



INSTRUCTION SHEET

CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS



This document:

- Explains the seat-to-floor differences when changing the camber angle on folding wheelchairs
- Describes how to adjust the height of the axle on different mounting plates
- Lists the parts required for changing camber angle on folding wheelchairs
- Describes how to disassemble and assemble the axle on different mounting plates on folding wheelchairs

If you have a **wheelchair manufactured before January 16, 2017**, you may see **different part numbers** in your wheelchair documentation.

- In this case, you may have to order a replacement kit.
- Motion Composites Customer Experience team will be glad to help you find the appropriate replacement parts.

Please, also refer to the other documents of the series available at motioncomposites.com (Support and Education/How-to documents):

- Camber, rear wheel parallelism, toe-in, toe-out, and how to verify alignment (MC-MTKG-WI-0001)
- Perform rear wheel alignment on Motion Composites folding wheelchairs (MC-MTKG-WI-0002)
- Perform rear wheel alignment on Motion Composites rigid wheelchairs (MC-MTKG-WI-0003)
- Rear wheel camber parts and hardware for folding and rigid wheelchairs (MC-MTKG-INF-0001)
- **Changing camber angle on folding wheelchairs (MC-MTKG-WI-0004) (this document)**
- Changing camber angle on rigid wheelchairs (MC-MTKG-WI-0005)

Wheelchair models:

- HELIO A6/A7/C2/XC2/Kids/K
- VELOCE
- PLATINE 1/2

Tool(s) required:

- Socket wrench
- Torque wrench
- Socket 26 mm
- 26 mm flat wrench
- 5/8" flat wrench
- Worktable or a flat and even surface
- Wheelchair support or any kind of object to hold the wheelchair



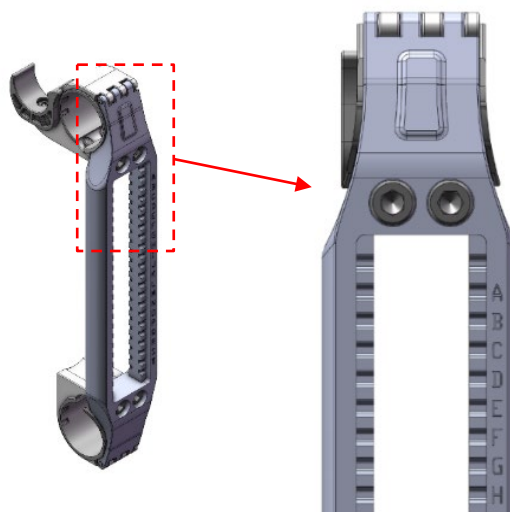
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CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS

CHANGING CAMBER ANGLE AND SEAT-TO-FLOOR HEIGHT

- If you want to change the rear wheels camber angle on a wheelchair, note that **it will affect the rear seat-to-floor height up to ½ inch.**
- To get the same seat-to-floor height you **must adjust the rear wheel height when reassembling the axle bushing** on the mounting plate.
- For example:
 - If you go from 0° to 3° camber angle, you will lose ¼ inch in height so you will need to lower the axle bushing mounting position by ¼ inch on the mounting plate to regain the lost seat-to-floor height.
 - If you go from 6° to 0° camber angle, you will gain ½ inch in height so you will need to raise the axle bushing mounting position by ½ inch to lower the gained seat-to-floor height.
- **Adjusting axle height on multi-position rear wheel mounting plates:**
 - Position the axle with nut and face plate assembly in a notch.
 - Each notch position identified by a **letter** represents a **change in height of ¼."**

Original camber	New camber	Approximate effect on rear seat-to-floor height
0°	3°	-¼"
0°	6°	-½"
3°	6°	-¼"
3°	0°	+¼"
6°	0°	+½"
6°	3°	+¼"



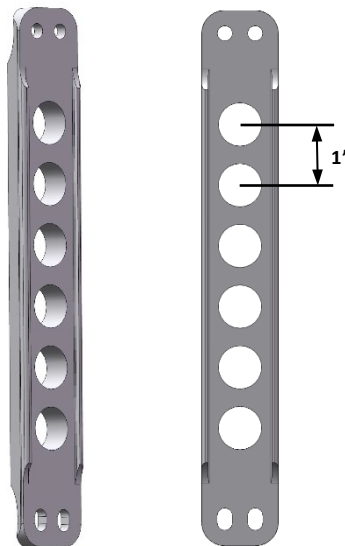


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CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS

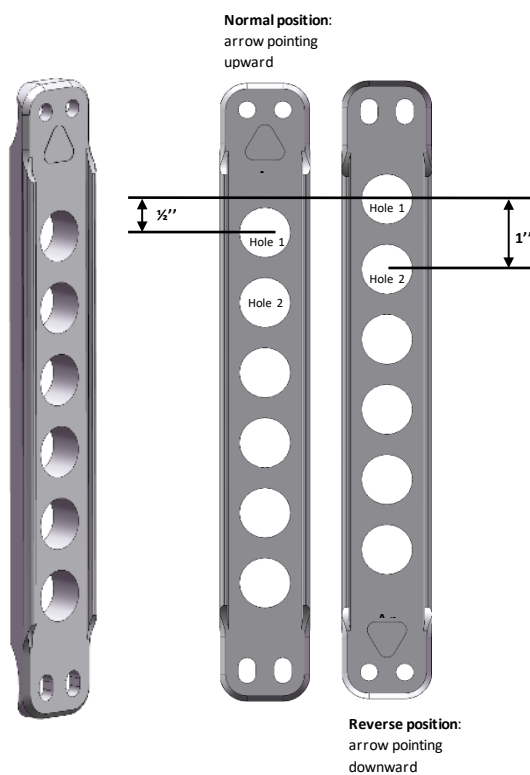
- **Adjusting axle height on 6 positions non-reversible rear wheel mounting plates.**

- Position the axle with nuts and lock washer in a hole.
- Between each hole you have **1" difference in height.**
- The top of the plate is the end with the 2 holes, the 2 slots are at the bottom.



- **Adjusting axle height on 12 positions reversible rear wheel mounting plate**

- Position the axle with nuts and lock washer in a hole.
- Between each hole you have **1" difference in height.**
- If you **reverse the plate** (the arrow pointing down instead of up) and use the same hole to mount the axle, you will have a difference of **½" in height.**
- Therefore, the name 12 positions reversible mounting plates: 6 holes per mounting position X 2 mounting positions = 12 positions





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CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS

PARTS REQUIRED FOR CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS

- Refer to the “Rear wheel camber parts and hardware for folding and rigid wheelchairs (MC-MTKG-INF-0001)” for detailed information about those parts.

Multi-position rear wheels mounting plates

HELIO A7/C2/XC2/Kids/K - PLATINE 1/2 - VELOCE

Part name	Camber angle		
	0°	3°	6°
Multi-Position Mounting Plate	0021511	0021511	0021511
Lock washer	0099597	0099597	0099597
Nut	0091031	0091031	0091031
Axle bushing ¹	0021041	0021042	0021042
Positioning nut and face plate assembly ¹	0021514	0021514	0021513
Mounting Plate and Axle Assembly ²	90014745	90014746	90014747

6 positions non-reversible and 12 positions reversible rear wheel mounting plates

HELIO A6

Part name	Camber angle		
	0°	3°	6°
6 positions non-reversible mounting plate ³	0021028	-	-
12 positions reversible mounting plate ⁴	0021049	0021049	-
Lock washer	0099597	0099597	-
Nut (2x)	0091031	0091031	-
Axle bushing ¹	0021041	0021042	-
Axle assembly ⁵	9002444	9002445	-
6 pos. non-reversible mounting plate and axle assembly ⁶	9001167	-	-
12 pos. reversible mounting plate and axle assembly ⁶	9002395	9002396	-

¹ Parts required to change the camber angle.

² The kit includes mounting plate assembly, nut, face plate assembly, axle bushing, and lock washer. If the wheelchair is older than January 2017, you may need to replace the whole mounting plate assembly.

³ MOVE and CHRONOS.

⁴ HELIO A6 - COBALT 1/2.

⁵ The kit includes nuts (2), axle bushing, and lock washer.

⁶ The kit includes mounting plate, axle bushing, nuts (2), and lock washer. If the wheelchair is older than January 2017, you may need to replace the whole mounting plate assembly.

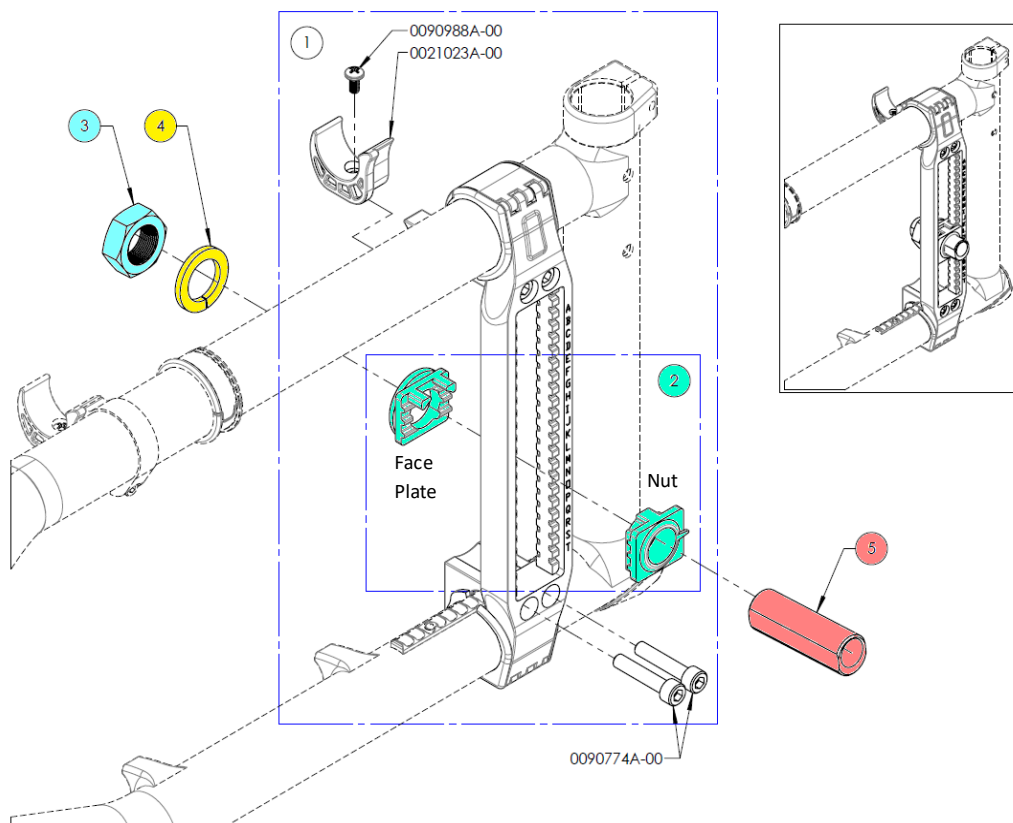
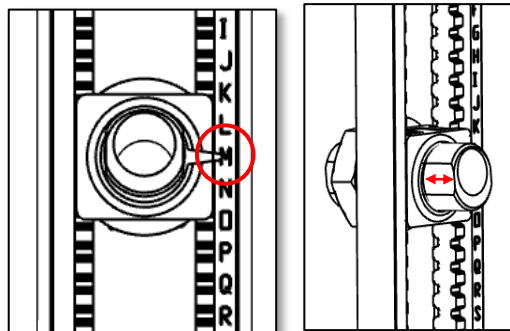


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CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS

MULTI-POSITION REAR WHEEL MOUNTING PLATES DISASSEMBLY

- We recommend performing this operation on a worktable when possible.
- Remove the rear wheels and rest the frame on a support of some kind.
- **Note the height letter pointed by the arrow of the front positioning nut (2, front square part)** (see left illustration).
- **Take note of the axle bushing lateral position** (inward or outward relative to the chair centre line) by measuring the distance between the mounting plate and the tip of the axle bushing (see right illustration).
 - Note that if you change the camber angle you may need to move the bushing position as explained on page 2.
- Hold the axle bushing (5) with a 5/8" flat wrench and loosen and remove nut (3) with a socket wrench or a flat wrench of 26 mm
- Remove the lock washer (4), the face plate (2, back round part) and the positioning nut (2, front square part) with axes bushing (5) from the mounting plate.
- Unscrew and remove the positioning nut (2, front square part) from the axle bushing (5).



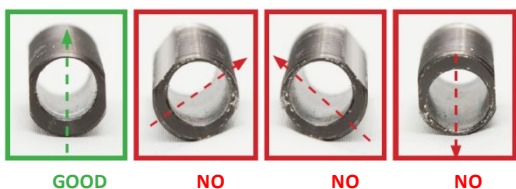


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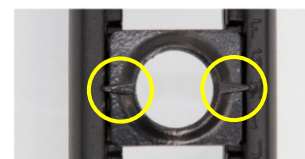
CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS

MULTI-POSITION REAR WHEEL MOUNTING PLATES ASSEMBLY

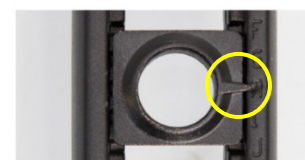
- Screw the axle bushing (5) into the positioning nut (2, front square part)
 - Place it at the **same lateral position** (in and out) as measured at disassembly.
- Place the axle bushing (5) and positioning nut (2, front square part) and the mounting plate at the same height indicated by the letter pointed by the arrow (illustrations).
- Place face plate (2, back round part) behind the mounting plate
- Insert lock washer (4)
- Screw the nut (3) and tight it **slightly**.
- If the camber is 3° or 6°, place the **thickest part of the axle bushing** toward the **bottom** and the flat edges of the bushing parallel to the vertical axis (illustrations below).
 - This is the **“zero” or initial orientation**.
 - The correct orientation of the axle bushing for aligned wheels should be around this position.



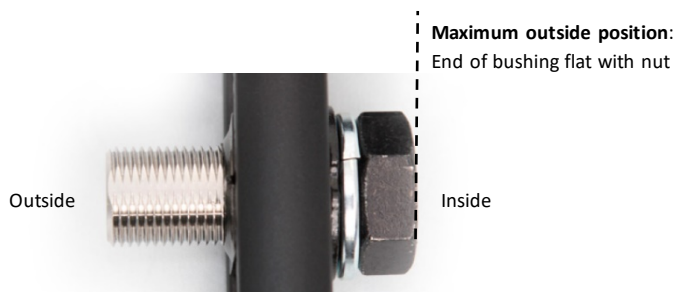
- This is the standard mount.
- Put the wheels on the chair.
- Check the clearances:
 - Check if the **distance** between the **tire** and the **armrest** (if any) is at least **1/2" (13 mm)**.
 - Check if the **distance** between the **spokes** and the **armrest receiver** (if any) is at least **1/8" (3 mm)**.
 - Engage the wheel lock, put the footrest on and check if the footrest is not pushing on the wheel lock handle and losing the wheel lock when pushed outward the chair.
 - If so, adjust the wheel lock position by rotating the wheel lock clamp upward, check if you have enough clearance between the inner side of the tire and the clamp.
- To get **more clearance**, position the axle bushing toward the outside of the chair.
- The **maximum outside position** is when the **end of the bushing** toward the **inside** of the chair is **flush with the nut**.



0° positioning nut



3° positioning nut



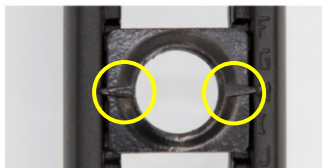


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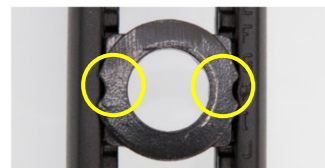
CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS

- If, at this setting, you are **still missing clearance**, use a **reverse mount**.

- Disassemble the axle bushings, nut, positioning nut, and face plate.
- Reassemble the parts with the round face plate with a 1 or 2 notches facing the outside of the wheelchair.
- Use the **notches** instead of the arrows to **adjust the height of the wheels**.



0° positioning nut - **Standard** mount



0° face plate - **Reverse** mount

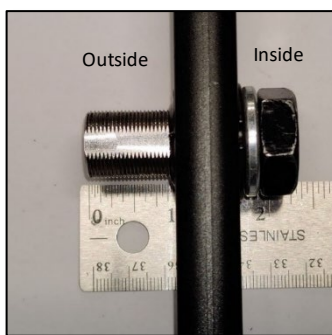


3° positioning nut - **Standard** mount

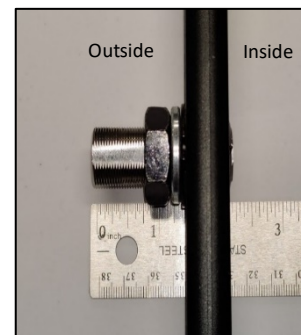


3° face plate - **Reverse** mount

- This mounting position will make you gain ½ inch in extra space.



Standard mount - 1" outside



Reverse mount - 1 ½" outside

- Check the wheel alignment. Refer to the document "Perform rear wheel alignment on Motion Composites folding wheelchairs (MC-MTKG-WI-0002)"
- When everything is correct, tighten the nut with a torque of **61 Nm**.

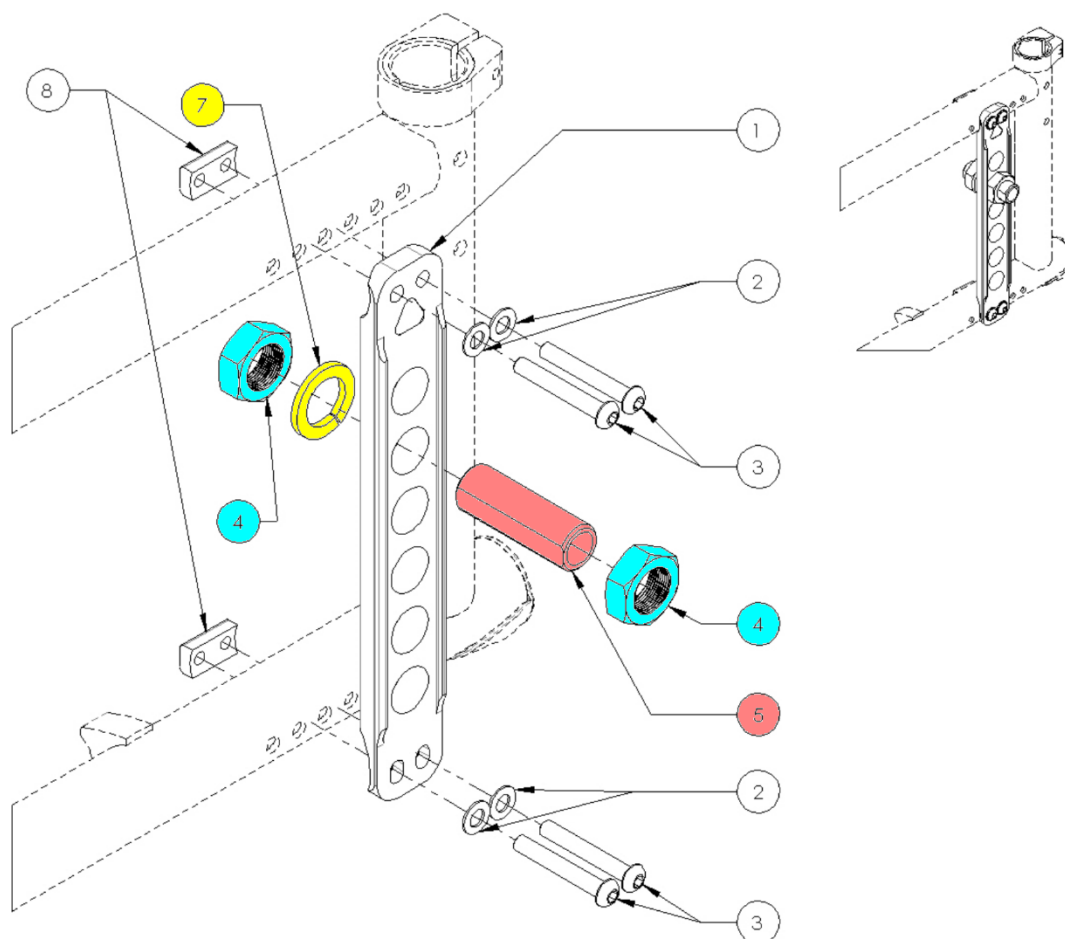
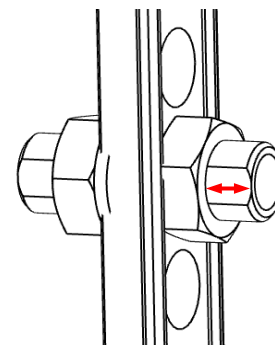


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CHANGING CAMBER ANGLE ON FOLDING WHEELCHAIRS

AXLE DISASSEMBLY ON 6 POSITIONS NON-REVERSIBLE/12 POSITIONS REVERSIBLE REAR WHEEL MOUNTING PLATES

- We recommend performing this operation on a worktable when possible.
- Remove the rear wheels and rest the frame on a support of some kind.
- Note in what hole the axle bushing is in.
- **Note the axle bushing lateral position** (in or out relative to the chair centre line) by measuring the distance between the nut and the tip of the axle bushing (illustration).
- Using the wrenches, loosen the nuts.
- Remove the nuts (4), the washer (7), the axle bushing (5) from the mounting plate.



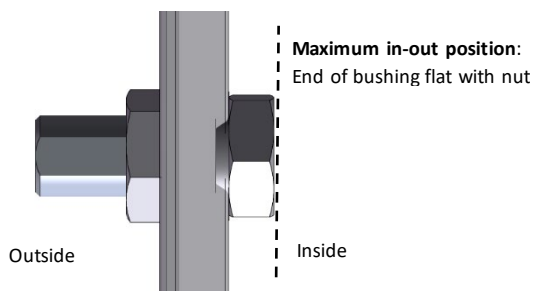
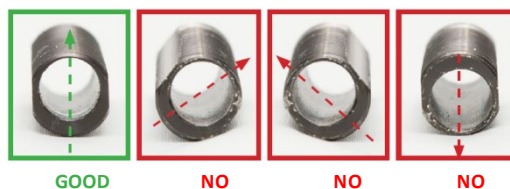


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AXLE ASSEMBLY ON 6 POSITIONS NON-REVERSIBLE AND 12 POSITIONS REVERSIBLE REAR WHEEL MOUNTING PLATES

- Screw the axle bushing (5) into a nut (4).
 - Place it at the **same lateral position** (in and out) as measured at disassembly.
- From the outside of the chair, insert the axle bushing (5) with nut (4) in the same hole of the mounting plate it was before disassembly.
- From the inside of the chair, insert lock washer (7), screw the nut (4) and tight it **slightly**.
- If the camber is 3°, place the **thickest part of the axle bushing** toward the **bottom** and the flat edges of the bushing parallel to the vertical axis (photos).
 - This is the “zero” orientation.
 - The correct orientation of the axle bushing for aligned wheels should be near this position
- Put the wheels on the chair.
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- When everything is correct, tighten the nut with a torque of **61 Nm**