

Installation Manual for Philips SureSigns VS3/VS4/VM4/VM6/VM8/VSV VHM-25 Countertop Mount



Install Time: 20-30 minutes

The purpose of this manual is to describe general installation and adjustment procedures for VHM-25™ Series Arms mounted with Philips SureSigns monitors. This manual should be used in conjunction with any instrument-specific installation guides used in mounting the device. Please read this manual and all instrument-specific installation material before installing or using this product.

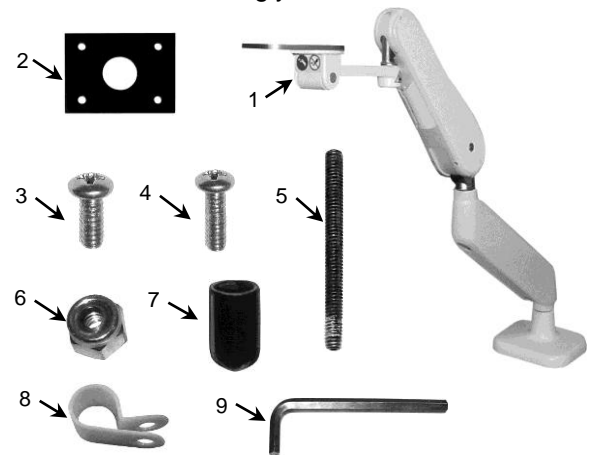
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1.0 Parts Reference

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

Item #	Description	Qty
1	VHM-25 Countertop Mount	1
2	Backing Plate	1
3	8-32 x 5/16" Pan Head Machine Screw (PHMS)	4
4	M4 x 16mm Pan Head Machine Screw (PHMS)	4
5	1/4-20 Mounting Studs	4
6	1/4-20 Nylock Lock Nut	4
7	Protective Rubber Screw Covers	4
8	Cable Clamps, 1/4" and 3/16" Cable Diameters	3 Ea.
9	1/8" and 5/32" Hex Wrenches	1 Ea.



2.0 Tools required

The tools listed below are required to install and adjust the VHM-25.

Provided

- 1/8" Hex Wrench
- 5/32" Hex Wrench

Not Provided

- #2 Phillips Screwdriver
- 1/2" (13mm) Socket Wrench
- 3/4" (19mm) Socket Wrench with Extension
- Power Drill with 5/16" drill bit, and 1 1/2" (38mm) Hole Saw
- Pencil

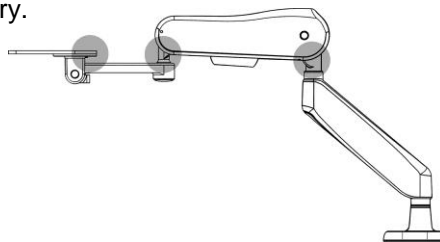
3.0 Installation and Maintenance Warnings

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.

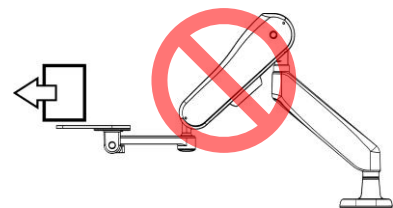
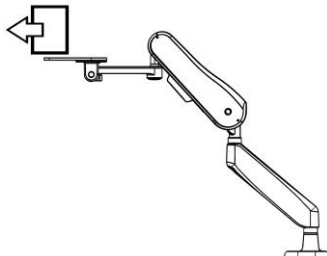


Warnings

- Do not position the VHM-25 Arm or mounted device above a patient. Note that the VHM-25 Arm has a wide range of motion both up/down and side to side. Please consider carefully the device being mounted and 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 Arm.
- Before the VHM-25 Arm is mounted to the countertop, ensure the countertop has adequate strength and stability to support this installation. Consider tip stability through the full range of motion.
- Ensure that the weight of the device and accessories being mounted is within the 7-16 lbs (3.2-7.3 kg) weight limit of the VHM-25 Arm.
- Do not use power tools to make any adjustments on VHM-25.
- The mounted device or arm may move suddenly due to normal wear or improper adjustment of the tilt and swivel functions (see Sections 6.2 and 6.3), 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 Arm must be inspected and maintained at least once a year. This inspection must include the steps outlined in Section 8.0.
- Due to risk of personal injury or damage to the equipment, the VHM-25 Arm housing must never be disassembled by non-GCX personnel. Failure to comply will void the warranty.
- Note that the VHM-25 Arm 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 device only when the VHM-25 Arm is at the highest position. Due to the counter balance function, the VHM-25 Arm will 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.



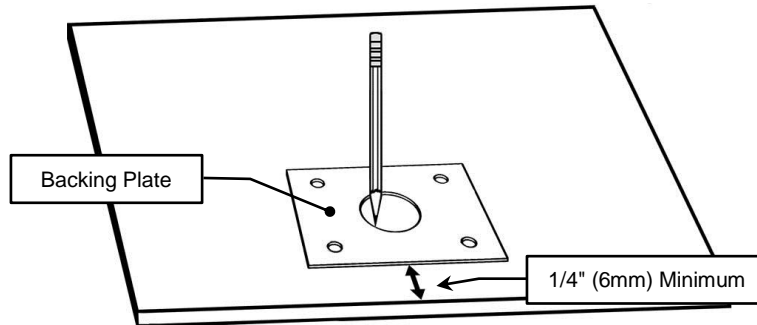
4.0 Installing the VHM-25 Countertop Mount



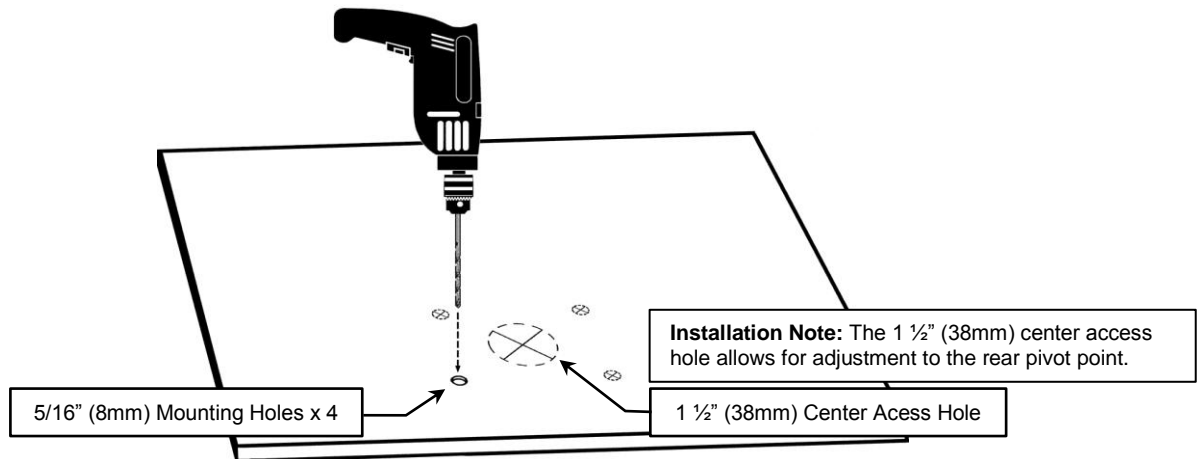
Caution: Always take appropriate safety precautions when using power tools.

Installation Note: Consider the countertop mount's full range of motion with mounted display when determining the mounting location. The 1 1/2" (38mm) center access hole will be used for access to adjustments.

- 4.1 To install the countertop mount, use the backing plate as a template and mark holes for drilling with a pencil. The backing plate/template must be a minimum of 1/4" (6mm) away from the countertop edge.

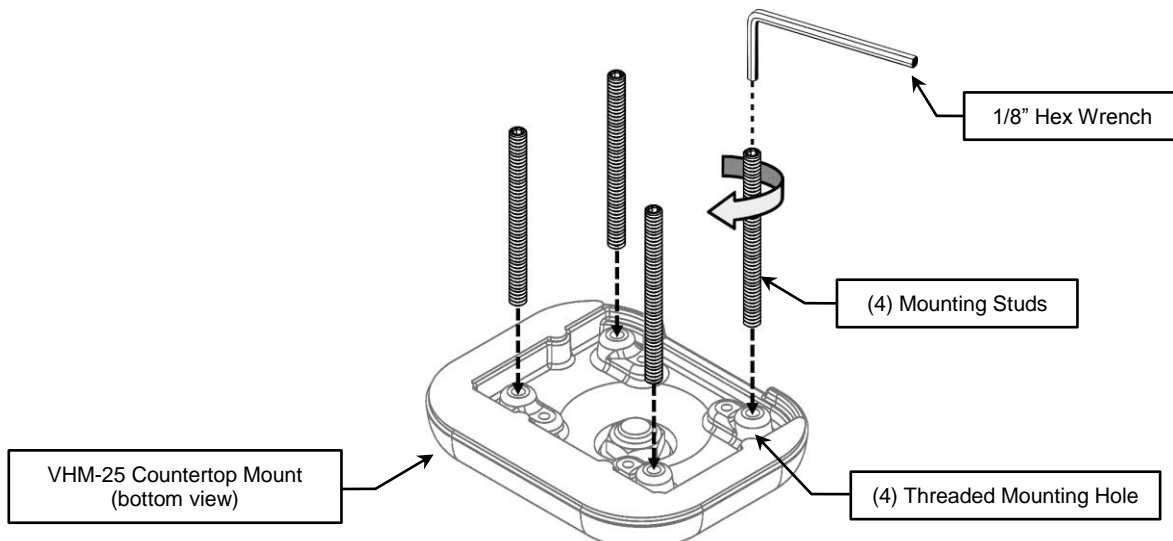


- 4.2 Drill the (4) mounting holes using a 5/16" (8mm) drill bit, and the center access hole with a 1 1/2" (38mm) hole saw.

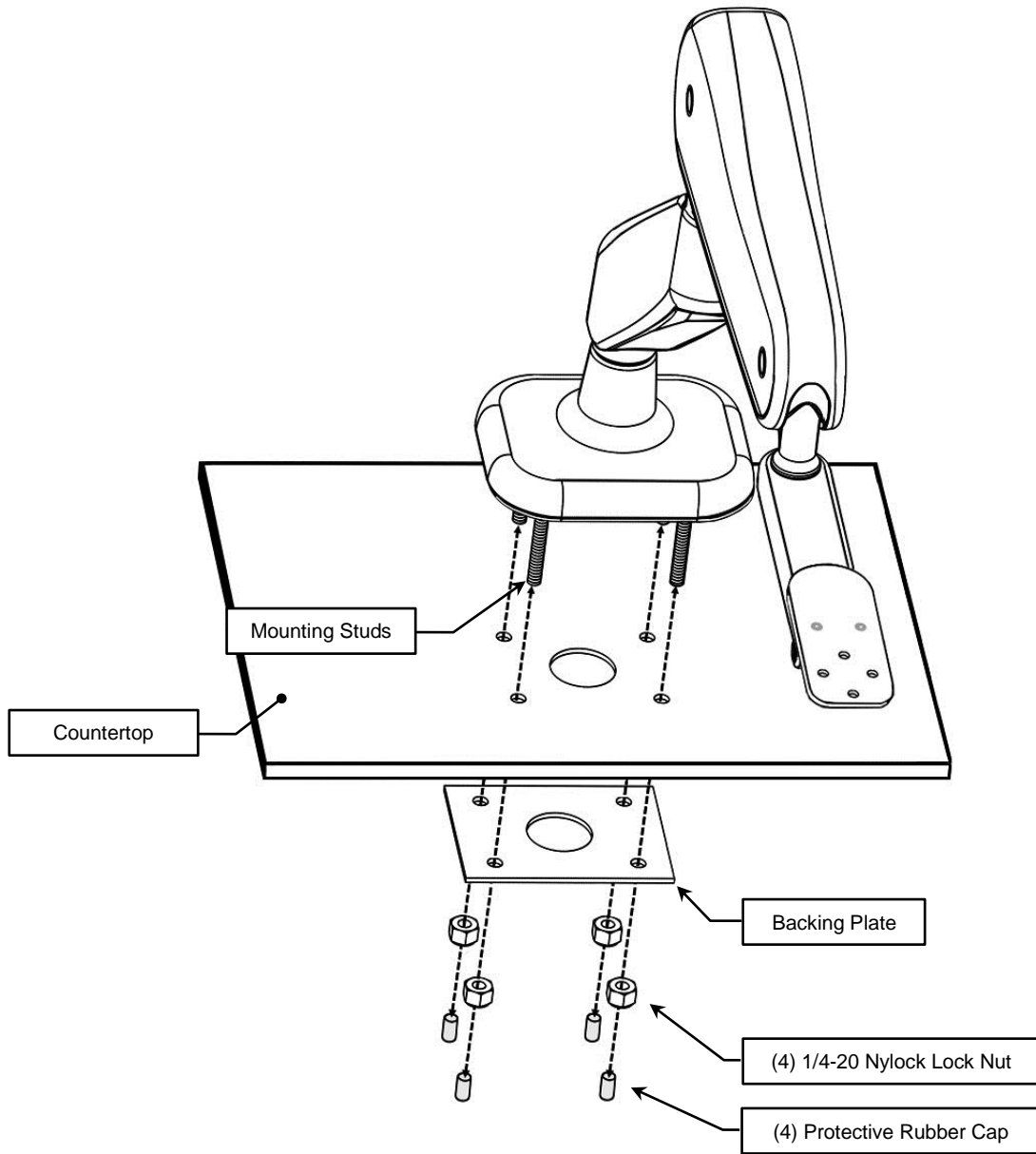


- 4.3 Using a 1/8" hex wrench, install the (4) mounting studs into the (4) threaded mounting holes on the bottom of the VHM-25 countertop mount.

Installation Note: There will be some resistance when turning the (4) mounting studs due to locking patch material on the threads. Make sure studs fully thread to bottom of mounting holes.

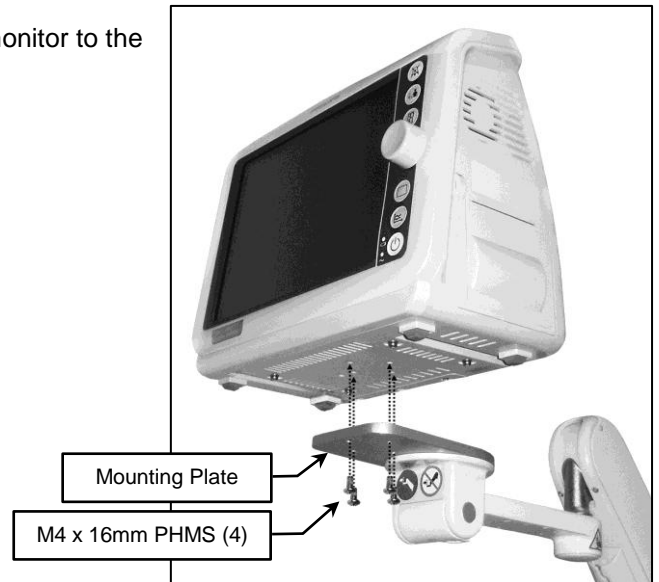


- 4.4** Guide the (4) mounting studs through the (4) pre-drilled countertop holes. Slide the backing plate up onto the mounting studs. Using a 1/2" (13mm) wrench, secure countertop mount/backing plate with (4) 1/4-20 Nylock lock nuts as shown below. After securing lock nuts, press the (4) protective rubber caps over mounting studs.



5.0 Mounting the Philips Suresigns Monitor

- 5.1 Using a #2 Phillips screwdriver, fasten the Philips SureSigns monitor to the Mounting Plate with (4) M4 x 16mm PHMS as shown.



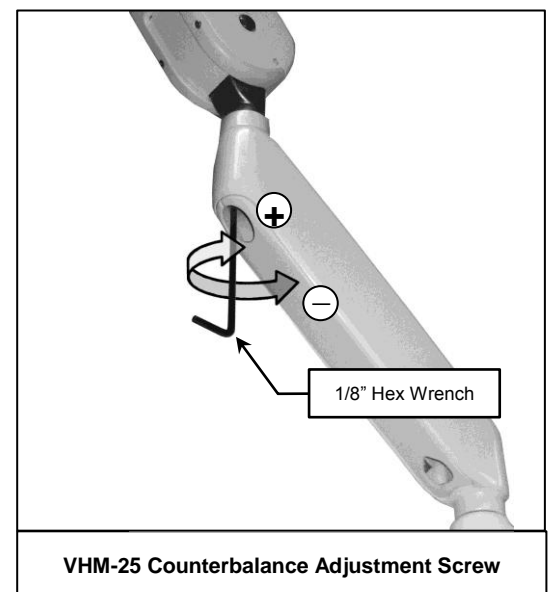
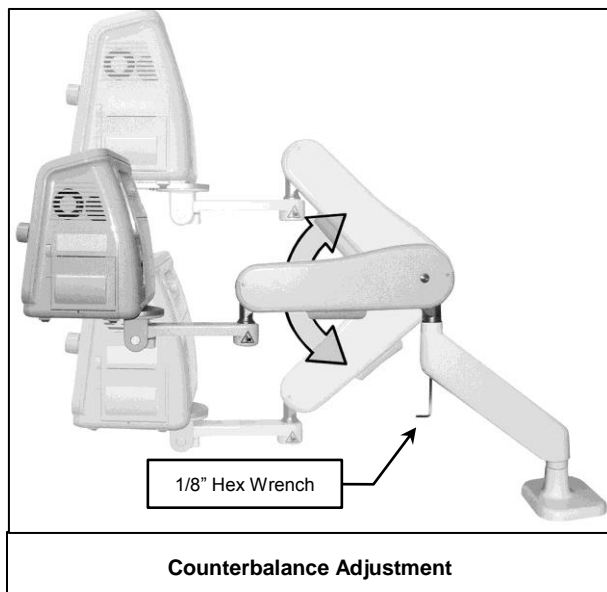
6.0 Adjusting the VHM-25 Arm



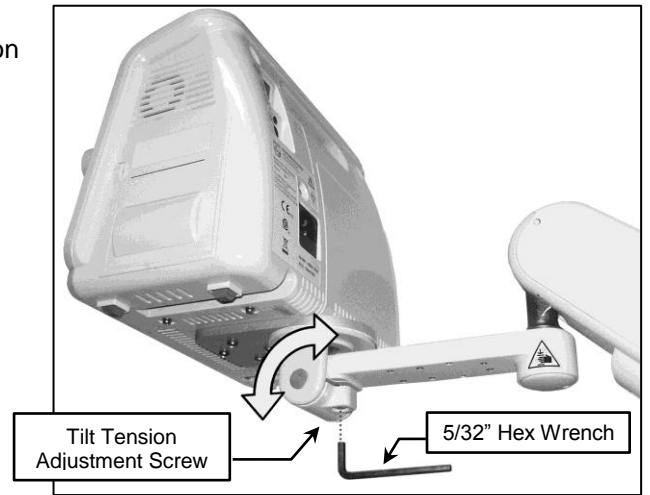
Caution: Before the VHM-25 arm is properly counterbalanced, be sure the weight of the device on the arm can be supported while setting the counterbalance. Use more than one person if required. Some of the following pictures do not show the mounted device for detail purposes.

Installation Note: Adjustments are factory pre-set for a Philips Suresigns monitor weighing approximately 7.1lb (3.2kg). Adjustments to counterbalance, tilt tension and pivot tensions may all be required to achieve a proper installation. Detailed instructions for making adjustments follow in the section below. When properly adjusted the mounted display will "float" 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.

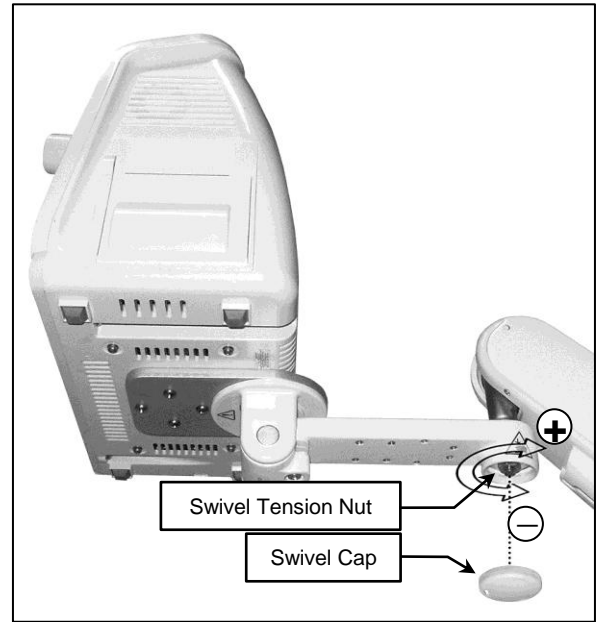
- 6.1 **Counterbalance Adjustment** – Grasp the mounted device and move the Arm to a level horizontal position. Using a 1/8" hex wrench, tighten (+) or loosen (-) the Adjustment Screw. The Adjustment Screw is located under the center pivot point on the VHM-25. Counterbalance is correctly adjusted when the mounted instrument 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.



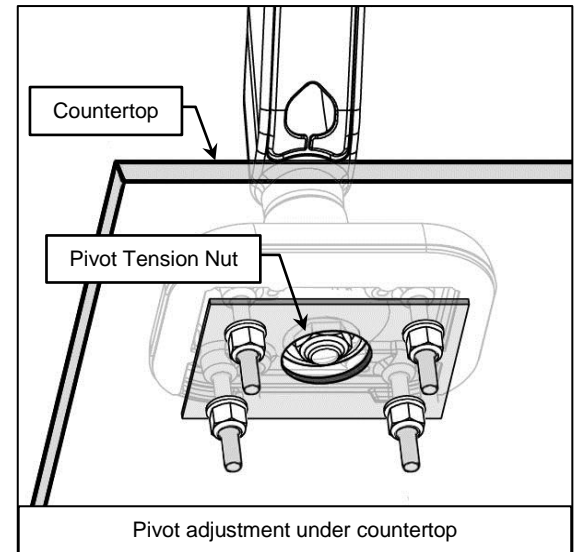
6.2 Tilt Tension Adjustment – Using a 5/32 hex wrench, tighten or loosen the Tilt Tension Adjustment Screw until desired Tilt Tension is achieved. Adjustment range is approximately 1/2 turn total. Do not remove or over-torque the Adjustment Screw.



6.3 Swivel Tension Adjustment – Remove the Swivel Cap by pulling straight down on the cap. Tighten (+) or loosen (-) the Swivel Tension Nut with a 1/2" or a 13 mm socket wrench until desired tension is achieved. Do not remove the Swivel Tension Nut. Total adjustment is approximately 1/2 turn. Snap Swivel Cap back into place.

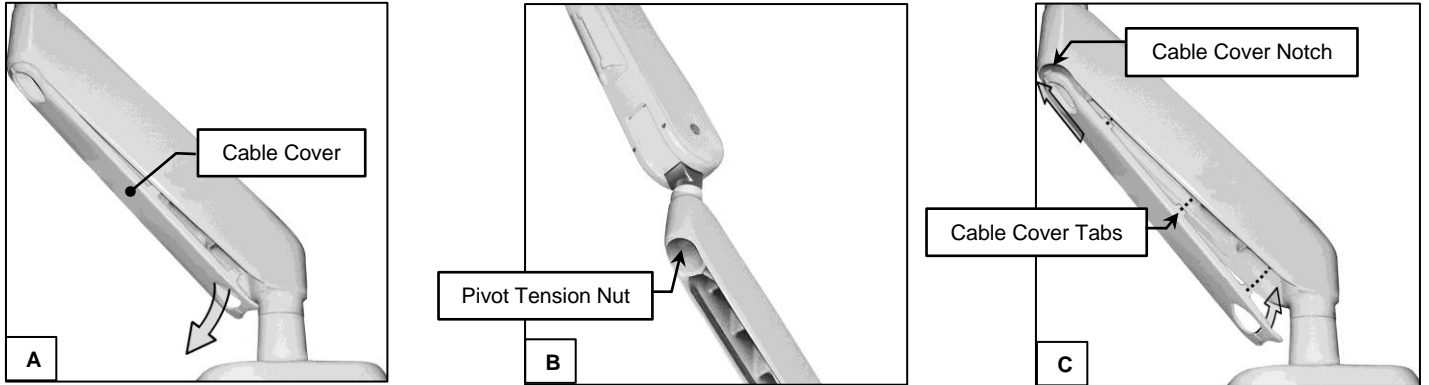


6.4 Rear Pivot Tension Adjustment – The pivot tension nut can be accessed under the countertop through the center access hole that was drilled in **Step 4**. Using a socket wrench with extension and a 3/4" or a 19 mm socket, tighten (CW) or loosen (CCW) the Pivot Tension Nut until desired tension is achieved. Do not remove the Pivot Tension Nut.



6.5 Center Pivot Tension Adjustment – Insert finger into the front of the Cable Cover and pull down to remove (Fig. A). Using a socket wrench with extension and a 3/4" or a 19 mm socket, tighten (CW) or loosen (CCW) the Pivot Tension Nut until desired tension is achieved (Fig. B). Re-install the Cable Cover by inserting Cable Cover Notch up into the Arm and pushing the cover up into the Arm until the tabs on the sides of the cover snap into place (Fig. C). Do not remove the Pivot Tension Nut.

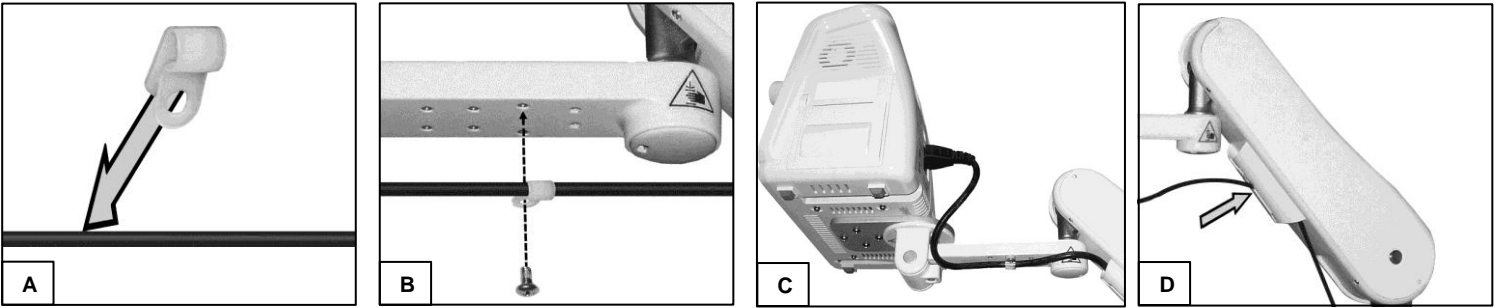
Installation Note: For optimal Arm performance and ease of movement, the rear pivot tension should be adjusted slightly tighter than the center pivot tension.



7.0 Cable Management

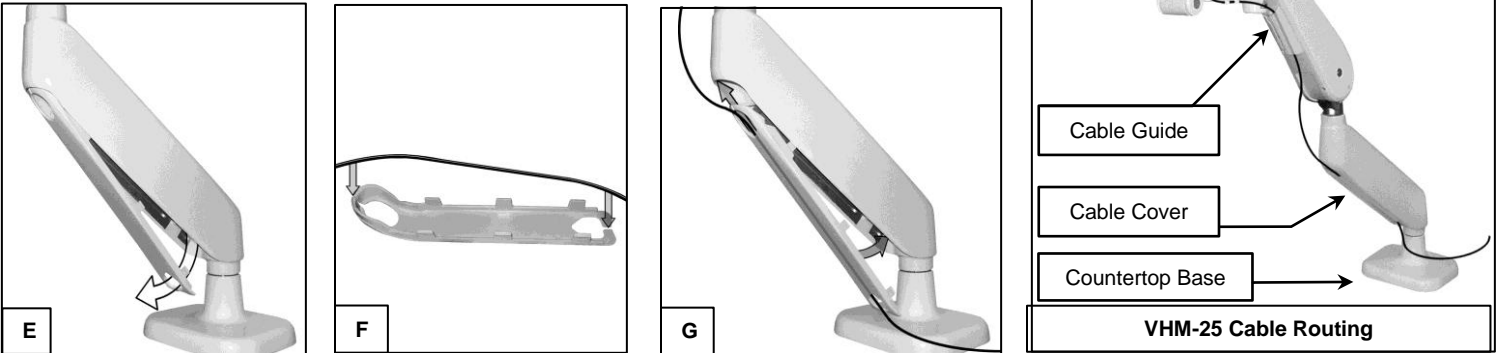
7.1 VHM-25 Cable Management- The VHM-25 Countertop Mount has three cable management features that allow placement and routing of cables.

7.1.1 Cable Clamps (1/4" and 3/16" diameters) are supplied in order to secure device cables to the underside of the front extension. To install, press Cable Clamp onto cable (Fig. A) and secure to underside of front extension with (1) 8-32 x 5/16" PHMS (Fig. B and C).

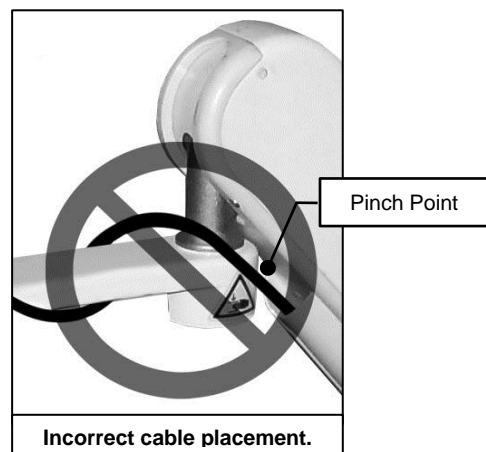
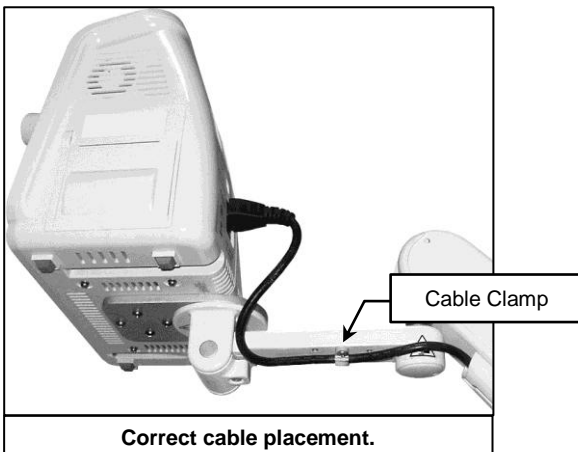


7.1.2 A Flexible Cable Guide beneath the arm manages cables going between the front of the Arm and the Rear Extension. To install cables, use your thumb and press cables through the center seam of the Cable Guide (see Fig. D above).

7.1.3 An open cavity beneath the extension with a removable Cable Cover manages cables going between the Arm and the Countertop Base. To install cables, remove Cable Cover by inserting finger into the front of the Cable Cover and pulling down (Fig. E). Push Cables into Cable Cover access holes as shown (Fig. F). Reinstall Cable Cover by pushing it up into the Arm until it snaps into place (Fig. G).



Warning: Use cable clamps when possible, and 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 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 device 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 mechanism may be adjusted.	6.1
	Grasp the mounted device and tilt it forward and back, through its entire range of motion. There should be enough tension or resistance in the tilt mechanism to prevent the device from tilting forward unexpectedly when in use. If necessary, the tilt tension may be adjusted.	6.2
	Grasp the mounted device and swivel it from side to side. The device should swivel with some tension or resistance, not loosely. If necessary, the swivel tension may be adjusted.	6.3
	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.	6.4
	Grasp the Arm 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.	6.5
	Inspect fasteners for looseness. Tighten as required for optimal operation and safety.	4.3,4.4, 5.1

9.0 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.

10.0 Troubleshooting the VHM-25

Symptom	Possible Cause	Remedy
Mounted device does not appear level or parallel to the floor.	Countertop not level	Mounting surface must be leveled.
	Weight of device not compatible with Load Rating of the Arm.	Mount device on arm with compatible Load Rating.
	Swivel hardware loose.	Adjust Swivel Nut (section 6.3).
	Pivot hardware loose.	Adjust Pivot Nut (section 6.4 or 6.5).
	Mounting surface not structurally sound (does not hold mounting hardware).	Mounting surface must be reinforced or replaced.
Mounted device drifts up or down.	Arm not counterbalanced correctly for weight of the device.	Perform counterbalance adjustment (section 6.1).
	Weight of mounted device not compatible with Load Rating of Arm.	Use arm with compatible Load Rating.
Mounted device difficult to move up or down.	Arm not counterbalanced correctly for weight of mounted device.	Perform counterbalance adjustment (section 6.1).
Arm pivots too freely.	Pivot tension too loose.	Adjust Pivot Tension (section 6.4 or 6.5).
Arm difficult to pivot.	Pivot tension too tight.	
Device swivels too freely.	Swivel tension too loose.	Adjust Swivel Tension (section 6.3).
Device difficult to swivel.	Swivel tension too tight.	
Device difficult to tilt.	Tilt tension too tight.	Adjust tilt tension (section 6.2).
Device will not maintain tilt position.	Tilt tension is too loose.	
Countertop connection base loose.	Nuts or studs loose.	Tighten nuts or studs (section 4.3, 4.4).
	Countertop deterioration.	Repair countertop as required or relocate mount.