

3D TMT MAKER GUIDE



INTRO

more info at 3DMobility.org

Created by MakeGood INC

Licensed under: Public Domain

Chair Version: Public Beta B

Guide Version: Guide A.2

Designed By: MakeGood, LINK

PBC, Tikun Olam Makers

Issue Date: 2026 04 25



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



3D TMT MAKER GUIDE



INTRO

more info at 3DMobility.org

Change log

Update 2026 04 25 -

Revised orientation for the front caster mount.

Replaced 4-part wheel with 2-part wheel. 4-part rim still available at end of build plates.

Added 1-part footrest for both XPA and H series, also shown at the end of build plates.

Added 3D-printed washers to build plates instead of using metal washers.

Update 2026 04 21 -

Changed the front caster link. Previous link was not for sale anymore -Noam



3D TMT MAKER GUIDE



INTRO

more info at 3DMobility.org

Change log

UPDATE 2026 04 12

REV B RELEASED! This revision encompasses minor but important changes:

New Front Caster Mount

New Push Handle Bottom

New Push Handle Braces

New Headrest

New Headrest Screw

We are also releasing KIT hardware and filament for all VETTED makers on 3D-Mobility.org. USA ONLY
You can now purchase the \$25 KIT (hardware only) or \$100 KIT (hardware + filament).

DO NOT MIX AND MATCH HARDWARE. SELF-SOURCE OR USE THE KIT, DO NOT MIX.

The updated REV B profiles also reflect these changes related to the KIT:

Additional Plate for the Rear Caster Mount for KIT hardware.

Plate 10 on X/P/A Profile & Plate 8 on H series profile

Additional Plate for TPU 98A tires (TPU 98A will be included in the KIT, print TPU 98A tires at 6% infill)

Plate 27 on the X/P/A profile & Plate 19 on H series profile

Note: All other TPU parts remain unchanged between 98A and 95A

Build sponsoring will be turned on in the coming couple weeks as we get this process underway.

Update 2026 03 17 -

Changed the front caster link, now available as a set of 4. Previous link was not for sale anymore -Noam

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. 256mm³ bed volume required**



TMT 3D MAKER GUIDE



INTRO

more info at [3DMobility.org](https://www.3dmobility.org)

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 as 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:

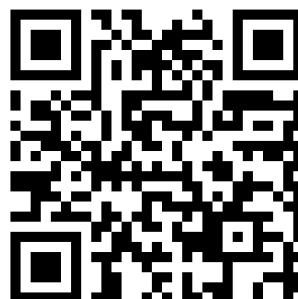
- FDM Printer
- Filament Dryer
- 13MM (1/2") Socket and 13MM (1/2") Wrench
- Rubber Mallet
- Tools to remove filament supports: flush cutters, pliers, sandpaper, deburring tool

Filament 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/>



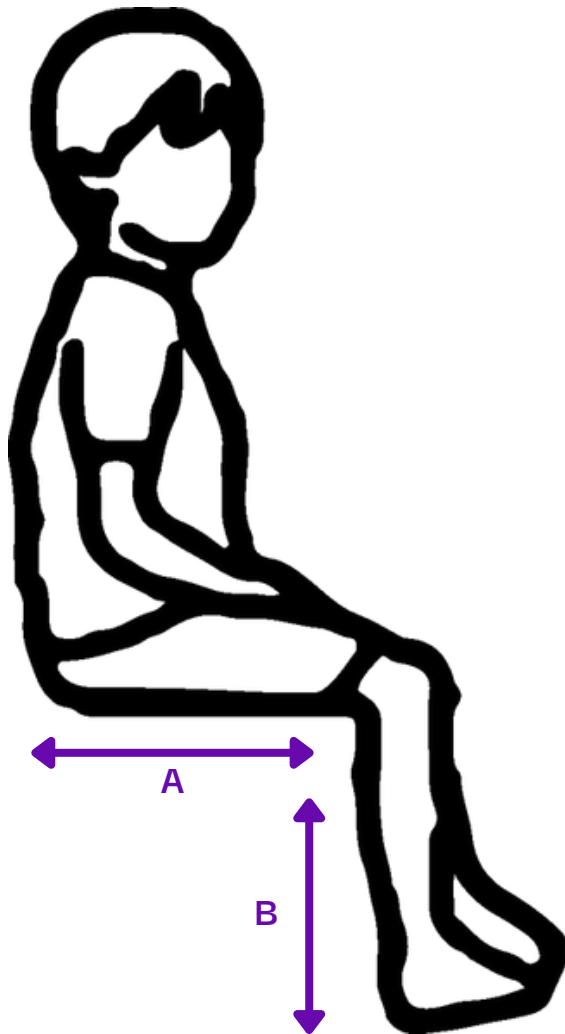
TMT 3D MAKER GUIDE



INTRO

more info at 3DMobility.org

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.

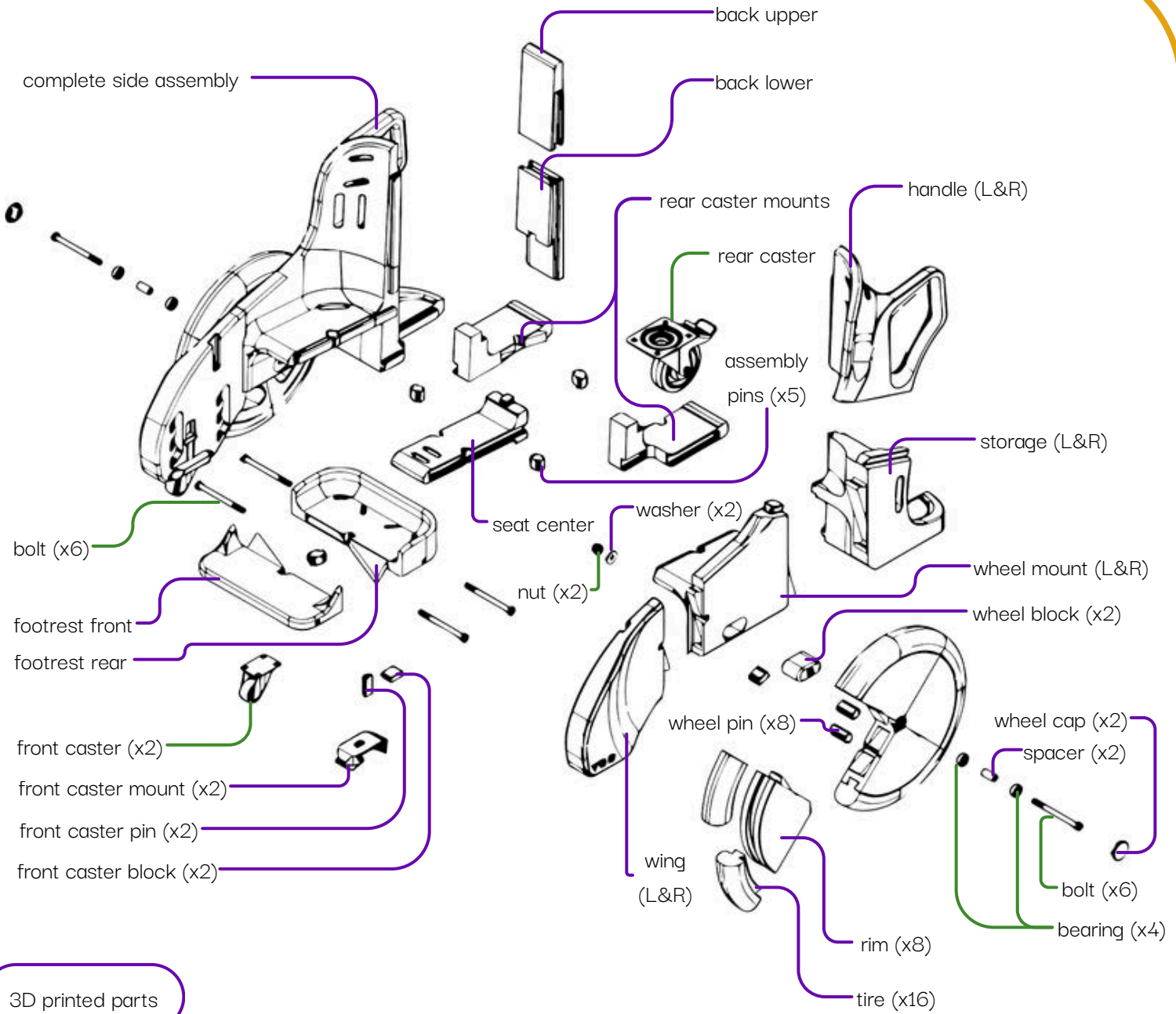


TMT 3D MAKER GUIDE



INTRO

more info at 3DMobility.org



3D printed parts

purchased hardware



TMT 3D MAKER GUIDE



INTRO

more info at 3DMobility.org

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			https://www.mcmaster.com/91100A160/
<u>3D PRINTED WASHERS NOW INCLUDED IN FILES</u>			
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/OTRScKa
Caster Front	2	2.05 each	https://www.amazon.com/dp/B0FJSMRT5P?ref=fed_asin_title&th=1
Caster Rear	1	\$32.90	https://www.mcmaster.com/27075T72/



Caster Rear



Caster Front



Axle Bolt



TMT 3D MAKER GUIDE



INTRO

more info at 3DMobility.org

VETTED MAKERS HAVE ACCESS TO COMPLETE HARDWARE AND FILAMENT KITS! BECOME A VETTER MAKER AT 3D-MOBILITY.ORG (USA ONLY)



BECOME A VETTER MAKER AT 3D-MOBILITY.ORG

Note: 'Kit' rear caster mounts use a different model and the tires use different infill settings. Pay attention when printing. Read more on MakerWorld and in the above release notes.



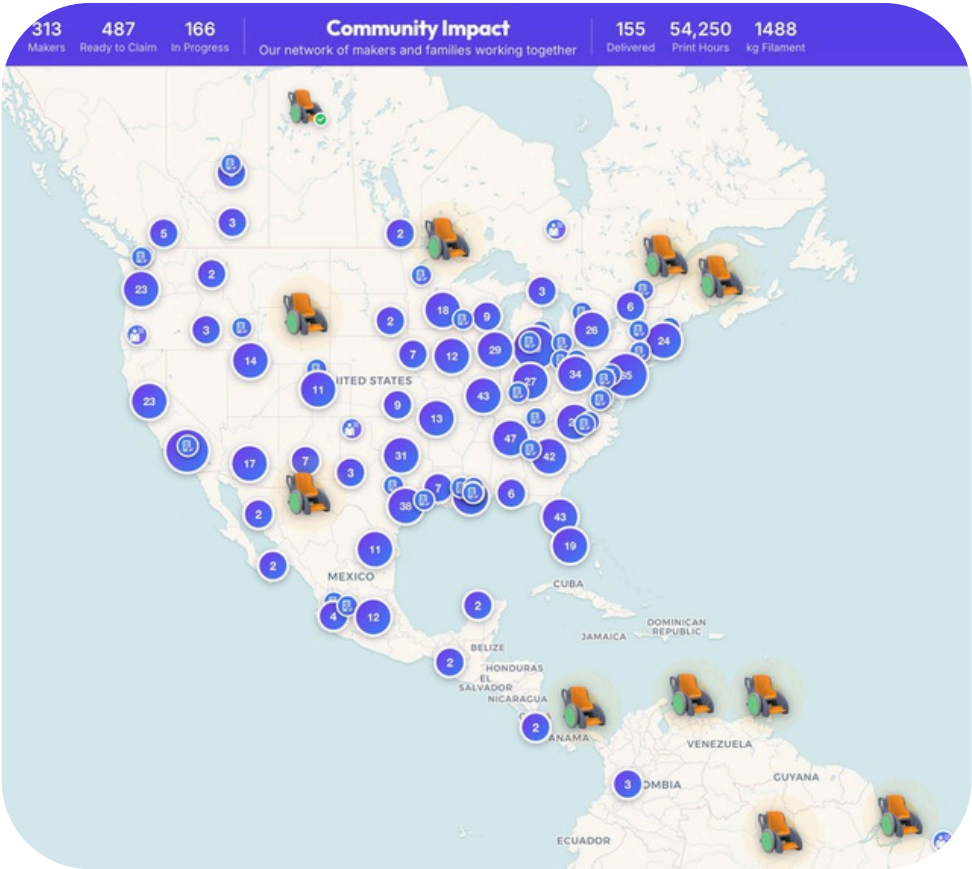
TMT 3D MAKER GUIDE



INTRO

more info at 3DMobility.org

JOIN OUR WORLDWIDE COMMUNITY OF MAKERS AND BE A HERO TO YOUR LOCAL COMMUNITY BY FILLING TMT REQUESTS AT 3D-MOBILITY.ORG



SIGN UP AS A MAKER, PARTNER, OR REQUEST A CHAIR AT 3D-MOBILITY.ORG



TMT 3D MAKER GUIDE



INTRO

more info at 3DMobility.org



Image for reference only.
Visit [MakerWorld](#) page for detailed printing instructions



Settings

- Minimum Bed Size -----• 256mm³
- 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.



TMT 3D MAKER GUIDE



ASSEMBLY

more info at 3DMobility.org

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



Want to watch an assembly video?

Check out 3DMobility.org

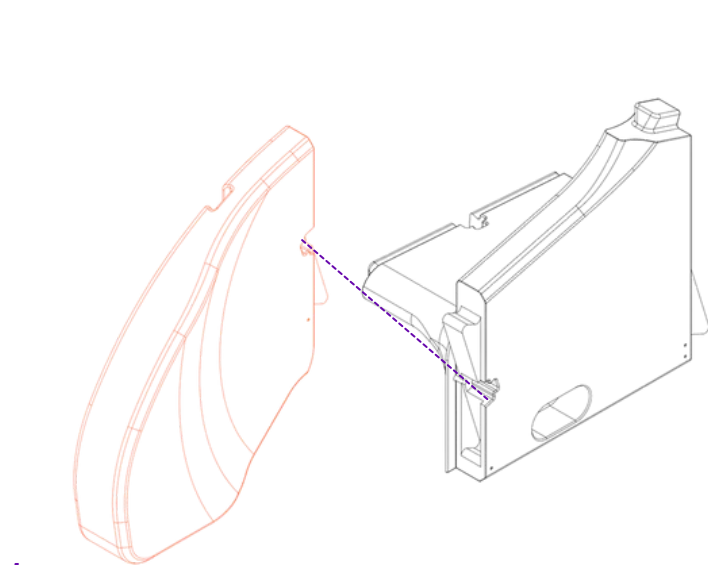


TMT 3D MAKER GUIDE

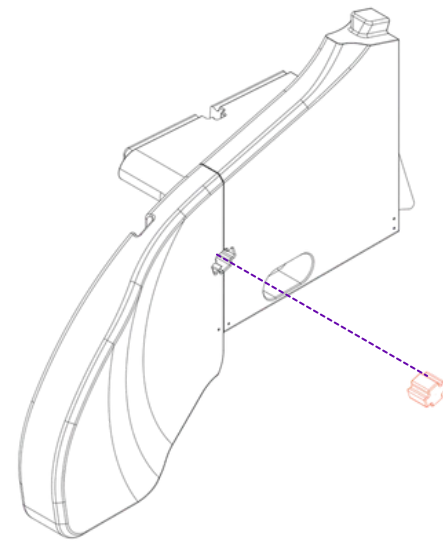


ASSEMBLY

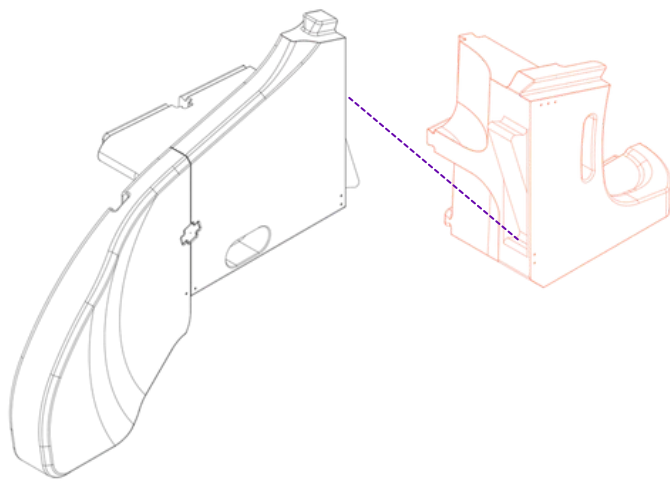
more info at 3DMobility.org



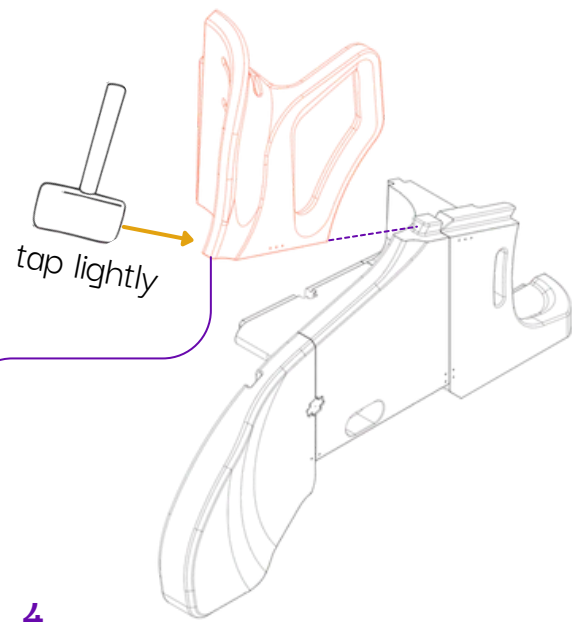
1



2



3



4

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



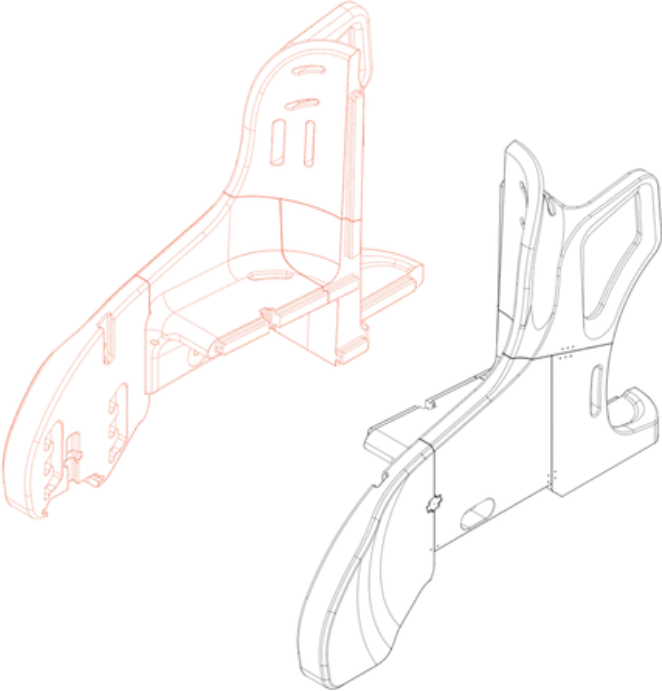
TMT 3D MAKER GUIDE



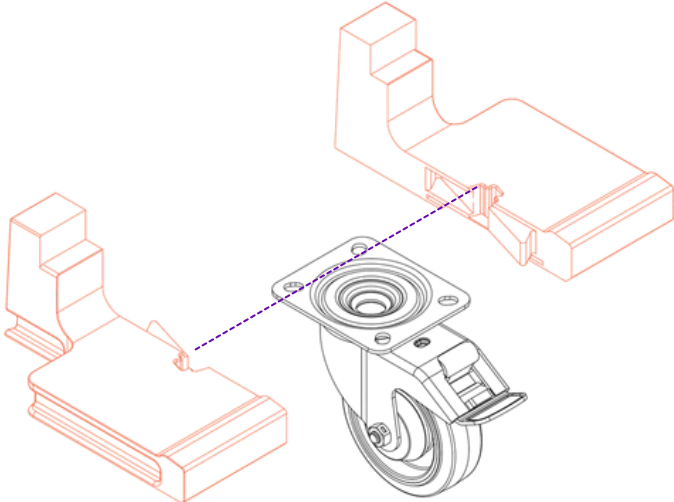
ASSEMBLY

more info at 3DMobility.org

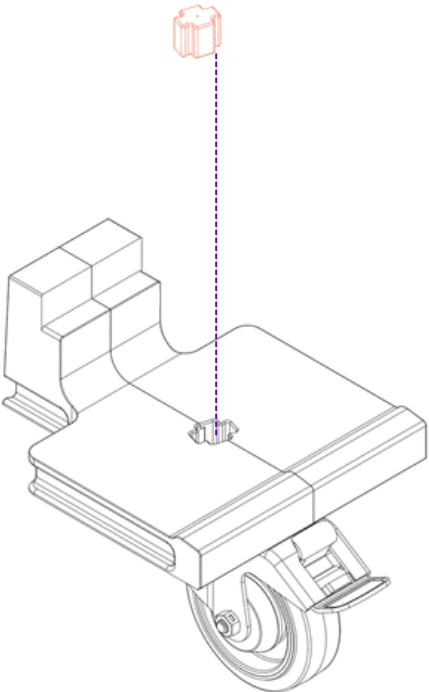
5



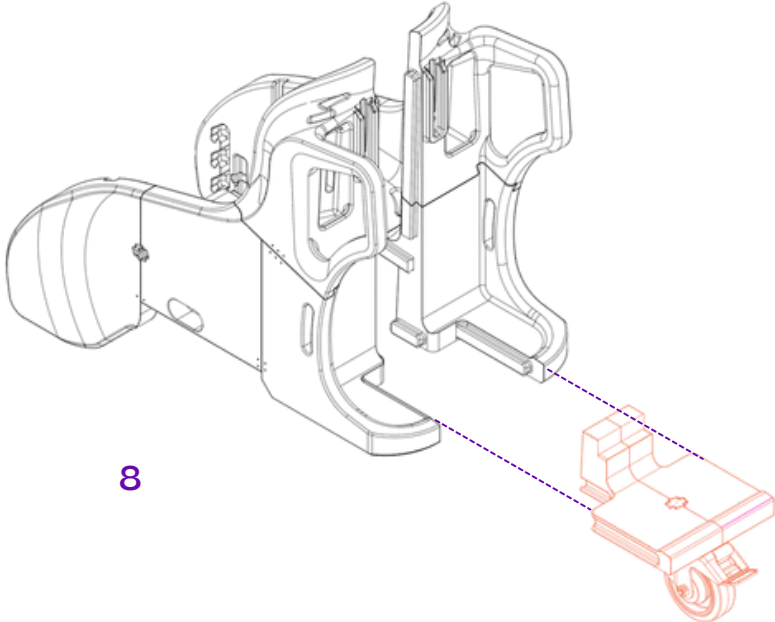
6



7



8

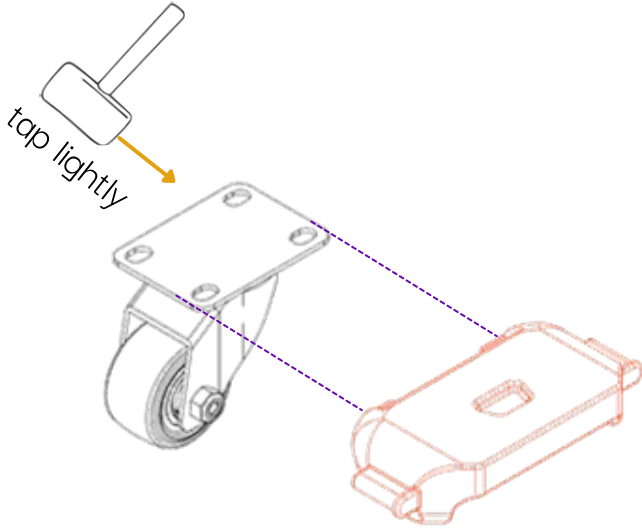


TMT 3D MAKER GUIDE

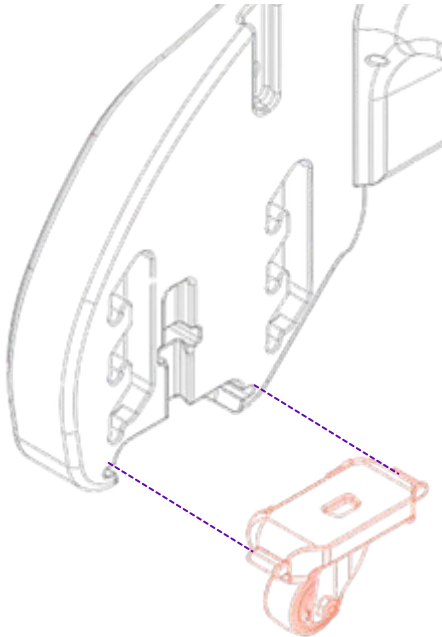


ASSEMBLY

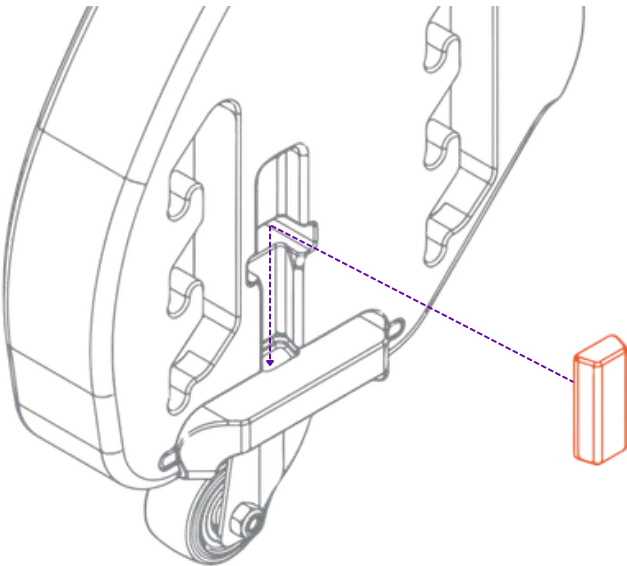
more info at 3DMobility.org



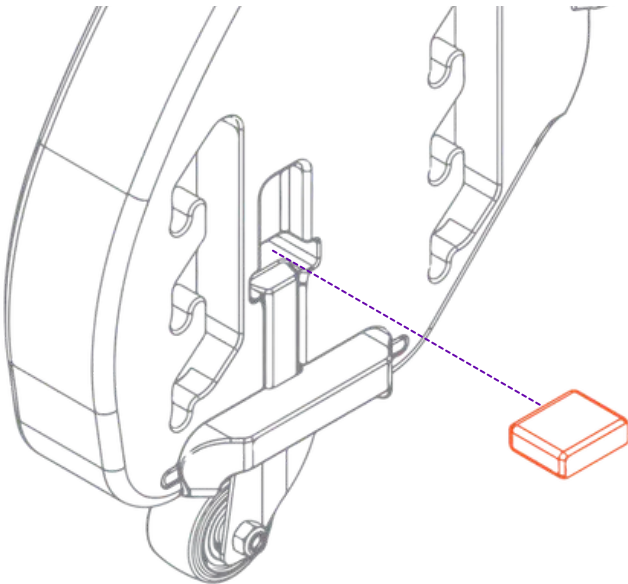
9



10



11



12

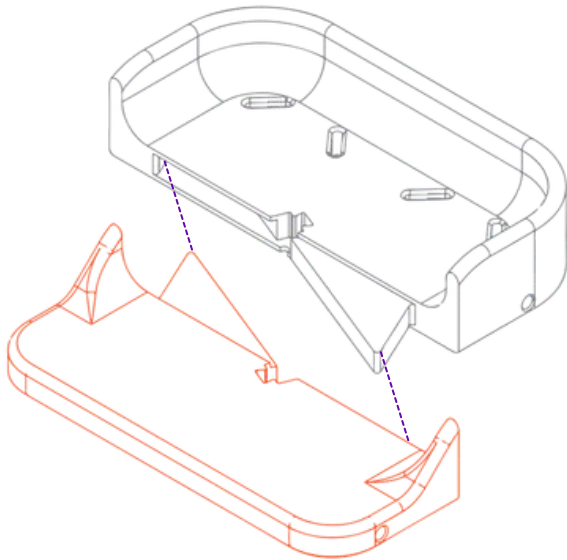


TMT 3D MAKER GUIDE

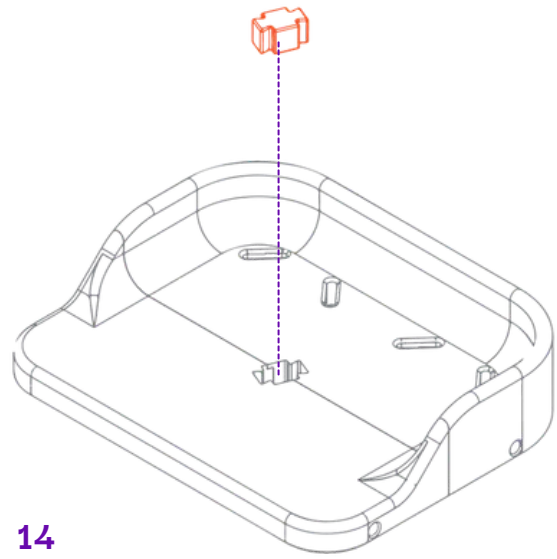


ASSEMBLY

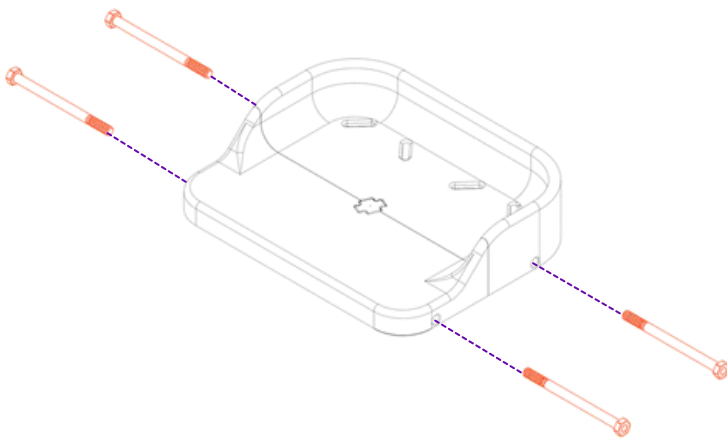
more info at 3DMobility.org



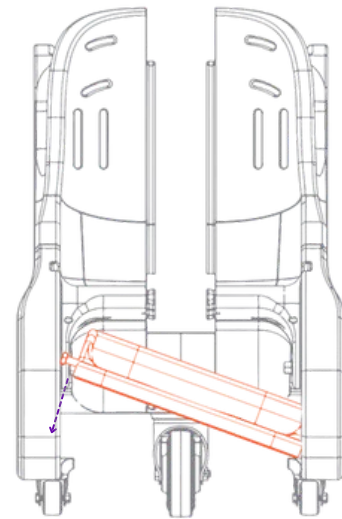
13



14

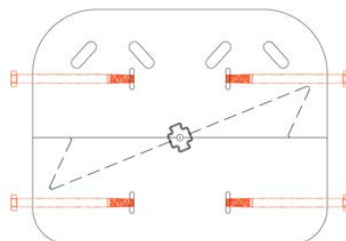


15



16

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

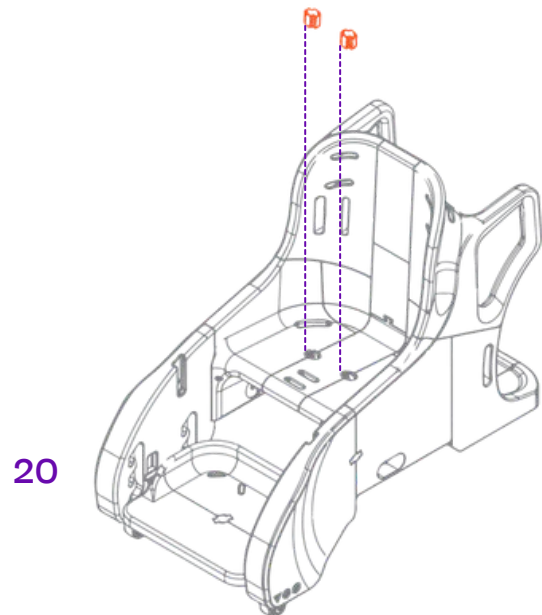
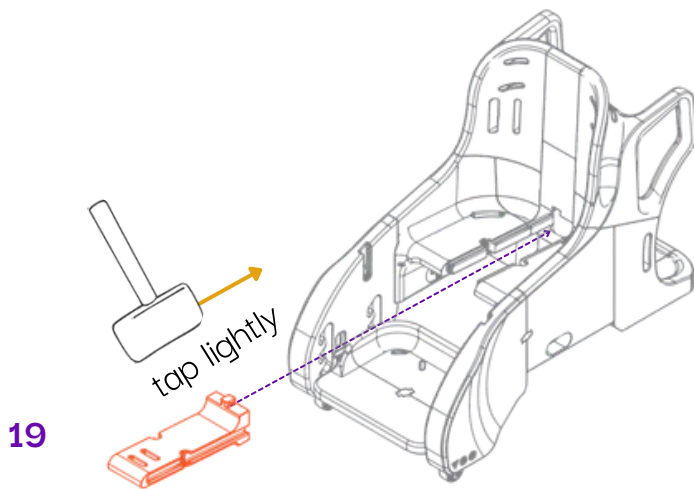
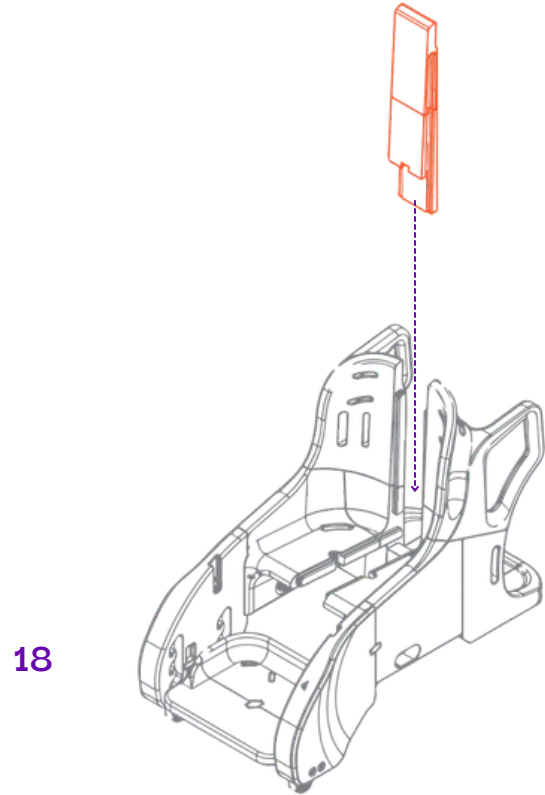
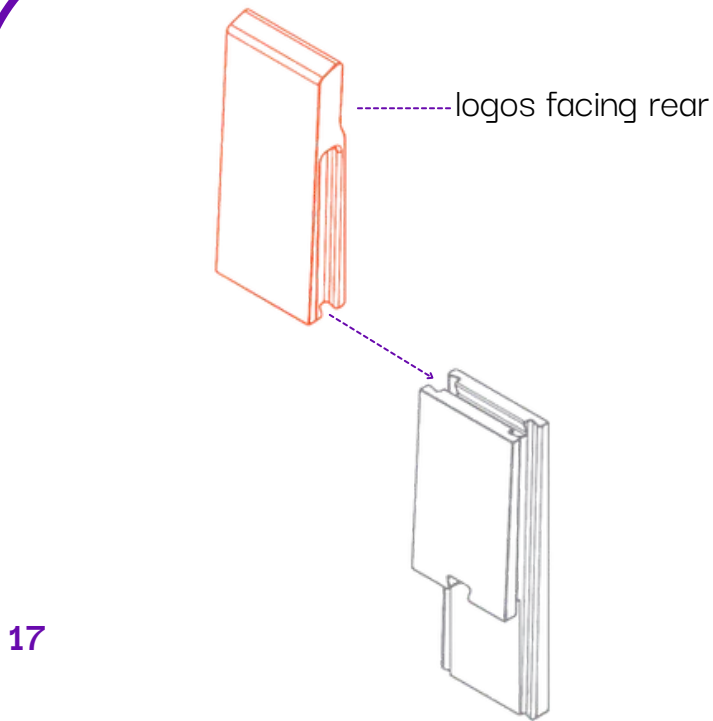


TMT 3D MAKER GUIDE



ASSEMBLY

more info at 3DMobility.org

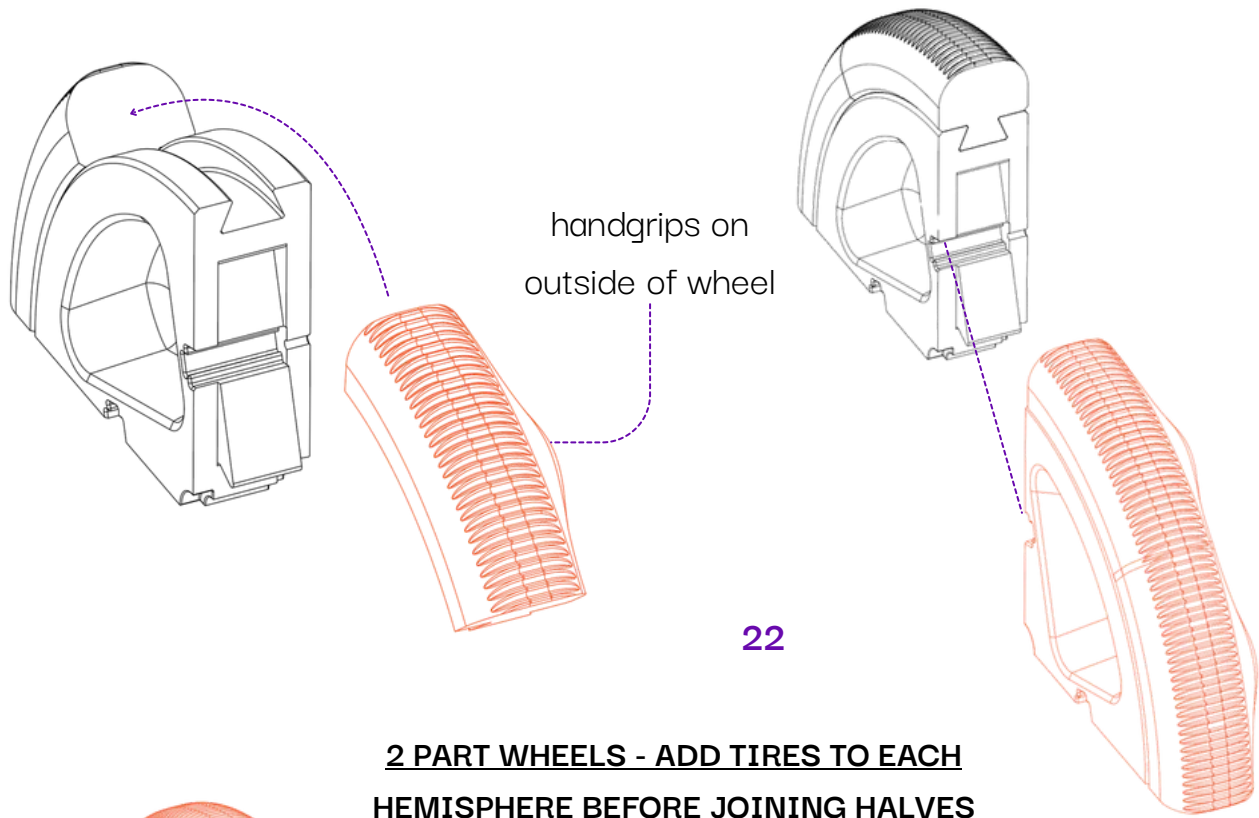


TMT 3D MAKER GUIDE



ASSEMBLY

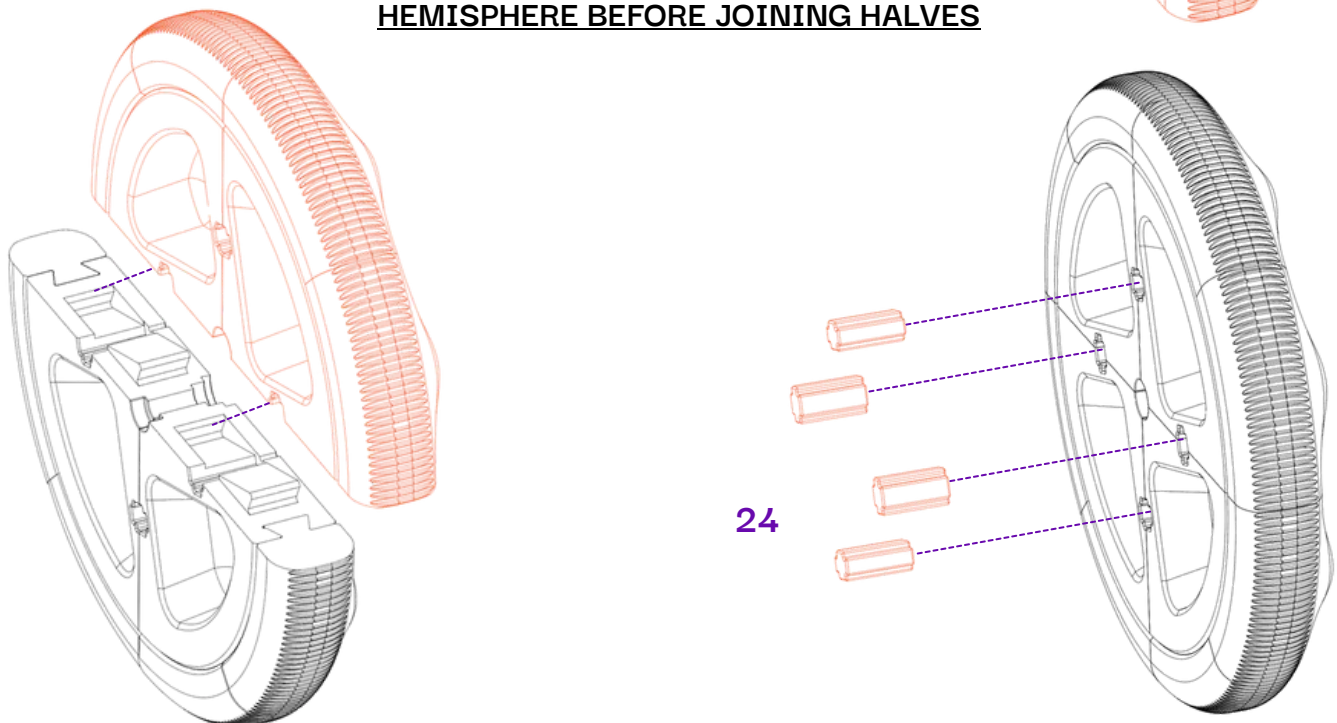
more info at 3DMobility.org



21

22

2 PART WHEELS - ADD TIRES TO EACH HEMISPHERE BEFORE JOINING HALVES



23

24



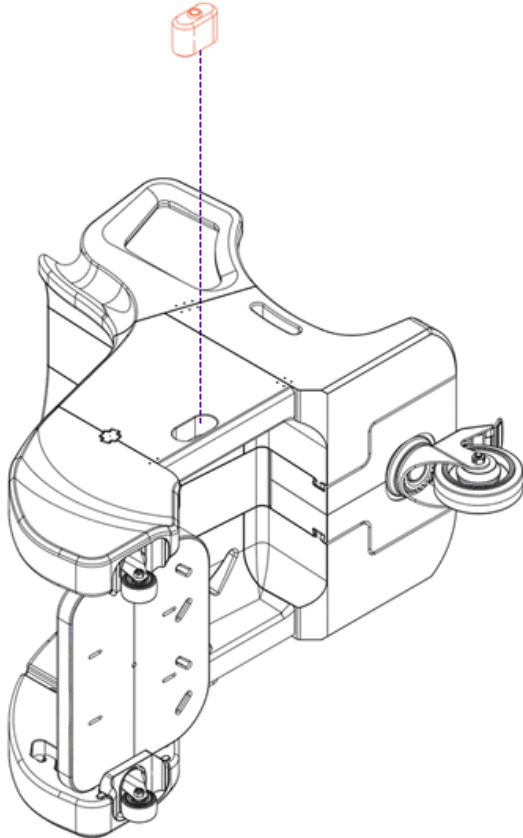
TMT 3D MAKER GUIDE



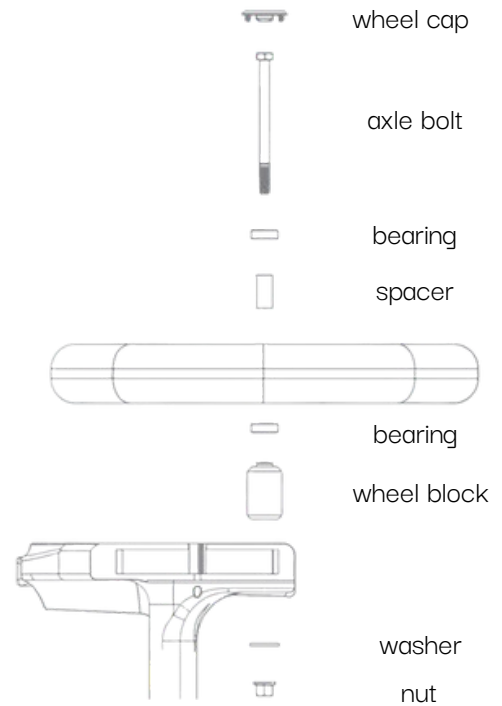
ASSEMBLY

more info at 3DMobility.org

25

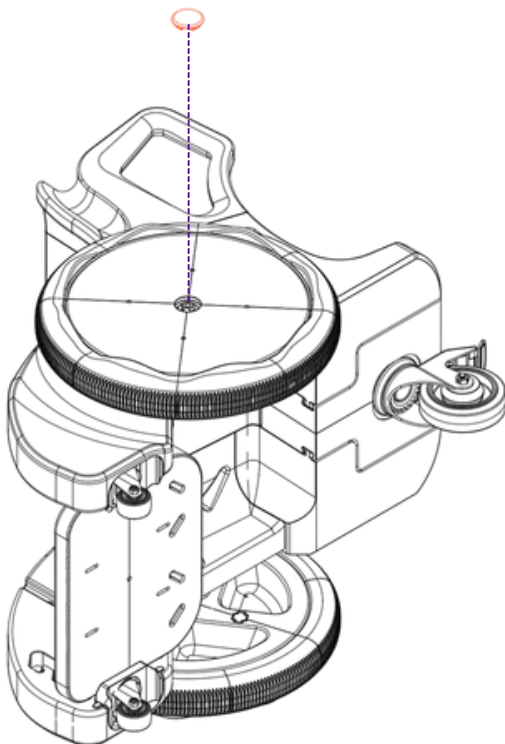


26



tighten wheel so it spins smoothly

27



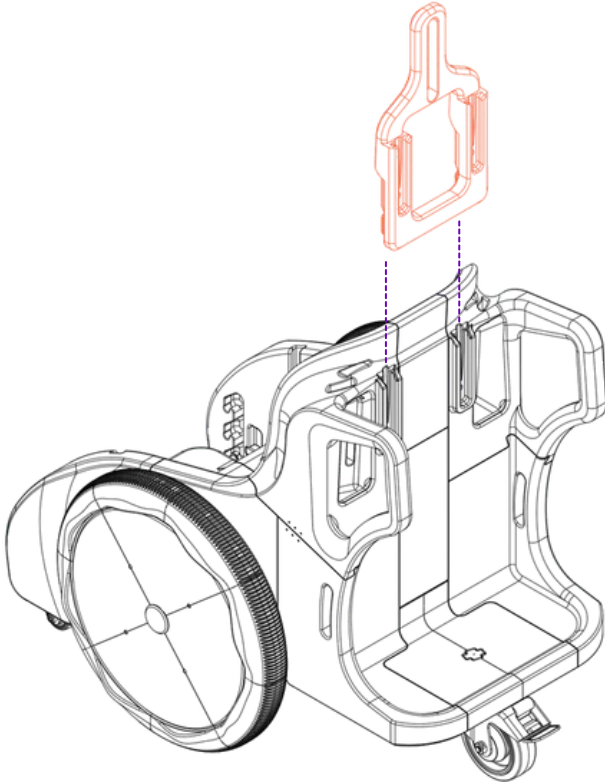
Base chair complete!



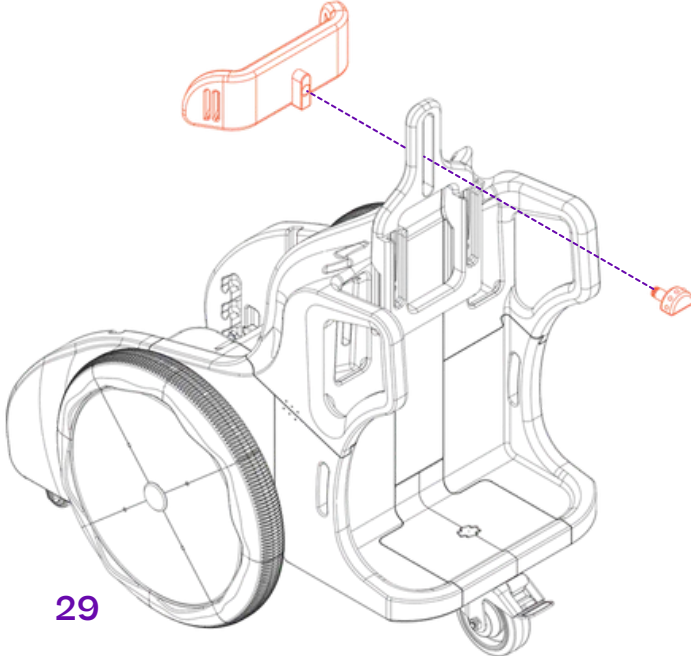
TMT 3D MAKER GUIDE



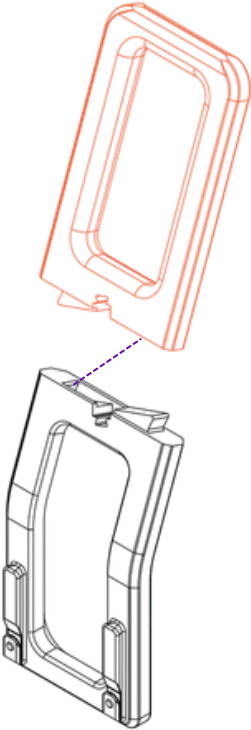
ACCESSORIES more info at 3DMobility.org



28



29



30

slide brackets around joint and insert pin



31

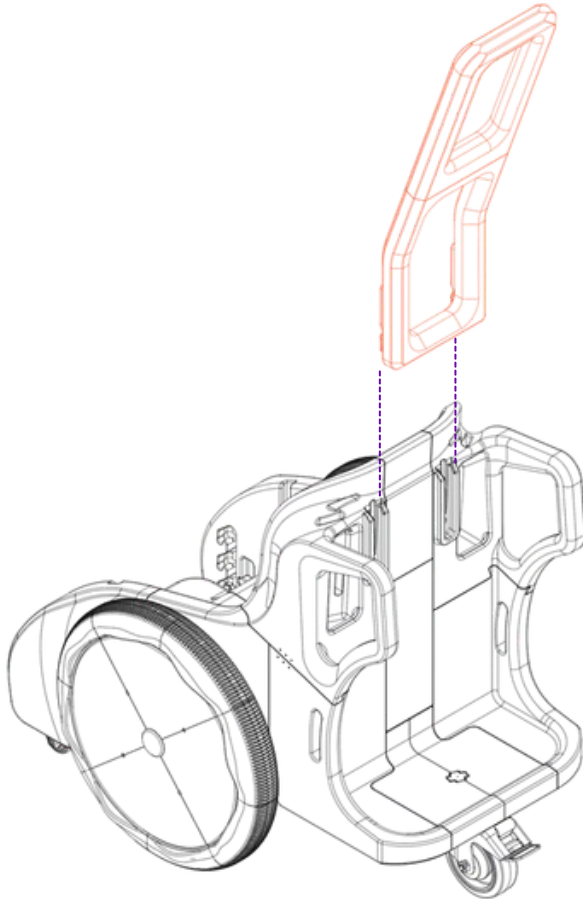


TMT 3D MAKER GUIDE

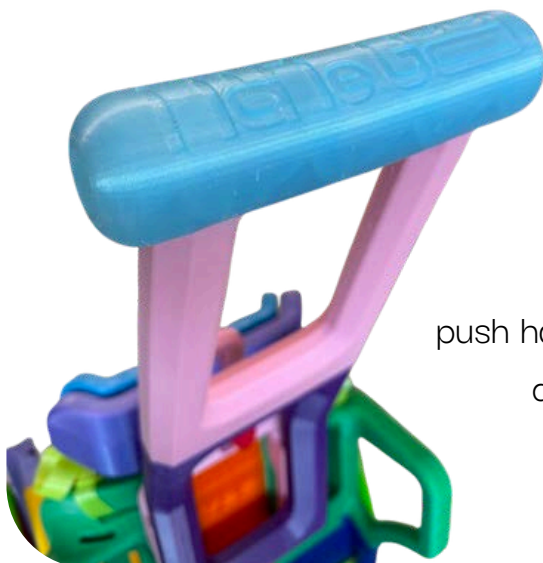


ACCESSORIES more info at 3DMobility.org

32



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



push handle grip install. Note direction of logo



TMT 3D MAKER GUIDE



ACCESSORIES more info at 3DMobility.org



Attach sticky velcro to chair and cushions



Cushion install complete



TMT 3D MAKER GUIDE



ACCESSORIES more info at 3DMobility.org



27

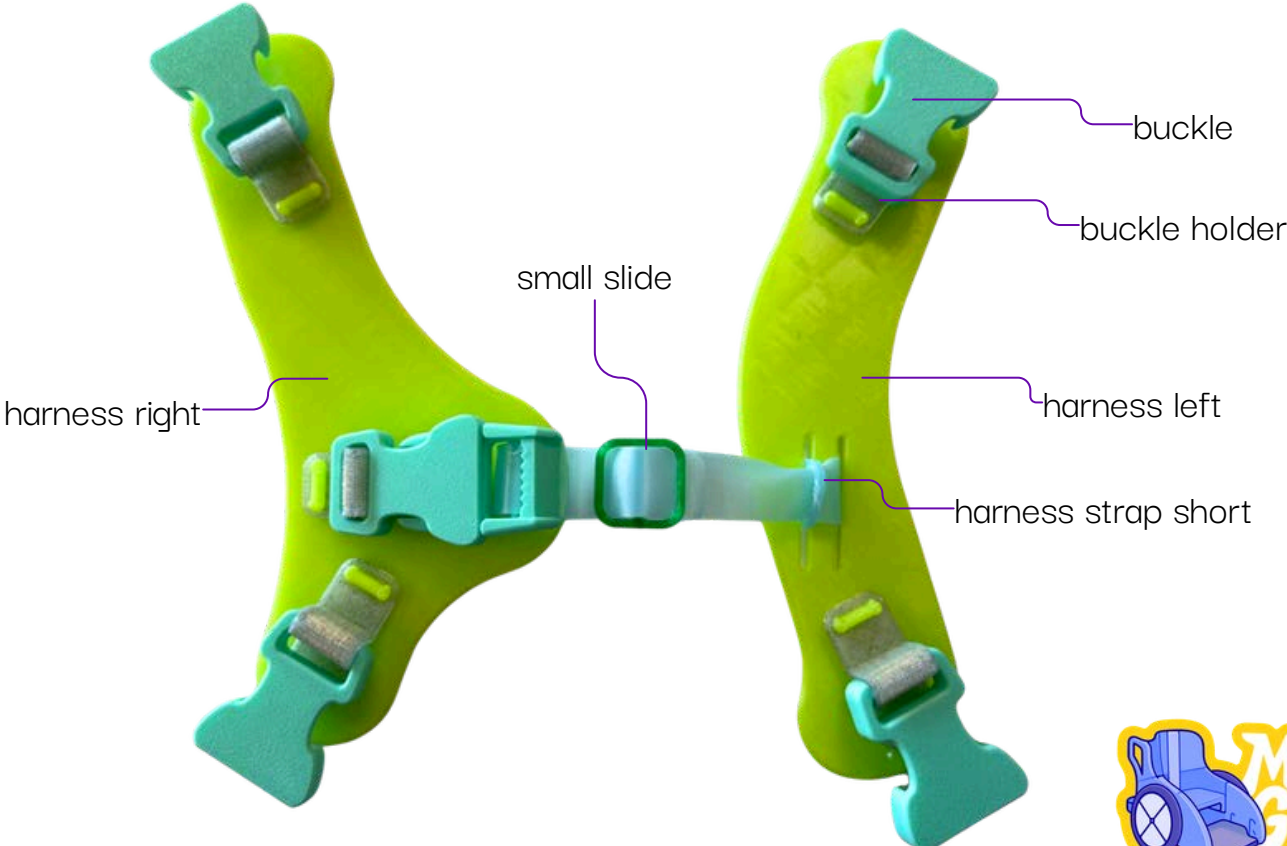
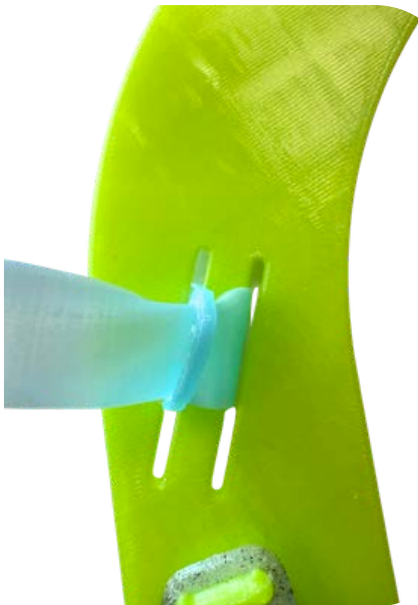


TMT 3D MAKER GUIDE



ACCESSORIES more info at 3DMobility.org

fold in half before inserting



TMT 3D MAKER GUIDE



Misc

more info at 3DMobility.org



fold in half before inserting



add slide and buckle



TMT 3D MAKER GUIDE



Misc

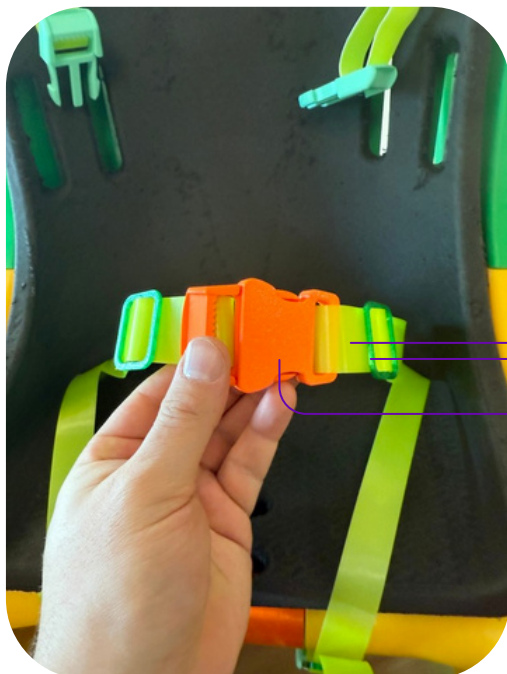
more info at 3DMobility.org



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

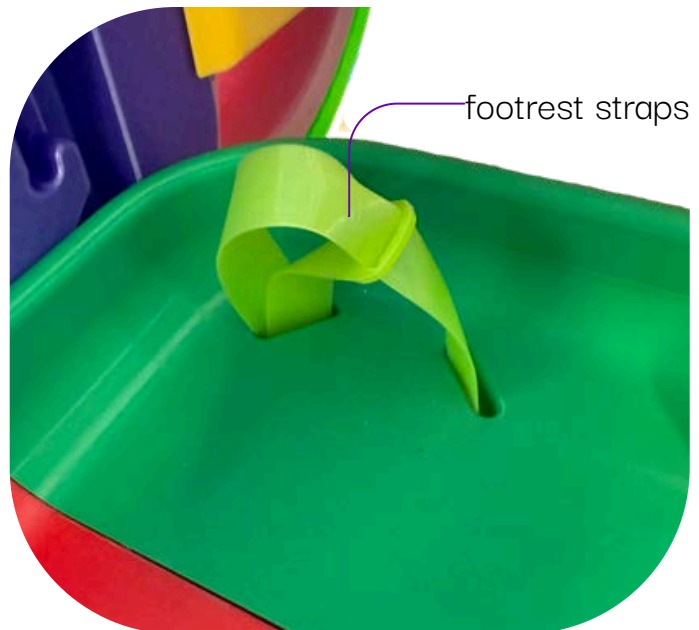
large slides

lap strap



27

large buckle



footrest straps



TMT 3D MAKER GUIDE

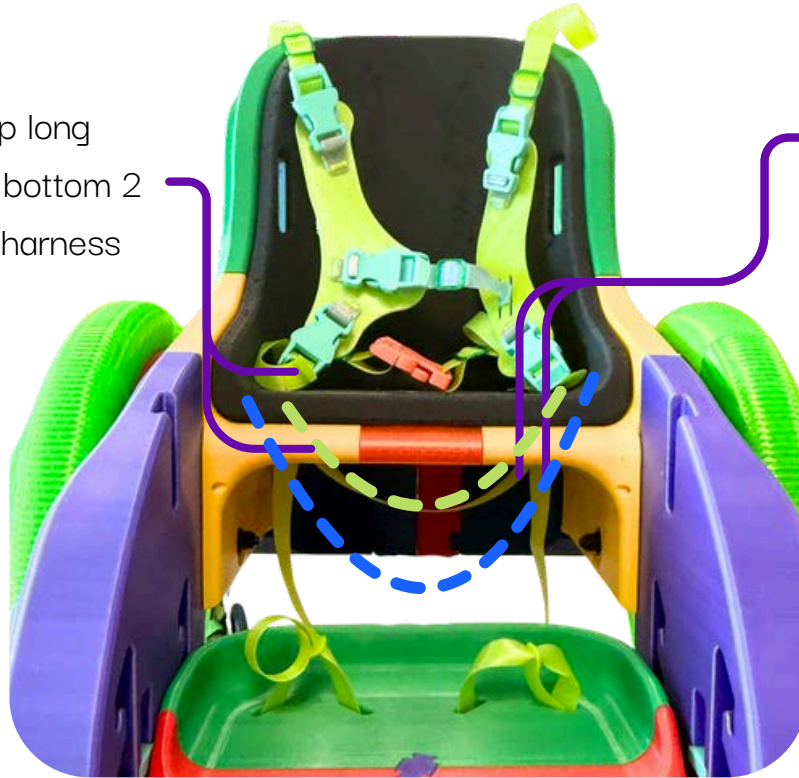


Misc

more info at 3DMobility.org

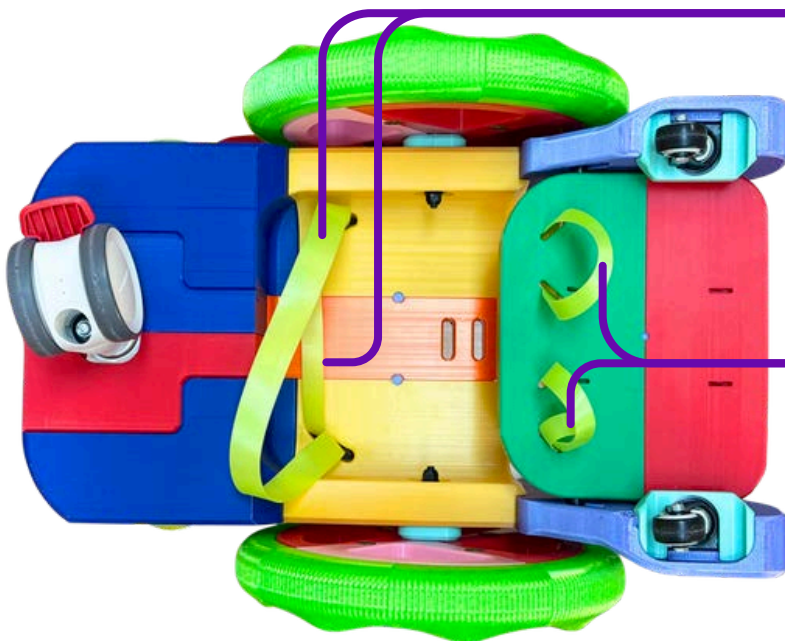
Harness strap long connects to the bottom 2 buckles of the harness

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



27



TMT 3D MAKER GUIDE

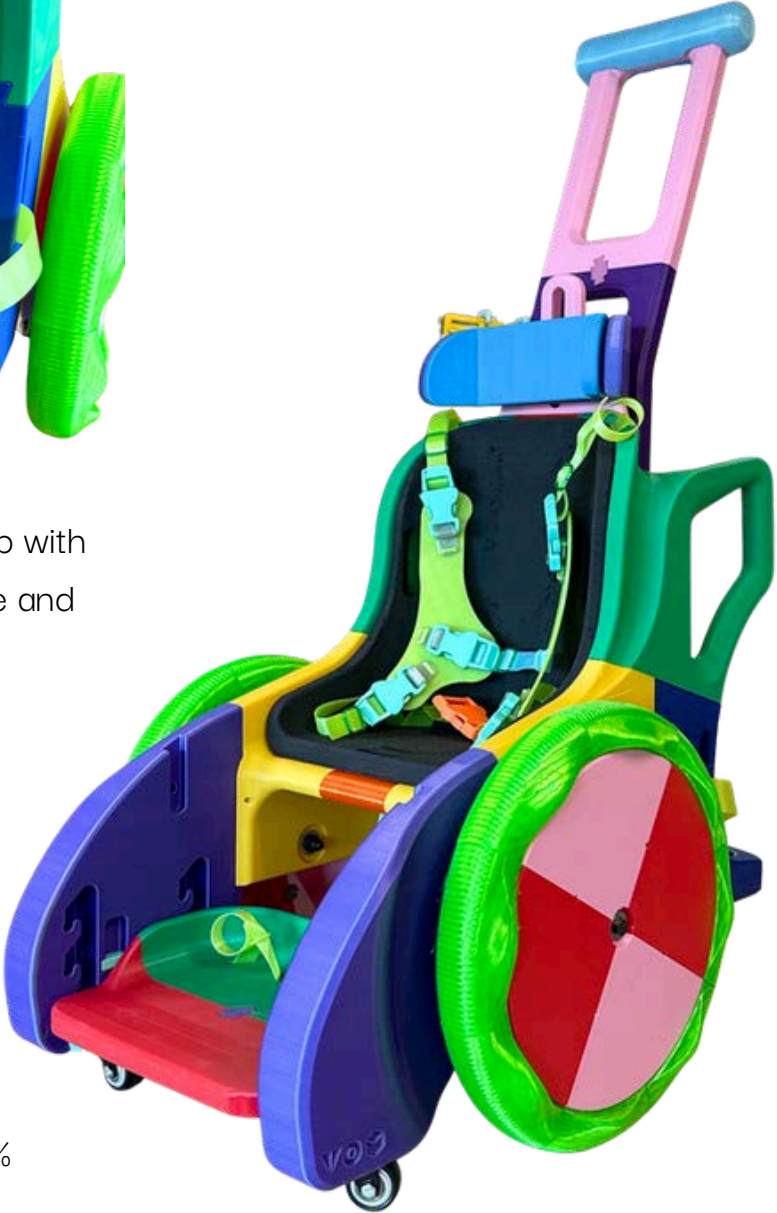


Misc

more info at 3DMobility.org



storage strap with large buckle and slides



chair is 100% complete!



Printing with Foaming TPU

We recommend 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)

TMT 3D MAKER GUIDE



Misc

more info at 3DMobility.org

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!

