motor system, you will need the following:

- A set of metric allen keys to remove panels
- Wrenches to fit battery and motor terminals
- Test leads with alligator clips on both ends
- Good quality electrical tape (one that does not leave adhesive)
- Volt-Ohm Meter

Before You Begin

Most problems with the ServerLift are simple in nature. So, before you begin trouble shooting, check the following things:

- Is the unit turned on? The power indicator should be on.
- Is the battery charged? If so, the battery charge indicator should show most of its bars lit when the test button is pressed.
- Are all the connections tight? Try gently pulling on the wires going to the controller board, motor and battery.

Safety Precautions

1. The battery wires are always live. The battery can supply enormous current which will not be interrupted with fuses. This current can damage components or start a fire. When replacing the control board, CAREFULLY remove the green battery + wire (see photo below) first and wrap the exposed terminal with electrical tape.
2. Be very careful when changing the battery connections either on the control board or on the battery itself. Check the connections twice before making them. Put on the – connection(s) first then the +. Connecting the battery backwards will damage the control board, the battery, or both.
3. The battery connections will spark when connected to the control board. This is caused by the large capacitors on the board charging up quickly. This is normal. Do not make these connections in the presence of flammable fumes, like cleaning solvents—an explosion or fire may result.

Troubleshooting

Before trouble shooting, do the following:

1. Turn on power with key switch
2. Verify that the power indicator lights
3. Verify that the battery charge indicator shows at least 6 bars when the test button is pressed

No Power

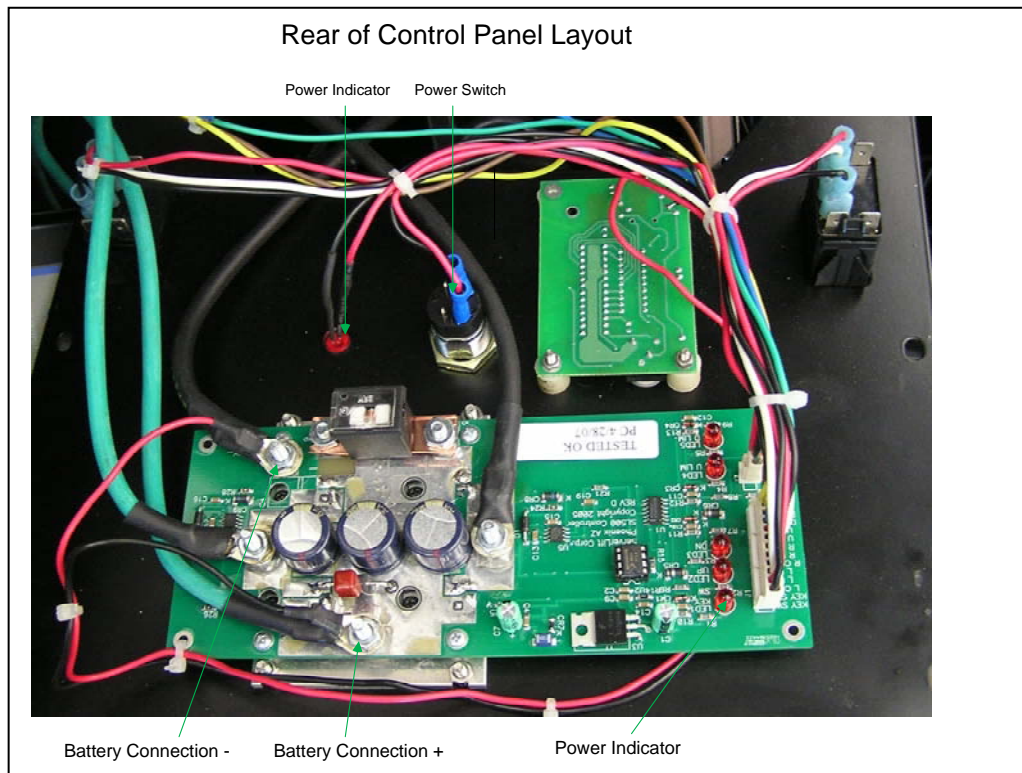
No power to the system is usually caused by a battery or wiring fault.

Check the battery:

1. Remove the access cover to the battery.
2. Check that the red and green wires are on the + terminal of the battery.
3. Check that the black wire is on the – terminal of the battery.
4. Measure the voltage on the battery. If it is below 10.5V, charge the battery.

Check the wiring:

1. Remove the control panel to access the components on the rear of the panel (see below).



2. If the power indicator on the board (marked KEY) is on then replace the power indicator LED on the panel.
3. Check the + and – battery connections. Verify a voltage of at least 10.5V and it is the correct polarity.
4. Remove the connections from the power switch. Connect them together with a test lead with alligator clips on both ends. If this causes the power indicators to light, then replace the power switch.
5. Replace the wires leading from the power switch to the board.
6. Replace the board.

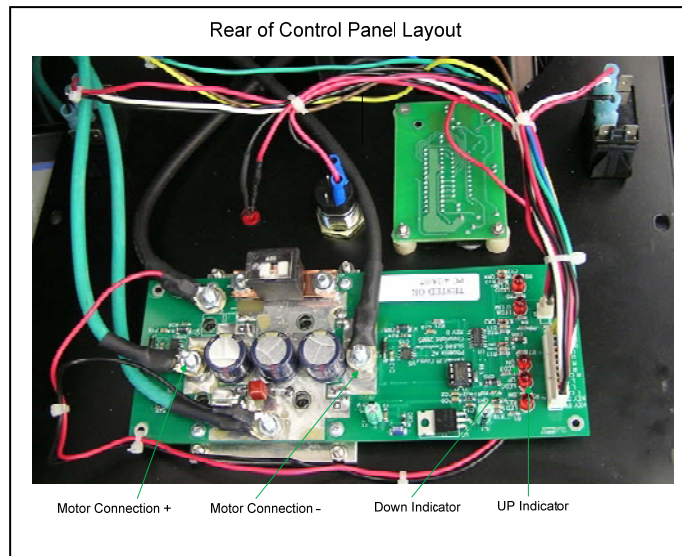
Motor Won't Run at All

When the motor won't run at all, the problem is usually the battery is low, a wiring fault, bad control board, bad fuse or a bad motor.

Check the battery following the instructions in the previous section "No Power".

Wiring Faults:

1. Open the access cover in front of the motor.
2. While pressing one of the direction switches, measure the voltage on the motor. The alligator clip leads are helpful for this. It should gradually increase to about equal the battery voltage. If the proper voltage is present, replace the motor.
3. Remove the control panel.
4. Check the power indicators (see previous section).
5. Press one of the direction switches in the up direction and then in the down direction while measuring the motor voltage and observing the LEDs indicating the direction selected by the switch.

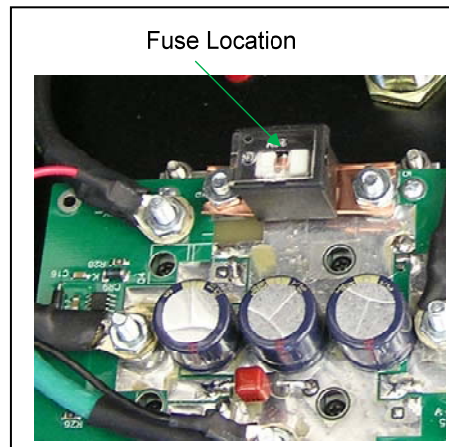


If the direction LEDs do not light up, then check the switch wiring.

Bad Fuse:

1. With the direction switches not pressed, use the ohms function on your meter to measure the continuity of the fuse. If it is more than 1 Ohm, replace the fuse.

Note: if the fuse is blown, this often indicates a serious problem with the control board and it will also likely have to be replaced.



Bad Control Board:

1. While pressing one of the direction switches, if the motor voltage does not reach about the same voltage as the battery in 10 seconds, replace the board.

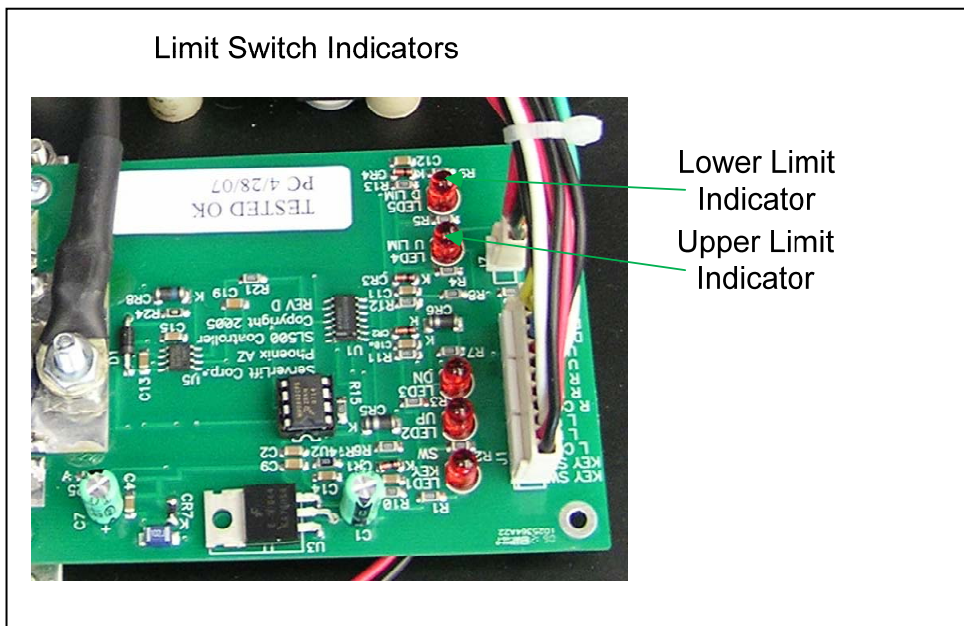
Motor Runs in One Direction Only

If the motor only goes in one direction, the problem is usually either in the switch wiring or the control board is bad.

Checking the switch wiring:

1. Press the left direction switch on the top to make the platform go up and then press the direction switch on the bottom to make the platform go down.
2. Press the right direction switch on the top to make the platform go up and then press the direction switch on the bottom to make the platform go down.
3. If only one of the direction switches does not work properly, then the problem is either the switch or the wiring to the switch. The switch can be tested by opening the control panel, removing the wires on the affected switch and checking the switch for continuity while pressing it.
4. If both switches do not work properly, then open the control panel.

5. Go through the sequence of testing the switches and observing the lights as detailed in the section above "The Motor Won't Run at All".
6. Check the limit switches by observing the limit switch indicators.



If the platform is at the top, the upper limit indicator will light, if the platform is at the bottom, then the lower limit indicator will light up. If the platform is in between, neither light will light up. If the platform is between ends and one of the indicators is on, then the limit switch or its wiring is defective and needs to be replaced.

Motor Runs Past Top or Bottom Limit

If the platform goes to the top or bottom and does not stop, the problem is usually the limit switches and less frequently, a bad control board.

Check the limit switches:

1. Open the control panel.
2. Check the limit switches with the procedure above in section 6.

Check the board:

1. Open the control panel.
2. Move the platform to end where platform should stop but doesn't.
3. Observe that the upper or lower limit switch (as appropriate) indicator lights up. If it does, replace the board.