

CATALYST & Spark

TECHNICAL MANUAL

This technical manual is designed to aid in the different procedures that may be needed for the Catalyst and Spark wheelchairs. This technical manual does not replace, but aids the owner manual, adjustment guides and instructions. The procedures shown in this technical manual should only be performed by an Assistive Technology Practitioner (ATP) or clinical professional trained to do wheelchair repairs, adjustments and retrofits.

Additional information can be found in the Catalyst and Spark Owners Manuals. The owners manual and adjustment guides can be found on the Ki Mobility website.

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Tools

The list below identifies tools needed throughout this tech manual. Always check tools to ensure the ends are not stripped and that the tool can perform its function properly without damaging any parts or hardware on the chair.

Tools Needed	
<ul style="list-style-type: none">• 2.5mm Allen Wrench	<ul style="list-style-type: none">• Two 8mm Wrenches
<ul style="list-style-type: none">• 3mm Allen Wrench	<ul style="list-style-type: none">• Two 10mm Wrenches
<ul style="list-style-type: none">• 4mm Allen Wrench	<ul style="list-style-type: none">• 13mm Wrench
<ul style="list-style-type: none">• 5mm Allen Wrench	<ul style="list-style-type: none">• 17mm Wrench
<ul style="list-style-type: none">• 5.5mm Allen Wrench	<ul style="list-style-type: none">• 19mm Wrench
<ul style="list-style-type: none">• 6mm Allen Wrench	<ul style="list-style-type: none">• 24mm Wrench
<ul style="list-style-type: none">• Utility blade	<ul style="list-style-type: none">• Phillips Screwdriver
<ul style="list-style-type: none">• Rubber mallet	

Front Seat Height

The front seat height matrix (shown below) shows the settings available with the forks and stems for the desired front seat height. The steps to achieve the settings, determined after reading the matrices, can be found in the corresponding section in this manual.

NOTE: If front seat height and rear seat height are the same, do not use fork hole 1.

Catalyst Front Seat Height Matrix														
STD FSH - Standard Front Frame Front Seat Height					SL FSH - Super Low Front Frame Front Seat Height					H - Fork Hole Used to Achieve Seat Height				
3" Caster					4" Caster					5" Caster				
STD FSH	SL FSH	H	Stem	Fork	STD FSH	SL FSH	H	Stem	Fork	STD FSH	SL FSH	H	Stem	Fork
14.5	13.5	2	Std	4"	15 ¹	13.5 ¹	2	Std	4"	16	14.5	1	Std	4"
15	14	1			15.5	14	1			16.5	15.5	1		
15.5	14	2	¾		16 ²	14.5 ²	2	¾		17.5	16	1	1 ½	
16	14.5	1	1 ½		16.5	15	1	1 ½		16	15	3	Std	5"
16	15	2			16.5 ²	15 ²	2			17	15.5	3		
16.5	15.5	1			17	15.5	1			17.5	15.5	2	1 ½	
15.5	14.5	2	Std	5"	15.5	14.5	3	Std	5"	17.5	16	2		1 ½
16	15	1			16	15	2			17.5	16.5	3		
16.5	15	2	¾		16.5	15	3	¾		18	17	2	Std	
17	15.5	1	1 ½		17	15.5	2	1 ½		16.5	15.5	4		Std
17	16	2			17	16	3			17	16	3		
17.5	16.5	1			17.5	16.5	2			17.5	16.5	2		
16.5	15.5	2	Std	6"	17	15.5	3	Std	6"	17.5	16	4	¾	6"
17	16	1			17.5	16	2			18	16.5	3		
17.5	16	2	¾		17.5	16.5	3	¾		18.5	17	2	1 ½	
18	16.5	1	1 ½		18	17	2	1 ½		18	17	4		Std
18	17	2			18.5	17	3			18.5	17.5	3		
18.5	17.5	1			19	17.5	2			19	18	2		
					18	17	3	Std	7"	18	16.5	4	Std	7"
					18.5	17.5	2			18.5	17	3		
					19	17.5	3	¾		19	17.5	2	¾	
					19.5	18	2	1 ½		18.5	17.5	4		1 ½
					19.5	18.5	3			19	18	3		
					20	19	2			19.5	18.5	2		
										19.5	18	4	1 ½	
										20	18.5	3		
										20.5	19	2		

¹ Not available with 4 x 1" Poly Caster

² Not available with 4 x 1" Poly, 4 x 1.5" Poly or 4 x 1.5" Soft Roll Aluminum

Front Seat Height

NOTE: If front seat height and rear seat height are the same, do not use fork hole 1.

Catalyst Front Seat Height Matrix

STD FSH - Standard Front Frame Front Seat Height					SL FSH - Super Low Front Frame Front Seat Height					H - Fork Hole Used to Achieve Seat Height					
6" Caster					7" Caster					8" Caster					
STD FSH	SL FSH	H	Stem	Fork	STD FSH	SL FSH	H	Stem	Fork	STD FSH	SL FSH	H	Stem	Fork	
17	15.5	2	Std	5"	18	17	3	Std	6"	19	18	2	Std	6"	
18	16.5	2	¾		18.5	17.5	2			20	18.5	2	¾		
18.5	17	2	1 ½		19	17.5	3	¾		20.5	N/A	2	1 ½		
17	16 ³	4	Std	6"	19.5	18	2	1 ½	7"	19	17.5	5	Std	7"	
17.5	16.5	3			19.5	18.5	3			19.5	18	4			
18	17	2			20	19	2	20		18.5	3				
18	16.5	4	¾		18.5	17.5	5	Std		20.5	19	2	¾		
18.5	17	3			19	18	4			19.5	18.5	5			
19	17.5	2	1 ½		19.5	18.5	3			¾	20	19			4
18.5	17.5	4		20	19	2	20.5	N/A	3						
19	18	3		19	18	5	21	N/A	2						
19.5	18.5	2	Std	7"	19.5	18.5	4	1 ½	20.5	19	5	1 ½			
18	16.5	5			20	19	3		21	N/A	4				
18.5	17	4			20.5	N/A	2		8" X 2" Caster Not Available With 6" Fork						
19	17.5	3	¾		7"	20	18.5	5	1 ½						
19.5	18.5	2				20.5	19	4							
18.5	17.5	5				21	N/A	3							
19	18	4	1 ½	7"											
19.5	18.5	3													
20	19	2													
19.5	18	5	1 ½		7"										
20	18.5	4													
20.5	19	3													
21	N/A	2													
6" x 2" Caster Not Available with 5" Fork															

³ Measures 15.5" with 6 x 2" Poly Caster

Spark and Catalyst 5 Depth/Width Tables

The tables below show the growth potential in a Spark and Catalyst 5 chair. The steps to achieve the changes in width and depth can be found in the corresponding sections in this manual.

Spark Depth Growth		
Depth Ordered	Forward Adjustment	Rearward Adjustment
12"	0"	4"
13"	1"	3"
14"	1"	3"
15"	1"	3"
16"	1"	3"
17"	2"	2"
18"	3"	1"

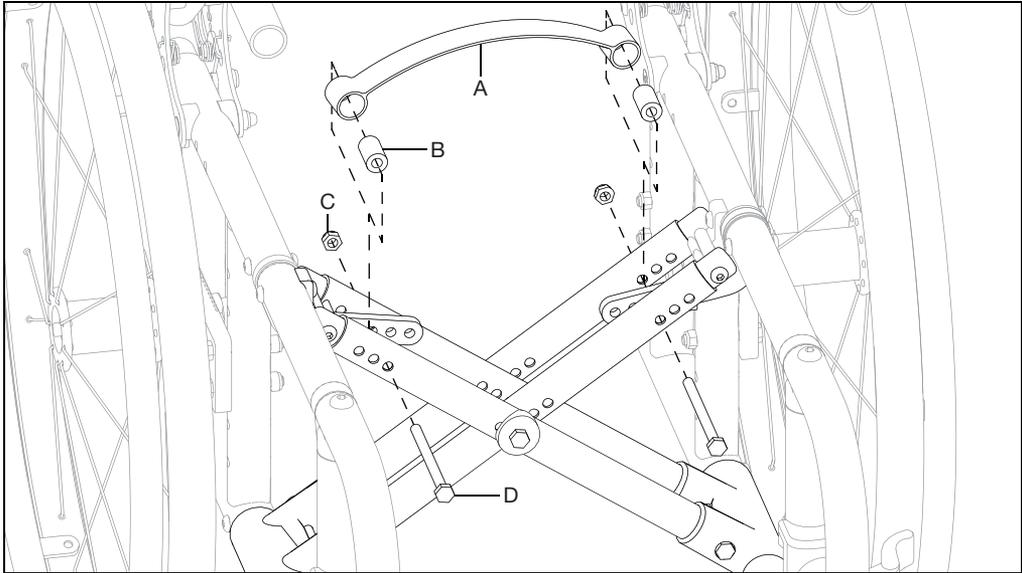
Spark Width Growth	
<i>Growth built into chair (different footplates/seat pan may be needed)</i>	
Width	Grows To
10"	11"
11"	13"
12"	14"
13"	15"
14"	16"
15"	16"
16"	16"

Catalyst 5 Depth Adjustable Growth		
Depth	Forward Adjustment	Rearward Adjustment
14"	0"	4"
15"	1"	3"
16"	2"	2"
17"	2"	2"
18"	2"	2"
19"	2"	2"
20"	2"	2"

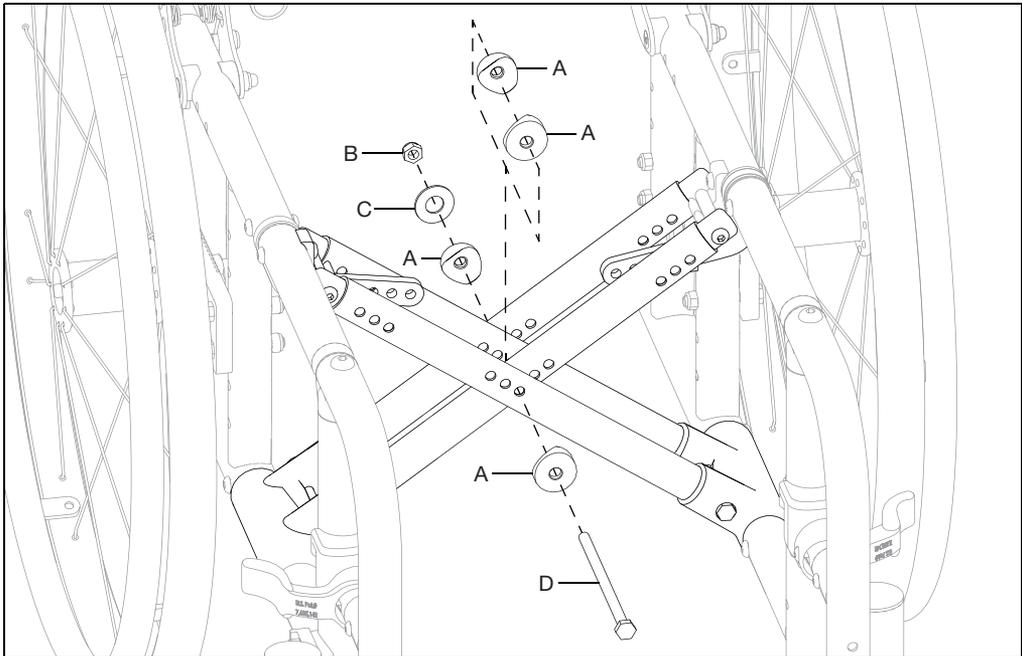
Spark Frame Width Adjustment

NOTE: Remove any seating/cushions that may be on the chair and would prevent access to the cross braces and/or prevent the chair from changing width.

1. To adjust the chair width, remove the bolt (D), cross tube lift strap (A), spacer (B), and nut (C) using two 10mm wrenches at the top of the cross braces. Repeat on opposite side.



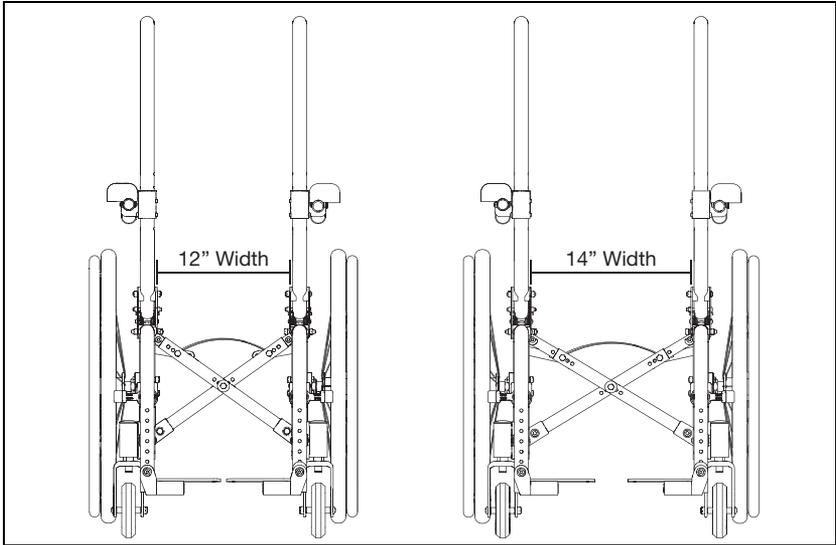
2. Remove the bolt (D), four saddles (A), washer (C), and nut (B) from the center point of the cross braces using two 10mm wrenches.



Spark Frame Width Adjustment

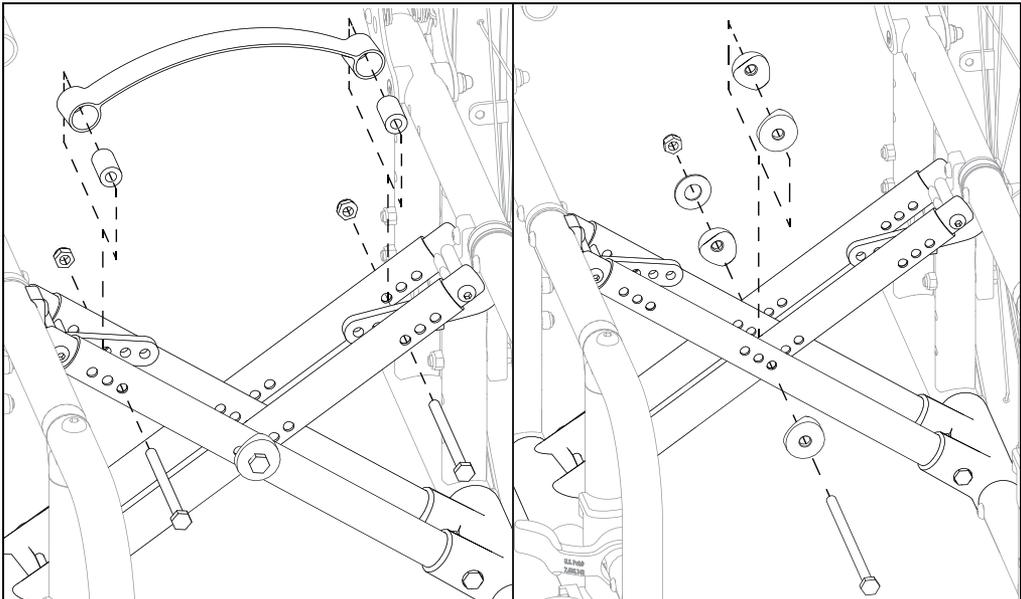
- Adjust the cross braces to the desired width. The example below shows a chair that went from 12" width to a 14" width.

NOTE: The center point of the cross braces changes as the width changes to keep the seat height the same.



- Secure the cross braces in the new desired width by reinstalling the hardware from steps 1 and 2 into the new configuration holes using two 10mm wrenches. Ensure the chair folds and unfolds when complete. Do not overtighten assembly. Overtightening will cause the chair to be difficult to fold and unfold.

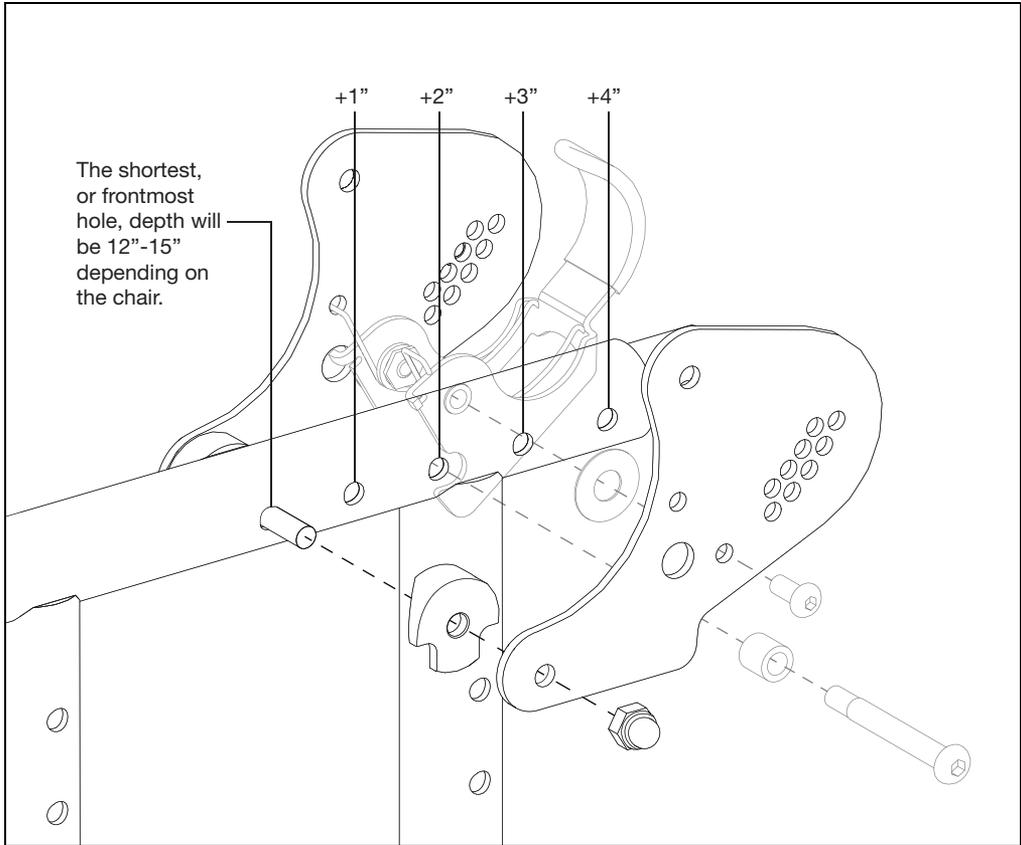
NOTE: The holes shown below are to show the hardware installation. Install the hardware in the same manner in the holes necessary for your desired chair width.



Depth Adjustment

See the Standard Depth Adjustable Backrest section for information on how to install the depth adjustable frame and backrest.

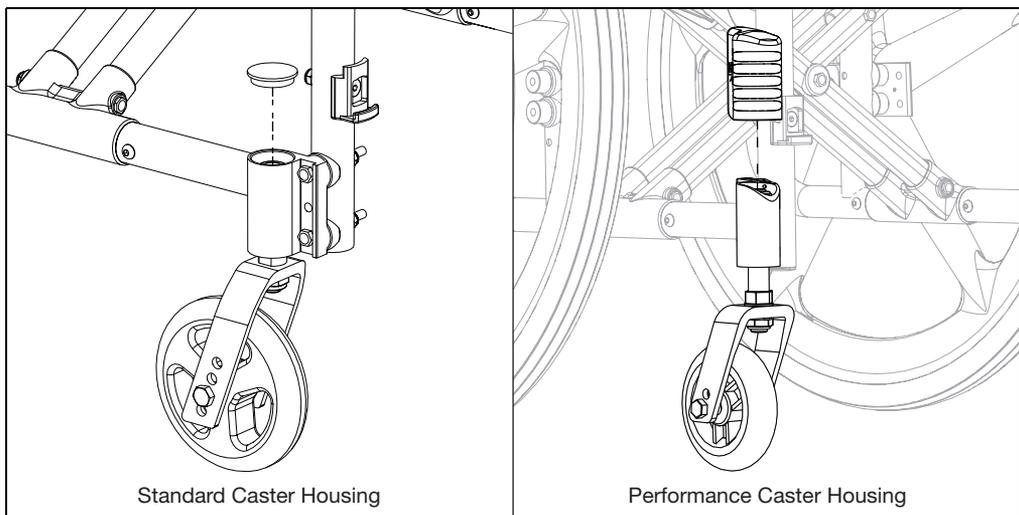
NOTE: The Spark allows a 4" increase in frame depth from initial frame depth in 1" increments. 19" is the maximum frame depth. See example below.



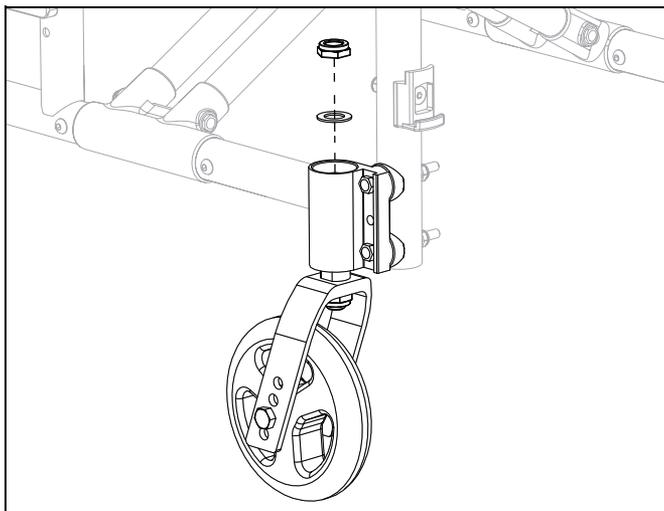
Fork and Stem

Remove Current Fork and Stem

1. For a standard caster, remove the cap off the top of the caster housing. For a performance caster, slide the housing up and off.

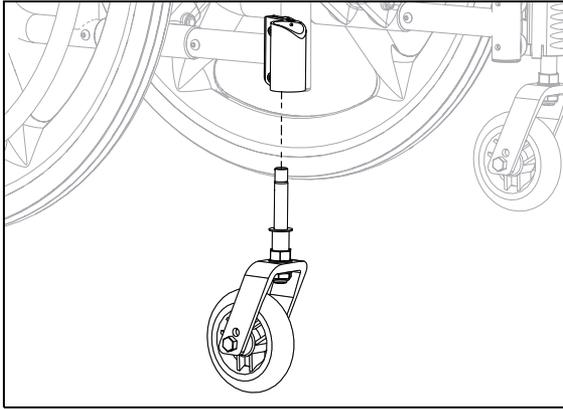


2. Use a 19mm or $\frac{3}{4}$ " socket wrench to remove nut inside caster. Hold the caster while removing the nut.



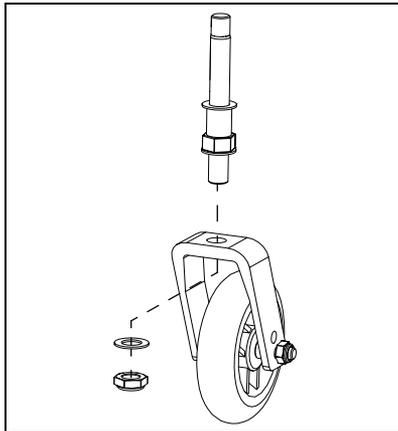
Fork and Stem

- Slide the caster assembly out of the caster housing.

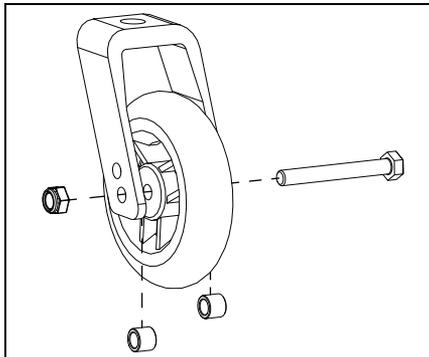


- Remove the caster stem using a 19mm ($\frac{3}{4}$ ") socket wrench on the bottom nut. Save all hardware and stem if you are not replacing the stem.

NOTE: The hardware on the stem of your chair may look different than what is shown below depending on the size of your fork and stem. The method of removing the stem is the same for all sizes.



- If you are replacing your forks, remove the bolt, nut and two spacers, per caster, using two 13mm wrenches.



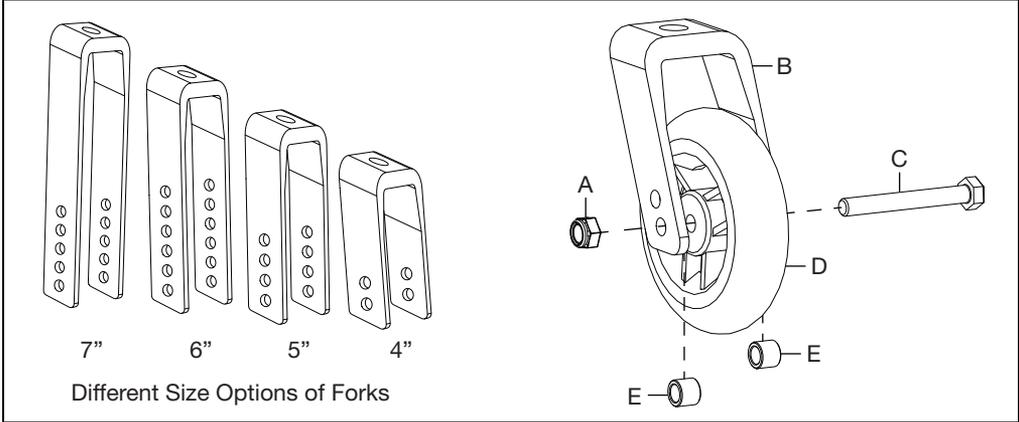
Fork and Stem

Install Fork and Stem

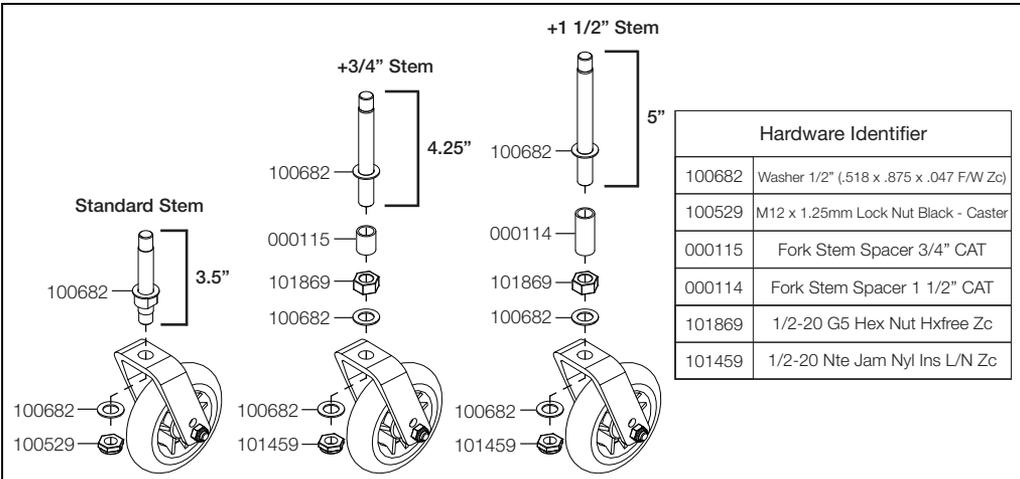
6. Install new fork (B) onto caster (D) with one bolt (C), one nut (A) and two spacers (E) per side using two 13mm wrenches.

NOTE: Wide forks use a different bolt (80mm long instead of the 65mm long) and spacers (wide forks use the black spacers) than the standard forks.

NOTE: There are different size options of forks and different height options with the holes in the forks.

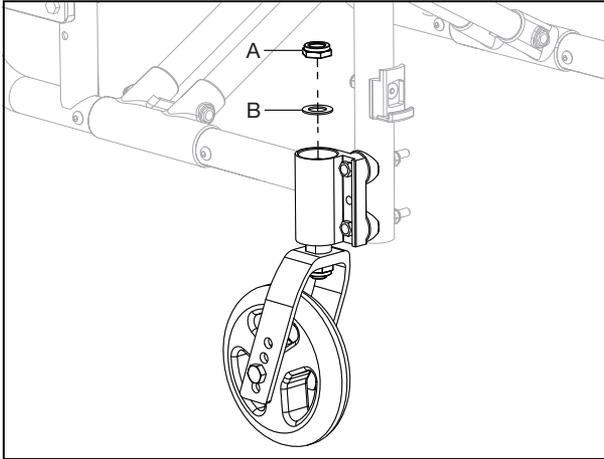


7. Install new stem or reinstall stem saved from step 4. Install hardware based on the size stem you are using. Use a torque wrench to tighten the bottom nut (100529 or 101459) to 55 ft.-lbs. See image below.

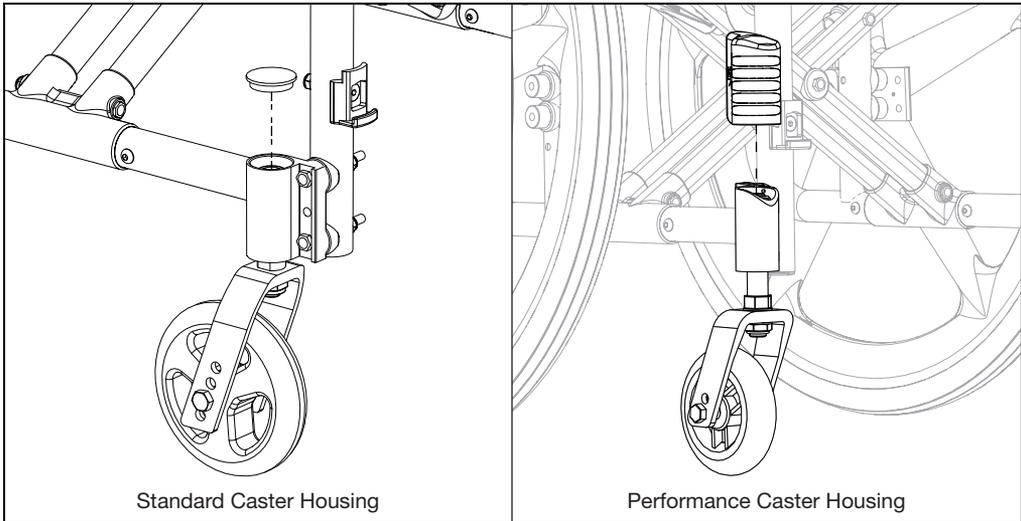


Fork and Stem

8. Secure stem and caster assembly in the caster housing using a washer (B) and nut (A) using a 19mm or $\frac{3}{4}$ " wrench. Tighten the top nut all the way and then back it off one quarter of a turn.



9. For a performance caster, slide the housing back over the caster and for a standard caster, pop the cover back onto the caster.

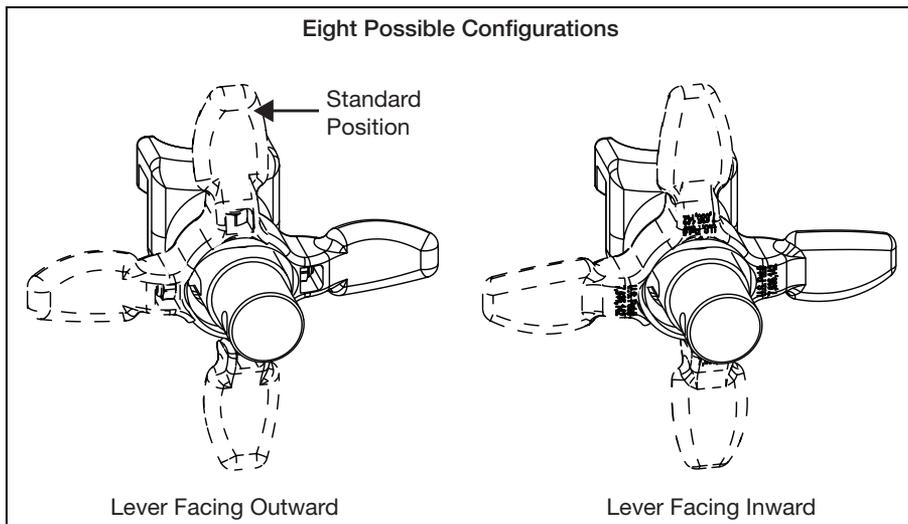


Standard Caster Housing

Performance Caster Housing

Rotating 4-Way Latch

The 4-Way latch has eight possible configurations, four with the curve of the lever facing outward and four with the curve of the lever facing inward. See diagram below.

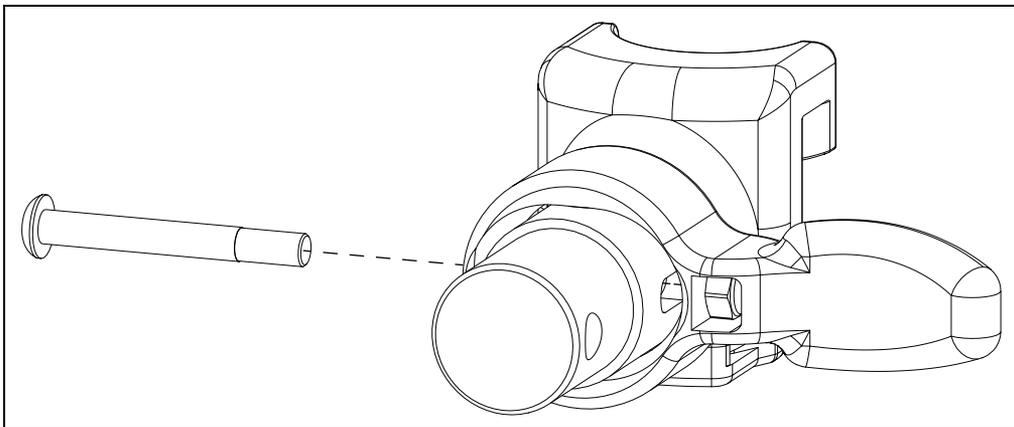


Rotating

10. To rotate the 4-Way Latch, remove the screw using a 3mm Allen wrench while the hanger is still on the chair (spring must be engaged to remove and reinsert screw and keeping the hanger on the chair keeps the spring engaged.) Ensure the nut does not fall out.
11. Rotate the 4-Way Latch to the desired orientation and reinsert the screw with a 3mm Allen wrench. Ensure the nut stays in position while tightening the screw. Do not overtighten the screw or the mechanism will bind.

NOTE: To reverse the 4-way latch, the same screw is removed, but the hanger has to be removed from the latch block. Once removed, slide the latch off, flip over and reinstall. To ensure the spring is engaged, push and hold the latch button in so the nut stays in a position while reinstalling the screw.

NOTE: In-line position is not achievable with the Pro ELR Footrest option.

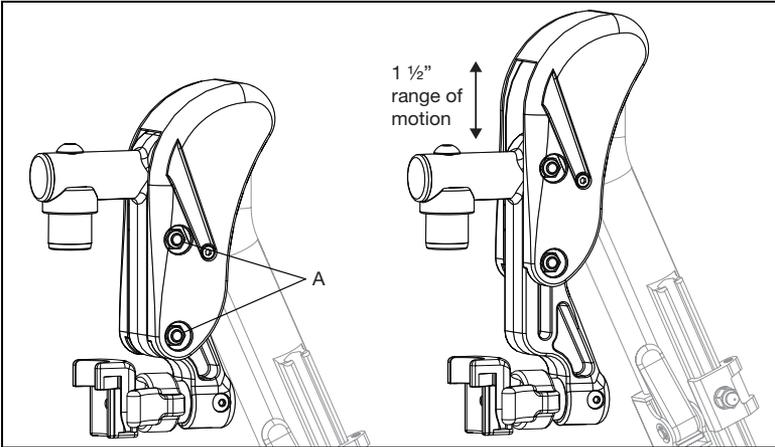


Pro ELR Adjustment

NOTE: Instructions for adjusting the height of the calf pad, the depth of the calf pad and the length of the footrest can be found in the owner manual in the Pro Elevated Leg Rest section.

Adjusting Knee Height

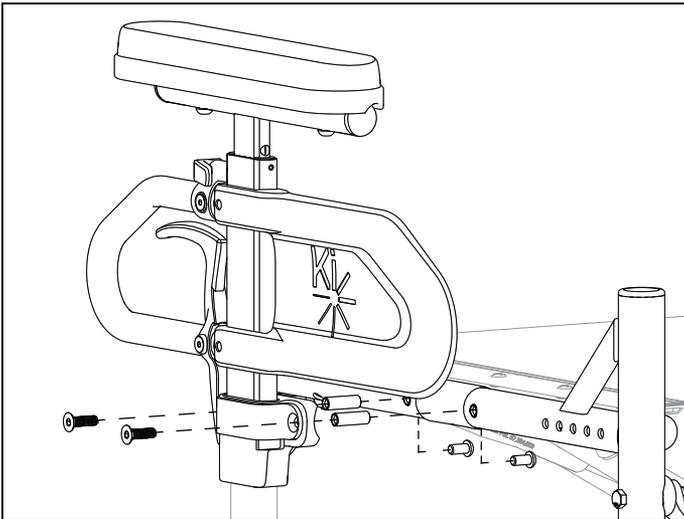
1. Using two 10mm socket wrenches, loosen the two nuts (A) on the cover.
2. Adjust the knee height to the desired setting.
3. Retighten the two nuts (A) after the desired height is attained.



Height Adjustable T-Arm

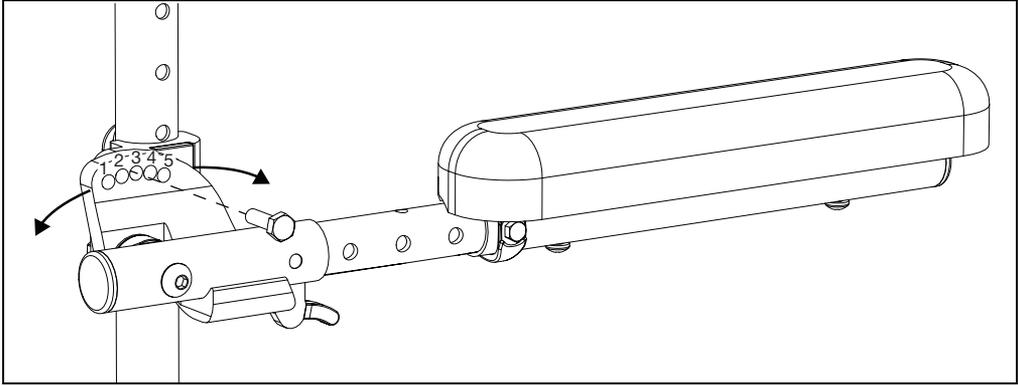
1. Install the T-Arm onto the chair with the four screws and the two threaded barrels using two 4mm Allen wrenches. The two outside screws go through the armrest receiver holes.

NOTE: If the screws for the armrest receiver coincide with the seat frame screws, remove the seat frame screws and replace with the armrest receiver screws.

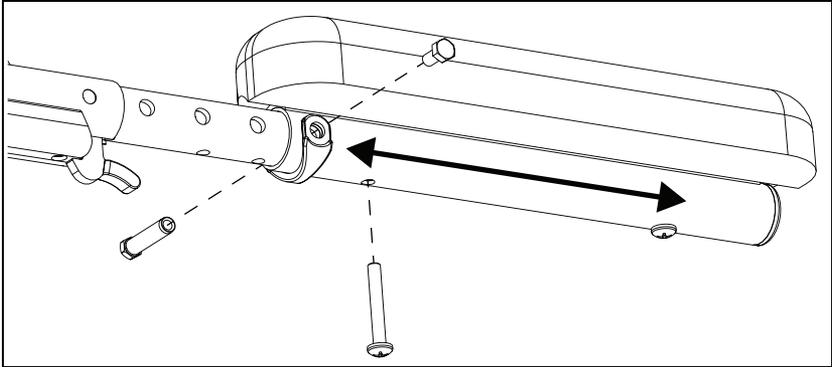


Angle Adj. Locking Flip Up Extendable Armrest

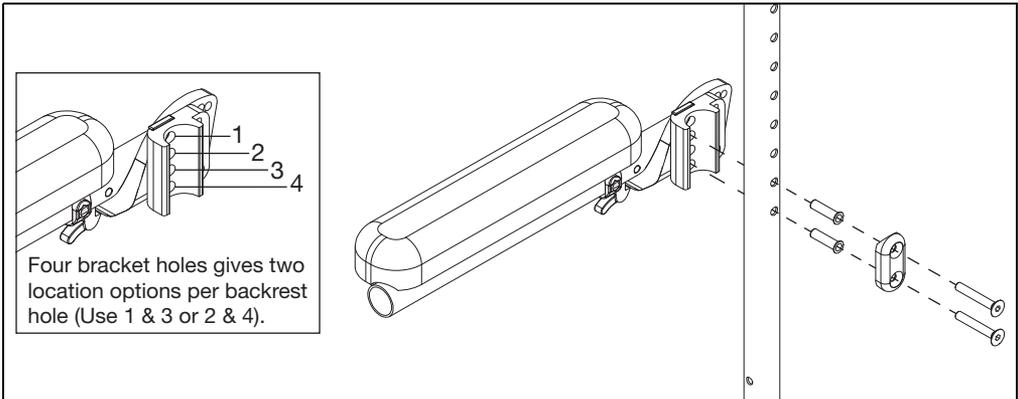
1. Set the angle of the armrest. There are five holes that can be used to set the angle. Tighten the bolt once angle is set.



2. Set the length of the armrest. To adjust the length, remove the bolts and spacer on the tube and the screw closest to the back of the chair. Slide the armrest to desired length using the predrilled holes and reinstall the screw and bolts.



3. Set the height of the armrest. There are four holes on the armrest that allow for two different height settings for each set of holes on the back tube. Use the holes that provide the correct height setting for the user. The two bolts pass through the spacer, sleeves, back posts and into the armrest.



Height Adjustable Flip Back T-Arm - Available on Catalyst 4, 5 & 5VX

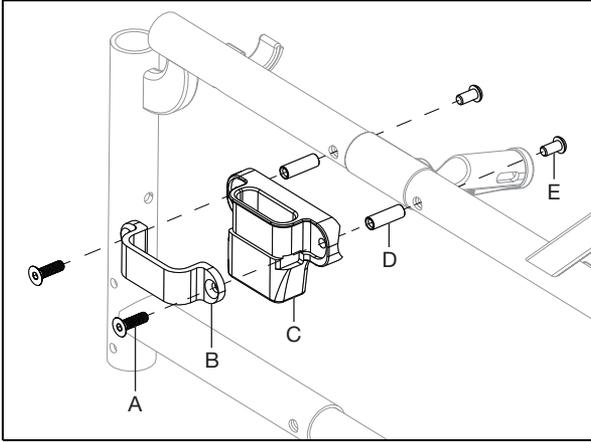
Installing Height Adjustable Flip Back Armrest

NOTE: There are two lengths of the arm pads, full and desk, and also two lengths of the side shields, short and long. These are installed in the same manner, no matter the size.

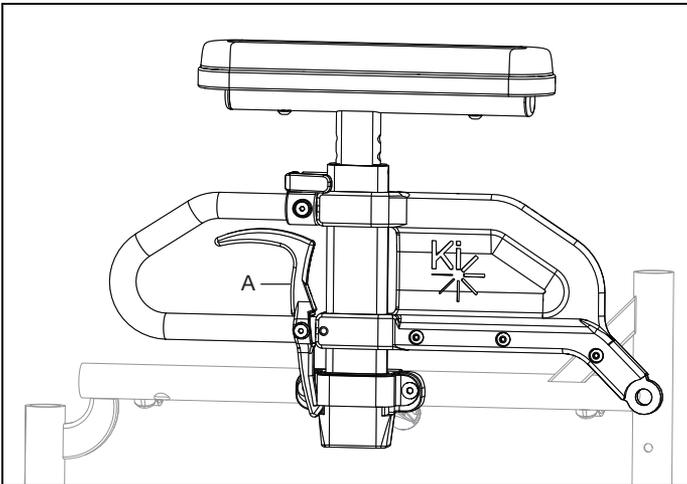
1. Remove the current armrest if present.

NOTE: If you have a non-pediatric T-Arm on your chair, the T-Arm receiver will remain on the chair and the next step, for installing the T-Arm receiver, can be skipped.

2. Install the T-Arm receiver (C) and the bracket (B) onto the frame with two flat head cap screws (A), two button head cap screws (E) and two barrel nuts (D) using two 4mm Allen wrenches.



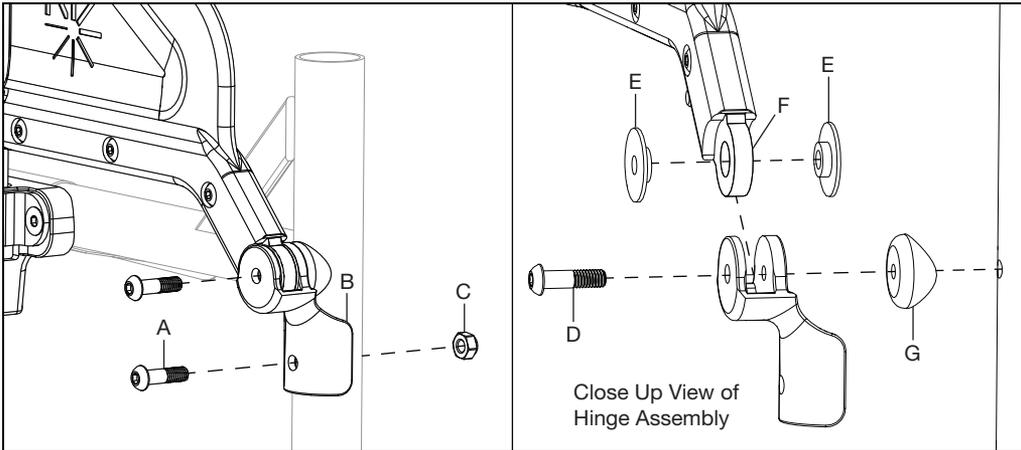
3. Install the Height Adjustable Flip Back Armrest assembly into the receiver until the release trigger (A) locks into place.



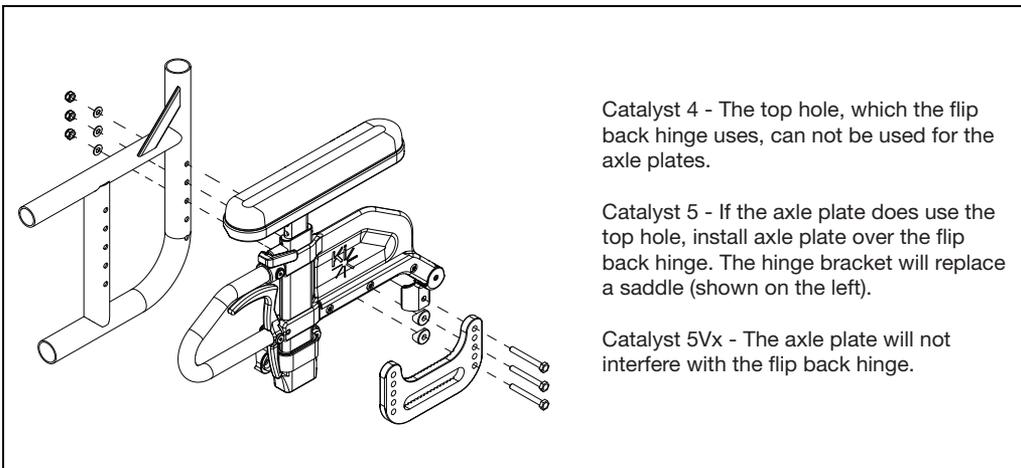
Height Adjustable Flip Back T-Arm - Available on Catalyst 4, 5 & 5VX

4. Install the flip back hinge (B) onto the rear frame tube with button head cap screw (A) and nut (C) using a 4mm Allen wrench and a 10mm wrench. Install the metal insert (F) from the armrest assembly into the flip back hinge (B). Secure with button head cap screw (D) which goes through the hinge, bushing (E), metal insert (F), bushing (E) and the spacer (G). Use a 4mm Allen wrench to tighten snug. Do not overtighten.

NOTE: The button head cap screw (D) securing the armrest assembly to the flip back hinge controls the tension of the swing. Loosening the screw will cause the armrest assembly to swing more freely while tightening the screw will increase the tension and prevent the armrest from dropping down quickly.



NOTE: Different lengths of the screws have been provided in the kit because of the different configurations that are possible with the flip back hinge. Use the length that fits your configurations. Also, see image below for axle plate configuration information. The order of parts when stacking different options are as follows: the axle plates go to the outside of the frame (standard), transit brackets are mounted on the inside of the chair, right up against the frame (standard), anti-tips can be mounted on top of the transit brackets, not touching the frame.



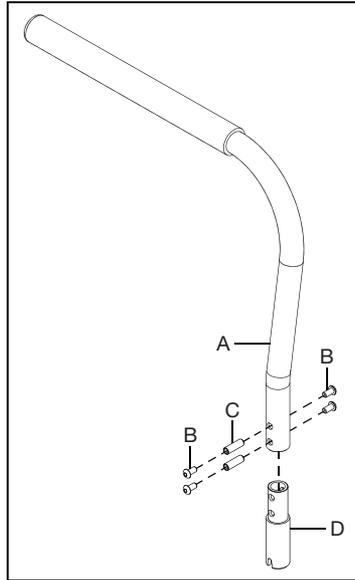
Catalyst 4 - The top hole, which the flip back hinge uses, can not be used for the axle plates.

Catalyst 5 - If the axle plate does use the top hole, install axle plate over the flip back hinge. The hinge bracket will replace a saddle (shown on the left).

Catalyst 5Vx - The axle plate will not interfere with the flip back hinge.

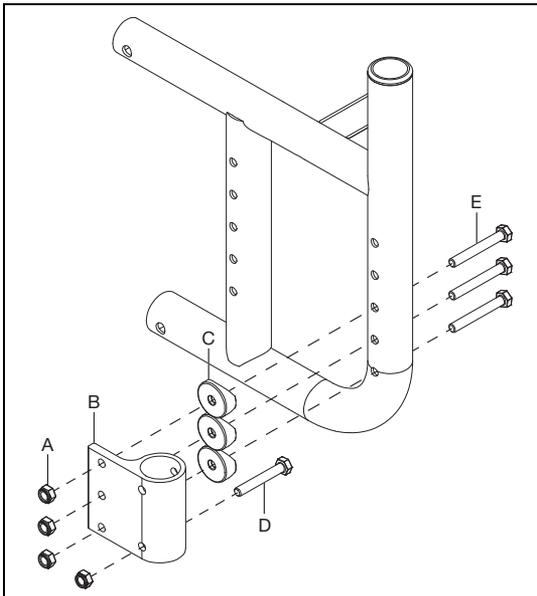
Swing Away Armrest - Available on Catalyst 4, 5 & 5VX

1. Install the swing away armrest cane (A) onto the swing away armrest lower (D) with four bolts (B) and two threaded barrels (C) using two 4mm Allen wrenches. Repeat with second armrest cane set.



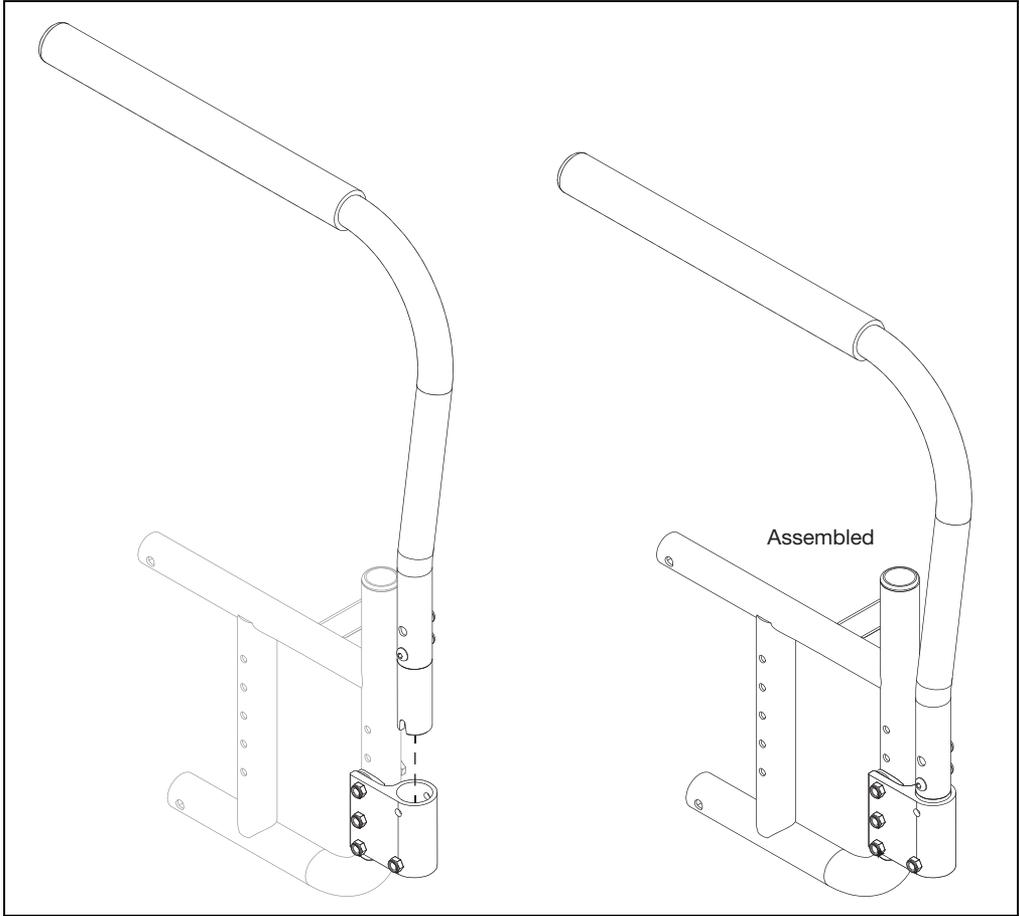
2. Install the swing away receiver (B) on the inside of rear frame with three bolts (E), three saddles (C) and three nuts (A) using two 10mm wrenches. Install the stop bolt (D) into the bottom of the receiver with nut (A) using two 10mm wrenches. Repeat on opposite side.

NOTE: Different lengths of the screws have been provided in the kit because of the different configurations that are possible with the swing away armrest. The order of parts when stacking different options are as follows: the axle plates go to the outside of the frame (standard), transit brackets are mounted on the inside of the chair, right up against the frame (standard), anti-tips can be mounted on top of the transit brackets, not touching the frame.



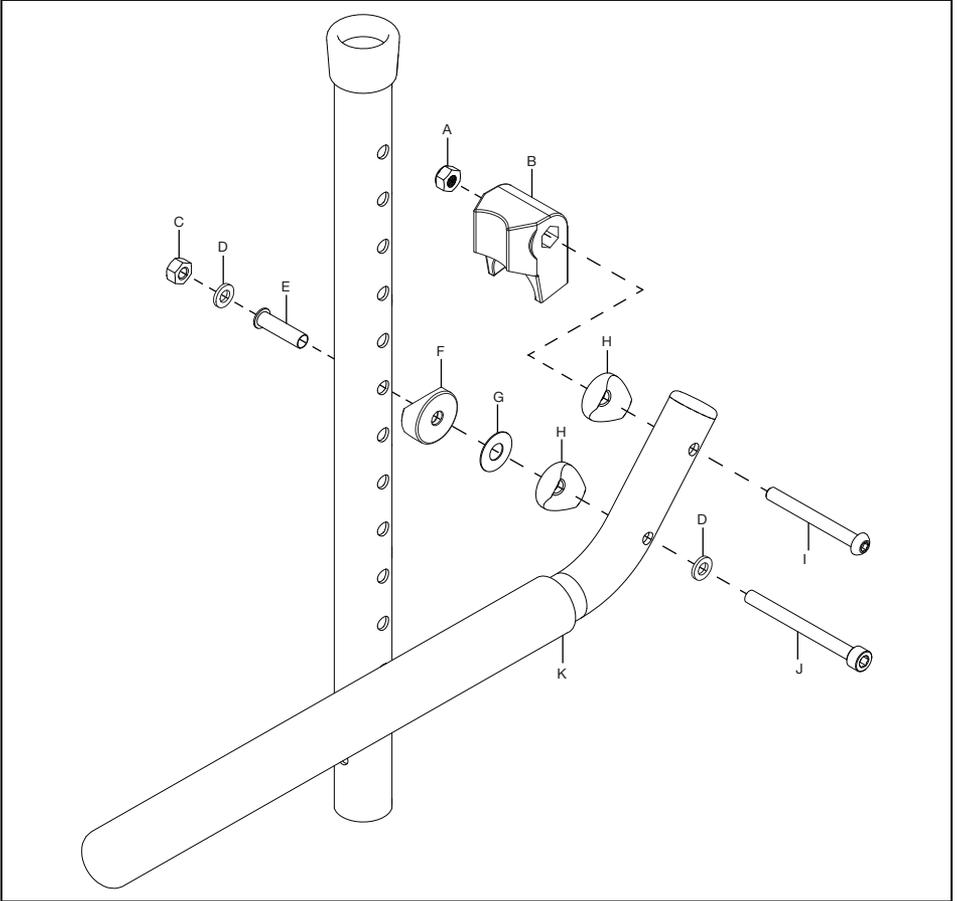
Swing Away Armrest - Available on Catalyst 4, 5 & 5VX

3. Install the swing away armrest assembly into the receiver. The notch in the bottom of the tube will rest on the stop bolt inside the receiver. Repeat on opposite side. To swing the armrest, lift the armrest so the notch clears the stop bolt and turn.



Tubular Flip Up Armrest - Available on Spark

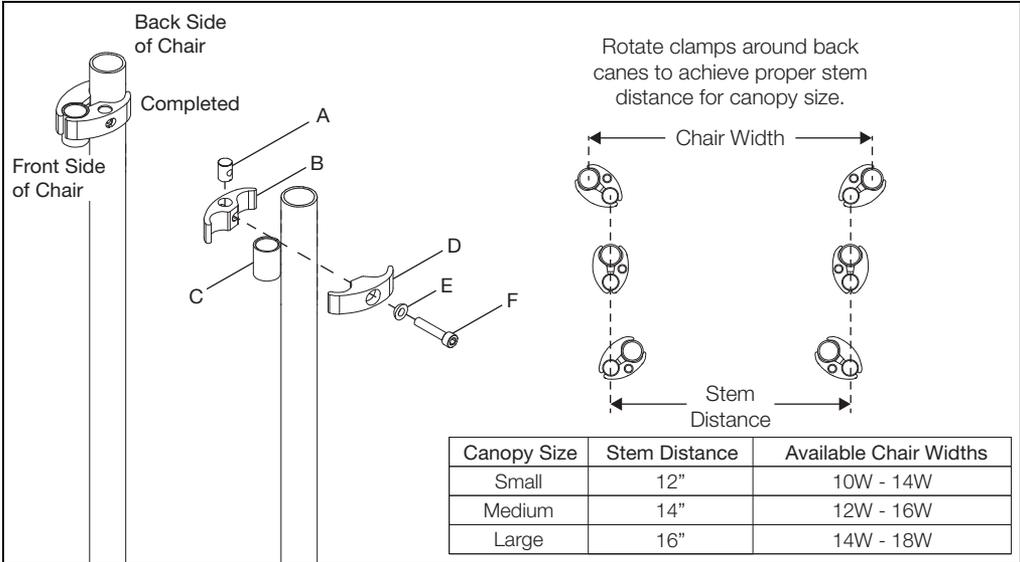
1. Install the stop block (B) onto the tubular flip up armrest tube (K) and secure with bolt (I), saddle (H) and nut (A) using a 4mm Allen wrench and a 10mm wrench. Secure the armrest tube to the backrest tube (armrest mounts on the outside of chair) with bolt (J), washer (C), two saddles (F & H), washer (G), sleeve (E), washer (C) and nut (D) using a 4mm Allen wrench and a 10mm wrench. Repeat on opposite side.



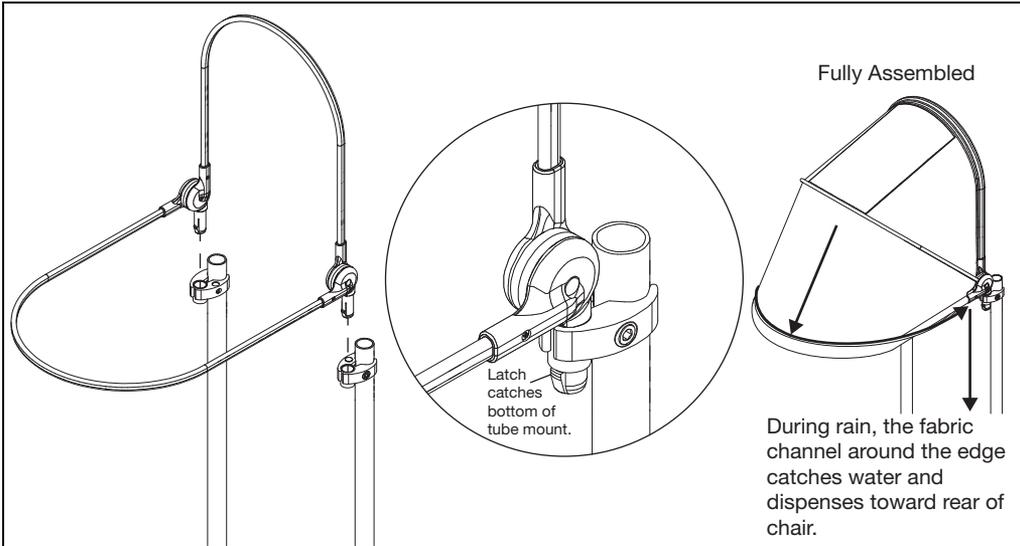
Installation

1. Install tube mount (C), inner clamp (B), outer clamp (D), barrel nut (A), spherical washer (E) and bolt (F) onto backrest tube using a 5mm Allen wrench. Repeat on opposite side.

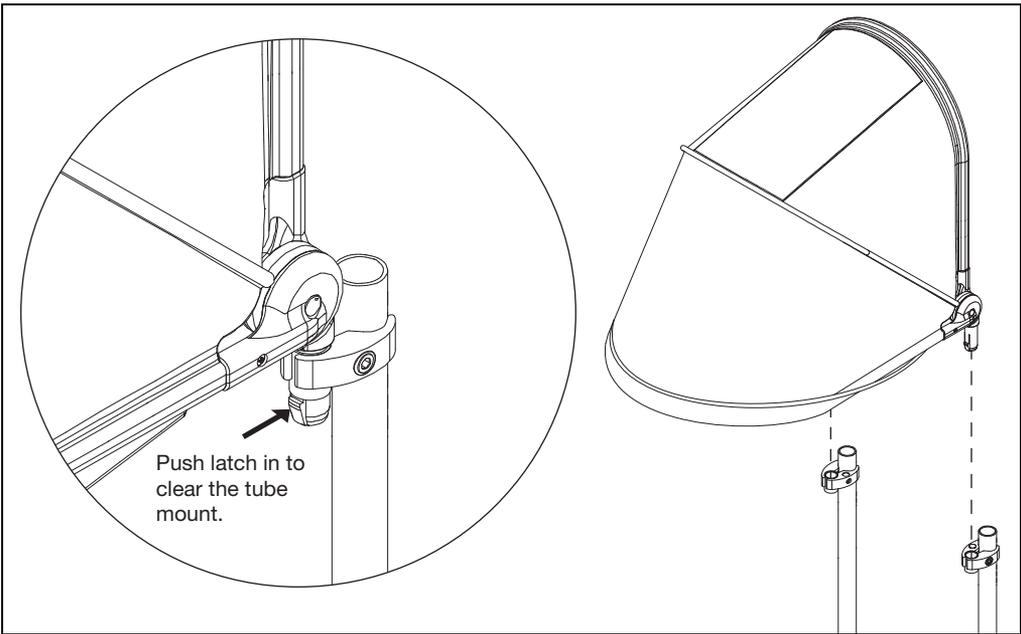
NOTE: The clamps may need to be rotated to accommodate the chair width while remaining in the correct distance for the stems. See the chart below if a different canopy size is needed.



2. Drop the canopy assembly stems into the tube mounts. Ensure latch catches to secure the canopy assembly in the tube mounts. For rain, ensure the fabric around the edge is folded to create the channel which catches water and dispenses it behind the chair.



3. To remove just the canopy, push in the latch on both stems and lift up and out of tube mount.



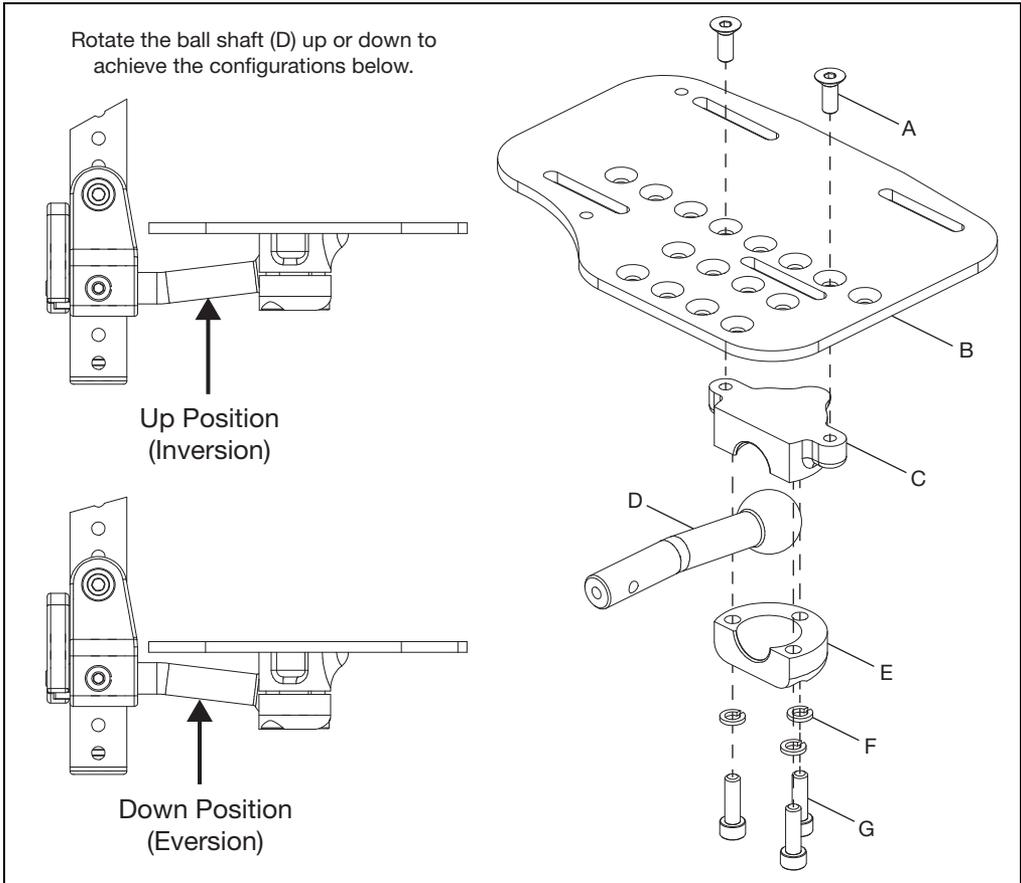
Multi-Angle Footrest - Available on Catalyst 5 / 5TTL, Spark

Installation

1. Determine which configuration the ball shaft (D) will need to be in - down (eversion) or up (inversion). See figure below for example. Install footplate (B) onto upper footrest clamp (C) with two screws (A) using a 4mm Allen wrench. Install ball shaft (D) into lower footrest clamp (E) and secure to the upper footrest clamp using three screws (G) and three lock washers (F) using a 5mm Allen wrench.

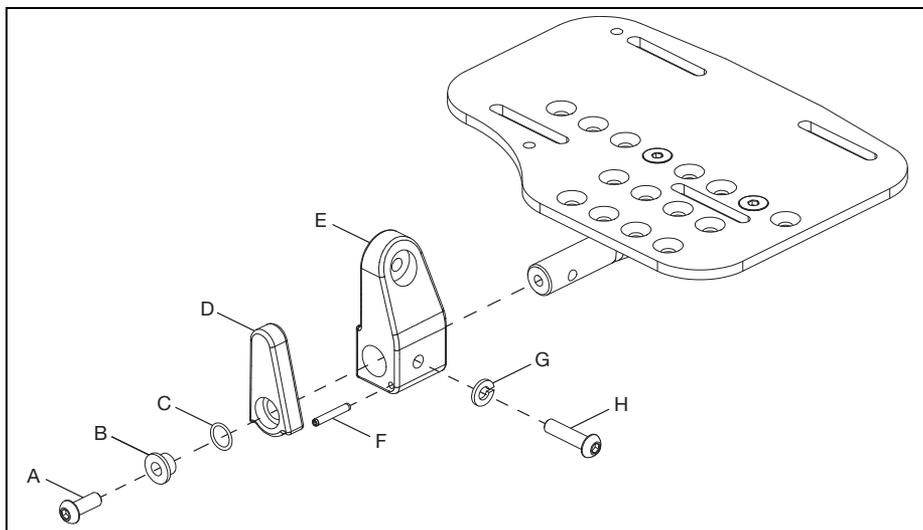
NOTE: Install the footplate to the upper footrest clamp using the set of holes needed for the desired configuration. The holes allow the footplate to be moved further inward or outward depending on preference.

NOTE: Torque the three screws (G) to 144 in/lbs.



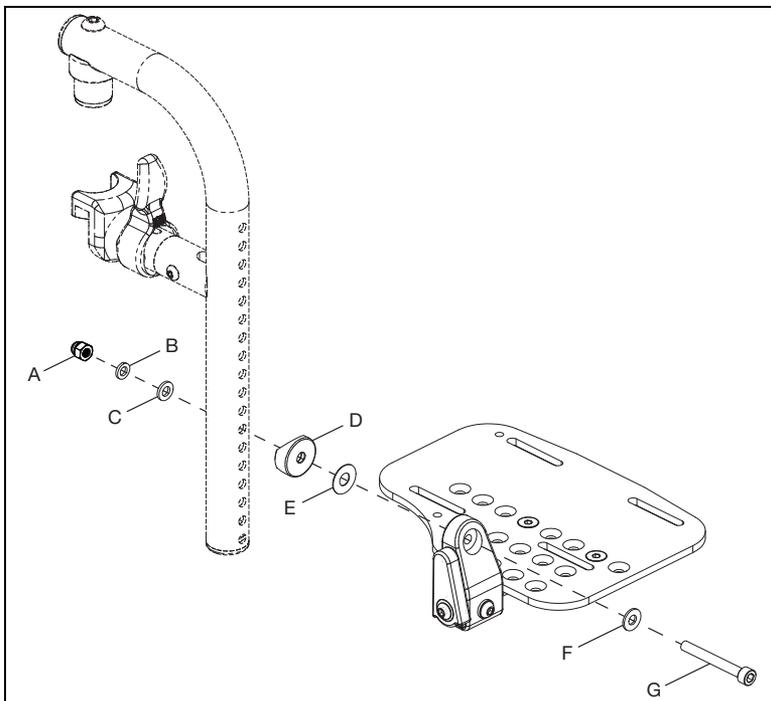
Multi-Angle Footrest - Available on Catalyst 5 / 5TTL, Spark

2. Install footrest mount (E) onto the end of the ball shaft and secure with screw (H) and lock washer (G) using a 4mm Allen wrench. Install the flip-up latch (D) onto the footrest mount and secure with latch spring (C), bushing (B) and screw (A) using a 4mm Allen wrench. Push spring pin (F) into the footrest mount to limit the movement of the flip-up latch.



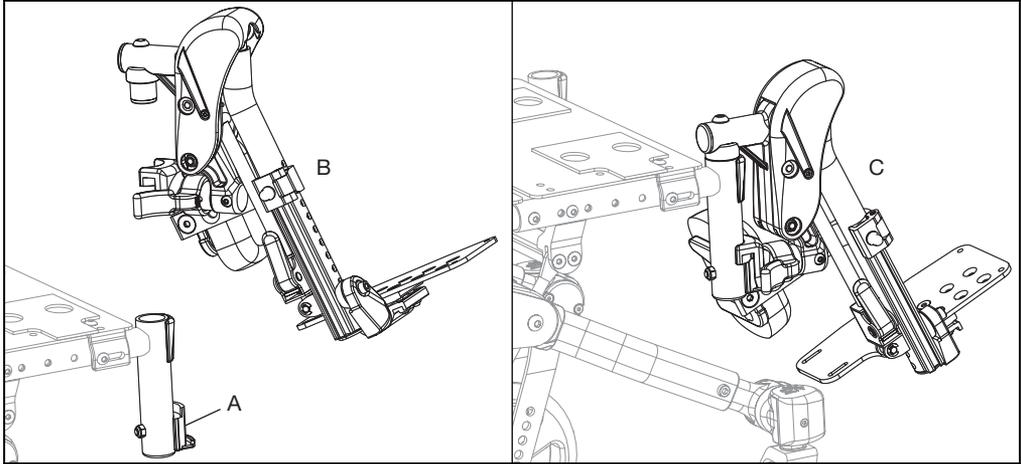
3. Install footplate assembly to hanger with screw (G), washer (Fig. 3:F), washer (E), saddle spacer (D), washer (C), washer (B) and nut (A) using a 5mm Allen wrench and a 10mm wrench.

NOTE: Install footplate assembly to hanger using the correct holes for the desired footrest height.



Installing Pediatric Pro Elevated Leg Rest Assembly

1. Remove current hangers from chair if applicable. Install latch blocks (A) if not present.
2. Install the Pediatric Pro ELR the same way as a swing away hanger. Place the swing away pivot saddle into the receiver on the front frame tube with the leg rest facing either inward or outward from the frame (B).
3. Rotate the leg rest so it aligns with the frame until it locks into place in the latch block (C).

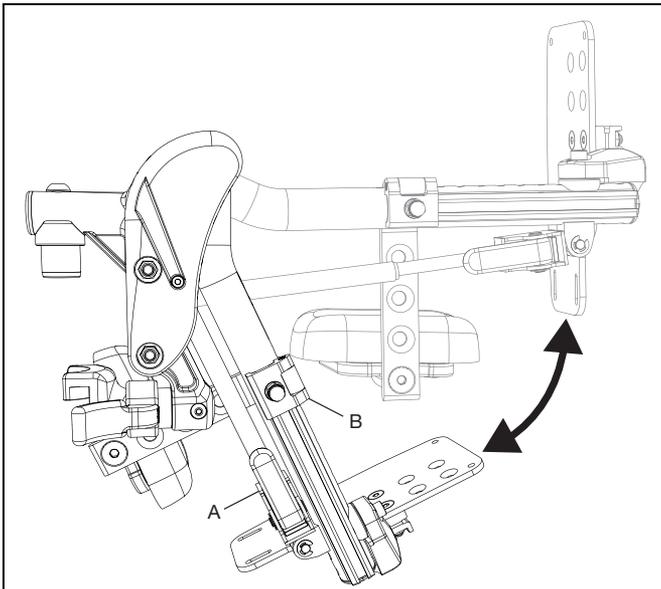


Use

1. To raise the Pediatric Pro ELR, lift the leg rest tube (B) to desired angle of elevation.
2. To lower the Pediatric Pro ELR, press and hold the lever lock (A) while pushing the leg rest tube (A) down.

NOTE: Support or remove weight from the Pediatric Pro ELR while lowering to avoid a sudden drop when the lever lock is pushed.

NOTE: The calf pad can swing outward to clear the front of the chair for transfers.



Removal (Refer to first image in Pediatric Pro ELR Section)

1. To remove leg rest, push or pull release latch.
2. Lift the leg rest straight upward to remove. You may also swing the leg rest inward or outward before lifting it off.

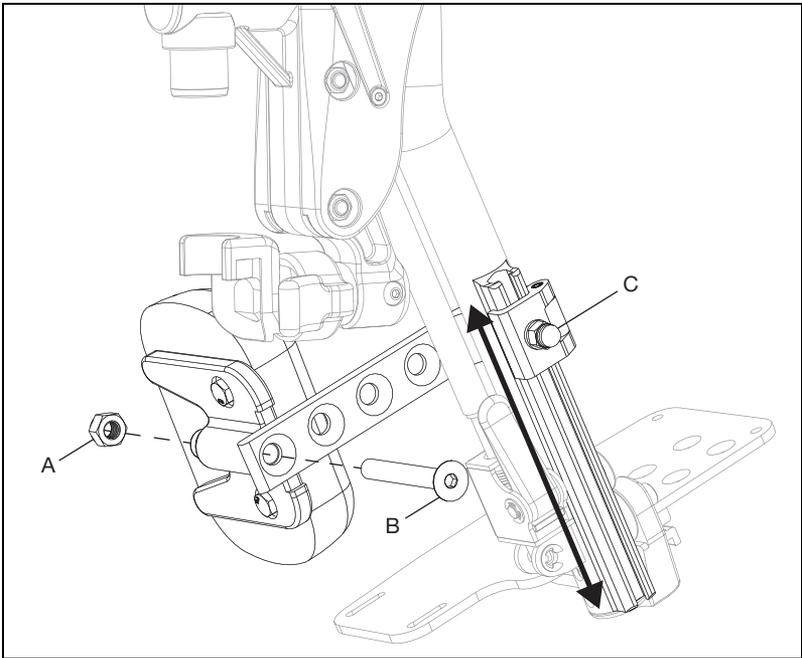
Adjusting Calf Pad

Adjusting Height of Calf Pad

1. Loosen nut (C) using a 10mm wrench.
2. Slide calf pad arm up or down to desired location. Retighten nut.

Adjusting Depth of Calf Pad

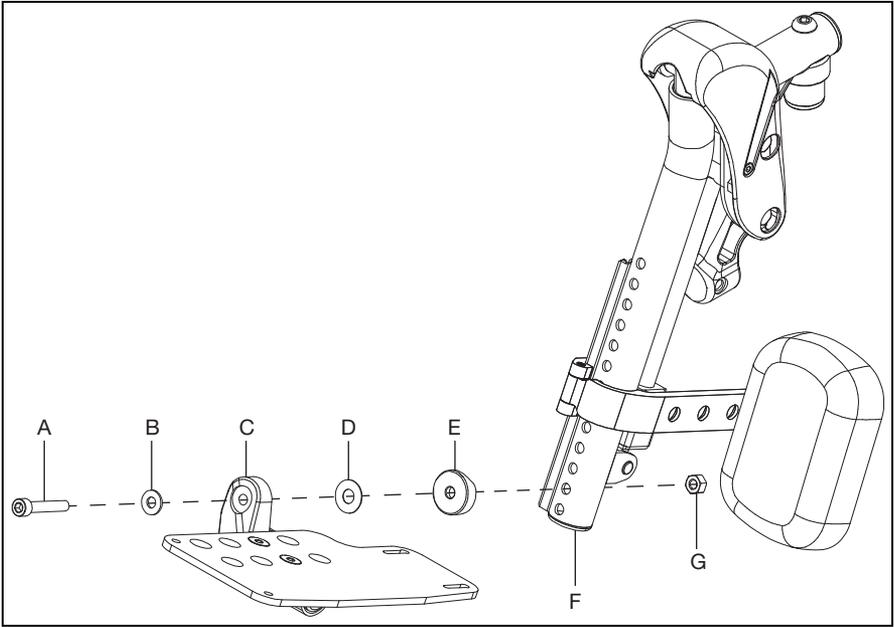
1. Remove screw (B) and nut (A) on calf pad arm using a 5mm Allen wrench and a 13mm wrench.
2. Pick the desired location based on the four predrilled holes and reinstall screw and nut.



Adjusting Length of Footrest

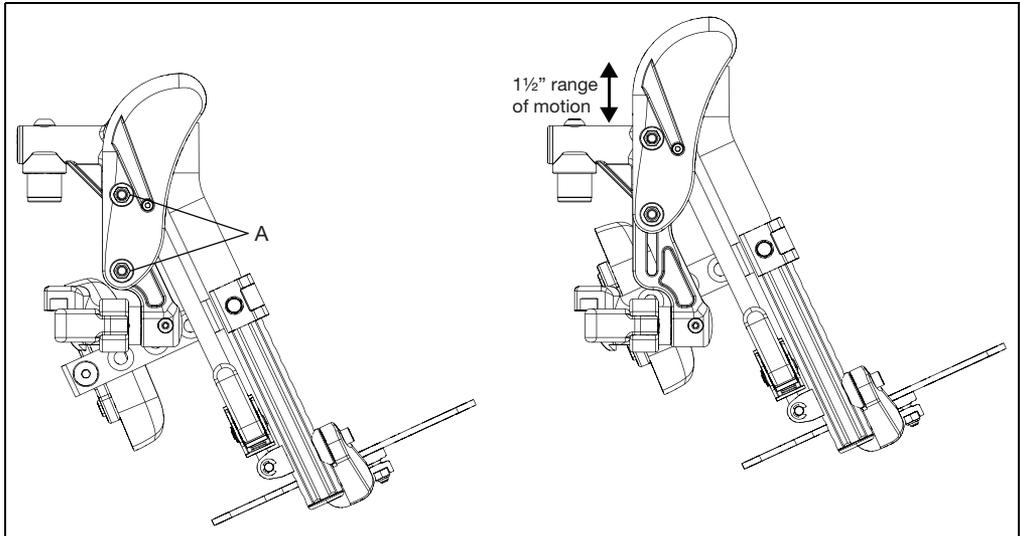
1. Remove bolt (A), washer (B), footplate assembly (C), washer (D), saddle (E), nut (G) and ensure footrest tube insert (F) stays in tube using a 5mm Allen wrench and a 10mm wrench.
2. Move footplate to desired height and reinstall hardware to secure in the hole closest to desired height.

NOTE: Move the calf pad as needed when adjusting the length of the footrest.



Adjusting Knee Height

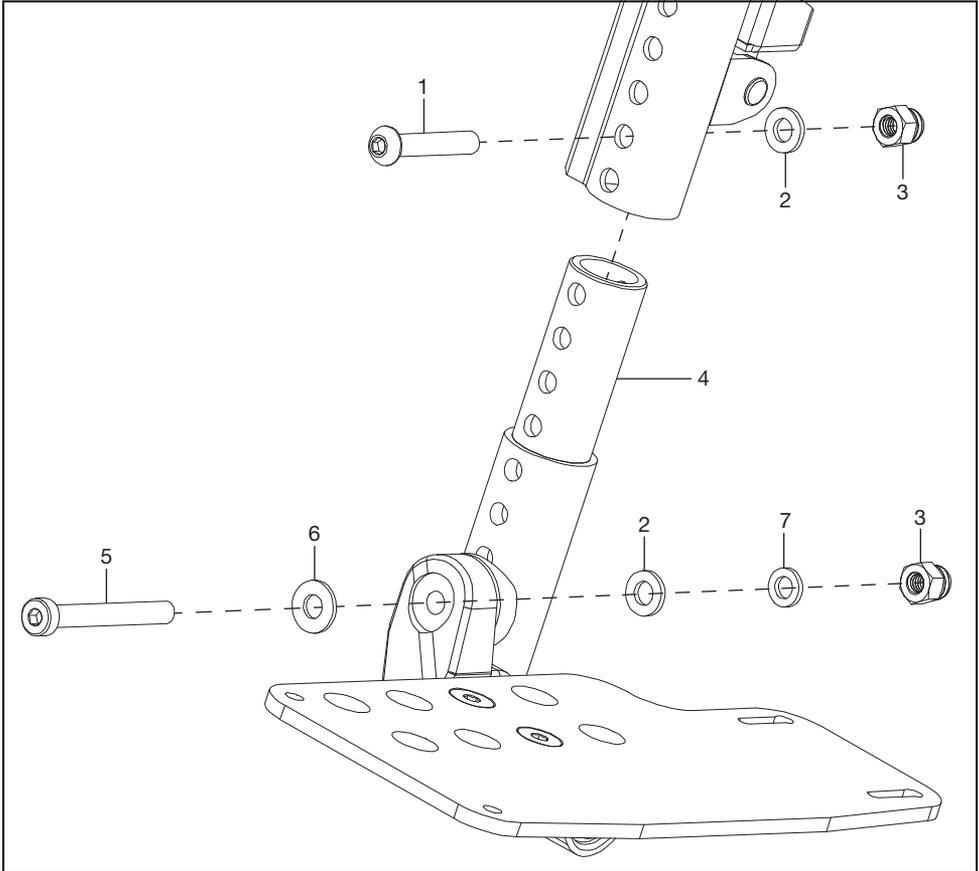
1. Using two 10mm socket wrenches, loosen the two nuts (A) on the cover.
2. Adjust knee height to desired setting.
3. Retighten the two nuts (A).



Extension Mount Configuration

Some configurations may require an extension mount to avoid interference with the footplate. Use a 5mm Allen wrench, a 4mm Allen wrench and a 10mm wrench to attach your footplate to the extension mount and the extension mount to the hanger assembly. Extension mount hardware is included in a separate bag.

NOTE: The footrest tube insert is not used when the extension mount is used and the hardware for attaching is different. See figure below for parts diagram (not all parts are sold individually, refer to parts manual for additional information at www.kimobility.com) and the part description chart below (the rest of the assembly is shown on the next pages).



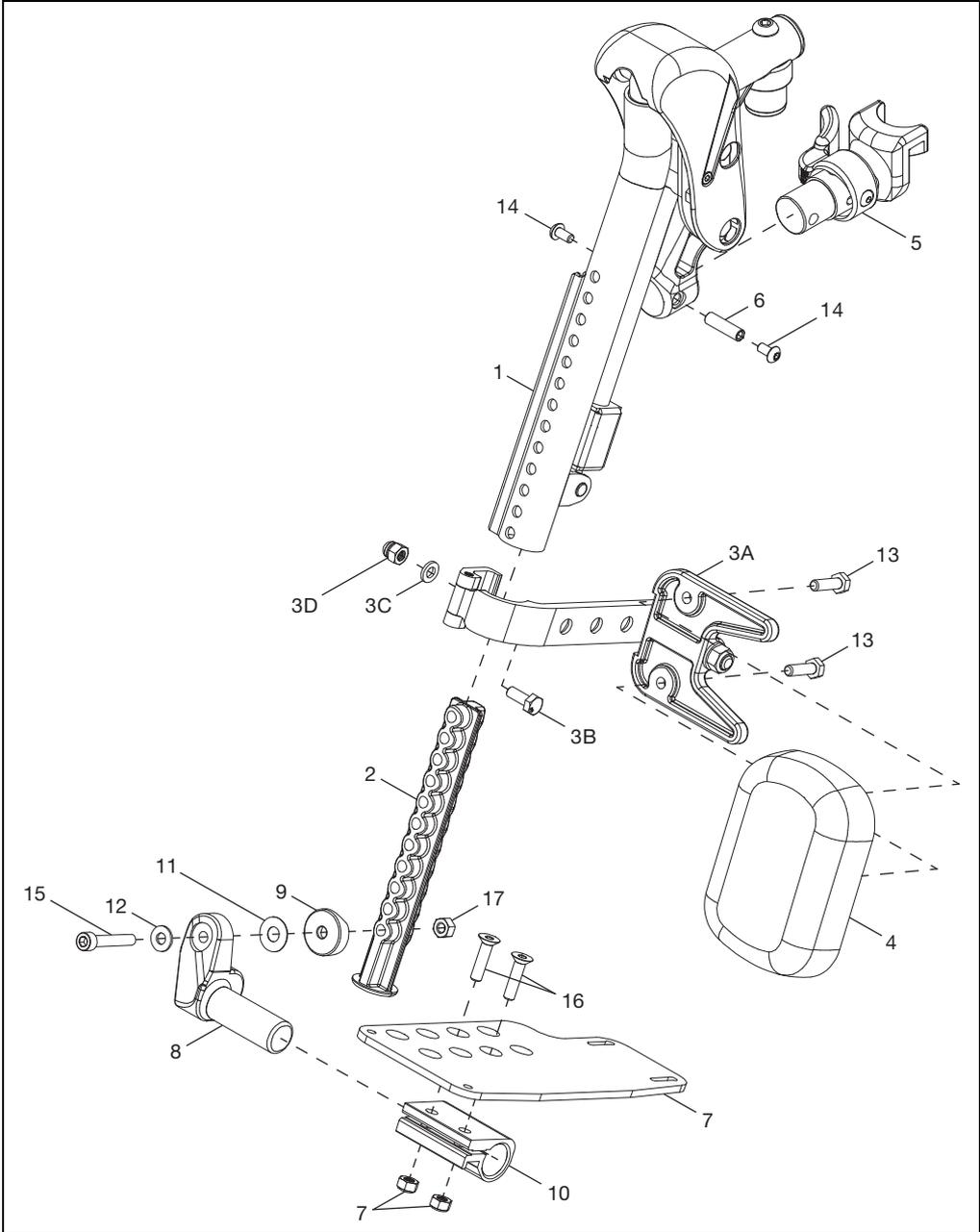
Item Number	Part Number	Description	Quantity
1	101811	BHCS, M6x1.0x35, CL10.9, BLZ, DIN7380	1
2	100746	WASHER, FLAT, M6, BLZ, DIN125A	2
3	100558	NUT, HEX, M6x1.0, DOME, CLS6, BLZ, DIN986	2
4	000164	Hanger Extension - 3"	1
5	101124	SHCS, LOW, M6x1.0x50, CL8.8, BLZ, DIN7984	1
6	101455	M6 BELLEVILLE WASHER	1
7	102072	WASHER NYLON .234IDx.406ODx.062 THICK	1

Pediatric Pro ELR - Available on Catalyst 5 / 5TTL, Spark

Replacing Pediatric Pro Elevated Leg Rest Parts

1. See figure below for a parts diagram of the Pediatric Pro ELR (not all parts are sold individually, refer to parts manual for additional information at www.kimobility.com).

NOTE: Parts chart located on next page.



Pediatric Pro ELR - Available on Catalyst 5 / 5TTL, Spark

Item Number	Part Number	Description	Quantity
1	003853	Hanger Assy, Pro ELR, FM, R	1
	003854	Hanger Assy, Pro ELR, FM, L	1
2	003843	Insert, Footrest Tube	1
3	003344	Calf Pad Bracket Assembly	1
4	101585	Calf Pad - Large	1
	101470	Calf Pad Pediatric - Medium	1
	003844	Calf Pad, 84mm X 120mm - Small	1
5	003643	Hanger Latch Assy, 4-Way, L	1
	003642	Hanger Latch Assy, 4-Way, R	1
	003416	Hanger Latch Assy, R	1
	003416	Hanger Latch Assy, L	1
6	000073	M5 Threaded Barrel	1
7	001304 - 001307, 000105 - 000110	Footplate, Aluminum Angle Adj, 10-11W - 18-20W, L/R	1
8	000048	Footplate Angle Adj Casting, 1", R	1
	000050	Footplate Angle Adj Casting, 1", L	1
9	003845	Saddle, 1", Rounded	1
10	100502	Angle Adj Footrest Clamp, 2"	1
11	000428	Wear Washer	1
12	101455	M6 Belleville Washer	1
13	101823	HHCS, M6X1.0X20, CLS10.9, NYL, BLZ, DIN933	2
14	100669	BHCS, M5X0.8X10, CLS10.9, BLZ, NYL, ISO7380	2
15	101810	SHCS, M6X1.0X35, CLS12.9, BLZ, DIN912	1
16	100662	FHCS, M6X1.0X25, CLS10.9, BLZ, DIN799 1	2
17	101456	M6 DIN980 CLS8 OVL TOP L/N ZC	1
18	100658	M6 Nylock Nut, BLK ZN	2

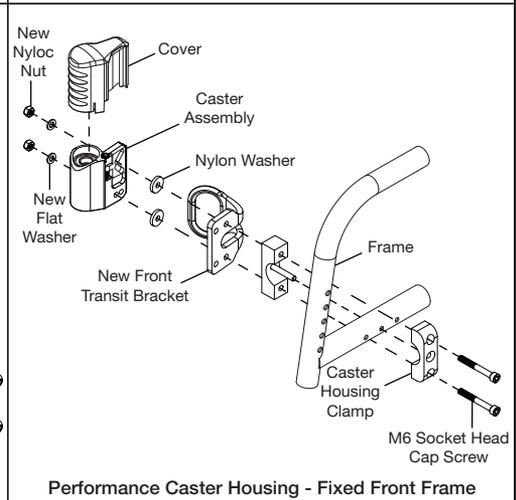
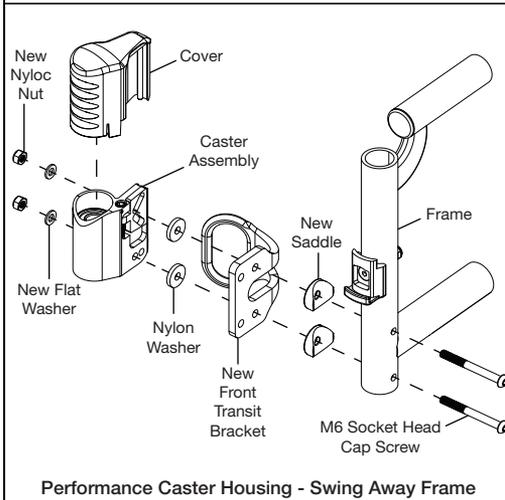
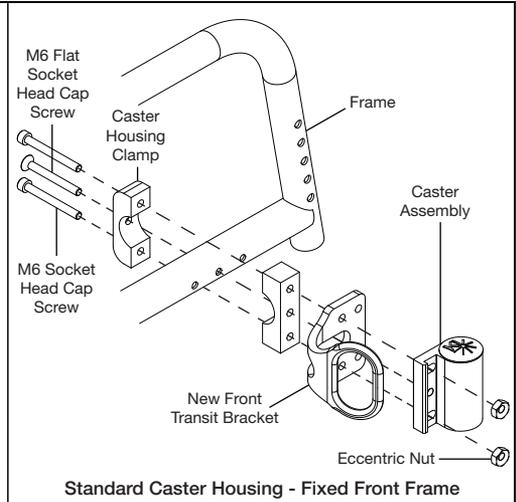
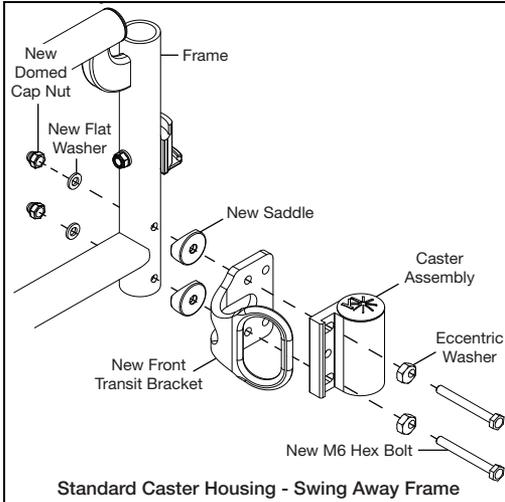
Transit

Install the Front Transit Bracket

NOTE: Observe the orientation of the caster barrel and eccentric nuts before removing hardware to ensure proper installation in later steps.

1. Depending on your chair set-up, use a 10mm socket wrench and a 10mm wrench or a 5mm Allen wrench to remove the caster assembly. For performance caster housing, remove the housing first and save for reinstall later. Save all parts for later use except the bolts which will be replaced.
2. Reinstall caster assembly according to the figure below that corresponds with your chair. Tighten nut to 8ft-lbs of torque using torque wrench and 10mm wrench. See image below.

NOTE: The caster assemblies are not shown in the images below for clarity reasons. The caster assembly is not taken apart during this process, only removed from the frame.



Transit

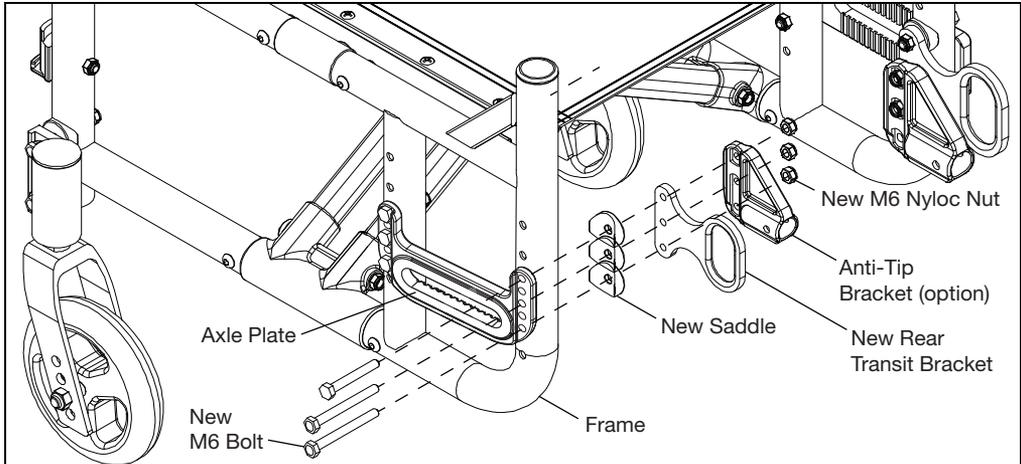
Install the Rear Transit Bracket

NOTE: See image at the bottom of this page for Catalyst 5Vx vertical axle plate configuration.

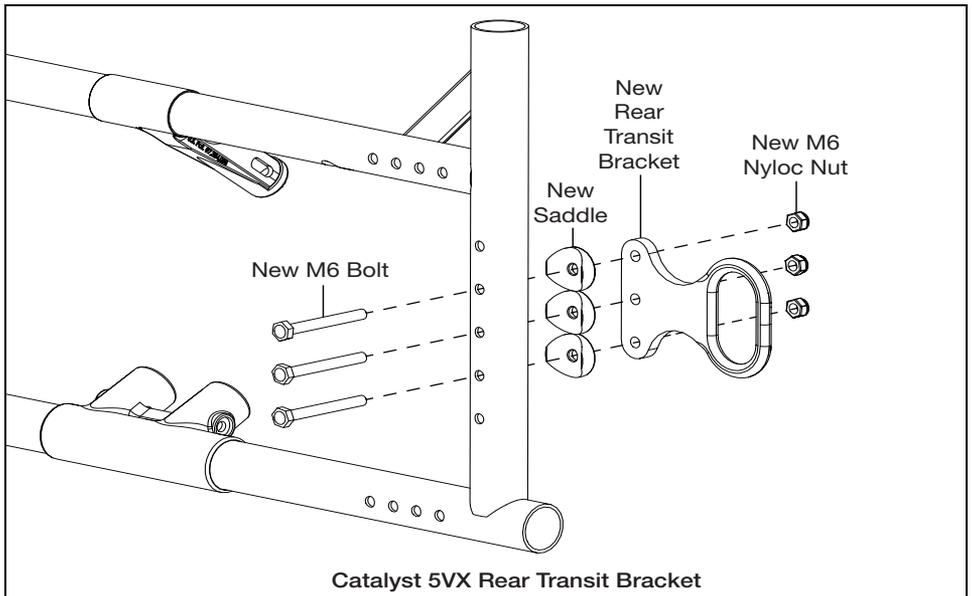
1. Using a 10mm socket wrench and a 10mm wrench, loosen the bolts holding the axle plate and anti-tip mount (if required). Remove the bolts, washers and nuts. All bolts are located at the rear of the axle plate.
2. Install new M6 bolt through the top hole in the axle plate, frame, saddle, new rear transit bracket and the anti-tip mount (if required). Cap bolt end with new M6 nylock nut. See image below for this configuration.

NOTE: Maintain original axle plate position when reassembling.

3. Tighten bolt to 8 ft-lbs of torque with torque wrench and 10mm socket wrench.
4. Repeat steps on remaining bolts and then repeat steps on opposite side axle plate.



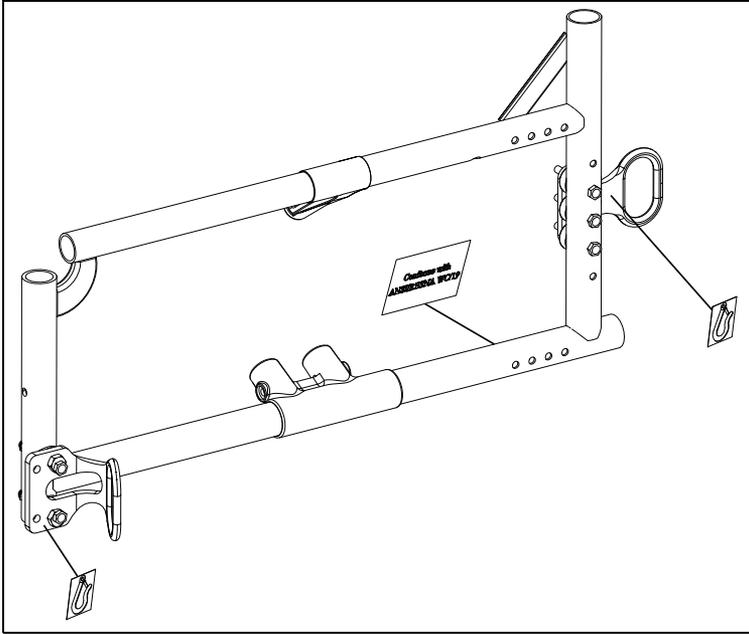
NOTE: Standard axle plate is shown for reference (universal and amputee axle plates are also available).



Transit

Transit Labels

1. Install the labels provided in the kit. Ensure the surface is clean and dry before applying labels. The transit hook labels are placed on the front and rear transit brackets. The WC-19 transit labels are placed on the lower inside frame. All transit labels need to be placed correctly so they are visible and comply with WC-19 standards and requirements.

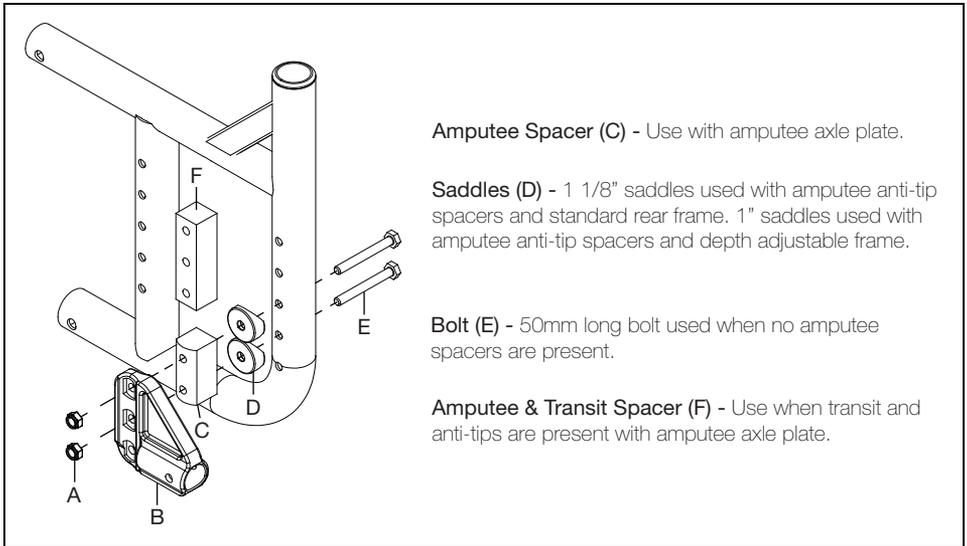


Anti-Tips

Rear Anti-Tip Receiver - Catalyst 4/5 & Spark

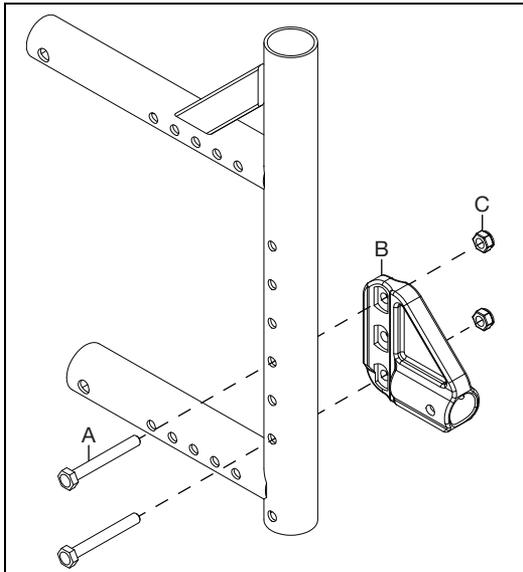
1. Install the rear anti-tip receiver (B) on the inside of the rear frame with hardware using two 10mm wrenches. Repeat on opposite side.

NOTE: The diagram below notes the different hardware setups needed for the anti-tip receiver depending on your type of frame and axle plate.



Rear Anti-Tip Receiver - Catalyst 5VX

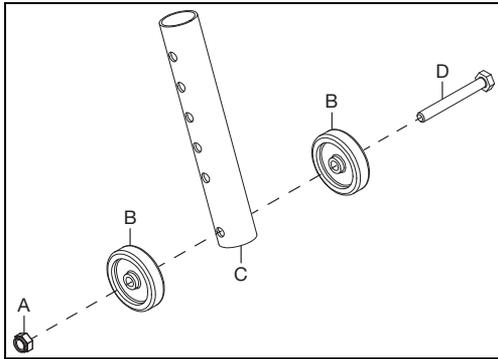
1. Install the rear anti-tip receiver (B) on the inside of the rear frame with two bolts (A) and two nuts (C) using two 10mm wrenches. Repeat on opposite side.



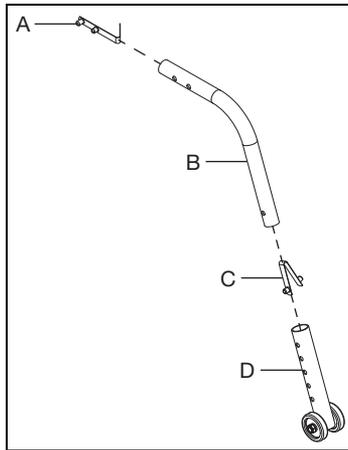
Anti-Tips

Rear Anti-Tip

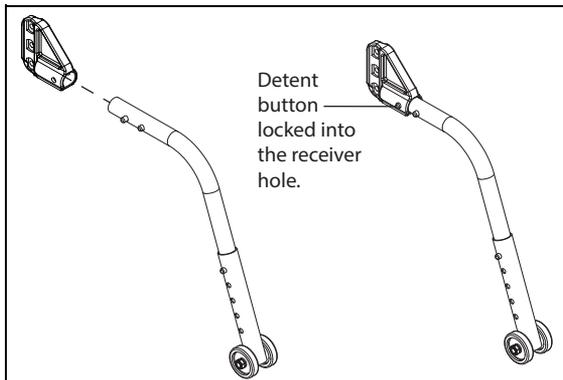
1. Install the two wheels (B) onto the end of the anti-tip (C) with a bolt (D) and nut (A) using two 10mm wrenches.



2. Install the lower anti-tip assembly (D) to the upper anti-tip tube (B) using the detent button (C). There are different holes that can be used in the lower anti-tip assembly to achieve different anti-tip heights. Ensure the height is set the same on both sides. Install upper detent button (A) into the two holes on the upper anti-tip tube. Repeat on opposite side.



3. Install the anti-tip assembly into the receiver and ensure the detent buttons "click" and lock into place.

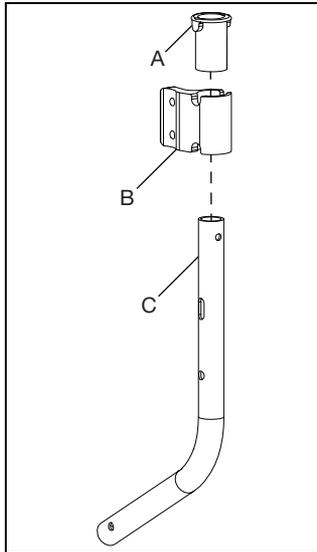


Anti-Tips

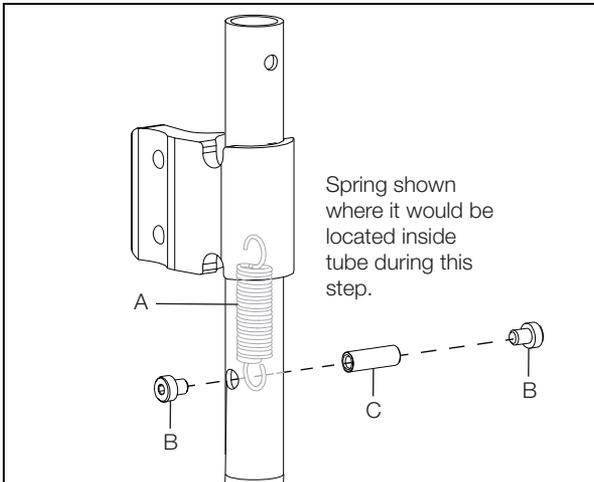
Swing-In Anti-Tip - Catalyst 5 & 5VX

NOTE: For installing a whole assembly, skip to step 8.

1. Slide receiver bracket (B) and sleeve (A) onto anti-tip tube (C).

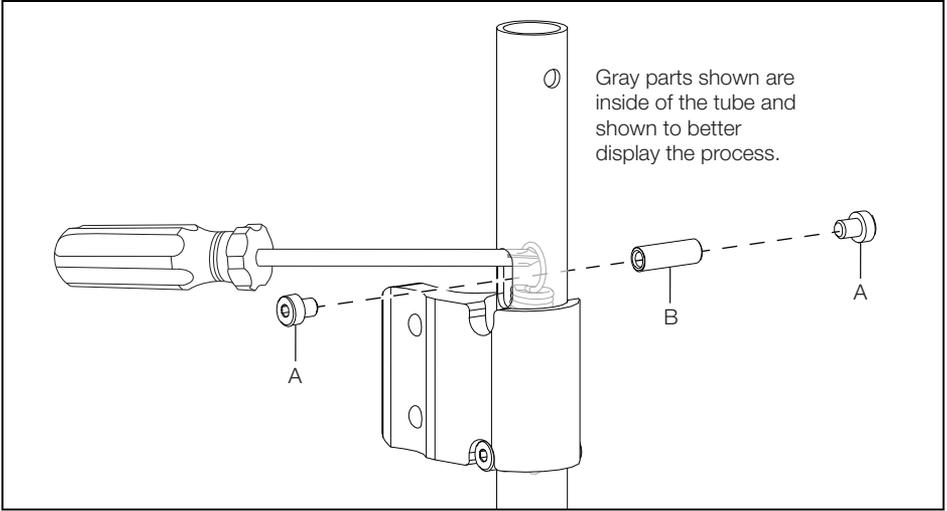


2. Lower spring (A) into tube and angle tube until you can see one hook end of the spring in the lower tube hole. Install two screws (B) and threaded insert (C) using two 3mm wrenches. Ensure threaded barrel goes through the spring hook and bracket is above the screws.

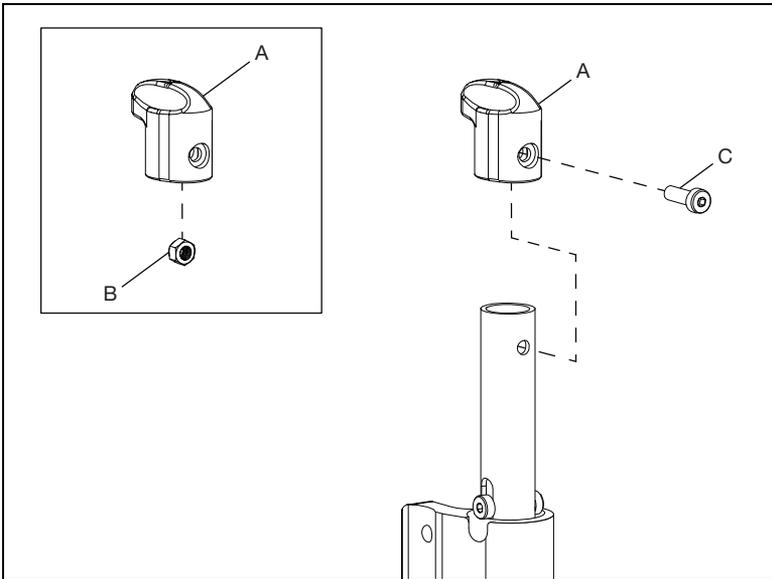


Anti-Tips

3. Use a screwdriver to hook the opposite spring hook and pull up so hook can be seen through upper tube hole. Install two screws (A) and threaded insert (B) using two 3mm wrenches. Ensure threaded barrel goes through the spring hook. Bracket must be below the new screws so there is a hardware set below and above the bracket when complete.

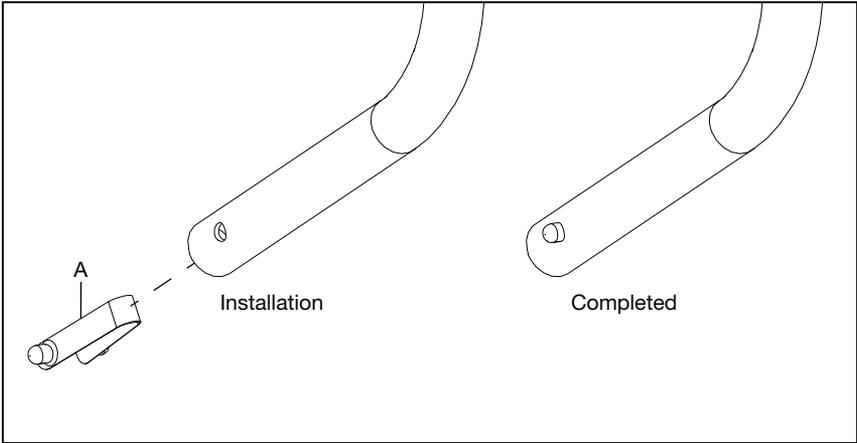


4. Install anti-tip knob (A) by placing nut (B) into recessed nut hole and securing with screw (C) through anti-tip knob and uppermost tube hole using a 4mm Allen wrench.

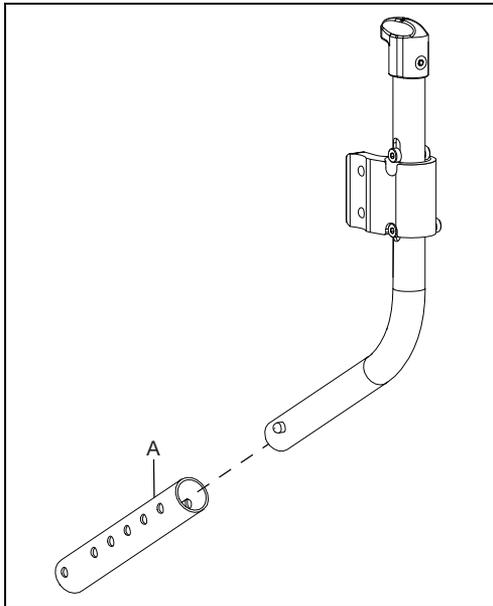


Anti-Tips

5. Install lower detent button (A) into lower section of tube, ensuring buttons come through the tube holes on both sides.

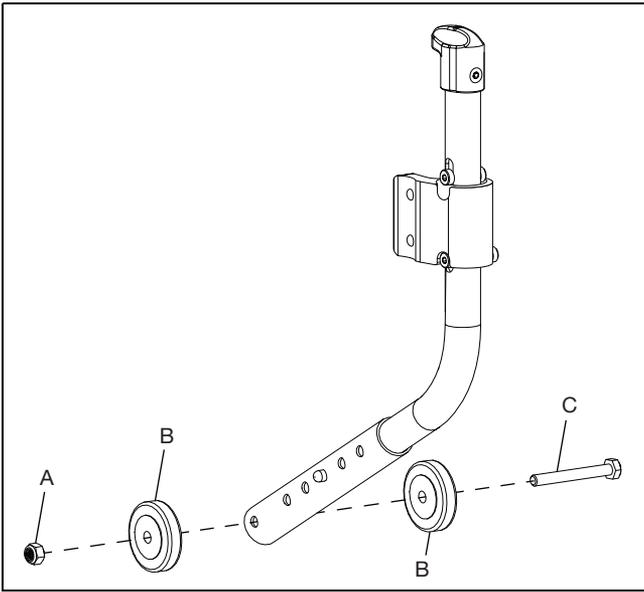


6. Install lower anti-tip tube (A) to desired height by squeezing detent buttons and sliding tube to desired holes.



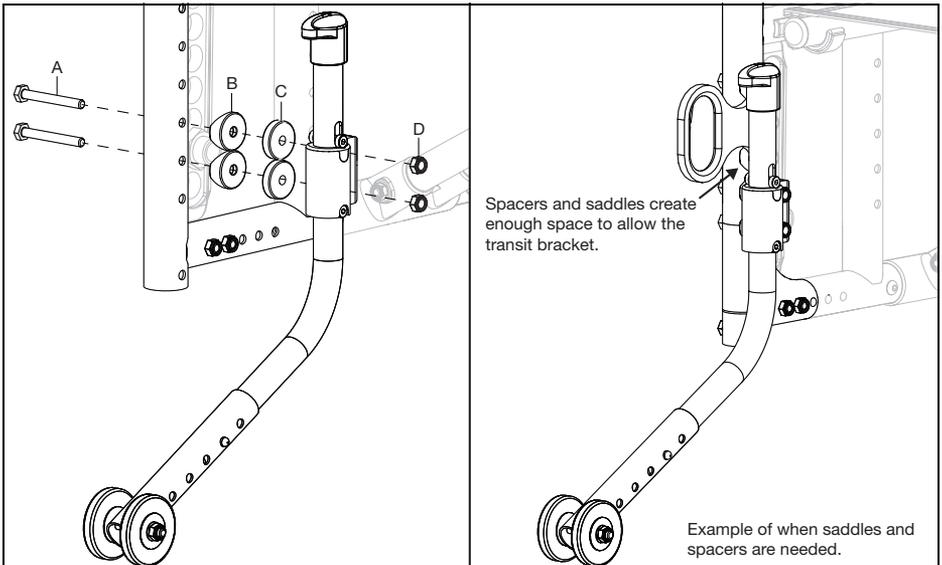
Anti-Tips

7. Finish the assembly of the anti-tip with bolt (C), two wheels (B) and nut (A) using two 10mm wrenches.



8. Install anti-tip assembly onto inner rear frame with bolts (A), saddles (B), spacers (C) and nuts (D) using two 10mm wrenches. Saddles (B) and spacers (B) are only used when clearance is needed such as when a swing-in anti-tip and either a swing away armrest or transit are used. If clearance is not an issue, install the anti-tip assembly using just the bolts (A) and the nuts (D).

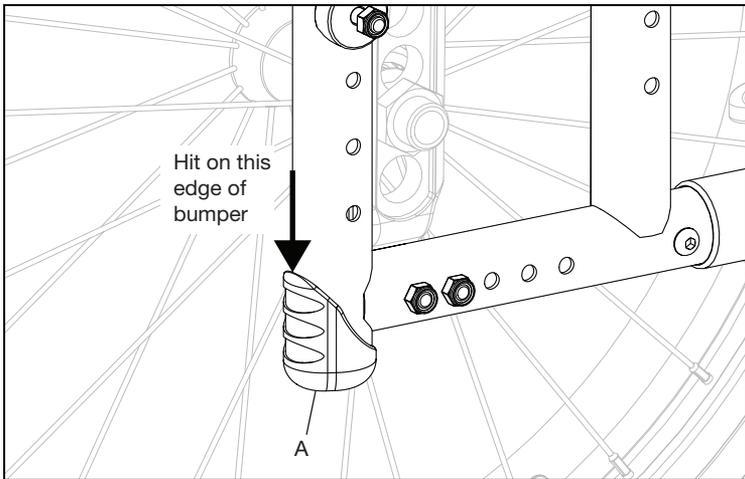
NOTE: There are different holes that can be used on the rear frame to achieve the desired height. Ki Mobility recommends a minimum of 1" of clearance between the anti-tip wheel and the floor.



9. Repeat on opposite side if using two anti-tips.

Remove Bumpers

1. Use a rubber mallet to hit the edge of the bumper (A) on the rear frame. Be careful to avoid damaging paint.

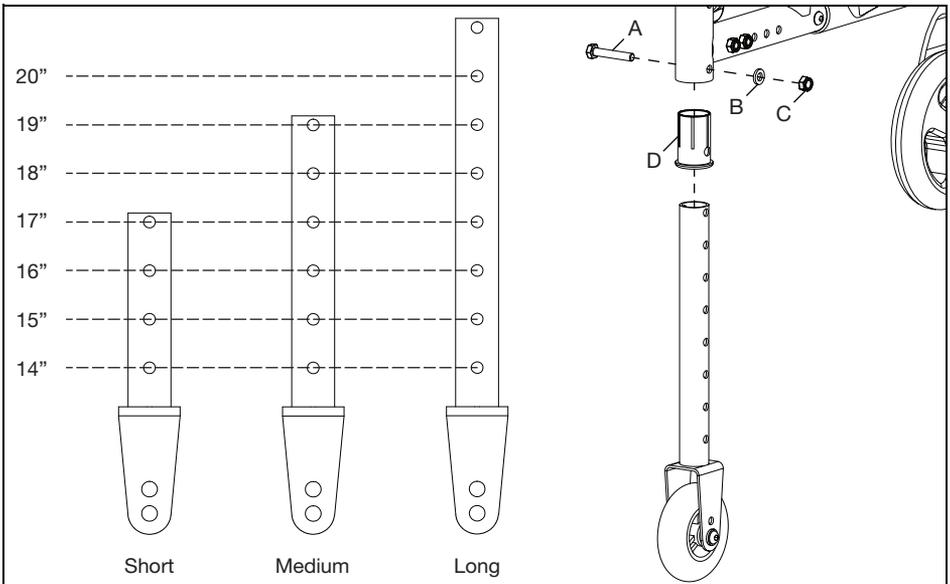


2. Remove bumper and plastic spring detent. Repeat process on opposite side.

NOTE: The bumper and plastic spring detent cannot be used again after removal.

Install Transit Wheels

1. Insert sleeve (D) and transit wheel assembly into rear frame opening.
2. Adjust transit wheel to desired height and secure with bolt (A), washer (B) and nut (C) using two 10mm wrenches.

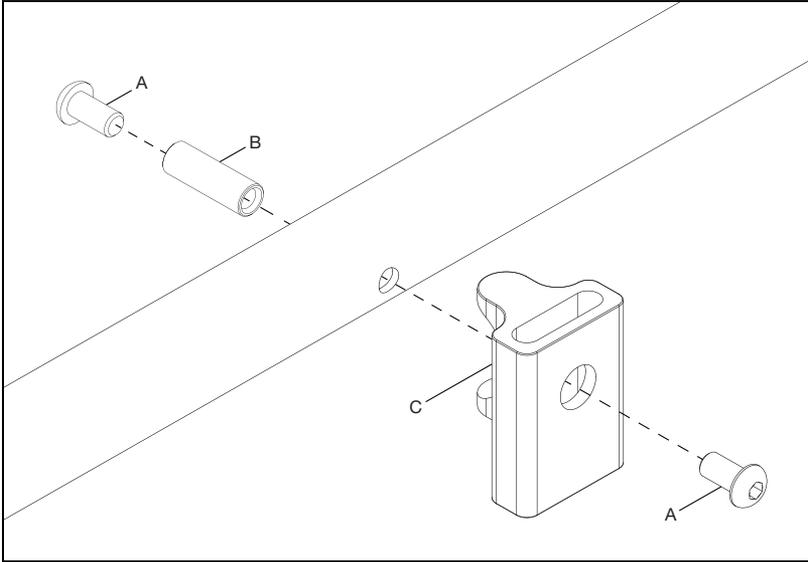


3. Repeat on opposite side and ensure that transit wheels are between .75" and 1.25" off the ground.

Side Guards

Side Guard Receiver

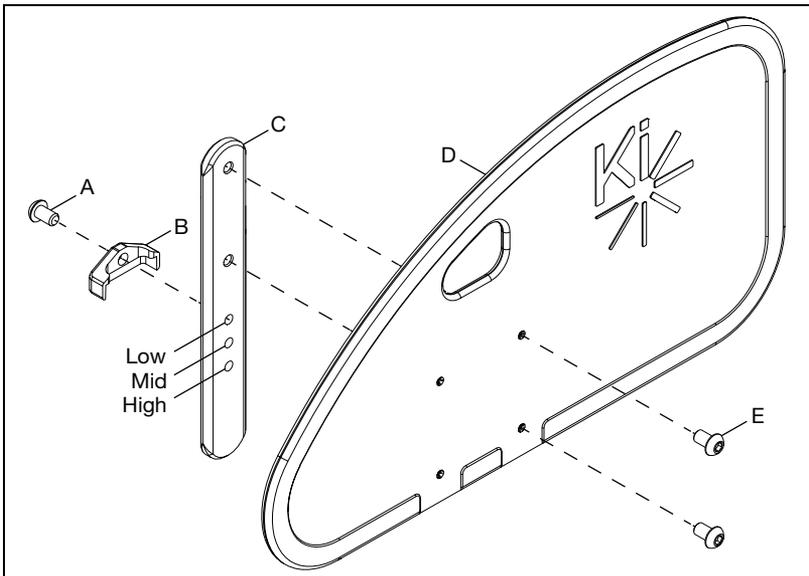
1. Install side guard receiver (C) onto the outside of the chair frame with two screws (A) and a barrel nut (B) using a 4mm Allen wrench.



Removable Adult Side Guard

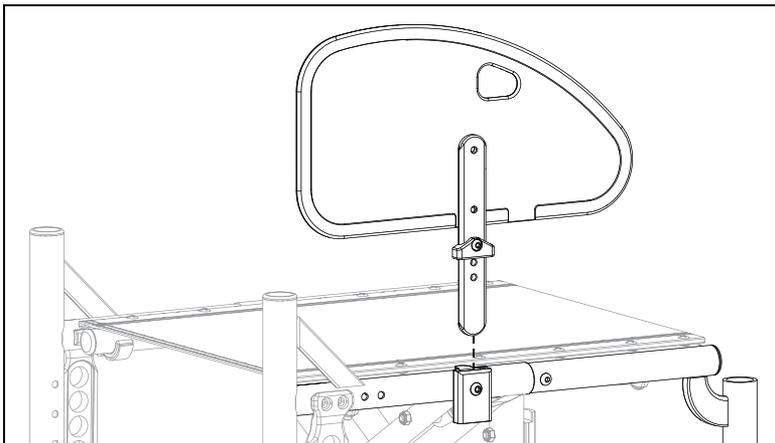
1. Install the adult side guard (D) onto the side guard post (C) with two screws (A) using a 4mm Allen wrench. On the opposite side, install the side guard post stop (B) with a screw (A) using a 4mm Allen wrench.

NOTE: There are two sets of holes that the side guard post (C) can be installed onto the side guard with. Choose the holes that place the side guard in the desired position. The height is also adjusted with the hole that the side guard post stop (B) is installed in.



Side Guards

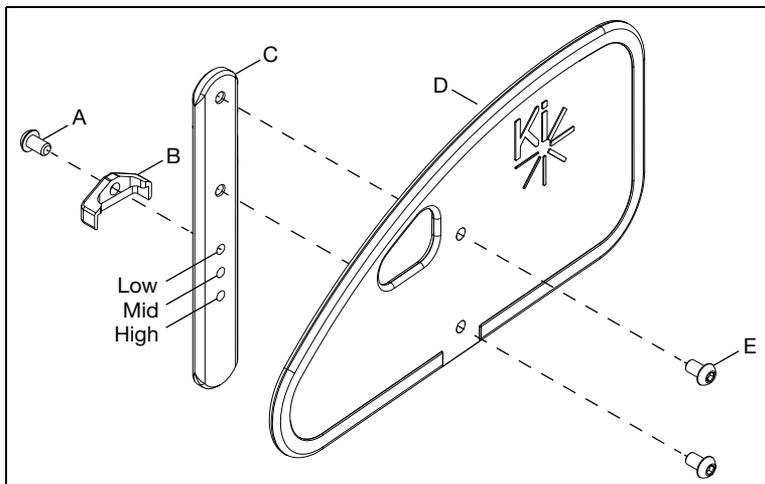
2. Install the side guard assembly into the receiver so the side guard post stop faces the outside of the chair.



Removable Pediatric Side Guard - Catalyst 5VX & Spark

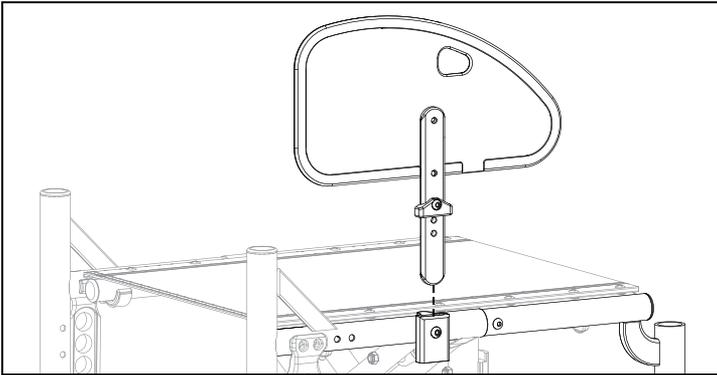
1. Install the adult side guard (D) onto the side guard post (C) with two screws (A) using a 4mm Allen wrench. On the opposite side, install the side guard post stop (B) with a screw (A) using a 4mm Allen wrench.

NOTICE: The height of the pediatric side guard can be adjusted with the three holes on the side guard post (C).



Side Guards

- Install the side guard assembly into the receiver so the side guard post stop faces the outside of the chair.



Adjustable Fender Size Guard - Catalyst 5 & Catalyst 5VX

Fender size guard panel size needed to fit a Catalyst is driven by the height of the tire over the seat. To calculate this, use the formula listed below. Once you have the output of the formula, use the reference matrix to find the appropriate panel and post sizes. For information on Wheel Outside Diameter reference the Wheel Outside Diameter chart in the parts manual.

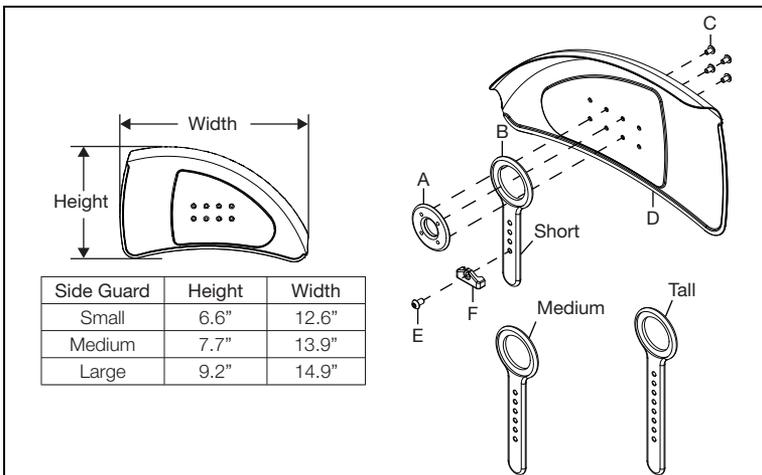
Formula: Wheel Outside Diameter (OD) - Rear Seat Height = Tire Height over seat

Reference Matrix:

Tire Height	Panel and Post Size
Tire Height = Less than 6"	Small Fender/Short Post
Tire Height = 6 - 8"	Medium Fender/Medium Post
Tire Height = Greater than 8"	Large Fender/Tall Post

- Install fender post mount plate (A) and fender post (B) onto the inside of the fender (D) with four screws (C) using a 3mm Allen wrench. Install the fender post mount stop (F) onto post with screw (E) using a 4mm Allen wrench. Install into receiver.

NOTICE: There are different sets of holes that can be used to mount the fender post more forward or back on the chair. The height is also controlled by the hole used to mount the fender post mount stop.



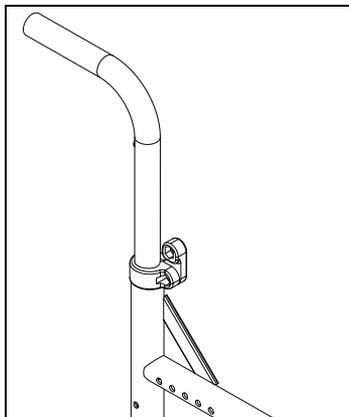
Side Guards

Fixed Mount Fender Side Guard - Catalyst 5VX

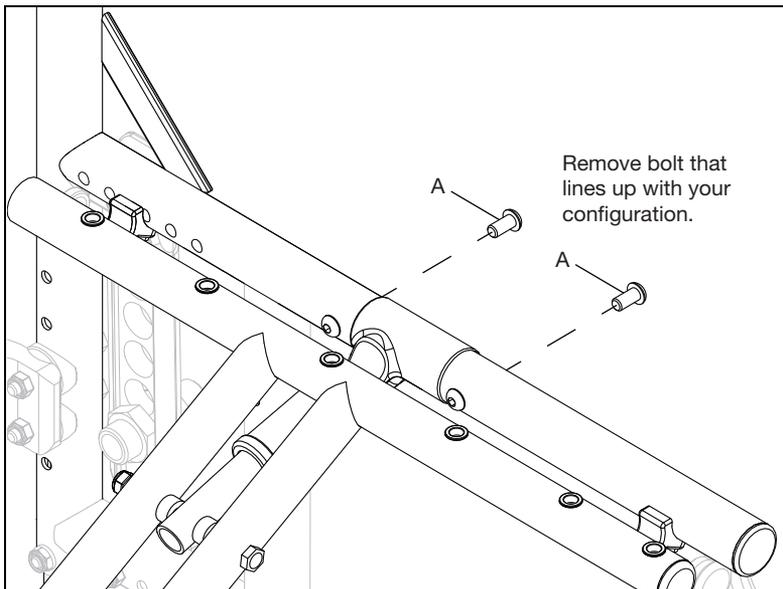
NOTE: In some configurations, a wheel lock (if present) may need to be reversed or the extended wheel lock mount bar may be needed.

NOTE: If a new rear frame is being installed, replace frame prior to the fender installation.

1. Install clamp onto the back cane as shown below.



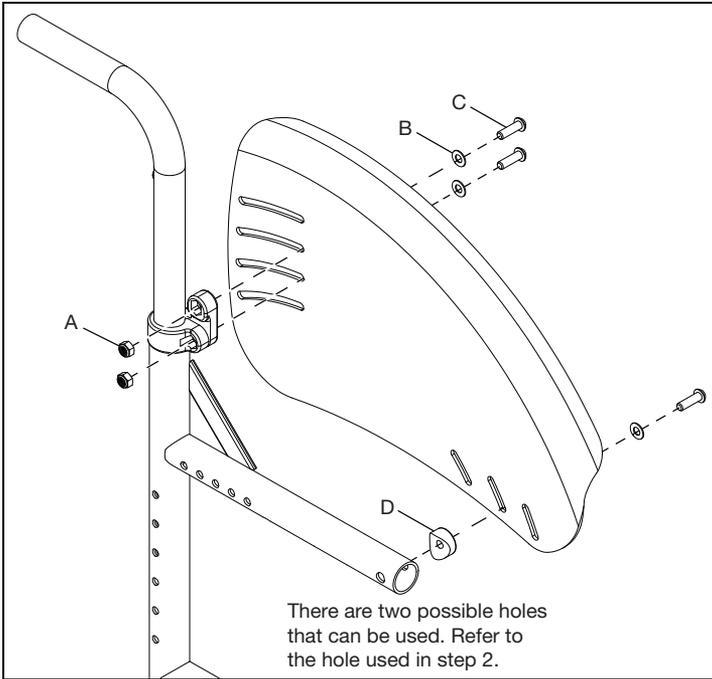
2. Remove bolt (A) from frame using a 4mm Allen wrench. Save bolt. Either hole shown in image below may be used depending on your configuration.



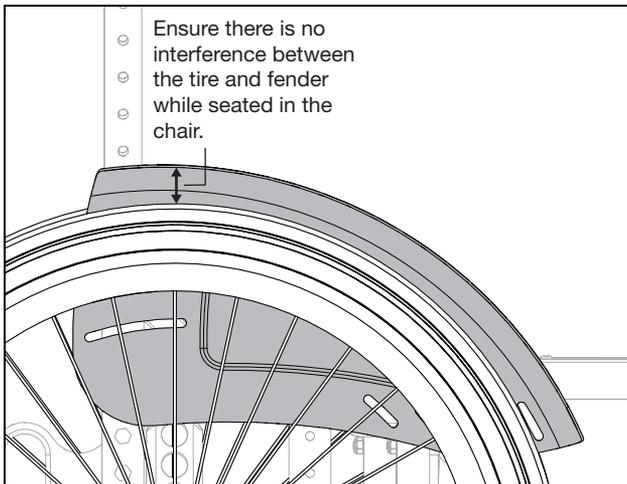
Side Guards

3. Install fender with three bolts (C), three washers (B), two nuts (A) and a saddle (D) using a 4mm Allen wrench. While installing, position fender, adjust clamps as needed and use openings that give coverage to the wheel. Leave hardware loose.

NOTE: The bolt, washer and saddle on the front side of the fender go into the hole that the bolt was removed from in step 2. The threaded barrel and bolt on the other side are still in the hole to allow the new bolt to thread into.



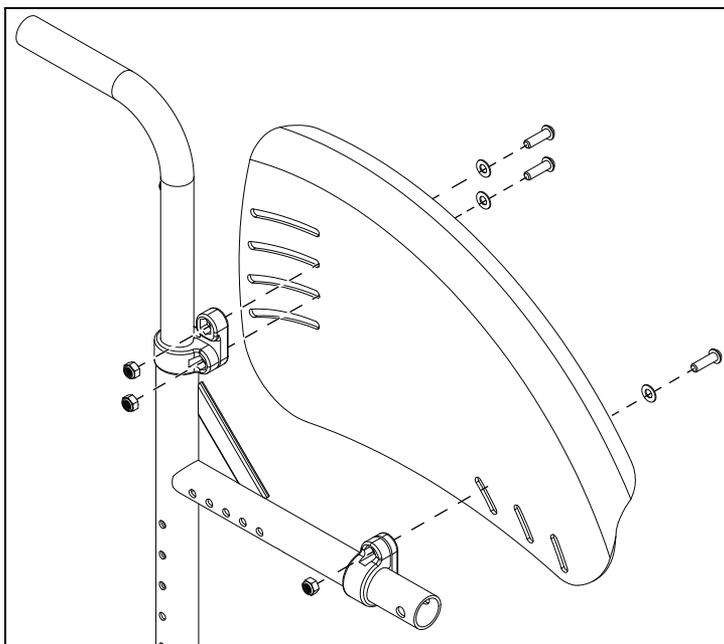
4. Ensure the fender follows the shape of the wheel and there is no interference between the tire and fender while seated in the chair. Tighten hardware to secure fender in correct configuration. Repeat on opposite side. If the correct configuration cannot be obtained, continue to Additional Adjustment Configurations.



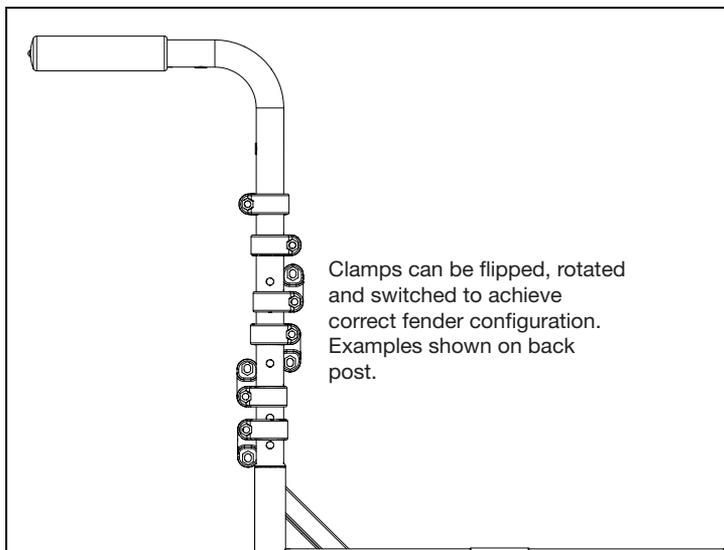
Side Guards

Additional Adjustment Configurations

1. For more adjustment options, another clamp can be used in place of the saddle. See image below for installation of the clamp and then follow same adjustment procedures found in steps 3 and 4.



2. The clamps can also be flipped and rotated for more adjustment options.

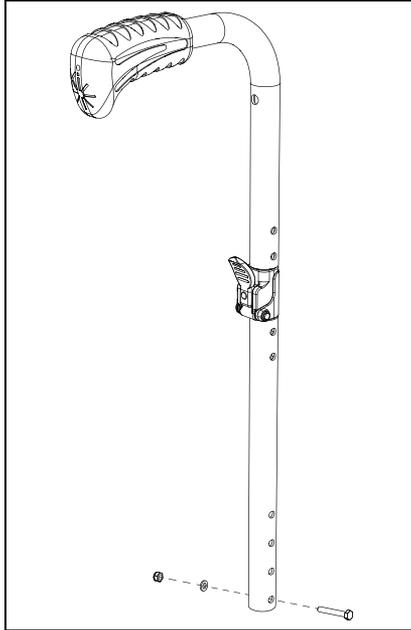


Installing Whole Backrest

1. Remove current back canes and retain hardware.
2. Install tension adjustable back upholstery on the new back canes.
3. Install new rearward folding backrest canes with retained hardware from step 1. See image below.

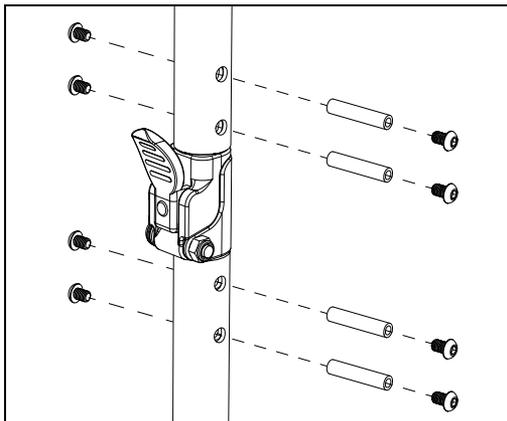
NOTE: Install back canes at desired backrest height.

NOTE: If removal of grips from back canes is required for installing upholstery or after market seating, reference separate installation instruction that has been provided with the parts.



Replace Lever Assembly

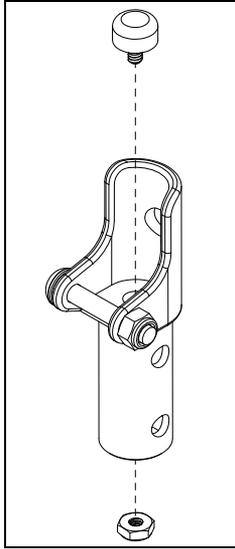
1. Remove existing lever assembly by removing four sets of hardware with two 4mm Allen wrenches. Retain hardware. See image below.
2. Remove upper section of backrest cane along with the lever assembly.
3. Install new lever assembly and upper section of backrest cane and secure with four sets of hardware saved from step 2 using two 4mm Allen wrenches. See image below.



Half-Folding Backrest - Available on Catalyst 5 & 5VX

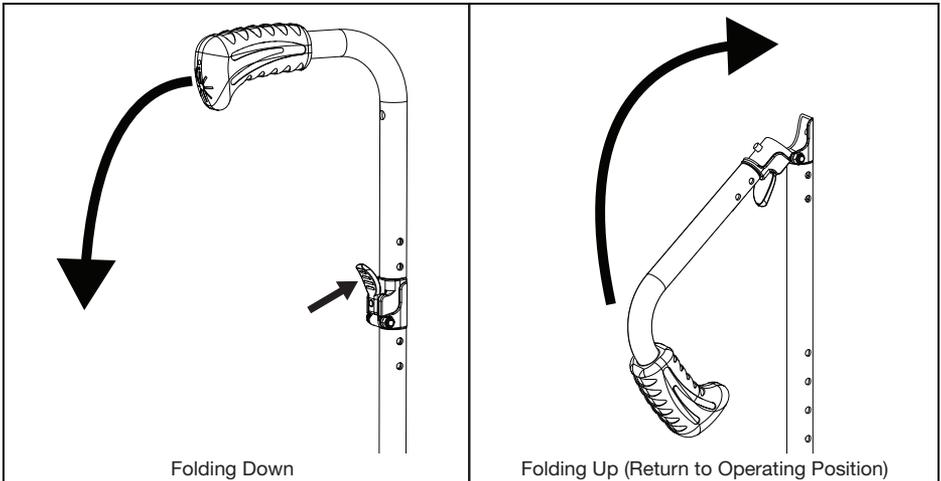
Replace Lever Assembly Hardware

1. Remove existing lever assembly by removing four sets of hardware with two 4mm Allen wrenches. Retain hardware. See image on previous page in Replace Lever Assembly section.
2. Remove upper section of backrest cane along with the lever assembly.
3. Remove the 5/16" nut and threaded bumper. The nut and threaded bumper are removed easier with a magnetic nut driver or 5/16" socket wrench that can reach into the tube. Keep the lever closed while removing nut so the threaded bumper doesn't turn. See image below.
4. Install new threaded bumper and nut. Drop the threaded bumper into place and close the lever assembly. Use the magnetic driver to install the nut on the bottom side. See image below.
5. Reinstall lever assembly and upper section of backrest with the four sets of hardware saved from step 1 using two 4mm Allen wrenches.



Use

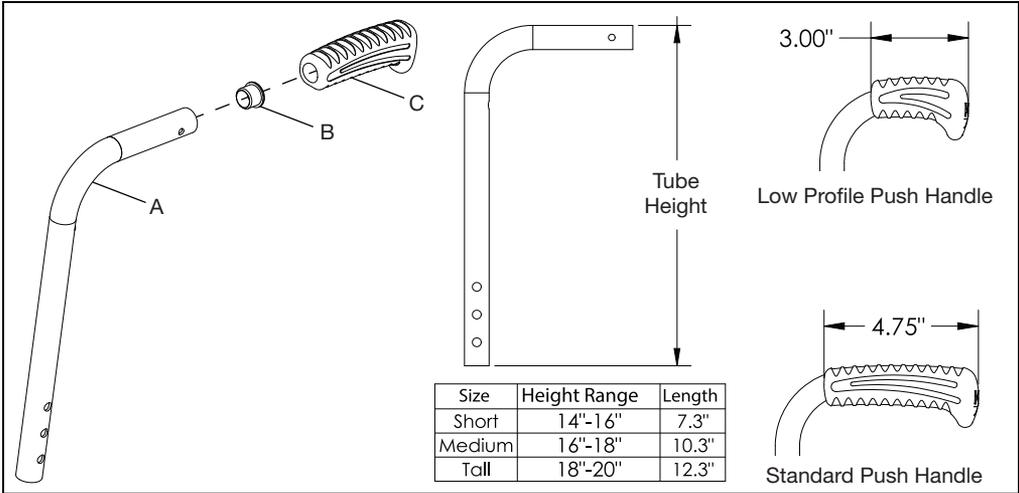
1. To fold, push in lever and bring backrest canes back and down.
2. To return to operating position, lift the backrest canes up until they "click" and lock into position.



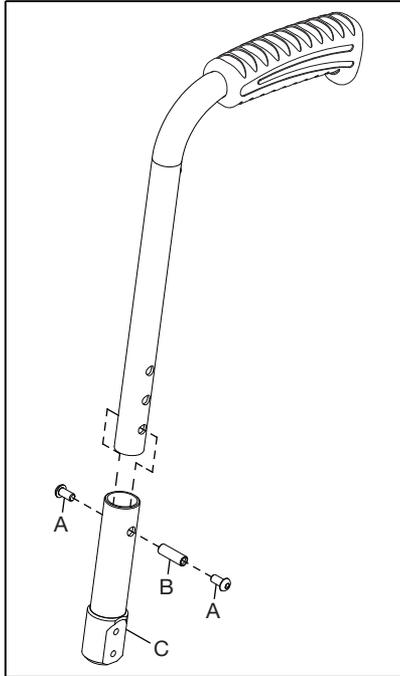
Angle Adjustable Backrest - Available on Catalyst 4, 5 & 5VX

1. Install push handle (C) and plug (B) onto backrest tube (A).

NOTE: There are three tube heights and two push handle sizes. See image and chart below for information on the different options.



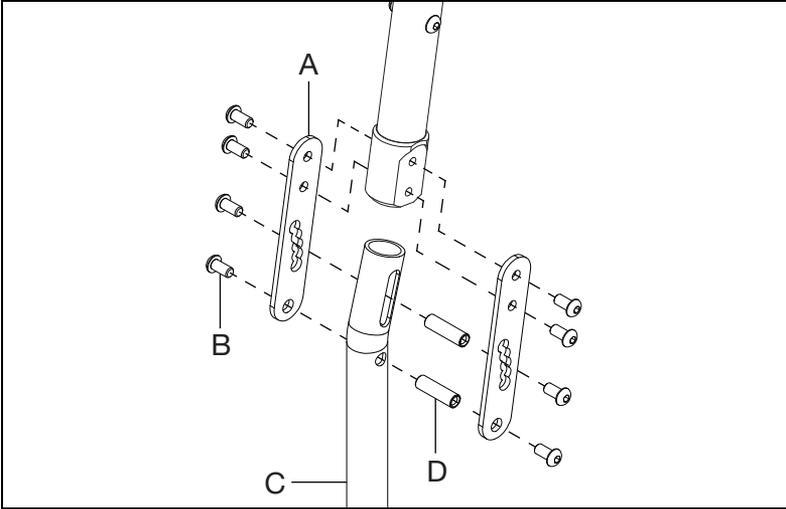
2. Install backrest housing (C) to backrest tube assembly with two screws (A) and a threaded barrel (B) using two 4mm Allen wrenches.



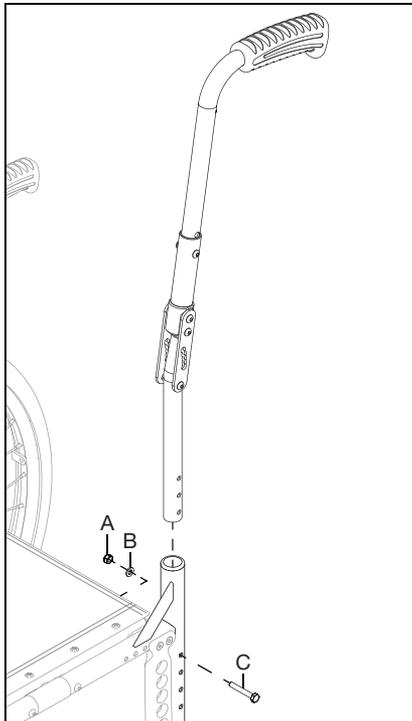
Angle Adjustable Backrest - Available on Catalyst 4, 5 & 5VX

3. Connect the backrest tube assembly to the lower backrest tube (C) with the two mounting plates (A), eight screws (B) and two threaded barrels (D) using two 4mm Allen wrenches.

NOTE: The angle of the backrest is determined by the hole chosen in the mounting plate. Choose the hole needed for desired configuration and secure with those two screws and threaded barrel. Ensure both sides are set in the same angle.



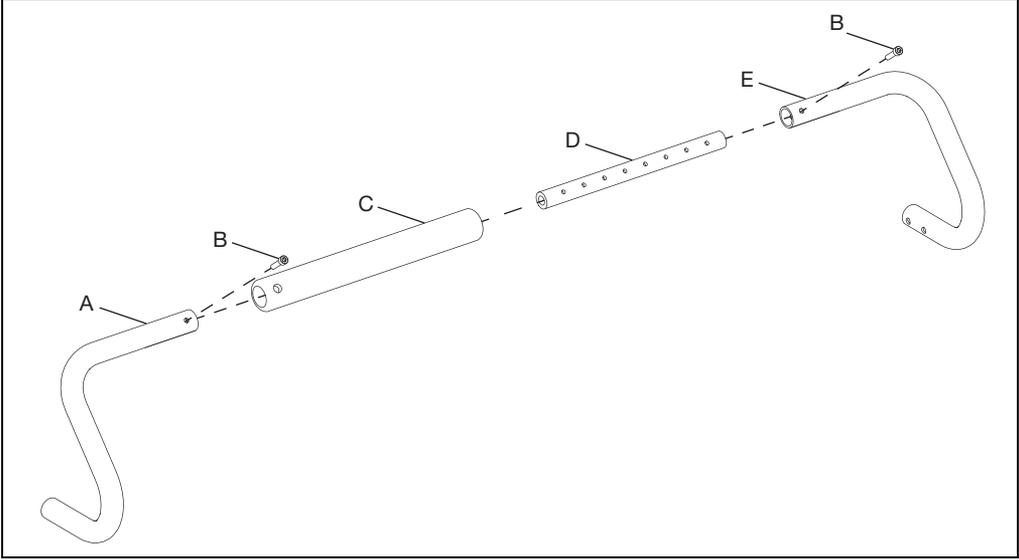
4. Install angle adjustable backrest assembly onto chair with bolt (C), washer (B) and nut (A) using two 10mm wrenches. Use the hole that achieves the desired backrest height when installing. Repeat on opposite side.



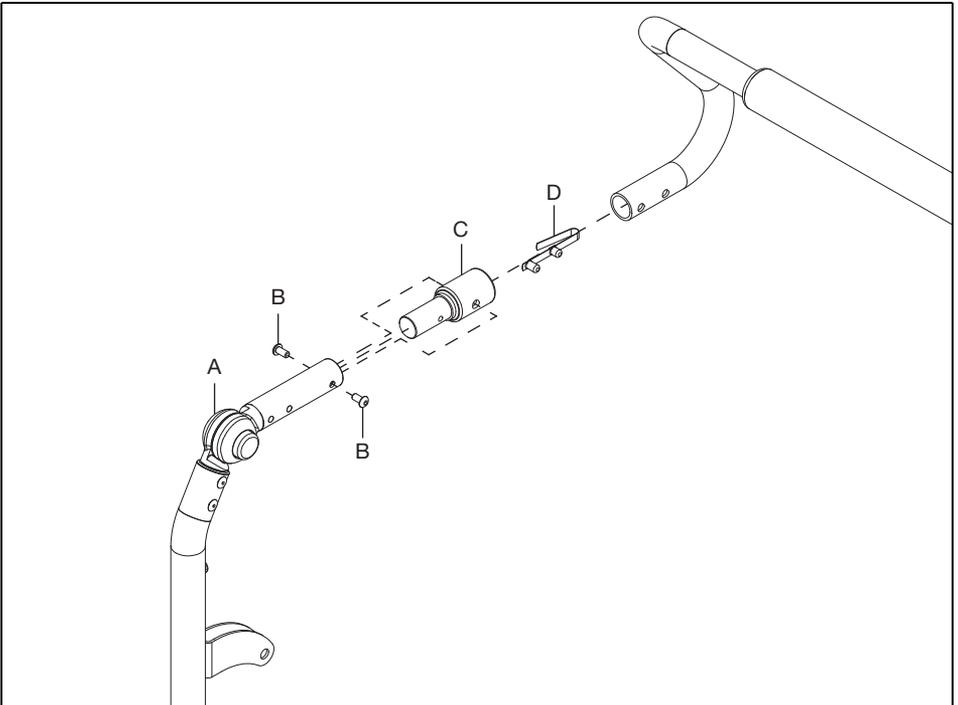
Reclining Backrest - Available on Catalyst 5

NOTE: Remove existing backrest with the backplates prior to beginning this procedure.

1. Connect the left and right stroller handles (A & E) together with growth strut (D), foam (C) and two screws (B) using a 4mm Allen wrench.

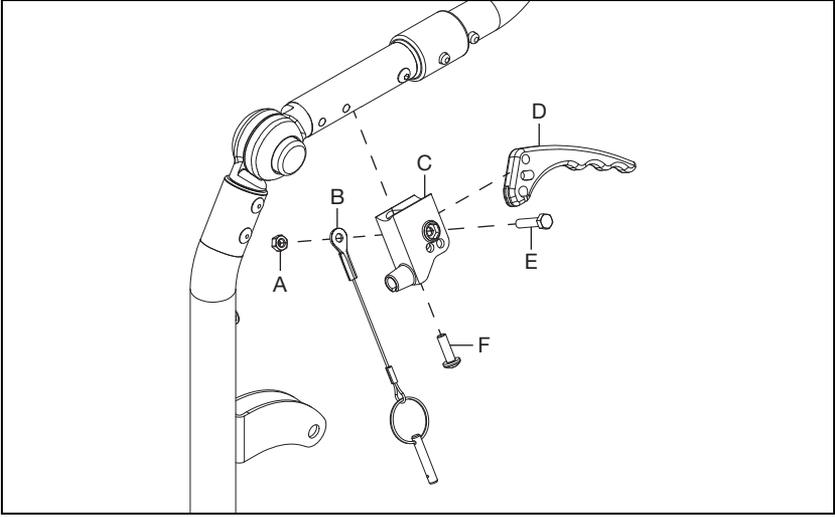


2. Install recline stroller handle adaptor (C) to stroller handle assembly with detent button (D). Ensure buttons "click" and lock into place. Install the end of the adaptor (C) into the recline back tube subassembly (A) and secure with two screws (B) using two 3mm Allen wrenches.

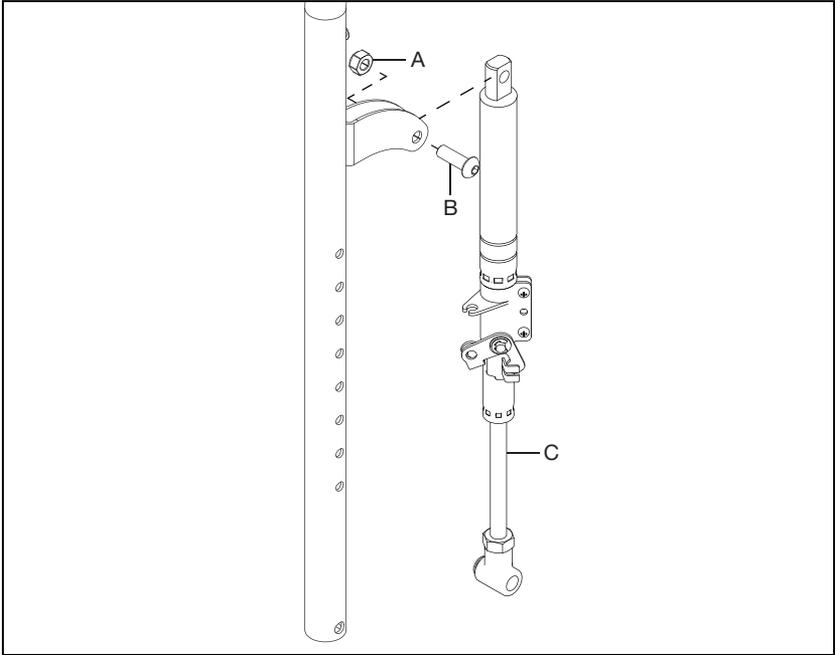


Reclining Backrest - Available on Catalyst 5

3. Install trigger (D) into the trigger mount (C) and secure with bolt (E), pin with lanyard (B) and nut (A) using an 8mm wrench. Install trigger assembly onto back tube subassembly with screw (F) using a Phillips screwdriver.

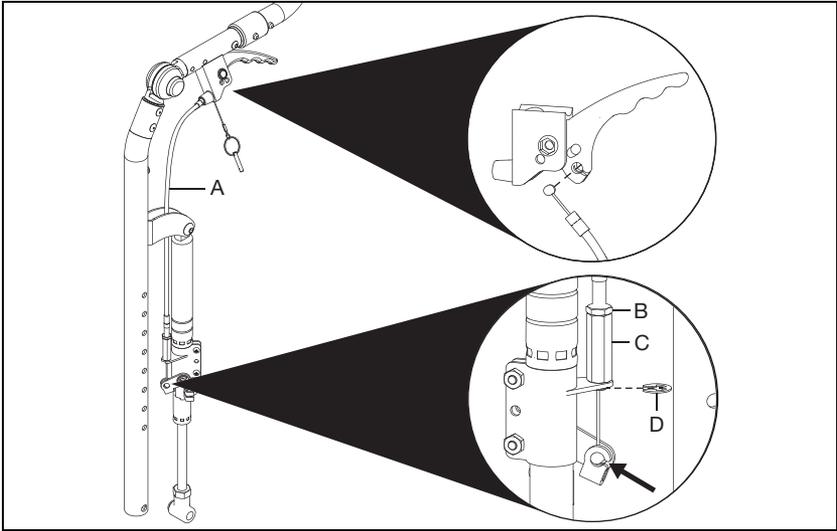


4. Install the gas spring (C) onto the tube assembly with bolt (B) and nut (A) using a 5mm Allen wrench and a 13mm wrench.

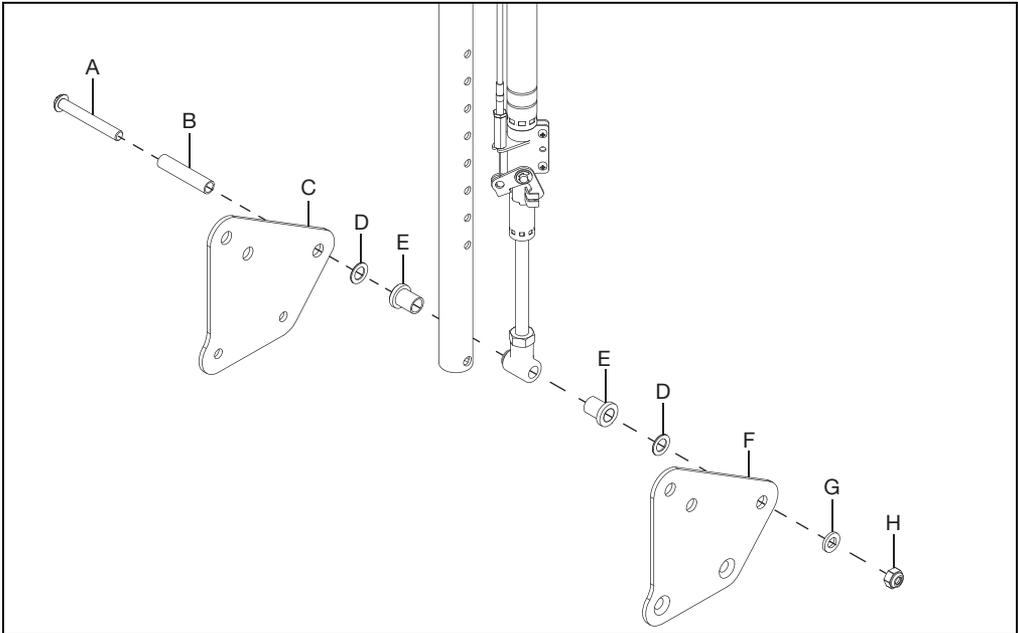


Reclining Backrest - Available on Catalyst 5

5. Install cable (A) onto backrest. The barrel on the bottom of the cable gets routed into the barrel bracket so the cable adjuster (C) is on the top half of the adjustment bracket. Route the cable through the weldments and up to the trigger. Open the trigger and install barrel into opening so cable follows the slot out of the trigger and through the end of the trigger mount. Turn the cable adjuster to loosen or tighten as needed. Secure the cable adjuster by tightening the lock nut (B). Install the E-Ring (D) on the underside of the adjustment bracket.

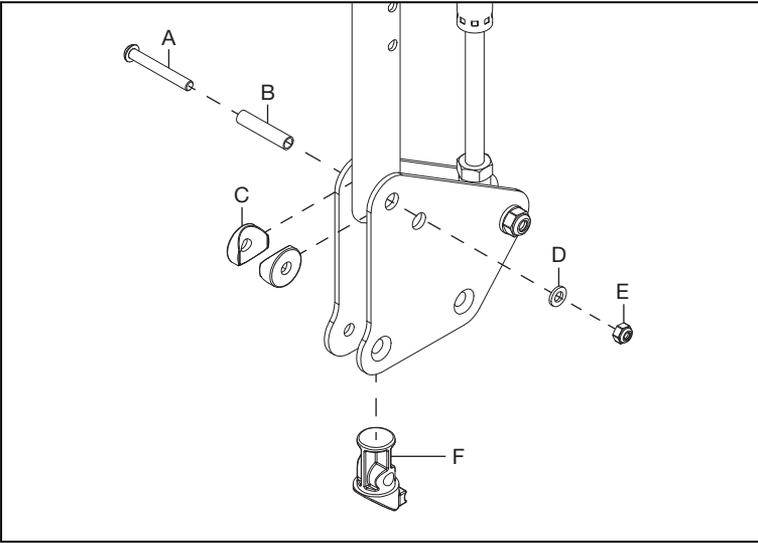


6. Attach the backrest assembly to the back plates (C & F) by installing bolt (A), stop pin (B), two bushing flanges (E), nylon washer (D), washer (G) and nut (H) using a 4mm Allen wrench and a 10mm wrench.



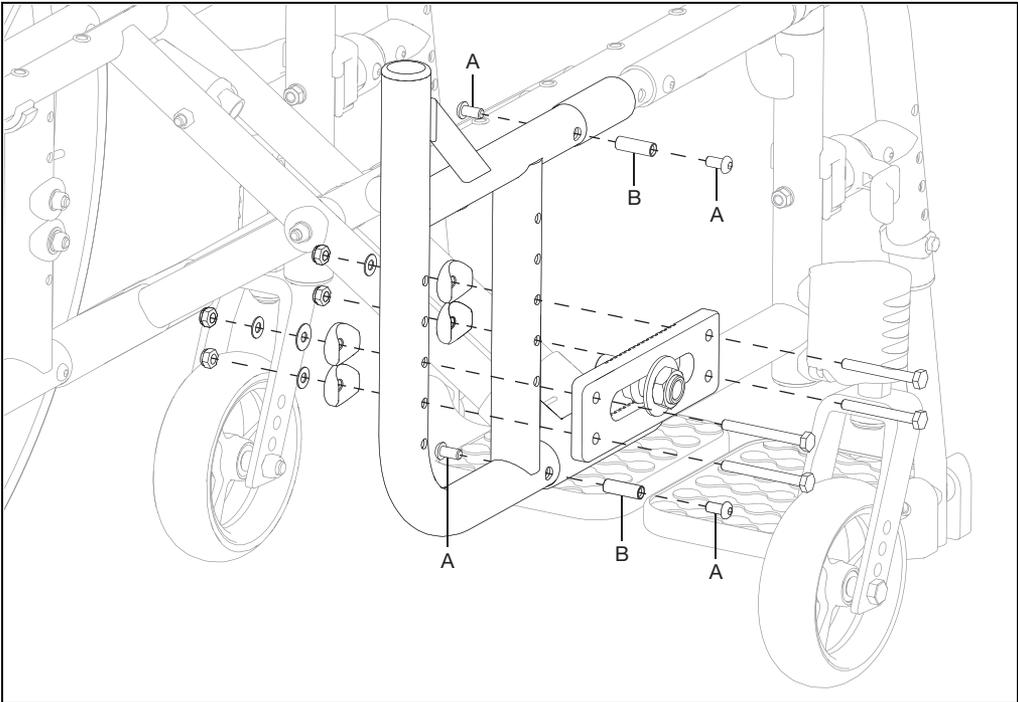
Reclining Backrest - Available on Catalyst 5

7. Install back tube plug (F), bolt (A), stop pin (B), two saddles (C), washer (D) and nut (E) using a 4mm Allen wrench and a 10mm wrench.



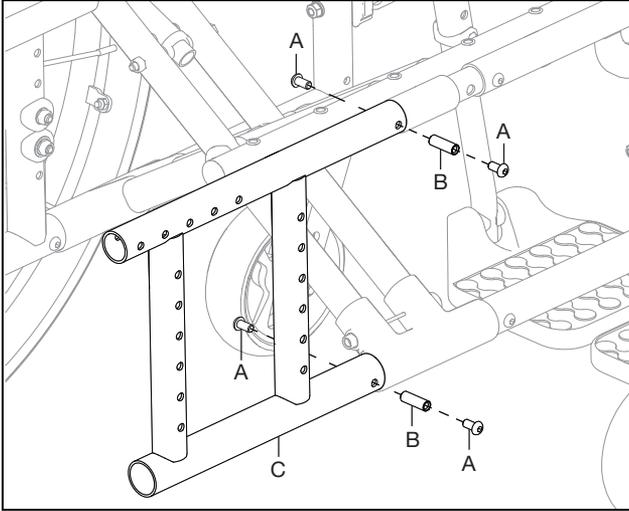
8. Remove axle plate assembly so it can be installed on the new rear frame. Remove the existing rear frame by removing four bolts (A) and two threaded barrels (B) using two 3mm Allen wrenches. Save hardware. Repeat on opposite side.

NOTE: There are different types of axle plates that may be on the chair. For specific removal instructions for each type, reference the Axle Plate section of this technical manual.



Reclining Backrest - Available on Catalyst 5

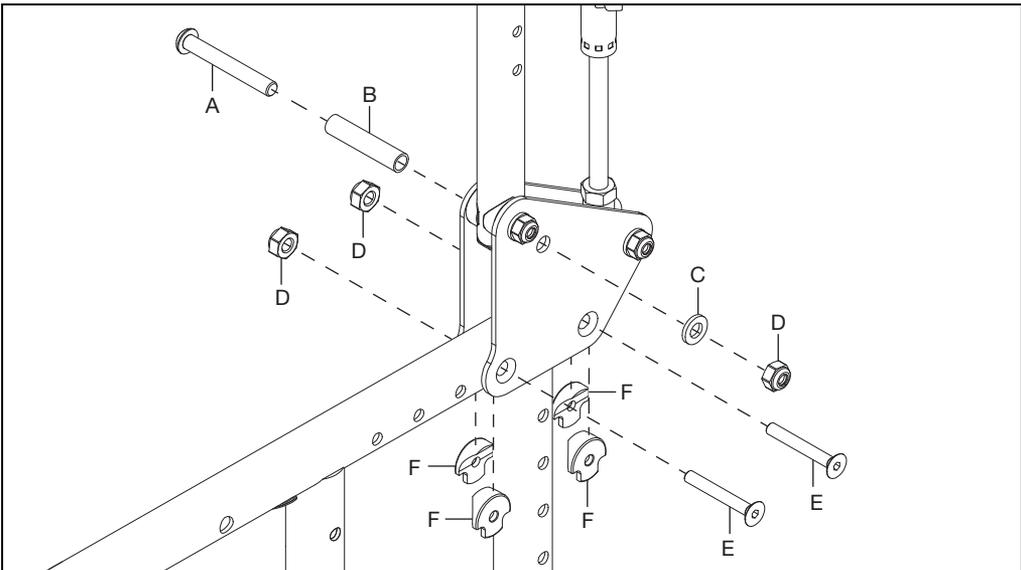
9. Install reclining backrest rear frame (C) onto chair with the retained four bolts (A) and two threaded barrels (B), retained from step 8, using two 3mm Allen wrenches. Repeat on opposite side.



10. Mount the reclining backrest assembly onto the rear frame and secure in place with two bolts (E), four saddles (F) and two nuts (D) using a 4mm Allen wrench and a 10mm wrench. Install bolt (A), threaded barrel (B), washer (C) and nut (D) using 4mm Allen wrench and a 10mm wrench. Repeat steps to install the opposite side.

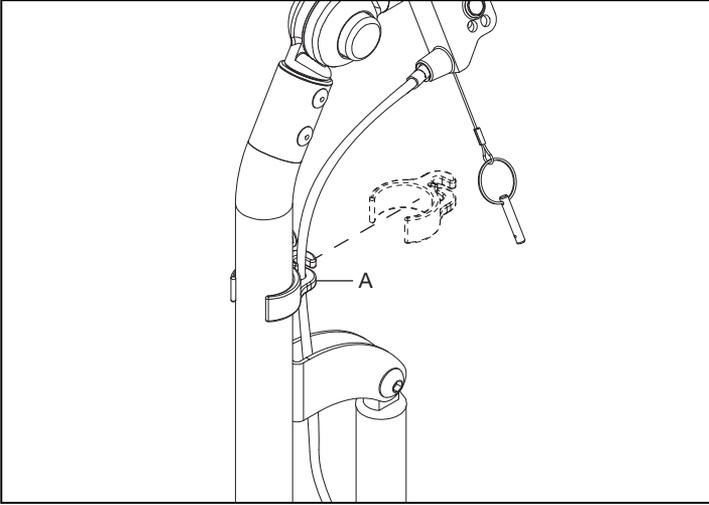
NOTE: The seat depth is determined by the rear seat frame holes used to mount backrest assembly. Choose the holes that provide the determined configuration.

NOTE: When the second backrest assembly is installed, adjust the growth strut to the correct width for the chair if not already set in correct configuration.

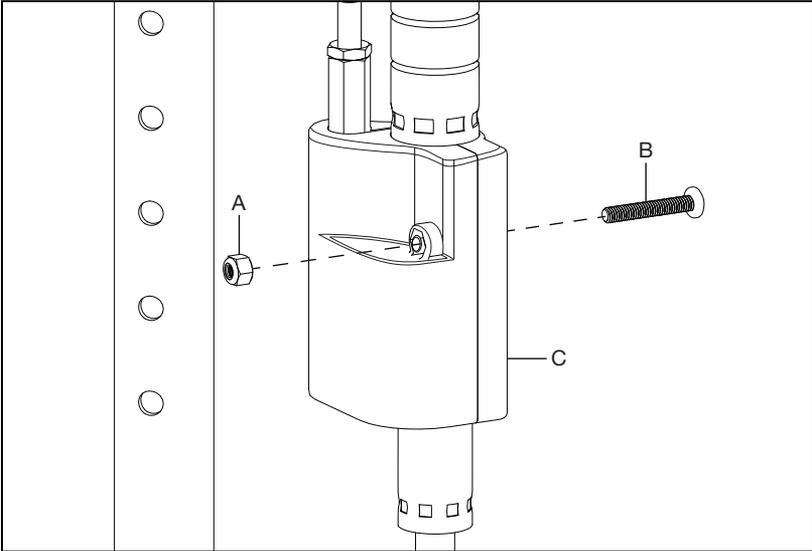


Reclining Backrest - Available on Catalyst 5

11. Install cable clip onto back tube ensuring there are no kinks, sharp bends or twist in cable. Repeat on opposite side.



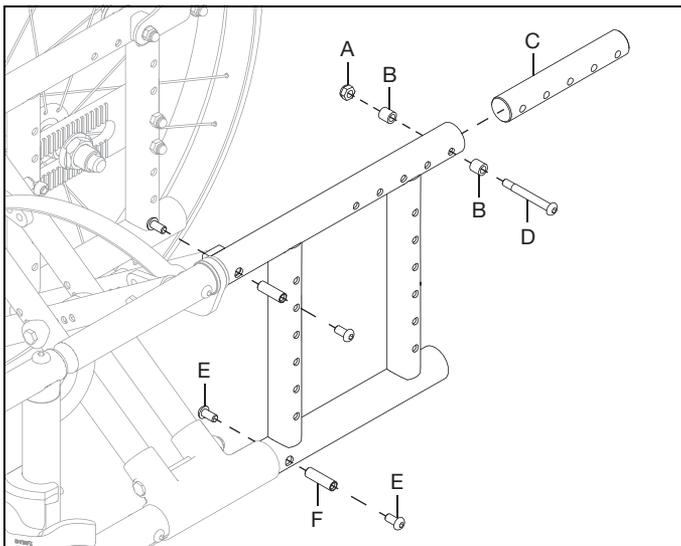
12. Test the reclining backrest. Ensure chair reclines fully and returns to upright position. Adjust the slack of the cables if needed. Once complete, install gas spring cover (C) on both gas springs with bolt (B) and nut (A) using a 2.5mm Allen wrench.



Standard Depth Adj. Backrest - Available on Catalyst 5 & Spark

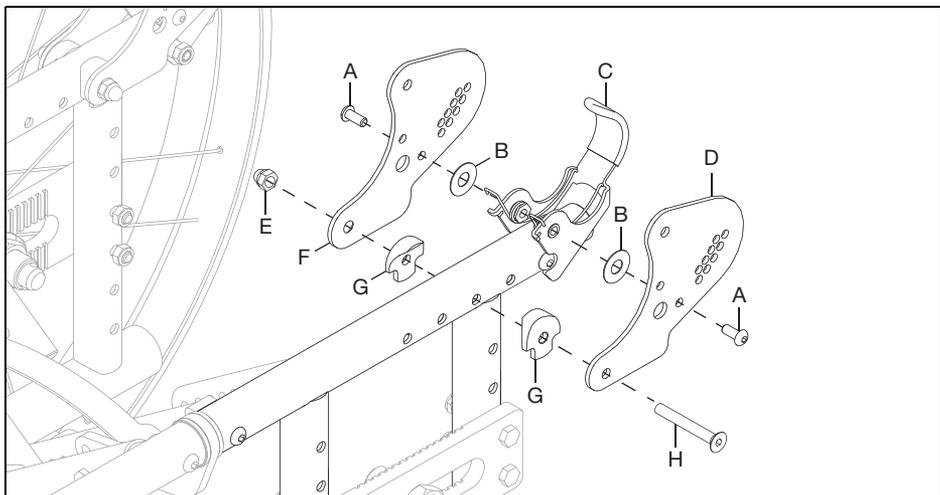
NOTE: If you already have a depth adjustable rear frame, skip ahead to step 2. If you do not have a depth adjustable rear frame, remove current backrest, wheel, axle plate and current rear frame. See the section for each removable item for hardware images if needed during removal process.

1. Install depth adjustable frame to chair frame and secure with two bolts (E) and a threaded barrel (F) using two 4mm Allen wrenches. The top set of hardware will also go through the cross brace clamp. Install the depth adjustable extension tube (C) onto the upper back side of frame with bolt (D), two bushings (B) and nut (A) using a 5mm Allen wrench and a 10mm wrench. Reinstall axle plate onto frame. Repeat on opposite side.



2. Install depth adjustable backrest plates (E & I) onto frame with bolt (H), two saddles (G) and nut (E) using a 4mm Allen wrench and a 10mm wrench. Install the latch (C) to the frame and the two backrest plates with two screws (A) and two washers (B) using two 3mm Allen wrenches. Repeat on opposite side.

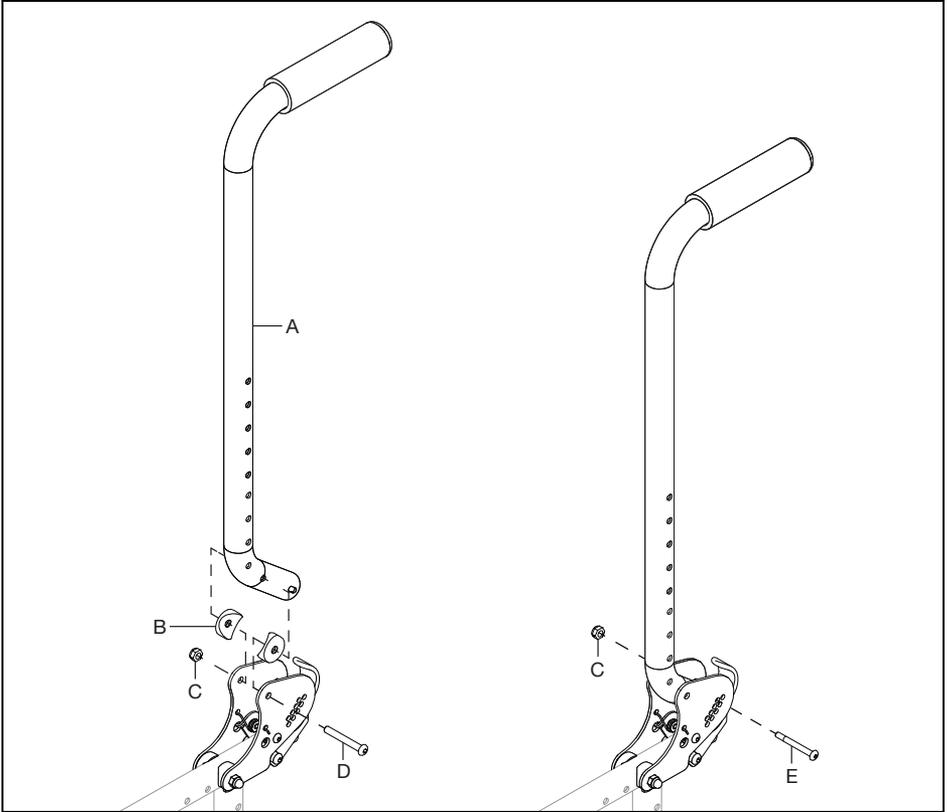
NOTE: Ensure the spring ends, in the latch mechanism, come out the backrest holes that they align with.



Standard Depth Adj. Backrest - Available on Catalyst 5 & Spark

3. Install the back post (A) into the backrest plates with screw (D), two saddles (B) and nut (C) using a 5mm Allen wrench and a 10mm wrench. Set the angle of the the back post by installing screw (E) and nut (C) into holes that give desired angle configuration using a 5mm Allen wrench and a 10mm wrench. Repeat on opposite side.

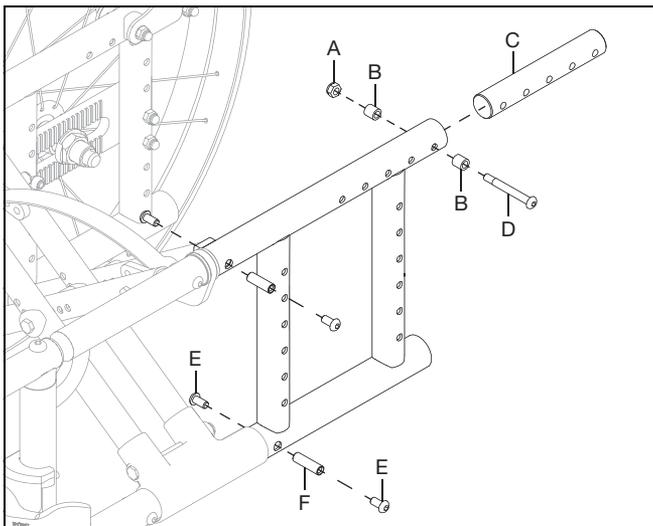
NOTE: The back posts are available in short (22") and tall (26").



Rocker Back - Available on Catalyst 5 & Spark

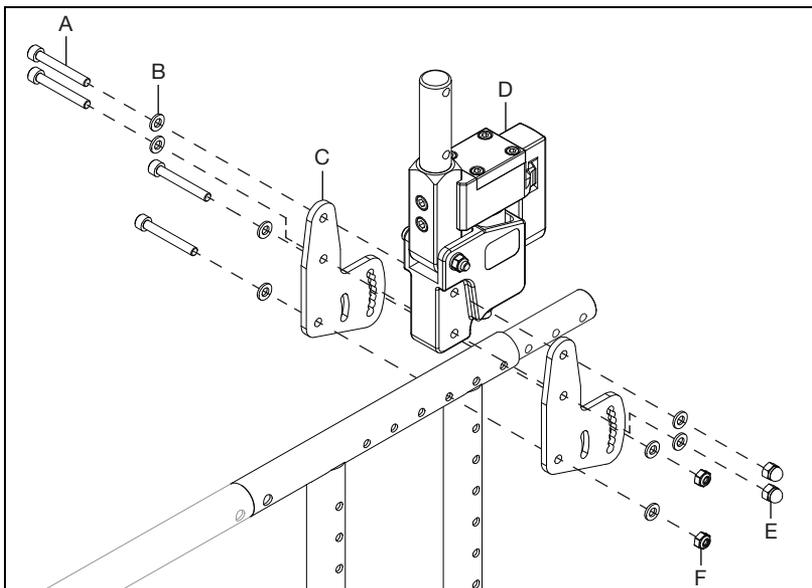
NOTE: If you already have a depth adjustable rear frame, skip ahead to step 2. If you do not have a depth adjustable rear frame, remove current backrest, wheel, axle plate and current rear frame. See the section for each removable item for hardware images if needed during removal process.

1. Install depth adjustable frame to chair frame and secure with two bolts (E) and a threaded barrel (F) using two 4mm Allen wrenches. The top set of hardware will also go through the cross brace clamp. Install the depth adjustable extension tube (C) onto the upper back side of frame with bolt (D), two bushings (B) and nut (A) using a 5mm Allen wrench and a 10mm wrench. Reinstall axle plate onto frame. Repeat on opposite side.



2. Install rocker back (D) and rocker back plates (C) onto frame with four bolts (A), eight washers (B), two nuts (F) and two dome nuts using a 5mm Allen wrench and a 10mm wrench. Repeat on opposite side.

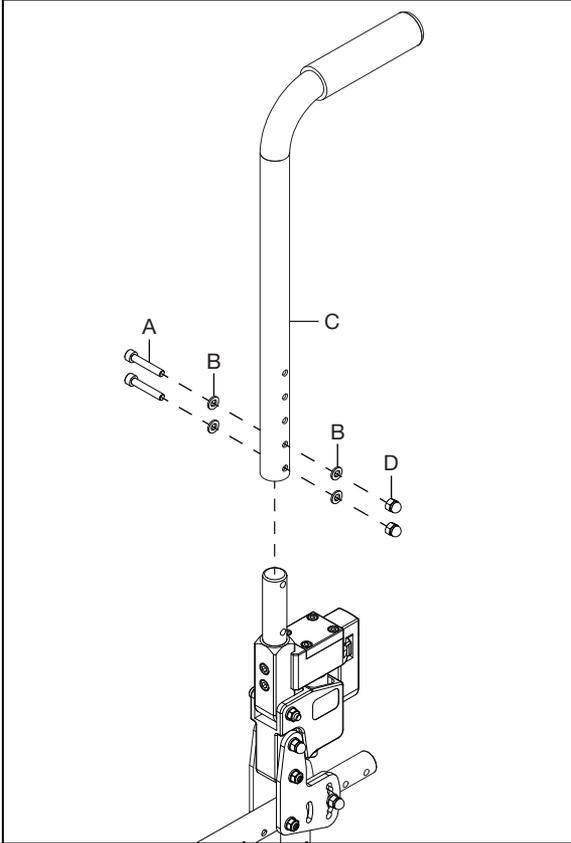
NOTE: Seat depth is set when installing rocker back. Install in the holes that provide the desired configuration.



Rocker Back - Available on Catalyst 5 & Spark

3. Install back cane (C) into the rocker back assembly and secure with two bolts (A), four washers (B) and two nuts (D) using a 5mm Allen wrench and a 10mm wrench. The back cane height can be configured to desired height using the different holes on the back canes. Choose the holes that achieve the desired height. Repeat on opposite side.

NOTE: Rocker back has the Height Adjustable Depth Adjustable Push Handle available in short (8.5"), medium (11.5") and tall (15.5") heights. The Depth Adjustable Back post is also available in standard (16") and tall (20") heights.

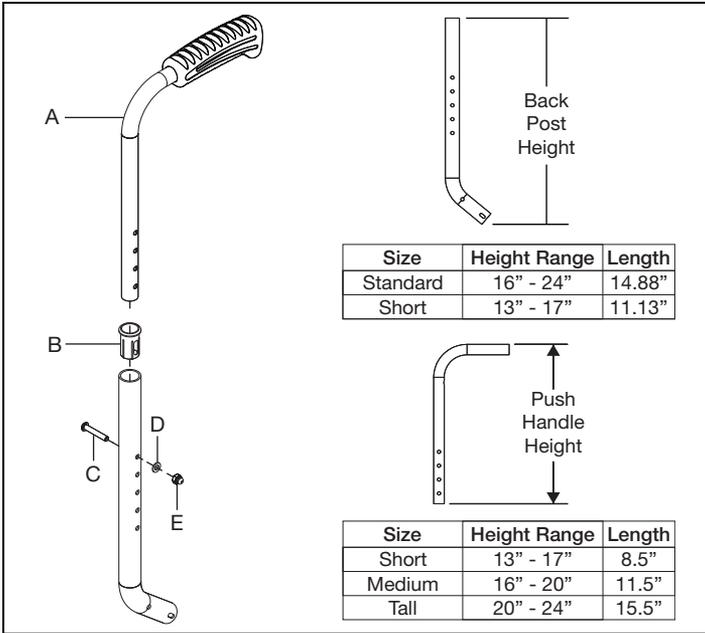


Height Adj. Depth Adj. Backrest - Available on Catalyst 5 & Spark

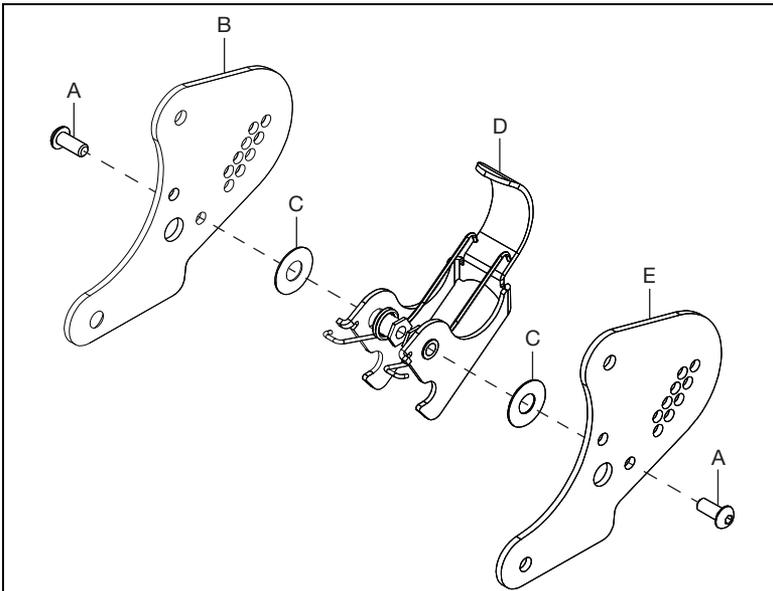
NOTE: Remove existing backrest with the backplates prior to beginning this procedure.

1. Install upper depth adjustable height adjustable back to the lower depth adjustable back tube with sleeve, bolt, washer and nut using a 4mm Allen wrench and a 10mm wrench. The back height is determined by the holes that are chosen during installation. Repeat installation with second set.

NOTE: In addition to the different back posts and push handles that are available, there are also two push handle grips that are available in low profile (3" long) and standard (4.75" long).

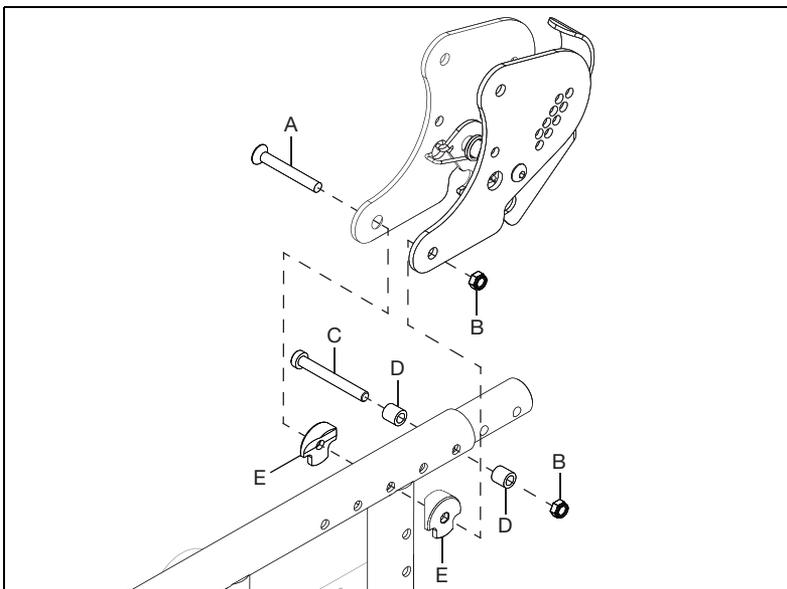


2. Install backrest plates (A & E) onto latch (D) with two bolts (A) and two washers (C) using two 3mm Allen wrenches. Repeat installation with the second set.

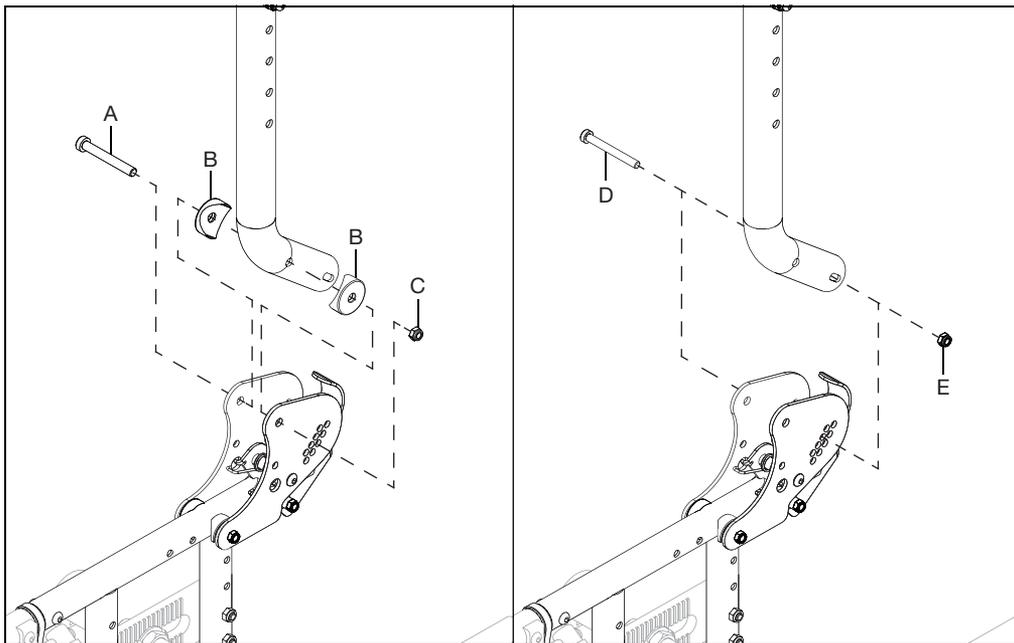


Height Adj. Depth Adj. Backrest - Available on Catalyst 5 & Spark

3. Install latch and backrest plate assembly onto frame with bolt (A), two saddles (E) and a nut (B) using a 4mm Allen wrench and a 10mm wrench. Assemble the latch strike onto the frame with bolt (C), two latch strike bushings (D) and nut (B) using a 5mm Allen wrench a 10mm wrench. Repeat on opposite side. Use the holes that provide the desired seat depth.



4. Install back cane assembly into the backrest plates with bolt (A), two saddles (B) and nut (C) using a 5mm Allen wrench and a 10mm wrench. Install bolt (D) and nut (E) to set the angle using a 4mm Allen wrench and an 8mm wrench. Choose the hole that provides the desired backrest angle. Repeat on opposite side.



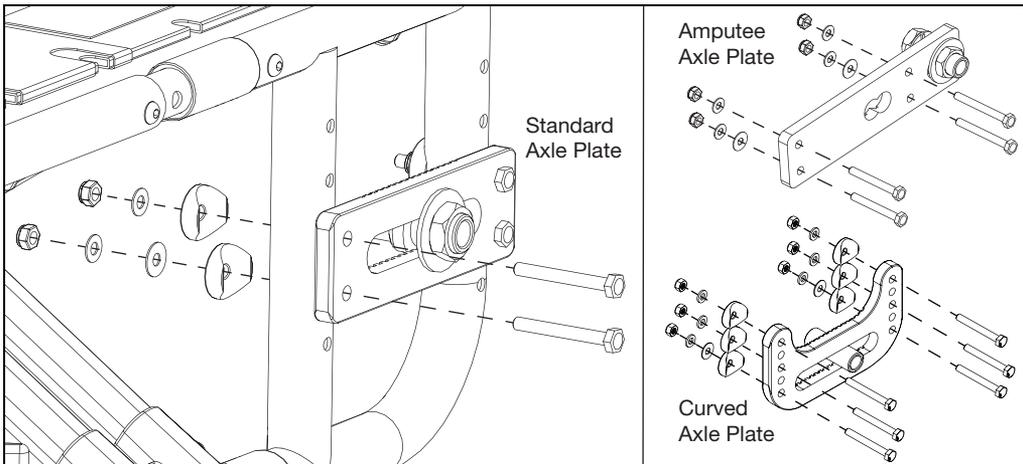
Universal Axle Plate - Available on Catalyst 5 and Spark

Removing Current Axle Plate

NOTE: Before removing the current axle plate, note which holes the current axle plate use and the current location of the axle receiver as these will be where the new axle is located.

1. Remove wheel.
2. Using two 10mm wrenches, remove the four sets of hardware securing the axle plate to the chair frame. Standard, curved and amputee axle plates have different sets of hardware (shown in image below), but all three use two 10mm wrenches to remove the hardware.

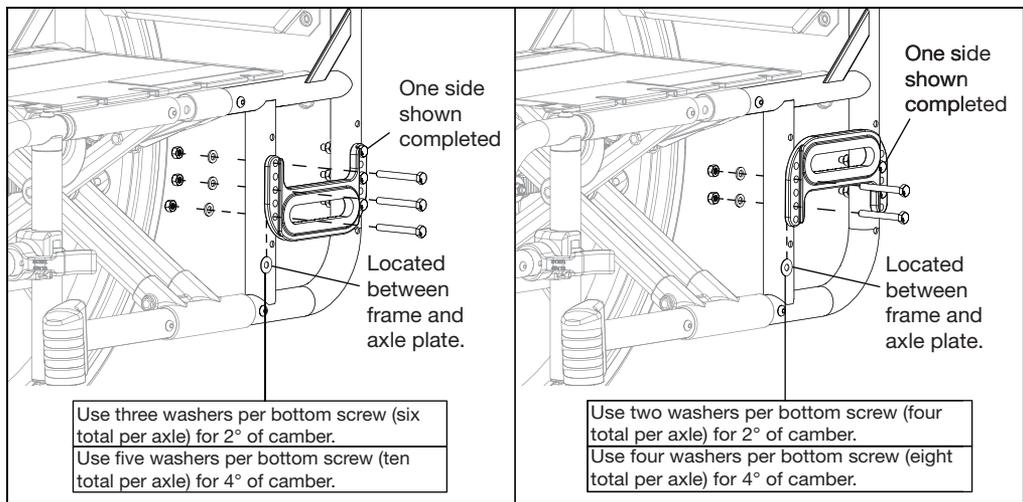
NOTE: Two sets of hardware are shown in the image below to show the parts involved. All four sets are removed in this step.



Installing Catalyst 5 Universal Axle Plate

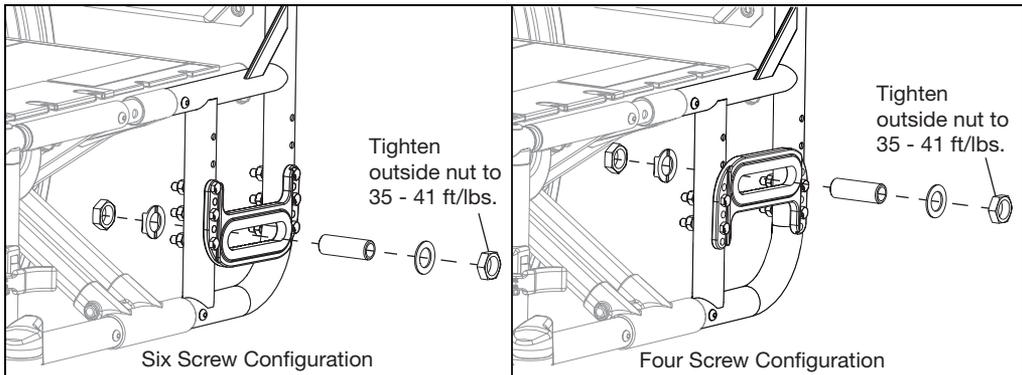
1. Install the new axle plate in the same location as the previous axle plate using a 10mm wrench (The recessed edge on the axle plate holds the bolt head, so only one wrench is used to tighten on the nuts.) Depending on the number of holes that line up between rear frame and axle plate you will use either four bolts or six bolts to reattach.

NOTE: With this axle plate, camber is achieved with the lowest located washers that are between the axle plate and the frame. See image below for the number of washers that corresponds with the different camber angles that can be achieved.



Universal Axle Plate - Available on Catalyst 5 and Spark

2. Install axle receiver in the same location as the previous axle receiver with two axle receiver nuts, an axle plate flat washers and an axle plate index washer using two adjustable wrenches. Tighten outside nut to 35 - 41 ft/lbs. See image below.



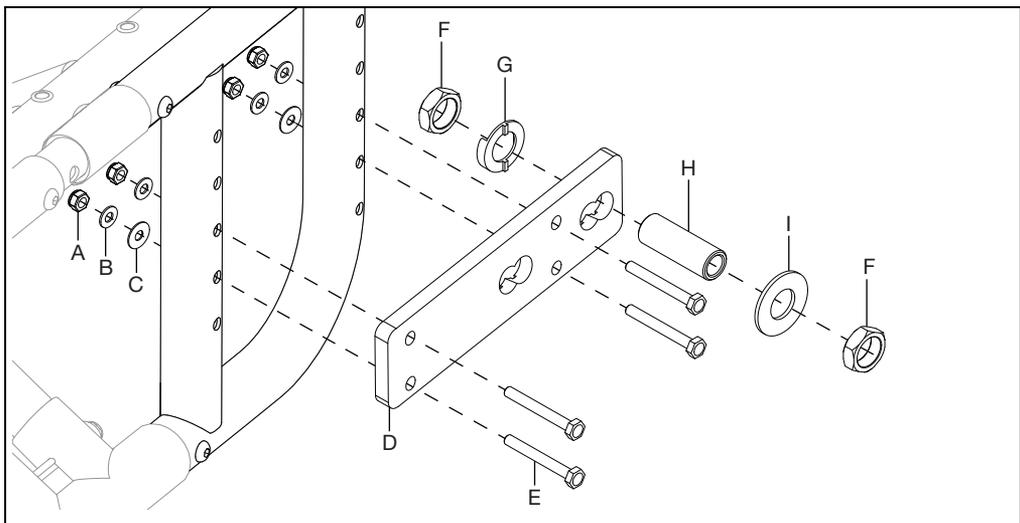
3. Reinstall wheels.

Amputee Axle Plate - Available on Catalyst 5

1. The amputee axle plate (D) is installed with four bolts (E), four washers (B), two thin washers (C) and four nuts (A) using two 10mm wrenches. The thin washers (C) also control the camber. Use two per screw to achieve 2° of camber and use three per screw to achieve 4° of camber.

NOTE: The rear two bolts come in different sizes depending on the current configurations. Use the 50mm long bolt when attaching only the axle plate. Use the 60mm long bolt when attaching the axle plate and anti-tip receiver or transit bracket. Use the 65mm long bolt when attaching an axle plate, anti-tip receiver and transit bracket.

2. Install the two receiver nuts (F), axle plate flat washer (I), axle receiver (H) and axle plate index washer (G) using an adjustable wrench in the desired location for the rear wheels. Repeat steps 1 and 2 on opposite side.

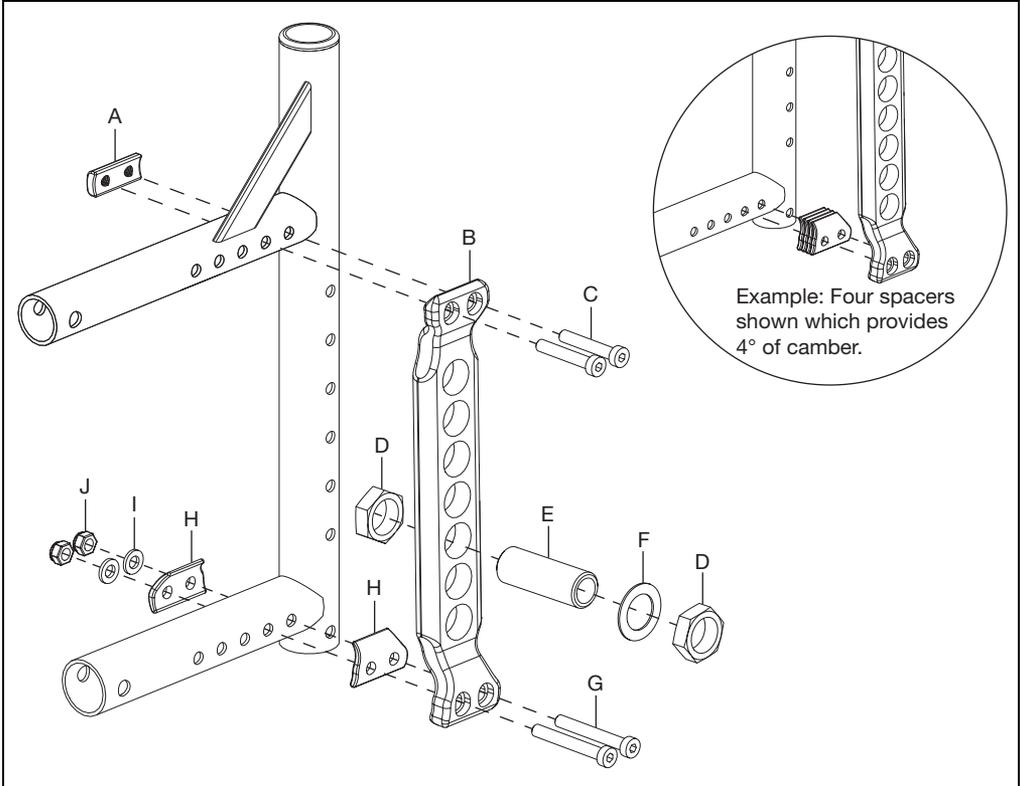


Vertical Axle Plate - Available on Catalyst 5VX

1. Install the vertical axle plate (B) onto the outside of chair frame with four bolts (C & G), threaded axle nut plate (A), two spacers (H), two washers (I) and two nuts (J) using a 5mm Allen wrench and a 10mm wrench. There are different holes that can be used to install the vertical axle plate. Choose the holes that provide the desired rear wheel placement.

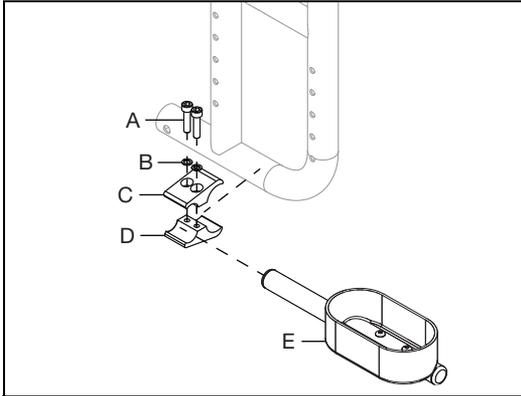
NOTE: The camber is controlled by the spacer (H) that is between the frame and axle plate. Add one spacer for every one degree of camber that is desired. Do not add more than four spacers to a bolt. Ensure the correct bolt lengths are used when adding camber. The 45mm long bolt is used with 0° camber. The 50mm long bolt is used with 1° or 2° camber. The 60mm long bolt is used with 3° or 4° camber. Ensure camber is set the same on both sides of chair.

2. Install the two axle receiver nuts (D), axle plate washer (F) and axle plate receiver (E) using an adjustable wrench. Install the axle receiver in the hole that provides the desired rear seat height. Repeat steps 1 and 2 on opposite side. Ensure both sides are set in the same configuration.

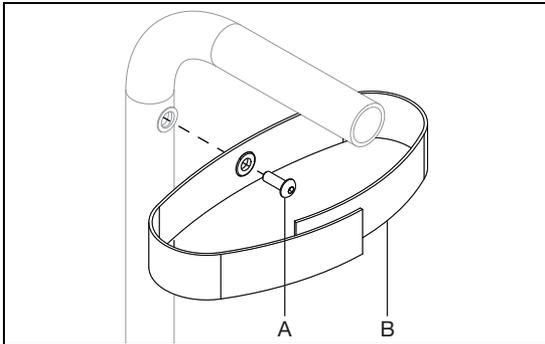


Cane and Crutch Holder

1. Install crutch holder cup (E) onto the inside of rear chair frame by securing two clamps (C & D) with two bolts (A) and two lock washers (B) using a 5mm Allen wrench.

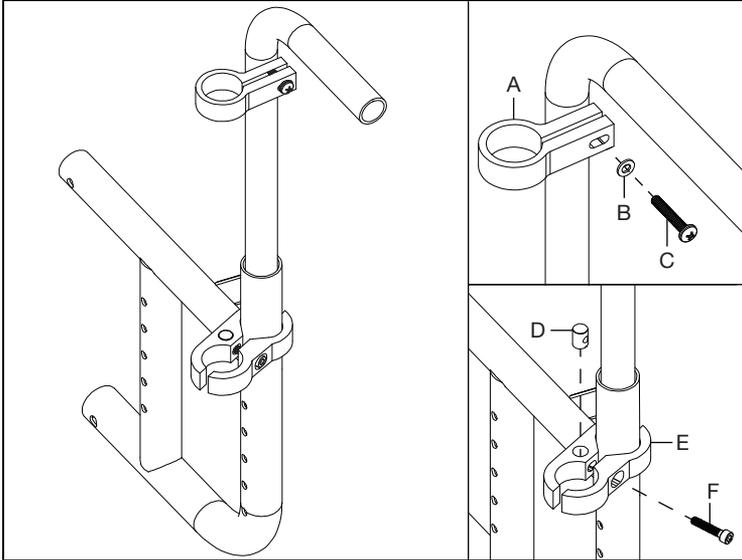


2. Install velcro strap (B) at top of back cane with bolt (A) using a 3mm Allen wrench.

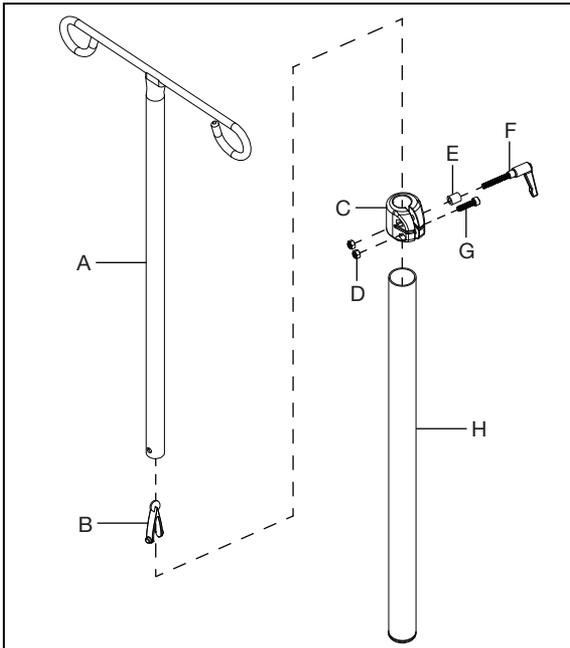


IV Holder

1. Install the two IV holder clamps on the back cane. The lower clamp (E) is installed with bolt (F) and barrel nut (D) using a 5mm Allen wrench. The upper clamp (A) is installed with screw (C) and lock washer (B) using a Phillips screw driver.



2. Install snap button (B) into the bottom of the IV pole upper (A). Install clamp (C) onto the IV pole outer (H) with handle (F), spacer (E) and nut (D). The clamp also has a bolt (G) and nut (D) installed on the lower half using a 4mm Allen wrench. Install the IV pole upper into the IV pole outer and adjust to desired height. Secure in place by tightening the handle. The IV pole assembly can now be installed into the two clamps on the seat frame from step 1.



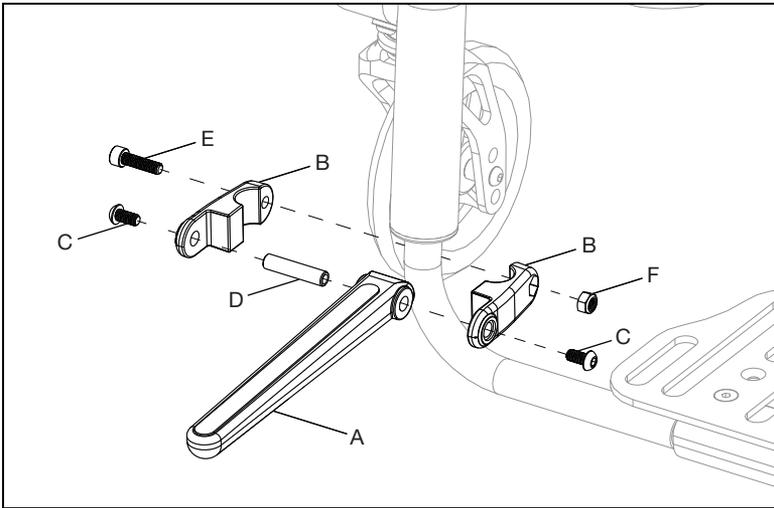
Luggage Carrier

NOTE: There are different sizes of clamps to fit all types of chairs and configurations. The carrier is mounted to the frame or footrest tube on rigid chairs and mounted on the footrest hangers or extension tubes on Catalysts and tilt chairs. If hangers have been omitted the carrier is mounted to the vertical front frame tube. The image below shows a luggage carrier being installed on a chair with a footrest extension. The installation is the same whether it is being installed on the frame or footrest tubes.

1. Install luggage carrier fork (A) and clamp (B) by installing two screws (C) and barrel nut (D) through the clamp and fork using two 4mm Allen wrenches.
2. Secure the clamp in the desired location by installing and tightening the screw (E) and nut (F) on the backside of the clamp using a 5mm Allen wrench.

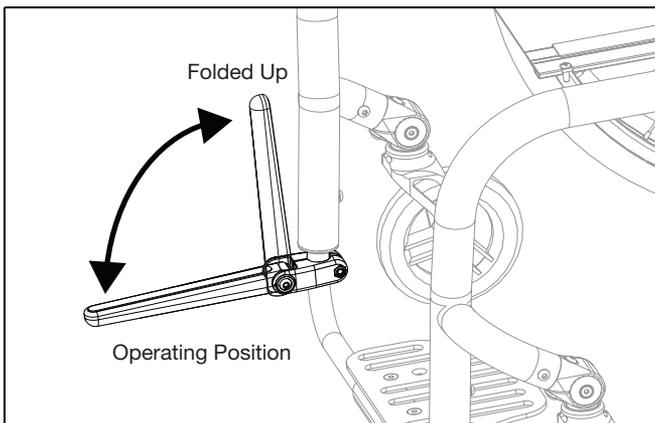
NOTE: The nut for the backside screw goes into a recess in the clamp. Ensure that nut stays in place.

3. Repeat on opposite side.



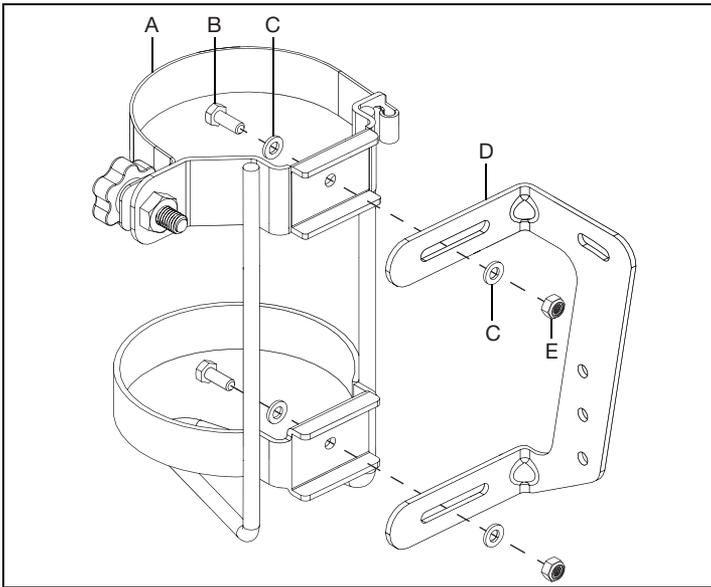
Using the Luggage Carrier

1. Operating position for the luggage carrier is when the forks are folded down (See image below). The max weight capacity is 55lbs.
2. When not in use, fold the luggage carrier up.

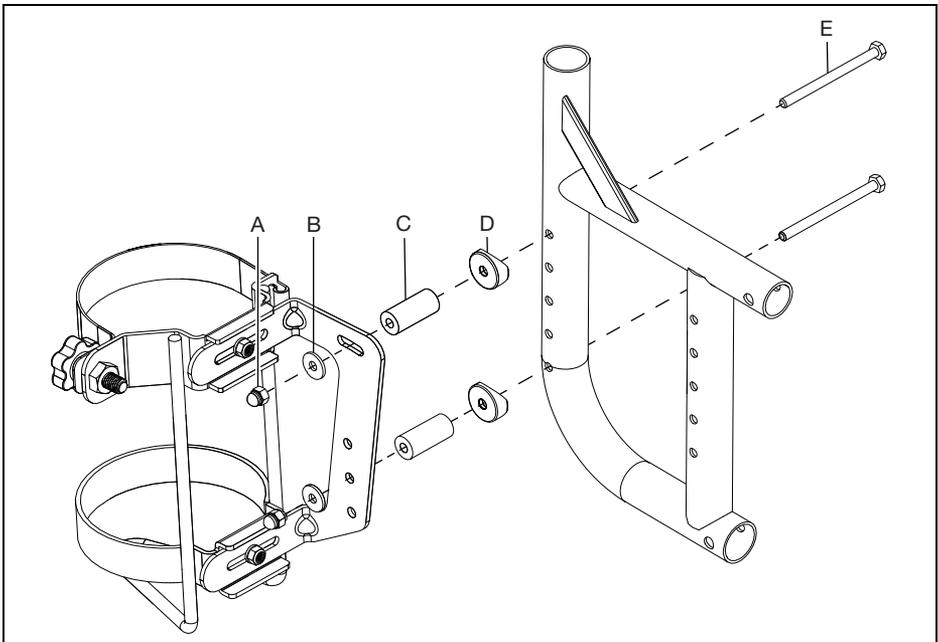


O2 Holder - Available on Catalyst 4, 5 & 5VX

1. Install O2 holder assembly (A) onto O2 bracket (D) with two bolts (B), four washers (C) and two nuts (E) using two 10mm wrenches.



2. Install the O2 holder assembly onto chair frame with two bolts (E), two saddles (D), two spacers (C), two washers (B) and two nuts (A) using two 10mm wrenches.



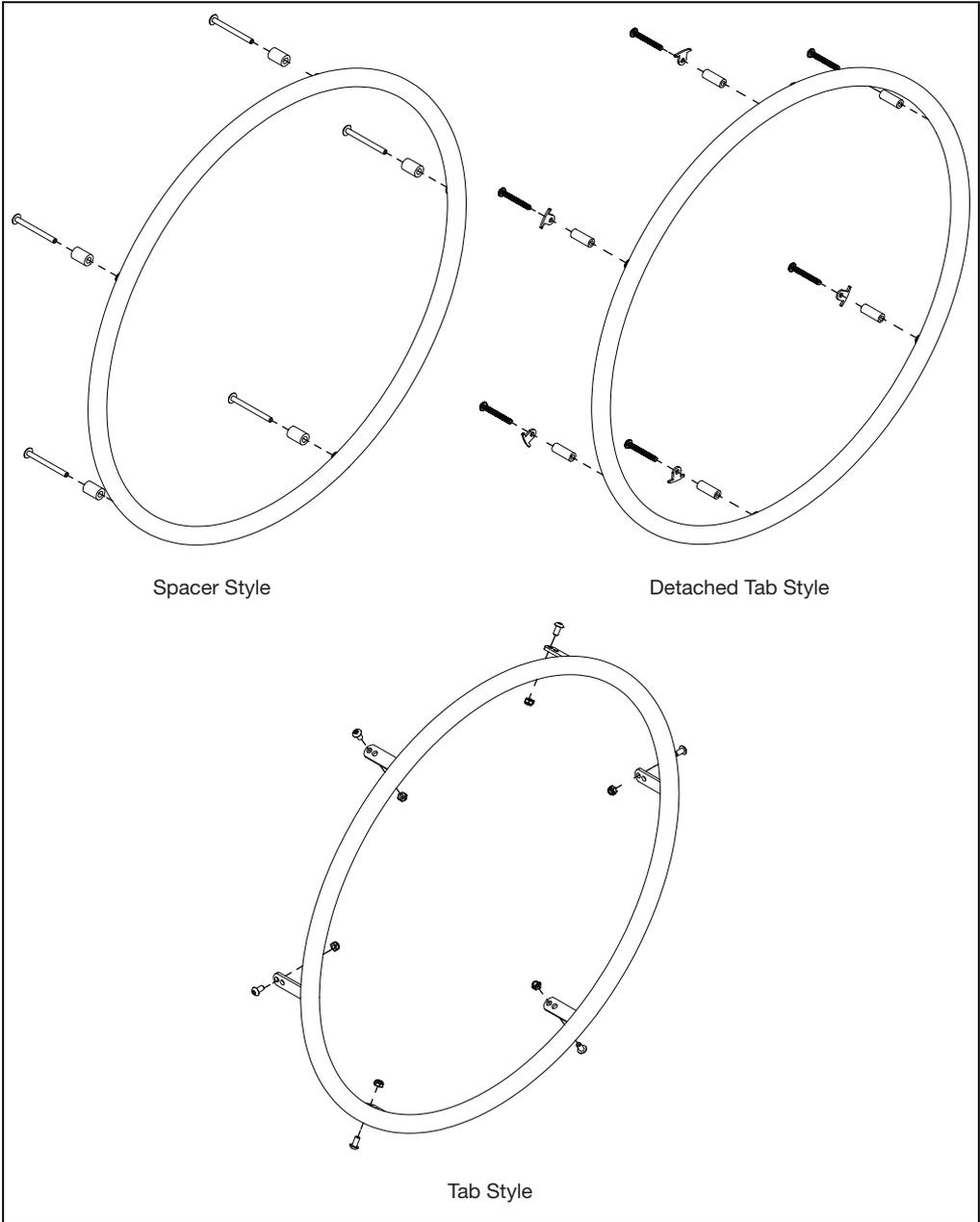
Handrim Configurations

NOTE: Not all wheels listed below are available for specific models. See an order form or the online parts manual for more information on your specific chair model.

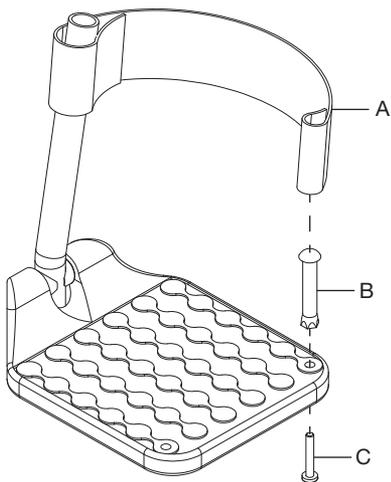
Handrim Hardware Chart												
Wheel		Handrim Connection				Handrim						
Wheel	Wheel Part Number	Connection Points	Tab	Spacer	Screw	Aluminum Anodized	Superlight	Plastic Coated	Projection	Natural Fit Standard	Natural Fit LT	Flex Rim
18" Ki Spoke	200529	3				100206		101106				
20" Ki Spoke	200530	6	100698	100653	Aluminum, Plastic Coated, Projection: 100654 Natural Fit: 100835	200536		200542				
22" Ki Spoke	200531					100560		100576	100569	200538	200201	
24" Ki Spoke	200532					200349		100577	200547	100793	200202	
25" Ki Spoke	200533					200350		101870	200548	200539	200540	
26" Ki Spoke	200534					200351		100578	200549	100907	101454	
24" Superlight	101159					6			100536	100754	101161	100836
25" Superlight	101160			101197	101160		101091			101464	101460	
20" 5-Spoke X Core	101961	5		Aluminum, Projection, Natural Fit: 100629	100724	101897		101963				
22" 5-Spoke X Core	101962						101898		101964			
24" 5-Spoke X Core	100960			Plastic Coated: 101756		100975		100976	200546			
25" 5-Spoke X Core	100960				101893					100768	100769	
20" Spinery Spox	See Spinery Spox Page	6			Screw: 100669 Nut: 100657	103125		103179				
22" Spinery Spox						100827		100808		100889	100888	
24" Spinery Spox						100766	101161	100615		100830	100828	
25" Spinery Spox						100767	101160	100765		101464	101460	
26" Spinery Spox						101477		101148		200200	100950	
22" Spinery LX	See Spinery LX Page	6			Screw: 100669 Nut: 100657	100827		100808		100889	100888	
24" Spinery LX						100766	101161	100615		100830	100828	200213
25" Spinery LX						100767	101160	100765		101464	101460	200208
26" Spinery LX						101477		101148		200200	100950	
22" Maxx Performance Spoke	105135	6	100698	100653	Superlight Screw: 100669	100560	101161	100576	100569	200538	200201	
24" Maxx Performance Spoke	105136				Superlight Nut: 100657 Screw (Excluding Superlight): 100654	200349		100577	200547	100793	200202	

Handrim Construction

The sequencing of hardware for the three styles of handrims is shown below. The specific hardware used is determined in the chart on the previous page, based on the tire and handrim being used.



Footplate and Heel Loops



Size	Part Number	Heel Loop			Strap Length
		Angle Adjustable / Multi-Angle	Composite	Composite Angle Adjustable	
Short	100591	N/A	14" - 15"	N/A	9.4"
Medium	100592	14" - 15"	16" - 17"	15" - 16"	10.4"
Long	100593	16" - 22"	18" - 22"	17" - 22"	11.4"

Size	Part Number	Adjustable Heel Loop			Strap Length
		Angle Adjustable / Multi-Angle	Composite	Composite Angle Adjustable	
Short	103364	14" - 17"	14" - 18"	14" - 17"	19"
Medium	103365	18" - 20"	19" - 22"	18" - 20"	21"
Long	103366	21" - 22"	N/A	21" - 22"	25"

Catalyst Seat Upholstery

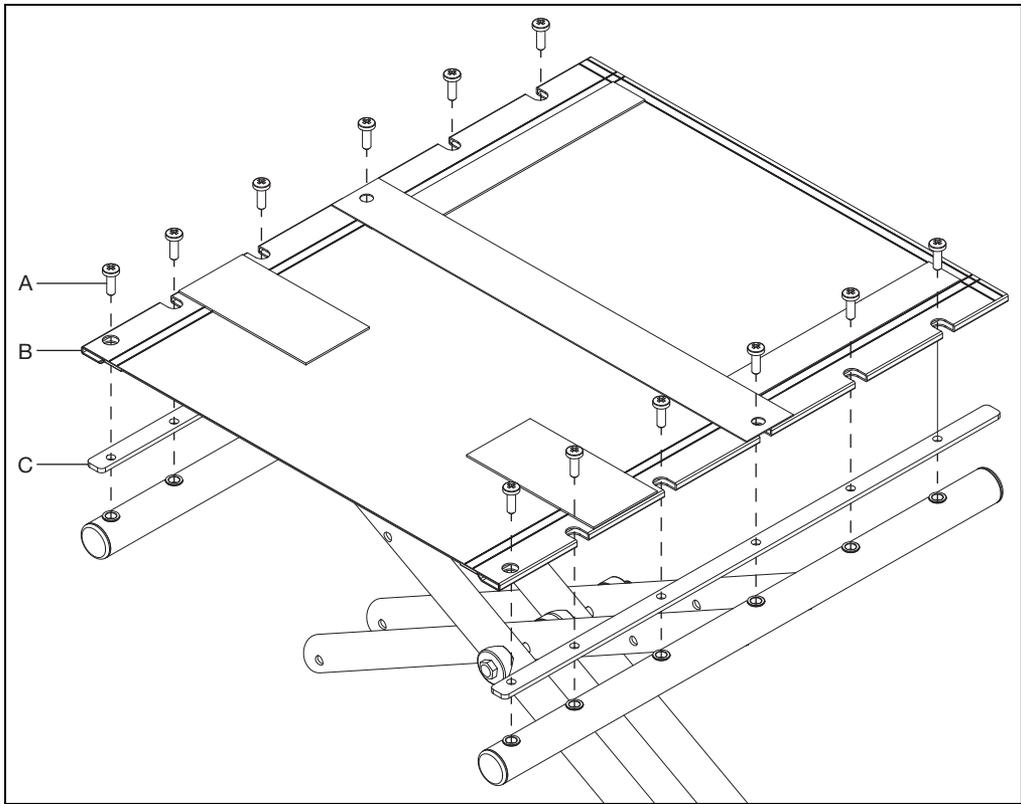
NOTE: Ensure any current seating is removed.

1. Install seat rail and upholstery onto chair tubes and secure with screws using a Phillips screwdriver.

NOTE: The number of screws used on the upholstery corresponds with the seat depth. See chart below for screw quantity for your configuration.

Screw Quantity Per Chair

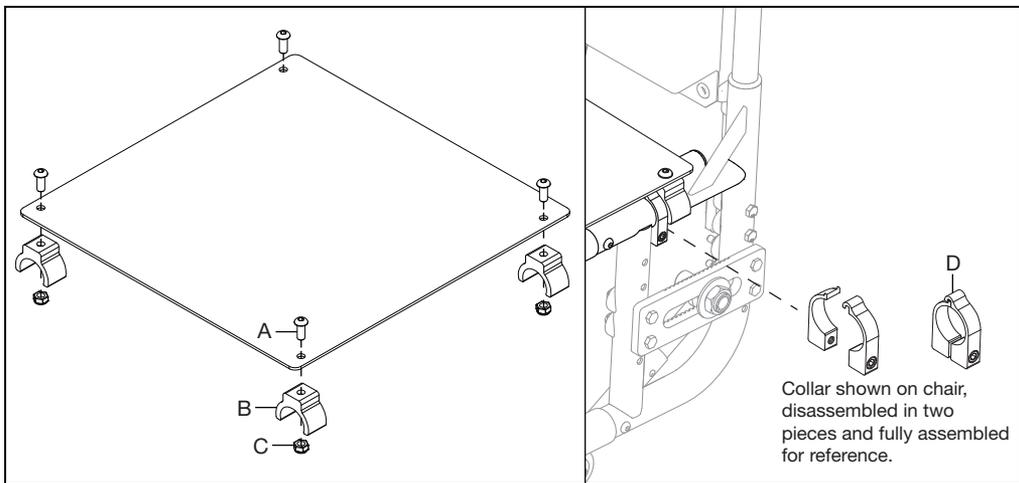
Seat Depth	Screw Quantity
14" - 15"	10
16" - 17"	12
18" - 19"	14
20"	16



Seat Pan

Standard Aluminum Seat Pan - Catalyst and Spark

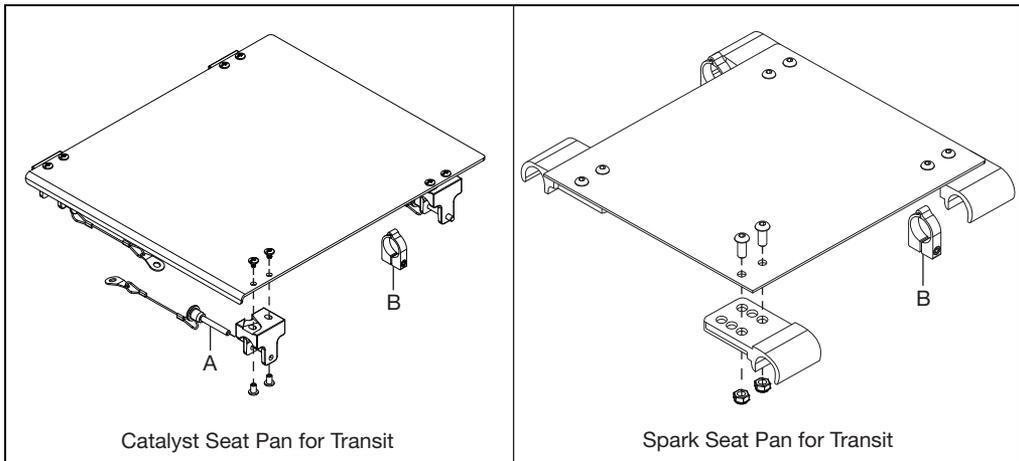
1. Install the four clamps (B) onto the seat pan with screw (A) and nut (C) using a 4mm Allen wrench.
2. Install the seat pan onto the chair by pressing the clamps down onto the frame tubes.
3. Install the two stop collars (D) on the front side of the two rear clamps on the frame tubes, no more than ½" from the rear clamps. The seat pan will need to be lifted slightly to fit the stop collars under.



Transit Aluminum Seat Pan - Catalyst and Spark

1. The process of installing a seat pan when transit is present is similar to the procedure for a standard aluminum seat pan. The hardware and clamps are slightly different, but the procedure and stop collar (B) installation is the same. See the image below for the transit versions of hardware for the Catalyst and Spark chairs.

NOTE: The Catalyst transit seat pan clamp also has a pin (A) that is secured after the clamp and seat pan are installed on the chair.



Catalyst and Spark One Arm Drive (OAD)

NOTE: Remove wheels and current axle plate prior to beginning this instruction.

Installing a New OAD (For converting a Hex OAD to a Blade OAD, skip ahead to page 79)

Installing One Arm Drive (OAD) Axle Plates

1. Install One Arm Drive (OAD) axle plate (B) with four bolts (A), four spacers (C), four saddles (D), four washers (E) and four nuts (F) using two 10mm wrenches. The drive shaft (G) is installed during this process by installing one side of the drive shaft in an installed axle plate. The other side of the drive shaft is installed as the second axle plate is being installed. Repeat on opposite side.

NOTE: The hardware used to attach the axle plate varies depending on the type of frame and the options on the chair. See the Catalyst / Spark One Arm Drive Hardware Utilization Chart below for the hardware needed for your chair configuration. The image on page 78 is an example meant to show parts and the order of different possible parts.

NOTE: The drive shaft also varies based on chair width and options. See the Drive Shaft Configurations chart on the following page for more information.

Curved Rear Frame

	No Arms			Flip Back and T-Arms			Swing Away Arms		
	Part No.	Description	Qty	Part No.	Description	Qty	Part No.	Description	Qty
No Options	100676	M6 x 55 HHCS Black Zn	4	100679	M6 x 65 HHCS Zn	4	100676	M6 x 55 HHCS Zn	2
	100746	M6 Flat Washer Blk Zn	4	000056	Saddle	4	100679	M6 x 65 HHCS Zn	2
	100679	M6 x 65 HHCS Zn	4	003172	Spacer	4	101826	M6 x 50 HHCS Black Zn	1
	100746	M6 Flat Washer Blk Zn	4						
	000056	Saddle	4						
Anti-Tips	100676	M6 x 55 HHCS Black Zn	2	100680	M6 x 70 HHCS Zn	2	101826	M6 x 50 HHCS Black Zn	2
	100677	M6 x 60 HHCS Zn	2	100679	M6 x 65 HHCS Zn	2	100677	M6 x 60 HHCS Zn	1
	100679	M6 x 65 HHCS Zn	2	000056	Saddle	4	100679	M6 x 65 HHCS Zn	1
	100680	M6 x 70 HHCS Zn	2	003172	Spacer	4	100676	M6 x 55 HHCS Black Zn	1
	000056	Saddle	4						
	003172	Spacer	4						
Transit	100676	M6 x 55 HHCS Black Zn	2	102996	M6 x 85 HHCS Black Zn	2	101826	M6 x 50 HHCS Black Zn	2
	100679	M6 x 65 HHCS Zn	2	100679	M6 x 65 HHCS Zn	2	100679	M6 x 65 HHCS Zn	2
	101826	M6 x 50 HHCS Black Zn	1	100676	M6 x 55 HHCS Black Zn	1	100676	M6 x 55 HHCS Zn	1
	100679	M6 x 65 HHCS Zn	2	000056	Saddle	4			
	100544	M6 x 75 HHCS Zn	2	003172	Spacer	4			
	101826	M6 x 50 HHCS Black Zn	1						
	000056	Saddle	4						
	003172	Spacer	4						
Anti-Tips and Transit	101826	M6 x 50 HHCS Black Zn	2	100660	M6 x 80 HHCS Zn	2	100676	M6 x 55 HHCS Zn	3
	100679	M6 x 65 HHCS Zn	2	100679	M6 x 65 HHCS Zn	2	100679	M6 x 65 HHCS Zn	2
	100677	M6 x 60 HHCS Zn	2	100676	M6 x 55 HHCS Black Zn	1			
	102996	M6 x 85 HHCS Black Zn	2	000056	Saddle	4			
	101826	M6 x 50 HHCS Black Zn	1	003172	Spacer	4			
	000056	Saddle	4						
	003172	Spacer	4						

Catalyst and Spark One Arm Drive (OAD)

Depth Adjustable / Spark Rear Frame

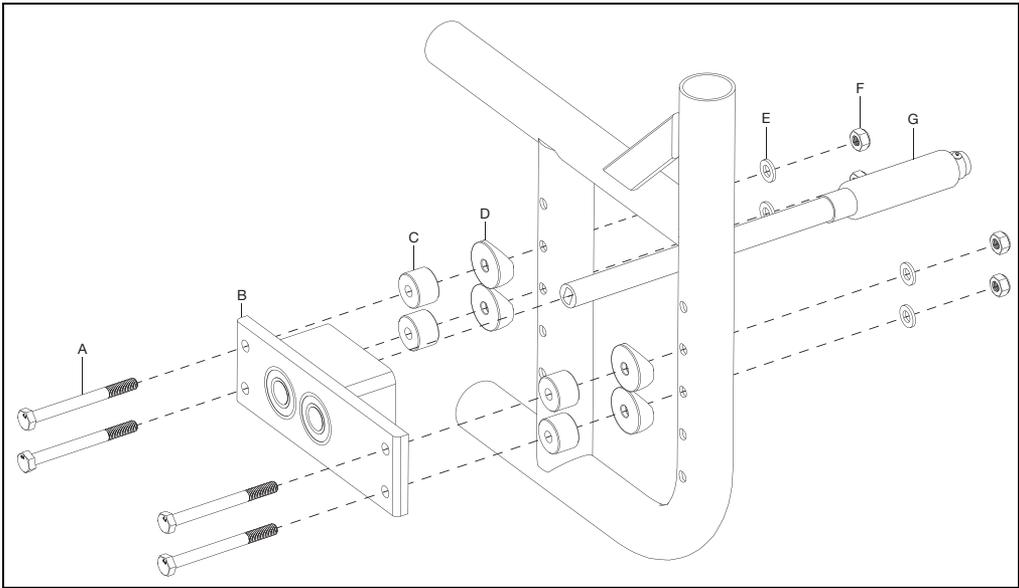
	Angle Adj. Locking Flip Up, Tubular Flip Up, Pediatric T-Arm or No Arms			Flip Back and T-Arms		
	Part No.	Description	Qty	Part No.	Description	Qty
No Options	101826	M6 x 50 HHCS Black Zn	4	100677	M6 x 60 HHCS Zn	4
	100746	M6 Flat Washer Blk Zn	4	100746	M6 Flat Washer Blk Zn	4
				000055	Saddle	4
				003172	Spacer	4
Anti-Tips	101826	M6 x 50 HHCS Black Zn	2	100679	M6 x 65 HHCS Zn	2
	100676	M6 x 55 HHCS Zn	2	100677	M6 x 60 HHCS Zn	2
				000055	Saddle	4
				003172	Spacer	4
Transit	101826	M6 x 50 HHCS Black Zn	2	100660	M6 x 80 HHCS Zn	2
	100677	M6 x 60 HHCS Zn	2	100677	M6 x 60 HHCS Zn	2
	100674	M6 x 45 HHCS Zn	1	101826	M6 x 50 HHCS Black Zn	1
				000055	Saddle	4
				003172	Spacer	4
Anti-Tips and Transit	100674	M6 x 45 HHCS Zn	2	100544	M6 x 75 HHCS Zn	2
	100677	M6 x 60 HHCS Zn	2	100677	M6 x 60 HHCS Zn	2
				101826	M6 x 50 HHCS Black Zn	1
				000055	Saddle	4
				003172	Spacer	4

Drive Shaft Configurations

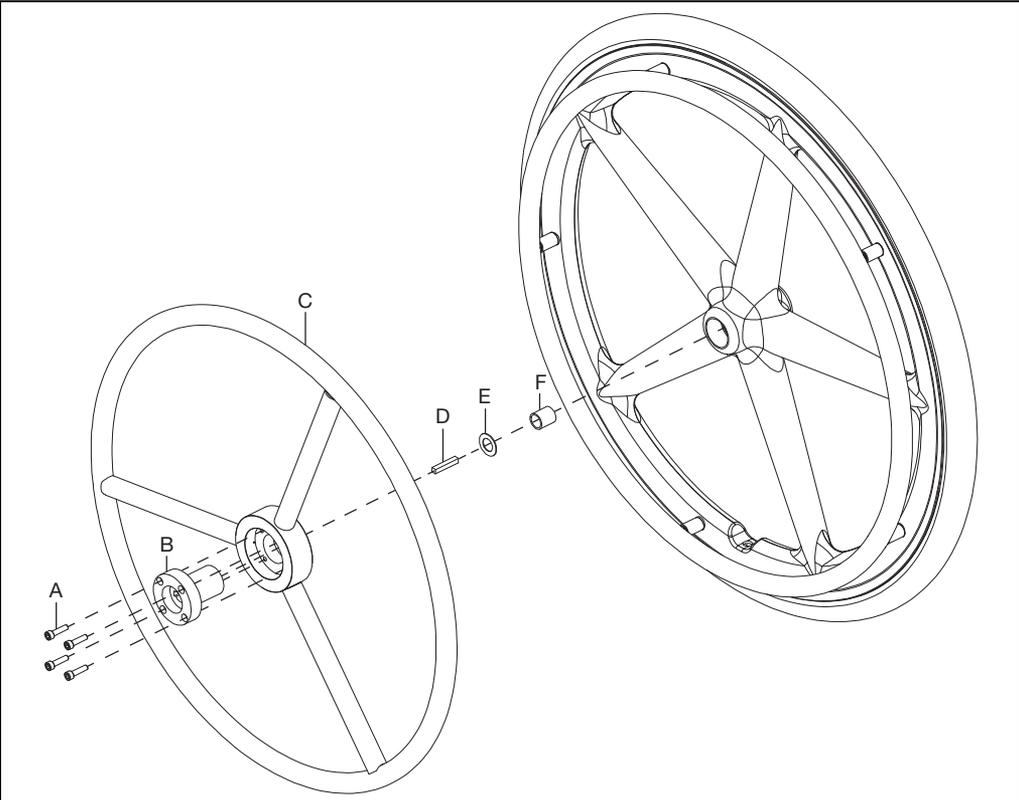
Seat Width	Wheel Spacing	Part No.	Description	Options
*11"	1.375	107562	One Arm Drive - Drive Shaft 8.71	For no arms or flip-up
11"	1.875	107562	One Arm Drive - Drive Shaft 8.72	Saddles & spacers required for flipback, T-Arms & Swing Away
12"	1.375	107562	One Arm Drive - Drive Shaft 8.72	For no arms or flip-up
12"	1.875	107563	One Arm Drive - Drive Shaft 9.72	Saddles & spacers required for flipback, T-Arms & Swing Away
13"	1.375	107563	One Arm Drive - Drive Shaft 9.72	For no arms or flip-up
13"	1.875	107032	One Arm Drive - Drive Shaft 10.74	Saddles & spacers required for flipback, T-Arms & Swing Away
14"	1.375	107032	One Arm Drive - Drive Shaft 10.74	For no arms or flip-up
14"	1.875	107565	One Arm Drive - Drive Shaft 11.72	Saddles & spacers required for flipback, T-Arms & Swing Away
15"	1.375	107565	One Arm Drive - Drive Shaft 11.72	For no arms or flip-up
15"	1.875	107566	One Arm Drive - Drive Shaft 12.72	Saddles & spacers required for flipback, T-Arms & Swing Away
16"	1.375	107566	One Arm Drive - Drive Shaft 12.72	For no arms or flip-up
16"	1.875	107567	One Arm Drive - Drive Shaft 13.82	Saddles & spacers required for flipback, T-Arms & Swing Away
17"	1.375	107567	One Arm Drive - Drive Shaft 13.82	For no arms or flip-up
17"	1.875	107568	One Arm Drive - Drive Shaft 14.67	Saddles & spacers required for flipback, T-Arms & Swing Away
18"	1.375	107568	One Arm Drive - Drive Shaft 14.67	For no arms or flip-up
18"	1.875	107569	One Arm Drive - Drive Shaft 15.67	Saddles & spacers required for flipback, T-Arms & Swing Away
19"	1.375	107569	One Arm Drive - Drive Shaft 15.67	For no arms or flip-up
19"	1.875	107570	One Arm Drive - Drive Shaft 16.67	Saddles & spacers required for flipback, T-Arms & Swing Away
20"	1.375	107570	One Arm Drive - Drive Shaft 16.67	For no arms or flip-up
20"	1.875	107571	One Arm Drive - Drive Shaft 17.67	Saddles & spacers required for flipback, T-Arms & Swing Away
21"	1.375	107571	One Arm Drive - Drive Shaft 17.67	For no arms or flip-up
21"	1.875	107572	One Arm Drive - Drive Shaft 18.67	Saddles & spacers required for flipback, T-Arms & Swing Away
22"	1.375	107572	One Arm Drive - Drive Shaft 18.67	For no arms or flip-up
22"	1.875	108072	One Arm Drive - Drive Shaft 19.67	Saddles & spacers required for flipback, T-Arms & Swing Away

*For this configuration, don't use spacer 107564 and use axle 108073

Catalyst and Spark One Arm Drive (OAD)

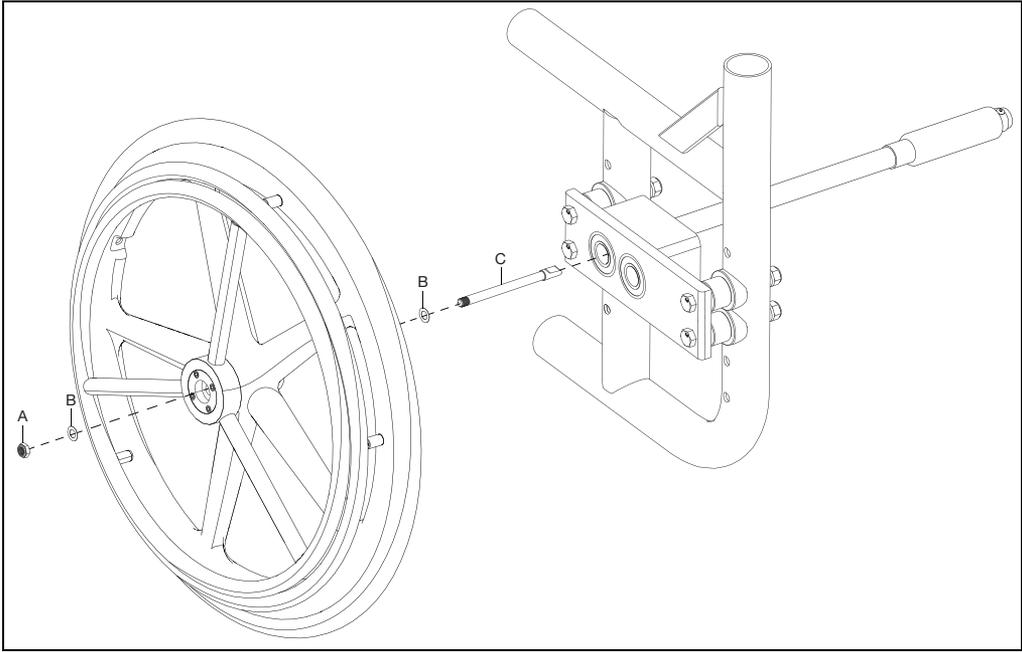


2. Install the handrim hub (B) and OAD handrim (C) onto your drive wheel with the key (D), washer (E) and spacer (F) and secure with four bolts (A).



Catalyst and Spark One Arm Drive (OAD)

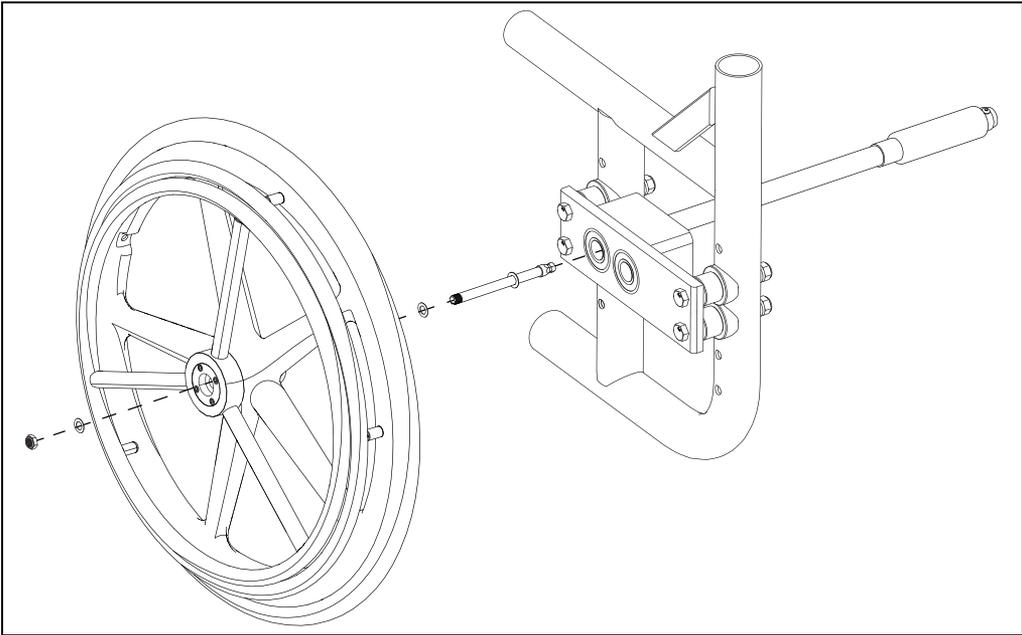
3. Install blade style axle (C), two washers (B) and nut (A) using a 1/2" wrench. Repeat on opposite side.



Converting Hex OAD to Blade OAD

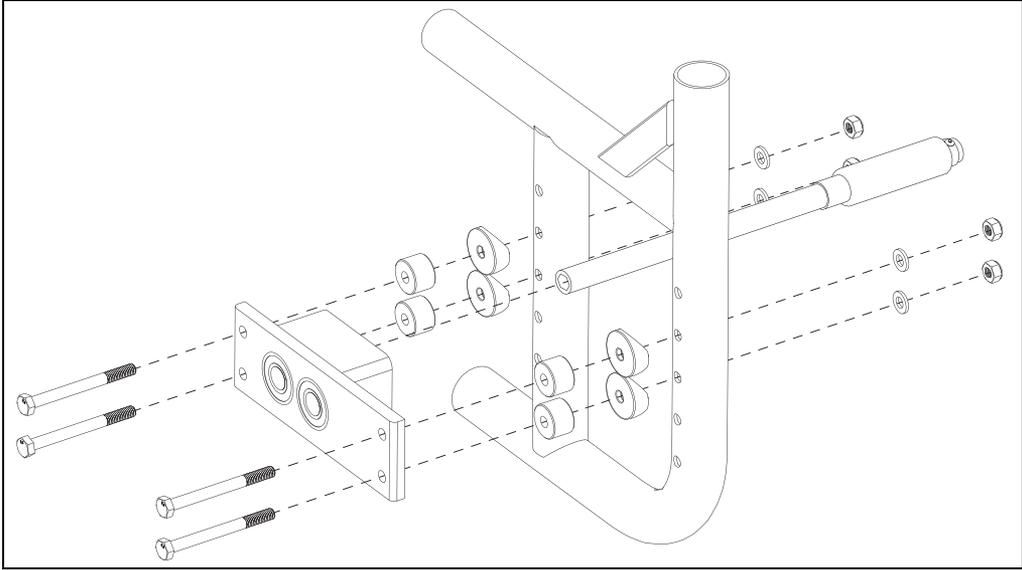
Removal of Hex OAD Parts

1. Remove nut and washer using a 1/2" wrench to remove the wheel, washer and hex style axle. Repeat on opposite side. See image below.



Catalyst and Spark One Arm Drive (OAD)

2. Remove four bolts, four spacers, four saddles, four washers and four nuts using two 10mm wrenches to remove the axle plate. With one axle plate removed, the drive shaft can now be removed. See image below.

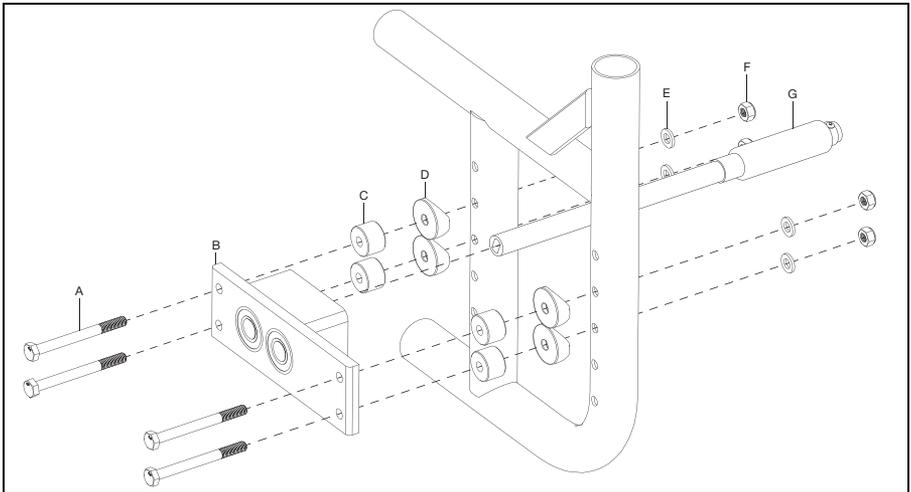


Installing Blade OAD

1. Reinstall axle plate (B) with four bolts (A), four spacers (C), four saddles (D), four washers (E) and four nuts (F) using two 10mm wrenches. The new blade drive shaft (G) is installed during this process by installing one side of the drive shaft in the installed axle plate. The other side of the drive shaft is installed as the second axle plate is being installed. Repeat on opposite side.

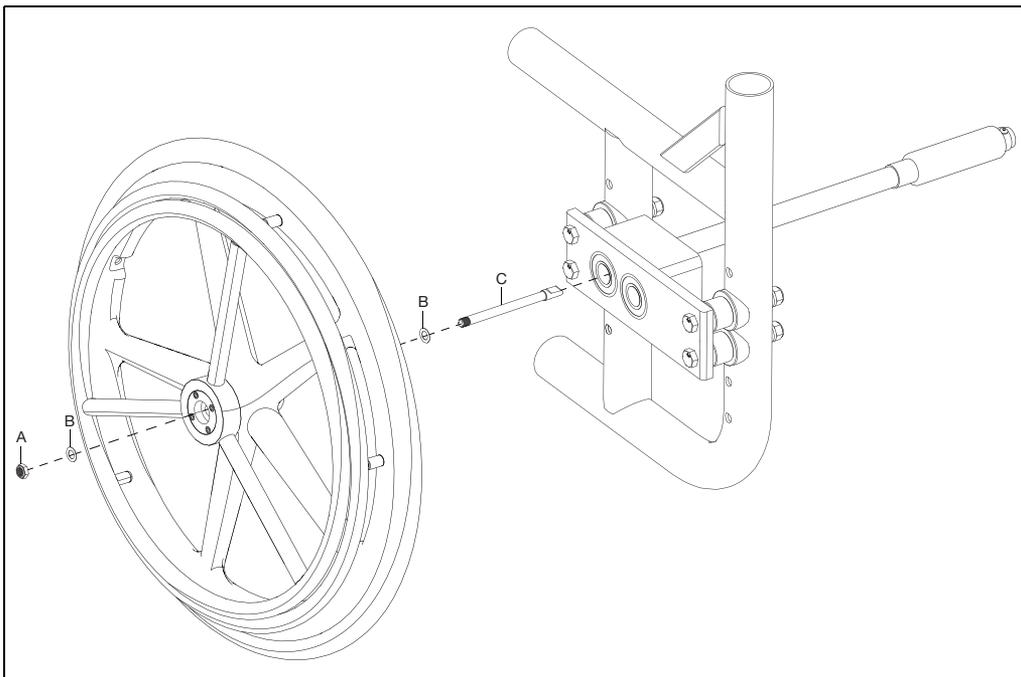
NOTE: The hardware used to attach the axle plate varies depending on the type of frame and the options on the chair. See the Catalyst / Spark One Arm Drive Hardware Utilization Chart at the beginning of this instruction for the hardware needed for your chair configuration. The image below shows parts and the order of different possible parts.

NOTE: The drive shaft also varies based on chair width and options. See the Drive Shaft Configurations chart found in the beginning of this instruction for more information.



Catalyst and Spark One Arm Drive (OAD)

3. Install blade style axle (C), two washers (B) and nut (A) using a 1/2" wrench. Repeat on opposite side.





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