

**SMART
LIFTER**
Range

L-P 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 QR Code ou entrer l'URL de la version Française du manuel d'utilisation
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WARNING!

The Smart Lifter is only intended to be installed by an Accredited Autochair Dealer or an Autochair 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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1228096 Rev.C

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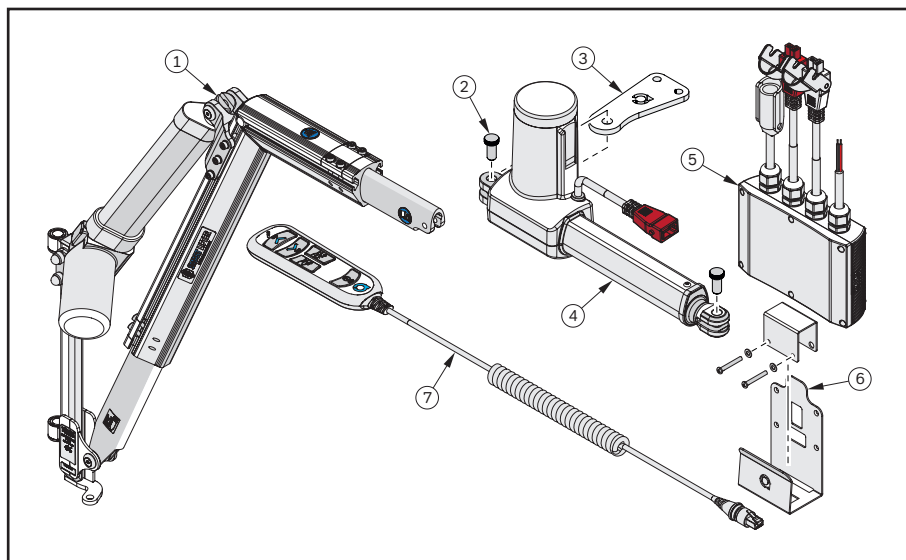
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1. Technical

Illustrated Parts



Illustrated Parts List

Item No.	Description	Qty.
1	Smart Lifter - LP Range	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	Four Way Handset	1



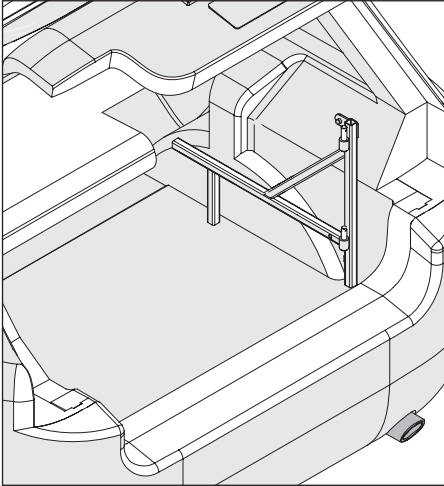
The maximum lifting capacity of the Smart Lifter is dependent on the version the customer has purchased. Check this by referring to labels on the lift arm. The mobility device must not exceed this weight.

1. Technical

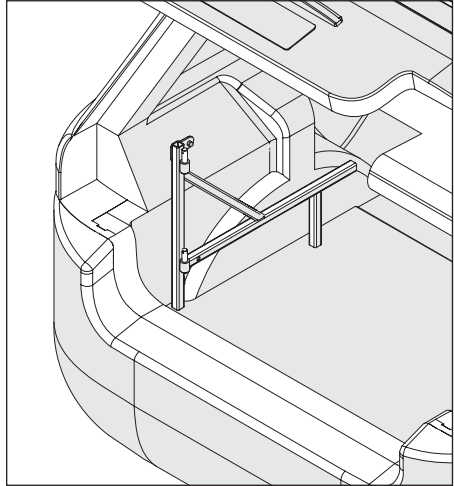
Mounting Side

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.

Right Hand Position

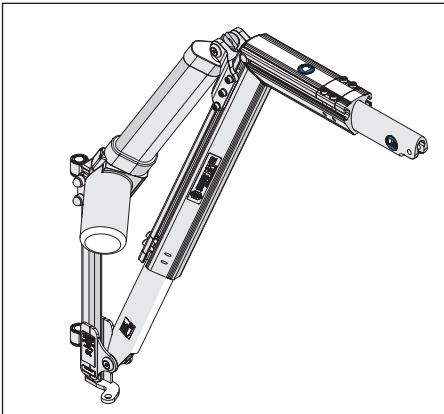


Left Hand Position

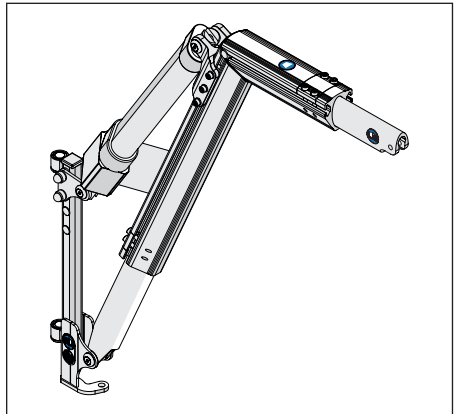


Actuator Side

The actuator is handed to the side of the install.



Right Hand Side Actuator



Left Hand Side Actuator

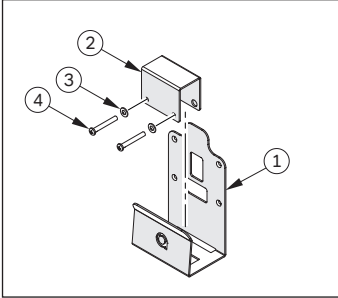
Install the Mounting Method

Dependant on the vehicle the mounting method will vary. This will be a dedicated A-Frame or a Universal A-Frame. 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.

2. Control Box Bracket

The control box is fitted to the diagonal of the A-Frame. Please follow the Illustrations provided on how to attach the Control Box.

Illustrated Parts

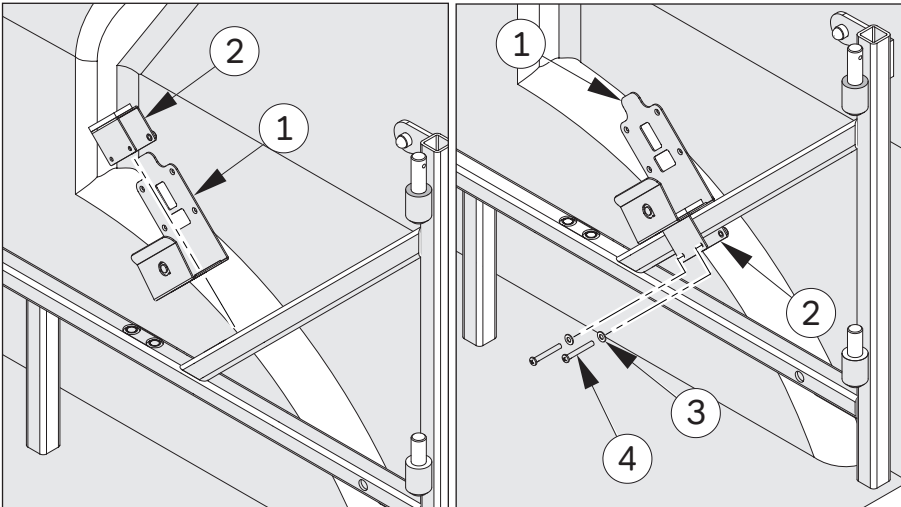


Bill of Materials (BoM)

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

Attaching to the A-Frame

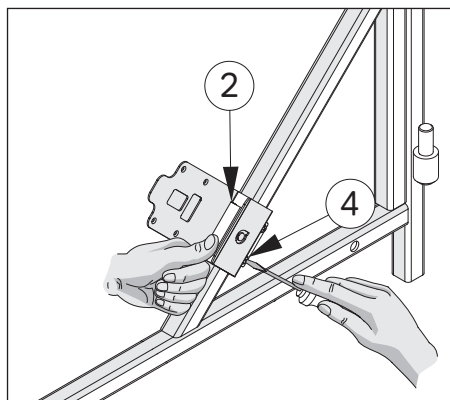
The following steps will show you how to attach the control box bracket to the A-Frame. The Control Box bracket should be installed onto the diagonal of the A-Frame. The position will depend on the boot surrounds such as the trim layout in the vehicle. If the control box can't be fitted onto the A-Frame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



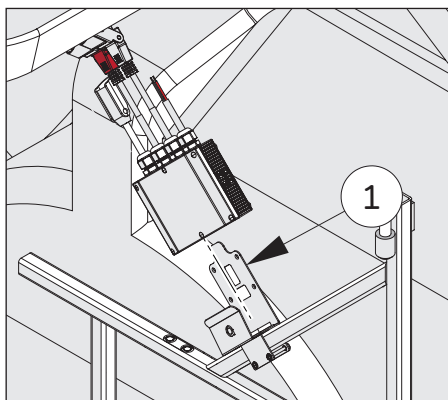
1. Slot Item 2 through Item 1 as shown. Fit Item 2 over the Diagonal on the A Frame.

2. Insert Items 3 and 4 into the Control Box bracket as shown.

2. Control Box Bracket



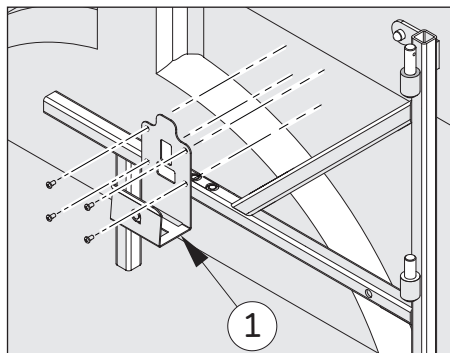
3. Ensure Item 2 is held firmly down before tightening Item 4 as shown.



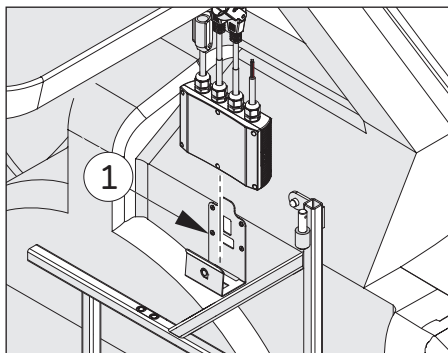
4. The Control box can now be inserted into Item 1. Ensure the control box tab locates into the bracket slot.

Attaching to the side of the vehicle

The following steps will show you how to attach the control box bracket to the side of the vehicle when 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 A-Frame.



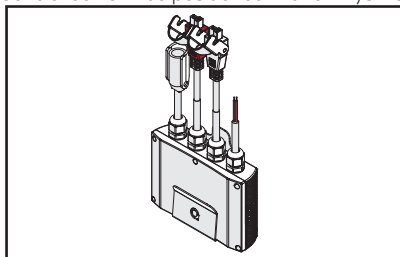
1. Find a location in the boot next to the A-Frame. Using the self tapping screws provided in the electrical kit attach Item 1 to the interior trim.



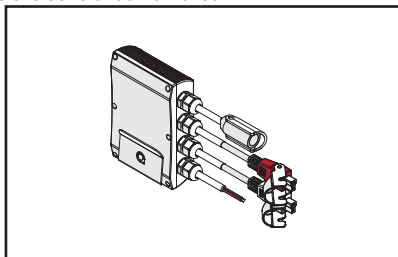
2. Once Item 1 is securely attached, insert the control box.

Control Box

The Control box can be positioned in two ways inside the control box bracket.



Option 1 - Control Box positioned upright.



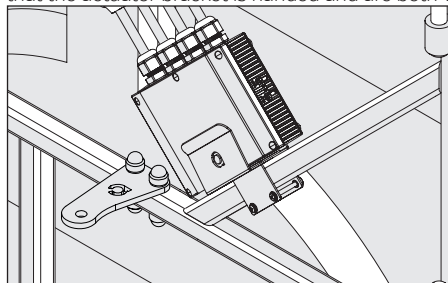
Option 2 - Control box positioned sideways.

3. Attaching the Actuator

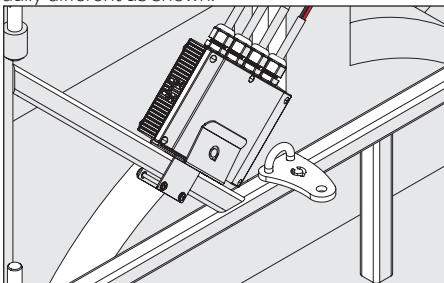
The following steps will show how the IN/OUT Actuator is attached to the A Frame prior to installing the Smart Lifter

A-Frame Actuator Bracket

Two types of actuator bracket are available a bolt on version and a removable version. Please note that the actuator bracket is handed and are both visually different as shown.



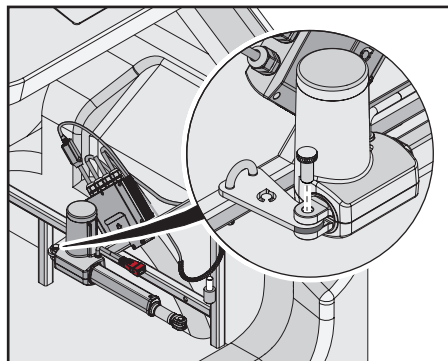
1. Bolt on Right hand version of the Actuator bracket shown attached.



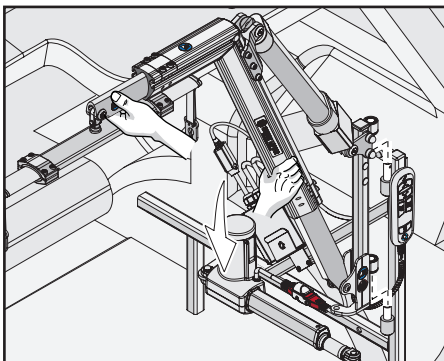
2. Removable Left Hand Actuator bracket shown attached.

Attaching the Actuator

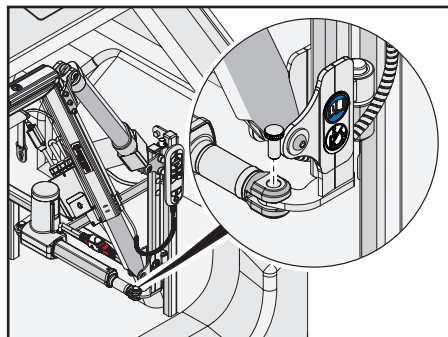
The following Illustrations show how the Actuator is fitted onto an A-Frame.



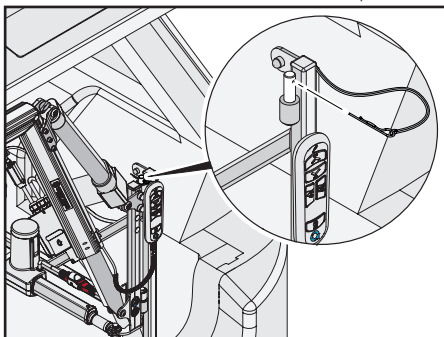
1. Attach the actuator by sliding it over the bracket. Slot the knurled pin into the actuator and bracket as shown.



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.



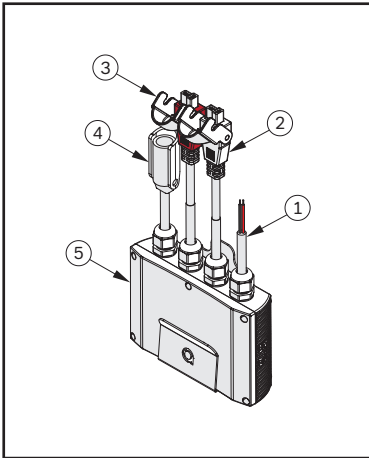
3. Slot the second knurled pin into the Smart Lifter and actuator as shown.



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

4. Wiring Instructions

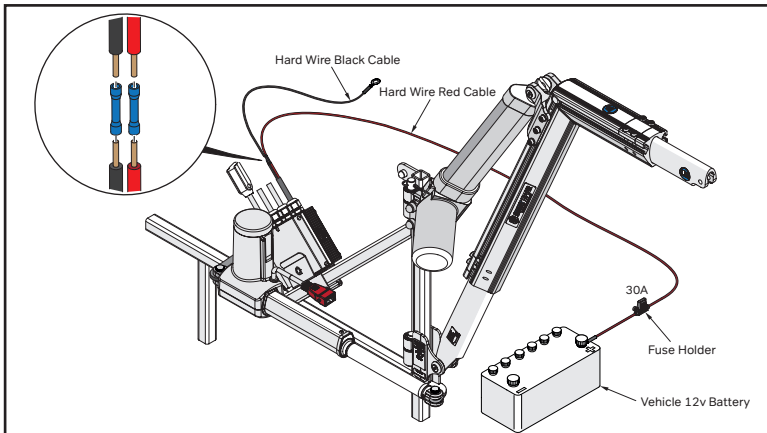
The following steps will show you how to connect the control box.



4-Way Wiring Set Up

- 1 = 12 Volt Battery Connection
- 2 = UP/DOWN Actuator Connection
- 3 = IN/OUT Actuator
- 4 = Handset Connection
- 5 = Control Box

HARD WIRING THE CONTROL BOX

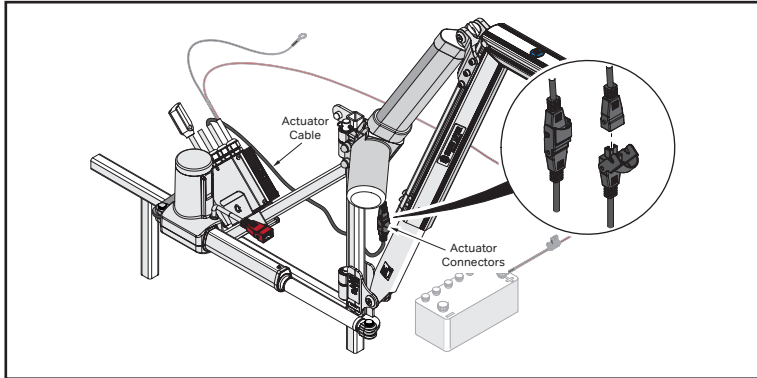


- For more in-depth wiring information; refer to the vehicle specific fitting instructions or the universal fitting instructions.
- Attach the 6m **RED** cable (supplied in the electric kit) to the **RED** cable on the control box using the blue joining connector. Connect the **RED** wire to the positive 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.

4. Wiring Instructions

CONNECTING THE UP/DOWN ACTUATOR

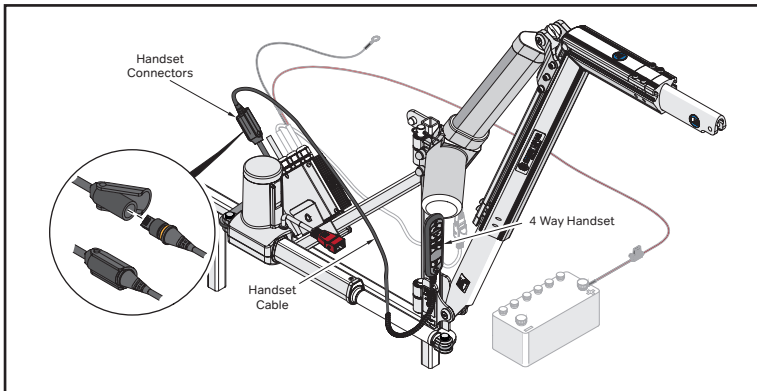
The following diagram shows how to connect the Up/Down Actuator to the Control Box.



CONNECTING THE HANDSET

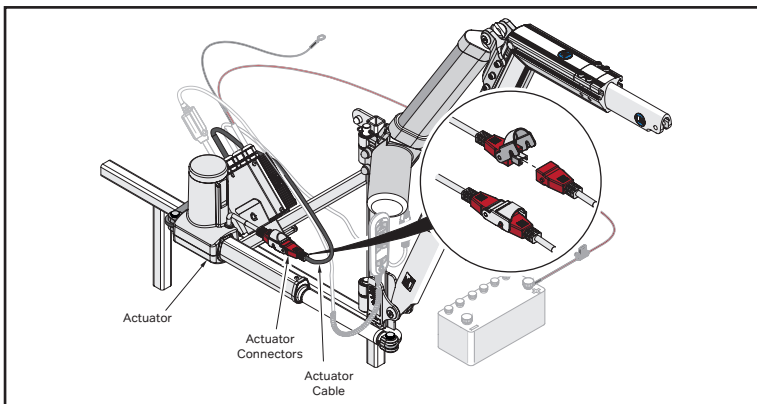
The following Illustration shows how to connect the Handset.

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



CONNECTING THE IN/OUT ACTUATOR

The following diagram shows the connection for the IN/OUT Actuator.

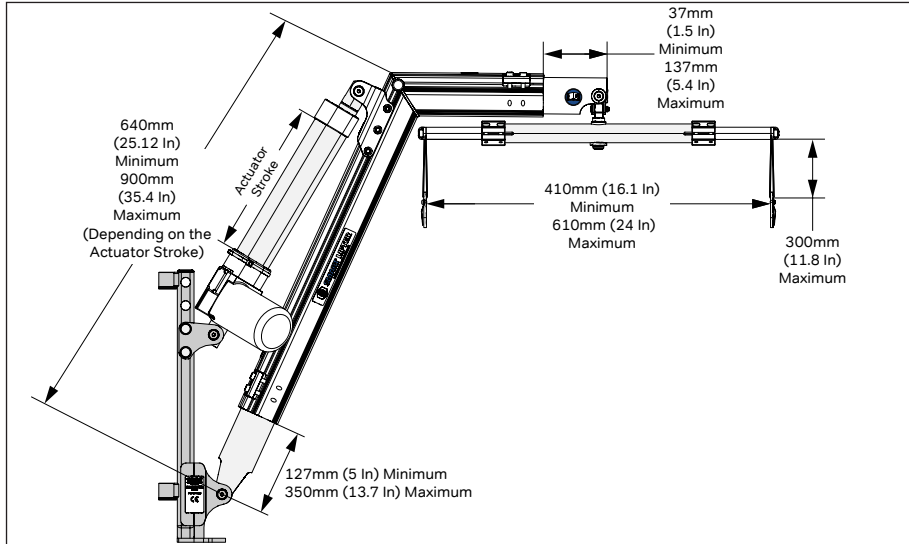


5. Set Up Instructions

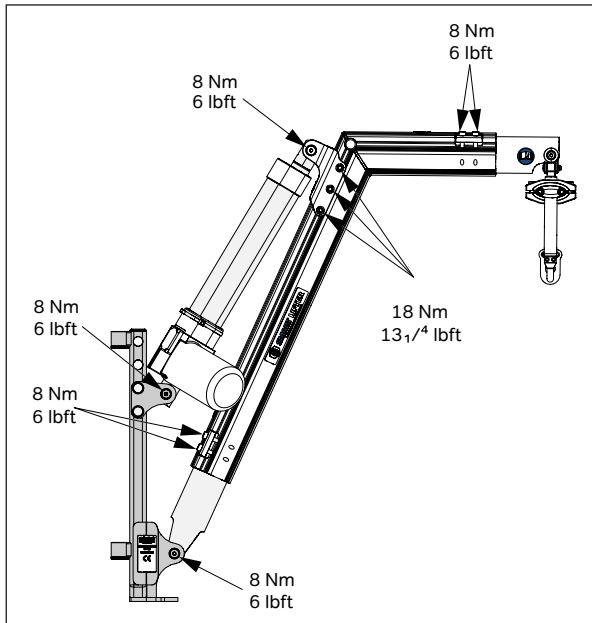
SETTINGS

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



Torque Settings



5. Set Up Instructions

PIVOT POST BRACKET POSITIONS

The following table shows the lower actuator bracket positions recommended for various actuator loads:

	Actuator Stroke (mm)	100Kg 220lbs			125Kg 275lbs		150Kg 330lbs		200Kg 440lbs		
		200	250	300	250	300	250	300	250		
	900 (35.4)									A	
	890 (35)									B	
	880 (34.6)										
	870 (34.3)										
	860 (33.9)										
	850 (33.5)		AA		AA		AA		A		
	840 (33)									C	
	830 (32.7)										
	820 (32.3)										
	810 (31.9)										
	800 (31.5)									D	
	790 (31.1)										
	780 (30.7)			B		B		B			
	770 (30.3)								B		
	760 (29.9)		A	C	A	C	A	C		E	
	750 (29.5)								C		
	740 (29.1)										
	730 (28.7)		B		B		B				
	720 (28.4)								D		
	710 (27.9)		C		C		C				
	700 (27.6)										
	690 (27.2)	A	D		D		D				
	680 (26.8)		E		E		E				
	670 (26.4)	B									
	660 (26)	C									
	650 (25.6)										
	640 (25.2)	D									
										F	

BOOM LENGTH mm (Inches)

900 (35.4)

890 (35)

880 (34.6)

870 (34.3)

860 (33.9)

850 (33.5)

840 (33)

830 (32.7)

820 (32.3)

810 (31.9)

800 (31.5)

790 (31.1)

780 (30.7)

770 (30.3)

760 (29.9)

750 (29.5)

740 (29.1)

730 (28.7)

720 (28.4)

710 (27.9)

700 (27.6)

690 (27.2)

680 (26.8)

670 (26.4)

660 (26)

650 (25.6)

640 (25.2)

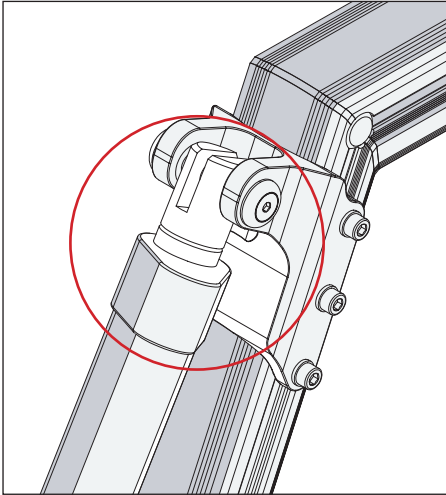
Legend:

- Acceptable
- Additional Adjustment Zone
- DO NOT USE

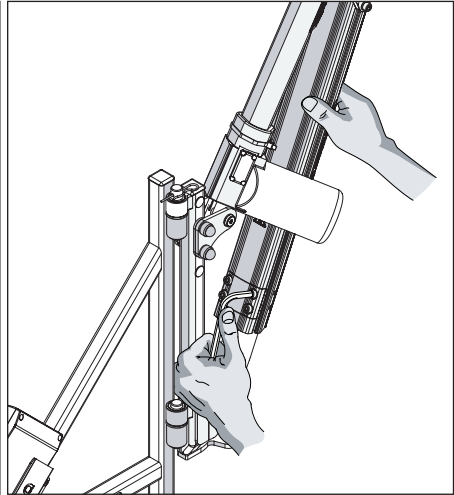
5. Set Up Instructions

Setting the Boom (Vertical Extension)

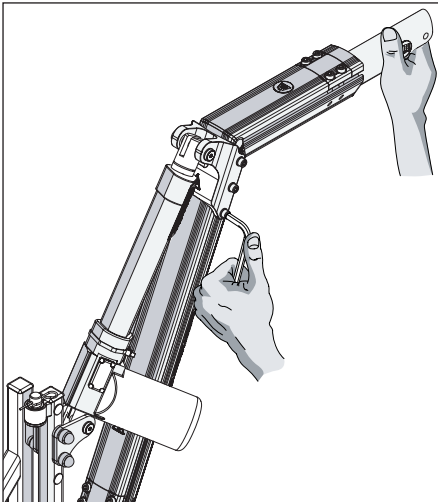
Set the vertical extension to the maximum height to fit underneath the roof Lining. Please follow the steps below to adjust the vertical extension.



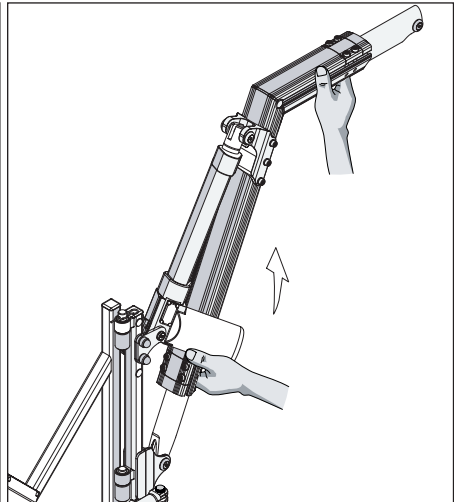
1. **Ensure that the actuator is fully retracted as shown.** Use the handset to retract if required.



2. Loosen the four clamp fixings as shown.

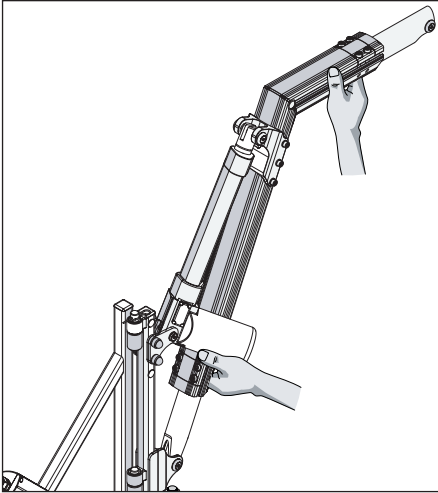


3. Support the Horizontal boom of the Smart lifter and loosen the six upper actuator bracket fixings. This will allow the hoist to be adjusted.

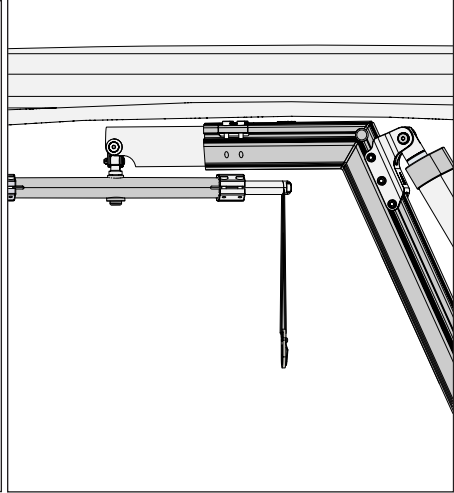


4. Using both hands raise the height of the hoist.

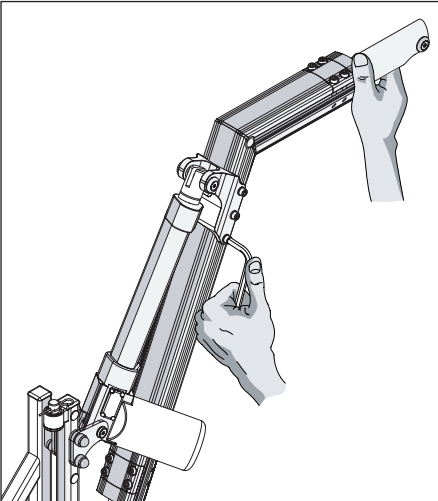
5. Set Up Instructions



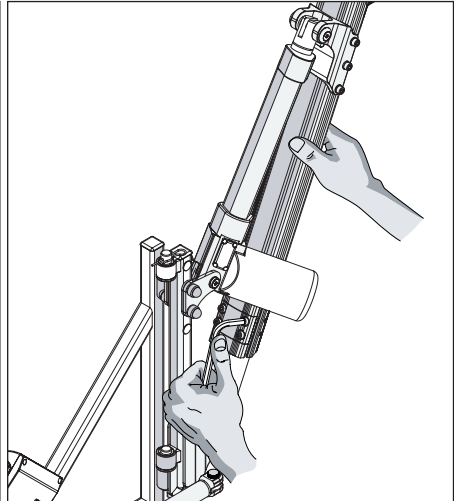
5. Adjust the height of the hoist so that the boom passes underneath the boot lining.



6. Boom shown with enough clearance for the hoist to manoeuvre in and out without obstructions.



7. Support the Horizontal boom of the Smart Lifter and raise the Smart lifter to the desired height. Once the hoist is at the desired height, torque tighten the six upper actuator fixings to 18Nm (13 1/4 lbft).

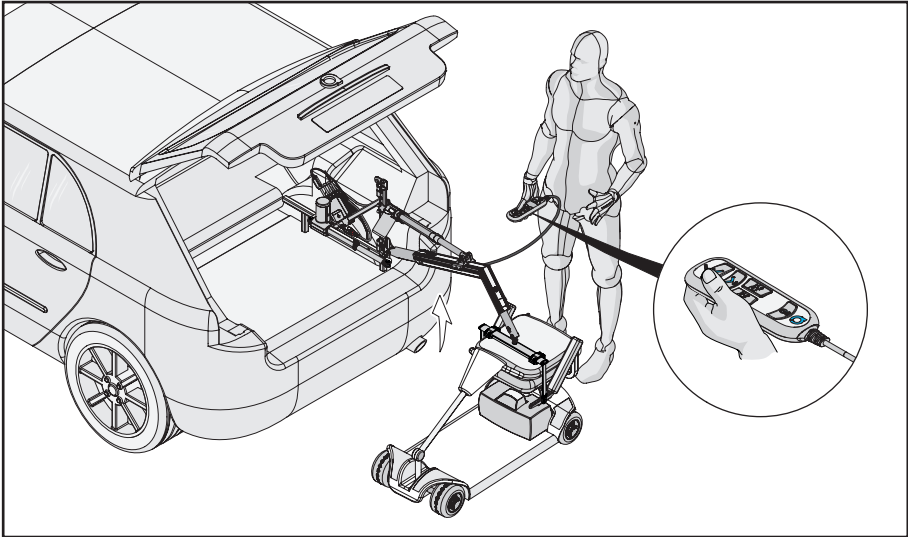


8. Finally torque tighten the four clamp fixings to 8 Nm (6lbft).

5. Set Up Instructions

Test the Setup

Once the Vertical extension has been set to the maximum, test the set up and see where the hoist reaches, allow for extra travel (In case the vehicle is not on level ground).



If the Hoist reaches the mobility device with the current settings ensure that the spreader bar fits the mobility device. Please go to page 17 to adjust the spreader bar if required.

Adjusting the set up

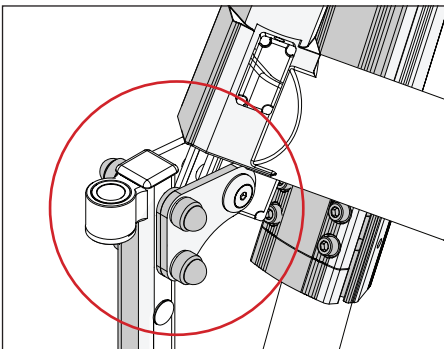
If the Smart Lifter doesn't reach the mobility device, the pivot post setting can be adjusted to increase the reach of the Smart Lifter. The lower the pivot post position is set the greater the lift range. The procedure for changing the pivot post is located on pages 15 and 16. Please refer to the chart provided on page 12 for the allowable settings for the different actuator stroke and weight capacities.

Pivot Post position

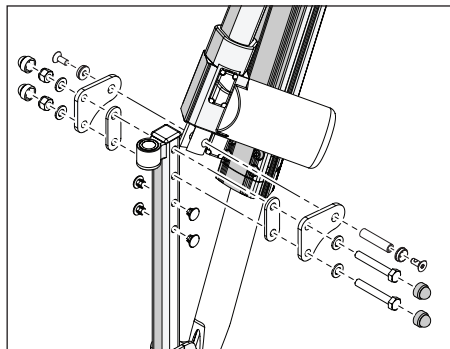
Refer to the charts provided on page 12 for the allowable settings for the different actuator stroke and weight capacities. Do not set a Smart Lifter LP Range less than 640mm (25.2 in) boom length. If the chart shows that a different lower actuator bracket position is required on the pivot post, this should be changed first.



No boom length should be set greater than 900mm (35.4 in)



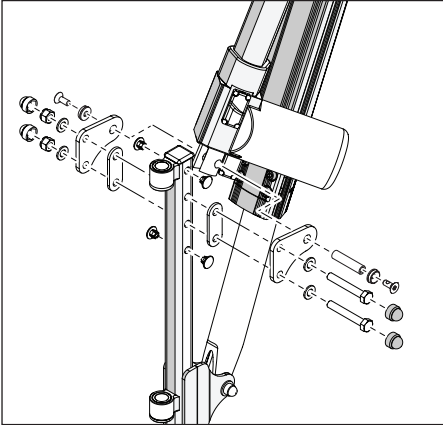
1. Locate the actuator bracket fixings on the Pivot post.



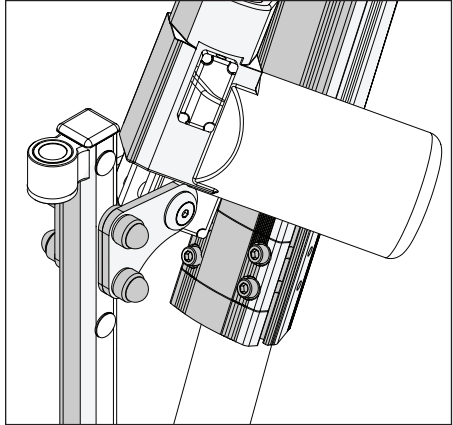
2. Remove the lower actuator bracket fixings (be careful not to let the boom drop).

5. Set Up Instructions

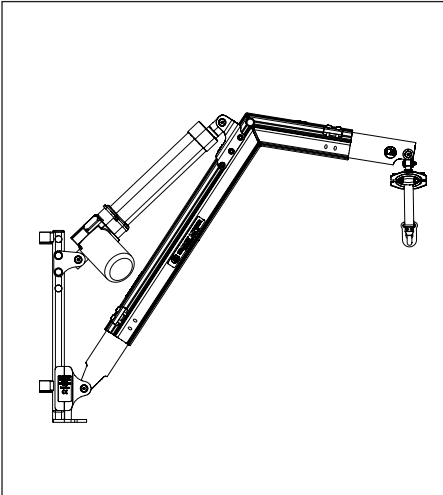
NOTE: For pivot post positions B and D the actuator brackets should be rotated, so the hole for bottom fixings for the actuator, is located at the bottom not the top. See page 12 for clarification of the actuator bracket position. These pivot post positions will require you to remove the bottom actuator fixings.



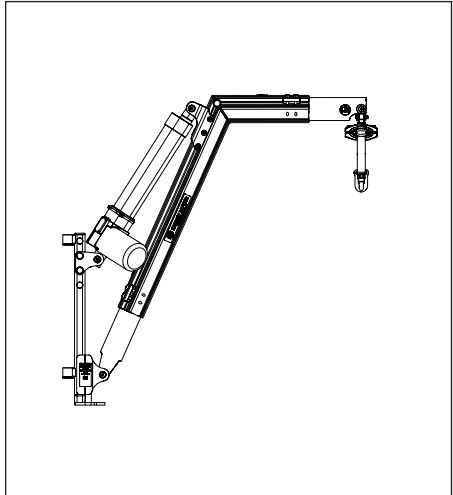
3. Adjust the position of the actuator bracket
(Please see the setting limits on page 12).



4. Attach the actuator bracket fixings on the pivot
post.



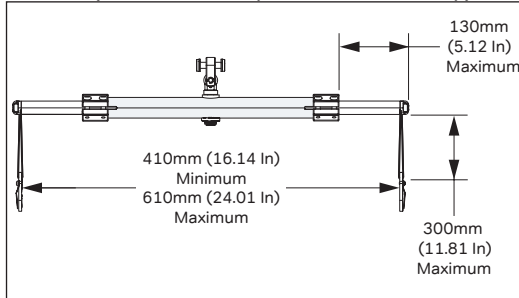
5. The vertical extension will need to be adjusted
if the horizontal section of the boom is not
parallel with the boot floor.



6. The horizontal section shown level with the
boot floor, with the actuator fully retracted.

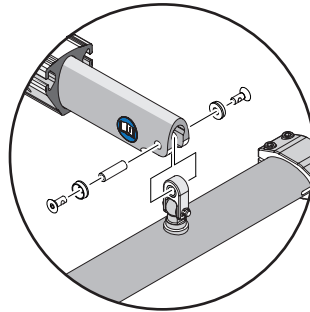
5. Set Up Instructions

2 Point Spreader Bar (Keyhole & Karabiner Type)



Attaching the Spreader Bar

Attach the spreader bar as shown in the below illustration.

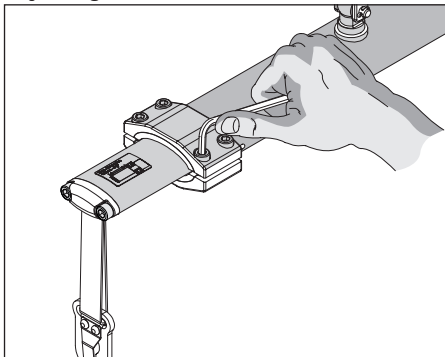


Setting the Spreader Bar

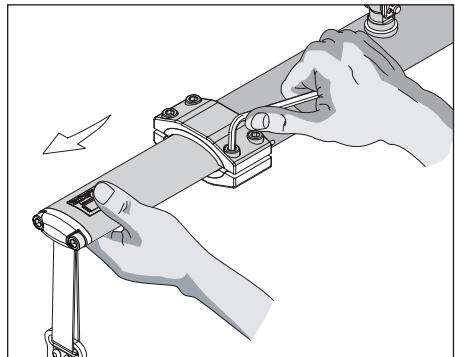
Measure the mobility device, adjust the spreader bar width and strap length to the dimensions of the mobility device if required. Please follow the following steps to adjust the spreader bar.

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

Adjusting the Width

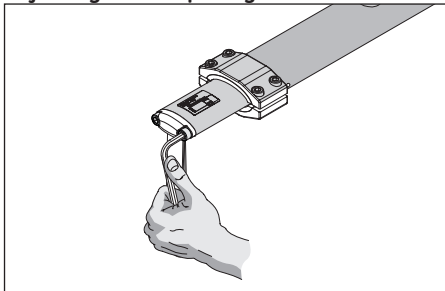


1. To adjust the spreader bar, locate the four fixing screws each side of the spreader bar and loosen.

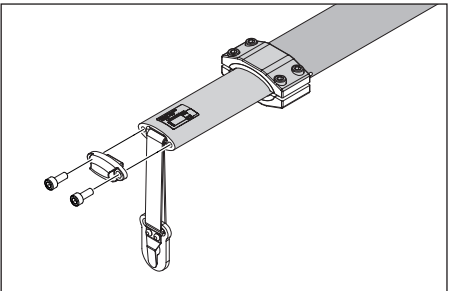


2. Move out the spreader bar and tighten the adjustment screws at the desired width.

Adjusting the Strap Length

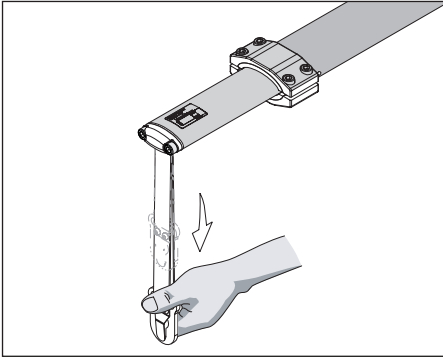


1. To adjust the straps on the spreader bar loosen the two adjustment screws as shown.

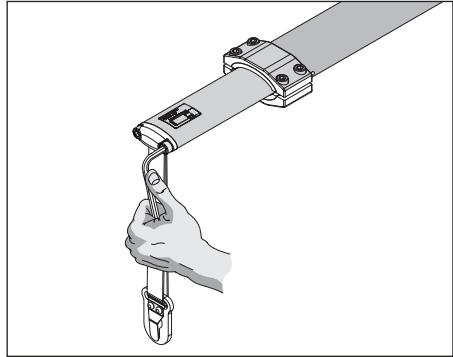


2. Clamp and fixings shown removed for clarity.

5. Set Up Instructions

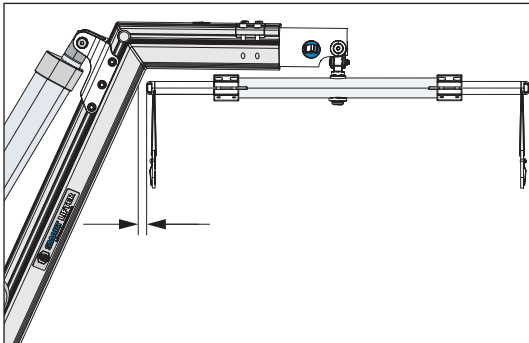


3. Move the strap downwards and tighten the adjustment screws at the desired length.

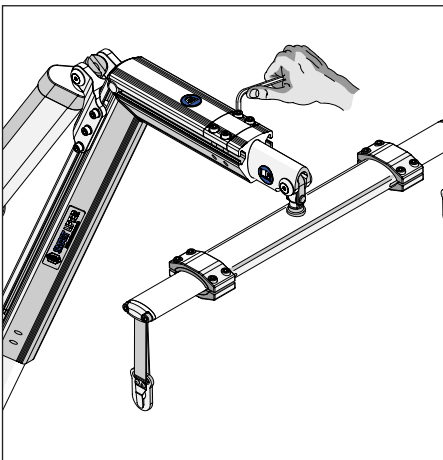


4. Push the clamp to lock the strap in place and tighten the adjustment screws to 4Nm (3lbf). The straps should be parallel.

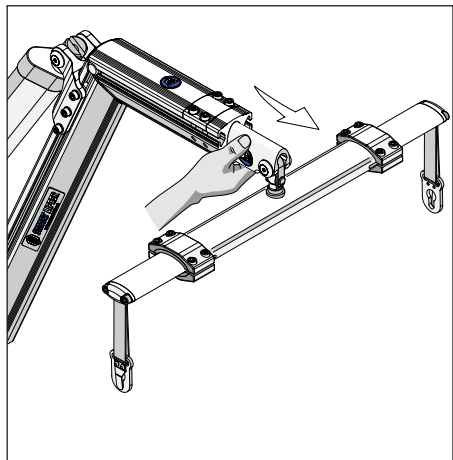
Setting the Horizontal Extension



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 car when lifting/lowering. If a more optimal horizontal boom setting is required the following procedure can be used.

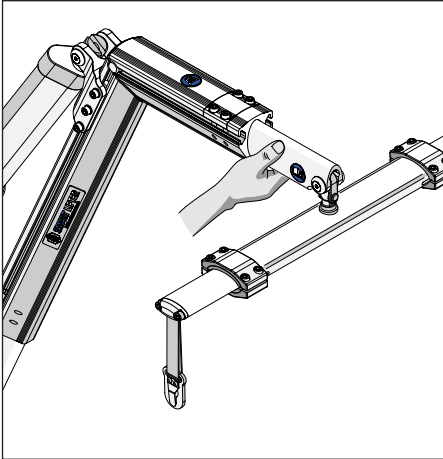


1. Unscrew the clamp plate on the boom Arm using a 5mm Allen key as shown.

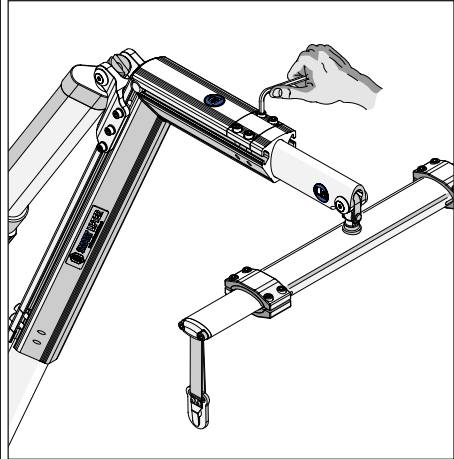


2. Move the boom arm outwards.

5. Set Up Instructions



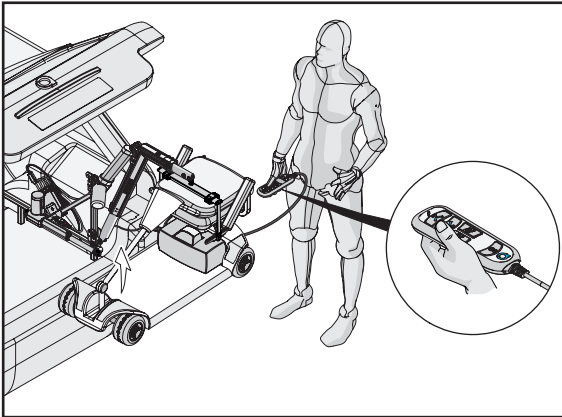
3. Move the boom arm to the desired length.
Allow for the swing of the mobility device once attached.



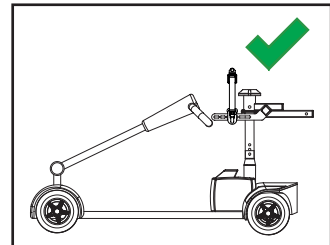
4. Tighten the clamp plate to 8Nm (6lbf).

Test the set up

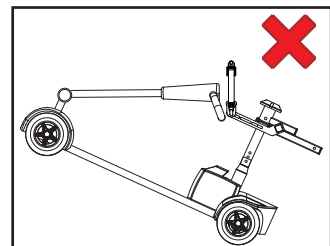
Once all the adjustments have been made, test the set up. If further adjustments are required please amend as before and re-test.



Ensure the mobility device is balanced when lifted and that the lifting bracket on the mobility device does not slip.



Correct centre of balance.

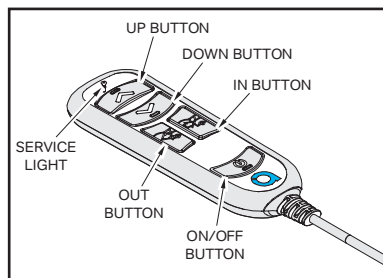


Incorrect centre of Balance. Adjust to obtain the centre of balance by moving the fixings. Lift to check centre of balance.

Once the set up is complete please handover to the customer.

6. Handset Instructions

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 Smart Lifter to move up
- DOWN BUTTON = Press and hold for the Smart Lifter 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.

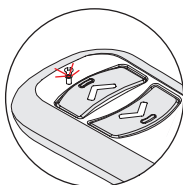
Soft Start

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.

SERVICE LIGHT



Service LED lights up in amber

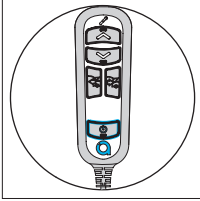
Once the Handset unit has completed 1500 presses of the ON BUTTON (This is equivalent to 1 shop trip a day, every day for 1 year) the service light will illuminate.

(Please note that the hoists operation will not be affected following the service light activation)

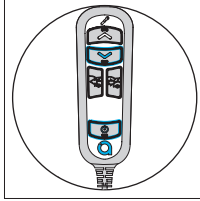
6. Handset Instructions

Post Service - Reset Counter

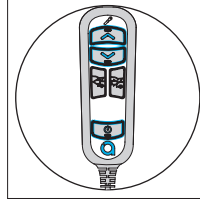
To reset the service indicator light please follow the next steps once the service has been completed.



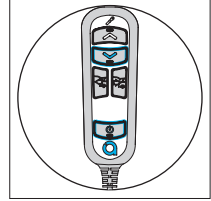
Turn the handset OFF when the mobility device is on the ground by pressing the ON/OFF BUTTON



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.



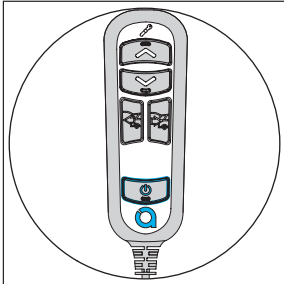
Press the DOWN BUTTON and the ON/OFF BUTTON for 10s to exit installer mode.

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.

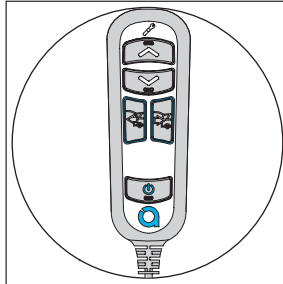
Trouble shooting - LA Mode (L-P Hoist Default Settings)

The handset should be pre set in LA mode (this is the default setting for the L-P Hoist)

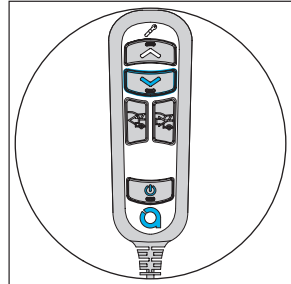
If for any reason during the lift test, the handset does not operate as expected, the handset may be set in LM Mode. To reset the handset into LA MODE (Default settings) Please follow the steps below.



Turn the handset ON by pressing the ON/OFF BUTTON.



Press the both IN and OUT BUTTONS for 3s as shown.

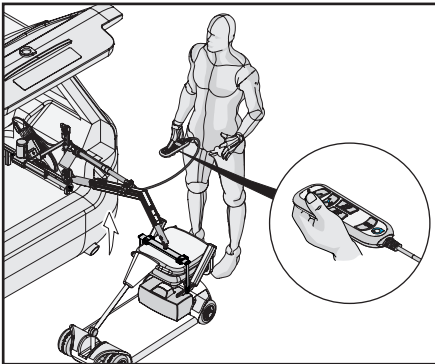


The back light of the DOWN BUTTON will flash to indicate L-A mode is selected.

7. Customer Handover

[illegible]

1. Ensure that the Pivot post settings on page 12 are used and that all torque settings are correct.

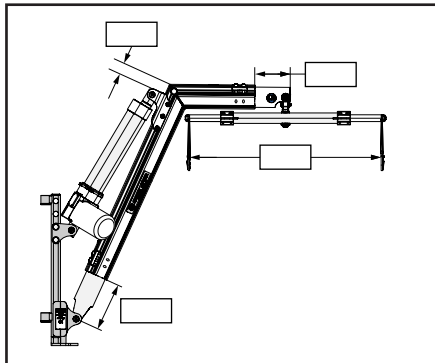


2. Give demonstration to customer and ensure they know how to operate the Smart Lifter.

Dealer:	_____
Address:	_____

Post Code\Zip Code:	_____
Phone Number:	_____
Purchase Date :	_____
Serial Number:	_____

3. Fill installer details on back page of **User Manual**.



4. Fill Smart Lifter and spreader bar settings details on page 23 of **this Manual**.

8) Installer Details

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

Installer Address: _____

Post Code: _____

Telephone: _____

Smart Lifter LC (Circle) 80Kg (175lbs) 100Kg (220lbs)

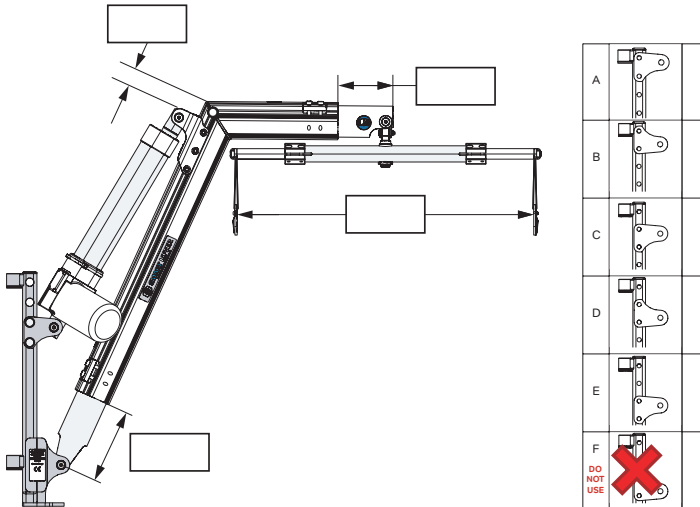
Hoist Serial Number: _____

Fitting Kit Rating: _____

Lifting Accessory Rating: _____

Installed By: Print: _____

Sign: _____ Date: _____





**SMART
LIFTER**
Range

