

# A Comparison of Wheelchair

By Michelle Lange, OTR, and Michele Racicot, ME

Communication-device mounting systems for wheelchairs have been available for years. Their primary functions are to position a device for viewing and access, as well as secure a device against dropping or theft.

In recent years, however, advancements in technology and client's needs have demanded more from these mounts. New communication devices, as well as laptop computers, are now available. Wheelchairs that tilt require mounting on the frame above the hydraulics. New and unique wheelchair frame sizes and shapes are hitting the market, often with several variations on one chair; in other words, one chair may have two or more different tube sizings. This means the supplier must know where the mount will attach to the frame before ordering to obtain the correct mounting block. While new mounting systems have emerged to meet the challenge, problems still remain.

The Assistive Technology Clinics of The Children's Hospital of Denver, along with Rehab Designs of Colorado, joined forces to compare available mounting systems by the criteria listed in the accompanying chart. We chose five mounting systems on the market capable of supporting the Prentke Romich Liberator or Sentient Systems DynaVox, as these are the heaviest devices available. Sentient Systems has a new mounting system pending that was unavailable for this study.

Mounting systems consist, in general, of three parts—a mounting block, which attaches to the wheelchair frame; a tubing system, which provides the majority of positioning; and a mounting plate, which attaches to the device. The device must be positioned for access and viewing, but also to allow access to other equipment (e.g., power wheelchair controls). The client's visual field must not be obscured nor socializing compromised. This can be particularly challenging with small children.

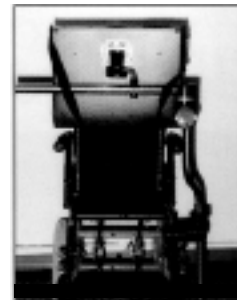
Each of these mounts is removable from its blocks (except the Daessy Rex-Folding mount), so reattachment to the chair is not necessary and so the mount can be placed in another block in another chair (e.g., using one mount for a manual and a power wheelchair). Depending on the particular wheelchairs and where the mounting block can be placed, one mounting system does not always work well between chairs without a lot of adjusting each time. Of course, acquiring funding for two mounting systems can take even more adjusting. Some mounting blocks can be placed on a horizontal or vertical portion of the frame. Width of the block itself may determine where it will fit on the chair.

Most mounts also swing away, which allows the client to transfer in and out of the chair and increases the available work surface (e.g., tray or desk). If the mount does not swing away, the entire assembly must be removed for transfers (as with the DJ Technical Sales' rigid and Miller's). Swing-away mounts, with the exception of the Daessy Locking Swing-Away, are not designed to be moved by the user. The Locking Swing-Away mount has a cable under the horizontal bar that allows the user to independently release the locking pin and swing away the mount.

Some mounts also fold down after being swung out of the way. These can sometimes be used independently by the client, but require good dexterity and strength. This makes the chair less "tippy" than

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## Wheelchair Mounting Systems



<b>Mount Name and Manufacturer</b>	Folding, Locking Swing-Away, Rear Folding; Rigid Daedulus Technologies, 604/270-4605
<b>Assembly Time</b>	Rigid: minimal; Folding: moderate; Locking: minimal; Rear: maximum
<b>Weight of Mount 3</b>	Moderate
<b>cost</b>	Folding: \$675; Locking: \$615; Rigid: \$440; Rear: \$750
<b>Adjustability</b>	Minimal (Rigid); Moderate (Others)
<b>Mounting Block (inches)</b>	Round: 3/4, 7/8, 1, 1 1/8, 1, 1 1/2; Square: 7/8, 1; Rectangular: 1 1/2 x 3/4; 1 3/8 x 2 1/4; Horizontal or vertical mount space on frame: 2
<b>Folding</b>	Folding only
<b>Swing-Away</b>	Yes (all)
<b>Stability/Sustains Position</b>	Moderate
<b>Mount Size and Space Taken</b>	Moderate-Maximum
<b>Ease of Removal/Replacement</b>	Minimal (rear folding nonremovable); Moderate (due to pin)
<b>Warranty</b>	No written warranty
<b>AAC Devices Supported</b>	PRC 4; DynaVox 4; most other comm devices
<b>Computers Supported</b>	Most laptops
<b>Mounting Plate Attachment</b>	Dedicated quick release (PRC) Plates, screws (DynaVox) Holder with front clips (DynaVox 2)
<b>Quality of Instructions</b>	Maximum; video available
<b>Tools Required for Assembly</b>	Allen wrenches

### Footnotes:

1. Formerly the "Quick-and-Easy Mounting System."

2. Must specify left- or right-sided mount; switching sides causes mount to fold toward the user.

# Mounting Systems



MT-FDMT Fold Down 2, MT-RGD Rigid, DV-Independence2; DJ Technical Sales, 604/436-2694 U.S. sales: Sentient Systems Technologies, 800/344-7778

MT-RGD: minimal  
MT-FDMT, DV-Independence: maximum



Laptop/Communication Mount System  
Miller's Adaptive Technologies, 8QQf837-4544

Minimum



MYDESC Communication Mount I & II  
Rhamdec Inc., 800/4-MYDESC

Maximum



WCMK-Wheelchair Mounting Kit, Prentke Romich Co., 800/262-1984

Minimum

Moderate	Minimum	Moderate-maximum	Moderate(block heavy)
MT-FDMT:\$655; MT-RGD:\$465; DV-Independence\$655	\$180	\$490	\$340
Moderate	Moderate	Maximum	Minimum
Standard and custom sizes for round, square and rectangular tubing; Horizontal or vertical mount space taken on frame: 2; Custom sizes are price upgrade	Round: 7/8, 3/4, 1; Horizontal or vertical mount space taken on frame: 1/2	Round or square: 3/4-1 1/2; Horizontal or vertical mount space taken on frame: 2 1/4	Round: 3/4, 7/8, 1; Horizontal or vertical mount space taken on frame: 2 1/2
MT-FDMT DV-Independence	No	No	No
No (MT-RGD); Yes (others)	No	Yes	Yes
Moderate-Maximum	Moderate-maximum	Minimum-Moderate	Moderate-maximum
Moderate	Minimum	Minimal	Minimum (overall) Maximum (block)
Minimum	Minimal without device (but pin can be lost); Maximum with device (but constricts pin)	Moderate	Moderate
No written warranty; 1-year guarantee	1 year	1 year	1 year
DynaVox, DynaVox 2, PRC, Others: Custom	Nonespecific	PRC, DynaVox	PRC
Macintosh Powerbook 500 series, most laptops	Laptops	Most laptops	None
Dedicated plate/wedge (PRC, DynaVox); Plate, adhesive (DynaVox 2); Various plates; Velcro and wire harness (computers)	Flat tray with lip and Velcro	Dedicated bracket (PRC); Plate with screws (DynaVox); Plate with adhesive (DynaVox 2)	Dedicated quick release
Maximum	Minimal	Minimum-moderate	Moderate
Allen wrenches (included)	Allen wrenches, 7/16" wrench	Allen wrenches, 1/2" wrench	Allen wrench (included)

3. Weight is relative to other mounts Actual weight varies depending on tube size, mounting board, etc.  
4. PRC=Prentke Romich Co.; DynaVox and DynaVox 2 are manufactured by Sentient Systems.

Note: The chart was developed through a comparison study of the equipment, direct contact with manufacturers and reviews of manufacturers' literature. It is not all-inclusive, nor does it imply product endorsement.

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using the swing away alone and tucks the device out of the way for driving. The width of the chair is still increased, and the device is left facing outward at risk of injury.

The mounting plate secures the device to the mount. The plate generally stays on the device, allowing easy removal from the mounting system. Wedge plates are already installed on Prentke Romich devices and screw onto the original DynaVox. The plate then slides into a dedicated adapter on the mount tubing.

The new DynaVox 2 has no screw holes. The only method of mounting this is with Velcro, but even heavy-duty Velcro can slip, resulting in possible injury to the client. An alternative is adhesive, which permanently

attaches a plate to the devices.

The two most common problems in mounts are time-consuming and difficult initial setup and subsequent lack of stability resulting in the device moving out of position.

The initial setup is not always done by someone who is familiar with mounts, so comprehensive instructions and ease of setup are important. Even when a professional is available, setup is often not funded, so time-consuming mounting is not feasible. An unstable mount resulting in an inconsistent position can affect access, visual contact with the entire device, and even client injury if the mount slips. A mount can often appear unstable if it is attached to a part of the wheelchair that is unstable, such as a swing-away footrest hanger or height-adjustable armrest. Footrests and armrests have some play to them, which translates into more play in the mount. These parts are also not designed for the weight of the device and mount and the tremendous torque placed on the block, often resulting in breakage to the wheelchair part.

If the client does not need to independently fold and swing-away a mount (e.g., for

independent transfers), a rigid mount is stable, less costly and sets up quickly. We were also able to position a rigid mount nearly as precisely as the more adjustable mounts on the market. Frame size and devices supported must be matched with the mount. If the client needs to swing away the mount on his or her own, the Daessy Locking Swing-Away is the most likely to be handled without assistance and less risk of injury than the folding mounts. |

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