

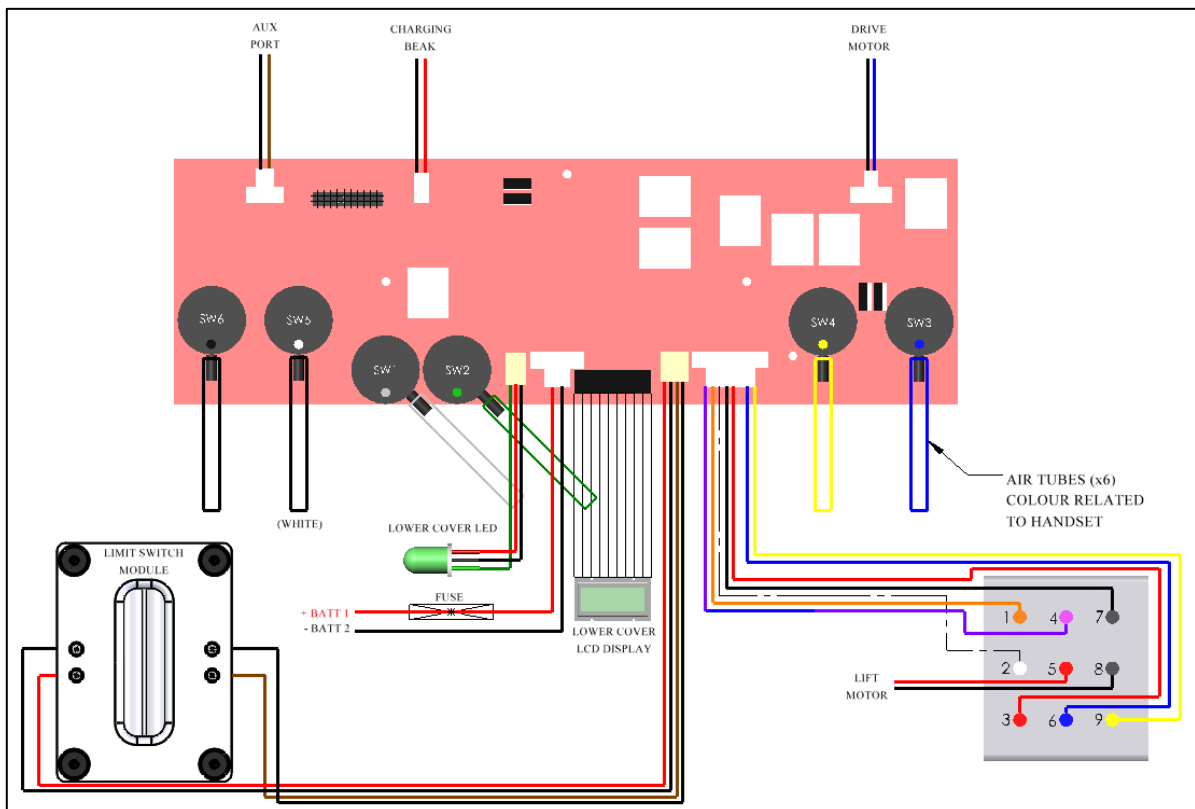
PCB and Battery Testing Guide

(Ceiling Lift has no power)

Covering All TX Advanced Models

This document will guide you on how to determine a fault with the PCB or any direct components when the ceiling lift has no power. Follow the steps below to determine if the PCB and direct components are functioning correctly. To do this, the ceiling lift covers must be removed, for details on how to remove the covers, refer to the service manual for the correct removal procedure.

The diagram below shows each connection port found on the PCB and what component plugs into each port. Ensure that each port is plugged in (where applicable).



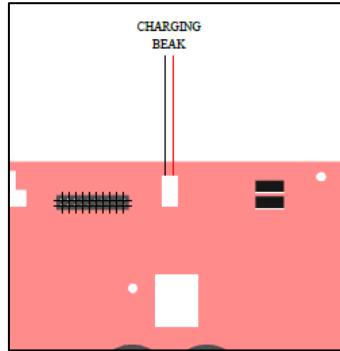
Each of the below troubleshooting guides requires a multi-meter to test power inputs and outputs from the board. Prepare the multi-meter by setting it to read DC volts, the red lead (positive) should be plugged into the voltage port, and the black lead (negative) should be plugged into the COM port. The display screen should show a reading of 0.0 volts.



Is the PCB receiving charge from the charging beak?

Step 1

Determine the location of the charging beak port, this is located at the top left-hand side of the board.

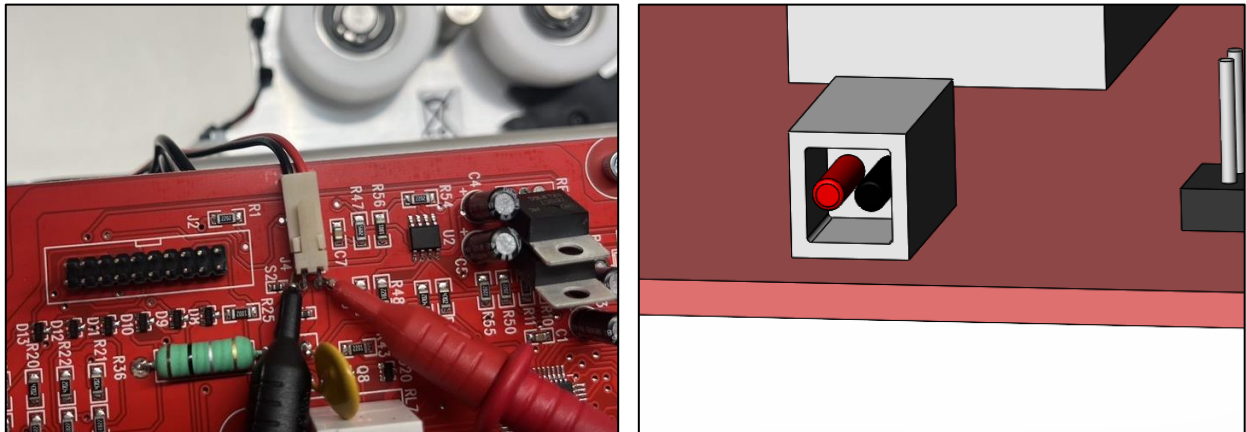


Step 2

Ensure that the batteries are charged, if unsure of battery status, allow the batteries to charge for at least 20 minutes for sufficient power prior to testing.

Step 3

To determine if the voltage is running through the port. Touch the black (negative) lead onto the black lead connection point, and the red (positive) lead onto the red lead connection point. This should display between **26 and 27.5v**.



If the PCB is not receiving at least **26v**, the charging beak or charging dock is broken. See the charging dock troubleshooting guide to determine any faults with the dock. If none arise, then replace the charging beak.

If the port is receiving the correct voltage, see the next step.

Test Complete

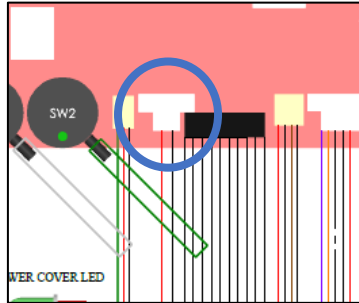
Are Batteries receiving charge from the PCB?

Step 1

You must first complete all actions for "is the PCB receiving charge?" before beginning this section.

Step 2

Determine the location of the main power connector, this is located at the bottom centre of the board.



Step 3

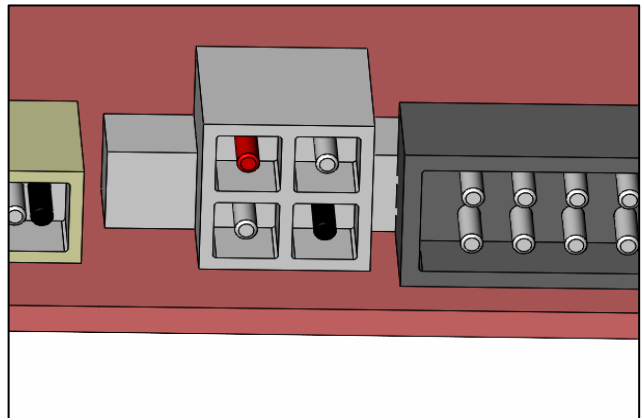
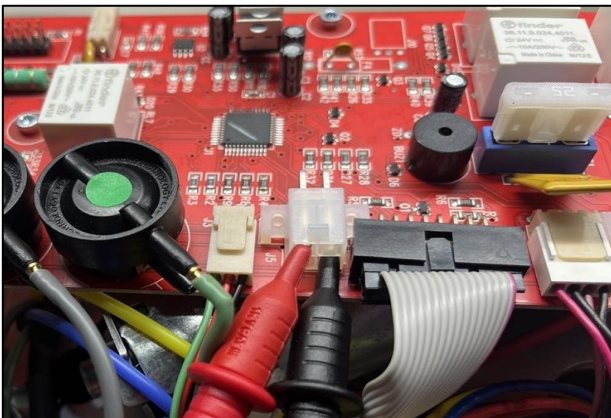
Ensure that the batteries are charged, if unsure of battery status, allow the batteries to charge for at least 20 minutes for sufficient power prior to testing.

Step 4

Disconnect the main power lead (battery lead) from the PCB.

Step 3

To determine if the voltage is running through the port. Touch the black (negative) lead into the bottom right terminal, and the red (positive) lead into the top left terminal (See image for reference). This should display between **26 and 27.5v**.



If the port is not receiving at least **26v**, then the power is being lost in between the charging port and the main power port, this means that the PCB is broken and needs replacement.

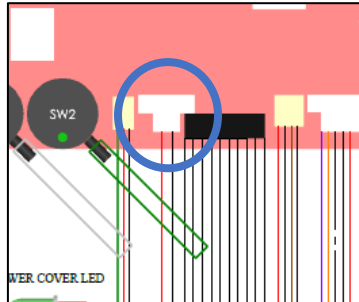
If the port is receiving the correct voltage, see next step.

Test Complete

Is the PCB receiving power from the Batteries?

Step 1

Determine the location of the main power connector, this is located at the bottom centre of the board.



Step 2

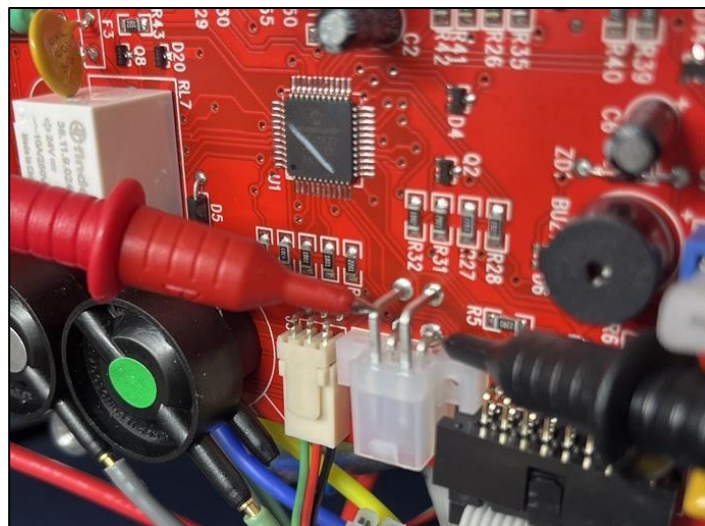
Ensure that the batteries are charged, if unsure of battery status, allow the batteries to charge for at least 20 minutes for sufficient power prior to testing.

Step 3

Ensure the main power lead (battery lead) is plugged into the PCB.

Step 4

To determine if the voltage is running through the port. Touch the black (negative) lead into the bottom right terminal, and the red (positive) lead into the top left terminal (See image for reference). This should display between **18v and 26.5v**.



If the port is not receiving at least **18v**, then the batteries are not providing enough power to the ceiling lift, follow the next step '**Are Batteries holding charge**' to determine if the batteries are at fault.

If the port is receiving the correct voltage, skip the next step '**are batteries holding charge**' and go to '**is the toggle switch receiving power from the PCB**.'

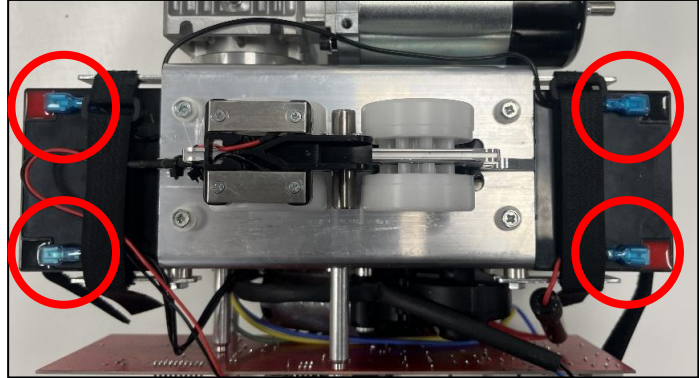
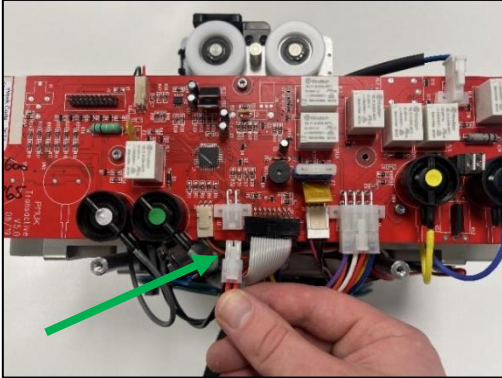
Test Complete

Are the batteries holding charge?

To determine if the batteries are holding charge, the above steps must be completed first, and then the batteries can be tested with a battery tester as shown below.

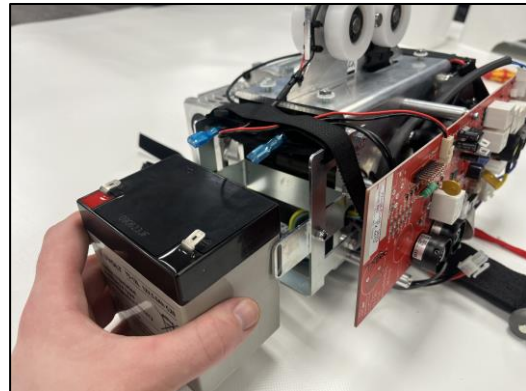
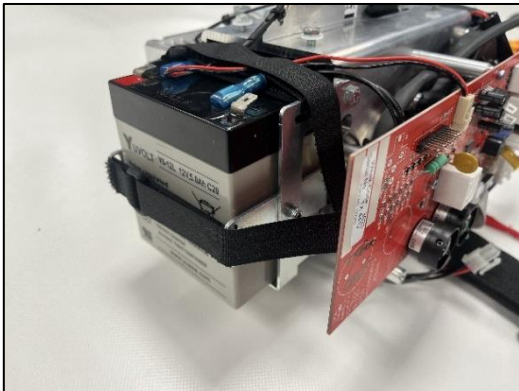
Step 1

Disconnect the batteries from the ceiling lift by disconnecting the battery connection leads, the first lead to disconnect is the power lead from the board.



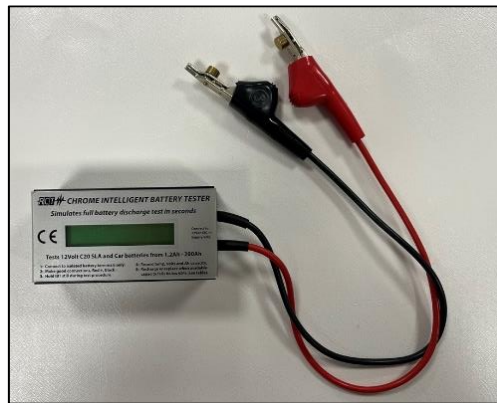
Step 2

If you require better access to the batteries, remove both batteries from the ceiling lift by releasing the hook and loop straps from either side.



Step 3

An ACT battery tester is required, place the unit by the batteries ready for testing.



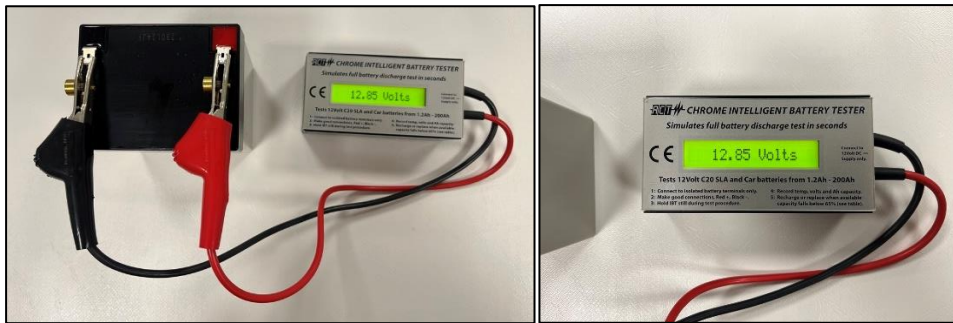
Step 4

Attach the red (positive) lead to the positive terminal on the battery, then attach the black (negative) lead to the negative terminal on the **same** battery.



Step 5

The battery tester will display the recorded voltage measured across the two terminals. This must be between **12-13.5 volts**. If the voltage has dropped below 12v, the battery may require charging. If the batteries have been charged, then the battery is damaged and cannot hold charge. Battery replacement is required.



Step 6

The battery tester will also display the recorded ampere hour (Ah) measured across the two terminals; this must not drop below **3.0 Ah**. If the ampere hour has dropped below 3.0Ah, then the battery is damaged and must be replaced.



Step 7

Repeat **step 4, 5 and 6** for the other battery. The same procedure applies.

Test complete.

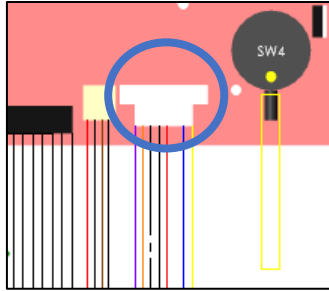
Disconnect the battery tester from the batteries and refit the batteries to the ceiling lift (or fit new batteries). Follow the service manual for correct assembly instructions if required.

If the batteries are holding charge, see next step.

Is the toggle switch receiving power?

Step 1

Determine the location of the toggle switch port, this is located at the bottom right of the board, to the right of the limit switch port.



Step 2

Ensure that the batteries are charged, if unsure of battery status, allow the batteries to charge for at least 20 minutes for sufficient power prior to testing.

Step 3

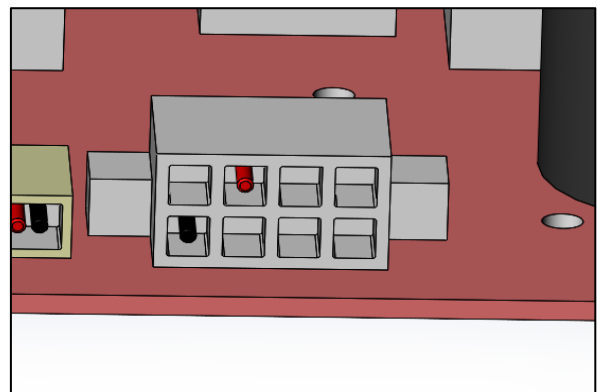
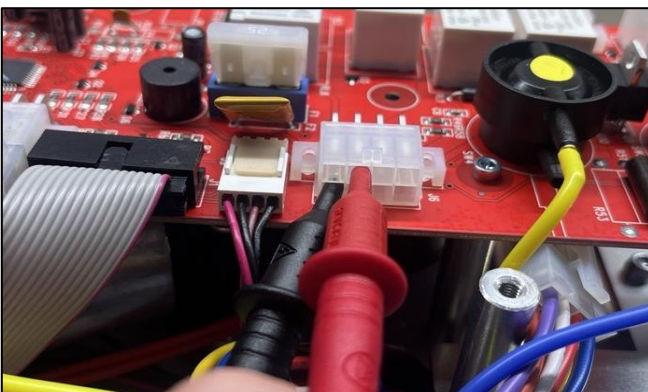
Ensure the main power lead (battery lead) is plugged into the PCB.

Step 4

Disconnect the toggle switch cable from the port.

Step 5

To determine if the voltage is running through the port. Touch the black (negative) lead onto the orange wire terminal (first terminal, bottom row), and the red (positive) lead onto the white wire terminal (second terminal, first row). (See image for reference). This should display between **18 and 25.5v**.



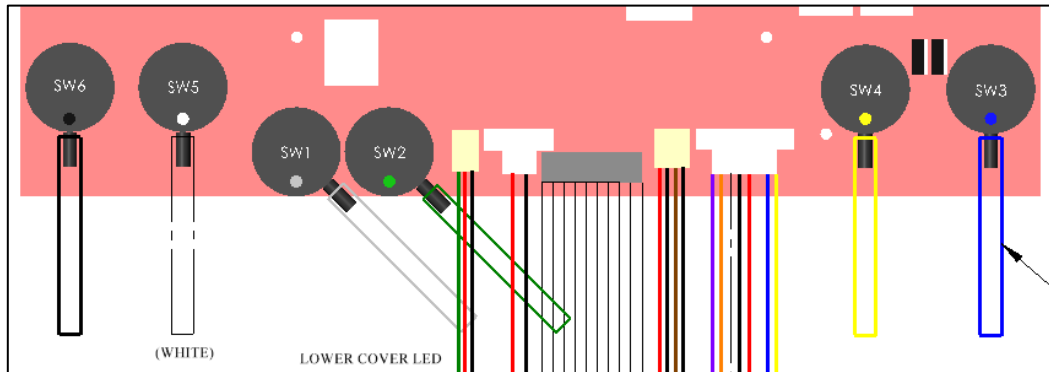
If the toggle switch port is not receiving at least **18v**, then there is a fault in the board. The board must be replaced.

Test Complete

Is there an air leak in the system?

Step 1

Determine the location of the air switches and the air tubes attached, SW1 and SW2 are for the up and down function, SW3 and SW4 are for the traversing, (only applicable to powered traverse ceiling lifts) and SW5 and SW6 are for the powered auxiliary ceiling lifts, where it interacts with a powered turntable or powered h-system (only applicable to powered auxiliary ceiling lifts). The air switches are located at the bottom of the PCB.



Step 2

Ensure that the batteries are charged, if unsure on battery status, allow the batteries to charge for at least 20 minutes for sufficient power prior to testing.

Step 3

Inspect the length of the air tubes from their connection at the PCB to the connection at the grommet, be observant for any disconnections or split tubes. If damaged, replace the air tubes assembly (with grommet)

Step 4

Perform a simple test to determine if there is any air leak in the system. To do this, disconnect the air tubes from the PCB and connect the handset to the ceiling lift via the grommet. Individually press all the buttons on the handset, after pressing the button, place your thumb over the related air tube (grey from up etc.) and release the handset button. If the system is secure the button will remain depressed. If the button releases (even if it is slow), there is an air leak in the system. Repeat this for each air tube. If any of the air tubes fail the test, replace the air tube and grommet assembly. (Ensure this test has already been done for the handset system, see 'handset testing guide' if not).

If the air tubes pass the test, there is a fault with the PCB air switches and the PCB must be replaced.

Test Complete