

# *matrix-pb* elite



**i IMPORTANT!** The installation instructions contained in this manual should only be carried out by a qualified technician.

INSTALLATION / USER MANUAL

## **i IMPORTANT! TRANSPORTING THE CLIENT WITHIN A WHEELCHAIR FITTED WITH A MATRx BACK IN A MOTOR VEHICLE**

The following guidelines should be made available to all parties who are responsible for the transportation of the client, such as schools and transport providers.

Wherever practicable the client should be transferred out of the wheelchair into a vehicle seat and use a lap and diagonal seat belt or an appropriate child safety seat.

The MaTRx back has been dynamically tested and meets the requirements of ISO 16840-4 and Section 20, ANSI/RESNA WC/Volume 4 "Wheelchair Seating Systems for Use in Motor Vehicles". A Surrogate Wheelchair Base (SWCB) and a Hybrid III Midsize-Adult Male Anthropomorphic Test Device were used in a forward facing frontal impact test. The SWCB was secured by a four-point, strap type wheelchair tie-down and the occupant restraint was a vehicle anchored lap and diagonal occupant restraint system.

MaTRx backs should only be used in conjunction with wheelchairs that comply with the performance requirements of ANSI WC19 or ISO 7176-19.

### **Before Entering the Vehicle Check the Following:**

**MaTRx Back** - must be securely fastened into the wheelchair as described in the user manual.

**Posture Belts & Harnesses** - should remain fitted during transportation, although they are designed to provide postural support only, they are not intended for safety during transportation.

**Head Support** - must be securely fitted and correctly adjusted close to the rear of the client's head during transportation, in order to reduce the risk of whiplash injuries.

### **The Wheelchair Tie-down and Occupant Restraint System (WTORS)**

- **Wheelchair Tie-down** - The wheelchair must be securely tied down within the vehicle, in a forward facing position, in accordance with the wheelchair and tie-down manufacturers instructions.
- **Occupant Restraint** - A suitable occupant restraint system must also be fitted in accordance with the manufacturer's instructions. A minimum is a lap and diagonal belt (lap belts on their own are not suitable). Restraints that loop over the shoulder and anchor to the vehicle floor should be avoided where possible, as they can cause a heavy downward load through the client during an impact, the preferred type anchor above and behind the shoulder as with a car seat belt. The lap section of the belt should fit snugly over the pelvis of the client and should not be able to ride up to the abdominal area. The upper torso section of belt should be in contact with the client's chest and fit over the shoulder(s), while not cutting into the neck or slipping off the shoulder(s).

**Note:** If the wheelchair and MaTRx back are to be transported unoccupied, the wheelchair should be tied down with suitable equipment according to the manufacturer's instructions. If the equipment is to be dismantled for transportation, ensure that all parts are secured safely within the vehicle.

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## **SAFETY SYMBOLS:**

Proper set-up and safe use of your Matrix-PB Back depends on your own good judgement and common sense, as well as that of your provider, caregiver and/or health professional. The following symbols are used throughout this manual to identify warnings, cautions and important notes. It is very important that you read and understand them completely.

 **CAUTION!** Failure to heed the cautions in this manual may result in damage to your MaTRx Seating product.

 **WARNING!** Failure to heed the warnings in this manual may result in personal injury.

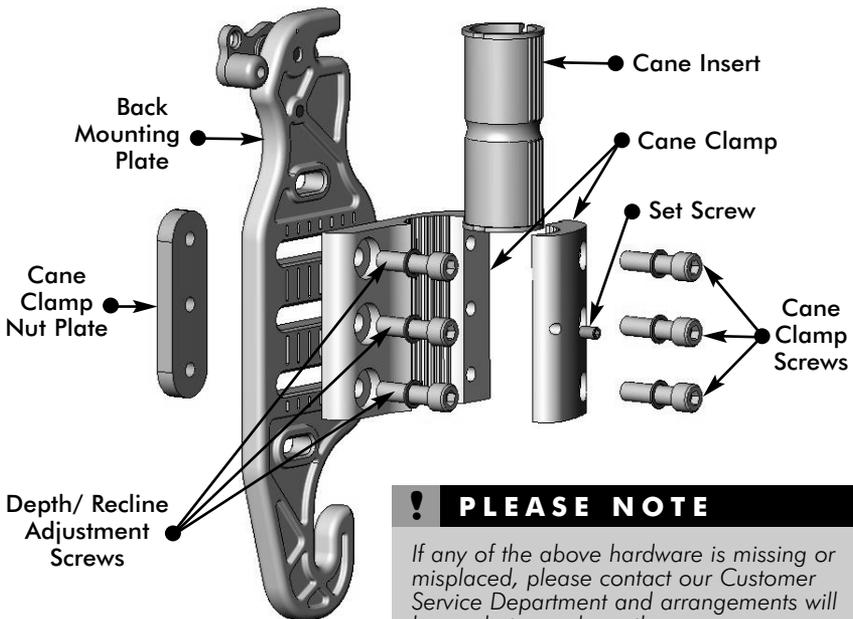
 **IMPORTANT!** Important information to remember during installation and set-up of you MaTRx Seating product.

 **IMPORTANT!** Please refer to the Wheelchair Owners/ Operators Manual for additional safety information, warnings and cautions related to the operation of your wheelchair.

# 1.0 Hardware Kit Contents

- 2 - Back Mounting Plates
- 2 - Cane Clamps
- 2 - Cane Inserts\* (7/8" (22mm))
- 6 - Depth/Recline Adjustment Screws
- 6 - Cane Clamp Screws
- 2 - Set Screws
- 2 - Cane Clamp Nut Plates
- 4 - Long Mounting Pins (optional)

\*Note: 3/4"(19mm) cane inserts are available from Motion Concepts upon request.



**! PLEASE NOTE**

*If any of the above hardware is missing or misplaced, please contact our Customer Service Department and arrangements will be made to send you the necessary replacements.*

**Canada:** 866-748-7943  
**USA:** 888-433-6818

## 2.0 Tools Required

Wrenches: 7/8" (22mm)  
Allen Keys: (provided)  
Utility Knife/Scissors

Phillips Screwdriver  
Tape Measure/Ruler

## 3.0 Before Installation - Important!

Weight Capacities:	MaTRx-PB elite	Back Width	Weight Capacity
	Standard		12" - 20"
		31cm - 51cm	136 kg

The Mounting Plates are shipped pre-assembled on the Cane Clamps in the rearmost mounting configuration. This maximizes the seat depth on the wheelchair seat (up to a maximum 2.5" (64mm) rearward offset - see **Figure 1** below).

By changing the orientation of the Mounting Plates on the Cane Clamps, the assembly can be reconfigured\* to provide a more forward mounting position for the back if desired (up to a maximum 2.5" (64mm) forward offset - see **Figure 2**)

**Note:** Each mounting plates is also designed to provide 1.5" (38mm) of fore and aft adjustment relative to the cane clamp

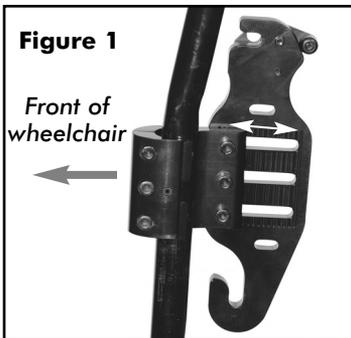
**\*To reconfigure a mounting plate/cane clamp to the forwardmost orientation:**

- detach the Mounting Plate from the Cane Clamp (3 screws);
- Rotate the Cane Clamp 180° and re-fasten it to Mounting Plate;
- Install Cane Clamp as illustrated in **Figure 2**.

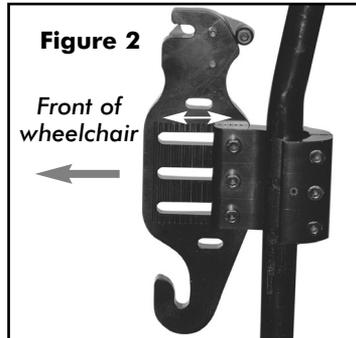
### ! PLEASE NOTE

When establishing the mounting position for the MaTRx-PB elite back, ensure the stability of the wheelchair is not compromised.

Adjusting the forward and aft position of the backrest will alter the user's center of gravity within the wheelchair. A recessed back position can significantly reduce the rearward stability of the wheelchair. Similarly, a more forward back position will reduce the wheelchair's forward stability.



Mounting Plate in the rearmost back position (maximized seat depth).



Mounting Plate in the forward most back position.

# 3.0 Before Installation - Important!

## Accommodating Different Sized Back Canes:

- ◆ 1" (25mm) back cane - Cane clamps are installed without plastic inserts.
- ◆ 7/8" (22mm) back cane - Requires 7/8" (22mm) plastic inserts (provided)
- ◆ 3/4" (22mm) back cane - Requires 3/4" (19mm) plastic inserts\*

\*Note: 3/4" (19mm) inserts are available from Motion Concepts upon request.

### ! PLEASE NOTE

On some wheelchairs, there may be an uneven seam along the back canes where a smaller diameter tube is inserted into a larger diameter tube. If the Cane Clamps must be mounted over this seam, the plastic inserts may be cut in half to allow the clamp to fasten securely onto the back canes (see Figure 4).

Figure 4

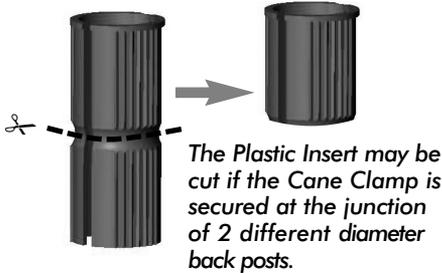
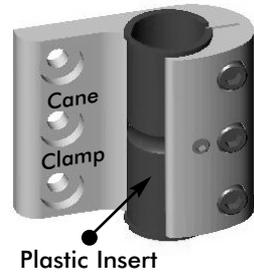


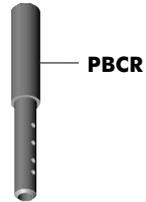
Figure 3



### HELPFUL HINT

Spray a small amount of hairspray on the back canes and on the inside of the plastic inserts to create a secure 'no-slip' bond.

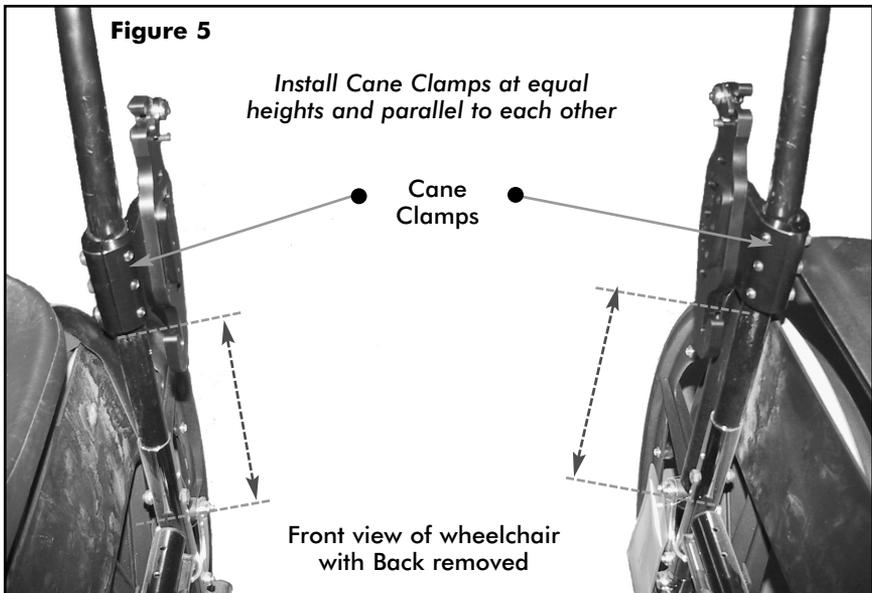
**NOTE:** For wheelchairs with short back canes, it may be necessary to install **Posture Back Cane Replacements** (PBCR's). The PBCR's are designed to replace existing push handles or cane extensions on standard 1" (25mm) back posts. The Cane Clamps can be mounted directly onto the replacement back canes in order to allow proper installation of the MaTRx-PB. Cane Replacements are available from Motion Concepts (**part#-TRX2810**).



## 4.0 MaTRx-PB elite Installation Instructions

**▲ WARNING!** The installation hardware provided is high strength and tested for durability. **DO NOT** substitute hardware. Use only the hardware supplied.

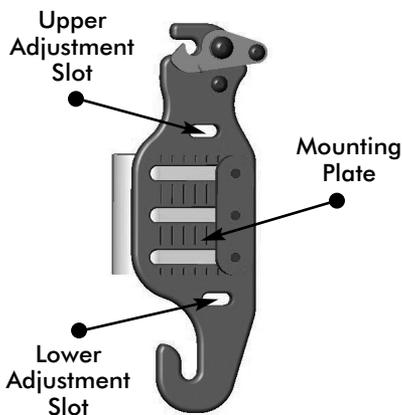
- 1 Remove existing wheelchair back upholstery (if applicable).
- 2 Establish the desired Mounting Plate set-up/configuration for the user (per **Section 3.0**).
- 3 Loosen Cane Clamp screws (x3) and loosely install the cane clamp (with mounting bracket) onto each back post. (*Install plastic inserts if required*).
- 4 Starting on one side, position the Cane Clamp at the desired height on the back post and tighten the clamp screws enough to hold it in place. (*Clamps and set screws will be fully tightened after the back is installed and all final adjustments have been made.*)
- 5 From a fixed point on the wheelchair (e.g. seat frame) measure the exact height of the *installed* Cane Clamp assembly, and install the second Cane Clamp at the same height on the opposite back post - see **Figure 5** below. Ensure the Cane Clamps/Mounting Plates are mounted parallel with each other.



## 4.0 MaTRx-PB elite Installation Instructions

### ! PLEASE NOTE

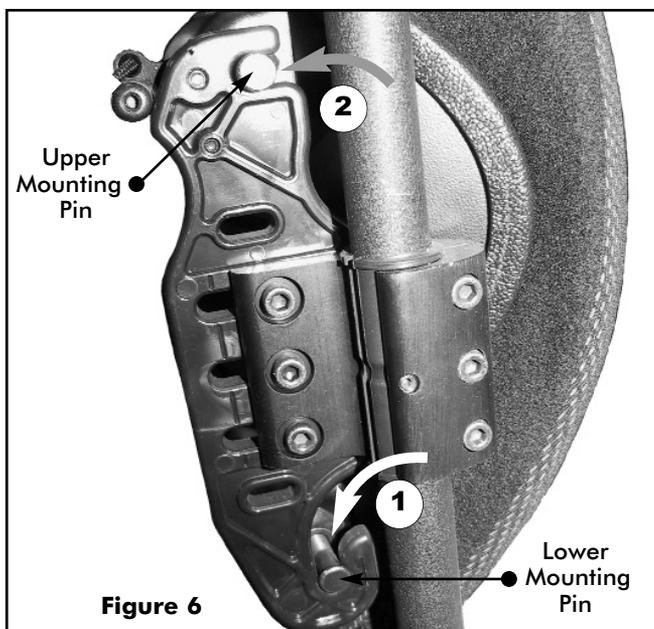
Additional upper and lower adjustment slots are provided on the Mounting Plate to allow alternate mounting heights if obstacles are encountered. Using these Alternate Mounting Slots will increase or decrease the back height by 7/8" (22mm). (note: these alternate slots will limit the range of available depth and/or recline angle adjustment).



6 To install the MaTRx-PB elite back onto the mounting plates:

**Step 1:** Slide the lower mounting pins into the hooked slots at the bottom of each mounting plate (see **Figure 6**).

**Step 2:** With the lower pins in place, lock/snap the upper mounting pins into the latch mechanism at the top of the mounting plates.



**Figure 6**

## 4.0 MaTRx-PB elite Installation Instructions

- 7 Before proceeding with the final set-up, the mounting pins will require adjustment to ensure the backrest is properly fitted/secured to the wheelchair.

### ! PLEASE NOTE

MaTRx-PB elite backs are available in a range of widths<sup>1</sup> (12" (31cm) - 20" (51cm)) and 4 standard heights (10" (26cm); 12" (31cm); 16" (41cm); and 20" (51cm)). Due to variances that exist between different wheelchair manufacturers, the depth of the mounting pins may require some adjustment to properly fit the MaTRx-PB elite onto the wheelchair back posts (see Step 8). Two sets of depth adjustable pins are supplied with every back: **standard pins (x4)**; and **long pins (x4)**. The standard pins are installed at the factory and are suitable for most typical wheelchair configurations. The long pins are designed to allow installation onto back posts that are up to 1" (25mm) wider than the width of the actual backrest. (see note below regarding Extended Mounting Pins)

<sup>1</sup>Note: elite back widths are offered in 1" (25mm) increments.

**Example: 16" (41cm) MaTRx-PB elite fits:**

16" (41cm) wheelchair seat frame (back post) width = **standard pins**

17" (43cm) wheelchair seat frame (back post) width = **long pins**



### ! PLEASE NOTE

**Extended Mounting Pins\* (EMP)** are available (sold separately) to allow interfacing of our PB-elite backs onto wheelchair seat frames up to 2" (5cm) wider than the actual back width.

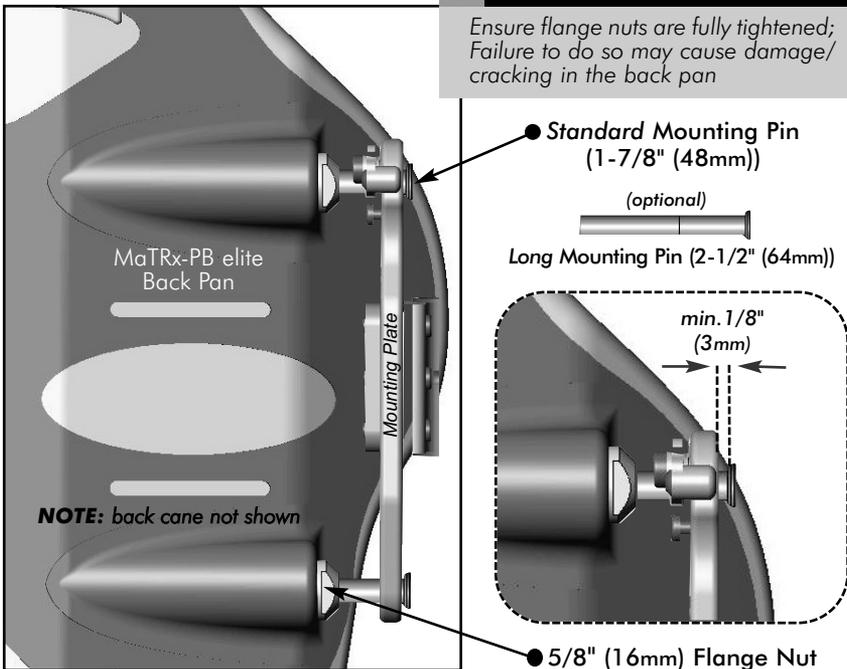
\* **Note:** EMP's are only for use with our standard back sizes (for up to 300lb (136kg) weight capacity); EMP's are not recommended for use in Tilt applications.

## 4.0 MaTRx-PB elite Installation Instructions

- 8 To adjust the mounting pins, refer to the instructions/steps below:
- With the back secured in place on the wheelchair, determine the amount of adjustment required for each mounting pin (see diagram below).
  - Remove the backrest from the wheelchair and use a wrench to loosen each flange nut. (If necessary, replace the standard mounting pins with long mounting pins).
  - Adjust the mounting pin depth (clockwise to shorten/counter-clockwise to lengthen) so that a minimum gap of  $1/8"$  (3mm) exists between the top of the pin and the mounting plate. Re-tighten each flange nut to secure the pins in place. (ensure pins do not rotate when tightening the flange nuts- **NEVER** use loctite on mounting pin hardware).

### ! PLEASE NOTE

Ensure flange nuts are fully tightened; Failure to do so may cause damage/cracking in the back pan



**! CAUTION!** Improper pin set-up may cause damage to the back pan and/or the mounting plates. Ensure sufficient spacing is provided b/w the mounting plates & the mounting pins (a min. gap of  $1/8"$  (3mm) is recommended).

## 4.0 MaTRx-PB elite Installation Instructions

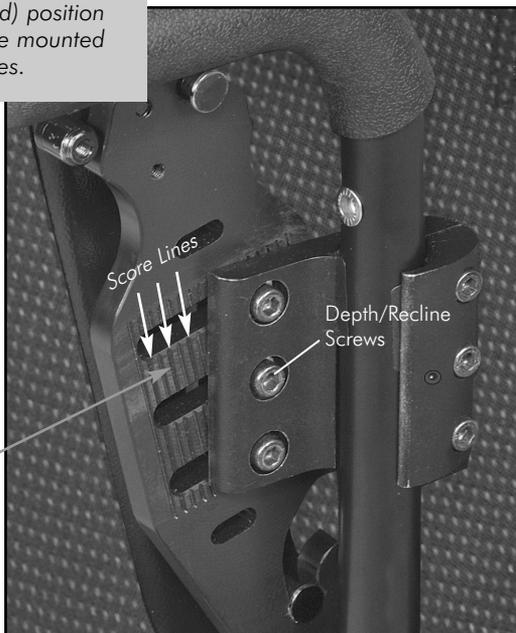
- 9 Verify that the overall fit and alignment of the back is correct (make adjustments as needed).
- 10 Fully secure the Cane Clamp Screws onto both back posts, and tighten the set screws to ensure the mounting plates do not slip or rotate.
- 11 To best determine the optimal depth & recline settings for the back, the user should be seated in the wheelchair. While seated, loosen the depth/recline screws on the mounting plates and adjust the back to the desired depth and recline angle. Re-tighten all screws to lock the back in position.

**Ensure that the depth/recline adjustment for the back is made symmetrically\* on the left & right mounting plates.**

### ! PLEASE NOTE

*The vertical score lines on the mounting plates are designed as a point of reference to assist with symmetrical mounting (see image below). Since the back can be mounted in a rotated (reclined) position if desired, it will not always be mounted parallel with these vertical lines.*

**\*Use score lines to make symmetrical adjustments on the left and right mounting plates.**



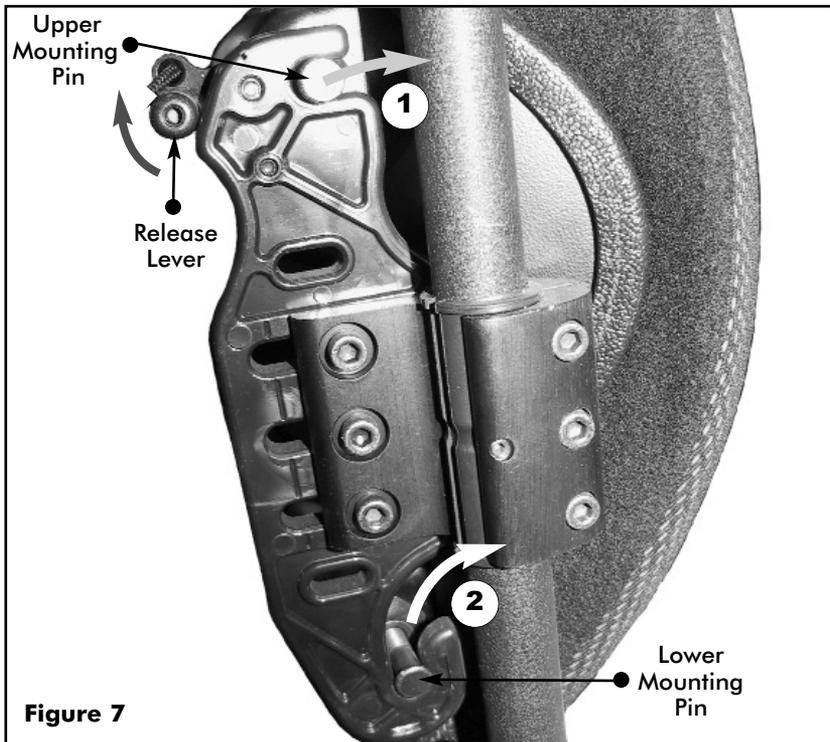
## 5.0 Disengaging the MaTRx-PB elite

### To Disengage the Back from the Wheelchair:

**Step 1:** Simultaneously lift the release levers (left & right) to unlock the latch mechanism and release the upper pins from the mounting plates. Refer to **Figure 7** below.

*(note: for backs equipped with the one-hand cord release mechanism, lift cord upward to unlock/open the release levers -see **Section 8.0: One-Hand Cord Release Mechanism**).*

**Step 2:** Lift entire backrest up and forward to disengage the lower pins from the lower slots in the mounting plates.



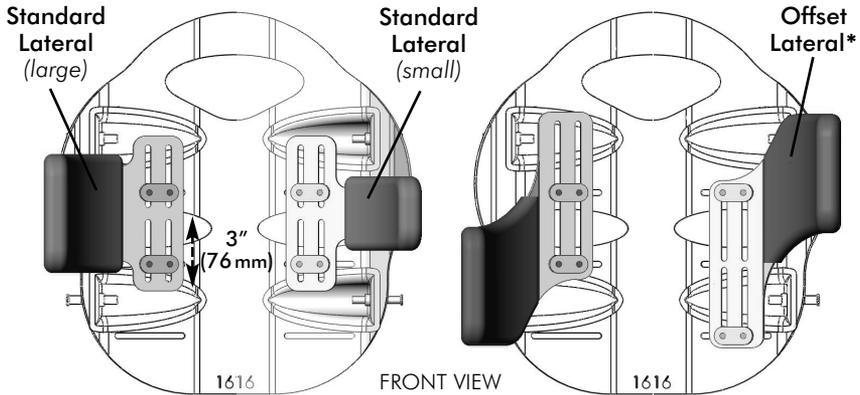
## 6.0 Removing the Cover/Care Instructions

Carefully remove the cover by releasing the velcro hook and loop fasteners along the top & bottom edge and inside of the back shell.

**General Care and Cleaning:** The cover may be easily wiped down with a damp cloth when necessary. For specific laundering directions, please follow the washing instructions provided with the cover.

## 7.0 Lateral Supports (Optional)

**Lateral Pads** are available from Motion Concepts as an option for additional lateral support. Lateral Pads are offered in small, large and offset styles (see **Figure 8** below). Mounting slots in the back shell and the lateral support brackets allow for adjustment both vertically and laterally. Upper and lower mounting slots are provided on the back pan for an even greater range of adjustment. (Refer to p.12 for detailed installation instructions).



**Figure 8**

**\*note:** offset laterals may be mounted to the back pan in either orientation (as shown) to provide extended support



### PLEASE NOTE

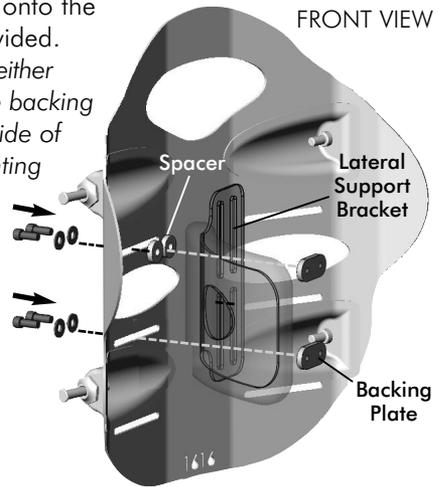
Lateral Supports may be further customized by carefully bending\* the lateral to a more desirable contour/ position for the client.

**\*Important!** for best results and to prevent damage, the lateral supports must be removed from the back pan prior to bending.

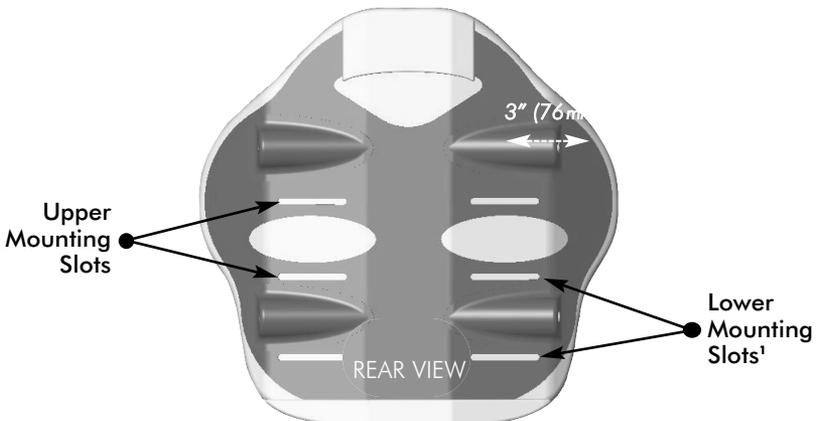
# 7.0 Lateral Supports (Optional)

## Instructions for Installing Lateral Supports:

- 1 Pull up the bottom of the cover (release velcro fasteners) to expose the mounting slots/channels in the back pan.
- 2 Determine the desired mounting height/orientation for the lateral pads (*upper or lower mounting slot position*).
- 3 If applicable, carefully bend the lateral support(s) to the desired contour (*prior to installation*).
- 4 Loosely install the lateral supports onto the back pan using the hardware provided.  
**Note:** hardware can be installed in either orientation on the back pan (with the backing plates located on the inside or outside of the back pan). The standard mounting orientation is shown at right.
- 5 Adjust laterals to the desired position via the mounting slots on the backpan *and* via the slots in the lateral support bracket. Secure each lateral support into place.
- 6 Re-attach the back cover via the velcro fasteners.



**\*note:** spacers are only required when utilizing the upper slot on the back pan



<sup>1</sup>Note: lower mounting slots not available on 10" (26cm) or 12" (31cm) high MaTRx-PB elite backs

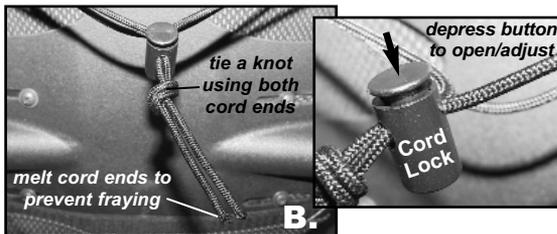
## 8.0 One-Hand Cord Release Mechanism (Optional)

### Installation Instructions:

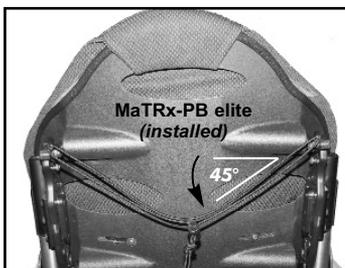
1. Thread the **Nylon Cord** through the holes in the latch mechanism at the top of the left and right mounting plates (see image **A.** below.)



2. Install the spring loaded **Cord-Lock** mechanism onto the nylon cord (see image **B.** below). Press the button to open the lock mechanism and slide the two open ends of the cord through the opening.



3. With the back properly installed on the wheelchair, adjust the cord length so that it hangs at approximately a **45° angle** along the back pan (*this will allow the release mechanism to operate more effectively*). If necessary, **cut/remove excess cord** to eliminate any risk of entanglement. Once adjusted, combine the loose cord ends into a single knot to prevent the cord-lock from slipping. (**Note:** if the cord length was modified, carefully melt the ends of the cord to prevent fraying)



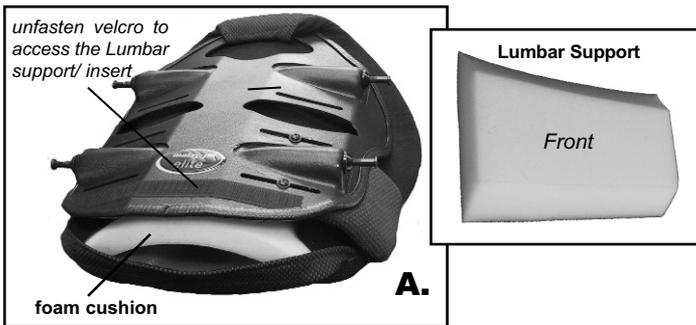
## 9.0 Lumbar Support (Optional)

### ! PLEASE NOTE

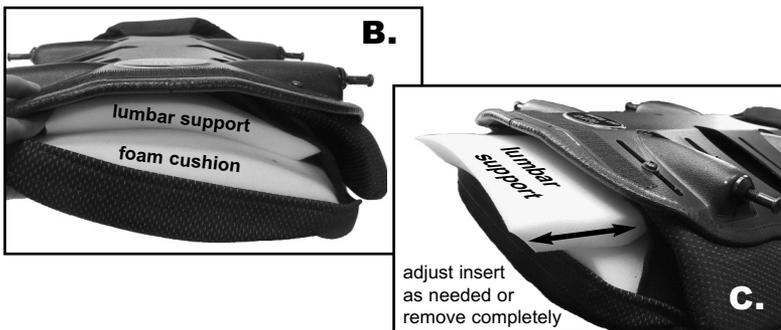
The **Lumbar Support** is a pre-fabricated foam insert that provides lower back support for additional comfort. The position of the lumbar insert can be adjusted inside the MaTRx-PB elite cover (see *instructions below*), or it may be removed if no lumbar support is desired.

### Lumbar Support Adjustment:

1. To access the Lumbar Support, open the outer cover at the bottom rear of the back pan.



2. The foam lumbar support/ insert is installed inside the PB-elite cover between the foam back cushion and the back pan (see image B. below)
3. The lumbar support can be adjusted manually to any desired height/ position, or it can be removed completely if no lumbar support is required.



4. Refasten the cover onto the back pan.

# Notes

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# Notes

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## **WARRANTY**

Every MaTRx-PB elite back is carefully inspected and tested to provide optimum performance. Each back is guaranteed to be free from defects for a period of 24 months from the date of purchase, provided normal use. Should a defect in materials or workmanship occur within 24 months of the original date of purchase, Motion Concepts will, at its option, repair or replace it free of charge. This warranty does not apply to punctures, tears or burns, nor to the removable cushion cover.

The original back must be returned to the dealer and will become the property of Motion Concepts as a condition of processing the warranty claim. All warranty claims must be made through the dealer where the cushion was purchased. Except for express warranties made herein, all other warranties of fitness or use for a particular purpose are excluded. There are no warranties that extend beyond the warranties provided above. Remedies for breach of this warranty are limited to repair or replacement of goods. In no event shall damages for breach of any warranty include any consequential damages or exceed the original cost of the back.



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