

# The DAESSY Mounting System HANDBOOK

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- **DAESSY Rigid Mount – DRM1**
- **DAESSY Folding Mount – DFM2**
- **DAESSY Locking Swing Away Mount – DLSA7**
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## 1. INTRODUCTION TO DAESSY

In 1986 Daedalus Technologies, Inc. developed and introduced the Daedalus Support System for mounting communication devices and laptop computers on wheelchairs. Between 1988 and 1991 the Daedalus Support System was known as and marketed as the 'Quick 'n Easy' wheelchair mounting system. In 1991 the mounting component system became known as DAESSY, an acronym derived from Daedalus Support System.

Since 1991 the DAESSY product line designed and manufactured by Daedalus Technologies, Inc. has expanded to include the Stem System for switch mounting.

### 1.0 The DAESSY Mounting System

The core of the DAESSY Mounting System is the 5 standard DAESSY wheelchair mounts and their standard variations. Complementing the standard assemblies is a range of additional mounting components that can be used to adapt the DAESSY Mounting System to a wide variety of situations. Clamps and plates are available for mounting to walls, desks, bed frames, or any other sturdy support structure. The DAESSY Stem System for switch mounting can be integrated with the DAESSY Mounting System.

#### 1.1 Standard DAESSY Wheelchair Mounts

Not all DAESSY wheelchair mounts are appropriate for all situations. The choice of assembly will depend on a number of factors including the abilities of the user, the type of device to be mounted, and the type of wheelchair and seating system. The team of professionals involved with any person using an augmentative device must determine which mount is most suitable for a particular application. In some cases it may be necessary to modify the standard assembly or construct a custom mount assembly. Contact Daedalus Technologies, Inc. for custom information.

**Caution:**

Included in these descriptions are some specific cautions. These cautions should be used as a guide to the type of details to consider when any assembly is being considered for mounting any device on a wheelchair. All applications have their unique aspects and some situations may be impossible to address with any mounting assembly. Most of the DAESSY mounting assemblies can be used with most augmentative communication devices and laptop computers but extra attention must be given to mounting large devices.

### **1.1.1 DAESSY Rigid Mount – DRM1**

The Rigid Mount DRM1 provides a simple but highly adaptable and adjustable support structure for mounting a laptop computer or communication device on to a wheelchair. The mount consists of two lengths of tube rigidly connected to form a right angle structure. The mounted device is attached to the Horizontal Tube crossing the wheelchair in front of the user and supported by a Vertical Tube in a Frame Clamp assembly that is permanently attached to the wheelchair.



Both left and right-hand mounting are possible and the mounted device can be precisely positioned for user accessibility. The device may be quickly detached from the mount. To allow unimpeded access to the user the mount may be lifted up completely out of the Frame Clamp or it may be slightly lifted and swung to the side. All common wheelchair frame tube sizes, shapes and orientations can be accommodated. Variations can be made in the length and shape of the tubes, and in the other parts to adapt the DAESSY Rigid Mount to any wheelchair.

A version of the Rigid Mount with a single right angle bent support is available (DRM1-BT)

**Caution:**

The Rigid Mount can support equipment that is heavy enough to unbalance an unoccupied wheelchair, particularly when the mount is swung aside. The mount should be completely removed or the device detached from the mount before the wheelchair is vacated.

### **1.1.2 DAESSY Rigid Mount ROP Version – DRM1ROP**

The Rigid Mount ROP Version is similar to the standard Rigid Mount (see **1.1.1 DAESSY Rigid Mount – DRM1**). The ROP Version allows for attachment to Tilting Seat Systems and installation beyond 15° from vertical. The Removable Outer Piece and Receiver that allows the mount assembly to be 'locked' in place replace the standard Outer Piece and Index Clamp. Additionally the mount can be quickly removed from the wheelchair. This mount is non-directional and can be attached to either side of the wheelchair with the same components.



**Caution:**

The DAESSY Rigid Mount ROP Version can support equipment that is heavy enough to unbalance an unoccupied wheelchair when the attached device is positioned outside the wheelbase. It is recommended that the device be detached, or the mount be removed from the wheelchair before the wheelchair is vacated.

The DAESSY Rigid Mount ROP Version cannot be swung to the side. The mount must be unlocked and removed for access to the user, or any time the wheelchair is vacated.

### 1.1.3 DAESSY Folding Mount – DFM2

The DAESSY Folding Mount DFM2 is similar to the DAESSY Rigid Mount DRM1 with exception of the connection of the two tubes. The DAESSY Folding Mount incorporates a flexible folding joint that allows the Horizontal Tube to be folded in a two-step motion from its in-use position in front of the user to a storage position beside the wheelchair. The folded configuration of the DFM2 is compact and convenient for storage when not installed on the wheelchair.



**Caution:**

In the folded position the attached device protrudes beyond the side of the wheelchair making it vulnerable to collisions if the wheelchair is moved or driven; the screen of a laptop computer **MUST** be closed prior to folding the mount.

A device that is tilted to allow the user full access when in use may protrude a considerable amount when folded. Whenever the wheelchair is moved with the mount folded, it is recommended that the device be detached from the mount and carried. In some cases use of a Folding Quick Release Base (USBF) will allow the device to be folded to a more protected configuration when stored beside the wheelchair. **1.5 Attachment of Devices to DAESSY – The Quick Release System** contains more information on the USBF.

Rarely does the user have the necessary combination of strength and dexterity to perform the folding operation unaided.

When the mount is folded the unbalancing effect of heavy devices on small wheelchairs is reduced but not eliminated. It is recommended that the device be detached, or the mount be removed from the wheelchair before the wheelchair is vacated.

### 1.1.4 DAESSY Folding Mount ROP Version – DFM2ROP

The DAESSY Folding Mount ROP Version DFM2ROP is functionally identical to the standard DAESSY Folding Mount (see **1.1.3 DAESSY Folding Mount – DFM2**). The ROP Version allows for attachment to Tilting Seat Systems and installation beyond 15° from vertical. The Removable Outer Piece and Receiver that allows the mount assembly to be 'locked' in place replace the standard Outer Piece and Index Clamp and allow the mount to be quickly removed from the wheelchair. This mount is non-directional and can be attached to either side of the wheelchair with the same components.



#### **Caution:**

In the folded position the attached device protrudes beyond the side of the wheelchair making it vulnerable to collisions if the wheelchair is moved or driven; the screen of a laptop computer **MUST** be closed prior to folding the mount.

A device that is tilted to allow the user full access when in use may protrude a considerable amount when folded. Whenever the wheelchair is moved with the mount folded, it is recommended that the device be detached from the mount and carried. In some cases use of a Folding Quick Release Base (USBF) will allow the device to be folded to a more protected configuration when stored beside the wheelchair. **1.5 Attachment of Devices to DAESSY – The Quick Release System** contains more information on the USBF.

Rarely does the user have the necessary combination of strength and dexterity to perform the folding operation unaided.

When the mount is folded the unbalancing effect of heavy devices on small wheelchairs is reduced but not eliminated. It is recommended that the device be detached, or the mount be removed from the wheelchair before the wheelchair is vacated.

### **1.1.5 DAESSY Locking Swing Away Mount – DLSA7**

The DAESSY Locking Swing-Away Mount DLSA7 consists of a single tube, bent at a right angle, supported in a Frame Clamp assembly that allows the mount to be swung away from the user in a similar motion to a swinging gate. A Locking Mechanism located at the DAESSY Locking Swing Away Outer Piece (LSAOP) and operated by a Release Cable running underneath the mounted device along the Horizontal Tube, controls the Locking Pin that enables the swing-away action. In some applications the mount may be swung completely around and locked beside the wheelchair to allow the user to approach a desk or table. The device can be readily detached from the mount and the DAESSY Locking Swing-Away Mount is easily lifted completely out of the Frame Clamp assembly. **The DAESSY Locking Swing-Away Mount is not suitable for use with a tilting seat system.**



**Caution:**

When the DAESSY Locking Swing-Away Mount is swung away the device is located outside the footprint of the wheelchair, which makes it vulnerable to collision if the wheelchair is moved or driven.

In the swung away position the weight of the device may unbalance an unoccupied lightweight wheelchair. When used on this type of wheelchair the mount should be removed or the device detached before the chair is vacated.

The DAESSY Locking Swing-Away Mount may not be an appropriate choice for scanning and head-pointer applications or for use on a very small wheelchair.

**The DAESSY Locking Swing-Away Mount is not suitable for use with a tilting seat system.**

### **1.1.6 DAESSY Rear Folding Mount – DRFM6**

The DAESSY Rear Folding Mount (DRFM6) allows a device to be folded away behind the backrest of the wheelchair when not needed. Unlike other DAESSY mounting assemblies the DAESSY Rear Folding Mount is permanently attached to the wheelchair part way down the side and cannot be lifted out of its Frame Clamp assembly. In some situations the DRFM6 can be adapted to be easily removable from the wheelchair by purchasing and installing additional components.



Two flexible joints, one located at the attachment to the wheelchair and the other between the two tubes permit a three-step rearward folding sequence. When the device is in use the joint between the tubes forms a right angle with one tube horizontal across the wheelchair and the other leaning forward from the attachment point on the wheelchair frame. The first step in the folding sequence lifts the Horizontal Tube, with the device attached or removed, forward and up away from the user until the two tubes form a straight line; both tubes then swing rearward with the movement at the attachment point; and finally the Horizontal Tube is lowered in behind the backrest of the wheelchair.

#### **Caution:**

The DAESSY Rear Folding Mount is suitable only for power wheelchairs. The DAESSY Rear Folding Mount DRFM6 is not suitable for use with a tilting seat system; refer to **1.1.7 DAESSY Lockable Rear Folding Mount – DLRFM8**.

The extended position of the Horizontal Tube during the folding sequence forms a long 'lever-arm' and the device must be guided through the entire rearward or forward motion and not permitted to drop suddenly onto the stops.

The user cannot perform the complete rear folding sequence: Assistance is essential. As the Side Tube passes down the side of the wheelchair during the folding action care must be taken that the user keeps their arm or hand clear.

Large devices may protrude behind the wheelchair when folded and may pass very close to the user during the folding sequence if they are mounted at an angle to provide user access in-use. In some cases use of a Folding Quick Release Base (USBF) will allow the device to be folded to a more protected configuration when stored behind the wheelchair. **1.5 Attachment of Devices to DAESSY – The Quick Release System** contains more information on the USBF.

A separate component may be obtained to make the Rear Folding Mount from the wheelchair; the Removable Inner Piece Assembly (RFCI-RFCR) is inserted within the Frame Clamp assembly to allow easy removal of the outer portion of the Frame Clamp assembly and attached mount. See **1.3 Attaching and Positioning DAESSY – Frame Clamps**.

### 1.1.7 DAESSY Lockable Rear Folding Mount – DLRFM8

The DAESSY Lockable Rear Folding Mount DLRFM8 functions in the same way as the Rear Folding Mount (1.1.6 **DAESSY Rear Folding Mount – DRFM6**) with the added feature of a Lock Mechanism to hold the mount in place while in use. The Lock Mechanism allows this mount assembly to be used on a wheelchair with a tilting seat system; special considerations must be made see **1.2 Mounting DAESSY on Tilting Seat Systems**



Unlike other DAESSY mounting assemblies the DAESSY Lockable Rear Folding Mount is directional and the attachment side of the wheelchair must be specified at time of order to receive the correct Lock Mechanism.

**Caution:**

The Lockable Rear Folding Mount is suitable only for power wheelchairs.

The user cannot perform the complete rear folding sequence assistance is essential.

The Lock Mechanism must be unlocked prior to folding and relocked when brought to the front.

The extended position of the Horizontal Tube during the folding sequence forms a long 'lever-arm' and the device must be guided through the entire rearward or forward motion and not permitted to drop suddenly onto the stops.

As the Side Tube passes down the side of the wheelchair during the folding action care must be taken that the user keeps their arm or hand clear.

Large devices may protrude behind the wheelchair when folded and may pass very close to the user during the folding sequence if they are mounted at an angle to provide user access in-use. In some cases use of a Folding Quick Release Base (USBF) will allow the device to be folded to a more protected configuration when stored behind the wheelchair. **1.5 Attachment of Devices to DAESSY – The Quick Release System** contains more information on the USBF.

A separate component may be obtained to make the DAESSY Lockable Rear Folding Mount removable from the wheelchair; the Removable Inner Piece Assembly (RFCI-RFCR) is inserted within the Frame Clamp assembly to allow easy removal of the outer portion of the Frame Clamp assembly and attached mount. See **1.3 Attaching and Positioning DAESSY – Frame Clamps**.

### **1.1.8 DAESSY Desk Mount – DM**

The DAESSY Desk Mount is most commonly used in conjunction with one of the DAESSY wheelchair mounting assemblies and allows a device to be positioned on a desk or table at the precisely the same orientation as it is on the wheelchair. The Desk Mount consists of a base and a U-shaped tube that holds the quick release fitting for the device adapter or holder.



**Caution:**

With large devices it is important that the device is positioned above the area of the base to reduce any tendency for tipping. The Desk Mount may slide on smooth surfaces when the keyboard or touch screen is directly accessed.

### **1.1.9 DAESSY Clamp Desk Mount – DMC**

A variation on the standard Desk Mount the Clamp Desk Mount is provided with an attachment to fit the Manfrotto Super Clamp that can be attached to a table, desk or tray edge almost anywhere. The surface to which the mount is clamped must be between 1/2 " and 2" thickness. The device can be precisely positioned at any angle and is easily moved.



**Caution:**

With large devices it is important to ensure the surface to which the Manfrotto Super Clamp is fastened has sufficient strength to support the weight.

Care must be taken to ensure the Manfrotto Super Clamp is properly installed prior to attaching the Clamp Desk Mount and device.



## **1.2 Mounting DAESSY on Tilting Seat Systems**

### **1.2.1 DAESSY Rigid Mount – DRM1**

The DAESSY Rigid Mount can be used on a tilting seat system up to a moderate angle of tilt. When the mount is to be tilted rearward beyond 15° from vertical it is possible to install the Vertical Tube tilting forward up to 10° when the seat system is in the upright position and this reduces the maximum rearward tilt the mount undergoes. However, when tilted from vertical, particularly beyond 25°, the security of the Index Pin that prevents the rotating of the Vertical Tube in the Frame Clamp Outer Piece is reduced and the increased load on the Index Pin will lead to premature wear and elongation of the Index Clamp hole. The DAESSY Rigid Mount ROP Version is preferred for mounting on a tilt system with significant angle change.

### **1.2.2 DAESSY Rigid Mount ROP Version – DRM1ROP**

The Removable Outer Piece and Receiver of the DAESSY Rigid Mount ROP Version allow the mount to be locked onto the wheelchair and provide a secure attachment for mounting on a tilting seat system.

### **1.2.3 DAESSY Folding Mount – DFM2**

The DAESSY Folding Mount can be used on a tilting seat system up to a moderate angle of tilt. When the mount is to be tilted beyond 15° from vertical the security of the Index Pin that prevents the rotating of the Vertical Tube in the Frame Clamp Outer Piece is reduced and the increased load on the Index Pin will lead to premature wear and elongation of the Index Clamp hole. The DAESSY Folding Mount ROP Version is preferred for mounting on a tilt system.

### **1.2.4 DAESSY Folding Mount ROP Version – DFM2ROP**

The Removable Outer Piece and Receiver of the DAESSY Folding Mount ROP Version allow the mount to be locked onto the wheelchair and provide a secure attachment for mounting on a tilting seat system.

### **1.2.5 DAESSY Locking Swing Away Mount – DLSA7**

The DAESSY Locking Swing Away Mount is not appropriate for mounting on a tilting seat system. The DAESSY Locking Swing Away Mount must be installed truly vertical and remain vertical at all times during use.

### **1.2.6 DAESSY Rear Folding Mount – DRFM6**

The DAESSY Rear Folding Mount is not appropriate for mounting on a tilting seat system. Refer to the DAESSY Lockable Rear Folding Mount for mounting a similar assembly on a tilting seat system.

### **1.2.7 DAESSY Lockable Rear Folding Mount – DLRFM8**

The DAESSY Lockable Rear Folding Mount may be used on a power wheelchair with a tilting seat system. With the mount locked in the forward position the stability of the mount is not affected when the seat system is tilted and it is not likely the mount and device will interfere with anything when tilted. However, when the mount is folded to the rearward position it is possible that there will be interference with the mount when the seat system is tilted and this **MUST** be considered when fitting the mount. Sufficient room behind the backrest must remain in the tilted and upright position of the seat.



## 1.3 Attaching and Positioning DAESSY – Frame Clamps

All DAESSY mounts are attached to the wheelchair with a multi-part component called the Frame Clamp. A Frame Clamp consists of an Inner Piece that bolts to the wheelchair frame in a suitable location, and an Outer Piece that supports the Vertical Tube of the mount.

The Frame Clamp Inner Piece is available in a variety of sizes and shapes to suit the tubing of many styles of wheelchairs. When no tubing is available it may be possible to use Bolt-on Adapter to bolt to another location of the seat frame.

The style of the Frame Clamp Outer Piece is determined by the choice of mounting assembly. Frame Clamp Outer Pieces fall into three general categories: Standard, Rear Folding, and ROP.

Frame Clamp components are connected together with Swivel Clamps. The Swivel Clamp allows the components to be connected firmly to each other in any orientation. Circular grooves are machined into the matching faces of Frame Clamp components.

The term 'inner' is used to refer to a direction closer towards the wheelchair, while the term 'outer' is used to refer to a direction farther away from the wheelchair.

Although the most obvious application of DAESSY mounts is to wheelchairs, Frame Clamps can be affixed to any surface or support structure. **1.8 DAESSY for Non-Wheelchair Applications** provides more information.

### 1.3.1 Frame Clamp Inner Piece Styles

The Frame Clamp Inner Pieces are manufactured to precise sizes to fit a wide range of wheelchair tubing styles – round, rectangular and elliptical. Frame Clamps must be installed on the tube size for which they are designed.

#### **Standard Frame Clamp Inner Pieces**

Standard Frame Clamp Inner Pieces (UFCxxxxIP) consist of a Cap and Body that fit around the selected location of the wheelchair frame and are secured together with two bolts. The Cap is drilled with two countersunk unthreaded boltholes. The Body has two threaded boltholes and an axial hole that holds the threaded half of a Swivel Clamp. The outer face of the Frame Clamp Inner Piece is machined with circular grooves.

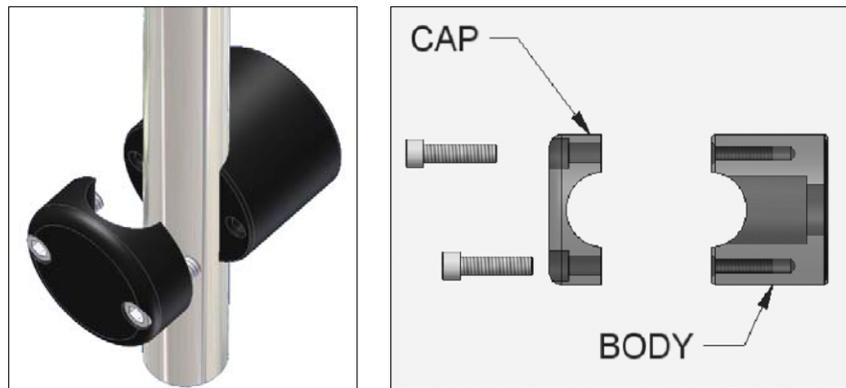


Figure 1.3-1 Standard Frame Clamp Inner Pieces have a cap and body that fit around a wide range of wheelchair tubing styles. The Cap is secured with two 3/16" socket head bolts.

The selected location where the Frame Clamp Inner Piece will be attached should be accessible from both the outside and the inside of the wheelchair frame. About 2" to 2 1/2" of wheelchair frame tubing must be clear for attachment of the Frame Clamp.

#### **Common Round Sizes**

Common sizes of round tubing found on wheelchair frames are listed below, along with the part code for the Standard Frame Clamp Inner Piece that will fit.



Figure 1.3-2 The Standard Frame Clamp Inner Pieces for round tube.

| Common Round Sizes of Frame Clamp Inner Pieces |  |
|--|--|
| Wheelchair tube diameter                       | Frame Clamp Inner Piece - Standard Part Code |
| 7/8"   | UFC875IP                                     |
| 1"   | UFC1000IP                                    |
| 1 1/8"   | UFC1125IP                                    |
| 1 1/4"   | UFC1250IP                                    |
| 1 1/2"   | UFC1500IP                                    |
| 2"   | UFC2000IP                                    |
| 1" with only 1 1/4" clear length               | UFC1000IPMOD                                 |

The UFC1000IPMOD is a modified version of the 1" Frame Clamp Inner Piece available for situations when less than three inches of wheelchair frame tubing are clear for attachment. The Modified 1" Round Frame Clamp Inner Piece requires only 1 1/4" clear length of wheelchair frame tubing.



Figure 1.3-3  
UFC1000IPMOD

## Inner Piece Adapter



The Inner Piece Adapter (IPA) is a DAESSY component that can be bolted to any flat surface with two 1/4" holes exactly 1 1/2" apart. The outer face of the Inner Piece Adapter is machined with circular grooves that interface with the outer components of the Frame Clamp Assembly. The IPA is an extremely versatile component that is used in numerous ways to solve difficult mounting applications.

Figure 1.3-4 The Inner Piece Adapter (IPA) bolts to any flat surface to provide an attachment point for a mount assembly.

## Side Mount Frame Clamp Inner Pieces

When a seat pan restricts access to the upper edge of the wheelchair frame tubing, it may be possible to use a Side Mount Frame Clamp Inner Piece, which requires no clearance on the topside of the tube and only 1 1/4" clearance on the bottom side. Side Mount Frame Clamps consist of an unthreaded Cap and a threaded Body, which are often silver in colour, and an Inner Piece Adapter that is black. The Side Mount Cap and Side Mount Body each have a cutout, or 'jaw', which seats on the wheelchair frame. This cutout is offset from the axis center of the Side Mount Inner Piece, requiring no clearance on the topside of the wheelchair tubing.



Figure 1.3-5 A Side Mount Frame Clamp Inner Piece requires less clearance on the tubing than a Standard Inner Piece.

There are two styles of Side Mount Inner Pieces. The standard style, UFCxxxSMIP, has a Side Mount Cap and Side Mount Body held together with three bolts that can only be accessed from the interior of the wheelchair frame. An Inner Piece Adapter bolts to the Side Mount Body to provide an interface with the outer components of the Frame Clamp Assembly. If the interior of the wheelchair is not accessible a Front Side Mount Inner Piece (xxxxFSMIP) is available.

The Front Side Mount Body is deeper than the Front Side Mount Cap and is drilled with three counter-sunk unthreaded holes and two threaded holes. To install the Front Side Mount Inner Piece the Inner Piece Adapter (IPA) must first be removed from the Front Side Mount Body. The Front Side Mount Body is bolted to the Front Side Mount Cap around the wheelchair frame tubing using three bolts in the centrally aligned boltholes. The IPA is then re-installed to provide an interface with the outer components of the Frame Clamp Assembly, see Figure 1.3-6. The IPA retains a threaded half of a Swivel Clamp – care must be taken that this piece is not lost or neglected when re-installing the IPA.

Side Mount Frame Clamp Inner Pieces are also available to fit elliptical tubing. Adapter sleeves may not be used in Side Mount or Front Side Mount Inner Pieces.

| <b>Side Mount Frame Clamp Inner Pieces</b> |                               |                                     |
|--|-------------------------------|-------------------------------------|
| <b>Wheelchair tube Diameter</b>            | <b>Side Mount Inner Piece</b> | <b>Front Side Mount Inner Piece</b> |
| 7/8"                                       | UFC875SMIP                    | 875FSMIP                            |
| 1"   | UFC1000SMIP                   | 1000FSMIP                           |
| Elliptical                                 | UFCOVSMIP                     |                                     |

**Installation Note:**

When installing a DAESSY Mount using a Front Side Mount Inner Piece it may be necessary to loosely assemble the entire Frame Clamp Assembly so that the mount can be properly aligned, then disassemble the components to access the Inner Piece bolts for final tightening.



Figure 1.3-6 1000FSMIP – Front Side Mount Inner Piece

**Square or Rectangular Sizes**

Common sizes of square and rectangular tubing found on wheelchair frames are listed below, along with the part code for the Standard Frame Clamp Inner Piece that will fit.

| <b>Square or Rectangular Frame Clamp Inner Pieces</b> |  |
|---|--|
| <b>Wheelchair tube dimensions</b>                     | <b>Frame Clamp Inner Piece Part Code</b> |
| 1" x 1"   | UFC1000SIP                               |
| 3/4" x 1 1/2"   | UFCRTIP                                  |
| 1 3/8" x 2 1/4"                                       | UFCSTIP                                  |
| Variable 1"-3" x 1"-3"                                | UFCMFIP (for assessment only)            |



Figure 1.3-8  
UFC1000SIP fits 1" square tubing.



Figure 1.3-9  
UFCSTIP fits 1 3/8"x 2  
1/4" rectangular tubing



Figure 1.3-10 UFCRTIP for  
3/4" x 1 1/2" rectangular tubing



Figure 1.3-11 UFCMFIP for  
assessment on rectangular tubes 1"  
to 3" in either dimension

The Frame Clamp Inner Piece Multiple Fit (UFCMFIP) is a four-piece assessment tool that will fit a wide range of square or rectangular tubing from 1" to 3" in either dimension.

The UFCMFIP cannot be used on wedge shaped or round tubing. It is very important that the bolts in the Multiple Fit Inner Piece are screwed in at least 8 turns before they pull tight, however the bolt ends must not touch the bottom of the threaded holes. Different lengths of bolts will be needed to span the full size range of the UFCMFIP. The bolts must be tightened evenly. The UFCMFIP is not intended for permanent installation with a mounting assembly and is best used only for assessment purposes.

## Adapter Sleeves

Round tubing sizes between any Standard sizes or below 7/8" diameter are fitted using Adapter Sleeves. Rectangular and Square sizes between Standard sizes, and some non-Standard tube shapes are fitted using Adapter Sleeves.

The available Standard sizes of round Adapter Sleeves are:

- 7/8 inch to 3/4 inch
- 1 inch to 3/4 inch
- 1 inch to 7/8 inch
- 1 1/2 inch to 1 1/8 inch
  
- 1 1/2 inch to 1 1/4 inch;



Figure 1.3-12 Adapter Sleeves are used to fit non-standard tube sizes

Right-angle Adapter Sleeves for use on square and rectangular tubes are available in the following Standard sizes:

- 1 inch to 7/8 inch
- 1 inch to 3/4 inch
- 1 3/8 x 2 1/4 inch to 1 x 2 inch
- 1 3/8 x 2 1/4 inch to oval (S-525/PWR9000)

Adapter Sleeves are available in custom sizes on special order. Contact Daedalus Technologies, Inc., for more information.

Adapter sleeves may not be used in Side Mount or Front Side Mount Inner Pieces, or with certain wheelchair model specific Frame Clamp Inner Pieces.

## Bolt-on Adapters

Some wheelchairs do not have tubing onto which a Frame Clamp Inner Piece can be attached. When the wheelchair has boltholes pre-drilled through the frame a Bolt-on Adapter can be used. The wheelchair frame can be square or round.

Standard Bolt-on Adapters are listed below.

| Standard Bolt-on Adapter  | Part Code |
|---|-----------|
| Multi-hole 3" Bolt-on Adapter with Inner Piece Adapter            | MH3/IPA   |
| Multi-hole 3" Round Tube Bolt-on Adapter with Inner Piece Adapter | MH3R/IPA  |
| Centre Multi-hole 3" Adapter with Inner Piece Adapter             | CM3/IPA   |

Both the Multi-hole 3" Bolt-on Adapter and the Multi-hole 3" Round Tube Bolt-on Adapter have a row of seven countersunk unthreaded holes for attachment to a variety of different wheelchairs. The seven boltholes are spaced 1/2" centre to centre with a distance of 3" from the first to the last hole. The Inner Piece Adapter (IPA) can be affixed wherever necessary on the MH3 Adapter along the two rows of threaded boltholes. The CM3/IPA has the unthreaded countersunk holes in the centre row of the array.

### Caution:

If the wheelchair frame tubing to which the Multi-hole Adapter will be bolted is round, the Round Tube Adapters (RTA) **must** be used.

In situations where a Standard Bolt-on Adapter cannot be used a custom Bolt-on Adapter can often be made, contact Daedalus Technologies, Inc for information.

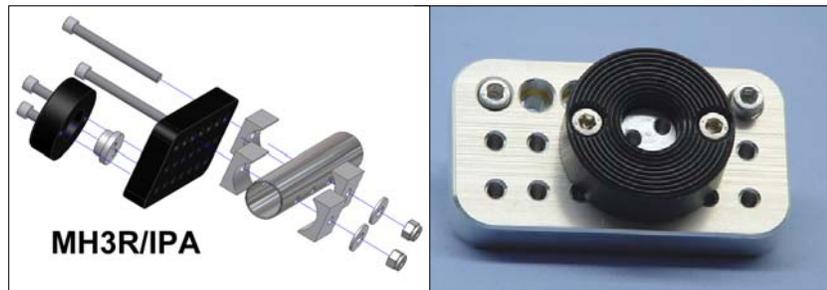


Figure 1.3-13 The Multi-hole 3" Bolt-on Adapter can be used on many chairs that do not have accessible frame tubing.

### **1.3.2 Selecting the Attachment Location for the Frame Clamp Inner Piece**

All DAESSY mounting assemblies can be mounted on either the left or right side of a wheelchair as defined from the position of the person seated in the wheelchair. With the exception of the DAESSY Lockable Rear Folding Mount DLRFM8 the parts comprising each mount may be mounted on either side of the wheelchair. The Lock Mechanism of the DLRFM8 is specific to either the right or left side of the wheelchair from the User's point-of-view, and this side must be specified at the time of order.

#### ***On a non-Tilting Seat System***

The Frame Clamp Inner Piece (UFCxxxxIP) requires slightly more than two inches of length and three-quarter inches of space above and below the wheelchair frame tube to which it will be clamped. There should be sufficient room for a hand to reach behind the tube to tighten bolts. It does not matter how the wheelchair frame tube is oriented because the Swivel Clamps allow the Offset Links and Rear Folding Adapter to be rotated to any angle relative to the Frame Clamp Inner Piece.

#### **Caution:**

The selected location must be part of the wheelchair frame, not a removable armrest or footrest



Figure 1.3-17 Example Frame Clamp attachments to parts of the wheelchair frame. A Frame Clamp Outer Piece is connected directly to the Inner Piece in each case. A Swivel Clamp allows the Outer Piece to be oriented vertically independent of the angle of the Inner Piece.

Often the best location for the Frame Clamp assembly will be near the front caster wheel but preferably not above it. The Vertical Tube for the mount protrudes down through the hole in the Frame Clamp Outer Piece and the range of height adjustment for the mount may be limited if the tube interferes with the caster wheel.

In most situations the Frame Clamp Inner Piece will be located forward or backward from the position for the mounted device and the Vertical Tube supported by the Frame Clamp Outer Piece will have an S-bend.

## ***On a Tilting Seat System***

On a wheelchair with a tilting seat system, the mounting assembly should be attached to the tilting seat to maintain positioning of the device relative to the user, independent of the configuration of the wheelchair. On tilting seat systems it is strongly recommended that a Removable Frame Clamp be used.



Figure 1.3-18 Example Frame Clamp attachment to a tilting seat system. The Multi-hole 3: Adapter is bolted through holes in the seat frame. A Removable Frame Clamp Receiver is attached to the Inner Piece Adapter.

## ***Obstructions***

Obstructions directly above the selected location, such as the brake lever or other controls that are closer than 10 inches, may interfere with insertion and removal of the Vertical Tube. To avoid this interference it may be necessary to use an Offset Link (O3L) or a Frame Clamp Spacer (UFCSPCR) between the Inner and Outer Piece of the Frame Clamp to move the Outer Piece further out or position it sideways from the location of the Inner Piece.

## ***Quick Check***

A quick check for a suitable location for the Frame Clamp Inner Piece is to find a part of the frame tube which has enough space to be gripped by three fingers when reaching from inside the wheelchair frame.

Figure 1.3-19 A Quick Check for room.



## ***Unusual Situations***

Some wheelchairs do not have any tubing freely accessible on the frame or may not have a tube frame. When a seat pan restricts access to the upper edge of the wheelchair frame tubing, it may be possible to use a Side Mount Frame Clamp Inner Piece, which requires no clearance on the topside of the tube and only 1 1/4" clearance on the bottomside.

When the wheelchair does not have a tube frame it may have boltholes or other possible attachment methods in a suitable location. In some cases an adapter may be substituted for the Inner Piece, see **1.3.1 Frame Clamp Inner Piece Styles** for options of Bolt-on Adapters.

### 1.3.3 Measuring and Specifying the size of Frame Clamp Inner Piece DAESSY Gauge



Figure 1.3-20 The ruler edge of the DAESSY Gauge can be used to measure the size of square or rectangular tubing. The calibrated semi-circular cutouts are fitted over round tubing to determine the diameter in inches.

The DAESSY Gauge is a specially designed tool provided with DAESSY Assessment Kits. The calibrated semi-circular cutouts along three edges of the DAESSY Gauge can be used to quickly determine the diameter of wheelchair tubing. A five-inch ruler with 1/8" gradations can be used to measure the dimensions of rectangular or square tubing.

#### **Other Measurement Methods**

##### **Measuring the Tube Size – Round**

The preferred method for measuring the exact size of round wheelchair frame tubing is to use a micrometer or dial caliper to directly measure the diameter.

If these instruments are not available an alternative method is to measure the circumference of the tube. A thin strip of paper, a pencil, and a straight ruler marked in inches are the required tools. Wrap the strip of paper around the tube so that it overlaps slightly. Draw a line across the edge of the paper to put a mark on both the inner and outer wrap. Unwrap the strip of paper from the tube and using the ruler

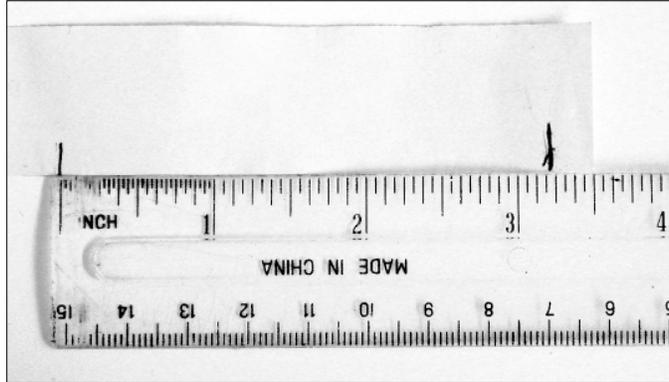
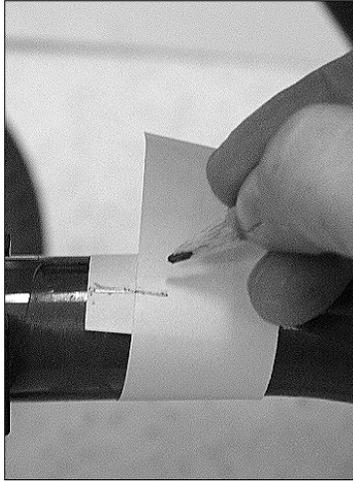


Figure 1.3-21 The paper-pencil-and-ruler method of determining the wheelchair frame tubing diameter. The distance between the two pencil marks is close to 3 3/16". Referring to the table below, a circumference of 3 3/16" indicates a diameter of 1".

measure the distance between the two pencil marks – this is the circumference of the round tube. The measured circumference can be converted to the corresponding diameter measurement using the following table.

| Circumference                       | Diameter | Correct Frame Clamp Size     |
|-------------------------------------|----------|------------------------------|
| 2.36" – slightly less than 2 3/8"   | 3/4"     | UFC750IP (or UFC1000IP+SLV)  |
| 2.75" – exactly 2 3/4"              | 7/8"     | UFC875IP                     |
| 3.14" – slightly less than 3 3/16"  | 1"       | UFC1000IP                    |
| 3.53" – slightly more than 3 1/2"   | 1 1/8"   | UFC1125IP (or UFC1500IP+SLV) |
| 3.93" – slightly less than 3 15/16" | 1 1/4"   | UFC1250IP (or UFC1500IP+SLV) |
| 4.71" – slightly less than 4 3/4"   | 1 1/2"   | UFC1500IP                    |
| 6.28" – slightly more than 6 1/4"   | 2"       | UFC2000IP                    |

### Measuring the Tube Size – Square or Rectangular

The dimensions of square or rectangular tube can be measured with a good ruler; normally the square tube will have square corners and the ruler can be held accurately against the tube. It is unusual to find any sizes other than 3/4 inch, 7/8 inch, 1 inch, or 1-1/2 inch.

Some wheelchairs have what appears to be rectangular tube, but is actually an aluminium extrusion. These nearly rectangular shapes are more difficult to measure particularly when the corners or sides are rounded and it is almost essential to use a proper measuring instrument such as dial callipers. The circumference measurement is not useful for square or rectangular tube. Refer to Section 1.3.1 to convert the measured rectangular dimensions to a Frame Clamp part code.

### 1.3.4 Frame Clamp Outer Pieces

The Frame Clamp Outer Piece supports the Vertical or Side Tube of a DAESSY Mounting Assembly. The style of the Frame Clamp Outer Piece is determined by the choice of mounting assembly. Frame Clamp Outer Pieces fall into three general categories: Standard, Rear Folding, and ROP. In addition to the Outer Piece, some mounts will require a complementary Index Clamp that controls the position of the Vertical Tube.

#### **Standard Outer Pieces for Standard Mounts**

##### **Frame Clamp Outer Piece (UFCOP) and Index Clamp (IC1)**

The Frame Clamp Outer Piece (UFCOP) used with the DAESSY Rigid Mount (DRM1) and the DAESSY Folding Mount (DFM2) has one face machined with circular grooves to complement a Frame Clamp Inner Piece. An axial hole provides access to the Swivel Clamp holding the UFCOP to inner components of the Frame Clamp Assembly. A diametric hole through the UFCOP hold the Vertical Tube. Adjacent to the Vertical Tube hole is an Index Pin that fits in any of the holes in the Index Clamp IC1 to prevent the Vertical Tube rotating. The three holes in the Index Clamp allow the DAESSY Rigid Mount (DRM1) to be lifted slightly up, rotated away from the user and re-set in a position that allows access to the user.



Figure 1.3-22 The standard Frame Clamp Outer Piece (UFCOP – two views) and Index Clamp (IC1) are used with the DAESSY Rigid Mount and DAESSY Folding Mount. Note the three index holes in the underside of the IC1 which receive the index pin of the UFCOP

##### **Locking Swing-Away Outer Piece (LSAOP) and Index Clamp (ICLSA)**

The Locking Swing-Away Outer Piece (LSAOP) has a hole for the Vertical Tube of the mount and three holes with tapered plastic inserts for the Locking Pin of the Locking Swing-Away Index Clamp (ICLSA). A face on the side of the LSAOP is machined with circular grooves to attach to the OP end of an Offset Link (O3L).



Figure 1.3-23 The Locking Swing-Away Outer Piece (LSAOP) and Index Clamp (ICLSA). The spring loaded lock pin seats in one of the three index holes in the top surface of the LSAOP.

The threaded end of a Swivel Clamp is retained in the center of the grooved face. The Locking Pin of the ICLSA, when located into any of the holes of the Locking Swing-Away Outer Piece, prevents the Vertical Tube rotating. The Cable Release disengages the Locking Pin to permit the mount to be swung away.

### Rear Folding Adapter and Tube Mount (RFA+RTHTM)

The Side Tube of the DAESSY Rear Folding Mount is held in a Tube Mount (RTHTM) bolted to the outer side of the Rear Folding Adapter (RFA). The inner side of the RFA is machined with circular grooves to mate with the inner components of the Frame Clamp Assembly, and a central hole to hold the unthreaded end of a Swivel Clamp. In a standard configuration the Side Tube is permanently attached to the wheelchair.



Figure 1.3-24 The Rear Folding Adapter with Tube Mount (RFA+RTHTM) supports the Side Tube of the DAESSY Rear Folding Mount. The grooved face mates with the inner components of the Frame Clamp assembly.

### Lockable Rear Folding Adapter and Tube Mount with Offset Link and Lock Mechanism (LRFA+RTHTM+O3L (L/R))

The Side Tube of the DAESSY Lockable Rear Folding Mount is held in a Tube Mount (RTHTM) bolted to the outer side of the Locking Rear Folding Adapter (LRFA). The inner side of the LRFA is machined with circular grooves to mate with an Offset Link (O3L), or with other Frame Clamp components. Two threaded boltholes in the center of the grooved face receive the bolts of the Swivel Clamp connecting the LRFA to the inner components of the Frame Clamp Assembly; usually an Offset Link is installed here. A blue Lock Mechanism on the upper end of the LRFA locks the Side Tube in place so that it cannot rotate at the LRFA. In a standard configuration the Side Tube is permanently attached to the wheelchair.



Figure 1.3-25 The Lockable Rear Folding Adapter is shown with one attached Offset Link. Both left and right Lock Mechanisms are shown, only one will be used in a mounting assembly.

## Removable Outer Pieces

Removable Outer Pieces perform two functions: Adaptation for use on tilting seat systems, and easy removal from the wheelchair. Removable Outer Piece versions are available for all DAESSY Mounting Assemblies except the DAESSY Locking Swing-Away Mount (DLSA7).

### Removable Outer Piece and Receiver (ROP-RFCR)

The Removable Outer Piece and Receiver (ROP-RFCR) replace the Frame Clamp Outer Piece (UFCOP) and Index Clamp (IC1) in supporting the Vertical Tube on the DAESSY Rigid Mount ROP Version (DRM1ROP) and DAESSY Folding Mount ROP Version (DFM2ROP).

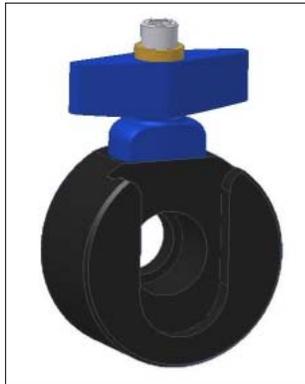


Figure 1.3-26 The Removable Frame Clamp Receiver (RFCR) connects to the Inner Piece of the Frame Clamp

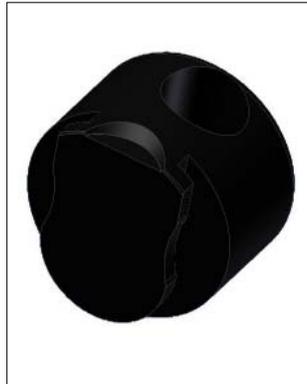


Figure 1.3-27 The Removable Outer Piece supports the Vertical Tube of the DRM1ROP and DFM2ROP



Figure 1.3-28 When the ROP is locked securely in the RFCR the mount may be used on a tilting seat system.

One face of the Removable Frame Clamp Receiver (RFCR) is machined with circular grooves to match with the inner components of the Frame Clamp Assembly. An axial hole through the RFCR holds the unthreaded end of a Swivel Clamp. A blue Locking Knob used to secure the Removable Outer Piece (ROP). The Removable Frame Clamp Receiver may be positioned on any angle; it is not necessary for the Locking Knob to be on the topside of the Frame Clamp. The Removable Outer Piece (ROP) slides on to the Vertical Tube and provides height adjustment. A slotted face fits into the Removable Frame Clamp Receiver. When installed and locked into position the ROP-RFCR provides a secure attachment for use on tilting seat systems.

The ROP Versions of the DAESSY Rigid Mount and DAESSY Folding Mount cannot be lifted slightly to swing away, and must be removed completely to gain access to the user.

### Removable Frame Clamp Assembly for Rear Folding Mounts (RFCI-RFCR)

The Removable Frame Clamp Assembly (RFCI-RFCR) can be added into the Frame Clamp of a DAESSY Rear Folding Mount DRFM6 or the DAESSY Lockable Rear Folding Mount DLRFM8 to enable easy removal of the mount from the wheelchair. The RFCI and RFCR are additional components and do not replace any of the standard parts.

One face of the Removable Frame Clamp Receiver (RFCR) is machined with circular grooves to match with the inner components of the Frame Clamp Assembly. An axial hole through the RFCR holds the unthreaded end of a Swivel Clamp. A blue Locking Knob used to secure the Removable Frame Clamp Insert (RFCI), which is connected to the inner face of the Rear Folding Adapter (RFA or LRFA). The

Removable Frame Clamp Receiver may be positioned on any angle; it is not necessary for the Locking Knob to be on the topside of the Frame Clamp.

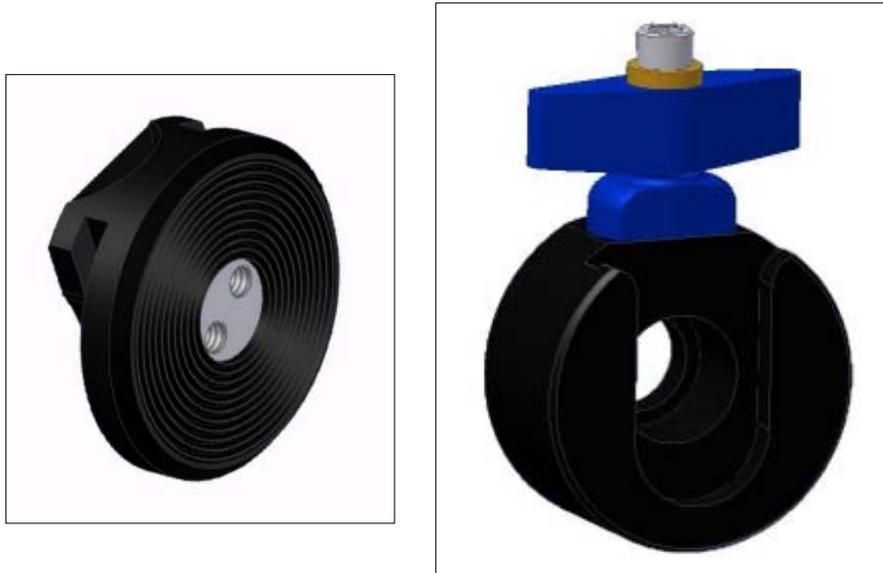


Figure 1.3-29a The Removable Frame Clamp Insert (RFCI) left and the Removable Frame Clamp Receiver (RFCR) right can be added to a DRFM6 or DLRFM8 mounting assembly



Figure 1.3-29b Example of a Frame Clamp Assembly for a DRFM6 installed with an RFCI-RFCR, to allow easy removal from the wheelchair.

Adding the Removable Frame Clamp Assembly to a DRFM6 or DLRFM8 will move the Rear Folding Adapter and Side Tube a further 1 3/4" away from the side of the wheelchair.

### 1.3.5 Connecting Frame Clamp Inner and Outer Pieces

In some straightforward applications of the DAESSY Rigid Mount and DAESSY Folding Mount it will be possible to connect the Frame Clamp Outer Piece (UFCOP) directly to the Frame Clamp Inner Piece (UFCxxxIP) with one Swivel Clamp. However in many situations the Outer Piece will be displaced from the Frame Clamp Inner Piece location. This displacement may be necessary to achieve sufficient clearance for the folding movements of the mount assembly, to avoid interference with other wheelchair fittings, and to position the Outer Piece in the best location for access to the mounted device.

Displacement or offset of the Outer Piece is achieved primarily with Offset Links (O3L) and Frame Clamp Spacers (UFCSPCR). All DAESSY Frame Clamp components are designed for firm attachment with a system of circular grooved faces and Swivel Clamps.

#### **Circular Grooved Faces**

The adjoining faces of all the parts for a Frame Clamp Assembly have circular grooves to give extra friction against movement when assembled. The grooves on an Inner Piece engage with the grooves on an Outer Piece but will not engage with the grooves on another Inner Piece. Offset Links and Frame Clamp Spacers have the letters IP stamped into the metal beside the grooves that attach to the Inner Piece and OP stamped into the metal beside the grooves that attach to the Outer Piece.

#### **Caution:**

All the grooved faces must be correctly matched and engaged before the Swivel Clamp bolts are tightened. When the grooved faces are correctly matched it will be possible to turn the mated components in a circle, but they will not slide across each other at the grooved face.

#### **Swivel Clamps**

Swivel Clamps are used to connect parts of a Frame Clamp Assembly. The unthreaded head end of a Swivel Clamp has two 1/4" holes. The threaded end is also sometimes called the nut end of the Swivel Clamp and is threaded to receive two 1/4" UNC bolts. The standard bolt length provided with a Swivel Clamp is 1". The longer bolts needed to use the Swivel Clamp with a Frame Clamp Spacer (UFCSPCR) are supplied with the spacer. Always use the supplied Swivel Clamp bolts.

The threaded end of the Swivel Clamp should be engaged with a minimum of 4 full turns of each of the two bolts. The ends of the bolts should not protrude appreciably beyond the face of the Swivel Clamp nut end. Bolts should be tightened alternately to achieve the best grip.

In some cases it may be necessary to use the long arm of the 3/16" Allen Key to reach the heads of the Swivel Clamp bolts within the axial hole of the Frame Clamp Outer Piece. A Tommy Bar is provided to extend the short end of the Allen Key to allow sufficient torque to be applied. The Tommy Bar should not be used to extend the long arm of the 3/16" for tightening any bolts.



Figure 1.3-30 The Swivel Clamp consists of an unthreaded head and threaded nut held together with two bolts.

## Offset Links

### Standard Offset Link – O3L



Figure 1.3-31 The Standard Offset Link (O3L).

One Offset Link provides three inches of offset between the location of the Frame Clamp Inner Piece and the position of the Frame Clamp Outer Piece. In most cases the Offset Link can be set at any angle, thus the horizontal distance between the Inner Piece and the Outer Piece may be any measure between zero and 3 inches.

The grooved faces of the O3L are marked IP at one end and OP at the other. When two Offset Links are connected together, the IP end of one is attached to the OP end of the other. Each Offset Link is 1/2" thick and will move the Outer Piece this distance further away from the wheelchair attachment location of the Inner Piece.

One Offset Link is always used in the Frame Clamp Assembly of the Locking Swing Away Mount DLSA7 and provides the only method of front-to-back positioning of this mount and of attachment for the Inner and Outer Pieces. One Offset Link is always used on the Locking Rear Folding Adapter of the Lockable Rear Folding Mount DLRFM8 and provides the only method of attachment to the Frame Clamp Inner Piece. Additional Offset Links may be used with either mount assembly. Offset Links can also be used to obtain the correct position of the Rear Folding Adapter of the DRFM6 or Locking Rear Folding Adapter of the DLRFM8 to allow unobstructed rear folding motion.

### Single Sided Offset Link – O3LS

The Single Sided Offset Link O3LS has the grooves for the Inner and Outer Pieces both on the same side. When the O3LS is used the Inner Piece is attached facing inwards towards the frame of the wheelchair and the Outer Piece is located directly in line with the Inner Piece and does not protrude as far as a standard Frame Clamp Assembly. Single Sided Offset Links may be used with the Lockable Rear Folding Mount DLRFM8 to position of the LRFA closer to the wheelchair.



Figure 1.3-32 The Single Sided Offset Link (O3LS) has grooved faces on only one side. The O3LS can be used to reduce the distance a Frame Clamp Assembly protrudes from the side of the wheelchair

**Caution – Offset Link Angles:**

Offset Links (O3L) and Single Sided Offset Links (O3LS) that display a Serial Number greater than #406000 may be connected at any angle provided the grooved faces are correctly matched and seated.

Any Offset Link or Single Sided Offset Link displaying a Serial Number less than #406000, or displaying no Serial Number, is an older design and is subject to limitations on the connection angle.

Two older design Offset Links must not be connected directly together at an angle less than 135°. An older design Offset Link must not be directly connected to a Rear Folding Adapter (RFA) at an angle less than 135°.

If a Frame Clamp Spacer (UFCSPCR) is installed between two older design Offset Links or between an older design Offset Link and an RFA, the components may be connected at any angle.

**Frame Clamp Spacer – UFCSPCR**



The Frame Clamp Spacer (UFCSPCR) is 3/4 " thick and a maximum of two Frame Clamp Spacers can be used to move an Outer Piece 1 1/2" further away from the wheelchair attachment locations. One side of the Frame Clamp Spacer has grooves to complement an Inner Piece and the other side to complement an Outer Piece. The Frame Clamp Spacer can be used in combination with the Offset Link (O3L).

Figure 1.3-33 The Frame Clamp Spacer (UFCSPCR)

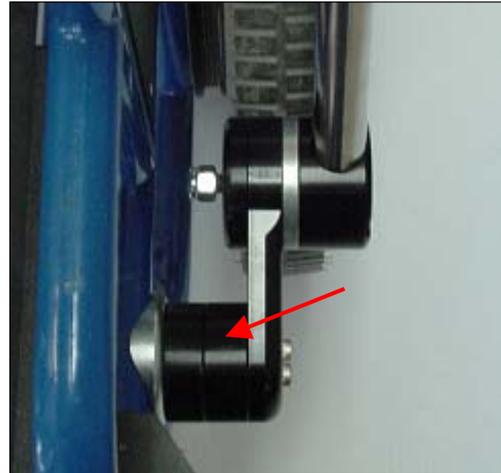


Figure 1.3-34 Examples of Frame Clamp Assemblies which include a Frame Clamp Spacer (UFCSPCR) to increase clearance of the outer components away from the side of the wheelchair.

***Right Angle Frame Clamp Spacer –  
UFC90***

The Right Angle Frame Clamp Spacer UFC90 changes the plane of the Frame Clamp components by 90 degrees. This may be necessary if the only available location for the Frame Clamp Inner Piece is on a cross-tube perpendicular to the side of the wheelchair.



## **1.4 Attaching and Positioning DAESSY – Tube Lengths and Shapes**

### ***Position Adjustment with S-Bend Tube***

The S-Bend Tube is a length of stainless steel tube with closely placed bends that produce an offset between the ends of the tube. The S-Bend Tube is used with the Rigid Mount and the Folding Mount to set the vertical height and front-to back horizontal position of the Horizontal Tube and attached device or laptop. It can also be used to set the sideways position of the connection between the Side Tube and Horizontal Tube when there are obstructions on the wheelchair that the mount has to pass around (for example a lap tray).

### ***Height Adjustment with S-Bend Tube***

The length of the S-Bend Tube and the position of the Index Clamp (IC1) determine the height of the Horizontal Tube on the DAESSY Rigid Mount and the DAESSY Folding Mount with some height adjustment available by changing the vertical position of the Index Clamp along the lower section of the tube. The range of adjustment is limited by the amount of tube that can protrude down through the Frame Clamp Outer Piece without interference with the front caster wheel, floor or other part of the wheelchair.

### ***Front-Back Adjustment with S-Bend Tube***

The S-Bend Tube may be installed with the offset forward or backward to position the Horizontal Tube and attached device ahead, or behind the point of the Frame Clamp Assembly.

### ***Left-Right Adjustment with S-Bend Tube***

The offset bend on the S-Bend Tube can be installed with the upper end closer to or further away from the side of the wheelchair than the lower end. This can allow a mount assembly to come around the edge of a lap tray or similar obstruction without the need to move the Frame Clamp Outer Piece out.

### ***S-Bend Tube on a Rear Folding Mount or Lockable Rear Folding Mount***

The Side Tube of the Rear Folding Mount or Lockable Rear Folding Mount may have an S-bend to move the upper end of the tube out to avoid lap trays or armrests, or to avoid obstructions on the wheelchair that are located between the location of the Rear Folding Adapter or Locking Rear Folding Adapter and the position of the Horizontal Tube at any point within the rear folding motion.

### ***Position matching on two wheelchairs***

When a single mount assembly is used on two different wheelchairs it is often necessary to fit the assembly on one wheelchair using the S-Bend Tube dimensions and then correct any errors in position on the other wheelchair by adjusting the position of the Frame Clamp Outer Piece using an Offset Link.

## **Standard and Custom S-Bend Tubes**

The S-Bend Tube is specified by three (3) measurements **L**, **O**, **S**.

**L** = Overall length

**O** = Offset Distance

**S** = Shortest straight length

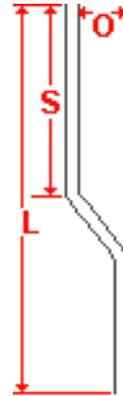
The shortest possible S-Bend Tube overall length **L** is 14".

The minimum S-Bend Tube offset **O** is 3".

The shortest straight length on a S-Bend Tube **S** is 4".

When fitting measurements are provided or when the S-Bend Tube dimensions are specified on an order for the DAESSY Rigid Mount or DAESSY Folding Mount the appropriate custom S-Bend Tube is supplied.

The accuracy of the lengths and bends on custom S-Bend Tubes is  $\pm 3/4$  inches.



### **Caution:**

The ends of the stainless steel tube provided by Daedalus Technologies, Inc. are fully machined and chamfered to minimize sharp edges. Daedalus Technologies, Inc. strongly disapproves of the tube being cut to length by purchasers. Cutting the stainless steel tube by any method produces very sharp and hazardous edges.

## 1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System

The most common method of attaching communication devices or laptop computers on to DAESSY Mounting Assemblies is with the DAESSY Quick Release System. The DAESSY Quick Release System consists of a Quick Release Base mounted to the Horizontal Tube of a mount, and an Adapter, Plate or Device Holder attached to the device or computer. A semi-circular cutout on the bottom face of the Adapter Plate or Holder mates with a machined surface on the Quick Release Base, and is held in place with an adjacent spring-loaded Locking Pin. The Locking Pin has a ring that allows it to be retracted for removing the device. Commonly a mounting application will use the Total Quick Release Base (TUSB), however other Quick Release Bases are available to suit non-standard applications. **1.6 Attachment of Devices to DAESSY Mounts – Adapters and Holders** provides information on the Holders and Adapters available from DAESSY.

**Notice:**

Specific device manufacturers may not use The DAESSY Quick Release System on some mount assemblies supplied, they may be supplied with their device specific quick release mechanism.

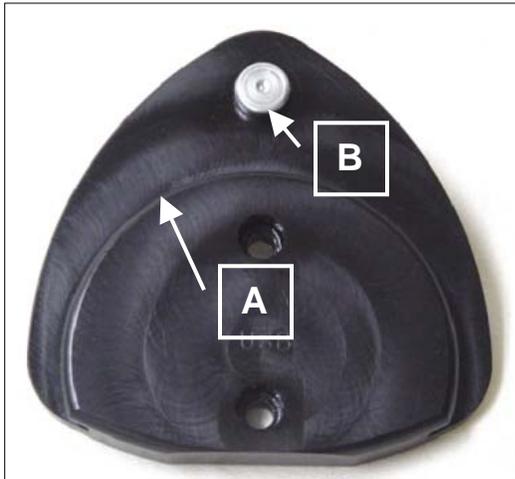


Figure 1.5-1 A Quick Release Base (USB) showing the semi-circular machined surface **A**, and the bottom of the spring-loaded Locking Pin **B**.

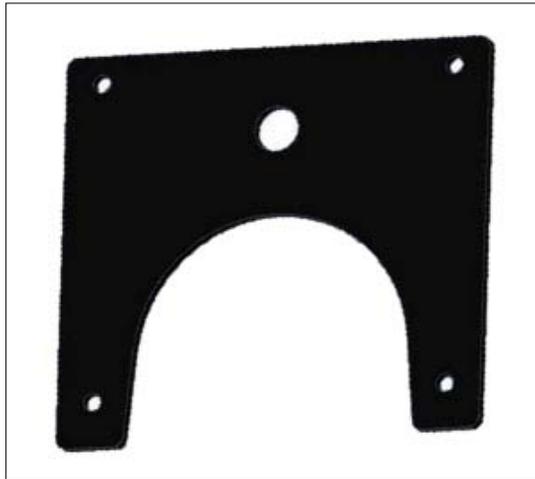


Figure 1.5-2 A Quick Release Plate (QRP1) showing the semicircular cutout to mate with the machined surface **A**, and the Locking Pin hole **B**.

## 1.5.1 Quick Release Bases

The standard Quick Release Base supplied with a mounting assembly is the Total Quick Release Base (TUSB). Other styles of Quick Release Base are available at a commensurate adjustment in price.

### **Standard Attachment – Total Quick Release Base (TUSB)**



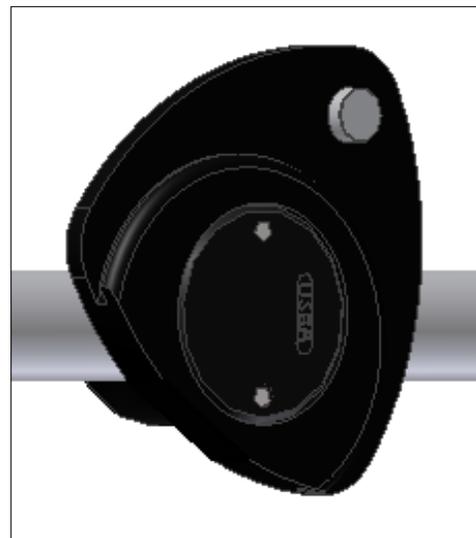
The Total Quick Release Base (TUSB) has an integrated tube mount for attachment to the Horizontal Tube of a mount assembly, or to the Desk Mount (DM). The Total Quick Release Base may be rotated around the Horizontal Tube to tilt the keyboard or key surface of the mounted device.

Figure 1.5-3 The Total Quick Release Base showing the integrated tube mount and Locking Pin. The Pinch Clamp to secure the Horizontal Tube can be seen in the tube hole.

### **Sideways Tilting Quick Release Base (USBA+TMAT)**

This version of the Quick Release Base is attached to a Tube Mount by a collar that allows it to be rotated sideways. Additionally the Tube Mount (TMAT) can be rotated around the Horizontal Tube. When these two motions are combined the device can be tilted toward the user and then sideways to suit a person with a viewing position tilted to the side.

Figure 1.3-4 The Sideways Tilting Quick Release Base adds a second axis of rotational adjustment to the positioning of the device. The device can be tilted sideways to suit a user with a tilted viewing position.



### ***Folding Quick Release Base (USBF)***

The Folding Quick Release Base (USBF) provides real-time adjustment to rotate the Quick Release Base and attached device around the Horizontal Tube with 6 stop positions. A retractable Lock Pin secures the Folding Quick Release Base in each position. In addition to the flexibility the Folding Quick Release Base provides for setting the angle of access to the device while In-Use, the USBF may allow the device to be placed in a more protected and lower profile configuration when the mount is in its folded position.



Figure 1.3-5 The Folding Quick Release Base rotates to 6 stop positions around the Horizontal Tube.

### ***Alternate Attachment***

The flat Quick Release Base (USB) is a flat plate machined with a semi-circular groove to receive a DAESSY Adapter or Holder. Two 1/4" diameter holes are drilled through on an exact 1 1/2" spacing and can be fastened to any flat surface independently (for example a lap tray). When used on a flat surface a hole must be cut for the Locking Pin socket and ring. The ring must be retracted from underneath the surface. The Quick Release Base (USB) may be attached to other components of the mounting system to allow it to be mounted at the top of a Vertical Tube off to one side of the wheelchair, on the cross tube of a walker or to some scooter tiller bars.



Figure 1.3-6 The versatile flat Quick Release Base can be attached to any flat surface, or to other mounting system components with the two 1/4" boltholes. The Locking Pin will require clearance.

## 1.6 Attachment of Devices to DAESSY Mounts – Plates, Adapters and Holders

A plate, adapter or holder holds communication devices and laptop computers that are mounted on DAESSY mounting assemblies. The style of holder or adapter required must be specified separately from the style of mount, and is a separately sold item. Mounting plates and adapters are attached to the device with screws in pre-existing holes. Many devices and laptop computers do not have any location where an adapter can be screwed on, and are instead mounted with a specially designed holder that secures the device with stainless steel clips. All plates, adapters and holders have in common a semi-circular cutout to mate with the Quick Release Base, and a small hole to hold the Quick Release Locking Pin. The QRP1 and MDMT are generic mounting plates that can be used to mount some devices or table surfaces.

### 1.6.1 Specific Device Holders and Adapters

| Device                            | Code                                 | Type             |
|-----------------------------------|--------------------------------------|------------------|
| AlphaSmart                        | <b>ALPHA3</b>                        | Holder           |
| Digicom and Digivox               | <b>DIGIVOX</b>                       | Adapter          |
| Dynamo                            | <b>DMO</b>                           | Adapter          |
| Dynabyte 3100                     | <b>DMTE</b>                          | Holder           |
| Dynawrite                         | <b>DWTE</b>                          | Adapter          |
| Dynavox 3100                      | <b>DYN3100</b>                       | Adapter          |
| Dynavox DV4                       | <b>DYNDV4</b>                        | Adapter          |
| Dynavox MT4                       | <b>DYNMT4</b>                        | Adapter          |
| Easytalk                          | <b>EASYTALK</b>                      | Holder           |
| Enkidu Impact Handheld 900        | <b>ENK900</b>                        | Adapter          |
| Enkidu Impact Tablet              | <b>ENKT</b>                          | Plate            |
| Enkidu Tablet XL                  | <b>ENKTXL</b>                        | Holder           |
| Enkidu Impact Handheld (original) | <b>ENKI</b>                          | Adapter          |
| E-Talk                            | <b>ETALK</b>                         | Adapter          |
| Gemini                            | <b>GEMINI</b>                        | Adapter          |
| iBook Laptop                      | <b>IBOOK (model and shape)</b>       | Holder           |
| PC Laptop                         | <b>LAPTOP (specify measurements)</b> | Holder           |
| Lightwriter                       | <b>LH/TM3T</b>                       | Adapter          |
| Link                              | <b>LMP</b>                           | Plate            |
| Macaw                             | <b>MCWKBT</b>                        | Brackets         |
| Mercury                           | <b>MERC</b>                          | Holder           |
| MessageMate                       | <b>MMATE/QRP1</b>                    | Holder           |
| Macaw                             | <b>MMP</b>                           | Plate            |
| Optimist                          | <b>OMP</b>                           | Plate            |
| PRC Device (any)                  | <b>PRC3</b>                          | Adapter          |
| Dynawrite (removable)             | <b>RDWH</b>                          | Removable holder |
| Tech Series (new)                 | <b>TEC2</b>                          | Adapter          |

Adapters or holders may be available for devices not listed here. Contact Daedalus Technologies Inc. for more information.

## **1.6.2 Custom Made Laptop Holders**

Laptop computers are available in a large range of makes, models and configurations. It is not possible to have specific holders for each one, however in many cases a custom holder can be made using measurements of the specific laptop to be mounted. The purchaser must provide these measurements. A worksheet is available to help with this measurement step.

The Laptop Holder uses a cut-to-size polycarbonate plastic base plate attached to a Quick Release Plate (QRP1). Custom-bent stainless steel clips at suitable locations around the case of the laptop, and adhesive Velcro secure the computer. For this holder the purchaser must provide accurate sizes for the length and width of the laptop and for the height of the case at the potential clip locations.

The stainless steel clips are 1/2" to 1" wide and bent to overlap the edge of the computer case by 1/4" to 1/2", and fit firmly over the combined thickness of the base plate and computer case. Each clip is fastened to inserts in the plastic base with two small screws. The clips can be readily removed to take the laptop off the base plate (screwdriver required).

The laptop will be held most securely when there are four clips evenly spaced, this means there should be a clip near each corner of the case or a clip in the middle of each side. When clips can be placed on the front but not on the back the side clips should be placed close to the back. The opposite applies when clips are at the back but not the front.

### **Kensington Lock Option**

Most laptops have a socket or two for a security cable to be installed. This socket is called a Kensington Lock and is a small slot, often with a padlock picture adjacent; the laptop manual should identify the location of any lock socket. Special clips can be made to secure laptop onto the holder using the Kensington Lock socket.

If the Kensington Lock runs HORIZONTAL –  measure the distance from the surface on which the laptop is resting to the CENTER of the socket.

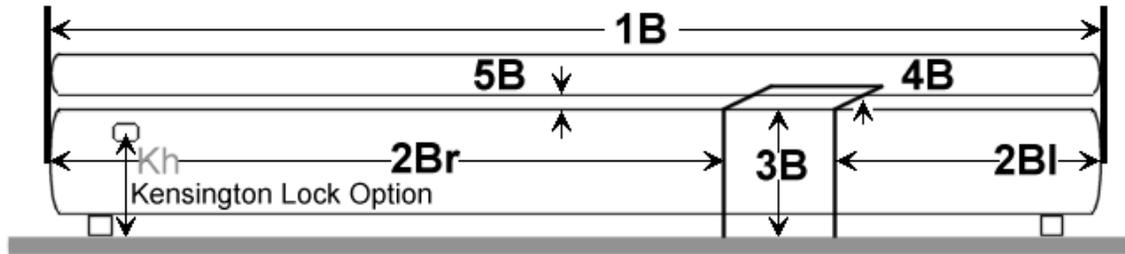
If the Kensington Lock runs VERTICAL –  measure the distance from the surface on which the laptop is resting to the BOTTOM of the socket.

### **Measurement Requirements for Custom made Laptop Holder**

The numbers and letters show the position for the measurements that are required. Clips should be located in position that will not obstruct ports, jacks or anything that needs to be accessible when in use; they may be positioned over unused ports or partially over vents if necessary

Right and Left are defined from the perspective of the User facing the screen.

## BACK of the Laptop



**1B** \_\_\_\_\_

Measure the overall width of the laptop case to the outside curvature.

**2Br** \_\_\_\_\_

Measure the distance from the Right side of the laptop case to a location where a clip could be placed.

**2Bl** \_\_\_\_\_

Measure the distance from the Left side of the laptop case to a location where a clip could be placed.

**3B** \_\_\_\_\_

Measure the height from the surface on which the laptop is resting to the top of the laptop case. DO NOT include the screen in this measurement; the measurement is of the laptop body only.

**4B** \_\_\_\_\_

Measure the distance a clip may overlap onto the top edge of the laptop without obstructing keys.

**5B** \_\_\_\_\_

Measure the gap between the screen and laptop body. The stainless steel clip is approximately the thickness of a dime. If this gap is too small it will not be possible to overlap the back clip.

**Kh** \_\_\_\_\_ Measure the height to the socket. **Horizontal / Vertical** (circle one)

Kensington Lock Option – if available provide measurements 2Br and 2Bl from sides of the laptop to the location of the socket.

**Kh-2Br** \_\_\_\_\_

**Kh-2Bl** \_\_\_\_\_

### Measurement Requirements for Custom made Laptop Holder

The numbers and letters show the position for the measurements that are required. Clips should be located in position that will not obstruct ports, jacks or anything that needs to be accessible when in use; they may be positioned over unused ports or partially over vents if necessary. Right and Left are defined from the perspective of the User facing the screen.

The laptop will be held most securely when there are four clips evenly spaced, this means there should be a clip near each corner of the case or a clip in the middle of each side. When clips can be placed on the front but not on the back the side clips should be placed close to the back. The opposite applies when clips are at the back but not the front.

### Kensington Lock Option

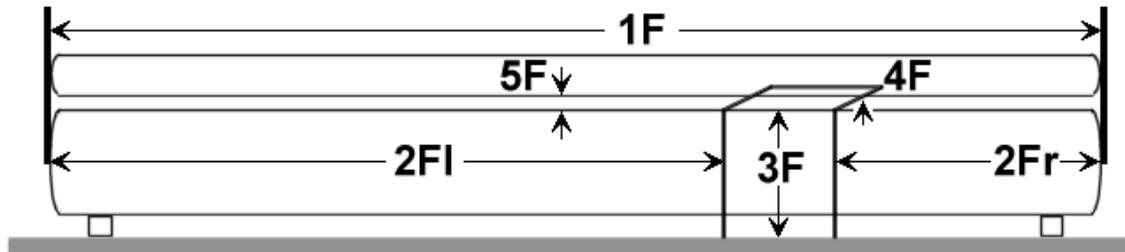
Most laptops have a socket or two for a security cable to be installed. This socket is called a Kensington Lock and is a small slot, often with a padlock picture adjacent; the laptop manual should identify the location of any lock socket. Special clips can be made to secure laptop onto the holder using the Kensington Lock socket.

If the Kensington Lock runs HORIZONTAL –  measure the distance from the surface on which the laptop is resting to the CENTER of the

socket. If the Kensington Lock runs VERTICAL –  measure the distance from the surface on which the laptop is resting to the BOTTOM of the socket.

## FRONT of the Laptop

On the front of the laptop the best location for the clips is near each corner so they do not interfere with keyboard access. One central clip may be used when two are not possible.



**1F** \_\_\_\_\_

Measure the overall width of the laptop case to the outside curvature.

**2Fr** \_\_\_\_\_

Measure the distance from the Right side of the laptop case to a location where a clip could be placed.

**2FI** \_\_\_\_\_

Measure the distance from the Left side of the laptop case to a location where a clip could be placed.

**3F** \_\_\_\_\_

Measure the height from the surface on which the laptop is resting to the top of the laptop case. DO NOT include the screen in this measurement; the measurement is of the laptop body only.

**4F** \_\_\_\_\_

Measure the distance a clip may overlap onto the top edge of the laptop without obstructing keys.

**5F** \_\_\_\_\_

Measure the gap between the screen and laptop body. The stainless steel clip is approximately the thickness of a dime. If this gap is too small it will not be possible to overlap the front clip.

A supplied Velcro strap runs through slots in the plastic plate of the laptop holder. The purpose of the strap is to secure the folded screen of the laptop when the front clips prevent the screen latch from locking. Clips that overlap may not be needed on the front if there are clips on both the Right and Left sides of the laptop located no more than 1/3 of the way from the front edge of the laptop.

When there will be no overlapping front clips it is recommended that a non-overlapping clip be placed along the front to act as a stop to prevent the laptop sliding forward in the holder. This clip will only need to come half way up the front. Measurements 5F and 4F will not be needed for a stop clip, only 1F, 2FI, 2Fr, and 3F are required.

### Measurement Requirements for Custom made Laptop Holder

The numbers and letters show the position for the measurements that are required. Clips should be located in position that will not obstruct ports, jacks or anything that needs to be accessible when in use; they may be positioned over unused ports or partially over vents if necessary. Right and Left are defined from the perspective of the User facing the screen.

The laptop will be held most securely when there are four clips evenly spaced, this means there should be a clip near each corner of the case or a clip in the middle of each side. When clips can be placed on the front but not on the back the side clips should be placed close to the back. The opposite applies when clips are at the back but not the front.

## ***RIGHT side of the Laptop***

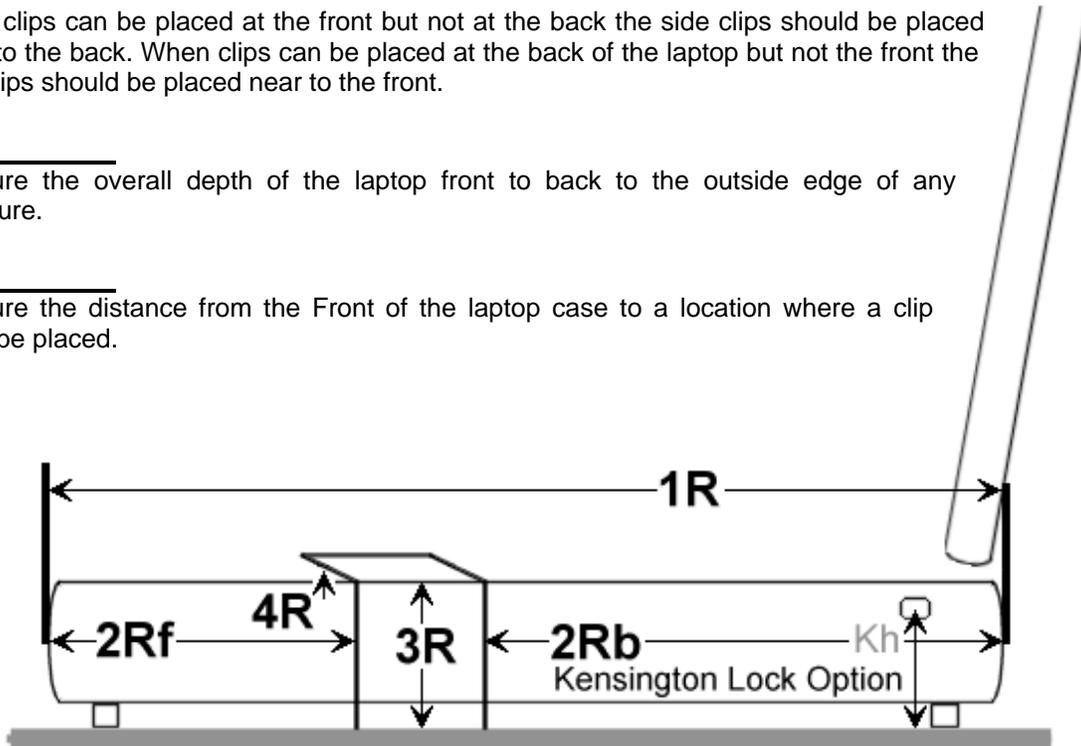
When clips can be placed at the front but not at the back the side clips should be placed close to the back. When clips can be placed at the back of the laptop but not the front the side clips should be placed near to the front.

### **1R \_\_\_\_\_**

Measure the overall depth of the laptop front to back to the outside edge of any curvature.

### **2Rf \_\_\_\_\_**

Measure the distance from the Front of the laptop case to a location where a clip could be placed.



### **2Rb \_\_\_\_\_**

Measure the distance from the Back of the laptop case to a location where a clip could be placed.

### **3R \_\_\_\_\_**

The height from the surface on which the laptop is resting the top of the laptop case; DO NOT include the screen in this measurement, the measurement is of the laptop body only.

### **4R \_\_\_\_\_**

Measure the distance a clip may overlap onto the top edge of the laptop without obstructing keys.

### **Kh \_\_\_\_\_** Horizontal / Vertical (circle one)

Kensington Lock Option – if available

Provide measurements 2Rb and 2Rf from the back and front of the laptop to the location of the socket.

**Kh-2Rf \_\_\_\_\_**

**Kh-2Rb \_\_\_\_\_**

#### **Measurement Requirements for Custom made Laptop Holder**

The numbers and letters show the position for the measurements that are required. Clips should be located in position that will not obstruct ports, jacks or anything that needs to be accessible when in use; they may be positioned over unused ports or partially over vents if necessary. Right and Left are defined from the perspective of the User facing the screen.

The laptop will be held most securely when there are four clips evenly spaced, this means there should be a clip near each corner of the case or a clip in the middle of each side. When clips can be placed on the front but not on the back the side clips should be placed close to the back. The opposite applies when clips are at the back but not the front.

#### **Kensington Lock Option**

Most laptops have a socket or two for a security cable to be installed. This socket is called a Kensington Lock and is a small slot, often with a padlock picture adjacent; the laptop manual should identify the location of any lock socket. Special clips can be made to secure laptop onto the holder using the Kensington Lock socket.

If the Kensington Lock runs HORIZONTAL –  measure the distance from the surface on which the laptop is resting to the CENTER of the socket. If the Kensington Lock runs VERTICAL –  measure the distance from the surface on which the laptop is resting to the BOTTOM of the socket.

## LEFT side of the Laptop

**1L** \_\_\_\_\_

Measure the overall depth of the laptop front to back to the outside edge of any curvature.

**2Lf** \_\_\_\_\_

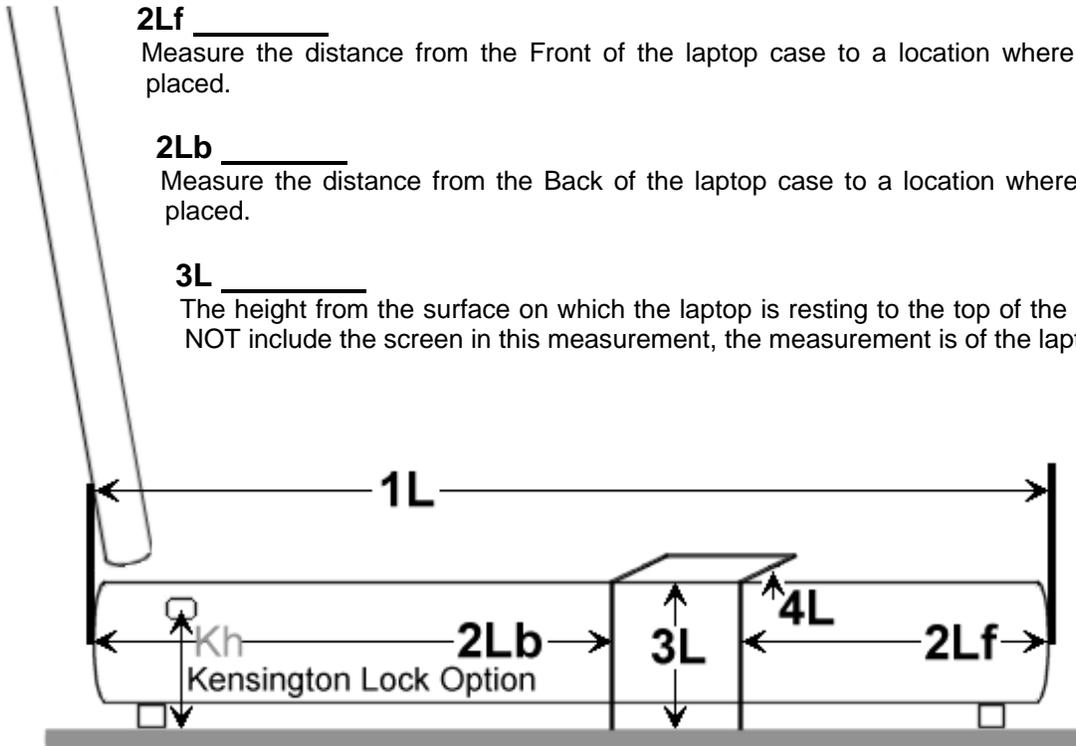
Measure the distance from the Front of the laptop case to a location where a clip could be placed.

**2Lb** \_\_\_\_\_

Measure the distance from the Back of the laptop case to a location where a clip could be placed.

**3L** \_\_\_\_\_

The height from the surface on which the laptop is resting to the top of the laptop case; DO NOT include the screen in this measurement, the measurement is of the laptop body only.



**4L** \_\_\_\_\_

Measure the distance a clip may overlap onto the top edge of the laptop without obstructing keys.

**Kh** \_\_\_\_\_ Horizontal / Vertical (circle one)

Kensington Lock Option – if available

Provide measurements 2Lb and 2Lf from the back and front of the laptop to the location of the socket.

**Kh-2Lf** \_\_\_\_\_

**Kh-2Lb** \_\_\_\_\_

### Measurement Requirements for Custom made Laptop Holder

The numbers and letters show the position for the measurements that are required. Clips should be located in position that will not obstruct ports, jacks or anything that needs to be accessible when in use; they may be positioned over unused ports or partially over vents if necessary. Right and Left are defined from the perspective of the User facing the screen.

The laptop will be held most securely when there are four clips evenly spaced, this means there should be a clip near each corner of the case or a clip in the middle of each side. When clips can be placed on the front but not on the back the side clips should be placed close to the back. The opposite applies when clips are at the back but not the front.

### Kensington Lock Option

Most laptops have a socket or two for a security cable to be installed. This socket is called a Kensington Lock and is a small slot, often with a padlock picture adjacent; the laptop manual should identify the location of any lock socket. Special clips can be made to secure laptop onto the holder using the Kensington Lock socket.

If the Kensington Lock runs HORIZONTAL –  measure the distance from the surface on which the laptop is resting to the CENTER of the socket. If the Kensington Lock runs VERTICAL –  measure the distance from the surface on which the laptop is resting to the BOTTOM of the socket.



## 1.7 Maintenance and Adjustment

### 1.7.1 Maintenance

#### ***Bolt Tightness***

Maintenance of DAESSY Mounting Assemblies mainly involves checking the tightness of bolts particularly those securing the Cap. Under rough use and on power wheelchairs the bolts securing the Tube Mounts may become loose and need re-tightening. Also under these conditions the large dome-shaped bolt underneath the RTHTM may need re-tightening occasionally.

#### ***Lubrication***

DAESSY Mounting Assemblies are supplied with Vaseline™ used as a lubricant inside the Folding Mechanisms, on the Locking Pins of the Quick Release Base and Locking Swing-Away Index Clamp, and on all Pinch Clamps. The Locking Pins may need occasional re-lubrication with Vaseline™ or a 'dry' lubricant such as is sold for door locks. Re-lubrication of a Folding Mechanisms is normally not required unless it is exposed to severe outdoor conditions. If a Folding Mechanism does require lubrication the Tube Mount should be removed to expose a dome shaped bolt retaining a large washer. Machine oil can be squirted around the edges of the large washer.

Lubrication at the hole for the stainless steel tube on the Frame Clamp Outer Piece and Locking Swing Away Outer Piece is optional. These are not lubricated when supplied but after some use the tube may slide easier if the hole is lubricated with a 'dry' lock lubricant

#### ***Locking Swing-Away Mechanism***



The pinholes in the Locking Swing-Away Outer Piece are fitted with plastic sleeves to allow the Locking Pin to retract easily. With prolonged use these sleeves may become worn, allowing the excessive movement of the Horizontal Tube and mounted device. New plastic sleeves are available and can be easily installed. The part code for replacements plastic pin sleeves and the tools require for installation is KITLSAOP.

Figure 1.7-1 The plastic inserts in the LSAOP may be removed and replaced when they become worn.

### 1.7.2 Adjustments

#### ***Pinch Clamps***

The DAESSY Mounting System is designed to allow very good positioning for a mounted device but is not intended for frequent adjustment and all the locking and clamping systems use bolts and Allen keys. Some adjustment may occasionally be required when the mount has been accidentally pushed out of position and movement has taken place at the connections between parts and the tube that are held by Pinch Clamps.

The Pinch Clamp does not normally damage the stainless steel tube unless severely over-tightened and will slip on the tube when overloaded. However, loosening the Pinch Clamp for re-adjustment is sometimes difficult as they can jam when strongly tightened.

## Pinch Clamp Description

A Pinch Clamp consists of three pieces. A threaded nut and an unthreaded head connected by an Allen bolt 1/4" diameter and 3/4" long. The nut and head each have a radiused cutout so that when the Pinch Clamp is assembled it looks like a cylinder with a 'bite' out of the side. The cutout radius matches the 7/8" stainless steel tube used in mounting assemblies. In a DAESSY component the Pinch Clamp fits in a hole that intersects perpendicular to the tube hole but offset from the centre. When the Pinch Clamp is aligned properly the radiused cutouts match the curve of the inside wall of the tube hole.

## Pinch Clamp and Stainless Steel Tube Installation

DAESSY components are normally supplied with the Pinch Clamp installed and a small plastic plug holding the Pinch Clamp in place during shipping. The Pinch Clamp is a close but not tight fit in its hole and Vaseline™ is used to lubricate it in the fitting. When the tube is not inserted the Pinch Clamp can easily fall out and get misplaced.

The pieces of the Pinch Clamp can turn in the hole such that the radiused cutouts are not aligned with the hole wall and the path for the tube through the fitting is obstructed. The Pinch Clamp is easily re-aligned by very carefully inserting a finger into the tube hole before the tube is installed; the edges where the holes intersect are sometimes sharp so caution is required. Alternatively the Pinch Clamp can be removed and disassembled, then reassembled around the tube in the hole. For fittings with the hole for the Pinch Clamp accessible at both ends the tube is inserted, then the Pinch Clamp head and nut fitted around it from either end of the Pinch Clamp hole; the bolt is inserted and tightened. For other fittings when the hole is only accessible at one end the threaded Pinch Clamp nut is dropped in and lined up before the tube is inserted; then the head and bolt are installed and tightened.

## Tightening Pinch Clamps

Do not attempt to clamp the tube so tight that it will not move – this is simply not possible. Over-tightening the Pinch Clamps will damage and deform the tube, possibly lodging it in the tube hole. If a damaged tube is stuck in the fitting it will be necessary to dismantle the Pinch Clamp from around it and applying a lubricant such as WD40™ before trying to pull the tube out.

Figure 1.7-2 An over tightened Pinch Clamp has deformed this stainless steel tube.



## Removing Jammed Pinch Clamps

Pinch Clamps may jam when they have been strongly tightened. This often happens at the Index Clamp (IC1 or ICLSA) and at the Tube Mounts of the folding mechanisms on the Folding Mount (DFM2), Rear Folding Mount (DRFM6) and Lockable Rear Folding Mount (DLRFM8).

To remove a jammed Pinch Clamp from a Tube Mount, first remove the Tube Mount to make both ends of the Pinch Clamp accessible.

- Loosen the Pinch Clamp bolt about two turns.
- Tap on the bolt head until the threaded end of the Pinch Clamp is loose.
- Remove the Pinch Clamp bolt completely and take the threaded end of the Pinch Clamp out of the hole.
- Now tap the other end of the Pinch Clamp out or rotate the stainless steel tube strongly.

## ***Folding Mechanism Tension***

The tension in the Folding Mechanism of the DAESSY Folding Mount (DFM2), the DAESSY Rear Folding Mount (DRFM6), and the DAESSY Lockable Rear Folding Mount (DLRFM8) is not adjustable. These parts are supplied preset to a tension that has been found a normally acceptable compromise between easy movement and resistance to a catastrophic drop if the mounted device is release part way through the folding sequence. With prolonged use the tension in the Folding Mechanism may decrease. Contact Daedalus Technologies, Inc. for more information about program for exchanging re-tensioned Folding Mechanisms at a nominal charge. DO NOT RETURN ANY PARTS WITHOUT RECEIVING AUTHORIZATION AND ADDRESSING INSTRUCTIONS, parts returned without authorization will be refused and returned at the sender's expense.

DO NOT DISASSEMBLE THE PARTS BEYOND THE STEPS DESCRIBED IN THE INSTALLATION PROCEDURES. ALL THE TOOLS NECESSARY TO INSTALL AND ADJUST DAESSY COMPONENTS ARE PROVIDED WITH THE PARTS (with the exception of screwdrivers necessary to install holders and adapters). IF ADDITIONAL TOOLS BEYOND THOSE SUPPLIED BY DAESSY ARE NEEDED TO DISASSEMBLE A PART THIS IS AN INDICATION THAT FURTHER DISASSEMBLY IS UNNECESSARY.

## 1.8 Additional DAESSY components

### 1.8.1 Tube Connectors and Joints

Tube Connectors hold two 7/8" stainless steel tubes at a fixed angle. The sides of the connector are held together with two bolts. Usually the entire connector will have to be removed to adjust the position of the tubes, as the components are machined to provide a tight secure fit.

Tube Joints hold the 7/8" at a fixed angle however each tube is secured with a Pinch Clamp, which allows independent adjustment of the tube position.

#### **Tube Connectors**

##### **TC90**

The TC90 tube connector is a component of the DAESSY Rigid Mount. This connector holds the ends of two 7/8" tubes at a 90-degree angle.

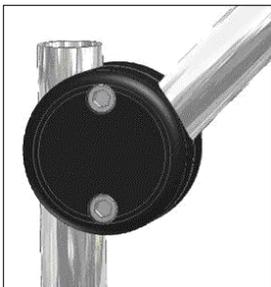
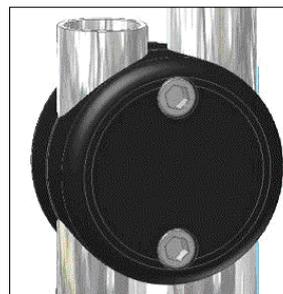


##### **TC90A**

Similar to the TC90, the TC90A holds two 7/8" tubes at a 90-degree angle. One tube hole extends entirely through the connector forming a 'T'-shaped connection

##### **TC180A**

The TC180A holds two tubes parallel. Both tube holes extend entirely through the connector.



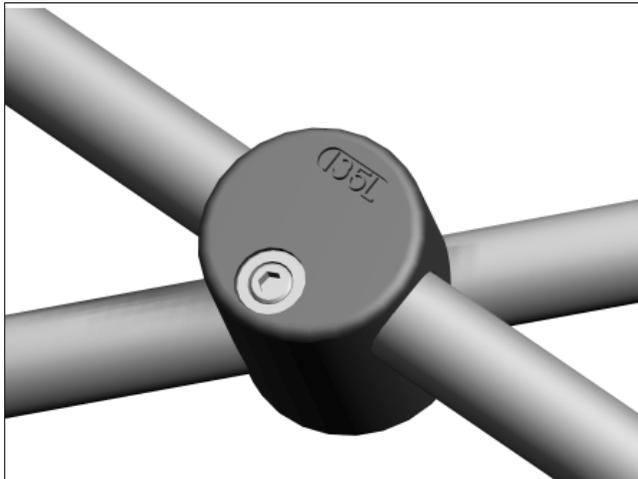
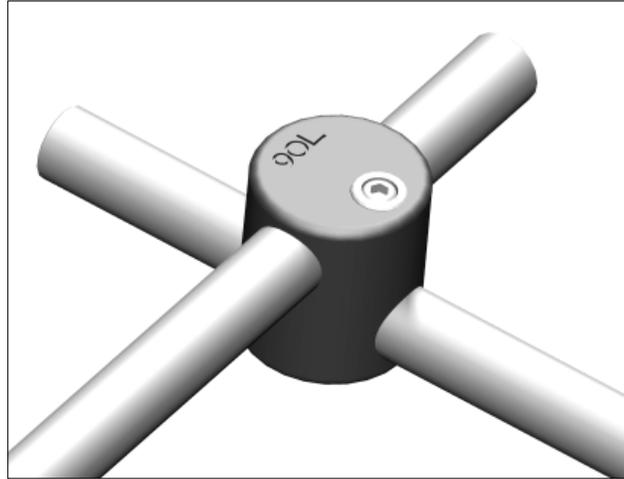
##### **TC135A**

The TC135A holds the end of one 7/8" tube at a 135-degree angle to a second tube that may extend through the connector. The narrow angle between the two tubes is 45 degrees.

## ***Tube Joints***

### **90L**

The 90L Tube Joint holds two 7/8" tubes at a 90-degree angle. The tubes extend through the 90L and are held in position with Pinch Clamps. The 90L cannot be installed on a tube with no accessible end.

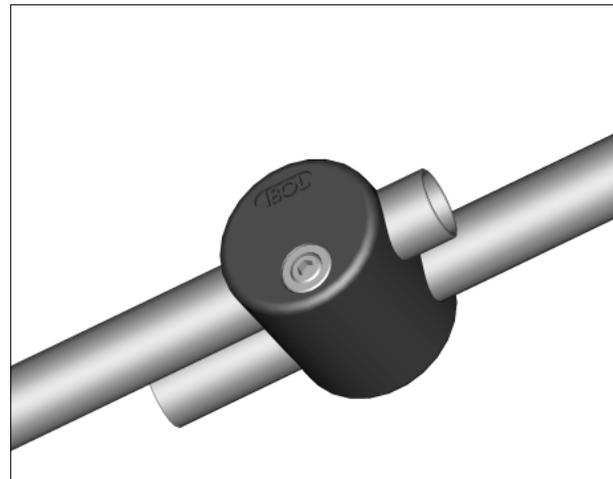


### **135L**

The 135L Tube Joint holds two 7/8" tubes at a lesser angle of 45-degrees and a greater angle of 135-degrees. The tubes extend through the 135L and are held in place with Pinch Clamps. The 135L cannot be installed on a tube with no accessible end.

### **180L**

The 180L Tube Joint holds two 7/8" tubes parallel to each other. The tubes extend through the 180L and are held in place with Pinch Clamps. The 180L cannot be installed on a tube with no accessible end.



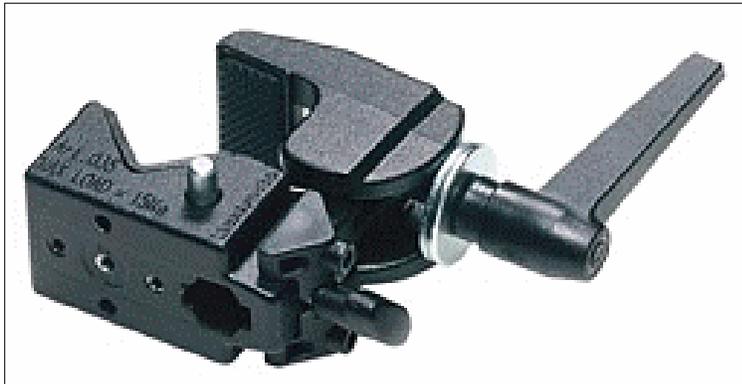
## **1.8.2 Mounting Plates and Clamps**

### **Wall Mounting Plate (TMP)**

The Wall Mounting Plate (TMP) is a disc shaped component with several countersunk holes that can be screwed onto a solid wall or sturdy wood furniture.



### **Manfrotto Super Clamp (MSC)**



The Super Clamp manufactured by Gruppo Manfrotto clamps onto the edge of a table surface. The MSC is used with the DAESSY Clamp Desk Mount DMC and with the DAESSY Stem System.

### **1.8.3 DAESSY Stem System**

The DAESSY Stem System allows for the mounting of switches in a manner that is suitable to each user's specific application. It is highly adjustable, unobtrusive and a versatile system to meet switch mounting requirements. Compatible with some different systems using simple adapters the Stem System can be used to complement an existing system currently used.

- **A modular system with interchangeable components.**
- **Numerous configurations possible.**
- **Solid, permanent switch mount solution.**
- **Highly adjustable allowing precise positioning.**
- **Accessory mounting clamps designed for use on a wheelchair frame.**
- **Compatible with some other switch mount systems.**

DAESSY Stem System components are available individually and in assembly kits.

The most complete information on the DAESSY Stem System is available on the DAESSY website. Please visit <http://www.daessy.com> to learn more.



## 2. DAESSY Rigid Mount – DRM1 and DRM1ROP

### 2.1 Product Overview

#### *DAESSY Rigid Mount – DRM1*



Figure 2.1-1 The DAESSY Rigid Mount assembled on a power wheelchair

The DAESSY Rigid Mount - DRM1 consists of two lengths of stainless steel tube joined to form a right angle structure that is supported on the wheelchair by a Frame Clamp Assembly permanently attached to either the left or right side of the wheelchair.

The Frame Clamp Assembly is composed of a Frame Clamp Inner Piece (UFCxxxIP) and a Frame Clamp Outer Piece (UFCOP). The Inner Piece is clamped to the wheelchair frame while the Outer Piece holds the Vertical Tube. An Index Clamp (IC1) secured around the lower end of the Vertical Tube engages with a positioning pin on the Frame Clamp Outer Piece to position the tube and prevent rotation.

The mounted device is first attached to a quick release plate, either directly or with use of a specific adapter, and attached to the Horizontal Tube of the mount assembly by means of a Total Quick Release Base (TUSB) that secures the device and allows for quick detaching of the device from the mount.

The complete mount can be lifted out of the Frame Clamp and removed from the wheelchair leaving only the Frame Clamp assembly attached to the wheelchair frame.

A Tube Connector (TC90) joins the Horizontal and Vertical Tubes of the DAESSY Rigid Mount - DRM1 at a fixed 90° angle. The mount can be lifted slightly until the positioning pin is cleared and rotated away from the user positioning it at 90° increments.

#### **Caution**

The DAESSY Rigid Mount - DRM1 can support equipment that is heavy enough to unbalance a lightweight unoccupied wheelchair, particularly when the mount is swung aside. The mounted device must be detached from the mount before the wheelchair is vacated.

When used on a manual wheelchair it is advisable to remove the device and mount when the user is transferred from the wheelchair.

The standard DAESSY Rigid Mount - DRM1 can be installed with the Vertical Tube angled at most 15° from vertical allowing for more precise positioning and adjustability. When used on a wheelchair with a tilting seat system or when the Vertical Tube must be installed at an angle greater than 15° from vertical the DAESSY Rigid Mount ROP Version - DRM1ROP should be used.

## **DAESSY Rigid Mount ROP Version – DRM1ROP**

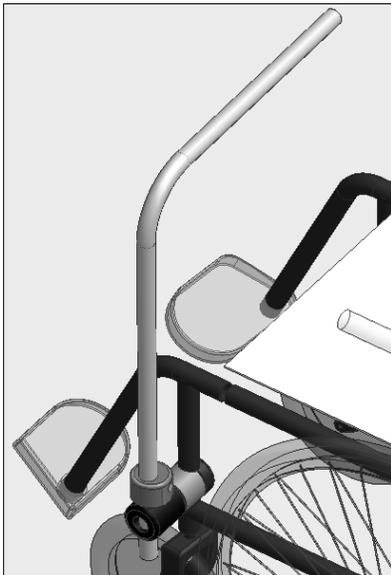


Figure 2.1-2 The DAESSY Rigid Mount ROP Version may be installed on a tilting seat system.

The ROP Version uses a Removable Outer Piece & Receiver (ROP-RFCR) in place of the standard Outer Piece and Index Clamp. When used with the DRM1 the Removable Outer Piece eliminates the ability to swing the mount to the side, the mount must be removed from the wheelchair to provide unimpeded access to the user.

The Removable Frame Clamp Receiver (RFCR) has a Locking Knob that secures the mount in position on the wheelchair allowing the Vertical Tube to be tilted considerably without any premature wearing of components.

## **Bent-tube Rigid Mount – DRM1-BT**



A single tube, bent at a right-angle can be substituted for the vertical S-Bend Tube, the horizontal Straight Tube and Tube Connector on either the standard or ROP version of the Rigid Mount to make a Bent-tube Rigid Mount – DRM1-BT. This is the most basic mount assembly available. The components of the Bent-tube Rigid Mount are similar to those of the DAESSY Rigid Mount and the DAESSY Folding Mount allowing for an easy upgrade to either mount with the purchase of individual components.

The Bent-tube Rigid Mount can also be provided in an ROP Version with order code **DRM1ROP-BT**.

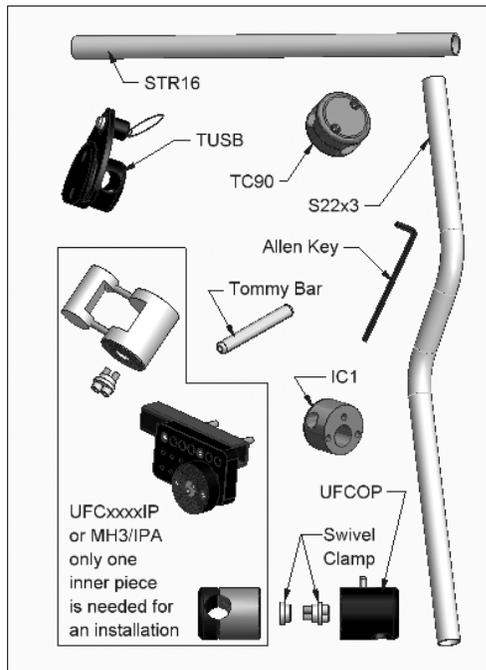
Figure 2.1-3 The DAESSY Bent tube Rigid Mount is a basic assembly.

## 2.2 Parts of DRM1, DRM1ROP and DRM1-BT

The standard parts of the DAESSY Rigid Mount and common variations are listed below; Parts which may differ from situation to situation are indicated with a \*.

| Part Code | Part Name                        | DRM1 | DRM1ROP | DRM1-BT | DRM1ROP-BT |
|-----------|----------------------------------|------|---------|---------|------------|
| STR16     | Straight Tube – 16”              | ✓    | ✓       |         |            |
| *S22x3    | S-bent Tube – 22” with 3” offset | ✓    | ✓       |         |            |
| RT22x16   | Right-angle bent tube            |      |         | ✓       | ✓          |
| TC90      | Tube Connector - 90°             | ✓    | ✓       |         |            |
| *TUSB     | Total Quick Release Base         | ✓    | ✓       | ✓       | ✓          |
| *UFCxxxIP | Frame Clamp Inner Piece          | ✓    | ✓       | ✓       | ✓          |
| UFCOP     | Frame Clamp Outer Piece          | ✓    |         | ✓       |            |
| IC1       | Index Clamp                      | ✓    |         | ✓       |            |
| RFCR      | Removable Frame Clamp Receiver   |      | ✓       |         | ✓          |
| ROP       | Removable Outer Piece            |      | ✓       |         | ✓          |
| DMSTools  | Assembly Tools                   | ✓    | ✓       | ✓       | ✓          |

The size and shape of the required Frame Clamp Inner Piece must be specified with the order of a standard mount. **1.3 Attaching and Positioning DAESSY – Frame Clamps** provides comprehensive information on DAESSY Frame Clamp options.



The standard part list will be appropriate from many mounting situations. Variations in the standard list will be necessary for some situations. Common variations include changes in the length and shape of the Vertical Tube (STR22x3), additional Frame Clamp components to avoid obstructions with other wheelchair fittings, and different styles of the Quick Release Base. More information can be found in **1.4 Attaching and Positioning DAESSY – Tube Lengths and Shapes** and **1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System**. Following the Fitting Procedure (**2.3 Fitting the DAESSY Rigid Mount DRM1, DRM1ROP, DRM1-BT**) will identify what variations are necessary.

In addition to the standard and variation parts an adapter plate or device holder is necessary to complete the mount.



**1.6 Attachment of Devices to DAESSY Mounts – Adapters and Holders** provides comprehensive information on DAESSY Adapters plates and Holders.

## 2.3 Fitting the DAESSY Rigid Mount DRM1, DRM1ROP, DRM1-BT

A communication device or laptop computer, when mounted on a wheelchair, must be correctly positioned to make it comfortably accessible to the user. The Fitting procedure for the determines the attachment point for the Frame Clamp assembly on the wheelchair, and the tube lengths required to place the device correctly relative to this attachment location. Before the fitting procedure is started it is necessary to first determine the required position for the device, which will depend on the needs of the user and the type of device used.

The Fitting procedure is the same for the DAESSY Rigid Mount DRM1 and the DAESSY Folding Mount DFM2.

### ***Standard Mounting Assemblies and Fitting Exceptions***

The standard tube length of 22 inches with an S-bend offset of 3 inches is suitable for many situations when the device is mounted for direct access on a medium size wheelchair but it is essential that the fitting procedure be followed for mounting a scanning or headpointer operated device as these are normally mounted higher and further away from the user than is possible with the standard tube dimensions. When the mount will be installed on a small wheelchair for a young or smaller user, the fitting procedure should be followed to ensure the correct tube dimensions are ordered. Tubing is available in a wide range of lengths and S-bend offsets and should not be cut to length during the Installation procedure.

#### **Caution:**

The ends of the stainless steel tube provided by Daedalus Technologies, Inc. are fully machined and chamfered to minimize sharp edges. Daedalus Technologies, Inc. strongly disapproves of the tube being cut to length by purchasers. Cutting the stainless steel tube by any method produces very sharp and hazardous edges.

### ***Steps in the Fitting Procedure***

- Selecting the Frame Clamp attachment location
- Determining the Frame Clamp size
- Measuring and Specifying the Tube Length and Shape

### **2.3.1 Selecting Frame Clamp attachment location**

Comprehensive information for selecting a Frame Clamp attachment location can be found in **1.3 Attaching and Positioning DAESSY – Frame Clamps**.

The DAESSY Rigid Mount – DRM1 can be mounted on either the left or right side of a wheelchair as defined from the position of the person seated in the wheelchair.

The Frame Clamp Inner Piece (UFCxxxxIP) requires slightly more than two inches of length and three-quarter inches of space above and below the wheelchair frame tube to which it will be clamped. There should be sufficient room for a hand to reach behind the tube to tighten bolts. It does not matter how the wheelchair frame tube is oriented because the Swivel Clamps allow the Offset Links and Rear Folding Adapter to be rotated to any angle relative to the Frame Clamp Inner Piece.

#### **Caution:**

The selected location must be part of the wheelchair frame, not a removable armrest or footrest.

Most often the best location for the Frame Clamp assembly will be near the front caster wheel but preferably not above it. The Vertical Tube for the mount protrudes down through the hole in the Frame Clamp Outer Piece and the range of height adjustment for the mount may be limited if the tube interferes with the caster wheel.

In most situations the Frame Clamp Inner Piece will be located forward or backward from the position for the mounted device and the Vertical Tube supported by the Frame Clamp Outer Piece will have an S-bend.

#### **Obstructions**

Obstructions directly above the selected location, such as the brake lever or other controls that are closer than 10 inches may interfere with insertion and removal of the Vertical Tube. To avoid this interference it may be necessary to use an Offset Link (O3L) or a Frame Clamp Spacer (UFCSPCR) between the Inner and Outer Pieces of the Frame Clamp to move the Outer Piece further out, or position it sideways from the location of the Inner Piece. More information on Frame Clamp Spacers and Offset Links can be found in **1.3.5 Connecting Frame Clamp Inner and Outer Pieces**.

#### **Quick Check**

A quick check for a suitable location for the Frame Clamp Inner Piece is to find a part of the wheelchair frame tube which has enough space to be gripped by three fingers when reaching from inside the wheelchair frame.

#### **Unusual Situations**

Some wheelchairs do not have any tubing freely accessible on the frame or do not have a tube frame. When a seat pan restricts access to the upper edge of the wheelchair frame tubing, it may be possible to use a Side Mount Frame Clamp Inner Piece, which requires no clearance on the topside of the tube and only 1 1/4" clearance on the bottomside. When the wheelchair does not have a tube frame it may have boltholes or other possible attachment methods in a suitable location. In some cases a Bolt-on Adapter may be substituted for the Inner Piece. More information on the complete range of available Frame Clamp Inner Pieces can be found in **1.3.1 Frame Clamp Inner Piece Styles**.

### **2.3.2 Determining Frame Clamp size**

Comprehensive information for determining the correct Frame Clamp size can be found in **1.3.3 Measuring and Specifying the Size of Frame Clamp Inner Piece**.

### **2.3.3 Measuring and Specifying Tube Lengths and Bends**

The Vertical Tube of the DRM1 is supported in the Frame Clamp Outer Piece and connected to the Horizontal Tube by the Tube Connector (TC90). Often the correct position for the device requires the Horizontal Tube to be offset forward or backwards from the location of the Frame Clamp Outer Piece and the Vertical Tube will have two bends to form an S-shape that offsets the ends of the tube. On some wheelchairs an offset may be needed to allow the upper end of the Vertical Tube to clear a lap tray or control module.

#### **Vertical Tube dimensions (Length and Offset)**



Two measurements are needed to determine the length and shape of the Vertical Tube. As shown in the diagram, these measurements are the horizontal distance (X) and vertical distance (Y) up the side of the wheelchair, between the Frame Clamp Outer Piece and the intended location of the Horizontal Tube. These measurements must be taken from the location of the Frame Clamp Outer Piece not the location of the Frame Clamp Inner Piece. When an Offset Link is used the Outer Piece will not be located at the same place as the Inner Piece.

Figure 2.3 - 1 X and Y measurements to determine the length and offset of the Vertical Tube.

When the DAESSY Quick Release is used to attach the device to the Horizontal Tube the centerline of most devices is between 1 inch and 3 inches forward of the tube (away from the user). For very precise horizontal positioning contact Daedalus Technologies Inc. for more information.

#### **Interference between Vertical Tube and Fittings on a Wheelchair**

Fittings on the wheelchair between the location of the Frame Clamp Outer Piece and the position of the Horizontal Tube may interfere with the Vertical Tube. Sometimes this can be avoided by the correct placement of the S-bend. This is often possible when the S-bend can be nearer one end of the tube with the offset above the obstruction.

#### **Position and Orientation of S-bend**

The S-bend on the Vertical Tube can be placed near one end of the tube or at the midpoint. The standard tube has 4 inches of straight tube at one end and 12 inches at the other. Either end may be at the top or bottom. The only limit on the location of the bend is that the shortest straight end possible is 2 inches.

#### **Interference within 10 inches of the Frame Clamp location**

When the obstruction is directly above the location of the Frame Clamp Inner Piece and at a distance of less than 10 inches it may not allow sufficient clearance for the Vertical Tube to be lowered into the hole in the Frame Clamp Outer Piece. When the Frame Clamp Inner Piece is located very low on the wheelchair frame or above the front caster wheel height adjustment of the mount by moving the Index Clamp up and down the Vertical Tube will be limited to the amount of clearance between the bottom of the Frame Clamp Outer Piece and the obstruction. In both these cases it may be necessary to use an

Offset Link (O3L) or Spacer (UFCSPCR) to move the Outer Piece away from the location of the Inner Piece.

### ***Specifying the Dimensions of the Vertical Tube***

When the X and Y measurements are used for specifying the length and offset the Y measurement will be rounded up to the nearest even number of inches and this will be the **L** distance for the tube supplied. The **X** measurement will be the **O** distance for the tube supplied and the **S** distance will be 4 inches.

When the S-bend must be a different distance from the end, or when extra length is added to provide a greater range of height adjustment the complete for overall length **L**, S-bend Offset **O**, and straight length on one end **S** should be included in any order.

## 2.4 Installing the DAESSY Rigid Mount DRM1, DRM1ROP, DRM1-BT

### Steps in the Installing Procedure

- Identify the Parts
- Install the Frame Clamp Inner Piece (and RFCR – ROP Version)
- Install the Vertical Tube with Index Clamp (or ROP – ROP Version)
- Install the Tubing Connector and Horizontal Tube
- Install the Total Quick Release Base

### 2.4.1 Identify the Parts

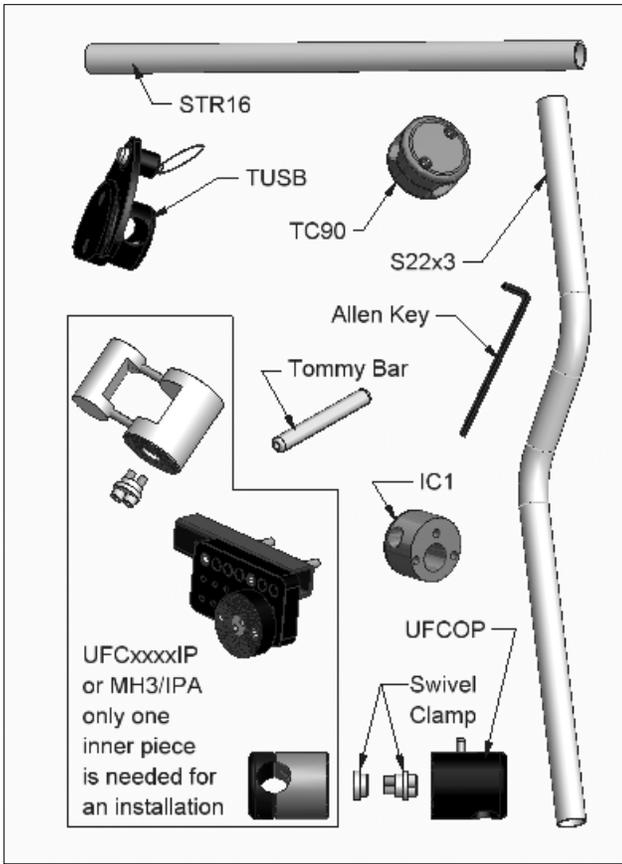
The standard DAESSY Rigid Mount consists of the following parts:

| Part Code | Part Name                        | DRM1 | DRM1ROP | DRM1-BT | DRM1ROP-BT |
|-----------|----------------------------------|------|---------|---------|------------|
| STR16     | Straight Tube – 16"              | ✓    | ✓       |         |            |
| S22x3     | S-bent Tube – 22" with 3" offset | ✓    | ✓       |         |            |
| RT22x16   | Right-angle bent tube            |      |         | ✓       | ✓          |
| TC90      | Tube Connector - 90°             | ✓    | ✓       |         |            |
| TUSB      | Total Quick Release Base         | ✓    | ✓       | ✓       | ✓          |
| UFCxxxIP  | Frame Clamp Inner Piece          | ✓    | ✓       | ✓       | ✓          |
| UFCOP     | Frame Clamp Outer Piece          | ✓    |         | ✓       |            |
| IC1       | Index Clamp                      | ✓    |         | ✓       |            |
| RFCR      | Removable Frame Clamp Receiver   |      | ✓       |         | ✓          |
| ROP       | Removable Outer Piece            |      | ✓       |         | ✓          |
| Swivel    | Swivel Clamp                     | ✓    | ✓       | ✓       | ✓          |
| DMSTools  | Assembly Tools                   | ✓    | ✓       | ✓       | ✓          |
|           | Instruction Papers               | ✓    | ✓       | ✓       | ✓          |

All the black anodized aluminium components have a part code stamped into the metal and these should be identified and laid out as shown in the picture. The Frame Clamp Inner Piece (UFCxxxIP) may not be exactly as shown, and an Offset Link may be included. Bent-tube versions of the DAESSY Rigid Mount will have one Right-Angle tube in place of the Straight Tube, S-bend Tube and Tube Connector. ROP Versions of the DAESSY Rigid Mount will have a Removable Frame Clamp Receiver and Removable Outer Piece (RFCR-ROP) in place of the IC1 and UFCOP.

#### Caution:

It is very important that all packaging be thoroughly inspected for loose parts and instruction papers. All the mount components must be identified and checked against the standard parts list, and the order list BEFORE any packaging is thrown away.



The Swivel Clamp for joining the UFCxxxxIP and UFCOP (or RFCR) is normally fastened into the axial hole of the UFCOP. Pinch Clamps for securing the tubes into the TUSB and IC1 (or ROP) are normally installed in their holes in the parts and retained by a plastic plug in the tube hole.

The parts shown in Figure 2.4-1 are for a standard order. A customized mount may have different parts substituted.

Specific installation instructions may be supplied with components, especially components that vary from the standard parts list. In the case of contradictory instructions, component specific instructions provided with the mounting components will supersede the installation procedures outlined in this document



## 2.4.2 Install the Frame Clamp

The DAESSY Rigid Mount (DRM1) can be mounted on either the left or right side of a wheelchair as defined from the position of the person seated in the wheelchair.

Find the location on the wheelchair to attach the Frame Clamp Inner Piece. This should have been chosen during the Fitting Procedure as described in **2.3.1 Selecting the Frame Clamp attachment location**. Frequently the Frame Clamp will be installed near the front caster wheel. The selected location must be part of the wheelchair frame, not a movable armrest or footrest.

Check that both the Frame Clamp and the Vertical Tube will not interfere with any of the wheelchair fittings or components. The caster wheel at the bottom should be free to spin; the brake lever and any other controls should remain accessible. If there is interference it may be necessary to use an Offset Link (O3L) or Frame Clamp Spacer (UFCSPCR) to displace the Frame Clamp Outer Piece forward, backward or further out from the position of the Frame Clamp Inner Piece. These components can be ordered individually from DAESSY if they have not been provided with the mount.

It does not matter how the wheelchair frame tube is oriented because the Swivel Clamp allows the Frame Clamp Outer Piece to be rotated to any angle relative to the Frame Clamp Inner Piece.

### Assemble the Frame Clamp pieces

The pieces of the complete Frame Clamp Assembly should be connected together before it is installed on the wheelchair frame. For a standard mount these pieces will include a Frame Clamp Inner Piece (UFCxxxIP) and a Frame Clamp Outer Piece (UFCOP) and a Swivel Clamp. The ROP Version mount will have a Frame Clamp Assembly consisting of a Frame Clamp Inner Piece (UFCxxxIP), a Removable Frame Clamp Receiver (RFCR) and a Removable Outer Piece (ROP). The UFCxxxIP and RFCR will be connected with a Swivel Clamp. Additionally the Frame Clamp Assembly may include Offset Links (O3L) and/or Frame Clamp Spacers (UFCSPCR) to clear any obstructions.

When the Inner Piece has a Cap and Body fastened with two screws the Cap must be removed so that the threaded end of the Swivel Clamp can be fitted in the long hole through the Inner Piece. Some Inner Pieces have integrated threaded holes for the Swivel Clamp bolts and do not use the threaded end.

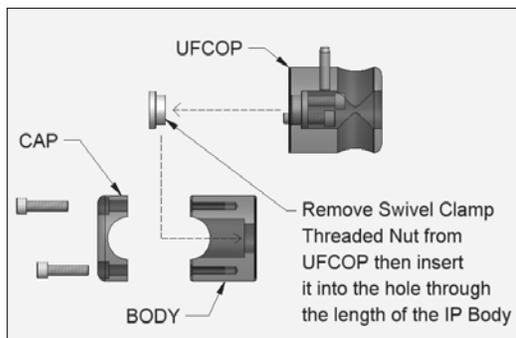


Figure 2.4-2  
The threaded end of a Swivel Clamp is inserted into the axial hole through the Frame Clamp Inner Piece Body.

On the standard Frame Clamp Assembly the unthreaded end of the Swivel Clamp fits in the hole through the length of the UFCOP. The long arm of the 3/16" Allen Key will be needed to reach the heads of the two bolts through the hole in the UFCOP. For the ROP Version the unthreaded end of the Swivel Clamp fits in the centre hole of the RFCR.

If there are no Offset Links or Spacers needed to avoid obstructions the Frame Clamp Inner Piece is connected directly to the UFCOP or RFCR with one Swivel Clamp. If Offset Links or Frame Clamp Spacers are needed, these are connected between the UFCxxxIP and UFCOP or RFCR with a Swivel Clamp at each joint. Longer Swivel Clamp bolts are provided with the UFCSPCR. The Swivel Clamps

should be inserted into each joint so that the threaded end is closest to the wheelchair and the bolt heads remain accessible.

The adjoining faces of all the parts for a Frame Clamp Assembly have circular grooves to give extra friction against movement when assembled. The grooves on an Inner Piece engage with the grooves on an Outer Piece but will not engage with the grooves on another Inner Piece. Offset Links and Frame Clamp Spacers have the letters IP stamped into the metal beside the grooves that attach to the Inner Piece and OP stamped into the metal beside the grooves that attach to the Outer Piece.

**Caution:**

All the grooved faces must be correctly matched and engaged before the swivel clamp bolts are tightened.

The bolts do not need to be fully tightened at this step. However when the bolts are finally tightened it may be necessary to use an extender on the short arm of the Allen Key to obtain sufficient torque, as shown in Figure 2.4-3. A four-inch length of aluminium with a long hole to fit the Allen Key is provided for this purpose. This tool is called the Tommy Bar.

**Caution:**

Do not use the Tommy Bar to extend the long arm of the Allen Key.

With the DRM1ROP the Removable Outer Piece (ROP) should be inserted and locked into the Removable Frame Clamp Receiver (RFCR) to complete the assembly of the Frame Clamp. It may be necessary to loosen or remove the Pinch Clamp inside the ROP so that the Vertical Tube can be temporarily inserted for aligning the Frame Clamp.

***Attach the Frame Clamp to the wheelchair – Round Tubing***

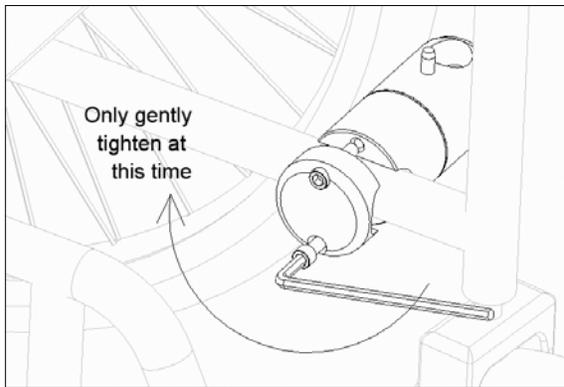


Figure 2.4-4  
The Cap and Body of the Frame Clamp Inner Piece fit around the wheelchair tube at the selected location. The two bolts are evenly, but gently tightened.

At the selected location fit the Cap and Body of the Frame Clamp Inner Piece around the tube. Replace the bolts but do not fully tighten them yet. The Cap should face towards the inside of the wheelchair and the Body, connected to the Outer Piece, should face away from the wheelchair.

## Align the Frame Clamp

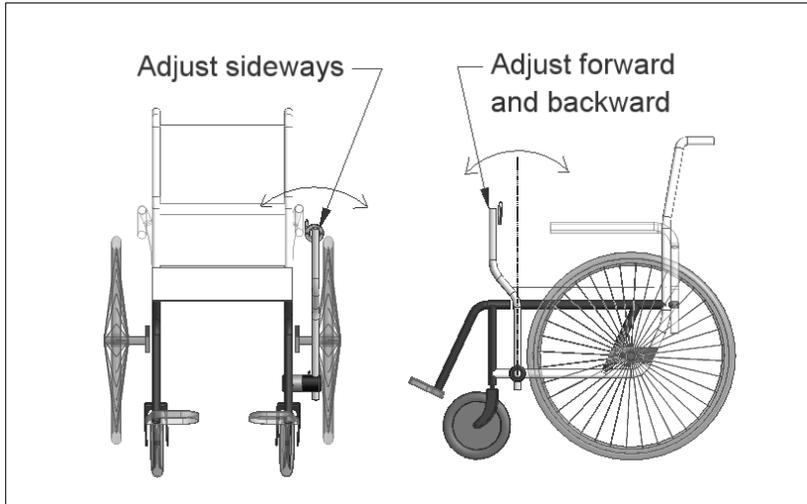


Figure 2.4-5  
The Vertical Tube is used as a lever and guide to align the Frame Clamp Sideways and Front to Back

If the mount is supplied with a standard Frame Clamp Inner Piece for round tubing the Frame Clamp Assembly must be aligned in two ways. The Inner Piece must be adjusted on the wheelchair frame tube so that the Outer Piece is facing directly outward. This is referred to as Sideways Alignment and is only necessary when the UFCxxxxIP is attached to round tubing. The Outer Piece must be rotated around the Swivel Clamp so that the tube hole is oriented vertically and the Index Pin is pointing up. This is referred to as Front-Back Alignment.

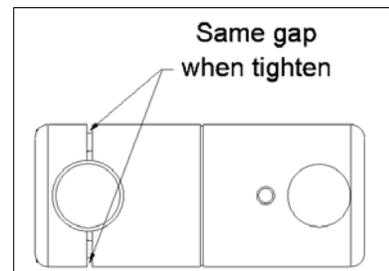
It is not necessary that the ROP Version of the DRM1 be aligned with the Vertical Tube oriented vertically front to back, however the Vertical Tube should still be aligned sideways to be parallel to the side of the wheelchair.

### Sideways Alignment

Use the Vertical Tube in the tube hole of the Outer Piece as a lever and alignment guide as shown in Figure 2.4-5. Hold the Vertical Tube parallel to the side of the wheelchair and alternately tighten the bolts connecting the Cap and Body of the Frame Clamp Inner Piece to clamp the wheelchair tube evenly.

#### Important Note:

When the bolts are fully tight and the tube is firmly gripped there should be a slight gap of 1/64" to 1/32" between the Cap and Body of the Frame Clamp Inner Piece. If the gap is wider than 1/16" the Frame Clamp Inner Piece is probably too small. If there is no gap and the tube is not gripped firmly when the bolts are fully tight remove the Inner Piece and tightly wrap some aluminium foil around the wheelchair tube at the attachment location. There is some variation in the tube size on different wheelchairs so it is sometimes necessary to use the foil. Make sure the aluminium foil does not get caught between the Cap and Body when the UFCxxxxIP is replaced and the bolts are tightened. Do not use paper or plastic. Do not use more than four layers of aluminium foil; more than this probably means the UFCxxxxIP is too large. Adapter Sleeves (SLV) can be purchased to downsize an overlarge Frame Clamp Inner Piece.



## **Front-Back Alignment**

With the UFCxxxxIP attached firmly to the wheelchair the hole in the Outer Piece is aligned vertically by rotating the Vertical Tube forward or backward before tightening the two bolts on the Swivel Clamp. The Vertical Tube has to be removed to do this so care must be taken not to move the Outer Piece. Use the Tommy Bar to get enough leverage and tighten the two bolts alternately to get the most efficient grip.

With the standard DRM1 (non ROP) the Vertical Tube may lean no more than 15° forward or backward from the vertical if this is necessary to obtain the correct position for the mounted device. Installation of the DRM1 at a greater angle from the vertical places extra load on the Index Pin in the Frame Clamp Outer Piece. In situations when the correct position for the device cannot be reached without leaning the tube beyond 15°, custom S-Tube with a larger bend and/or Offset Links should be used to obtain the correct position, or the ROP Version DRM1ROP may be used.

### **Important Note:**

All the bolts should be tightened sufficient to hold the mounting assembly for normal loads; when excessive force is applied the mount may move and should move before the wheelchair frame is likely to bend. It is the responsibility of the installer to ensure the mount is firm enough for their needs, but not over-tight, and to periodically check that the bolts have not vibrated loose.

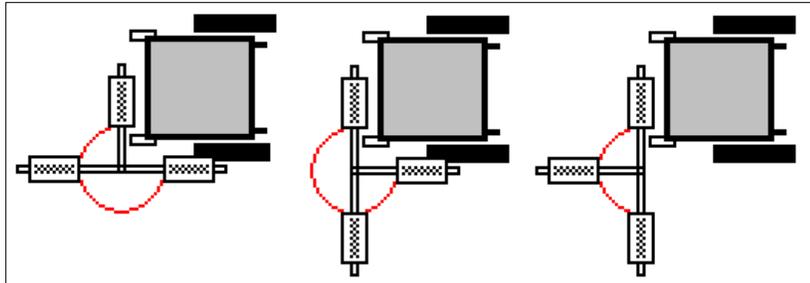
## ***Install the Frame Clamp – Removable Frame Clamp Receiver***

The Removable Frame Clamp Receiver (RFCR) is connected to the Inner components of the Frame Clamp Assembly with a Swivel Clamp.

## 2.4.3 Install the Vertical Tube and Index Clamp or ROP

### **DRM1 – Install the Vertical Tube and Index Clamp.**

The Index Clamp (IC1) is installed on the lower end of the Vertical Tube with the three holes downwards. Either end of the S-bent Vertical Tube can be used as the lower end. When there are obstructions directly above the Outer Piece it will be necessary to have the shorter end of the S down. When the Vertical Tube is several inches longer than the vertical distance from the Outer Piece to the required location of the Horizontal Tube the longer end of the S will be down to allow the extra length of Vertical Tube to pass down through the Outer Piece.



Remove the plastic plug retaining the Pinch Clamp in its hole in the IC1 and insert the end of the Vertical Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to allow the Vertical Tube to slide through. Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the Vertical Tube will not enter the hole. Tighten the bolt in the Pinch Clamp only enough to prevent the IC1 falling off when the Vertical Tube is held upright.

### **Setting the In-Use and Swung-Away positions of the DRM1**

The tube hole in the IC1 is offset from the center of the component leaving a “thick” wall on one side and a “thin” wall on the other. On the underside of the thick wall are three pinholes, which receive the Index Pin on the UFCOP. One pinhole will provide the in-use position of the mount, while the remaining two pins are swung-away positions. Before the Pinch Clamp is fully tightened the IC1 can be rotated around the Vertical Tube to change the orientation of the swing-away positions for the mount, Figure 2.4-6 illustrates the possibilities. The ROP Version DRM1 does not have the option of rotating away and must be fully removed from the wheelchair to gain unimpeded access to the User.

Figure 2.4-6 There are three configurations for the index positions of the DRM1, dependent on the orientation of the IC1.

### **DRM1ROP – Install the Vertical Tube and Removable Outer Piece**

The Removable Outer Piece (ROP) is installed on the lower end of the Vertical Tube oriented to match the Removable Frame Clamp Receiver (RFCR) that is connected to the wheelchair. Either end of the S-bent Vertical Tube can be used as the lower end. When there are obstructions directly above the ROP it will be necessary to have the shorter end of the S down. When the tube is several inches longer than the vertical distance from the ROP to the required location of the Horizontal Tube the longer end of the S will be down to allow the extra length of tube to pass down through the Outer Piece.

Remove the plastic plug retaining the Pinch Clamp in its hole in ROP and insert the end of the Vertical Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to

allow the tube to slide through. Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the tube will not enter the hole. Tighten the bolt in the Pinch Clamp only enough to prevent the ROP falling off when the tube is held upright.

### **Adjust the height and S-bend orientation**

To set the height of the DRM1 slide the IC1 down the Vertical Tube until the “in-use” pinhole engages the Index Pin and the IC1 is resting on the UFCOP. Lower the Vertical Tube through the tube hole in the UFCOP until the top end is at approximately the correct height for the mounted device.

To set the height of the DRM1ROP insert the ROP into the RFCR and lower the Vertical Tube through the

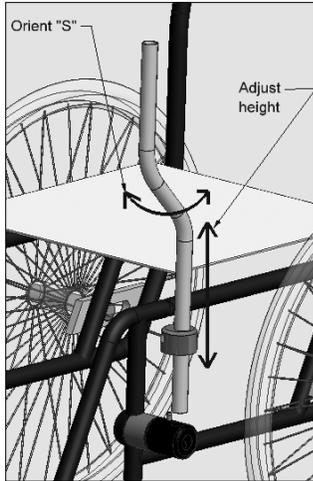


Figure 2.4-7a  
The Vertical Tube height, and the orientation of the S-bend are adjusted at the Index Clamp.

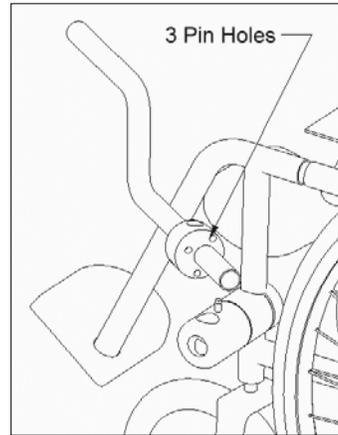


Figure 2.4-7b  
The 3 Pin Holes in the bottom of the Index Clamp are oriented to set the in-use and swung-away positions of the mount.

tube hole in the ROP until the top end is at approximately the correct height for the mounted device.

Rotate the Vertical Tube within the Outer Piece tube hole until the S-bend is in the correct orientation to avoid obstructions and the top end of the tube is the correct distance front-to-back. Tighten the Pinch Clamp enough to hold the Vertical Tube firmly in place.

#### **Caution:**

The bolt on the Pinch Clamp should not be excessively tightened. The Pinch Clamp grips the Vertical Tube sufficient to prevent it rotating in the Index Clamp or Removable Outer Piece when the Horizontal Tube is pushed firmly by a user. By design the Pinch Clamp does not provide an immovable grip. Extreme tightening of the Pinch Clamp bolt on the Vertical Tube in an attempt to prevent the Horizontal Tube from moving when very forcefully pushed, will crush the tube and jam the Pinch Clamp. DAESSY mounting assemblies are designed to carry the weight of a computer or communication device and are not intended to resist a strong force exerted by the user.

## 2.4.4 Connect the Horizontal and Vertical Tubes

A Tube Connector (TC90) joins the Vertical Tube to the Horizontal Tube at a right angle.

Separate the two halves of the Tube Connector and insert the Horizontal and Vertical Tubes into the half of the TC90 with the threaded holes. Align the Horizontal Tube straight across the wheelchair. Bolt on the unthreaded half of the TC90 and tighten the bolts alternately until they are fully tight. There will be a slight gap between the halves of the Tube Connector when the bolts are fully tight; this gap should be approximately even around the Tube Connector.

If the connection between the two tubes needs to be reoriented the Tube Connector joint must be fully dismantled. The tube holes in the TC90 are a tight fit on the tubes and will not rotate easily when the bolts are loosened. To release the two halves of the connector from the tubes when the bolts are removed it may be necessary to knock them against a firm surface to jar them loose.

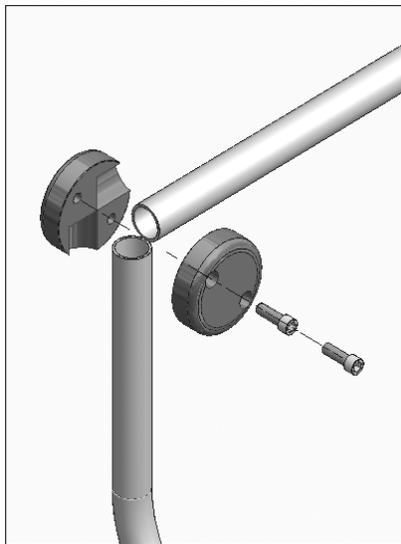
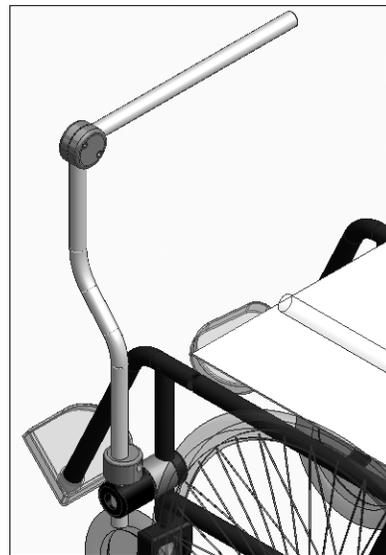


Figure 2.4-8  
Install the Horizontal  
and Vertical Tubes in  
the Tube Connector.

Figure 2.4-9  
The Horizontal Tube should  
be aligned in front of the  
wheelchair. The Tube  
Connector must be fully  
dismantled if the alignment  
needs adjusting.



### **2.4.5 Install the Total Quick Release Base – TUSB**

Remove the plastic plug retaining the Pinch Clamp in its hole in the TUSB and slide it onto the Horizontal Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to allow the tube to slide through. Refer to **1.7: Adjustment and Maintenance** if the Pinch Clamp is not aligned and the tube will not enter the hole.

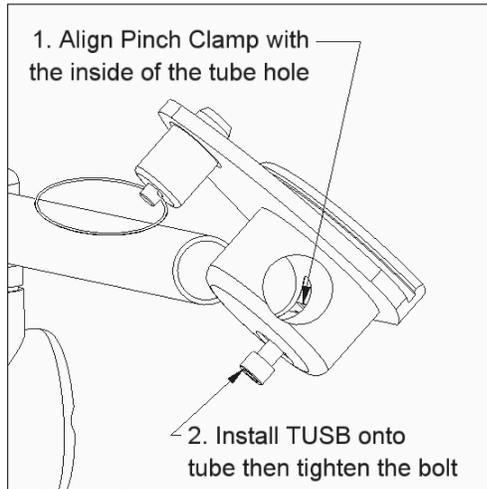


Figure 2.4-10  
The Quick Release Base slides on the end of the Horizontal Tube and is held in place with a Pinch Clamp. Normally the Locking Pin is oriented away from the user.

### **Quick Release Orientation**

The Total Quick Release Base can be clamped at any location along the Horizontal Tube and may be rotated around the tube to place the mounted device at any angle. The normal orientation for the TUSB is with the Locking Pin positioned away from the user. Adapters and Holders that attach devices and computers onto the TUSB are assembled for this orientation.

### **2.4.6 Final Adjustment and Checklist**

Before attaching a device to the DAESSY Rigid Mount DRM1 check that the following steps in the installation procedure have been completed.

- Bolts on Frame Clamp Inner Piece fully tight
- Bolts on Swivel Clamp fully tight. Tighten these bolts alternately to get the most effective grip.
- Pinch Clamp bolts tight



### 3. DAESSY Folding Mount – DFM2 and DFM2ROP

#### 3.1 Product Overview



Figure 3.1-1 The DAESSY Folding Mount assembled on a power wheelchair

The DAESSY Folding Mount – DFM2 consists of two lengths of stainless steel tube joined by a Folding Mechanism. The Horizontal Tube can be lifted through an angle of 90° and rotated down 180° to place the Horizontal Tube and Vertical Tube parallel along the side of the wheelchair. The complete mount can be removed leaving only the Frame Clamp assembly attached to the wheelchair frame; in its folded configuration the DFM2 is a very compact unit for storage or transportation.

The mount is supported on the wheelchair by a Frame Clamp Assembly, which is permanently attached to either the left or right side of the wheelchair.

For the standard DFM2 the Frame Clamp Assembly is composed of a Frame Clamp Inner Piece and a Frame Clamp Outer Piece. The Inner Piece is clamped to the wheelchair frame while the Outer Piece holds the vertical mount tube. An Index Clamp (IC1) secured around the lower end of the Vertical Tube engages with a positioning pin on the Frame Clamp Outer Piece to position the tube and prevent rotation.

The ROP Version of the Folding Mount – DFM2ROP incorporates a Locking Mechanism at the Frame Clamp. The increased security of the connection between the Removable Frame Clamp Receiver and the Removable Outer Piece makes the Folding Mount ROP Version suitable for tilting seat systems.

Figure 3.1-2 The DAESSY Folding Mount ROP Version may be used on a tilting seat system.



**Caution:**

Rarely does the user have the necessary combination of strength and dexterity to perform the folding operation unaided.

In the folded position the attached device protrudes beyond the side of the wheelchair making it vulnerable to collisions if the wheelchair is moved. In particular large keyboard devices that are tilted to allow the user full access may protrude a considerable amount and the DFM2 may not be appropriate for these devices. In some cases use of a Folding Quick Release Base (USBF) will allow the device to be folded to a more protected configuration when stored beside the wheelchair. **1.5 Attachment of Devices to DAESSY – The Quick Release System** contains more information on the USBF.

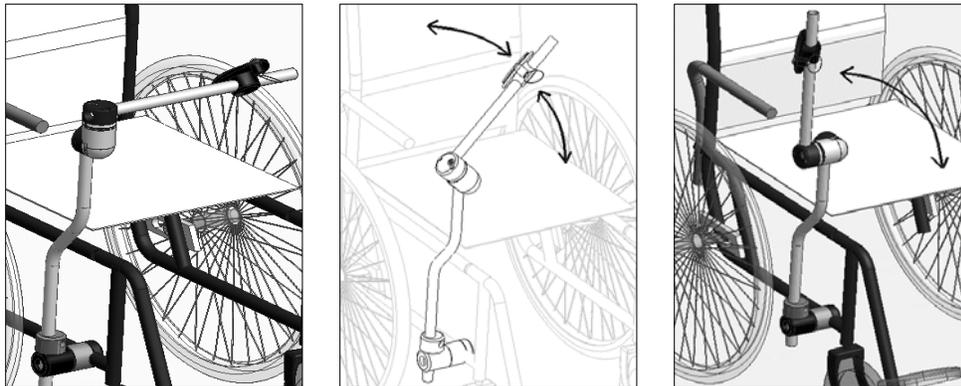
Whenever the wheelchair is moved with the mount folded, it is recommended that the device be detached from the mount and carried separately.

When the mount is folded the unbalancing effect of heavy devices on small wheelchairs is reduced but not eliminated, and it may be advisable to remove the device or mount before the wheelchair is vacated.

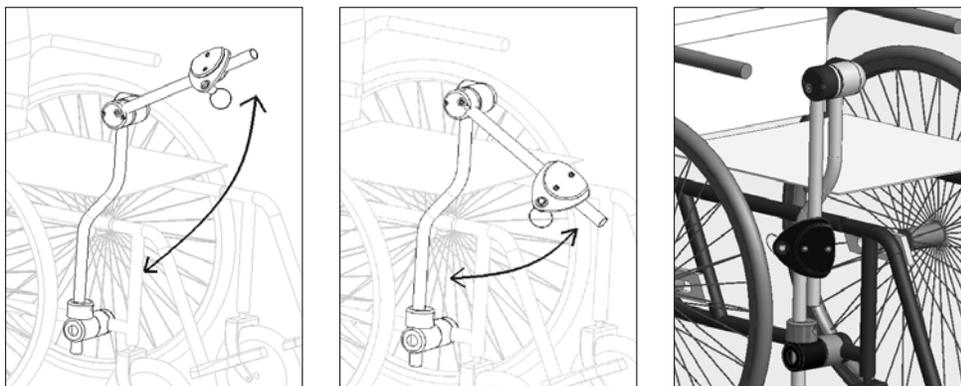
## Choice of Folding Direction

The folding sequence has two steps. The first movement rotates the Horizontal Tube up through an angle of 90°. The second movement is a rotation of the Horizontal Tube down through 180° to place it parallel to the Vertical Tube. The initial direction of the second rotation can be either forward or backward. The factory default assembly of the Folding Mechanism (RTH+2RTHM) will result in forward rotation when the mount is installed on the right side of the wheelchair (user's perspective) and backward rotation when the mount is assembled on the left side of the wheelchair. The Folding Mechanism can be converted to provide opposite directions of downward rotation (see **3.4.4 Changing from Right Hand to Left Hand Assembly**).

### Right Side Folding Sequence – Default Setting



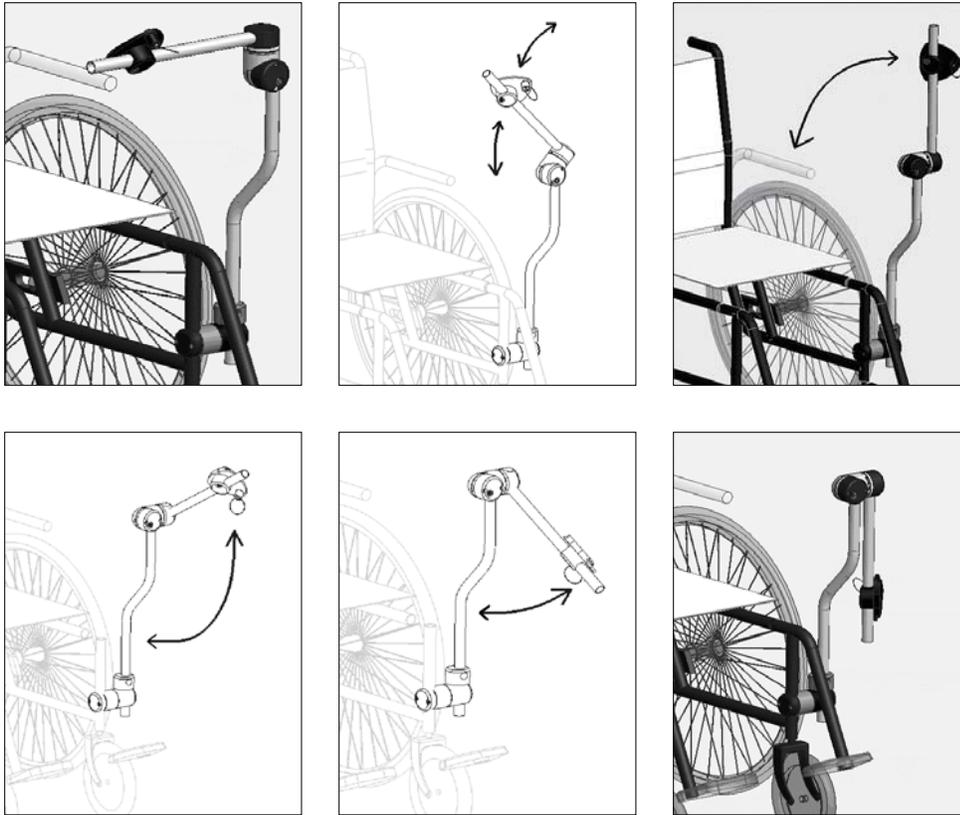
From the In-use position the Horizontal Tube is lifted up, rotating at the Folding Mechanism, to bring it parallel to the Vertical Tube.



From the Vertical Position the Horizontal Tube is rotated forward and down through 180-degrees to bring it down to a position beside the wheelchair.

### Left Side Folding Sequence – Default Setting

From the In-use position the Horizontal Tube is lifted up, rotating at the Folding Mechanism, to bring it parallel to the Vertical Tube.



From the Vertical Position the Horizontal Tube is rotated backward and down through 180-degrees to bring it down to a position beside the wheelchair.

When the wheelchair user has the strength and dexterity needed to perform the folding sequence the movements may be easier with backward folding. The Horizontal Tube and mounted device must be held though the entire sequence – not merely lifted and dropped – and the backwards and down motion may be better suited to the natural motion of the user's arm. When an aide folds the mount, there is little or no advantage to backward folding.

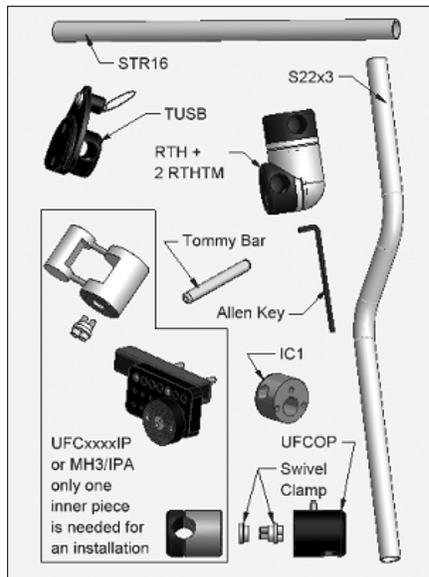
On many wheelchairs, the backwards rotation of the Horizontal Tube will be obstructed by the rear wheel or other fittings, and the S-Tube must be positioned to hold the Folding Mechanism further out from the wheelchair to avoid these obstructions.

## 3.2 Parts of the DFM2 and DFM2ROP

The Standard Parts of the DAESSY Folding Mount and common variations are listed below; Parts which may differ from situation to situation are indicated with a \*.

| Part Code  | Part Name                            | DFM2 | DFM2ROP |
|------------|--------------------------------------|------|---------|
| STR16      | Horizontal Tube                      | ✓    | ✓       |
| *S22x3     | Vertical Tube                        | ✓    | ✓       |
| RTH+2RTHTM | Folding Mechanism with 2 Tube Mounts | ✓    | ✓       |
| *TUSB      | Total Quick Release Base             | ✓    | ✓       |
| *UFCxxxxIP | Frame Clamp Inner Piece              | ✓    | ✓       |
| UFCOP      | Frame Clamp Outer Piece              | ✓    |         |
| IC1        | Index Clamp                          | ✓    |         |
| RFCR       | Removable Frame Clamp Receiver       |      | ✓       |
| ROP        | Removable Outer Piece                |      | ✓       |
| Swivel     | Swivel Clamp                         | ✓    | ✓       |
| DMSTools   | Assembly Tools                       | ✓    | ✓       |

The size and shape of the required Frame Clamp Inner Piece must be specified with the order of a standard mount. **1.3 Attaching and Positioning DAESSY – Frame Clamps** provides comprehensive information on DAESSY Frame Clamp options.



The standard part list will be appropriate for many mounting situations. Variations in the standard list will be necessary for some situations. Common variations include changes in the length and shape of the Vertical Tube, additional Frame Clamp components to avoid obstructions with other wheelchair fittings, and different styles of the Quick Release Base. More information can be found in **1.4 Attaching and Positioning DAESSY – Tube Lengths and Shapes** and **1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System**. The Fitting Procedure (**3.3 Fitting the DAESSY Folding Mount DFM2, DFM2ROP**) will identify what variations are necessary.

In addition to the standard and variation parts an adapter plate or device holder is necessary to complete the mount. **1.6 Attachment of Devices to DAESSY Mounts – Adapters and Holders** provides comprehensive information on DAESSY Adapters plates and Holders.

### **3.3 Fitting the DAESSY Folding Mount DFM2, DFM2ROP**

A communication device or laptop computer, when mounted on a wheelchair, must be correctly positioned to make it comfortably accessible to the user. The Fitting procedure for the determines the attachment point for the Frame Clamp assembly on the wheelchair, and the tube lengths required to place the device correctly relative to this attachment location. Before the fitting procedure is started it is necessary to first determine the required position for the device. This position will depend on the needs of the user and the device to be mounted.

The fitting procedure is the same for the DAESSY Rigid Mount and the DAESSY Folding Mount.

#### ***Standard Mounting Assemblies and Fitting Exceptions***

The standard tube length of 22 inches with an S-bend offset of 3 inches is suitable for many situations when the device is mounted for direct access on a medium size wheelchair but it is essential that the fitting procedure be followed for mounting a scanning or headpointer operated device as these are normally mounted higher and further away from the user than is possible with the standard tube dimensions. When the mount will be installed on a small wheelchair for a young or smaller user, the fitting procedure should be followed to ensure the correct tube dimensions are ordered. Tubing is available in a wide range of lengths and S-bend offsets.

#### **Caution:**

The ends of the stainless steel tube provided by Daedalus Technologies, Inc. are fully machined and chamfered to minimize sharp edges. Daedalus Technologies, Inc. strongly disapproves of the tube being cut to length by purchasers. Cutting the stainless steel tube by any method produces very sharp and hazardous edges.

#### ***Steps in the Fitting Procedure***

- Selecting the Frame Clamp attachment location
- Determining the Frame Clamp size
- Measuring and Specifying the Tube Length and Shape

### **3.3.1 Selecting the Frame Clamp attachment location**

The DAESSY Folding Mount – DFM2 can be mounted on either the left or right side of a wheelchair with left and right defined from the position of the person seated in the wheelchair.

The Frame Clamp Inner Piece (UFCxxxIP) requires slightly more than two inches of length and three-quarter inches of space above and below the wheelchair frame tube to which it will be clamped. There should be sufficient room for a hand to reach behind the tube to tighten bolts. It does not matter how the wheelchair frame tube is oriented because the Swivel Clamps allow the Offset Links and Rear Folding Adapter to be rotated to any angle relative to the Frame Clamp Inner Piece.

**Caution:**

The selected location must be part of the wheelchair frame, not a removable armrest or footrest

Most often the best location for the Frame Clamp assembly will be near the front caster wheel but preferably not above it. The Vertical Tube for the mount protrudes down through the hole in the Frame Clamp Outer Piece and the range of height adjustment for the mount may be limited if the tube interferes with the caster wheel.

In most situations the Frame Clamp Inner Piece will be located forward or backward from the position for the mounted device and the Vertical Tube supported by the Frame Clamp Outer Piece will have an S-bend.

#### **Obstructions**

Obstructions directly above the selected location, such as the brake lever or other controls, which are closer than 10" may interfere with insertion and removal of the Vertical Tube. To avoid this interference it may be necessary to use an Offset Link (O3L) or a Frame Clamp Spacer (UFCSPCR) between the inner and Outer Piece of the Frame Clamp to move the Outer Piece further out or position it sideways from the location of the Inner Piece.

#### **Quick Check**

A quick check for a suitable location for the Frame Clamp Inner Piece is to find a part of the frame tube which has enough space to be gripped by three fingers when reaching from inside the wheelchair frame.

#### **Unusual Situations**

Some wheelchairs do not have any tubing freely accessible on the frame or do not have a tube frame. When a seat pan restricts access to the upper edge of the wheelchair frame tubing, it may be possible to use a Side Mount Frame Clamp Inner Piece, which requires no clearance on the topside of the tube and only 1 1/4" clearance on the bottomside. When the wheelchair does not have a tube frame it may have boltholes or other possible attachment methods in a suitable location. In some cases Bolt-on Adapter may be substituted for the Inner Piece.

### **3.3.2 Determining the Frame Clamp size**

Comprehensive information for determining the correct Frame Clamp size can be found in **1.3 Attaching and Positioning DAESSY – Frame Clamps.**

### **3.3.3 Measure and Specify tube lengths and shapes**

The Vertical Tube of the DFM2 is supported in the Frame Clamp Outer Piece and connected to the Horizontal Tube by the Folding Mechanism (RTH+2RTHTM). Often the correct position for the device requires the Horizontal Tube to be offset forward or backwards from the location of the Frame Clamp Outer Piece, and the Vertical Tube will have two bends to form an S-shape that offsets the ends of the tube. On some wheelchairs an offset may be needed to allow the upper end of the Vertical Tube to clear a lap tray or control module.

#### ***Vertical Tube dimensions (Length and Offset)***

Two measurements are needed to determine the length and shape of the Vertical Tube. As shown in the diagram, these measurements are the horizontal distance (X) and vertical distance (Y) up the side of the wheelchair, between the Frame Clamp Outer Piece and the intended location of the Horizontal Tube. These measurements must be taken from the location of the Frame Clamp Outer Piece not the location of the Frame Clamp Inner Piece. When an Offset Link is used the Outer Piece will not be located at the same place as the Inner Piece.

When the DAESSY Quick Release is used to attach the device to the Horizontal Tube the centerline of most devices is between 1" and 3" forward of the tube (away from the user). For very precise horizontal positioning contact DAESSY for more information.

#### ***Interference between Vertical Tube and Fittings on a Wheelchair***

Fittings on the wheelchair between the location of the Frame Clamp Outer Piece and the position of the Horizontal Tube may interfere with the Vertical Tube. Sometimes this can be avoided by the correct placement of the S-bend. This is often possible when the S-bend can be nearer one end of the tube with the offset above the obstruction.

#### ***Position and Orientation of S-bend***

The S-bend on the Vertical Tube can be placed near one end of the tube or at the midpoint. The standard tube has 4 inches of straight tube at one end and 12 inches at the other. Either end may be at the top or bottom and the only limit on the location of the bend is that the shortest straight end possible is 2 inches.

#### ***Interference within 10 inches of the Frame Clamp location***

When the obstruction is directly above the location of the Frame Clamp Inner Piece and at a distance of less than 10 inches it may not allow sufficient clearance for the Vertical Tube to be lowered into the hole in the Frame Clamp Outer Piece. When the Frame Clamp Inner Piece is located very low on the wheelchair frame or above the front caster wheel, height adjustment of the mount by moving the Index Clamp up and down the Vertical Tube will be limited to the amount of clearance between the bottom of the Frame Clamp Outer Piece and the obstruction. In both these cases it may be necessary to use an Offset Link (O3L) or Spacer (UFCSPCR) to move the Outer Piece away from the location of the Inner Piece.

#### ***Specifying the Dimensions of the Vertical Tube***

When the X and Y measurements are used for specifying the length and offset the Y measurement will be rounded up to the nearest even number of inches and this will be the **L** distance for the tube supplied. The **X** measurement will be the **O** distance for the tube supplied and the **S** distance will be 4 inches.

When the S-bend must be a different distance from the end, or when extra length is added to provide a greater range of height adjustment the complete for overall length **L**, S-bend Offset **O**, and straight length on one end **S** should be included in any order.

## 3.4 Installing the DAESSY Folding Mount DFM2, DFM2ROP

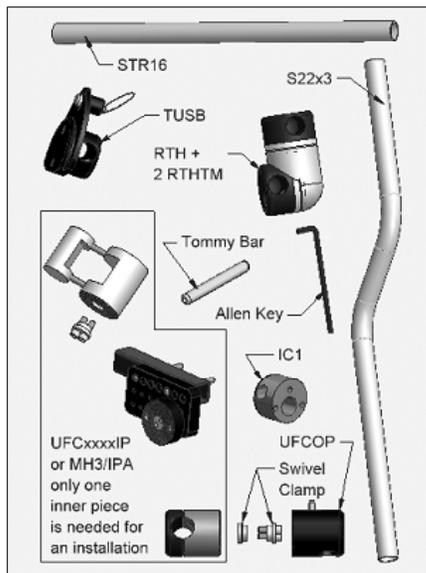
### Steps in the Installing Procedure

- Identify the Parts
- Install the Frame Clamp Inner Piece (and RFCR – ROP Version)
- Install the Vertical Tube with Index Clamp (or ROP – ROP Version)
- Install the Folding Mechanism and Horizontal Tube
- Install the Total Quick Release Base

### 3.4.1 Identify the Parts

The standard DAESSY Folding Mounts consist of the following parts:

| Part Code  | Part Name                            | DFM2 | DFM2ROP |
|------------|--------------------------------------|------|---------|
| STR16      | Horizontal Tube                      | ✓    | ✓       |
| S22x3      | Vertical Tube                        | ✓    | ✓       |
| RTH+2RTHTM | Folding Mechanism with 2 Tube Mounts | ✓    | ✓       |
| TUSB       | Total Quick Release Base             | ✓    | ✓       |
| UFCxxxIP   | Frame Clamp Inner Piece              | ✓    | ✓       |
| UFCOP      | Frame Clamp Outer Piece              | ✓    |         |
| IC1        | Index Clamp                          | ✓    |         |
| RFCR       | Removable Frame Clamp Receiver       |      | ✓       |
| ROP        | Removable Outer Piece                |      | ✓       |
| Swivel     | Swivel Clamp                         | ✓    | ✓       |
| DMSTools   | Assembly Tools                       | ✓    | ✓       |
|            | Installation Instructions            | ✓    | ✓       |



All the black anodized aluminium components have a part code stamped into the metal and these should be identified and laid out as shown in the picture. The Frame Clamp Inner Piece (UFCxxxIP), Vertical Tube (S22x3) and Quick Release Base (TUSB) may not be exactly as shown, and an Offset Link may be included. The ROP Version will have a Removable Frame Clamp Receiver and a Removable Frame Clamp Outer Piece in place of the UFCOP and the Index Clamp IC1.

Figure 3.4-1 Standard Parts layout for DAESSY Folding Mount.

#### Caution:

It is very important that all packaging be thoroughly inspected for loose parts and instruction papers. All the mount components must be identified and checked against the standard parts list, and the order list BEFORE any packaging is thrown away.

The Swivel Clamp for joining the UFCxxxxIP and UFCOP (or RFCR) is normally fastened into the longitudinal hole of the UFCOP. Pinch Clamps for securing the tubes into the TUSB and IC1 (or ROP) are normally installed in their holes in the parts and retained by a plastic plug in the tube hole.

The parts shown in Figure 3.4-1 are for a standard order. A customized mount may have different parts substituted.

Specific installation instructions may be supplied with components, especially components that vary from the standard parts list. In the case of contradictory instructions, component specific instructions provided with the mounting components will supersede the installation procedures outlined in this document

### 3.4.2 Install the Frame Clamp

The DAESSY Folding Mount (DFM2) can be mounted on either the left or right side of a wheelchair with left and right defined from the position of the person seated in the wheelchair.

Find the location on the wheelchair to attach the Frame Clamp Inner Piece. This should have been chosen during the Fitting Procedure as described in **3.3.1 Selecting the Frame Clamp attachment location**. Frequently the Frame Clamp will be installed near the front caster wheel, but make sure the selected location is part of the wheelchair frame, not a movable armrest or footrest.

Check that both the Frame Clamp and the Vertical Tube will not interfere with any of the wheelchair fittings or components. The caster wheel at the bottom should be free to spin; the brake lever and any other controls should remain accessible. If there is interference it may be necessary to use an Offset Link (O3L) or Frame Clamp Spacer (UFCSPCR) to displace the Frame Clamp Outer Piece forward, backward or further out from the position of the Frame Clamp Inner Piece. These components can be ordered individually from DAESSY if they have not been provided with the mount.

It does not matter how the wheelchair frame tube is oriented because the Swivel Clamp allows the Frame Clamp Outer Piece to be rotated to any angle relative to the Frame Clamp Inner Piece.

#### Assemble the Frame Clamp pieces

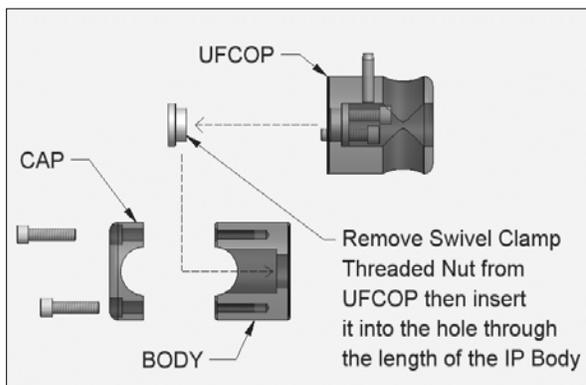


Figure 3.4-2  
The threaded end of a Swivel Clamp is inserted into the axial hole through the Frame Clamp Inner Piece Body.

The pieces of the complete Frame Clamp Assembly should be connected together before the Frame Clamp is installed on the wheelchair frame. For a standard mount these pieces will include a Frame Clamp Inner Piece (UFCxxxxIP) and a Frame Clamp Outer Piece (UFCOP) and a Swivel Clamp. The ROP Version mount will have a Frame Clamp Assembly consisting of a Frame Clamp Inner Piece (UFCxxxxIP), a Removable Frame Clamp Receiver (RFCR) and a Removable Outer Piece (ROP). The UFCxxxxIP and RFCR will be connected with a Swivel Clamp. Additionally the Frame Clamp Assembly may include Offset Links (O3L) and/or Frame Clamp Spacers (UFCSPCR) to clear any obstructions.

When the Inner Piece has a Cap and Body fastened with two screws the Cap must be removed so that the threaded end of the Swivel Clamp can be fitted in the long hole through the Inner Piece. Some Inner Pieces have integrated threaded holes for the Swivel Clamp bolts and do not use the threaded end.

On the standard Frame Clamp Assembly the unthreaded end of the Swivel Clamp fits in the hole through the length of the UFCOP. The long arm of the 3/16" Allen Key will be needed to reach the heads of the two bolts through the hole in the UFCOP. For the ROP Version the unthreaded end of the Swivel Clamp fits in the centre hole of the RFCR.

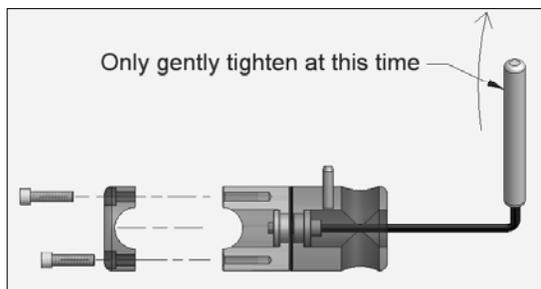


Figure 3.4-3  
The long arm of the 3/16" Allen Key will be needed to access the Swivel Clamp bolts within the UFCOP. The Tommy Bar is used to extend the short arm of the Allen Key to tighten the Swivel Clamp

If there are no Offset Links or Spacers needed to avoid obstructions the Frame Clamp Inner Piece is connected directly to the UFCOP or RFCR with one Swivel Clamp. If Offset Links or Frame Clamp Spacers are needed, these are connected between the UFCxxxxIP and UFCOP or RFCR with a Swivel Clamp at each joint. Longer Swivel Clamp bolts are provided with the UFCSPCR. The Swivel Clamps should be inserted into each joint so that the threaded end is closest to the wheelchair and the bolt heads remain accessible.

The adjoining faces of all the parts for a Frame Clamp Assembly have circular grooves to give extra friction against movement when assembled. The grooves on an Inner Piece engage with the grooves on an Outer Piece but will not engage with the grooves on another Inner Piece. Offset Links and Frame Clamp Spacers have the letters IP stamped into the metal beside the grooves that attach to the Inner Piece and OP stamped into the metal beside the grooves that attach to the Outer Piece. The bolts do not need to be fully tightened at this step. However when the bolts are finally tightened it may be necessary to use an extender on the short arm of the Allen Key to obtain sufficient torque. A four-inch length of aluminium with a long hole to fit the Allen Key is provided for this purpose. This tool is called the Tommy Bar.

**Caution:**

All the grooved faces must be correctly matched and engaged before the swivel clamp bolts are tightened.

Do not use the Tommy Bar to extend the long arm of the Allen Key.

With the DFM2ROP the Removable Outer Piece (ROP) should be inserted and locked into the Removable Frame Clamp Receiver (RFCR) to complete the assembly of the Frame Clamp. It may be necessary to loosen or remove the Pinch Clamp inside the ROP so that the Vertical Tube can be temporarily inserted for aligning the Frame Clamp.

### ***Attach the Frame Clamp to the wheelchair***

At the selected location fit the Cap and Body of the Frame Clamp Inner Piece around the tube. Replace the bolts but do not fully tighten them yet. The Cap should face towards the inside of the wheelchair and the Body, connected to the Outer Piece, should face away from the wheelchair.

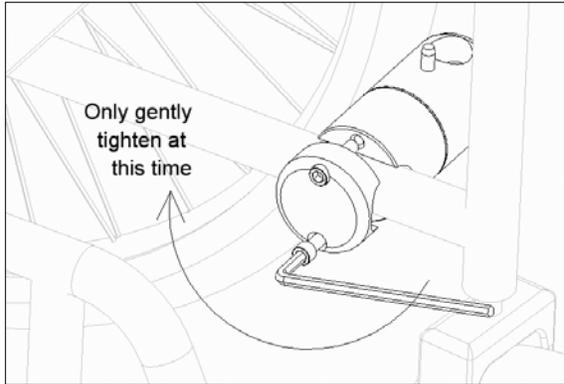


Figure 3.4-4  
The Cap and Body of the Frame Clamp Inner Piece fit around the wheelchair tube at the selected location. The two bolts are evenly, but gently tightened.

### ***Align the Frame Clamp***

On the standard version (non-ROP) the Frame Clamp Assembly must be aligned in two ways. The Inner Piece must be adjusted on the wheelchair frame tube so that the Outer Piece is facing directly outward. This is referred to as Sideways Alignment and is only necessary when the UFCxxxxIP is attached to round tubing. The Outer Piece must be rotated around the Swivel Clamp so that the tube hole is oriented vertically and the Index Pin is pointing up. This is referred to as Front-Back Alignment.

It is not necessary that the ROP Version of the DFM2 be aligned with the Vertical Tube oriented vertically front to back, however the Vertical Tube should still be aligned sideways to be parallel to the side of the wheelchair.

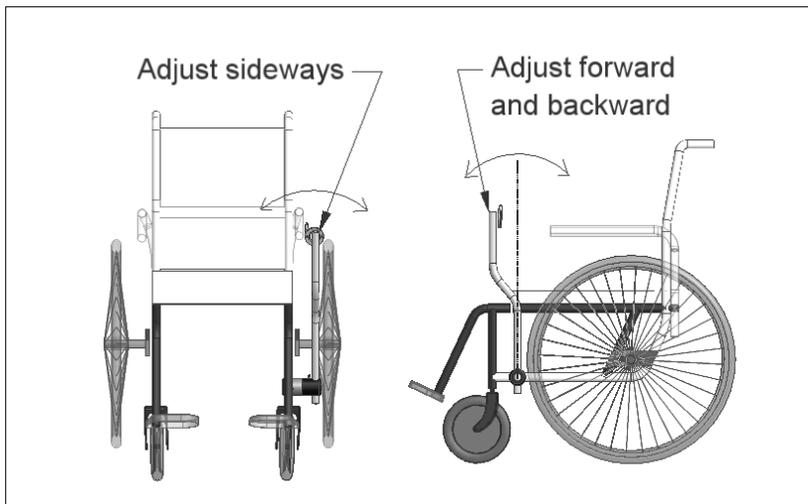


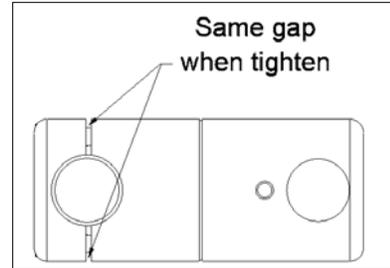
Figure 3.4-5  
The Vertical Tube is used as a lever and guide to align the Frame Clamp Sideways and Front to Back

### ***Sideways Alignment***

Use the Vertical Tube in the tube hole of the Outer Piece as a lever and alignment guide as shown in Figure 3.4-5. Hold the Vertical Tube parallel to the side of the wheelchair and alternately tighten the bolts connecting the Cap and Body of the Frame Clamp Inner Piece to clamp the wheelchair tube evenly.

**Important Note:**

When the bolts are fully tight and the tube is firmly gripped there should be a slight gap of 1/64" to 1/32" between the Cap and Body of the Frame Clamp Inner Piece. If the gap is wider than 1/16" the Frame Clamp Inner Piece is probably too small. If there is no gap and the tube is not gripped firmly when the bolts are fully tight remove the Inner Piece and tightly wrap some aluminium foil around the wheelchair tube at the attachment location. There is some variation in the tube size on different wheelchairs so it is sometimes necessary to use the foil. Make sure the aluminium foil does not get caught between the Cap and Body when the UFCxxxxIP is replaced and the bolts are tightened. Do not use paper or plastic. Do not use more than four layers of aluminium foil; more than this probably means the UFCxxxxIP is too large. Adapter Sleeves (SLV) can be purchased to downsize an overlarge Frame Clamp Inner Piece.



**Front-Back Alignment**

With the UFCxxxxIP attached firmly to the wheelchair, the tube hole in the Outer Piece is aligned vertically by rotating the Vertical Tube forward or backward before tightening the two bolts on the Swivel Clamp. The Vertical Tube has to be removed to do this so care must be taken not to move the Outer Piece. Use the Tommy Bar to get enough leverage and tighten the two bolts alternately to get the most efficient grip.

With the standard DFM2 (non ROP) the Vertical Tube may lean no more than 15° forward or backward from the vertical if this is necessary to obtain the correct position for the mounted device. Installation of the DFM2 at a greater angle from the vertical places extra load on the Index Pin in the Frame Clamp Outer Piece. In situations when the correct position for the device cannot be reached without leaning the tube beyond 15°, custom S-Tube with a larger bend and/or Offset Links should be used to obtain the correct position, or the ROP Version DFM2ROP may be used.

**Important Note:**

All the bolts should be tightened sufficient to hold the mounting assembly for normal loads; when excessive force is applied the mount may move and should move before the wheelchair frame is likely to bend.

It is the responsibility of the installer to ensure the mount is firm enough for their needs, but not over-tight, and to periodically check that the bolts have not vibrated loose.

### **3.4.3 Install the Vertical Tube and Index Clamp or ROP**

#### ***DFM2 – Install the Vertical Tube and Index Clamp.***

The Index Clamp (IC1) is installed on the lower end of the Vertical Tube with the three holes downwards. Either end of the S-bent Vertical Tube can be used as the lower end. When there are obstructions directly above the Outer Piece it will be necessary to have the shorter end of the S down. When the tube is several inches longer than the vertical distance from the Outer Piece to the required location of the Horizontal Tube the longer end of the S will be down to allow the extra length of tube to pass down through the Outer Piece.

Remove the plastic plug retaining the Pinch Clamp in its hole in the IC1 and insert the end of the Vertical Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to allow the tube to slide through.

Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the tube will not enter the hole. Tighten the bolt in the Pinch Clamp only enough to prevent the IC1 falling off when the tube is held upright.

#### ***Setting the In-Use and Swung-Away positions of the DFM2***

On the underside of the Index Clamp (IC1) are three pinholes, which receive the Index Pin on the UFCOP. For the DFM2 it does not matter which pinhole is chosen to receive the Index Pin on the Outer Piece.

#### ***DFM2ROP – Install the Vertical Tube and Removable Outer Piece***

The Removable Outer Piece (ROP) is installed on the lower end of the Vertical Tube oriented to match the Removable Frame Clamp Receiver (RFCR) that is connected to the wheelchair. Either end of the S-bent Vertical Tube can be used as the lower end. When there are obstructions directly above the Removable Outer Piece it will be necessary to have the shorter end of the S down. When the tube is several inches longer than the vertical distance from the Removable Outer Piece to the required location of the Horizontal Tube the longer end of the S will be down to allow the extra length of Vertical Tube to pass down through the Outer Piece.

Remove the plastic plug retaining the Pinch Clamp in its hole in ROP and insert the end of the Vertical Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to allow the Vertical Tube to slide through.

#### **Notice:**

Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the tube will not enter the hole.

Tighten the bolt in the Pinch Clamp only enough to prevent the ROP falling off when the Vertical Tube is held upright.

## Adjust the height and S-bend orientation

To set the height of the DFM2 slide the IC1 down the Vertical Tube until the “in-use” pinhole engages the Index Pin and the IC1 is resting on the UFCOP. Lower the Vertical Tube through the tube hole in the UFCOP until the top end is at approximately the correct height for the mounted device.

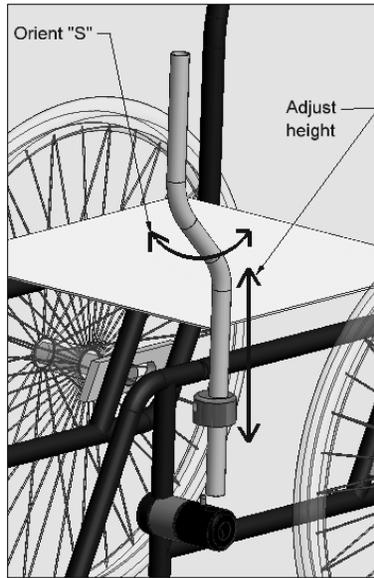


Figure 3.4-6  
The Vertical Tube height, and the orientation of the S-bend are adjusted at the Index Clamp.

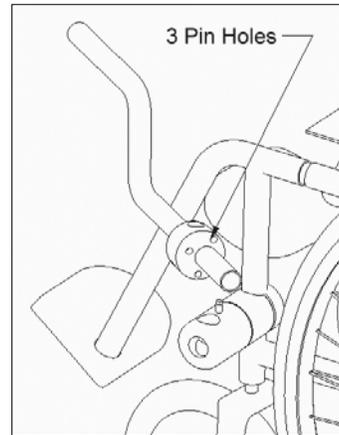


Figure 3.4-7  
The 3 Pin Holes in the bottom of the Index Clamp are oriented to set the in-use and swung-away positions of the mount.

To set the height of the DFM2ROP insert the ROP into the RFCR and lower the Vertical Tube through the tube hole in the ROP until the top end is at approximately the correct height for the mounted device.

Rotate the Vertical Tube within the Outer Piece tube hole until the S-bend is in the correct orientation to avoid obstructions and the top end of the tube is the correct distance front-to-back.

Tighten the Pinch Clamp enough to hold the Vertical Tube firmly in place.

### Caution:

The bolt on the Pinch Clamp should not be excessively tightened. The Pinch Clamp grips the Vertical Tube sufficient to prevent it rotating in the Index Clamp or Removable Outer Piece when the Horizontal Tube is pushed firmly by a user. By design the Pinch Clamp does not provide an immovable grip. Extreme tightening of the Pinch Clamp bolt on the Vertical Tube in an attempt to prevent the Horizontal Tube from moving when very forcefully pushed, will crush the tube and jam the Pinch Clamp. DAESSY mounting assemblies are designed to carry the weight of a computer or communication device and are not intended to resist a strong force exerted by the user.

### ***3.4.4 Connect the Horizontal and Vertical Tubes with the Folding Mechanism***

#### ***Orientation of the Folding Mechanism***

When the DAESSY Folding Mount is on the right side of the wheelchair the Tube Mount (stamped with the letters RTHTM), which is mounted on the end of the Vertical Tube, faces toward the rear of the wheelchair. When the DFM2 is on the left side of the wheelchair the Tube Mount, which is mounted on the end of the Vertical Tube, faces away from the wheelchair.

#### ***Choice of Folding Direction***

The folding sequence has two steps. The first movement rotates the Horizontal Tube up through an angle of 90°. The second movement is a rotation of the Horizontal Tube down through 180° to place it parallel to the Vertical Tube. The initial direction of the second rotation can be either forward or backward. The Folding Mechanism can be converted to provide opposite directions of downward rotation.

When the wheelchair user has the strength and dexterity needed to perform the folding sequence the movements may be easier with backward folding. The Horizontal Tube and mounted device must be held through the entire sequence – not merely lifted and dropped – and the backwards and down motion may be better suited to the natural motion of the user's arm. When an aide is folding the mount, there is little or no advantage to backward folding.

On many wheelchairs, the backwards rotation of the Horizontal Tube will be obstructed by the rear wheel or other fittings, and the S-Tube must be positioned to hold the Folding Mechanism further out from the wheelchair to avoid these obstructions.

## Changing from Right Hand to Left Hand Assembly

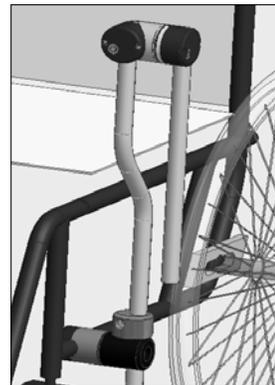
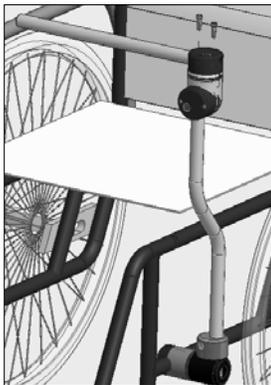


The Folding Mechanism is usually supplied with the Tube Mount (RTHTM) for the Horizontal Tube assembled for right-hand installation with forward folding. The letters R and L are stamped into the silver coloured ring to which the Tube Mount bolted. The default assembly has the tube hole located over the R for right-hand.

Figure 3.4-8 The hole in the tube-mount for the Horizontal Tube is located over the stamped letter R.

The following steps change the Folding Mechanism to left-hand folding:

- Remove the tube mount by removing the two tube mount bolts
- Rotate the tube mount 180 degrees to position the tube hole over the L
- Reattach the tube mount in the new position (the horizontal tube will point away from the wheelchair)
- Fold the horizontal straight tube down toward the floor (the mount is now in the folded position)



### ***Install the Folding Mechanism (RTH+2RTHM) and Horizontal Tube***

Remove the plastic plug holding the Pinch Clamp in the Tube Mount for the Vertical Tube. Check that the Pinch Clamp is correctly aligned and slide the Tube Mount onto the end of the Vertical Tube. Orient the Folding Mechanism to face towards the rear of the wheelchair if the mount is installed on the right-hand side of the wheelchair or to face toward the front if the mount is installed on the left-hand side. Tighten the Pinch Clamp Bolt. Remove the plastic plug holding the Pinch Clamp in the Tube Mount for the Horizontal Tube. Check that the Pinch Clamp is correctly aligned and install the Horizontal Tube and tighten the Pinch Clamp Bolt.

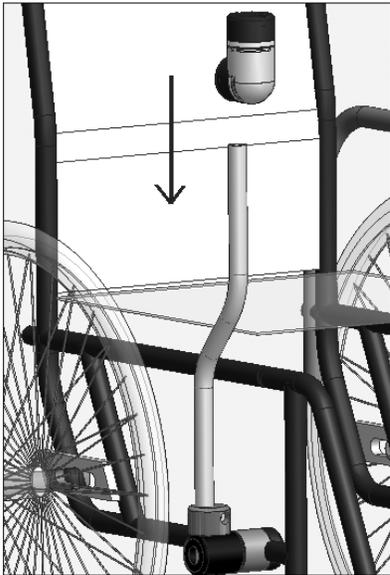


Figure 3.4-9  
Install the Folding Mechanism on the Vertical Tube

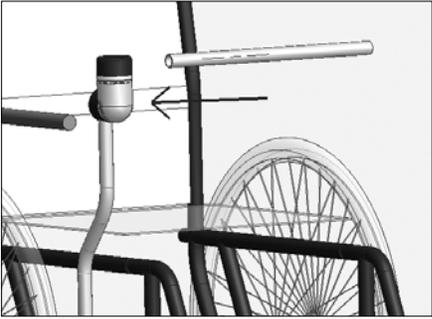


Figure 3.4-10 Install the Horizontal Tube into the Folding Mechanism.

**Caution:**

The bolts on the Pinch Clamps should not be excessively tightened. The Pinch Clamps grip the tubes sufficient to prevent rotation when the mount is pushed firmly by a user. By design a Pinch Clamp does not provide an immovable grip. Extreme tightening of the Pinch Clamp bolt in an attempt to prevent the tube from moving when very forcefully pushed, will crush the tube and jam the Pinch Clamp. DAESSY mounting assemblies are designed to carry the weight of a computer or communication device and are not intended to resist a strong force exerted by the user.

### **3.4.5 Install the Total Quick Release Base – TUSB**

Remove the plastic plug retaining the Pinch Clamp in its hole in the TUSB and slide it onto the Horizontal Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to allow the tube to slide through. Refer to **1.7: Adjustment and Maintenance** if the Pinch Clamp is not aligned and the tube will not enter the hole.

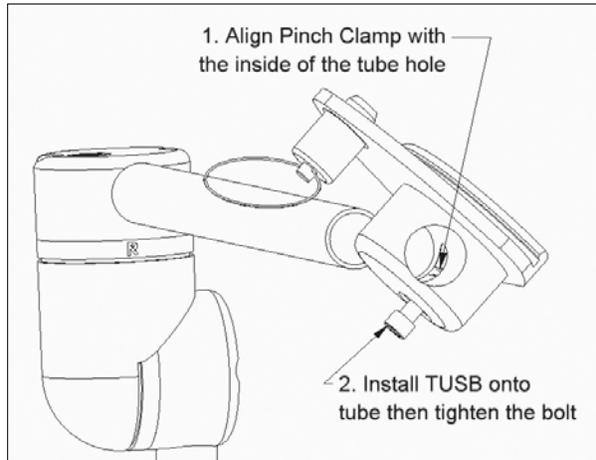


Figure 3.4-11  
The Quick Release Base slides on the end of the Horizontal Tube and is held in place with a Pinch Clamp. Normally the Locking Pin is oriented away from the user.

#### **Quick Release Orientation**

The Total Quick Release Base can be clamped at any location along the Horizontal Tube and may be rotated around the tube to place the mounted device at any angle. The normal orientation for the TUSB is with the Locking Pin positioned away from the user. Adapters and Holders that attach devices and computers onto the TUSB are assembled for this orientation.

### **3.4.6 Final Adjustments and Checklist**

Before attaching a device to the DAESSY Folding Mount DFM2 check that the following steps in the installation procedure have been completed.

- Bolts on Frame Clamp Inner Piece fully tight
- Bolts on Swivel Clamp fully tight. Tighten these bolts alternately to get the most effective grip.
- Pinch Clamp bolts tight



## 4. DAESSY Locking Swing Away Mount

### 4.1 Product Overview



Figure 4.1-1 The DAESSY Locking Swing Away Mount on a power wheelchair

The DAESSY Locking Swing Away Mount – DLSA7 consists of a single length of stainless steel tube bent to form a right angle. This bent tube is supported in a Frame Clamp Assembly permanently attached to the left or right side of the wheelchair. Locking Swing-Away Outer Piece holds the bent tube with one arm of the right angle coming vertically up the side of the chair and the other passing horizontally across in front of the user. A spring-loaded Locking Pin in the Index Clamp for Locking Swing-Away secured to the lower end of the vertical section of the bent tube engages with one of three holes in the Outer Piece to prevent rotation of the mount.

The spring loaded Locking Pin is retracted by pulling a Release Cable that passes along the horizontal section of the tube under the mounted device. This allows the mount to be freely swung away from the user. Depending on the orientation of the ICLSA the mount can be relocked at two positions 90° or 180° or 270° away from the user. The DAESSY Locking Swing Away Mount may also be lifted entirely out of the Locking Swing-Away Outer Piece (LSAOP) and completely removed from the wheelchair.

The DLSA7 is especially suited to users with the dexterity to reach the Release Cable under the mounted device, unlock the mount, and swing it away and the ability to reach the mount to swing it back. Alternatively an aide may operate the Release Cable and this mount may be easier to move away from the user than the similar DAESSY Rigid Mount – DRM1.

#### **Caution:**

When the Locking Swing-Away Mount is swung away the mounted device is located outside the wheels of the wheelchair, which makes it vulnerable to collision if the wheelchair is driven.

In the swung away position the weight of the device may unbalance a manual wheelchair. When used on this type of chair the mount should be removed or the mounted device detached before the chair is vacated.

The DLSA7 may not be an appropriate choice for scanning and head-pointer applications or for very small wheelchairs.

The Locking Swing-Away mount is not suitable for tilting seat systems.

## 4.2 Parts of the DAESSY Locking Swing-Away Mount DLSA7

The standard DAESSY Locking Swing Away Mount - DLSA7 consists of the parts listed below:

| Part Code | Part Name  |
|-----------|--|
| UFCxxxIP  | Frame Clamp Inner Piece.   |
| LSAOP     | Locking Swing Away Outer Piece   |
| O3L       | Offset Link.   |
| ICLSA     | Index Clamp for Locking Swing Away.  |
| CABLE     | Cable Assembly to release the Locking Pin, preinstalled on Right Angle Tube. |
| RT22x16   | Right Angle Tube 22 inches vertical by 16 inches horizontal.                 |
| TUSB      | Total Quick Release Base   |

The size and shape of the required Frame Clamp Inner Piece must be specified with the order of a standard mount. **1.3 Attaching and Positioning DAESSY – Frame Clamps** provides comprehensive information on DAESSY Frame Clamp options.

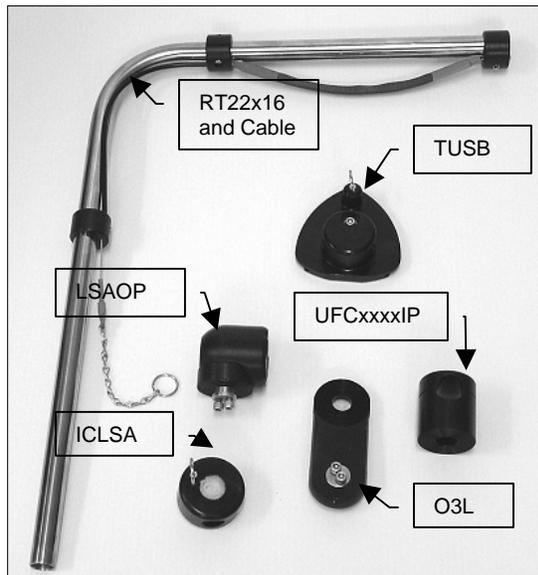


Figure 4.2-1 Standard parts layout for the DAESSY Locking Swing Away Mount – DLSA7.

The standard part list will be appropriate from many mounting situations. Variations in the standard list will be necessary for some situations. Common variations include changes in the length of the Right Angle Tube (RT22x16), additional Frame Clamp components to avoid obstructions with other wheelchair fittings, and different styles of the Quick Release Base. More information can be found in **1.4 Attaching and Positioning DAESSY – Tube Lengths and Shapes** and **1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System**.

The Fitting Procedure (**4.3 Fitting the DAESSY Locking Swing-Away Mount DLSA7**) will identify what variations are necessary.

In addition to the standard and variation parts an adapter plate or device holder is necessary to complete the mount. **1.6 Attachment of Devices to DAESSY Mounts – Adapters and Holders** provides comprehensive information on DAESSY Adapters plates and Holders.

## 4.3 Fitting the DAESSY Locking Swing-Away Mount DLSA7

A communication device or laptop computer, when mounted on a wheelchair, must be correctly positioned to make it comfortably accessible to the user. The Fitting procedure determines the to place the device correctly relative to this attachment location. Before the Fitting procedure is started it is necessary to first determine the required position for the device. This position will depend upon the needs of the user and the type of device being mounted.

### ***Standard Mounting Assemblies and Fitting Exceptions***

The standard tube length of 22 inches vertical with a right-angle bend and 16 inches horizontal is suitable for many situations when the device is mounted for direct access on a medium size wheelchair.

When the device to be mounted is a scanning or head-pointer operated, or when the mount will be installed on a small wheelchair it is essential to follow the fitting procedure as the standard tube dimensions are not likely to be suitable. It may be that the Locking Swing-Away Mount – DLSA7 is not suitable for these non-standard situations. The DAESSY Rigid Mount – DRM1 may be a better choice.

#### **Caution:**

The ends of the stainless steel tube provided by Daedalus Technologies, Inc. are fully machined and chamfered to minimize sharp edges. Daedalus Technologies, Inc. strongly disapproves of the tube being cut to length by purchasers. Cutting the stainless steel tube by any method produces very sharp and hazardous edges.

### ***Steps in the Fitting Procedure***

- Selecting the Frame Clamp attachment location
- Determining the Frame Clamp size
- Determining the Offset Links required and the Vertical Tube length

#### ***4.3.1 Selecting the Frame Clamp attachment location***

Comprehensive information for selecting a Frame Clamp attachment location can be found in **1.3 Attaching and Positioning DAESSY – Frame Clamps**. The DAESSY Locking Swing Away Mount – DLSA7 can be mounted on either the left or right side of a wheelchair as defined from the position of the person seated in the wheelchair.

The Frame Clamp Inner Piece (UFCxxxxIP) requires slightly more than two inches of length and three-quarter inches of space above and below the wheelchair frame tube to which it will be clamped. There should be sufficient room for a hand to reach behind the behind the tube to tighten bolts. It does not matter how the wheelchair frame tube is oriented because the Swivel Clamps allow the Offset Links and Rear Folding Adapter to be rotated to any angle relative to the Frame Clamp Inner Piece.

#### **Caution:**

The selected location must be part of the wheelchair frame, not a removable armrest or footrest

Often the best location for the Frame Clamp assembly will be near the front caster wheel but preferably not above it. The Vertical Tube for the mount protrudes down through the hole in the Frame Clamp Outer Piece and the range of height adjustment for the mount may be limited if the tube interferes with the caster wheel.

In most situations the Frame Clamp Inner Piece will be located forward or backward from the position for the mounted device. The Offset Link (O3L) used as part of the Frame Clamp Assembly for the DLSA7 allows the Outer Piece to be offset from the attachment point of the Inner Piece. An additional Offset Link may be required for large offsets.

## **Obstructions**

Obstructions directly above the selected location for the Frame Clamp Inner Piece, such as the brake lever or other controls, which are closer than 10" may interfere with insertion and removal of the Vertical Tube. To avoid this interference it may be necessary to use an Offset Link (O3L) or a Frame Clamp Spacer (UFCSPCR) between the Inner and Outer Piece of the Frame Clamp to move the Outer Piece further out or position it sideways from the location of the Inner Piece. More information on Frame Clamp Spacers and Offset Links can be found in **1.3.5 Connecting Frame Clamp Inner and Outer Pieces**.

## **Quick Check**

A quick check for a suitable location for the Frame Clamp Inner Piece is to find a part of the frame tube which has enough space to be gripped by three fingers when reaching from inside the wheelchair frame.

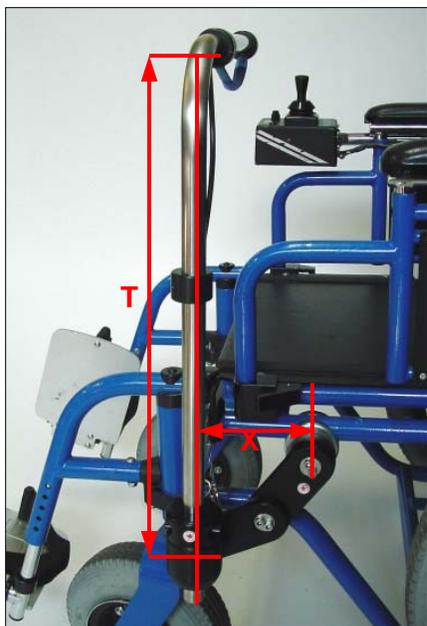
## **Unusual Situations**

Some wheelchairs do not have any tubing freely accessible on the frame or do not have a tube frame. When a seat pan restricts access to the upper edge of the wheelchair frame tubing, it may be possible to use a Side Mount Frame Clamp Inner Piece, which requires no clearance on the topside of the tube and only 1 1/4" clearance on the bottomside. When the wheelchair does not have a tube frame it may have boltholes or other possible attachment methods in a suitable location. In some cases Bolt-on Adapter may be substituted for the Inner Piece. More information on the complete range of available Frame Clamp Inner Pieces can be found in **1.3.1 Measuring and Specifying the Size of the Frame Clamp Inner Piece**.

## **4.3.2 Determining the Frame Clamp size**

Comprehensive information for determining the correct Frame Clamp size can be found in **1.3 Attaching and Positioning DAESSY – Frame Clamps**.

### 4.3.3 Determining the Required Offset Links and the Vertical Tube length



The Right Angle Tube supports the DAESSY Locking Swing-Away Mount with the vertical arm of the tube in the Locking Swing Away Outer Piece (LSAOP). This vertical arm must be truly vertical and the LSAOP must be located in the same front-to-back position on the wheelchair as the mounted device. One Offset Link (O3L) is always used with this mount and this allows the Outer Piece to be positioned 3 inches in any direction from the location of the Frame Clamp Inner Piece. An additional Offset Link may be used for greater offset distance.

Figure 4.3-1 **X** is the front-back offset distance between the location of the Frame Clamp Inner Piece and the LSAOP. **T** is the required length for the Vertical Tube.

When the DAESSY Quick Release System is used to attach the device to the Horizontal Tube the centreline of most devices is between 1" and 3" forward of the tube. For very precise horizontal positioning contact Daedalus Technologies, Inc. for more information.

### Determining the number of required Offset Links, and orientations

One Offset Link (O3L) provides three inches of offset between the location of the Frame Clamp Inner Piece (UFCxxxxIP) and the position of the Locking Swing-Away Outer Piece (LSAOP). The Offset Link may be set at any angle, thus the horizontal distance between the UFCxxxxIP and LSAOP may be any measure between zero and 3 inches. With an additional Offset Link in the Frame Clamp Assembly the maximum offset is 6".



Figure 4.3-2 Each Offset Link provides three inches of offset adjustment.

Adjusting the angle of the Offset Link to set the required horizontal offset to achieve the correct device location will also affect the vertical distance between the LSAOP and UFCxxxxIP. This may affect the length of Vertical Tube that is required to place the device at the correct height and avoid interference with wheelchair fittings, wheels or the ground.

When the Inner Piece is located low on the wheelchair frame the Offset Link (O3L) would be oriented to place the Outer Piece (LSAOP) higher, particularly if the required location for the for the LSAOP is in line with the front caster wheel.

When the UFCxxxIP is attached high on the wheelchair frame and the mounted device is positioned for direct access it may be preferable to place the LSAOP lower because the Release Cable and Locking Swing-Away Index Clamp require that the Vertical Tube length be at least 12 inches.

When the mounted device is positioned for scanning or head pointer access the LSAOP may be positioned above the UFCxxxIP to minimize the required Vertical Tube length.

### ***Avoiding Interference between the Vertical Tube and wheelchair fittings***

When fittings on the wheelchair obstruct the vertical arm of the Right Angle Tube a Frame Clamp Spacer (UFCSPCR) can be used to move the Locking Swing Away Outer Piece (LSAOP) further away from the wheelchair frame. This will increase the clearance width of the wheelchair, which is a consideration for manoeuvring in tight spaces.



When the obstruction is not avoided by the use of a UFCSPCR it will be necessary to compromise on the position of the mounted device and move the LSAOP forward or backward using the Offset Link (O3L).

#### **Caution:**

The Vertical Arm of the Right Angle Tube must be truly vertical, not leaning to avoid obstructions.

### ***Determining the Vertical Tube length – T***

Figure 4.3-3 The Frame Clamp must not interfere with, or contact any fittings on the wheelchair, for example the front caster wheel.

The required length for the Vertical Tube is the distance from the Locking Swing-Away Outer Piece (LSAOP) to the bottom of the mounted device. When the Offset Link (O3L) within the Frame Clamp Assembly is at an angle other than horizontal the Vertical Tube Length – T – will not be the same as the distance from the Frame Clamp Inner Piece (UFCxxxIP) to the bottom of the device. This distance is illustrated in Figure 4.3-1.

If there are no obstructions with wheelchair components below the LSAOP the Vertical Tube Length can include several inches of vertical adjustment length that will extend below the LSAOP.

There must be a minimum of 12 inches of vertical extent on the Tube to have enough room for the Cable Release Assembly.

## 4.4 Installing the DAESSY Locking Swing Away Mount

### Steps in the Installing Procedure

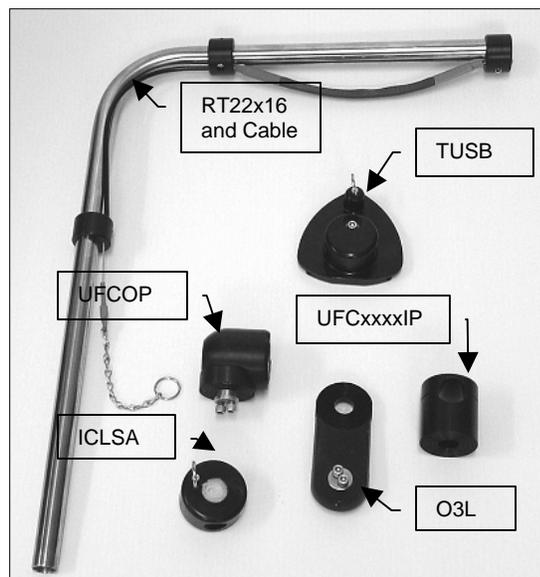
- Identify the Parts
- Install the Locking Swing-Away Frame Clamp Assembly
- Install the Right Angle Tube-Locking Index Clamp
- Install the Total Quick Release Base
- Adjust the Release Cable
- Final Adjustments and Checklist

### 4.4.1 Identify the Parts of the DAESSY Locking Swing-Away Mount – DLSA7

The standard DAESSY Locking Swing-Away Mount consists of the parts listed below:

| Part Code | Part Name  |
|-----------|--|
| UFCxxxIP  | Frame Clamp Inner Piece.   |
| LSAOP     | Locking Swing Away Outer Piece   |
| O3L       | Offset Link.   |
| ICLSA     | Index Clamp for Locking Swing Away.  |
| CABLE     | Cable Assembly to release the Locking Pin, preinstalled on Right Angle Tube. |
| RT22x16   | Right Angle Tube 22 inches vertical by 16 inches horizontal.                 |
| TUSB      | Total Quick Release Base   |
| DMSTools  | Assembly Tools   |
|           | Installation Instructions  |

The black anodized aluminium components have part codes stamped or engraved into the metal. These should be identified and laid out.



The DAESSY Locking Swing-Away Mount – DLSA7 is usually supplied partially assembled. The Release Cable is attached to the Right Angle Tube; other parts are packed separately. The Pinch Clamps for the Locking Swing-Away Index Clamp (ICLSA) and Total Quick Release Base (TUSB) are installed in their hole and retained by plastic plugs.

Figure 4.4-1 Standard parts layout for the DAESSY Locking Swing Away Mount – DLSA7.

#### Caution:

It is very important that all packaging be thoroughly inspected for loose parts and instruction papers. All the mount components must be identified and checked against the standard parts list, and the order list BEFORE any packaging is thrown away.

The Swivel Clamp for joining the Frame Clamp Inner Piece (UFCxxxxIP) and Offset Link (O3L) is fastened into the hole in the end of the O3L which is stamped IP and the Swivel Clamp for attaching the Locking Swing-Away Outer Piece (LSAOP) to the other end of the O3L is fastened to the LSAOP.

The size and shape of the Frame Clamp Inner Piece (UFCxxxxIP) will depend on the type of wheelchair and the attachment location, and may not be exactly as shown in the diagrams. More than one Offset Link (O3L) may be included.

Specific installation instructions may be supplied with components, especially components that vary from the standard parts list. In the case of contradictory instructions, component specific instructions provided with the mounting components will supersede the installation procedures outlined in this document

#### ***4.4.2 Install the Locking Swing-Away Frame Clamp Assembly***

The DLSA7 can be mounted on either the left or right side of a wheelchair as defined from the position of the person seated in the wheelchair.

Find the location on the wheelchair to attach the Frame Clamp Inner Piece. This should have been chosen during the Fitting Procedure as described in ***4.3.1 Selecting the Frame Clamp attachment location***. The Right Angle Tube must be installed vertically therefore the Locking Swing-Away Outer Piece (LSAOP) must be placed directly below the front-to-back position of the mounted device.

One Offset Link (O3L) is always used with the Locking Swing-Away Frame Clamp Assembly and this is sufficient to span a distance of up to three inches between the location of the Inner Piece and the position of the LSAOP. Additional O3Ls may be needed if the required distance from the LSAOP to the Frame Clamp Inner Piece (UFCxxxxIP) is greater than 3”.

Often the Frame Clamp will be installed near the front caster wheel but make sure the selected location is part of the wheelchair frame, not a movable armrest or footrest. If there is interference with the caster wheel, the brake lever, or any controls it may be necessary to use a Frame Clamp Spacer (UFCSPCR) to displace the LSAOP out from the position of the UFCxxxxIP.

It does not matter how the wheelchair frame tube is oriented because the Swivel Clamp allows the Locking Swing Away Outer Piece to be rotated to any angle relative to the Frame Clamp Inner Piece.

## ***Assemble the Frame Clamp pieces***

The pieces of the Frame Clamp Assembly must be connected together before it is installed on the wheelchair frame. These pieces will include a Frame Clamp Inner Piece (UFCxxxxIP), a Locking Swing Away Outer Piece (LSAOP), an Offset Link (O3L) and when needed additional Offset Links and/or Frame Clamp Spacers (O3L).



Figure 4.4-2 The LSAOP, O3L and UFCxxxxIP are the unassembled components of the Frame Clamp assembly



Figure 4.4-3 The components of the Frame Clamp assembled together.

When the Inner Piece has a Cap and Body fastened with two screws the Cap must be removed so that the threaded end of the Swivel Clamp can be fitted in the long hole through the Inner Piece. Some Inner Pieces have integrated threaded holes for the Swivel Clamp bolts and do not use the threaded end.

The adjoining faces of all the parts for a Frame Clamp Assembly have circular grooves to give extra friction against movement when assembled. The grooves on an Inner Piece engage with the grooves on an Outer Piece but will not engage with the grooves on another Inner Piece. Offset Links and Frame Clamp Spacers have the letters IP stamped into the metal beside the grooves that attach to the Inner Piece and OP stamped into the metal beside the grooves that attach to the Outer Piece.

The grooved face of the Locking Swing-Away Outer Piece holds a threaded end of a Swivel Clamp. The Offset Link is connected to this face with an unthreaded Swivel Clamp end and two bolts.

### **Caution:**

All the grooved faces must be correctly matched and engaged before the Swivel Clamp bolts are tightened.

When only one O3L is used to connect the UFCxxxxIP and the LSAOP the unthreaded end of each Swivel Clamp is inserted into the holes in either end of the O3L. When more Offset Links are needed to correctly position the LSAOP the IP end of one is connected to the OP end of another with a Swivel Clamp. It is convenient to orient the Swivel Clamps so that the bolt heads are accessible from the outside of the wheelchair.

When a Frame Clamp Spacer (UFCSPCR) is needed to gain extra clearance away from the wheelchair frame it can be placed between any connection of the grooved faces, taking care to mate the IP and OP surfaces correctly. Longer Swivel Clamp bolts are provided with the UFCSPCR.

**Note:**

Offset Links displaying Serial Numbers greater than #406000 may be connected directly together at any angle.

Offset Links that display a Serial Number less than #406000 or have no Serial Number must not be connected together at an angle of less than 135°.

Two Offset Links connected with an intervening Frame Clamp Spacer can be connected at any angle. The Swivel Clamp connecting through the Spacer will require longer bolts that are supplied with the UFCSPCR.

The pieces of the complete Frame Clamp Assembly should be assembled and the Swivel Clamps moderately tightened to hold the unit in approximately the correct orientation before attaching the Frame Clamp Inner Piece to the wheelchair.

### ***Attach and Align the Frame Clamp***

There are three steps to attaching and aligning the Frame Clamp Assembly:

- Attach the Inner Piece and align sideways
- Position the Outer Piece
- Align the Outer Piece vertically

### ***Attach the Frame Clamp Inner Piece and Align Sideways***

At the selected location fit the Cap and Body of the Frame Clamp Inner Piece around the tube. Replace the bolts but do not fully tighten them yet. The Cap should face towards the inside of the wheelchair and the Body, connected to the Offset Link, should face towards the outside.

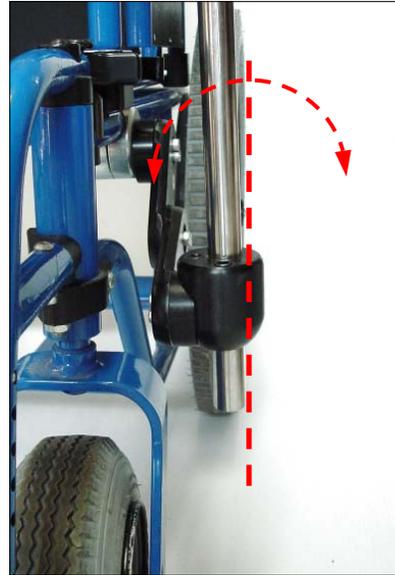


Figure 4.4-4  
Attach the Frame Clamp Inner Piece Cap and Body around the wheelchair frame tubing at the selected location. Replace the bolts and tighten them alternately, but not fully at this step.

When the Frame Clamp is attached to round tubing on a wheelchair frame sideways alignment ensures that the Right Angle Tube is parallel to the side of the wheelchair and perpendicular to the ground. With the Inner Piece bolts lightly tightened the Frame Clamp Assembly can be rotated about the attachment location to align it. The Right Angle Tube can be inserted through the LSAOP for extra leverage and to act as an alignment guide.

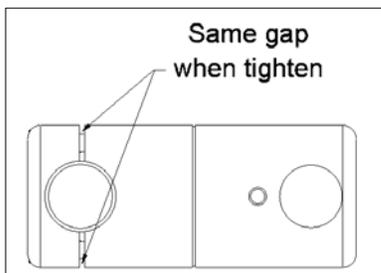
Hold the tube parallel to the side of the wheelchair and alternately tighten the bolts connecting the Cap and Body of the Frame Clamp Inner Piece to clamp the wheelchair tube evenly.

Figure 4.4-5 Use the tube as a lever to align the Frame Clamp parallel to the side of the wheelchair.



### Important Note:

When the bolts are fully tight and the wheelchair frame tube is firmly gripped there should be a slight gap of 1/64" to 1/32" between the Cap and Body of the Frame Clamp Inner Piece. If the gap is wider than 1/16" the Frame Clamp Inner Piece is probably too small. If there is no gap and the tube is not gripped firmly when the bolts are fully tight remove the Inner Piece and tightly wrap some aluminium foil around the wheelchair tube at the attachment location. There is some variation in the tube size on different wheelchairs so it is sometimes necessary to use the foil. Make sure the aluminium foil does not get caught between the Cap and Body when the UFCxxxxIP is replaced and the bolts are tightened. Do not use paper or plastic. Do not use more than four layers of aluminium foil; more than this probably means the UFCxxxxIP is too large. Adapter Sleeves (SLV) can be purchased to downsize an overlarge Frame Clamp Inner Piece.



### Position the Outer Piece

The Offset Link (O3L) holds the Locking Swing-Away Outer Piece (LSAOP) three inches away from the Frame Clamp Inner Piece (UFCxxxxIP) at any angle. The location of the LSAOP can be adjusted up and down and forward and backward by adjusting the angle of the Offset Link. Section **4.3.3 Determining the Required Offset Links and the Vertical Tube length** describes some considerations for choosing the O3L angle.

There should be about one inch of tube protruding beyond the bottom of the LSAOP when the Horizontal Tube is at the correct height for accessing the device.

When the correct location for the LSAOP is determined the Swivel Clamp bolts that connect the Frame Clamp Inner Piece (UFCxxxxIP) to the Offset Link (O3L) should be firmly tightened, as should any Swivel Clamps connecting additional Offset Links and Frame Clamp Spacers. The Swivel Clamp bolts connecting the Locking Swing Away Outer Piece to the Offset Link should not be tightened yet.

### ***Align the Outer Piece vertically***

The tube hole in the Locking Swing-Away Outer Piece is aligned vertically by rotating the tube forward or backward before tightening the two bolts on the final Swivel Clamp.

The tube hole in the Locking Swing-Away Outer Piece should be truly vertical or tilted very slightly back toward the wheelchair. If the tube hole is tilted forward the mount will swing out by itself when the Locking Pin is disengaged, and may be difficult to pull back into position.

Once the LSAOP has been aligned vertically all Swivel Clamp bolts should be fully tightened. The two bolts in each Swivel Clamp should be tightened alternately to get the most efficient grip.

#### **Important Note:**

All the bolts should be tightened sufficient to hold the mounting assembly for normal loads; when excessive force is applied the mount may move and should move before the wheelchair frame is likely to bend.

It is the responsibility of the installer to ensure the mount is firm enough for their needs, but not over-tight, and to periodically check that the bolts have not vibrated loose.

Figure 4.4-6 The LSAOP must be aligned vertically



### 4.4.3 Install the Right Angle Tube and Locking Index Clamp

The Locking Index Clamp (ICLSA) is attached to the vertical section of the Right Angle Tube and rests on the Locking Swing-Away Outer Piece (LSAOP) with the Locking Pin in one of the three indexing holes. The height of the horizontal section of the Right Angle Tube and the Lock Positions are both adjusted with the Locking Index Clamp. Installation and adjustment has two steps:

- Select the Lock Positions
- Attach the Locking Index Clamp to the Right Angle Tube, adjust the height and set the Lock Positions

#### Select the Lock Positions

The three holes for the Locking Pin in the Locking Swing-Away Outer Piece (LSAOP) give one position where the mount is locked in front of the user and two positions for the mount to be locked while rotated away. Plugs can be installed in one or two of the Locking Pin holes to reduce the number of lock positions. With all three Locking Pin holes clear there are three possible combinations of In-Use and Swung-Away lock positions.

The Locking Swing Away Index Clamp (ICLSA) holds the spring loaded Locking Pin and is held to the Vertical Tube with a Pinch Clamp. This Pinch Clamp through the ICLSA provides a convenient reference for setting the desired combination of In-Use and Swung-Away positions.

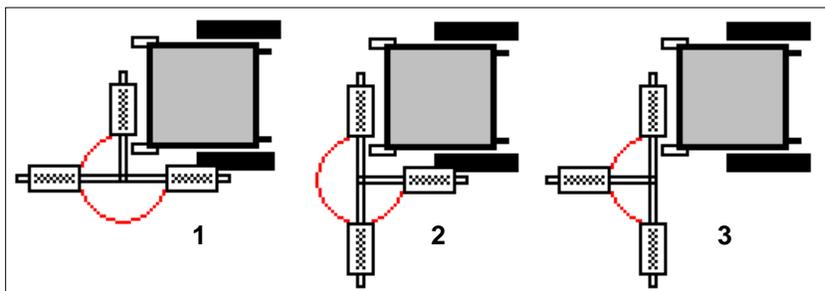


Figure 4.4-7  
Top-view diagram  
of the possible  
combinations of  
Lock Positions.

1. When the Pinch Clamp hole is parallel to the wheelchair for the In-Use position the other lock positions are at 90° and 270° away from the user.
2. When the Pinch Clamp hole is perpendicular to the front face of the wheelchair and behind the Vertical Tube for the In-Use position the other lock positions are at 180° and 270° away from the user.
3. When the Pinch Clamp hole is perpendicular to the front face of the wheelchair and ahead of the Vertical Tube for the In-Use position the other lock positions are at 90° and 180°.

#### Attach the Locking Index Clamp to the Right Angle Tube, adjust the height and set the Lock Positions

Remove the plastic plug holding the Pinch Clamp in its hole in the Locking Index Clamp (ICLSA) and insert the vertical section of the Right Angle Tube through the ICLSA so that the Locking Pin is on the bottom. Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the tube will not enter the hole.



With the Locking Index Clamp about three inches from the end of the tube and the hole for the Pinch Clamp correctly oriented for the select Lock Positions, gently tighten the Pinch Clamp bolt. Insert the tube in the hole in the Locking Swing-Away Outer Piece (LSAOP). Check the height and alignment of the horizontal section of the Right Angle Tube for the In-Use position and tighten the Pinch Clamp bolt.

Figure 4.4-8

The height of the Right-angle tube and the alignment of the horizontal section are adjusted at the Index Clamp. There should be at least 1" of tube extending beyond the bottom of the Locking Swing-Away Outer Piece.

**Caution:**

The bolt on the Pinch Clamp should not be excessively tightened. The Pinch Clamp grips the Vertical Tube sufficient to prevent it rotating in the Index Clamp or Horizontal Tube is pushed firmly by a user. By design the Pinch Clamp does not provide an immovable grip. Extreme tightening of the Pinch Clamp bolt on the Vertical Tube in an attempt to prevent the Horizontal Tube from moving when very forcefully pushed, will crush the tube and jam the Pinch Clamp. DAESSY mounting assemblies are designed to carry the weight of a computer or communication device and are not intended to resist a strong force exerted by the user.

Retract the Locking Pin by lifting the ring attached to the end and rotate the tube away from the In-Use position to confirm the other Lock Positions.

There must be at least two inches of tube below the Locking Index Clamp (ICLSA) to ensure that the Right Angle Tube is fully inserted through the tube hole in the LSAOP. Extra tube length for future vertical adjustments may protrude below the LSAOP provided it does not interfere with the front caster on the wheelchair. If there is interference it may be necessary to rotate the Offset Link to raise the Outer Piece and use a Right Angle Tube with a shorter vertical section.

Do not connect the Release Cable to the Locking Pin at this step.

#### 4.4.4 Install the Total Quick Release Base (TUSB)

The plastic Cable Anchor holding the Release Cable at the free end of the horizontal arm of the Right Angle Tube must be removed to install the Total Quick Release Base (TUSB). A 5/32" Allen Key will loosen the clamping bolt and the Cable Anchor will pull off.



Remove the plastic plug retaining the Pinch Clamp in its hole in the TUSB and slide it onto the Horizontal Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to allow the tube to slide through. Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the tube will not enter the hole.

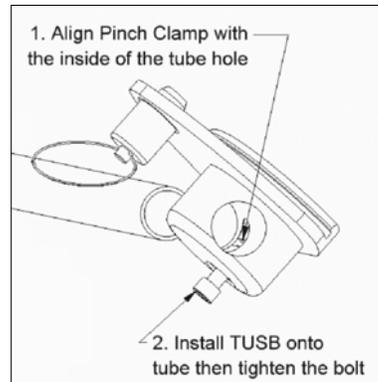
Figure 4.4-9 Remove the Cable Anchor at the end of the horizontal arm of the Right-Angle Tube and slide on the TUSB.

Replace the Cable Anchor and align it so the Release Cable is directly below the tube. Tighten the clamping bolt just enough to prevent the anchor from rotating by hand. The thread in the plastic Cable Anchor will be damaged if the clamping bolt is over-tightened.

#### Quick Release Orientation

The two Cable Anchors limit sideways adjustment of the position of the Total Quick Release Base (TUSB) on the Horizontal Tube. The Total Quick Release Base may be rotated around the tube to place the mounted device at any angle. The normal orientation for the TUSB is with the Locking Pin positioned away from the user. Adapters and Holders that attach devices and computers onto the TUSB are assembled for this orientation.

Figure 4.4-10 Install the TUSB onto the horizontal arm of the Right-Angle tube.



#### 4.4.5 Adjust the Release Cable

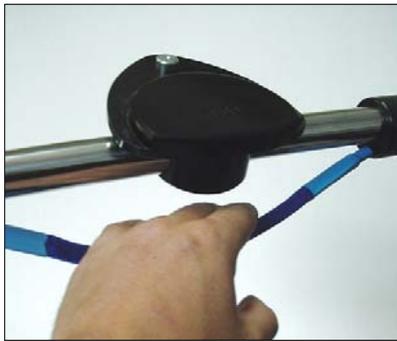
Connecting and adjusting the Release Cable on the Locking Pin involves three steps:

- Align the end of the Release Cable above the Locking Pin
- Adjust the slack in the Release Cable along the horizontal arm of the Right Angle Tube
- Connect the Release Cable to the Locking Pin and adjust the free movement

##### ***Align the Release Cable above the Locking Pin***

If the end of the Release Cable at the Cable Anchor located along the vertical section of the Right Angle Tube is not directly above the Locking Pin this Cable Anchor will need to be re-aligned. Loosen the clamping bolt in the Cable Anchor and rotate it to position the cable end directly over the Locking Pin, and slide it up or down so that the chain at the end of the cable overlaps the ring on the pin. Retighten the bolt gently enough that the Cable Anchor does not rotate by hand. Do not over-tighten the Cable Anchor clamping bolt.

##### ***Adjust the slack in the Release Cable along the horizontal section of the Right Angle Tube***



Pull the Release Cable tight at the chain and check the slack in the blue fabric sleeve below the Horizontal Tube. Move the Cable Anchor nearest the bend in the Right Angle Tube to adjust this slack. There should be sufficient clearance to fit a hand between the Release Cable and the Horizontal Tube.

Figure 4.4-11 There should be enough slack in the Release Cable to permit a hand between the tube and the blue fabric sleeve.

##### ***Connect the Release Cable to the Locking Pin and adjust the free movement***

With the Locking Pin fully engaged in a pin hole and the cable pulled tight connect the ring in the Locking Pin to the closest link in the chain at the end of the Release Cable. Check that the chain is slightly loose and is not lifting the Locking Pin at all. If the Locking Pin is lifted the Cable Anchor will need to be adjusted down towards the Locking Index Clamp. If a small downward pull on the blue fabric sleeve does not disengage the Locking Pin the Cable Anchor will need to be adjusted up towards the Horizontal Tube.

Figure 4.11 Connect the Release Cable chain to the Index Clamp Locking Pin.



#### 4.4.6 Final Adjustments and Checklist

Before attaching a device to the DAESSY Locking Swing-Away Mount DLSA7 check that the following steps in the installation procedure have been completed.

- Bolts on Frame Clamp Inner Piece fully tight
- Bolts on Swivel Clamp fully tight. Tighten these bolts alternately to get the best grip.
- Pinch Clamp bolts tight

## 5. DAESSY Rear Folding Mount – DRFM6

### 5.1 Product Overview

The DAESSY Rear Folding Mount – DRFM6 allows a mounted device to be folded away and stored behind the backrest of the wheelchair. Storage in this location does not increase the “footprint” of the wheelchair, and reduces the chance that the mounted device will be bumped into walls and doors.



The DAESSY Rear Folding Mount DRFM6 in its In-Use and Folded positions.

This mount consists of two stainless steel tubes, a Side Tube and a Horizontal Tube, connected by an Elbow Rotate Head with Rotate Head Tube Mount (ELRH+RTHTM) which allows the Horizontal Tube to form a right angle with the Side Tube or rotate to an extended straight out position. A Frame Clamp Assembly consisting of a Frame Clamp Inner Piece (UFCxxxxIP), optional Offset Links (O3L) and a Rear Folding Adapter and Rotate Head Tube Mount (RFA+RTHTM) permanently attaches the tube structure to the side of the wheelchair. The lower end of the Side Tube is clamped into the RFA+RTHTM and rises at an angle of about 45° forward with the Horizontal Tube passing across in front of the user. The Offset Links allow the Rear Folding Adapter to be positioned approximately halfway down the side of the wheelchair and a few inches below the seat level regardless of the location of attachment of the Frame Clamp Inner Piece on the frame of the wheelchair. The mounted device is held in an adapter or bolted to a plate that allows the device to be quickly attached or detached from a Quick Release Base.

There are three steps to the rear folding motion. In the first movement the Horizontal Tube is rotated through 90° at the Elbow Rotate Head to an extended position in line with the Side Tube. Next, the complete tube structure is rotated at the Rear Folding Adapter back through a 90° angle. Finally, the Horizontal Tube is folded in behind the wheelchair in a motion that reverses the first rotation at the Elbow Rotate Head. Reversing the order of these steps returns the device to its In-Use position

**Caution:**

The screen of a laptop computer or similar device should be closed before folding the DRFM6 behind the wheelchair backrest.

The DAESSY Rear Folding Mount is most suitable for power wheelchairs.

The Rear Folding Adapter must be mounted in a central location along the side of the wheelchair. This makes the DRFM6 unsuitable for self-propelled manual wheelchairs with large wheels.

The Device and Side Tube must be held and guided through all the steps of the folding motion. The Side Tube must not be allowed to drop suddenly onto the forward or rearward stops. As the Side Tube passes down the side of the wheelchair during the folding action the user must keep their arm and hand clear.

The DAESSY Rear Folding Mount – DRFM6 is not appropriate for mounting on a tilting seat system. The DAESSY Lockable Rear Folding Mount – DLRFM8 is a similar mount that can be used in a tilting application.

The DAESSY Rear Folding Mount – DRFM6 can be adapted to be easily removable from the wheelchair with an additionally purchased Removable Frame Clamp Assembly (RFCI+RFCR). Adding these components to the DRFM6 will increase distance between the Rear Folding Adapter and the wheelchair by about 1 3/4". The standard DRFM6 supplied without the Removable Frame Clamp Assembly is permanently attached to the wheelchair and cannot be removed except by uninstalling the mount.

## 5.2 Parts of the DAESSY Rear Folding Mount – DRFM6

The standard parts of the DAESSY Rigid Mount and common variations are listed below; Parts which may differ from situation to situation are indicated with a \*.

| Part Code  | Part Name   |
|------------|---|
| *UFCxxxIP  | Frame Clamp Inner Piece                                     |
| O3L        | Offset Link   |
| RFA+RTHTM  | Rear Folding Adapter with Tube Mount                        |
| ELRH+RTHTM | Elbow Rotate Head with Tube Mount                           |
| *TUSB      | Total Quick Release Base.                                   |
| STR16      | Horizontal Tube. Straight 16" (Other lengths are available) |
| *STR22     | Side Tube. Straight 22" (Other lengths are available)       |
| *RFCR-RFCI | Optional additional Removable Frame Clamp Assembly          |

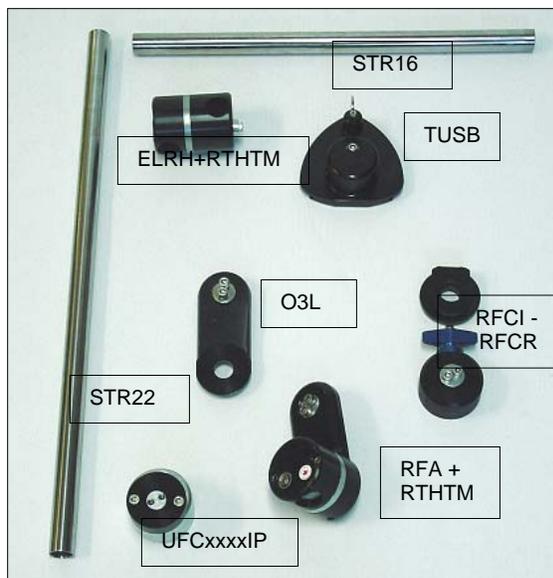


Figure 5.2-1 The standard parts of the DAESSY Rear Folding Mount, plus the optional additional Removable Frame Clamp Assembly.

The size and shape of the required Frame Clamp Inner Piece must be specified with the order of a standard mount. **1.3 Attaching and Positioning DAESSY – Frame Clamps** provides comprehensive information on DAESSY Frame Clamp options.

The standard part list will be appropriate for many mounting situations. Variations in the standard list will be necessary for some situations. Common variations include changes in the length and shape of the Side Tube (STR22), additional Frame Clamp components to avoid obstructions with other wheelchair fittings, and different styles of the Quick Release Base. If the mounted device is scanning or head-pointer operated it may be preferable to substitute a Folding Quick Release Base (USBF) for the TUSB. The USBF may allow the device to be tilted to a more protected and configuration in its stored position behind the wheelchair backrest.

More information can be found in **1.4 Attaching and Positioning DAESSY – Tube Lengths and Shapes** and **1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System**.

The Fitting Procedure (**5.3 Fitting the DAESSY Rear Folding Mount DRFM6**) will identify what variations are necessary.

In addition to the standard and variation parts an adapter plate or device holder is necessary to complete the mount. **1.6 Attachment of Devices to DAESSY Mounts – Adapters and Holders** provides comprehensive information on DAESSY Adapters plates and Holders.

## 5.3 Fitting the DAESSY Rear Folding Mount – DRFM6

A communication device or laptop computer, when mounted on a wheelchair, must be correctly positioned to make it comfortably accessible to the user while In-use. When a device is mounted on a DAESSY Rear Folding Mount DRFM6 it may be stored in a Folded position behind the backrest.

The Fitting procedure for the DAESSY Rear Folding Mount determines what components are necessary to correctly position the device in both the In-Use and Folded positions.

### ***Standard Mounting Assemblies and Fitting Exceptions***

The standard Side Tube length of 22" is suitable for many situations when the device is mounted for direct access.

When the device to be mounted is scanning or head-pointer operated, or when the mount will be installed on a small wheelchair it is essential to follow the fitting procedure as the standard tube dimensions are not likely to be suitable. It may be that the DAESSY Rear Folding Mount is not suitable for these non-standard situations.

The Fitting procedure is important to determine the correct lengths of factory cut stainless steel tube. Tube should not be cut to length during installation.

### **Caution:**

The ends of the stainless steel tube provided by Daedalus Technologies, Inc. are fully machined and chamfered to minimize sharp edges. Daedalus Technologies, Inc. strongly disapproves of the tube being cut to length by purchasers. Cutting the stainless steel tube by any method produces very sharp and hazardous edges.

### ***Steps in the Fitting Procedure***

- Selecting the Frame Clamp attachment location
- Determining the Frame Clamp size
- Determining the Location for the Rear Folding Adapter
- Determining the Offset Links required and the Side Tube length

### **5.3.1 Selecting the Frame Clamp attachment location**

The DAESSY Rear Folding Mount – DRFM6 can be mounted on either the left or right side of a wheelchair as defined from the position of the person seated in the wheelchair. The Frame Clamp Inner Piece (UFCxxxxIP) requires slightly more than two inches of length and three-quarter inches of space above and below the wheelchair frame tube to which it will be clamped. There should be sufficient room for a hand to reach behind the behind the tube to tighten bolts. It does not matter how the wheelchair frame tube is oriented because the Swivel Clamps allow the Offset Links and Rear Folding Adapter to be rotated to any angle relative to the Frame Clamp Inner Piece.

#### **Caution:**

The selected location must be part of the wheelchair frame, not a removable armrest or footrest.

The Rear Folding Adapter must be located 2” to 5” below the seat of the wheelchair and partway down the side of the wheelchair at a point midway between the In-use and Folded positions of the mounted device. Offset Links are used to span the distance between the Frame Clamp Inner Piece (UFCxxxxIP) and the Rear Folding Adapter (RFA). When there are two or more possible locations the UFCxxxxIP should be placed as close as possible to the required location of the Rear Folding Adapter.



Figure 5.3-1 The Rear Folding Adapter must be located 2” to 5” below the seat of the wheelchair. Offset Links are used to span the distance between the Frame Clamp Inner Piece and Rear Folding Adapter.

### **Obstructions**

In addition to spanning the distance between the Frame Clamp Inner Piece attachment location and the required position of the Rear Folding Adapter, Offset Links and Frame Clamp Spacers may be used to avoid obstructions and interference with other wheelchair fittings. It is important that no part of the Frame Clamp Assembly interferes with movable parts of the wheelchair such as caster wheels or brake levers. The Side Tube of the DRFM6 must not contact any part of the side of the wheelchair as it moves through its folding sequence.

### **Quick Check**

A quick check for a suitable location for the Frame Clamp Inner Piece is to find a part of the wheelchair frame tube which has enough space to be gripped by three fingers when reaching from inside the wheelchair frame.

## ***Unusual Situations***

Some wheelchairs do not have any tubing freely accessible on the frame or may not have a tube frame. When a seat pan restricts access to the upper edge of the wheelchair frame tubing, it may be possible to use a Side Mount Frame Clamp Inner Piece, which requires no clearance on the topside of the tube and only 1 1/4" clearance on the bottom side. When the wheelchair does not have a tube frame it may have boltholes or other possible attachment methods in a suitable location. In some cases Bolt-on Adapter may be substituted for the Inner Piece.

### ***5.3.2 Determining the Frame Clamp size***

Comprehensive information for determining the correct Frame Clamp size can be found in ***1.3 Attaching and Positioning DAESSY – Frame Clamps.***

### ***5.3.3 Determining the Location for the Rear Folding Adapter (RFA)***

The Rear Folding Adapter (RFA) must be located partway down the side of the wheelchair between 2 and 5 inches below the seat level. The front-to-back location of the RFA depends on the In-Use and Folded positions for the mounted device.

#### ***The In-Use and Folded Positions***

The In-Use position will be determined by the needs of the user and the type of device being mounted. Devices that are operated with scanning or head-pointer function may be higher and farther away than devices that are operated by direct access.

The Folded position is behind the backrest of the chair where the device is in a protected and unobtrusive location that does not interfere with other items.

The folding motion results in the device being tilted through 90° from the In-Use to the Folded position. This is an important consideration as it affects the clearance between the device and the backrest of the wheelchair, as well as any other fittings or items located on the back of the wheelchair. The Folded position of the device should be selected so that the device clears any obstructions.

#### ***Protecting the device in the Folded Position***

A non-standard component, the Folding Quick Release Base (USBF), may be desirable in some situations, as it allows the device to be rotated on the Horizontal Tube. With the USBF it may be possible to configure the device in the Folded position so that the screen is facing inwards and the device is between the Horizontal Tube and the backrest. More details on the Folding Quick Release Base are found in ***1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System.***

#### **Caution:**

The screen of a laptop computer or similar device should be closed before folding the DRFM6 behind the wheelchair backrest.

#### ***Location of the Rear Folding Adapter***

When the In-Use and Folded positions for the device have been selected the required location for the Rear Folding Adapter (RFA) can be determined. The RFA should be no further than 2" to 3" inches from the halfway point between the In-use and Folded positions.

When the device is mounted for direct access with a folded position close behind the backrest of the wheelchair the Rear Folding Adapter will be close to the halfway along the side of the wheelchair. A device mounted high and forward for scanning or head-pointer access will require the RFA to be mounted

ahead of the halfway point. If there is an obstruction at the back of the wheelchair the RFA may be moved behind the halfway point.

When the DAESSY Quick Release System is used to attach the device to the Horizontal Tube the centerline of most devices is between 1" and 3" forward of the Horizontal Tube. For very precise horizontal positioning contact Daedalus Technologies, Inc. for more information.

### **5.3.4 Determining the Side Tube length and the Offset Links required**

Complete information on the range of options available for non-standard tubes is found in **1.4 Attaching and Positioning DAESSY – Tube Lengths and Shapes.**

#### **Obstructions to movement of the Side Tube**

As the Side Tube moves along the side of the wheelchair during the folding sequence it must not contact or interfere with any other fittings on the wheelchair. Obstructions may be avoided by moving the RFA and Side Tube away from the side of the wheelchair with Frame Clamp Spacers, or by adding an S-bend to the Side Tube.

#### **Length of Side Tube – T**

The length of the Side Tube is measured from the intended location of the Rear Folding Adapter (RFA) to the required location of the Horizontal Tube supporting the device. This is the measurement T that should be specified in orders.

#### **Offset Links required – L**



The measurement L, which should be specified in orders for the number of Offset Links (O3L), required is the distance between the location of the Frame Clamp Inner Piece (UFCxxxxIP) and the Rear Folding Adapter (RFA). The RFA itself spans a distance of 3 inches and each additional Offset Link adds another 3 inches.

| <b>Distance between UFCxxxxIP and RFA</b> | <b>Number of O3L required</b> |
|---|-------------------------------|
| 0" to 3 "                                 | none                          |
| 3" to 6"                                  | 1                             |
| 6" to 9"                                  | 2                             |
| More than 9"                              | Check with DAESSY             |

## 5.4 Installing the DAESSY Rear Folding Mount – DRFM6

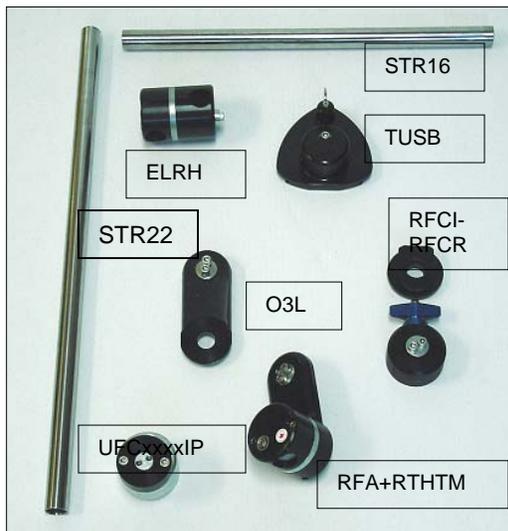
### Steps in the Installation Procedure

- Identify the Parts
- Install the Frame Clamp Assembly
- Install the Rear Folding Adapter and Side Tube
- Install the Elbow Rotate Head and Horizontal Tube
- Install the Quick Release Base
- Set the Stop Pins in the Rear Folding Adapter
- Final Adjustments and Checklist

### 5.4.1 Identify the Parts of the DAESSY Rear Folding Mount – DRFM6

The standard parts of the DAESSY Rear Folding Mount are listed below. Parts which may differ from situation to situation are indicated with a \*.

| Part Code  | Part Name   |
|------------|---|
| *UFCxxxxIP | Frame Clamp Inner Piece                                     |
| O3L        | Offset Link   |
| RFA+RHTM   | Rear Folding Adapter with Tube Mount                        |
| ELRH+RHTM  | Elbow Rotate Head with Tube Mount                           |
| *TUSB      | Total Quick Release Base.                                   |
| STR16      | Horizontal Tube. Straight 16" (Other lengths are available) |
| *STR22     | Side Tube. Straight 22" (Other lengths are available)       |
| DMSTools   | Assembly Tools  |
|            | Installation Instructions                                   |
| *RFCR-RFCI | Optional additional Removable Frame Clamp Assembly          |



All the black anodized aluminium comp-onents have a part code stamped into the metal. These should be identified and laid out.

The Frame Clamp Inner Piece (UFCxxxxIP) may not be exactly as shown, and additional Offset Links may be included.

The RFCR-RFCI Removable Frame Clamp Assembly is an optional additional component.

Figure 5.4-1 Parts layout for DAESSY Rear Folding Mount with additional Removable Frame Clamp Assembly.

### Caution:

It is very important that all packaging be thoroughly inspected for loose parts and instruction papers. All the mount components must be identified and checked against the standard parts list, and the order list BEFORE any packaging is thrown away.

The Swivel Clamps for joining the Rear Folding Adapter (RFA), Offset Links (O3L) and Frame Clamp Inner Piece (UFCxxxxIP) are normally fastened into the holes in the RFA and O3L. The Pinch Clamps for securing the tubes into the Tube Mounts (RTHTM) and the Total Quick Release (TUSB) are normally installed in their holes and retained by plastic plugs.

More than one Offset Link (O3L) may be included, or there may be no Offset Link. A Frame Clamp Spacer may be included.

Specific installation instructions may be supplied with components, especially components that vary from the standard parts list. In the case of contradictory instructions, component specific instructions provided with the mounting components will supersede the installation procedures outlined in this document

### **5.4.2 Install the Frame Clamp Assembly, Rear Folding Adapter and Side Tube**

The DAESSY Rear Folding Mount - DRFM6 can be mounted on either the left or right side of a wheelchair as defined from the position of the person seated in the wheelchair.

Find the location on the wheelchair to attach the Frame Clamp Inner Piece. This should have been chosen during the Fitting Procedure as described in **5.3.1 Selecting the Frame Clamp attachment location**.

It does not matter how the wheelchair frame tube is oriented because the Swivel Clamp allows the Rear Folding Adapter to be rotated to any angle relative to the Frame Clamp Inner Piece.

#### **Assemble the Frame Clamp Pieces**



The pieces of the Frame Clamp Assembly must be connected together before the Frame Clamp is installed on the wheelchair frame. These pieces will include a Frame Clamp Inner Piece (UFCxxxxIP) or Removable Frame Clamp Insert (RFCI), a Rear Folding Adapter (RFA), and any additional Offset Links and/or Frame Clamp Spacers.

Figure 5.4-2 Frame Clamp Assembly.

When the Inner Piece has a Cap and Body fastened with two screws, the Cap must be removed so that the threaded end of the Swivel Clamp can be fitted in the long hole through the Inner Piece. Some Inner Pieces have integrated threaded holes for the Swivel Clamp bolts and do not use the threaded end.

If the mount assembly requires a Bolt-on Adapter (for example the MH3/IPA) this component should be installed on the wheelchair first, as the installation bolts may be inaccessible once the complete Frame Clamp Assembly has been assembled. The remaining pieces of the Frame Clamp Assembly will be connected together and finally bolted to the Inner Piece Adapter that has been pre-installed on the wheelchair.

The adjoining faces of all the parts for a Frame Clamp Assembly have circular grooves to give extra friction against movement when assembled. The grooves on an Inner Piece engage with the grooves on an Outer Piece but will not engage with the grooves on another Inner Piece. Offset Links and Frame Clamp Spacers have the letters IP stamped into the metal beside the grooves that attach to the Inner Piece and OP stamped into the metal beside the grooves that attach to the Outer Piece.

**Caution:**

All the grooved faces must be correctly matched and engaged before the Swivel Clamp bolts are tightened.

When one O3L is used to connect the UFCxxxIP and the RFA the unthreaded end of each Swivel Clamp is inserted into the holes in either end of the O3L. When more Offset Links are needed to correctly position the RFA, the IP end of one O3L is connected to the OP end of another with a Swivel Clamp. It is convenient to orient the Swivel Clamps so that the bolt heads are accessible from the outside of the wheelchair.

When a Frame Clamp Spacer (UFCSPCR) is needed to gain extra clearance away from the wheelchair frame it can be placed between any connection of the grooved faces, taking care to mate the IP and OP surfaces correctly. Longer Swivel Clamp bolts are provided with the UFCSPCR.

**Note:**

Offset Links displaying Serial Numbers greater than #406000 may be connected directly together or connected directly to the Rear Folding Adapter at any angle.

Offset Links that display a Serial Number less than #406000 or have no Serial Number must not be connected together or to the Rear Folding Adapter at an angle of less than 135°.

Two Offset Links connected with an intervening Frame Clamp Spacer can be connected at any angle. The Swivel Clamp connecting through the Spacer will require longer bolts.

The pieces of the complete Frame Clamp Assembly should be assembled and the Swivel Clamps moderately tightened to hold the unit in approximately the correct orientation before attaching the Frame Clamp Inner Piece to the wheelchair.



***Remove the Stop Pins from the Rear Folding Adapter***

On one side of the Rear Folding Adapter is a Screw-on Cover retained by a Locking Nut. Remove this nut and cover to access the Stop Pins. There is a hole in the rim of the Screw-on Cover that allows an Allen Key to be used as a lever to assist removal. The Stop Pins are removed at this step, however they must be reinstalled and the Screw-on Cover and Locking Nut replaced before a device is attached to the mount.

Figure 5.4-3 Unscrew the Locking Nut and Cover to remove the Stop Pins from the Rear Folding Adapter.

## ***Attach and Align the Frame Clamp***

There are three steps to attaching and aligning the Frame Clamp Assembly:

- Attach the Inner Piece and Position the Rear Folding Adapter
- Install the Side Tube into the Tube Mount of the Rear Folding Adapter
- Align the mount sideways

## ***Attach the Frame Clamp Inner Piece and Position the Rear Folding Adapter***

At the selected location fit the Cap and Body of the Frame Clamp Inner Piece around the tube. Replace the bolts but do not fully tighten them yet. The Cap should face towards the inside of the wheelchair and the Body, connected to the Offset Link, should face towards the outside.

Position the Rear Folding Adapter (RFA) at the chosen location midway down the side of the wheelchair and slightly below the seat level. Gently tighten the bolts on all the Swivel Clamps. These bolts may need to be loosened during the final adjustment of the mount location.



The Removable Frame Clamp Insert and Removable Frame Clamp Receiver (RFCI-RFCR) can be installed between the Frame Clamp Inner Piece and the first Offset Link to allow the entire Rear Folding Mount and outer components of the Frame Clamp Assembly to be easily removed from the wheelchair.

The latch of the RFCR can be oriented in any direction for access.

Figure 5.4-4 The RFCI-RFCR can be installed to allow easy removal of the mount.

## ***Install the Side Tube into the Tube Mount of the Rear Folding Adapter***

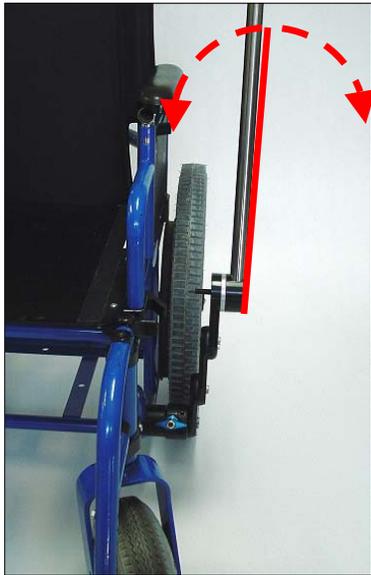
Remove the plastic plug holding the Pinch Clamp in its hole in the Tube Mount (RTHTM) on the RFA. Check the alignment of the Pinch Clamp inside the tube hole and insert the Side Tube. Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the Side Tube will not enter the hole. Tighten the Pinch Clamp bolt.



Figure 5.4-5 Align the Pinch Clamp and insert the Side Tube into the tube hole of the RTHTM.



Figure 5.4-6 Tighten the Pinch Clamp bolt.



If the Frame Clamp Inner Piece (UFCxxxxIP) is attached to round tubing on the wheelchair the Side Tube will need to be aligned sideways. Use the Side Tube as a lever to move the UFCxxxxIP until the Side Tube is aligned parallel with the side of the wheelchair.

Check that the Side Tube can be rotated between the In-Use and Folded positions without contacting any part of the wheelchair.

**Caution:**

With the Stop Pins removed from the Rear Folding Adapter the Side Tube will

Figure 5.4-7 Use the Side Tube as a lever to align the Frame Clamp assembly parallel to the side of the wheelchair.

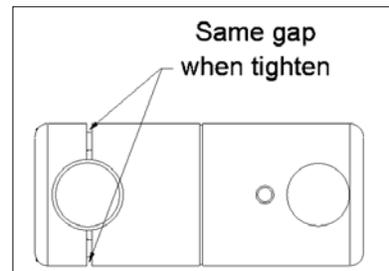
rotate past the In-Use and Folded positions. The Stop Pins must be replaced before any device is attached to the mount.

If the Side Tube does contact the armrest or any other part of the wheelchair the Rear Folding Adapter can be moved further out from the wheelchair by using one or two Frame Clamp Spacers (UFCSPCR). Alternatively the Side Tube may lean slightly away from the wheelchair, or may incorporate an S-bend to avoid interference.

When the Frame Clamp Inner Piece is correctly aligned alternately tighten the bolts connecting the Cap and Body to clamp the wheelchair tube evenly.

**Important Note:**

When the bolts are fully tight and the tube is firmly gripped there should be a slight gap of 1/64" to 1/32" between the Cap and Body of the Frame Clamp Inner Piece. If the gap is wider than 1/16" the Frame Clamp Inner Piece is probably too small. If there is no gap and the wheelchair frame tube is not gripped firmly when the bolts are fully tight remove the Inner Piece and tightly wrap some aluminium foil around the wheelchair tube at the attachment location. There is some variation in the tube size on different wheelchairs so it is sometimes necessary to use the foil. Make sure the aluminium foil does not get caught between the Cap and Body when the UFCxxxxIP is replaced and the bolts are tightened. Do not use paper or plastic. Do not use more than four layers of aluminium foil; more than this probably means the UFCxxxxIP is too large. Adapter Sleeves (SLV) can be purchased to downsize an overlarge Frame Clamp Inner Piece.



### 5.4.3 Install the Elbow Rotate Head and Horizontal Tube

Remove the plastic plug holding the Pinch Clamp in its hole in the Tube Mount (RTHTM) on the Elbow Rotate Head (ELRH). Install the Horizontal Tube into one of the tube holes in the Elbow Connector (ELRH+RTHTM). It does not matter which tube hole is used for the Horizontal Tube. Slide the remaining tube hole in the ELRH+RTHTM onto the end of the Side Tube. Align the Horizontal Tube level across the wheelchair and tighten the Pinch Clamp holding the Side Tube.

Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the Horizontal Tube will not enter the hole.

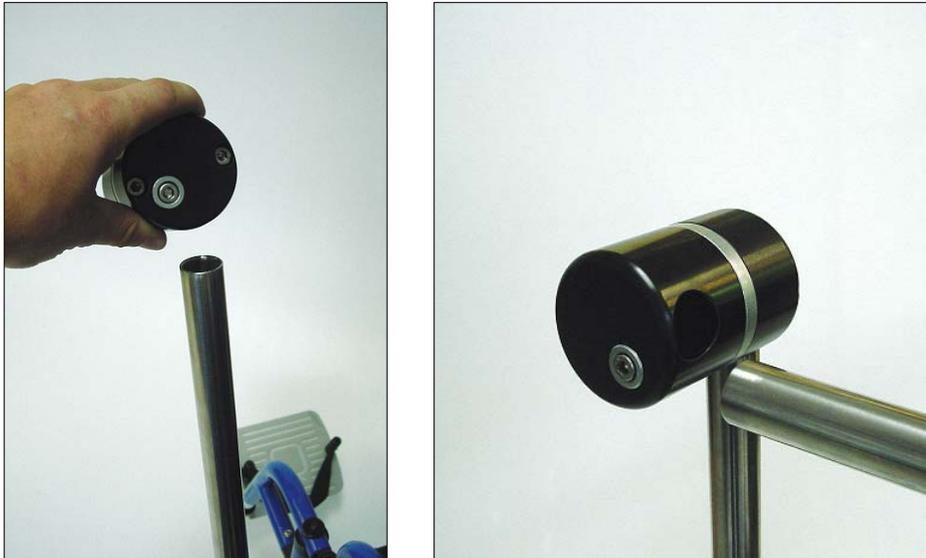


Figure 5.4-8 Slide the Side Tube and Horizontal Tube into the tube holes of the ELRH+RTHTM. Tighten the Pinch Clamps to hold the

#### **Caution:**

The bolts on the Pinch Clamps should not be excessively tightened. By design a Pinch Clamp does not provide an immovable grip. Extreme tightening of the Pinch Clamp bolt in an attempt to prevent the tube movement when very forcefully pushed will crush the tube and jam the Pinch Clamp. DAESSY mounting assemblies are designed to carry the weight of a computer or communication device and are not intended to resist a strong force exerted by the user.

#### 5.4.4 Install the Quick Release Base

Remove the plastic plug retaining the Pinch Clamp in its hole in the Total Quick Release (TUSB) and slide it onto the Horizontal Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to allow the tube to slide through. Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the Horizontal Tube will not enter the hole.



Figure 5.4-9. Slide the TUSB onto the Horizontal Tube and tighten the Pinch Clamp.

#### Quick Release Orientation

The Total Quick Release Base can be clamped at any location along the Horizontal Tube and may be rotated around the tube to place the mounted device at any angle. The normal orientation for the TUSB is with the Locking Pin positioned away from the user. Adapters and Holders that attach devices and computers onto the TUSB are assembled for this orientation.

A non-standard component, the Folding Quick Release Base (USBF), may be desirable in some situations, as it allows the device to be rotated on the Horizontal Tube. With the USBF it may be possible to configure the device in the Folded position so that the screen is facing inwards and the device is between the Horizontal Tube and the backrest. More details on the Folding Quick Release Base are found in **1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System**.



Figure 5.4-10 The Folding Quick Release Base (USBF) allows the device to be rotated around the Horizontal Tube and held at any of 5 angles by a spring-loaded lock pin.

#### Caution:

The screen of a laptop computer or similar device should be closed before folding the DRFM6 behind the wheelchair backrest.

## **5.4.5 Set the Stop Pins in the Rear Folding Adapter**

### **Setting the In-Use and Folded Positions**

The In-Use and Folded positions of the DAESSY Rear Folding Mount are adjusted by varying the length of the Side Tube, the location of the Rear Folding Adapter (RFA) and the location of two Stop Pins in the RFA. Changing the length of the Side Tube or the location of the RFA will change the In-Use and Folded positions simultaneously. The Stop Pins can be used to adjust these positions independently; one pin stops the forward rotation at the In-Use positions and the other pin stops the rearward rotation at the Folded position.

### **Increments of Adjustment**

#### **Coarse Adjustment**

The Stop Pins can be placed in any of 12 holes in the Rear Folding Adapter (RFA). Incrementing the Stop Pin location by one hole in the RFA will result in approximately 5 1/2" shift in the location of the Horizontal Tube for a Side Tube of length 22".

#### **Fine Adjustment**

The ends of the Stop Pins are a slightly oval shape where part of the round shaft of the pin has been machined back. Inside the Stop Pin holes in the RFA the Stop Pins can be set so that the stop is against either the inner machined side – I – of the pin end, or the opposite outer side – O – of the pin end. This fine adjustment results in about a 2" shift in the location of the Horizontal Tube for a Side Tube of length 22".

The final position of the Horizontal Tube can be adjusted by less than 2 inches by slightly rotating the entire Rear Folding Adapter. This is covered in **5.4.6 Final Adjustments**.



Figure 5.4-11 The slightly oval shape of the end of the Stop Pin shaft allows fine adjustment of the maximum movement of the Side Tube.

### ***Installing the Forward – In-Use – Stop Pin***

Rotate the Side Tube forward until the Horizontal Tube is in the In-Use position. In the back of the Rear Folding Adapter identify the Stop Pin hole that is in-line with the forward bolthole in the Tube Mount (RTHTM) holding the Side Tube on the Rear Folding Adapter.

Slightly rotate the Side Tube upwards and insert one Stop Pin in this hole with the I-side of the pin end facing toward the tube. Rotate the tube back down until the pin stops it. In this position the stop action is against the O-side of the oval pin.

If the Horizontal Tube is above the required position for use, raise it slightly and rotate the Forward Stop Pin 180° to allow the stop action to be against the I-side of the pin end.

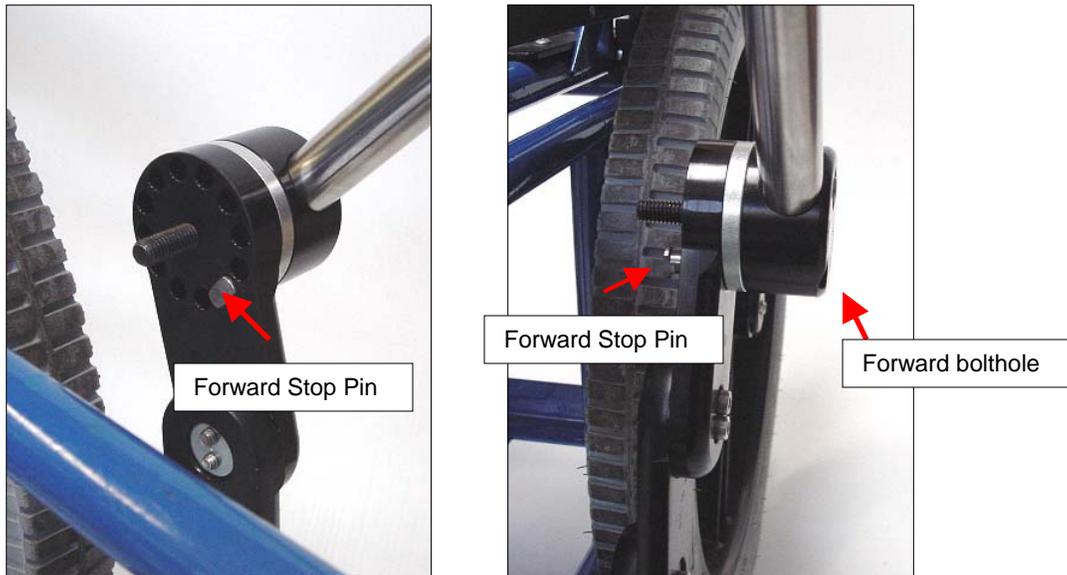


Figure 5.4-12 With the Side Tube held at the desired forward angle, the Front Stop Pin is inserted into the hole in line with the Forward bolthole on the RTHTM.

Proceed with installing the Rearward Stop Pin, even if the Horizontal Tube is not exactly at the required location.

### ***Installing the Rearward - Folded - Stop Pin***

Rotate the Side Tube rearward until the Horizontal Tube is in the Folded position. In the back of the Rear Folding Adapter identify the Stop Pin hole that is in-line with the rear bolthole in the Tube Mount (RTHTM) holding the Side Tube on the Rear Folding Adapter.

Slightly rotate the Side Tube upwards and insert one Stop Pin in this hole with the I-side of the pin end facing toward the tube. Rotate the tube back until the pin stops it. In this position the stop action is against the O-side of the oval pin.

If the Horizontal Tube is above the required position for use, raise it slightly and rotate the Forward Stop Pin 180° to allow the stop action to be against the I-side of the pin end.

A small amount of Vaseline may be used to hold the Stop Pins in place during the Final Adjustment procedure until it is time to replace the Screw-on Cover.

#### **Caution:**

The Stop Pins must be installed and the Screw-on Cover and Locking Nut must be replaced before any device is attached to the mount.

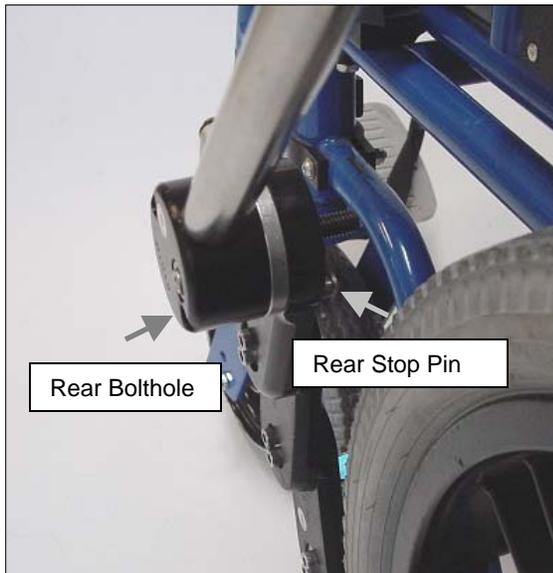
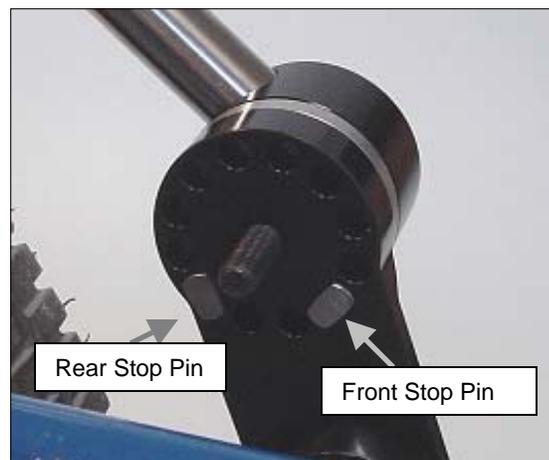


Figure 5.4-13 Rotate the Side Tube to the desired Folded position and locate the Stop Pin hole in line with the rear bolthole on the RTHTM. Insert the Rear Stop Pin in this hole.

Figure 5.4-14 The Front and Rear Stop Pins must be align to seat in the groove in the Screw-on Cover



## 5.4.6 Final Adjustments and Checklist

### Final Position Adjustment



When the In-Use position of the Horizontal Tube needs further adjustment to obtain the best position for the mounted device this can be achieved by slightly rotating the Rear Folding Adapter around the Swivel Clamp that joins it to the Offset Link or Frame Clamp Inner Piece. This method of adjusting the position of the Horizontal Tube will change both the In-Use and Folded positions. Rotating the Rear Folding Adapter to raise the In-Use position of the Horizontal Tube will lower the Folded position and vice versa.

Figure 5.4-15 The Rear Folding Adapter can be rotated around the Swivel Clamp for final adjustment of the In-Use and Folded positions of the device.

It is sometimes possible to rotate the Rear Folding Adapter and re-adjust the Stop Pins to place the mounted device very close to the required position.

When the mount is in its final position replace the Screw Cover and Locking Nut.

### Checklist

Before attaching a device to the **DAESSY Rear Folding Mount, DRFM6** the following steps in the installation procedure have been completed:

- Bolts on the Frame Clamp Inner Piece are fully tight.
- Bolts on the Swivel Clamps fully tight. Tighten these bolts alternately to get the most effective grip.
- Pinch Clamps bolts tight.
- Screw-on Cover for Stop Pins replaced and screwed down firm with the heads of the Stop Pins in the groove on the inside face of the cover.
- Locking Nut for Screw-on Cover replaced and screwed into moderate contact with cover. For some installations it will be necessary to remove the Rear Folding Adapter to replace the Screw-on Cover and Locking Nut.



Figure 5.4-16 The Allen Key can be used to tighten the Screw-On Cover.



## 6. DAESSY Lockable Rear Folding Mount – DLRFM8

### 6.1 Product Overview

The DAESSY Lockable Rear Folding Mount – DLRFM8 allows a mounted device to be folded away and stored behind the backrest of the wheelchair. Storage in this location does not increase the “footprint” of the wheelchair, and reduces the chance that the mounted device will be bumped into walls and doors.



This mount consists of two stainless steel tubes, a Side Tube and a Horizontal Tube, connected by an Elbow Rotate Head with Rotate Head Tube Mount (ELRH+RTHTM) which allows the Horizontal Tube to form a right angle with the Side Tube or rotate to an extended straight out position. A Frame Clamp Assembly consisting of a Frame Clamp Inner Piece (UFCxxxIP), optional Offset Links (O3L) and a Locking Rear Folding Adapter and Rotate Head Tube Mount (LRFA+RTHTM) permanently attaches the tube structure to the side of the wheelchair. The lower end of the Side Tube is clamped into the LRFA+RTHTM and rises at an angle of about 45° forward with the Horizontal Tube passing across in front of the user. The Offset Links allow the Locking Rear Folding Adapter to be positioned approximately halfway down the side of the wheelchair and a few inches below the seat level regardless of the location of attachment of the Frame Clamp Inner Piece on the frame of the wheelchair. A Lock Mechanism located at the Locking Rear Folding Adapter snaps around the Side Tube in its forward position. The Lock Mechanism secures the mount for use on a tilting seat system. The mounted device is held in an adapter or bolted to a plate that allows the device to be quickly attached or detached from a Quick Release Base.

There are three steps to the rear folding motion. In the first movement the Horizontal Tube is rotated through 90° at the Elbow Rotate Head to an extended position in line with the Side Tube. Next, the complete tube structure is rotated at the Locking Rear Folding Adapter back through a 90° angle. Finally, the Horizontal Tube is folded in behind the wheelchair in a motion that reverses the first rotation at the Elbow Rotate Head. Reversing the order of these steps returns the device to its In-Use position

**Caution:**

The DAESSY Lockable Rear Folding Mount can be used with tilting seat systems but is only suitable for power wheelchairs.

The screen of a laptop computer or similar device should be closed before folding the DLRFM8 behind the wheelchair backrest.

The device and Side Tube must be held and guided through all the steps of the folding motion. The Side Tube must not be allowed to drop suddenly onto the forward or rearward stops.

As the Side Tube passes down the side of the wheelchair during the folding action the user must keep their arm and hand clear.

The DAESSY Lockable Rear Folding Mount – DLRFM8 can be adapted to be easily removable from the wheelchair with an additionally purchased Removable Frame Clamp Assembly (RFCI+RFCR). Adding these components to the DLRFM8 will increase distance between the Rear Folding Adapter and the wheelchair by about 1 3/4". The standard DLRFM9 supplied without the Removable Frame Clamp Assembly is permanently attached to the wheelchair and cannot be removed except by uninstalling the mount.



## 6.2 Parts of DAESSY Lockable Rear Folding Mount DLRFM8

The Standard DAESSY Lockable Rear Folding Mount DLRFM8 consists of the parts listed below

| Part Code             | Part Name   |
|-----------------------|---|
| UFCxxxIP or XXX / IPA | Frame Clamp Inner Piece appropriate to wheelchair                             |
| O3L                   | Offset Link   |
| LRFA+RTHTM(L/R)       | Locking Rear Folding Adapter and Tube Mount with Left or Right Lock Mechanism |
| STR-22                | 22" Straight Side Tube  |
| STR-16                | 16" Straight Horizontal Tube  |
| ELRH+RTHTM            | Elbow Rotate Head and Tube Mount  |
| TUSB                  | Total Quick Release Base  |

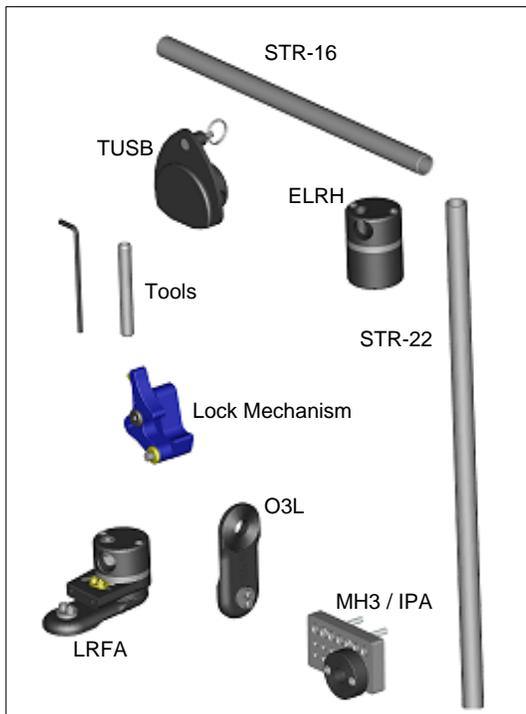


Figure 6.2-1 Standard Parts layout for the DAESSY Lockable Rear Folding Mount DLRFM8

The size and shape of the required Frame Clamp Inner Piece must be specified with the order of a standard mount. More detailed information on DAESSY Frame Clamp options can be found in the section **1.3 Attaching and Positioning DAESSY – Frame Clamps**. The side of the chair on which the mount will be installed must also be specified with the order.

The standard part list will be appropriate from many mounting situations. Variations in the standard list will be necessary for some situations. Common variations include changes in the length and shape of the Side Tube (STR22), additional Frame Clamp components to avoid obstructions with other wheelchair fittings, and different styles of the Quick Release Base. If the mounted device is scanning or head-pointer operated it may be preferable to substitute a Folding Quick Release Base (USBF) for the TUSB. The USBF may allow the device to be tilted to a more protected configuration in its stored position behind the wheelchair backrest.

More information can be found in **1.4 Attaching and Positioning DAESSY – Tube Lengths and Shapes** and **1.5**

### **Attachment of Devices to DAESSY Mounts – The Quick Release System.**

The Fitting Procedure (**6.3 Fitting the DAESSY Lockable Rear Folding Mount DLRFM8**) will identify what variations are necessary.

In addition to the standard and variation parts an adapter plate or device holder is necessary to complete the mount. **1.6 Attachment of Devices to DAESSY Mounts – Adapters and Holders** provides comprehensive information on DAESSY Adapters plates and Holders.

## 6.3 Fitting the DAESSY Lockable Rear Folding Mount DLRFM8

A communication device or laptop computer, when mounted on a wheelchair, must be correctly positioned to make it comfortably accessible to the user while In-use. When a device is mounted on a DAESSY Lockable Rear Folding Mount DLRFM8 it may be stored in a Folded position behind the backrest.

The Fitting procedure for the DAESSY Lockable Rear Folding Mount determines what components are necessary to correctly position the device in both the In-Use and Folded positions.

### ***Standard Mounting Assemblies and Fitting Exceptions***

The standard Side Tube length of 22 inches is suitable for many situations when the device is mounted for direct access.

When the device to be mounted is scanning or head-pointer operated, or when the mount will be installed on a small wheelchair it is essential to follow the fitting procedure as the standard tube dimensions are not likely to be suitable. It may be that the DAESSY Lockable Rear Folding Mount – DLRFM8 is not suitable for these non-standard situations.

The Fitting procedure is important to determine the correct lengths of factory cut stainless steel tube. Tube should not be cut to length during installation.

#### **Caution:**

The ends of the stainless steel tube provided by Daedalus Technologies, Inc. are fully machined and chamfered to minimize sharp edges. Daedalus Technologies, Inc. strongly disapproves of the tube being cut to length by purchasers. Cutting the stainless steel tube by any method produces very sharp and hazardous edges.

### ***Steps in the Fitting Procedure***

- Selecting the Frame Clamp attachment location and Lock Orientation
- Determining the Frame Clamp size
- Determining the location for the Locking Rear Folding Adapter
- Determining the Side Tube length and the Offset Links required

#### ***6.3.1 Selecting the Frame Clamp attachment location***

The DAESSY Lockable Rear Folding Mount – DLRFM8 can be mounted on either the left or right side of a wheelchair with left and right defined from the position of the person seated in the wheelchair. The mount must be attached to the tilting seat frame in order for it to remain in the same orientation relative to the user, independent of the tilt angle of the seat. The Frame Clamp Assembly must not interfere with the tilting motion of the wheelchair.

The Frame Clamp Inner Piece (UFCxxxxIP) requires slightly more than two inches of length and three-quarter inches of space above and below the wheelchair frame tube to which it will be clamped. There should be sufficient room for a hand to reach behind the behind the tube to tighten bolts. It does not matter how the wheelchair frame tube is oriented because the Swivel Clamps allow the Offset Links and Rear Folding Adapter to be rotated to any angle relative to the Frame Clamp Inner Piece.

#### **Caution:**

The Inner Piece cannot be located directly above the position for the Locking Rear Folding Adapter as there will not be enough space for correct operation of the Locking Mechanism and the Lock Mechanism may not be releasable to fold the mount behind the backrest.

The selected location must be part of the wheelchair frame, not a removable armrest or footrest.

The Locking Rear Folding Adapter must be located 2 to 5 inches below the seat of the wheelchair and partway down the side of the wheelchair at a point midway between the in-use and folded positions of the mounted device. Offset Links are used to span the distance between the Frame Clamp Inner Piece (UFCxxxxIP) and the Locking Rear Folding Adapter (LRFA). When there are two or more possible locations the UFCxxxxIP should be placed as close as possible to the required location of the Locking Rear Folding Adapter however, the Inner Piece cannot be located directly above the position for the LRFA as there will not be enough space for correct operation of the locking mechanism.

### ***Determining the Lock orientation***

The Locking Rear Folding Adapter and Lock Mechanism are available in Right and Left hand version. The side of the chair on which the mount will be attached must be specified at the time of ordering. The Locking Rear Folding Adapter and Lock Mechanism must only be installed on the side of the chair for which it is designed.

### ***Obstructions***

In addition to spanning the distance between the Frame Clamp Inner Piece attachment location and the required position of the Rear Folding Adapter, Offset Links and Frame Clamp Spacers may be used to avoid obstructions and interference with other wheelchair fittings. It is important that no part of the Frame Clamp Assembly interferes with movable parts of the wheelchair such as caster wheels or brake levers. The Side Tube of the DLRFM8 must not contact any part of the side of the wheelchair as it moves through the folding sequence.

### ***Quick Check***

A quick check for a suitable location for the Frame Clamp Inner Piece is to find a part of the wheelchair frame tube which has enough space to be gripped by three fingers when reaching from inside the wheelchair frame.

### ***Unusual Situations***

Some wheelchairs do not have any tubing freely accessible on the frame or may not have a tube frame. When a seat pan restricts access to the upper edge of the wheelchair frame tubing, it may be possible to use a Side Mount Frame Clamp Inner Piece, which requires no clearance on the topside of the tube and only 1 1/4" clearance on the bottom side. When the wheelchair does not have a tube frame it may have boltholes or other possible attachment methods in a suitable location. In some cases Bolt-on Adapter may be substituted for the Inner Piece.

## ***6.3.2 Determining the Frame Clamp size***

Comprehensive information for determining the correct Frame Clamp size can be found in ***1.3 Attaching and Positioning DAESSY – Frame Clamps.***

### **6.3.3 Determining Locking Rear Folding Adapter (LRFA) location**

The Locking Rear Folding Adapter (LRFA) must be located partway down the side of the wheelchair between 2 and 5 inches below the seat level. The front-to-back location of the LRFA depends on the In-Use and Folded positions for the mounted device.

#### ***The In-Use and Folded Positions***

The In-Use position will be determined by the needs of the user and the type of device being mounted. Devices that are operated with scanning or head-pointer function may be higher and farther away than devices that are operated by direct access.

The Folded position is behind the backrest of the chair where the device is in a protected and unobtrusive location that does not interfere with other items.



The folding motion results in the device being tilted through 90° from the In-Use to the Folded position. This is an important consideration as it affects the clearance between the device and the backrest of the wheelchair, as well as any other fittings or items located on the back of the wheelchair. The Folded position of the device should be selected so that the device clears any obstructions.

Figure 6.3-1 The In Use position is determined by the needs of the User. The folded position behind the backrest must be chosen such that the device does not interfere with other wheelchair fittings.

#### ***Protecting the Device in the Folded Position***

A non-standard component, the Folding Quick Release Base (USBF), may be desirable in some situations, as it allows the device to be rotated on the Horizontal Tube. With the USBF it may be possible to configure the device in the Folded position so that the screen is facing inwards and the device is between the Horizontal Tube and the backrest. More details on the Folding Quick Release Base are found in **1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System**.

#### **Caution:**

The screen of a laptop computer or similar device should be closed before folding the DLRFM8 behind the wheelchair backrest.

### ***Location of the Locking Rear Folding Adapter***

When the In-Use and Folded positions for the device have been selected the required location for the Locking Rear Folding Adapter (LRFA) can be determined. The LRFA should be no further than 2” to 3” inches from the halfway point between the In-use and Folded positions.

When the device is mounted for direct access with a folded position close behind the backrest of the wheelchair the Locking Rear Folding Adapter will be close to the halfway along the side of the wheelchair. A device mounted high and forward for scanning or head-pointer access will require the LRFA to be mounted ahead of the halfway point. If there is an obstruction at the back of the wheelchair the LRFA may be moved behind the halfway point.

### ***Clearance for the Lock Mechanism***

There must be sufficient clearance around the lock mechanism to allow the lever to open and close freely.

### ***6.3.4 Determining the Side Tube length and the Offset Links***

Complete information on the range of options available for non-standard tubes is found in **1.4 Attaching and Positioning DAESSY – Tube Lengths and Shapes**.

### ***Obstructions to movement of the Side Tube***

As the Side Tube moves along the side of the wheelchair during the folding sequence it must not contact or interfere with any other fittings on the wheelchair. Obstructions may be avoided by moving the LRFA and Side Tube away from the side of the wheelchair with Frame Clamp Spacers, or by adding an S-bend to the Side Tube. Adding a Removable Frame Clamp Insert and Receiver will also increase the clearance of the Side Tube away from the side of the wheelchair.

### ***Length of Side Tube – T***

The length of the Side Tube is measured from the intended location of the Locking Rear Folding Adapter (LRFA) to the required location of the Horizontal Tube supporting the device. This is the measurement T that should be specified in orders.

Figure 6.3-2 The length T should be specified in an order to obtain the correct length of Side Tube.



### **Offset Links required – L**

The measurement L is the distance between the location of the Inner Piece (UFCxxxxIP or XXX / IPA) and the Locking Rear Folding Adapter (LRFA). This distance should be specified in orders to determine the number of Offset Links needed. The LRFA itself spans a distance of 3 inches and each additional Offset Link adds another 3 inches

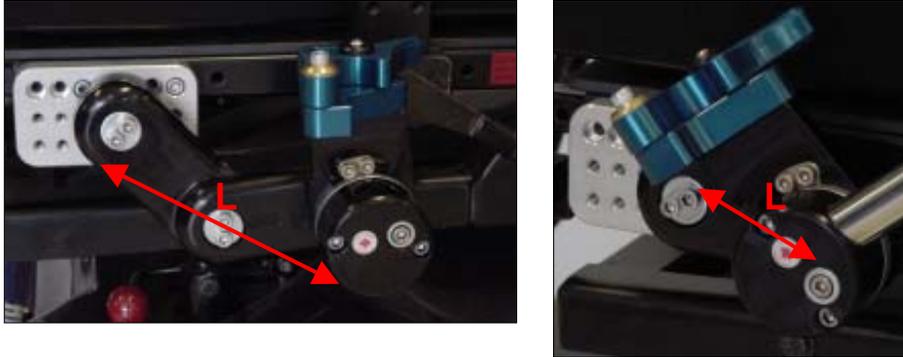


Figure 6.3-3 The distance between the location of the Inner Piece and the Locking Rear Folding Adapter determines the number of Offset Links required.

| Distance between UFCxxxxIP and LRFA | Number of O3L required |
|-------------------------------------|------------------------|
| 0" to 3 "                           | none                   |
| 3" to 6"                            | 1                      |
| 6" to 9"                            | 2                      |
| More than 9"                        | Check with DAESSY      |

## 6.4 Installing the DAESSY Lockable Rear Folding Mount – DLRFM8

### Steps in the Installation Procedure

- Identify the parts
- Install the Frame Clamp Assembly and Side Tube.
- Install the Elbow Connector and Horizontal Tube
- Install the Quick Release Base
- Set the Front and Rear Stops in the Locking Rear Folding Adapter
- Final adjustments and Checklist

### 6.4.1 Identify the Parts of the DAESSY Lockable Rear Folding Mount – DLRFM8

All the black anodised aluminum components have a part code stamped into the metal; these should be identified and laid out as shown in the picture.

| Quantity | Part Code            | Part Name  | Notes  |
|----------|----------------------|--|--|
| 1        | UFCxxxxIP or XXX/IPA | Frame Clamp Inner Piece  | Style will depend on wheelchair.             |
| 2        | O3L                  | Offset Link  |  |
| 1        | LRFA+RTHTM(L/R)      | Locking Rear Folding Adapter and Tube Mount with Locking Mechanism | Left or Right hand                           |
| 1        | ELRH+RTHTM           | Elbow Connector  |  |
| 1        | STR-22               | Straight Tube 22"  | Side Tube. Other lengths are available.      |
| 1        | STR-16               | Straight Tube 16"  | Horizontal Tube. Other lengths are available |
| 1        | TUSB                 | Total Quick Release Base   | Other styles are available                   |
| 1        | DMSTools             | Assembly Tools   | 3/16" and 5/32" Allen Keys                   |
|          |                      | Installation Instructions  |  |

#### Caution:

It is very important that all packaging be thoroughly inspected for loose parts and instruction papers. All the mount components must be identified and checked against the standard parts list, and the order list BEFORE any packaging is thrown away.

The Swivel Clamps for assembling the Frame Clamp Assembly are fastened into the holes on the Locking Rear Folding Adapter LRFA and Offset Links (O3L). The Pinch Clamps for securing the stainless steel tubes into the components are pre-installed into their holes within each component and retained by plastic plugs. When the plastic plug is removed the Pinch Clamp can fall out. Do not remove the plastic plug until it is time to install the stainless steel tube.

The size and shape of the Frame Clamp Inner Piece (UFCxxxxIP or XXX / IPA) will depend on the type of wheelchair and the attachment location, may not be exactly as shown in the diagrams. An extra Offset Link or other parts may be included.

Specific installation instructions may be supplied with components, especially components that vary from the standard parts list. In the case of contradictory instructions, component specific instructions provided with the mounting components will supersede the installation procedures outlined in this document

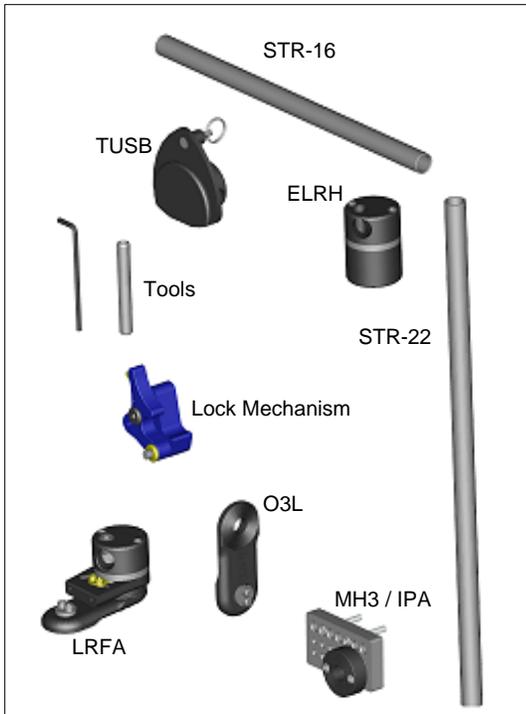


Figure 6.4-1 Standard Parts Layout for the DAESSY Lockable Rear Folding Mount.

The Lock Mechanism for the Locking Rear Folding Adapter LRFA is anodised blue and is only stamped L for Left Hand or R for Right Hand. The Lock consists of a body and a latch with a non-coloured trigger. The latch moves through about 30 degrees and in the locked position it creates a partial circle. The side tube of the mount is held within this partial circle when locked in front of the wheelchair for use. The trigger must be depressed to release the lock when the mount is to be folded behind.

The Lock may be pre-assembled on the end of the LRFA body or it may be packed separately. Use the two bolts supplied with the Lock to attach it at the flat end of the Locking Rear Folding Adapter where two threaded boltholes can be found. The partial circle should be located above the tube hole within the Tube Mount RTHTM on the Locking Rear Folding Adapter.



Figure 6.4-2 Left and Right Lock Mechanisms installed on the LRFA.

The Locking Rear Folding Adapter body has an adjustable stop for setting the folded location. The two bolts securing the stop should be loosened so the stop can move freely during the installation procedure.

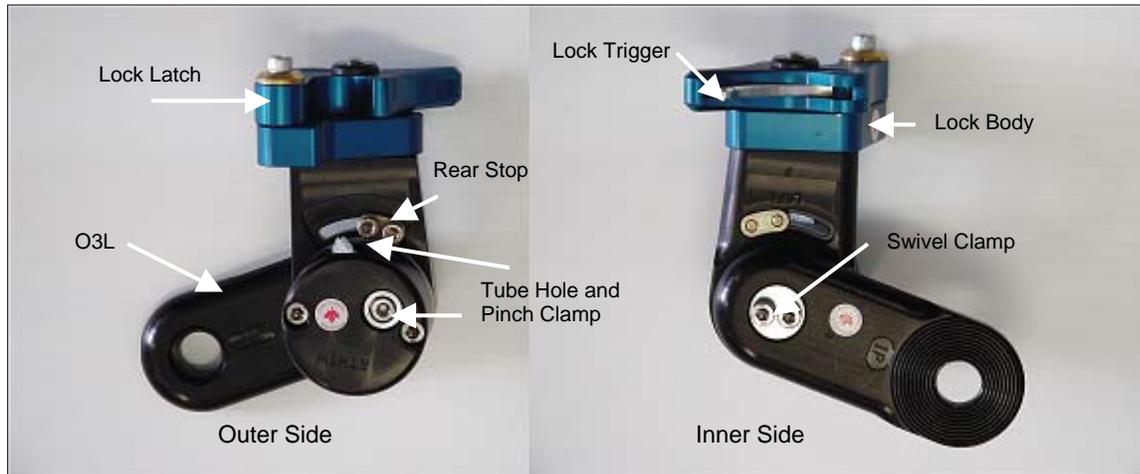


Figure 6.4-3 Parts of the Lockable Rear Folding Adapter

### **6.4.2 Install the Frame Clamp Assembly and Side Tube**

The DAESSY Lockable Rear Folding Mount DLRFM8 can be mounted on either the left or right side of the wheelchair. The side is identified from the perspective of the wheelchair occupant. The mounting side should have been determined during fitting and specified on the order for the correct Lock Mechanism to be included.

Find the location on the wheelchair to attach the Frame Clamp Inner Piece. This should have been chosen during the Fitting Procedure as described in **6.3.1: Selecting the Frame Clamp attachment location**.

It does not matter how the wheelchair frame tube is oriented because the Swivel Clamp allows the Locking Rear Folding Adapter to be rotated to any angle relative to the Frame Clamp Inner Piece.

#### **Assemble the Frame Clamp Pieces**

The pieces of the Frame Clamp Assembly must be connected together before the Frame Clamp is installed on the wheelchair frame. These pieces will include an Inner Piece (UFCxxxxIP or XXX/IPA), a Locking Rear Folding Adapter (LRFA), and any additional Offset Links and/or Frame Clamp Spacers.

If the Inner Piece of the Frame Clamp is a custom bolt-on adapter, for example the Multi-hole 3" Inner Piece Adapter (MH3/IPA), it should not be connected to the Frame Clamp Assembly at this time, as the bolt heads will be obscured by the Offset Link. Specific installation instructions for these adapters are included with the component.



Figure 6.4-4 Unassembled and assembled Frame Clamp Assembly. The MH3/IPA bolt on adapter is first connected to the wheelchair frame, as the bolt heads may be obscured by the Offset Link of the Frame Clamp Assembly.

When the Inner Piece has a Cap and Body fastened with two screws the Cap must be removed so that the threaded end of the Swivel Clamp can be fitted in the long hole through the Inner Piece. Some Inner Pieces have integrated threaded holes for the Swivel Clamp bolts and do not use the threaded end.

The adjoining faces of all the parts for a Frame Clamp Assembly have circular grooves to give extra friction against movement when assembled. The grooves on an Inner Piece engage with the grooves on an Outer Piece but will not engage with the grooves on another Inner Piece. Offset Links and Frame Clamp Spacers have the letters IP stamped into the metal beside the grooves that attach to the Inner Piece and OP stamped into the metal beside the grooves that attach to the Outer Piece.

**Caution:**

All the grooved faces must be correctly matched and engaged before the Swivel Clamp bolts are tightened.

One Offset Link (O3L) may be pre-installed on the Locking Rear Folding Adapter (LRFA).

When one O3L is used to connect the Inner Piece and the LRFA the unthreaded end of each Swivel Clamp is inserted into the holes in either end of the O3L. When more Offset Links are needed to correctly position the LRFA, the IP end of one O3L is connected to the OP end of another with a Swivel Clamp. It is convenient to orient the Swivel Clamps so that the bolt heads are accessible from the outside of the wheelchair.

If a Removable Frame Clamp Receiver and Removable Frame Clamp Insert (RFCR-RFCI) are included in the Frame Clamp Assembly these can be placed between any components of the Frame Clamp Assembly, taking care to correctly match the grooved faces. However it makes most sense to locate the RFCR-RFCI close to the wheelchair, so that removal of the mount leaves the minimum number of permanent components on the wheelchair.

When a Frame Clamp Spacer (UFCSPCR) is needed to gain extra clearance away from the wheelchair frame it can be placed between any connection of the grooved faces, taking care to mate the IP and OP surfaces correctly. Longer Swivel Clamp bolts are provided with the UFCSPCR. More information on Offset links and Spacers may be found in **1.3.5 Connecting the Frame Clamp Inner and Outer Pieces**.

The pieces of the complete Frame Clamp Assembly should be assembled and the Swivel Clamps moderately tightened to hold the unit in approximately the correct orientation before attaching the Frame Clamp Inner Piece to the wheelchair.

**Note:**

Offset Links displaying Serial Numbers greater than #406000 may be connected directly together or connected directly to the Rear Folding Adapter at any angle.

Offset Links that display a Serial Number less than #406000 or have no Serial Number must not be connected together or to the Rear Folding Adapter at an angle of less than 135°.

Two Offset Links connected with an intervening Frame Clamp Spacer can be connected at any angle. The Swivel Clamp connecting through the Spacer will require longer bolts.

### ***Attach the Frame Clamp Assembly***

The location for the Frame Clamp should have been determined during the Fitting procedure. The Locking Rear Folding Adapter (LRFA) must be positioned partway down the side of the wheelchair and 2"-5" below the seat base. The location selected for the Inner Piece can be below, ahead or behind the LRFA position; the Offset Links span the distance between the location for the Inner Piece and the position of the Locking Rear Folding Adapter.

**Caution:**

The Inner Piece cannot be located directly above the position for the Locking Rear Folding Adapter as there will not be enough space for correct operation of the Locking Mechanism and the Lock Mechanism may not be releasable to fold the mount behind the backrest.

At the selected location fit the Cap and Body of the Frame Clamp Inner Piece around the tube. Do not fully tighten the bolts yet. The Cap should face towards the inside of the wheelchair and the Body, connected to an Offset Link should face towards the outside.

Position the Locking Rear Folding Adapter LRFA at the chosen location midway down the side of the wheelchair and a little below the seat level before gently tightening the bolts on the Swivel Clamps. These bolts may need to be loosened during the Final Adjustment.

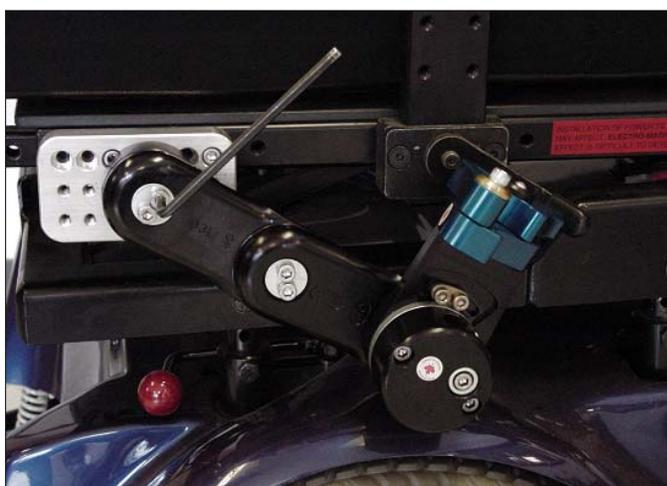


Figure 6.4-5 Install the Frame Clamp Assembly on the Inner Piece. The Swivel Clamps should be gently tightened to hold the components in place, however they may need to be loosened during the Final Adjustment.

## ***Install the Side Tube***

The Side Tube is installed in the Tube Mount (RTHTM) of the Locking Rear Folding Adapter (LRFA).

The Lock Mechanism should be unlocked for this step. Remove the plastic plug retaining the Pinch Clamp within the tube hole and check the alignment of the Pinch Clamp inside; insert the Side-Tube. Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned or when the Side Tube will not fully enter the tube hole. Tighten the Pinch Clamp bolt.

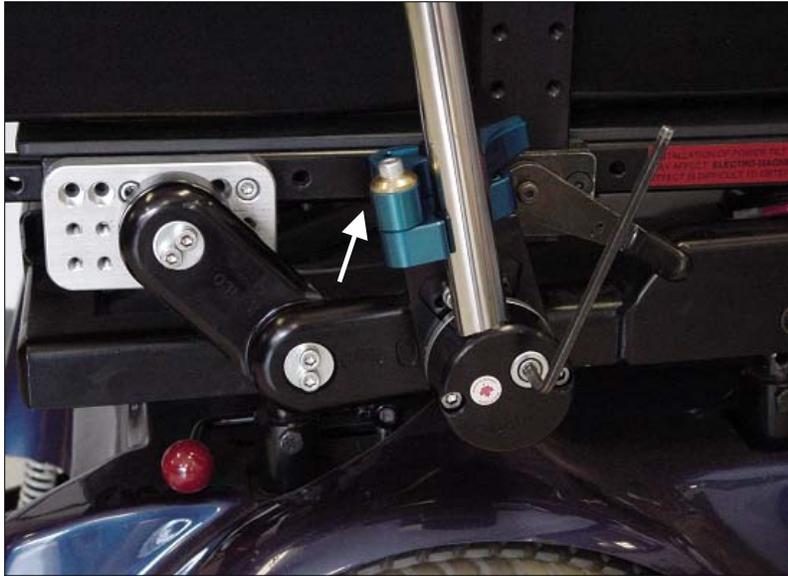


Figure 6.4-6 Install the Side Tube in the Tube Mount. The Side Tube should contact the Locking Mechanism body as indicated by the arrow. Tighten the Pinch Clamp to hold the Side Tube in place

The Side Tube should be resting against the curved part of the Locking Mechanism body. If it is not, rotate the Side Tube and Tube Mount until the Side Tube is in contact with the Locking Mechanism. Close the latch of the Locking Mechanism – it may be necessary to slightly loosen the bolts attaching the Lock to the Locking Rear Folding Adapter to do this. Fully tighten these bolts when the Side Tube is installed, secured with the Pinch Clamp and the latch of the Locking Mechanism is closed.

If the Frame Clamp Inner Piece (UFCxxxIP) is attached to round tubing on the wheelchair the Side Tube will need to be aligned sideways. Use the Side Tube as a lever to move the UFCxxxIP until the Side Tube is aligned parallel with the side of the wheelchair.

Release the Lock latch and check that the Side Tube can be rotated between the 'In-Use' forward position and the 'Folded' back position without contacting any part of the wheelchair.



Figure 6.4-7 The Side Tube must not contact any part of the wheelchair as it rotates between the In-Use and Folded positions.

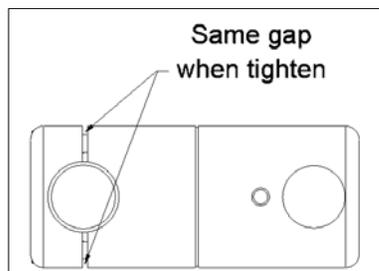
**Caution:**

If the Side-Tube contacts the armrest or other part of the wheelchair the Locking Rear Folding Adapter (LRFA) must be moved further out from the wheelchair by using one or two Frame Clamp Spacers (UFCSPCR). Alternatively an S-Bend Tube may be used for the Side Tube with the bend positioned to allow the tube to avoid obstructions.

When the Inner Piece is correctly aligned alternately tighten the bolts connecting the Cap and Body of the Frame Clamp Inner Piece to clamp the wheelchair tube evenly.

**Important Note:**

When the bolts are fully tight and the tube is firmly gripped there should be a slight gap of 1/64" to 1/32" between the Cap and Body of the Frame Clamp Inner Piece. If the gap is wider than 1/16" the Frame Clamp Inner Piece is probably too small. If there is no gap and the tube is not gripped firmly when the bolts are fully tight remove the Inner Piece and tightly wrap some aluminium foil around the wheelchair tube at the attachment location. There is some variation in the tube size on different wheelchairs so it is sometimes necessary to use the foil. Make sure the aluminium foil does not get caught between the Cap and Body when the UFCxxxIP is replaced and the bolts are tightened. Do not use paper or plastic. Do not use more than four layers of aluminium foil; more than this probably means the UFCxxxIP is too large. Adapter Sleeves (SLV) can be purchased to downsize an overlarge Frame Clamp Inner Piece.



All bolts should be tightened sufficient to hold the mounting assembly for the remaining procedures in the installation. The bolts will be fully tightened in the final installation step.

### 6.4.3 Install the Elbow Connector and Horizontal Tube

Remove the plastic plug retaining the Pinch Clamp within the tube hole of the Elbow Rotate Head (ELRH) and check the alignment of the Pinch Clamp inside. Insert the Horizontal Tube and tighten the Pinch Clamp bolt.

Remove the plastic plug retaining the Pinch Clamp within the tube hole of the Tube Mount (RTHTM) on the ELRH. Slide the tube hole in the RTHTM onto the end of the Side Tube. Align the Horizontal Tube level across the wheelchair and tighten the Pinch Clamp holding the Side Tube.

Refer to **1.7 Adjustment and Maintenance** if a Pinch Clamp is not aligned or when the tube will not fully enter the tube hole.

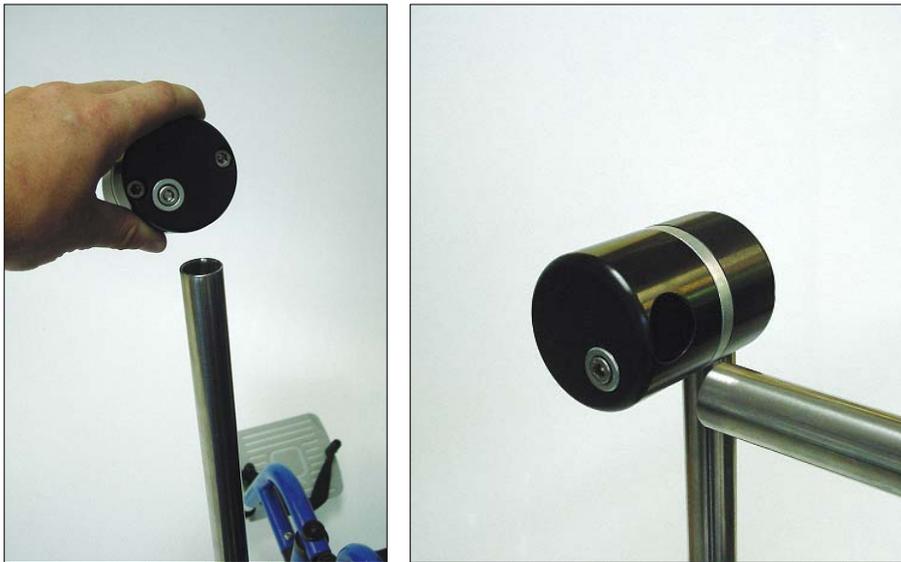


Figure 6.4-8 Slide the Side Tube and Horizontal Tube into the tube holes of the ELRH+RTHTM. Tighten the Pinch Clamps to hold the tubes in place.

**Caution:**

The bolts on the Pinch Clamps should not be excessively tightened. By design a Pinch Clamp does not provide an immovable grip. Extreme tightening of the Pinch Clamp bolt in an attempt to prevent the tube movement when very forcefully pushed, will crush the tube and jam the Pinch Clamp. DAESSY mounting assemblies are designed to carry the weight of a computer or communication device and are not intended to resist a strong force exerted by the user.

### 6.4.4 Install the Quick Release Base

Remove the plastic plug retaining the Pinch Clamp in its hole in the Total Quick Release (TUSB) and slide it onto the Horizontal Tube. The Pinch Clamp must be aligned in its hole so that it is even with the inside of the tube hole to allow the tube to slide through. Refer to **1.7 Adjustment and Maintenance** if the Pinch Clamp is not aligned and the tube will not enter the hole.

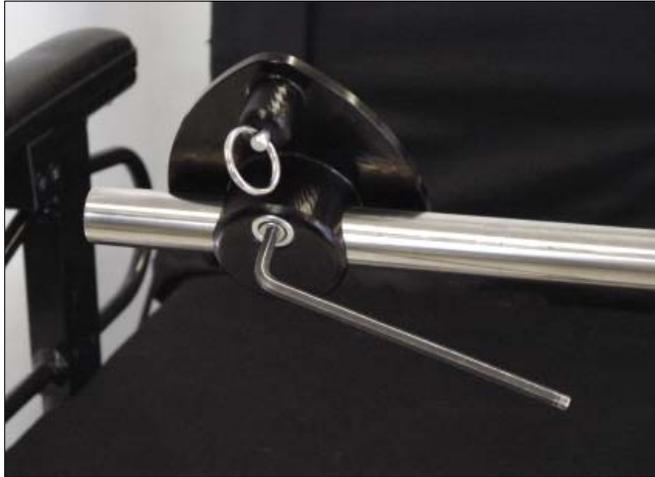


Figure 6.4-9 The TUSB slides onto the end of the Horizontal Tube and is held in place with the Pinch Clamp.

### Quick Release Orientation

The Total Quick Release Base can be clamped at any location along the Horizontal Tube and may be rotated around the tube to place the mounted device at any angle. The normal orientation for the TUSB is with the Locking Pin positioned away from the user. Adapters and Holders that attach devices and computers onto the TUSB are assembled for this orientation.



Figure 6.4-10 The Folding Quick Release Base allows the device to be rotated around the Horizontal Tube and held at any of 5 angles by a spring-loaded lock pin.

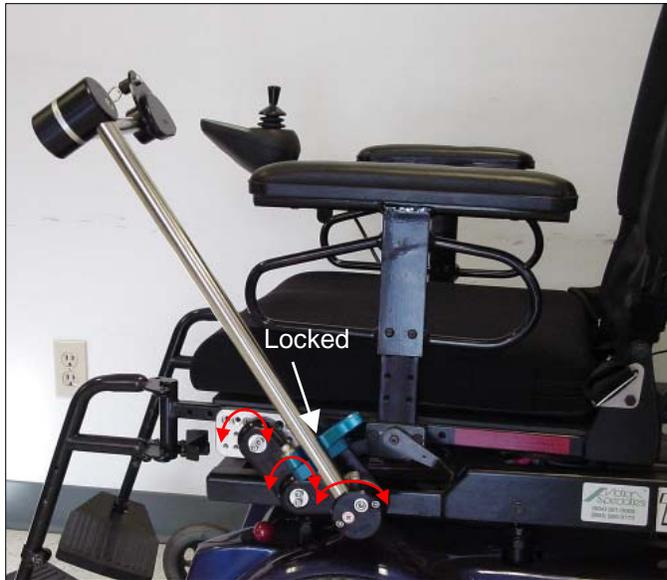
A non-standard component, the Folding Quick Release Base (USBF), may be desirable in some situations, as it allows the device to be rotated on the Horizontal Tube. With the USBF it may be possible to configure the device in the Folded position so that the screen is facing inwards and the device is between the Horizontal Tube and the backrest. More details on the Folding Quick Release Base are found in **1.5 Attachment of Devices to DAESSY Mounts – The Quick Release System**.

### Caution:

The screen of a laptop computer or similar device should be closed before folding the DLRFM8 behind the wheelchair backrest.

## 6.4.5 Adjust In-Use Position and the Rear Stop

### Setting the In-Use Position



Rotating the Locking Rear Folding Adapter (LRFA) with the Side Tube locked in position sets the In-Use position of the DAESSY Lockable Rear Folding Mount DLRFM8. The rotation can be at any of the Swivel Clamps between the Frame Clamp Inner Piece and LRFA. When the mount is in the correct position fully tighten all the Swivel Clamp bolts.

Figure 6.4-11 – With the Side Tube locked in place rotate the Locking Rear Folding Adapter at the Swivel Clamps connecting the Frame Clamp components to set the In-Use position.

### Adjusting the Rear Folding Stop and Setting the Folded Position

The Locking Rear Folding Adapter body (LRFA) has an adjustable stop for setting the folded location. The two bolts securing the stop should have been loosened during the installation procedure. The Stop is installed in a sector shaped slot where it can be moved through about 20 degrees. By removing the two small bolts the Stop can be removed and inverted to displace the adjustable region about 10 degrees. The total adjustment possible is about 30 degrees. The Stop bears against a ledge within the rotating part of the Rear Folding Adapter.



Figure 6.4-12 The Rear Stop slides in a sector shaped slot.

Figure 6.4-13 The Rear Stop can be removed and inverted to adjust the maximum rearward motion of the Side Tube.



With the Stop bolts loose, move the mount to the desired Folded position. If necessary the Stop may be turned over. With the mount held in the correct Folded position use the Allen key to pull the stop up to the ledge it contacts and tighten the bolts.

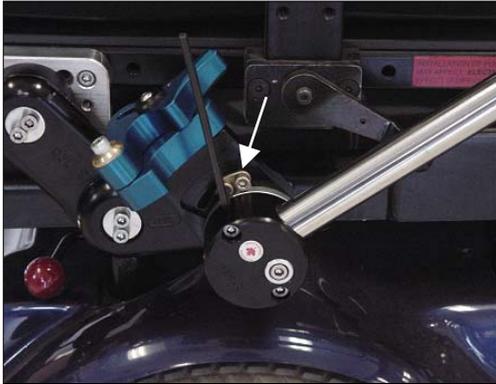


Figure 6.4-14 With the Side Tube in the correct folded position use the Allen key to pull the Rear Stop forward and tighten the bolts.

### **6.4.6 Final Adjustment and Checklist**

Before attaching a device to the Lockable Rear Folding Mount check that the following steps in the installation procedure have been completed.

- Bolts on Frame Clamp Inner Piece fully tight
- Bolts on Swivel Clamp fully tight. Tighten these bolts alternately to get the most effective grip.
- Pinch Clamp bolts tight

