

**MODEL S203**  
**STATIONARY TUBE STAND**  
**INSTALLATION INSTRUCTIONS**  
**B526-01 REV. Q**

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

**INSTALLATION AND SERVICE MANUAL**  
**TEXT REVISION HISTORY**

Revision	Description	ECR / Release Date
C	Create manual text ECR #2064	December, 2000
D	ECR 3466 (OBS. -02)	October, 2003
E	ECR 7498, Update Tubearm Design	April, 2012
F	Update Wall Mtg Brkt for Figure 1; Pg. 10, item 2.7 Added "Install the wall bracket cover (See figure 7, below); Pg. 10 added figure 7; Updated graphic for Item 4.0	March, 2014
G	Pg 10-added instructions and warnings for adjustment of mechanical lock ass'y. Updated page numbers in table of contents	June, 2014
H	Pg. 10-added instructions for adjustment of electric lock ass'y. Updated page numbers in table of contents.	June, 2014
J	Change to counterweight shipping screws (p.11)	January 2015
K	Connectorize Angulation Box and Lock Assembly, Add System Wiring Diagram	September 2016
L	Changed Section 1.0 to 1.1; Replaced 1.0 with Symbol Table	November 2016
M	Updated address to Niles, IL; Added "Intended Use" statement to sheet 4	June, 2017
N	Removed Replacement Part Guide section.	ECR 10436 / February 2020
Q	Removed text "and Rails" from Section 2.2 header	ECR 11201 / April 2023

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## 1.0 DEFINITION OF SYMBOLS USED ON THE EQUIPMENT

Symbol Legends	
Symbol	Definition
	Date of manufacture
	Manufacturer
	Serial Number
	Reference Number (Model/Part Number)
	Keep Dry
	<b>NOTE</b> This symbol represents Information that assists the user of the manual in the performance of a task. It may provide the user with better methods of conducting the task, or it may point out conditions that could cause the system to fail to operate properly.
 CAUTION	Points out special procedures, or precautions, that personnel must follow to avoid equipment damage.
 WARNING	Identifies situations or actions that may affect patient or user safety. Disregarding a warning could result in patient or user injury.
	<b>TYPE B APPLIED PART</b> This symbol indicates equipment providing a particular degree of protection against electric shock, particularly regarding allowable leakage currents and reliability of the protective earth connection (if present).
	This symbol indicates an Electro Sensitive Device is present which must be carefully handled to prevent damage to the device.
	<b>ELECTRIC SHOCK HAZARD WARNING</b> This symbol indicates an electric shock hazard.
	<b>DANGER VOLTAGE</b> This symbol indicates hazards arising from dangerous voltages.
	<b>DIRECT CURRENT</b> This symbol indicates a direct current source.
	<b>PROTECTIVE EARTH TERMINATIONS</b> This symbol indicates protective earth terminations in device.

### Intended Use

This is an x-ray Tubestand, a mechanical device intended to support and position an x-ray tube and collimator as required for radiographic procedures.

### 1.1 ASSEMBLY NOTES

- 1) Most required fasteners will be found attached to the part they are used on.
- 2) Unpack and inspect all parts prior to assembly.

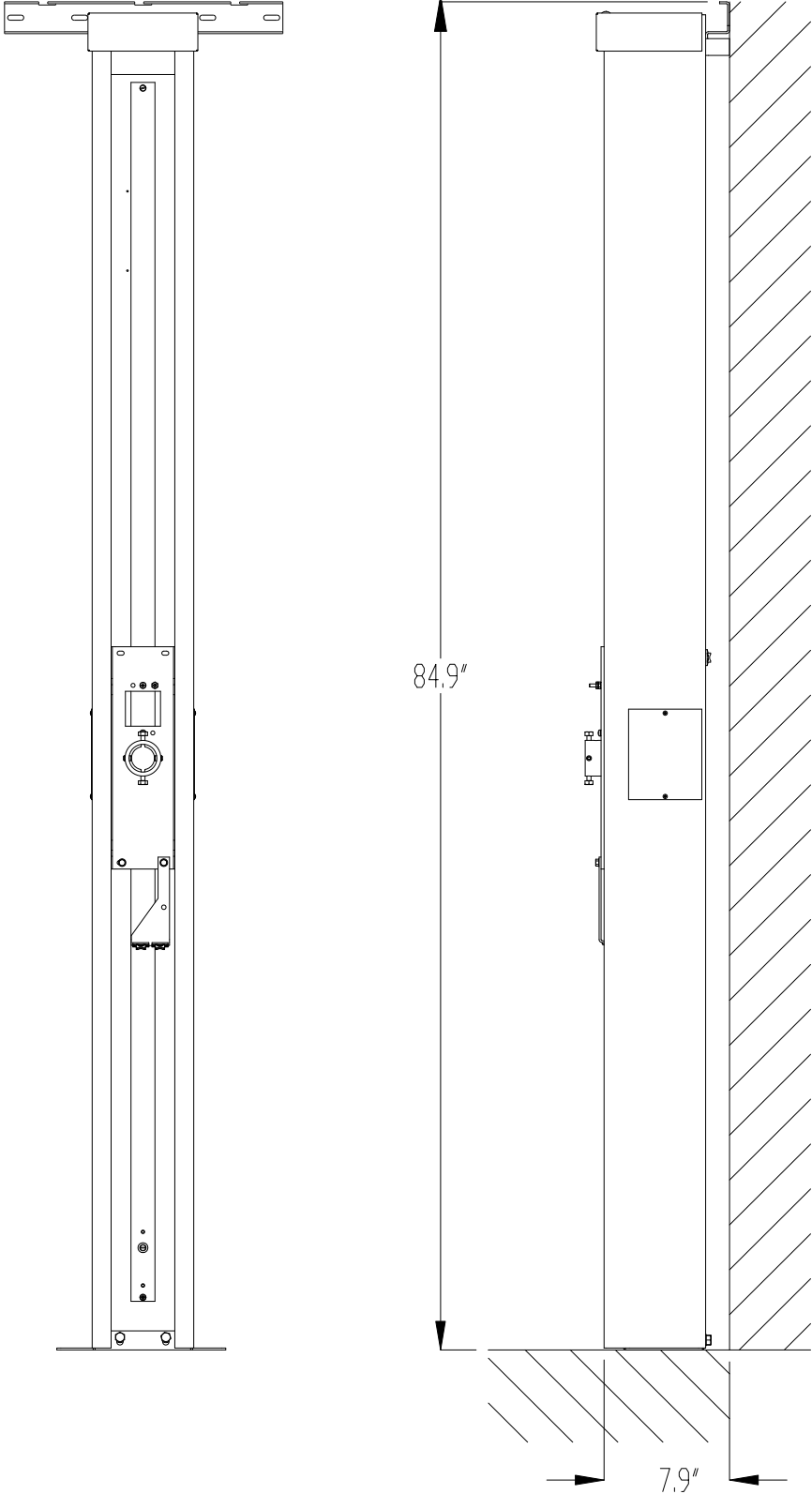


### WARNING

- 3) To avoid possible injury, do not insert fingers or hands into counter weight access openings on sides of column.

**2.0 INSTALLATION GUIDE**

**2.1 Installation Reference**

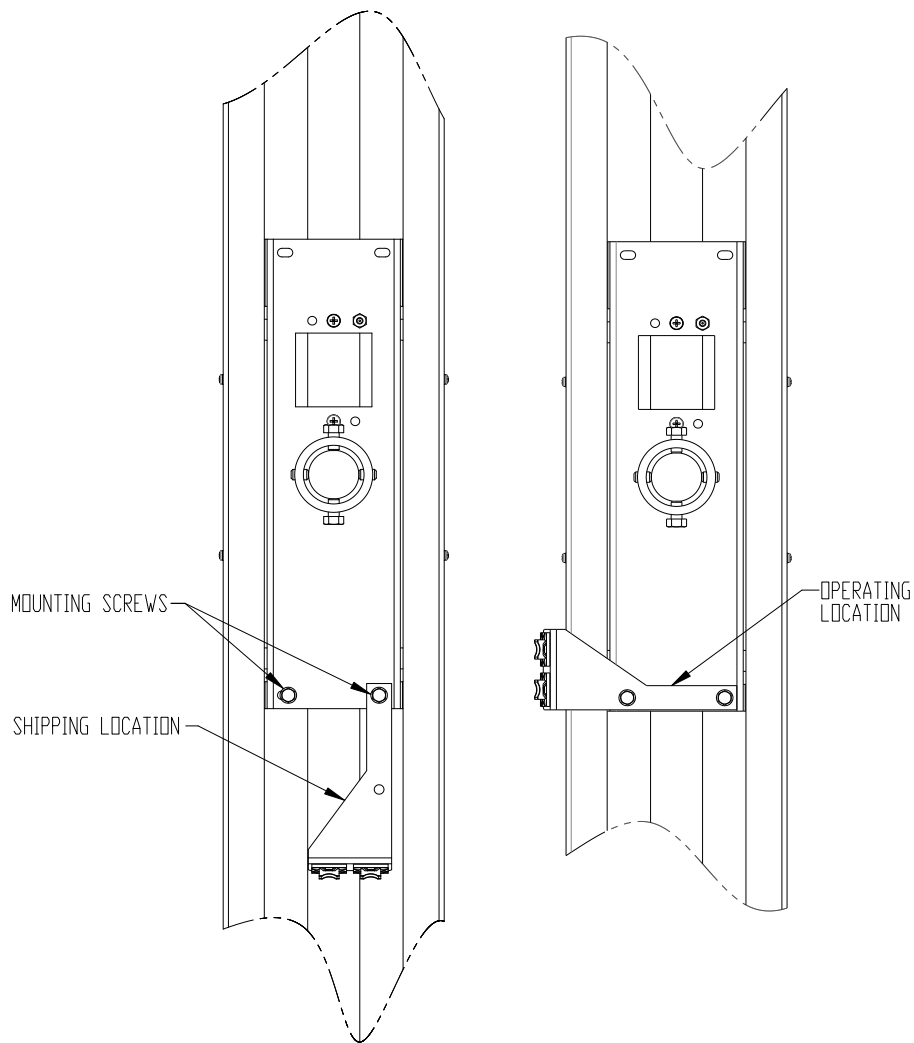


**Figure 1**

## 2.2 Prepare the Column

Assemble the floor bracket to the column assembly using the appropriate screws (2X front shipped with the column, 2X rear shipped with the bracket). Assemble the wall bracket to the top of the column with the hardware provided.

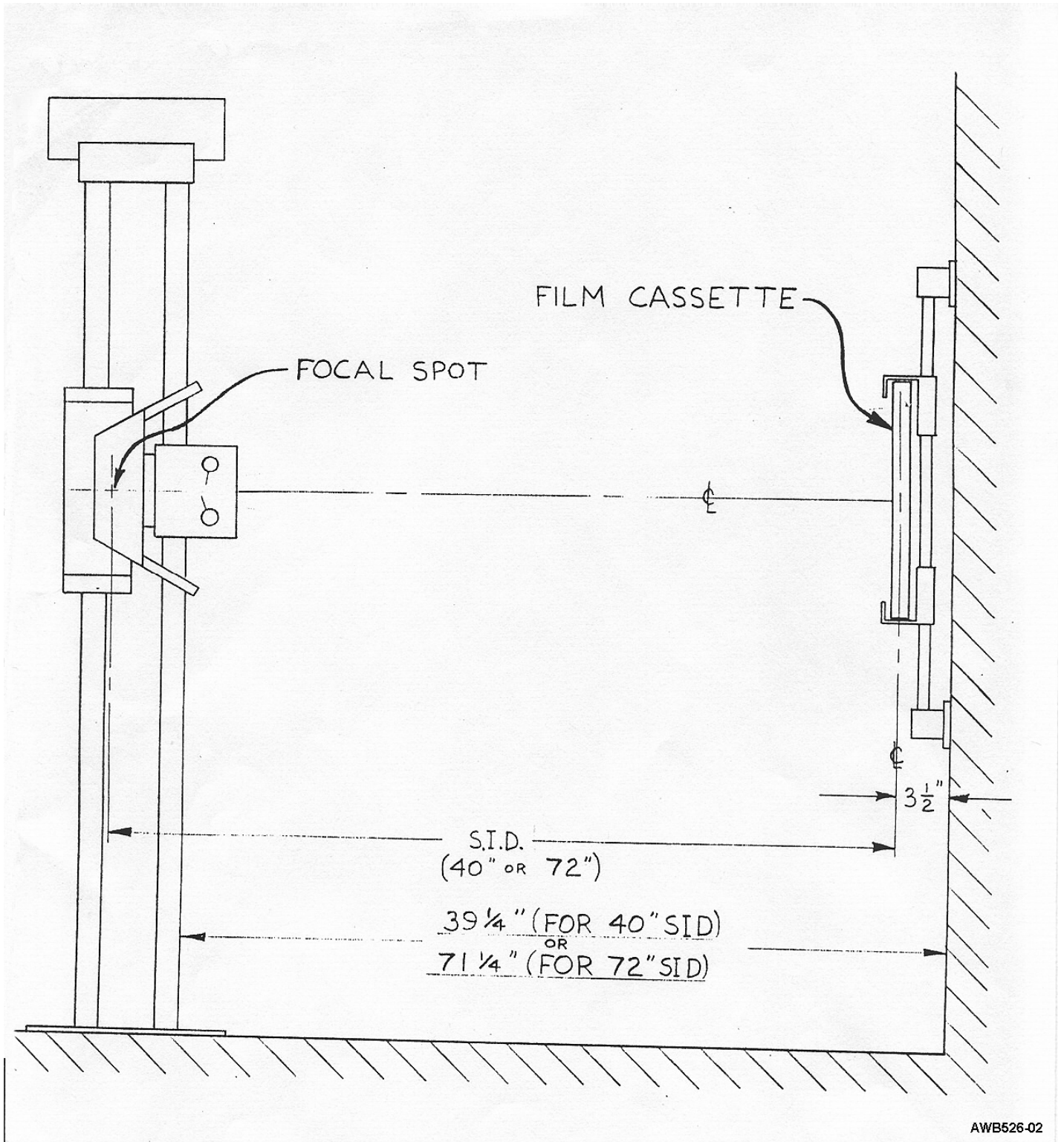
Move the cable drape bracket (mounted on the vertical slide assembly in the column) from its shipping location to its operating location by removing the 2X 1/4"-20 mounting screws, rotating the bracket assembly, and reinstalling the mounting screws. See **Figure 2**.



**Figure 2**

### 2.3 Install the Column

Place column in position, level it, and mount it to the floor and wall.

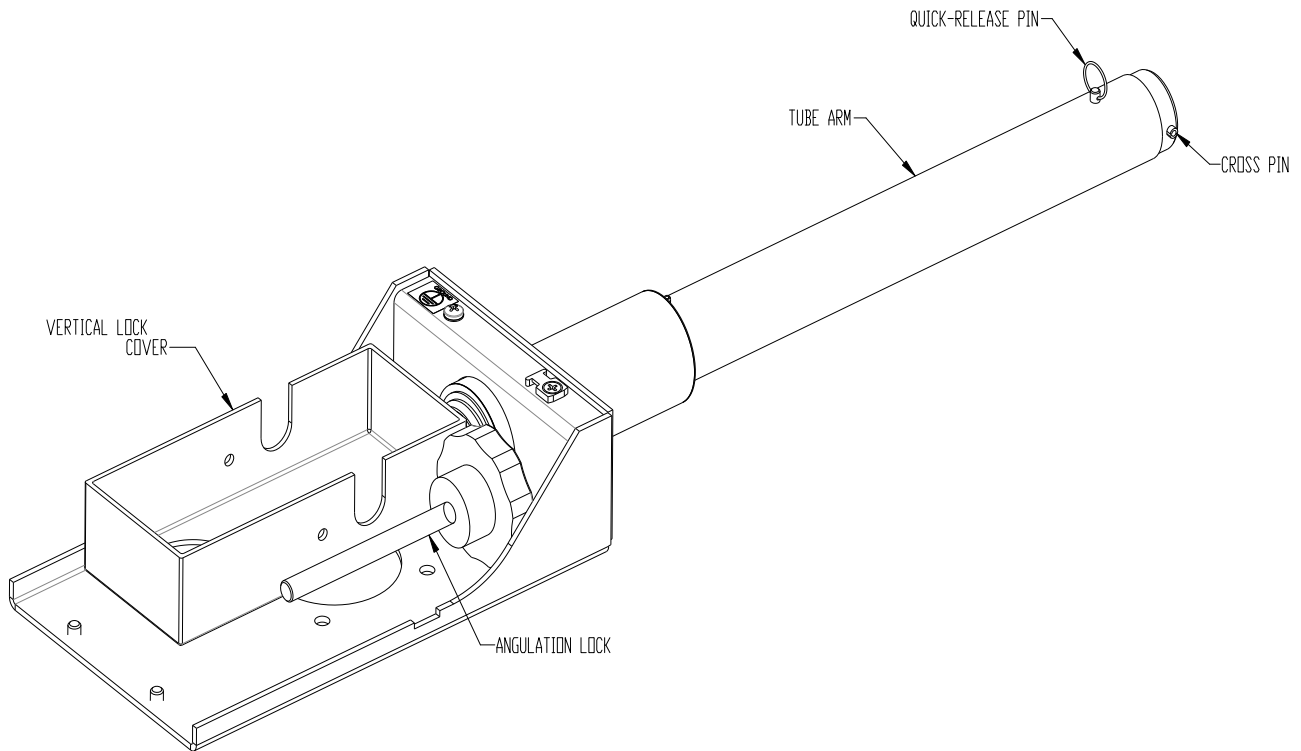


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Figure 3

## 2.4 Install the Tube Arm Assembly

Prepare by removing the vertical lock cover, the angulation lock, and the quick-release pin from the tube arm assembly. See **Figure 4**.



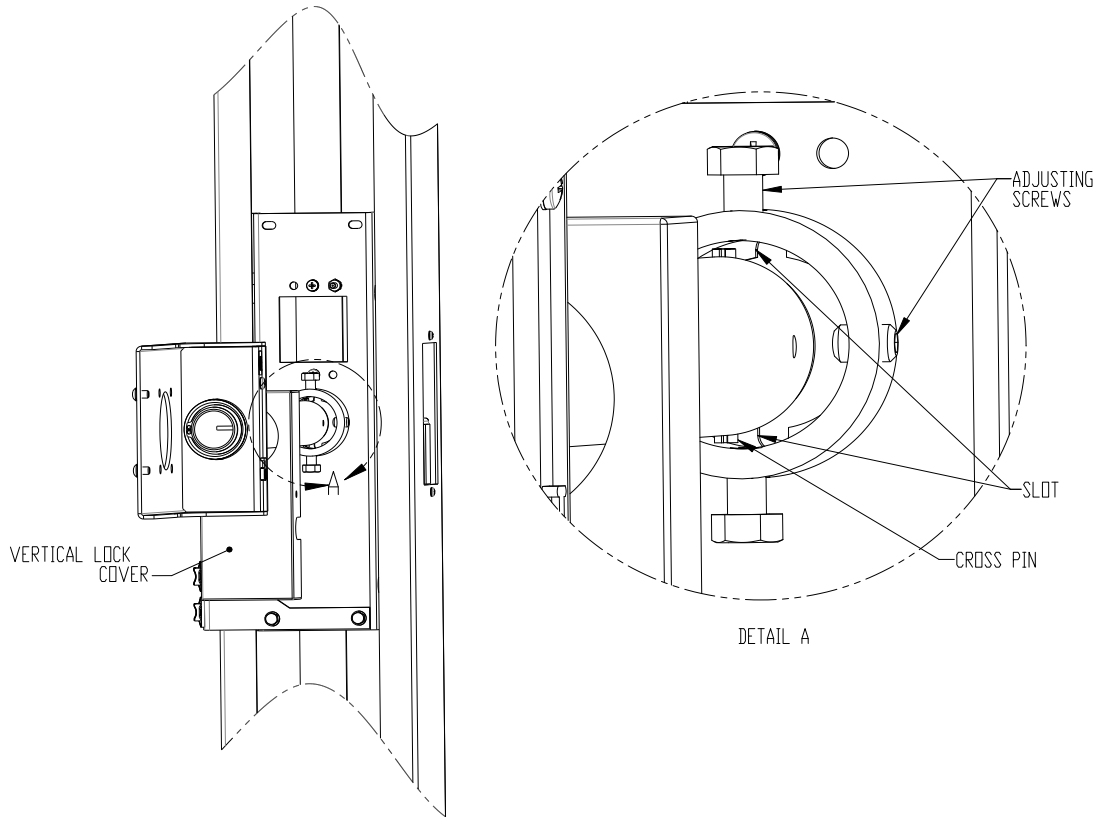
**Figure 4**

Check that the four adjusting screws are loose on the collar of the vertical side. Relocate the vertical lock cover onto the tube arm. To install, rotate the tube arm so that the cross pin is vertical. Insert the tube arm through the vertical slide collar and through the back flange, with the cross pin passing through the matching slots in the back flange of the vertical slide. See **Figure 5**.

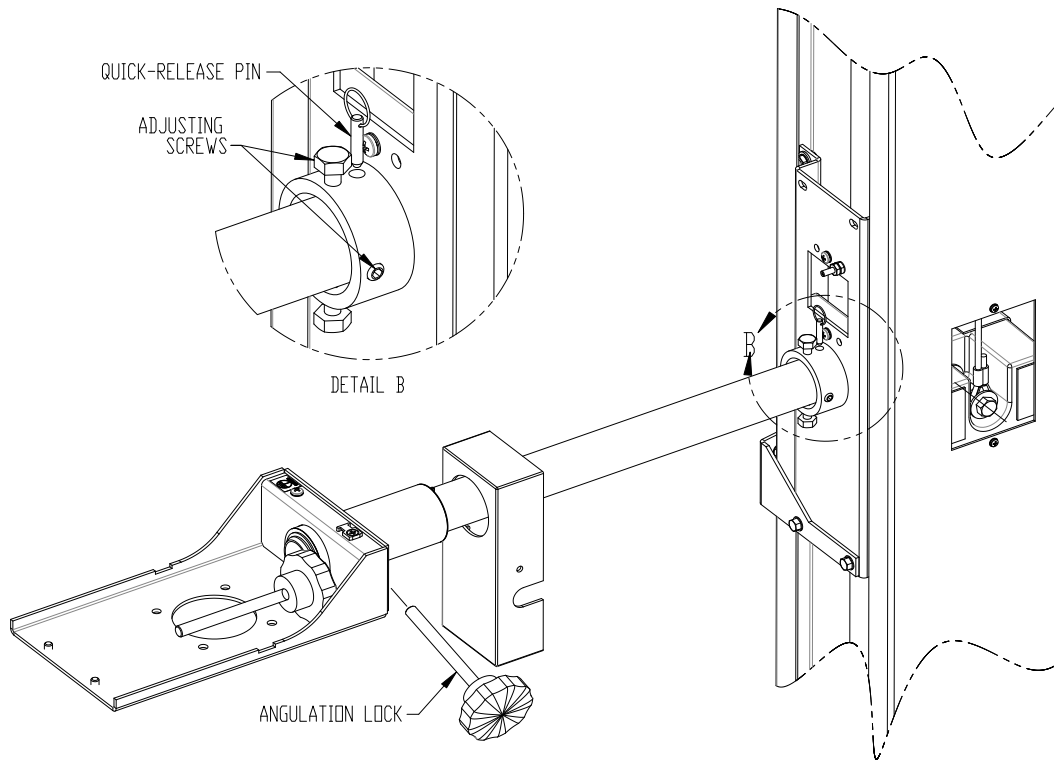
When the cross pin is all the way through, rotate the tube arm 90°, ensuring that the pin stays behind the rear flange of the vertical slide. Reinstall the quick release pin through the vertical slide collar AND through the hole in the tube arm. See **Figure 6**. Tighten all four adjusting screws, keeping the tube arm approximately level and perpendicular to the front of the column.

Install the angulation lock into the open tapped hole on the tube mount. See **Figure 6**.

**Stationary Tubestand  
Summit Industries, Model S203**



**Figure 5**

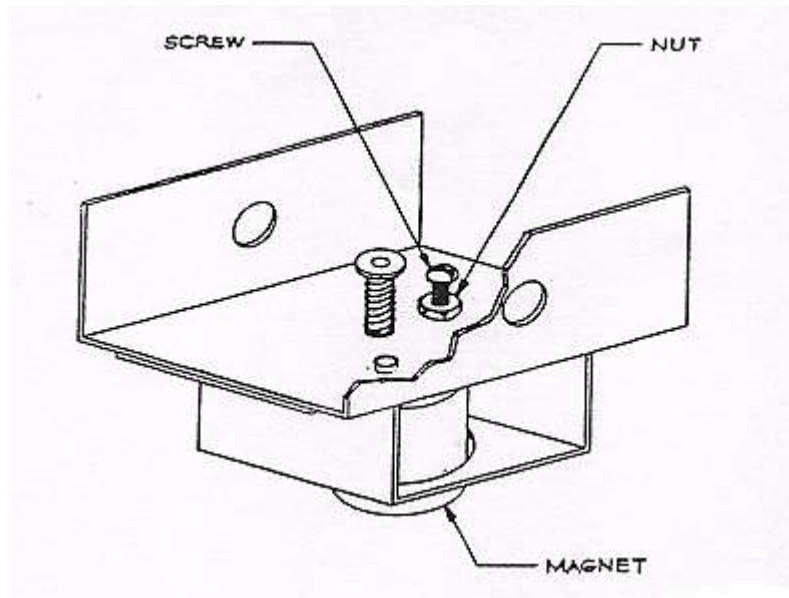


**Figure 6**

## **2.5 Install the Lock and Angulation Box**

*For electric lock kit*

Prepare the vertical slide by removing the lock mounting screws and ground nuts along with associated lock washers. Reuse the screws to mount the vertical lock assembly to the slide. Mount the angulation box to the tube mount. Connect the lock assembly to the angulation box (3-pin connector). Connect the lock assembly to a 24VDC power supply.



**Figure 7: Electric Brake Adjustment**

**ADJUSTMENT OF VERTICAL ELECTRIC LOCK:** Loosen the nut indicated in **Figure 7**. Turn the indicated screw clockwise to move the magnet closer to, or counter clockwise to move the magnet away from, brake strip of tubestand and tighten nut.

The magnet should be adjusted so that it is as close as possible to the brake strip without dragging (approximately 1/32" gap - about the thickness of a credit card).

*For the mechanical lock kit:*

Install the vertical mechanical lock assembly to the vertical slide using the screws provided.

**ADJUSTMENT OF VERTICAL MANUAL LOCK:** The lock comes pre-adjusted from the factory to provide a lock force of between 10-25 pounds of lock force. After the manual vertical lock is installed, and if adjustments need to be made, turning the 7/16" hex head bolt counter-clockwise increases the vertical lock force and turning it clockwise decreases the lock force.

**WARNING:** Do not over-tighten the 7/16" hex head bolt of the vertical lock. Doing so can cause premature failure in the retaining rings and bushings, which are critical to the lock's function. When properly adjusted, the lock should produce between 10-25 pounds of lock force and when unlocked, should not drag or chatter. The lock force should be measured and verified to be with the specified range prior to putting the unit into service.

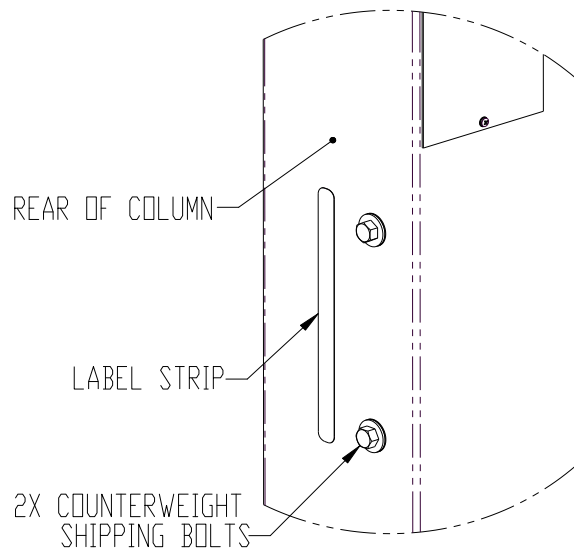
## **2.6 Install the Tube and Collimator**

Install the X-ray tube, collimator, and high voltage cables per the manufacturer's recommendations.

## **2.7 Release the Main Counterweight**

If it has not been done, remove the shipping strap from the vertical slide.

Remove the two hex shipping bolts at the rear of the column to allow the main counterweight to move vertically. Apply the label strip (held nearby with masking tape) to cover the two holes in the column. See **Figure 8**.



**Figure 8: Counterweight Shipping Bolts**

## **2.8 Finish the Installation**

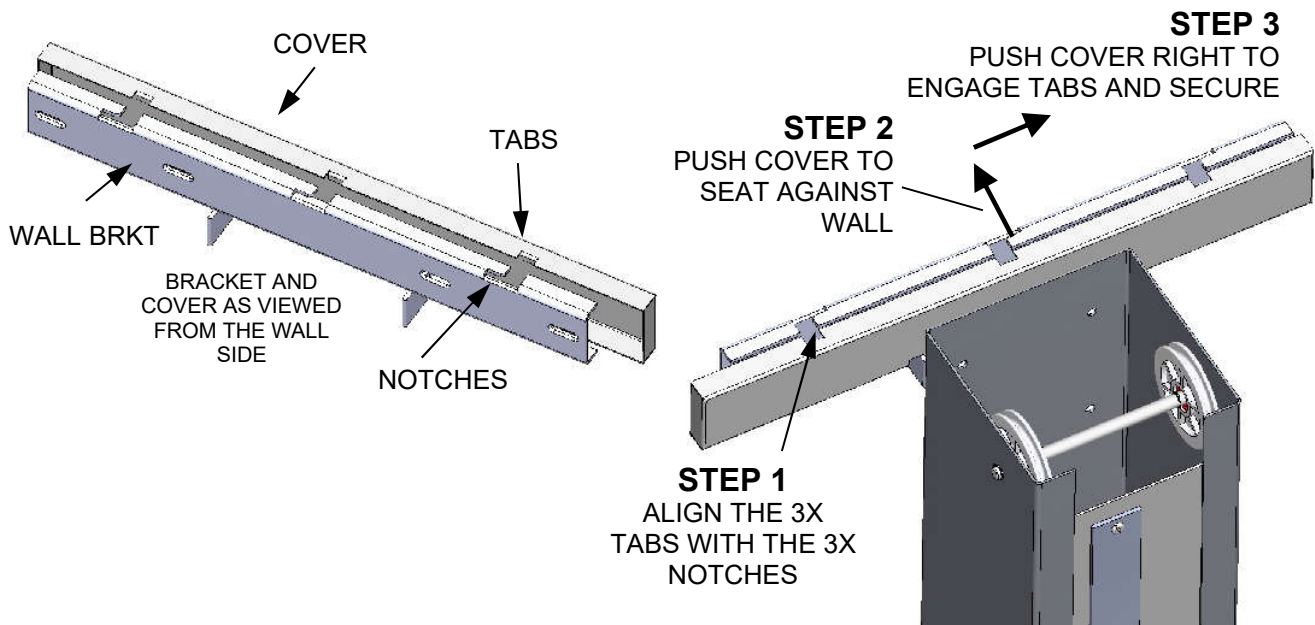
Level the tube arm and make it perpendicular to the column using the adjusting screws. See **Figure 6** (pg. 9).

Install the trim weights as required to balance the tube, collimator, and cable load.

Arrange and secure all the cables (collimator, high voltage, etc.), leaving a service loop to account for the vertical motion of the slide.

Zero the angulation indicator.

Install the vertical (upper) lock cover and the trim weight access covers using the hardware provided. Install the wall bracket cover (see **figure 9**, below). Slide the column cap into place.



**Figure 9: Installing the Wall Bracket Cover**

### **3.0 MAINTENANCE**

To assure proper operation of this tubestand the following items should be checked and corrected annually:

1. Check alignment (x-ray beam to film).
2. Check all fasteners for tightness, including floor and wall/ceiling anchor bolts.
3. Check all bearings for proper operation.
4. Inspect the counterweight cables for damage or wear.
5. Verify the locks are working properly.

### 4.0 WIRING DIAGRAM

