3D TMT MAKER GUIDE

INTRO

more info at 3DMobility.org

Chair Version: Public Beta A
Guide Version: Guide A.1

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The 3D Toddler Mobility Trainer is an affordable, open-source solution designed to support independent mobility for young children in indoor environments.

more info at 3DMobility.org

Change log

Update 2025 12 04 -

Some users report bed warping on the front part of the ‘Handle’ files. This leads to a gap when fully assembled. I have updated the print profiles to include a 10mm brim for these parts. I have also updated these instructions. -Noam

TMT 3D MAKER GUIDE

INTRO more info at 3DMobility.org

Want to volunteer to make this chair for a family in need? Sign up to our network here:

Why? Many toddlers and young children with disabilities lack the physical strength or coordination needed to crawl or walk independently-- even though they may be ready to explore and engage with their environment. Wheelchair options for this age group are rarely available, affordable, or covered by most insurance providers.

How? This product helps kids learn to move in a seated position using their arms and/or hands, providing increased mobility for those with limited lower limb strength.

Skills? Intermediate level 3D printing skills are needed for this project. This project is totally doable for newbies as well, with a little grit and determination.

Cost? $200 Estimated Cost ($50 hardware, $150 materials)

PRINTER RECOMENDATION: BAMBU LAB

A1 or BETTER. 256mm^3 bed volume required

IMPORTANT! PLEASE NOTE:

The Toddler Mobility Trainer (TMT) is a prototype device that has not been tested for safety or efficacy. Use at your own risk. The designers and makers of the TMT are not responsible for use resulting in injury. Use under the supervision of adults. For indoor use only. If you are not comfortable using this device do not use it. Consult with your clinical professional (such at a Physical Therapist or Physician) for sizing, fitting, and appropriateness of this device for each individual intended to use it. By using this device, you understand the above, and waive all applicable liability.

YOU MUST AGREE TO ALL TERMS AND CONDITIONS FOUND AT

https://www.3dmobility.org/terms-and-conditions/

Before you start...

- Carefully read the entire product file to ensure that you have all the required tools, materials and correct printer settings BEFORE you start making the product.
- Send us feedback if you are having difficulty building this product - leave a comment at https://3dtmt.discourse.group/
- **Have fun and give yourself a pat on the back for making the world a better place!**

Tools Needed:

- FDM Printer
- Filament Dryer
- 13MM (1/2") Socket and 13MM (1/2") Wrench
- Rubber Mallet
- Tools to remove filament supports: flush cutters, pliers, sandpaper, deburring tool

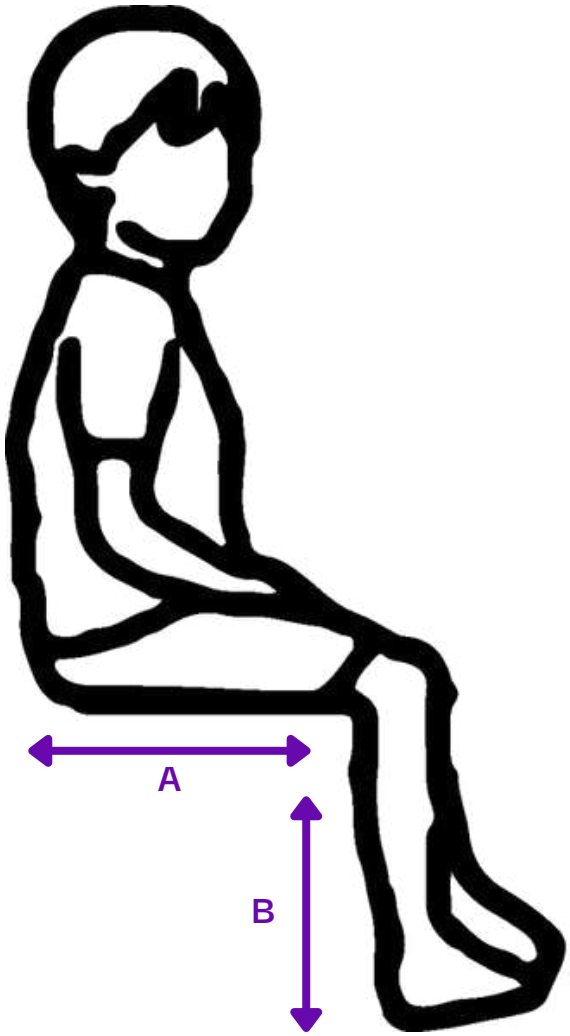
Fiament Needed:

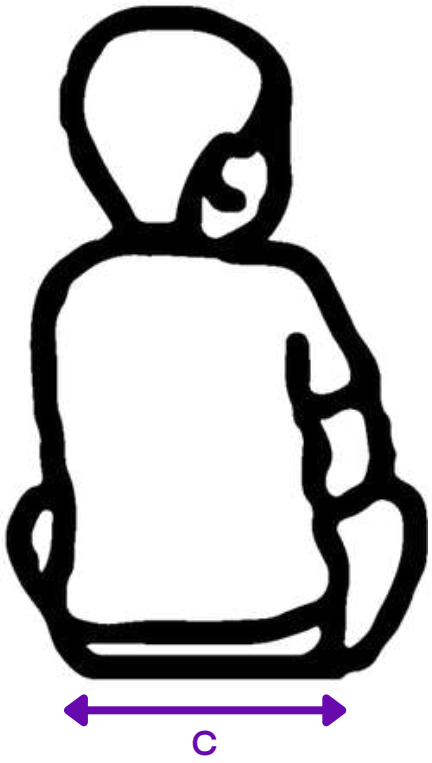
- 10 spools of PETG/ABS/ASA
- 3 Spools of TPU 95A
- Optional - 1 Spool of TPU Foaming

Need printing help? General Questions? Join the 3D TMT Forum at:

https://3dtmt.discourse.group/

To properly fit into the TMT and operate it safely, children should fall within the following size ranges:



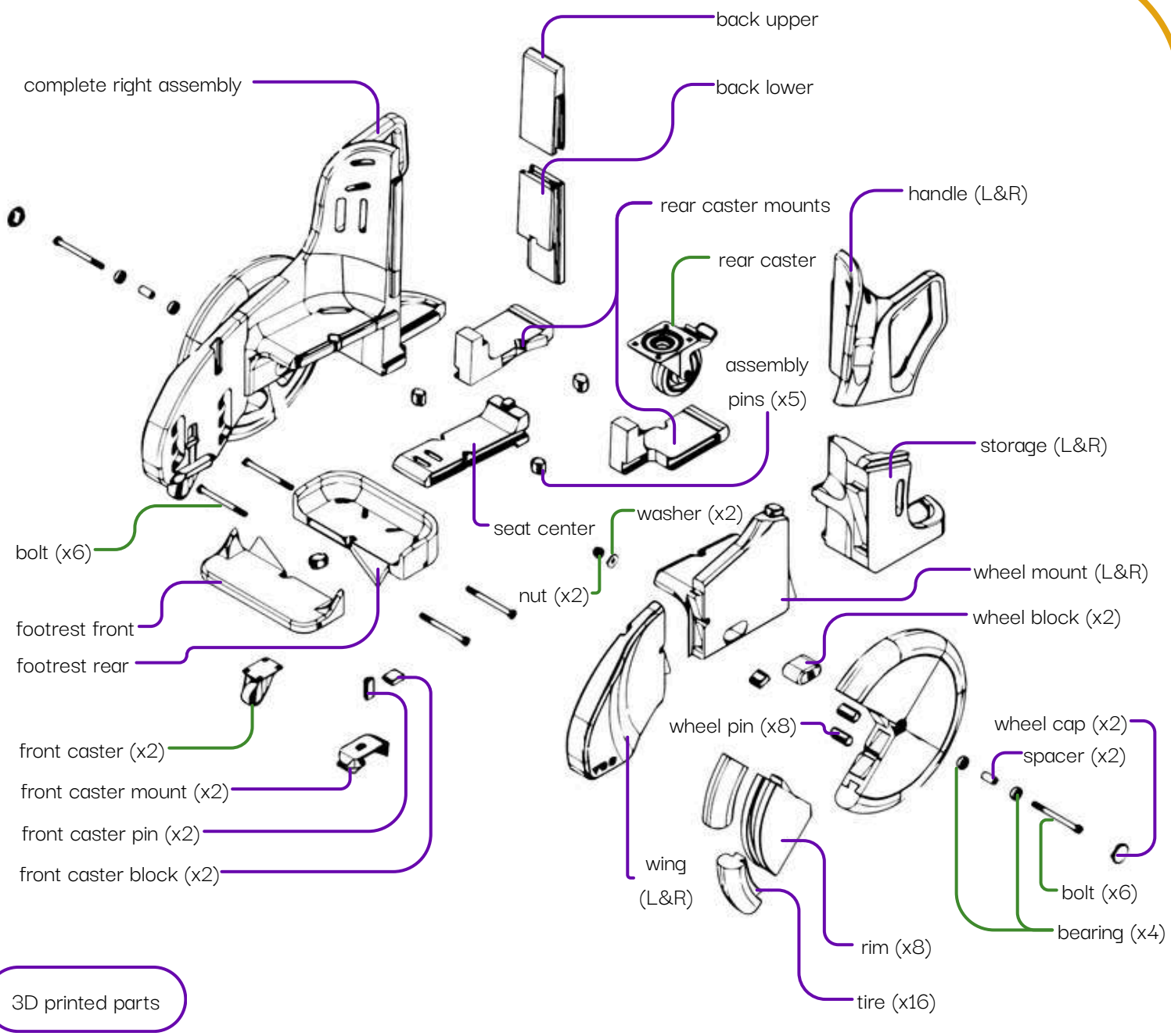


A - Backrest to back of knee
190mm - 254mm (7.5-10 in)

B - Back of knee to heel
140mm - 222mm (5.5 - 8.25 in)

C - Hip width
280mm (11 in MAX)

Children must be able to use their upper extremities to operate the TMT and push themselves forward.



Parts to buy:

Description	Quantity	Cost	Purchase Link
Axle bolts and footrest mounts - 10.9 Steel Hex Head Screw M8 x 1.25 mm Thread Size, 110 mm Long, Partially Threaded	6	$1.60 each	https://www.mcmaster.com/90447A170/
Washer M8 Screw Size, 8.4 mm ID, 24.0 mm OD	2	$0.14 each	https://www.mcmaster.com/91100A160/
Nylon-Insert Flange Nut M8 x 1.25 mm Thread	2	$1.40 each	https://www.mcmaster.com/products/97071a103/
608 ball bearing	4	0.35 each	https://a.co/d/0TRScKa
Caster Front	2	2.05 each	https://a.co/d/cLj5Ene
Caster Rear	1	$32.90	https://www.mcmaster.com/27075T72/

Caster Rear

Caster Front

Axle Bolt

Image for reference only. Visit MakerWorld page for detailed printing instructions

Settings

Minimum Bed Size	256mm^3
Materials needed	PETG/ABS/ASA and 95A TPU
Nozzle Diameter	0.4mm
Layer Height	0.2mm
Support	Tree supports

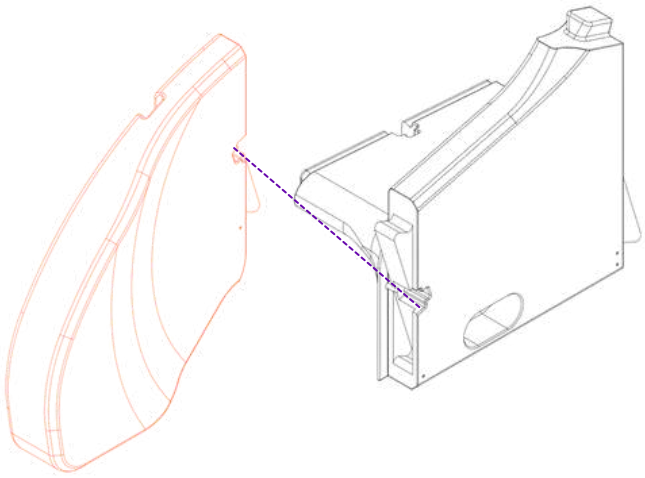
The pre-sliced .3mf files on MakerWorld contain all parts and accessories. Use the published print profiles to ensure success. Individual pre-sliced parts and STEP files are also available on MakerWorld

Recommend adhesive for print bed for larger parts.

Can be easily assembled with one person, but more fun with a friend!!!!

Want to watch an assembly video?

Check out 3DMobility.org



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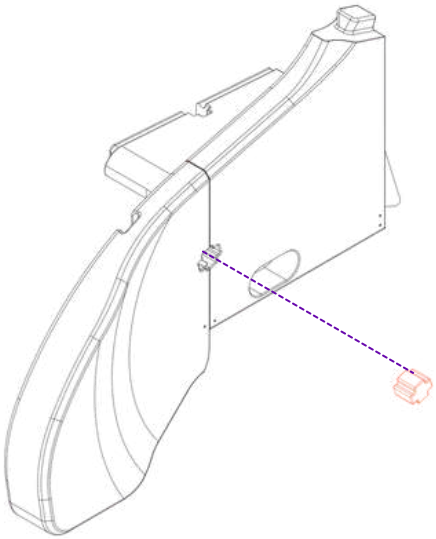

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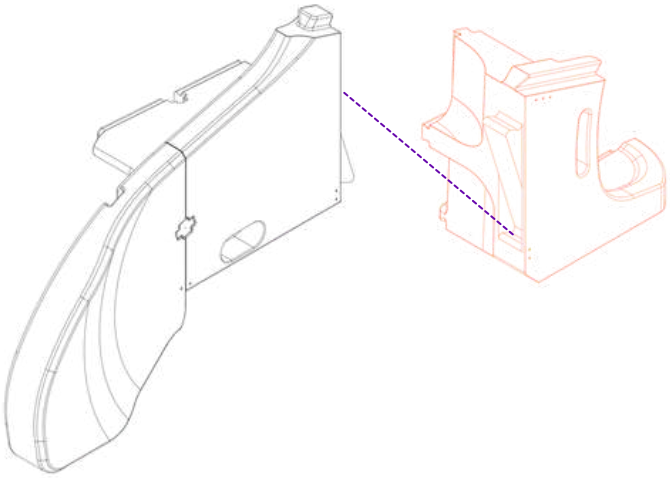

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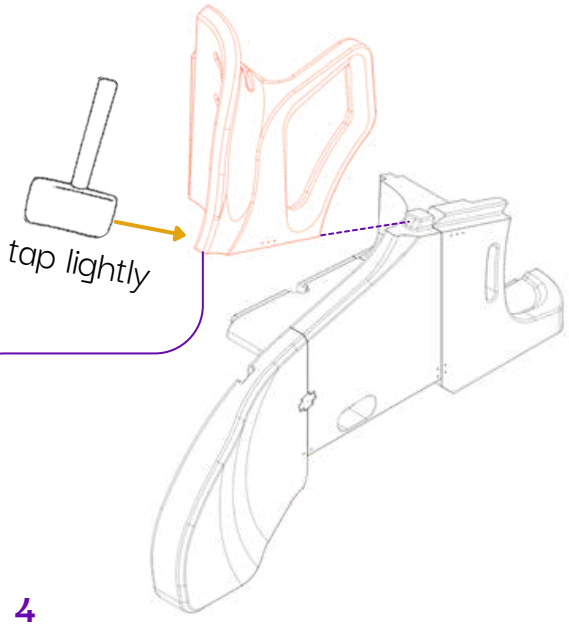

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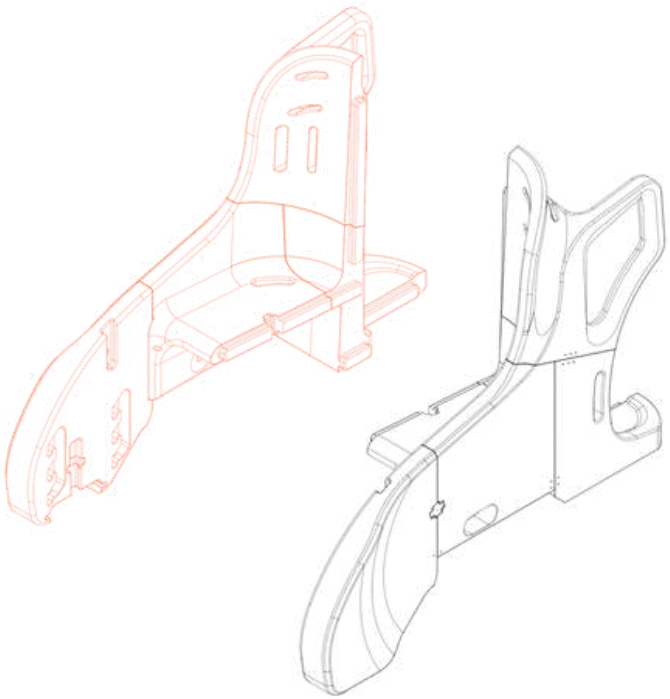
NOTE: ensure this section is not warped. can lead to a gap when fully assembled



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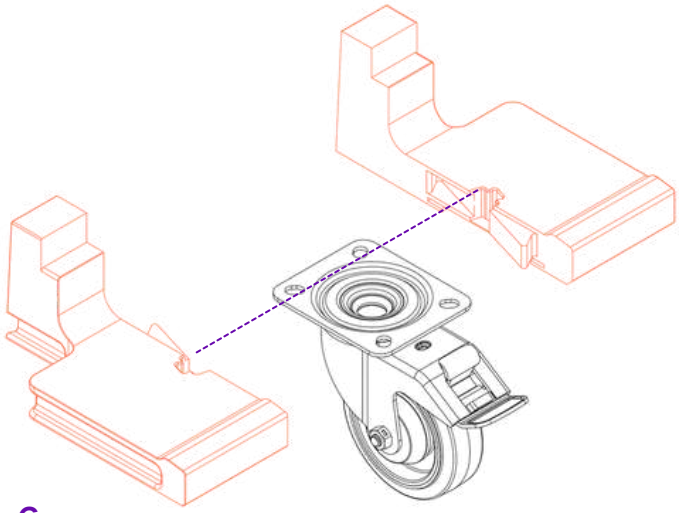

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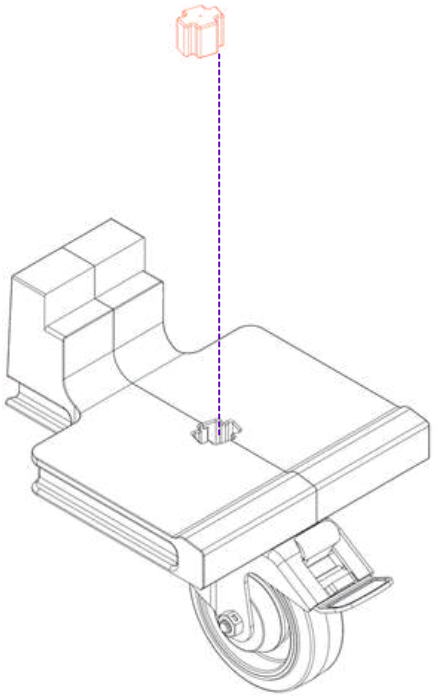

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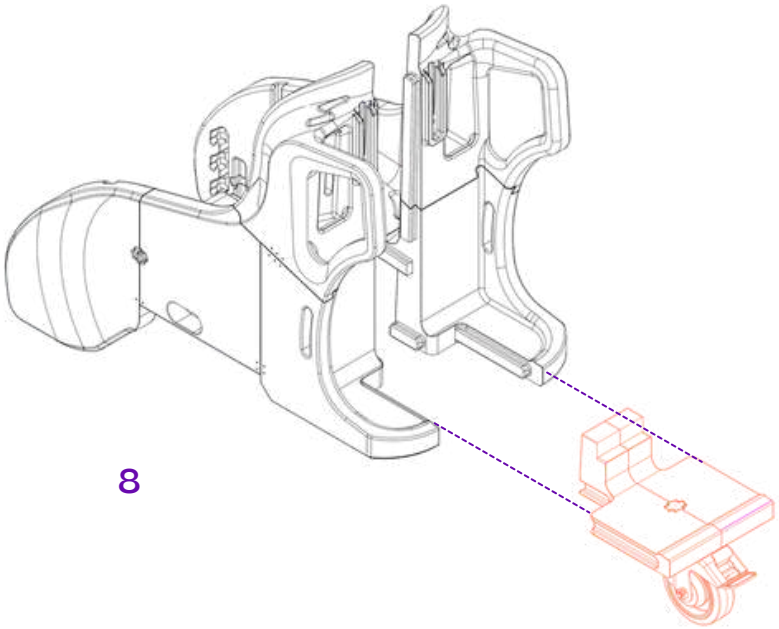

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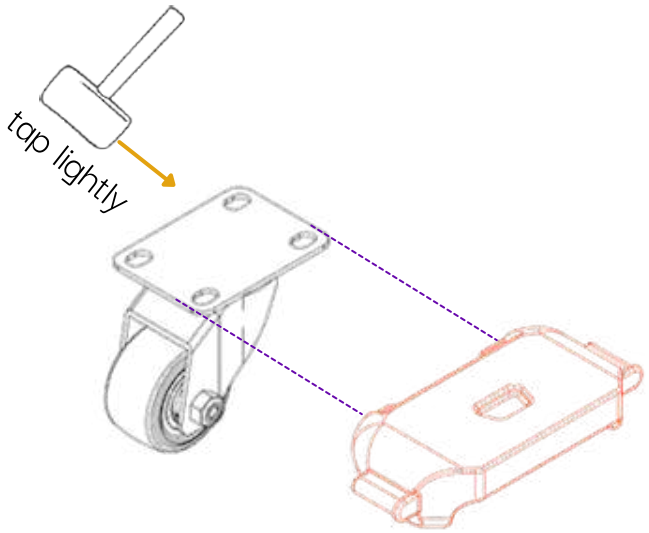

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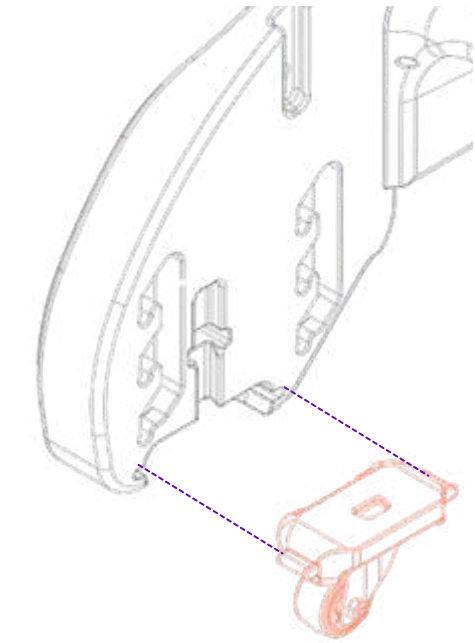

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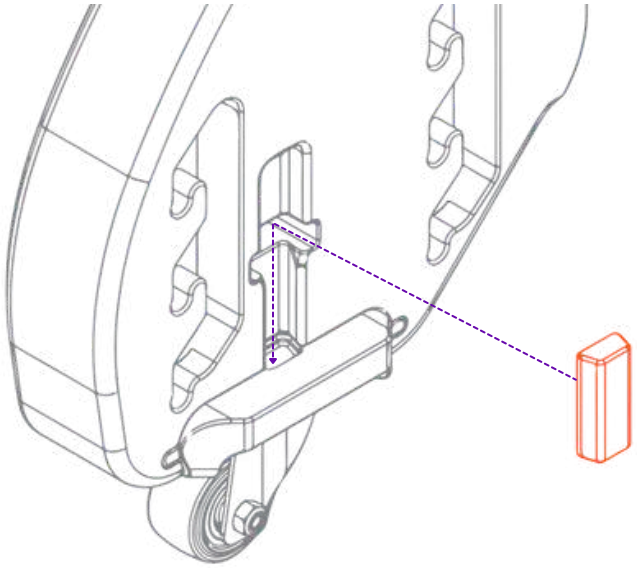

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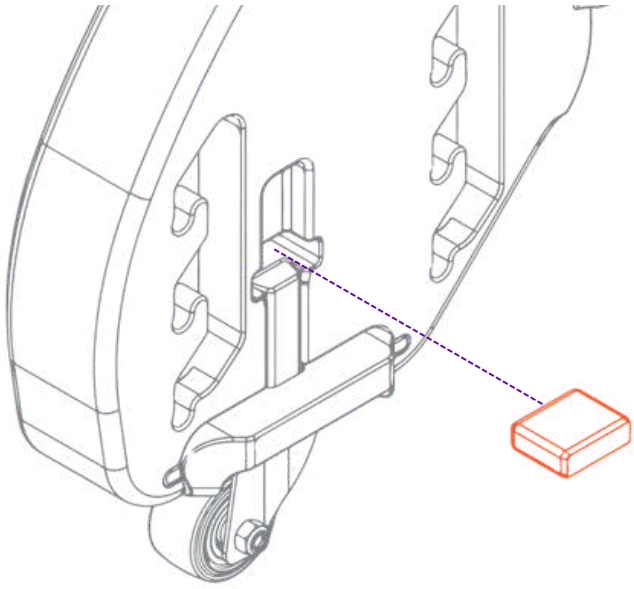

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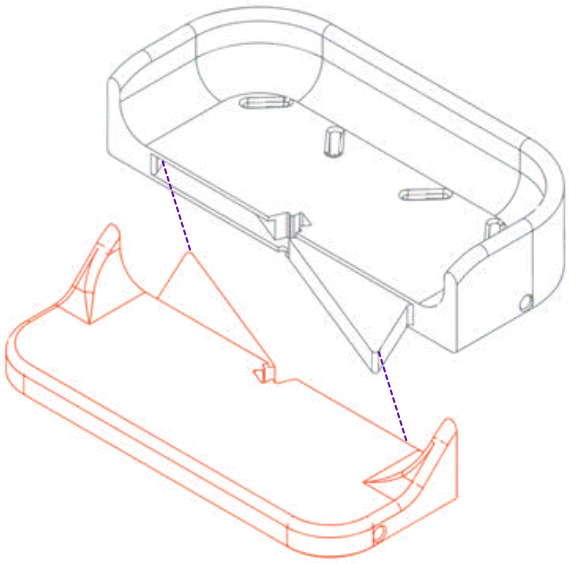

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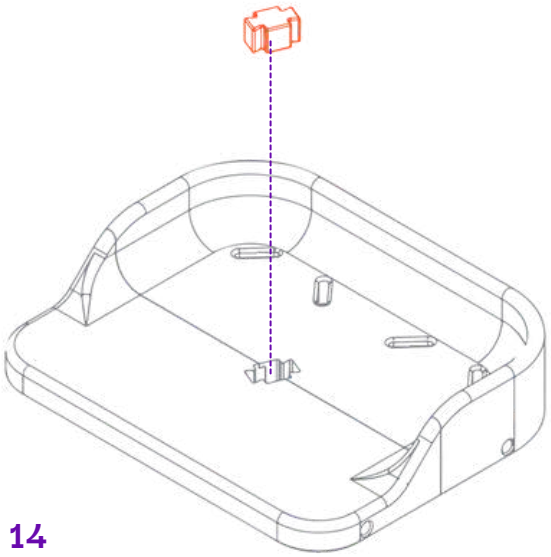

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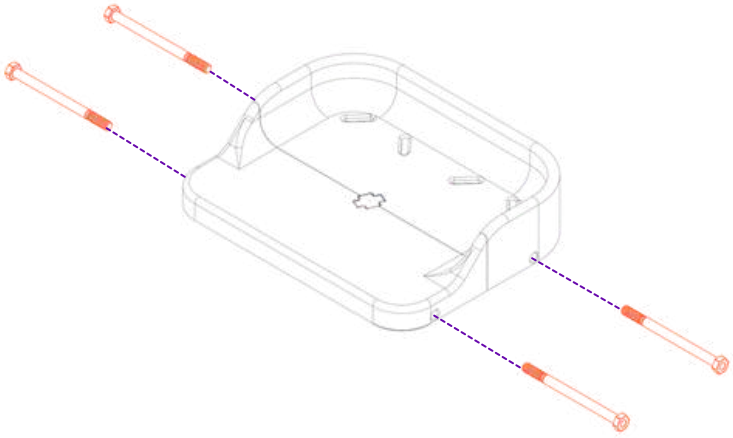

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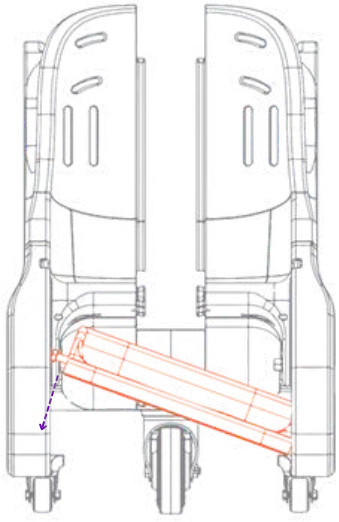

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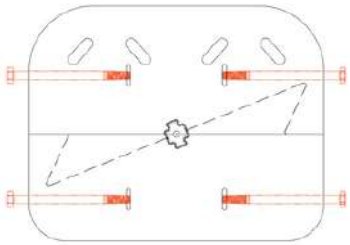
Use wrench to tighten bolts into footrest until bolts are visibile in the indicator slits on the underside of the part.



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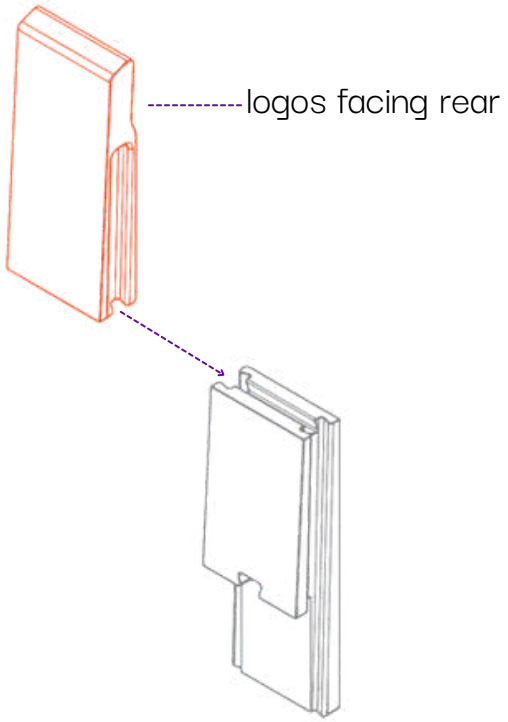

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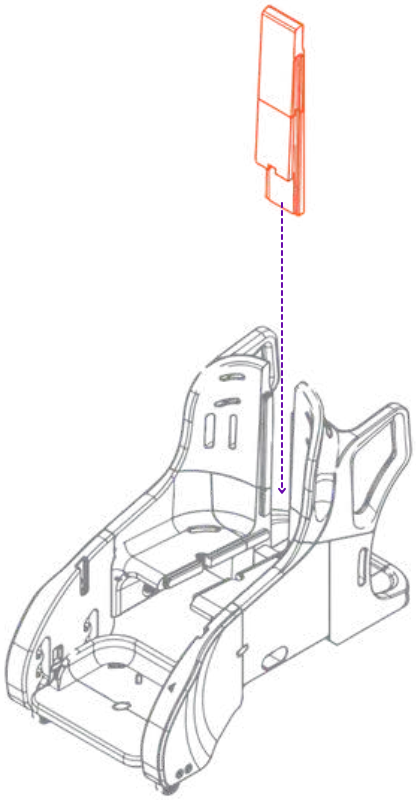

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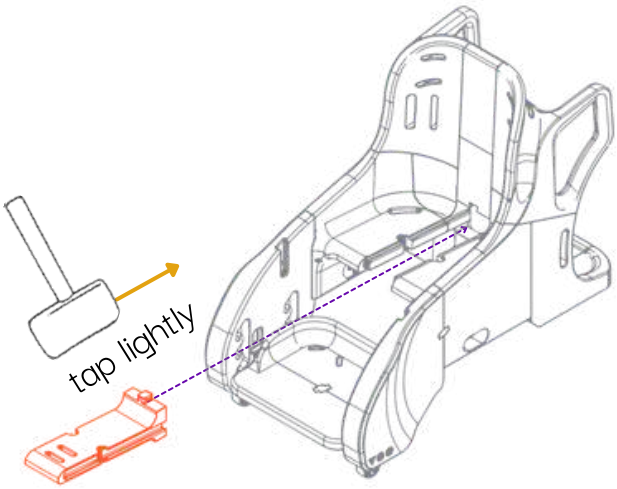

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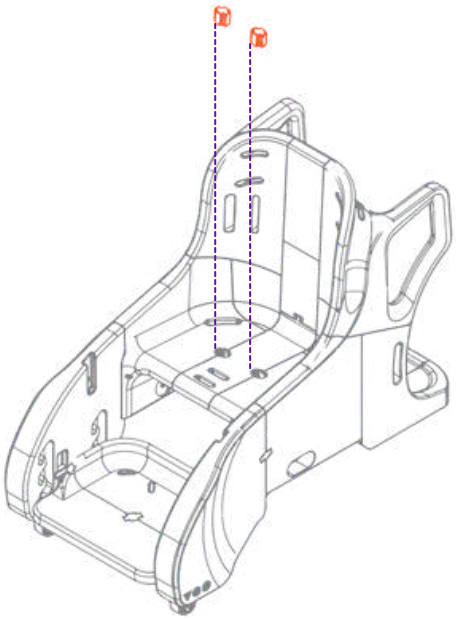

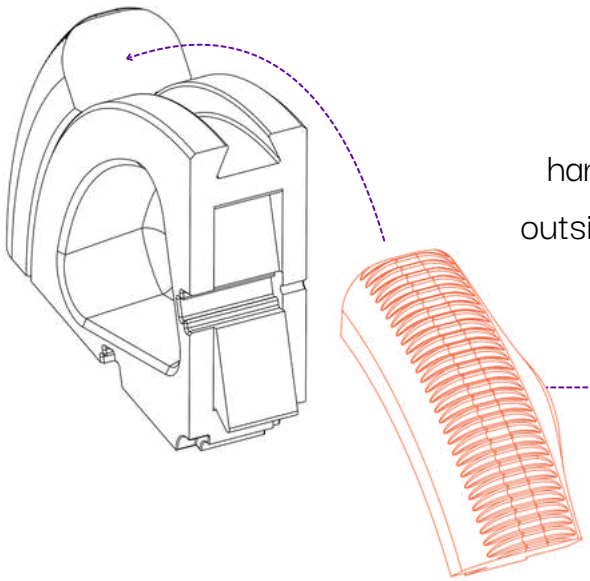

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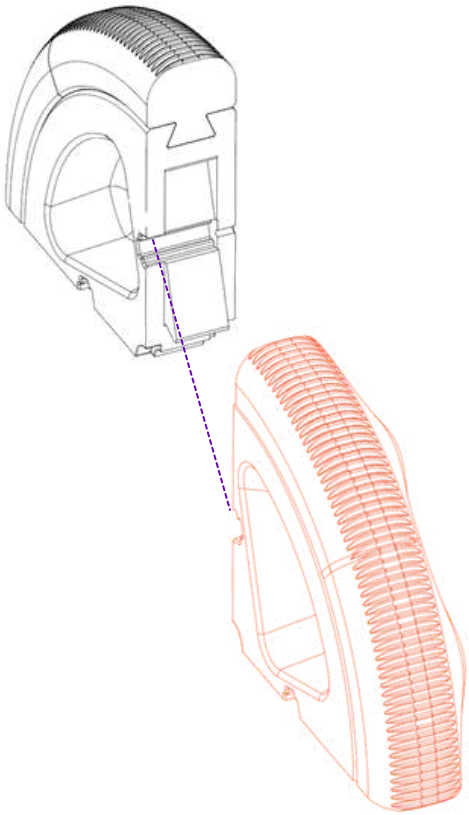

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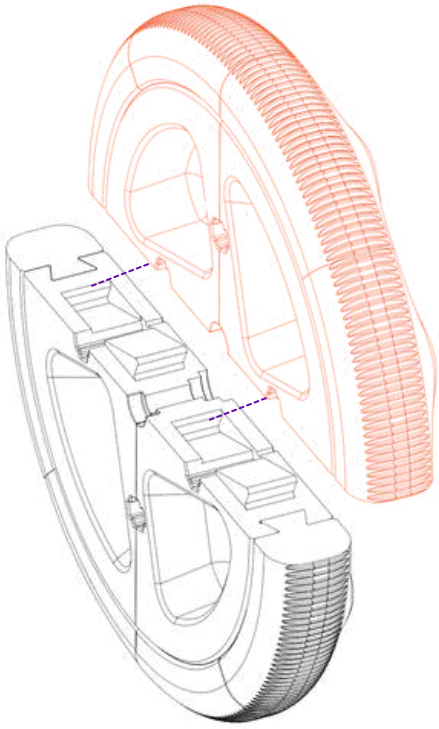

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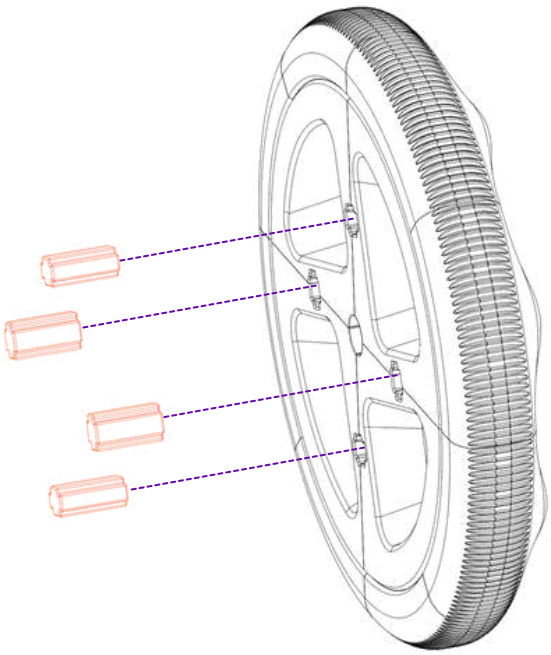

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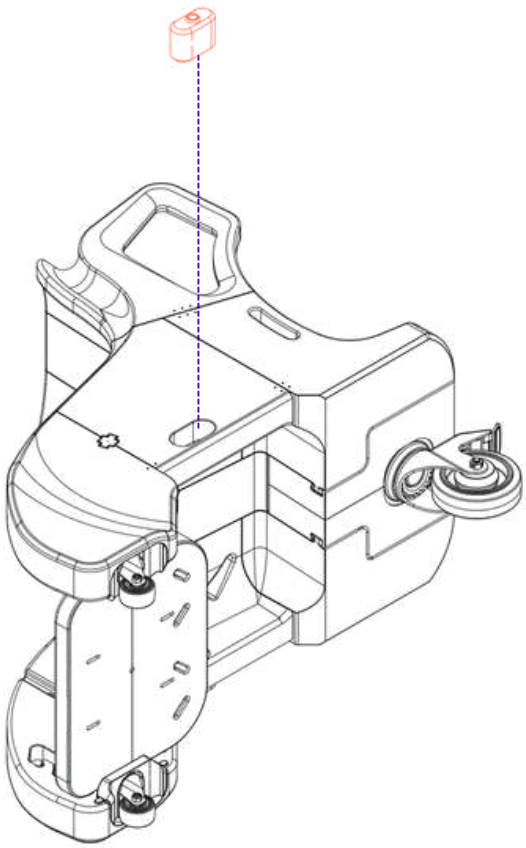

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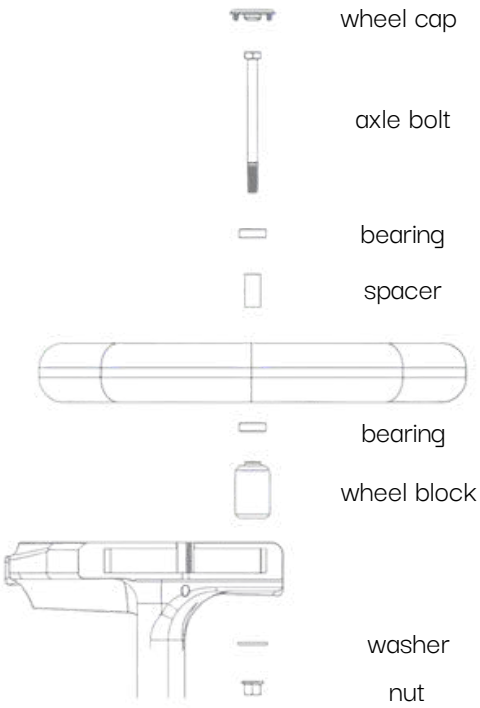
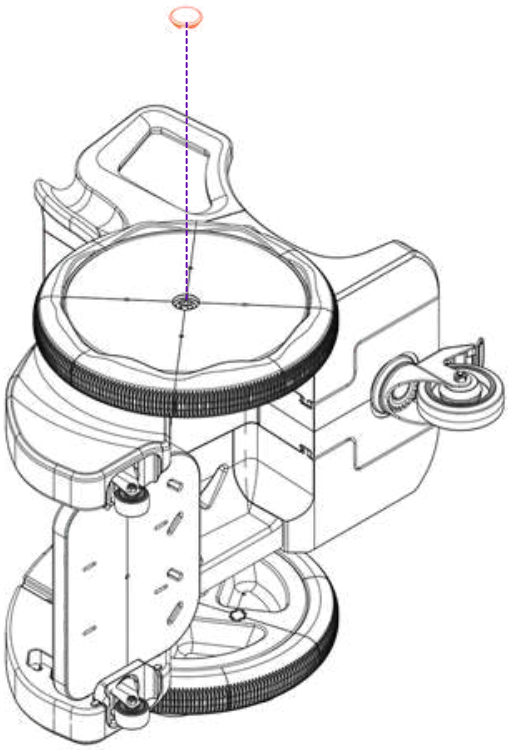
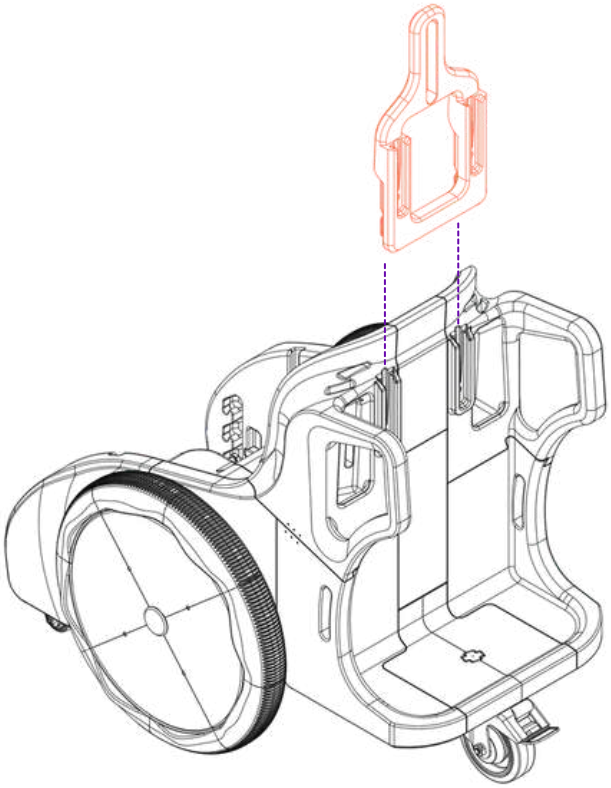


tighten wheel so it spins smoothly

27



Base chair complete!



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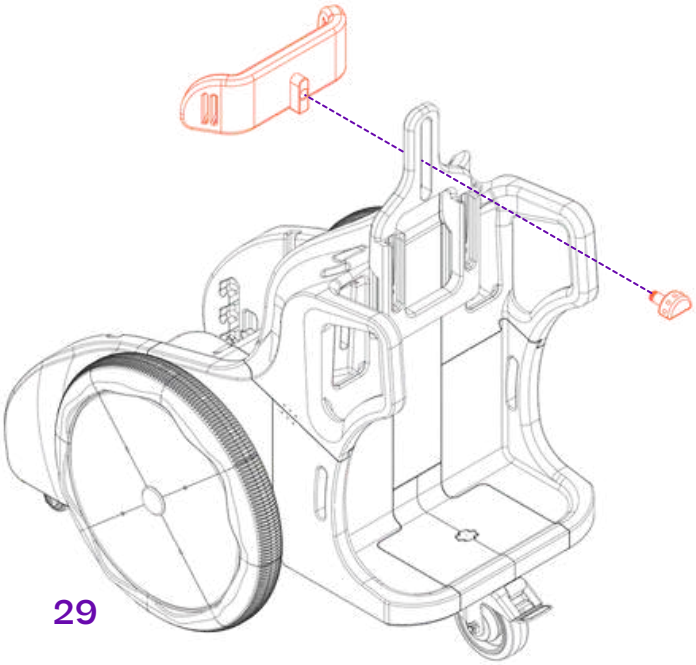

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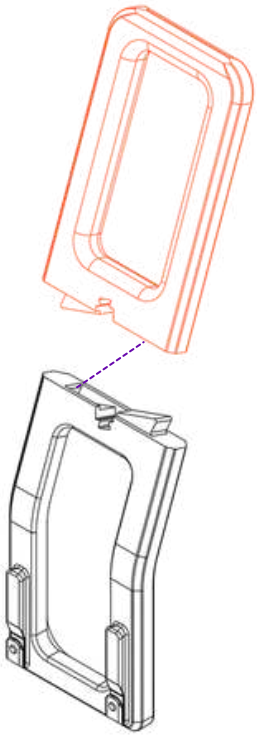

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slide brackets around joint and insert pin

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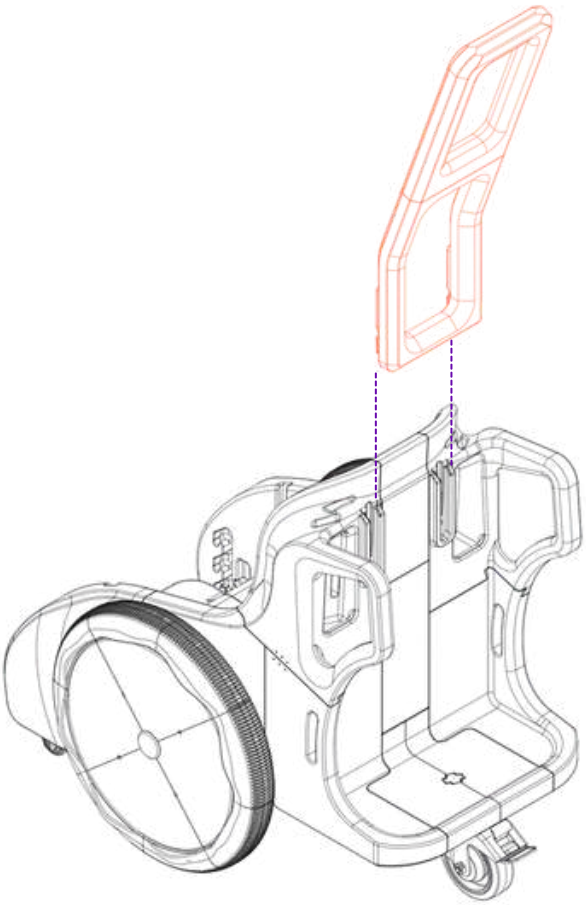

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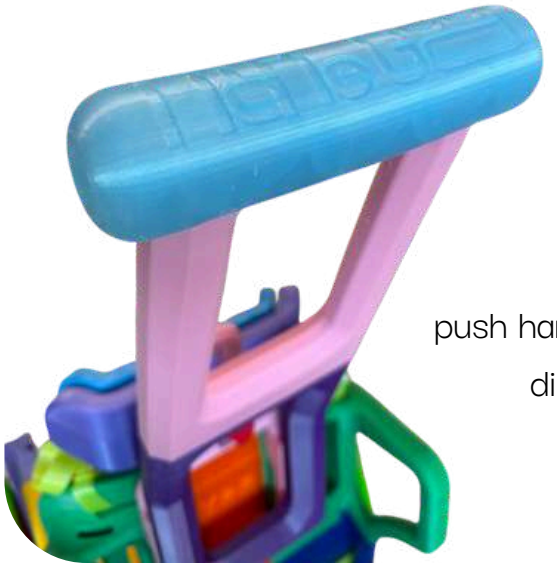
To use the headrest and push handle as the same time, install headrest first and the install push handle on top of that



push handle grip install. Note direction of logo

Attach sticky velcro to chair and cushions

Cushion install complete

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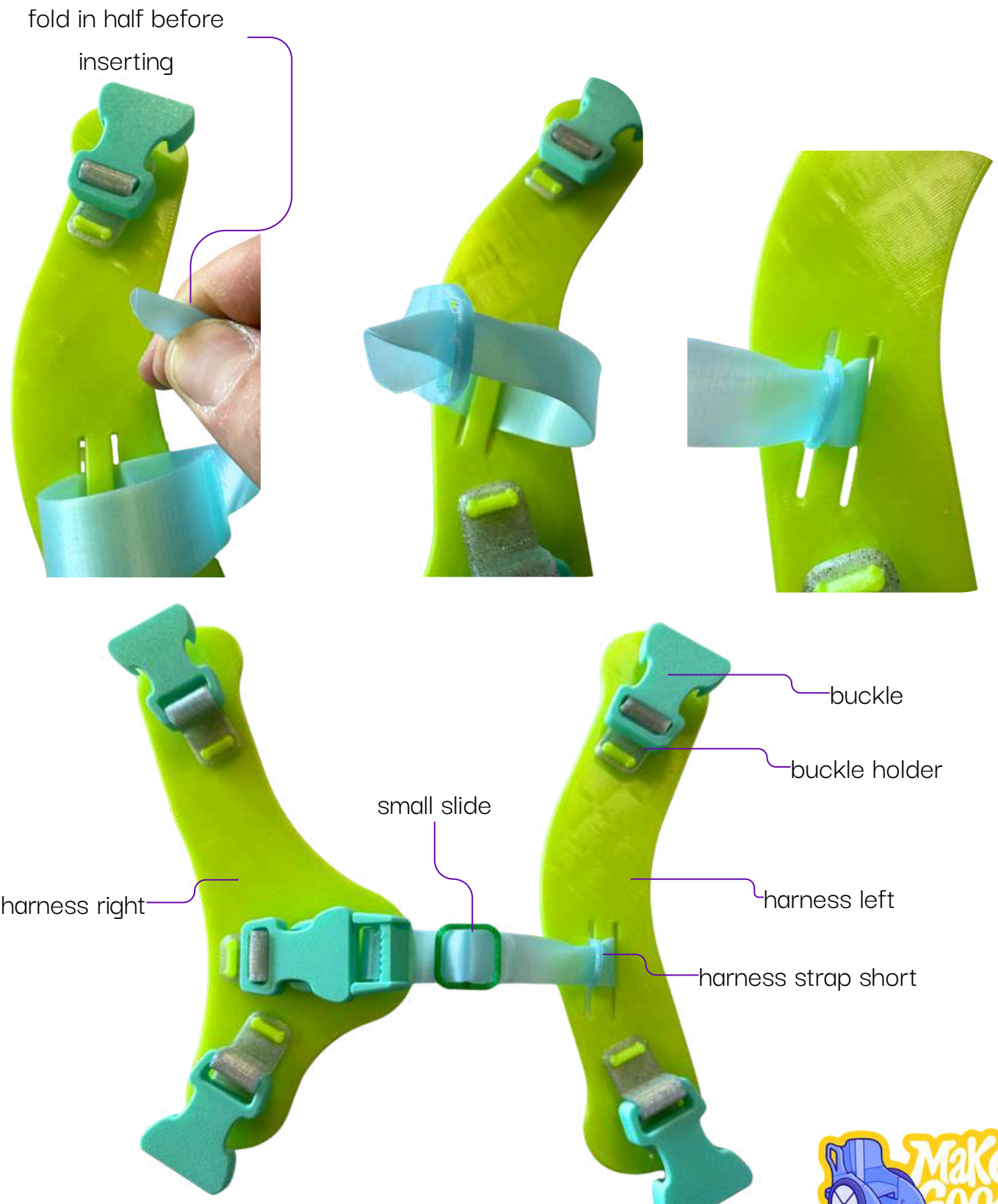
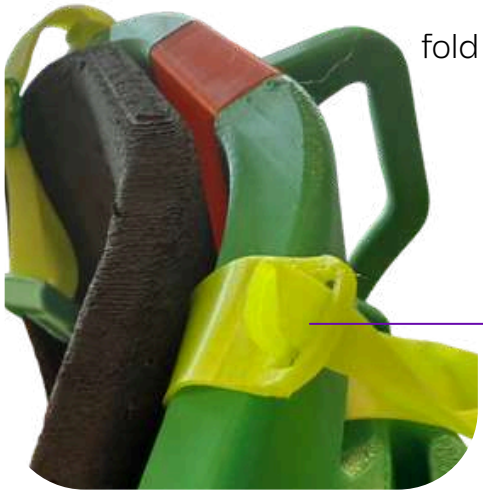




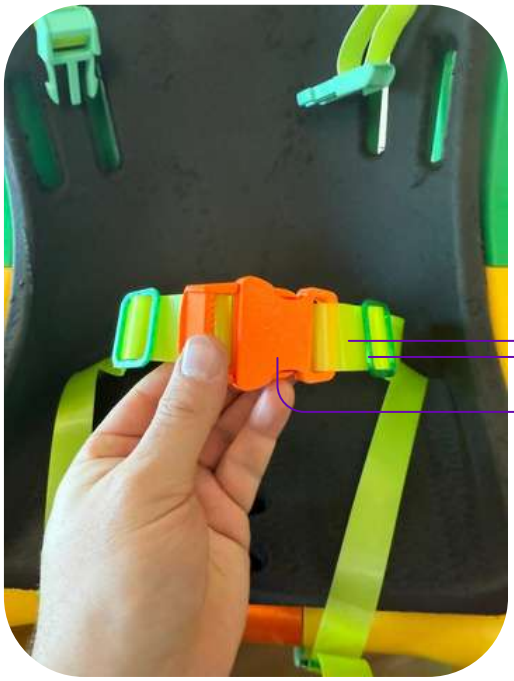
fold in half before inserting

add slide and buckle

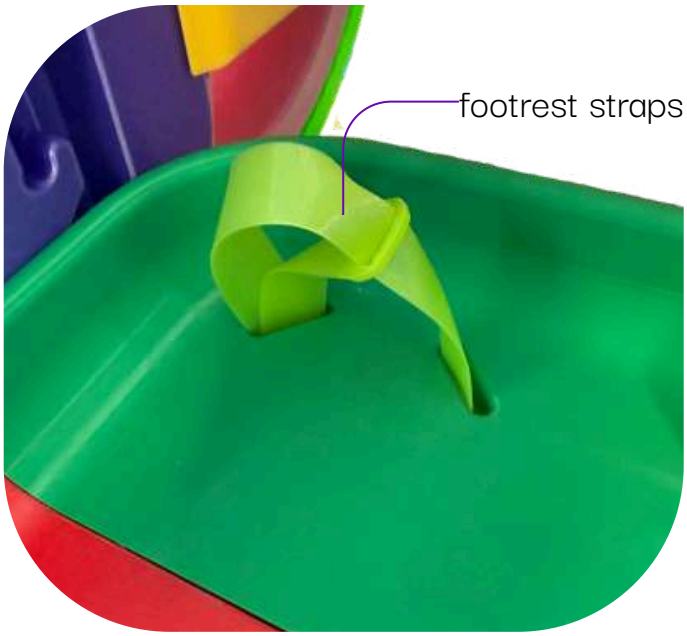
lap strap goes under the chair and around to the other side

large slides

lap strap



large buckle



footrest straps

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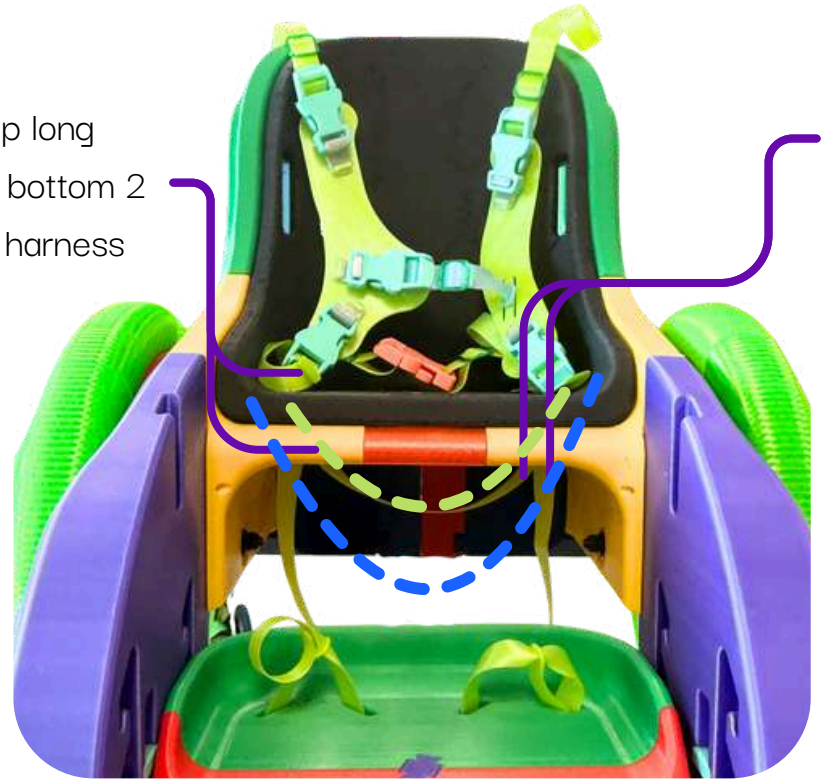
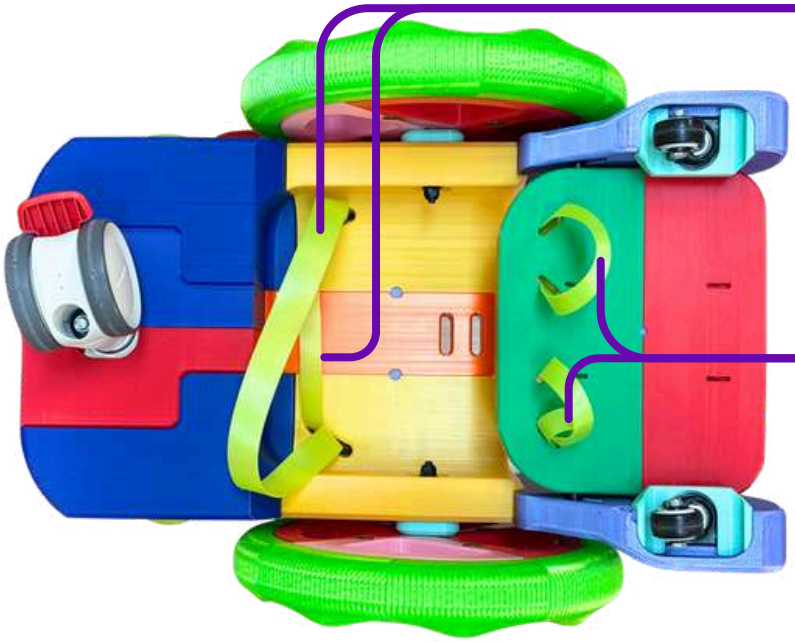
Harness strap long connects to the bottom 2 buckles of the harness

Lap strap and Harness strap long both go under and around the bottom of the chair



Lap strap and Harness strap long both go under and around the bottom of the chair



footrest straps

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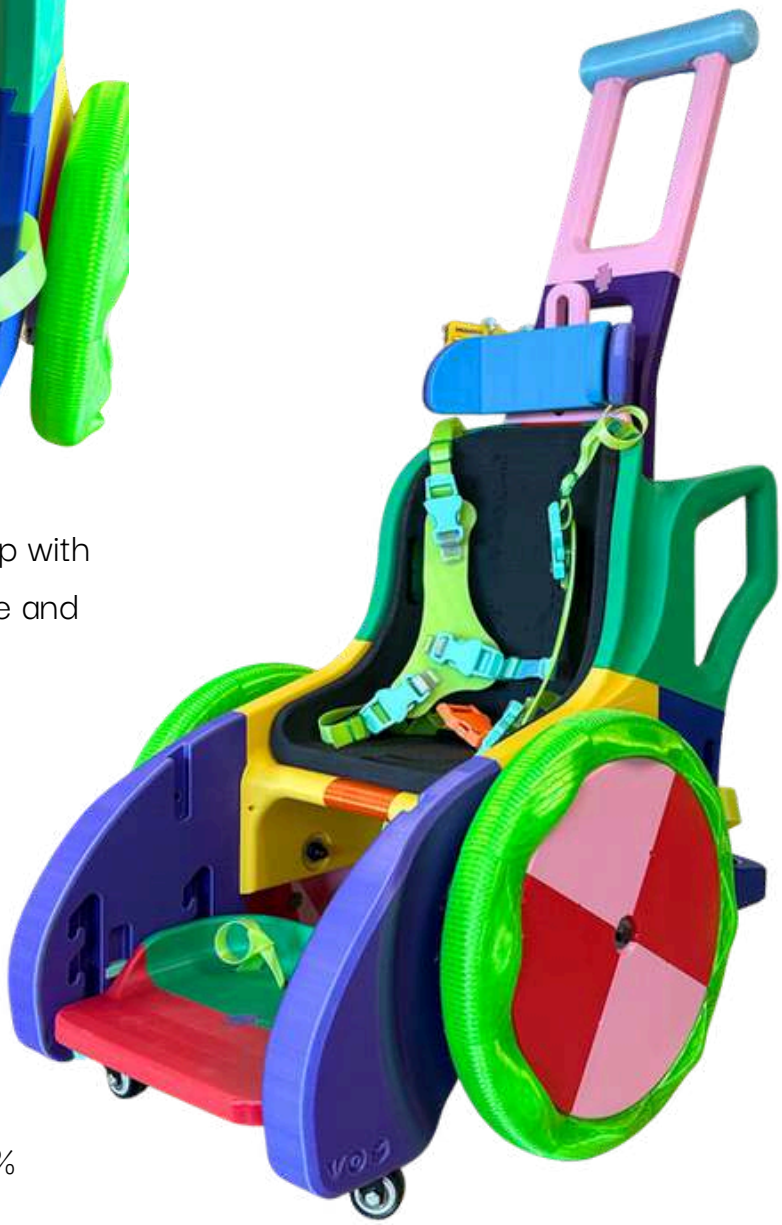
storage strap with large buckle and slides



chair is 100% complete!

Printing with Foaming TPU

We recomend using Foaming TPU for the cushions. This is printed much softer than regular TPU. Print with 8-10% infill at the softest settings possible. **Load from the top of the machine**. 0.6 nozzle may be required for use in Bambu A1.

Use BLUE TAPE as a bed surface

This material may be called:

- TPU Foaming
- TPU Aero
- TPU Air
- TPU Lightweight

Readily available brands:

- Siraya Tech TPU Air (available on Amazon)
- eSun TPU Lightweight (available on Amazon)

Example setting adjustment for Siraya Tech TPU Air

Regular 95A TPU
(2% infill)

Siraya Tech TPU AIR
printed at 66A
(10% infill)
(stringing is normal and easily removed)

IMPORTANT! safety and build checks

- All pieces are locked together and there are no gaps between pieces
- Main wheels are tightened so they are not wobbly but spin freely
- The back and side wheels are touching the ground
- The front wheels are slightly off the ground
- The footplate can slide freely

UPLOAD YOUR BUILD

QR Code or on 3DMobility.org

MORE INFO AT 3DMobility.org

THANK YOU TO OUR SPONSORS!

These companies generously donated equipment and materials to make this project happen!

Check them out!

Bambu Lab

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