Operator’s Manual:
Travel Computer Mount
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Important Safety Instructions

• Make sure the bolts are fully tightened down with a wrench around the posts of the head rest before vehicular travel, failure to do so could cause injury to passengers. Nuts that are only tightened by hand may come loose.

• Ensure that the Dynavox computer is locked down into the Daessy locking base before travel, failure to do so could cause damage to the product and/or injury to passengers.

• Keep any power supply wires away from passengers and clear of the driver’s line of vision.

• Do not try to move the mount during travel.
Parts and Accessories

Daessy Locking Base

Horizontal Bar (indicated by red arrow)
L-bars (indicated by green arrows)
Elbow Joint

Front Attachment Plate

Arrows indicate holes that L-bars fit into

Back Attachment Plate
Features

• Daessy folding quick release base supports Dynavox brand communication devices

• Daessy base makes attaching and detaching communication devices quick and simple

• The computer screen can be safely tilted even during travel

• The position of the base can be rotated around the horizontal bar for an optimal tilting range.

• Attachment plates can be secured upon the head rest posts of many different model vehicles

• The steel body firmly holds the Dynavox during travel

• Secures a Dynavox assistive communication device in prime position for a back seat passenger

• Unobtrusive to other passengers

• Easy to install in different vehicles

• Does not damage seat upholstery
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1 Introduction

1.1 General Overview

The travel computer mount works to safely hold the Dynavox computer while traveling in a vehicle.

![Figure 1: Travel Computer Mount](image)

The Dynavox computer provides a way for those disabled to communicate with their surroundings. The system works with a head controlled button and a speaker that allows the user to output the sounds the user comprises on the desktop. While using the travel computer mount, be sure there are no obstructions covering the speakers that could impair the sound produced by the computer.
The computer will connect to the mount with a specifically fitting Daessy Folding Quick Release base. This piece allows the user to alter the angle of the computer by rotating the base on the support bar. The base is to be placed in the upright position on the bar as shown below. The base is secured into place with an Allen bolt. This bolt is located on the back of the base, recessed into the hole on the protruding area. By loosening the bolt, the base then has full access to rotate fully around the bar. This may also need to be done to achieve the optimal viewing angle for the computer. Also, with the bolt removed, the base will be able to slide horizontally on the bar. This will allow the user to place the computer at the best location on the mount. It is recommended that the computer be placed at the horizontal center of the bar to load the weight evenly on the mount.

Figure 3: Daessy Folding Quick Release Base (Front view in the foreground with the back view in the upper right corner)
Once the bolt is secured into place with an Allen wrench, the mount has limited range of motion around the bar by pulling the pin on the back of the bracket. To adjust the angle of the base on the bar, pull the spring pull on the back of the bracket. While the pin is pulled out, the base should be able to rotate around the bar. Conversely, with the pin locked in, the base will remain locked into position on the bar.

To place the computer onto the quick release base, the pin on the top of the base is used. The pin is pulled back in the unlocked position. With the pin released, the computer slides onto the oval in the front of the base connecting the oval bracket on the back of the computer. By letting the pin go, the pin should slide back into the locked position. The computer will need to be aligned properly onto the base in order for the pin to lock.

The Daessy base is put onto a cylindrical rod also purchased from the Daessy Company to ensure a perfect fit and sufficient mechanical properties. The base is placed on the horizontal bar. The horizontal bar is connected to the L bars of the mount with elbow joints from Daessy. The horizontal bar and the front of the L bar (during proper set up, the L is upside down with the extended end towards the back of the system as shown below) are connected at a 90° angle from the frontal view. The system is adjusted using an Allen wrench to loosen or tighten the Allen bolts in the joint. Be sure that the bars are aligned square to each other and the protruding end of the L bar is directly facing back and is not an angle. If the bars are not properly aligned, the structure will not fit properly. If this should occur, use the Allen wrench to remove the bolts, realign, and tighten again.
The L bars of the computer mount are welded onto the attachment plates. These plates create the bracket system to hold the mount onto the passenger seat headrest. The mount will face towards the user in the back seat. There are two attachment plates, one welded to the frame and another free plate. The plates have three holes to allow for three bolts to slide through. The bolt will go through the front of the welded plate and through the free plate. A washer is placed on the back of the bolt and then a nut to secure everything in place. The space that can between the plates allows for the bars of the passenger seat headrest to be compressed between to create a hold for the mount. On one side of the plate (the inner side that will be touching the bars of the headrest), there is a neoprene layer to create more friction as well as protect the bars of the headrest and the mounting plates.

To connect the mount to the headrest, the bolts should be placed through the welded plate. The front passenger headrest should be lifted high enough so that the plate can fit under the space. The plate should be placed flush up against the vertical bars of the headrest so the mount is facing the user in the back seat. From the opposite side (the front seat), the free attachment plate should then be aligned with the welded plate already against the headrest bars. Push the free bar flush against the headrest bars, neoprene side touching the bar. Then, place the washer, then the screw on to the nut and secure the plates to the headrest bar. A wrench should be
used to tighten the bolts to enhance the fitting and provide further safety to the mount. The mount should be attached to the headrest without the computer to provide for easier installation.

Figure 8: Travel Computer Mount Installed Without (Left) and With (Right) Computer

1.2 Step By Step How to Use The Travel Computer Mount

Step 1) Place the Daessy Folding Quick Release base onto the straight horizontal bar. Place the base on the center of the bar. Use the Allen bolts and an Allen wrench to lock into place.

Figure 9: Daessy Folding Quick Release Base on Bar
Step 2) Attach elbow joints to both of the L-bars and the horizontal bar using the provided Allen bolts and an Allen wrench. The L-bars have already been pre-welded to the front attachment plate. This step (horizontal bar and the 2 L-bars) must be done together to ensure proper fit. The sticker of the elbow joint should face the user during this step. Once the bars are pushed into the openings of the elbow joints, tighten with Allen bolts.

![Figure 10: Framework of Mount](image)

Step 3) Place the welded attachment plate flush against the lifted passenger seat headrest so the neoprene is against the bars of the headrest. Place a washer and a bolt (washer between the bolt and against the plate) in each of the three holes on the attachment plate. While holding this in place, slide the free attachment plate to place the three bolts through the corresponding three holes in the plate. The neoprene side of the plate should be facing the user and should be touching the headrest bars. With the bolts now through the welded and the free attachment plates, place a washer on the back of the bolt and then a nut. Using a wrench on both the bolt head and the nut, tighten the mounting system together. The two plates’ neoprene sides should be squeezing against the headrest bars as securely as possible. The mount is now installed into the vehicle.
Figure 11: (Upper Left and Right) Travel Computer Mount Installed in Vehicle (Lower Left) Close up of Attachment Plates Installed

Step 4) To attach the computer to the travel computer mount use the Daessy Folding Quick Release base attached to the horizontal bar of the mount. Pull the top pin directly back towards the seat to unlock the pin. Then slide the bracket system on the back of the Dynavox computer onto the base. When the computer is located properly on the half circle of the base, release the pin to lock into place. This will secure the computer to the mount.

Step 5) Adjust the tilt of the computer with the side pin of the Daessy Folding Quick Release base. Pull the pin out to the left towards the left L-bar to release the pin from a locked position. With the pin still pulled out and unlocked, the base and attached computer can be tilted up or down. If the range of motion is still undesirable, the base can be adjusted on the bar to increase the tilt. If this is required, lock the bar back into place and using an Allen wrench, loosen the base by removing the bolt on the back of the base. Then, tilt the entire base to a more desirable position (either further tilted up if the computer needed to be tilted up more or pushed down if the computer needed more tilt downward). With the base in the proper tilting location, screw the bolt back into place. Then the pin can be pulled out to the unlocked position and the system can be again tilted into the optimal viewing position for the user.
Step 6) Enjoy the travel computer mount!

2 Maintenance

Although there is very limited daily maintenance of the travel computer mount, some upkeep of the system may be required over time. This includes both mechanical and environmental maintenance the user must be aware of.

2.1 Mechanical Maintenance

Some mechanical maintenance the user may come across will most likely be with the mounting brackets of the system. Over time, the bolts and nuts may weaken to cause the mount to be loosely attached to the headrest. This would require the nuts and bolts to be retightened with two wrenches. One wrench would be placed on the front of the bolt and the other on the back nut. While keeping one wrench firmly in place, the other wrench can tighten the system together. To test for the loosening of the mounting system, the mounting plates can be wiggled to feel for a non-snug feel. There also may be a rattling sound heard from the mount if the plates are not secured.

It may also be possible that the bolts and nuts need to be replaced over time. This would require that new bolts, washers, and nuts to be purchased from the hardware store.

The elbow joints may also loosen over time. It may be necessary to tighten the Allen bolts with an Allen wrench. Signals that the joints need to be tightened
would include the movement of the horizontal and L-bars during usage and a rattling sound from the bars.

Furthermore, the Daessy Folding Quick Release base can loosen over time. Again, this would be tightened with an Allen wrench. If the base was loose on the horizontal bar, the computer may slowly tilt downward as the base is sliding around the bar.

Any of the bars, elbow joints, and the Folding Quick Release Base can be ordered from the Daessy website if needed.

2.2 Environmental Maintenance

The travel computer mount must be kept in a dry environment. If the system is wet or becomes in contact with moisture, the mounting system may rust. To prevent this, the windows of the vehicle should be kept up during such weather conditions that would cause the mount to become wet (i.e. rain, snow, sleet, etc.).

The mount was also made to withstand the extreme temperatures of being in a vehicle. The mount should not be introduced to temperatures exceeding this range.

3 Technical Description

3.1 Dynavox VMax Computer

The Dynavox VMax computer provides a way to communicate for disabled people. This is the computer model that the mount will be designed to fit. The user is able to work the computer with a head controlled button. There is a speaker which allows the user to comprise words, sentences, and commands and the system will output the sounds the user needs to say.

Figure 13: Dynavox Vmax
3.2 Daessy Folding Quick Release Base

The folding quick release base (FQRB) serves the purpose of attaching the Dynavox VMax to the rest of the mount assembly. The FQRB fits into the Daessy quick release plate, which can be attached directly to the Dynavox Vmax. The FQRB will attach to the mount assembly via a 7/8 inch diameter stainless steel rod. The rod can fit right through the FQRB and can be secured in place by tightening the hex key bolt on the back of the FQRB. The FQRB has the ability to rotate about the rod once it is secured in place. This is done by pulling the spring loaded pin on the side of the FQRD and rotating it as desired. To lock the FQRB into place simply let go of the pin.

Figure 14: Daessy Folding Quick Release Base(left), Daessy Quick Release Plate(right)

Figure 15: Overview of Daessy quick release base and mounting plate

3.3 Horizontal Support Rod

The horizontal support rod serves as the attachment rod for the folding quick release base. The rod is a 17 inch long 7/8 inch diameter
stainless steel rod purchased from Daessy Inc. The steel support rod is more than strong enough to support the load required for the device. Each end of the horizontal support rod will fit into the elbow joints. The rod can be secured by tightening the hex key bolts on the elbow joints. This rod serves mainly to hold and support the Dynavox Vmax, as well as to attach it to the rest of the mounting apparatus.

### 3.4 Elbow Joints

These elbow joints from Daessy are custom made to fit the stainless steel tubing, which was purchased for the computer mount. The elbows will align the cylindrical rod to be perpendicular to the two vertical L-Bars. The elbows can be easily taken on and off with an Allen wrench. The elbows will allow the horizontal support rod to be removed from the rest of the mount assembly, which will make maintenance easier by allowing for the FQRB to be removed or repositioned as necessary.

![Figure 16: Close up of elbow joint on the lower right corner of the mount](image)

### 3.5 L-Bars

The L-Bars are 7/8 inch diameter stainless steel tubing, which were purchased from Daessy Inc. The bars have a height of 4 inches and a length of 6 inches. One end of the L-Bars fits directly into the elbow joints, where they can be tightened and locked into place by tightening the hex head bolts of the elbow joints. The other ends of the L-Bars are welded directly to the mounting plates. The Bend in the L-Bars is 90 degrees, which gives the mount the proper alignment for optimal viewing.
3.6 Attachment Point

The mount will be attached to the back of the passenger’s seat headrest. This position makes the screen easily viewable to a back seat passenger, without being obtrusive to the other passengers in the car. The mount can be secured to the metal posts connecting the headrest to the seat. The design includes two metal plates that will clamp down on the head rest post via ¼ inch hex head bolts and nuts. The L bars of the mount will be welded right to the front clamping plate.

The bolts secure the two plates around the headrest posts in conjunction with washers and standard ¼ inch nuts. Each plate will have this layer of rubber lining the face touching the headrest posts. This rubber layer will maintain a firm grip on the headrest posts with a high coefficient of friction. It will also offer some shock absorption as well as protection between the metal of the headrest posts and the attachment plates. The rubber layer is attached to the mounting plates by a heavy-duty spray adhesive. Since the attachment plates use the pressure of the two plates to clamp the unit to the headrest, the mount will be able to fit in all vehicles (providing they have a removable front passenger seat headrest). This allows the mount to still be used if the user purchases a new vehicle as well as provide the mount to be used by all people in a range of cars.
The plates were made different lengths in order to better suit the Stenglein’s vehicle. The front plate is 17in long with rounded edges. There are circular pockets 7/8 inches in diameter at each end of the plate, which are 1/8 inch deep. The pockets serve to fit the L bars into for proper welding. The second plate is only 10in in length, and also has rounded edges. The shorter plate will be facing the passenger. It is shorter so that it is not in the way of the passenger. Three 0.25in holes are drilled in each plate to fit the screws. The holes are centered on the shorter plate, and of-center on the larger plate to accommodate for a “thumb” on the passenger seat of our clients vehicle. However, the hole alignment will still work in other vehicles. Figure # shows the finished attachment plates. The mounting plates were also primed and painted using a rustoleum spray paint. There is a coat of grey primer which was applied first and then two coats of blue paint on top of the primer coat. The paint will serve to protect the surface of the mounting plates form wear and rusting, as well as giving the mount an aesthetically pleasing finished look.

Figure 18: Mount installed in a vehicle showing mounting plate attachment

![Image of mount in a vehicle]

Figure 19: Attachment plates with circular pockets.
4 Troubleshooting

4.1 Folding Quick Release Base (FQRB)

• Problem: The FQRB becomes loose on the horizontal support rod.
  
  Solution: Adjust the FQRB so that the Vmax will be at the proper viewing angle, then tighten the hex key bolt on the back side of the FQRB until the FQRB is tightly secured.

• Problem: Can’t get a good viewing angle for the computer screen using the folding feature of the FQRB.
  
  Solution: Loosen the hex key bolt on the backside of the FQRB. Then adjust the FQRB about the horizontal support rod until a good range of viewing angles for the computer screen is achieved. Once this is done tighten down the hex key bolt on the backside of the FQRB to secure it in place.

• Problem: FQRB becomes damaged and no longer works with the computer mount.
• Solution: Order a new FQRB from Daessy Inc. (For part details see replacement part table below)

Figure 21: Locations of key components on the FQRB

4.2 Horizontal Support Rod

• Problem: Support Rod has loose elbow joint connections.

• Solution: Tighten the hex key bolts on the elbow joints until the support rod is secured in place. If this doesn’t solve the problem see the elbow joint troubleshooting section (below).

• Problem: Support rod becomes damaged and will no longer function properly with the other components of the computer mount

• Solution: Order a new rod from Daessy Inc. The rod should be 7/8 inch in diameter and should be 17 inches long.
4.3 Elbow Joints

- Problem: Horizontal support rod or L-bars are becoming loose in the elbow joints.

- Solution: Tighten the hex key joints of the elbow joints until the rods are firmly secured.

- Problem: Can’t get the joints to fully tighten.

- Solution: First check to make sure that there is no obstruction between both of the halves of the elbow joint to make sure nothing is preventing the joint from fully tightening. If there is anything remove the obstruction and try to tighten the elbow joint again. If this is not the case and then there may be stripped threads in the elbow joint or on the hex key bolt which are preventing the full tightening of the elbow joint. If this is the case a new part will probably have to be ordered since the part is made custom from Daessy Inc., so replacement bolts may be hard to find (For part details see replacement part table below).

4.4 L-Bars

- Problem: The weld joint breaks from the L-Bars to the mounting plate.
• **Solution:** If you have welding experience you may be able to tackle the problem yourself. If not I would find a professional welder to reweld the parts together. The welds were done using a tig welder, which is something that you may want to tell the professional helping you repair the broken weld. The weld should be done so that the end of the L-bar to be welded (6 inch side) sits flat into the circular pocket of the mounting plate. The two L-bars must also be parallel to one another, so that the other mount components will fit back onto the L-bars. The weld must be done so that these requirements are met for the mount to function properly upon fixing the issue.

Figure 23: Completed Mount Assembly note the L-bars are parallel and sit flat on the mounting plate

• **Problem:** L-bars become loose or are falling out of the elbow joints.

• **Solution:** Try and tighten the hex key bolts of the elbow joints, if this doesn’t work see the troubleshooting section for the elbow joints (above).

### 4.5 Mounting Plates

• **Problem:** Broken or damaged weld between the mounting plates and the L-bars.

• **Solution:** See troubleshooting for the L-bars (above).
• **Problem:** Rubber layer on the insides of the mounting plates is falling off or peeling away.

  **Solution:** Remove the rubber layer in question fully from the mount. Then use sand paper to lightly sand the steel mounting plate to remove and adhesive. Next clean the surface with a damp rag until all the debris is removed and dry the area. Then clean off the rubber layer as much as possible to remove as much adhesive as you can. Making sure that surfaces are dry and clean apply an adhesive to the metal portion of the plate and press the rubber layer on firmly. An adhesive which is rated to join rubber and metal should be used for this (try an epoxy or spray adhesive). Apply pressure to the two pieces until they are solidly joined.

• **Problem:** The hex head bolts are striped or the nuts will no longer fit onto the bolts

  **Solution:** Purchase new hex head bolts and nuts. The bolts are \( \frac{3}{8} \) inch diameter hex head bolts, which are 2 ½ inches long. Any hardware store should carry these so they should not be hard to find.

• **Problem:** Replacement parts are needed

  **Solution:** See Table 1 below.

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**Table 1:** Replacement parts table for parts ordered for Daessy Inc.
(Ordering info can be found online at www.daessy.com)

<table>
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<tr>
<th>Part</th>
<th>Model #</th>
<th>Special Notes</th>
<th>Description</th>
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<tbody>
<tr>
<td>Horizontal Support Rod</td>
<td>TUBE</td>
<td>Straight Length 17 &quot;</td>
<td>7/8&quot; stainless steel tubing</td>
</tr>
<tr>
<td>L-Bars</td>
<td>TUBE</td>
<td>90° bend with 6&quot; end &amp; 4&quot; end</td>
<td>7/8&quot; stainless steel tubing</td>
</tr>
<tr>
<td>Elbow Joints</td>
<td>TC90</td>
<td>n/a</td>
<td>Tube connector 90° elbow</td>
</tr>
<tr>
<td>FQRB</td>
<td>USBF</td>
<td>n/a</td>
<td>Folding Quick Release Base</td>
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