

## **130 PCB Controller**

# T700

## Operational Instructions

Last Update 11.12.2017

## **3. T700 – Controller Information**

- *PCB Conversion*
- *Power Supply (PSU)*
- *Charging System*
- *Low Battery Procedure F5 - E7*
- *Hibernation Mode*
- *Remote Control Operation*
- *Volume Control*
- *Fault Codes*
- *Powered Swivel Option*
- *Powered Footrest Option*
- *Auto Hinge Operation*
- *Manual Hinge Operation*

## **8. SETTING MODE**

- *Accessing Setting Mode*
- *Step 1 Setting the Hand of the Powered Swivel*
- *Step 2 Setting the Remote Control Type*
- *Step 3 Setting the Auto Hinge*
- *Step 4 Saving the Settings*

## **11. SETTING THE HINGE**

- *Wiring the Hinge Control Box*
- *Pairing the Hinge Control Box to the T700 PCB*

## **13. CHANGES / ALTERATIONS**

- *Changing the Volume on Beeper*
- *Accepting Another Remote*
- *Clearing Remotes and the Hinge Address*
- *Reading the Battery Voltage, Software Version and Serial Number of the PCB*

## **16. T700 PCB WIRING DIAGRAMS**

- *T700 PCB Standard Wiring Diagram*
- *T700 PCB Powered Options Wiring Diagram*
- *T700 PCB Connectors Wiring Diagram*
- *T700 Seat Powered Swivel Wiring Diagram*
- *T700 PCB Rail Wiring Diagram*
- *T700 Rail to Hinge Control Box Diagram*
- *T700 Hinge Control Box Wiring Diagram*

## **23. FAULT CODES**

- *Normal Operation*
- *At Charging Points*
- *Error Reports*
- *Fatal Errors*
- *Hardware Errors*

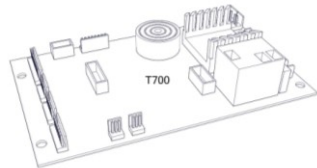
## T700 - CONTROLLER INFORMATION

### PCB Conversion

The T700 PCB is compatible with any previous 120/130 stairlift (post 2005).

Before converting your current PCB to a T700 Controller, ensure you have the following items:

- T700 PCB
- T700 1.5A 28DCv Power Supply
- T700 Digital Display PCB
- T700 Digital Display Lead
- T700 User Manual
- T700 12v Battery Monitoring Lead



### Power Supply (PSU)

The T700 1.5A 28vDC power supply features Universal Input, which allows you to connect an AC power lead from any country.

This unified power supply will replace the 1.5A 15 ACV transformer used in the past (USA 2.5A 15 ACV).

**Note:** The T700 PCB **CANNOT** be used with the previous 15 ACV transformer.

### Charging System

The T700 uses 2x 12V / 7Ah Lead-Acid batteries.

Once the stairlift is parked on a charge point, the T700 charging system will re-charge the batteries, until reaching its maximum capacity.

### *Low Battery Procedure F5 - E7*

In the event of the stairlift entering a low battery level during travel, you will experience the following:

- The lift will stop and display **F5** (battery flat) with an audible warning, reverting to E7 after the arm toggle or remote is activated.
- The stairlift will **ONLY** drive in the downwards direction displaying **E7**, until the bottom parking position is reached.
- The display code **E7** will remain and will automatically clear once the batteries have recharged to a safe level.

### *Hibernation Mode*

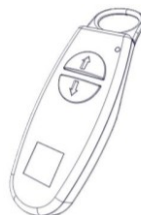
The Stairlift will enter hibernation mode after **60 seconds**, if the unit is positioned away from a charge point or in the event of a power cut. The display will turn off, which will reduce energy consumption.

In hibernation mode, the Stairlift will beep twice every approximately 40 seconds, only by pressing a directional switch from the arm or remote control will return the lift to normal operation.

### *Remote Control Operation*

The T700 operates using Infrared (IR). This is selected using the "*Setting Mode*" menu.

- **Infrared**  
This technology requires line of sight with the stairlift to operate correctly. There are 4 operating channels available.



**Note:** RF technology is available when experiencing IR interferences

## Volume Control

The T700 features 3 volume settings.

## Fault Codes

The T700 PCB comes with Unified fault code system for easier diagnosis.

## Powered Swivel Option

The T700 has the powered swivel operating circuit integrated. No extra PCBs are required in the carriage when using this option.

### Powered Swivel Operation:



- Upwards movement using the directional switch on the arm

When the lift reaches the top stopping position. The lift will stop, and after a short delay the seat will automatically swivel.

*(This short delay is for safety reasons)*

- Downwards movement using the directional switch on the arm

When a call is made, the seat will swivel back to the travel position. After a short delay, the lift will automatically start its travel.

*(This short delay is for safety reasons)*

- Upwards movement using the remote control

The lift will reach the top stopping position and stop. Release and press the remote again to start the swivel operation.



- **Downwards movement using the remote control**

When a call is made, the seat will swivel back to the travel position and stop. Release and press the remote again to start the lift operation.

#### *Powered Footrest Option*

The T700 has the powered footrest operating circuit integrated. No extra PCBs are required in the carriage when using this option.

#### **Powered Footrest Operation:**

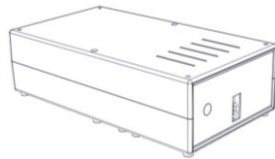
At the top or bottom of the stairs, after the stairlift comes to a stop, use the buttons located along both sides of the seat to lower or raise the footrest as required.

#### *Auto Hinge Operation*

When the Auto Hinge setting has been selected in the T700 system, it will require the addition of a limit ramp to activate the operation of the hinge .

The T700 Hinge Controller features:

- RF Technology, no umbilical cable require
- Arm rest toggle and remote control operation
- No call stations required
- Battery backup power supply, allowing operation of the hinge in the event of a power cut
- Coded communication protocol, reducing interference
- Manual hinge activation (for engineer or emergency use only)
- External LED power ON display
- Universal Input, which enables you to connect AC power leads from different countries.



## Hinge Operation:

- Using the directional switch on the arm

When the lift reaches the hinge activation ramp, the stairlift will stop and the auto hinge will be automatically raised or lowered. This will allow the user to operate the hinge safely.

- Upward movement using the remote control

When the lift reaches the activation ramp, the stairlift will park and the auto hinge will be automatically raised. Release and press the remote again if a journey to the top is required.



- Downward movement using the remote control

When the lift reaches the activation ramp, the stairlift will park. Release and press the remote again if a journey to the bottom is required.

### *Manual Hinge Operation - Auto Parking Function*

When a manual hinge is used with the T700 system, it will require the addition of a limit ramp to assist parking the lift.

## Operation:

- Using the remote control

When the lift reaches the activation ramp, the stairlift will park. Release and press the remote control again if a journey to the top or the bottom is required.

- Using the directional switch on the arm

The lift will drive through the hinge ramp without stopping.



# SETTING MODE

## Accessing Setting Mode

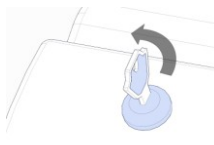
Accessing to "Setting Mode" is required to:

1. Select RH or LH installation
2. Select IR or RF remote operation
3. Select Auto Hinge or complete setting process

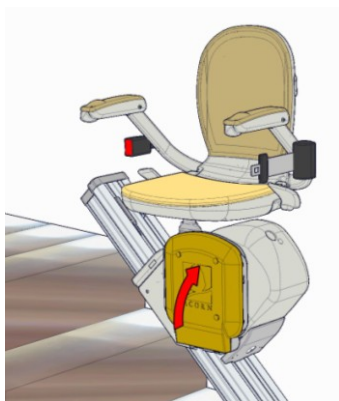
To access "Setting Mode":



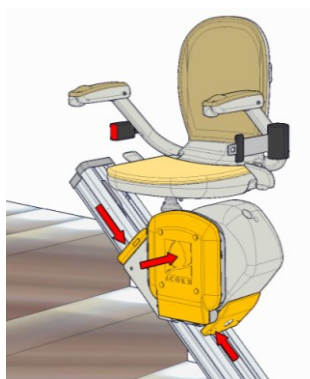
Position the lift away from the charge point



Turn the Key Off



Fold the footplate up

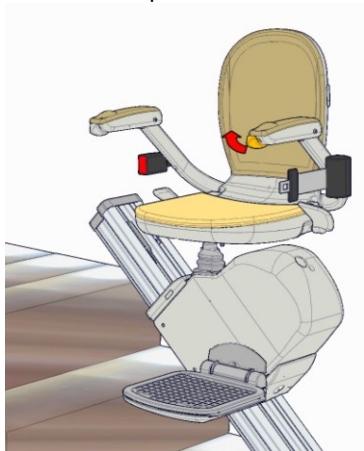


Simultaneously, press and hold the up carriage safety cover (E5) the down carriage safety cover (E4) and the underside of the footplate (E1) for 4 seconds.

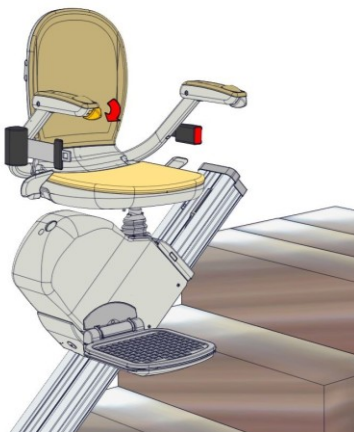
The lift will display P1.

### ***Step 1 Setting The Hand of the Powered Swivel***

Up call for **RH**



Down Call for **LH**

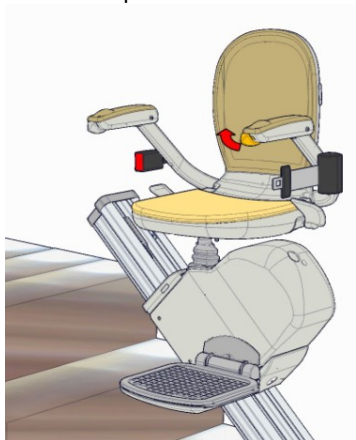


The lift will display rh or lh, continue to step 2

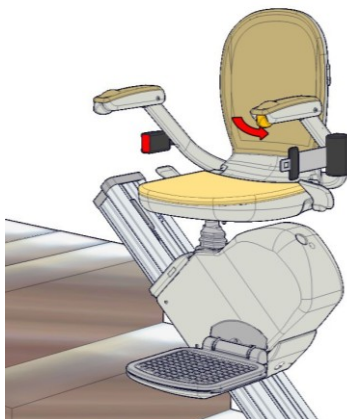
### ***Step 2 Setting The Remote Control Type***

With **rh** or **lh** showing on the display, use the arm toggle to select the remote control type.

Up call to select **IR**



Down call to select **RF**

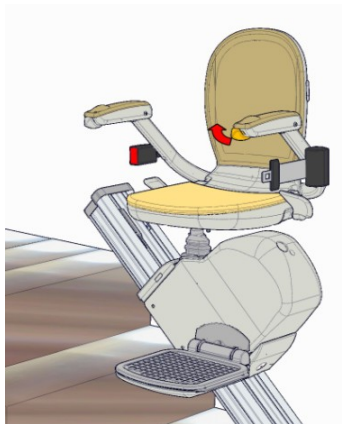


The lift will display ir or rf, continue to step 3

### Step 3 Setting the Auto Hinge / Manual Hinge

With **ir** or **rf** showing on the display, use the arm toggle to select if the lift has or not an Auto Hinge section.

Up call to select Auto Hinge

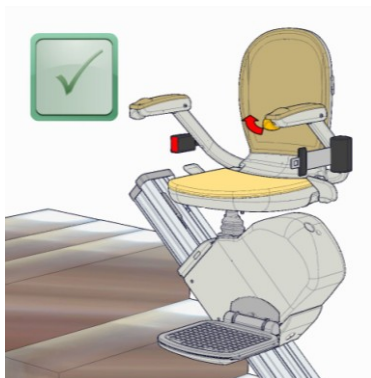


Down call to select Manual Hinge and exit



The lift will display AH or E9, continue to step 4 if AH has been selected

### Step 4 Saving The Settings



Press UP to save the settings.

The lift will beep twice to confirm acceptance.

## SETTING THE AUTO HINGE

### Wiring the Hinge Control Box

See wiring diagram in page 22 for reference.

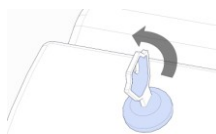
Remove plastic protection cap from the red battery terminal inside the hinge control box and connect the **Red** wire to the battery.

Connect the hinge control box to the main supply socket in the wall.

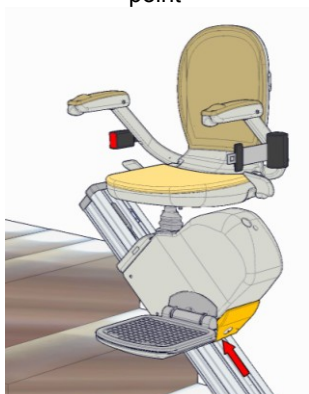
### Pairing the Hinge Control Box to the T700 PCB



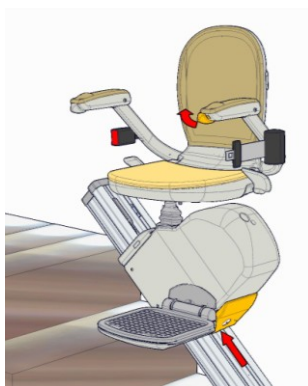
Position the lift away from the charge point



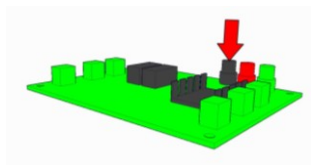
Turn the Key Off



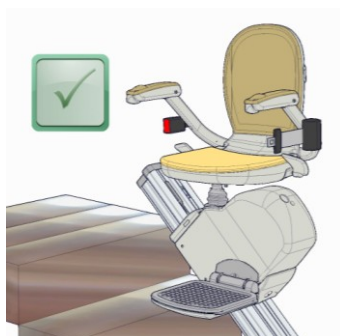
Press and hold the DOWN cover safety (E4)



Press the arm UP once.  
The lift will display P9



Press the Black Button and hold  
until LED 3 flash rapidly



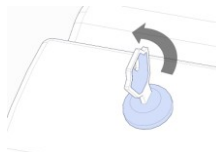
The lift will clear P9  
automatically

## CHANGES / ALTERATIONS

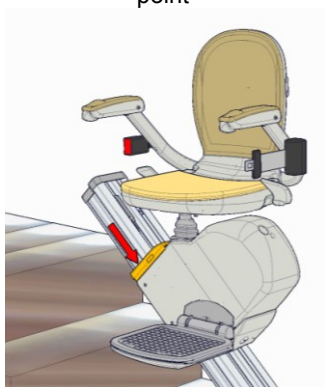
### Changing the VOLUME on Beeper



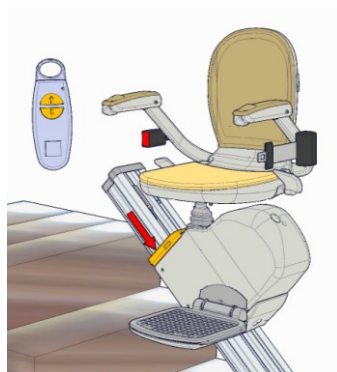
Position the lift away from the charge point



Turn the Key Off

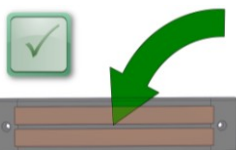


Press and hold the up cover safety edge (E5)

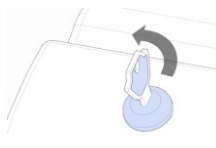


Press the UP or DOWN on the remote to control the beeper volume

### Accepting Another Remote



Position the lift on the charge point



Turn the Key Off



Press and hold the down cover safety edge (E4)

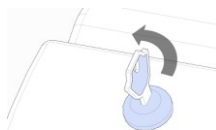


Press the DOWN button on the remote

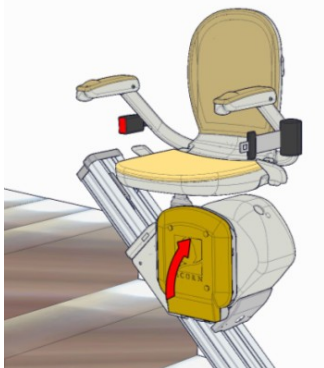
### ***Clearing Remotes and the Hinge Address***



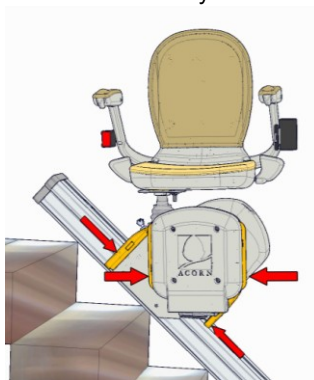
Position the lift on the charge point



Turn the Key Off



Fold the footplate up



Simultaneously, press and hold the up carriage safety cover (E5), the down carriage safety cover (E4), the up footplate safety edge (E2), and down footplate safety edge (E1) for 4 seconds.

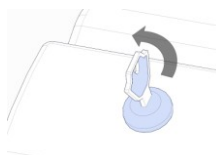
## ***Reading the Battery Voltage, Software Version and Serial number of the T700 PCB***

The display will relay diagnostics in the following order:

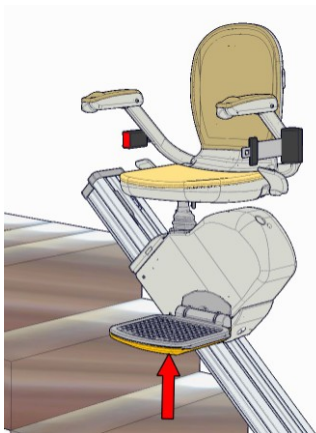
1. Higher battery voltage
2. Lower battery voltage
3. U1 software version
4. U2 software version
5. U8 software version
6. PCB serial number



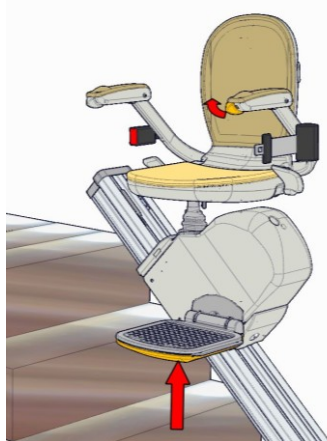
Position the lift away from the charge point



Turn the Key Off



Press and hold the underside of footplate safety (E1)

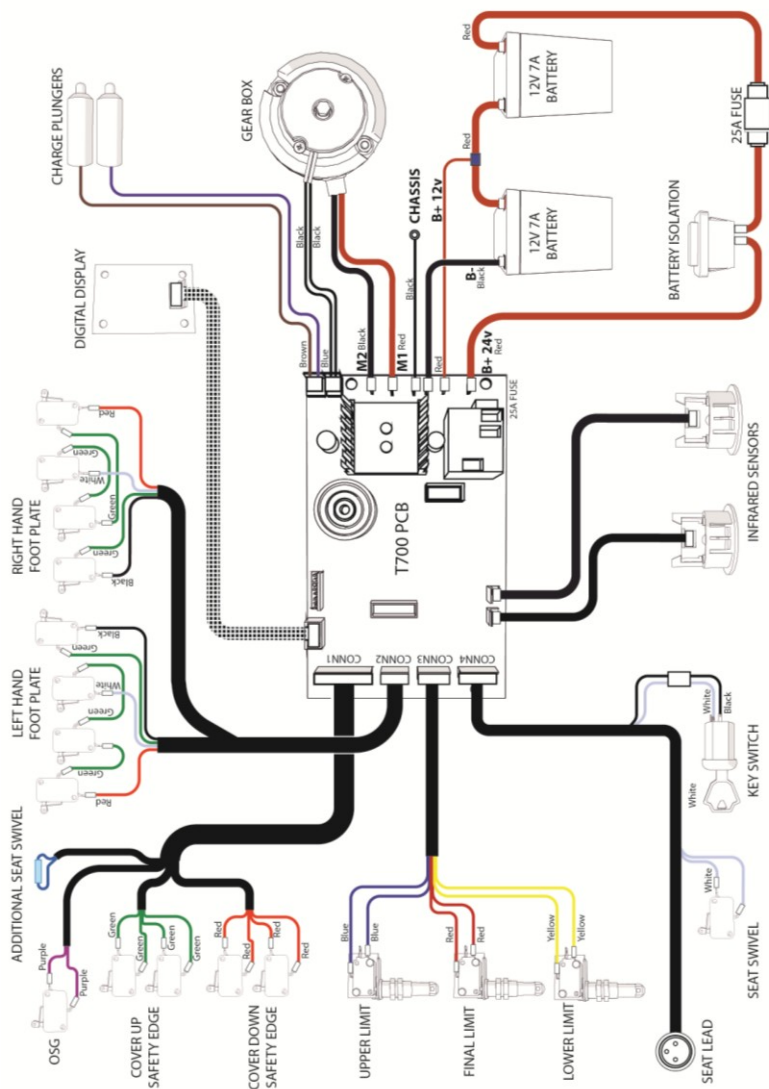


Press the arm UP toggle once

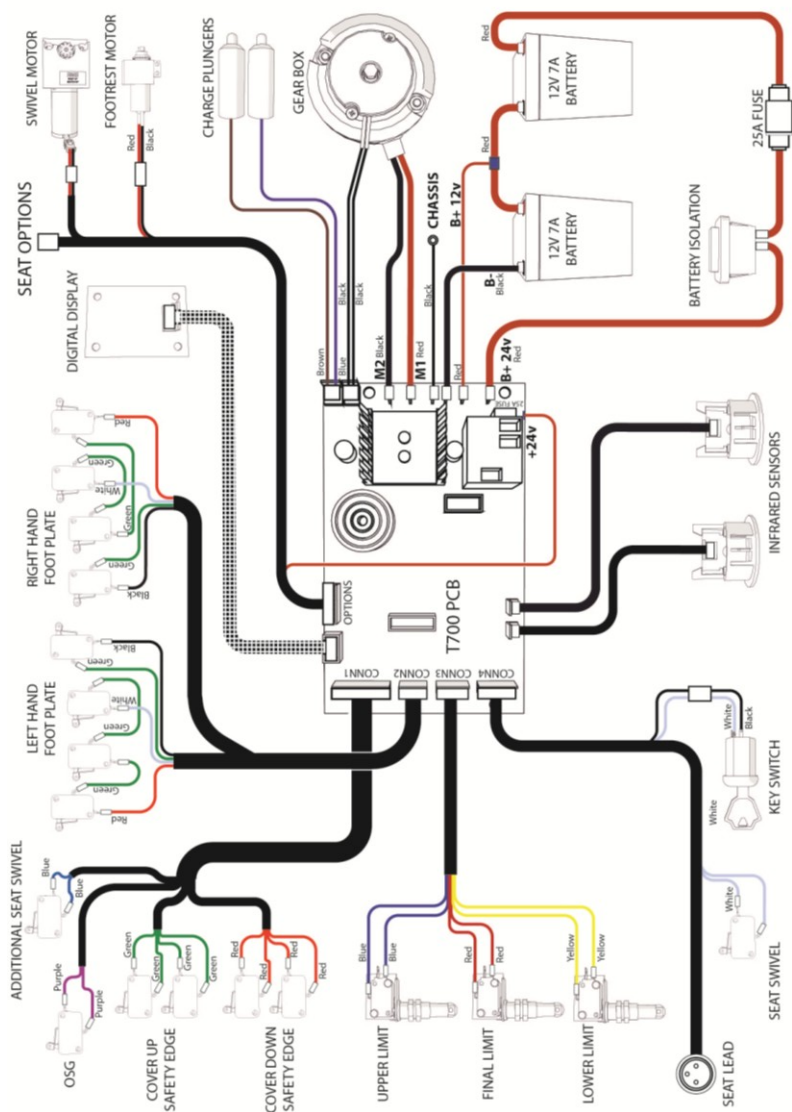


# T700 PCB WIRING DIAGRAMS

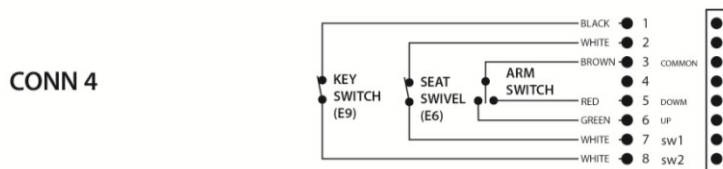
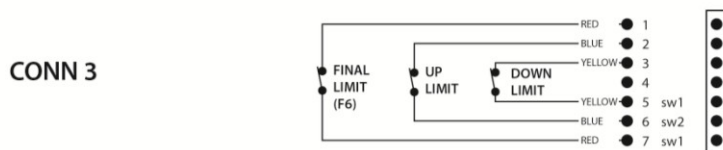
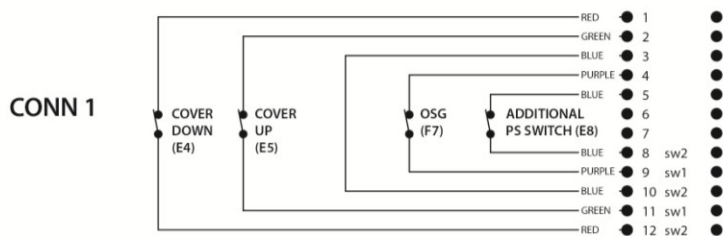
## T700 PCB Standard Wiring Diagram



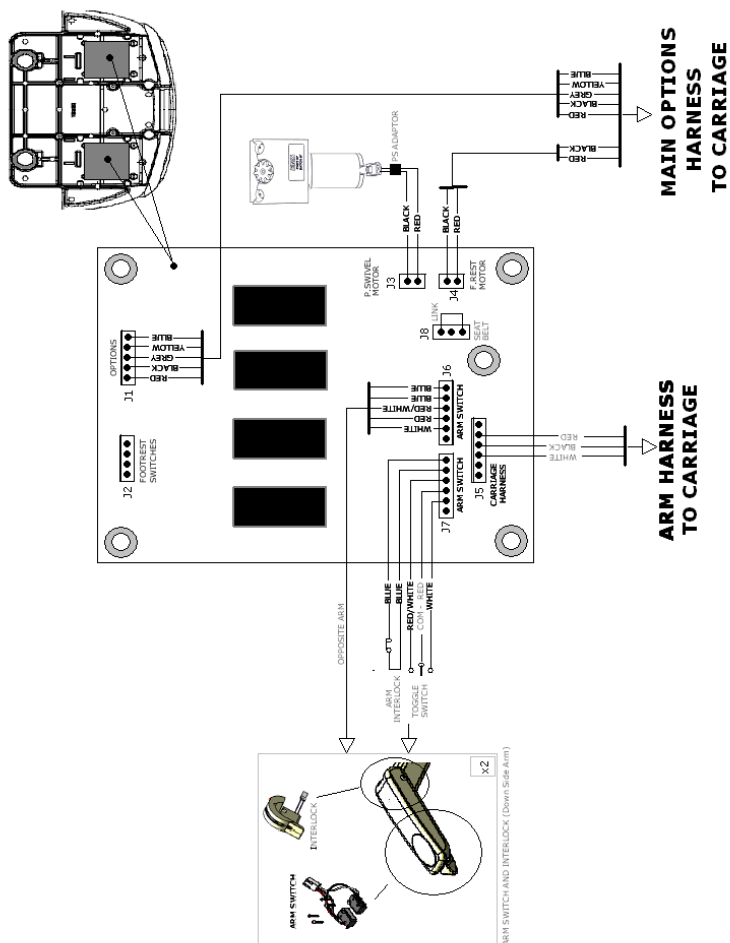
## T700 PCB Powered Options Wiring Diagram



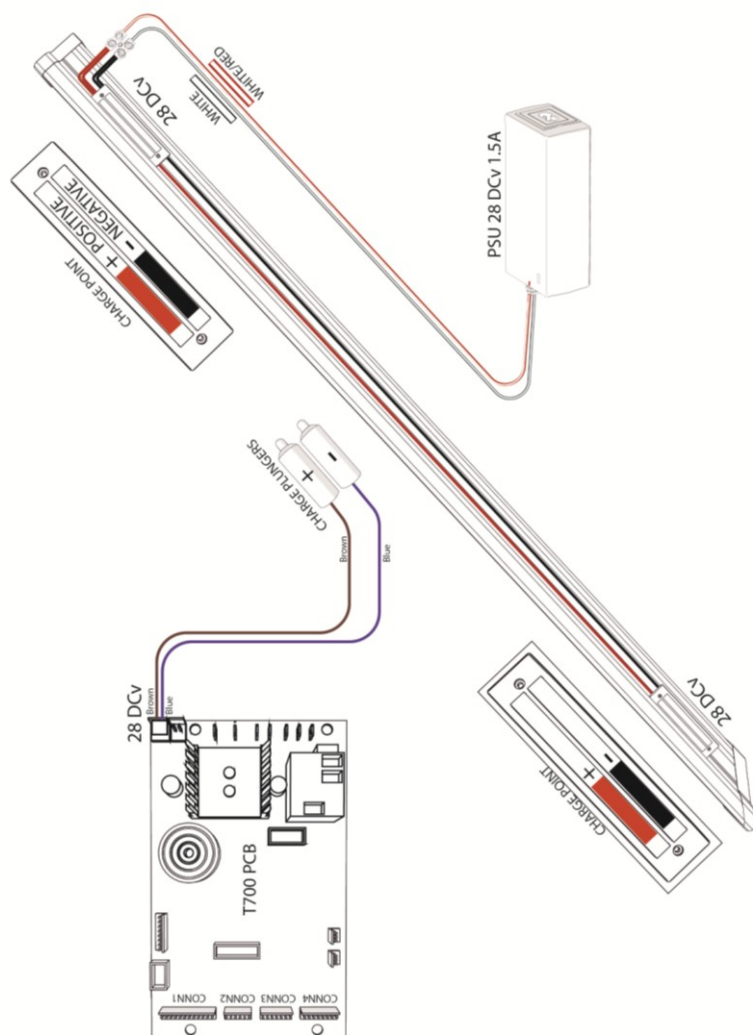
## T700 PCB Connectors Wiring Diagram



## T700 Seat Powered Swivel Wiring Diagram

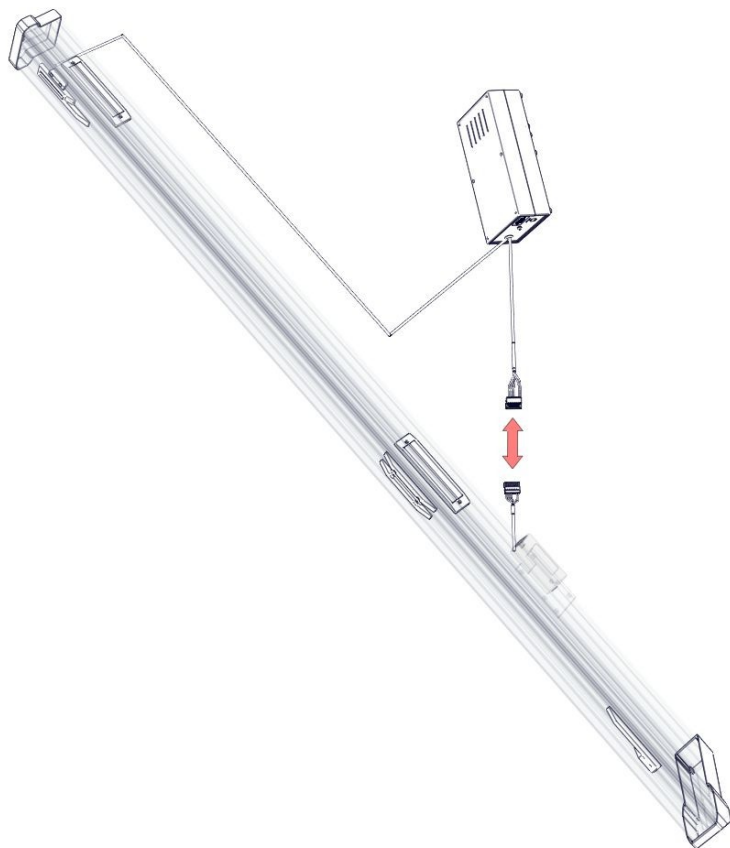


## T700 PCB Rail Wiring Diagram



T700 RAIL  
AC1801216

## T700 Hinge Rail to Hinge Control Box Diagram



### T700 Hinge Control Box Wiring Diagram



# FAULT CODES

## Normal Operation

Feature	T700 A130
Lift ready to use (beeping as no charger present)	<b>A1</b>
Lift moving up (arm)	<b>A2</b>
Lift moving down (arm)	<b>A3</b>
Lift moving up (remote)	<b>A4</b>
Lift moving down (remote)	<b>A5</b>
Lift waiting for auto hinge to operate	<b>A9</b>

## At Charging Points

Feature	T700 A130
Low battery voltage level- trickle charge active	<b>C1</b>
Low battery voltage level - half charge active	<b>C2</b>
Medium Battery voltage level - full charge active	<b>C3</b>
Medium battery voltage level - half charge active	<b>C4</b>
High battery voltage level - Sustained charge active	<b>C5</b>
Battery full - No charge active	<b>C6</b>
Power Supply voltage too low	<b>C7</b>
<i>Check charge point internal wiring and power supply.</i>	
Power Supply voltage too high	<b>C8</b>
<i>Check charge point internal wiring and power supply.</i>	
Battery fault	<b>C9</b>
<i>Check batteries connection and reset PCB. If persistent, replace the batteries.</i>	

## Error Reports

Feature	T700 A130
Safety edge activated (footrest down/under plate)	<b>E1</b>
<i>Check for obstructions or footrest wire connections.</i>	
Safety edge activated (footrest up)	<b>E2</b>



<i>Check for obstructions or footrest wire connections.</i>	
Safety edge activated (cover down)	<b>E4</b>
<i>Check for obstructions or wire connections.</i>	
Safety edge activated (cover up)	<b>E5</b>
<i>Check for obstructions or wire connections.</i>	
Seat not in place (swivelled)	<b>E6</b>
<i>Place the seat back in the travelling position. Check switch positioning or wire connection.</i>	
Battery low, upward movement inhibited	<b>E7</b>
<i>Drive the lift down the rail to the closest charge point and leave to recharge. E7 will clear automatically once the lift has reached a safe battery charge to drive.</i>	
Aux switch operated while seat is not swivelled (powered swivel units only)	<b>E8</b>
<i>The additional seat swivel switch circuit has opened, when the lift was in the travel position. Check the operation of the additional switch. The circuit should remain close during travel .</i>	
Key switch off	<b>E9</b>
<i>Check the key is in and turned to on position.</i>	

## ***Fatal Errors***

Feature	<b>T700 A130</b>
Relay fault	<b>F1</b>
<i>Remove power supply and Isolate batteries from the PCB to reset the controller. If persistent, replace PCB. Tapping the relay could temporally clear the fault.</i>	
Brake fault	<b>F2</b>
<i>Check battery voltage and brake connections.</i>	
Motor over current fault	<b>F3</b>
<i>The current demanded by the motor has exceeded the threshold set. Check the rail for obstructions or debris</i>	
Battery flat during upward movement	<b>F5</b>
<i>Check battery voltage individually. Press directional switch to change F5 to E7, and drive down to the closest charge point to recharge the batteries. E7 will clear automatically once the batteries has reached a safe charge to drive.</i>	
Final limit switch overrun	<b>F6</b>
<i>If the lift has over travel its parking position at the top or bottom of the rail, check the Up or Down limit switch operation. Check for obstructions or debris.</i>	
OSG switch activated	<b>F7</b>

*Hand wind lift up to reset OSG (see hand winding instructions in the user manual).*

## **Hardware Errors**

Feature	T700 A130
Safety grounded to chassis (SW1 safety circuit)	<b>H1</b>
<i>One or more switches from the SW1 safety circuit is grounded to chassis. Check continuity between every switch in the SW1 safety circuit and chassis</i>	
Safety grounded to earth (sw2 safety circuit)	<b>H2</b>
<i>One or more switches from the SW2 safety circuit is grounded to chassis. Check continuity between every switch in the SW2 safety circuit and chassis</i>	
Auto Hinge communication fault	<b>H3</b>
<i>Reset the hinge control box using the reset button. Check power supply and battery back up in the hinge control box. Paired PCB and hinge control box again. If the problem persists, replace the hinge control box.</i>	
Secondary processor U2 not responding	<b>H4</b>
<i>Reset PCB. If the problem persists, replace the PCB.</i>	
Memory store not responding (EEPROM)	<b>H5</b>
<i>Reset PCB. If the problem persists, replace the PCB.</i>	
Auto Hinge end limits not found (timeout)	<b>H6</b>
<i>After 60 seconds operating, the folded switch or the interlock switch circuit remained open. Check every connections between the hinge and hinge control box and the operation of the micro switches.</i>	
Heat sink over temperature	<b>H8</b>
<i>Allow the lift to cool down. If the problem persists, replace the PCB.</i>	
Main Motor PWM fault	<b>H9</b>
<i>Reset PCB. If the problem persists, replace the PCB.</i>	