Modular Flying Frame System Installation Guide

MVFS-V601-T

The MVFS-V601-T Modular Flying Frame Kit is designed for use with the Sharp PN-V601 and PN-V602 series LCD monitors only and creates a way to interlock multiple LCDs into large video wall displays. The monitors attach to the frames and frames lock rigidly to each other in landscape and portrait orientations using the frame's connecting bars and locking systems to form rigid video walls.

Important: Rigging and mounting video walls requires experienced professionals. ***Improperly installed equipment can result in property damage, personal injury, death and/or liability to the installing contractor.*** Do not install if in doubt about the procedure or integrity of the structure.

Caution:
Due to a wide variety of structures, environments, materials and rigging methods, the installer must exercise good judgment in selecting the proper mounting area, rigging structures and hardware.

Follow these instructions for the most efficient and safest mounting results. Do not exceed six frames in any column.

Package Contents:

1 pc	MVFS-V601-T Frame
4 pcs	M6 adjustable VESA buttons
8 pcs	Locking pin, 3/4" long (wall mounted only)
2 pcs	Locking pin, 2.25" long
8 pcs	Nylock nut, ¼-20
16 pcs	Flat washer, ¼
8 pcs	Button head screw, ¼-20x1.5" long
1 pc	Flat wrench, 7/8"
1 pc	Instruction sheet

Step 1: Install M6 Adjustable VESA Buttons
Fully install four M6 VESA buttons to the outer mounting points at the back of the monitor (Figure 1).

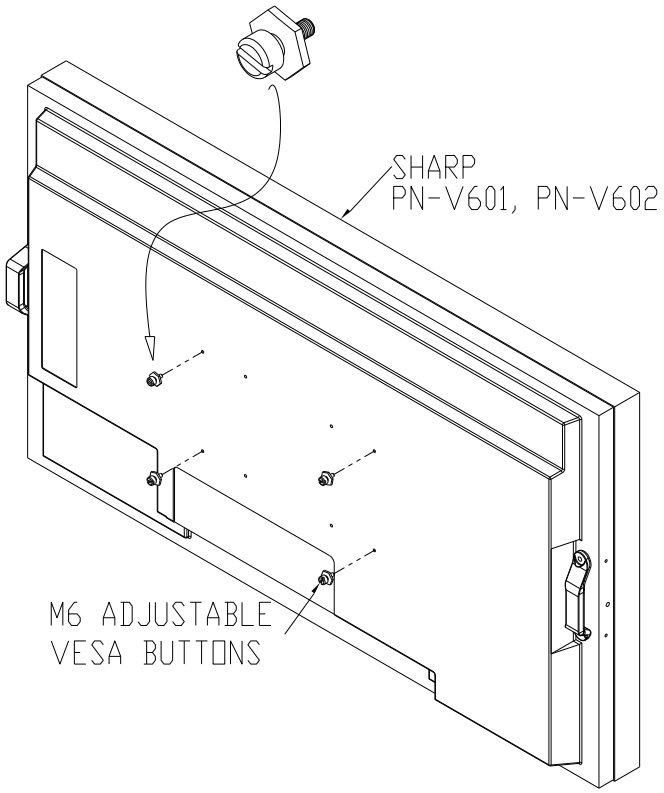

Figure 1

Rigging/Flying Installation Guide

MVFS-V601-T

Step 2: Prepare Rigging Beam
Prepare the selected Rigging Beam for suspension by attaching the appropriate quantity of Shackle Mounts with the provided button head screw, washers and nuts, For rental and staging applications use instead the Quick Release Pin kit MVFS-1.5x2-SME. Go to www. adapttechgroup.com to determine the correct number of shackle mounts for the intended video wall configuration. (Figure 2 shows a 3 wide rigging beam).

Step 3: Connect Rigging Beams Together
To join two or more Rigging Beams together, line up the holes of the MVFS-1.5x2-SMC Shackle Mount Connector with the mating holes of the Rigging Beams using the provided button head screws, washers and nuts. (For rental and staging applications use instead the Quick Release Pin kit MVFS-1.5x2-SMC) (Figure 3).

3 wide x 3 high video wall display

Step 4a: Assembling the First Tier of Monitors on the Floor (Landscape)
Assemble the first tier of Frames together on a clean padded flat floor with the four keyhole slots facing up with the large hole at the top and its slot underneath. Line up the Frames and insert the Frame's inner connecting bars into the next Frame. Secure the connecting bars using the provided button head screws, washers and nuts. (For rental and staging applications, use instead the Quick Release Pin kit MVFS-025-T-QRP) (Figure 6a).

Assemble the monitors to the Frames by inserting the monitor's four Adjustable VESA Buttons into the keyhole slots of the Frame. Slide the monitor down so that the VESA Buttons fully lock inside the keyhole slot.
This is a very important step and will greatly affect the quality and fit of monitor alignment (Figure 5).

Insert two ¼ x 2.25" long locking pins through the keyhole slot's tube to lock in the VESA Buttons, one pin per tube (Figure 7).

Portrait Orientation:
In portrait mode, the key-hole slots must be oriented with the large hole on the right and the slot to the left. Begin installing LCDs on the left side of the video wall first to allow room for the LCDs being installed to the right (Figure 6A).

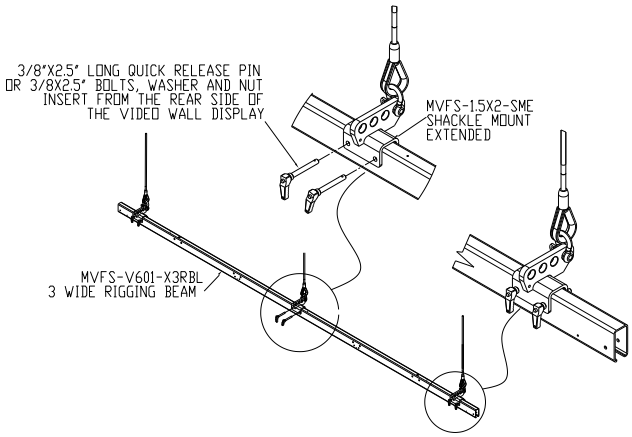

Figure 2

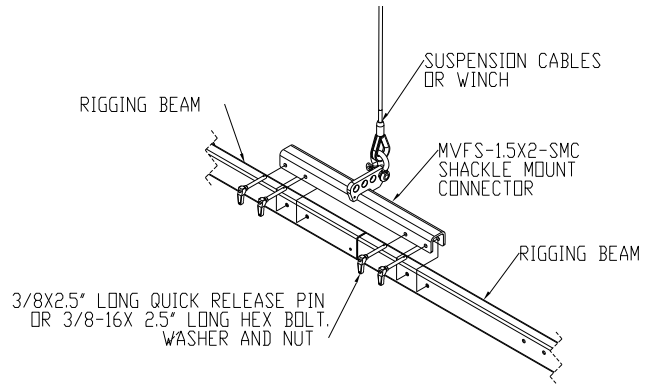

Figure 3

Step 4b: Assembling the First Tier of Monitors and Frames to Optional Foot Stands (Landscape)
Prepare the first tier of Frames by placing them on the optional Foot Stands with the four keyholes slots facing forward and with the large hole at the top and its slot underneath.

Lower the Frame over two Foot Stands until the Frame's tubes lower over the upright pegs of the Foot Stands. Line up the cross holes of the Foot Stand's with the cross holes of the frame's tube and secure using the ¼" x 1" long Quick Release Pins (Figure 4).

Insert two ¼ x 2.25" long detent pins through the keyhole slot's tube to lock in the VESA Buttons, one pin per tube (Figure 7).

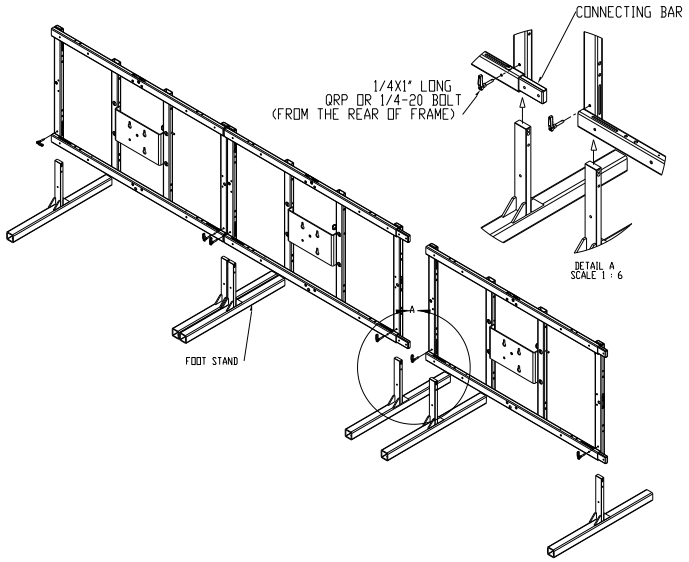

Figure 4

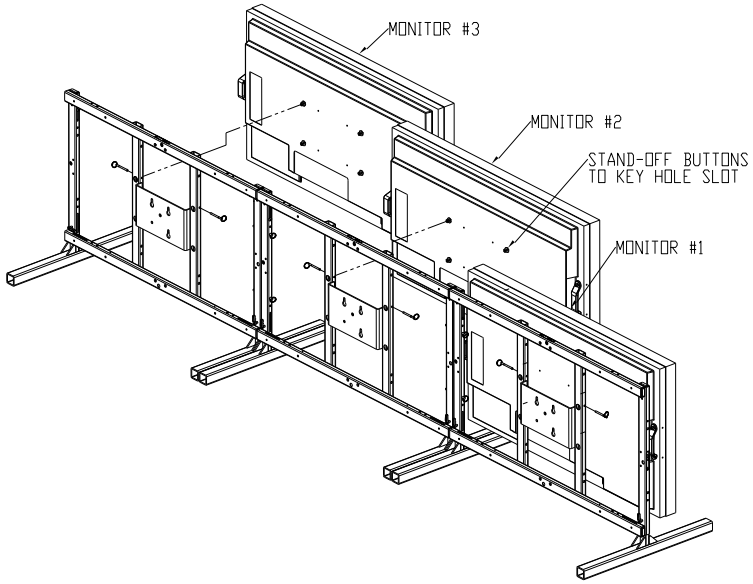

Figure 5 (Using the optional Foot Stand)

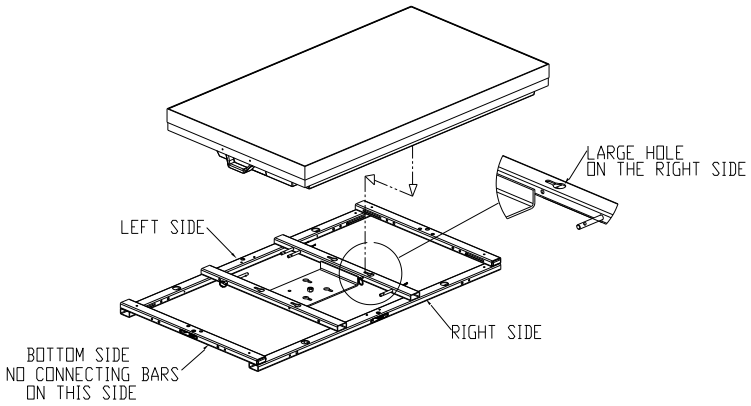

Figure 6 (Portrait Mode)

Portrait Orientation:
In portrait mode, the key-hole slots must be oriented with the large hole on the right and it's slot to the left. Begin installing LCDs on the left side of the video wall first to allow room for the LCDs being installed to the right (Figure 6A & 6B).

Line up the Frames and insert the Frame's inner connecting bars into the next Frame. Secure the connecting bars using the provided button head screws, washers and nuts. (For rental and staging applications, use instead the Quick Release Pin kit MVFS-025-T-QRP) (Figure 4).

Assemble the monitors to the Frames by inserting the monitor's four Adjustable VESA Buttons into the keyhole slots of the Frame. Slide the monitor down so that the VESA Buttons fully lock inside the keyhole slot. **This is a very important step and will greatly affect the quality and fit of monitor alignment**

Insert two ¼ x 2.25" long locking pins through the keyhole slot's tube to lock in the VESA Buttons, one pin per tube (Figure 7).

Step 5: Insert Side Alignment Pins
Insert attached. Alignment Pins from one Frame's side tubes to the neighboring Frame's side tubes until the Alignment Pin's locking ball is visible outside the second tube. Secure all side Alignment Pins of each Frame into the mating Frames until they are secured. Do not insert top Alignment Pins yet.

It may be necessary to lightly tap the Alignment Pin with a hammer to secure the two tubes together. Caution; do not strike Frame sharply as it may damage the monitor(s). (Figure 8).

Step 6: Prepare First Tier Frames for Rigging
(Note: *One Frame and monitor assembly at a time can also be attached to the Rigging Beam(s) instead of an entire tier.)*

Slide the top connecting bars of the first tier's Frames up about 2" until one of its inner holes lines up with the hole near the tube's end and secure by inserting and tightening the supplied button head screw, washer and nuts. This will lock the connecting bar into position (Figure 9).

Step 7: Attach Rigging Beam First Tier of Frames
Lower the selected Rigging Beam over the Frame's protruding connecting bars and insert the connecting bars into the Rigging Beam's rectangular slots until the upper thru-holes of the connecting bars line up with the thru-holes of the Rigging Beam. Secure the connecting bars to the Rigging Beam using the ¼-20x 2.5" long hex bolt, nuts and washer supplied with the Rigging Beam's hardware kit (Figure 9).

For rental and staging applications, select the appropriate Quick Release Pin kit from the following guide;
1-Wide Rigging Beam use: MVFS-1.5-X1QRP
2-Wide Rigging Beam use: MVFS-1.5-X2QRP
3-Wide Rigging Beam use: MVFS-1.5-X3QRP
4-Wide Rigging Beam use: MVFS-1.5-X4QRP

Step 8: Hoist the Rigging Beam
Check all connections to be sure that the Rigging Beam may be safely hoisted to make room for the next tier of Frames and monitors. Remove optional Foot Stands, if used.

Step 9: Add More Tiers of Frames and Monitors
Repeat process to install the next tier of Frames and monitors, starting at
step 4A or 4B. For the next tier; this time slide the top connecting bars of the next tier's frames up **about 3.5"** until two of its holes are visible then secure them to their tube with the supplied bolts, washer and nuts.

Line up the thru-holes of the connecting bars with the thru-holes of the upper tier tube's thru-holes and lower the upper tier over the connecting bars of the lower tier. Secure by inserting and tightening the supplied bolts, washer and nuts. This will lock the lower tier to the upper tier. (Figure 10 & 11 & 12).

Step 10: Insert Upper Alignment Pins
Insert the attached upper Alignment Pins first through the lower tier's

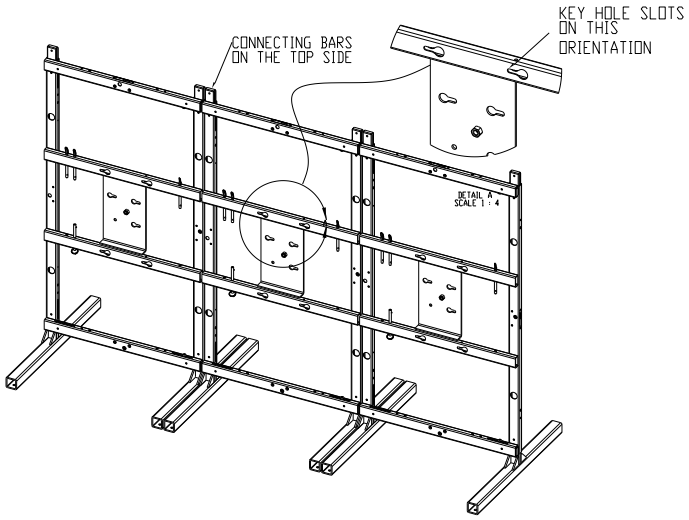

Figure 6B

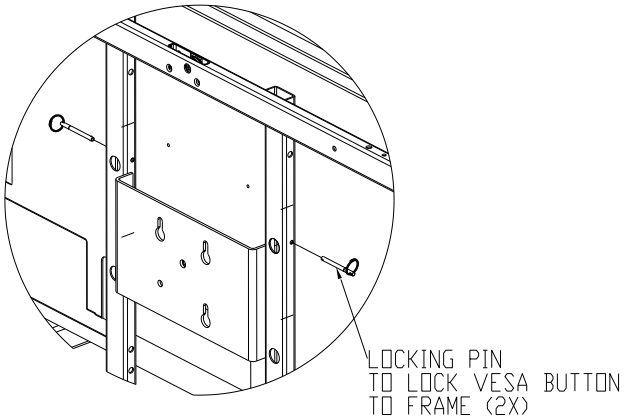

Figure 7

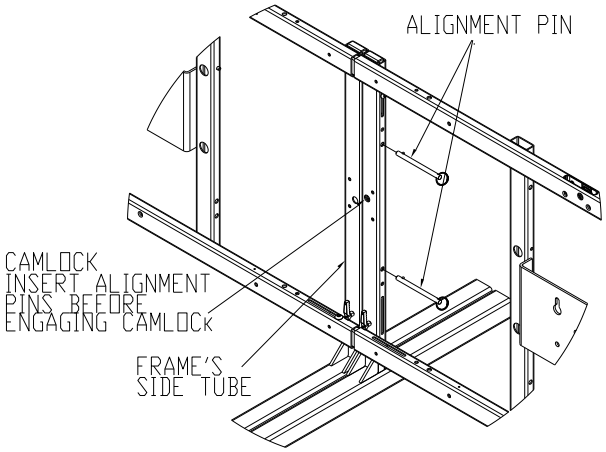

Figure 8

upper Frames and into the lower tubes of the upper Frames until the Alignment Pin's locking ball is visible outside the upper tube. Secure all side Alignment Pins of each lower tier Frame into their mating Frames until lower all Alignment Pins are secured. It may be necessary to lightly tap the Alignment Pin with a hammer to secure the two tubes together. Caution; do not strike Frame sharply as it may damage the monitor(s) (Figure 10 & 11).

Step 11: Engage Upper Tier Frame's Cam-Style locks
Use an M8 or 5/16" Hex wrench to rotate each frame's two cam-style interlocks until they fully engage into the neighboring frame. Do not engage the lower tier cam locks yet.

Step 12: Add more Tiers
Repeat steps 4a or 4b through step 11 then go to set 13 to add the final tier.

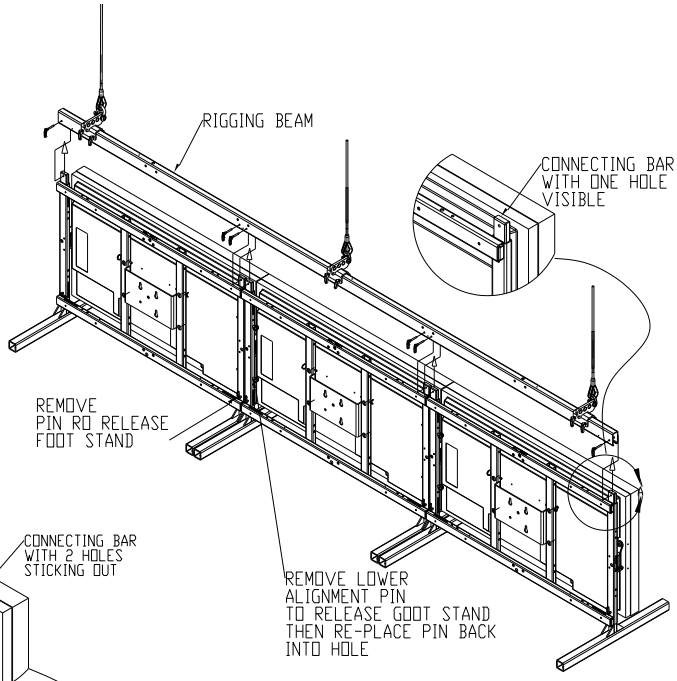

Figure 9

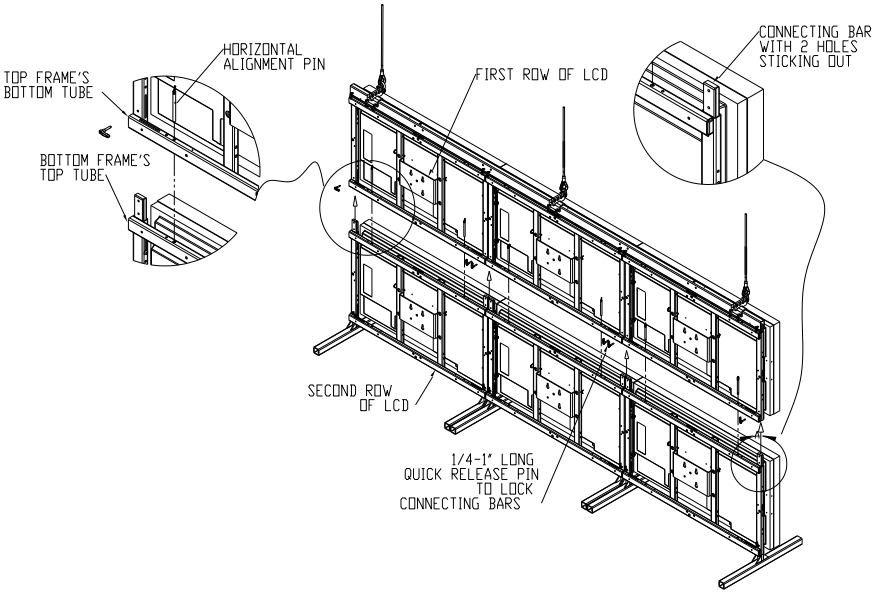

Figure 10

Step 13: Add final Tier
Install final tier in the same manner as previous tiers then install all remaining side and top alignment pins and secure all remaining cam-locks.

Step 14: Attach Back Brace or Opposing Rigging Beam
Attach one Back Brace or opposing Rigging Beam*, one per column to the center of each Frame using the bolts and washer that comes with the back brace (Figure 13). Line up the holes of the Back Brace or Rigging Beam with the centrally located holes of each Frame. Start with the top frame in a column then work down to the bottom frame.

- Use a Portrait Rigging Beam as a Back Brace for landscape configurations and Landscape Rigging Beams for portrait configurations.

Step 15: Align Monitor Surfaces
(Note: This requires one person staged in front to direct the person behind the video wall, who will be making the adjustments.)
Slightly back out the Adjustable VESA Buttons behind each monitor using a large slot head screw driver to change the pitch of the monitor. Adjusting the

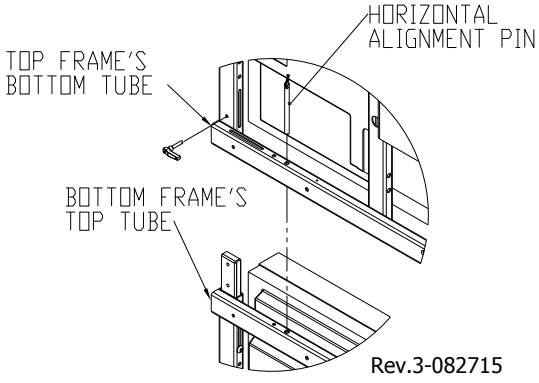

Figure 11

VESA Button counter clockwise will pitch that portion of the monitor away from the video wall. Turning the Button clock-wise will bring that portion of the monitor back toward the video wall frame (Figure 14).

Start by aligning each of the monitors in the bottom row with neighboring monitors then repeat the process for the next row and then with the next until all monitor surfaces are flush.

WARNING:
The maximum allowable forward adjustment is 5/16" (.315" or 8mm). This should enough adjustment to bring all monitors into alignment. If, after making such adjustments the monitors are still not in alignment then one or more of the monitor's VESA buttons may not be seated properly in the Frame's keyhole slots. Unlock and disassemble that portion of the video wall then reassemble it making sure that all VESA Buttons are properly seated and relocked in the keyhole slots.

Step 16: Hoist Video Wall Into Final Position
Wire monitors per manufacturer's specifications: Check all connections before hoisting the video wall display. Slowly raise and keep level the completed video wall display up to the desired height. Install the appropriate safety cables. (See main illustration).

Monitors can also be permanently attached to the frame using the provided 1/4x2.25" long locking pins for storage in rolling cases.

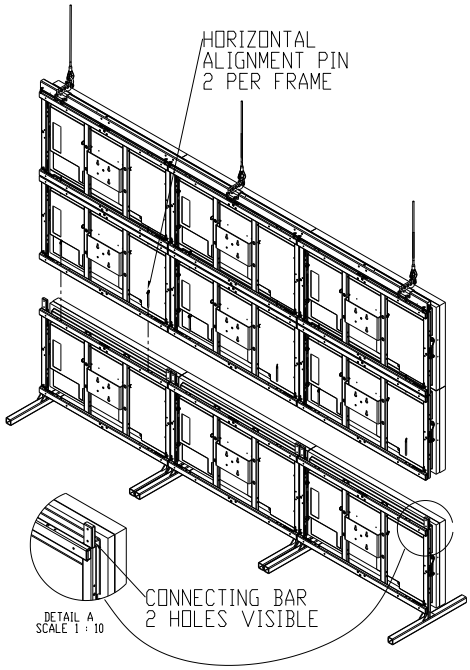

Figure 12 (Third Tier)

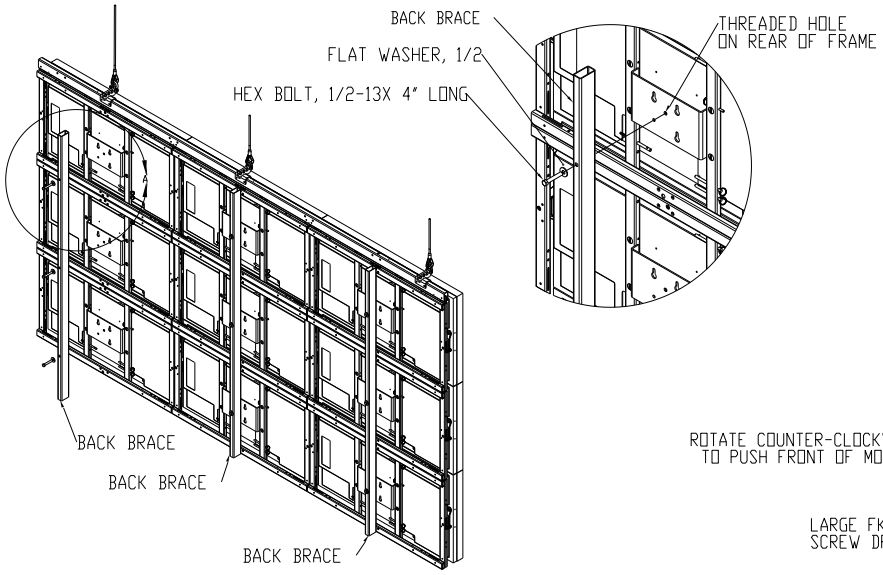

Figure 13

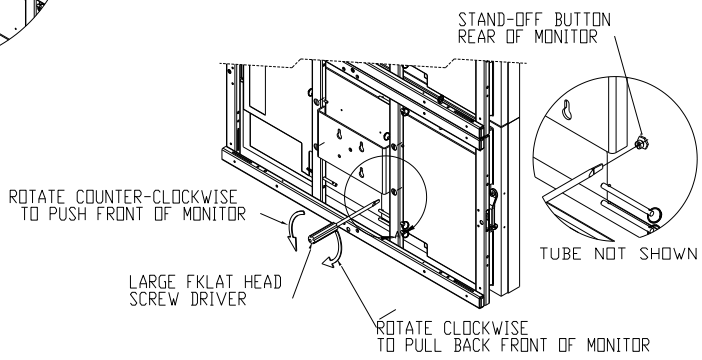

Figure 14

Step 17: Optional Video Wall Tilt Adjustment
A: Using a Rigging Beam for Back Brace
If placing the video wall in a tilted position is desired for better viewing or to help reduce glare or reflection, Install a shackle mount on the bottom of the Rigging Beam/Back Brace using the provided hex bolts, washer and nuts (or Quick release pins) then attach pull back cables to the 2nd hole closest to the center line of the Rigging Beam/Back Brace/ (Figure 15A).

2 wide configuration = 2 pull back points
3 wide configuration = 2 pull back points (Outer rigging beam)

4 wide configuration = 2 pull back points (Outer rigging beam)
5 wide configuration = 3 pull back points (Outer and center Rigging Beam)
6 wide or more = Every other rigging beam

B. Using a Back Brace (Permanent)

Install an eyebolt, flat washer and hex nut (MVFS-PB-KT) to the lower holes of the Back Brace then attach the pull back cable (Figure 15B).
2 wide configuration = 2 pull back points
3 wide configuration = 2 pull back points (Outer Back Brace)
4 wide configuration = 2 pull back points (Outer Back Brace)
5 wide configuration = 3 pull back points (Outer and center Back Brace)
6 wide or more = Every other back brace

Caution: Some LCD designs have a limit to the amount of allowable tilt. Please refer to the LCD manufacturer's specifications before attempting to place any video wall in any position other than vertical.

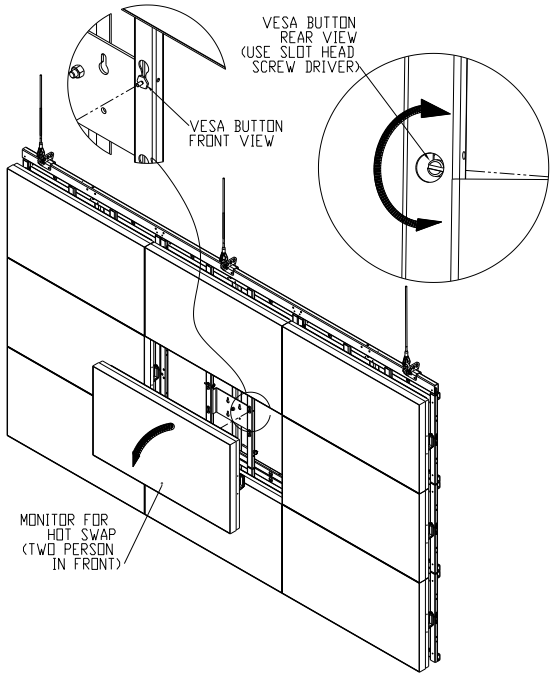

Figure 15B

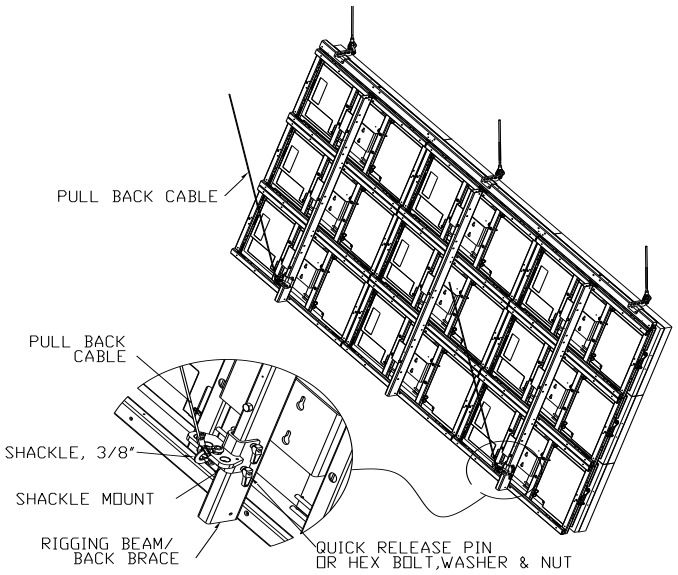

Figure 15A

Step 18: Hot Swapping of LCDs Without Disassembling the Video wall

It may be necessary to service or replace an LCD that is positioned within a suspended video wall. To avoid dismantling the entire video wall, position two people at the front of the video wall in front of the LCD monitor in question, one person per side. Station another person at the back of the video wall, behind the monitor in question with a large slot head screw driver.

The person in back will alternately rotate each of the adjustable VESA buttons counter clock-wise, forcing the monitor forward, until it can be lifted out by the people in front. Take extra care to ensure that the monitor is removed gently and does not apply any force or pressure to its neighboring monitors (Figure 15B).

To replace the monitor, use the same steps in reverse taking extra measure to gently slide in the replacement and with a person staged at the back of the video wall to turn the adjustable VESA buttons clockwise to draw the monitor back in toward the video wall. The people stationed at the front will guide the person in back to adjust the monitor screen so as to be flush with its neighboring monitors.

