

## Installation Manual for VHM-25™ Series Arm with Double Extension Channel Mount with Folding Keyboard Bracket



**Install Time:** 10-15 minutes

*The purpose of this manual is to describe general installation and adjustment procedures for VHM-25™ Series Arm with Double Extension. This manual should be used in conjunction with any keyboard-specific installation guides used in mounting the keyboard. Please read this manual and all keyboard-specific installation material before installing or using this product.*

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### 1.0 Parts Reference

The following parts and hardware are included with this installation kit and labeled accordingly:

Item #	Description	Qty
1	VHM-25 Series Arm with Double Extension Channel Mount with Folding Keyboard Bracket	1
2	1/8" Hex Wrench	1
3	Adjustable Stop	1
4	16 in. [40.6 cm] Wall Channel Cover (includes instructions)	1

## 2.0 Tools required

The tools listed below are required to install and adjust the VHM-25 Series Arm with Double Extension.

### Provided

- 1/8" Hex Wrench

### Not Provided

- #2 Phillips Screwdriver
- 1/2" (13mm) Socket Wrench
- 1/2" Open End, Boxed or Second Socket Wrench
- 3/4" (19mm) Socket Wrench
- Scissors, utility knife or similar cutting tool

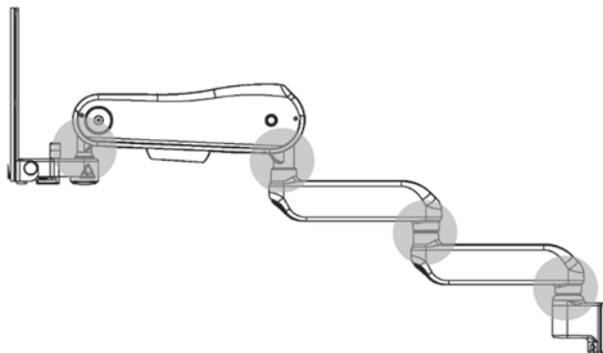
## 3.0 Installation and Maintenance Warnings

This section contains warnings regarding the installation and maintenance of the VHM-25 Arm. This section must be read in its entirety before installing and maintaining the VHM-25 Arm. Failure to follow these warnings may result in damage to equipment or injury to personnel.



### Warnings

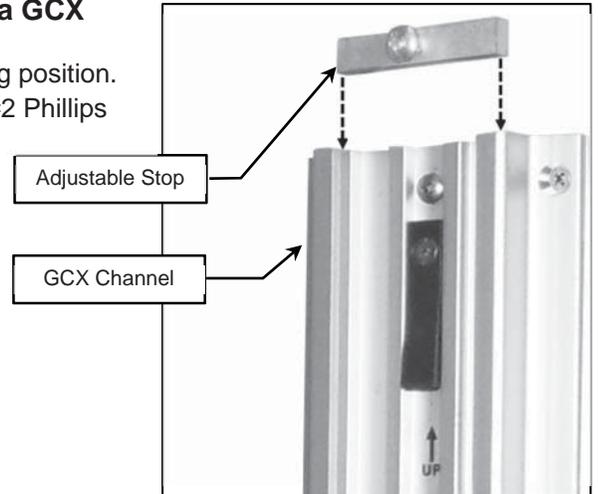
- Do not position the VHM-25 Series Arm with Double Extension or mounted keyboard above a patient. Note that the VHM-25 Series Arm with Double Extension has a wide range of motion both up/down and side to side. Please consider carefully the proximity of the mounting assembly to other equipment, hospital personnel, and the patient. GCX recommends that the hospital's risk management personnel verify that the application is appropriate prior to installation and use of the VHM-25 Series Arm with Double Extension.
- Before the VHM-25 Series Arm with Double Extension is channel mounted, verify that the channel has been installed and approved in accordance with the channel installation guide. [www.gcx.com/Support/WallChannelInstallation](http://www.gcx.com/Support/WallChannelInstallation).
- Ensure that the weight of the keyboard tray and keyboard being mounted are within the 3-10 lbs (1.3-4.5kg) weight limit of the Folding Keyboard bracket and arm.
- Do not use power tools to make any adjustments on VHM-25.
- The mounted keyboard or arm may move suddenly due to normal wear or improper adjustment of the tilt and swivel functions (see Sections 6.4 and 6.5), improper counterbalance (Section 6.1) or ultimately, gas spring end of life. The gas spring has a limited life span and will lose some strength over a long period of time. The VHM-25 Series Arm with Double Extension must be inspected and maintained at least once a year. This inspection must include the steps outlined in Section 9.0.
- Due to risk of personal injury or damage to the equipment, the VHM-25 Series Arm with Double Extension housing must never be disassembled by non-GCX personnel. Failure to comply will void the warranty.
- Note that the VHM-25 Series Arm with Double Extension has a wide range of motion both up/down and side to side. Please consider potential Pinch Points that may cause personal injury.



- Remove the keyboard and/or keyboard tray only when the VHM-25 Series Arm with Double Extension is at the highest position. Due to the counter balance function, the VHM-25 Series Arm with Double Extension may naturally rise to the highest position when weight is removed. This can happen suddenly if the weight is removed at any height other than the highest point.

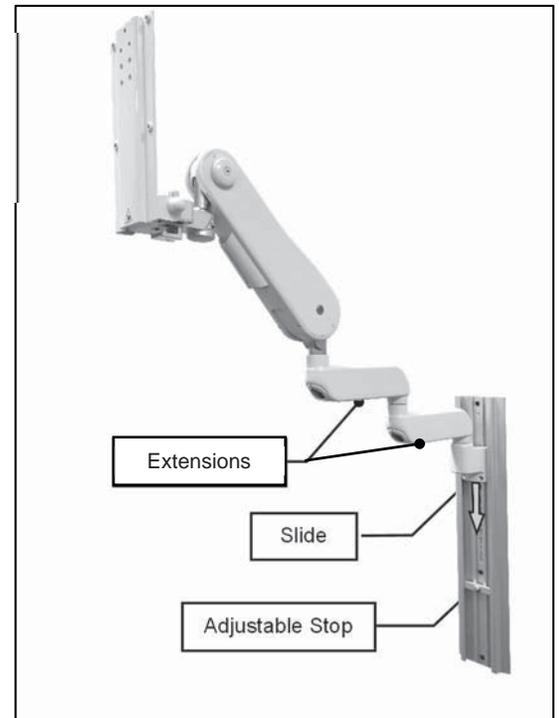
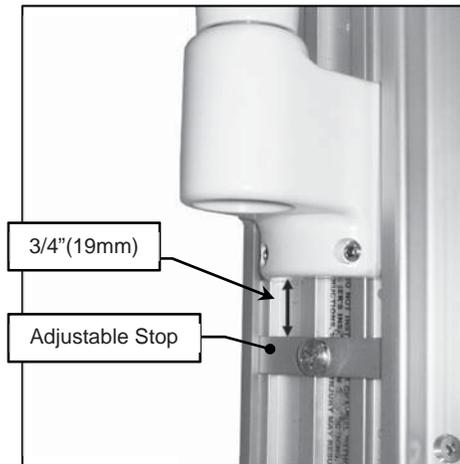
#### 4.0 Installing the VHM-25 Series Arm with Double Extension in a GCX Channel

- 4.1 Install Adjustable Stop in top of Channel, and slide to desired mounting position. Making sure the Adjustable Stop is level, tighten center screw with a #2 Phillips screwdriver to secure position.



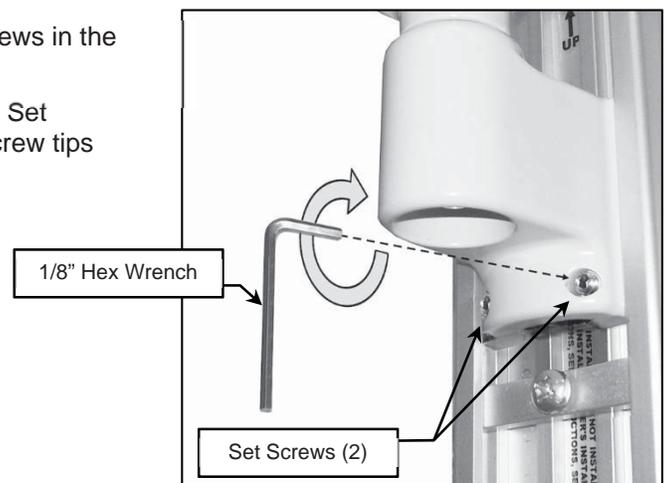
- 4.2 While supporting the bottom of the VHM-25 with Double Extension Arm, guide the Slide into the top of the Channel (right) and position it 3/4" (19mm) above the Adjustable Stop.

**Installation Note:** The VHM-25 Arm with Double Extension may require additional support under the extension while mounting in the channel.



- 4.3 Using a 1/8" hex wrench (supplied), tighten (CW) the (2) set screws in the Slide to secure position of Arm.

**Installation Note:** There will be resistance when turning the (2) Set Screws due to the locking patch material on the threads. The screw tips must be driven against the channel to secure the Arm.



## 5.0 Mounting a Keyboard Tray and Keyboard on the VHM-25 Series Arm with Double Extension

Refer to instructions included with the keyboard tray (purchased separately).

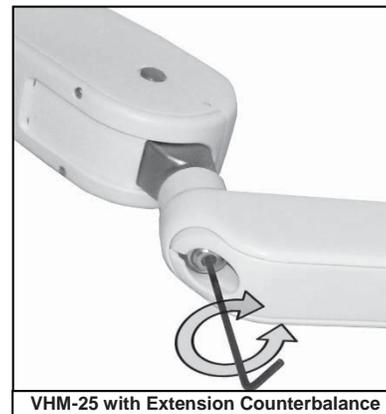
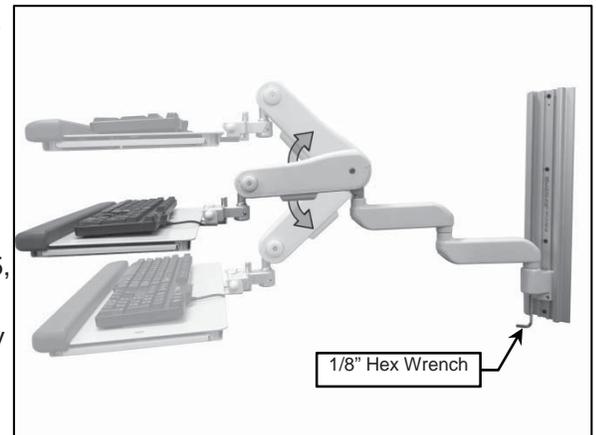
## 6.0 Adjusting the VHM-25



**Caution:** Before the VHM-25 Series Arm with Double Extension is properly adjusted, be sure the weight of the keyboard and tray on the arm can be supported while making adjustments. Use more than one person if required. Some of the following pictures do not show the mounted keyboard for detail purposes.

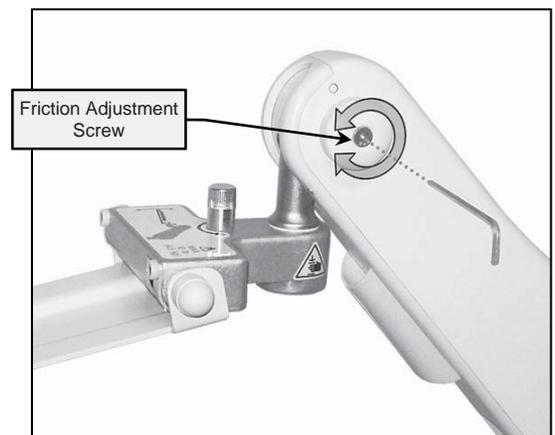
**Installation Note:** Adjustments are factory pre-set for a keyboard and tray weighing approximately 7.3 lbs. (3.3kg). Adjustments to counterbalance, friction, tilt tension and pivot tensions may all be required to achieve a proper installation. Detailed instructions for making adjustments follow in the sections below. When properly adjusted the arm will maintain position throughout the height range and can be positioned safely and with a desired feel throughout the full range of motion. Refer to the Routine Maintenance Check List, section (9), for a quick guide to these functional checks.

- 6.1 Counterbalance Adjustment** – Before re-setting the counterbalance, first loosen (CCW) the Friction Adjustment Screw (lower right view) until the washer under the screw spins freely. Do not remove the adjustment screw. Place approximately 5.0 lbs additional weight on top of the mounted keyboard tray (shown below), then grasp the tray and move the Arm to a level horizontal position. Using a 1/8" hex wrench, tighten (CW) or loosen (CCW) the Adjustment Screw. The Adjustment Screw is located under the rear pivot point on the VHM-25, and under the center pivot point on the VHM-25 with Extension. Counterbalance is correctly adjusted when the mounted keyboard tray with keyboard and the extra 5 lbs weight can be moved up or down with minimal force and does not rise or fall after releasing the Arm. The full range of adjustment is approximately 18 turns.

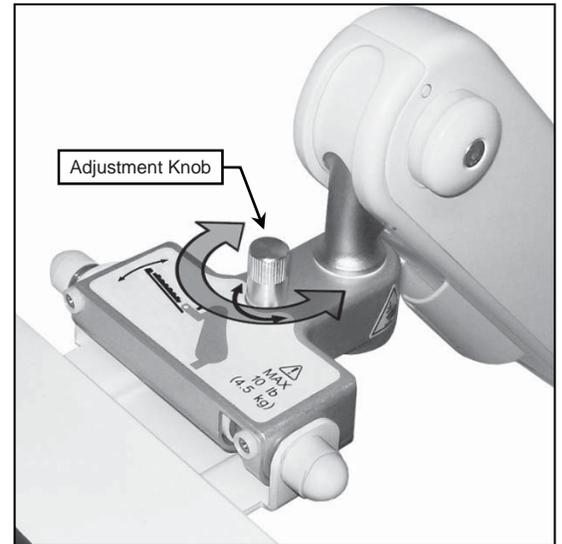
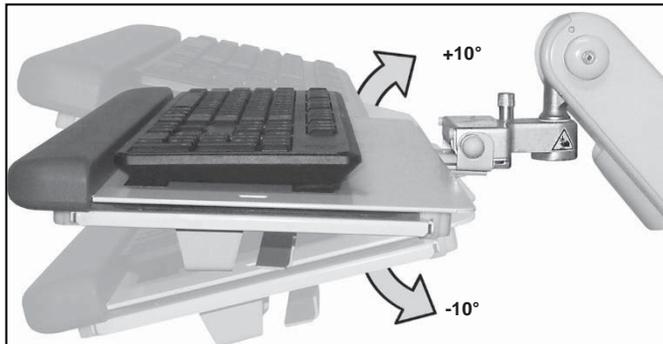


- 6.2 Intallation Note:** The VHM-25 arm is designed to maintain position throughout the height range, while providing resistance to the approximately 10 to 20 lbs of downward force that is applied when the user rests their wrists on the tray while typing. This resistance is provided by increasing friction within the arm.

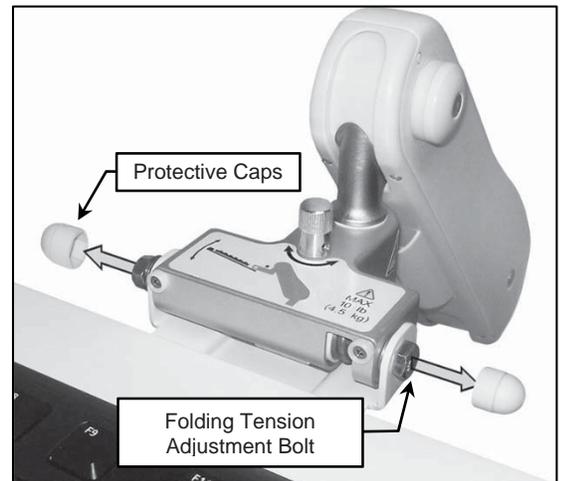
**Friction Adjustment:** Before starting the friction adjustment, first remove the additional 5.0 lbs of weight placed on top of the keyboard – but be careful because the arm will rise up when the weight is removed. Using a 1/8" hex wrench, tighten (CW) the Friction Adjustment Screw to approximately 15-30 in-lbs. Do not over-tighten the Friction Adjustment Screw. The friction is correctly adjusted when the arm will stay located at any position throughout the height range, and the user can comfortably rest their wrists on the keyboard tray without the arm moving in the downward direction.



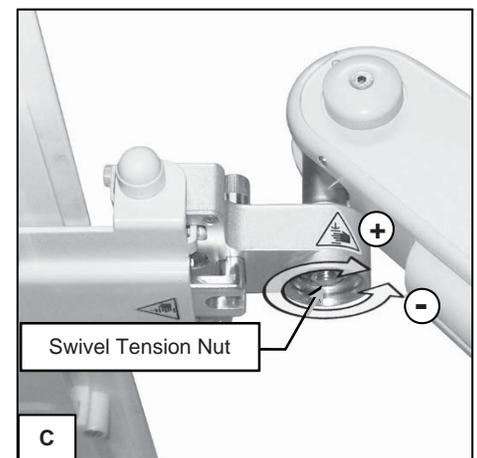
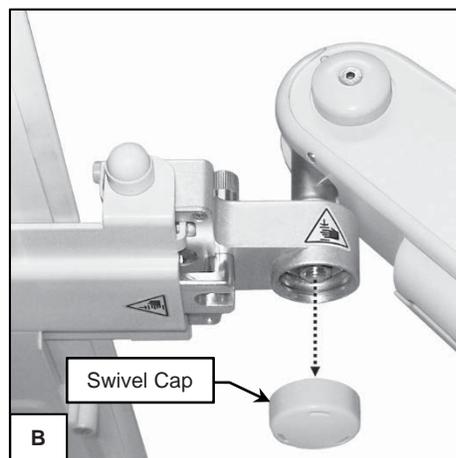
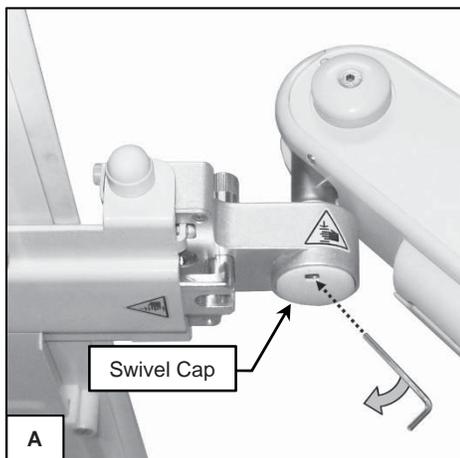
- 6.3 Tilt Adjustment**– The angle at which the keyboard tray sits when folded down for use can be adjusted between +10° and -10° from level. To adjust the tilt angle, slightly raise the keyboard tray and then turn the Adjustment Knob, clockwise (CW) to decrease the angle or counter-clockwise (CCW) to increase the angle. Lower the tray back down to verify the new tilt angle. Repeat this process until the desired tilt angle is achieved.



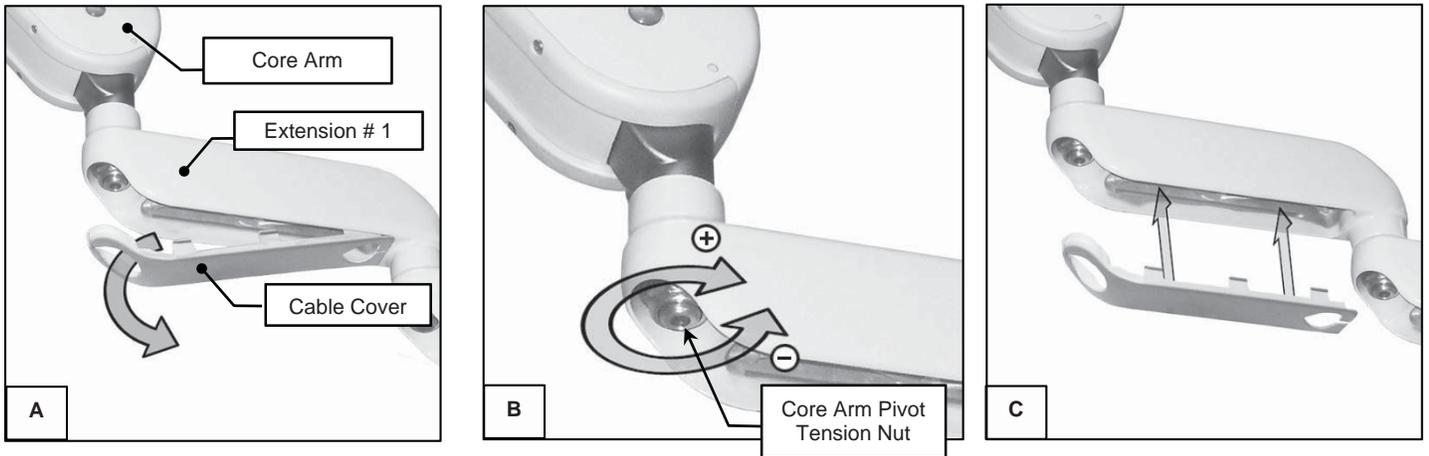
- 6.4 Folding Tension Adjustment** – If the keyboard tray becomes difficult to fold up into the vertical position, or will not maintain the folded up position, then adjust the folding tension. Start by removing both protective caps covering the Folding Tension Adjustment Bolt. Using a 1/2" (13mm) wrench on each end of the bolt and nut assembly, tighten or loosen the Folding Tension Adjustment Bolt until the desired Folding Tension is achieved. Replace the protective caps when done.



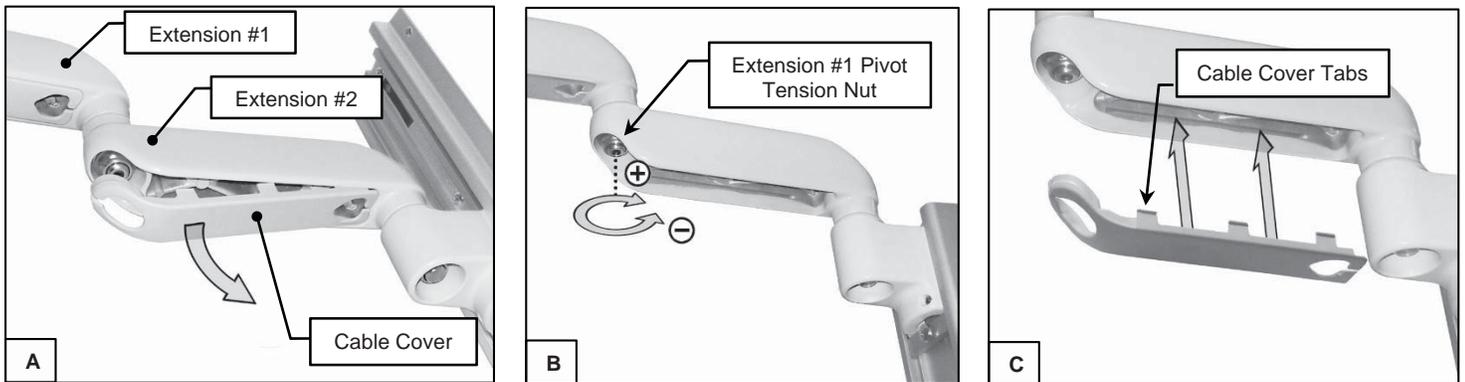
- 6.5 Swivel Tension Adjustment** – Remove the Swivel Cap by inserting the end of the 1/8" hex wrench into the Swivel Cap and rotating outward (Fig. A) or by pulling straight down on the Cap (Fig. B). Tighten (+) or loosen (-) the Swivel Tension Nut with a 1/2" or a 13 mm socket wrench until desired tension is achieved (Fig. C). Do not remove the Swivel Tension Nut. Total adjustment is approximately 1/2 turn. Snap Swivel Cap back into place.



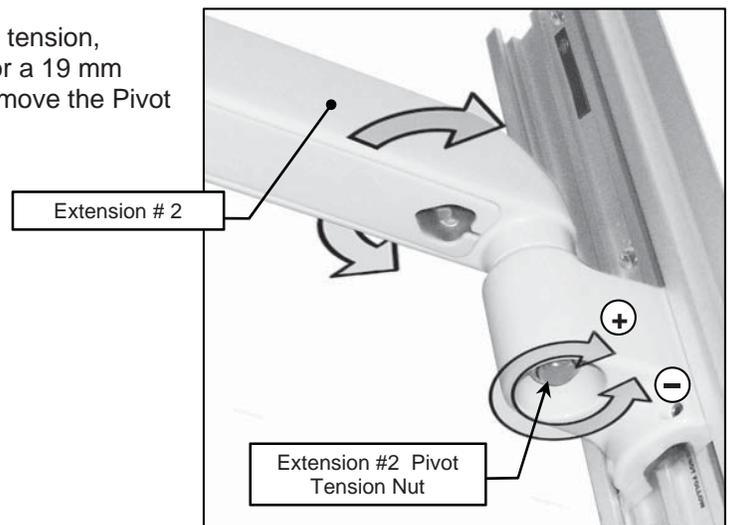
**6.6 Core Arm Pivot Tension Adjustment** – To adjust the tension, first remove the Cable Cover by inserting finger into the front of the Cable Cover and pulling down (Fig. A). Using a 3/4" or a 19 mm socket wrench, tighten (+) or loosen (-) the Pivot Tension Nut until desired tension is achieved (Fig. B). Push Cable Cover up into the Extension until the tabs on the side of the Cable Cover snap into place (Fig. C). Do not remove the Pivot Tension Nut.



**6.7 Extension #1 Pivot Tension Adjustment**- Insert finger into the front of the Cable Cover and pull down to remove (Fig. A). Tighten (+) or loosen (-) the Pivot Tension Nut with a 3/4" or a 19 mm socket wrench until desired tension is achieved (Fig. B). Push Cable Cover up into the Extension until the tabs on the side of the Cable Cover snap into place (Fig. C). Do not remove the Pivot Tension Nut.



**6.8 Extension #2 Pivot Tension Adjustment** – To adjust the tension, tighten (+) or loosen (-) the Pivot Tension Nut with a 3/4" or a 19 mm socket wrench until desired tension is achieved. Do not remove the Pivot Tension Nut.



## 7.0 Cable Management

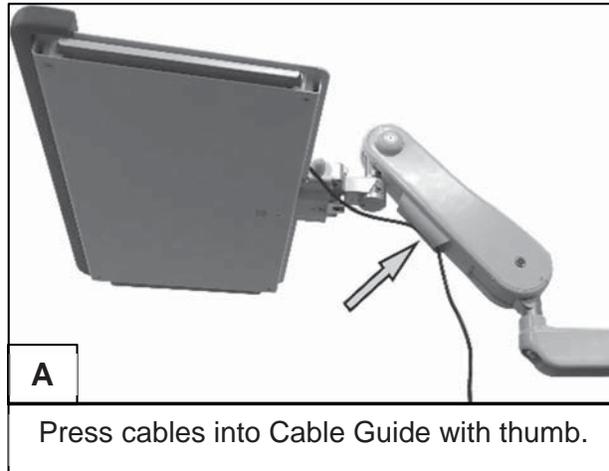
**7.1 VHM-25 Cable Management-** The VHM-25 has two cable management features that allow placement and routing of cables.

- 7.1.1** A flexible Cable Guide beneath the arm manages cables going between the front and rear of the arm. To install cables, use your thumb and press cables through the center seam of the Cable Guide (see Fig. A below).
- 7.1.2** A “pass-through” channel slide allows cables to run behind the arm within the channel. **Note:** If cable connectors are too large to fit through the pass-through, try placing the cables in the path of the Slide before installing the arm in the channel.



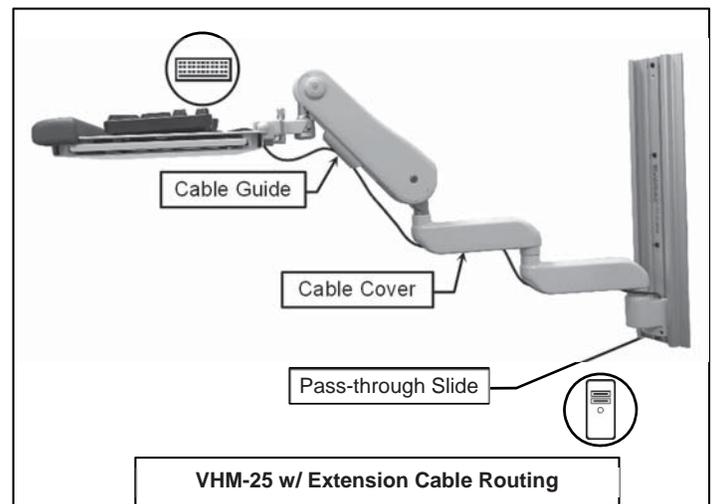
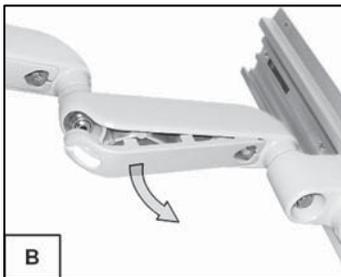
### Caution

Keep fingers outside of Cable Guide when installing cables.



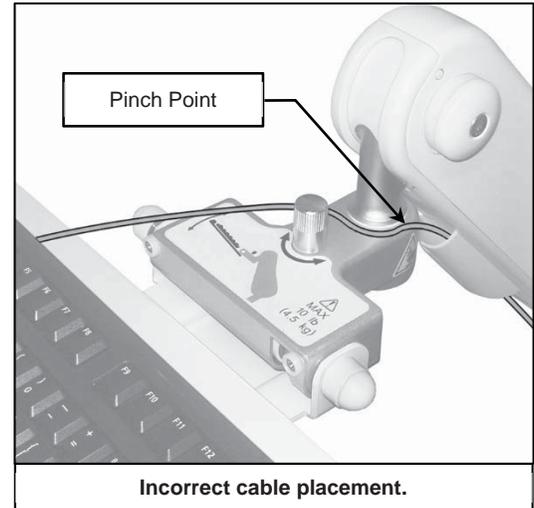
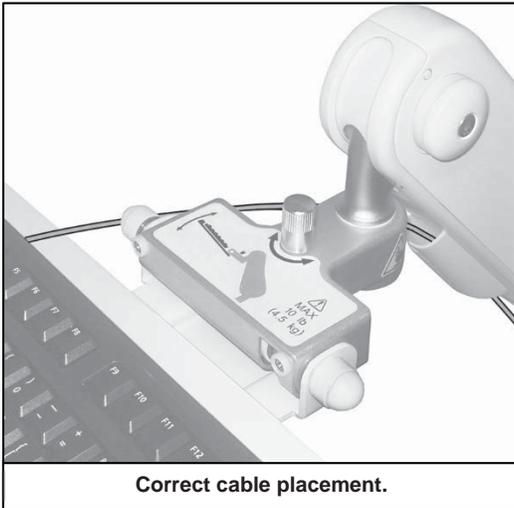
**7.2 VHM-25 w/ Double Extension Cable Management-** The VHM-25 w/ Extension has three cable management features that allow placement and routing of cables.

- 7.2.1** A Flexible Cable Guide beneath the arm manages cables going between the front of the Arm and the Extension. To install cables, use your thumb and press cables through the center seam of the Cable Guide (see Fig. A above).
- 7.2.2** An open cavity beneath the extension with a removable Cable Cover manages cables going between the Arm and the pass-through slide. To install cables, remove Cable Cover by inserting finger into the front of the Cable Cover and pulling down (Fig. B). Push Cables into Cable Cover access holes as shown (Fig. C). Reinstall Cable Cover by pushing it up into the Arm until it snaps into place (Fig. D).
- 7.2.3** A “pass-through” channel slide allows cables to run behind the arm within the Channel. **Note:** If cable connectors are too large to fit through the pass-through, try placing the cables in the path of the Slide before installing the arm in the Channel.





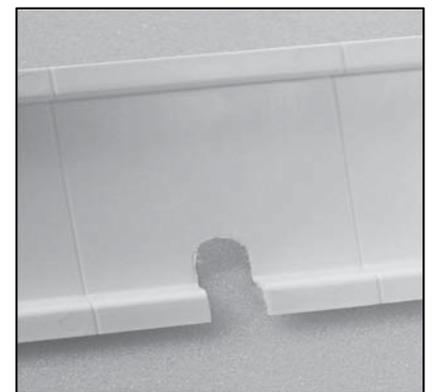
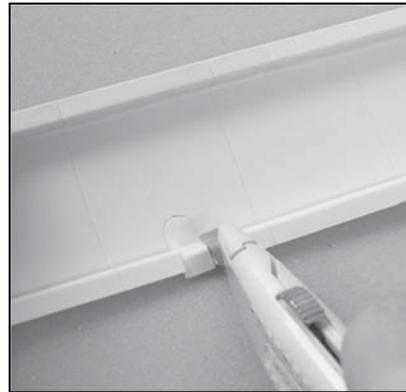
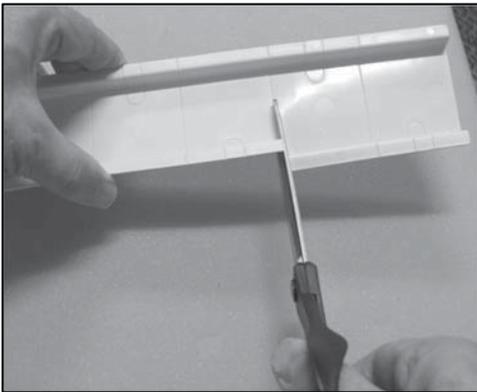
**Warning:** Route cables away from potential pinch points. A service loop of cable may be needed to accommodate all motion and to prevent cable binding, connector damage, or Cable Guide damage.



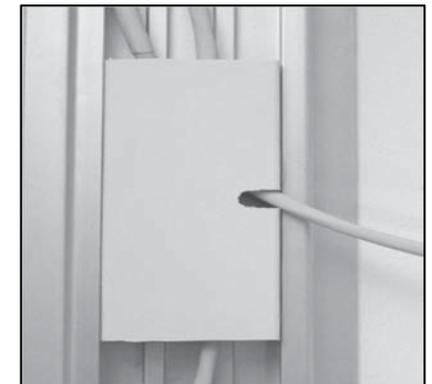
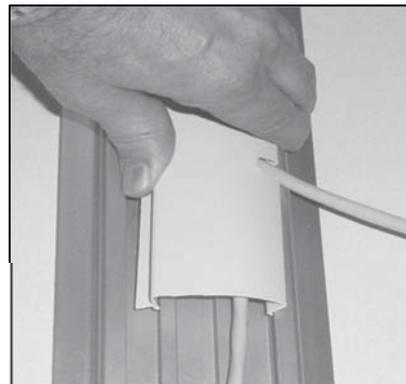
## 8.0 Installing the Channel Cover

The Channel Cover provides an aesthetic cover and may be used for cable management along the Channel.

- 8.1 Cut Channel Cover with scissors for a custom fit (below left). The back side of the Cover is scored in sections for easier cutting, or may be cut as required anywhere along the Cover. Scored notches are also provided for routing cables through the side of Cover if required. Using a utility knife, or similar cutting tool, cut along the scored line to create a cable-routing notch (below center and right).



- 8.2 Press one side of the Cover into channel, routing cables behind Cover and through notches. Squeeze Cover and insert other side into channel.



## 9.0 Routine Maintenance

The VHM-25 Arm must be inspected and adjusted at least once a year. This inspection must include the steps listed in the Check List below:

✓	Routine Maintenance Check List	Section
	With the keyboard tray and keyboard mounted, move the arm through its entire vertical range of motion. The load should maintain its position at every point in the travel of arm. If necessary, the counterbalance and friction mechanisms may be adjusted.	6.1, 6.2
	Grasp the mounted keyboard tray and fold it up and down through its entire range of motion. There should be enough tension or resistance in the folding mechanism to prevent the keyboard from folding down unexpectedly when not in use. If necessary, the folding tension may be adjusted.	6.4
	Grasp the mounted keyboard tray and swivel it from side to side. The tray should swivel with some tension or resistance, not loosely. If necessary, the swivel tension may be adjusted.	6.5
	Grasp the Arm and pivot it from side to side at the rear attachment. The arm should pivot with some tension or resistance, not loosely. If necessary, the pivot tension may be adjusted.	6.6
	Grasp the Arm (VHM-25 with Double Extension) and pivot it from side to side at the center attachment. The arm should pivot with some tension or resistance, not loosely. If necessary, the pivot tension may be adjusted.	6.7
	Inspect fasteners for looseness. Tighten as required for optimal operation and safety.	4.1,4.3

## 10.0 Cleaning the VHM-25 Arm

The VHM-25 Arm may be cleaned with most mild, non-abrasive solutions commonly used in the hospital environment (e.g. diluted bleach, ammonia, or alcohol solutions).

The surface finish will be permanently damaged by strong chemicals and solvents such as acetone and trichloroethylene.

Steel wool or other abrasive material should never be used.

Damage caused by the use of unapproved substances or processes will not be warranted. We recommend testing any cleaning solution on a small area of the arm that is not visible, to verify compatibility.

Never submerge or allow liquids to enter the arm. Wipe any cleaning agents off of the arm immediately using a water-dampened cloth. Dry the arm thoroughly after cleaning.

**CAUTION:** GCX makes no claims regarding the efficacy of the listed chemicals or processes as a means for controlling infection. Consult your hospital's infection control officer or epidemiologist. To clean or sterilize mounted instruments or accessory equipment, refer to the specific instructions delivered with those products.

## 11.0 Troubleshooting the VHM-25 Arm

Symptom	Possible Cause	Remedy
Mounted keyboard tray and keyboard does not appear level or parallel to the floor.	Channel not plumb. Check with level.	Adjust Channel to plumb, or reinstall Channel.
	Weight of keyboard tray and keyboard not compatible with Load Rating of the Arm.	Mount on arm with compatible Load Rating.
	Swivel hardware loose.	Adjust Swivel Tension Nut (section 6.5).
	Pivot hardware loose.	Adjust Pivot Tension Nut (section 6.6 or 6.7).
	Mounting surface (e.g. wall, side of anesthesia machine, etc.) not structurally sound (does not hold mounting hardware).	Mounting surface must be reinforced or Channel must be relocated.
	Channel loose at mounting surface.	Check for plumb and tighten, or relocate (reinstall) Channel.
Mounted keyboard tray and keyboard drifts up or down.	Arm not counterbalanced correctly for weight of the keyboard tray and keyboard.	Perform counterbalance and friction adjustments (section 6.1 and 6.2).
	Weight of mounted keyboard tray and keyboard not compatible with Load Rating of Arm.	Use arm with compatible Load Rating.
Mounted keyboard tray and keyboard are too difficult or too easy to move up or down.	Arm not counterbalanced correctly for weight of keyboard tray and keyboard.	Perform counterbalance and friction adjustments (section 6.1 and 6.2).
Arm pivots too freely.	Pivot tension is too loose.	Adjust Pivot Tension (section 6.6 or 6.7).
Arm is difficult to pivot.	Pivot tension is too tight.	
Keyboard tray and keyboard swivels too freely.	Swivel tension is too loose.	Adjust Swivel Tension (section 6.5).
Keyboard tray and keyboard is difficult to swivel.	Swivel tension is too tight.	
Keyboard tray and keyboard is difficult to fold up.	Folding tension is too tight.	Adjust Folding Tension (section 6.4).
Keyboard tray and keyboard will not maintain folded up position.	Folding tension is too loose.	
Arm inadvertently slides down Channel.	Set Screws (2) in Slide are loose.	Reposition Arm, tighten set screws in slide, and secure Adjustable Stop (section 4.2 and 4.3).
	Adjustable Stop is loose or missing.	Install or secure Adjustable Stop (section 4.1).