Invacare® Ultra Low Maxx by Motion Concepts

Supplement to power wheelchair service manual

en Modular Power Positioning System Service Manual

PROVIDER: Keep this manual.
The procedures in this manual MUST be performed by a qualified technician.

Yes, you can.®

Contents

1 General

1.1 Introduction

This document contains important information about assembly, adjustment and advanced maintenance of the product. To ensure safety when handling the product, read this document and the user manual carefully and follow the safety instructions.

Find the user manual on Invacare's website or contact your Invacare representative. See addresses at the end of this document.

Invacare reserves the right to alter product specifications without further notice.

Before reading this document, make sure you have the latest version. You find the latest version as a PDF on the Invacare website.

For pre-sale and user information, see the user manual.

For more information about the product, for example product safety notices and product recalls, contact your Invacare representative. See addresses at the end of this document.

1.2 General Information

Service and maintenance work must be carried out taking this document into account.

Note that there may be sections in this document, which are not relevant to your product, since this document applies to all available models (on the date of printing). If not otherwise stated, each section in this document refers to all models of the product.

The models and configurations available in your country can be found in the country-specific sales documents.

It is imperative that you observe safety information.

Information about operation or about general maintenance and care work on the product should be taken from service manual.

Assembly of accessories might not be described in this document. Refer to the manual delivered with the accessory. Additional manuals can be ordered from Invacare. See addresses at the end of this document.

You can find information about ordering spare parts in the spare parts catalogue.

Spare parts must match original Invacare parts. Only use spare parts which have been approved by Invacare.

The product may only be maintained and overhauled by qualified personnel.

The minimum requirement for service technicians is suitable training, such as in the cycle or orthopedic mechanics fields, or sufficiently long-term job experience. Experience in the use of electrical measuring equipment (multimeters) is also a requirement. Special Invacare training is recommended.

Alterations to the mobility device which occur as a result of incorrectly or improperly executed maintenance or overhaul work lead to the exclusion of all liability on the side of Invacare.

If you have any problems or questions contact your provider.

1.3 Notes on Shipping

- If the mobility device has to be shipped back to the manufacturer for major repairs, you should always use the original packaging for transport.
- Please attach a precise description of the fault.

1.4 Symbols in This Manual

Symbols and signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. See the information below for definitions of the signal words.

WARNING
Indicates a hazardous situation that could result in serious injury or death if it is not avoided.

CAUTION
Indicates a hazardous situation that could result in minor or slight injury if it is not avoided.

NOTICE
Indicates a hazardous situation that could result in damage to property if it is not avoided.

Tips
Gives useful tips, recommendations and information for efficient, trouble-free use.

Tools
Identifies required tools, components and items which are needed to carry out certain work.

Other Symbols

(Not applicable for all manuals)

UK Responsible Person
Indicates if a product is not manufactured in the UK.

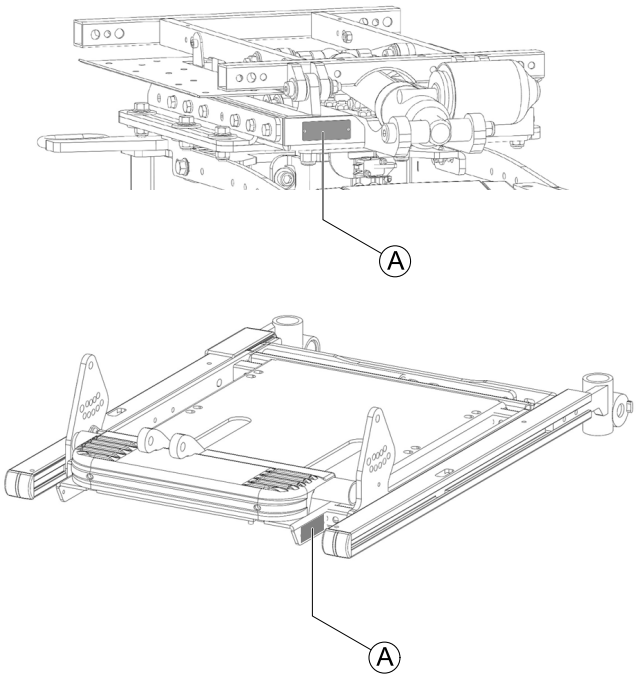
Triman
Indicates recycling and sorting rules (only relevant for France).

1.5 Images in This Manual

The detailed images in this manual are given marks to identify various components. Component marks in text and operational instructions always relate to the image directly above.

1.6 System Identification

Each Motion Concepts seating system is identified by a unique serial number, which allows us to trace the production history of the system and better equips us to address any service issues that may occur over the lifetime of the product. The location of the serial number identification plate varies depending on the type of positioning system installed. There are two possible mounting locations as indicated in the images below.



1.7 Abbreviations

Abbreviation		Meaning
CG	=	Center of Gravity
DLO	=	Drive Lockout
ESR	=	Extended Shear Reduction
PES	=	Power Elevating Seat
PPS	=	Power Positioning System
STF	=	Seat-To-Floor Height

2 Safety

2.1 Safety and Fitting Instructions

These safety instructions are intended to prevent accidents at work, and it is imperative that they are observed.

Before any inspection or repair work

- Read and observe this repair manual and the associated user manual.
- Observe the minimum requirements for carrying out the work (see *1.2 General Information, page 5*).

Personal Safety Equipment

Safety shoes

The mobility device, and some of its components, are very heavy. These parts can result in injuries to the feet if they are allowed to drop.

- Wear standardized safety shoes during all work.

Eye protection

It is possible that battery acid can be discharged when working on defective batteries or when handling batteries improperly.

- Always wear eye protection when working on any defective or possibly defective batteries.

Safety gloves

It is possible that battery acid can be discharged when working on defective batteries or when handling batteries improperly.

- Always wear acid-proof safety gloves when working on any defective or possibly defective batteries.

General Safety Information and Information About Fitting / Removal

DANGER!
Risk of Death, Serious Injury, or Damage
Lighted cigarettes dropped onto an upholstered seating system can cause a fire resulting in death, serious injury, or damage. Mobility device occupants are at particular risk of death or serious injury from these fires and resulting fumes because they may not have the ability to move away from the mobility device.
– DO NOT smoke while using this mobility device.

WARNING!
Risk of Serious Injury or Damage
Storing or using the mobility device near open flame or combustible products can result in serious injury or damage.
– Avoid storing or using the mobility device near open flame or combustible products.

CAUTION!
Risk of crushing
Various components such as the drive unit, batteries, seat etc are very heavy. This results in injury hazards to your hands.
– Note the high weight of some components. This applies especially to the removal of drive units, batteries and the seat.

CAUTION!
Injury hazard if the mobility device starts moving unintentionally during repair work
– Switch the power supply off (ON/OFF key).
– Engage the drive.
– Before lifting up, secure the mobility device by using chocks to block the wheels.

CAUTION!
Fire and burn hazard due to electrical short-circuit
– The mobility device must be completely switched off before removal of voltage-carrying components! To do this, remove the batteries.
– Avoid short-circuiting the contacts when carrying out measurements on voltage-carrying components.

CAUTION!
Risk of burns from hot surfaces on the motor
– Allow the motors to cool down before commencing work on them.

CAUTION!
Injury hazard and risk of damage to mobility device due to improper or incomplete maintenance work
– Use only undamaged tools in good condition.
– Some moving parts are mounted in sockets with PTFE coating (Teflon™). Never grease these sockets!
– Never use "normal" nuts instead of self-locking nuts.
– Always use correctly-dimensioned washers and spacers.
– When reassembling, always replace any cable ties which were cut during dismantling.
– After completing your work / before renewed start-up of the mobility device, check all connections for tight fitting.
– After completing your work / before renewed start-up of the mobility device, check all parts for correct locking.
– Only operate the mobility device with the approved tyre pressures (see technical data).
– Check all electrical components for correct function. Note that incorrect polarity can result in damage to the control system.
– Always carry out a trial run at the end of your work.

CAUTION!
Risk of injury and damage to property, if the maximum speed reduction on a wheelchair with a lifter does not function correctly
The wheelchair’s control unit must reduce the maximum possible speed as soon as the lifter is raised.
– Test the maximum speed reduction for correct function after any maintenance work or modifications to the wheelchair.

CAUTION!
Any changes to the drive program can affect the driving characteristics and the tipping stability of the mobility device

– Changes to the drive program may only be carried out by trained Invacare providers.
– Invacare supplies all mobility devices with a standard drive program ex-works. Invacare can only give a warranty for safe mobility device driving behavior - especially tipping stability - for this standard drive program.

Mark all current settings for the mobility device (seat, armrests, backrest etc.), and the associated cable connecting plugs, before dismantling. This makes reassembly easier. All plugs are fitted with mechanical locks which prevent release of the connecting plugs during operation. To release the connecting plugs the safety locks must be pressed in. When reassembling ensure that these safety locks are correctly engaged.

3 Overview

3.1 Components

3.1.1 Overview of Seating System

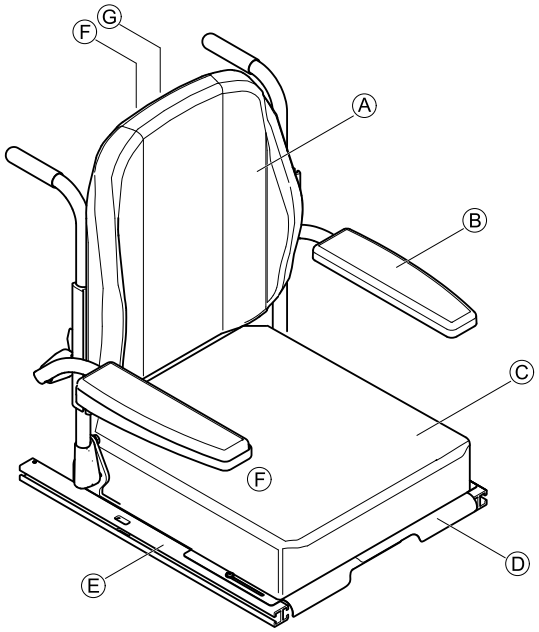


Fig. 3-1

Ⓐ Backrest, see *3.1.2 Backrest Styles, page 9*

Ⓑ Armrest, see *3.1.3 Armrest Styles, page 10*

Ⓒ Cushion

Ⓓ Seat plate

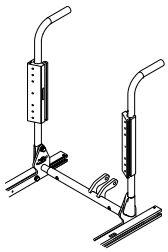
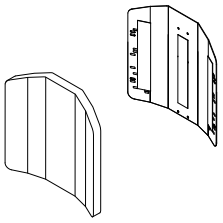
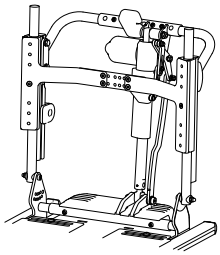
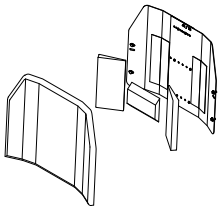
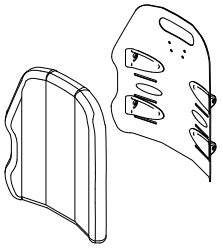
Ⓔ Side rail

Ⓕ Remote bracket, see *3.1.4 Remote Holders, page 10*

Ⓖ Remote bracket for attendant, see *3.1.4 Remote Holders, page 10*

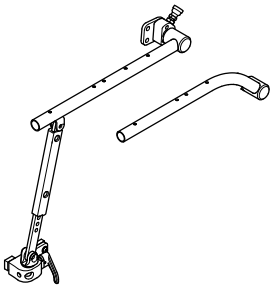
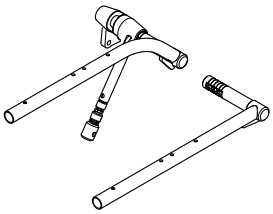
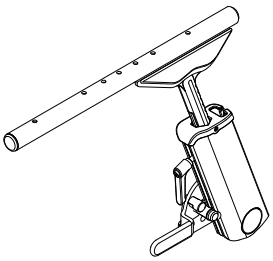
3.1.2 Backrest Styles

The Ultra Low Maxx seat is available with different backrest styles.

Backrest Frame	Backrest Style
 *Fig. 3-2 Manual Recline*	 *Fig. 3-3 Standard Rehab Back*
 *Fig. 3-4 Powered Recline with ESR*	 *Fig. 3-5 High Back*
	 *Fig. 3-6 Matrx Backs*

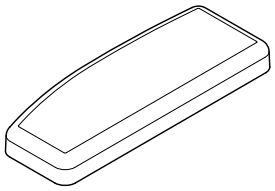
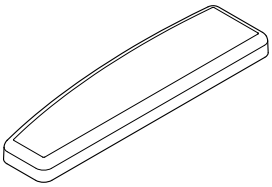
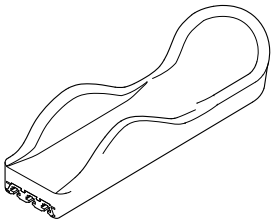
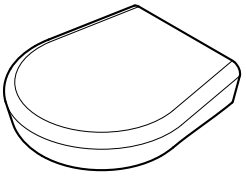
3.1.3 Armrest Styles

The Ultra Low Maxx seat is available with different armrest styles. For remote brackets that can be mounted to armrest, see *3.1.4 Remote Holders, page 10*.

For Powered Recline		For Manual Recline
 *Fig. 3-7 Two Post Recline*	 *Fig. 3-8 Backpost Mounted Flip Back Cantilever*	 *Fig. 3-9 Ultra Rail Mounted Flip Back Cantilever Maxx*

Armpad styles

All Ultra Low Maxx armrests are available with the following armpads:

Desk Armpad	Full Length Armpad	Ergonomic Armtrough	Flat Hand Pad
 *Fig. 3-10*	 *Fig. 3-11*	 *Fig. 3-12*	 *Fig. 3-13*

3.1.4 Remote Holders

Ultra Low Maxx can be fitted with different holders for remotes:

- *Primary Remotes for Users, page 10*
- *Secondary Inputs for Users, page 12*
- *Remotes for Attendant, page 12*

Primary Remotes for Users

Remotes for the wheelchair user are installed at a slot at the armrest or on nucleus midline holder.

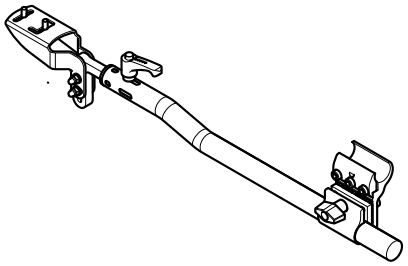


Fig. 3-14 Standard with Support Tube

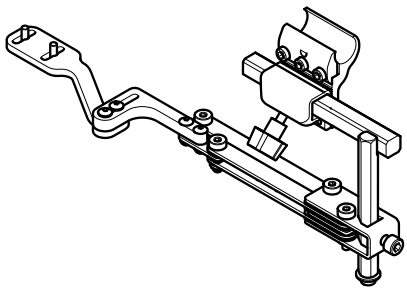


Fig. 3-15 Standard with Swing-Away Holder

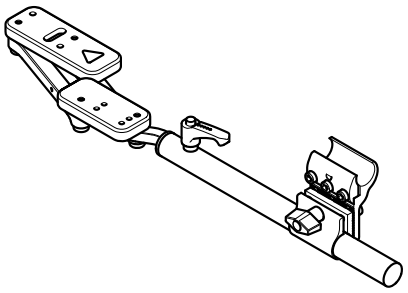


Fig. 3-16 Quad Link

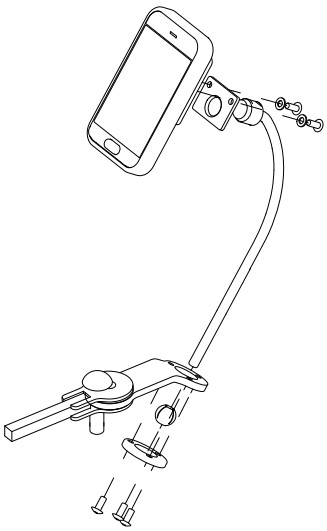


Fig. 3-17 REM500 Swing-Away Display Holder

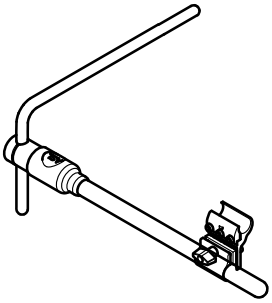


Fig. 3-18 Nucleus Midline Holder

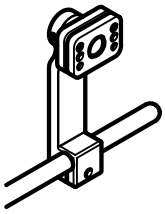


Fig. 3-19 Remote Holder for REM500

Ultra Low Maxx with nucleus midline holder can carry additional holders, remotes and switches. An adapter is needed to install nucleus midline holder to slot at the armrest.

Secondary Inputs for Users

Nucleus Midline Holder

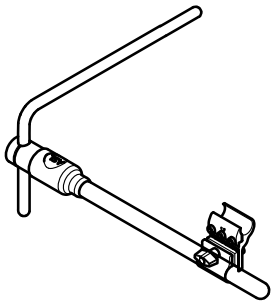


Fig. 3-20

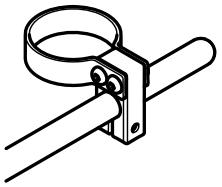


Fig. 3-21

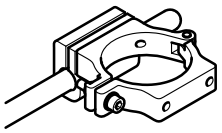


Fig. 3-22

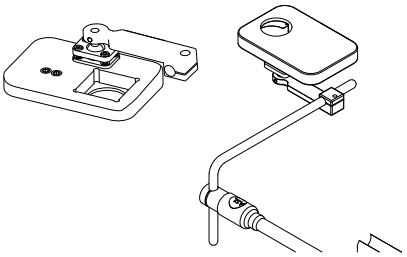


Fig. 3-23

Support Tube

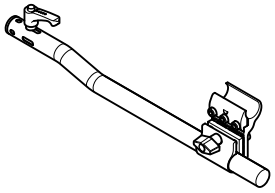


Fig. 3-24

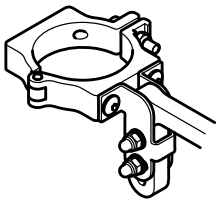


Fig. 3-25

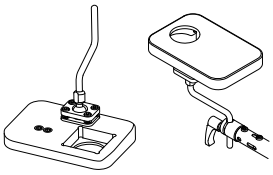
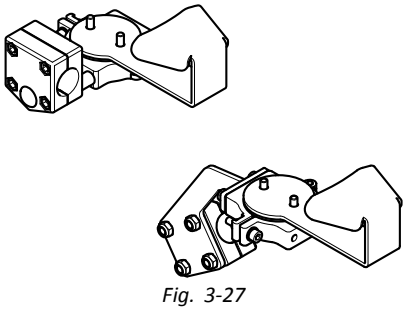
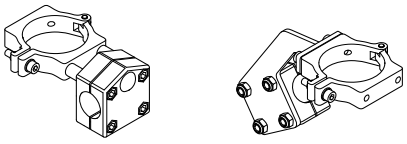
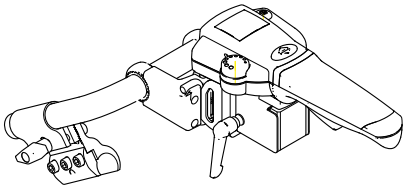


Fig. 3-26

Remotes for Attendant

Remote holder for the wheelchair attendant is installed at the push bar or at the push handles at the backrest frame of the power wheelchair.

Attendant Remote Holder for Primary Remotes	Attendant Remote Holder for Secondary Inputs	Attendant Remote Holder for IDC
 *Fig. 3-27*	 *Fig. 3-28*	 *Fig. 3-29*

Remote holders can be mounted in a variety of positions.

3.1.5 Mounting Positions of LiNX Modules

This chapter only shows the mounting positions of modules installed on the backrest. You find more information about the following components in the LiNX service manual:

- Remote modules
- ASL components
- Power modules
- LiNX seating modules and interfaces
- Powered seating accessories
- Power module mounting
- Mounting positions of power modules and DLX-ACT400 on the wheelchair

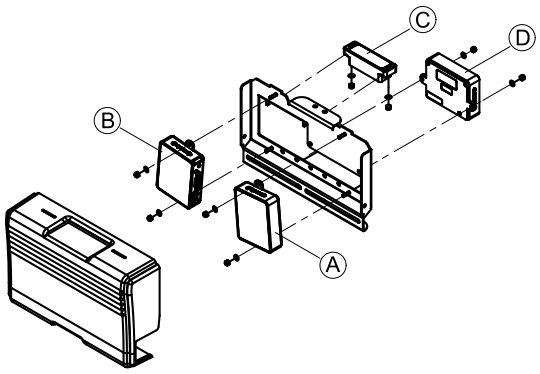


Fig. 3-30 Manual Backrest

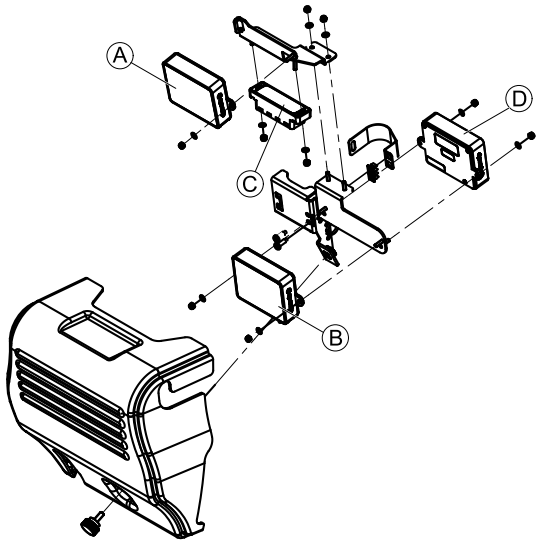


Fig. 3-31 Powered Backrest

Ⓐ	DLX-OUT500	Output module
Ⓑ	DLX-IN500	Input module
Ⓒ	GLM-CONX4	Bus expansion block
Ⓓ	DLX-ACT400	Actuator module

3.1.6 LiNX Wiring Diagrams

Wiring diagrams for LiNX are described in the LiNX service manual.

3.2 Tightening Torques

CAUTION!
Risk of damage to mobility device due to improperly tightened screws, nuts or plastic connections.
– Always tighten screws, nuts etc. to the stated tightening torque.
– Only tighten screws or nuts which are not listed here fingertight.

The tightening torques stated in the following list are based on the thread diameter for the nuts and bolts for which no specific values have been determined. All values assume dry and de-greased threads.

Thread	Tightening Torque in Nm ±10 %
M4	3 Nm
M5	6 Nm
M6	10 Nm
M8	25 Nm
M10	49 Nm
M12	80 Nm
M14	120 Nm
M16	180 Nm

3.3 Imperial to metric conversion chart

You can use this chart as an orientation to find the right tool size.

IMPERIAL	METRIC
inch	**mm**
5/64	1.9844
3/32	2.3813
7/64	2.7781
1/8	3.1750
9/64	3.5719
5/32	3.9688

IMPERIAL	METRIC
inch	mm
11/64	4.3656
3/16	4.7625
13/64	5.1594
7/32	5.5563
15/64	5.9531
1/4	6.3500
17/64	6.7469
9/32	7.1438
19/64	7.5406
5/16	7.9375
21/64	8.3344
11/32	8.7313
23/64	9.1281
3/8	9.5250
25/64	9.9219
13/32	10.3188
27/64	10.7156
7/16	11.1125
29/64	11.5094
15/32	11.9063
31/64	12.3031
1/2	12.7000
33/64	13.0969
17/32	13.4938
35/64	13.8906
9/16	14.2875
37/64	14.6844
19/32	15.0813
39/64	15.4781
5/8	15.8750
41/64	16.2719
21/32	16.6688
43/64	17.0656
11/16	17.4625

IMPERIAL	METRIC
inch	mm
45/64	17.8594
23/32	18.2563
47/64	18.6531
3/4	19.0500
49/64	19.4469
25/32	19.8438
51/64	20.2406
13/16	20.6375
53/64	21.0344
27/32	21.4313
55/64	21.8281
7/8	22.2250

3.4 ACS2 Mounting Positions and Wiring Diagrams

3.4.1 Mounting Positions of ACS2 Modules

This chapter only shows the mounting positions of modules installed on the backrest. You find information about other components in the service manual of the power wheelchair.

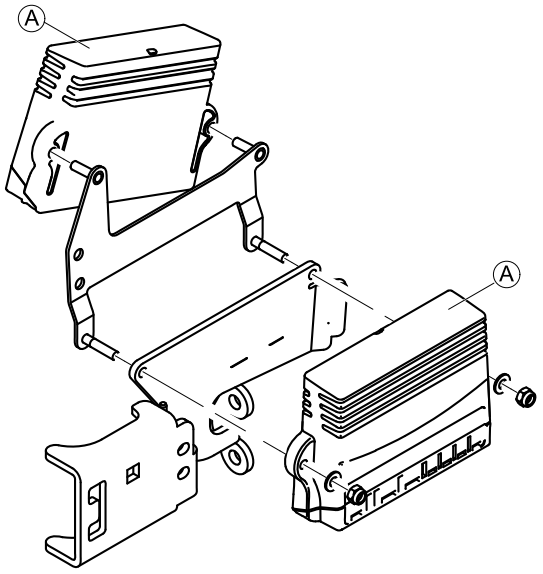
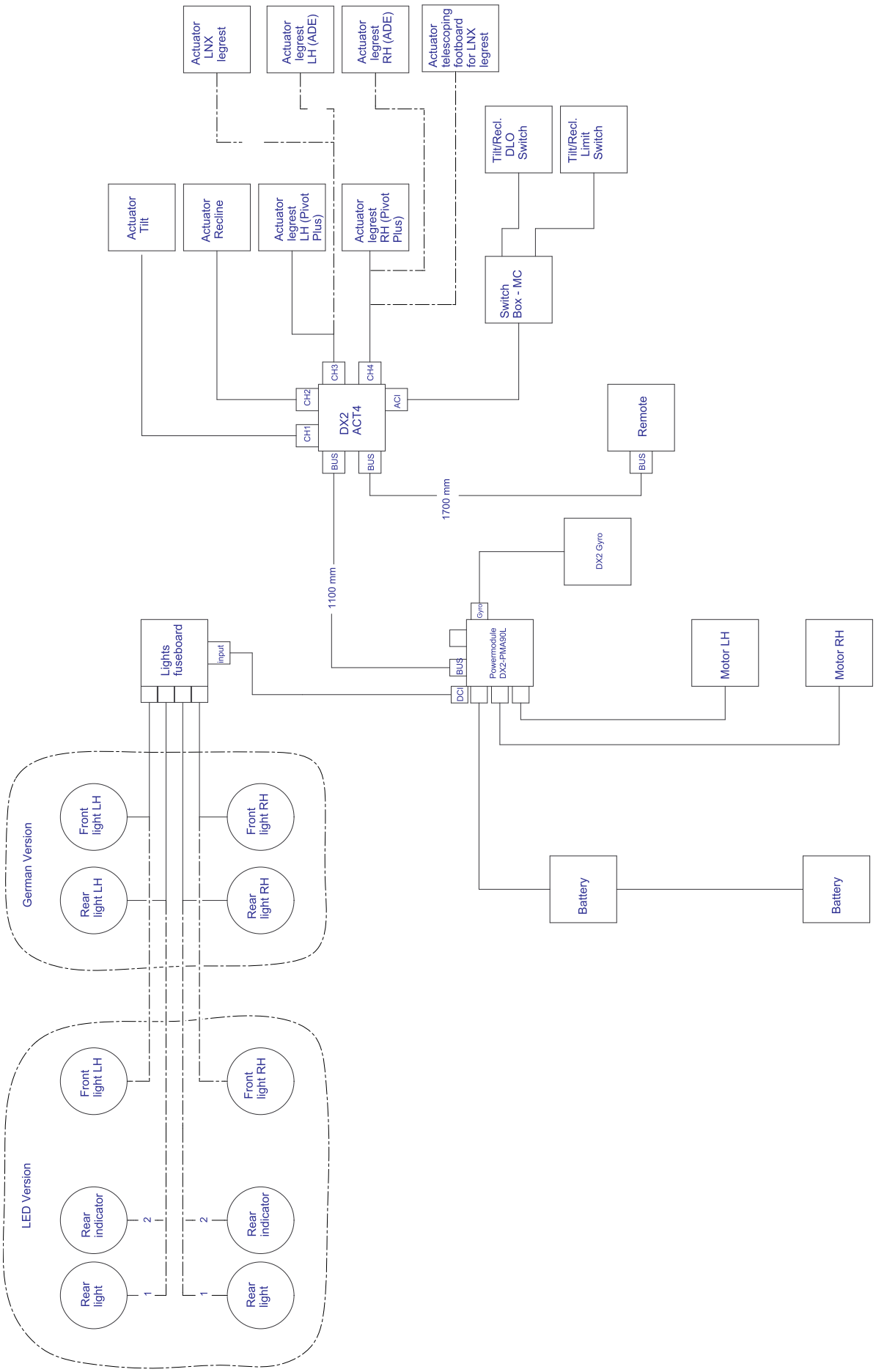


Fig. 3-32

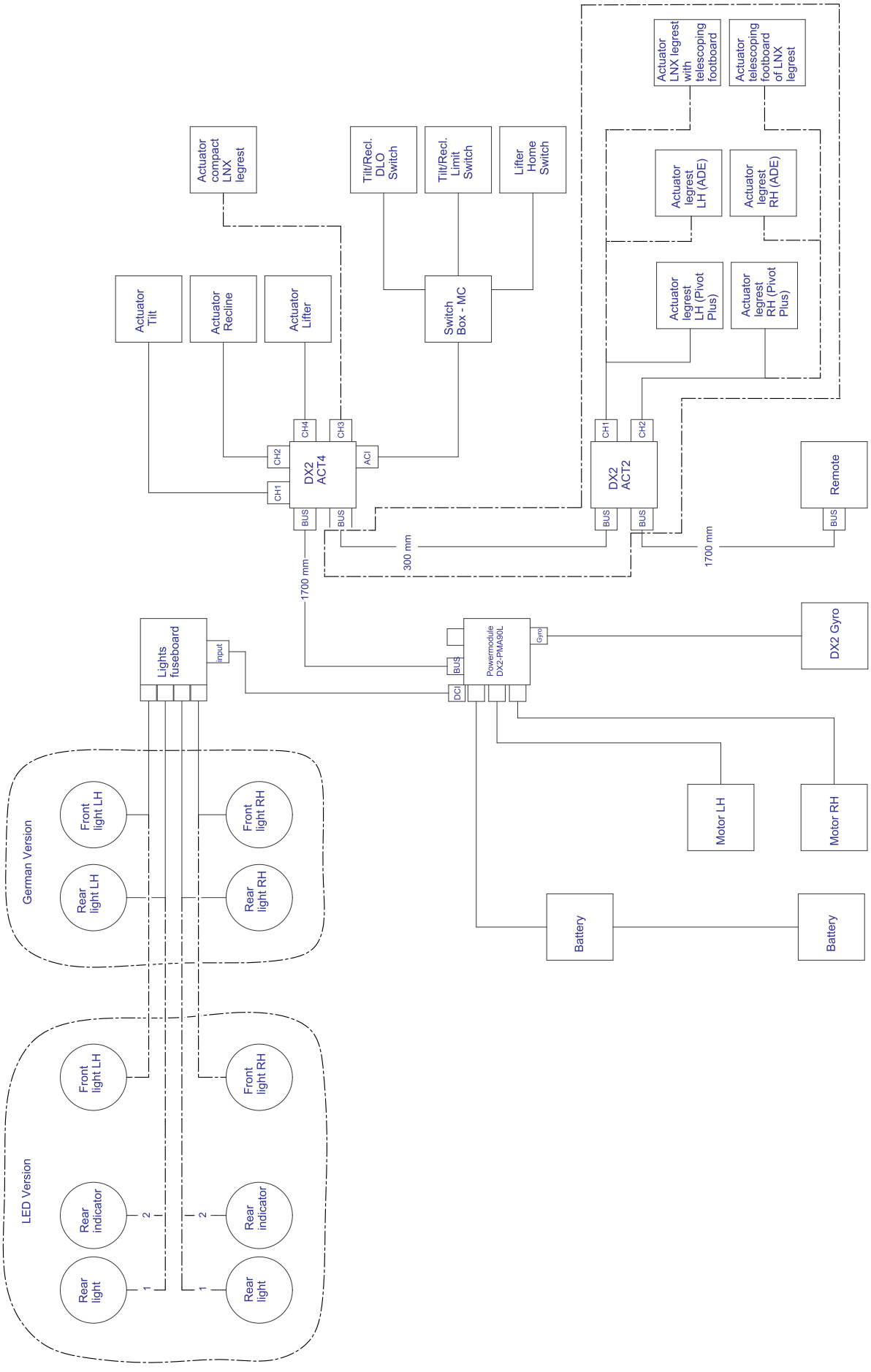
Ⓐ	DX2–ACT2 or DX2–ACT4

3.4.2 Wiring diagrams Ultra Low Maxx with TDX SP2

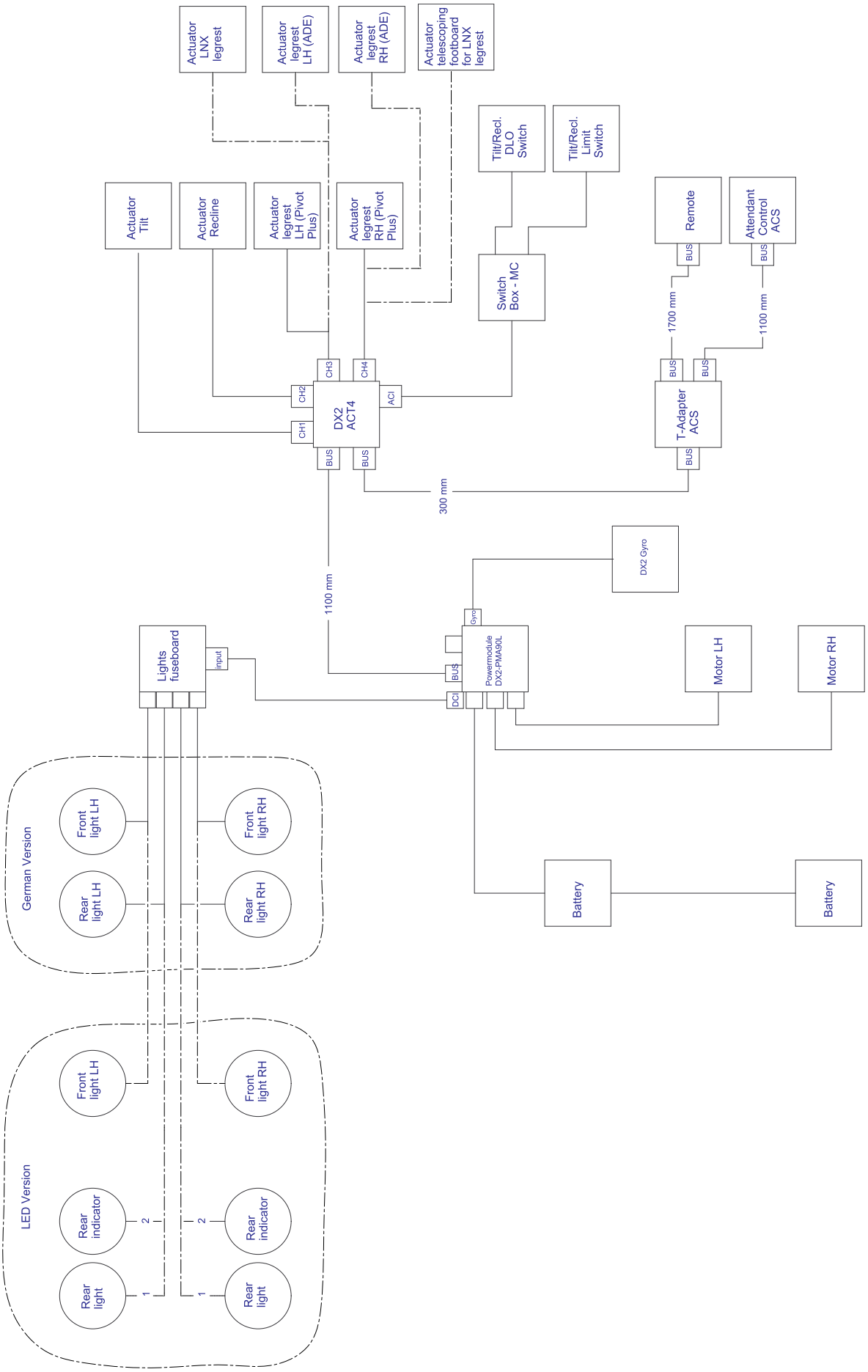
Wiring diagram tilt/recline (TDX SP2)



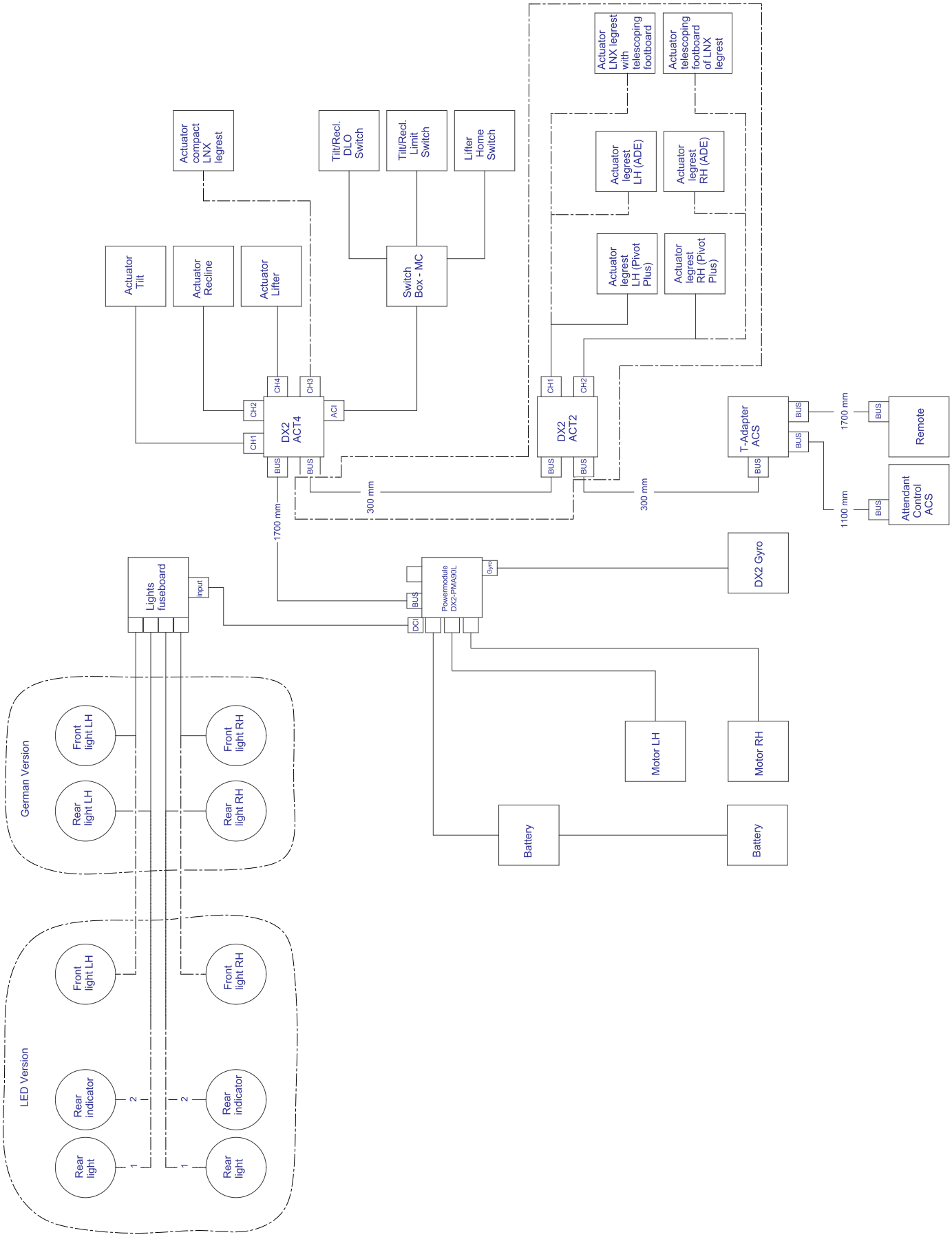
Wiring diagram lifter/tilt/recline (TDX SP2)



Wiring diagram tilt/recline and attendant control (TDX SP2)

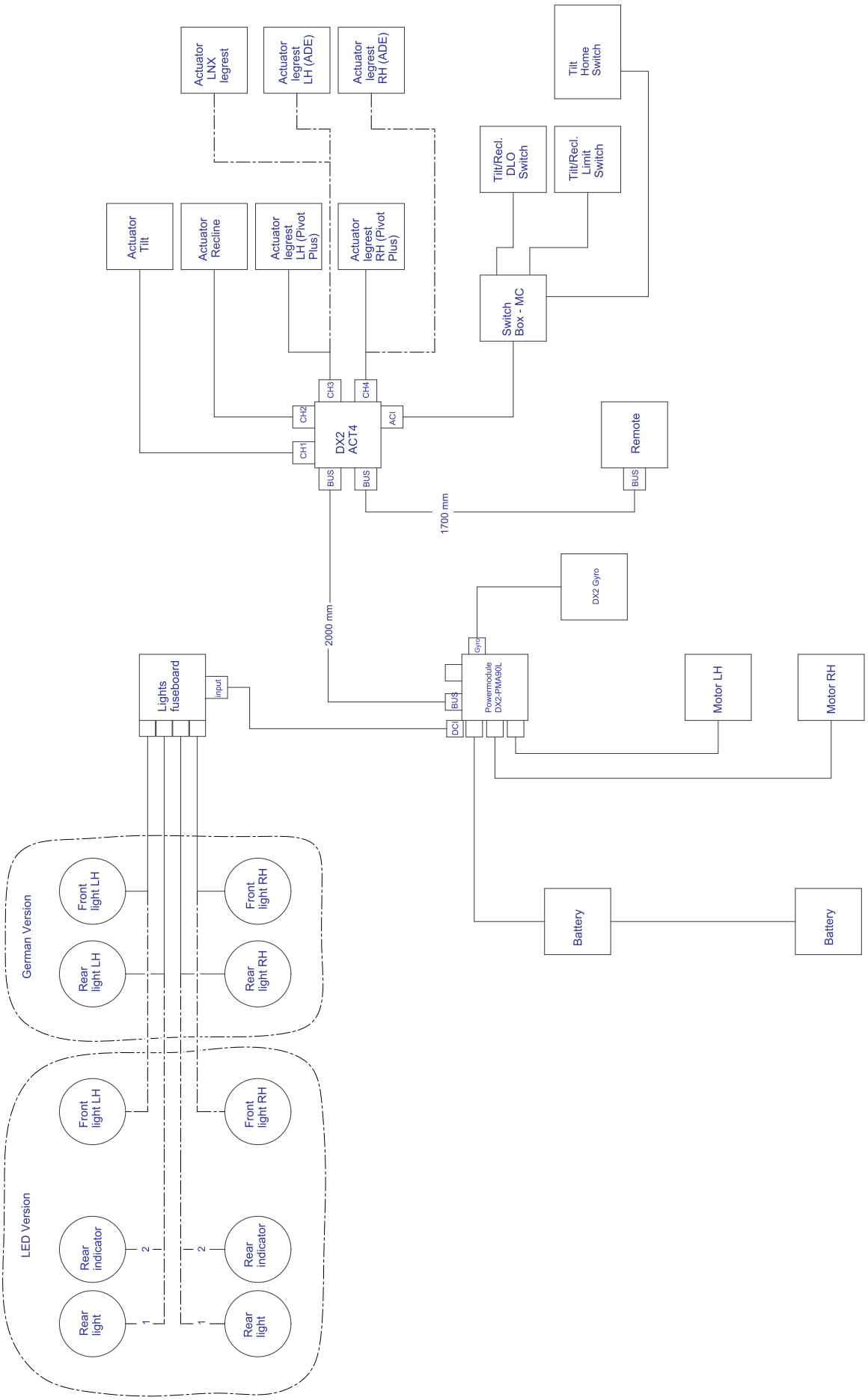


Wiring diagram lifter/tilt/recline and attendant control (TDX SP2)

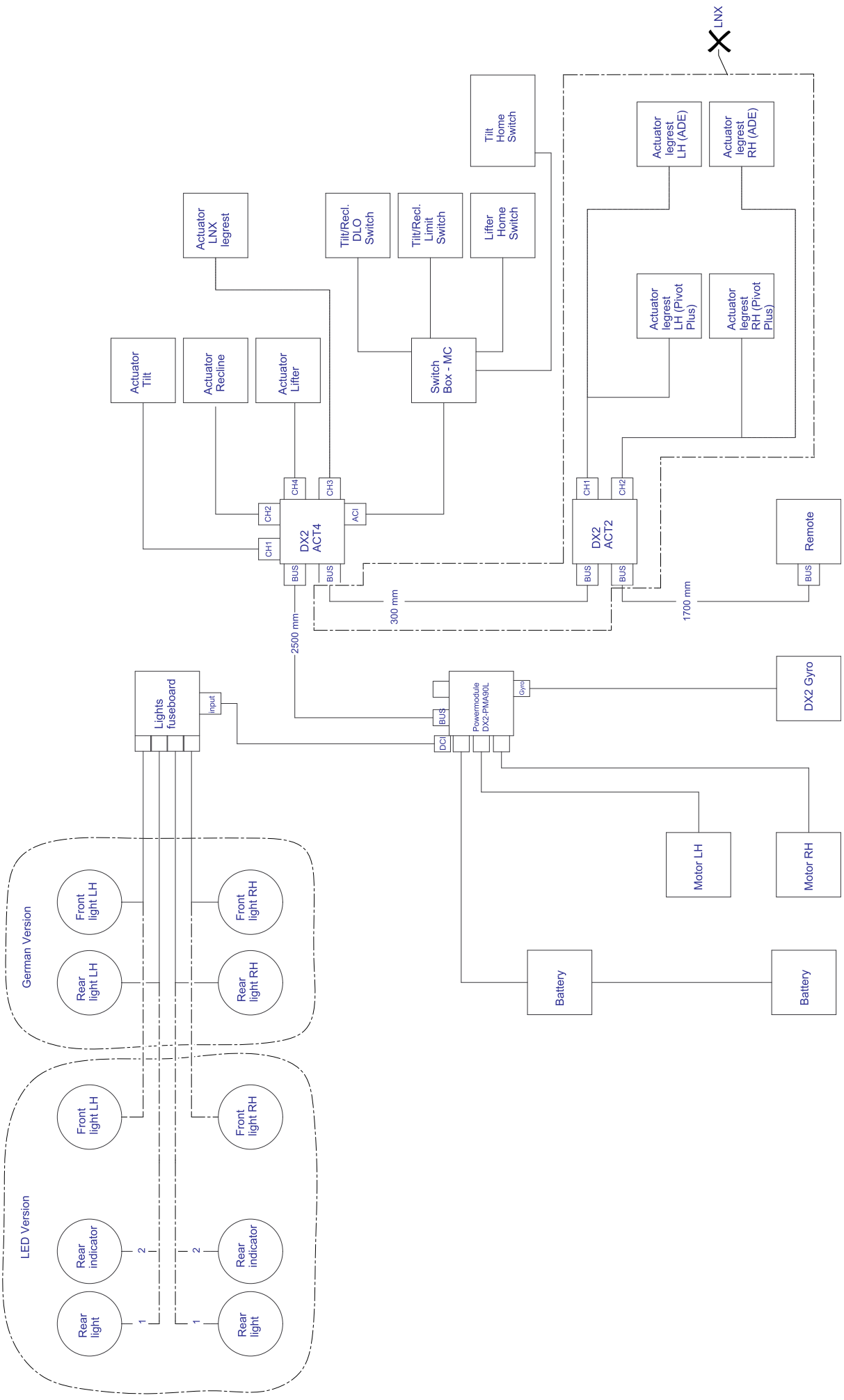


3.4.3 Wiring diagrams Ultra Low Maxx with Storm⁴

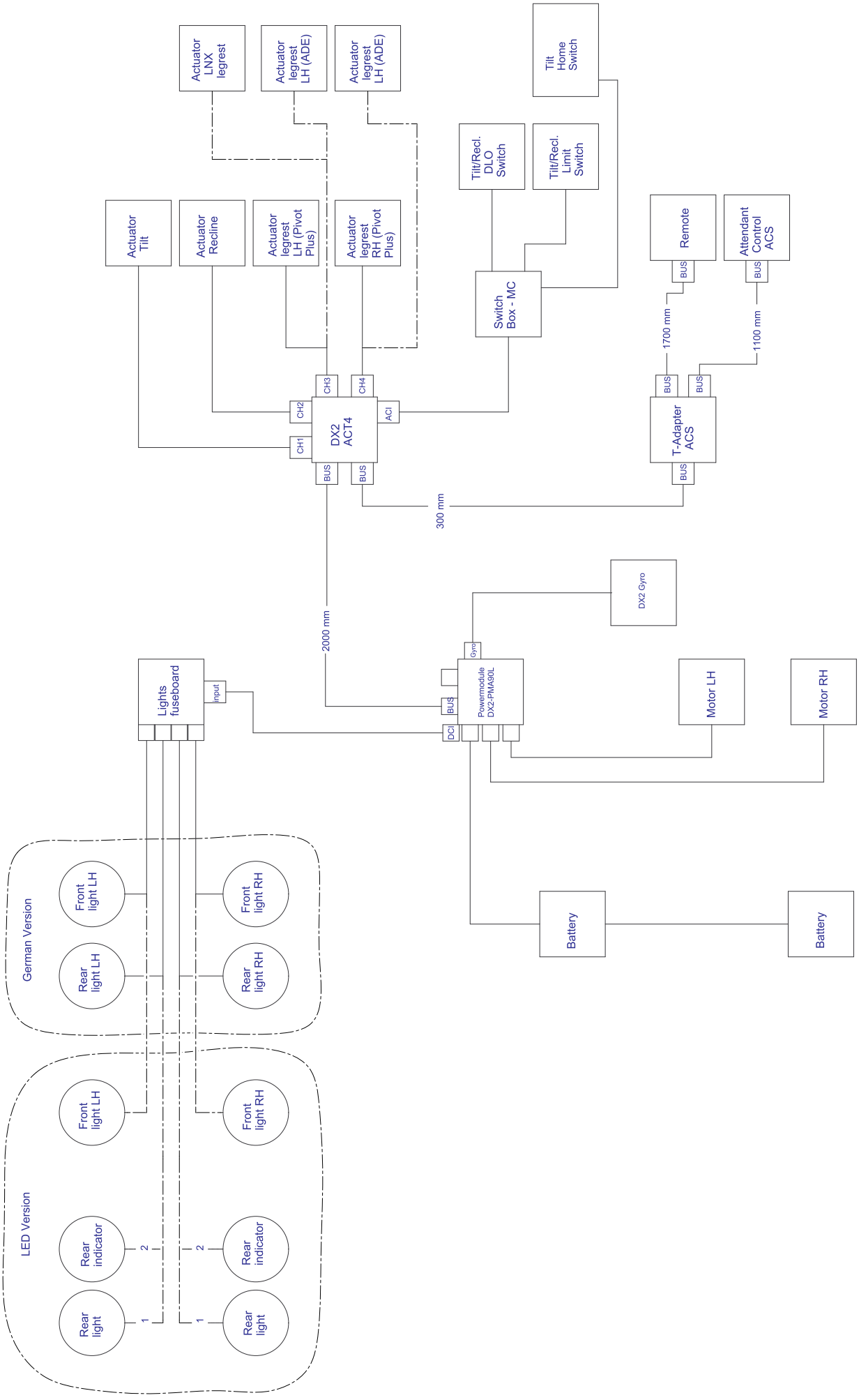
Wiring diagram tilt/recline (Storm⁴)



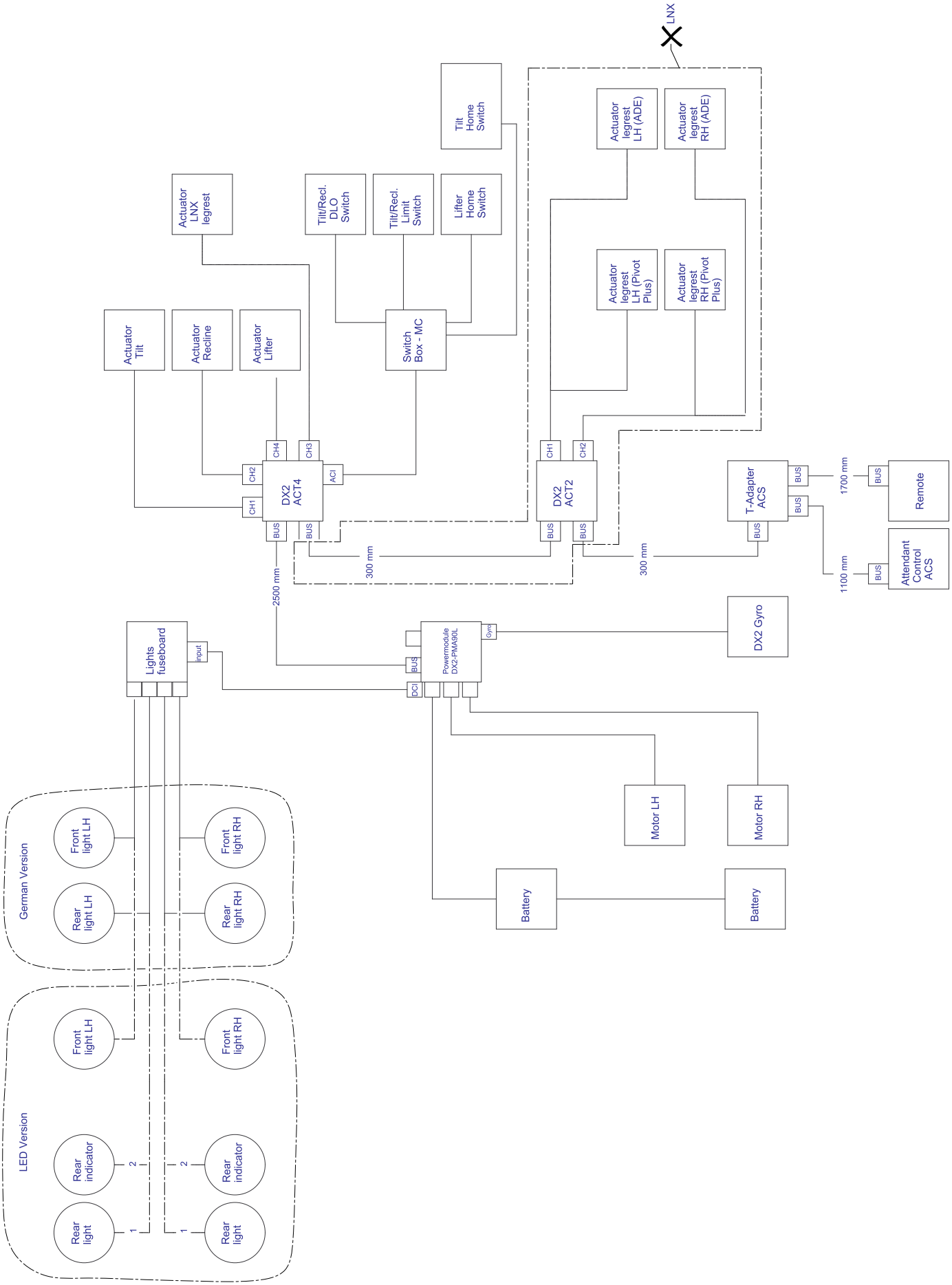
Wiring diagram lifter/tilt/recline (Storm4)



Wiring diagram tilt/recline and attendant control (Storm⁴)



Wiring diagram lifter/tilt/recline and attendant control (Storm⁴)



4 Service

4.1 System Review Checklist

Following any installation, set-up and/or adjustment related to the seating system always test the system over its full range of positioning functions to ensure all motors, safety limits are functioning correctly. Verify that all mounting hardware and critical components are also installed/adjusted properly.

The following checklist is provided as a reference when conducting a final review/inspection of the wheelchair.

- Check all fasteners/mounting hardware to ensure that they have been properly tightened.
- Check the drive lockout limit is functioning.
- Check the reduced speed drive (if applicable)
- Check the tilt (tilt/recline) limit (if applicable).
- Check the full range of tilt and recline and lifter (as applicable). Make certain that there is no interference. Make sure that the wheelchair is stable with the user in it over the entire range.
- Check power legrest function (if applicable). Ensure there is appropriate ground clearance in the retracted position, and check for interference over the full range of travel.
- Check all wires and cables over the complete tilt/recline/lifter range for pulling, crushing or tight bends.
- Check that the charger functions properly.
- Check that the acceleration and deceleration of the wheelchair have been programmed to levels appropriate for the user.
- Check all of the wheelchair drive functions.
- Check that the rod-ends on the tilt and recline actuators have been properly pinned (if applicable).
- Check the anti-tipper latching system (if applicable).
- If the front or rear anti-tippers are adjustable, check that they have been set to the appropriate position for the user.
- Test drive the wheelchair and operate the seating system.
- Ensure the user manual is provided to the end user.

4.2 Inspection checklist

Item	Initially	Monthly	6 Months	Periodically
Batteries				
Load test batteries (individually)	X		X	
Ensure batteries are clean (free from corrosion/ moisture/ dirt)	X		X	
Ensure connections are tight and clean	X		X	
Electrical / Wiring Harnesses				
Check for pinches or pulls in wiring (over full range of seating system)	X	X		
Inspect for wear & tear damage to wires	X	X		
Ensure connections are secure	X	X		
Actuators (where applicable)				
Ensure actuator rod ends are properly pinned	X		X	
Ensure no interference/sticking during system operation (over full range of seating system)	X			X
Inspect for excessive noise or grinding	X			X
Hardware and Components				
Inspect mounting hardware (seating system to base)	X	X		
Inspect all adjustment hardware to ensure nuts and screws are secure (i.e. side rails, recline module, legrests/foot plates/receivers	X			X
Inspect for loose parts/rattling sounds - ensure all nuts and screws are secure	X			X
Inspect that all pivot points are operating smoothly & freely and secured (do not overtighten)	X			X
Limit Switches				
Check limit switch settings	X	X		
Ensure DLO functions correctly	X	X		
Pivots, Glide Blocks & Track Maintenance				

Item	Initially	Monthly	6 Months	Periodically
Ensure slide channel is free from dirt/dust/grime	X			X
Lightly lubricate main pivot points, using a general purpose oil (see *4.3 Lubrication, page 24*)				X

4.3 Lubrication

To maintain the smooth operation of the power positioning system (PPS), periodical lubrication of the main pivot points is recommended. Motion Concepts seating systems are pre-lubricated at the factory, however occasional lubrication using a general purpose oil will help to maintain optimal performance of your seating system.

Avoid the use of heavy grease or high viscosity lubricants as this can cause a build-up of dirt and contaminates which could reduce overall performance.

CAUTION!
Risk of injury and damage to wheelchair
– Turn off wheelchair prior to cleaning and lubricating.

Pivot Point Lubrication

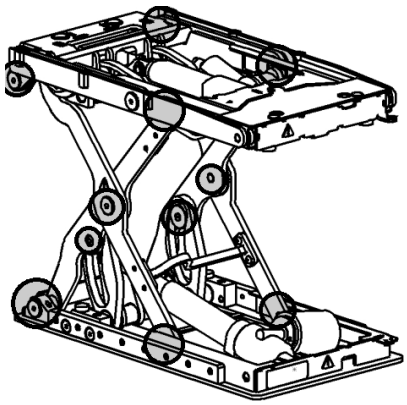


Fig. 4-1 Lifter module

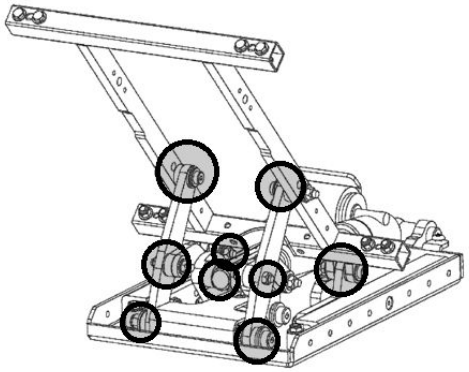


Fig. 4-2 Tilt module

1. Tilt/Lift the seating system.
2. Use a clean rag to wipe away any dirt, residue around pivots and along slide channels.
3. Lubricate main pivot points (as indicated) on the module periodically using a general purpose oil.

4.4 Updating ACS2 Software

The following is valid only for ACS2 software. You find LiNX programming parameters in the LiNX service manual.

WARNING!
Any changes to the drive program can affect the driving characteristics and the tipping stability of the mobility device.
– Changes to the drive program may only be carried out by trained Invacare providers.
– Invacare can only give a warranty for safe mobility device driving behaviour — especially the tipping stability — for unaltered standard drive programs.

- Dynamic® Wizard software
- User manual of Wizard software
- Further requirements, such as a minimum system configuration for the PC used for programming, required programming cables etc., can be taken from the Wizard software user manual.

The drive programs for mobility devices are continually being further developed and improved by Invacare. For this reason, you should always check whether the drive program version number is up-to-date when carrying out any repairs or regular maintenance.

If a newer version is available, the drive program should be updated. The procedure for updating the drive program is described in the Wizard software operating manual.

The electronic system is supplied with a standard drive program. If the drive program has been customised, you have to perform this customisation again, after installing the new drive program.

When a powered adjustment option is retrofitted, such as powered legrests, then this option needs to be activated in the driving program as well if you have an ACS2 remote. For more information, refer to the user manual of the Wizard software and the installation instructions for the electronic modules

Settings for LNX and Powered Pivot Plus Legrests

The LNX and powered Pivot Plus legrests use lower currents than other powered legrests. If you use stock programs for reprogramming the power wheelchair with Ultra Low Maxx seat and powered legrest, the following values on the current setting must be set.

- For option **tilt/recline** and **LNX** legrest:

DX2-ACT4-1

Actuator Profiles

	Profile A	Profile B	Profile C	Profile D	Profile E	Profile F
Input Function Number	1	2	3	0	28	9
Operating Mode	Y Proportional	Y Proportional	Y Proportional	Y Proportional	Y Proportional	Y Proportional
Output Channel 1 Select	Normal	Not Used	Not Used	Not Used	Not Used	Not Used
Output Channel 2 Select	Not Used	Reverse	Not Used	Not Used	Reverse	Not Used
Output Channel 3 Select	Not Used	Not Used	Normal	Not Used	Normal	Normal
Output Channel 4 Select	Not Used	Not Used	Not Used	Normal	Normal	Normal
Act. Profile Inhibit Cause	None	None	None	None	None	None
Soft Start/Stop Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Maximum Operating Time (s)	0	0	0	0	0	0
Extend Speed (%)	100	100	100	100	100	100
Extend Start Current (A)	7.0	4.0	4.0	5.0	8.0	4.0
Extend Trip Current (A)	5.0	3.5	3.0	4.0	6.5	3.0
Extend Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only	Trip Only	Trip Only
Retract Speed (%)	100	100	100	100	100	100
Retract Start Current (A)	7.0	4.0	4.0	5.0	8.0	4.0
Retract Trip Current (A)	5.0	3.5	3.0	4.0	6.5	3.0
Retract Inhibit Cause	Local-1	Local-1	Trip Only	Trip Only	Local-1	Trip Only

Actuator Module Settings

DX2-ACT2-1

Actuator Profiles

	Profile A	Profile B	Profile C	Profile D
Input Function Number	1	2	0	0
Operating Mode	Y Proportional	Y Proportional	Switched	Switched
Output Channel 1 Select	Normal	Not Used	Not Used	Not Used
Output Channel 2 Select	Not Used	Normal	Not Used	Not Used
Act. Profile Inhibit Cause	None	None	None	None
Soft Start/Stop Time (s)	0.5	0.5	0.5	0.5
Maximum Operating Time (s)	0	0	0	0
Extend Speed (%)	100	100	100	100
Extend Start Current (A)	7.0	4.0	8.0	8.0
Extend Trip Current (A)	5.0	3.5	6.0	6.0
Extend Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only
Retract Speed (%)	100	100	100	100
Retract Start Current (A)	7.0	4.0	8.0	8.0
Retract Trip Current (A)	5.0	3.5	6.0	6.0
Retract Inhibit Cause	Local-1	Local-1	Trip Only	Trip Only

- For option **lifter** with **tilt/recline** and **LNX** legrest:

DX2-ACT4-1

Actuator Profiles

	Profile A	Profile B	Profile C	Profile D	Profile E	Profile F
Input Function Number	1	2	9	5	28	0
Operating Mode	Switched	Switched	Switched	Switched	Switched	Switched
Output Channel 1 Select	Normal	Not Used	Not Used	Not Used	Normal	Not Used
Output Channel 2 Select	Not Used	Reverse	Not Used	Not Used	Reverse	Not Used
Output Channel 3 Select	Not Used	Not Used	Normal	Not Used	Normal	Not Used
Output Channel 4 Select	Not Used	Not Used	Not Used	Normal	Not Used	Not Used
Act. Profile Inhibit Cause	None	None	None	None	None	None
Soft Start/Stop Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Maximum Operating Time (s)	0	0	0	0	0	0
Extend Speed (%)	100	100	100	100	100	100
Extend Start Current (A)	7.0	4.0	4.0	7.0	8.0	8.0
Extend Trip Current (A)	5.0	3.5	3.0	5.0	6.5	6.0
Extend Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only	Trip Only	Trip Only
Retract Speed (%)	100	100	100	100	100	100
Retract Start Current (A)	7.0	4.0	4.0	7.0	8.0	8.0
Retract Trip Current (A)	5.0	3.5	3.0	5.0	6.5	6.0
Retract Inhibit Cause	Local-OR-2	Local-OR-2	Trip Only	Local-Slow1	Local-OR-2	Trip Only

Actuator Module Settings

DX2-ACT2-1

Actuator Profiles

	Profile A	Profile B	Profile C	Profile D
Input Function Number	3	4	28	9
Operating Mode	Switched	Switched	Switched	Switched
Output Channel 1 Select	Normal	Not Used	Normal	Normal
Output Channel 2 Select	Not Used	Reverse	Reverse	Reverse
Act. Profile Inhibit Cause	None	None	None	None
Soft Start/Stop Time (s)	0.5	0.5	0.5	0.5
Maximum Operating Time (s)	0	0	0	0
Extend Speed (%)	100	100	100	100
Extend Start Current (A)	5.0	5.0	15.0	10.0
Extend Trip Current (A)	4.0	4.0	12.0	9.0
Extend Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only
Retract Speed (%)	100	100	100	100
Retract Start Current (A)	5.0	5.0	15.0	10.0
Retract Trip Current (A)	4.0	4.0	12.0	9.0
Retract Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only

- For option **tilt/recline** and **Pivot Plus** legrest:

DX2-ACT4-1

Actuator Profiles

	Profile A	Profile B	Profile C	Profile D	Profile E	Profile F
Input Function Number	1	2	3	4	28	9
Operating Mode	Y Proportional	Y Proportional	Y Proportional	Y Proportional	Y Proportional	Y Proportional
Output Channel 1 Select	Normal	Not Used	Not Used	Not Used	Not Used	Not Used
Output Channel 2 Select	Not Used	Reverse	Not Used	Not Used	Reverse	Not Used
Output Channel 3 Select	Not Used	Not Used	Normal	Not Used	Normal	Normal
Output Channel 4 Select	Not Used	Not Used	Not Used	Normal	Normal	Normal
Act. Profile Inhibit Cause	None	None	None	None	None	None
Soft Start/Stop Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Maximum Operating Time (s)	0	0	0	0	0	0
Extend Speed (%)	100	100	100	100	100	100
Extend Start Current (A)	7.0	4.0	4.0	4.0	12.0	8.0
Extend Trip Current (A)	5.0	3.5	3.0	3.0	9.5	6.0
Extend Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only	Trip Only	Trip Only
Retract Speed (%)	100	100	100	100	100	100
Retract Start Current (A)	7.0	4.0	4.0	4.0	12.0	8.0
Retract Trip Current (A)	5.0	3.5	3.0	3.0	9.5	6.0
Retract Inhibit Cause	Local-1	Local-1	Trip Only	Trip Only	Local-1	Trip Only

Actuator Module Settings

DX2-ACT2-1

Actuator Profiles

	Profile A	Profile B	Profile C	Profile D
Input Function Number	1	2	0	0
Operating Mode	Y Proportional	Y Proportional	Switched	Switched
Output Channel 1 Select	Normal	Not Used	Not Used	Not Used
Output Channel 2 Select	Not Used	Normal	Not Used	Not Used
Act. Profile Inhibit Cause	None	None	None	None
Soft Start/Stop Time (s)	0.5	0.5	0.5	0.5
Maximum Operating Time (s)	0	0	0	0
Extend Speed (%)	100	100	100	100
Extend Start Current (A)	7.0	4.0	8.0	8.0
Extend Trip Current (A)	5.0	3.5	6.0	6.0
Extend Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only
Retract Speed (%)	100	100	100	100
Retract Start Current (A)	7.0	4.0	8.0	8.0
Retract Trip Current (A)	5.0	3.5	6.0	6.0
Retract Inhibit Cause	Local-1	Local-1	Trip Only	Trip Only

- For option **lifter** with **tilt/recline** and **Pivot Plus** legrest:

DX2-ACT4-1

Actuator Profiles

	Profile A	Profile B	Profile C	Profile D	Profile E	Profile F
Input Function Number	1	2	9	5	28	0
Operating Mode	Switched	Switched	Switched	Switched	Switched	Switched
Output Channel 1 Select	Normal	Not Used	Not Used	Not Used	Normal	Not Used
Output Channel 2 Select	Not Used	Reverse	Not Used	Not Used	Reverse	Not Used
Output Channel 3 Select	Not Used	Not Used	Normal	Not Used	Normal	Not Used
Output Channel 4 Select	Not Used	Not Used	Not Used	Normal	Not Used	Not Used
Act. Profile Inhibit Cause	None	None	None	None	None	None
Soft Start/Stop Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Maximum Operating Time (s)	0	0	0	0	0	0
Extend Speed (%)	100	100	100	100	100	100
Extend Start Current (A)	7.0	4.0	10.0	7.0	15.0	8.0
Extend Trip Current (A)	5.0	3.5	9.0	5.0	12.0	6.0
Extend Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only	Trip Only	Trip Only
Retract Speed (%)	100	100	100	100	100	100
Retract Start Current (A)	7.0	4.0	10.0	7.0	15.0	8.0
Retract Trip Current (A)	5.0	3.5	9.0	5.0	12.0	6.0
Retract Inhibit Cause	Local-OR-2	Local-OR-2	Trip Only	Local-Slow1	Local-OR-2	Trip Only

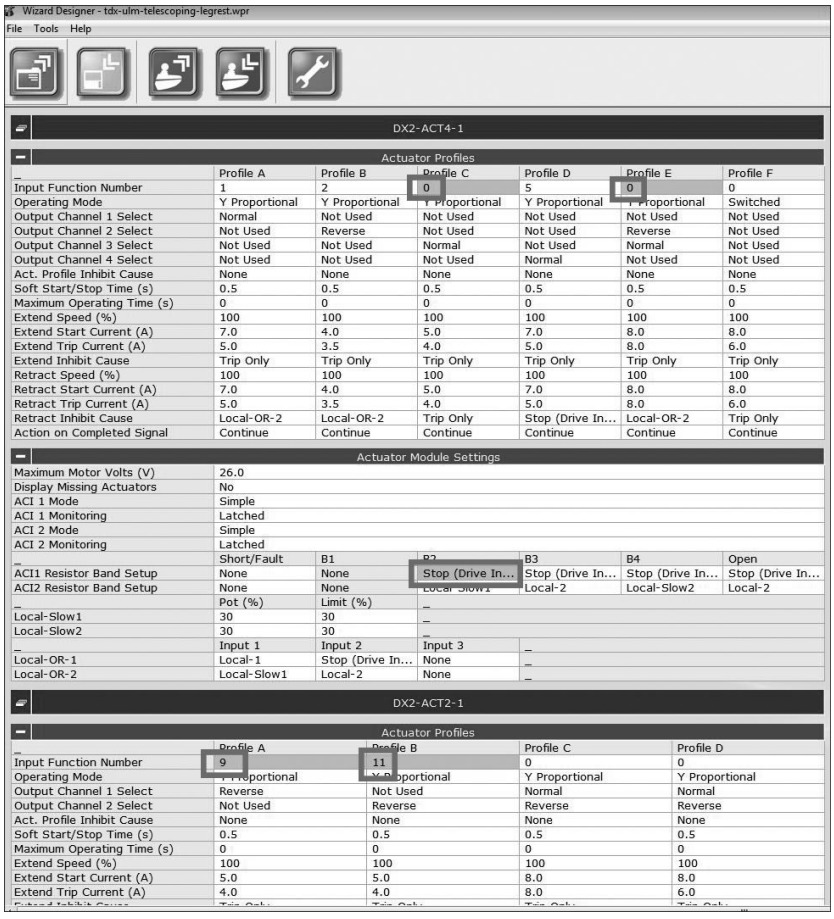
Actuator Module Settings

DX2-ACT2-1

Actuator Profiles

	Profile A	Profile B	Profile C	Profile D
Input Function Number	3	4	28	9
Operating Mode	Switched	Switched	Switched	Switched
Output Channel 1 Select	Normal	Not Used	Normal	Normal
Output Channel 2 Select	Not Used	Reverse	Reverse	Reverse
Act. Profile Inhibit Cause	None	None	None	None
Soft Start/Stop Time (s)	0.5	0.5	0.5	0.5
Maximum Operating Time (s)	0	0	0	0
Extend Speed (%)	100	100	100	100
Extend Start Current (A)	4.0	4.0	8.0	8.0
Extend Trip Current (A)	3.0	3.0	6.0	6.0
Extend Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only
Retract Speed (%)	100	100	100	100
Retract Start Current (A)	4.0	4.0	8.0	8.0
Retract Trip Current (A)	3.0	3.0	6.0	6.0
Retract Inhibit Cause	Trip Only	Trip Only	Trip Only	Trip Only

- For **LNX legrest with telescoping footboard**:



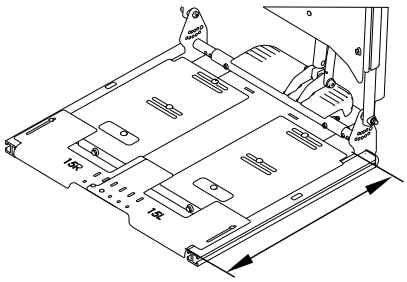
5 Settings and Adjustments

5.1 Measuring correctly

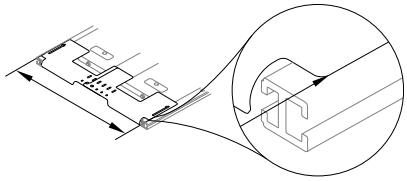
When measuring dimensions such as the seat depth, you need to measure from defined points to ensure that you get correct values.

Note that measured values may vary up to ± 10 mm.

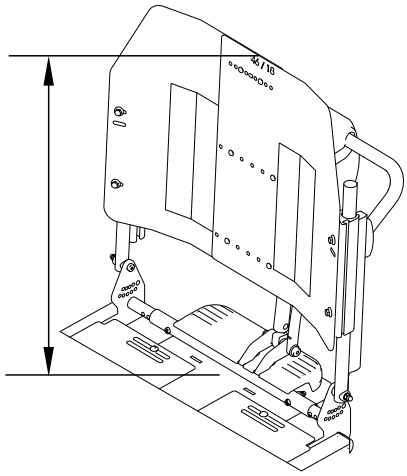
Measuring seat depth



Measuring seat width



Measuring backrest height



5.2 Setting Drive Lockout and Limit Switches

Setting the Drive Lockout for Tilt/Recline Systems — ACS2 Systems

All PPS are supplied with a drive lockout (DLO) switch. This prevents the drive motors from operating if the combined tilt/recline angle is positioned beyond a pre-determined angle. The maximum drive lockout angle is 60° (TDX SP2)/50° (Storm4) from the vertical (see diagram below). On the Storm4, an additional switch activates the DLO if the tilt angle exceeds 25°.

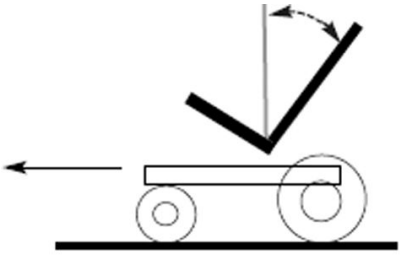


Fig. 5-1

– Ensure base is on a level surface when adjusting limits.

After the angle has been set, ensure the drive lockout is tested. Readjustment may be required.

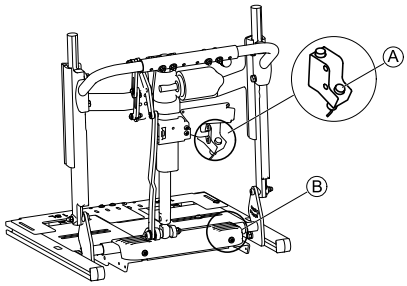


Fig. 5-2

The DLO switch Ⓐ is typically mounted to the side of the actuator module on the backrest plate. The additional DLO switch on the Storm4 Ⓑ is typically mounted under the shroud on the most rearward point of the seat plate.

If the DLO is activated while adjusting the switch angle, you must activate the tilt or recline once to be able to re-test the DLO. Otherwise, the DLO remains activated, regardless of the switch angle.

The DLO limit should always be set to the angle that best meets the individual needs of the user and overall stability of the wheelchair. However, the DLO angle should not exceed the maximum 60° (TDX SP2)/50° (Storm4) backrest angle.

Setting the Drive Lockout for Tilt/Recline Systems — LiNX Systems

All PPS are supplied with a drive lockout (DLO) switch. This prevents the drive motors from operating if the combined tilt/recline angle is positioned beyond a pre-determined angle. The maximum drive lockout angle is 60° (TDX SP2)/50° (Storm4) from the vertical (see diagram below). On the Storm4, an additional switch activates the DLO if the tilt angle exceeds 25°.

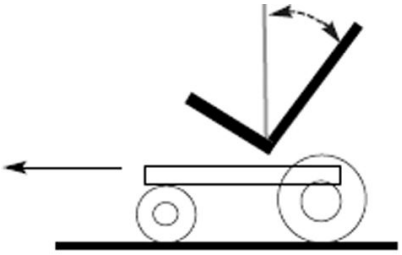


Fig. 5-3

– Ensure base is on a level surface when adjusting limits.

The DLO switch is one of several angle sensors installed in the actuator module. The DLO angle is set via the **Lockout**

Trigger parameter in the wheelchair setup. See *Modifying Seating Parameters* with PC tool or iOs tool in the LiNX service manual.

After the angle has been set, ensure the drive lockout is tested. Readjustment may be required.

The DLO limit should always be set to the angle that best meets the individual needs of the user and overall stability of the wheelchair. However, the DLO angle should not exceed the maximum 60° (TDX SP2)/50° (Storm4) backrest angle.

Speed Reduction Microswitch for Power Elevating Seats

All PPS with power elevating seats (PES) are fitted with a microswitch for the speed reduction. This microswitch reduces the speed by 30 % when the seat actuator is elevated beyond a recommended 100 mm (4 in, TDX SP2)/10 mm (3/8 in, Storm4) limit, measured from the home (lowest) position. The speed reduction microswitch functions as a 'normally closed' circuit. This provides fail safe operation. As soon as the seat is elevated over the 100 mm (4 in, TDX SP2)/10 mm (3/8 in, Storm4) limit, the switch is opened and the speed reduction is engaged. Ensure the speed reduction microswitch is tested after installation. Readjustments may be required.

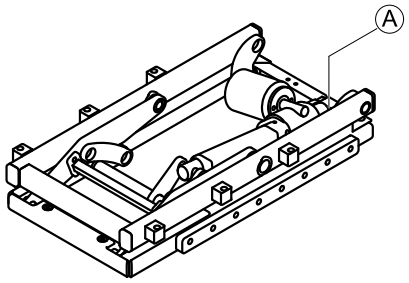


Fig. 5-4

The speed reduction microswitch is located in the lower left corner at the rear of the lifter module Ⓐ.

Setting Max. Back Angle Limit Switch

All PPS are available with a max. back angle limit function. This function prevents the back angle from extending beyond a pre-set angle. The correct max. back angle limit differs for each installation. The limit switch should be set so that with any combination of tilt and recline, there is no chance of interference between the backrest of the PPS and the wheelchair base or any accessories located at the back. The recline angle should never extend beyond the recommended minimum gap of 10° from the horizontal (see graphic below).

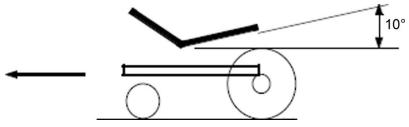


Fig. 5-5

The max. back limit switch will need to be set to best meet the needs of the user. However, the recline angle should not be permitted to extend beyond the recommended minimum gap of 10°.

– Ensure base is on a level surface when adjusting limits.

After the back angle has been set, ensure the max. back angle limit is tested. Readjustments may be required.

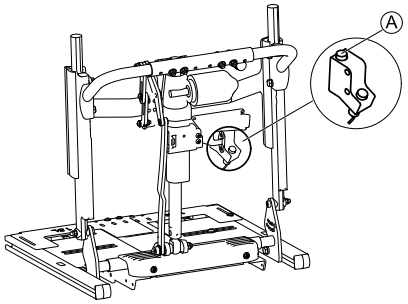


Fig. 5-6

For a tilt/recline seating system, the switch Ⓐ is typically mounted to the side of the actuator module mounting bracket on the back of the system.

5.3 Center of gravity (CG) adjustments (forward and aft)

The Ultra Low Maxx power positioning system may be adjusted in the forward and aft direction when being mounted onto a power base. Several factors must be considered when determining the correct position for the user, including the clients weight distribution and body type. It is very important to ensure adequate stability is maintained during driving, and in the various powered seating positions. When determining a suitable system for a client, it is equally important to ensure that the user's weight does not exceed (the lesser of) the calculated wheelchair weight capacity or the designated power positioning system (PPS) weight capacity.

Important information (for dealers and users)

The Ultra Low Maxx power positioning system is designed to accommodate a wide range of user needs. Only the dealer and the healthcare professional can ensure that the system meets the user's individual requirements. It is the dealer's responsibility to ensure that the wheelchair and the power positioning system are set up properly and safely for the end user's specific needs.

Stability

By changing the seating position (tilting, reclining, or elevating), the user is changing the stability characteristics of the wheelchair. It is very important that the system is set up so that it is stable in all seating positions. When evaluating stability, remember the following:

- The Ultra Low Maxx system can be mounted onto the power base in various fore and aft positions. Make certain that the position selected provides the user with maximum stability over the full range of seating positions.
- Consider all personal gear and accessories (backpacks, vent systems, extra batteries, etc.) that will be carried on the wheelchair. For example, a loaded backpack, attached to the back of the seating system, can significantly reduce the rearward stability of the wheelchair. Consider the backrest being used. For example, a recessed backrest can shift the user's center of gravity back and significantly reduce the rearward stability of the wheelchair. Conversely, a thick back cushion will shift the user forward and reduce the wheelchairs forward stability.
- Consider the seat cushion being used. A thick seat cushion will raise the user's center of gravity and reduce the wheelchair's stability in all directions.

- The Ultra Low Maxx system is fitted with drive lockouts. Make sure this is set so as not to compromise the user's stability while driving.
- All power bases have programmable controllers which allow adjustment of the maximum acceleration and deceleration of the wheelchair. Make sure that these are set to an appropriate level for the system and for the user.
- Ensure all medical conditions are considered when setting up the wheelchair. Involuntary muscle movement such as spasming may affect the stability of the wheelchair, especially when the seating system is in a tilted or reclined position.
- When a system is fully tilted or reclined, the front wheels of the power base should never come off the ground. If this occurs, you must adapt the system's center of gravity.

5.3.1 Adjusting center of gravity

To achieve the best overall base stability, the system depth should always be adjusted as stated in the service manual.

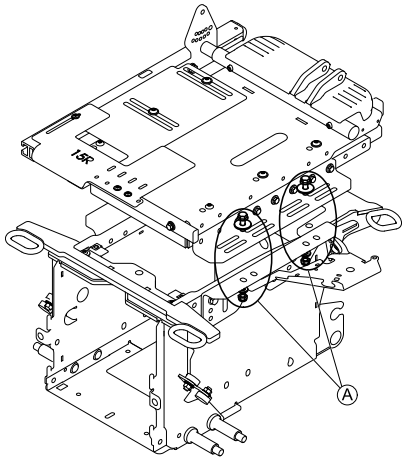
There are two kits available to fit all seat depths:

- Seat depth kit for seat depths 380 – 480 mm
- Seat depth kit for seat depths 480 – 580 mm

Tools:
- 2 x 13 mm wrench

CAUTION!
Risk of strains from lifting heavy parts!
– Use proper lifting techniques.

1.



The graphic of the TDX SP2 serves as an example. TDX SP2 Low-Rider and Storm4 are handled similarly.

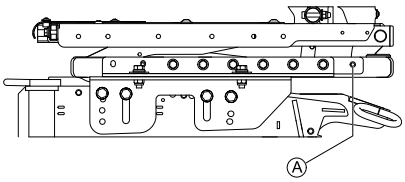
Loosen screws and nuts and remove together with washers Ⓐ.

2. Adjust system to desired position.
Depending on the seat depth and the type of power wheelchair, the system is screwed on in different positions. See following chapters.
3. Insert screws, nuts and washers and tighten.

5.3.2 Mounting positions for TDX SP2

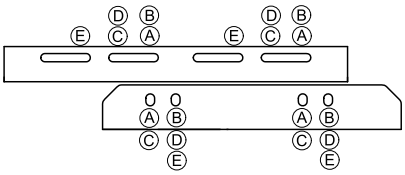
Depending on the seat depth, the system is mounted in different positions.

Mounting positions of system for seat depth 380 – 480 mm



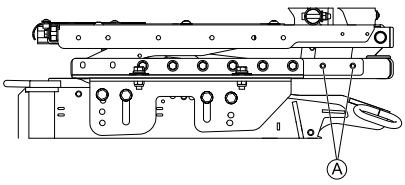
Ⓐ one free hole at the rear of the module

The brackets are shown from above and laid side by side for a better view.



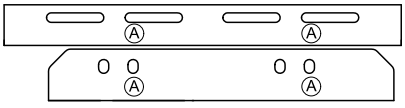
380 mm seat depth	Ⓐ
405 mm seat depth	Ⓑ
430 mm seat depth	Ⓒ
455 mm seat depth	Ⓓ
480 mm seat depth (both seat frame depth ranges)	Ⓔ

Mounting positions of system for seat depth 505 – 580 mm



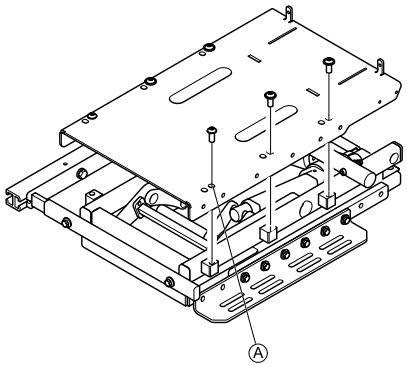
Ⓐ two free holes at the rear of the module

The brackets are shown from above and laid side by side for a better view.



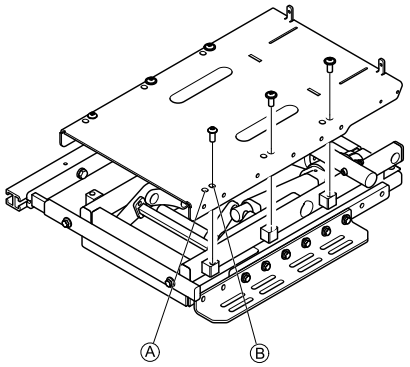
505 mm seat depth	Ⓐ
530 mm seat depth	
555 mm seat depth	
580 mm seat depth	

Mounting positions of seat plate for TDX SP2



380 mm seat depth	Ⓐ
405 mm seat depth	Ⓐ
430 mm seat depth	Ⓐ
455 mm seat depth	Ⓐ
480 mm seat depth	Ⓐ
505 mm seat depth	Ⓐ
530 mm seat depth	Ⓐ
555 mm seat depth	Ⓐ
580 mm seat depth	Ⓐ

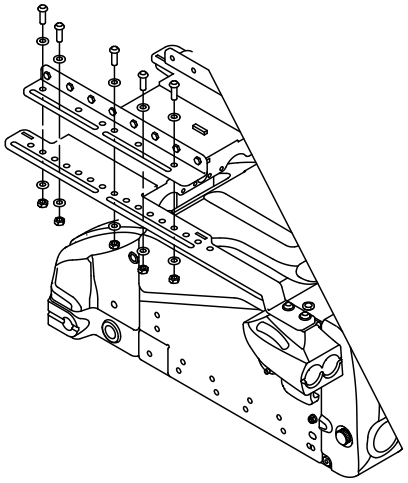
Mounting positions of seat plate for TDX SP2 Low-Rider



380 mm seat depth	Ⓐ
405 mm seat depth	Ⓑ
430 mm seat depth	Ⓐ
455 mm seat depth	Ⓑ
480 mm seat depth	Ⓑ
505 mm seat depth	Ⓑ
530 mm seat depth	Ⓑ
555 mm seat depth	Ⓑ
580 mm seat depth	Ⓑ

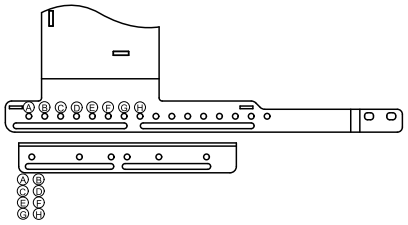
5.3.3 Mounting positions for Storm⁴

Depending on the seat depth, the system is mounted in different positions.



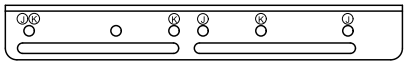
Mounting positions of system

The brackets are shown from above and laid side by side for a better view.



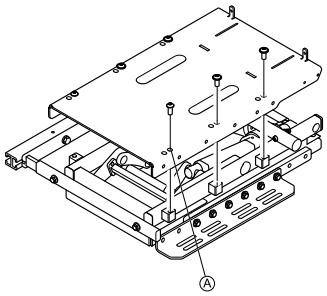
380 mm seat depth	Ⓐ
405 mm seat depth	Ⓑ
430 mm seat depth	Ⓒ
455 mm seat depth	Ⓓ
480 mm seat depth	Ⓔ
505 mm seat depth	Ⓕ
530 mm seat depth	Ⓖ
555 mm seat depth	Ⓗ
580 mm seat depth	Ⓗ

Positions of fixing screws on seat bracket



380 mm seat depth	Ⓙ
405 mm seat depth	Ⓙ
430 mm seat depth	Ⓙ
455 mm seat depth	Ⓙ
480 mm seat depth	Ⓙ
505 mm seat depth	Ⓚ
530 mm seat depth	Ⓚ
555 mm seat depth	Ⓚ
580 mm seat depth	Ⓚ

Mounting positions of seat plate



380 mm seat depth Ⓐ

405 mm seat depth Ⓐ

430 mm seat depth Ⓐ

455 mm seat depth Ⓐ

480 mm seat depth Ⓐ

505 mm seat depth Ⓐ

530 mm seat depth Ⓐ

555 mm seat depth Ⓐ

580 mm seat depth Ⓐ

6 Chassis

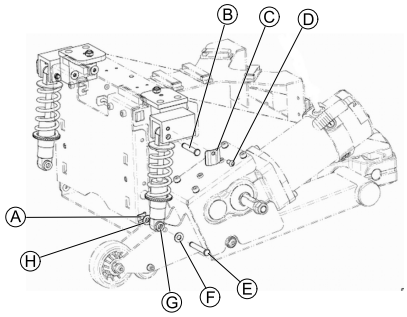
6.1 Replacing the rear suspension strut (Storm⁴)

Invacare always recommends replacing both suspension struts in order to ensure that the mobility device works perfectly.

WARNING!
Risk of crushing
The mobility device is very heavy. Injury hazard to hands and feet.
– You should seek help from a second person.

WARNING!
Injury hazard caused by uncontrolled movement of the mobility device
– Switch the power supply off (ON/OFF key).
– Engage the drive.
– Before raising the vehicle, secure the wheels by blocking them with wedges.

Tools:
- 4 mm Allen key
- 6 mm Allen key
- 13 mm socket spanner
- long wooden blocks, min. 14 x 14 x 30 cm

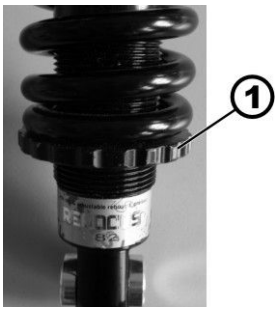


Removing the suspension strut

1. Remove the rear and the center battery compartment cover as described in the service manual of Storm⁴.
2. Remove the drive wheel as described in the service manual of Storm⁴.
3. Loosen and remove the nut Ⓐ from the screw Ⓔ on the spring.
4. Remove the spacer Ⓗ.
5. Remove the screw Ⓔ.
   In doing so, pay attention to the washer Ⓖ and the spacer Ⓕ.
6. Loosen the screw Ⓓ.
7. Remove the screw Ⓓ together with the cover plate Ⓒ.
8. Remove the pin Ⓑ.
   In doing so, pay attention to the washers and spacers.
9. Remove the suspension strut.

Installing the strut

1. Install the parts in reverse order.
2. Check if the ground clearance at the bottom of the battery compartment is 80 mm or higher.



   If not, rotate the adjustable spring plate (1) clockwise until the ground clearance is at least 80 mm.

   Make sure to adjust both rear suspension struts equally by, for example, counting the rotations.

3. To conclude, you should always carry out a trial run to test the vehicle functions.

7 Seat

7.1 Remove/Install Seat Frame Shrouds

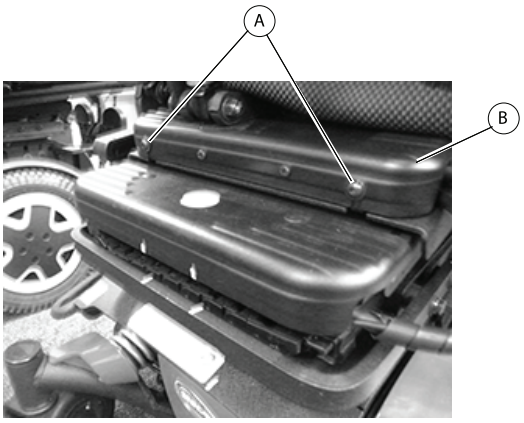


Fig. 7-1

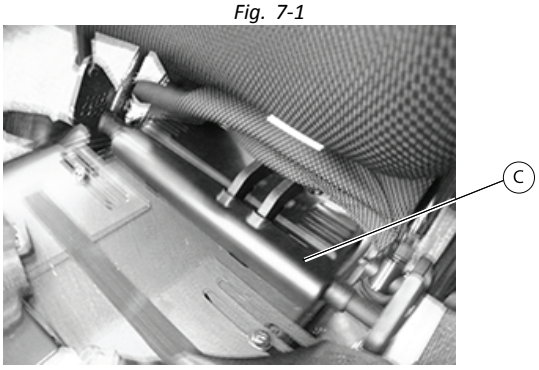


Fig. 7-2

For tightening torques on hardware, refer to *Tightening Torques*.

1. From the rear of the wheelchair, remove the two mounting screws Ⓐ that secures the rear seat shroud Ⓑ to the seat frame.
2. Remove the seat cushion.
3. Pull up on the sling upholstery to disengage it from the hook and loop fastener strips on located on the seat pan and move aside.
4. Remove the cable cover Ⓒ.
5. To install seat frame shrouds, reverse steps 1–4.
6. If replacing rear seat shroud, the 4 way connector will need to be removed from the existing rear seat shroud and installed on the new rear seat shroud. Refer to the LiNX Electronics service manual to replace the 4 way connector.

7.2 Replacing Seat Pans and/or Side Rails

For tightening torques on hardware, refer to *Tightening Torques*.

Seat Pans

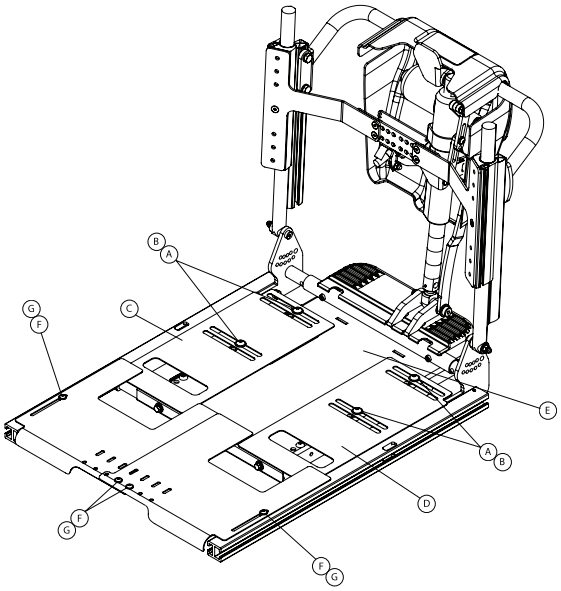


Fig. 7-3

1. Remove the four mounting screws Ⓕ and washers Ⓖ that secure the front seat pans in place.
2. Remove the four mounting screws Ⓐ and washers Ⓑ that secure the right rear seat pan Ⓒ and left rear seat pan Ⓓ to the center frame Ⓔ.
3. Replace the seat pans as necessary.
4. Secure the right rear seat pan and left rear seat pan to the center frame with the four mounting screws and washers.
5. Secure the front seat pans in place with four mounting screws and washers.

Side Rails

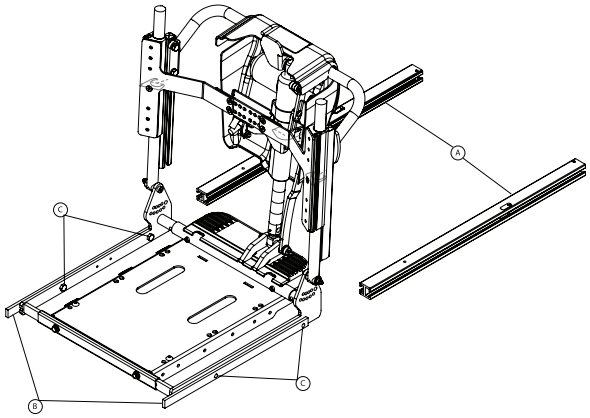


Fig. 7-4

1. Remove the seat pans as described above.
2. Note the location of items installed in the side rail, such as tie-down brackets, front rigging brackets, USB charger and armrests.
3. Loosen and remove the hardware securing the items noted in STEP 2.

   The side rails have a hole in the bottom. Slide the hardware in the side rails to the hole to remove the hardware.

4. Slide the side rails Ⓐ off the clamping bar Ⓑ.
5. Remove the four mounting screws Ⓒ that secure the clamping bar to the seat frame.
6. Replace the clamping bar and/or the side rails, if necessary.
7. Secure the new/existing clamping bar to the seat frame with four mounting screws.
8. Slide the new/existing side rails onto the clamping bar.

9. Install the hardware removed in STEP 3 into the seat rails.
10. Secure the items noted in STEP 2 to the new seat rails.
11. Install the seat pans as described above.

7.3 Replacing Positioning System Hardware

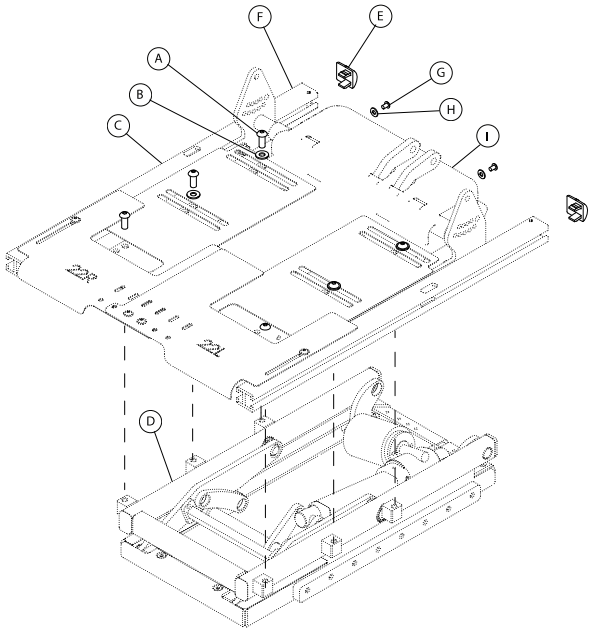


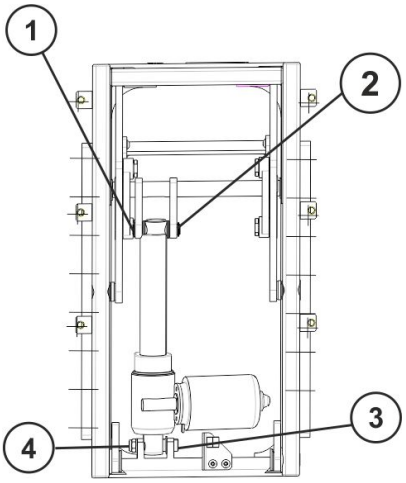
Fig. 7-5

For tightening torques on hardware, refer to *Tightening Torques*.

1. Remove the six mounting screws Ⓐ and four washers Ⓑ that secures the seat frame Ⓒ to the seating module Ⓓ.
2. Remove the end cap Ⓔ from the end of each side rail Ⓕ.
3. Remove the two mounting screws Ⓖ and washers Ⓗ that secures the seat frame shroud Ⓘ to the seat frame.
4. Discard all existing hardware.
5. Secure the seat frame to the seating module with six mounting screws and four washers.
6. Install one end cap into the end of each side rail.
7. Secure the seat frame shroud to the seat frame with two mounting screws and washers.

7.4 Replacing tilt actuator

Tools:
- 2 x 13 mm wrench
- Flat screwdriver



1. Remove legrests.
2. Switch electronics OFF on remote.
3. Disconnect actuator from actuator module.

   Take note of how the actuator is connected. Make sure to connect the new actuator the same way.

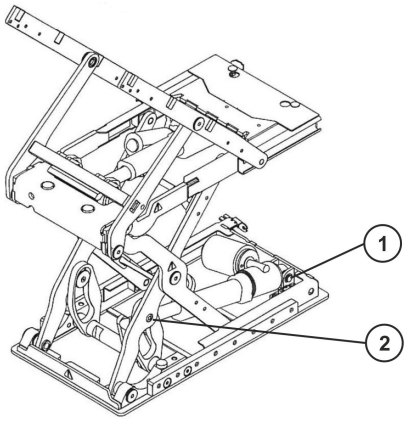
4. Depending on whether the actuator is mounted in a tilt or lifter/tilt module:

   - In tilt module with bottom fixing bolt (3) with nut (4): Loosen nut with wrenches.
   - In lifter/tilt module with bottom fixing bolt (3) with slot: Loosen fixing bolt with screwdriver.

5. Remove nut and bolt.
6. Top fixing bolt (2) secured with snap rings (1): Remove a snap ring using a screwdriver and remove bolt.
7. Replace actuator.
8. Reassembly takes place in reverse order.
9. Connect actuator to actuator module.
10. To complete, check all seat tilting functions.

7.5 Replacing lifter actuator

Tools:
- Flat screwdriver



1. Remove legrests.
2. Raise lifter if possible.
3. Switch electronics OFF on remote.
4. Secure seat.
5. Disconnect actuator from actuator module.

   Take note of how the actuator is connected. Make sure to connect the new actuator the same way.

6. Bottom fixing bolt (1) secured with snap rings: Remove a snap ring using a screwdriver and remove bolt.
7. Top fixing bolt (2) with slot: Loosen fixing bolt with screwdriver.
8. Remove bolt.
9. Replace actuator.
10. Reassembly takes place in reverse order.
11. Connect actuator to actuator module.
12. To complete, check all seat tilting functions.

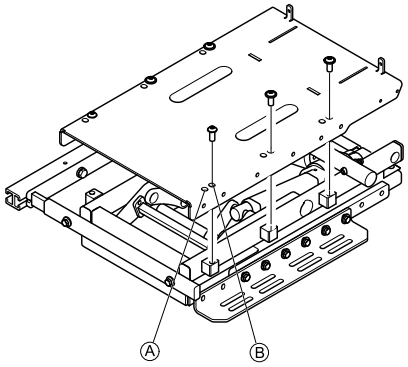
If the lifter cannot be raised, a cover can be removed from the upper rear side of the module. This way it is possible to reach the lower fixation bolt of the actuator.

7.6 Removing/Installing seat

CAUTION!
Risk of strains from lifting heavy parts!
– Use proper lifting techniques.

Tools:
- 6 mm Allen key

The position of the screws on the seat plate depends on the wheelchair model and seat depth.



- TDX SP2 and Storm⁴: independent of the seat depth always use the rear hole Ⓑ of a pair.
- TDX SP2 Low–Rider: depending on the seat depth use the following:

380 mm seat depth	Ⓐ
405 mm seat depth	Ⓑ
430 mm seat depth	Ⓐ
455 mm seat depth	Ⓑ
480 mm seat depth	Ⓑ
505 mm seat depth	Ⓑ
530 mm seat depth	Ⓑ
555 mm seat depth	Ⓑ
580 mm seat depth	Ⓑ

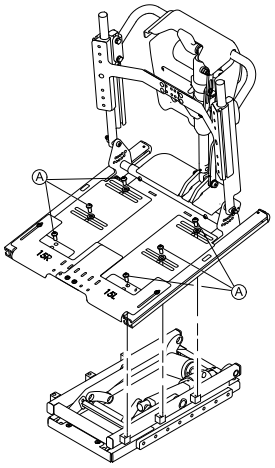


Fig. 7-6 Example of tilt module

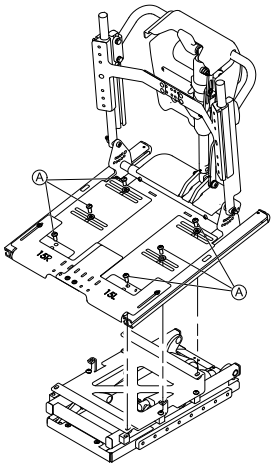


Fig. 7-7 Example of anterior tilt wedge

1. Remove screws and washers Ⓐ on both sides.
2. Remove seat.

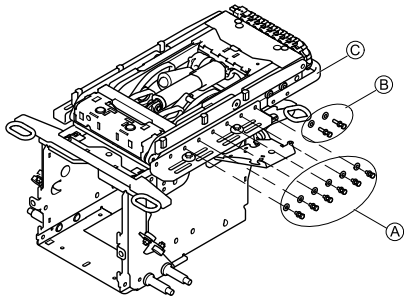
Installing seat takes place in reverse order.

7.7 Removing/Installing tilt module / lifter/tilt module

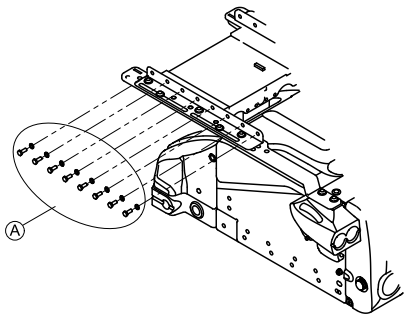
Tools:
- 10 mm wrench

Removing module

1. Remove seat. Refer to *7.6 Removing/Installing seat, page 36*.
2. If a tilt wedge is installed, remove it. Refer to *7.11 Setting pre-tilt, page 38*.
3. TDX SP2:



Storm⁴:

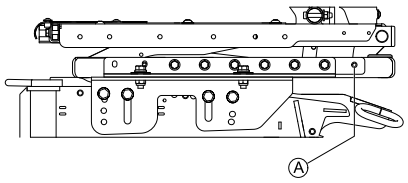


Remove screws and washers Ⓐ.

4. Remove module.
5. If a rear wiring bumper is installed, remove its screws and washers Ⓑ.
6. Remove bumper Ⓒ from module.

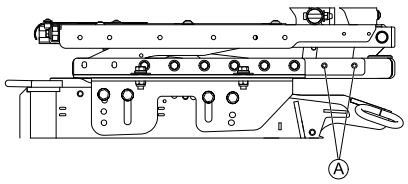
Installing module

1. TDX SP2 only: Align module for desired seat depth range.
   - Seat depth 380 – 480 mm:



Ⓐ one free hole at the rear of the module

   - Seat depth 480 – 580 mm:



Ⓐ two free holes at the rear of the module

2. Insert screws and washers and tighten.
3. If needed, align rear wiring bumper.
4. Insert screws and washers and tighten.
5. If needed, align tilt wedge with holes on module and in the desired orientation and install.
6. Align seat with holes on tilt wedge or module and install.

7.8 Adjusting Seat Depth

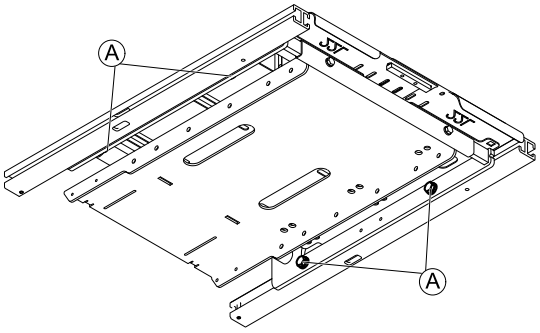


Fig. 7-8

1. On underside of seat, loosen screws Ⓐ. Do not remove them!
2. Adjust side rails with front seat plates to desired seat depth.
3. Tighten screws.

7.9 Adjusting Seat Width and Backrest Width

Seat width adjustments are more complex than depth adjustments and require additional adjustments/changes to the seat frame and backrest assembly.

The following parts are available in two width ranges to accommodate a wide range of seat sizes from 405 mm up to 610 mm:

- Ultra Low Maxx seat frames
- Legrest crossbrace
- Backrest crossbrace
- Push bar side parts

The Ultra Low seat side frames are used to adjust the width of the seating system. Side frames are adjustable at 12.5 mm intervals per side (left/right), which allow for 25 mm incremental width adjustments up to a maximum range of 75 mm.

- 3 mm Allen key
- 5 mm Allen key
- 6 mm Allen key
- 10 mm wrench

1.

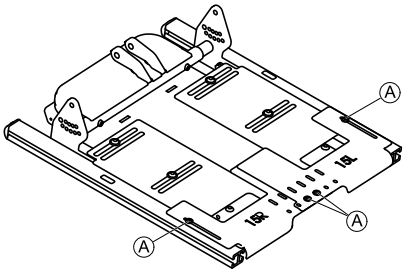


Fig. 7-9

Loosen and remove screws of front seat plates Ⓐ.

2. Remove front seat plates.
3.

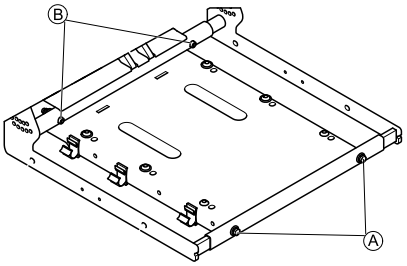


Fig. 7-10

On each side, loosen and remove screws of side frame parts fore Ⓐ and aft Ⓑ.

4.

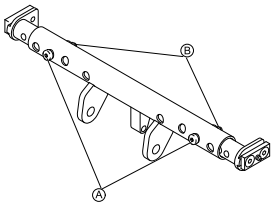


Fig. 7-11

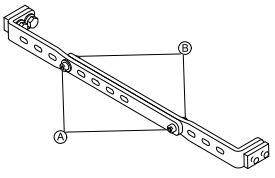


Fig. 7-12

Remove screws Ⓐ, nuts and washers Ⓑ of legrest crossbrace.

5.

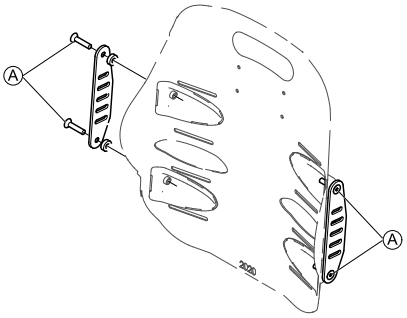


Fig. 7-13

Remove screws Ⓐ. Remove backrest plate.

6.

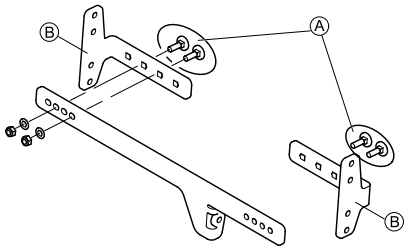


Fig. 7-14

Remove screws Ⓐ. Adjust brackets Ⓑ to desired width.

7.

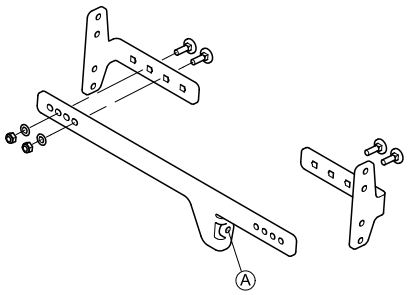


Fig. 7-15

If necessary, remove screw Ⓐ and replace backrest crossbrace.

8.

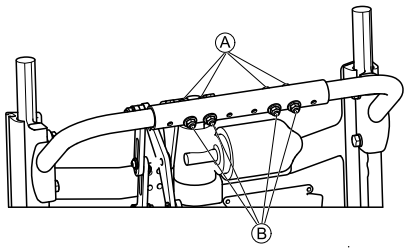


Fig. 7-16

Remove screws Ⓐ, nuts and washers Ⓑ. Adjust push bar to desired width.
If necessary, replace side parts of push bar.

ⓘ Manual settable backrest with back canes:

a. Loosen nuts. Adjust spreader bar to desired width. Use alignment tool to adjust spreader bar without tension.

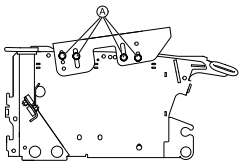
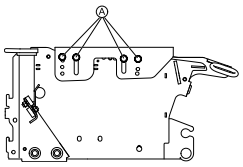
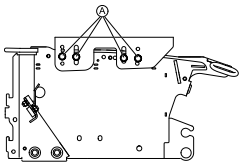
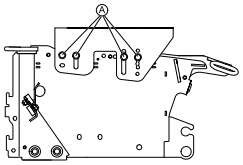
9. Insert screws, nuts and washers and tighten.
10. Reassemble brackets.
11. Install backrest plate in new width.
12. Adjust side frames to desired width.

ⓘ Make sure that both sides are set to the same width.

13. Insert screws and tighten.
14. Align legrest crossbrace to new seat width.
If necessary, replace legrest crossbrace. Refer to *10.2.3 Removing/installing crossbrace of center-mounted legrest, page 63* or *10.3.1 Removing/installing crossbrace of side-mounted legrests, page 64*.
15. Insert screws, nuts and washers and tighten.
16. Reinstall front seat plates and adjust to new seat width.
17. Insert screws and tighten.

7.10 Adjusting seat height (TDX SP2)

Tools:
- 13 mm wrench

Low interface bracket	Seat height 420 mm (only in combination with 8.5° anterior tilt)	
	Seat height 440 mm	
	Seat height 460 mm	
High interface bracket	Seat height 480 mm	

1. Remove seat. Refer to *7.6 Removing/Installing seat, page 36*.
2. Remove tilt module or lifter/tilt module. Refer to *7.7 Removing/Installing tilt module / lifter/tilt module, page 36*.
3. Loosen and remove screws Ⓐ.
4. Adjust bracket to desired height. See graphics above. Switch to other bracket size if needed.
5. Insert and tighten screws.
6. Install tilt module or lifter/tilt module and seat.

7.11 Setting pre-tilt

The seating system can be set to a predefined anterior or posterior tilt.

For TDX SP2 and TDX SP2 Low-Rider:

- 5° anterior tilt which reduces the maximum possible tilt by 5°
- 10° anterior tilt which reduces the maximum possible tilt by 10°
- 5° posterior tilt which increases the maximum possible tilt by 5°

For Storm4:

- 5° posterior tilt which increases the maximum possible tilt by 5°

For Storm4 with seat depths 480 - 580 mm, the 5° anterior tilt can be set. This is offered as a special only. Contact Invacare for details.

Orientation of tilt wedge

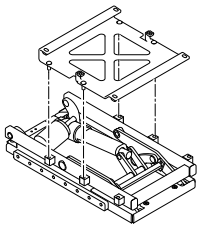


Fig. 7-17 5° anterior tilt

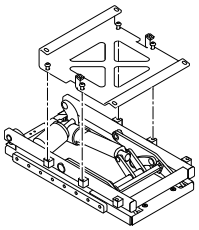


Fig. 7-18 10° anterior tilt

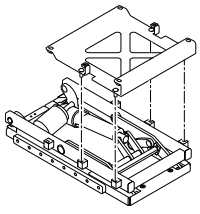


Fig. 7-19 5° posterior tilt

Setting the tilt

CAUTION!
Risk of strains from lifting heavy parts!
– Use proper lifting techniques.

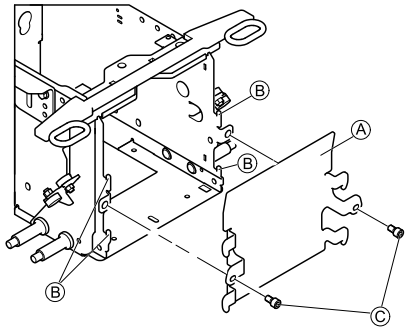
Tools:
- 6 mm Allen key

1. Remove seat. Refer to *7.6 Removing/Installing seat, page 36*.
2. Align tilt wedge with holes on module and in the desired orientation. See previous graphics.
3. Insert screws and tighten.
4. Align seat with holes on tilt wedge and install.

Anterior tilt — replacing battery front cover

When you set an anterior tilt on a TDX SP2 with a central legrest, there is a risk of collision between the legrest and the front cover. You must therefore replace the cover with a recessed version.

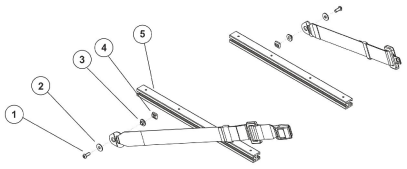
Tools:
- 14 mm (5/8”) Allen key

1. Remove the front cover as described in the service manual of TDX SP2.
2. 

Push the recessed front cover Ⓐ down on the hooks Ⓑ.
3. Re-tighten the screws Ⓒ finger-tight.

7.12 Replacing posture belt

Tools:
- 5 mm Allen key



1. Loosen screw (1).
2. Remove screw (1), washer (2), posture belt, sliding bushing (3) and sliding block (4) from seat frame profile (5).
3. Replace posture belt.
4. Refit parts in reverse order.

8 Backrests

8.1 Replacing High Back Assembly or Back Cover/Foam Assembly

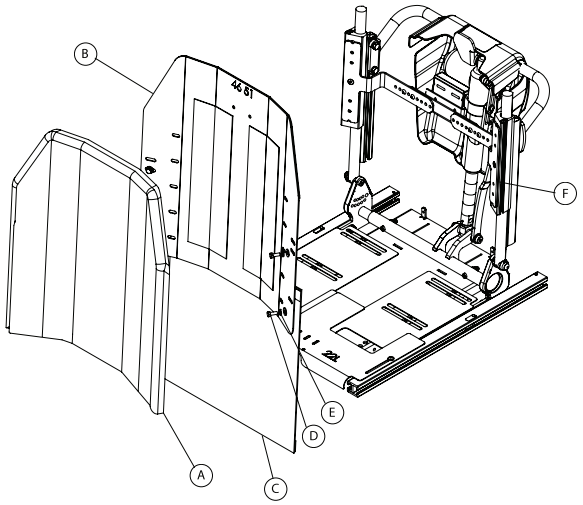


Fig. 8-1

For tightening torques on hardware, refer to *Tightening Torques*.

If only replacing Back Cover/Foam Assembly, performs steps 1 and 7 only.

1. Remove the back cover and foam assembly Ⓐ from the back pan Ⓑ by performing the following: .
   a. Detach the top of the back cover from the horizontal hook and loop strip located on the back side of the back pan.
   b. Detach the back cover from the vertical hook and loop strips located on front side of the back pan.

      Some back models may have a horizontal hook and loop strip on the bottom of the back pan. This strip may be located either on the front side or the back side of the back pan depending on the model.

   c. If present, remove the back cover/foam assembly from the bottom hook and loop strip.
2. If applicable, remove the privacy flap Ⓒ by detaching it from the hook and loop strips located on the back pan.
3. Remove the four mounting screws Ⓓ and washers Ⓔ that secure the back pan to the back cane mounting brackets Ⓕ.
4. Discard existing back pan and attaching hardware.
5. Secure new back pan to back cane mounting brackets with four mounting screws and washers.
6. If applicable, install privacy flap onto new back pan using the hook and loop strips located on the back pan.
7. Install back cover/foam assembly onto new back pan by performing the following:
   a. Position the back cover/foam assembly onto the vertical hook and loop strips on the front of the back pan. Press back cover/foam assembly against back pan to secure in place.
   b. Fold back cover over the top of the back pan and press against horizontal hook and loop strip to secure in place.
   c. If bottom horizontal hook and loop strip is present, press bottom of back cover/foam assembly against back pan to secure in place. If bottom hook and loop strip is located on back side, fold bottom of back cover to the back side and press against hook and loop strip to secure in place.

8.2 Replacing Matrx® Backrests (Tilt Systems)

- 10 mm wrench

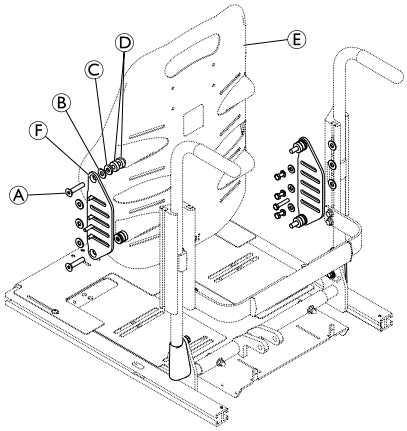


Fig. 8-2

Removing Matrx Backrest

1. Remove backrest assembly from backrest tubes, refer to *8.8 Adjusting Backrest Height — Manual Backrest, page 45*.
2. Remove the four socket screws Ⓐ, thick washers Ⓑ, thin washers Ⓒ and spacers Ⓓ securing the back assembly Ⓔ to the hanger plates Ⓕ.

Installing Matrx Backrest

1. Installation takes place in reverse order.

   The number of spacers may vary according to the back width. At a minimum, two spacers per screw should always be used.

2. Install backrest assembly to backrest tubes, refer to *8.8 Adjusting Backrest Height — Manual Backrest, page 45*.

For tightening torques on hardware, refer to *Tightening Torques*.

Removing Matrx Elite 2 Backrest

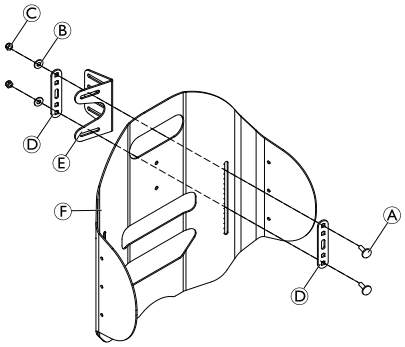


Fig. 8-3

1. Remove backrest assembly from backrest tubes, refer to *8.8 Adjusting Backrest Height — Manual Backrest, page 45*.
2. Remove screws Ⓐ, flat washers Ⓑ, and nuts Ⓒ securing front washer plates Ⓓ and backrest Ⓕ to E2 back interface bracket Ⓔ.

Installing Matrx Elite 2 Backrest

1. Installation takes place in reverse order.
2. Install backrest assembly to backrest tubes, refer to *8.8 Adjusting Backrest Height — Manual Backrest, page 45*.

For tightening torques on hardware, refer to *Tightening Torques*.

8.3 Replacing Matrx® Backrests (Recline)

Removing Mtrx Backrest

- 10 mm wrench

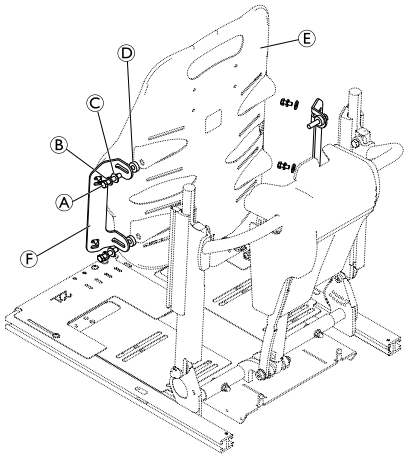


Fig. 8-4

1. Remove backrest assembly from backrest tubes, refer to *8.9 Adjusting Backrest Height — Powered Recline, page 51*.
2. Remove the four screws Ⓐ, lock washers Ⓑ, flat washers Ⓒ and spacers Ⓓ securing the backrest Ⓔ to the back brackets Ⓕ.

Installing Matrx Backrest

1. Installation takes place in reverse order.
2. Install backrest assembly to backrest tubes, refer to *8.9 Adjusting Backrest Height — Powered Recline, page 51*.

For tightening torques on hardware, refer to *Tightening Torques*.

Removing Matrx Elite 2 Backrest

- 10 mm wrench
- 13 mm wrench

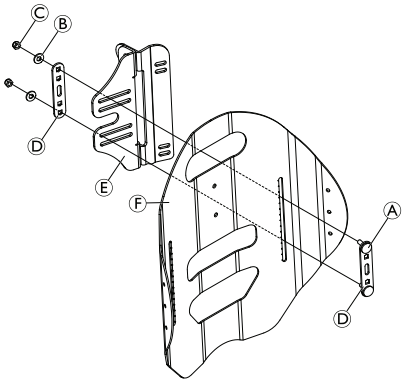


Fig. 8-5

1. Remove backrest assembly from backrest tubes, refer to *8.9 Adjusting Backrest Height — Powered Recline, page 51*.
2. Remove screws Ⓐ, flat washers Ⓑ, and nuts Ⓒ securing front washer plates Ⓓ and backrest Ⓕ to side bracket Ⓔ.
3.

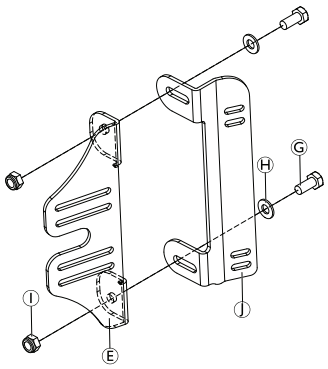


Fig. 8-6

If necessary, remove screws Ⓖ, flat washers Ⓗ and nuts Ⓘ securing side bracket Ⓔ to Matrx back interface brackt Ⓙ.

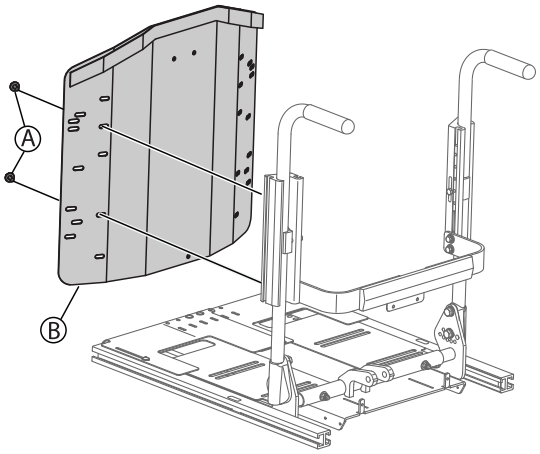
Installing Matrx Elite 2 Backrest

1. Installation takes place in reverse order.
2. Install backrest assembly to backrest tubes, refer to *8.9 Adjusting Backrest Height — Powered Recline, page 51*.

For tightening torques on hardware, refer to *Tightening Torques*.

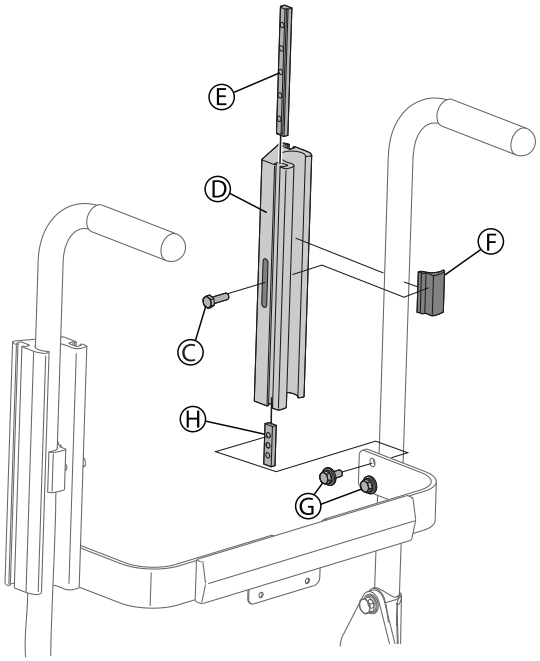
8.4 Replacing Back Cane

Remove seat back.



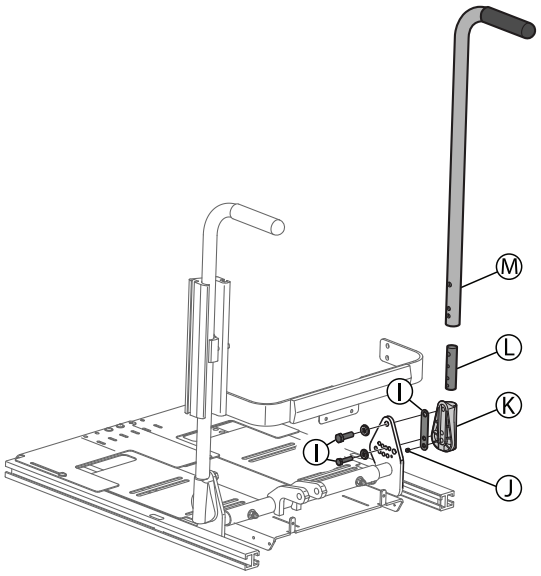
1. Remove hardware Ⓐ securing the seat back Ⓑ to the back canes.
2. Remove seat back.

Remove back mount.



1. Remove hardware Ⓒ securing the back mount Ⓓ to the back canes.
2. The hardware Ⓒ passes through the upper clamping bar Ⓔ, back mount Ⓓ and secures the keeper Ⓕ.
3. Remove hardware Ⓖ securing the back mount Ⓓ to the spreader bar.
4. Remove the back mount.

Remove back cane.



1. Remove hardware Ⓘ securing the back cane Ⓜ to the base.
2. Remove hardware Ⓙ securing the cane cover Ⓚ to the clamping bar Ⓛ.
3. Remove the clamping bar Ⓛ from the back cane Ⓜ.
4. Remove the back cane.

ℹ For tightening torques on hardware, refer to *Tightening Torques*.

Installing back cane.

1. Insert the clamping bar Ⓛ into the back cane Ⓜ.
2. Secure the cane cover Ⓚ to the back cane Ⓜ with hardware Ⓙ.
3. Secure the back cane Ⓜ to the base with hardware Ⓘ.
4. Ensure back cane is secure.

Installing back mount.

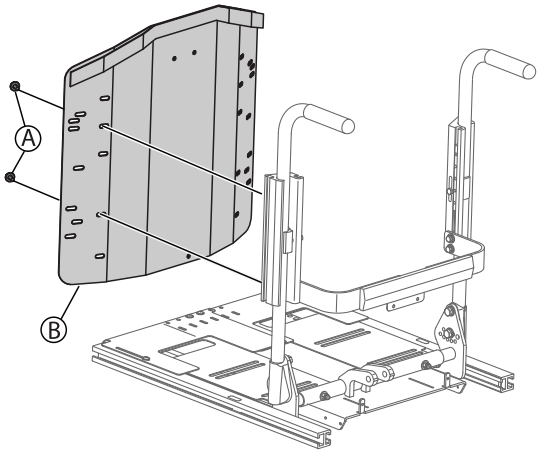
1. Insert the lower clamping bar Ⓗ into the back mount Ⓓ.
2. Place the back mount onto the back cane and secure the back mount to the spreader bar with the hardware Ⓖ.
3. Insert the upper clamping bar Ⓗ into the back mount Ⓓ.
4. Secure the keeper Ⓕ to the back cane with hardware Ⓒ passing through the upper clamping bar Ⓔ and back mount Ⓓ.
5. Tighten mounting screws Ⓒ to 40 in-lb.

Installing seat back.

1. Install seat back Ⓑ onto the back canes and secure with hardware Ⓐ.
2. Ensure seat back is secure.

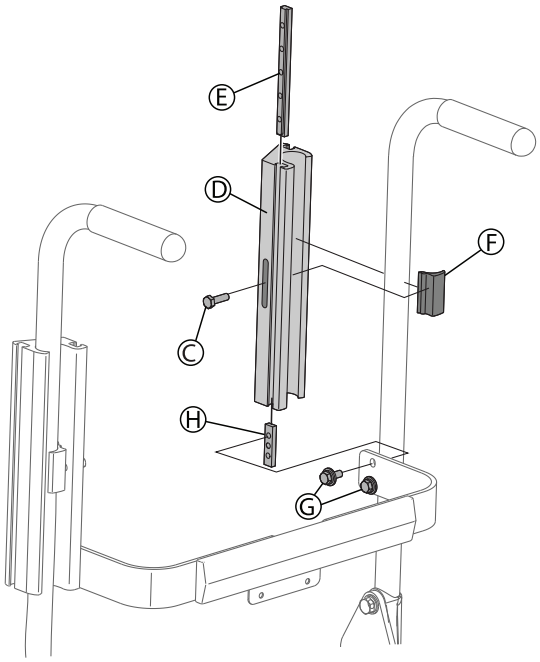
8.5 Replacing Seat Back Mounting Hardware

Remove seat back.



1. Remove hardware Ⓐ securing the seat back Ⓑ to the back canes.
2. Remove seat back.

Remove back mount.



1. Remove hardware Ⓒ securing the back mount Ⓓ to the cane back canes.
2. The hardware Ⓒ passes through the upper clamping bar Ⓔ, back mount Ⓓ and secures the keeper Ⓕ.
3. Remove hardware Ⓖ securing the back mount Ⓓ to the spreader bar.
4. The hardware Ⓒ passes through the spreader bar and goes into the lower clamping bar Ⓗ.
5. Remove the back mount.

For tightening torques on hardware, refer to *Tightening Torques*.

Installing back mount.

1. Insert the lower clamping bar Ⓗ into the back mount Ⓓ.
2. Place the back mount onto the back cane and secure the back mount to the spreader bar with the hardware Ⓖ.
3. Insert the upper clamping bar Ⓗ into the back mount Ⓓ.
4. Secure the keeper Ⓕ to the back cane with hardware Ⓒ passing through the upper clamping bar Ⓔ and back mount Ⓓ.
5. Ensure back mount is secure.

Installing seat back.

1. Install seat back Ⓑ onto the back canes and secure with hardware Ⓐ.
2. Ensure seat back is secure.

8.6 Replacing Backrest Actuator

- Phillips screwdriver
- 3 mm Allen key
- 6 mm Allen key
- 13 mm wrench

When disassembling, take care of small parts such as screws and washers. Put all small parts down so that they can be reassembled in the right sequence.

1.

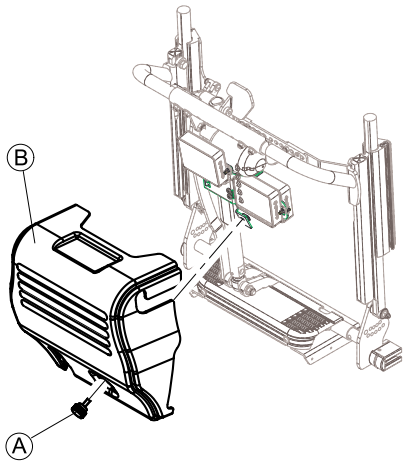


Fig. 8-7

Remove screw/hand screw Ⓐ and backrest shroud Ⓑ.

2. Disconnect power module cable from actuator module.
3.

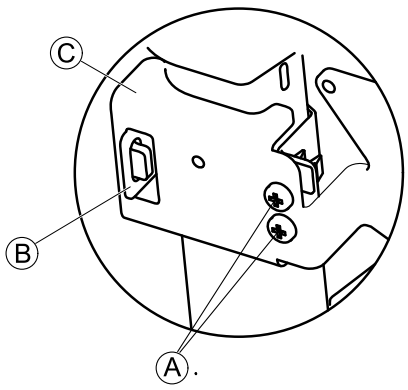


Fig. 8-8

Remove screws Ⓐ, unhook clamp strap Ⓑ, and remove clamp Ⓒ.

4. Disconnect actuator from actuator module.

Take note of how actuator is connected. Make sure to connect new actuator the same way.

5.

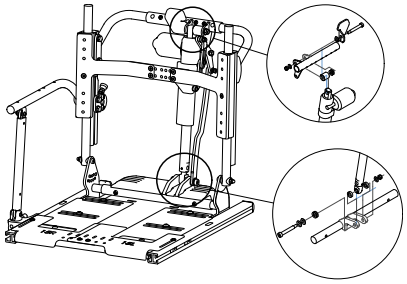


Fig. 8-9

Remove screws from actuator brackets.

6. Remove actuator.
7. Align ends of new actuator with actuator brackets and secure with hardware as shown above.
8.

> **WARNING!**
> **Risk of injury**
> If the polarization of the actuator is inverted, this disables the safety concept.
> – Make sure to connect the new actuator in the same way as the old actuator.

Connect actuator to actuator module.

9. Connect power module cable to actuator module.

8.7 Replace Elan Headrest Assembly

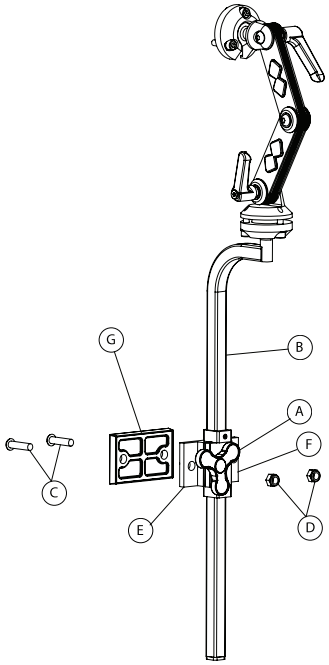


Fig. 8-10

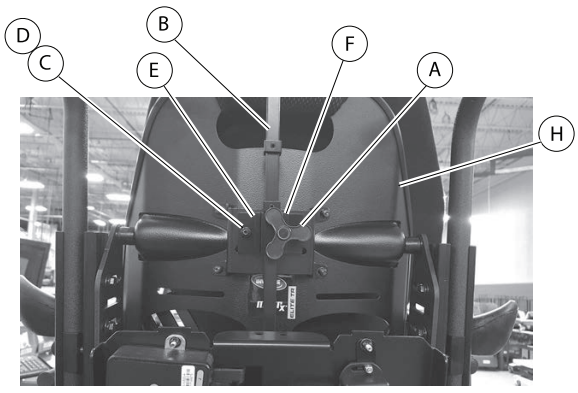


Fig. 8-11 Picture serves as an example

> For tightening torques on hardware, refer to *Tightening Torques*.

1. Loosen headrest knob Ⓐ and remove headrest assembly Ⓑ from headrest clamp.

> Fig 3–17 shows headrest shim Ⓖ which some backs require. Fig 3–18 includes the backrest but does not show the headrest shim. If applicable, remove the headrest shim when performing step 2.

2. Remove the two mounting screws Ⓒ and locknuts Ⓓ that secures the headrest clamp base Ⓔ and headrest clamp Ⓕ to the backrest Ⓗ.
3. Secure headrest clamp base and headrest clamp (and headrest shim, if applicable) to the backrest with two mounting screws and locknuts.
4. Install headrest assembly into headrest clamp. Tighten knob securely.

8.8 Adjusting Backrest Height — Manual Backrest

The backrest plates are available in different heights. In addition, the overall height can be adjusted by adjusting the gap between backrest plate and seat.

- 10 mm wrench

Possible Combinations

Backrest Plate	Finished Backrest Height							
	455 mm/ 18 in	**485 mm/ 19 in**	**505 mm/ 20 in**	**535 mm/ 21 in**	**555 mm/ 22 in**	**585 mm/ 23 in**	**610 mm/ 24 in**	**635 mm/ 25 in**
Standard Rehab Back								
Standard Rehab Back 355 mm/ 14 in	102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A		N/A	
Standard Rehab Back 405 mm/ 16 in	N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A	
Standard Rehab Back 455 mm/ 18 in	N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A	
Standard Rehab Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap
High Back								
High Back 405 mm/ 16 in	N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A	
High Back 455 mm/ 18 in	N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A	
High Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm / 4 in gap	127 mm / 5 in gap
Matrx Backs								
Elite / Elite 2 Back 355 mm/ 14 in	102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A		N/A	
Elite / Elite 2 Back 405 mm/ 16 in	N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A	
Elite / Elite 2 Back 455 mm/ 18 in	N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A	
Elite / Elite 2 Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap
Elite HD Back 405 mm/ 16 in	N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A	
Elite HD Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap
Elite TR Back 405 mm/ 16 in	N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A	
Elite TR Back 455 mm/ 18 in	N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A	
Elite TR Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap

Backrest Plate	Finished Backrest Height							
	455 mm/ 18 in	485 mm/ 19 in	505 mm/ 20 in	535 mm/ 21 in	555 mm/ 22 in	585 mm/ 23 in	610 mm/ 24 in	635 mm/ 25 in
Elite TR HD Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap
Elite Deep / Elite 2 Back 405 mm/ 16 in	N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A	
Elite Deep / Elite 2 Back 455 mm/ 18 in	N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A	
Elite Deep / Elite 2 Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap
Elite Deep HD Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap
Posture Back 405 mm/ 16 in	N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A	
Posture Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap
Posture Deep Back 405 mm/ 16 in	N/A		102 mm/ 4 in gap	127 mm/ 5 in gap	N/A		N/A	
Posture Deep Back 505 mm/ 20 in	N/A		N/A		N/A		102 mm/ 4 in gap	127 mm/ 5 in gap

Adjusting Standard Rehab Back

Standard Rehab Backs are always installed with the bottom hole of the backrest plate to the bottom hole Ⓐ on the backrest tube except for:

- Finished backrest height of 635 mm (25 in): installed with the bottom hole of the backrest plate to the second hole Ⓑ on the backrest tube
- 355 mm (14 in) backrest plate: installed with the second topmost hole of the backrest plate to the topmost hole Ⓒ on the backrest tube

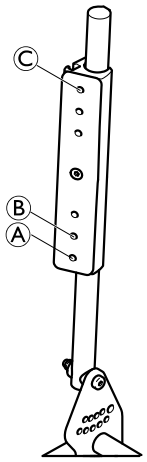


Fig. 8-12

1. Adjust backrest plate according to information above.
2. Loosen screw Ⓐ.

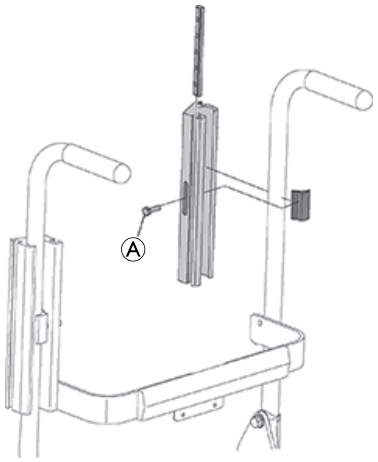


Fig. 8-13

3. Adjust distance from profile Ⓐ to shroud Ⓑ as defined in table below.
4. Tighten screw.

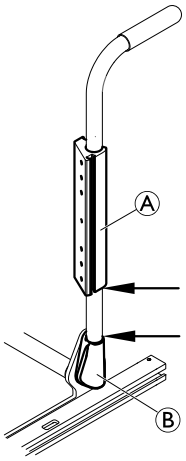


Fig. 8-14

Height of Backrest Plate	Finished Backrest Height	Distance from Profile Ⓐ to Shroud Ⓑ
355 mm / 14 in	455 mm / 18 in	30 mm / 1.18 in
	485 mm / 19 in	60 mm / 2.36 in
405 mm / 16 in	505 mm / 20 in	80 mm / 3.15 in
	535 mm / 21 in	110 mm / 4.33 in
455 mm / 18 in	555 mm / 22 in	80 mm / 3.15 in
	585 mm / 23 in	110 mm / 4.33 in
505 mm / 20 in	610 mm / 24 in	60 mm / 2.36 in
	635 mm / 25 in	60 mm / 2.36 in

Adjusting High Back Height

1. Remove screws and washers Ⓐ.

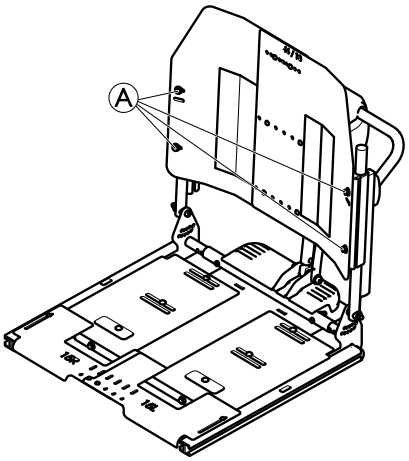


Fig. 8-15

2. Align bottom hole of backrest plate to hole of desired height on backrest tube:
   - Ⓐ = 127 mm (5 in) gap
   - Ⓑ = 102 mm (4 in) gap
3. Insert screws and washers and tighten.

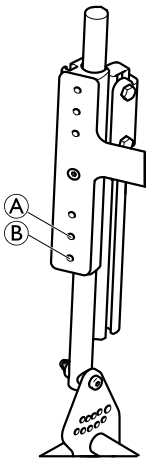


Fig. 8-16

Adjusting Matrx Height

The Matrx Elite TR Back shown in this section serves as an example. Other Matrx backrests are adjusted the same way, except of the Matrx Elite 2 backrest.

Risk of Damage to Wheelchair
If profiles on backrest are set too low, side brackets of electronics sheet can damage wheelchair.
– Distance from profile Ⓐ to shroud Ⓑ must be 90 mm.

Risk of Damage to Wheelchair
If profiles on backrest are set too low, side brackets of electronics sheet can damage wheelchair.
– Distance from profile Ⓐ to shroud Ⓑ must be 90 mm.

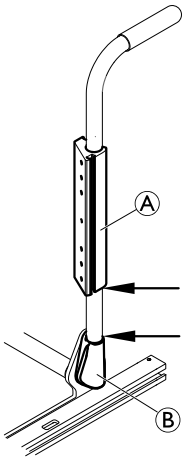


Fig. 8-17

1. Loosen backrest tubes. See *8.12 Adjusting Angle of Preset Backrest, page 54*.
2. Fold over backrest.
3. Remove screws and washers Ⓐ.
4. Adjust hanger plate to desired gap height. See graphics below for details.

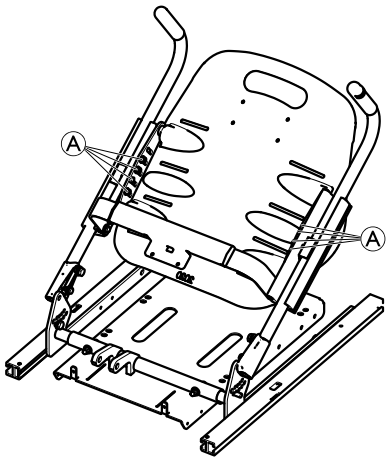
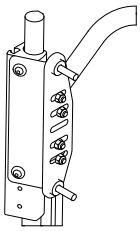
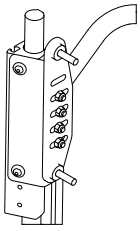


Fig. 8-18

Gap Height	Screw Position Hanger Plate
152 mm / 6 in	 *Fig. 8-19*
178 mm / 7 in	 *Fig. 8-20*

Adjusting Matrx Elite 2 Back

1. Remove screws Ⓐ, lock washers Ⓑ and flat washers Ⓒ securing E2 back interface bracket Ⓓ to backrest tube Ⓔ.
2. Adjust interface bracket to desired gap height. See graphics below for details.

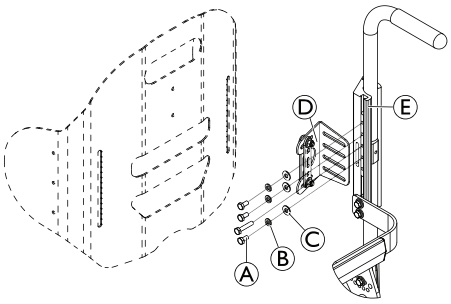
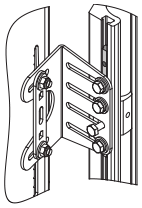
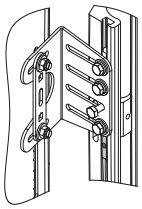


Fig. 8-21 Elite 2 Back (shown with backrest plate removed for better view)

Gap Height	Screw Position on E2 back interface bracket
102 mm / 4 in	 *Fig. 8-22*
127 mm / 5 in	 *Fig. 8-23*

8.9 Adjusting Backrest Height — Powered Recline

The backrest plates are available in different heights. In addition, the overall height can be adjusted by adjusting the gap between backrest plate and seat.

Possible Combinations

Backrest Plate	Finished Backrest Height							
	505 mm / 20 inch	**535 mm / 21 inch**	**555 mm / 22 inch**	**585 mm / 23 inch**	**610 mm / 24 inch**	**635 mm / 25 inch**	**660 mm / 26 inch**	**685 mm / 27 inch**
High Back								
High Back 405 mm / 16 inch	N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A		N/A	
High Back 455 mm / 18 inch	N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A	
High Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap
Matrx Backs								
Elite / Elite 2 Back 355 mm / 14 inch	152 mm / 6 inch gap	178 mm / 7 inch gap	N/A		N/A		N/A	

Backrest Plate	Finished Backrest Height							
	505 mm / 20 inch	535 mm / 21 inch	555 mm / 22 inch	585 mm / 23 inch	610 mm / 24 inch	635 mm / 25 inch	660 mm / 26 inch	685 mm / 27 inch
Elite / Elite 2 Back 405 mm / 16 inch	N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A		N/A	
Elite / Elite 2 Back 455 mm / 18 inch	N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A	
Elite / Elite 2 Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap
Elite HD Back 405 mm / 16 inch	N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A		N/A	
Elite HD Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap
Elite TR Back 405 mm / 16 inch	N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A		N/A	
Elite TR Back 455 mm / 18 inch	N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A	
Elite TR Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap
Elite TR HD Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap
Elite Deep / Elite 2 Back 405 mm / 16 inch	N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A		N/A	
Elite Deep / Elite 2 Back 455 mm / 18 inch	N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A	
Elite Deep / Elite 2 Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap
Elite Deep HD Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap
Posture Back 405 mm / 16 inch	N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A		N/A	
Posture Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap
Posture Deep Back 405 mm / 16 inch	N/A		152 mm / 6 inch gap	178 mm / 7 inch gap	N/A		N/A	
Posture Deep Back 505 mm / 20 inch	N/A		N/A		N/A		152 mm / 6 inch gap	178 mm / 7 inch gap

Adjusting Backrest Height

- 10 mm wrench

The Matrx Elite TR Back shown in this section serves as an example. All other Matrx backrests are adjusted the same way.

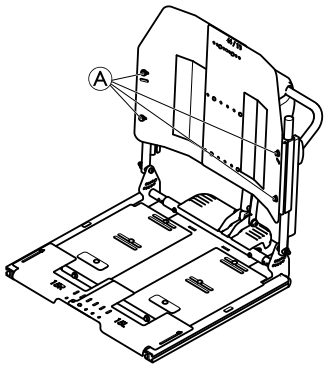


Fig. 8-24 High Back

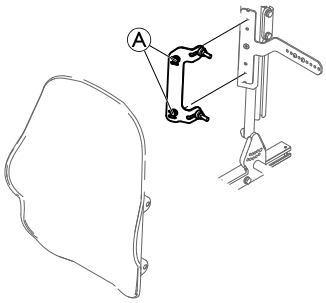


Fig. 8-25 Matrx Back (shown with backrest plate removed for better view)

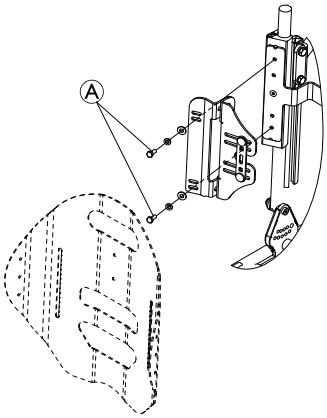


Fig. 8-26 Elite 2 Back (shown with backrest plate removed for better view)

1. Remove screws and washers Ⓐ.
2.

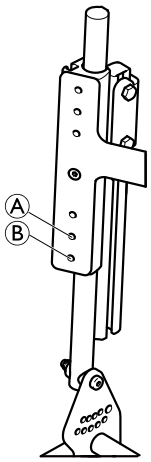


Fig. 8-27

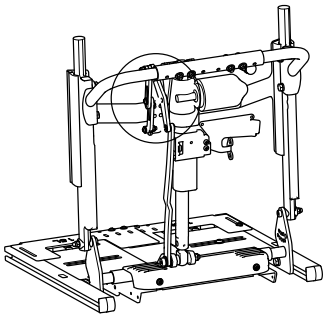
   Align bottom hole of backrest plate to hole of desired height on backrest tube:

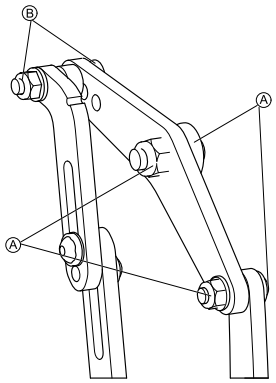
   - Ⓐ = 178 mm (7 inch) gap
   - Ⓑ = 152 mm (6 inch) gap

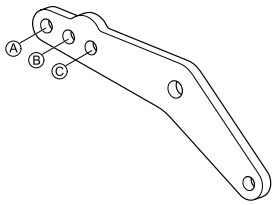
3. Insert screws and washers and tighten.

8.10 Adjusting Extended Shear Reduction

Tools:
- 5 mm Allen key
- 6 mm Allen key
- 10 mm wrench
- 13 mm wrench



1. 

   Loosen screws and nuts Ⓐ.
2. Remove screw, washer and nut Ⓑ.
3. 

   Adjust ESR crankarm to desired shear reduction:

   Ⓐ Maximum shear reduction

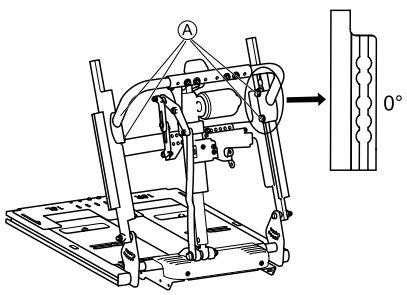
   Ⓑ Medium shear reduction

   Ⓒ Minimum shear reduction
4. Insert screws, washers and nuts and tighten.

8.11 Adjusting backrest precline angle

Adjusting backrest angle to 0° precline

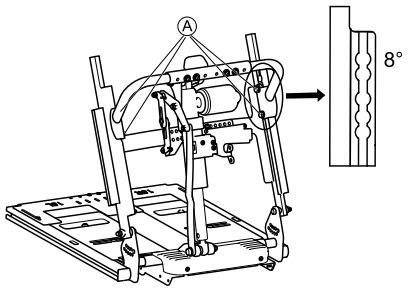
Tools:
- 13 mm wrench



1. Remove screws and washers Ⓐ.
2. Adjust thick 6.35 mm (0.25”) washer inside backrest tube to bottom hole. Align with bottom hole of pushbar. See detail in graphic.
3. Insert screws and washers and tighten.

Adjusting backrest angle to 8° precline

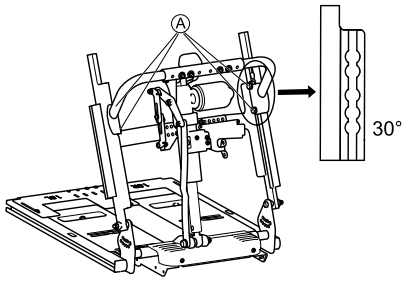
Tools:
- 13 mm wrench

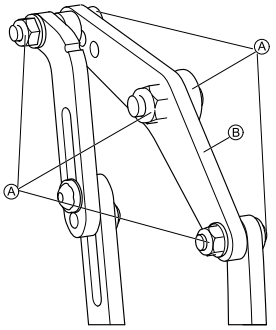


1. Remove screws and washers Ⓐ.
2. Adjust thick 6.35 mm (0.25”) washer inside backrest tube to top hole. Align with top hole of pushbar. See detail in graphic.
3. Insert screws and washers and tighten.

Adjusting backrest angle to 30° precline

Tools:
- 5 mm Allen key
- 6 mm Allen key
- 10 mm wrench
- 13 mm wrench

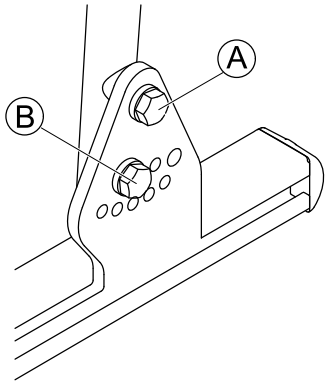


1. Remove screws and washers Ⓐ.
2. Adjust thick 6.35 mm (0.25”) washer inside backrest tube to bottom hole. Align with bottom hole of pushbar. See detail in graphic.
3. Insert screws and washers and tighten.
4. 

   Remove screws, washers and nuts Ⓐ.
5. Replace ESR crankarm Ⓑ with precline ESR crankarm.
6. Insert screws, washers and nuts and tighten.

8.12 Adjusting Angle of Preset Backrest

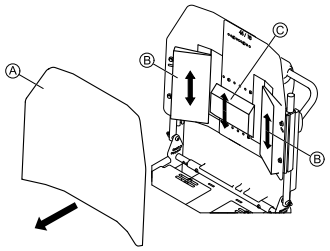
- 10 mm wrench
- 13 mm wrench



1. On both sides, loosen screw Ⓐ.
   Do not remove it.
2. On both sides, loosen and remove screw and washer Ⓑ.
3. Adjust backrest to desired angle.
4. Insert screw and washer and tighten.

8.13 Adjusting foam inserts of High Back

You can adjust the foam inserts on the High Back backrest to give you more lateral and lumbar support.



1. Remove cover Ⓐ from backrest.
2. Adjust lateral Ⓑ and/or lumbar Ⓒ insert to your needs.
3. Reattach cover.

9 Armrests

9.1 Replace Armrest Receiver

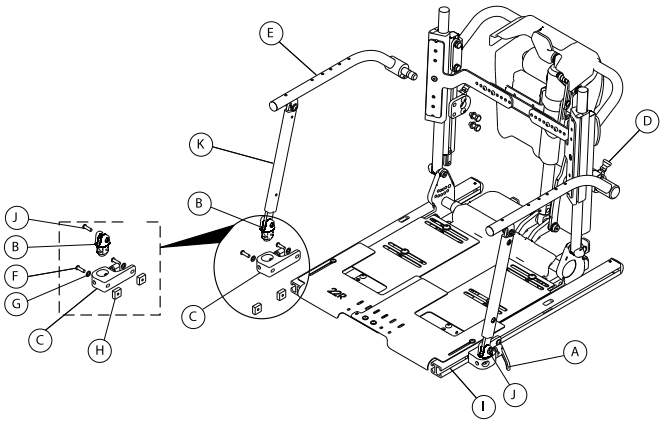


Fig. 9-1

Fig 3–19 shows right armrest receiver. Left armrest receiver replaces in the same manner.

For tightening torques on hardware, refer to *Tightening Torques*.

1. Unlock the lever lock Ⓐ and disengage the universal plug Ⓑ from the armrest receiver Ⓒ.
2. Pull outward on the plunger Ⓓ at the rear of the armrest.
3. Remove the armrest assembly Ⓔ.
4. Remove the two mounting screws Ⓕ and washers Ⓖ that secure the armrest receiver to the square nuts Ⓗ located inside the seat frame channel Ⓘ.
5. Remove the square nuts from the seat frame channel.
6. Remove the mounting screw Ⓙ that secures the universal plug to the vertical support tube Ⓚ.
7. Discard the existing armrest receiver, universal plug and all attaching hardware.
8. Secure new universal plug Ⓑ to vertical support tube Ⓚ with new mounting screw Ⓙ. Tighten until joint moves freely but without play.
9. Slide square nuts into seat frame channel.
10. Secure the new armrest receiver to the square nuts located inside the seat frame channel.
11. Insert the universal plug into the armrest receiver and the lock lever should engage to lock armrest in place.
12. Pull outward on the plunger Ⓓ and insert the end of the armrest assembly into the upper mounting bracket. Release the plunger to lock the armrest in place.

    Push down on arm sharply to set plug for the first time and pull up to ensure it locks in place.

9.2 Replacing the Cantilever Flip-Up Armrest

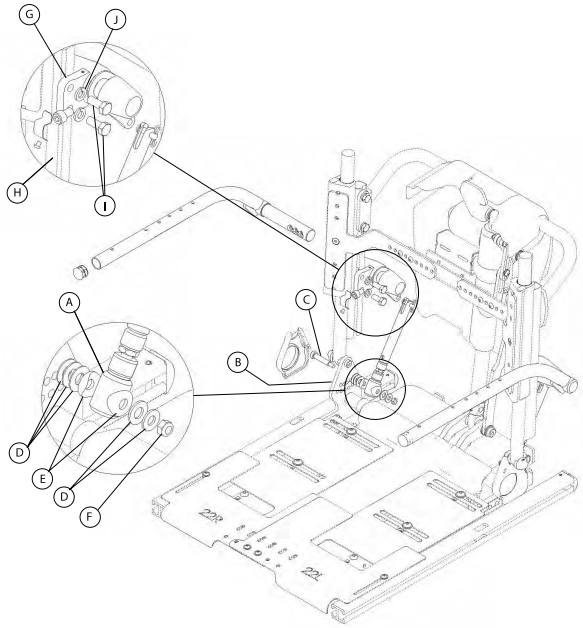


Fig. 9-2

Fig 3–22 shows curved cantilever arm. Straight cantilever arm replaces in the same manner.

For tightening torques on hardware, refer to *Tightening Torques*.

1. Remove the mounting screw Ⓒ, washers Ⓓ, coved spacers Ⓔ and locknut Ⓕ that secure the bottom of the cantilever arm Ⓐ to the seat frame mounting bracket.
2. Remove the two mounting screws Ⓘ, washer Ⓙ and clamping bar (not shown) that secure the upper mounting bracket Ⓖ to the backrest tube Ⓗ.
3. Secure the upper mounting bracket to the backrest tube with the two mounting screws, washer and clamping bar (not shown).
4. Secure the bottom of the cantilever arm to the seat frame mounting bracket with mounting screw, washers, coved spacers and locknut.

9.3 Replacing the Cantilever Seat Mount Armrest

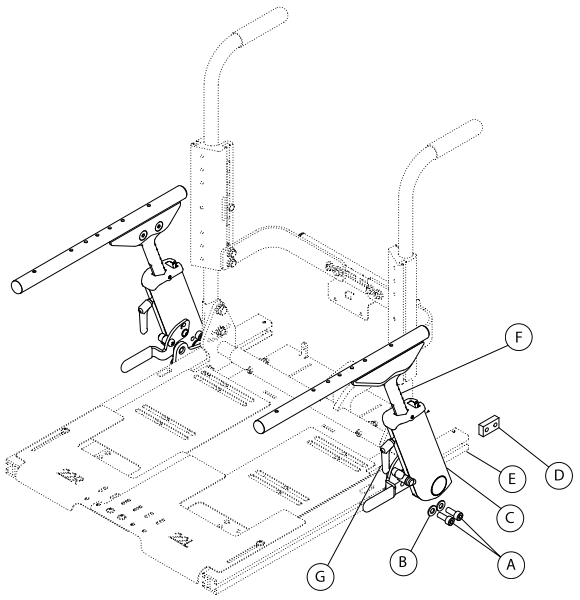


Fig. 9-3

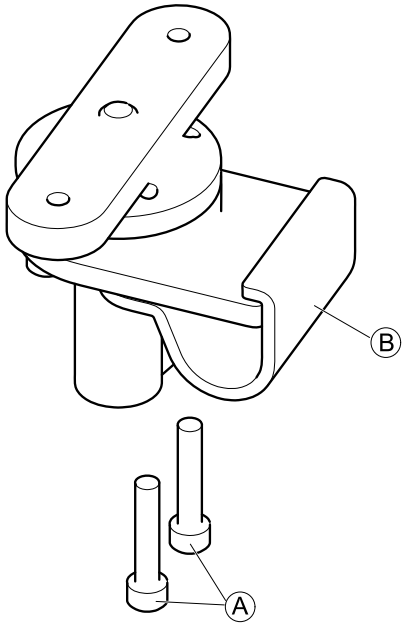
For tightening torques on hardware, refer to *Tightening Torques*.

1. Flip up arm to access the mounting screws.
2. Remove the two mounting screws Ⓐ and washers Ⓑ that secure the arm post pivot mount assembly Ⓒ to the clamping bar Ⓓ inside the channel of the side rail Ⓔ.
3. Remove the arm post pivot mount assembly from side rail.
4. Remove clamping bar from inside of channel of side rail.
5. Discard existing armrest and attaching hardware.
6. Slide new clamping bar into channel of side rail.
7. Secure new arm post pivot assembly to clamping bar with two mounting screws and washers.
8. Install new upper armrest assembly Ⓕ into arm post pivot assembly and secure in place with locking lever Ⓖ.

9.4 Installing Multi Axis Upper Extremity Support (MACES)

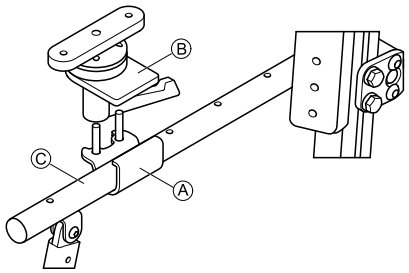
Tools:
- 3 mm Allen key
- 5 mm Allen key

1.



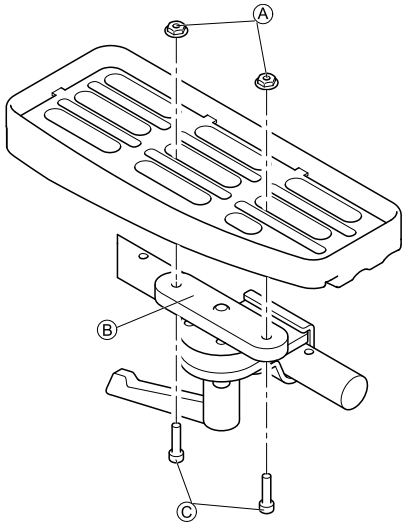
Loosen and remove screws Ⓐ to unlock strap plate Ⓑ.

2.



Attach strap plate Ⓐ and clamp plate Ⓑ to armrest tube Ⓒ.

3. Retighten screws.
4.



Attach mount plate Ⓑ to armpad body with screws Ⓒ and nuts Ⓐ.

9.5 Installing Elbow Block

Version up to August 2017

- 4 mm Allen key

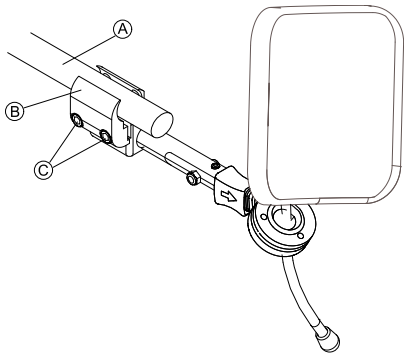


Fig. 9-4

1. Mount bracket Ⓑ of elbow block to armrest tube Ⓐ.
2. Tighten screws Ⓒ.

Version as of August 2017

- 5 mm Allen key

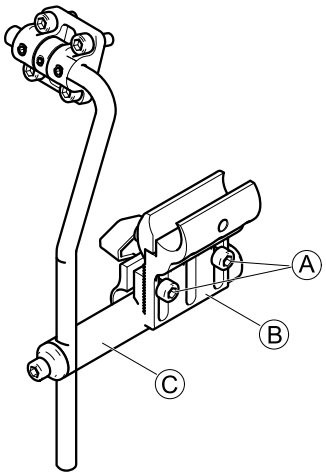


Fig. 9-5

1. Mount bracket Ⓑ of elbow block to armrest tube Ⓒ.
2. Tighten screws Ⓐ.

9.6 Arm Pad Installation/Adjustment

- 4 mm Allen key

Arm Pad Orientation

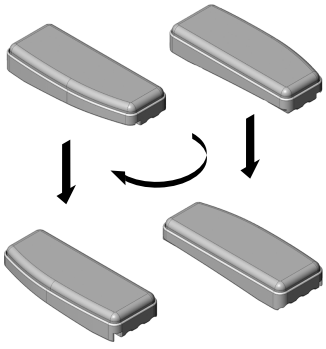


Fig. 9-6

You can switch the arm pad orientation from taper forward to taper rearward.

Arm Pad Body Installation

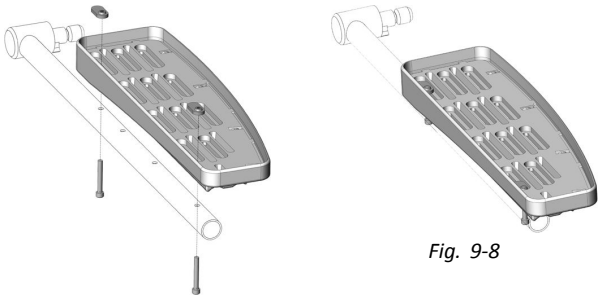


Fig. 9-8

Fig. 9-7

1. Using hardware provided, install moulded arm pad body onto armrest tube in pre-determined mounting orientation (see above) and arm pad position (see width and depth adjustments below).

Arm Pad Installation

- Phillips screwdriver

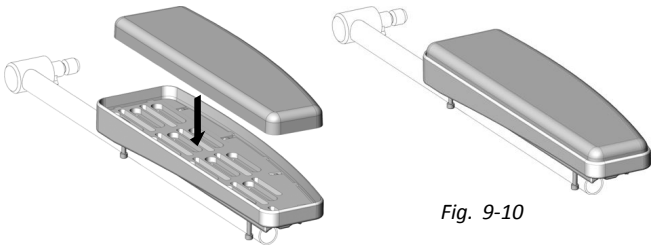


Fig. 9-10

Fig. 9-9

1. Secure modular arm pad inside moulded arm pad body via hook-and-loop straps (not shown).
2. If wheelchair is to be used as vehicle seat, additionally secure arm pad with screws.

Width Adjustment

Centre and inside mount positions may limit how far the armrest will flip/rotate backward during side transfers.

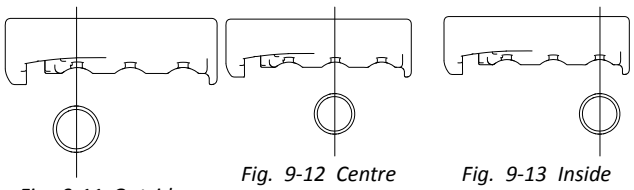


Fig. 9-11 Outside mount

Fig. 9-12 Centre mount

Fig. 9-13 Inside mount

Depth Adjustment

You can adjust the arm pad depth by 1.75 inch (45 mm).

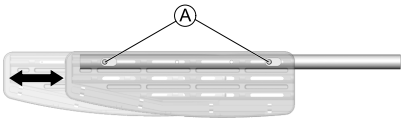


Fig. 9-14

1. Loosen mounting screws Ⓐ.
2. Adjust arm pad to desired position.
3. Re-tighten screws.

9.7 Installing/Adjusting Trough Arm Pad

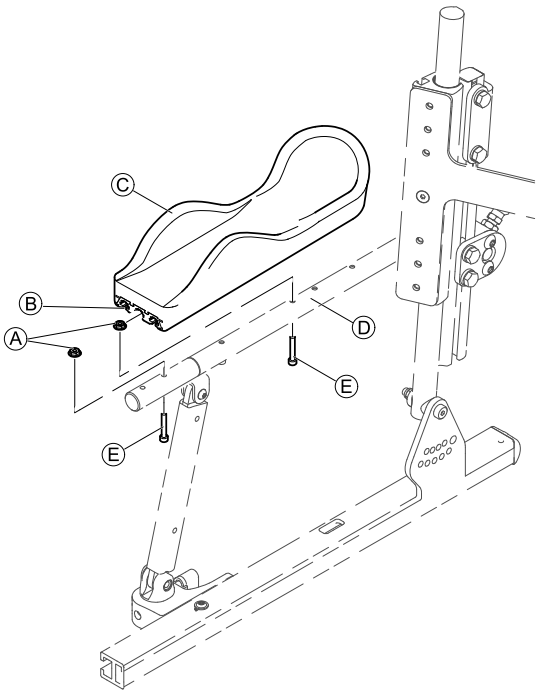


Fig. 9-15

For tightening torques on hardware, refer to *Tightening Torques*.

Installing Arm Pad

1. Slide nut plates Ⓐ into one of channels Ⓑ in trough arm pad Ⓒ.
2. Position trough arm pad onto armrest tube Ⓓ in desired location.
3. Insert screws Ⓔ through armrest tube and into nut plates to secure in place.

Adjusting Width

1. Remove screws Ⓔ that secure trough arm pad Ⓒ to armrest tube Ⓓ.
2. Remove nut plates Ⓐ from channel Ⓑ of trough arm pad.
3. Re-insert two nut plates into desired channel of trough arm pad.
4. Secure trough arm pad to armrest with screws.

Adjusting Depth

1. Loosen screws.
2. Adjust trough arm pad to desired position.
3. Re-tighten screws.

Adjust joystick to desired position.

9.8 Replacing Hand Pad

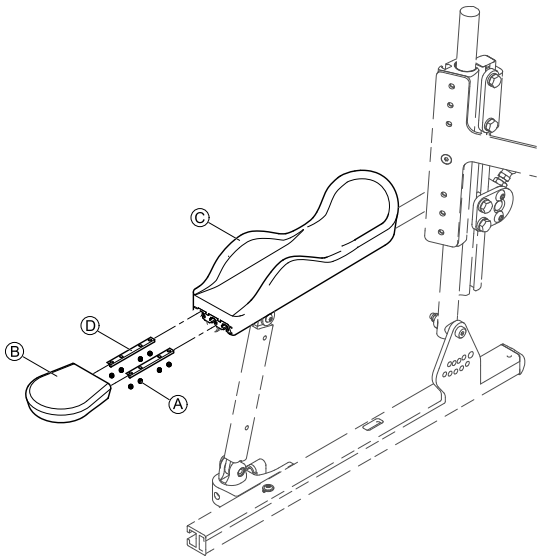


Fig. 9-16

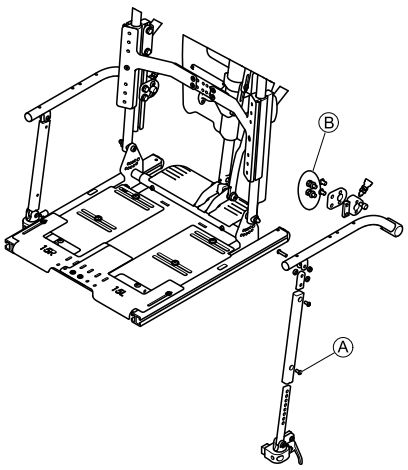
For tightening torques on hardware, refer to *Tightening Torques*.

1. Remove eight screws Ⓐ that secure hand pad Ⓑ to trough arm pad Ⓒ.
2. Slide clamping bars Ⓓ out of trough arm pad.
3. Discard existing hand pad, clamping bars and attaching hardware.
4. Slide new clamping bars into trough arm pad.
5. Secure clamping bars to trough arm pad with four screws.
6. Slide hand pad onto clamping bars.
7. Secure hand pad to clamping bars with four screws.

9.9 Adjusting two post recline armrest

The two post recline armrest has an adjustable pivot arm to allow height adjustments in 13 mm increments.

Tools:
- 5 mm Allen key
- 13 mm wrench



1. Remove screw Ⓐ and slide the inner pivot arm up/down to the desired height.
2. Reinstall screw.

3. To adjust the armrest receiver assembly to match the height adjustment of the pivot arm assembly, loosen the two screws Ⓑ on the inside of the armrest receiver and slide the armrest receiver up/down the backrest tube to the desired height.
4. Retighten screws.

Recline armrest and hip support

When using a two post recline armrest in combination with a hip support, note that the hip support must be installed in front of the receiver of the two post recline armrest. When installed behind the receiver, the hip support can get damaged when reclining the backrest.

9.10 Installing/Adjusting Buttons or Toggles

Several mounting options for buttons and toggles are available to meet a wide range of user needs. The topic shows only a basic installation of the components on an arm pad. According to the user needs other components may be required.

- Phillips screwdriver, size 2

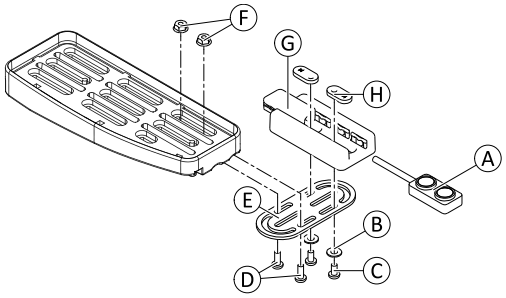


Fig. 9-17 Lateral mounting of dual button serves as an example.

Installing Buttons

1. Install bolts Ⓒ, washers Ⓑ, nuts Ⓗ and metal sheet Ⓔ to mounting. Tighten bolts Ⓒ.
2. Install covering cap Ⓖ and button Ⓐ to mounting.
3. Insert nuts Ⓕ within arm pad body. Position nuts to desired position.
4. Install bolts Ⓓ and button assembly to arm pad body. Tighten bolts.

Adjusting Position

1. Remove arm pad from arm pad body. See *9.6 Arm Pad Installation/Adjustment, page 58*.
2. Loosen and remove bolts Ⓓ and metal sheet Ⓔ including mounting. Take care of nuts Ⓕ within arm pad body.
3. Position nuts to desired position.
4. Re-insert and tighten bolts Ⓓ and button assembly.

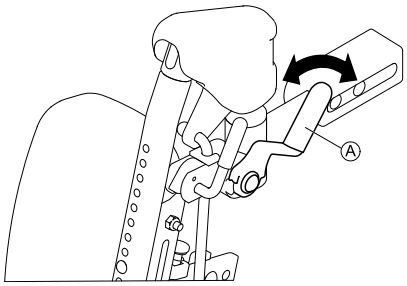
10 Legrests

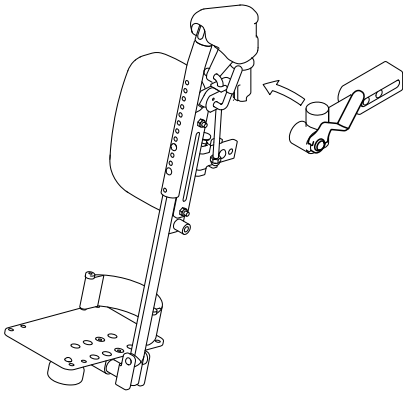
10.1 Pivot Plus legrests

10.1.1 Removing Pivot Plus Legrests

When necessary, the Pivot Plus legrests may also be completely removed from the power wheelchair.

Removing

1. Powered Pivot Plus only: Disconnect actuator.
2. 

Place lever handle Ⓐ in unlocked position.
3. 
Lift entire legrest assembly upward.

Reinstalling

1. Insert legrest pin inside legrest receiver.
2. Return lever handle to locked position.
3. Powered Pivot Plus only: Connect actuator. Make sure plug engages with audible click.

10.1.2 Adjusting Width- and Angle-Adjustable Footplate

Tools:
- 6 mm Allen key
- 10 mm wrench

Adjusting the Width

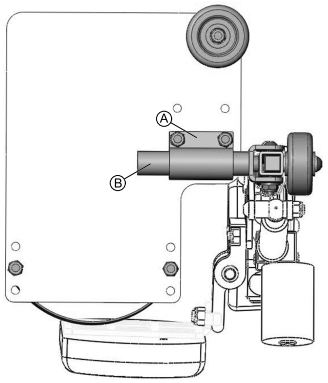


Fig. 10-1

1. Loosen the clamping block Ⓐ to adjust the entire footplate position (width) in and out along the pivot post Ⓑ.

Adjusting the Angle

The footplate angle can also be adjusted via the setscrew on the inside of the footplate bracket.

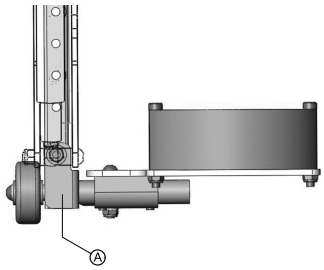


Fig. 10-2

1. Tighten or loosen the set screw Ⓐ to increase or decrease the footplate angle accordingly.

10.1.3 Replacing Actuator of Powered Pivot Plus Legrest

- 5 mm Allen key
- 10 mm wrench

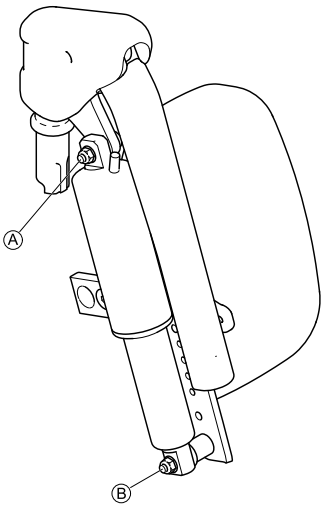


Fig. 10-3

1. Turn off power wheelchair.
2. Unplug actuator at phono connector directly under seat plate.
3. Remove screws, washers and nuts at top Ⓐ and bottom Ⓑ of actuator.
   Note position and number of washers to make re-inserting easier.

4. Replace actuator with new one.

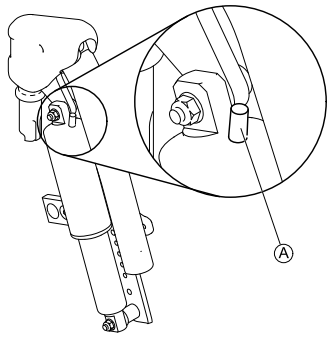


Fig. 10-4

Actuator lead Ⓐ must face forward.

5. Re-insert screws, washers and nuts and tighten.
6. Plug actuator into phono connector.
7. Turn on power wheelchair and test correct function of legrest.

10.1.4 Replacing Pivot Plus Calf Pad Assembly

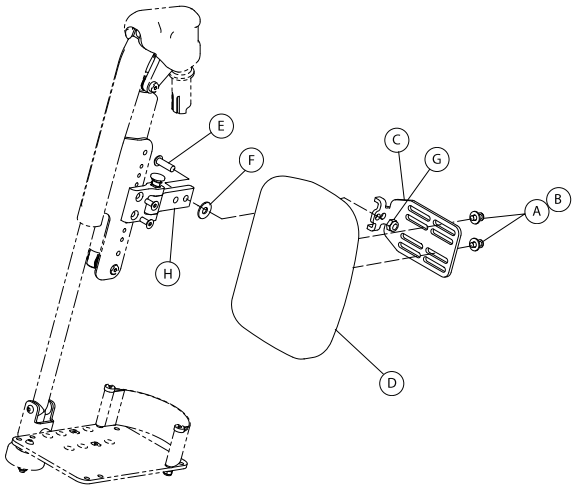


Fig. 10-5

For tightening torques on hardware, refer to *Tightening Torques*.

1. Remove the two mounting screws Ⓐ and washers Ⓑ that secure the mount plate Ⓒ to the calf pad Ⓓ.
2. Remove the calf pad from the mount plate.
3. Remove the mounting screw Ⓔ, washer Ⓕ and locknut Ⓖ that secures the mount plate to the calf pad latch assembly Ⓗ.
4. Discard calf pad, mount plate and all attaching hardware.
5. Secure new mount plate to calf pad latch assembly with mounting screw, washer and locknut.
6. Secure new calf pad to mount plate with two mounting screws and washers.

10.1.5 Replacing Footplate Roller

Remove footplate roller.

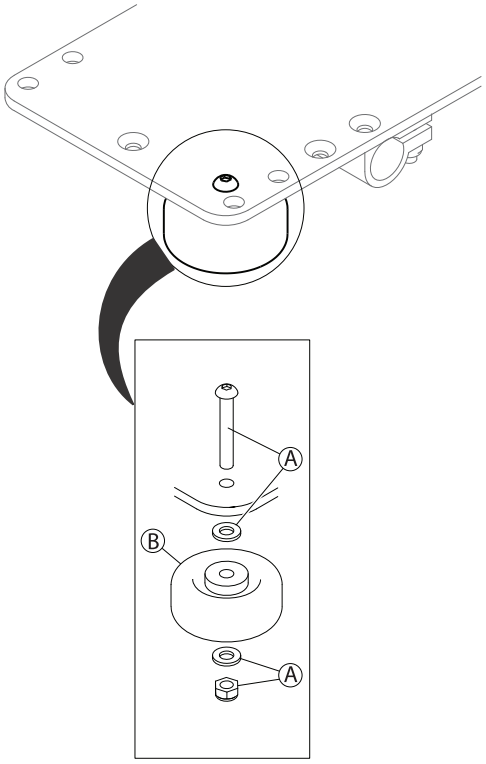


Fig. 10-6

1. Remove hardware Ⓐ securing roller Ⓑ to footplate.
2. Remove roller.

Installing brake lever cap.

1. Install roller Ⓑ onto footplate and secure with hardware Ⓐ.
2. Ensure roller is secure.
3. Ensure roller moves freely.

10.2 Center-mounted legrests — manually adjustable

10.2.1 Installing/Removing Center Mounted Footrest

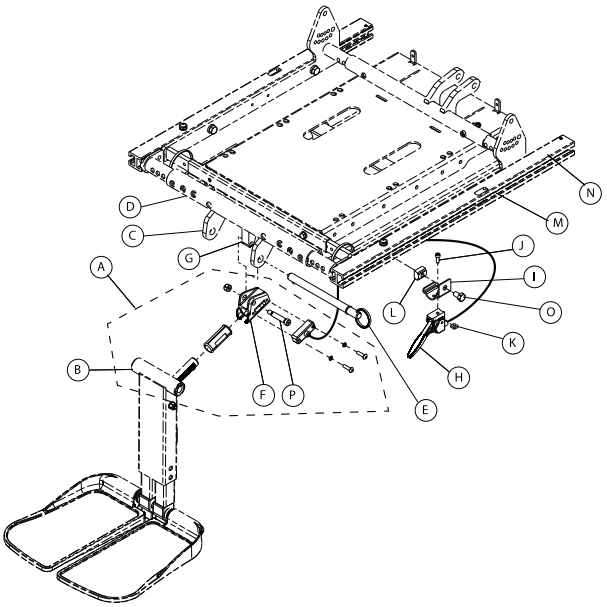


Fig. 10-7

For tightening torques on hardware, refer to *Tightening Torques*.

Installing

1. Assemble the components Ⓐ of center mount footrest as shown.
2. Secure the top cross tube Ⓑ of the center mount footrest assembly to the mounting brackets Ⓒ of the front cross brace Ⓓ with mounting pin Ⓔ.
3. Secure the housing ratchet Ⓕ of the center mount footrest assembly to the mounting bracket Ⓖ of the front cross brace with a mounting screw Ⓟ.
4. Secure the release lever Ⓗ to the release lever mounting bracket Ⓘ with the mounting screw Ⓙ and square nut Ⓚ.
5. Insert clamping bar Ⓛ into channel Ⓜ of seat frame Ⓝ.
6. Secure release lever mounting bracket Ⓘ to the clamping bar with a mounting screw Ⓞ.

Removing

1. Remove the mounting screw Ⓟ that secures the housing ratchet Ⓕ to the front cross brace Ⓓ.
2. Remove the mounting pin Ⓔ that secures the center mount footrest assembly to the mounting brackets Ⓒ of the front cross brace Ⓓ
3. Remove the center mount footrest assembly and set aside.

10.2.2 Replacing Cable Release Footrest Brace

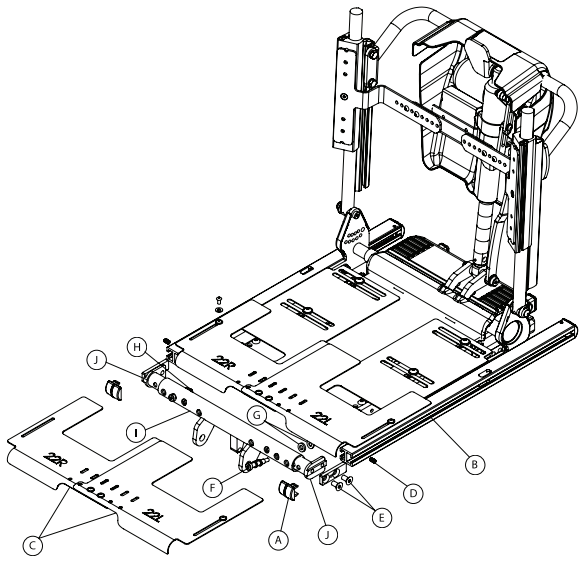


Fig. 10-8

For tightening torques on hardware, refer to *Tightening Torques*.

1. Remove the end caps Ⓐ from the end of each side rail Ⓑ.
2. Remove the four mounting screws that secure the front left side and front right side seat pans Ⓒ in place and remove seat pans.
3. Heat set screws Ⓓ, on both sides, to loosen the thread adhesive and remove. Set aside for re-installation.

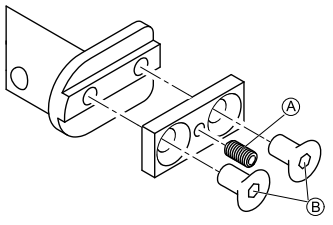
When performing step 4, ensure to only loosen the screws enough to enable the cross brace assembly to slide out of seat rails. Loosening the screws too far will cause interference with the channel in the side rails.

4. Loosen mounting screws Ⓔ on both sides.
5. Sliding cross brace assembly out of side rails.
6. Perform one of the following:
   a. If only replacing cable release footrest brace, perform the following:
      i. Remove the mounting screws Ⓕ, washers Ⓖ and locknuts Ⓗ that secures the cable release footrest brace Ⓘ to the right side brace and left side brace Ⓙ. Discard existing attaching hardware.
      ii. Remove the right side brace and left side brace from the cable release footrest brace.
      iii. Secure the right side brace and left side brace to new cable release footrest brace with new mounting screws, washers and locknuts.
      iv. Proceed to step 7.
   b. If replacing the entire cross brace assembly, perform the following:
      i. Discard existing cross brace assembly and all attaching hardware.
      ii. Secure the new cable release footrest brace Ⓘ to the new right side brace and new left side brace Ⓙ at the desired width with new mounting screws Ⓕ, washers Ⓖ and locknuts Ⓗ.
      iii. Loosely secure the new clamping bars Ⓚ to each end of the right side brace and left side brace with two new mounting screws Ⓔ.
      iv. Proceed to step 7.
7. Slide cross brace assembly into side rail channels. Apply Loctite to set screw, insert and tighten.
8. Install front left side and front right side seat pans and secure in place with four mounting screws.
9. Install end caps.

10.2.3 Removing/installing crossbrace of center-mounted legrest

Tools:
- 5 mm Allen key
- 6 mm Allen key
- Heat gun
- Screw blocker (e.g. Loctite 243)

Removing



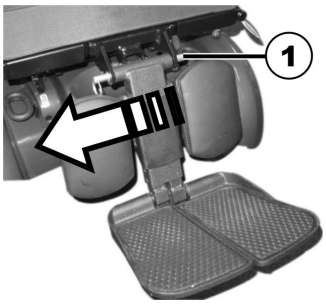
1. Heat grub screw Ⓐ to loosen blocker.
2. Loosen screws Ⓐ and Ⓑ on both sides. Make sure to loosen the screws so far that they do not collide with the slot hole in the side rail.
3. Pull crossbrace out of side rails.

Installing

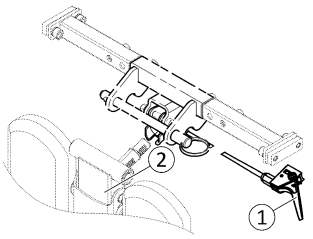
1. Insert crossbrace into side rails.
2. Tighten screws Ⓑ.
3. Apply blocker to grub screw Ⓐ and insert and tighten.

10.2.4 Removing the legrest

You can remove central, manually adjustable legrest completely.

1. 

   Remove removable axle (1).

2. 

   Hold legrest securely and pull lever (1).
3. Remove legrest from holder (2).

10.2.5 Remove/Install Adjustable Calf Pad Hardware

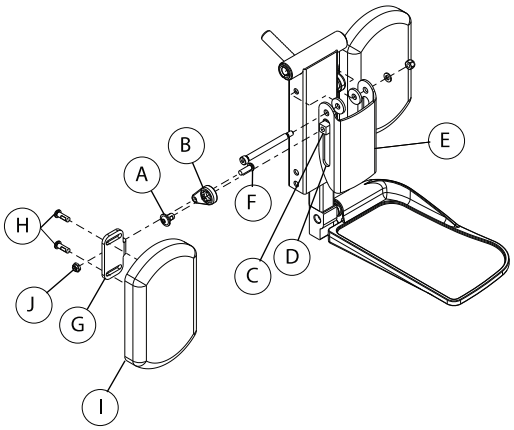


Fig. 10-9

Right footrest is not shown for clarity.

Removing

1. Remove the mounting screw Ⓐ that secures the calf pad adjuster Ⓑ to the T-nut Ⓒ inside the channel Ⓓ of the center mount footrest Ⓔ.
2. Remove the mounting screw Ⓕ and locknut Ⓙ that secures the calf pad adjuster to the calf pad mounting bracket Ⓖ.
3. Remove the two mounting screws Ⓗ that secure the calf pad Ⓘ to the calf pad mounting bracket.
4. Discard all attaching hardware. Keep the calf pad for re-installation.
5. Repeat steps 1–4 for remaining calf pad.

Installing

For tightening torques on hardware, refer to *Tightening Torques*.

1. Secure the calf pad Ⓘ to the calf pad mounting bracket Ⓖ with two mounting screws Ⓗ.
2. Secure the calf pad mounting bracket to calf pad adjuster Ⓑ with mounting screw Ⓕ and locknut Ⓙ.
3. Insert the T-nut Ⓒ into the channel Ⓓ on the center mount footrest Ⓔ.
4. Secure the calf pad adjuster to the T-nut with a mounting screw Ⓐ.
5. Repeat steps 1–4 for remaining calf pad.

10.2.6 Replace Center Bracket for Manual Center Mount Footrest

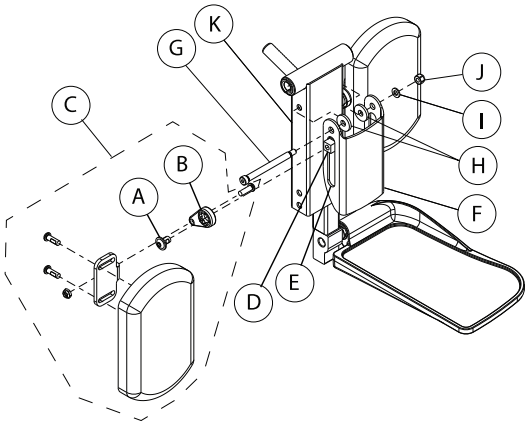


Fig. 10-10

Right footrest is not shown for clarity.

For tightening torques on hardware, refer to *Tightening Torques*.

1. Remove the mounting screw Ⓐ that secures the calf pad adjuster Ⓑ of the calf pad assembly Ⓒ to the T-nut Ⓓ inside the channel Ⓔ of the center bracket Ⓕ.
2. Set calf pad assembly aside for re-installation.

   Calf pad assembly Ⓒ does not need to be disassembled.

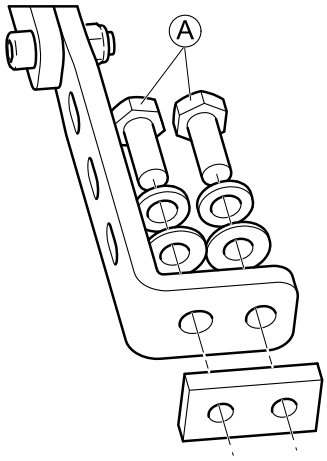
3. Remove the T-nut out of the channel of the center bracket.
4. Repeat steps 1–3 for remaining calf pad assembly.
5. Remove the mounting screw Ⓖ, spacers Ⓗ, washers Ⓘ and locknut Ⓙ that secures the center bracket to the footrest support Ⓚ.
6. Secure the center bracket to the footrest support Ⓚ with mounting screw Ⓖ, spacers Ⓗ, washers Ⓘ and locknut Ⓙ.
7. Insert the T-nut into the channel on the center bracket.
8. Secure the calf pad adjuster of the calf pad assembly to the T-nut with a mounting screw Ⓐ.
9. Repeat steps 6–8 for remaining calf pad.

10.3 LNX legrest

10.3.1 Removing/installing crossbrace of side-mounted legrests

Tools:
- 13 mm wrench

Removing



1. Loosen screws Ⓐ on both sides.
   Make sure to loosen the screws so far that they do not collide with the slot hole in the side rail.
2. Pull crossbrace out of side rails.

Installing

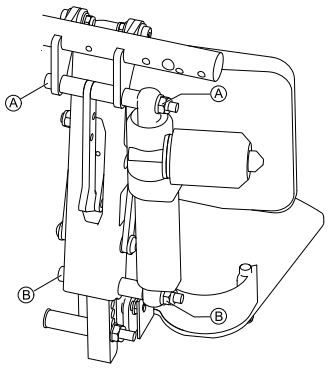
1. Insert crossbrace into side rails.
2. Align crossbrace with sliding block.
3. Tighten screws.

10.3.2 Replacing LNX powered center-mounted legrest with telescoping footboard

Replacing the complete legrest must be done by Invacare. There are several settings to observe to ensure correct functioning. Contact Invacare for details.

Replacing legrest actuator

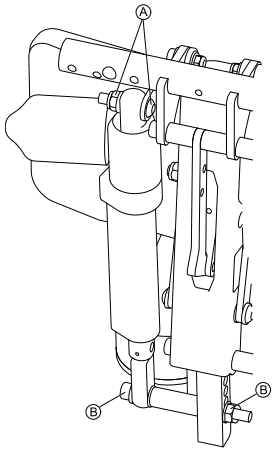
Tools:
- 6 mm Allen key
- 8 mm Allen key
- 16 mm wrench



1. Switch off power wheelchair.
2. Unplug actuator from actuator module.
3. Remove screws and nuts at top Ⓐ and bottom Ⓑ of actuator.
4. Replace actuator with new one.
5. Re-insert screws and nuts and tighten.

Replacing footboard actuator

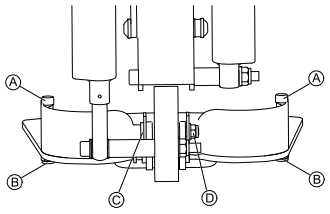
Tools:
- 8 mm Allen key
- 16 mm wrench



1. Switch off power wheelchair.
2. Unplug actuator from actuator module.
3. Remove screws and nuts at top Ⓐ and bottom Ⓑ of actuator.
4. Replace actuator with new one.
5. Re-insert screws and nuts and tighten.

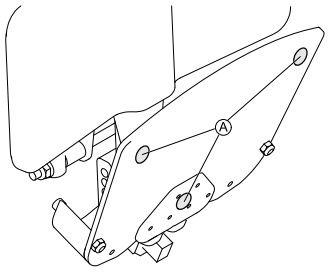
Replacing heel strap

Tools:
- 6 mm Allen key
- 8 mm Allen key
- 13 mm wrench
- 16 mm wrench



1. Loosen and remove screws Ⓐ and nuts Ⓑ.
2. Loosen and remove screw and washer Ⓒ and nut and washers Ⓓ.
3. Remove heel strap and replace by new one.
4. Re-insert and tighten screws and nuts.

Replacing felt pads



1. Replace worn felt pads Ⓐ on bottom of footboard to avoid damage to the floor.

Replacing footboard

- 8 mm Allen key

1.

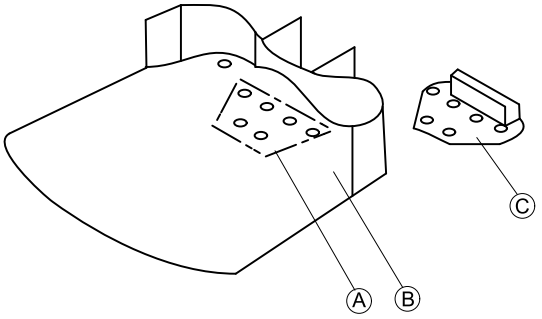


Fig. 10-11

Loosen screws Ⓐ on footboard Ⓑ.

2. Remove footboard Ⓑ from pivot interface Ⓒ.
3. Insert and tighten screws Ⓐ.

10.3.3 Replacing Independent Mounting Foot Plate Hardware and/or Foot Plates

LNX Footplates

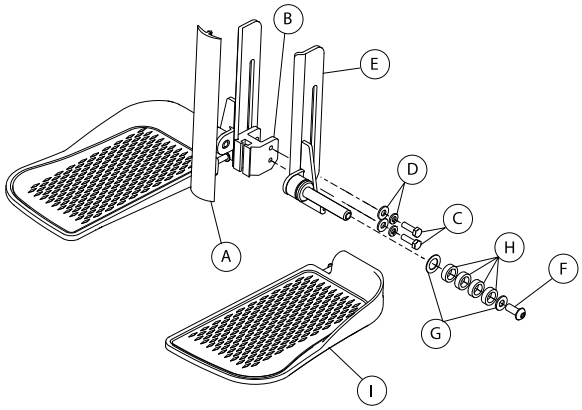


Fig. 10-12

Spacers Ⓗ can be mounted on either side of the footplate. All spacers must be used.

The foot plate cover Ⓐ will appear slightly different when calf pads are used.

For tightening torques on hardware, refer to *Tightening Torques* unless otherwise specified.

1. Remove the foot plate cover Ⓐ out of the lower spacer Ⓑ.
2. Remove the mounting screws Ⓒ, and washers Ⓓ that secures the center mount weldment Ⓔ to the lower spacer.
3. Remove the mounting screw Ⓕ, washers Ⓖ and spacers Ⓗ that secures the foot plate Ⓘ to the center mount weldment.
4. Replace foot plate.
5. Secure new foot plate to center mount weldment with mounting screw, washers and spacers. Torque to 35 in-lb. Adjust tightness so that foot plate does not fall on its own.
6. Secure the center mount weldment to the lower spacer with mounting screws and washers.
7. Repeat steps 2–6 for remaining foot plate, if necessary.
8. If applicable, slide the foot plate cover onto the lower spacer

LNX Compact Footplates

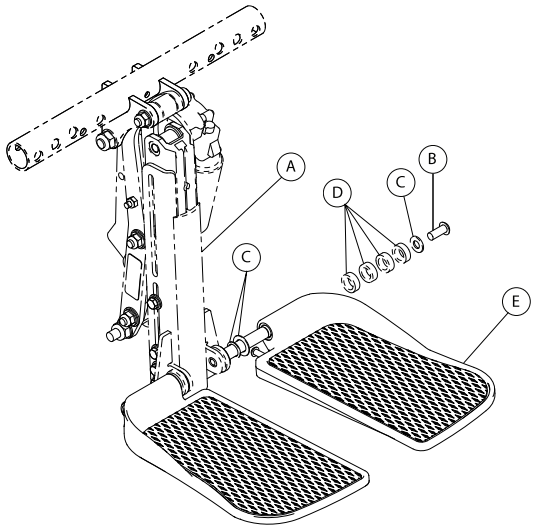


Fig. 10-13

Spacers Ⓓ can be mounted on either side of the footplate. All spacers must be used.

The foot plate cover Ⓐ will appear slightly different when calf pads are used.

1. Remove the foot plate cover Ⓐ.
2. Remove the mounting screw Ⓑ, washers Ⓒ and spacers Ⓓ that secures the foot plate Ⓔ to the center mount weldment.
3. Replace foot plate.
4. Secure new foot plate to center mount weldment with mounting screw, washers and spacers. Torque to 35 in-lb. Adjust tightness so that foot plate does not fall on its own.

10.3.4 Replacing Foot Platform Assembly

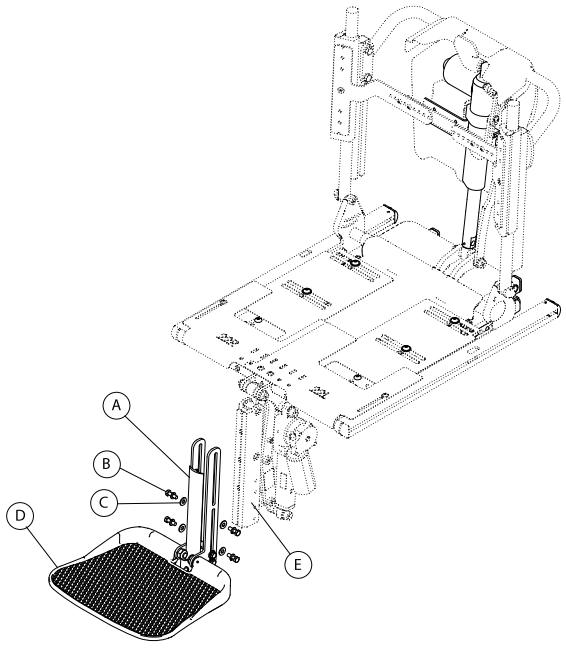


Fig. 10-14

Illustration reflects the center mount support for the LNX power footrest only. The foot platform assembly replaces in the same manner for the fixed center mount.

The front cover will look slightly different when calf pad assemblies are used.

For tightening torques on hardware, refer to *Tightening Torques*.

1. Remove the cover Ⓐ.
2. Remove the mounting screws Ⓑ and washers Ⓒ that secure the foot platform assembly Ⓓ to the center mount support Ⓔ.
3. Remove the foot platform assembly and discard.
4. Secure new platform assembly to center mount support with mounting screws and washers.
5. Install cover.

10.3.5 Replacing Individual Calf Pad, Calf Pad Assembly or Cover

For tightening torques on hardware, refer to *Tightening Torques*.

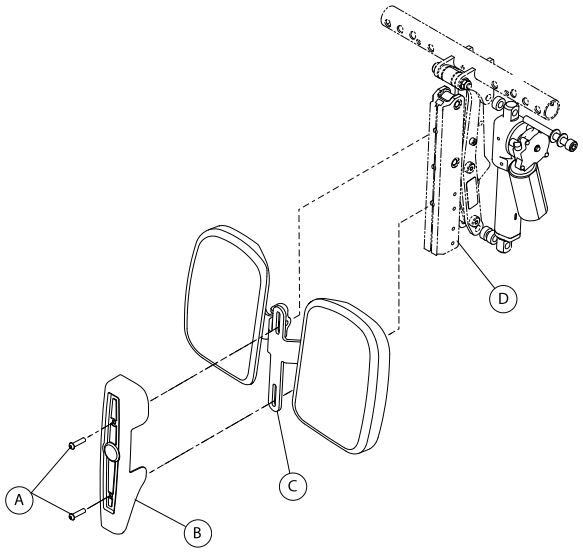


Fig. 10-15

1. Remove the two mounting screws Ⓐ that secures the cover Ⓑ and calf pad assembly Ⓒ to the center mount support Ⓓ.
2. Replace the cover and/or the calf pad assembly.
3. If calf pad(s) needs to be replaced, perform the following:

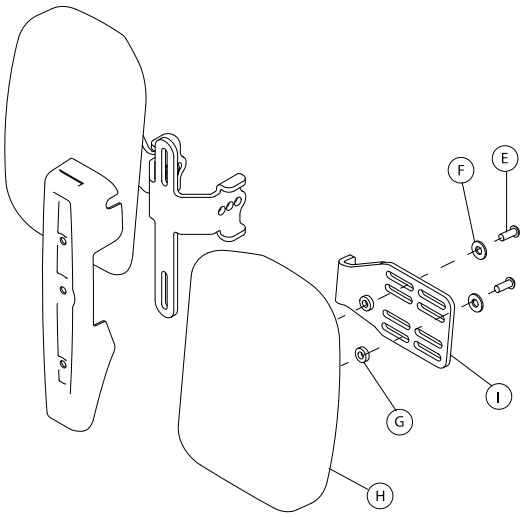


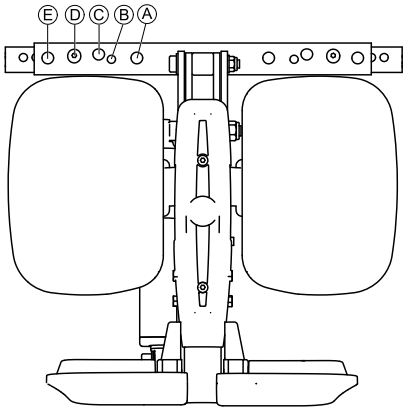
Fig. 10-16

Calf pad assembly components are exploded for clarity only.

   a. Remove the two mounting screws Ⓔ, washers Ⓕ and spacers Ⓖ that secure the calf pad Ⓗ to the calf pad plate Ⓘ.
   b. Replace calf pad
   c. Secure the new calf pad to the calf pad plate with two mounting screws, washers and spacers.
4. Secure the cover and calf pad assembly to the center mount support.

10.3.6 Adjusting Basic Angle of LNX Legrest

You can adjust the basic angle of the LNX legrest to a pre-defined value that fits your seating position best while allowing free movement of the castors.



Ⓐ	9.9°	Ⓓ	2.9°
Ⓑ	14.9°	Ⓔ	9.9°
Ⓒ	-4.1°		

- 3 mm Allen key
- 5 mm Allen key
- 10 mm wrench

1.

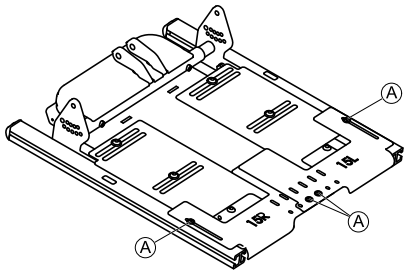


Fig. 10-17

Loosen and remove screws of front seat plates Ⓐ.

2. Remove front seat plates.
3.

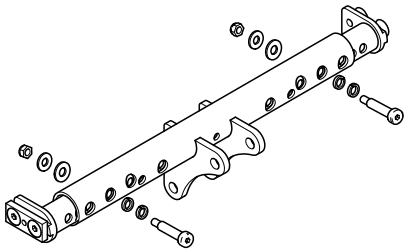


Fig. 10-18

Remove screws, washers and nuts on both sides.

4. Adjust angle of LNX legrest to desired value.
5. Insert screws, washers and nuts and tighten.
6. Install front seat plates.

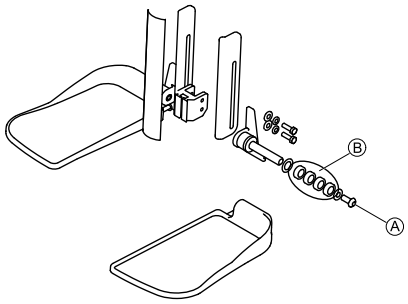
10.3.7 Adjusting footplate width of center-mounted legrest

The footplate width is adjusted via spacers:

- Set spacers on the inside to increase width.
- Set spacers on the outside to decrease width.

Each spacer increases or decreases the width by 1/4" (6.35 mm).

Tools:
- 6 mm Allen key



1. Remove screw Ⓐ.
2. Remove spacers Ⓑ and footplate.
3. Set spacers on the inside as needed.
4. Add footplate.
5. Set spacers on the outside as needed.
6. Retighten screw.

10.3.8 Setting Angle of Footboard

- 5/32 inch Allen key

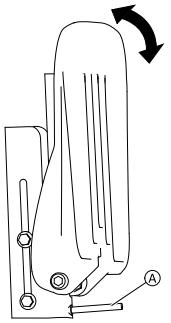


Fig. 10-19

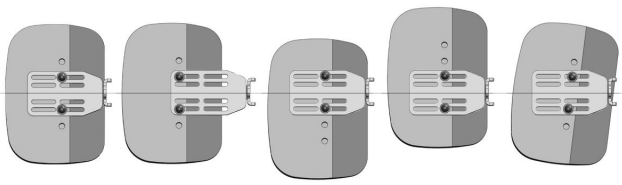
1. Fold the foot platform up in order to access the adjusting screw Ⓐ.
2. Set the adjusting screw using the Allen key.
3. Fold the foot platform down again.

10.3.9 Setting Height and Width of Calf Pad

Risk of damage to the mobility device
– After changing the configuration of the calf pads make sure that the calf pads contact neither the casters nor the seat plate when adjusting the legrest angle.

Calf pads may be adjusted independently on their respective mounting bracket using the mounting screws at the rear of the calf pads. Calf pads may be adjusted (for depth, height & angle) to achieve a variety of different configurations. The independent pad adjustments provide optimal positioning and comfort for end users - sample configurations are illustrated below.

Calf Pad Adjustment — Sample Configurations



Centered	Extended Position (maxi-mum)	Lowered Offset	Raised Offset	Angled

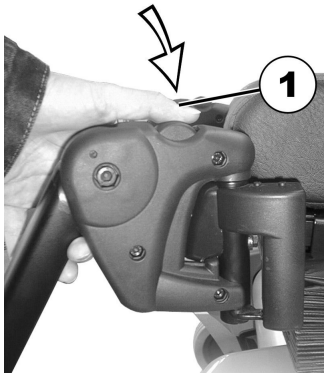
- 4 mm Allen key

1. Fold the calf pad forward in order to access the bolts.
2. Loosen the bolts and remove them if necessary.
3. Adjust the calf pad to the required height and width.
4. Retighten the bolts.
5. Fold the calf pad back.

10.4 Vari-F footrest

10.4.1 Swivelling the footrest/legrest outward and/or removing

The small unlocking button is located on the upper section of the footrest/legrest. When the footrest/legrest is unlocked, it can be swivelled inward or outward when getting into the wheelchair as well as being removed completely.

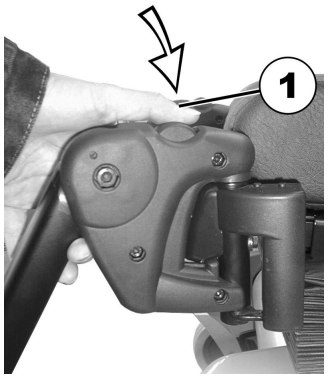


1. Press the unlocking button (1) and swivel the footrest/legrest outward.
2. Remove the footrest/legrest in an upward direction.

10.5 Vari-A legrests

10.5.1 Swivelling the footrest/legrest outward and/or removing

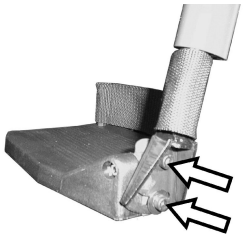
The small unlocking button is located on the upper section of the footrest/legrest. When the footrest/legrest is unlocked, it can be swivelled inward or outward when getting into the wheelchair as well as being removed completely.



1. Press the unlocking button (1) and swivel the footrest/legrest outward.
2. Remove the footrest/legrest in an upward direction.

10.5.2 Adjusting the angle–adjustable foot plate

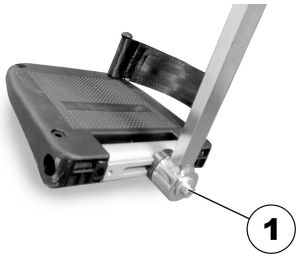
- 5 mm Allen key



1. Use the Allen key to loosen both set screws on the foot plate.
2. Adjust to the desired angle.
3. Re-tighten the screws.

10.5.3 Adjusting the angle– and depth–adjustable foot plate

- 5 mm Allen key

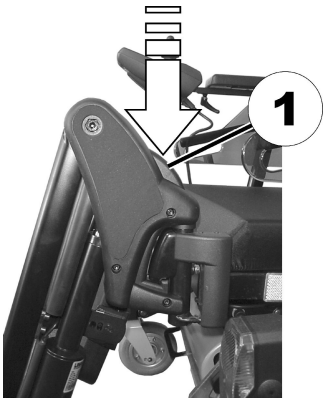


1. Use the Allen key to loosen the set screw on the foot plate (1).
2. Adjust the foot plate to the desired angle or depth.
3. Re-tighten the screw.

10.6 ADM legrests

10.6.1 Swivelling the legrest outward and/or removing

The small unlocking button is located on the upper section of the legrest. When the legrest is unlocked, it can be swivelled inward or outward when getting into wheelchair as well as being removed completely.

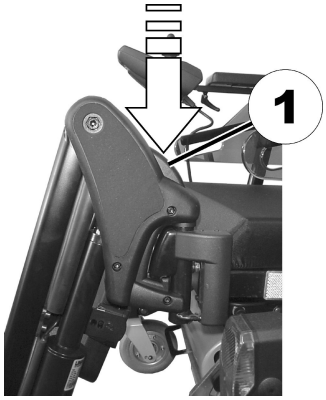


1. Press the unlocking button (1) and swivel the legrest outward.
2. Remove the legrest in an upward direction.

10.7 Powered elevating legrests (ADE legrests)

10.7.1 Swivelling the legrest outward and/or removing

The small unlocking button is located on the upper section of the legrest. When the legrest is unlocked, it can be swivelled inward or outward when getting into wheelchair as well as being removed completely.



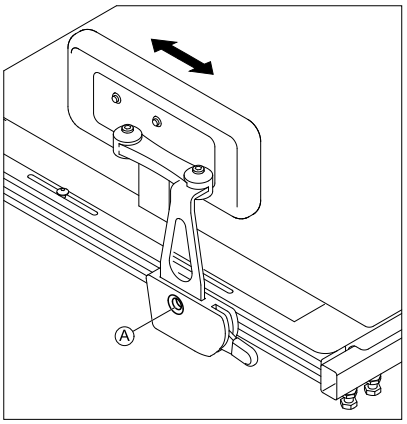
1. Press the unlocking button (1) and swivel the legrest outward.
2. Remove the legrest in an upward direction.

11 Positioning Options

11.1 Hip support with quick release

Adjusting position of hip support

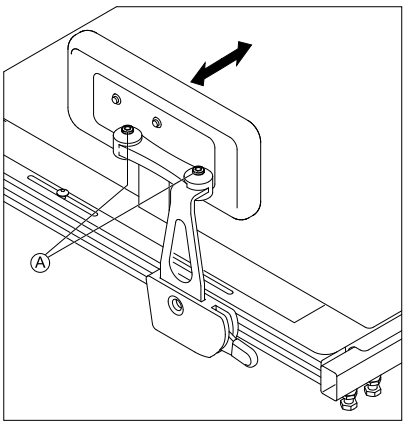
- 5 mm Allen key



1. Loosen screw Ⓐ.
   Do not remove it.
2. Adjust hip support to desired position.
3. Tighten screw.

Adjusting width of hip support

- 2 x 5 mm Allen key



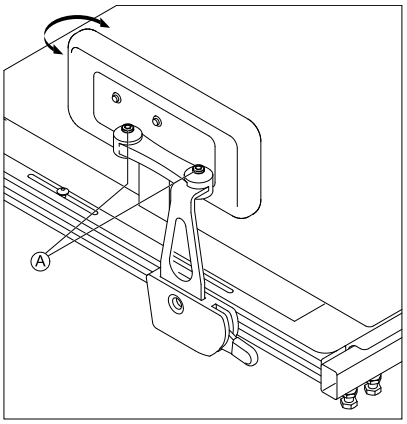
1. Loosen screws Ⓐ.
2. Adjust hip support to desired width.

   You can adjust the width only smaller than the seat width but not wider.

3. Tighten screws.

Adjusting angle of hip support

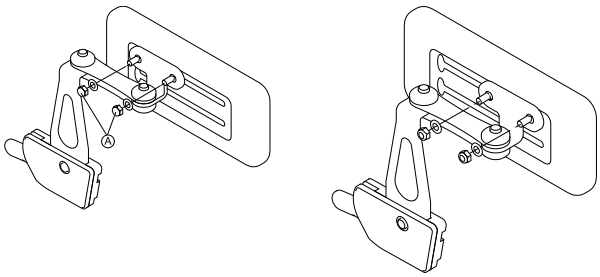
- 5 mm Allen key



1. Loosen screws Ⓐ.
2. Adjust hip support to desired angle.
3. Tighten screws.

Adjusting hip pad depth

- 10 mm wrench



1. Loosen the two screws Ⓐ.
2. Adjust hip pad to desired depth.
3. Tighten screws.

Adjusting hip pad height

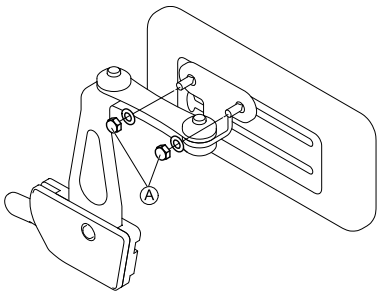
You can adjust the hip pad height in two ways:

- Via its mounting slots.
- Via its bracket.

Via mounting slots

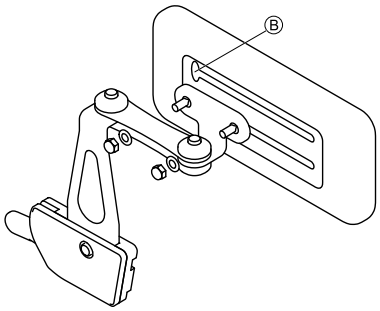
- 10 mm wrench

1.



Loosen the two screws Ⓐ.

2.



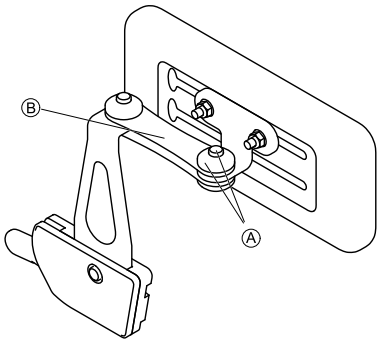
Remove hip pad bracket from mounting slot via cut-out Ⓑ.

3. Insert hip pad bracket in other mounting slot.
4. Tighten screws.

Via bracket

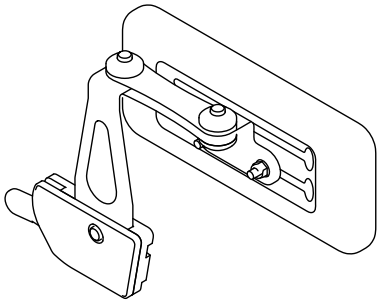
- 5 mm Allen key

1.



Remove upper screw and friction cap Ⓐ.

2. Remove small friction link Ⓑ.
3.



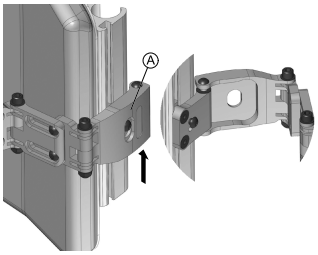
Remove hip pad with bracket, turn upside down and reinstall.

4. Insert friction link, friction cap, screw and tighten.

11.2 Lateral Trunk Support Adjustments

- 4 mm Allen key
- 10 mm wrench

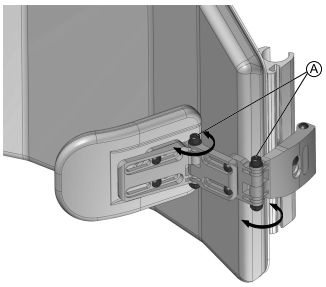
Swing-away feature



1. Lift bracket Ⓐ up to release.
2. Swing lateral rearward.

Angle adjustment

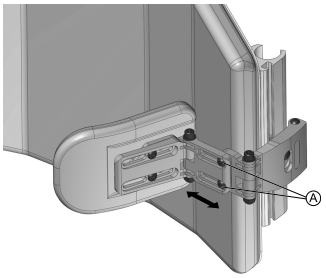
The angle can be adjusted infinitely.



1. Loosen nuts/screws (x2) Ⓐ to adjust pad angle.

Width adjustment

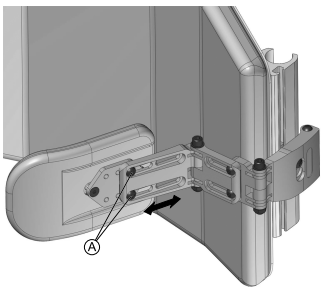
When adjusting both laterals, the width can be adjusted to total of 89 mm (3.5”).



1. Loosen screws (x2) Ⓐ to adjust bracket width.

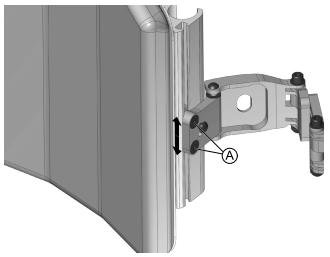
Pad depth adjustment

The pad depth can be adjusted in a range of 63.5 mm (2.5”) in total.



1. Loosen screws (x2) Ⓐ to adjust pad depth.

Height adjustment



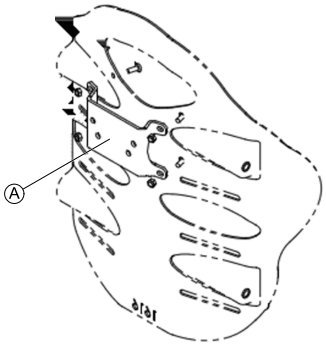
1. Loosen screws (x2) Ⓐ to adjust lateral height (or remove).

11.3 Headrests

11.3.1 Installing headrest adapter for Elite and High Backs

When installing a headrest on a High Back or Elite Back, you need to use an adapter.

- Phillips screwdriver
- 8 mm wrench



1. Using the hardware provided, align and install the headrest adapter Ⓐ into the existing mounting holes in the back pan.

Installing Headrest Adapter for Elite 2 Back (Recline)

- 4 mm Allen key
- 10 mm wrench

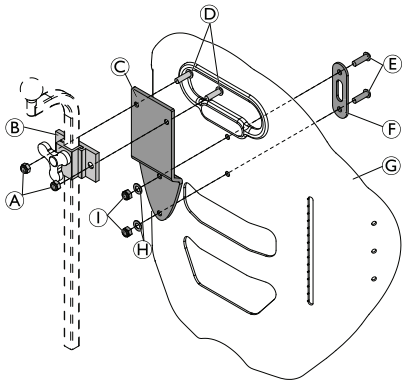


Fig. 11-1

1. Install headrest clamp Ⓑ to headrest adapter Ⓒ with screws Ⓓ and nuts Ⓐ.
2. Install headrest adapter Ⓒ to backrest plate Ⓖ with screws Ⓔ, headrest washer plate Ⓕ, washers Ⓗ and nuts Ⓘ.

Installing Headrest Adapter for Elite 2 Back (Tilt)

- 5 mm Allen key
- 10 mm wrench

1.

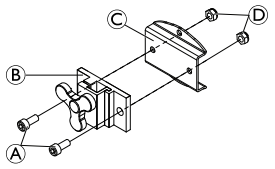


Fig. 11-2

Install headrest clamp Ⓑ to headrest adapter Ⓒ with screws Ⓐ and nuts Ⓓ.

2.

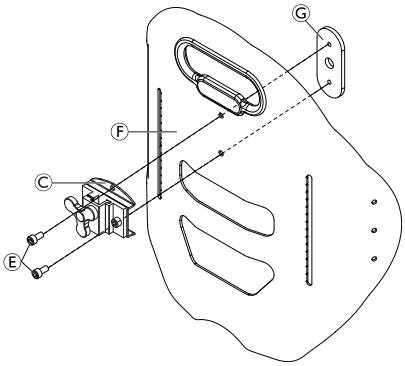
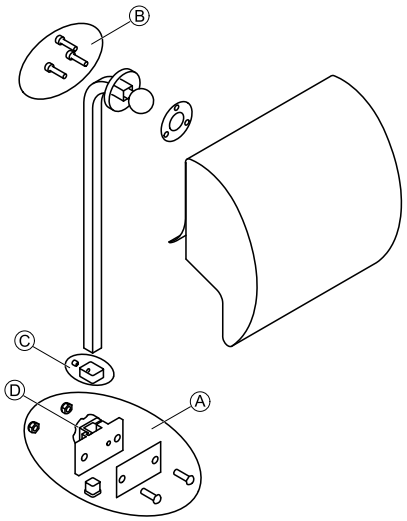


Fig. 11-3

Install headrest adapter Ⓒ to backrest plate Ⓕ with screws Ⓔ and headrest nut plate Ⓖ.

11.3.2 Auto–style headrest set-up and installation

- 2.5 mm Allen key
- 4 mm Allen key
- 5 mm Allen key
- 10 mm wrench



1. Using the hardware provided, align and install the headrest clamp assembly into the existing mounting holes in the back pan Ⓐ.
2. Secure the headrest pad to the headrest rod via the mounting hardware provided Ⓑ.

The headrest pad can be adjusted to any desired angle via the pivot ball at the end of the headrest rod by loosening and tightening the mounting hardware.

3. Adjust the overall height of the headrest pad/mounting post via the knob Ⓓ.
   For proper set-up the headrest should be adjusted to the user's ear height.
4. Once the final height position is set, adjust the D-Ring (with set-screw) so that it rests flush with the top of the clamp assembly (to prevent slipping) Ⓒ.

11.3.3 Adjusting Elan Headrest Hardware

Elan headrest hardware is highly adjustable. The illustration below shows the possible adjustment ranges of the joints.

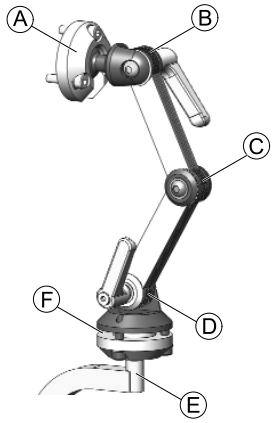


Fig. 11-4

Ⓐ	Upper multi-angle rotational pivot	• 360° rotation • 80° tilt
Ⓑ	Upper linkage	• 180° rotation
Ⓒ	Middle linkage	• 100° rotation
Ⓓ	Lower linkage	• 180° rotation
Ⓔ	Mounting post	• 360° rotation in 90° increments
Ⓕ	Lower multi-angle rotational pivot	• 360° rotation • 50° tilt

Installing

- 2.5 mm Allen key
- 4 mm Allen key
- 5 mm Allen key

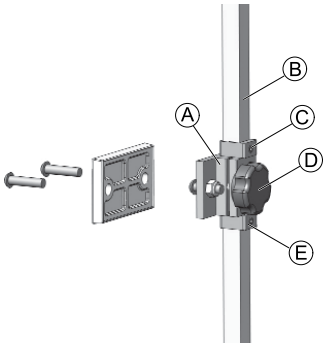


Fig. 11-5

1. Using hardware provided, align and install headrest clamp assembly into existing mounting holes in backrest pan Ⓐ.
2. Install headrest pad (not shown) to headrest rod using mounting hardware provided.

   The headrest pad can be adjusted to any desired angle via the pivot ball at the end of the headrest rod by loosening and tightening the mounting hardware.
3. Loosen and remove lower D-Ring Ⓔ from hardware.
4. Slide vertical mounting post Ⓑ into clamp assembly and adjust overall height of headrest pad to desired position. Tighten knob Ⓓ.
   For proper set-up headrest should be adjusted to user's ear height.
5. Adjust upper D-Ring Ⓒ as required.
6. Once final height position is set, adjust lower D-Ring Ⓔ so that it rests flush with bottom of clamp assembly (to prevent slipping).

Adjusting Depth and Angle

The headrest can be further adjusted for depth and angle via the articulating hardware.

- 4 mm Allen key
- 5 mm Allen key

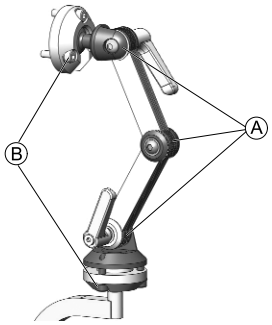


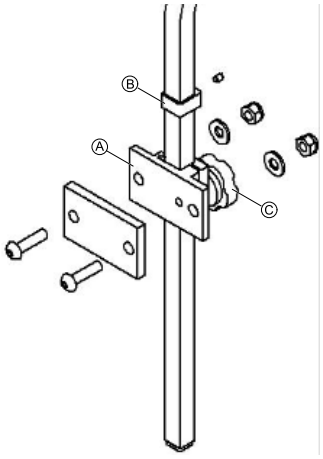
Fig. 11-6

1. Loosen screws and clamping levers of dual link adjustment assembly Ⓐ and screws of upper and lower rotational pivots Ⓑ.
2. Adjust component to desired position.
3. Tighten screws and clamping levers.

11.3.4 Adjusting multi-axis headrest hardware

Installing

- 2.5 mm Allen key
- 4 mm Allen key
- 10 mm wrench



1. Using hardware provided, align and install headrest clamp assembly into existing mounting holes in backrest pan Ⓐ.
2. Install headrest pad (not shown) to headrest rod using mounting hardware provided.

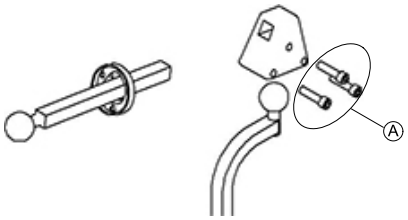
   The headrest pad can be adjusted to any desired angle via the pivot ball at the end of the headrest rod by loosening and tightening the mounting hardware.

3. Adjust overall height of headrest pad to desired position. Tighten knob Ⓒ.
   For proper set-up headrest should be adjusted to user's ear height.
4. Once final height position is set, adjust D-Ring Ⓑ so that it rests flush with top of clamp assembly (to prevent slipping).

Adjusting depth and angle

The headrest and horizontal rod can be further adjusted for depth and angle via the triangular multi-offset bracket.

- 5/32” Allen key



1. Loosen hardware in multi-offset bracket Ⓐ.
2. Adjust headrest to desired position.
3. Re-tighten hardware.

12 Primary Remotes

12.1 Installing Standard Remote Holder for LiNX Remotes

The standard remote holder for LiNX remotes can be installed on round and square armrest tubes.

Round Armrest Tube

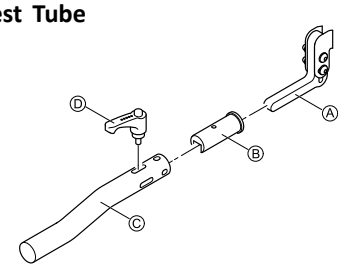


Fig. 12-1

1. Insert standard remote holder Ⓐ into adapter Ⓑ.
2. Insert adapter into armrest tube Ⓒ.
3. Insert and tighten clamping lever Ⓓ.

Square Armrest Tube

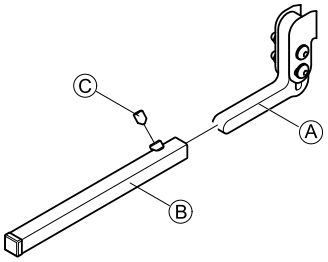


Fig. 12-2

1. Insert standard remote holder Ⓐ into armrest tube Ⓑ.
2. Insert and tighten screw Ⓒ.

12.2 Installing Swing-Away Remote Holder for LiNX Remotes

1.

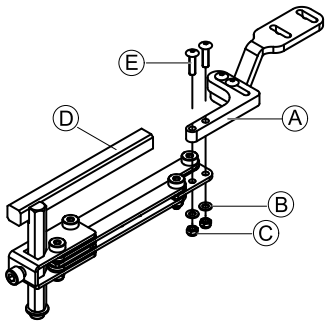


Fig. 12-3

Insert screws Ⓔ, washers Ⓑ and nuts Ⓒ into adapter Ⓐ and swing–away remote holder Ⓓ and tighten.

2.

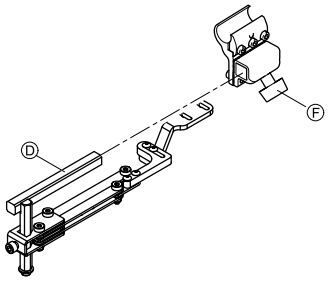


Fig. 12-4

Insert swing–away remote holder Ⓓ into armrest bracket and tighten screw Ⓕ.

12.3 Quad Link

12.3.1 Installing Remote onto Quad Link (until February 2017)

By default, the remote is mounted centered regardless of which side of the wheelchair the remote is mounted on. The position of the remote Ⓐ on the adjustable remote tray Ⓑ can nevertheless be adapted as shown below:

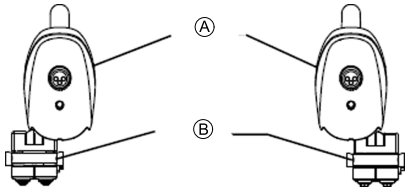


Fig. 12-5

Right Mount Front View (For Right Hand Use)	Left Mount Front View (For Left Hand Use)

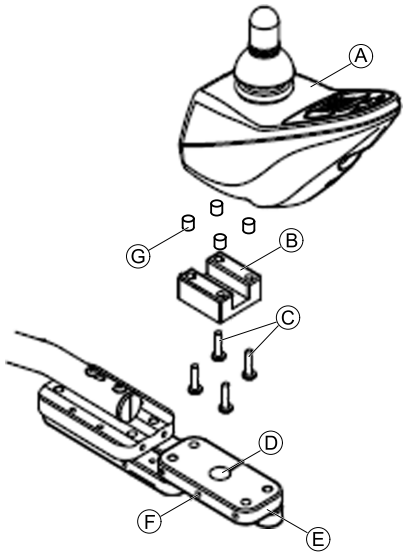


Fig. 12-6

1. If necessary, remove the adjustable remote tray from the Quad Link by performing the following steps:
   a. Loosen the two cap screws Ⓕ securing the adjustable remote tray Ⓑ to the Quad Link Ⓔ.
   b. Remove the adjustable remote tray from the Quad Link.
2. Secure the remote to the adjustable remote tray using the four screws Ⓒ and four spacers Ⓖ. Torque the screws to 3.6 Nm.
3. Insert the adjustable remote tray into large hole Ⓓ in the Quad Link.
4. Adjust the adjustable remote tray to the desired position. Refer to Adjusting the remote position in the user manual.
5. Secure the remote cable. Refer to *12.3.3 Securing the remote cable, page 78*.

12.3.2 Reversing Mounting Position of Remote (until February 2017)

Perform this procedure to reverse the Quad Link from the right side to the left or vice-versa.

ⓘ Take note of position and orientation of mounting hardware for reinstalling the remote assembly (remote mount, Quad Link and remote).

Repositioning Remote Mount

This procedure applies to both fixed and adjustable height remote mounts.

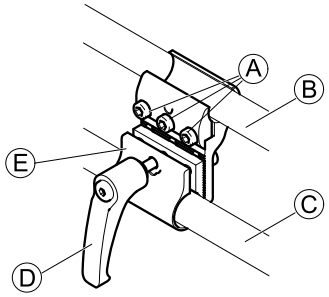


Fig. 12-7

1. Turn adjustment lock lever Ⓓ to remove remote mounting tube Ⓒ from remote mount Ⓔ.
2. Loosen three upper screws Ⓐ securing remote mount to arm tube Ⓑ.
3. Remove remote mount.
4. Install remote mount onto opposite arm tube.
5. Tighten three upper screws to secure remote mount to arm tube.
6. Install remote mounting tube into remote mount.
7. Turn adjustment lock lever to secure remote mounting tube at desired position.

Repositioning Quad Link

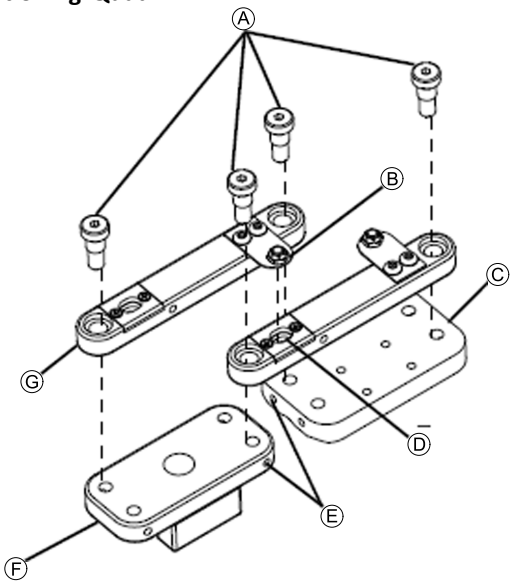


Fig. 12-8

1. Remove four screws Ⓔ securing four shoulder screws Ⓐ to Quad Link.

   ⓘ Each corner mounting hole in the front Ⓕ or rear Ⓒ portion of the Quad Link has a corresponding screw mounting hole. The screw mounting hole will be along the edge of the Quad Link near the corners.

2. Remove four shoulder screws securing linkage bars Ⓖ to front and rear portions of Quad Link.

   ⓘ The linkage bars will disconnect from each other and the Quad Link.

3.

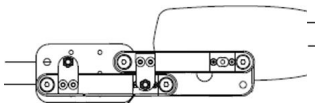


Fig. 12-9 Left Mount

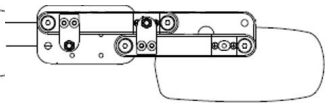


Fig. 12-10 Right Mount

   Rearrange linkage bars to desired position shown above.

   ⓘ The linkage bars will align to a different set of mounting holes than the ones previously used. Ensure the tab is aligned with a tab mounting hole (see upper graphic).

4. Secure linkage bars to front and rear portions of Quad Link using four shoulder screws.
5. Secure four shoulder screws to Quad Link using four screws.

   ⓘ Each corner mounting hole in the front or rear portion of the Quad Link has a corresponding screw mounting hole. The screw mounting hole will be along the edge of the Quad Link near the corners.

Repositioning Remote

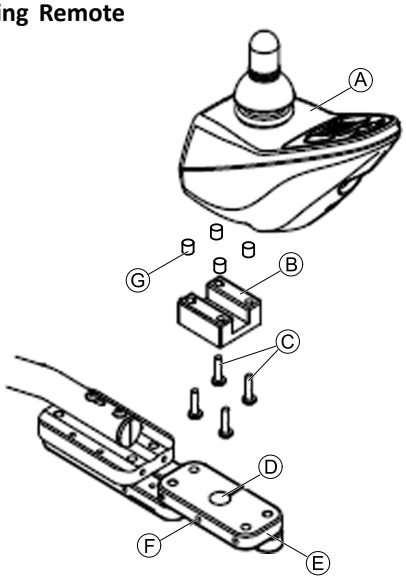
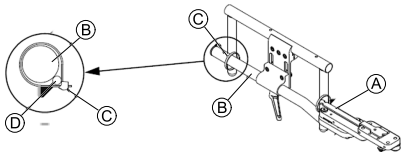


Fig. 12-11

1. Loosen two cap screws Ⓕ securing adjustable remote tray Ⓑ to Quad Link Ⓔ.
2. Remove remote Ⓐ with adjustable remote tray attached.
3. Remove two screws Ⓒ securing remote to adjustable remote tray.
4. Install remote on opposite side of adjustable remote tray. Refer to *12.3.1 Installing Remote onto Quad Link (until February 2017), page 76*.

12.3.3 Securing the remote cable

To ensure proper use and operation of the quad link, the remote cable must be properly secured.



1. If present, secure the remote cable Ⓓ to the cable bracket Ⓐ.
2. Position the remote cable along the remote mounting tube .
3. Using a tie-wrap Ⓒ, secure the remote cable to the rear of the remote mounting tube so that the remote cable is positioned along the inside of the tube, facing the inside of the wheelchair.

12.3.4 Installing LiNX Remote onto Quad Link

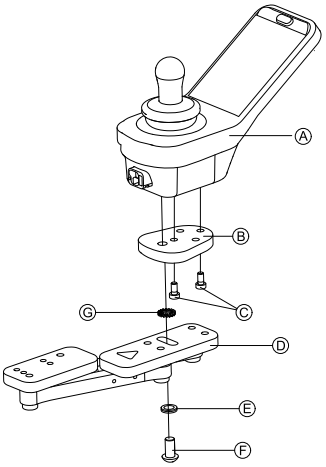


Fig. 12-12

1. Install remote Ⓐ on adapter Ⓑ with screws Ⓒ.
2. Install remote and adapter onto Quad Link Ⓓ with lock washer Ⓖ and Nord-Lock washer Ⓔ.
3. Adjust adapter to desired position.
4. Tighten screw Ⓕ.
5. Secure the remote cable. Refer to *12.3.3 Securing the remote cable, page 78*.

12.3.5 Reversing Mounting Position of Remote (as of February 2017)

Perform this procedure to reverse the Quad Link from the right side to the left or vice-versa.

ⓘ Take note of position and orientation of mounting hardware for reinstalling the remote assembly (remote mount, Quad Link and remote).

Repositioning Remote Mount

This procedure applies to both fixed and adjustable height remote mounts.

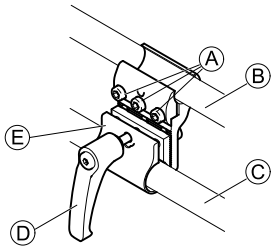


Fig. 12-13

1. Turn adjustment lock lever Ⓓ to remove remote mounting tube Ⓒ from remote mount Ⓔ.
2. Loosen three upper screws Ⓐ securing remote mount to arm tube Ⓑ.
3. Remove remote mount.
4. Install remote mount onto opposite arm tube.
5. Tighten three upper screws to secure remote mount to arm tube.
6. Install remote mounting tube into remote mount.
7. Turn adjustment lock lever to secure remote mounting tube at desired position.

Repositioning Quad Link

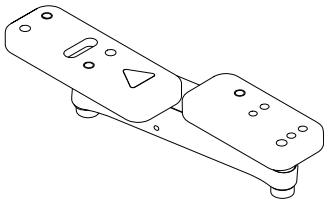


Fig. 12-14 Left Mount

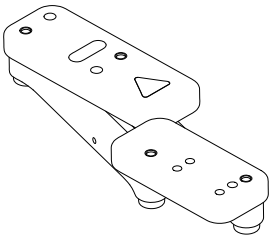


Fig. 12-15 Right Mount

In the following instructions, the right mount version of Quad Link is shown as an example. Steps are the same for the left mount.

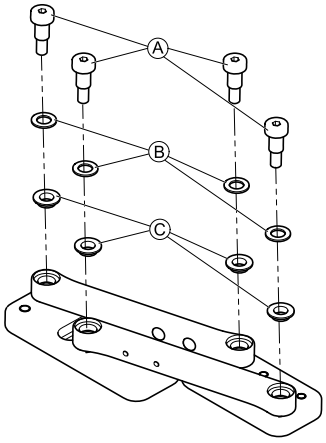
1. Place Quad Link facedown.
2. 

Fig. 12-16

Remove four screws Ⓐ, washers Ⓑ and bushings Ⓒ.

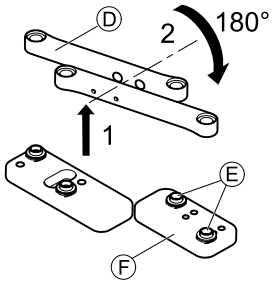
3. 

Fig. 12-17

Remove linkage bars Ⓓ and turn them 180° around the lateral axis.

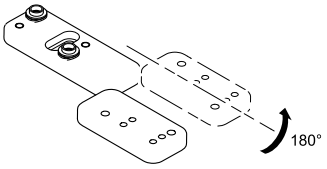
4. Remove bushings and washers Ⓔ from rear baseplate Ⓕ.
5. 

Fig. 12-18

Turn rear baseplate 180° around the longitudinal axis.

6. Place washers and bushings on rear baseplate.
7. Insert linkage bars.
8. Place bushings and washers on linkage bars.
9. Insert screws and tighten.

12.4 Nucleus Midline Holder

12.4.1 Installing Nucleus Midline Holder

CAUTION!
Risk of Injury and Damage
Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.
– Deburr cut after cutting excessive length.
– Re-install end cap after deburring.
– Check end cap for tight fitting.

- 3 mm Allen key

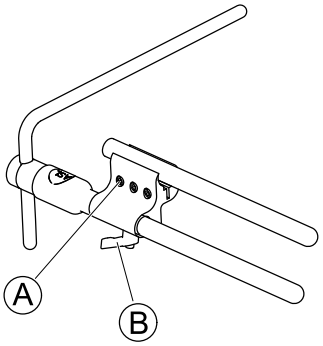


Fig. 12-19

1. Install adapter to armrest tube. Tighten screws Ⓐ.
2. Insert Nucleus into adapter and tighten clamping lever Ⓑ.

13 Secondary Inputs — User

13.1 Replacing Lipswitch

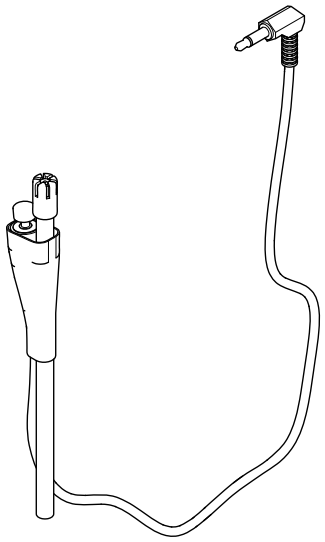


Fig. 13-1

1. Unplug lipswitch cable from primary remote.
2. Remove cable ties.
3. Remove mouthpiece and lipswitch from gooseneck.
4. Remove lipswitch assembly.
5. Install new lipswitch assembly.
6. Replace cable ties. Tighten cable ties only slightly.
7. Check routing of lipswitch cable and breath tube. Ensure they are not colliding with moving parts of the wheelchair.
8. Plug lipswitch cable into primary remote.

14 Secondary Inputs — Attendant

14.1 Installing Bracket for Attendant Remote Holder

Used for:

- Attendant Remote
- DLX-ACU200 on powered backrests

- 5 mm Allen key
- 10 mm wrench

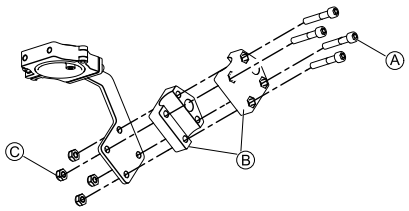


Fig. 14-1

1. Install bracket and gripper clamp Ⓑ to push bar using screws Ⓐ and nuts Ⓒ.
   Tighten screws with 10 Nm.

14.2 Installing Clamp for DLX-ACU200 Remote Holder on Manual Backrest

- 5 mm Allen key
- 10 mm wrench

1.

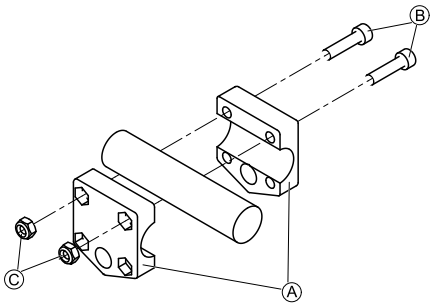


Fig. 14-2

Install gripper clamp Ⓐ to pushbar using screws Ⓑ and nuts Ⓒ.
Tighten screws with 10 Nm.

2.

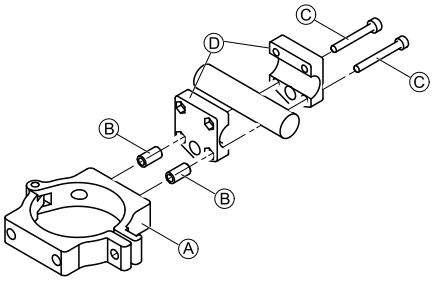


Fig. 14-3

Insert screws Ⓒ through gripper clamp Ⓓ and spacers Ⓑ in clamp Ⓐ.
Tighten screws with 10 Nm.

15 Auxiliary Modules

15.1 Replacing Input Module DLX-IN500

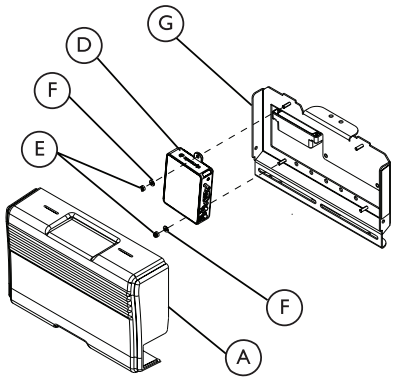


Fig. 15-1 Input Module Replacement—Manual Backrest

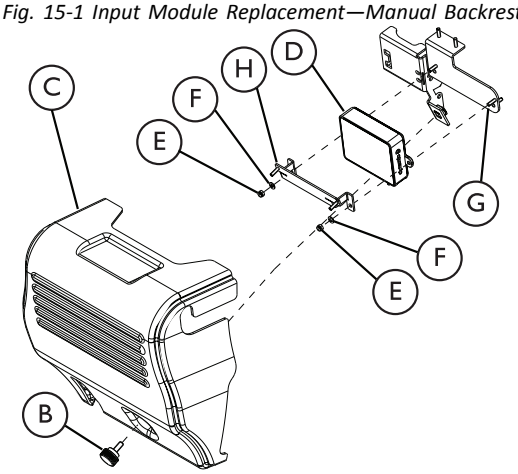


Fig. 15-2 Input Module Replacement—Powered Backrest

1. Remove backrest shroud:
   - Manual backrest: Pull to remove backrest shroud Ⓐ.
   - Powered backrest: Remove screw/hand screw Ⓑ and backrest shroud Ⓒ.
2. Note location of cable connections to existing module Ⓓ. If necessary, mark cables and take a digital photo.
3. Disconnect cables from existing module.
4. Remove two nuts Ⓔ and washers Ⓕ securing existing module to electronics mounting bracket Ⓖ.

   Powered Backrests Only: The function key (not shown) and bracket Ⓗ are also secured with this hardware.

5. Remove existing module from electronics mounting bracket.
6. Position new module onto mounting screws on electronics mounting bracket.

   Module should be oriented with connectors facing down as shown in figure. To avoid liquid ingress, cables MUST not be oriented towards top of backrest.

7. Secure module by performing the following:
   - Manual backrest: Secure module to electronics mounting bracket with two nuts and washers.
   - Powered backrest: Secure function key, bracket and module to electronics mounting bracket with two nuts and washers.
8. Connect new module to system by performing the following:
   - Replacement module: Connect cables removed in STEP 3 to module.
   - New module: Connect module to actuator module and ACU (if present).
9. If adding accessories to the wheelchair, connect the accessories to the new input module.
10. Properly route and secure cables.
11. Install backrest shroud:
    - Manual backrest: Position backrest shroud onto hook and loop strips on electronics bracket.
    - Powered backrest: Install screw/hand screw to secure backrest shroud.
12. Update system. See *Upgrading Firmware* chapters for iOS tool or PC tool in LiNX service manual.

15.2 Replacing Output Module DLX-OUT500

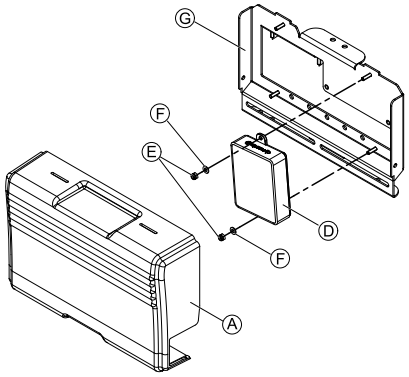


Fig. 15-3 Output Module Replacement—Manual Backrest

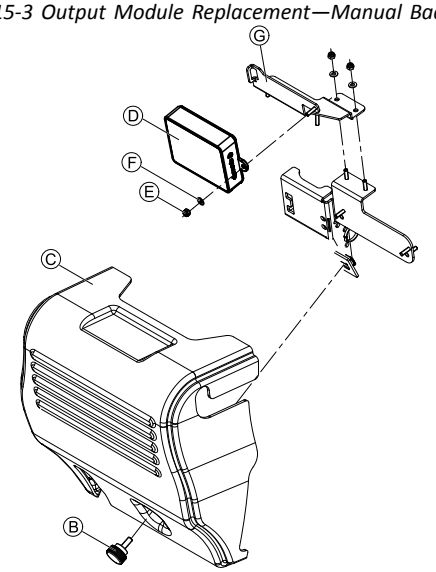


Fig. 15-4 Output Module Replacement—Powered Backrest

1. Remove backrest shroud:
   - Manual backrest: Pull to remove backrest shroud Ⓐ.
   - Powered backrest: Remove screw/hand screw Ⓑ and backrest shroud Ⓒ.
2. Note location of cable connections to existing module Ⓓ. If necessary, mark cables and take a digital photo.
3. Disconnect cables from existing module.

4. Remove nuts and washers:
   - Manual backrest: Remove two nuts Ⓔ and washers Ⓕ securing existing module to electronics mounting bracket Ⓖ.
   - Powered backrest: Remove nut and washer securing existing module to electronics mounting bracket.
5. Remove existing module from electronics mounting bracket.
6. Position new module onto mounting screws on electronics mounting bracket.

   Module should be oriented with connectors facing down as shown in figure. To avoid liquid ingress, cables MUST not be oriented towards top of backrest.

7. Secure module by performing the following:
   - Manual backrest: Secure module to electronics mounting bracket with two nuts and washers.
   - Powered backrest: Secure module to electronics mounting bracket with nut and washer.
8. Connect new module to system by performing the following:
   - Replacement module: Connect cables removed in STEP 3 to module.
   - New module: Connect module to actuator module and ACU (if present).
9. Properly route and secure cables.
10. Install backrest shroud:
    - Manual backrest: Position backrest shroud onto hook and loop strips on electronics bracket.
    - Powered backrest: Install screw/hand screw to secure backrest shroud.
11. Update system. See *Upgrading Firmware* chapters for iOS tool or PC tool in LiNX service manual.

15.3 Replacing Actuator Module DLX-ACT400

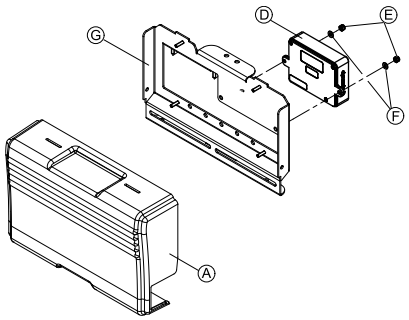


Fig. 15-5 Actuator Module Replacement—Manual Backrest

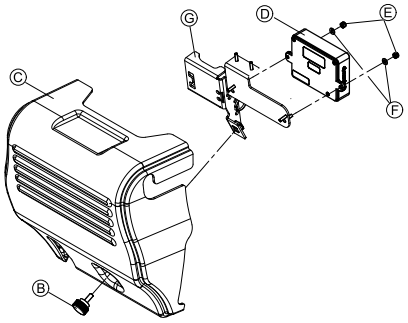


Fig. 15-6 Actuator Module Replacement—Powered Backrest

1. Remove backrest shroud:
   - Manual backrest: Pull to remove backrest shroud Ⓐ.
   - Powered backrest: Remove screw/hand screw Ⓑ and backrest shroud Ⓒ.
2. Note location of cable connections to existing module Ⓓ. If necessary, mark cables and take a digital photo.
3. Disconnect cables from existing module.
4. Remove two nuts Ⓔ and washers Ⓕ securing existing module to electronics mounting bracket Ⓖ.
5. Remove existing module from electronics mounting bracket.
6. Position new module onto mounting screws on electronics mounting bracket.

   Module should be oriented with connectors facing down as shown in figure. To avoid liquid ingress, cables MUST not be oriented towards top of backrest.

7. Secure module to electronics mounting bracket with two nuts and washers.
8. Connect cables removed in STEP 3 to module.
9. Properly route and secure cables.
10. Install backrest shroud:
    - Manual backrest: Position backrest shroud onto hook and loop strips on electronics bracket.
    - Powered backrest: Install screw/hand screw to secure backrest shroud.
11. Update system. See *Upgrading Firmware* chapters for iOS tool or PC tool in LiNX service manual.

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