



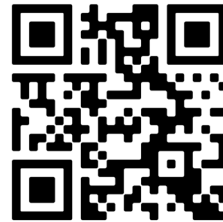
L-M Range

Installation Manual

Safety Guidelines

NOTE: This manual is compiled from the latest specifications and product information available at the time of publication. We reserve the right to make changes as they become necessary. Any changes to our products may cause slight variations between the illustrations and explanations in this manual. The latest/current version of this manual is available on our website. If you require an electronic version or translated version of the manual please scan the QR code or enter the URL (<https://www.mobilityinmotion.com/Autochair-Installer-Manuals>) and select the appropriate manual.

- Français** - Veuillez scanner le code QR ou entrer l'URL de la version anglaise du manuel d'installation
- Deutsch** - Bitte scannen Sie den QR-Code oder geben Sie die URL der englischen Version der Installationsanleitung ein
- Español** - Escanee el código QR o introduzca la URL de la versión en Español del manual de instalación
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- תירבע** - הסרגה לש רתאה תבותכ תא ןזה וא QR-ה דוק תא קורס הנקתהה ךירדמ לש תילגנאה



WARNING! The Smart Lifter is only intended to be installed by an Accredited Dealer or an installer. Please read and fully understand the manual prior to installation.

The following symbols are used to identify warnings and important details throughout this manual. Please read them and ensure you are aware of their meaning.



WARNING! These symbols denote a potentially dangerous situation. Failure to carry out the specified procedures may result in injury or damage to the device.



MANDATORY! The indicated actions must be carried out as specified. Failure to perform the specified actions may result in injury or damage to the device.



PROHIBITED! Do not carry out the indicated actions. They should not be performed at any time, under any circumstances. Carrying out a prohibited action may result in injury or damage to the device.

**UK
CA**

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Autochair Ltd.
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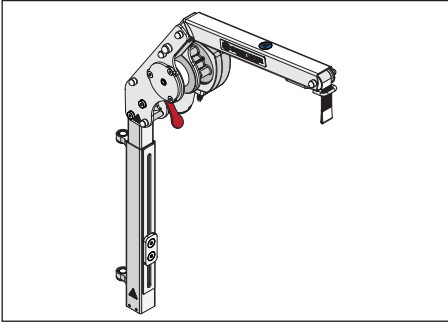
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Contents

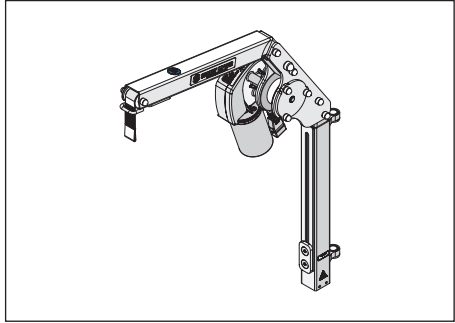
1. TECHNICAL	4
2. HOIST LOCATION	5
3. CONTROL BOX BRACKET	6
4. CONTROL BOX	8
5. WIRING INSTRUCTIONS	9
6. MOTOR LOCATION	12
7. SETUP INSTRUCTIONS	15
8. HANDSET INSTRUCTIONS	18
9. SETTING THE CONTROL BOX	20
10. CUSTOMER HANDOVER	23
11. DEALER DETAILS	24

1) Technical

Folding Boom

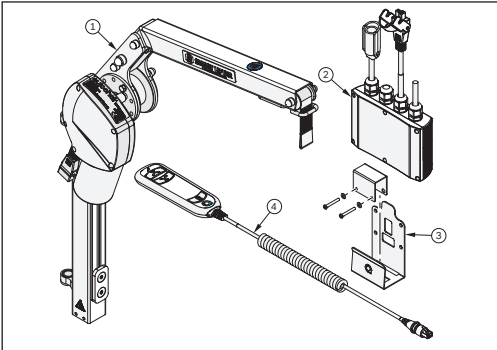


Fixed Boom



2 - Way Control

Illustrated Parts

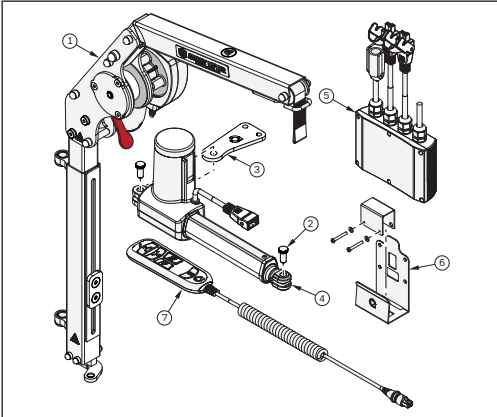


BoM

Item No.	Description	Qty.
1	L-M Fixed/Folding	1
2	2-Way Control Box	1
3	Control Box Bracket	1
4	2-Way Handset	1

4 - Way Control

Illustrated Parts



BoM

Item No.	Description	Qty.
1	L-M Fixed/Folding	1
2	Knurled Pin	2
3	In/Out Actuator Bracket	1
4	In/Out Actuator	1
5	4-Way Control Box	1
6	Control Box Bracket	1
7	4-Way Handset	1



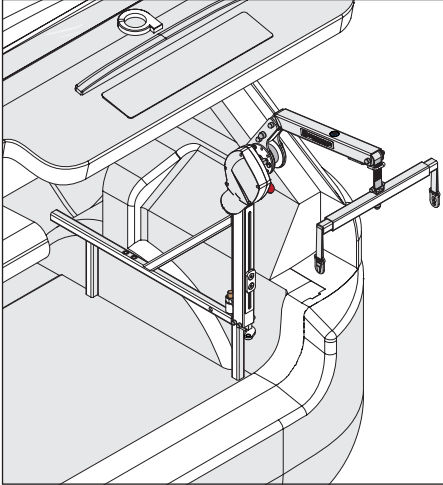
The maximum lifting capacity of the Smart Lifter is dependent on the version the customer has purchased. Check this by referring to labels on the lift arm. The mobility device must not exceed this weight.

2) Hoist Location

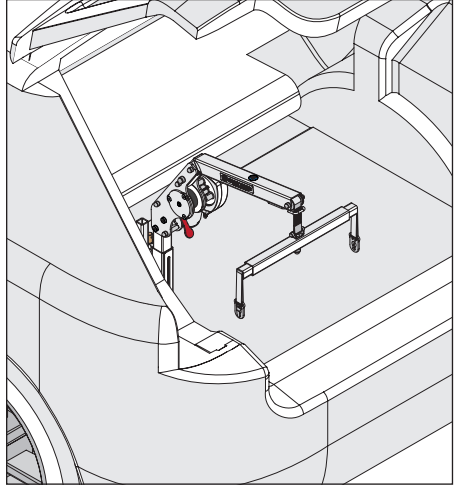
Mounting Side

Dependant on the vehicle; the dedicated A-Frame will be fitted on the instructed side. Universal A-Frames are available for Left Hand and Right hand installs vehicle dependant. The Universal Post is also available for the Smart Lifter - L-M Range.

Right Hand Position

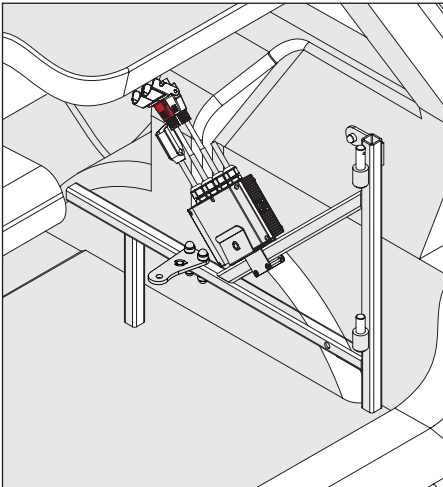


Left Hand Position

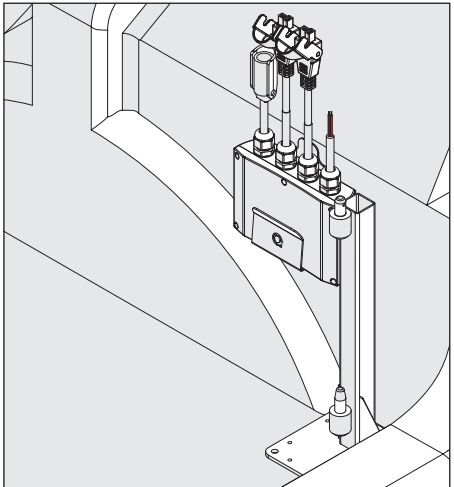


Install the Mounting Method

Dependant on the vehicle the mounting method will vary. This will be a dedicated A-Frame, a Universal A-Frame or Universal Post. The dedicated A-Frame will have a set of fitting instructions, please fit in accordance with these instructions. For the Universal A-Frame please refer to the Universal A-Frame Manual. For the Universal Post please refer to the Universal Post Manual.



A-Frame

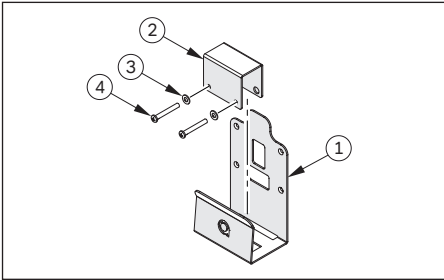


Universal Post

3) Control Box Bracket

The Control Box can be fitted to both the A-Frame or the Interior of the vehicle. Please follow the Illustrations provided on how to attach the Control Box. Please note for the Universal Post the control box can only be fitted to the side of the vehicle.

Illustrated Parts

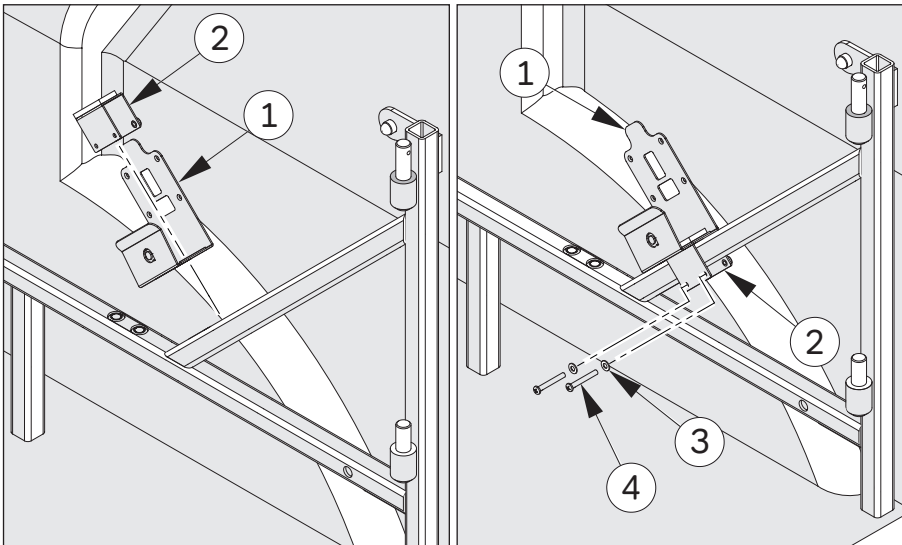


BoM

Item No.	Description	Qty
1	Control Box Bracket	1
2	Control Box Support Bracket	1
3	M4 Flat & Spring Washers	2
4	M4 x 35 Screws	2

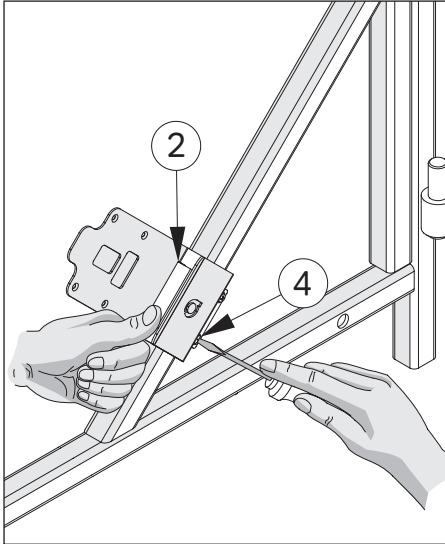
Attaching to the A-Frame

The following steps will show you how to attach the control box bracket to the A-Frame. The Control Box bracket should be installed onto the diagonal of the A-Frame. The position will depend on the boot surrounds such as the trim layout in the vehicle. If the control box can't be fitted onto the A-Frame due to clearance issues, please go to the steps for attaching to the side of the vehicle.

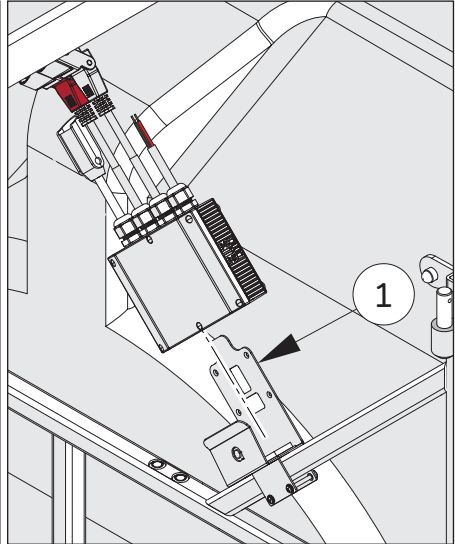


1. Slot Item 2 through Item 1 as shown. Fit Item 2 over the Diagonal on the A Frame.
2. Insert Items 3 and 4 into the Control Box bracket as shown.

3) Control Box Bracket



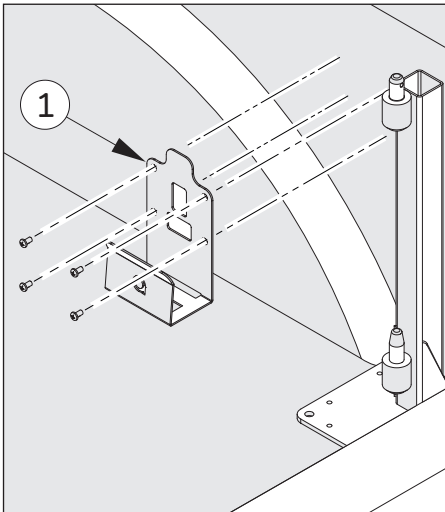
3. Ensure Item 2 is held firmly down before tightening Item 4 as shown.



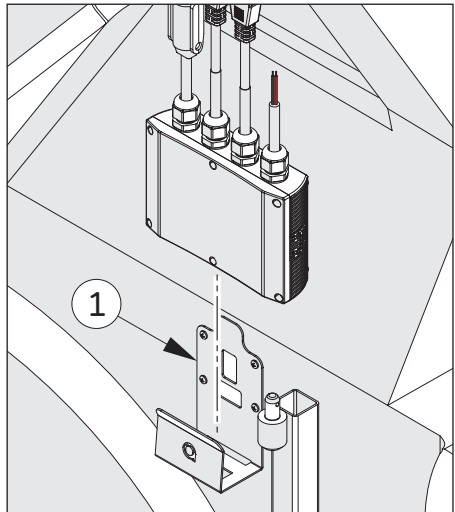
4. The Control box can now be inserted into Item 1. Ensure the control box tab locates into the bracket slot.

Attaching to the side of the vehicle (Universal Post)

The following steps will show you how to attach the control box bracket to the side of the vehicle when installing a Universal Post or unable to attach to the A-Frame. The control box bracket should be installed onto the interior trim in the boot of the vehicle using the self tapping screws from the electrical kit provided. Ensure the Bracket is fitted close to the Universal post/A-Frame.



1. Find a location in the boot next to the Universal Post. Using the self tapping screws provided in the electrical kit attach Item 1 to the interior trim as shown.

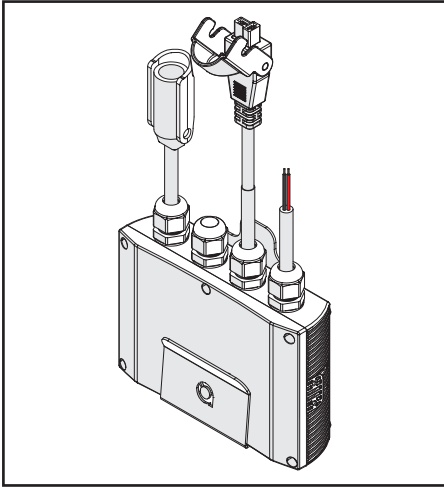


2. Once Item 1 is securely attached, insert the control box.

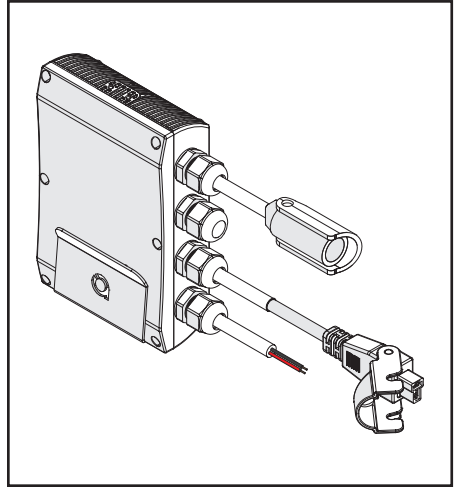
4) Control Box

2 - Way Control Box

The 2-Way control box has three connectors. The Control box can be positioned in two ways. Both options are shown below.



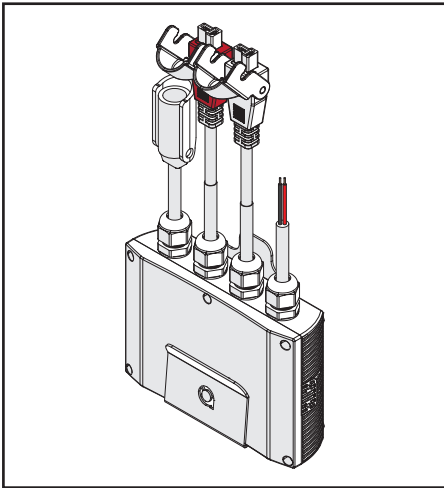
Option 1 - Control Box positioned upright.



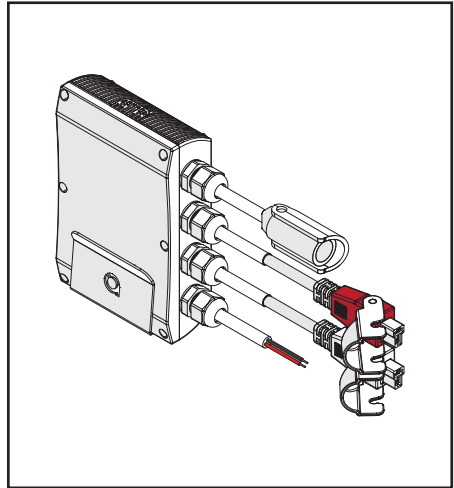
Option 2 - Control box positioned sideways.

4 - Way Control Box

The 4-Way control box has four connectors. The Control box can be positioned in two ways. Both options are shown below.



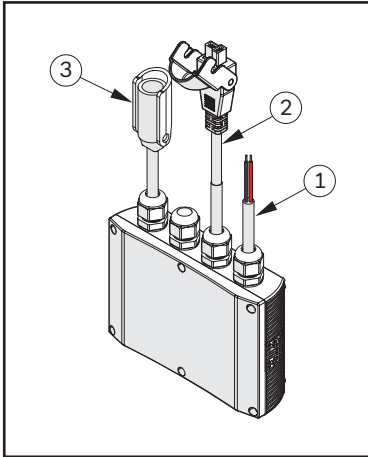
Option 1 - Control Box positioned upright.



Option 2 - Control box positioned sideways.

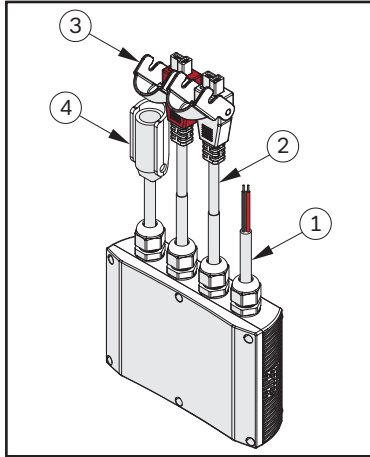
5) Wiring Instructions

There are two types of control boxes depending on either a 2 - Way or 4 - Way hoist is being fitted. Below are images of both the 2 - Way control box and 4 - Way control box. The 4 - Way connector has an extra cable for the In/Out Actuator.



2-Way Wiring Set Up

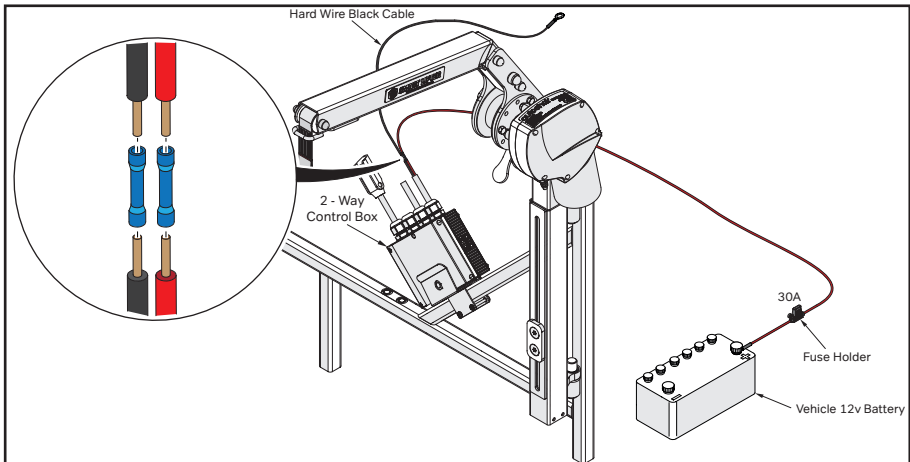
- 1 = 12 Volt Battery Connection
- 2 = Motor Connection
- 3 = Handset Connection



4-Way Wiring Set Up

- 1 = 12 Volt Battery Connection
- 2 = Motor Connection
- 3 = In/Out Actuator Connection
- 4 = Handset Connection

HARD WIRING THE CONTROL BOX

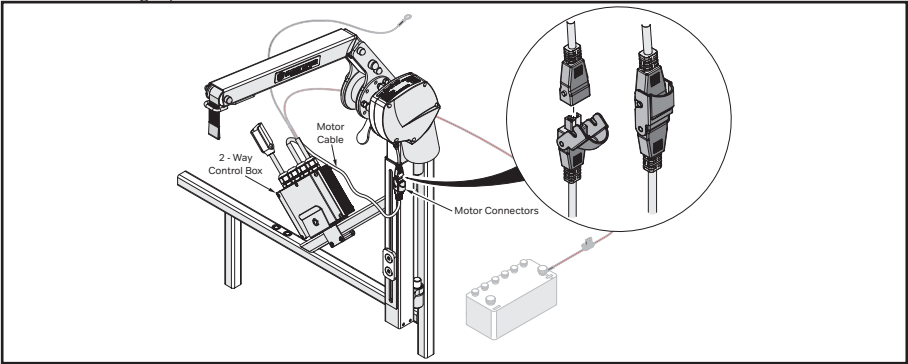


- For more in-depth wiring information; refer to the vehicle specific fitting instructions or the universal fitting instructions.
- Attach the 6m **RED** cable (supplied in the electric kit) to the **RED** cable on the control box using the blue joining connector. Connect the **RED** wire to the positive terminal on the vehicle battery using the in-line fuse holder provided. Secure the cable where required using the cable ties provided.
- Attach the 1m **BLACK** cable (supplied in the electric kit) to the **BLACK** cable on the control box using the blue joining connector. Connect the **BLACK** cable to a suitable earthing point in the rear of the vehicle. **DO NOT** use a painted surface to achieve an earth. This could lead to intermittent operation of the Smart Lifter.

5) Wiring Instructions

CONNECTING THE UP/DOWN MOTOR

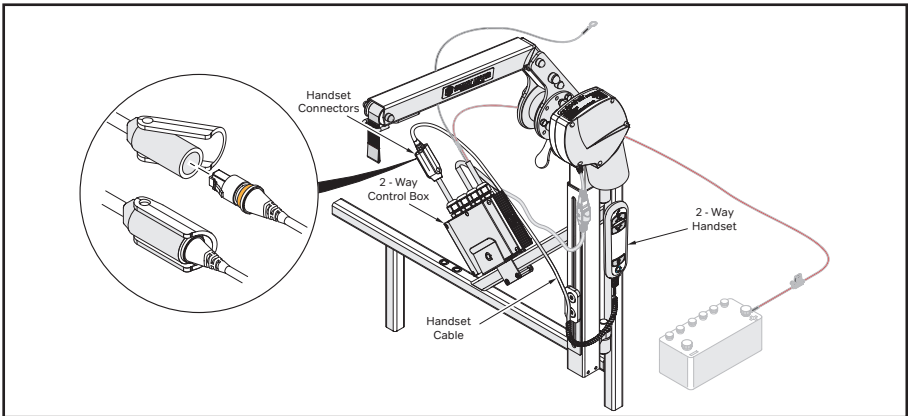
The following diagram shows how to connect the Up/Down Motor to the Control Box. Both of the connectors are grey in colour.



CONNECTING THE HANDSET

The following diagram shows how to connect the Handset.

Ensure that the connector is fully inserted and the Yellow stopper is not visible.

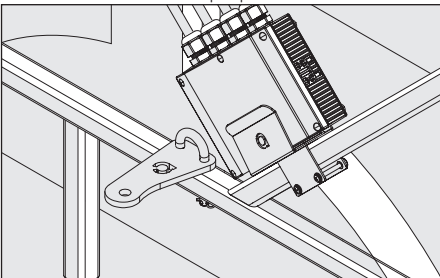


4-Way Actuator Bracket

The Actuator bracket is only compatible with the 4-Way Smart Lifter. Attach the Actuator Bracket as shown.

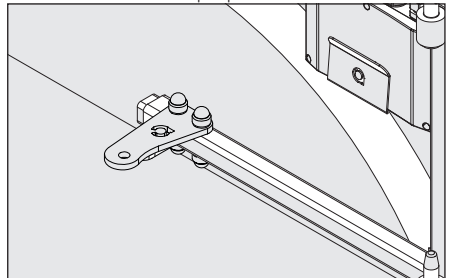
A-Frame Actuator Bracket

Please note that the removable actuator bracket is shown for illustration purposes.



Universal Post Actuator Bracket

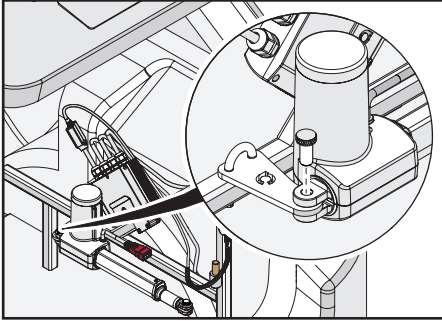
Please note that the bolt on actuator bracket is shown for illustration purposes.



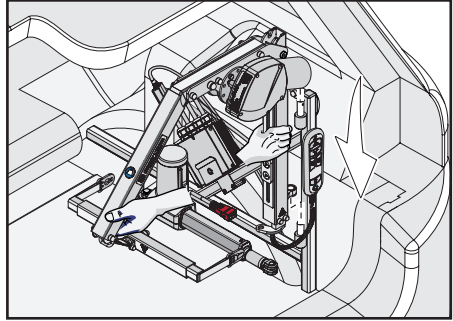
5) Wiring Instructions

Attaching the IN/OUT Actuator

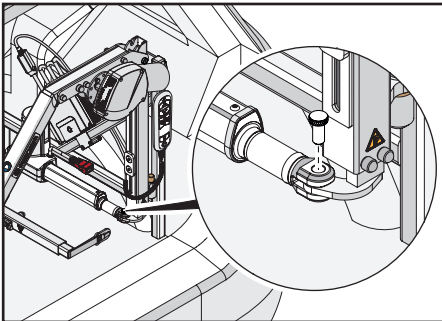
The following Illustrations show how the Actuator is fitted onto an A-Frame. The Universal Post Smart Lifter Hoist is fitted the same way.



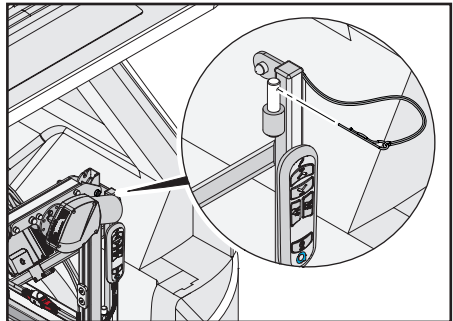
1. Attach the actuator by sliding it over the bracket. Slot the knurled pin into the actuator and bracket as shown.



2. Position the Smart Lifter over the Pins on the A-Frame. Rest the lower mounting lug on the longer lower pin before aligning the top pin. Ensure that the Smart Lifter is securely fitted.



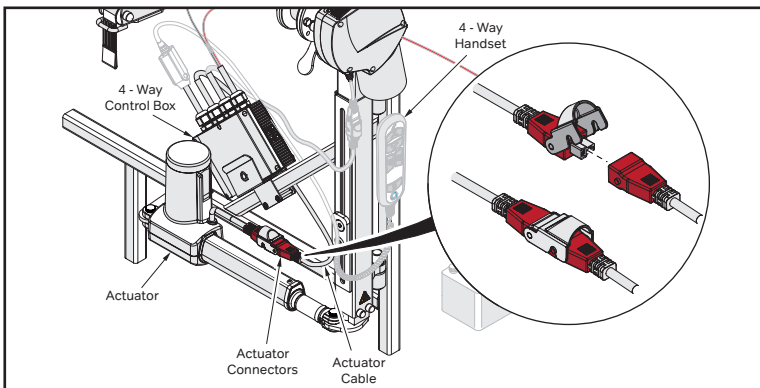
3. Slot the second knurled pin into the Smart Lifter and actuator as shown.



4. Fit the R-Clip in the top pin on the A-Frame.

CONNECTING THE IN/OUT ACTUATOR

The following diagram shows the connection for a 4 - Way version. Both of the connectors are red in colour.

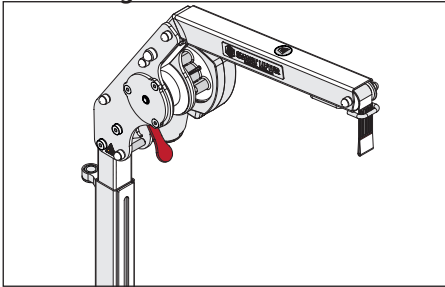


6) Motor Location

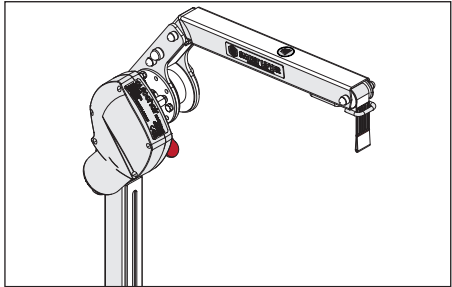
Motor Side

Dependant on the vehicle, the Smart Lifter motor can be mounted on either side.

Right Hand Side Motor



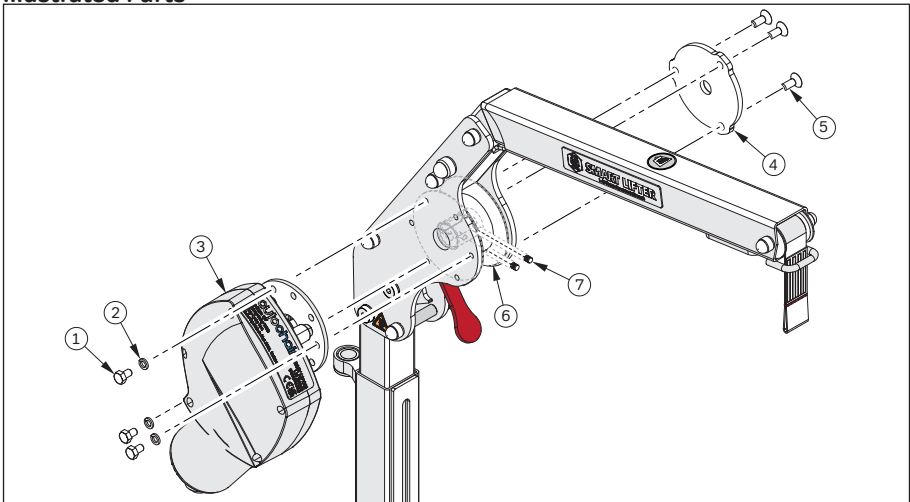
Left Hand Side Motor



Changing the Motor Side

The following steps will show you what components will need to be disassembled and reassembled to change the motor side on the smart lifter.

Illustrated Parts



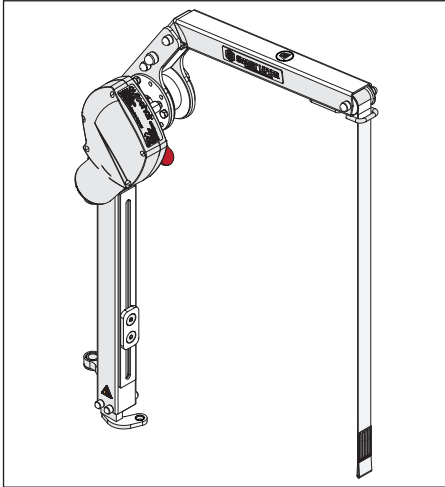
Bill of Materials (BoM)

Item No.	Description	QTY
1	M6x10 Hexagon Head Set Screw	3
2	M6 Spring Washer	3
3	L-M (Mk2) Motor with Transition Plate 80kg	1
4	L-M (Mk2) Bearing Housing	1
5	M6x10 Countersunk Set Screw	3
6	L-M (Mk2) Spool	1
7	M5x8 Grub Screw Cone Point	2

6) Motor Location

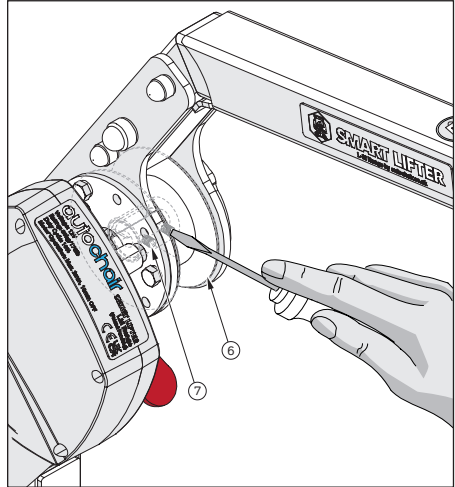
Changing the Motor Side

Should the motor side need to be changed from the Right Hand Side to the Left due to clearance issues, please use the following information and steps to change the Motor Side.



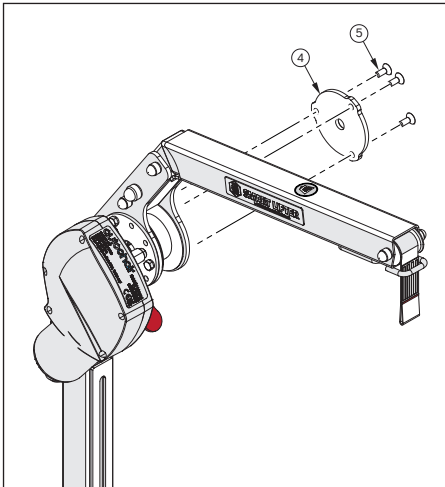
Step 1

Fully unwind the webbing making sure the spool grub screws are accessible.



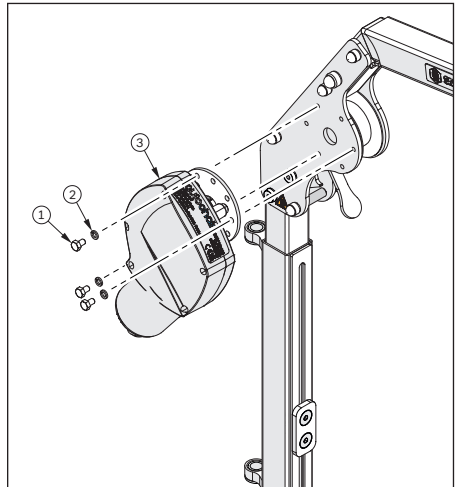
Step 2

Loosen Items 7 from Item 6 to free the motor.



Step 3

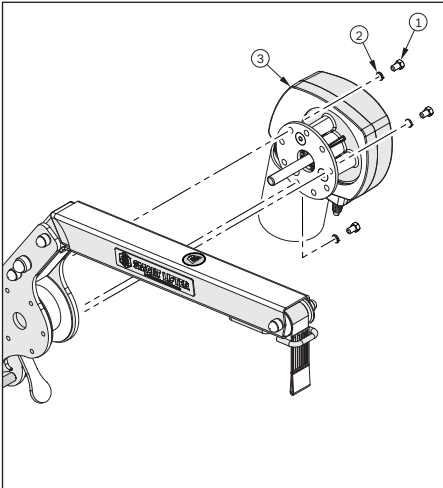
Remove the bearing housing. Remove Items 4 and 5 as shown.



Step 4

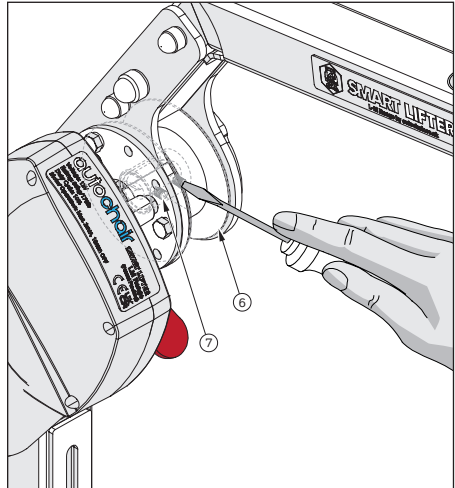
Remove Items 1, 2 and 3.

6) Motor Location



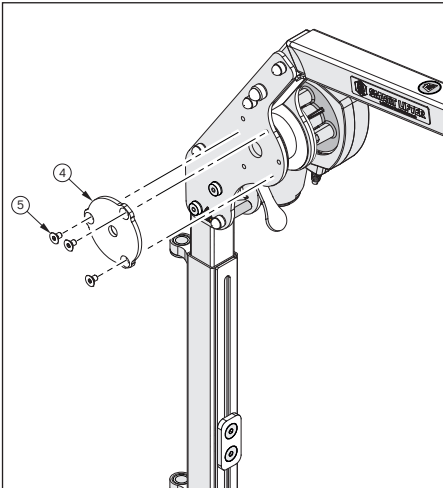
Step 5

Attach Items 1, 2 and 3 to the opposite side of the Smart Lifter as shown.



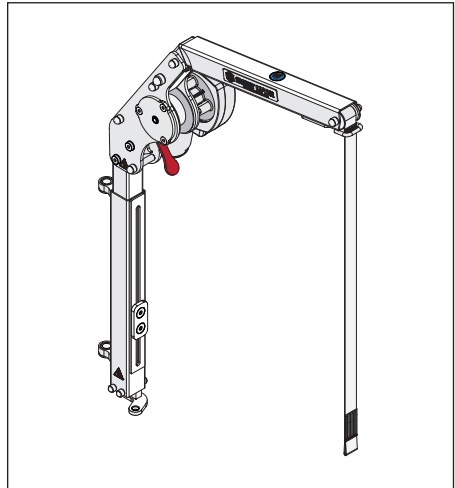
Step 6

Tighten Items 7 into Item 6 to secure the motor. Ensure the motor is locked in position.



Step 7

Attach Items 4 and 5 to the opposite side.



Reversing the direction of the Spool

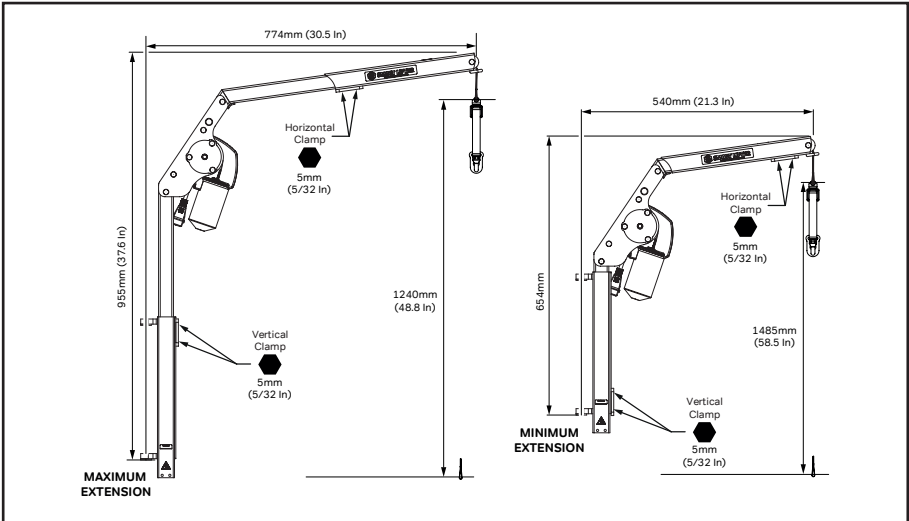
When the Motor side has been changed the direction of the spool will need to be reversed. Press the UP/DOWN key until the webbing is all the way out and begins winding in the opposite direction; the strap movement direction will then correspond to the button on the handset once again.

7) Setup Instructions

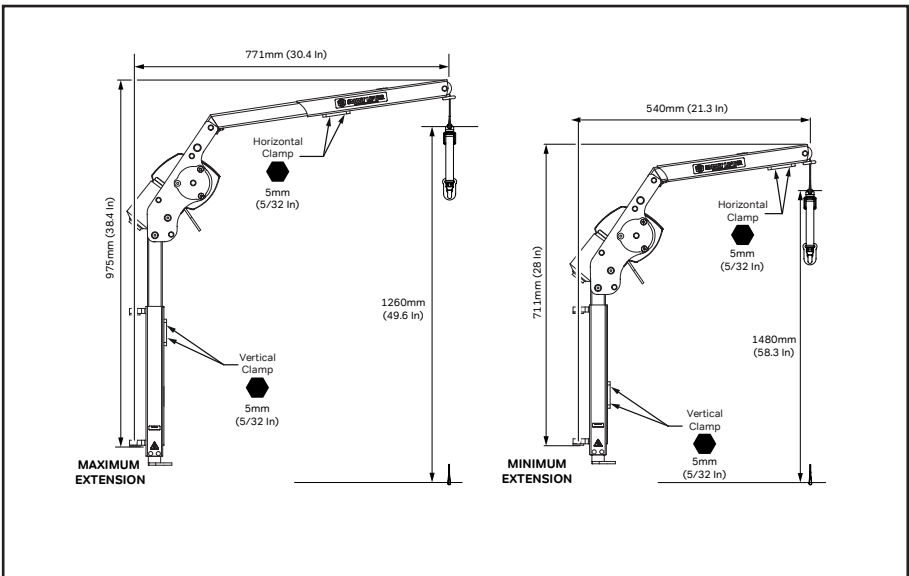
SETTINGS

The Smart Lifter is tested and set to a nominal position for the vehicle it is intended for. Adjustment may then be required to suit the vehicle. The screws are only tightened to stop movement in transport. All fixings are to be fully tightened and checked at the time of installation and servicing.

Maximum and Minimum Settings (Fixed Hoist)



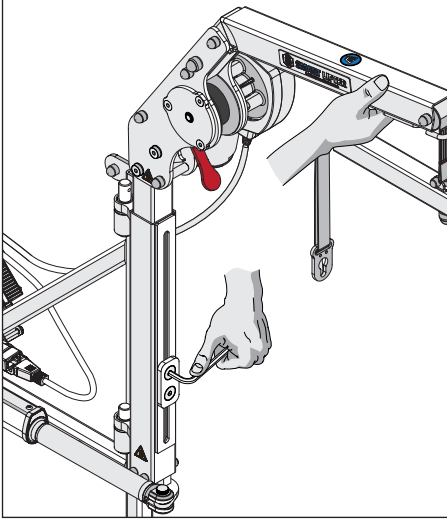
Maximum and Minimum Settings (Folding Hoist)



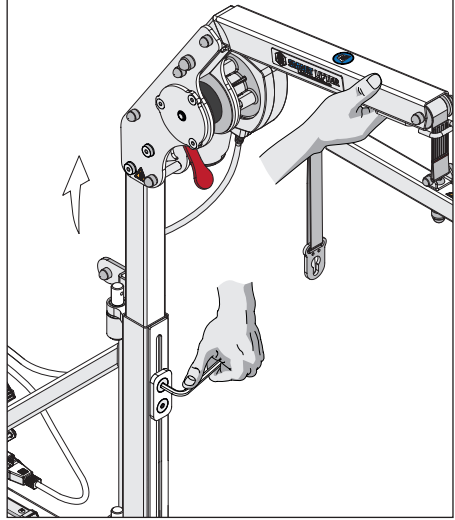
7) Setup Instructions

Setting the Boom (Vertical Extension)

The Smart Lifter will be delivered assembled and set to a nominal boom size suitable for the vehicle. If a more optimal boom setting is required the following procedure can be used.



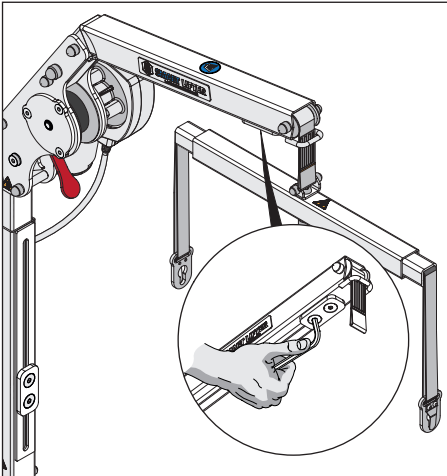
1. Support the Horizontal boom of the Smart Lifter unscrew the Plate on the Pivot Post using the 5mm Allen key as shown.



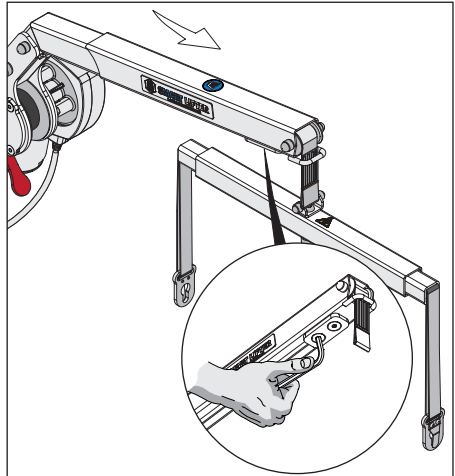
2. Move the Smart Lifter upwards and hand tighten the plate in the desired location. Test and once happy with the setting torque tighten to 22Nm (16.2lbf).

Setting the Boom (Horizontal Extension)

The horizontal extension provides two functions; it is principally adjusted to suit the width of the spreader bar, ensuring the spreader bar can rotate without hitting the boom. It can also be increased to give more clearance between the mobility device and the vehicle when lifting/lowering. If a more optimal horizontal boom setting is required the following procedure can be used.



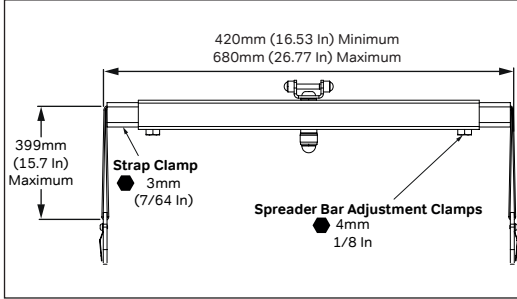
1. Unscrew the Plate on the Boom Arm using a 5mm (3/16in) Allen key as shown.



2. Move the Hoist outwards and torque tighten the plate to 22Nm (16.2lbf), in the desired location.

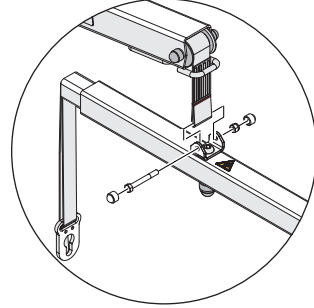
7) Setup Instructions

2 Point Spreader Bar (Keyhole & Karabiner Type)



Attaching the Spreader Bar

Attach the spreader bar as shown in the below illustration.

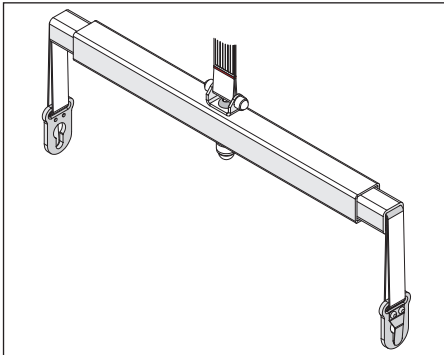


Setting the Spreader Bar

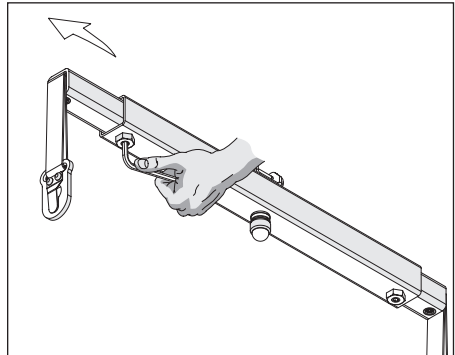
Measure the mobility device, adjust the spreader bar width and strap length to the dimensions of the mobility device if required. Please follow the following steps to adjust the spreader bar.

DO NOT set the spreader bar beyond the maximum/minimum limits as shown above.

Adjusting the Width

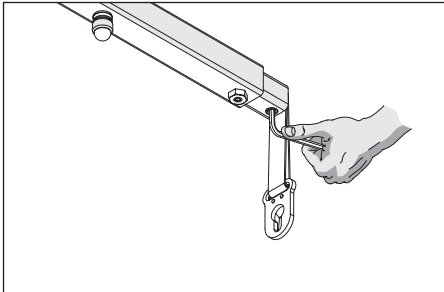


1. To adjust the spreader bar, locate the adjustment screws underneath the bar.

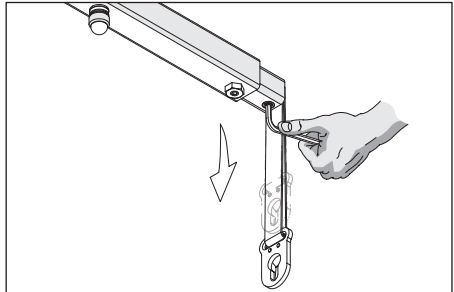


2. Move out the spreader bar and tighten the adjustment screws at the desired width.

Adjusting the Straps



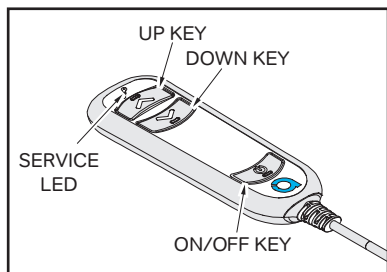
1. To adjust the straps on the Spreader bar loosen the adjustment screw as shown.



2. Move the strap downwards and tighten the adjustment screws at the desired length.

8) Handset Instructions

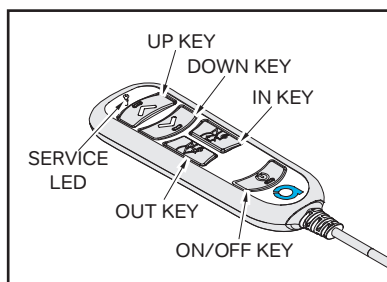
2-WAY HANDSET CONTROLS



Button Functions

- ON/OFF BUTTON = Press and release for power ON/OFF. If backlit can be seen, the Smart Lifter is ON, if not – it's OFF.
- UP BUTTON = Press and hold for the webbing to move up
- DOWN BUTTON = Press and hold for the webbing to move down

4-WAY HANDSET CONTROLS



Button Functions

- ON/OFF BUTTON = Press and release for power ON/OFF. If backlit can be seen, the Smart Lifter is ON, if not – it's OFF.
- UP BUTTON = Press and hold for the Webbing to move up
- DOWN BUTTON = Press and hold for the Webbing to move down
- OUT BUTTON = Press and hold for Smart Lifter to move out
- IN BUTTON = Press and hold for Smart Lifter to move in

Overcurrent Protection (OCP)

Overcurrent Protection is incorporated into the system to prolong the life of the Smart Lifter. If the system detects too much current is being drawn, the power to the system will be cut out for 3 seconds. This may occur if the spreader bar or mobility device hits/comes into contact with an obstacle or if the lifting load is greater than the Smart Lifters lifting capacity/lifting weight limit.

Up, Down, Out or In Button

During a movement of hoist (UP, DOWN, OUT, IN), If it comes into contact/hits an obstacle and the UP, DOWN, OUT, IN) key is not released, OCP is triggered.

During OCP (and for 3s after release) The UP, DOWN, OUT or IN BUTTON is disabled.

It will then return to the normal 'ON' state

OCP kick-in time: 0.1s the UP, DOWN, OUT and IN BUTTON will flash for the duration it's pressed + 3s after release.

Flashing rate: ON for 0.25s, then OFF for 0.25s, then repeat

Auto Shut Down

If there is no operation on the handset for 5±0.5 minutes the system turns off automatically.

The backlight will disappear, indicating unit is turned off.

Multiple Press Prevention

If more than 1 button is pressed, no function will be triggered and all the buttons flash between low and high level until both are released .

Repress selection to operate the handset again - no activation on second key release.

Soft Start

The speed is increased 5% (of full speed) every 50ms until it reaches full speed (1s) or until it reaches upper/lower limit or OCP is triggered.

Hard Stop

The speed is decreased 12.5% (of full speed) every 50ms until it comes to full stop (400ms) or until it reaches upper/lower limit or OCP is triggered.

8) Handset Instructions

SERVICE LIGHT

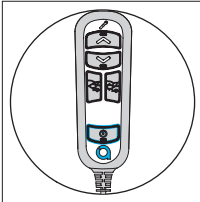


Once the Handset unit has completed 1500 presses of the ON BUTTON (This is equivalent to 1 shop trip a day, every day for 1 year) the service light will illuminate. (Please note that the hoists operation will not be affected following the service light activation)

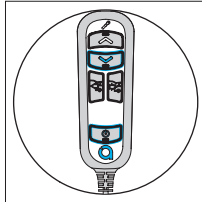
Service LED lights up in amber

Post Service - Reset Counter

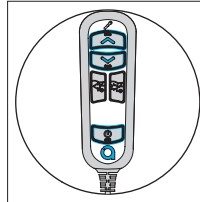
To reset the service indicator light please follow the next steps once the service has been completed.



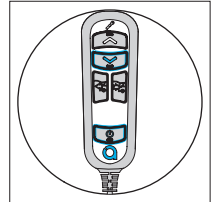
Turn the handset OFF when the mobility device is on the ground by pressing the ON/OFF BUTTON



Press the DOWN BUTTON and the ON/OFF BUTTON for 10s. You are now in installer mode.



Press the UP BUTTON, the DOWN BUTTON and the ON/OFF BUTTON for 10s to reset the service interval.



Press the DOWN BUTTON and the ON/OFF BUTTON for 10s to exit installer mode.

NOTE: The Service LED and the backlight on the ON/OFF BUTTON will flash 5 times to indicate the reset is completed. The service LED will now be turned off.

9) Setting the Control Box

Programming the Control Box

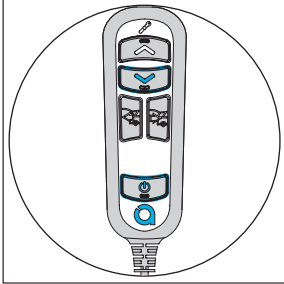
The handset will NEED to be set to L-M Mode. The following steps will explain how to change the control box from the default LA Mode to L-M Mode.

L-M mode changes the maximum current to the motor to 30Amps.

Please note that the 4-way handset control has been used for illustration purposes, the 2-way handset control is set the same as the 4 - Way handset.

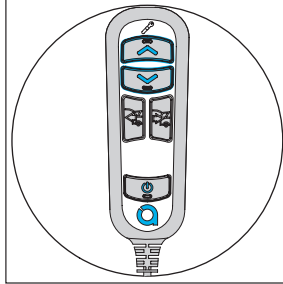
Set the Control Box to L-M mode

Enter Installer Mode



Press and hold the DOWN BUTTON and the ON/OFF BUTTON for more than 10 seconds to enter Installer Mode.

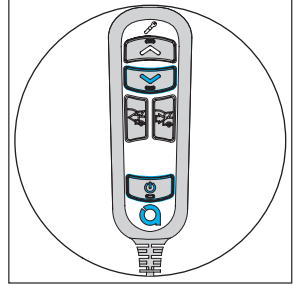
Select L-M Mode



Press and hold the UP BUTTON and the DOWN BUTTON for more than 3 seconds to activate L-M Mode.

NOTE: The back light of the UP Button will flash 3 times to indicate L-M mode is selected.

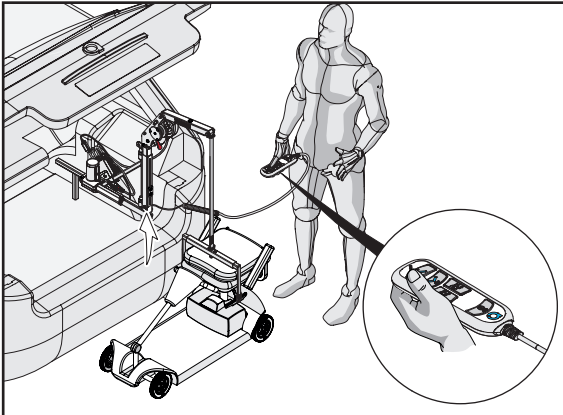
Exit Installer Mode



Press and hold the DOWN BUTTON and the ON/OFF BUTTON for more than 10 seconds to exit Installer Mode.

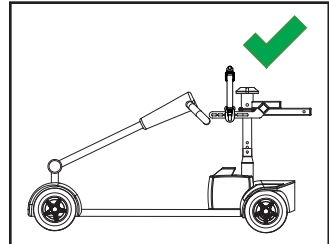
Test the set up

Once all the adjustments have been made, test the setup. If further adjustments are required please adjust and re-test.

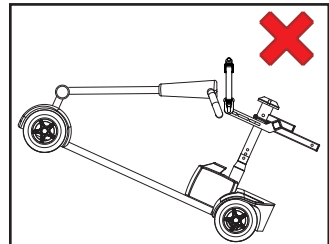


Ensure the mobility device is balanced when lifted and that the lifting bracket on the mobility device does not slip. If the mobility device lifts with no issue please continue to the customer handover on page 23. If during the lift the hoist stops a custom current will need to be set, please see page 21 for instructions of how to carry this out.

Once the setup is complete please handover to the customer.



Correct centre of balance.



Incorrect centre of Balance. Adjust to obtain the centre of balance by moving the fixings. Lift to check centre of balance.

9) Setting the Control Box



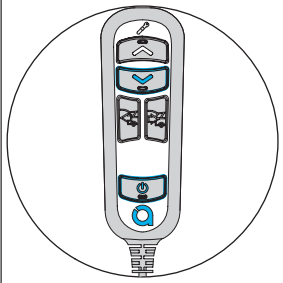
WARNING!

It is possible to set the customer current lower than the default 30Amps. This procedure should only be undertaken if Overcurrent Protection (OCP) is triggered during the lift.

Setting the Custom Current

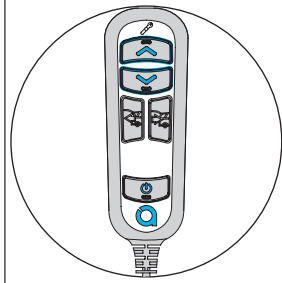
Test the set up. If the mobility device weight draws more than 30Amps current from the motor the Control box will cut out. A custom current limit will need to be set if this should occur.

Enter Installer Mode



Press and hold the DOWN BUTTON and the ON/OFF BUTTON for more than 10 seconds to enter Installer Mode.

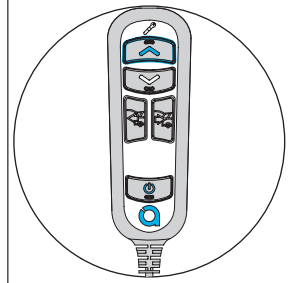
Select L-M Mode



Press and hold the UP BUTTON and the DOWN BUTTON for more than 3 seconds to activate L-M Mode.

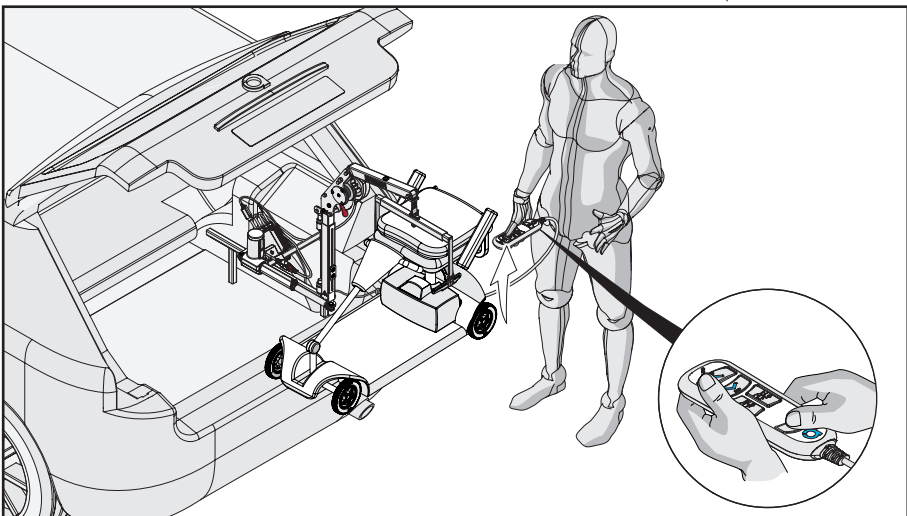
NOTE: The backlight of the UP Button will flash 3 times to indicate L-M mode is selected.

Set Custom Current



Press and hold the UP BUTTON to lift weight and initiate current limit measurement.

NOTE: Ensure customer's heaviest scooter/wheelchair is attached. Ensure webbing is not reversed. The UP BUTTON must correspond to UP motion.



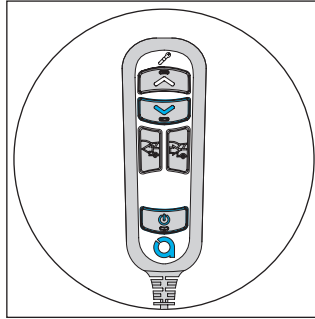
During the lift and just before the spreader bar hits the boom, release the UP BUTTON then press the UP BUTTON and the ON/OFF BUTTON together to set custom current limit.

NOTE: The backlight of the UP BUTTON will flash 6 times to indicate current limit setup is completed. Current limit is set to highest value recorded during lift +4A. If this exceeds 40A, the limit will be set at 40A±2A.

9) Setting the Control Box

Exit Installer Mode

Once the custom current is set, exit installer mode. Perform full lift to check if system is behaving as expected.

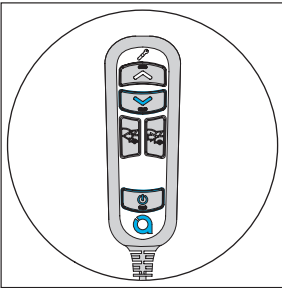


Press and hold the DOWN BUTTON and the ON/OFF BUTTON for more than 10 seconds to exit Installer Mode.

Reset the Custom Current

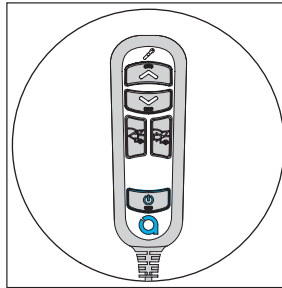
If during the test lift the custom current doesn't perform as expected please see the following instructions of how to reset the custom current.

Enter Installer Mode



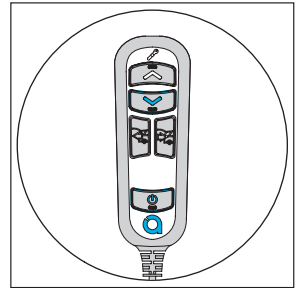
Press and hold the DOWN BUTTON and the ON/OFF BUTTON for more than 10 seconds to enter Installer Mode.

Reset Custom Current



Press and hold the ON/OFF BUTTON for more than 3 seconds to reset the custom current limit back to default value (30A).

Exit Installer Mode

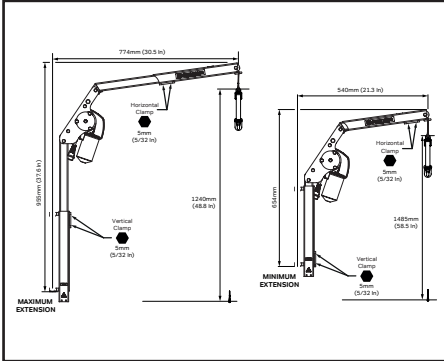


Press and hold the DOWN BUTTON and the ON/OFF BUTTON for more than 10 seconds to exit Installer Mode.

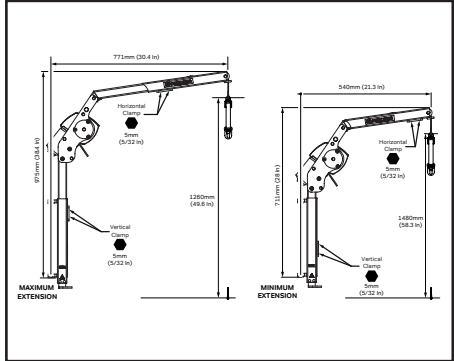
Please ensure all wiring is cable tied to the hoist once the Installation is completed.

10) Customer Handover

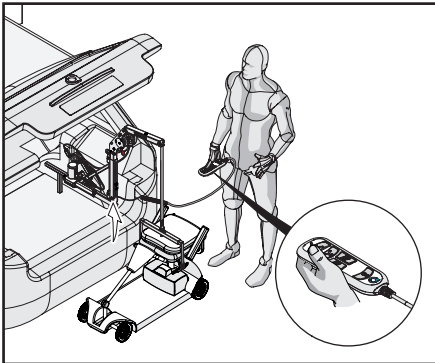
Fixed Hoist Settings



Folding Hoist Settings



1. Ensure that the settings on page 15 aren't exceeded.



2. Give demonstration to customer and ensure they know how to operate the Smart Lifter.

Dealer: _____

Address: _____

Post Code\Zip Code: _____

Phone Number: _____

Purchase Date: _____

Serial Number: _____

3. Please fill out Smart Lifter and spreader bar settings details on page 39 of **User Manual**.

Set up details:	
Order Number: _____	
Serial Number: _____	
Date Supplied: _____	
Details of the Supplier: _____	

Mobility Device Weight: _____	
Name: _____	
Signature: _____	
Tick hoist details Weight Rating: 40kg (88lbs) <input type="checkbox"/> 50kg (110lbs) <input type="checkbox"/> Control Type: 2 Way <input type="checkbox"/> 4 Way <input type="checkbox"/> Mounting Method: Universal Post <input type="checkbox"/> Frame <input type="checkbox"/> Boom Type: Fixed <input type="checkbox"/> Sliding <input type="checkbox"/>	
Fitting Kit Rating: _____ Lifting Accessory Rating: _____	

4. Fill Smart Lifter and spreader bar settings details on page 24 of **this Manual**.

Please fill out all the details below to keep a record of the setup used and file with your installation department.

Set up details:

Order Number: _____

Serial Number: _____

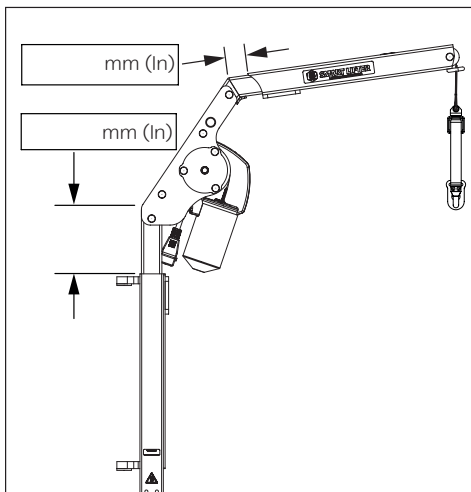
Date Supplied: _____

Details of the Supplier: _____

Mobility Device Weight: _____

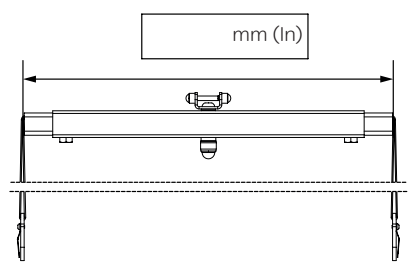
Name: _____

Signature: _____



Fitting Kit Rating: _____

Lifting Accessory Rating: _____



Tick hoist details

Weight Rating	40Kg (88lbs)	80Kg (175lbs)
Control Type	2 Way	4 Way
Mounting Method	Universal Post	A-Frame
Boom Type	Fixed	Folding

Installer to retain this copy



SMART LIFTER

Range

