MOUNTING SPEECH GENERATING DEVICES AND TABLETS TO WHEELCHAIRS

Michelle L. Lange, OTR/L, ABDA, ATP/SMS

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Mounting AT to Wheelchairs

- Speech Generating Devices (SGDs)
  - Larger
  - Smaller (less than 5 lbs)
- Computers
  - Notebooks
  - Tablets

Accent 1400

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Whose Job is This? Recommendation

- Partly, it comes down to funding
  - If the SLP orders a mount with the device, then the SLP may need to "spec" this out
  - If the wheelchair supplier orders the mount, they may "spec" this out
- Sometimes, it is the Occupational Therapist
  - The OTR may determine the optimal SGD access, placement and mounting system

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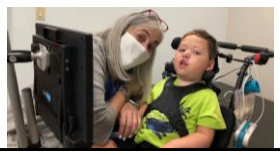
Whose Job is This? Ordering and Funding

- If the mount is ordered with the SGD, funding may be for both and the SLP typically does this
- If the mount is ordered with a new wheelchair frame, the wheelchair supplier may order the mount, or at least a new frame clamp
- If a mount is ordered alone, whoever can pursue funding may order



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Whose Job is This: Mounting

- Who holds the Allen wrenches?
- Typically, whoever ordered the mount
- The wheelchair supplier often knows how, but if they did not pursue funding, they will not put on the mount
- Mounting is usually too difficult for a client or caregivers to do competently
- Whoever attaches the mounting system must be competent and assumes liability

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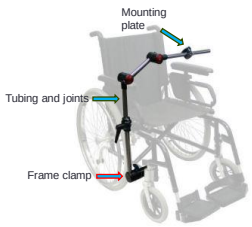
Terminology

- Frame Clamp attaches to frame and is designed to fit a specific shape and diameter



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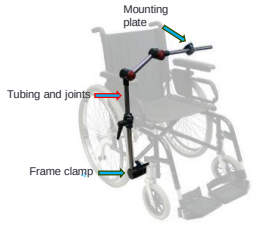
Terminology

- Horizontal and/or vertical sections of tubing with or without joints dictate final position of mount



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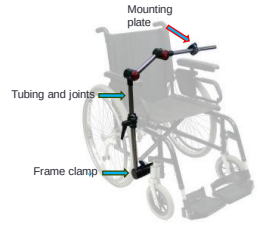
Terminology

- Mounting Plate connects the mount to the AT device. A device adaptor may be required.
- Called Universal Device Socket (UDS) by Rehadapt



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Terminology

- SGDs must have an adaptor plate on the device, as well
  - called Mounting Plate by Rehadapt

Device Adaptor

Mounting Plate

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Why Mount?

- Access
  - Direct
  - Head Mouse
  - Eye Gaze
- Visual Regard
- Security
  - Falling
  - Theft

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How Do I Get Started?

- Device Type
- Device Placement
- Mount Placement

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How Do I Get Started?

- Device Type
  - Which device?
  - What mounting plate will be required?
  - Will a device adaptor be required for the device itself?
  - Choose appropriate mounting category

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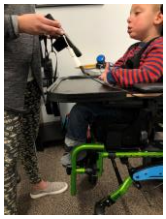
How Do I Get Started?

- Device Placement
  - Determine approximately where the device needs to be placed
    - For optimal visual regard and access
    - Within boundaries of wheelchair so device doesn't get bumped
      - i.e. through doorways
    - Not blocking client's view of
      - Communication partner
      - Blackboard
      - Where they are propelling MWC or driving PWC



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How Do I Get Started?

- Mount Placement
  - Where will the frame clamp be placed based on desired device placement?
  - Place above tilt
  - Avoid moveable parts
  - Ensure mount can move out of the way for transfers
    - Fold, swing-away or remove
  - Ensure mobility base will not tip over from weight of mount and device if to the side during transfers

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Ordering Help

- Some Mounting manufacturers offer additional help
- For example, take photos from several directions holding the device where you want it in relation to the wheelchair
- They will spec out what you need!
  - Rehadapt VMS
  - CJT Mounting

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Handout

- Check out the Wheelchair Mounting Systems Comparison Matrix for more information

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Questions?

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Mounting Speech Generating Devices (SGDs)

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Mounting: SGDs

- Larger devices include:
  - Tobii Dynavox I-Series
- Smaller devices include:
  - Tobii Dynavox EM-12, I-110, SC Tablet
  - PRC Accent series, PRiO-mini
  - PRC Saltillo NovaChat series, Via Pro

Tobii Dynavox I-series

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Mounts for Larger SGDs

- Larger devices are bigger in dimension and weight
- Usually not a weight limit due to variety of configurations and usage
- Devices accessed by eye gaze typically require a heavier capacity mount due to both weight and height requirements

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Mounts for Heavier SGDs

- BlueSky Designs
- CJT Mounting
- Daedalus / Daessy
- Rehadapt Engineering

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BlueSky Designs

- Mount n Mover

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Specifications

- Allows the user to independently move the mount in various positions for transfers and access. It can be especially helpful with Eye Gaze technologies.
- Supports wide range of wheelchair frame sizes
- Supports wide range of SGDs
- Holds up to 15lbs
- Newer powered version

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Specifications

- Heavy
- Bulky
- Large frame clamp
- Does not fold

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CJT Enterprises

- GT Enduro
- GT Enduro Angular

GT Enduro

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Specifications

- Fits most frames
- Many options for placement on frame
- Supports wide range of devices
- MAX and Lite versions

GT Enduro Angular

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Specifications

- Heavy
- Bulky
- Large frame clamp
- Does not fold

GT Enduro

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Daedalus Daessy series

- Rigid
- Folding
- Locking Swing Away
- Rear Folding
- Positioner

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Specifications

- Wide variety of frame clamps, including custom sizes, locking clamp for tilt frames, side clamp for placement on seat rail
- Clamp takes up little space on frame
- Supports many devices
- Folding version

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Specifications

- Heavy
- Pin in frame clamp can slip during tilt if locking clamp is not used

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Rigid

- Rigid
- Lighter than others
- Simple
- Less costly

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Folding

- Folds away to side
- Allows transfers without base tipping
- Device is facing out – risk of damage

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Rear Folding

- Very heavy
- Non-removable
- Allows device to remain on chair out of the way, even during transport

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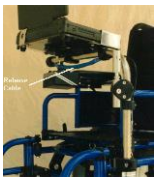
Locking Swing Away

- Allows client to pull down on cable and push mount to the side for independent transfers
- Can be difficult to operate



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Positioner

- Different joints than other Daessy mounts
- Less bulky
- More planes of adjustment at joints

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Rehadapt

- Monty 3D

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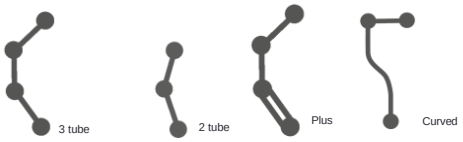
Rehadapt

- Monty 3D
  - Standard: 3 tubes
  - Plus: longer arm and double tube option to support higher weights at a longer distance
  - TT: 2 tubes
  - Curved: offset tubing



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Specifications

- Lighter weight than other mounts in this category
- Fits most frames
- Small frame clamp
- Limitless angles
- Tubes flow through joints for more adjustability
- Works with a variety of devices
- Swings out for transfers
- Quick shift levers or tool adjustment
- Holds up to 6.6lbs, 13lbs (M3D Plus)
- Swivel Joint with lever prevents pin slipping

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Rehadapt video

- Monty 3D

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Mounts for Smaller SGDs

- Smaller in dimension and weight
- If client uses excessive force against the device and/or mount, a heavier mount may be indicated
- Generally, lack the height available in heavier mounts
  - i.e. for eye gaze

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Mounts for Smaller SGDs

- CJT Mounting
- Daedalus / Daessy
- Rehadapt Engineering

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CJT Mounting

- TBO

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Specifications

- Holds lightweight devices
- Attaches to a variety of equipment
- Smaller and lighter than standard mounts

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Specifications

- Knob configuration only may compromise consistent placement

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Daedalus

- M series
  - Mini Adjustable Mount
  - Mini Folding
  - Mini Rigid

Mini Adjustable

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Specifications

- Smaller and lighter than standard mounts
- Holds up to 10 lbs
- 3 versions

Mini Folding

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Specifications

- Heavier than many other mounts in this category

Mini Rigid

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Rehadapt

- Hybrid 3D
- Holds up to 4 lbs

- L3D
- Holds up to 2.6 lbs

Hybrid 3D

L3D

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Specifications

- Smaller and lighter than standard mounts
- Includes Quick shift levers or tool adjustment
- Frame clamps for most size frames
  - SuperClamp for unusual sizes
- Device adaptors and mounting plates for most lightweight SGDs, including tablet based devices
- Two tube version

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Specifications

- Quick shift lever configuration only may compromise consistent placement
  - If a problem, use tool adjustment

L3D

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Questions?

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Mounting Computers

- Notebook/Laptop
- Tablet

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Mounting Notebooks

- Some mounting manufacturers can also support notebook computers
- Typically, a tray that supports the actual notebook

Mount 'n Mover Tray

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Mounting Tablets and Phones

- Rehadapt Engineering
- Stealth Products
- Therafin
- Others

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Mounting Tablets

- There are an ever increasing amount of Tablet mounts
- Some do not hold their position well or offer adequate positioning, so are not included here
- Some mounting manufacturers can support a tablet, but the mount is larger, bulkier, heavier, and/or more costly than other options

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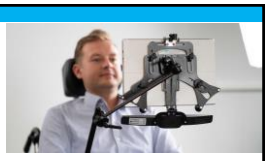
Rehadapt

- Tablet Mount
  - Versions include quick shift levers or tool adjustment
  - Frame clamp fits most size frames
  - SuperClamp available for unusual sizes
  - Various tablet and phone mounting plates available, including universal



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Stealth Products

- Tablet and Phone Mounts
  - Various links can be added or removed to achieve desired position
  - Adjustable mounting plates hold various size tablets and phones
  - Gatlin and Standard Styles
  - Heavy
  - Swing away option
  - UniLink version pending

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Therafin Corporation

- Communication Mount
- Tablet and phone mounts
- Mounting options:
  - Frame, armrest, tray, seat cushion, or channel

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Funding

- Can you get funding for a Tablet mount?
- Yes – if Tablet is being used for communication
- No – most of the time

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Questions?

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Thanks!

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Resources:

- Wheelchair Mounting Systems Comparison Matrix, www.atilange.com, under Resources

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Wheelchair Mounting Systems Comparison Matrix
Michelle L. Lange, OTR/L, ABDA, ATP/SMS

Many consumers using manual and power wheelchairs also utilize other assistive technologies, such as speech generating devices, notebook computers, tablet computers and cell phones. These technologies often need to be attached or mounted to the wheelchair frame for physical access (i.e. finger to cell phone button), visual regard, and security (from falling or theft).

The following matrix categorizes mounting systems by the type of assistive technologies supported and lists product features. This matrix is not exhaustive and is not intended to endorse a specific product.

A mount has three main components and terminology may vary.
Frame Clamp: this component attaches to the wheelchair frame and is specifically designed to fit a specific shape and diameter.
Mount: this section includes horizontal and/or vertical sections of tubing with or without joints in between that dictate final position of the mount.
Mounting Plate: this component connects the mount to the assistive technology device. Some assistive technology devices, particularly speech generating devices, also must include an attached device adapter that connects to the mounting plate.

So how do I get started?
1. Device type: Determine what device is being mounted and ensure the proper mounting plate is ordered for the mount and any device adaptor for the device itself. Choose the appropriate mounting category for the device type (see below).
2. Device placement: Determine approximately where the device needs to be placed. Keep in mind the optimal position for visual regard and access. Try and keep the device mounted within the boundaries of the wheelchair so that the device is not likely to get bumped going through doorways. Try to position the device so that the device does not block the client looking at a communication partner, whiteboard or where they are propelling a manual wheelchair or driving a power wheelchair.
3. Mount placement: Determine where the frame clamp will be placed, based on the desired device placement. If the wheelchair includes a tilt, be sure to place the frame clamp above the tilt mechanism so that the device follows the client during changes in position. Avoid mounting on moveable components such as swing away footrest hangers and removable armrests. These may feel secure now but will eventually get very wiggly if a mount is placed there. Ensure that the mount can move out of the way (fold, swing away or be removed) for transfers and that the mobility base will not tip over from the weight of the mount and device when the client transfers.

Speech Generating Devices

Larger Devices *are bigger in dimension and weight. These mounts will hold heavier devices, though most do not have specific weight limits due to the variety of configurations and usage.*
Devices accessed by eye gaze typically require a heavier capacity mount due to weight and height requirements.

1. Blue Sky Designs Mount'n Mover (single arm, dual arm, tilt 'n turner), Easy Mover (single or dual arm, tilt plate), and Pow!r Hybrids
    a. Pros: allows user to independently move the mount to various positions if adequate motor control is present or use a power version, swings away
    b. Cons: heavy, bulky, large frame clamp, does not fold

2. CJT Mounting GT Enduro, GT Enduro Angular
    a. Pros: fits most frames, many options for placement on frame, MAX and Lite versions, swings away. Angular version adds a third arm for more specific placement. Provide photos to ease ordering.
    b. Cons: heavy, bulky, large frame clamp, does not fold

3. Daedalus Rigid, Folding, Locking Swing-Away, Rear Folding, Positioner Daessy mounts
    a. Pros: fits most frames, small frame clamps, custom frame clamps available, locking clamp for tilt frames, side clamp for placement on seat rail, folding version
    b. Cons: heavy, pin in frame clamp assembly can slip during tilt (if not using locking clamp).

4. REHAdapt Monty 3D
    a. Pros: lighter weight than other mounts in this category, fits most frames, small frame clamp, tubes flow through joints, works with a variety of devices. Can move between 3 positions. Versions include knob or tool adjustment. Folding version (3DK). Holds up to 13 lbs. Heavy Duty version for heavier eye gaze systems (M3D Plus). Virtual Mounting Service to ease ordering.
    b. Cons: pin can slip during tilt without Swivel Joint with lever (not included on standard 3D).

Smaller Devices *are smaller in dimension and weight. If a client uses excessive force against the device or the mount, a heavier mount may be indicated. These generally do not offer the height available in heavier mounts, such as that required for eye gaze systems.*

1. CJT Mounting TBO
    a. Pros: holds up to 5lbs, smaller and lighter than standard mounts, attaches to a variety of equipment
    b. Cons: some frames require large frame clamp

2. Daedalus Mini Mounts (M series)
    a. Pros: smaller and lighter than standard mounts, holds up to 10lbs, 3 versions
    b. Cons: heavier than many other lightweight mounts

3. REHAdapt Hybrid 3D and L3D Mounts
    a. Pros: smaller and lighter than standard mounts, knob adjustment. Frame clamps fits most size frames, Super Clamp also available for unusual sizes (i.e. adaptive strollers). Device adaptors for most lightweight SGDs. Hybrid 3D holds up to 4lbs, L3D holds up to 2.6lbs. Mounting plates for a variety of lightweight devices, including tablet based devices.
    b. Cons: knob configuration only, may compromise consistent placement

Computers
Notebook/Laptop

1. Blue Sky Designs Mount'n Mover

2. C.J.T. Mounting GT Enduro, GT Enduro Angular

3. Daedalus Daessy series

Tablets
There are an ever increasing amount of Tablet mounts. Some of these do not hold their position well or offer adequate positioning of the tablet and so are not listed here.

1. REHAdapt Tablet Mount
    a. knob or tool adjustment. Frame clamps fits most size frames, Super Clamp also available for unusual sizes (i.e. adaptive strollers). Various tablet mounting plates available. For devices up to 2.6lbs.

2. Stealth Products iPad Mount:
    a. various links can be added or removed to achieve desired position, adjustable mounting plate holds various size tablets, swing away option. Gatlin and Standard styles. Heavy.

3. Therafin Corporation Communication Mount:
    a. supports a variety of size and brand tablets. Attaches to frame, armrest, tray, under seat cushion, or channel tubing

Smart Phones
The following mounts are designed to support a smart phone for access, visual regard, and security.

1. REHAdapt
    a. can attach to tablet mount, variety of adaptors

2. Stealth Products
    a. can attach to tablet mount or a separate mount. Adjusts to hold a variety of phone sizes.

3. Therafin Corporation Communication Mount:
    a. supports most cell/smart phones

Table Mounts
These mounts are generally used when the client is not in a mobility base and is at a work surface. These are sometimes used in evaluation settings.

1. Blue Sky Designs Mount'n Mover
    a. Mount'n Tilter table top, angle adjustable
    b. Table Clamp attaches to table or other work surface
    c. Stand + 90 table top. Flat, vertical, or 45 degrees

2. CJT Mounting ET Table Stand Mount

3. Daedalus Desk Mount (DM), Clamp Desk Mount (DMC), Vertical Desk Stand (VDS), and X-Base Folding Desk Stand

4. REHAdapt Table Stands and Table Clamps

5. TobiiDynavox ConnectIT TableTop ClampOnMounts, and TableTop TS XL

Over Bed/Floor Mounts
These mounts can be used by a client in bed or in another base, such as a recliner. These can also be used in an evaluation center. If used with an electric hospital bed, ensure that the angle can be changed to match the angle of the client in bed.

1. Blue Sky Designs Floor Stand with optional extension, casters, and tilt plate adaptor

2. CJT Mounting ET Roller

3. Daedalus Daessy Rolling Mount

4. REHAdapt Classic, Penta, and Mini Floorstands

5. TobiiDynavox ConnectIT Vario Floorstand

Switches

Evaluation Switch Mounts

Evaluation switch mounts are designed to quickly and temporarily secure a switch in a location to determine final placement for a client. These mount to a variety of surfaces, typically using a Super Clamp frame clamp, move in a variety of planes and tighten down without tools. Switches can be Velcroed or more permanently attached to a mounting plate.

1. AbleNet Hover

2. AbleNet Latitude

3. AbleNet Universal Switch Mounting System

Permanent Switch Mounts

Permanent switch mounts are designed to mount a switch in a specific location for consistent access and security. These typically are adjusted by tool. Many seating components can be modified to mount switches in specific body locations, as well.

1. CJT Mounting Locline Switch Mount
    a. bolts or optional knobs, variety of connector options

3. REHAdapt Miniclamp Switch Mount Kit
    a. Pros: various size frame clamps and switch adaptors/plates are available. Versions include knob or tool adjusted joints.
    b. Cons: none that have come up…yet