

## Adjusting 90° Compass® Hardware Including 4-Point

Compass® Hardware - US Patent No. 7,104,610 & 7,891,739 Apparatus for Mounting a Wheelchair Back

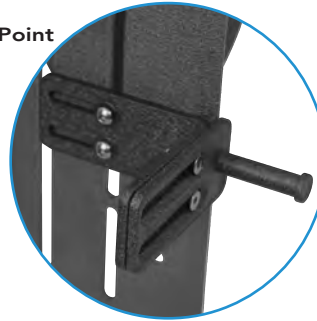
Quick Release



Fixed



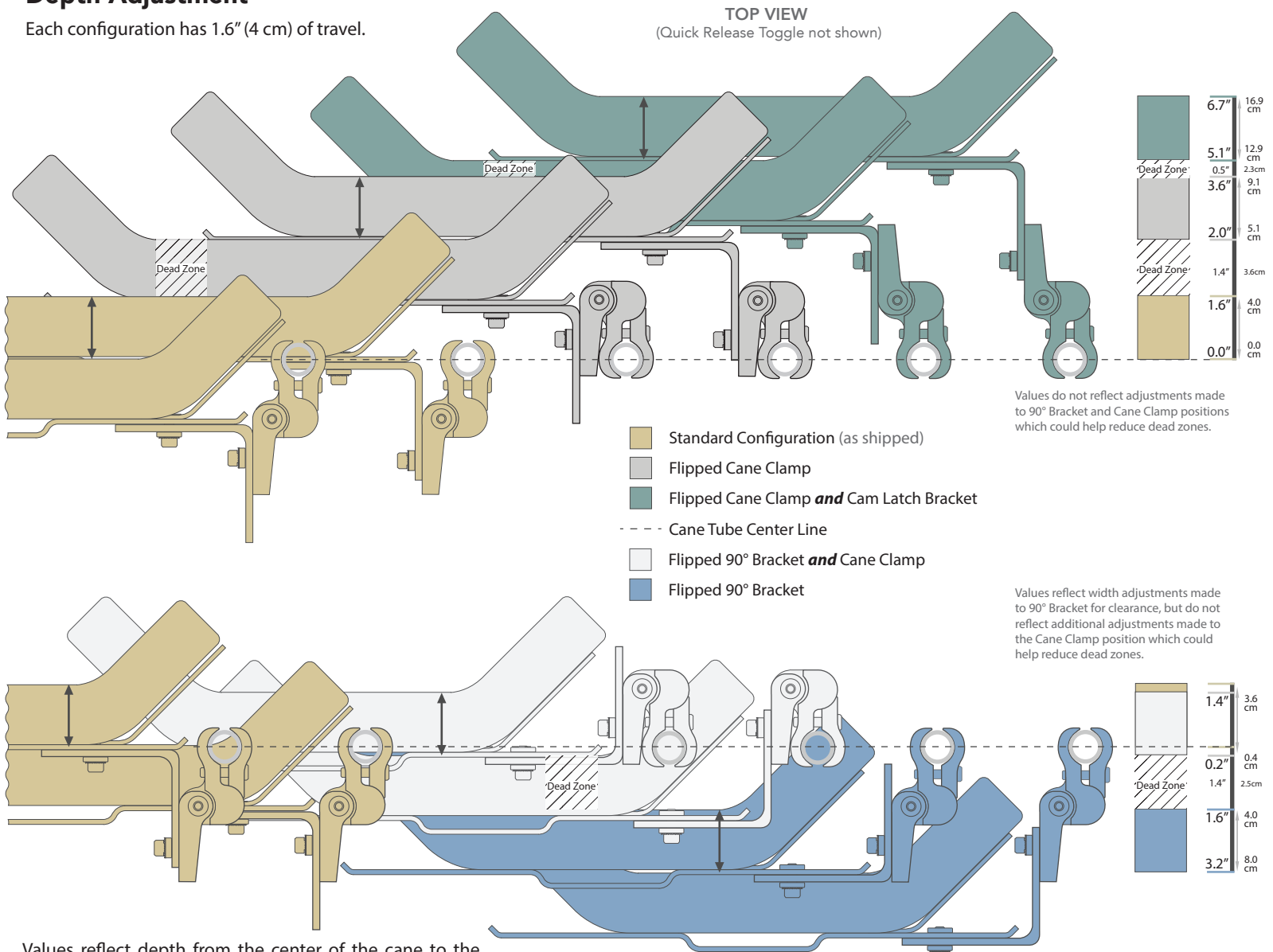
4-Point



The information in this manual was gathered and recorded with the latest specifications available at the time of publication. Due to our continued effort to reassess and improve our products, information found in this manual such as drawings and notes may vary slightly from the product that you purchased. We reserve the right to make changes to products as they are deemed necessary.

### Depth Adjustment

Each configuration has 1.6" (4 cm) of travel.

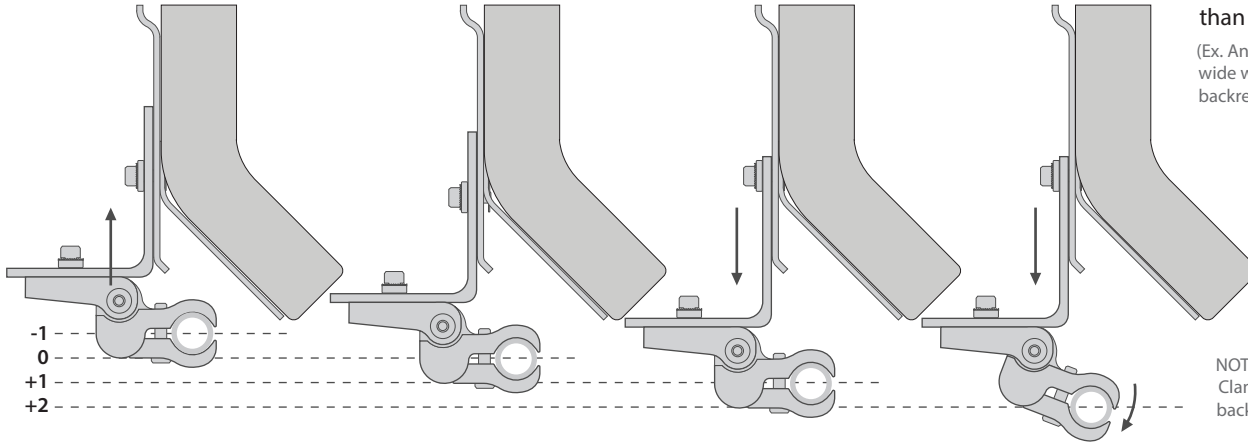


Values reflect depth from the center of the cane to the front of the cushion\* with Cane Clamp in neutral position.

\*Using 1.5" (3.8 cm) cushion thickness and 1" (2.5 cm) diameter cane.

## Width Adjustment

Standard Hardware Configuration Shown



Compass® is width adjustable to 1" (2.5 cm) narrower or 2" (5.1 cm) wider than the ordered backrest width.

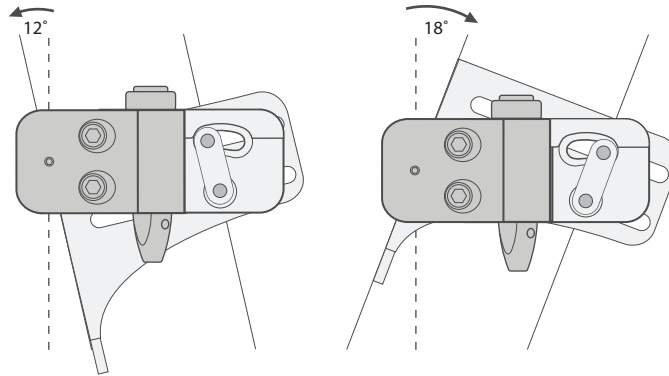
(Ex. An 18" wide backrest will fit a 17" to 20" wide wheelchair frame when both sides of backrest hardware are adjusted as shown.)

NOTE: Flipping the 90° Bracket and Cane Clamp may reduce the possibility of the backrest fitting on a narrower chair than the ordered backrest width.

## Angle Adjustment

Standard Hardware Configuration Shown

SIDE VIEW  
(Quick Release Toggle not shown)

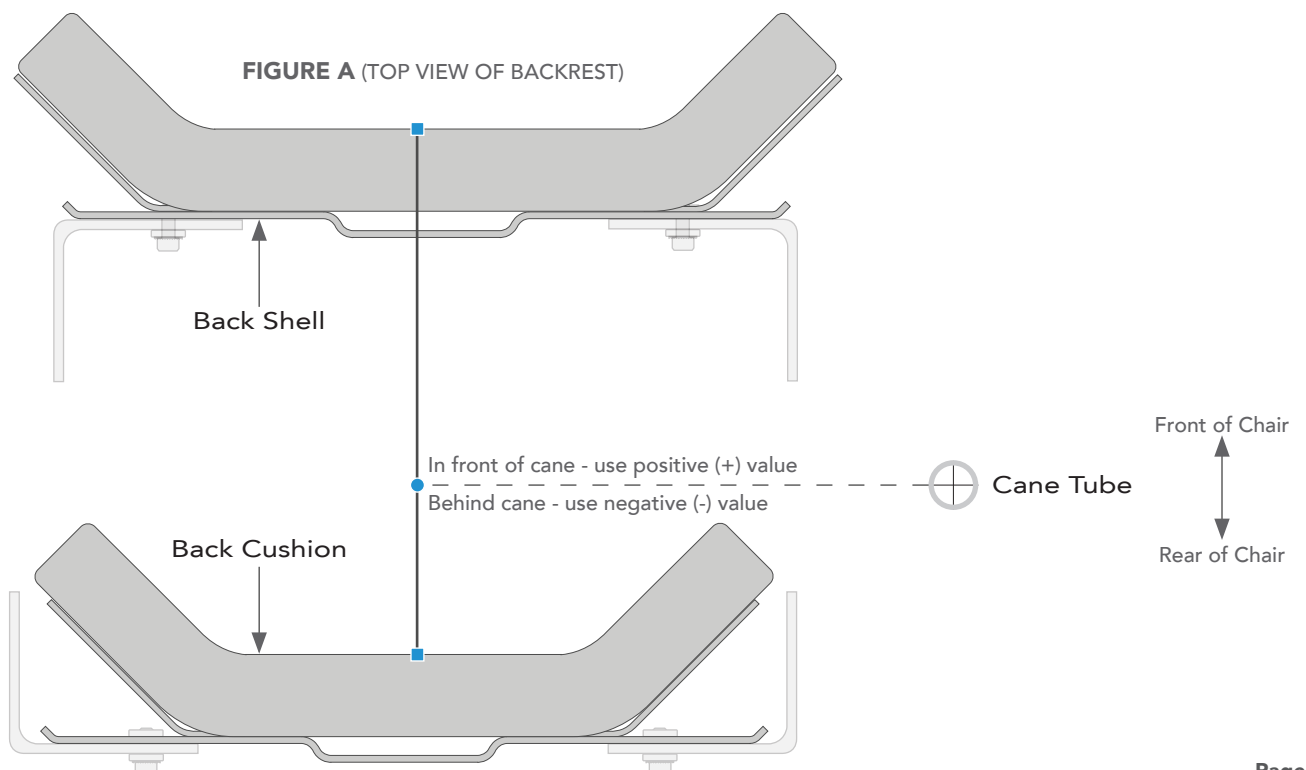


Compass® hardware provides 30° total anterior to posterior tilt.

NOTE: Flipping the hardware to the configuration seen in Section 3 will reduce the amount of possible posterior tilt to 12° and increase anterior tilt to 18°.

## SECTION 1: INITIAL DEPTH MEASUREMENT

**1.0** Using Figure A as a guide, determine approximately how much distance you desire from the front surface of the back cushion and the center of the cane tube. Measure from the dot (●) level with the center of the cane tube to the square (■) on the front of the cushion. If the cushion (■) is in front of the cane (●), use a positive value. If the cushion (■) is behind the cane (●), use a negative value.



**1.1** Find the range listed below that your measurement fits into. If it does not fall within a range listed, choose the one closest to your measurement. Adjustments to the 90° Bracket position or rotating the Cane Clamp may still allow you to reach your desired depth.

For **0.0" to +1.6"** (0.0 cm to +4.0 cm), continue with Section 2

For **+2.0" to +3.6"** (+5.1 cm to +9.1 cm), skip to Page 5, Section 3

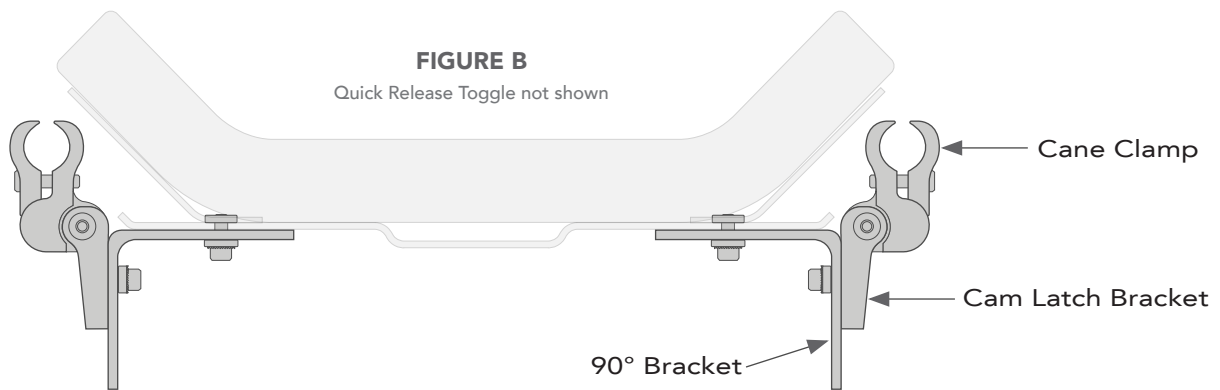
For **+5.1" to +6.7"** (+12.9 cm to +16.9 cm), skip to Page 8, Section 4

For **-1.6" to -3.2"** (-4.0 cm to -8.0 cm), skip to Page 10, Section 5

**NOTE:** Measurements are based on commonly used 1.5" (3.8 cm) thick cushion. Cushion thickness could vary depending on the size and specifications of ordered backrest. Adjust dimensions accordingly for your backrest.

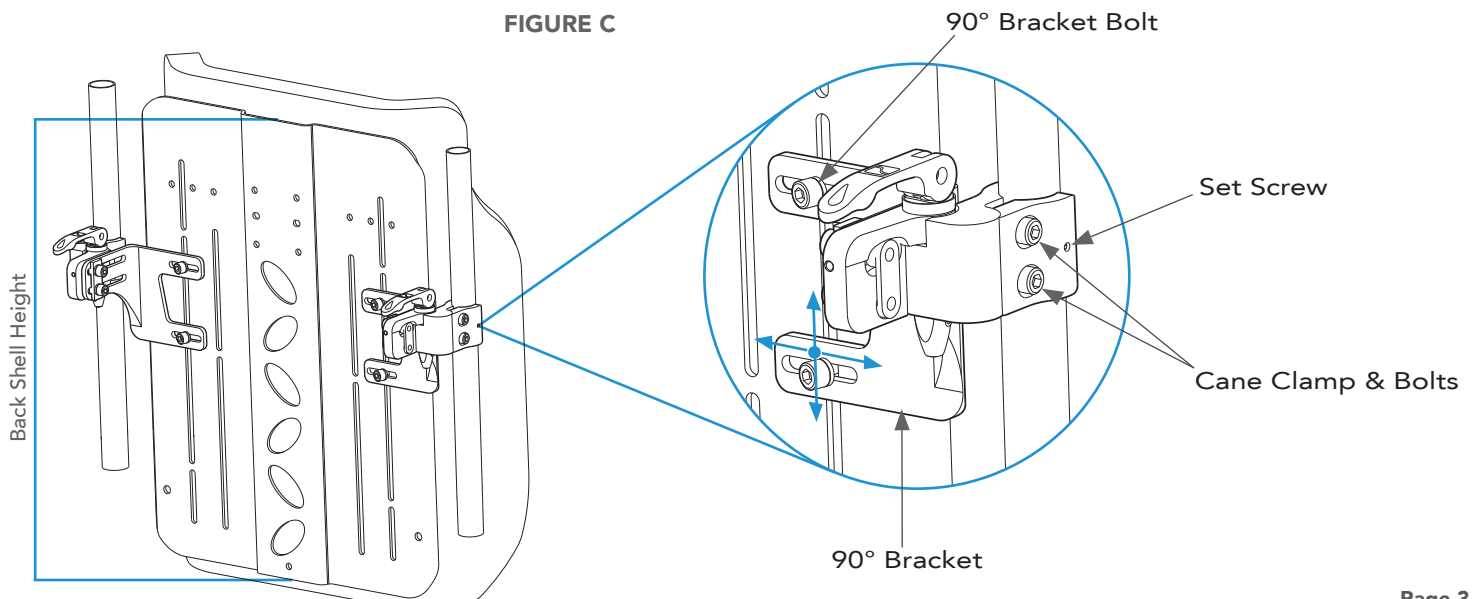
## SECTION 2

**2.0** You will need to use the following hardware configuration (Figure B) to achieve your desired back position. This is the standard configuration for 90° Compass® Hardware (how it was shipped).



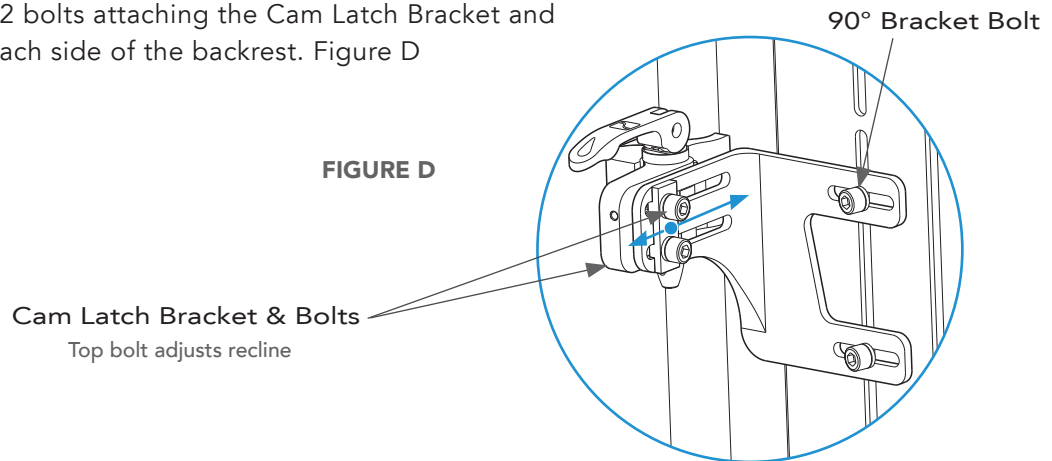
**2.1** Start by determining that the left and right 90° Brackets are located at the same height on the back shell (Figure C). The 90° Brackets should always be at equal height on the back shell and level for best results. The 90° Bracket and Cane Clamp angle allow for width adjustments to be made if using a chair that is different from the ordered backrest width.

To make adjustments to the bracket position, loosen (do not remove) the 2 bolts on the 90° Bracket along the back shell using a 5mm hex key.

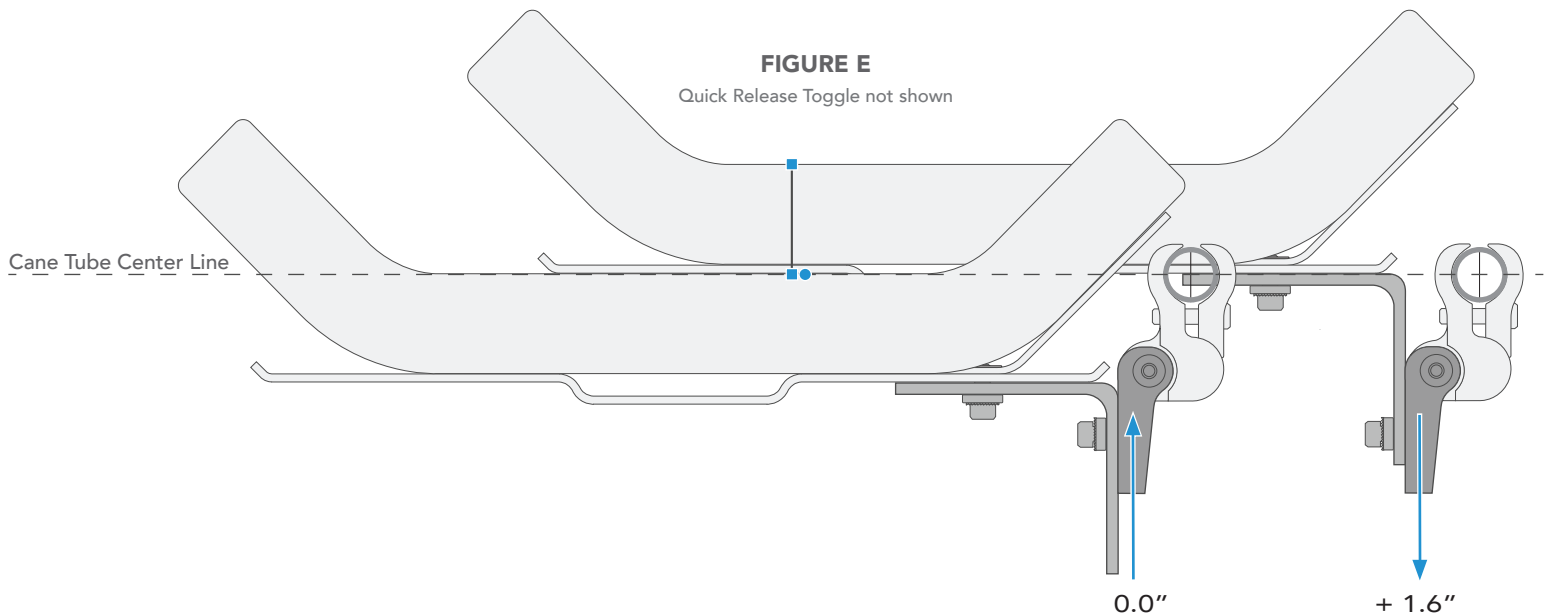


**2.2** Next, loosen the 2 bolts on the Cane Clamp. Fit the clamp around the cane at equal height and tighten the bolts to secure. Alternate between bolts multiple times while tightening to ensure even pressure and a square fit. Complete this step for each side of the backrest. Finish by tightening the Set Screw on each clamp.

**2.3** To adjust to your desired seat depth, use 5mm hex key and loosen (do not remove) the 2 bolts attaching the Cam Latch Bracket and the 90° Bracket on each side of the backrest. Figure D



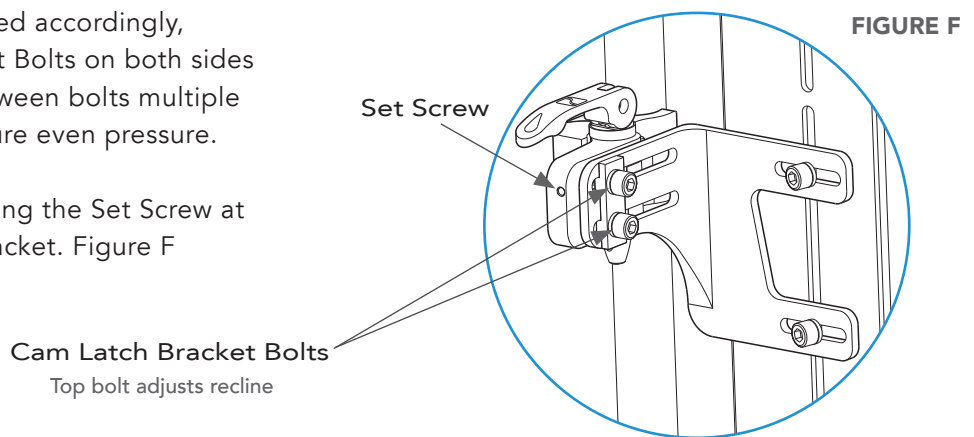
Once loose, slide the Cam Latch Bracket forward or backwards on the 90° Bracket as seen in Figure E. Sliding it forward will make it even with the cane tube and backwards will reach up to 1.6" (4.0 cm) of depth in front of the cane tube.



**2.4** The top Cam Latch Bracket Bolt controls the backrest recline. Fasten the bottom bolt first but do not tighten it completely before setting the recline. Posterior may cause some loss in seat depth so the bottom bolt may have to be loosened and readjusted before final tightening can occur.

Once the seat depth is adjusted accordingly, tighten the Cam Latch Bracket Bolts on both sides of the backrest. Alternate between bolts multiple times while tightening to ensure even pressure.

Secure the recline position using the Set Screw at the back of the Cam Latch Bracket. Figure F

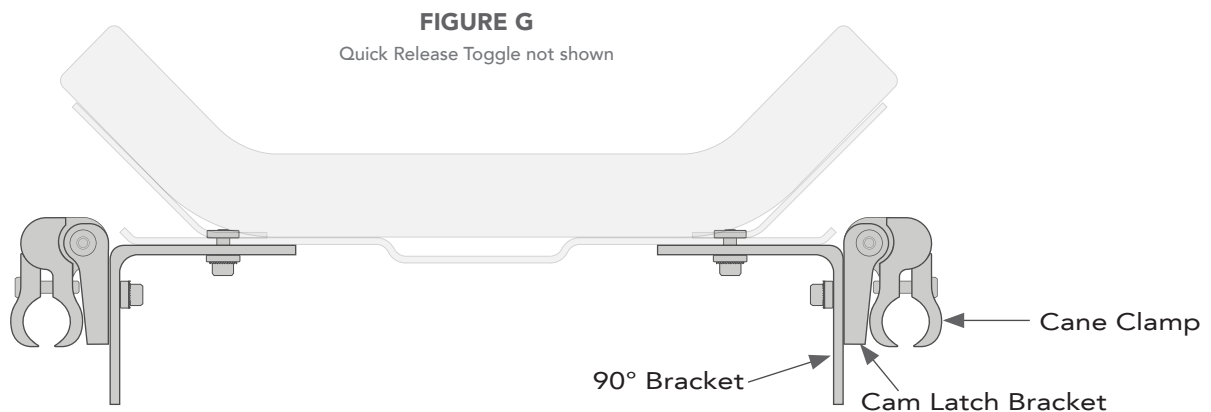


**IMPORTANT: When installation and adjustments are complete, all bolts\* should be tightened to a minimum of 85 in-lbs.**  
 \*This does not include set screws.

**SKIP TO SECTION 6 FOR 4-POINT HARDWARE INSTRUCTIONS IF NEEDED**

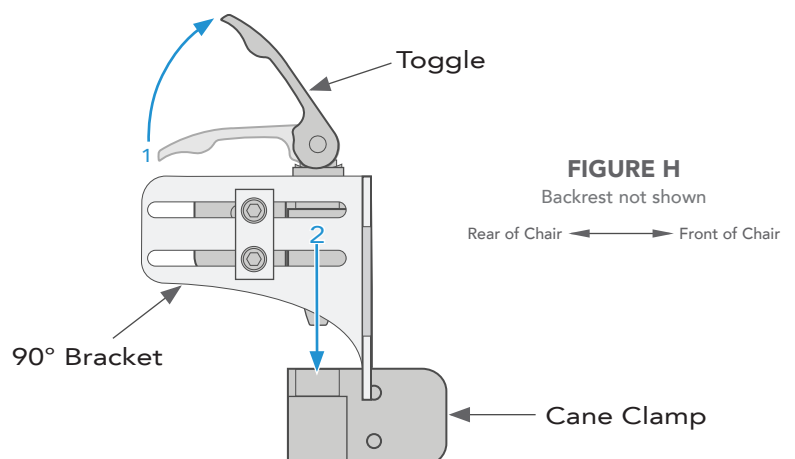
## SECTION 3

**3.0** You will need to use the following hardware configuration (Figure G) to achieve your desired back position. This flips only the Cane Clamps around to the opposite side of the chair.



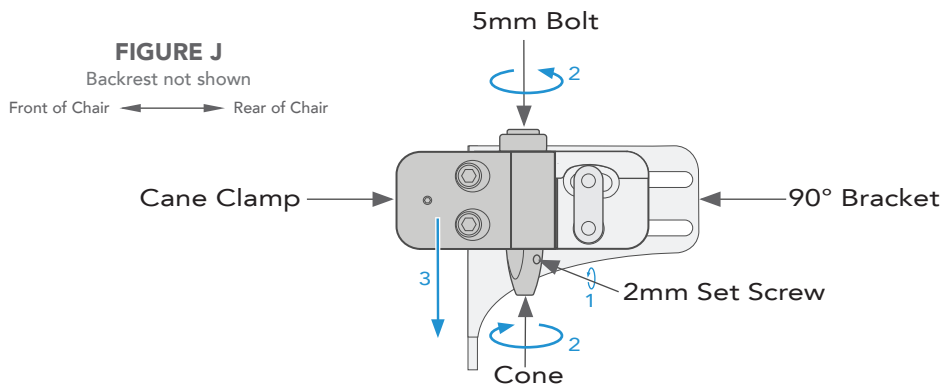
**3.2** To switch the Cane Clamp around, release the Cam Latching system.

Quick Release Compass® hardware uses a toggle lever. Pull the lever up and the Cam Latch Bracket will slide apart from the Cane Clamp easily. (Figure H)

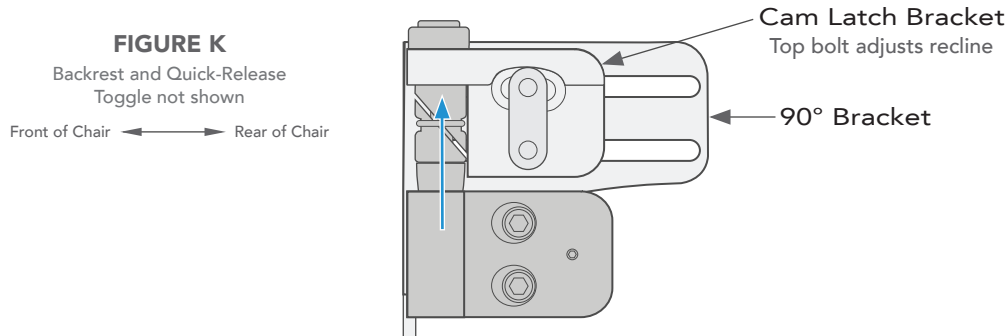


Fixed Compass® hardware on next page.

Fixed Compass® hardware uses a 5mm bolt to secure the Cane Clamp. To release the bolt, first unscrew the 2 mm Set Screw one full turn (Figure J). Then use an 11mm open-end wrench around the cam latch Cone and a 5mm hex key to loosen the bolt. Once loosened, the Cam Latch Bracket will slide apart from the Cane Clamp easily.



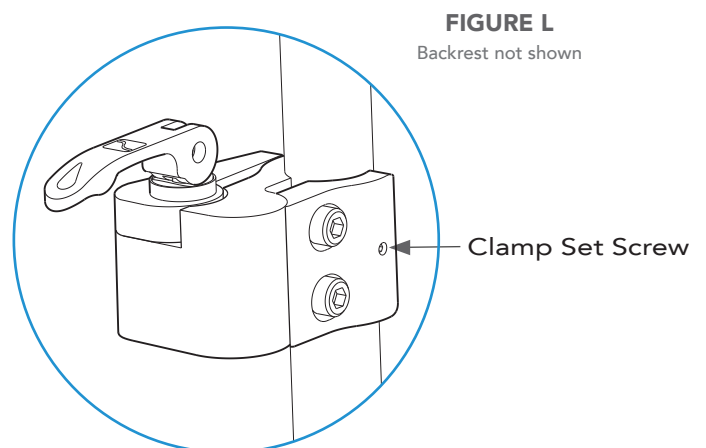
Now, move the Cane Clamps to the opposite sides of the backrest and reattach them to the Cam Latch Bracket by sliding the Cane Clamp over the Cam Latch Pin. Figure K



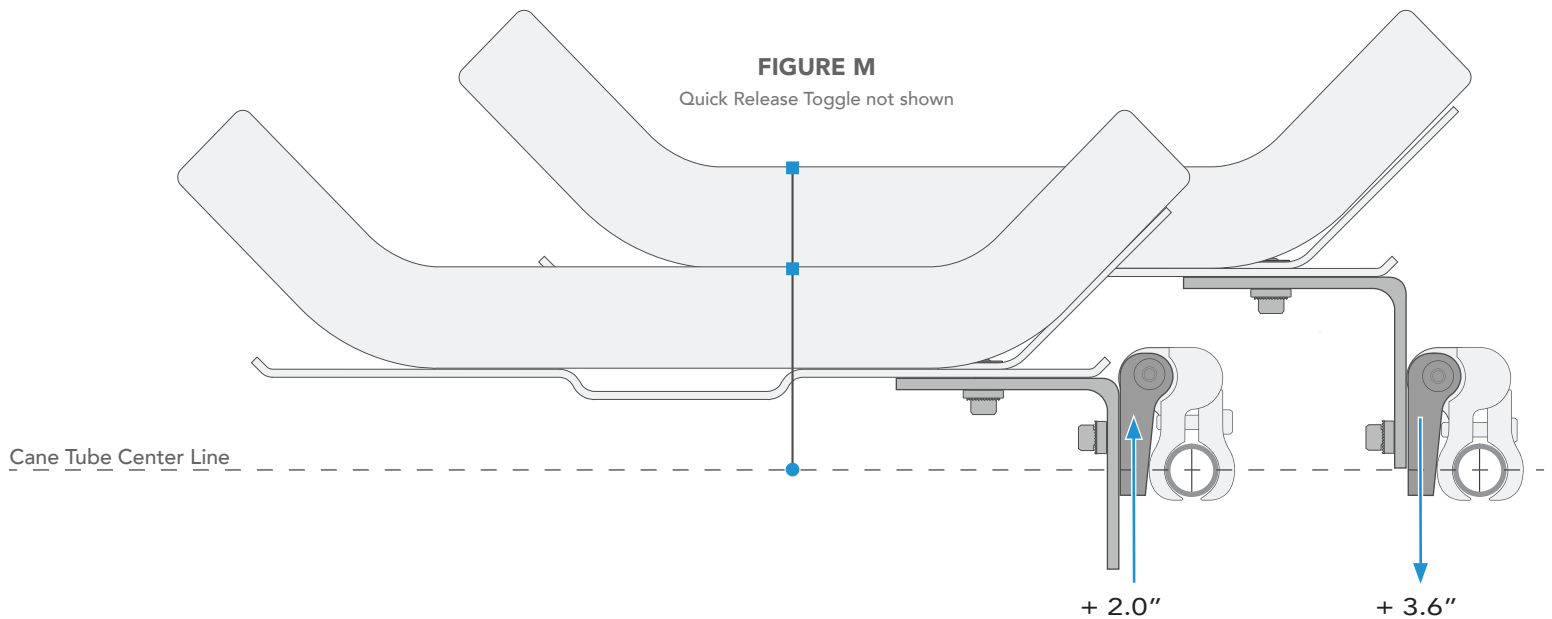
Quick Release Compass® hardware; Engage the Cam Latching System by moving the toggle to the down position.

Fixed Compass® hardware; Engage the Cam Latching System using a 5mm hex key and 11mm open-end wrench. Tighten the 2mm set screws to finish.

**3.3** Next, loosen the 2 bolts on the Cane Clamp. Fit the clamp around the cane at equal height and tighten bolts to secure. Alternate between bolts multiple times while tightening to ensure even pressure and a square fit. Complete this step for each side of the backrest. Finish by tightening the Set Screw on each clamp. Figure L



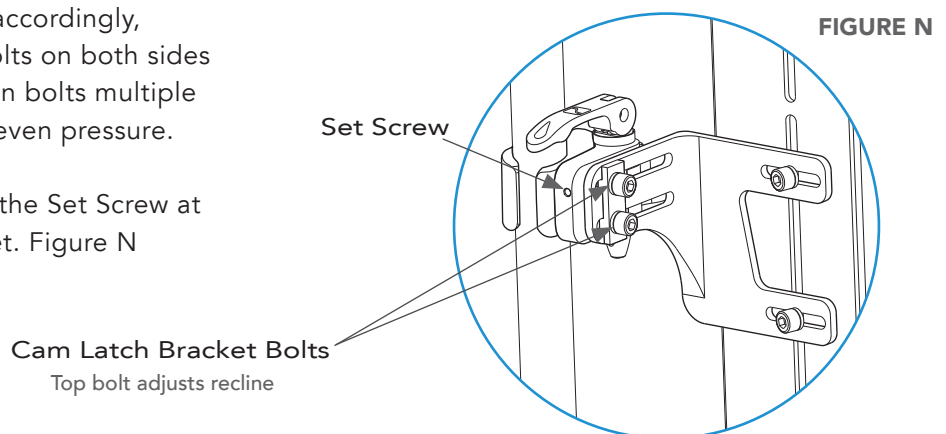
**3.4** Once loose, slide the Cam Latch Bracket forward or backwards on the 90° Bracket as seen in Figure M. Sliding it forward will achieve up to 2.0" (5.1 cm) of depth in front of the cane tube and backwards will reach up to 3.6" (9.1 cm) of depth in front of the cane tube.



**3.5** The top Cam Latch Bracket Bolt controls the backrest recline. Fasten the bottom bolt first but do not tighten it completely before setting the recline. Posterior tilt may cause some loss in seat depth so the bottom bolt may have to be loosened and readjusted before final tightening can occur.

Once the seat depth is adjusted accordingly, tighten the Cam Latch Bracket Bolts on both sides of the backrest. Alternate between bolts multiple times while tightening to ensure even pressure.

Secure the recline position using the Set Screw at the back of the Cam Latch Bracket. Figure N



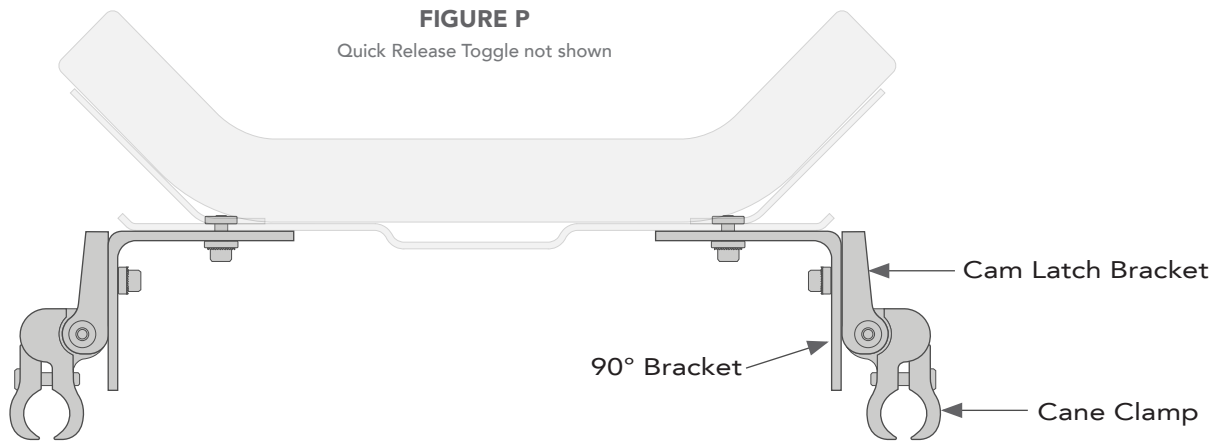
**IMPORTANT: When installation and adjustments are complete, all bolts\* should be tightened to a minimum of 85 in-lbs.**

\*This does not include set screws.

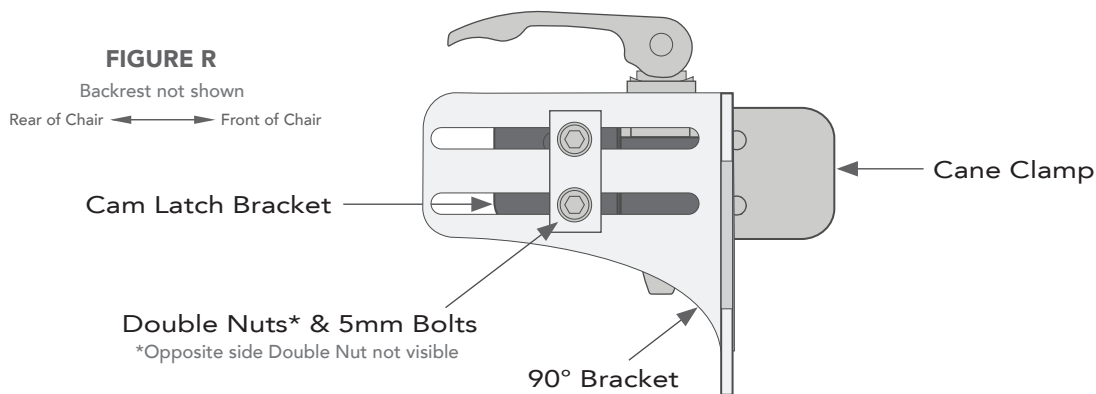
**SKIP TO SECTION 6 FOR 4-POINT HARDWARE INSTRUCTIONS IF NEEDED**

## SECTION 4

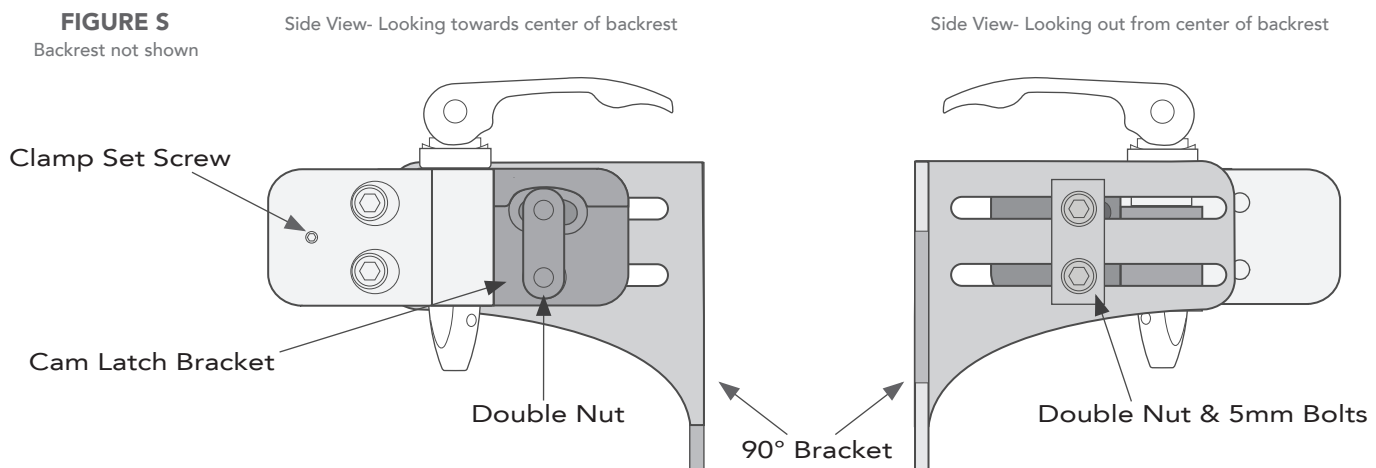
- 4.0** You will need to use the following hardware configuration (Figure P) to achieve your desired back position. This flips the Cane Clamps and Cam Latch Bracket around to the opposite side of the chair.



- 4.1** To switch the Cane Clamp and Cam Latch Bracket around, unscrew the 5mm bolts from the Double Nuts on each side of the hardware connecting the Cam Latch Bracket and the 90° Bracket. (Figure R)



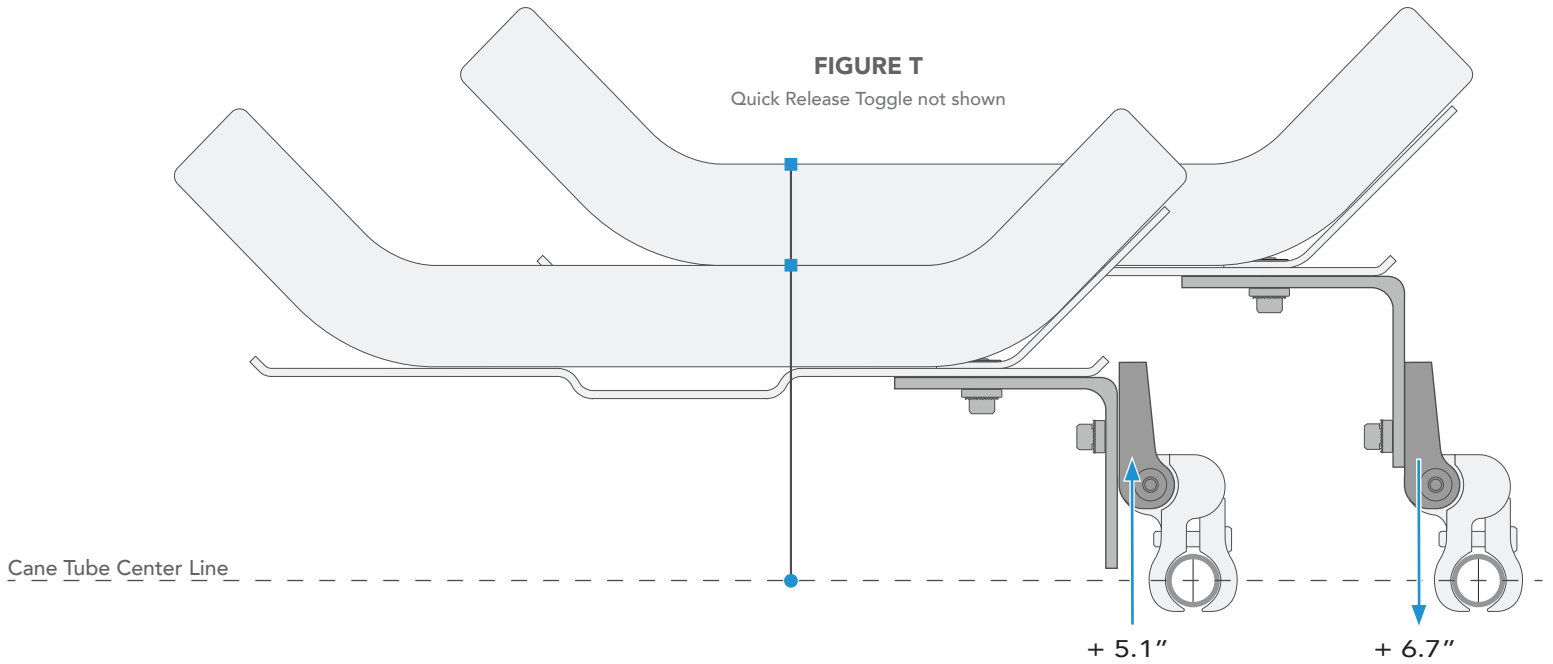
Move the Cane Clamp and Cam Latch Bracket assembly to the opposite side of the backrest and lightly screw the Cam Latch Bracket Bolts into the Double Nuts on each side of the assembly (Figure S).



- 4.2** Loosen the 2 bolts on the Cane Clamp. Fit the clamp around the cane at equal height and tighten bolts to secure. Alternate between bolts multiple times while tightening to ensure even pressure and a square fit. Complete this step for each side of the backrest. Finish by tightening the Set Screw on each clamp. Figure S



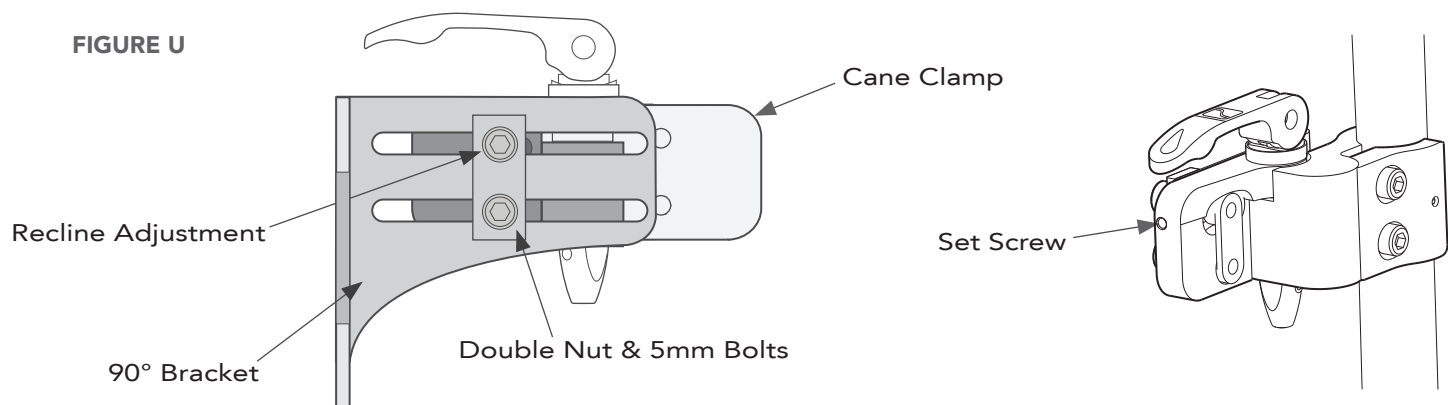
**4.3** Once loose, slide the Cam Latch Bracket forward or backwards on the 90° Bracket as seen in Figure T. Sliding it forward will achieve up to 5.1" (12.9 cm) of depth in front of the cane tube and backwards will reach up 6.7" (16.9 cm) of depth in front of the cane tube.



**4.4** The top Cam Latch Bracket Bolt controls the backrest recline. Fasten the bottom bolt first but do not tighten it completely before setting the recline. Posterior tilt may cause some loss in seat depth so the bottom bolt may have to be loosened and readjusted before final tightening can occur.

Once the seat depth is adjusted accordingly, tighten the 5mm bolts on both sides of the backrest. Alternate between bolts multiple times while tightening to ensure even pressure. (Figure U)

Secure the recline position using the Set Screw at the back of the Cam Latch Bracket.



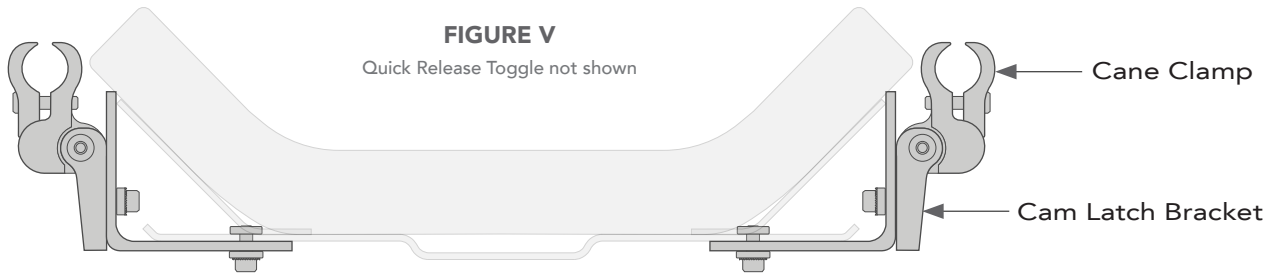
**IMPORTANT: When installation and adjustments are complete, all bolts\* should be tightened to a minimum of 85 in-lbs.**

\*This does not include set screws.

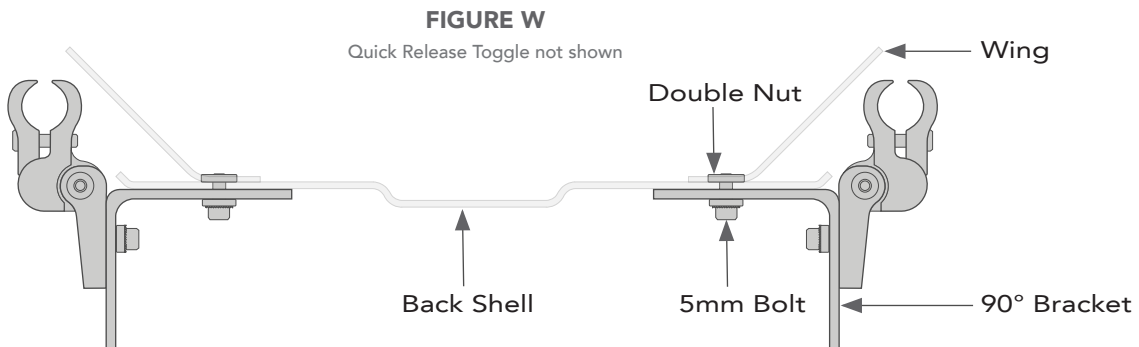
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## SECTION 5

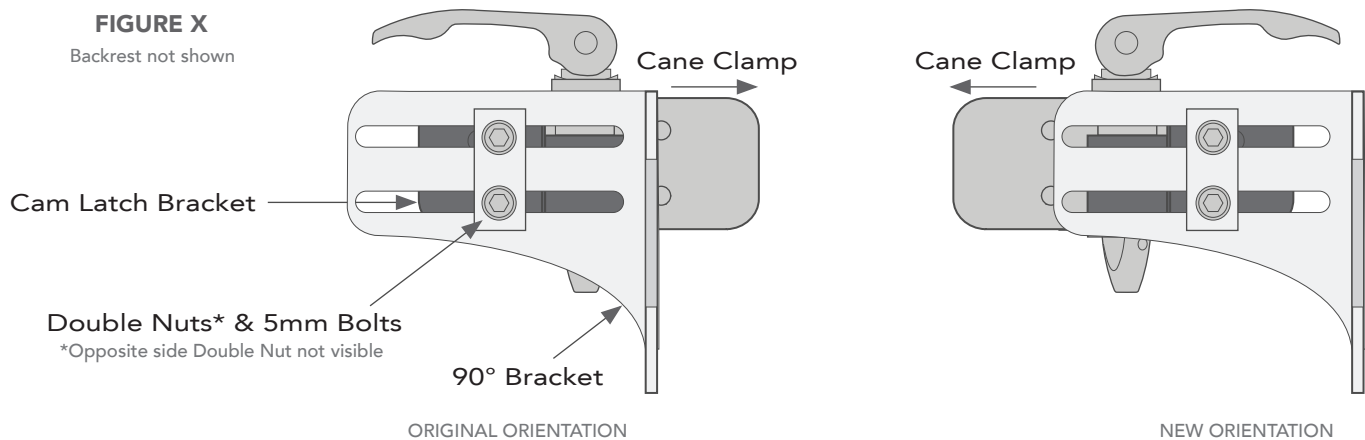
- 5.0** You will need to use the following hardware configuration (Figure V) to achieve your desired back position. This flips the 90° Bracket with Cane Clamp and Cam Latch assembly to the opposite side of the chair.



- 5.1** To switch the 90° Bracket around, unscrew the 5mm bolts attaching the 90° Bracket to the Double Nut on the front side of the backrest shell. (Figure W)



Now, unscrew the 5mm bolts from the Double Nuts on each side of the hardware connecting the Cam Latch Bracket and the 90° Bracket. (Figure X)

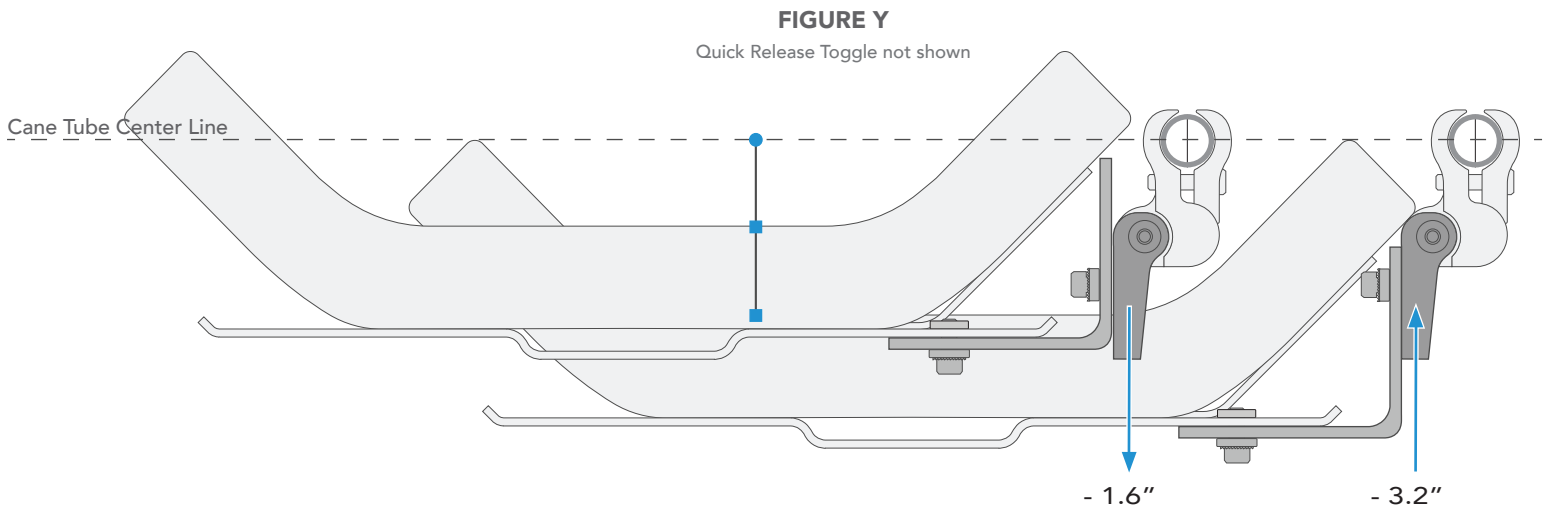


- 5.2** Move the 90° Bracket to the opposite side of the backrest while leaving the Cane Clamp and Cam Latch Bracket assembly with the original side of the backrest. Reattach the 90° Bracket to the shell in the new orientation using the 5mm Bolts and Double Nuts.

Reassemble the hardware with the Cane Clamp facing the front of the backrest. Lightly screw the Cam Latch Bracket Bolts into the Double Nuts on each side of the assembly and 90° Bracket. (Figure X)

**5.3** Loosen the 2 bolts on the Cane Clamp. Fit the clamp around the cane at equal height and tighten bolts to secure. Alternate between bolts multiple times while tightening to ensure even pressure and a square fit. Complete this step for each side of the backrest. Finish by tightening the Set Screw on each clamp.

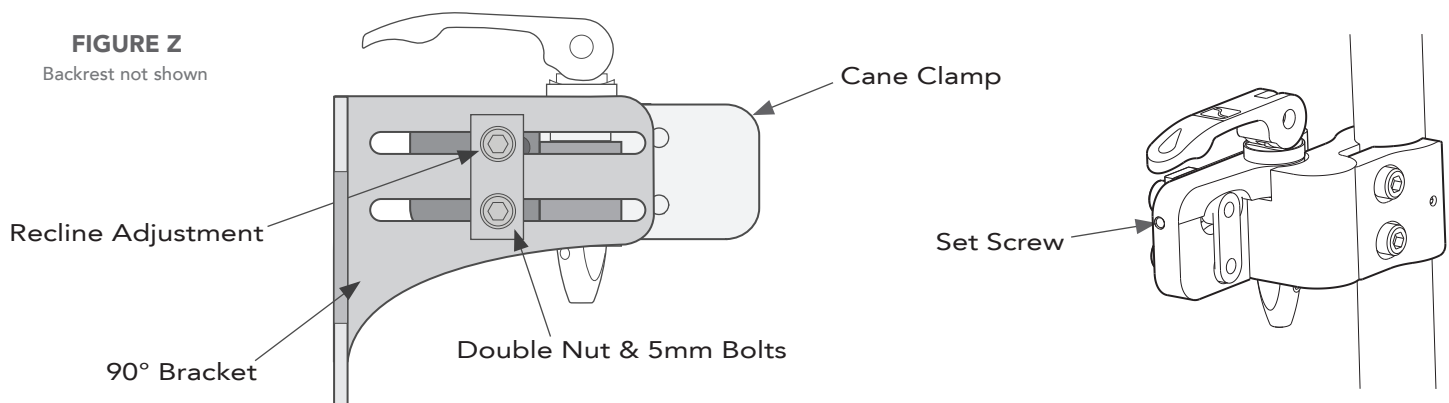
**5.4** With the bolts loose, slide the Cam Latch Bracket forward or backwards on the 90° Bracket as seen in Figure Y. Sliding it forward will achieve up to 3.2" (8.0 cm) of depth behind the cane tube and backwards will reach up 1.6" (4.0 cm) of depth behind the cane tube.



**5.5** The top Cam Latch Bracket Bolt controls the backrest recline. Fasten the bottom bolt first but do not tighten it completely before setting the recline. Posterior tilt may cause some loss in seat depth so the bottom bolt may have to be loosened and readjusted before final tightening can occur.

Once the seat depth is adjusted accordingly, tighten the 5mm bolts on both sides of the backrest. Alternate between bolts multiple times while tightening to ensure even pressure. Figure Z

Secure the recline position using the Set Screw at the back of the Cam Latch Bracket.



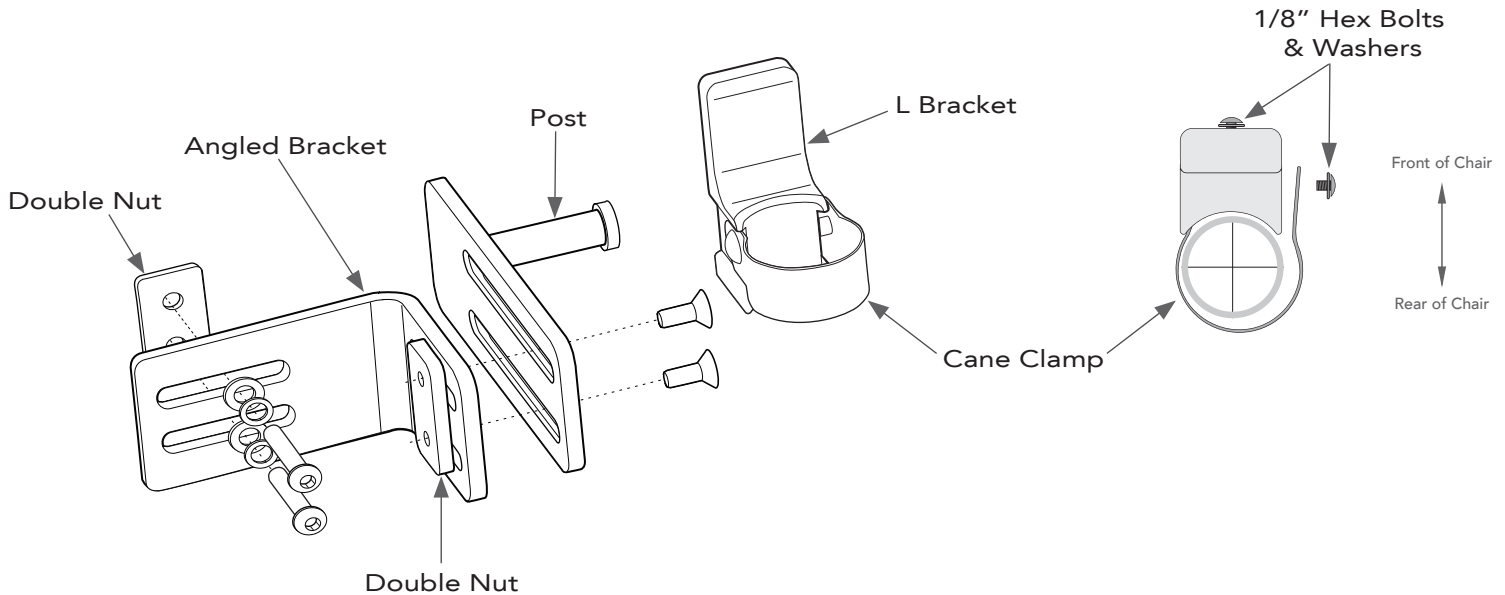
**IMPORTANT: When installation and adjustments are complete, all bolts\* should be tightened to a minimum of 85 in-lbs.**

\*This does not include set screws.

## SECTION 6: 4-POINT HARDWARE

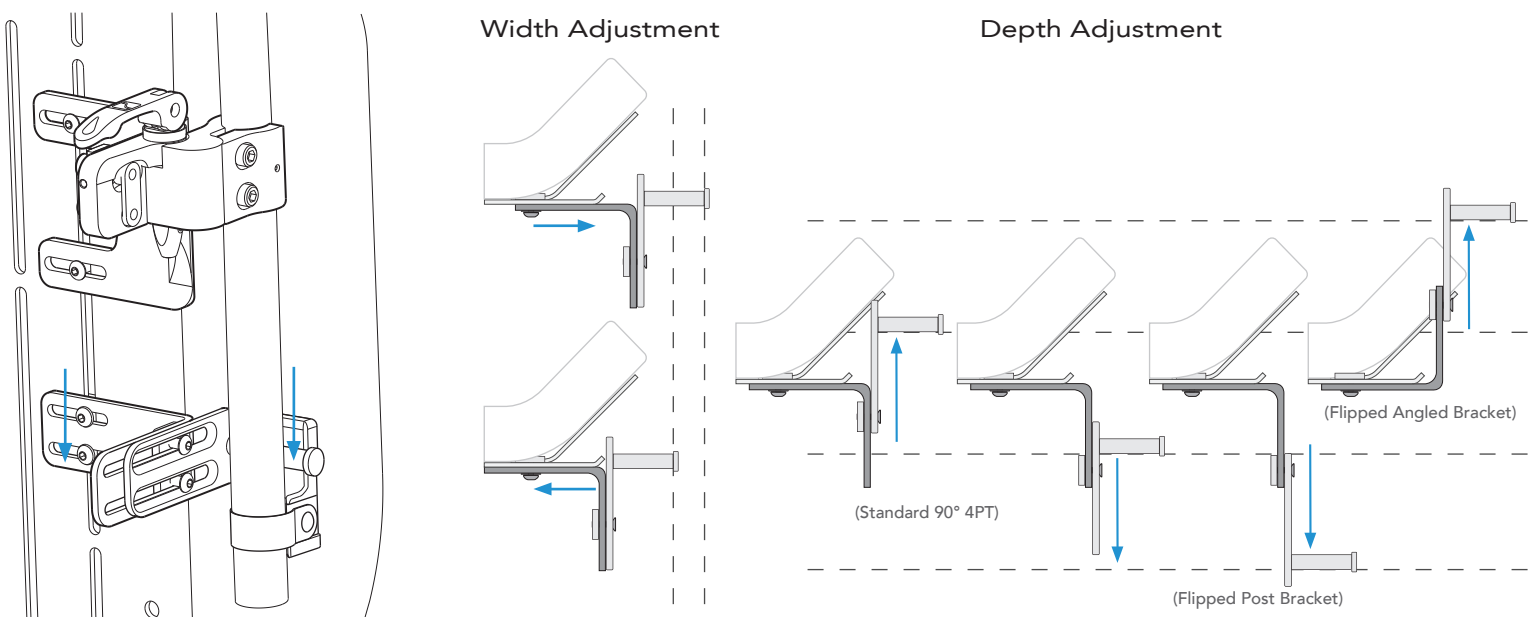
- 6.0** Start with all bolts loose in the assembly. This allows for adjusting to the backrest position with the 2-Point Compass hardware already attached and in place.

Completely unscrew the outside 1/8" Hex Bolt on the Cane Clamp (Figure AA). Wrap the band around the chair cane with the L Bracket oriented to the front of the cane. Replace the washer and bolt. Tighten the band around the cane using the 1/8" Bolt on the front of the L Bracket. Repeat for the opposite side of the wheelchair with the Cane Clamps at equal height on the canes.



- 6.1** Shift the Angled Bracket and Post brackets around until the Post can reach and rest on the L Bracket attached to the wheelchair canes (Figure BB). Once both sides of the backrest are positioned, tighten all bolts to secure.

FIGURE BB



NOTE: Depth Adjustment shows additional configurations for 90° 4-Point Hardware achieved by flipping the Angled Bracket or Post Bracket.