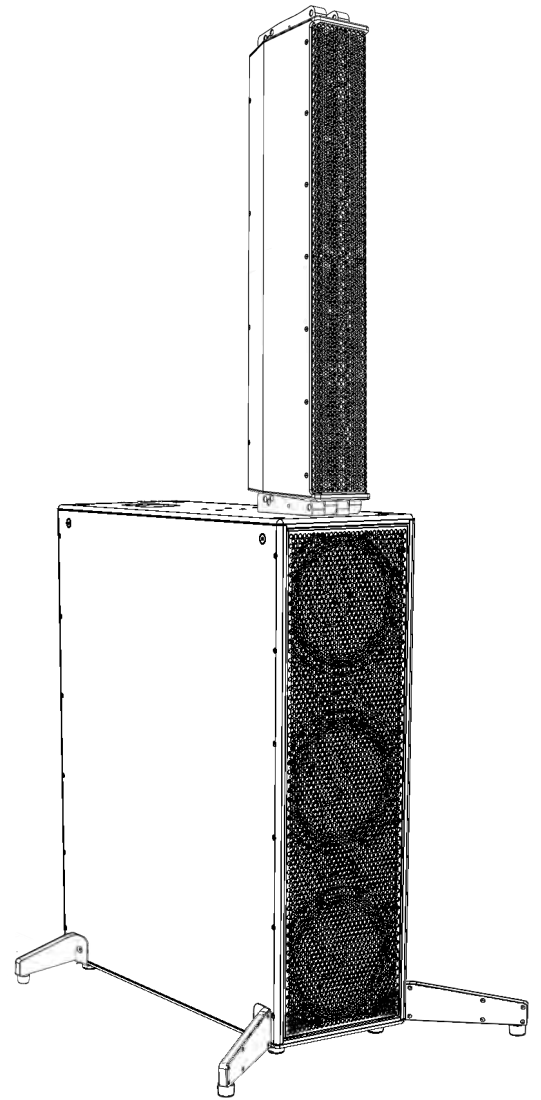
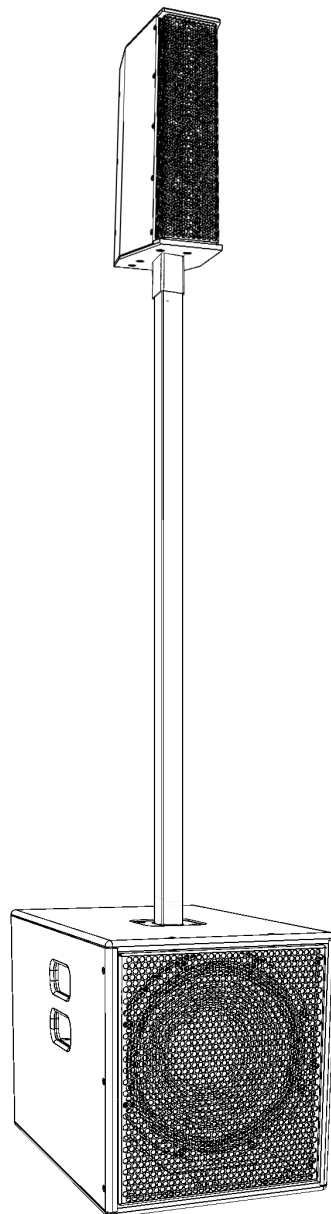
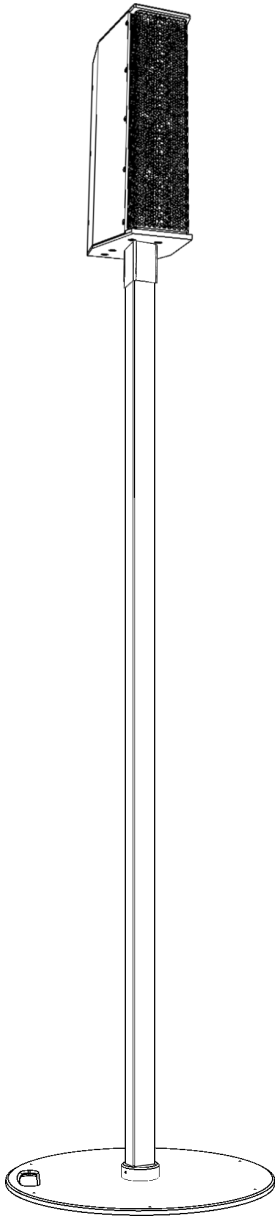


1 SOUND



STACKED AND POLE-MOUNTED DEPLOYMENTS OF THE TOWER SYSTEM

Contents

Chapter 1. Speaker models.....	4
TOWER LCC44.....	4
TOWER LCC44 Specifications.....	4
TOWER LCC84.....	4
TOWER LCC84 Specifications.....	4
SUB310.....	5
SUB310 Specifications.....	5
CSUB610.....	5
CSUB610 Subwoofer Specifications.....	5
CSUB210.....	6
CSUB210 Subwoofer Specifications.....	6
SUB12.....	6
SUB12 Specifications.....	6
Chapter 2. Accessories.....	7
Active Speaker Tubes.....	7
Passive 40 cm Speaker Tube.....	7
Tower Tube Mount.....	7
Active Speaker Tube & Base.....	8
Tower Rigging System Plates.....	8
Sub Pole Cup	8
Subwoofer Outriggers.....	9
Chapter 3. Deploying LCC44 on an Active Speaker Tube & Base.....	10
Critical information.....	10
Products/accessories involved.....	10
Procedures.....	10
Assembling Active Speaker Tube with Base.....	10
Installing the Tower Tube Mount directly on LCC44.....	11
Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount	13
Chapter 4. Deploying LCC44 on an Active Speaker Tube atop CSUB610.....	15
Critical information.....	15
Products, accessories and tools required.....	15
Procedures.....	16
Installing Sub Pole Cup on CSUB610.....	16
Installing Outriggers on the CSUB610.....	16
Installing Active Speaker Tube to CSUB610.....	20
Installing the Tower Tube Mount directly on LCC44.....	21
Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount	22
Installing the Tower Tube Mount on a Tower Rigging System Plate.....	23
Installing Rigging Plate on LCC44/84.....	24
Coupling Tower Tube Mount and LCC44 using the Tower Rigging System.....	25
Mounting LCC44 on Active Speaker Tube using the Tower Rigging System.....	26
Chapter 5. Deploying LCC44 on Active Speaker Tube atop SUB310.....	29
Critical information.....	29
Products, accessories and tools required.....	29
Procedures.....	29
Installing Sub Pole Cup on SUB310.....	29
Installing Outriggers on the SUB310.....	31
Installing Active Speaker Tube on SUB310.....	34
Installing the Tower Tube Mount directly on LCC44.....	35
Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount	36
Installing the Tower Tube Mount on a Tower Rigging System Plate.....	37
Installing Rigging Plate on LCC44/84.....	38
Coupling Tower Tube Mount and LCC44 using the Tower Rigging System.....	39
Mounting LCC44 on Active Speaker Tube using the Tower Rigging System.....	40
Chapter 6. Deploying LCC44 on an Active Speaker Tube atop CSUB210.....	44
Critical information.....	44
Products, accessories and tools required.....	45
Procedures.....	45
Installing Sub Pole Cup on CSUB210.....	45
Installing Active Speaker Tube on CSUB210.....	46
Installing the Tower Tube Mount directly on LCC44.....	46
Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount	48
Chapter 7. Deploying LCC44 on an Active Speaker Tube atop SUB12.....	50
Critical information.....	50
Products, accessories and tools required.....	51
Procedures.....	51
Installing Sub Pole Cup on SUB12.....	51
Installing Active Speaker Tube on SUB12.....	52
Installing the Tower Tube Mount directly on LCC44.....	53
Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount	54
Chapter 8. Stacking LCC84/LCC44 on SUB310 using the Tower Rigging System.....	56
Critical information.....	56
Products/accessories involved.....	57
Procedures.....	57
Mounting Rigging Plate on SUB310.....	57
Installing Outriggers on the SUB310.....	59
Installing Rigging Plate on LCC44/84.....	62
Coupling LCC44/84 to SUB310 using Tower Rigging System.....	63
Chapter 9. Stacking LCC44/84 units on CSUB610 in the parallel configuration using the Tower Rigging System.....	66
Critical information.....	66
Products, accessories and tools required.....	67
Procedures.....	67
Mounting Rigging plate on CSUB610.....	67
Installing Outriggers on the CSUB610.....	68
Installing Rigging Plate on LCC44/84.....	72
Coupling LCC44/84 units to CSUB610 using Tower Rigging System.....	73
Coupling Stacked LCC84 or LCC44 units via the Tower Rigging System.....	75
Chapter 10. Stacking LCC44/84 units on CSUB610 in the perpendicular configuration using the Tower Rigging System.....	79
Critical information.....	79
Products, accessories and tools required.....	80

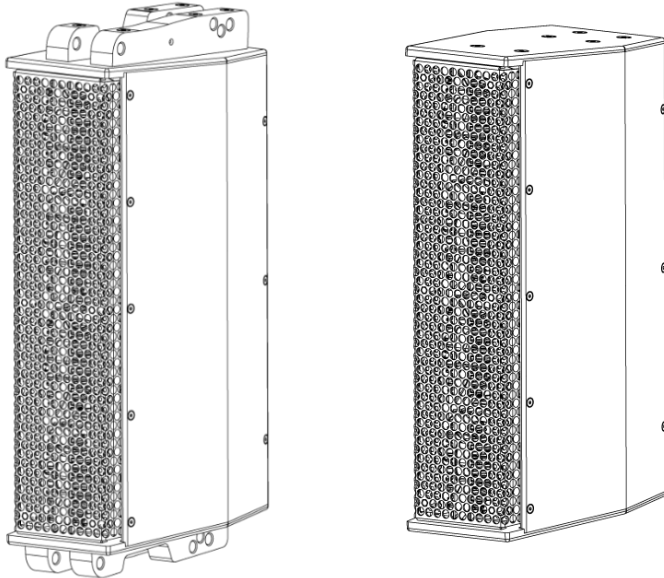
Procedures.....	80
Mounting Rigging plate on CSUB610.....	80
Installing Outriggers on the CSUB610.....	81
Installing Rigging Plate on LCC44/84.....	85
Coupling LCC44/84 units to CSUB610 using Tower Rigging System.....	86
Coupling Stacked LCC84 or LCC44 units via the Tower Rigging System.....	88

Chapter 1. Speaker models

TOWER LCC44

Cardioid Column Line Array Enclosure

Figure 1. LCC44 with Tower Rigging System (left), and without.



Tower LCC44 is a cardioid line array element featuring designed to be compact, high powered and array-able. The enclosure features Clarity Technology®, a proprietary high frequency technology built around four coaxial transducers each composed of a 4" cone driver and a compression driver. The enclosure provides 120° horizontal coverage on axis. Three additional rear 4" full-range transducers allow the unit to provide a cardioid dispersion pattern with -20 dB rear cancellation. The Towers can be deployed independently or combined using the proprietary Tower Rigging System to create long column arrays. Each LCC44 unit requires two amplifier channels operating with a dedicated DSP preset in order to achieve the cardioid dispersion pattern.

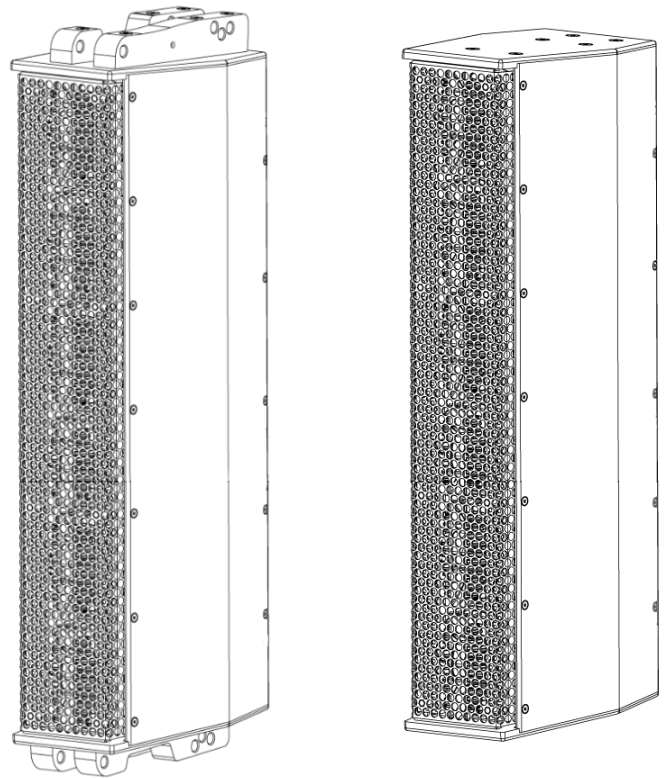
TOWER LCC44 Specifications

Description	Cardioid line array column featuring Clarity Technology® high frequency
Bandwidth	105 Hz – 18 kHz (-6 dB)
Max SPL	123 dB SPL @ 1 m w/ preset (1 unit)
Power	800 watts front + 400 watts rear (continuous), 400 watts + 200 watts (AES)
Directivity	120° horizontal
Elements	(4) 4" coaxial each with a 1.4" compression driver, (3) 4" rear-facing full range
Impedance	16 Ω front speakers, 24 Ω rear speakers
Connectors	(4) NL4, 1+/- front, 2+/- rear, each allowing for audio inputs and linking
IP Rating	IP55 indoor/outdoor and salt water resistant
Rigging	Proprietary rigging elements and fly bars -3°, 0°, +3°, +6°, +9°; (14) available M6 points
Weight	22 lb / 10 kg
Construction	Finland birch plywood (phenolic glue), structural stainless steel interior, polyurea, clear matte salt and UV resistant coating, 316 stainless steel hardware, 3D spacer mesh fabric
Accessories	LCC44 Wall Bracket, Tower Tube Mount, Tower Rigging System, Fly Bar (Long & Short), Active Speaker Tube (various lengths)
Dimensions	17.8" (452 mm) x 6.3" (160 mm) x 9.5" (240 mm)
Colors	Stocking black and white, custom colors and fabrics available

TOWER LCC84

Cardioid Column Line Array Enclosure

Figure 2. LCC84 with Tower Rigging System (left), and without.



Tower LCC84 is a cardioid line array element featuring designed to be compact, high powered and array-able. The enclosure features Clarity Technology®, a proprietary high frequency technology built around eight coaxial transducers each composed of a 4" cone driver and a compression driver. The enclosure provides 120° horizontal coverage on axis. Six additional rear 4" full-range transducers allow the unit to provide a cardioid dispersion pattern with -20 dB rear cancellation. The Towers can be deployed independently or combined using the proprietary Tower Rigging System to create long column arrays. Each LCC84 unit requires two amplifier channels operating with a dedicated DSP preset in order to achieve the cardioid dispersion pattern.

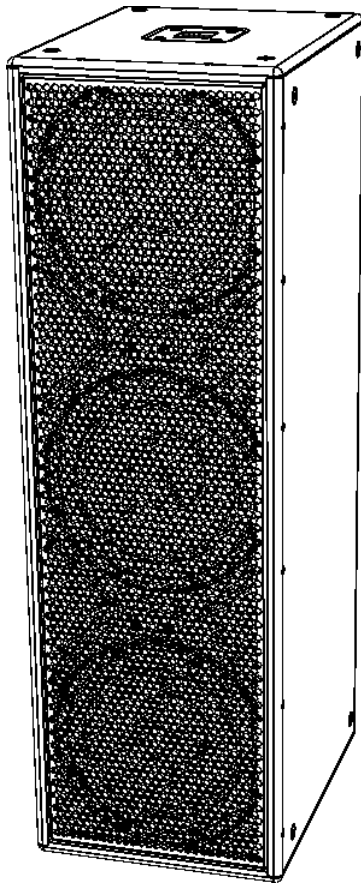
TOWER LCC84 Specifications

Description	Cardioid line array column featuring Clarity Technology® high frequency
Bandwidth	105 Hz – 18 kHz (-6 dB)
Max SPL	127 dB SPL @ 1 m w/ preset (1 speaker)
Power	1600 watts front + 800 watts rear (continuous), 800 watts + 400 watts (AES)
Directivity	120° horizontal
Elements	(8) 4" coaxial each with a 1.4" compression driver, (6) 4" rear-facing full range
Impedance	8 Ω front, 12 Ω rear
Connectors	(4) NL4, 1+/- front speakers, 2+/- rear speakers, each allowing for audio inputs and linking
IP Rating	IP55 indoor/outdoor and salt water resistant
Rigging	proprietary rigging elements and fly bars -3°, 0°, +3°, +6°, +9°; (14) available M6 points
Weight	43 lb / 19.5 kg
Construction	Finland birch plywood (phenolic glue), structural stainless steel interior, polyurea, clear matte salt- and UV-resistant coating, 316 stainless steel hardware, 3D spacer mesh fabric
Accessories	LCC84 Wall Bracket, Tower Tube Mount, Tower Rigging System, Active Speaker Tube
Physical	36.8" (934 mm) x 6.3" (160 mm) x 9.5" (240 mm)
Colors	Stocking black and white, custom colors and fabrics available

SUB310

Triple-10" Subwoofer

Figure 3. SUB310



SUB310 is a triple-10" subwoofer with Tetracoil technology drivers capable of achieving the sound and SPL of a single 18" bass enclosure, while housed in a cabinet only 11.5" wide, when deployed vertically, or 11.5" tall when deployed horizontally.

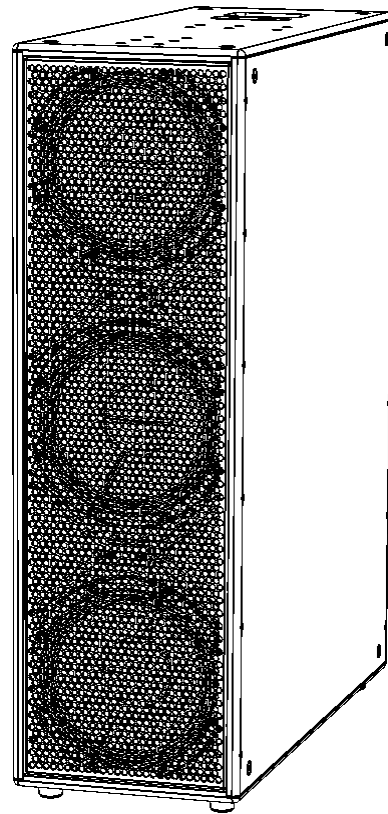
SUB310 Specifications

Description	Passive line source subwoofer, ultra slim with tetracoil technology drivers
Bandwidth	32 Hz – 160 Hz (-6 dB preset dependent)
Max SPL	137 dB SPL @ 1 m with preset
Power	2100 watts (continuous)
Directivity	Omnidirectional
Elements	(3) 10" tetracoil technology low frequency drivers
Impedance	2.6 Ω
Connectors	(4) NL4
IP Rating	IP55 indoor/outdoor and salt water resistant
Rigging	(12) M8 points
Weight	54 lb / 24.5 kg
Construction	Finland birch ply (phenolic glue), clear matte salt and UV resistant coating, 316 stainless steel hardware, 3D spacer mesh fabric
Accessories	Recessed cup for square speaker tubes, rigging plate for stacking Tower columns
Dimensions	11.75" (300 mm) x 15.75" (400 mm) x 38" (970 mm)
Colors	Stocking black and white, custom colors and fabrics available

CSUB610

Steerable Subwoofer

Figure 4. CSUB610



The CSUB610 subwoofer features a stacked triple-10" configuration in the front, and a stacked triple-10" configuration in the rear. It is a line source subwoofer capable of operating in cardioid, sub cardioid (end fire) and omnidirectional modes, and designed for positioning parallel or perpendicular to walls, or even low-profile (11.75" high) horizontal deployment.

This bass enclosure offers the sound of a double 18" subwoofer in omni mode. CSUB610 is designed to accept proprietary Tower Rigging System plates for stacking multiple LCC44 columns directly on the cabinet, as well as a recessed cup for square-section Active Speaker Tubes for mounting LCC44/84 as satellites.

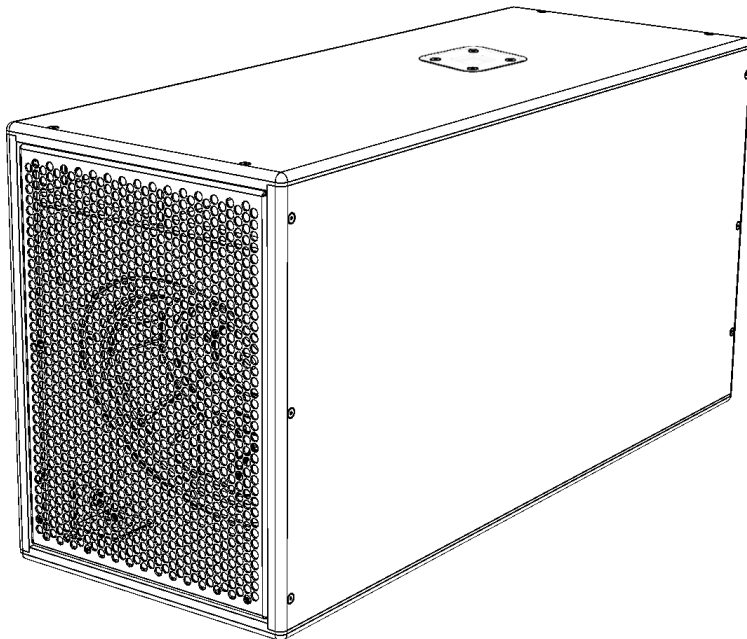
CSUB610 Subwoofer Specifications

Description	Passive line source subwoofer, ultra slim with (6) tetracoil technology drivers, multidirectional (DSP dependent)
Bandwidth	32 Hz – 160 Hz (-6 dB preset dependent)
Max SPL	140 dB SPL @ 1 m with preset
Power	4200 watts (continuous)
Directivity	Cardioid, sub cardioid, or omnidirectional
Elements	(6) 10" tetracoil technology low frequency drivers
Impedance	(2) 2.6 Ω on a single 4 wire NL4
Connectors	(4) NL4
IP Rating	IP55 indoor/outdoor and salt water resistant
Rigging	(12) M8 points
Weight	108 lb / 49 kg
Construction	Finland birch ply (phenolic glue), clear matte salt and UV resistant coating, 316 stainless steel hardware, 3D spacer mesh fabric
Accessories	Recessed cup for an M20 screw-in pole and square tube, rigging plate for stacking Tower columns, removable and reposition-able feet
Dimensions	11.75" (300 mm) x 30.9" (785 mm) x 38" (970 mm)
Colors	Stocking black and white, custom colors and fabrics available

CSUB210

Steerable Subwoofer

Figure 5. CSUB210



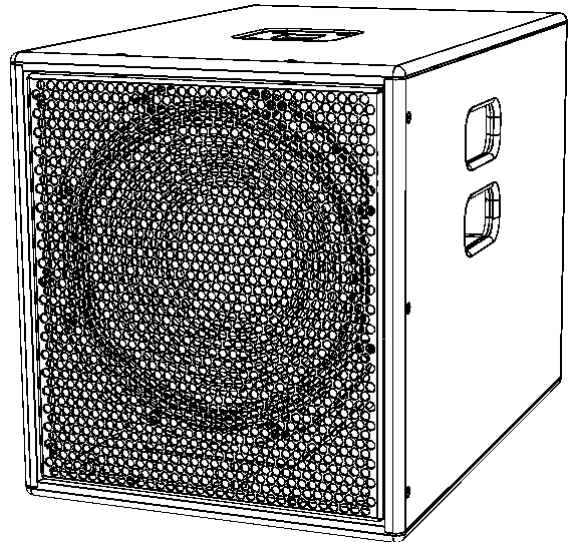
The CSUB210 subwoofer features a 10" woofer in the front, and 10" woofer in the rear. It is capable of operating in cardioid, sub cardioid (end fire) and omnidirectional modes, and designed for positioning parallel or perpendicular to walls, or even low-profile horizontal deployment. This bass enclosure is designed to accept a recessed cup for square-section Active Speaker Tubes for mounting LCC44/84 as satellites.

CSUB210 Subwoofer Specifications

Description	Passive multidirectional subwoofer (DSP dependent) with positioning options
Bandwidth	35 Hz – 120 Hz (-6 dB preset dependent)
Max SPL	128 dB SPL @ 1 m with omni preset
Power	600+600 watts (continuous), 300+300 watts (AES)
Directivity	Omnidirectional, sub cardioid (end fire) and cardioid with DSP presets
Elements	(2) 10" low frequency drivers
Impedance	(2) 8 Ω
Connectors	(2) NL4
IP Rating	IP55 indoor/outdoor and salt water resistant
Rigging	(8) M10 points
Weight	65.4 lbs / 29.7 kg
Construction	Finland birch ply (phenolic glue), clear matte salt and UV resistant coating, 316 stainless steel hardware, 3D spacer mesh fabric
Accessories	Sub Pole Cup, Active Speaker Tubes, removable rubber feet (incl.)
Dimensions	12" (307 mm) x 16.5" (418 mm) x 31.5" (800 mm)
Colors	Stocking black and white, custom colors and fabrics available

SUB12

Figure 6. SUB12



The SUB12 is a high powered, high performance, passive, bass-reflex subwoofer unit. It is equipped with one 12" low frequency driver with a 4" voice coil. The bass response extends down to 35 Hz with low distortion. The SUB12 has a compact build, making it lightweight. There are two recessed NL4 connectors so the sub can be placed directly against a wall. The SUB12 can be fitted with the Sub Pole Cup accessory that accepts an Active Speaker Tube, allowing the deployment of an LCC44 unit in a sub/satellite configuration. It is ideal for applications in restaurants and lounges, fitting in tight spaces, as well as for residential use or in portable systems.

SUB12 Specifications

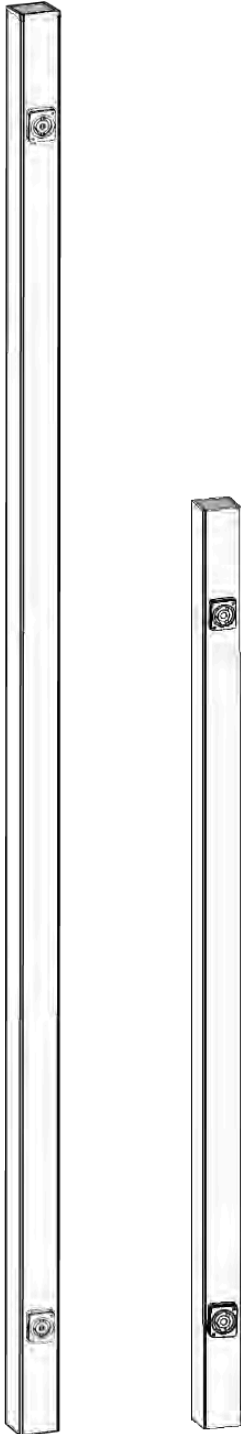
Description	Compact, passive, bass-reflex subwoofer unit
Bandwidth	35 Hz – 150 Hz (-6 dB preset dependent)
Max SPL	132 dB SPL @ 1 m with preset
Power	1200 watts (continuous)
Directivity	Omnidirectional
Elements	(1) 12" neodymium low frequency driver with a 4" voice coil
Impedance	8 Ω
Connectors	(2) NL4 (recessed)
IP Rating	IP55 indoor/outdoor and salt water resistant
Rigging	(4) points M8
Weight	46.3 lbs / 21 kg
Construction	Finland birch ply (phenolic glue), clear matte salt and UV resistant coating, 316 stainless steel hardware, 3D spacer mesh fabric
Accessories	Sub Pole Cup, Active Speaker Tubes, removable rubber feet (incl.)
Dimensions	15.8" (400 mm) x 14.2" (360 mm) x 20.5" (525 mm)
Colors	Stocking black and white, custom colors and fabrics available

Chapter 2. Accessories

Active Speaker Tubes

For mounting LCC44/84 as satellites on SUB310/CSUB610/CSUB210/SUB12

Figure 7. Active Speaker tubes: 145 cm and 95 cm.



The Active Speaker Tubes are steel square-section speaker poles available in lengths of 145 cm (≈57") and 95 cm (≈37.4"). These are used to mount satellite speaker enclosures atop subwoofers, and incorporate a Speakon NL4 connector at each end, to avoid unsightly and precarious cable connections and achieve a sleek, clean look. They are available with a black or white finish.

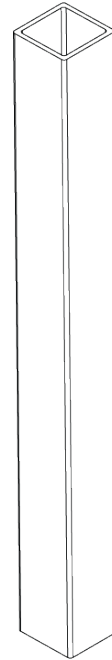
The kit includes:

- The fully assembled Active Speaker Tube

Passive 40 cm Speaker Tube

For mounting LCC44/84 as satellites on SUB310/CSUB610/CSUB210/SUB12

Figure 8. The 40 cm (16 in) Speaker Tube.



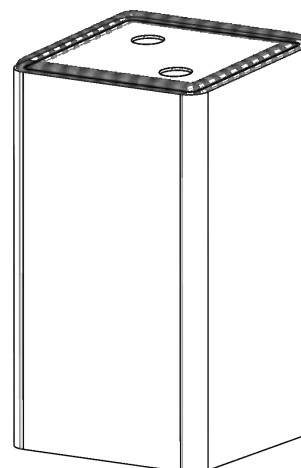
The 40 cm (≈16") Speaker Tube is a simple steel square-section speaker pole for mounting satellite speaker enclosures atop subwoofers. It is available with a black or white finish.

The kit includes:

- The Speaker Tube

Tower Tube Mount

Figure 9. Tower Tube Mount



The Tower Tube Mount enables a Tower loudspeaker to be coupled with the proprietary Active Speaker Tubes for deployment of LCC44 or LCC84 cardioid column line array enclosures on a free-standing base or atop a SUB310 or CSUB610 subwoofer. The mount attaches either directly to the speaker enclosure for a 0° vertical angle or to the Tower Rigging System to enable the angle to be adjusted to -3°, 0° or +3°. The Tower Tube Mount is made of galvanized, zinc plated and black or white powder coated steel.

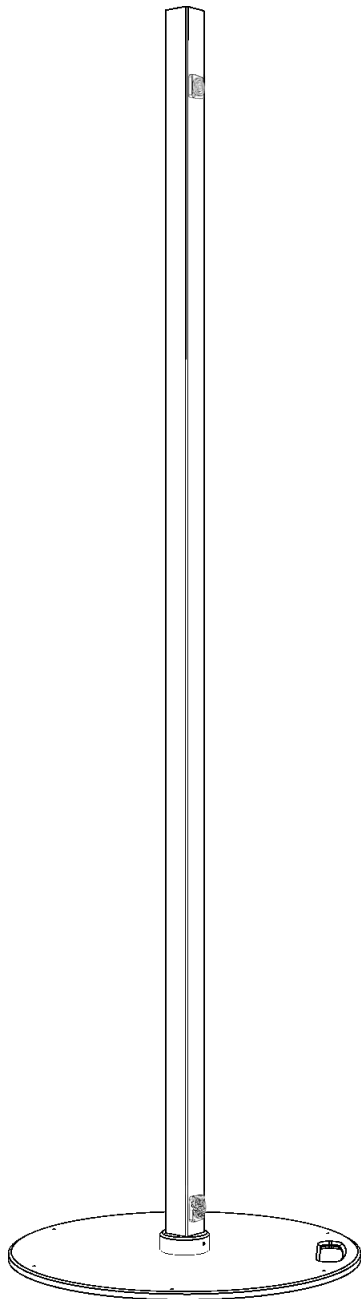
The kit includes:

- The Tower Tube Mount
- 2 x M6x12 mm flat head socket screws for use with the Tower Rigging System rigging plate

Active Speaker Tube & Base

Free-standing Speaker Stand for LCC44 with Round Steel Base

Figure 10. Active Speaker Tube & Base



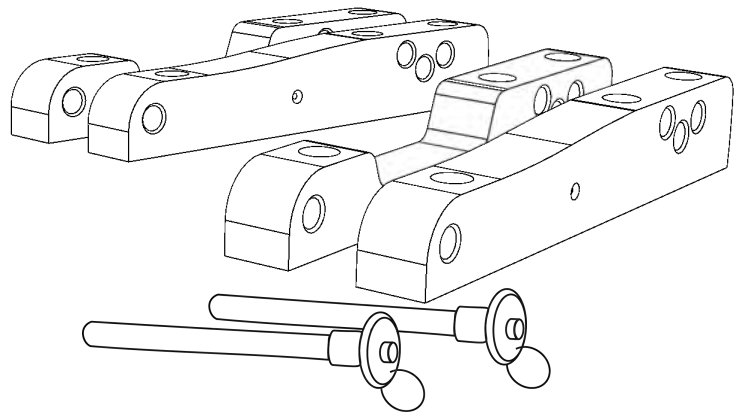
The Active Speaker Tube & Base is an elegant speaker stand 176 cm tall (≈69"), made of square-section steel on a stable, round steel base 50 cm (≈20") in diameter. This accessory incorporates a Speakon NL4 connector at each end, to avoid unsightly and precarious cable connections and achieve a sleek, clean look. It is available with a black or white finish.

The kit includes:

- The fully assembled Active Speaker Tube
- The steel base

Tower Rigging System Plates

Figure 11. Tower Rigging System plates



The Tower Rigging System plates are machined from solid blocks of structural aluminum. This system is used to attach a Tower loudspeaker to either another Tower column, a subwoofer or a fly bar. It can also be used with the Tower Tube Mount to allow variable divergent or convergent splay angles. The plates are available with an anodized black or silver finish.

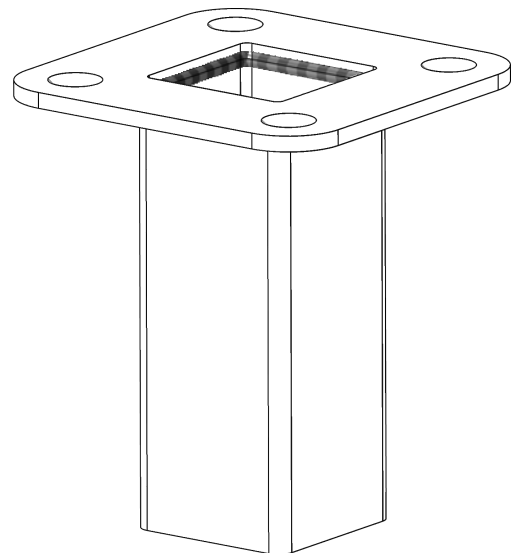
The kit includes:

- 2 × Rigging Plates
- 2 × stainless steel M10x100 ball-lock pins
- 8 × M6x50 mm stainless steel countersunk socket-head screws (4 mm Allen)
- 4 × M6x45 mm stainless steel countersunk socket-head screws (4 mm Allen)

Sub Pole Cup

Square adapter for subwoofer M20 flange to Active Speaker Tube

Figure 12. Sub Pole Cup



The Sub Pole Cup is made from 4 mm steel and fits in various 1 SOUND subwoofers in order to mount a satellite speaker enclosure. It couples with all 1 SOUND Active Speaker Tubes, as well as standard round poles that have a M20 screw-in bolt. It is available with a black or white finish.

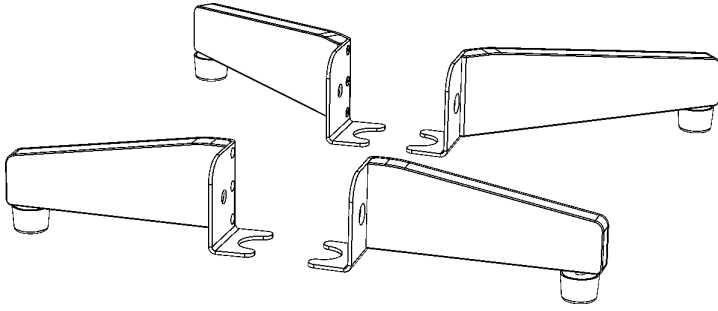
The kit includes:

- Sub Pole Cup
- Gasket (pre-installed on the Sub Pole Cup)

Subwoofer Outriggers

Optional stabilizing legs for subwoofer models SUB310 and CSUB610

Figure 13. Subwoofer Outriggers



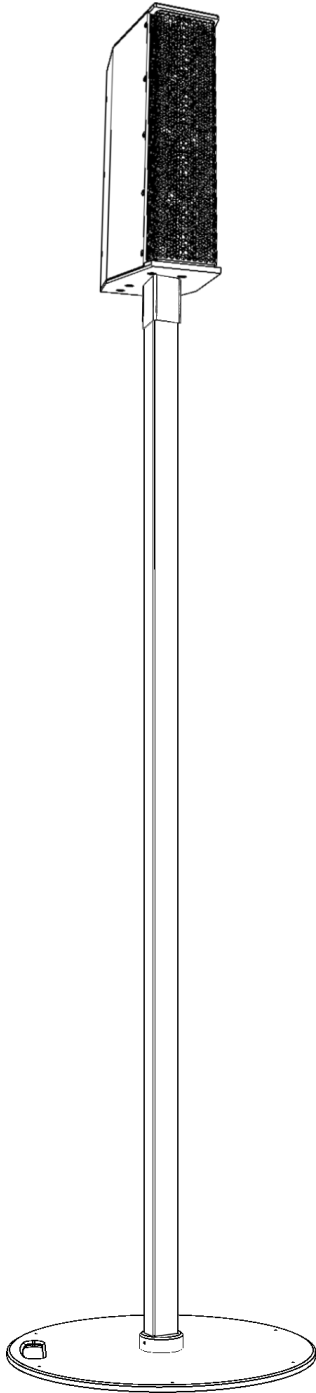
The Subwoofer Outrigger set is designed to be mounted to the SUB310 or SUB610 subwoofer models to improve stability when these are deployed vertically on the floor. The Outriggers **MUST** be used in every deployment in which satellite enclosures are mounted on top of the subwoofers. The outriggers have screw-adjustable feet for leveling the subwoofer. Two of the outriggers extend forward at 50° to provide extended stability at the front of the cabinet, while the other two are angled at 90°. The outriggers are ideal for applications in which the subs are in an environment where people could bump into them or lean on them. The outriggers are made of zinc plated steel with a black or white powder coating.

The kit includes:

- 4 fully assembled outriggers with rubber feet attached

Chapter 3. Deploying LCC44 on an Active Speaker Tube & Base

Figure 14. LCC44 deployed on the Active Speaker Tube and base.



Critical information

Attention: This equipment is intended for installation by qualified professionals.

Notice: Please read these instructions carefully and completely before attempting deployment of speaker enclosures on floor stands.

WARNING



Tipping Hazard
Speaker enclosures mounted on poles or stands represent a tipping hazard. Exercise care when deploying speaker enclosures on poles or stands. In the case of mechanical failure or accidental tipping, there is a risk of serious injury or even death, as well as likely damage to the enclosures themselves and nearby equipment.

WARNING



Tipping Hazard
DO NOT MOUNT THE MODEL LCC84 SPEAKER ENCLOSURE ON THE ACTIVE SPEAKER TUBE WITH BASE
The Active Speaker Tube with Base is designed only for the safe deployment of the LCC44 unit using the Tower Tube Mount, without the Tower Rigging System plates.

CAUTION



Tripping/Falling Hazard
Speaker enclosures mounted on poles or stands represent a tripping hazard. Exercise care when deploying speaker enclosures on poles or floor stands. Free-standing loudspeaker supports and accompanying cables should be positioned at a safe distance from walkways, trafficked areas and the general public to minimize risk of injury or damage to the enclosures themselves and associated equipment.

Notice: This product must be installed in compliance with all applicable local, state and national regulatory provisions. The responsibility rests with the installer to verify that the installation is carried out in accordance with any applicable legislation.

Important: The installer must assess the appropriate stability and sturdiness of the deployment surface.

Restriction: Only hardware and accessories included with the product or specified by 1 Sound should be used for its installation.

Restriction: Do not modify or alter the loudspeaker or any accessory. Any modification by the user or installer could render the product or the installation unsafe.

Restriction: Do not install a loudspeaker or any accessory near any open flame or heat source.

Products/accessories involved

To deploy an LCC44 enclosure on an Active Speaker Tube with Base you will need the following:

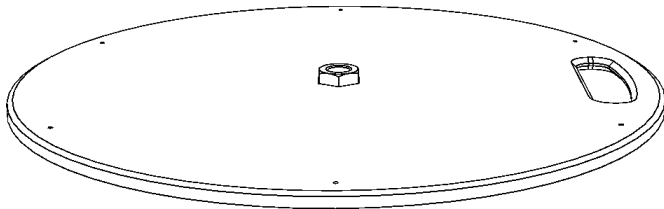
- An [LCC44 \(on page 4\)](#) loudspeaker enclosure
- The [Active Speaker Tube & Base \(on page 8\)](#) speaker stand kit
- The [Tower Tube Mount \(on page 7\)](#) adapter kit
- **Optional:** [Tower Rigging System Plates \(on page 8\)](#)

Procedures

Assembling Active Speaker Tube with Base

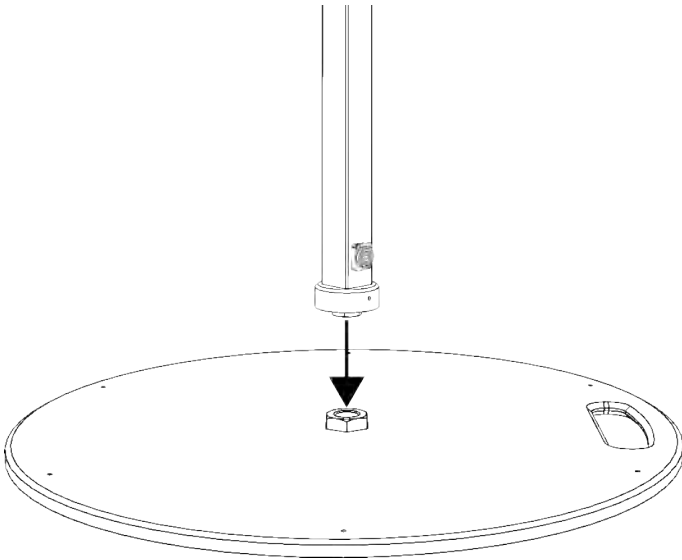
The 175 cm Active Speaker Tube and base can be used to deploy a single, freestanding LCC44 unit. The stand and base must be properly assembled prior to coupling with the speaker enclosure.

Figure 15. The Active Speaker Tube base.



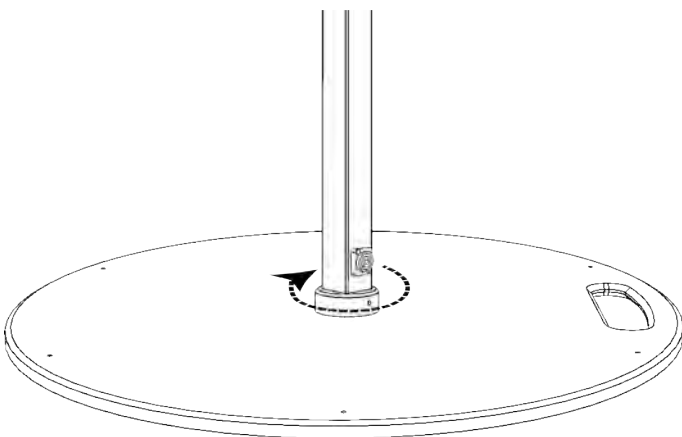
- Place the round base of the Active Speaker Tube on a flat surface so that it rests flat and the M20 threaded nut at the center protrudes above.

Figure 16. Attaching the 175 cm Active Speaker Tube to its base.



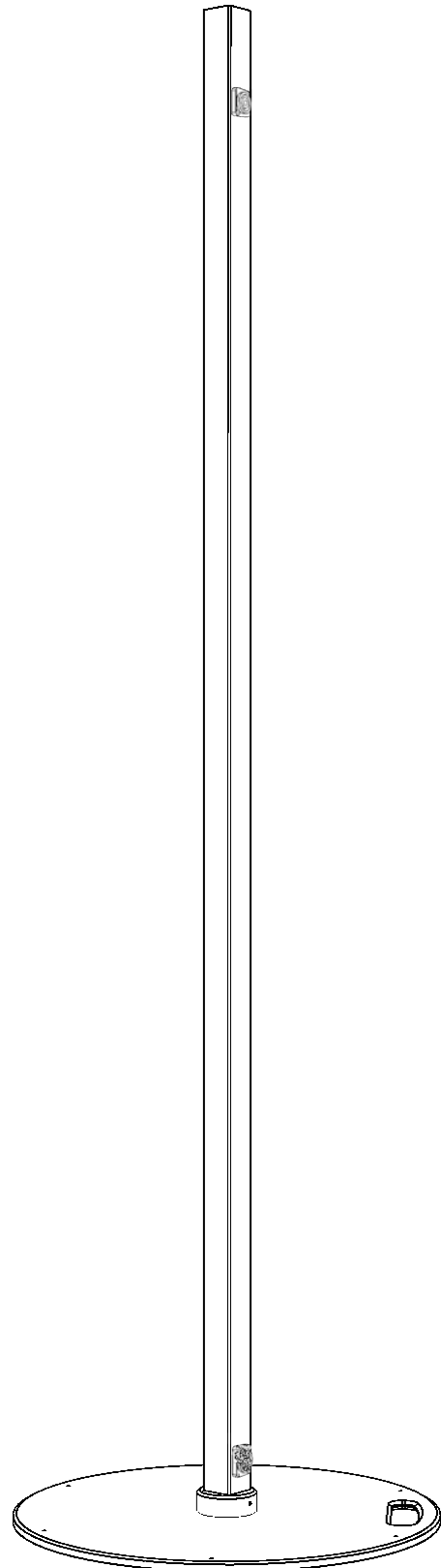
- Align and thread the M20 threaded rod at the bottom of the 175 cm Active speaker Tube into the captive M20 nut on the base .

Figure 17. Screwing the 175 cm Active Speaker tube to its base.



- Screw the Active Speaker Tube into the base until the outer ring of the Speaker tube is firmly seated against the base. Check to see that there is no movement possible of the Speaker Tube with respect to the base plate.

Figure 18. The fully Assembled Active Speaker Tube and Base



Installing the Tower Tube Mount directly on LCC44

The Tower Tube Mount can be used in two different ways, depending on the requirements of the application. It can be installed directly to an LCC44 or LCC84 unit when the desired coverage can be obtained with the directivity axis of the enclosure parallel (0°) to the floor. Otherwise, when the application requires that the LCC44/84 unit be adjustable in tilt with respect to the floor, the Tower Tube Mount can be attached to a Tower Rigging System rigging plate to allow different tilt angles.

To install the Tower Tube Mount directly to an LCC44 enclosure:

Figure 19. Threaded inserts for Tower Tube Mount on the bottom of LCC44 or LCC84.

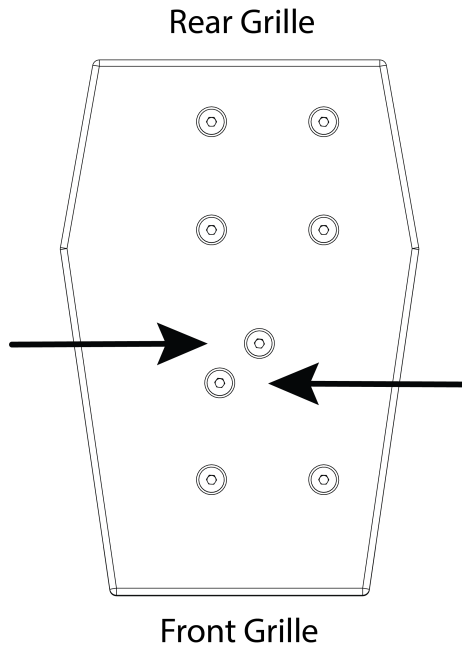
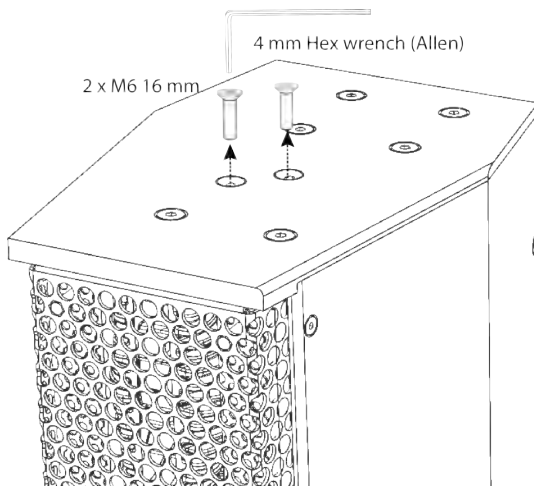
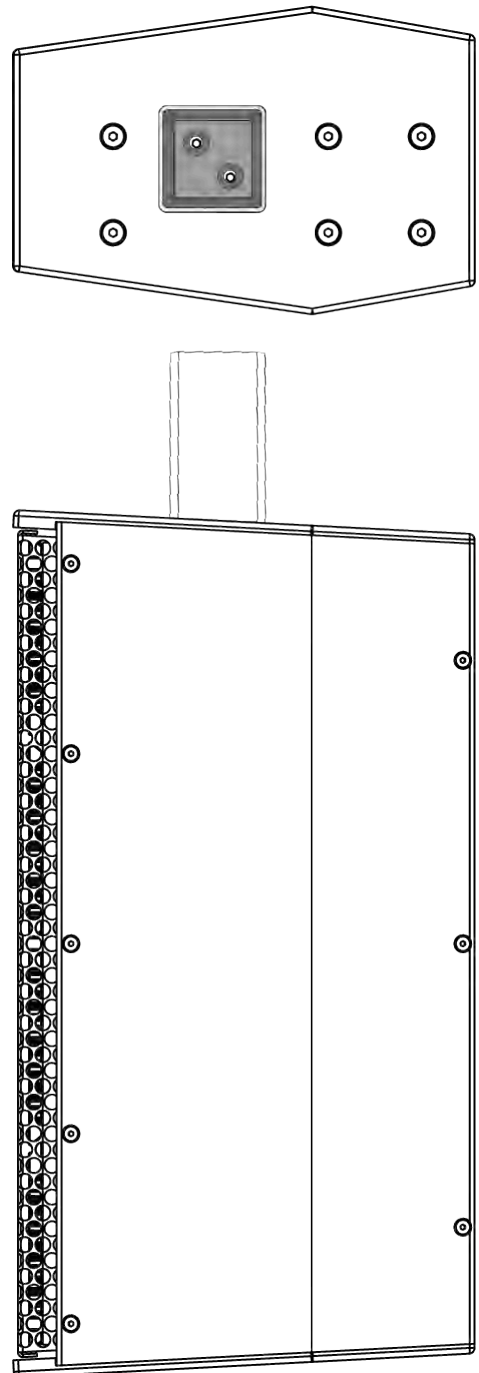


Figure 20. Removing screws from Tower Tube Mount attachment points.



- Invert the LCC44 enclosure and use a 4 mm Allen wrench or hex driver to remove the two M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these aside, as they will be used to mount the Tower Tube Mount.
- Position the Tower Tube Mount upside-down, with the open side up and the countersunk-drilled plate against the bottom of the enclosure, making sure that the -3° angle of the bottom of the enclosure is complemented by the $+3^\circ$ angle of the top plate of the Tower Tube Mount, returning the long side of the Tube Mount to form a straight line parallel to the vertical axis of the enclosure.

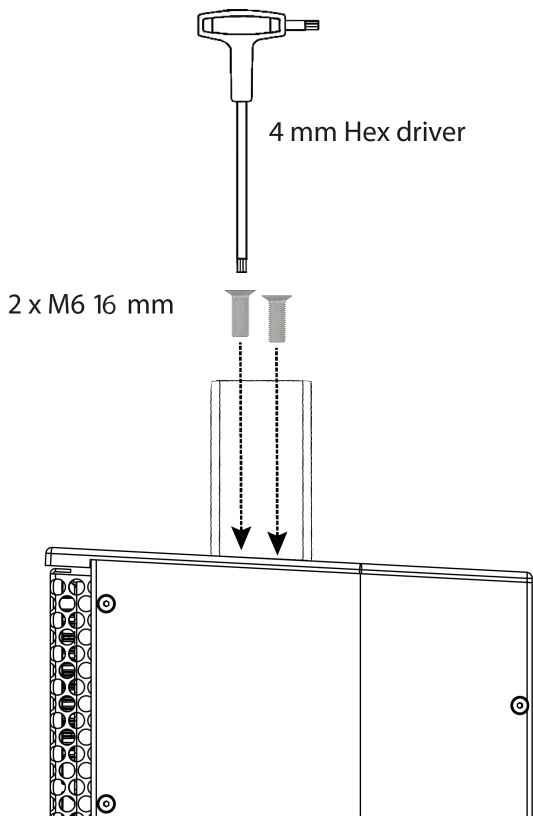
Figure 21. Aligning Tower Tube Mount on LCC44 – top and side view.



- Align the two countersunk holes in the Tower Tube Mount with the threaded inserts in the rigging points from which the screws were removed.
- Carefully thread the two M6x16 mm screws previously removed into the inserts through the holes in the Mount. A magnetized hex driver can facilitate this.

! **Important:** For permanent or semi-permanent installation of the Tower Tube Mount on the LCC44 enclosure, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 22. Mounting Tower Tube Mount to bottom of LCC44



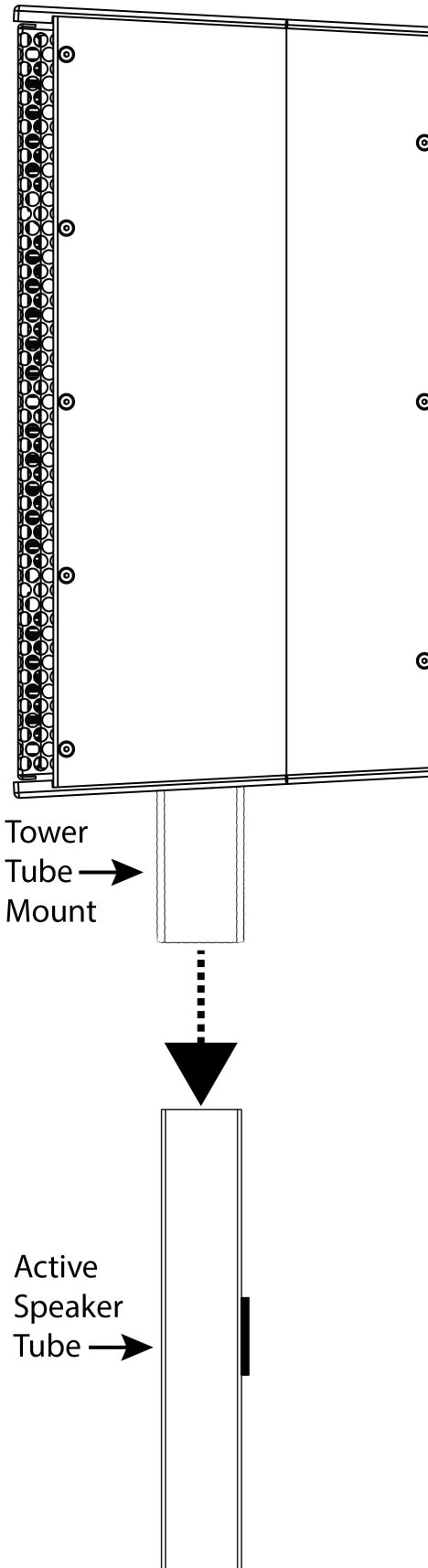
- Using a 4 mm hex driver, tighten the two screws very firmly.


Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount


Once the Tower Tube Mount has been correctly installed directly on an LCC44 enclosure, the enclosure can then be very simply mounted on an Active Speaker Tube, either atop a subwoofer in a sub/satellite configuration, or independently atop an Active Speaker Tube with base.

- Make sure that the 95 cm Active Speaker Tube is properly installed in the CSUB610 or SUB310 (either model equipped with Outriggers and properly leveled and positioned for use) or that the free-standing 175 cm Active Speaker Tube and Base is safely positioned. Then simply lift the LCC44 with the Tower Tube Mount above the Active Speaker Tube and align it in the desired direction. Though not obligatory, this will generally be with the rear of the LCC44 towards the rear of the subwoofer, where the connectors are located.

Figure 23. Mounting LCC44 equipped with Tower Tube Mount to Active Speaker Tube.

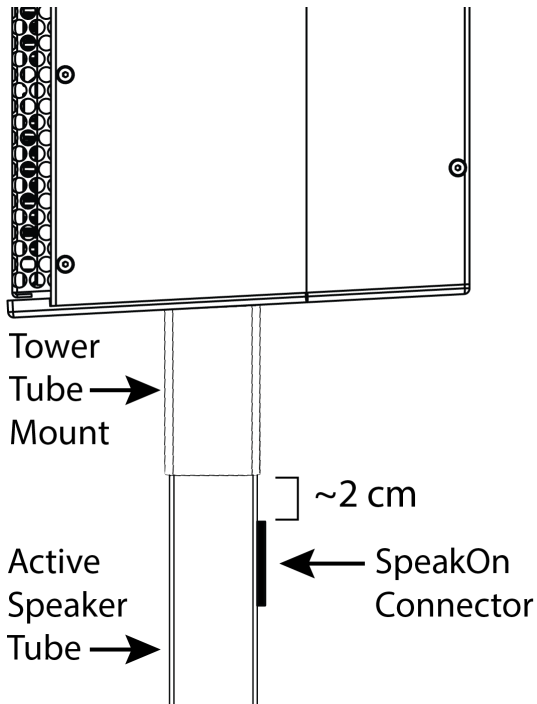


⚠ WARNING	
	<p>Tipping Hazard Improper assembly of the Active Speaker Tube with Base or improper installation of the Active Speaker Tube, Sub Pole Cup, or Subwoofer Outriggers on a subwoofer enclosure, or of the Tower Tube Mount on the LCC44 could create a hazardous or unstable condition when the LCC44 is mounted atop them. Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR A FREE-STANDING SPEAKER STAND WITH AN ENCLOSURE MOUNTED ATOP IT.</p>

⚠ WARNING	
	<p>Tipping Hazard DO NOT USE THE TOWER RIGGING SYSTEM PLATES TOGETHER WITH THE TOWER TUBE MOUNT AND SPEAKER TUBES FOR SUBWOOFER/SATELLITE CONFIGURATIONS ATOP THE SUB12 OR CSUB210 MODELS OR WITH THE ACTIVE SPEAKER TUBE WITH BASE. The use of pole mounted configurations of the LCC44 model enclosure with the inclinable Tower Rigging System plates is possible only atop the CSUB610 or SUB310 model subwoofers.</p>

- Lower the LCC44 enclosure and allow the Active Speaker Tube to slide into the Tower Tube Mount, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the top of the Mount, with the bottom of the Tower Tube Mount coming to 2 cm above the top SpeakOn connector.

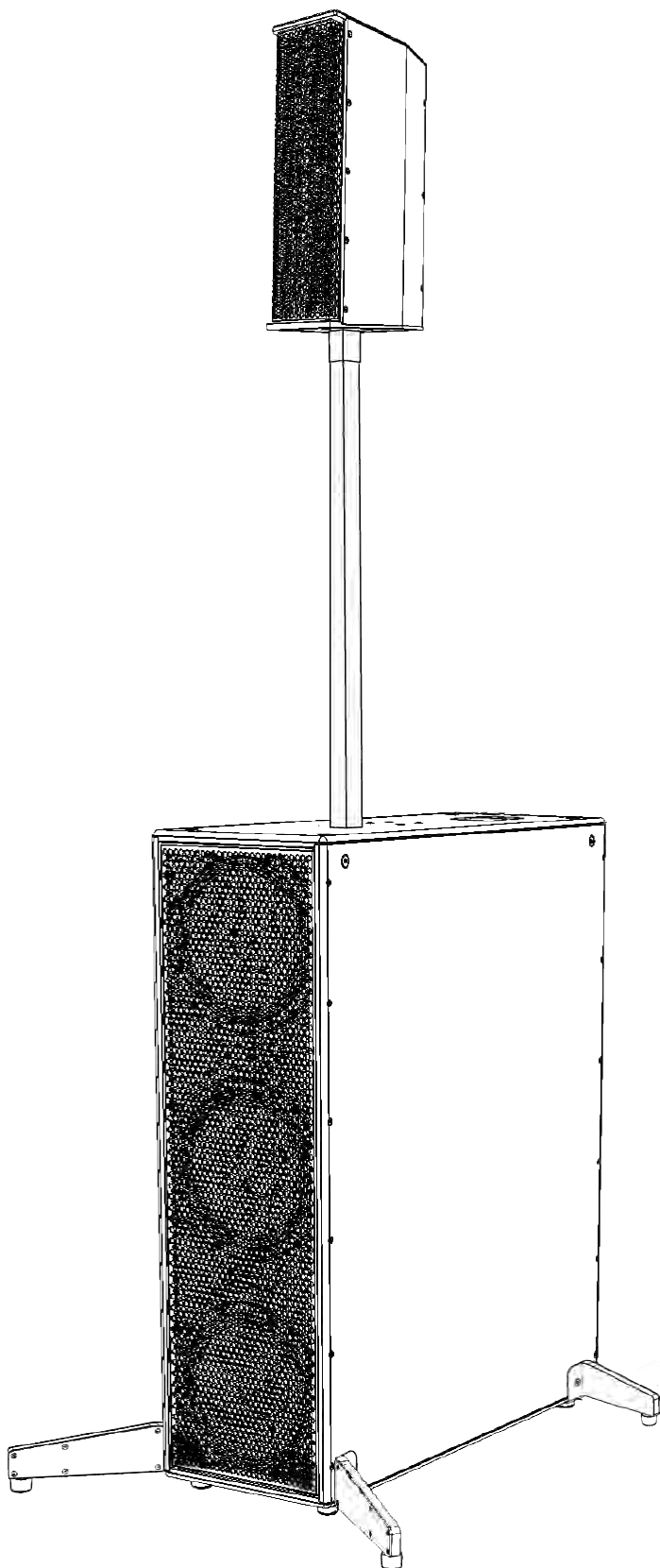
Figure 24. LCC44 with Tower Tube Mount installed on Active Speaker Tube.



- Physically assure the stability of the installation and that it will not tip using mild force applied in any direction at the highest point of the assembly.

Chapter 4. Deploying LCC44 on an Active Speaker Tube atop CSUB610

Figure 25. LCC44 deployed atop CSUB610 using the 95 cm Active Speaker Tube and Tower Tube Mount.



Critical information

Attention: This equipment is intended for installation by qualified professionals.

Notice: Please read these instructions carefully and completely before attempting deployment of speaker enclosures on floor stands.

WARNING



Tipping Hazard
Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. Exercise extreme care when assembling speaker arrays, as a stack of them toppling or collapsing creates a risk of serious injury or death, as well as likely damage to the enclosures themselves and nearby equipment.

Notice: This product must be installed in compliance with all applicable local, state and national regulatory provisions. The responsibility rests with the installer to verify that the installation is carried out in accordance with any applicable legislation.

Important: The installer must assess the appropriate stability and sturdiness of the deployment surface.

Restriction: Only hardware and accessories included with the product or specified by 1 Sound should be used for its installation.

Restriction: Do not modify or alter the loudspeaker or any accessory. Any modification by the user or installer could render the product or the installation unsafe.

Restriction: Do not install a loudspeaker or any accessory near any open flame or heat source.

Products, accessories and tools required

To deploy an LCC44 enclosure as a satellite on a CSUB610 bass unit using an Active Speaker Tube you will need the following:

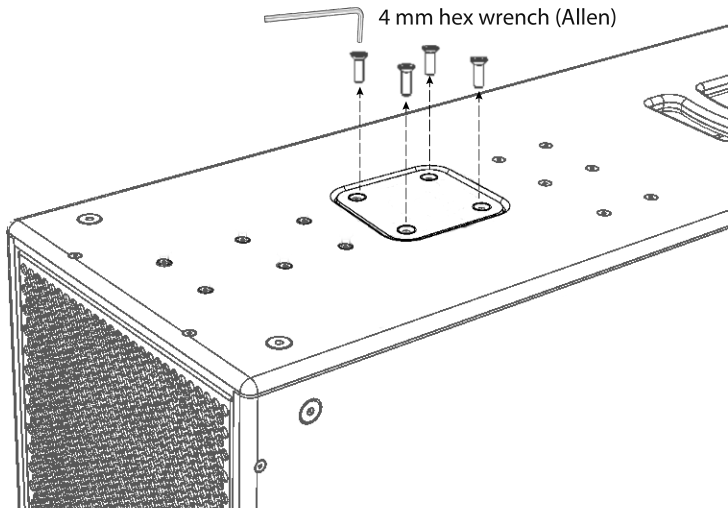
- An [LCC44 \(on page 4\)](#) loudspeaker enclosure
- A [CSUB610 \(on page 5\)](#) subwoofer enclosure
- The [Sub Pole Cup \(on page 8\)](#) adapter flange kit
- The [Subwoofer Outrigger \(on page 9\)](#) stabilizing leg kit
- The 95 cm [Active Speaker Tube \(on page 7\)](#) or the 40 cm [Passive Speaker Tube \(on page 7\)](#)
- The [Tower Tube Mount \(on page 7\)](#) adapter kit
- A 5 mm Allen wrench
- A 4 mm hex driver at least 10 cm long, preferably magnetized
- A 4 mm Allen wrench
- Threadlocking compound
- **Optional:** [Tower Rigging System Plates \(on page 8\)](#)
- **Recommended:** Spirit level

Procedures

Installing Sub Pole Cup on CSUB610

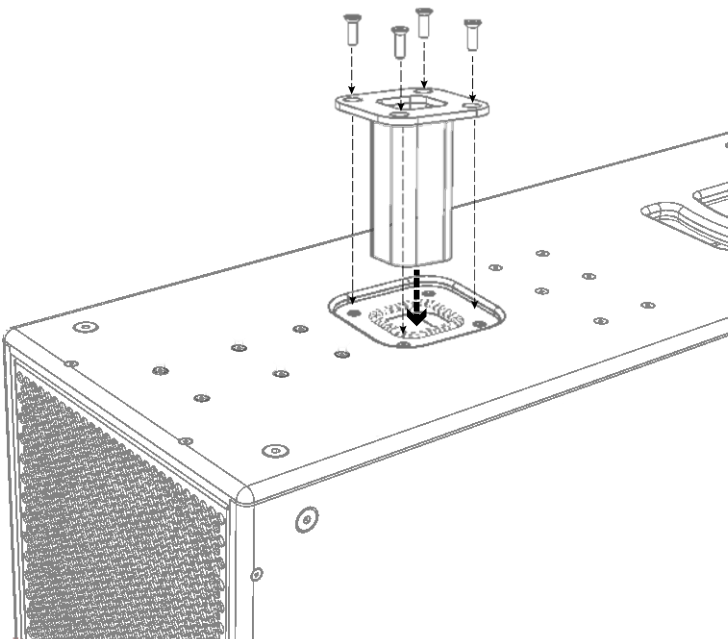
In order to deploy an LCC44 unit in a sub/satellite configuration atop a SUB310 or CSUB610 subwoofer unit, the subwoofer must first be equipped with a Sub Pole Cup.

Figure 26. Removing CSUB610 cover plate.



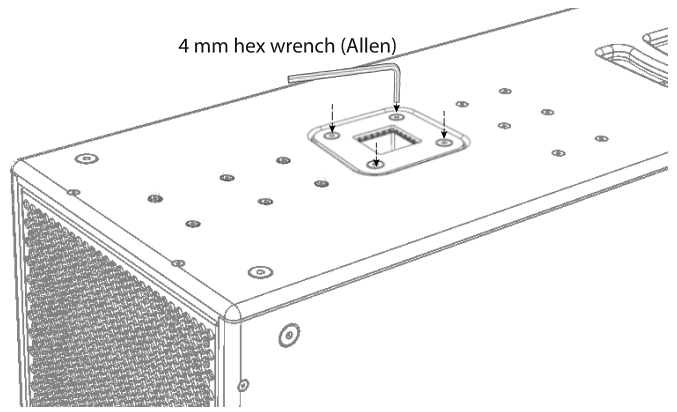
- Using a 4 mm hex wrench, remove the four screws retaining the pole cup cover on the upper side of the CSUB610 cabinet, and remove the cover plate.

Figure 27. Inserting the Sub Pole Cup into CSUB610.



- Insert the Sub Pole Cup flange into the recess in the cabinet and seat it firmly.
- Re-insert the screws that retained the plate into the four countersunk holes in the Sub Pole Cup, and thread them into the inserts below the cup.

Figure 28. Fixing the Sub Pole Cup to CSUB610



- Again, using the 4 mm hex wrench, tighten the four screws firmly.

Installing Outriggers on the CSUB610

Installing the subwoofer outriggers improves the stability of the CSUB610 or SUB310 when deployed vertically on the floor. The outriggers are recommended in any application in which the subs are deployed in public areas where people could bump into them or lean on them. These are also REQUIRED in any application in which other loudspeaker enclosures are coupled to the subwoofer in an upright position. The CSUB610 unit can be deployed with LCC44, LCC84 or combinations of these in either a parallel or perpendicular configuration. Each of these configurations requires that the outriggers be installed in the appropriate configuration.

⚠ WARNING



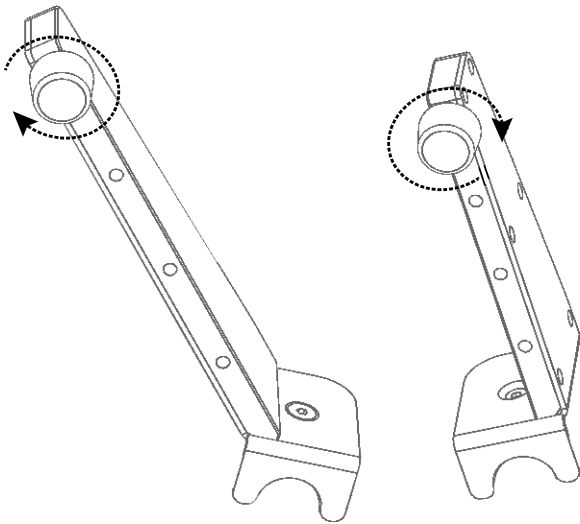
TIPPING HAZARD

Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, THE INSTALLATION OF THE SUBWOOFER OUTRIGGERS ON THE SUB310 AND CSUB610 IS REQUIRED WHENEVER ONE OR MORE LOUDSPEAKER ENCLOSURES IS MOUNTED ATOP ONE OF THESE UNITS, EITHER IN A STACKED CONFIGURATION USING THE TOWER RIGGING SYSTEM OR IN A SUB/SATELLITE CONFIGURATION USING A SPEAKER POLE.

Installing Outriggers for parallel (cardioid) deployment of CSUB610 with LCC44/84

If the application requires the use of the cardioid functionality of CSUB610 on axis with the LCC84 or LCC44 unit(s), the Outriggers must be installed on the subwoofer in the parallel configuration, with the two 50°-angled outriggers extending forward to provide extended stability at the front of the cabinet, while the two 90° outriggers are installed at the rear. Naturally, this configuration can be used with omnidirectional presets on the subwoofer, as well, but only when the LCC44 or LCC84 units are coupled parallel to the CSUB610, with all the forward grilles facing the same direction.

Figure 29. Raising the leveling feet of the Outriggers.



- Before installation, on each of the four Outriggers, raise the leveling feet by screwing them in completely.

Figure 30. Removing rigging point screws from CSUB610 for the installation of the Sub Outriggers

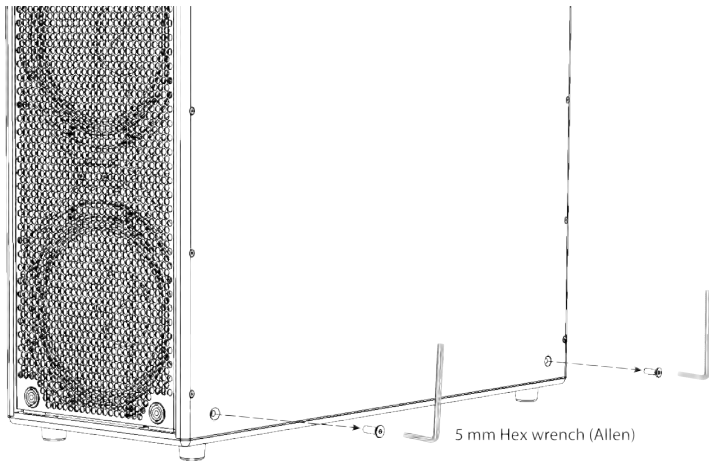
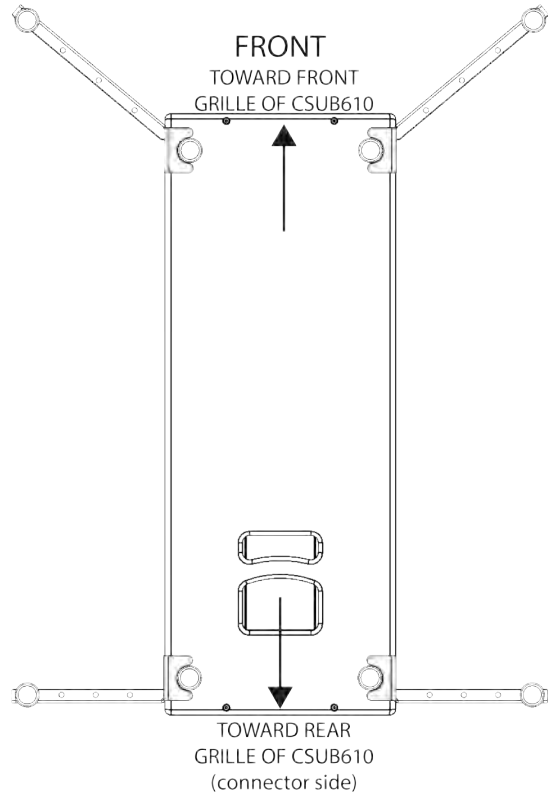
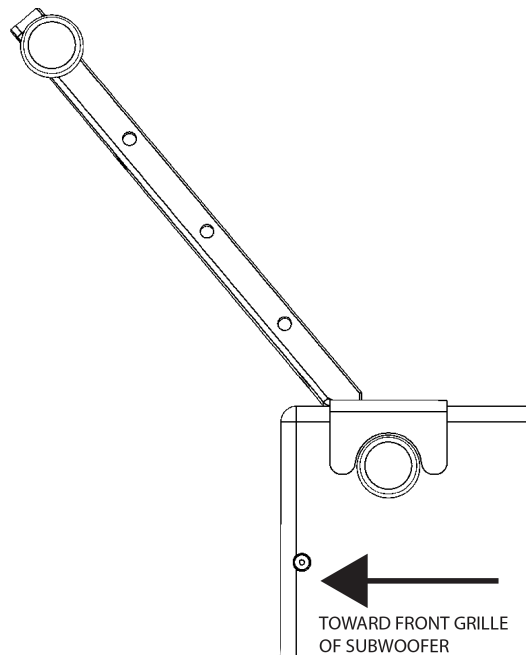


Figure 31. Configuring the outriggers on CSUB610 for parallel deployment of LCC44/84 units (bottom view).



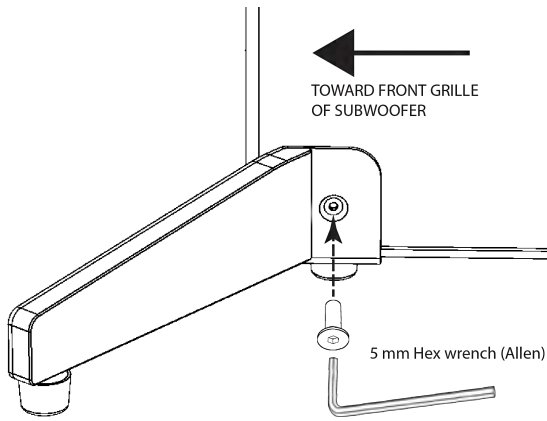
- Using a 5 mm hex wrench, remove the two bottom rigging point screws from one long side of the CSUB610 cabinet.

Figure 32. Aligning forward Outrigger on CSUB610 (bottom view).



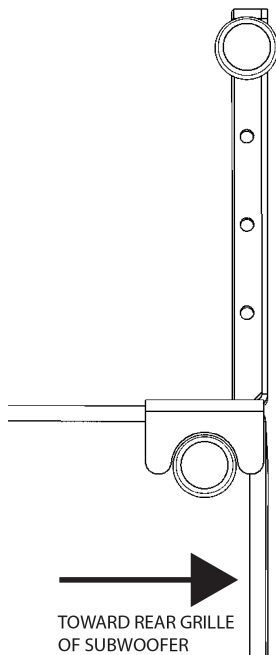
- Align the mounting hole of the longer 50° Outrigger with the bottom rigging point nearest the front grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Figure 33. Aligning forward Outrigger on CSUB610 (side view)



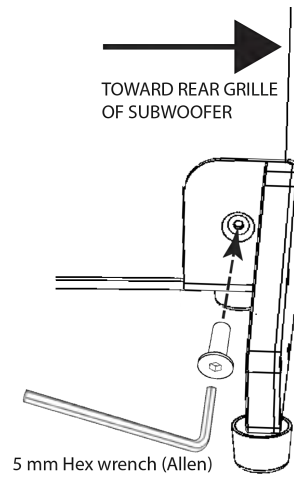
- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.

Figure 34. Aligning rear Outrigger on CSUB610 (bottom view)



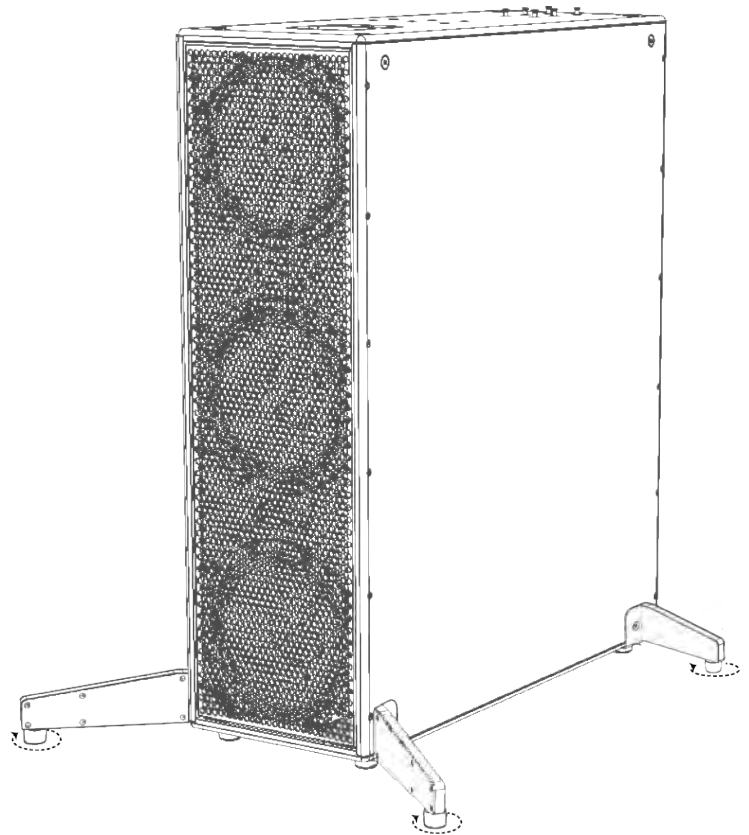
- Align the mounting hole of the shorter 90° Outrigger with the bottom rigging point nearest the rear grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Figure 35. Aligning rear Outrigger on CSUB610 (side view).



- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.
- Repeat steps the steps above on the opposite side of the CSUB610.

Figure 36. Lowering the Outrigger feet.



- Turn the leveling feet of each outrigger to lower it just to rest firmly against the floor.

Leveling CSUB610

Once the Subwoofer Outriggers are securely installed, it is possible to use them for fine adjustments to assure that the subwoofer unit is properly leveled, which is especially important when other speaker enclosures are to be deployed atop the subwoofer.


⚠ CAUTION	
	<p>Tipping Hazard The Subwoofer Outriggers can be used to apply minor adjustments to the leveling of the SUB310 or CSUB610 subwoofer units. DO NOT install any speaker enclosures atop a subwoofer in any configuration if the subwoofer can not be properly leveled in its position.</p> <p>If the subwoofer cannot be properly leveled using the Outrigger feet, it is necessary to adjust the surface supporting the subwoofer (floor, stage deck, riser etc.) in order to level it before deployment. It is the responsibility of the installation personnel to verify and guarantee the safety of the installation.</p>

Figure 37. CSUB610 Side-to-side leveling.

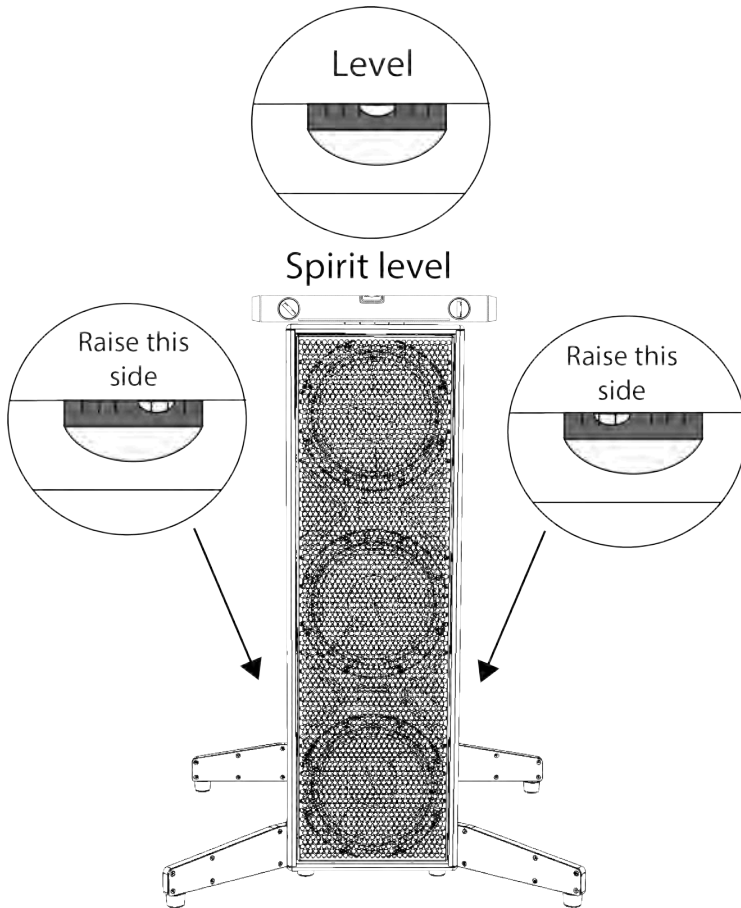
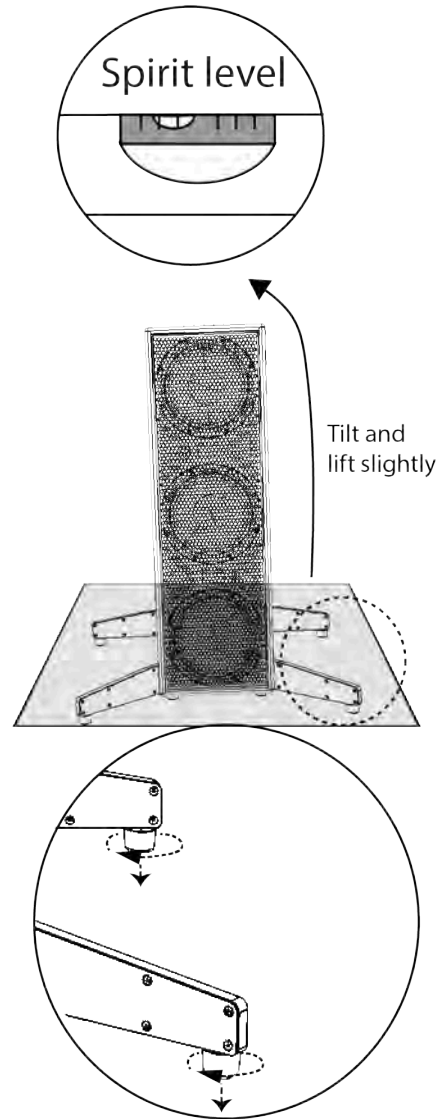


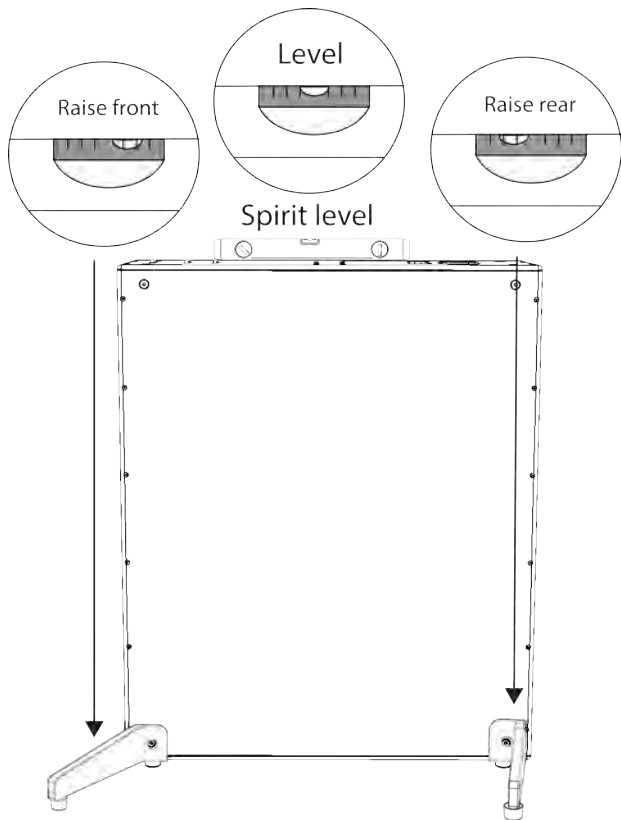
Figure 38. Leveling CSUB610 side-to-side – example.



! **Important:** If any of the Outrigger foot being adjusted reaches its limit (completely lowered) before the subwoofer can be properly leveled on any axis, it will be necessary to stop this procedure and either reposition the subwoofer or – where possible, such as on an adjustable platform or riser – adjust the level of the surface where the unit is deployed.

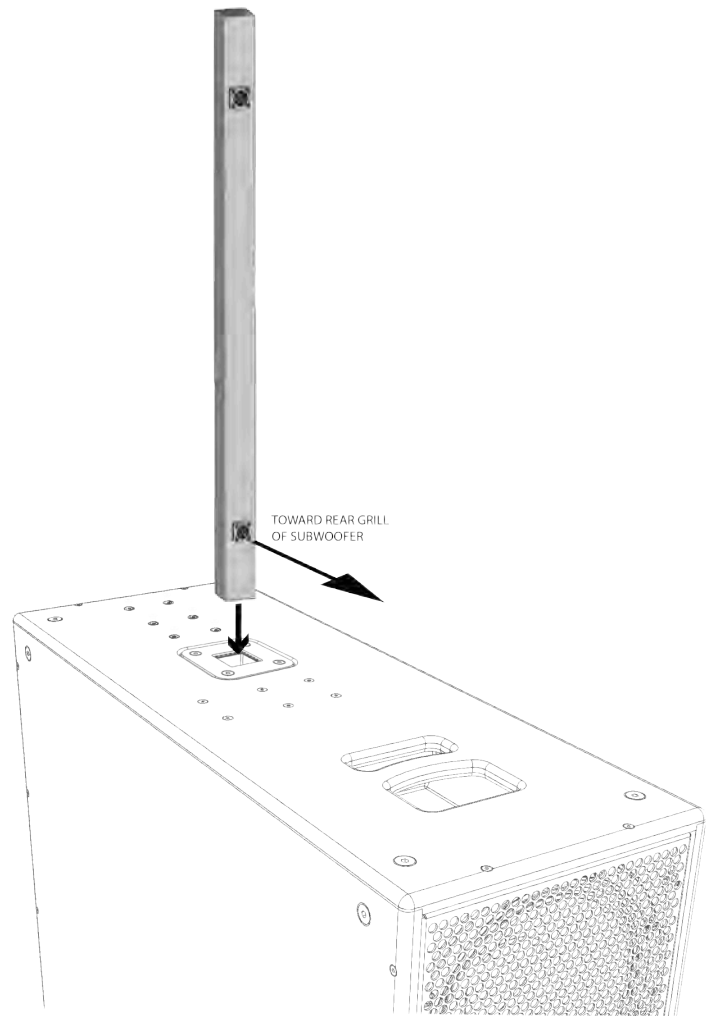
- With all four Subwoofer Outriggers installed, and each of the four adjustable feet of the Outriggers lowered to touch the floor, place a spirit level (or digital level) across the top surface of the subwoofer cabinet, parallel to the front grille of the enclosure. Be careful to avoid placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level side-to-side, adjust the feet of the pair of Outriggers on the side that is lower.
- To raise the side that is lower, the Outrigger feet can be lowered by turning them clockwise (as seen from the top of the cabinet). It may be necessary to tilt the entire subwoofer slightly to raise the outrigger feet off of the floor before turning them. Try to make similar adjustments to each of the pair of feet, returning the subwoofer to rest on the floor after each adjustment and checking the level each time. This process may need to be repeated several times to achieve correct leveling. When this is achieved, proceed to leveling the unit on the front-to-back axis.

Figure 39. CSUB610 front-to-back leveling.



- Once the subwoofer has been leveled side-to-side, place the spirit level across the top surface of the subwoofer cabinet, perpendicular to the front grille of the enclosure, again avoiding placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level front-to-back, adjust the feet of the pair of Outriggers on the side (front or back) that is lower, using the same procedure in Step 3 above. Again, this may need to be repeated several times to achieve correct leveling.
- Once the subwoofer unit has been leveled both side-to-side and front-to-back, check again the leveling on both axes, making any slight adjustments necessary until the cabinet is level both side-to-side and front-to-back.

Figure 40. Installing the 95 cm Active Speaker Tube on the CSUB610.

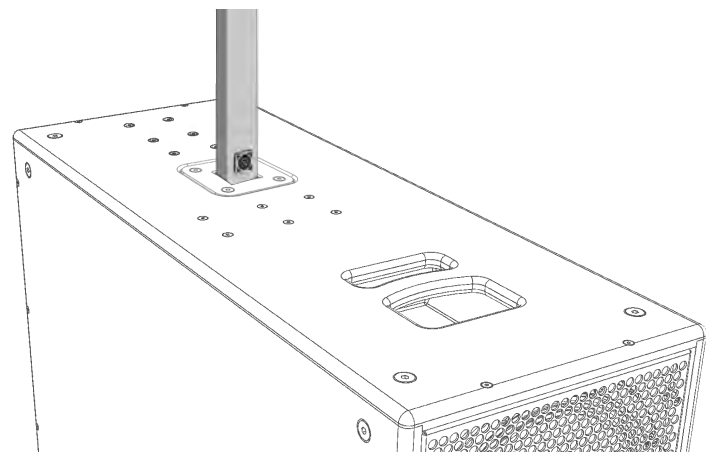


- Align the 95 cm Active Speaker Tube with the Sub Pole Cup installed in the subwoofer, with the SpeakOn connectors oriented toward the rear of the subwoofer cabinet (where the connectors are located).

Installing Active Speaker Tube to CSUB610

In order to deploy an LCC44 unit in a sub/satellite configuration atop a CSUB610 or SUB310 unit with the Sub Pole Cup installed, it is only necessary to insert the Active Speaker Tube into Pole Cup with the SpeakOn connectors facing the rear of the subwoofer cabinet and assure that it is firmly seated in the Pole Cup. For special applications, in order to meet the requirements of the audience's listening height, the 40 cm Speaker Tube can be used in the place of the 95 cm model in this configuration.

Figure 41. Active Speaker Tube installed in CSUB610.



- Lower the Active Speaker Tube to slide into the Sub Pole Cup, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the threaded M20 insert at the bottom of the Pole Cup. The bottom SpeakOn connector of the Speaker Tube should come to a stop at 1 cm above the top of the Sub Pole Cup.

⚠ WARNING



TIPPING HAZARD
 DO NOT USE THE 145 cm ACTIVE SPEAKER TUBE TO MOUNT AN LCC44 UNIT ATOP THE CSUB610 OR SUB310 SUBWOOFER TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, ONLY THE 95 cm ACTIVE SPEAKER TUBE OR 40 cm SPEAKER TUBE TO MOUNT ENCLOSURES IN SUB/SATELLITE CONFIGURATIONS ATOP THE CSUB610 OR SUB310 SUBWOOFER MODELS.

Installing the Tower Tube Mount directly on LCC44

The Tower Tube Mount can be used in two different ways, depending on the requirements of the application. It can be installed directly to an LCC44 or LCC84 unit when the desired coverage can be obtained with the directivity axis of the enclosure parallel (0°) to the floor. Otherwise, when the application requires that the LCC44/84 unit be adjustable in tilt with respect to the floor, the Tower Tube Mount can be attached to a Tower Rigging System rigging plate to allow different tilt angles.

To install the Tower Tube Mount directly to an LCC44 enclosure:

Figure 42. Threaded inserts for Tower Tube Mount on the bottom of LCC44 or LCC84.

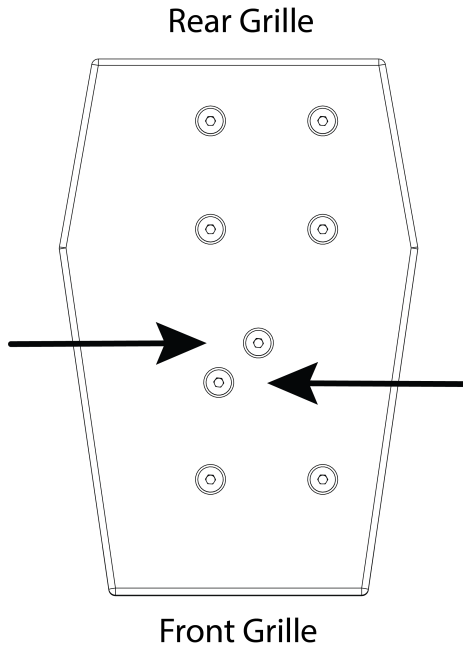
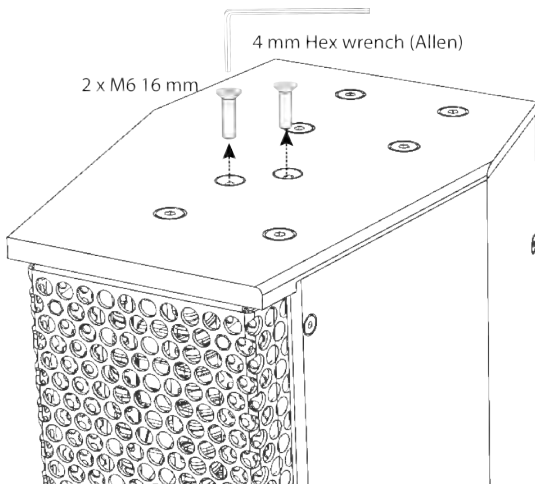
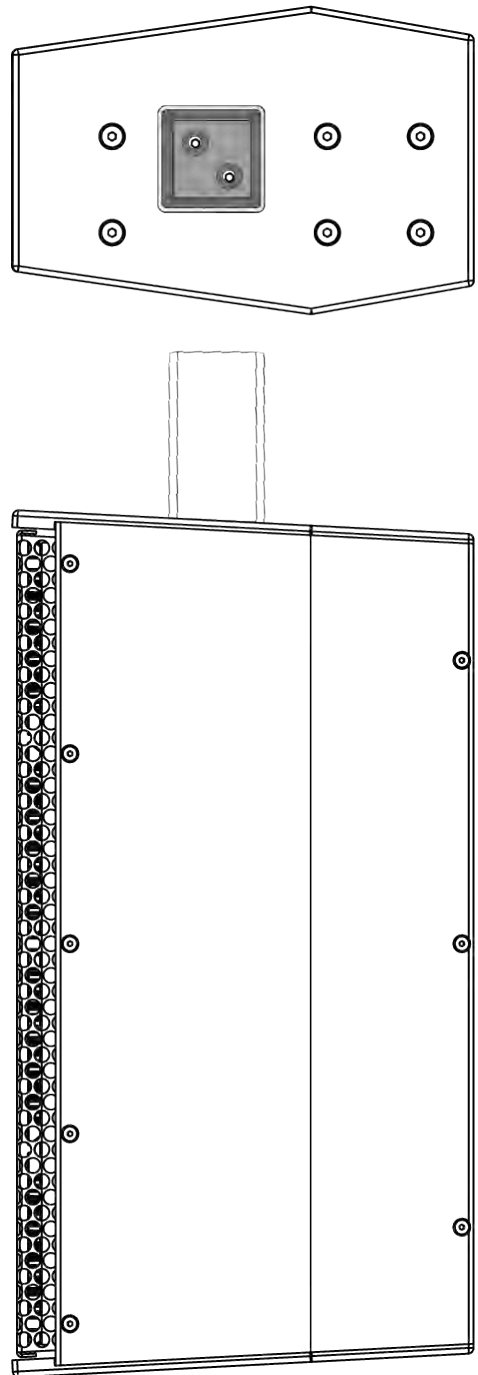


Figure 43. Removing screws from Tower Tube Mount attachment points.



- Invert the LCC44 enclosure and use a 4 mm Allen wrench or hex driver to remove the two M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these aside, as they will be used to mount the Tower Tube Mount.
- Position the Tower Tube Mount upside-down, with the open side up and the countersunk-drilled plate against the bottom of the enclosure, making sure that the -3° angle of the bottom of the enclosure is complemented by the +3° angle of the top plate of the Tower Tube Mount, returning the long side of the Tube Mount to form a straight line parallel to the vertical axis of the enclosure.

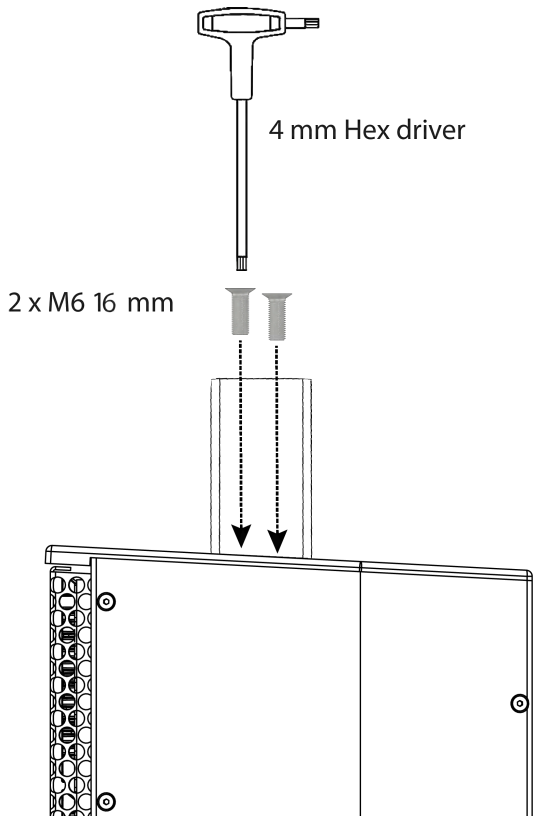
Figure 44. Aligning Tower Tube Mount on LCC44 – top and side view.



- Align the two countersunk holes in the Tower Tube Mount with the threaded inserts in the rigging points from which the screws were removed.
- Carefully thread the two M6x16 mm screws previously removed into the inserts through the holes in the Mount. A magnetized hex driver can facilitate this.

! Important: For permanent or semi-permanent installation of the Tower Tube Mount on the LCC44 enclosure, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 45. Mounting Tower Tube Mount to bottom of LCC44



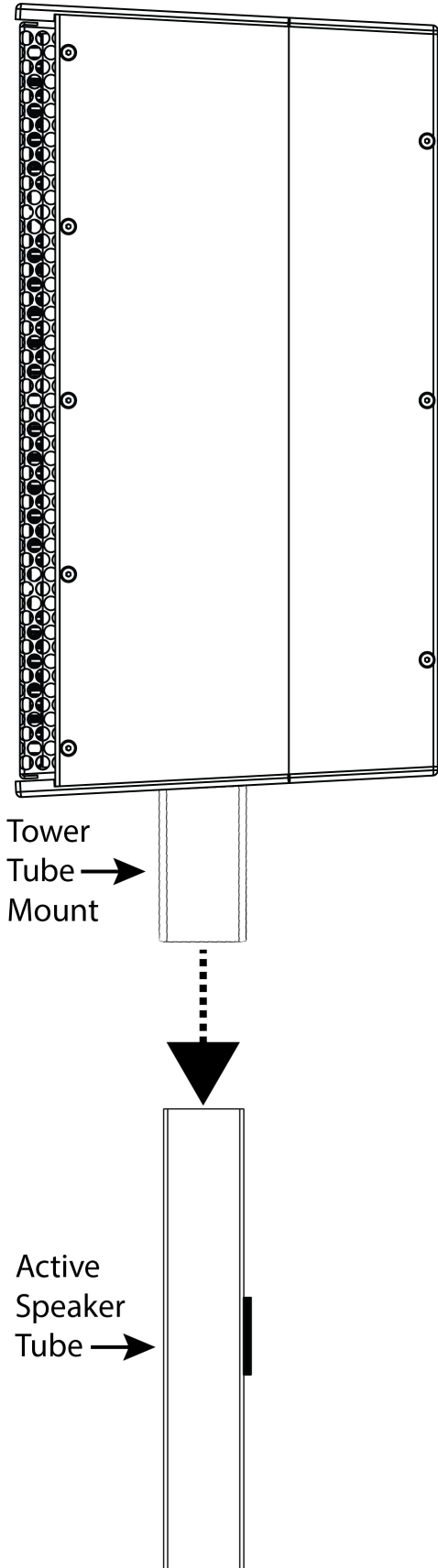
- Using a 4 mm hex driver, tighten the two screws very firmly.

Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount

Once the Tower Tube Mount has been correctly installed directly on an LCC44 enclosure, the enclosure can then be very simply mounted on an Active Speaker Tube, either atop a subwoofer in a sub/satellite configuration, or independently atop an Active Speaker Tube with base.

- Make sure that the 95 cm Active Speaker Tube is properly installed in the CSUB610 or SUB310 (either model equipped with Outriggers and properly leveled and positioned for use) or that the free-standing 175 cm Active Speaker Tube and Base is safely positioned. Then simply lift the LCC44 with the Tower Tube Mount above the Active Speaker Tube and align it in the desired direction. Though not obligatory, this will generally be with the rear of the LCC44 towards the rear of the subwoofer, where the connectors are located.

Figure 46. Mounting LCC44 equipped with Tower Tube Mount to Active Speaker Tube.

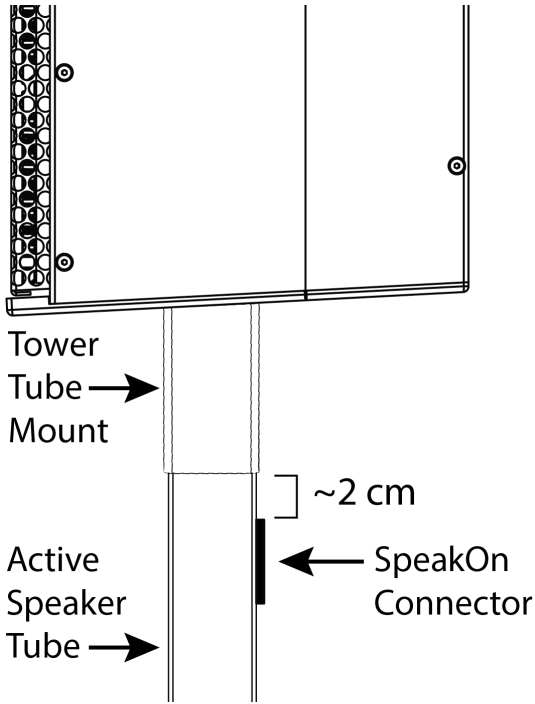


⚠ WARNING	
	<p>Tipping Hazard Improper assembly of the Active Speaker Tube with Base or improper installation of the Active Speaker Tube, Sub Pole Cup, or Subwoofer Outriggers on a subwoofer enclosure, or of the Tower Tube Mount on the LCC44 could create a hazardous or unstable condition when the LCC44 is mounted atop them. Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR A FREE-STANDING SPEAKER STAND WITH AN ENCLOSURE MOUNTED ATOP IT.</p>

⚠ WARNING	
	<p>Tipping Hazard DO NOT USE THE TOWER RIGGING SYSTEM PLATES TOGETHER WITH THE TOWER TUBE MOUNT AND SPEAKER TUBES FOR SUBWOOFER/SATELLITE CONFIGURATIONS ATOP THE SUB12 OR CSUB210 MODELS OR WITH THE ACTIVE SPEAKER TUBE WITH BASE. The use of pole mounted configurations of the LCC44 model enclosure with the inclinable Tower Rigging System plates is possible only atop the CSUB610 or SUB310 model subwoofers.</p>

- Lower the LCC44 enclosure and allow the Active Speaker Tube to slide into the Tower Tube Mount, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the top of the Mount, with the bottom of the Tower Tube Mount coming to 2 cm above the top SpeakOn connector.

Figure 47. LCC44 with Tower Tube Mount installed on Active Speaker Tube.



- Physically assure the stability of the installation and that it will not tip using mild force applied in any direction at the highest point of the assembly.

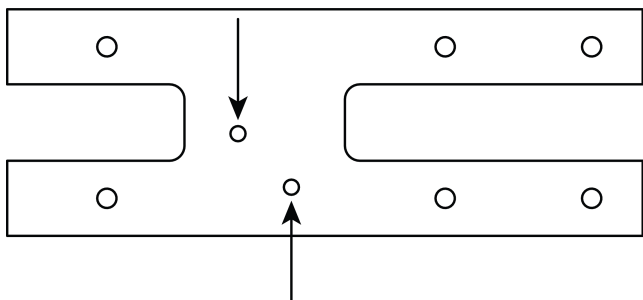
Installing the Tower Tube Mount on a Tower Rigging System Plate

When the application requires that the LCC44/84 unit be adjustable in tilt with respect to the floor, the Tower Tube Mount can be attached to a Tower Rigging System rigging plate to allow different tilt angles. There are two configurations possible for using the Tower Tube Mount with the Tower Rigging System rigging plate: one that allows the coupled satellite enclosure to be tilted -3°, 0° or +3° with respect to the floor, and another that allows only downward angles of -3°, -6° and -9°.

To attach the Tower Tube Mount to a Tower Rigging System rigging plate:

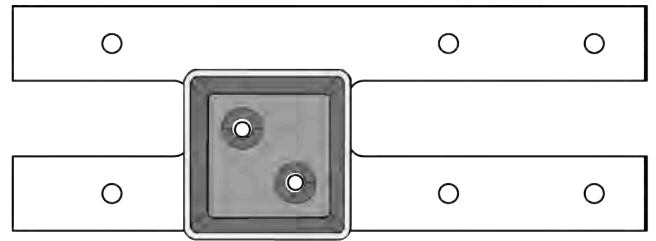
- Lay the Tower Rigging System plate flat with the uniform surface up.

Figure 48. Mounting holes for Tower Tube Mount on the Tower Rigging System plate.



- Position the Tower Tube Mount upside-down, with the open side up and the countersunk-drilled plate against the bottom of the rigging plate, in one of the two positions shown in the figures, depending on the coverage required.
- Align the two countersunk holes in the Tower Tube Mount with the threaded holes in the plate shown in the figures, making sure to achieve the desired tilt angle possibilities.

Figure 49. Tower Tube Mount on Rigging plate for 0°, -3° and +3° tilt.



Possible tilt angles of coupled LCC44

+3°
0°
-3°

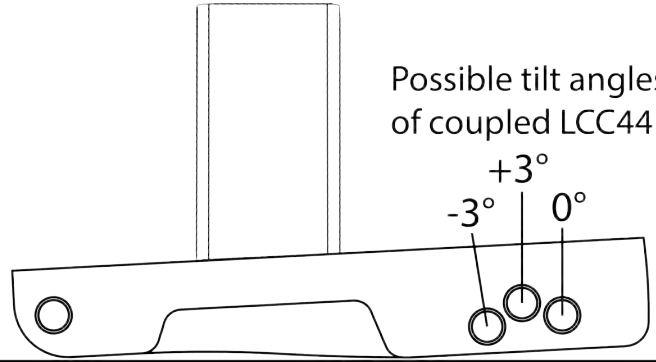
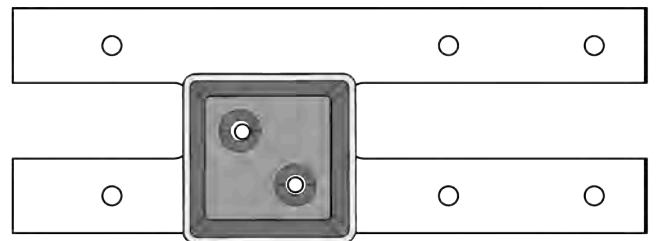
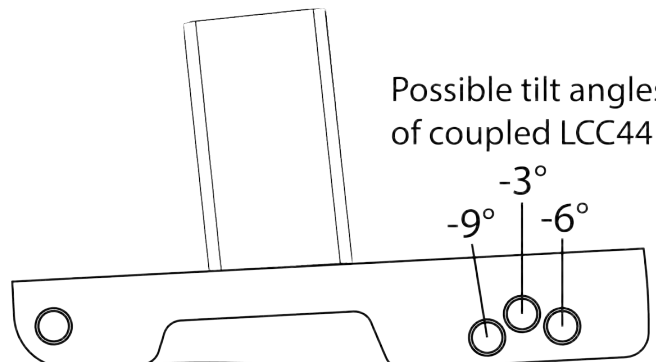


Figure 50. Tower Tube Mount on Rigging plate for -3°, -6° and -9° tilt.



Possible tilt angles of coupled LCC44

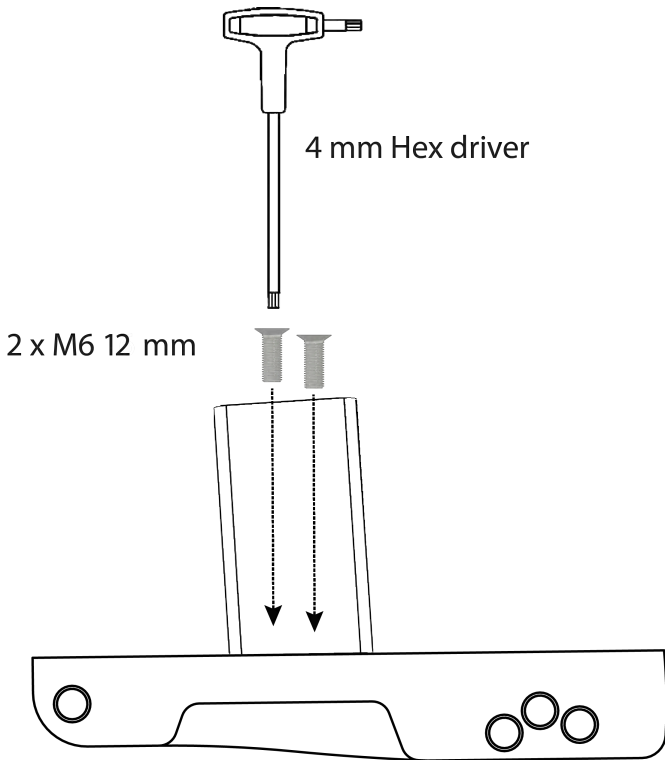
-3°
-6°
-9°



- Carefully thread the two M6 x 12 mm screws supplied with the Tower Tube Mount into the inserts through the holes in the Mount. A magnetized hex driver can facilitate this.

! Important: For permanent or semi-permanent installation of the Tower Tube Mount on the LCC44 enclosure, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 51. Attaching the Tower Tube Mount to the Tower Rigging System Plate



- Using a 4 mm hex driver, tighten the two screws very firmly.

Installing Rigging Plate on LCC44/84

In order to couple LCC44 or LCC84 units to each other, directly to a subwoofer, or to allow for variable tilt angles of the enclosure in sub/satellite configurations using the Tower Tube mount and Active Speaker Tube, the speaker enclosure needs to be equipped with Tower Rigging System plates.

If the LCC44 or LCC84 unit is not pre-equipped with Rigging Plates, these can be mounted by the user.

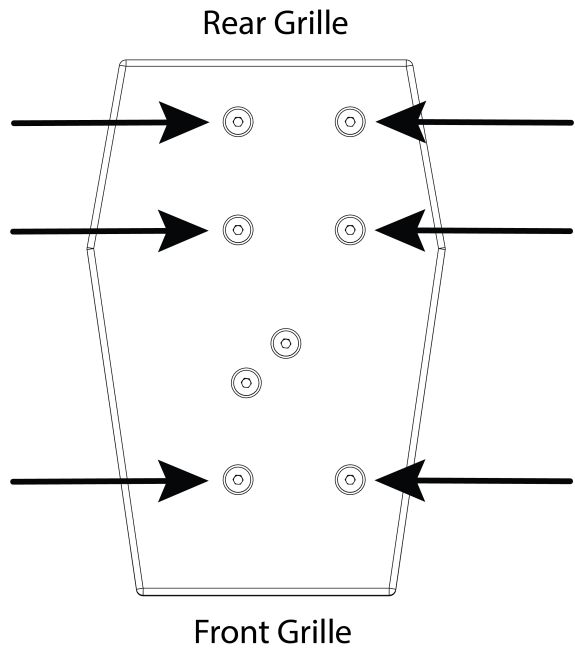
! Attention: For the installation of the Rigging Plates on the LCC44 or LCC84 enclosure, the use of medium-strength threadlocking compound is **REQUIRED** on all user-installed screws.

! WARNING



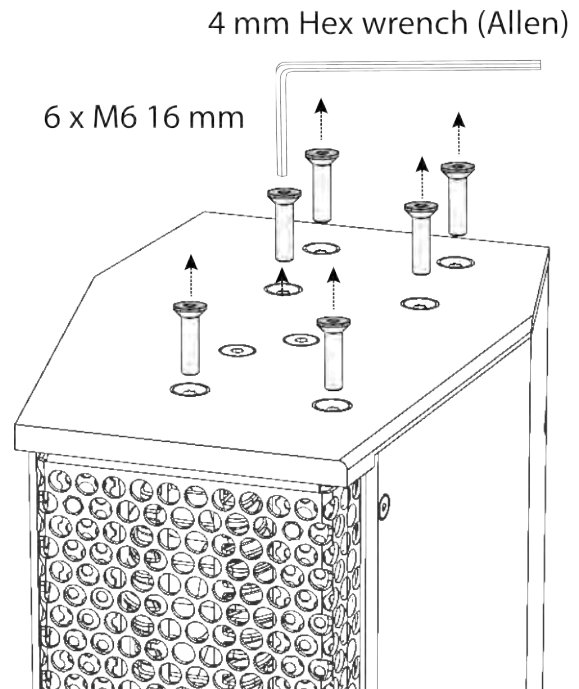
NOT FOR SUSPENDED LOADS
 For flown deployments of the LCC44 or LCC84 enclosures, use only units with factory-installed rigging plates. LCC44 or LCC84 units with user-installed rigging plates are only suitable for ground-stacked or pole-mounted deployments.

Figure 52. Threaded inserts for Rigging Plate on the bottom of LCC44 or LCC84.



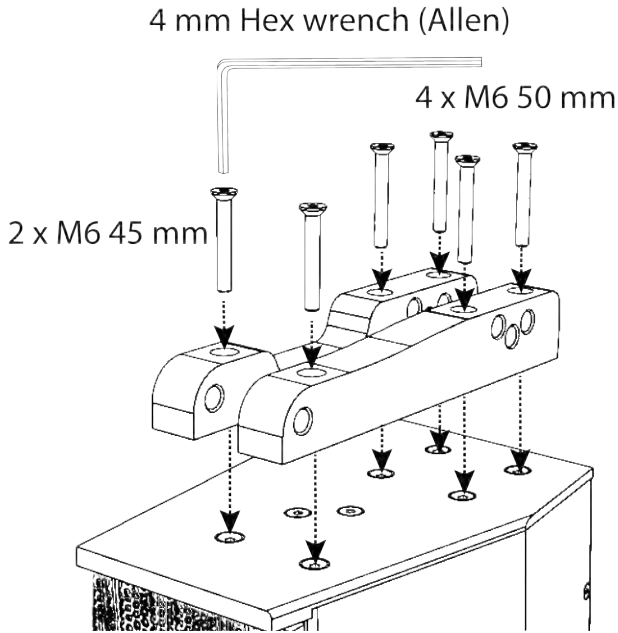
- Invert the LCC44/84 enclosure, bottom-side-up.

Figure 53. Removing the screws from the LCC44/84 Rigging System mounting points.



- Use a 4 mm Allen wrench or hex driver to remove the six M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these screws aside, as they will be replaced by the screws supplied with the rigging plates.
- Position one of the rigging plates as shown on the bottom surface of the LCC44/84, aligning the six countersunk holes in the rigging plate with the threaded inserts in the rigging points from which the screws were removed.
- Insert two of the (shorter) M6x45 mm screws (supplied with the rigging plates) into the two holes in the rigging plate positioned **nearest the front grille of the enclosure**, and thread them into the underlying threaded inserts in the LCC44/84 without tightening them.
- Insert four of the (longer) M6x50 mm screws (supplied with the rigging plates) into the four holes in the rigging plate nearer the rear grille of the LCC44/84. Thread these, without tightening them, into the underlying threaded inserts in the enclosure.

Figure 54. Installing Tower Rigging System Plate to LCC44



- Using a 4 mm hex key (Allen type) with a length that allows for sufficient leverage, tighten the screws into the inserts in opposing pairs to firmly attach the rigging plate to the CSUB610. The plate should be perfectly flush with the cabinet at every point and there should be no movement possible.

If the LCC44 or LCC84 unit is being deployed as a single unit in a sub/satellite configuration atop a subwoofer using a Tower Tube Mount equipped with a rigging plate, or as a single unit (with no further enclosures above it) directly atop a subwoofer equipped with a rigging plate, it is not necessary to mount the second rigging plate on the top of the enclosure.

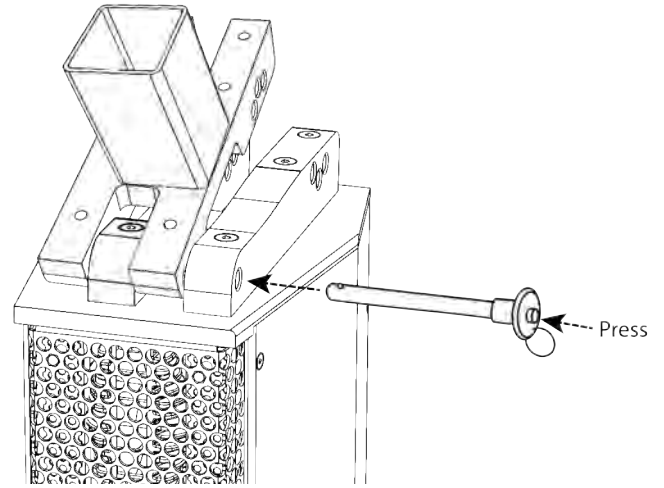
- If, instead, the LCC44 or LCC84 unit is to be used with further units installed above it in a stacked configuration, it will be necessary to install the second rigging plate. If necessary, invert the LCC44/84 unit and repeat Steps 2 through 6 above.

Coupling Tower Tube Mount and LCC44 using the Tower Rigging System

When using the Tower Rigging System together with an Active Speaker Tube for a sub/satellite or a free-standing configuration of the LCC44 enclosure with adjustable tilt, it is necessary to have an LCC44 unit equipped with a rigging plate(s), as well as a second rigging plate with the Tower Tube Mount installed. Though it is possible to couple these and adjust the tilt angle while the Tower Tube Mount and Rigging Plate are already mounted on the Speaker Tube, it is much more convenient to carry out this process beforehand and then mount the entire assembly, with the tilt angle already set, atop the Active Speaker Tube.

- Position the LCC44 with a rigging plate installed on the bottom, upside-down (Rigging Plate side up) on a floor or table.
- Invert the Tube Mount+Rigging Plate assembly (Tube Mount up) and interlock the forward sections of the two rigging plates in a manner that the Tower Tube Mount is laterally centered over the enclosure (the two plates will not fully interlock in any other condition), and align the forward coupling holes of the two rigging plates.

Figure 55. Coupling the rigging plates between LCC44 and Tower Tube Mount.



- When these are perfectly aligned, take one of the M10x100 ball-lock pins supplied with the rigging plates and press the lock release on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release. When the front of the plates are coupled, it should be possible to freely tilt the upper plate (with the Tube Mount installed) with respect to the LCC44. This done, it is possible to fix the tilt angle of the speaker enclosure.

Setting tilt angle of LCC44 with Tower Tube Mount and Rigging Plates

There are two configurations possible for using the Tower Tube Mount with the Tower Rigging System rigging plate: one that allows the coupled satellite enclosure to be tilted -3°, 0° or +3° with respect to the floor, and another that allows only downward angles of -3°, -6° and -9°.

- With the two plates coupled by the forward ball-lock pin, tilt the upper plate (with the tower tube mount installed) so as to align the rear holes of the two plates that correspond to the desired tilt angle.

Figure 56. Setting tilt angle with the Tower Tube Mount configured for -3°, 0° and +3°.

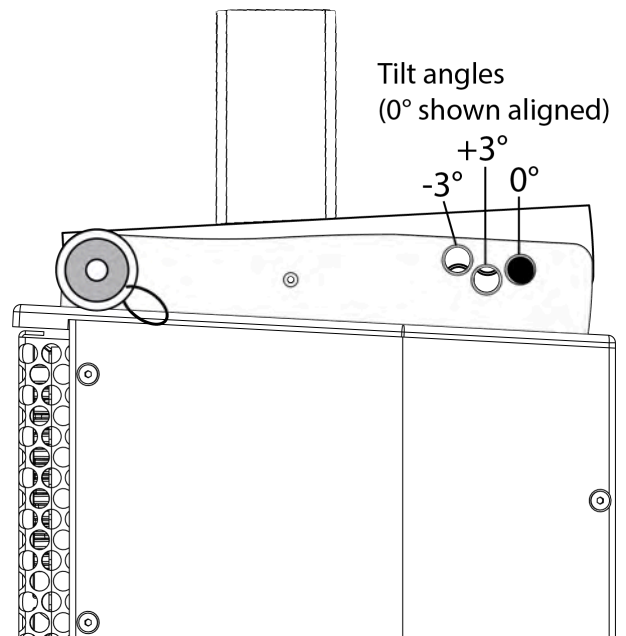


Figure 57. Setting tilt angle with the Tower Tube Mount configured for -3°, -6° and -9°.

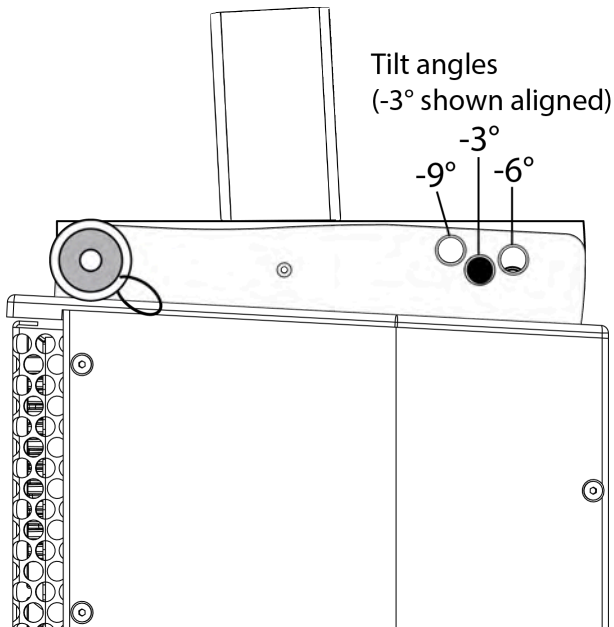
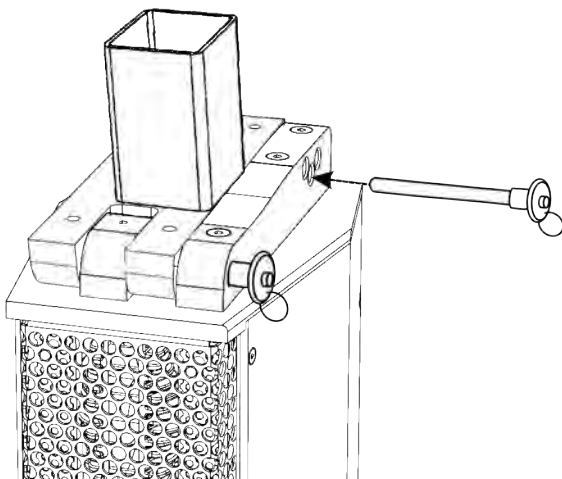


Figure 58. Fixing tilt angle of Tower Rigging System and Tower Tube Mount (-3° shown)



- When the required holes are perfectly aligned, take the other M10x100 ball-lock pin supplied with the rigging plates and press the lock-release button on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, release the button to allow the lock to engage and assure that the pin cannot be removed without again pressing the release. The enclosure is now coupled at the proper angle to the mounting assembly and ready to mount on an Active Speaker Tube.

Mounting LCC44 on Active Speaker Tube using the Tower Rigging System

Once the Tower Tube Mount has been correctly assembled with a Rigging Plate, coupled with an LCC44 enclosure likewise equipped with a rigging plate and the tilt angle has been fixed, the enclosure can then be very simply mounted on an Active Speaker Tube, either atop a CSUB610 or SUB310 subwoofer in a sub/satellite configuration, or independently atop an Active Speaker Tube with base.

⚠ WARNING

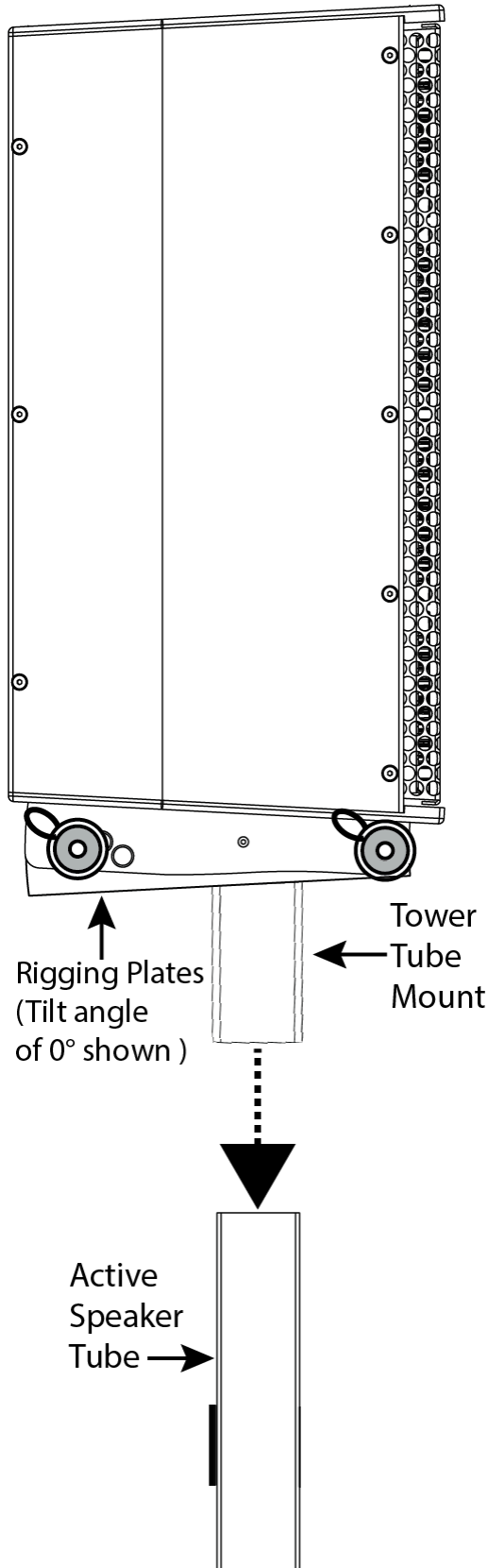
Tipping Hazard
Improper assembly of the Active Speaker Tube with Base or improper installation of the Active Speaker Tube, Sub Pole Cup, or Subwoofer Outriggers on a subwoofer enclosure, or of the Tower Tube Mount on the LCC44 could create a hazardous or unstable condition when the LCC44 is mounted atop them. Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. **DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR A FREE-STANDING SPEAKER STAND WITH AN ENCLOSURE MOUNTED ATOP IT.**

⚠ WARNING

Tipping Hazard
DO NOT USE THE TOWER RIGGING SYSTEM PLATES TOGETHER WITH THE TOWER TUBE MOUNT AND SPEAKER TUBES FOR SUBWOOFER/SATELLITE CONFIGURATIONS ATOP THE SUB12 OR CSUB210 MODELS OR WITH THE ACTIVE SPEAKER TUBE WITH BASE. The use of pole mounted configurations of the LCC44 model enclosure with the inclinable Tower Rigging System plates is possible only atop the CSUB610 or SUB310 model subwoofers.

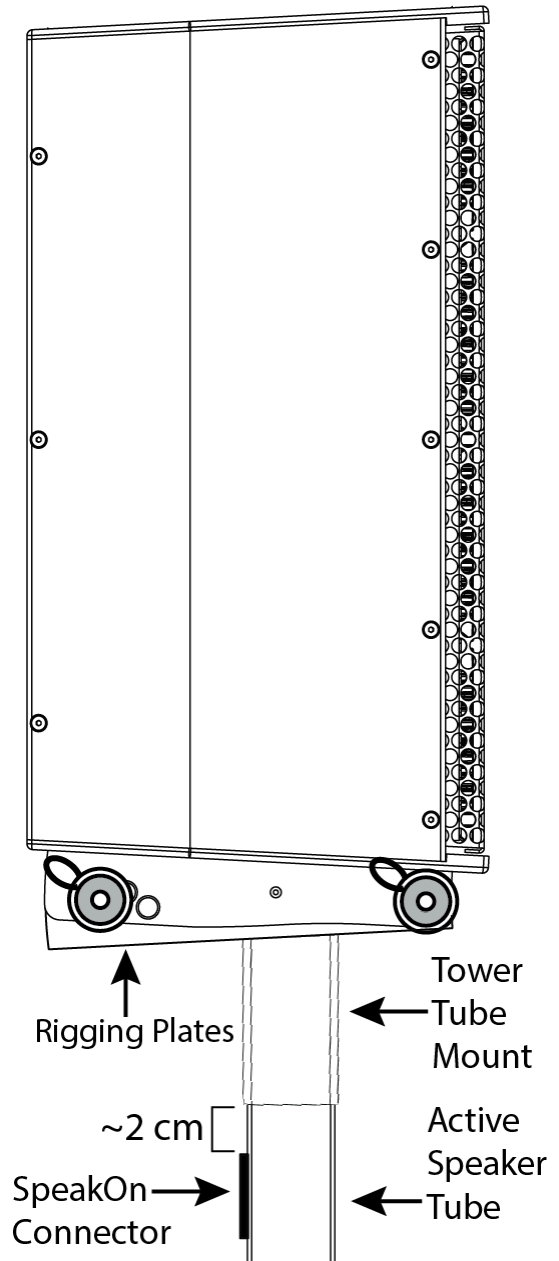
- Make sure that the 95 cm Active Speaker Tube is properly installed in the CSUB610 or SUB310 (either model equipped with Outriggers and properly leveled and positioned for use) or that the free-standing 175 cm Active Speaker Tube and Base is safely positioned. Then simply lift the LCC44 with the Tower Tube Mount above the Speaker Tube and align it in the desired direction. Though not obligatory, this will generally be with the rear of the LCC44 towards the rear of the subwoofer, where the connectors are located.

Figure 59. Mounting LCC44 equipped with Rigging Plates and Tower Tube Mount to Active Speaker Tube.



- Lower the LCC44 enclosure and allow the Active Speaker Tube to slide into the Tower Tube Mount, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the top of the Mount, with the bottom of the Tower Tube Mount coming to 2 cm above the top SpeakOn connector.

Figure 60. LCC44 with Rigging Plates and Tower Tube Mount installed on Active Speaker Tube.



- Physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.

Adjusting tilt

Though it is preferable to set the tilt angle of the enclosure before mounting the LCC44 atop the Active Speaker Tube, it is possible to adjust the tilt angle of the enclosure using the Tower rigging System when it is already mounted on the Speaker Tube.

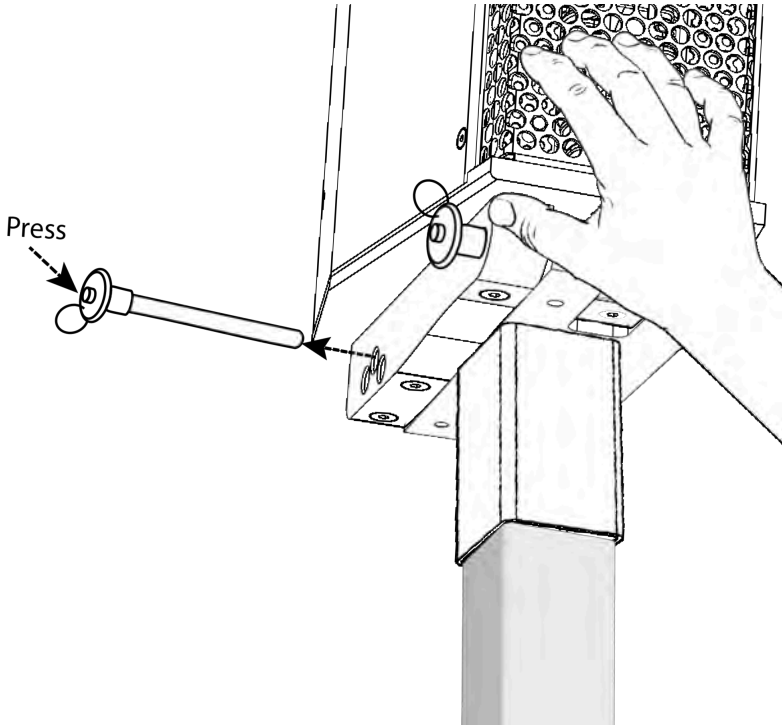
⚠ WARNING



TIPPING HAZARD – Two People Required
 When adjusting the tilt angle of an LCC44 unit while it is mounted on an Active Speaker Tube, either free-standing or atop a subwoofer, a sudden uncontrolled tipping of the LCC44 could render the entire assembly unstable and cause it to fall.
 To reduce the risk of injury or damage that could result from possible toppling of loudspeaker enclosures, DO NOT attempt this adjustment alone. One person should maintain control of the LCC44 at all times, while a second operator should carry out the tilt adjustment.

⚠ WARNING	
	<p>Risk of Hand Injury When adjusting the tilt angle of an LCC44 or the splay angle between two units, do not allow your fingers to enter the space between the two rigging plates or any of the holes.</p>

Figure 61. Adjusting tilt of LCC44 while installed on an Active Speaker Tube.



- While one person firmly holds the LCC44 unit, the second person can release and remove the ball-lock pin from the rear of the rigging plates. **DO NOT REMOVE BOTH PINS.**
- With one person maintaining at all times the LCC44, simply adjust the tilt of the enclosure to align the set of holes in the two rigging plates that correspond to the desired angle.
- Re-insert the ball-lock pin into the appropriate holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release.

Figure 62. Adjusting tilt of LCC44 on Tower Tube Mount in +3°, 0°, -3° configuration.

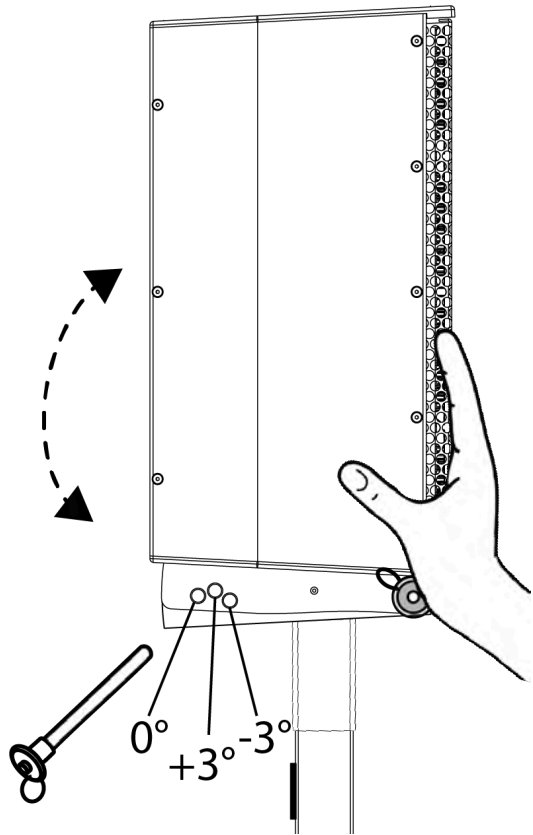
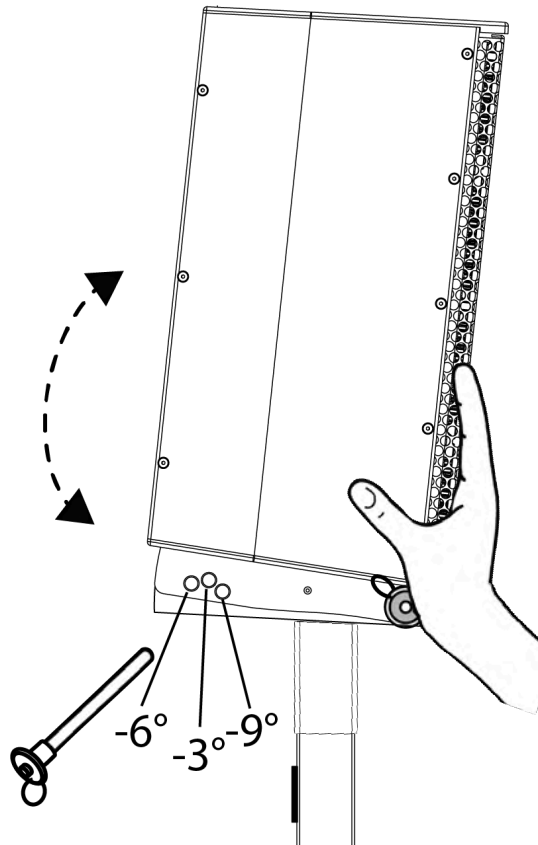


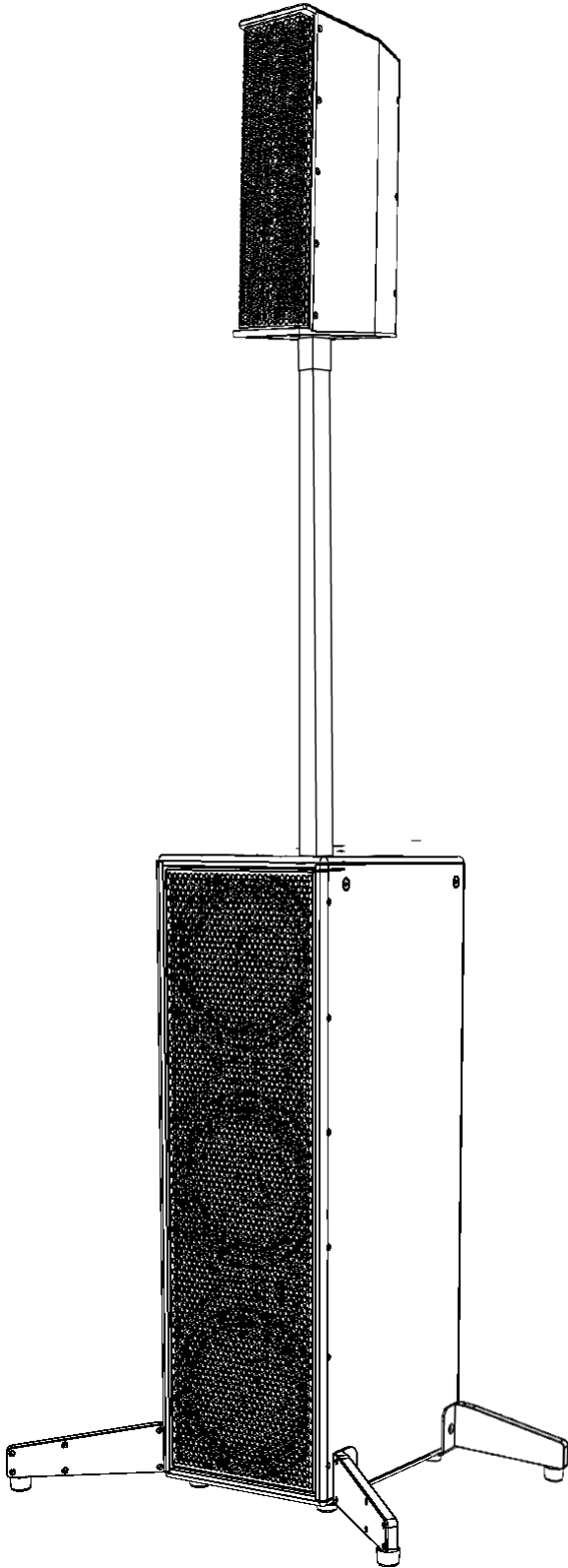
Figure 63. Adjusting tilt of LCC44 on Tower Tube Mount in -3°, -6°, -9° configuration.



- Before releasing the enclosure and allowing the assembly to stand on its own, physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.

Chapter 5. Deploying LCC44 on Active Speaker Tube atop SUB310

Figure 64. LCC44 deployed atop SUB310 using the 95 cm Active Speaker Tube and Tower Tube Mount.



Critical information

! **Attention:** This equipment is intended for installation by qualified professionals.

📢 Notice: Please read these instructions carefully and completely before attempting deployment of speaker enclosures on floor stands.

⚠️ WARNING



Tipping Hazard

Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. Exercise extreme care when assembling speaker arrays, as a stack of them toppling or collapsing creates a risk of serious injury or death, as well as likely damage to the enclosures themselves and nearby equipment.

📢 Notice: This product must be installed in compliance with all applicable local, state and national regulatory provisions. The responsibility rests with the installer to verify that the installation is carried out in accordance with any applicable legislation.

! **Important:** The installer must assess the appropriate stability and sturdiness of the deployment surface.

🚫 Restriction: Only hardware and accessories included with the product or specified by 1 Sound should be used for its installation.

🚫 Restriction: Do not modify or alter the loudspeaker or any accessory. Any modification by the user or installer could render the product or the installation unsafe.

🚫 Restriction: Do not install a loudspeaker or any accessory near any open flame or heat source.

Products, accessories and tools required

To deploy an LCC44 enclosure as a satellite on a SUB310 bass unit using an Active Speaker Tube you will need the following:

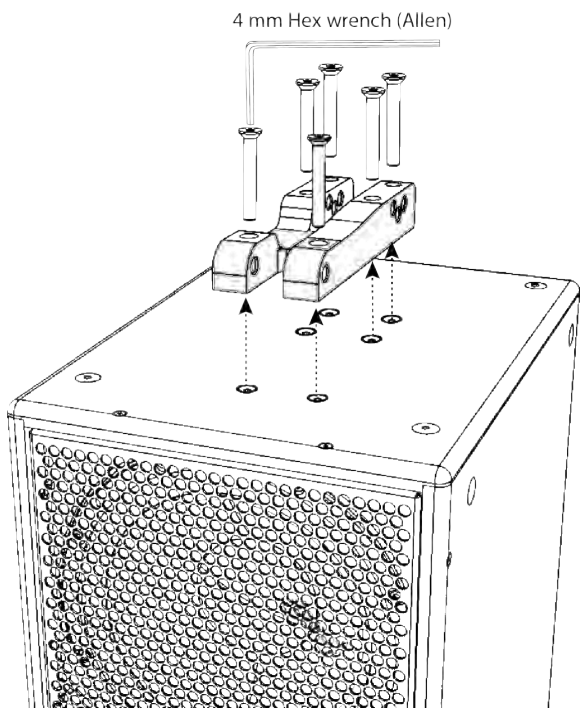
- An [LCC44 \(on page 4\)](#) loudspeaker enclosure
- A [SUB310 \(on page 5\)](#) subwoofer enclosure
- The [Sub Pole Cup \(on page 8\)](#) adapter flange kit
- The [Subwoofer Outrigger \(on page 9\)](#) stabilizing leg kit
- The [95 cm Active Speaker Tube \(on page 7\)](#) or the [40 cm Passive Speaker Tube \(on page 7\)](#)
- The [Tower Tube Mount \(on page 7\)](#) adapter kit
- A 5 mm Allen wrench
- A 4 mm hex driver at least 10 cm long, preferably magnetized
- A 4 mm Allen wrench
- Threadlocking compound
- **Optional:** [Tower Rigging System Plates \(on page 8\)](#)
- **Recommended:** Spirit level

Procedures

Installing Sub Pole Cup on SUB310

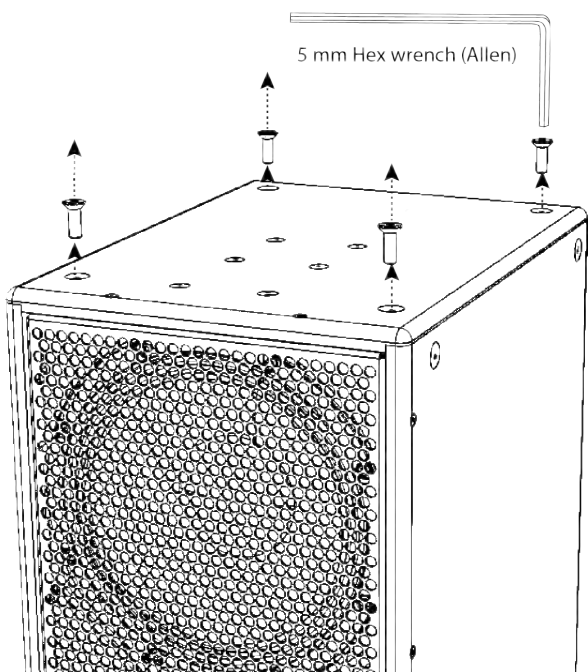
In order to deploy an LCC44 unit in a sub/satellite configuration atop a SUB310 or CSUB610 subwoofer unit, the subwoofer must first be equipped with a Sub Pole Cup. The compact SUB310 model is designed for use with either the Tower Rigging System or with the Active Speaker Tube. If the SUB310 is already equipped with a Sub Pole Cup, you can proceed to the [installation of the outriggers \(on page 31\)](#). If, instead, the SUB310 is equipped with a rigging plate, or if it is configured to be deployed with the rigging plate side up, it will first be necessary to remove the rigging plate and to mount the rubber feet on the opposite side of the cabinet.

Figure 65. Removing the Tower Rigging System Plate from SUB310.



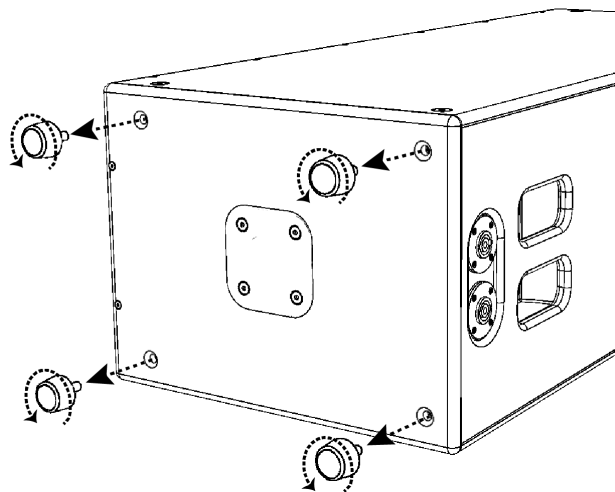
- If the rigging plate is installed, stand the SUB310 in the upright position (rigging plate up) use a 4 mm hex wrench to remove the six countersunk M6 screws that hold the rigging plate. The plate can then be simply removed and put aside, along with the M6 screws that held it in place. If the original M6x16 mm screws used to cap the six mounting inserts are available, it is good practice to replace them.

Figure 66. Removing the four screws from the rigging points for the rubber feet.



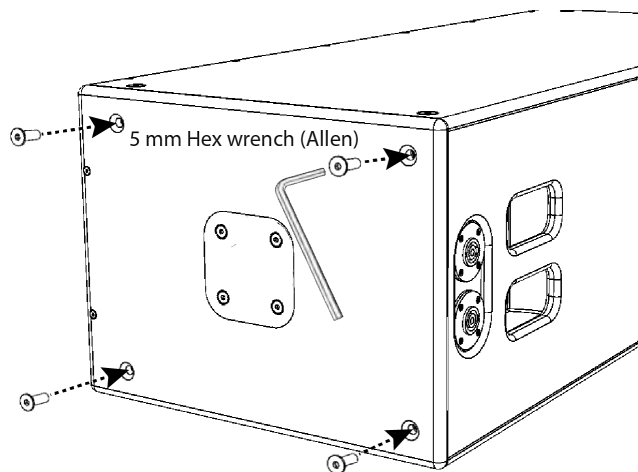
- If the SUB310 has been previously configured for upright use with the Tower Rigging System, it will still need to be inverted and the rubber feet re-installed on the opposite end before installing the Sub Pole Cup. To begin this procedure, while the SUB310 is still upright (rigging plate side up), use a 5 mm hex wrench to remove the four countersunk M8x25 mm screws from the rigging points in the four corners of top side of the cabinet. Keep these screws.
- Lay the SUB310 on one of the long sides, taking whatever necessary precautions to avoid damaging the finish of the cabinet or the grill. Both of the smaller (40 cm x 30 cm) faces of the cabinet should be accessible.

Figure 67. Removing rubber feet from SUB310.



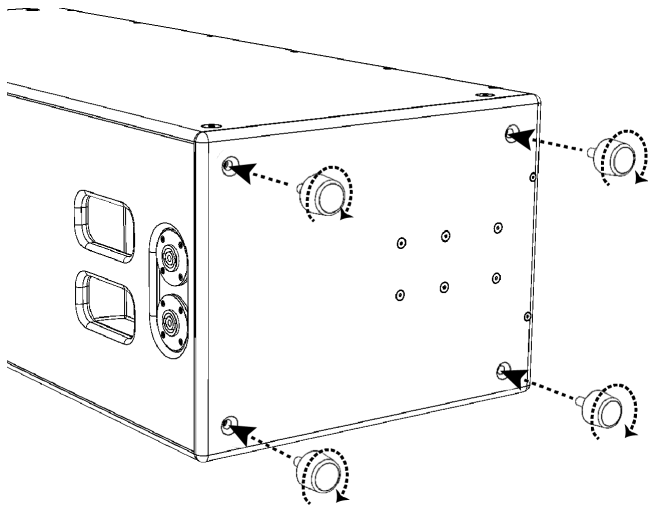
- Unscrew and remove the four rubber feet from the end of the cabinet that is predisposed for the installation of the Sub Pole Cup.
- Insert and thread the four countersunk M8x25 mm screws into the rigging points from which the four rubber feet were removed. Use the 5 mm hex wrench to lightly tighten these.

Figure 68. Replacing the M8 screws in the rigging points.



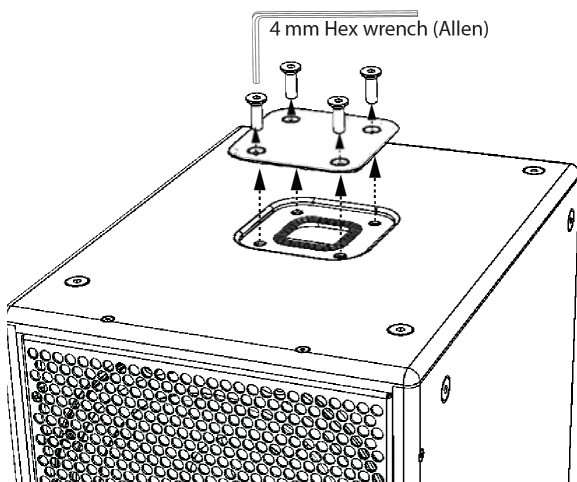
- Insert and thread the four rubber feet removed above into the corresponding rigging points on the opposite end of the cabinet. Tighten these firmly by hand.

Figure 69. Installing the rubber feet on the SUB310.



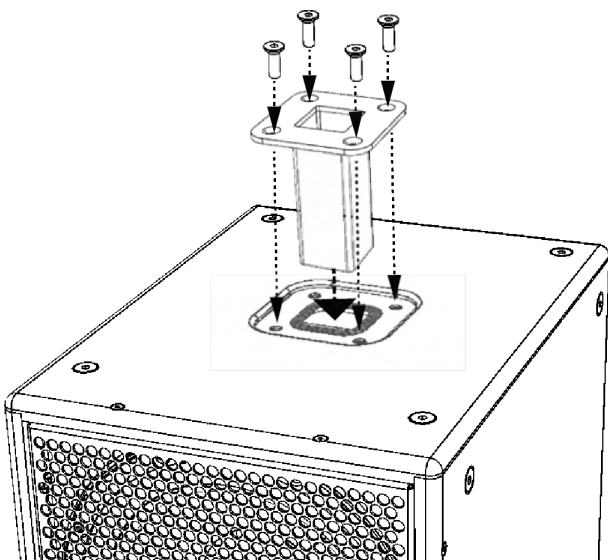
- The cabinet can now be raised to the upright position, this time with the cover plate for the Sub Pole Cup mount on the top.
- To install the Sub Pole Cup, first use a 4 mm hex wrench to remove the four M6x20 mm countersunk screws that hold the cover plate in place. When these are removed, remove the cover plate as well and put it aside.

Figure 70. Removing the cover plate for Sub Pole Cup installation.



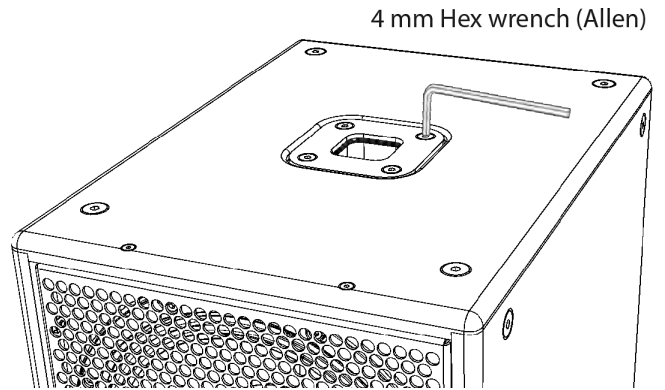
- Insert the Sub Pole Cup flange into the recess in the cabinet and seat it firmly.

Figure 71. Installing the Sub Pole Cup on SUB310



- Re-insert the screws that retained the plate into the four countersunk holes in the Sub Pole Cup, and thread them into the inserts below the cup.

Figure 72. Tightening the screws holding the Sub Pole Cup.



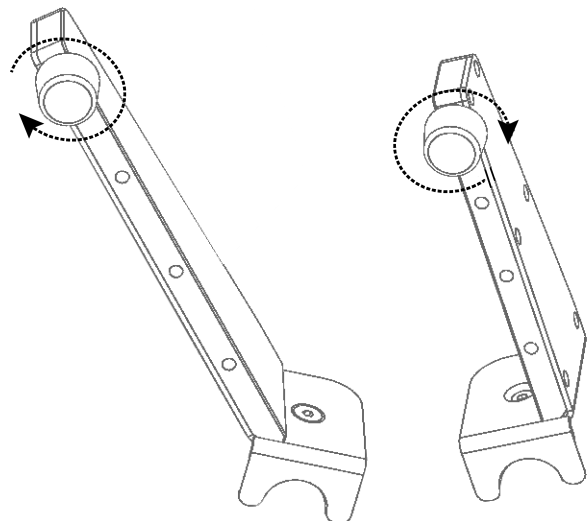
- Again, using the 4 mm hex wrench, tighten the four screws firmly.

Installing Outriggers on the SUB310

Installing the subwoofer outriggers improves the stability of the CSUB610 or SUB310 when deployed vertically on the floor. The outriggers are recommended in any application in which the subs are deployed in public areas where people could bump into them or lean on them. These are also REQUIRED in any application in which other loudspeaker enclosures are coupled to the subwoofer in an upright position.

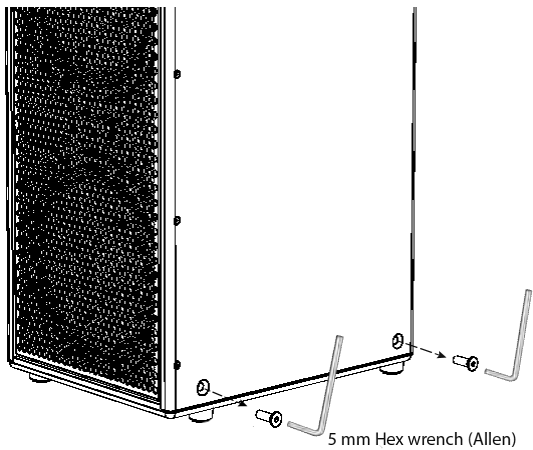
⚠ WARNING	
	TIPPING HAZARD
	Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, THE INSTALLATION OF THE SUBWOOFER OUTRIGGERS ON THE SUB310 AND CSUB610 IS REQUIRED WHENEVER ONE OR MORE LOUDSPEAKER ENCLOSURES IS MOUNTED ATOP ONE OF THESE UNITS, EITHER IN A STACKED CONFIGURATION USING THE TOWER RIGGING SYSTEM OR IN A SUB/SATELLITE CONFIGURATION USING A SPEAKER POLE.

Figure 73. Raising the leveling feet of the Outriggers.



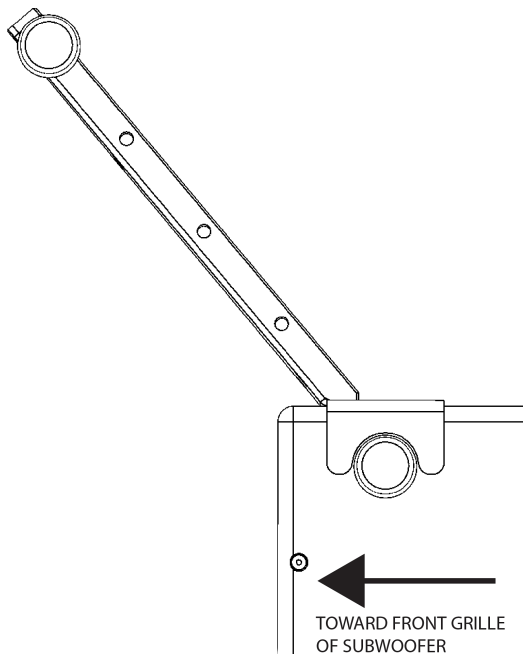
- Before installation, on each of the four Outriggers, raise the leveling feet by screwing them in completely.

Figure 74. Removing rigging point screws from SUB310 for the installation of the Sub Outriggers



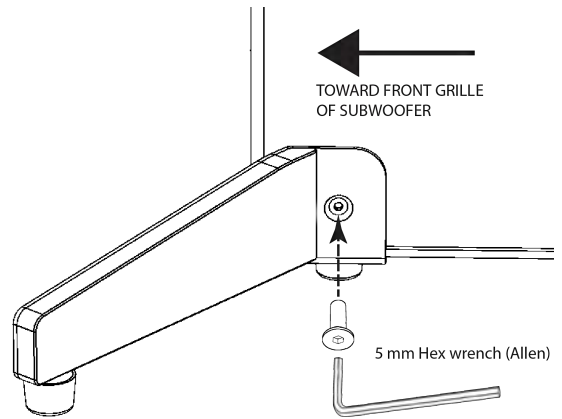
- Using a 5 mm hex wrench, remove the two bottom rigging point screws from one long side of the SUB310 cabinet.

Figure 75. Aligning forward Outrigger on SUB310 (bottom view).



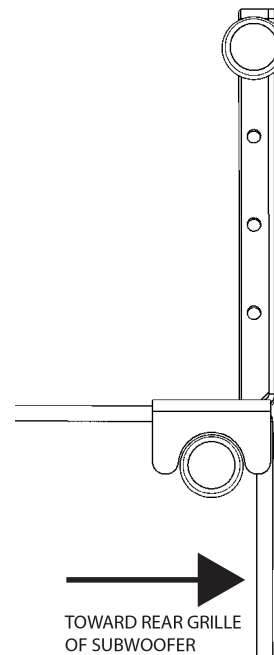
- Align the mounting hole of the longer 50° Outrigger with the bottom rigging point nearest the front grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Figure 76. Aligning forward Outrigger on SUB310 (side view)



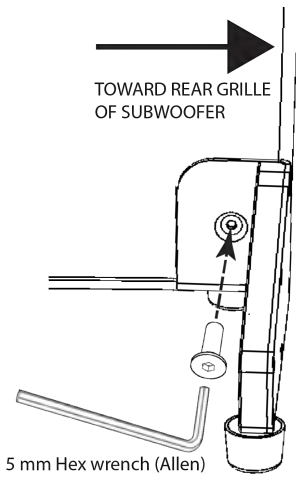
- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.

Figure 77. Aligning rear Outrigger on SUB310 (bottom view)



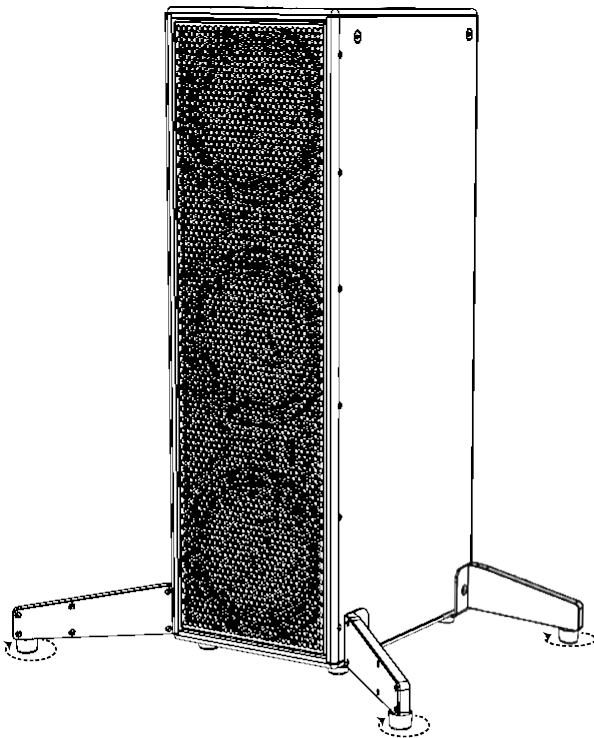
- Align the mounting hole of the shorter 90° Outrigger with the bottom rigging point nearest the rear grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Figure 78. Aligning rear Outrigger on SUB310 (side view).



- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.
- Repeat steps 2 – 6 on the opposite side of the SUB310.

Figure 79. Lowering the Outrigger feet.



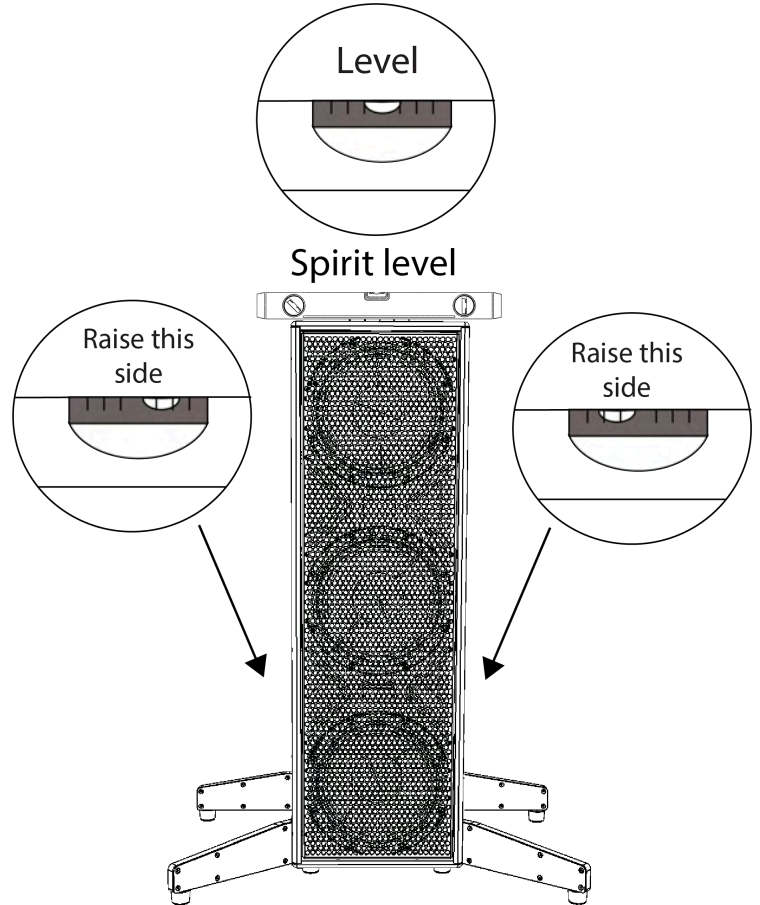
- Turn the leveling feet of each outrigger to lower it just to rest firmly against the floor.

Leveling SUB310

Once the Subwoofer Outriggers are securely installed, it is possible to use them for fine adjustments to assure that the subwoofer unit is properly leveled, which is especially important when other speaker enclosures are to be deployed atop the subwoofer.

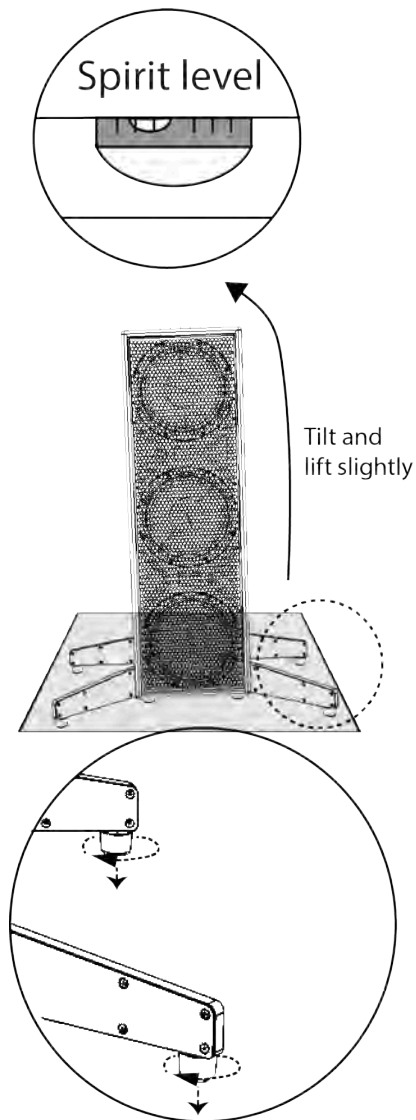
⚠ CAUTION	
	<p>Tipping Hazard The Subwoofer Outriggers can be used to apply minor adjustments to the leveling of the SUB310 or CSUB610 subwoofer units. DO NOT install any speaker enclosures atop a subwoofer in any configuration if the subwoofer can not be properly leveled in its position.</p> <p>If the subwoofer cannot be properly leveled using the Outrigger feet, it is necessary to adjust the surface supporting the subwoofer (floor, stage deck, riser etc.) in order to level it before deployment. It is the responsibility of the installation personnel to verify and guarantee the safety of the installation.</p>

Figure 80. SUB310 Side-to-side leveling.



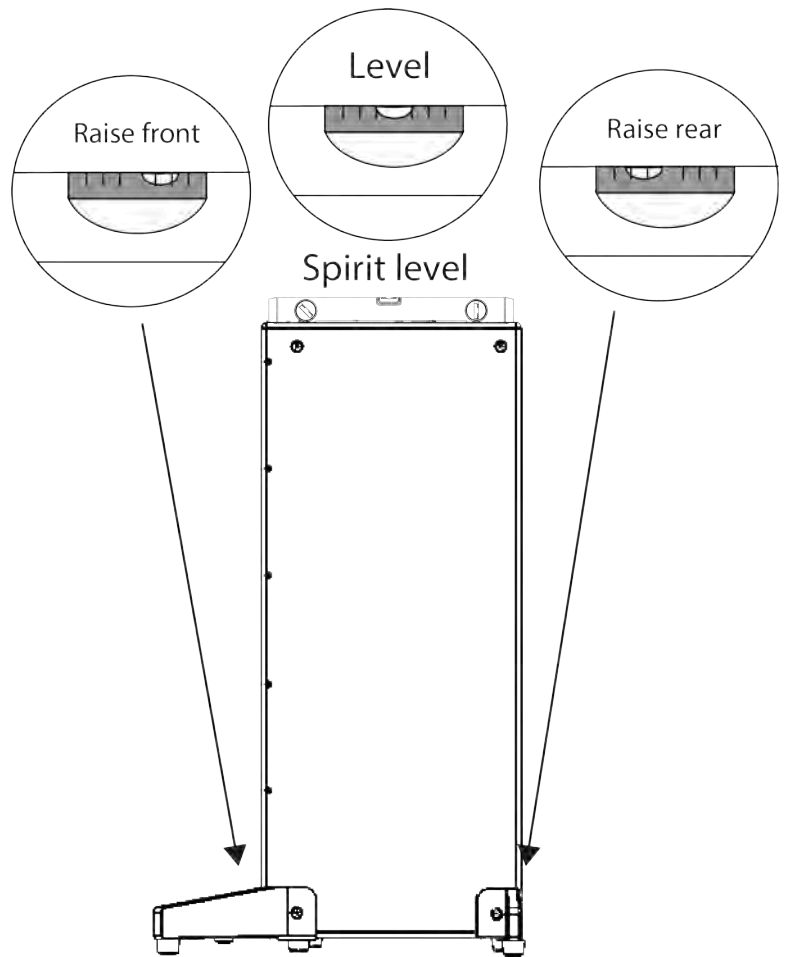
- With all four Subwoofer Outriggers installed, and each of the four adjustable feet of the Outriggers lowered to touch the floor, place a spirit level (or digital level) across the top surface of the subwoofer cabinet, parallel to the front grille of the enclosure. Be careful to avoid placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level side-to-side, adjust the feet of the pair of Outriggers on the side that is lower.
- To raise the side that is lower, the Outrigger feet can be lowered by turning them clockwise (as seen from the top of the cabinet). It may be necessary to tilt the entire subwoofer slightly to raise the outrigger feet off of the floor before turning them. Try to make similar adjustments to each of the pair of feet, returning the subwoofer to rest on the floor after each adjustment and checking the level each time. This process may need to be repeated several times to achieve correct leveling. When this is achieved, proceed to leveling the unit on the front-to-back axis.

Figure 81. Leveling SUB310 side-to-side – example.



! **Important:** If any of the Outrigger foot being adjusted reaches its limit (completely lowered) before the subwoofer can be properly leveled on any axis, it will be necessary to stop this procedure and either reposition the subwoofer or – where possible, such as on an adjustable platform or riser – adjust the level of the surface where the unit is deployed.

Figure 82. SUB310 front-to-back leveling.



- Once the subwoofer has been leveled side-to-side, place the spirit level across the top surface of the subwoofer cabinet, perpendicular to the front grille of the enclosure, again avoiding placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level front-to-back, adjust the feet of the pair of Outriggers on the side (front or back) that is lower, using the same procedure in Step 3 above. Again, this may need to be repeated several times to achieve correct leveling.
- Once the subwoofer unit has been leveled both side-to-side and front-to-back, check again the leveling on both axes, making any slight adjustments necessary until the cabinet is level both side-to-side and front-to-back.

Installing Active Speaker Tube on SUB310

In order to deploy an LCC44 unit in a sub/satellite configuration atop a CSUB610 or SUB310 unit with the Sub Pole Cup installed, it is only necessary to insert the Active Speaker Tube into Pole Cup with the SpeakOn connectors facing the rear of the subwoofer cabinet and assure that it is firmly seated in the Pole Cup. For special applications, in order to meet the requirements of the audience's listening height, the 40 cm Speaker Tube can be used in the place of the 95 cm model in this configuration.

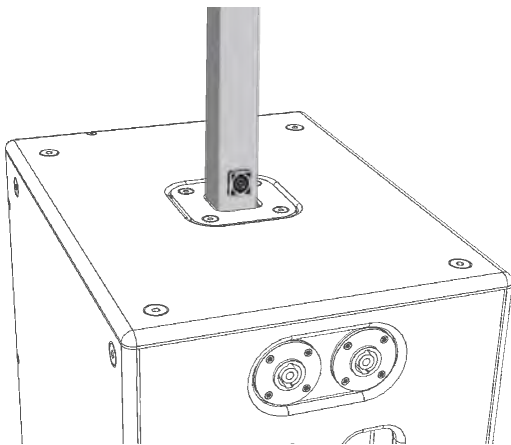
⚠ WARNING	
	<p>TIPPING HAZARD DO NOT USE THE 145 cm ACTIVE SPEAKER TUBE TO MOUNT AN LCC44 UNIT ATOP THE CSUB610 OR SUB310 SUBWOOFER TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, ONLY THE 95 cm ACTIVE SPEAKER TUBE OR THE 40 cm SPEAKER TUBE TO MOUNT ENCLOSURES IN SUB/SATELLITE CONFIGURATIONS ATOP THE CSUB610 OR SUB310 SUBWOOFER MODELS.</p>

Figure 83. Installing the 95 cm Active Speaker Tube on the SUB310.



- Align the 95 cm Active Speaker Tube with the Sub Pole Cup installed in the subwoofer, with the SpeakOn connectors oriented toward the rear of the subwoofer cabinet (where the connectors are located).

Figure 84. Active Speaker Tube installed in SUB310.



- Lower the Active Speaker Tube to slide into the Sub Pole Cup, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the threaded M20 insert at the bottom of the Pole Cup. The bottom SpeakOn connector of the Speaker Tube should come to a stop at 1 cm above the top of the Sub Pole Cup.

Installing the Tower Tube Mount directly on LCC44

The Tower Tube Mount can be used in two different ways, depending on the requirements of the application. It can be installed directly to an LCC44 or LCC84 unit when the desired coverage can be obtained with the directivity axis of the enclosure parallel (0°) to the floor. Otherwise, when the application requires that the LCC44/84 unit be adjustable in tilt with respect to the floor, the Tower Tube Mount can be attached to a Tower Rigging System rigging plate to allow different tilt angles.

To install the Tower Tube Mount directly to an LCC44 enclosure:

Figure 85. Threaded inserts for Tower Tube Mount on the bottom of LCC44 or LCC84.

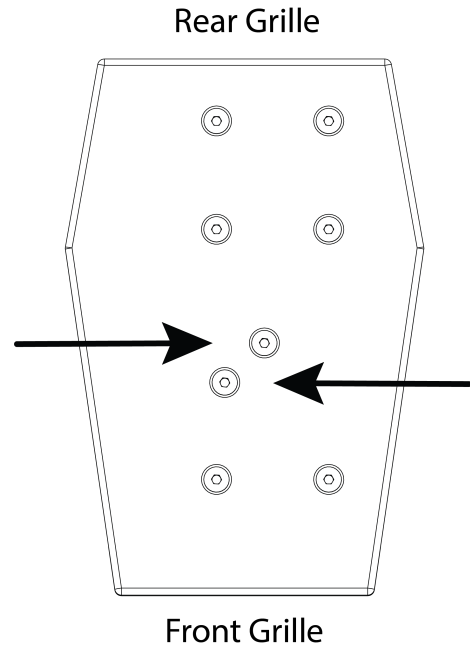
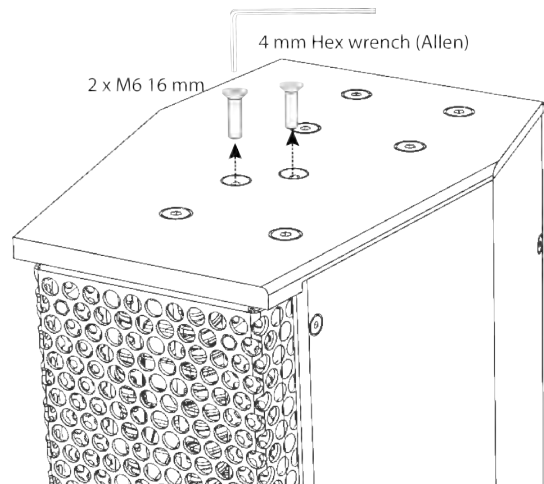
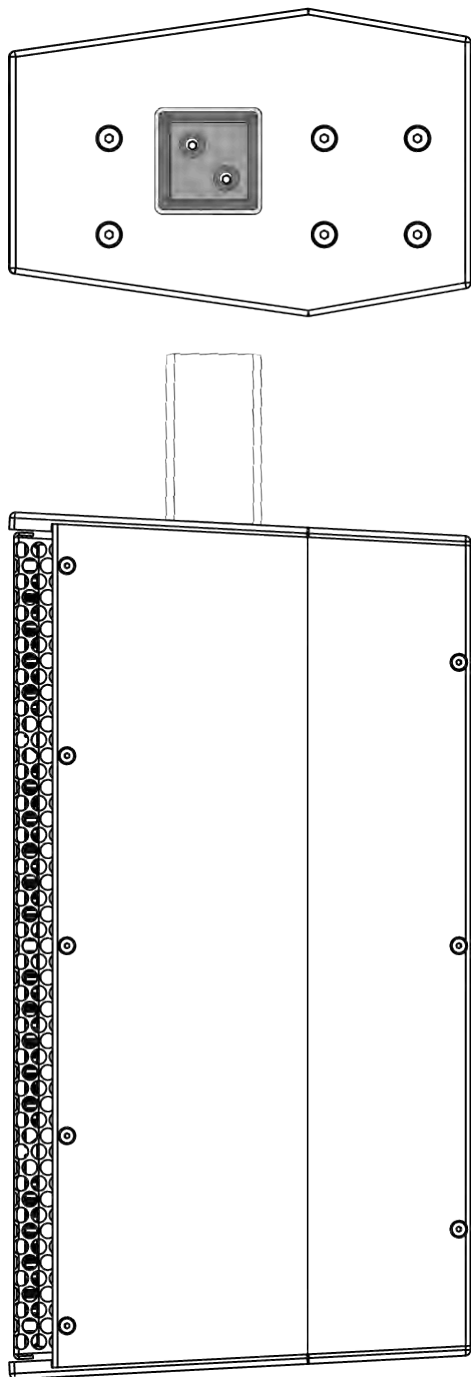


Figure 86. Removing screws from Tower Tube Mount attachment points.



- Invert the LCC44 enclosure and use a 4 mm Allen wrench or hex driver to remove the two M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these aside, as they will be used to mount the Tower Tube Mount.
- Position the Tower Tube Mount upside-down, with the open side up and the countersunk-drilled plate against the bottom of the enclosure, making sure that the -3° angle of the bottom of the enclosure is complemented by the +3° angle of the top plate of the Tower Tube Mount, returning the long side of the Tube Mount to form a straight line parallel to the vertical axis of the enclosure.

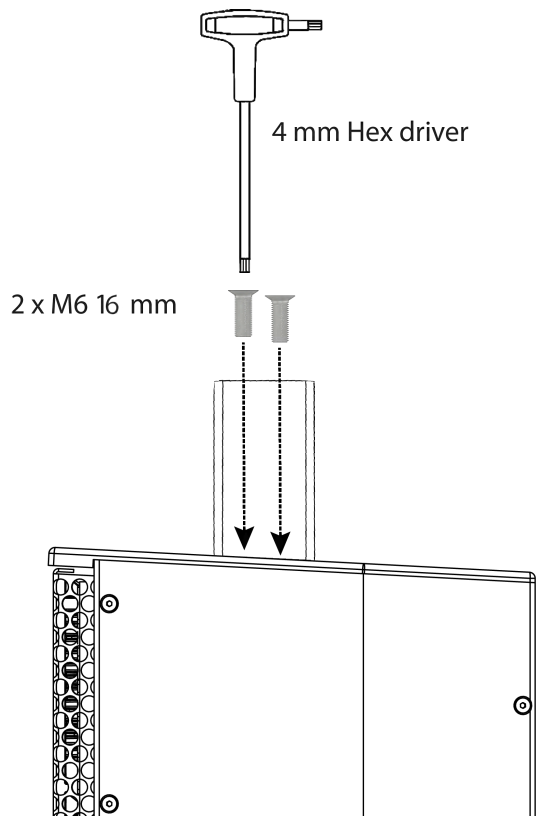
Figure 87. Aligning Tower Tube Mount on LCC44 – top and side view.



- Align the two countersunk holes in the Tower Tube Mount with the threaded inserts in the rigging points from which the screws were removed.
- Carefully thread the two M6x16 mm screws previously removed into the inserts through the holes in the Mount. A magnetized hex driver can facilitate this.

! **Important:** For permanent or semi-permanent installation of the Tower Tube Mount on the LCC44 enclosure, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 88. Mounting Tower Tube Mount to bottom of LCC44



- Using a 4 mm hex driver, tighten the two screws very firmly.

Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount

Once the Tower Tube Mount has been correctly installed directly on an LCC44 enclosure, the enclosure can then be very simply mounted on an Active Speaker Tube, either atop a subwoofer in a sub/satellite configuration, or independently atop an Active Speaker Tube with base.

⚠ WARNING



Tipping Hazard
 Improper assembly of the Active Speaker Tube with Base or improper installation of the Active Speaker Tube, Sub Pole Cup, or Subwoofer Outriggers on a subwoofer enclosure, or of the Tower Tube Mount on the LCC44 could create a hazardous or unstable condition when the LCC44 is mounted atop them. Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. **DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR A FREE-STANDING SPEAKER STAND WITH AN ENCLOSURE MOUNTED ATOP IT.**

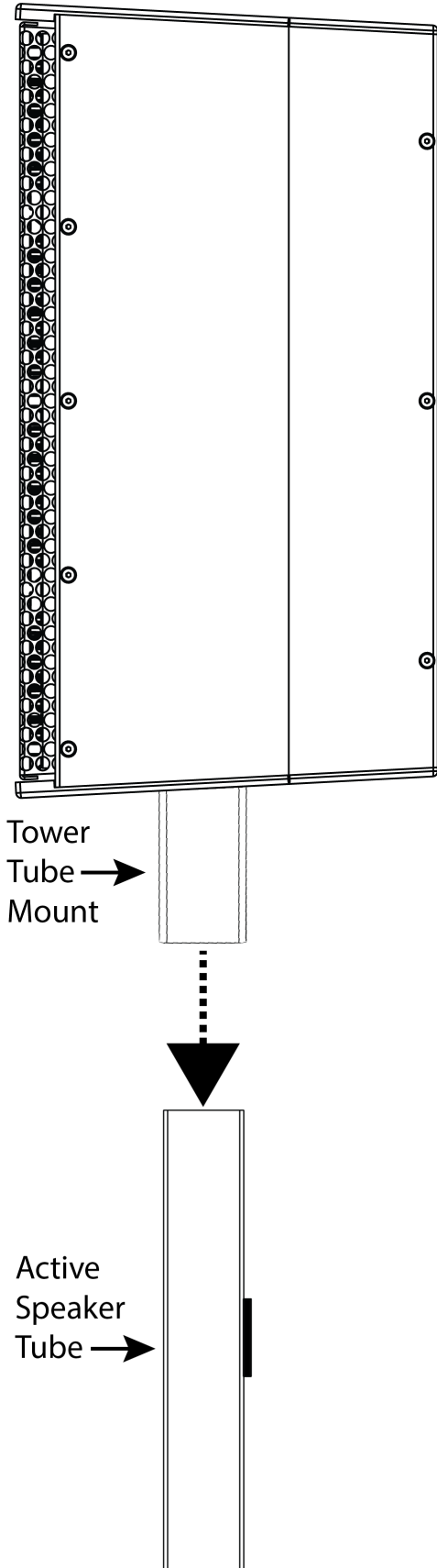
⚠ WARNING



Tipping Hazard
DO NOT USE THE TOWER RIGGING SYSTEM PLATES TOGETHER WITH THE TOWER TUBE MOUNT AND SPEAKER TUBES FOR SUBWOOFER/SATELLITE CONFIGURATIONS ATOP THE SUB12 OR CSUB210 MODELS OR WITH THE ACTIVE SPEAKER TUBE WITH BASE.
 The use of pole mounted configurations of the LCC44 model enclosure with the inclinable Tower Rigging System plates is possible only atop the CSUB610 or SUB310 model subwoofers.

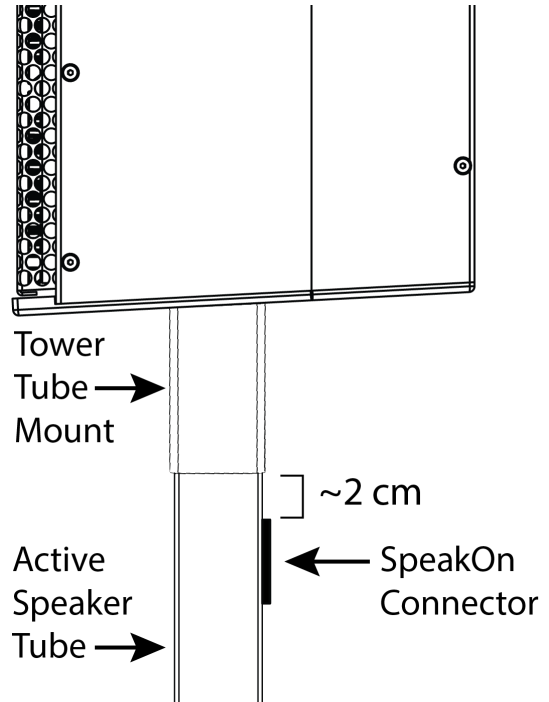
- Make sure that the 95 cm Active Speaker Tube is properly installed in the CSUB610 or SUB310 (either model equipped with Outriggers and properly leveled and positioned for use) or that the free-standing 175 cm Active Speaker Tube and Base is safely positioned. Then simply lift the LCC44 with the Tower Tube Mount above the Active Speaker Tube and align it in the desired direction. Though not obligatory, this will generally be with the rear of the LCC44 towards the rear of the subwoofer, where the connectors are located.

Figure 89. Mounting LCC44 equipped with Tower Tube Mount to Active Speaker Tube.



- Lower the LCC44 enclosure and allow the Active Speaker Tube to slide into the Tower Tube Mount, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the top of the Mount, with the bottom of the Tower Tube Mount coming to 2 cm above the top SpeakOn connector.

Figure 90. LCC44 with Tower Tube Mount installed on Active Speaker Tube.



- Physically assure the stability of the installation and that it will not tip using mild force applied in any direction at the highest point of the assembly.

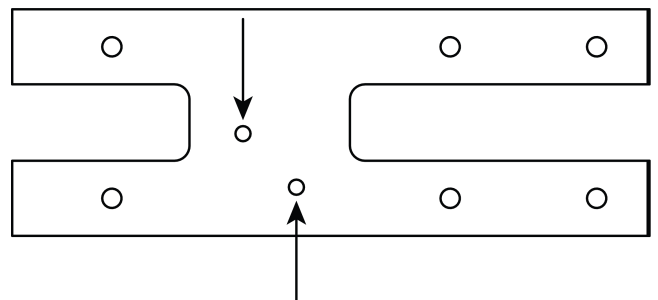
Installing the Tower Tube Mount on a Tower Rigging System Plate

When the application requires that the LCC44/84 unit be adjustable in tilt with respect to the floor, the Tower Tube Mount can be attached to a Tower Rigging System rigging plate to allow different tilt angles. There are two configurations possible for using the Tower Tube Mount with the Tower Rigging System rigging plate: one that allows the coupled satellite enclosure to be tilted -3°, 0° or +3° with respect to the floor, and another that allows only downward angles of -3°, -6° and -9°.

To attach the Tower Tube Mount to a Tower Rigging System rigging plate:

- Lay the Tower Rigging System plate flat with the uniform surface up.

Figure 91. Mounting holes for Tower Tube Mount on the Tower Rigging System plate.



- Position the Tower Tube Mount upside-down, with the open side up and the countersunk-drilled plate against the bottom of the rigging plate, in one of the two positions shown in the figures, depending on the coverage required.
- Align the two countersunk holes in the Tower Tube Mount with the threaded holes in the plate shown in the figures, making sure to achieve the desired tilt angle possibilities.

Figure 92. Tower Tube Mount on Rigging plate for 0°, -3° and +3° tilt.

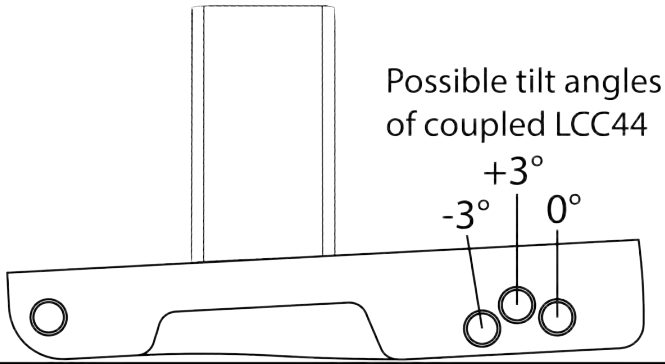
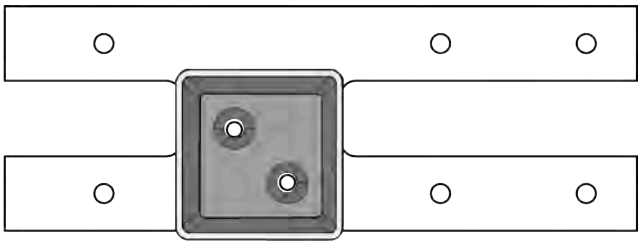
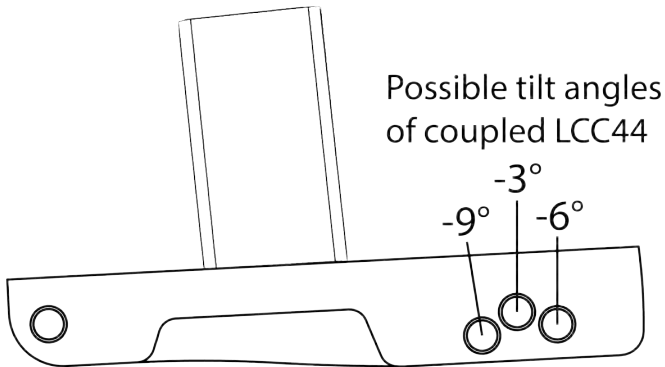
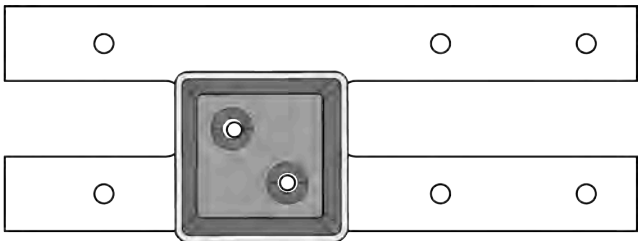


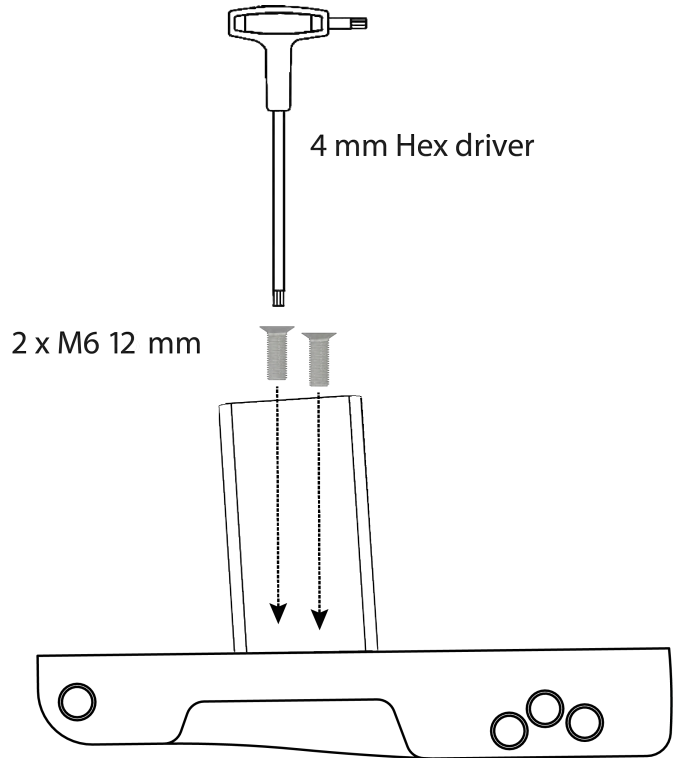
Figure 93. Tower Tube Mount on Rigging plate for -3°, -6° and -9° tilt.



- Carefully thread the two M6 x 12 mm screws supplied with the Tower Tube Mount into the inserts through the holes in the Mount. A magnetized hex driver can facilitate this.

! **Important:** For permanent or semi-permanent installation of the Tower Tube Mount on the LCC44 enclosure, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 94. Attaching the Tower Tube Mount to the Tower Rigging System Plate



- Using a 4 mm hex driver, tighten the two screws very firmly.

Installing Rigging Plate on LCC44/84

In order to couple LCC44 or LCC84 units to each other, directly to a subwoofer, or to allow for variable tilt angles of the enclosure in sub/satellite configurations using the Tower Tube mount and Active Speaker Tube, the speaker enclosure needs to be equipped with Tower Rigging System plates.

If the LCC44 or LCC84 unit is not pre-equipped with Rigging Plates, these can be mounted by the user.

! **Attention:** For the installation of the Rigging Plates on the LCC44 or LCC84 enclosure, the use of medium-strength threadlocking compound is **REQUIRED** on all user-installed screws.


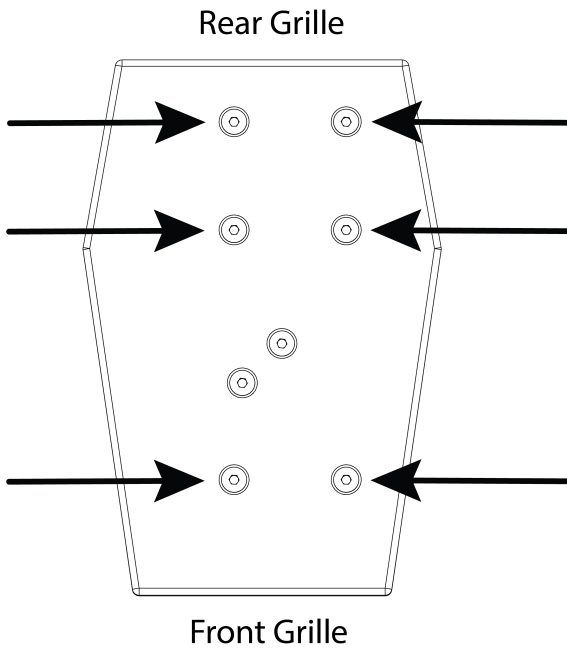
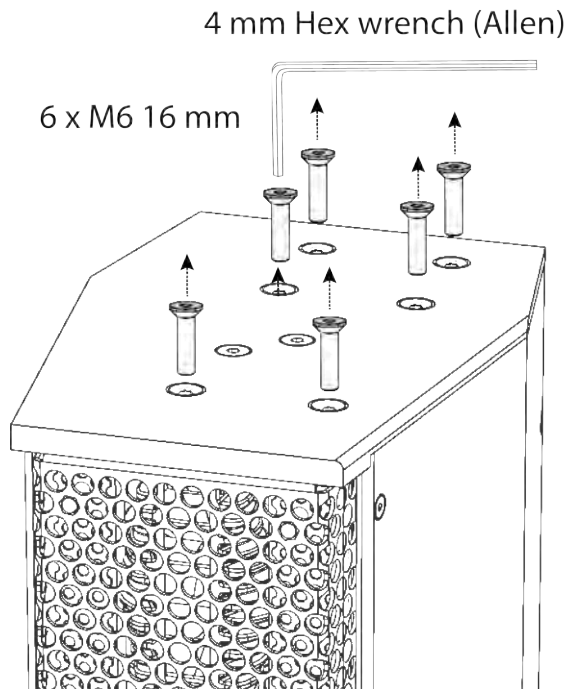
⚠ WARNING	
	<p>NOT FOR SUSPENDED LOADS For flown deployments of the LCC44 or LCC84 enclosures, use only units with factory-installed rigging plates. LCC44 or LCC84 units with user-installed rigging plates are only suitable for ground-stacked or pole-mounted deployments.</p>

Figure 95. Threaded inserts for Rigging Plate on the bottom of LCC44 or LCC84.



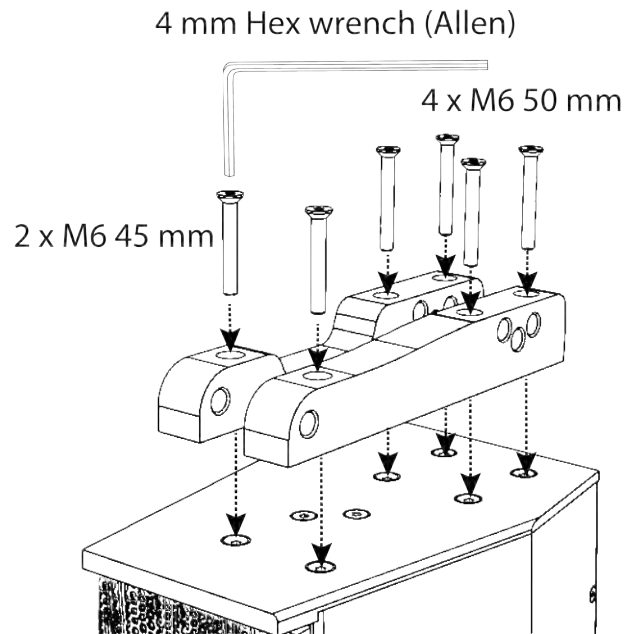
- Invert the LCC44/84 enclosure, bottom-side-up.

Figure 96. Removing the screws from the LCC44/84 Rigging System mounting points.



- Use a 4 mm Allen wrench or hex driver to remove the six M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these screws aside, as they will be replaced by the screws supplied with the rigging plates.
- Position one of the rigging plates as shown on the bottom surface of the LCC44/84, aligning the six countersunk holes in the rigging plate with the threaded inserts in the rigging points from which the screws were removed.
- Insert two of the (shorter) M6x45 mm screws (supplied with the rigging plates) into the two holes in the rigging plate positioned **nearest the front grille of the enclosure**, and thread them into the underlying threaded inserts in the LCC44/84 without tightening them.
- Insert four of the (longer) M6x50 mm screws (supplied with the rigging plates) into the four holes in the rigging plate nearer the rear grille of the LCC44/84. Thread these, without tightening them, into the underlying threaded inserts in the enclosure.

Figure 97. Installing Tower Rigging System Plate to LCC44



- Using a 4 mm hex key (Allen type) with a length that allows for sufficient leverage, tighten the screws into the inserts in opposing pairs to firmly attach the rigging plate to the CSUB610. The plate should be perfectly flush with the cabinet at every point and there should be no movement possible.

If the LCC44 or LCC84 unit is being deployed as a single unit in a sub/satellite configuration atop a subwoofer using a Tower Tube Mount equipped with a rigging plate, or as a single unit (with no further enclosures above it) directly atop a subwoofer equipped with a rigging plate, it is not necessary to mount the second rigging plate on the top of the enclosure.

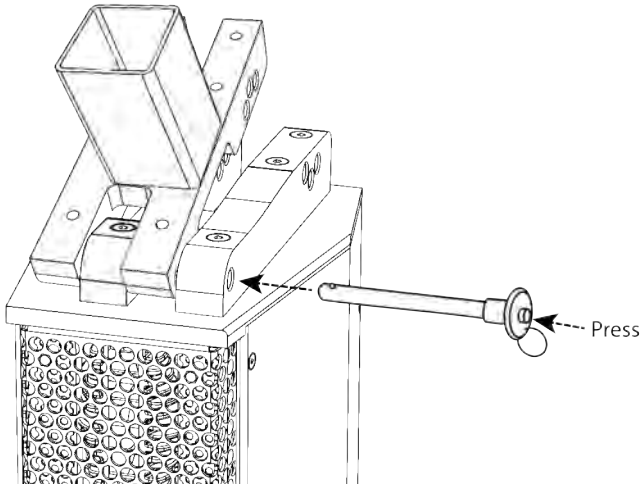
- If, instead, the LCC44 or LCC84 unit is to be used with further units installed above it in a stacked configuration, it will be necessary to install the second rigging plate. If necessary, invert the LCC44/84 unit and repeat Steps 2 though 6 above.

Coupling Tower Tube Mount and LCC44 using the Tower Rigging System

When using the Tower Rigging System together with an Active Speaker Tube for a sub/satellite or a free-standing configuration of the LCC44 enclosure with adjustable tilt, it is necessary to have an LCC44 unit equipped with a rigging plate(s), as well as a second rigging plate with the Tower Tube Mount installed. Though it is possible to couple these and adjust the tilt angle while the Tower Tube Mount and Rigging Plate are already mounted on the Speaker Tube, it is much more convenient to carry out this process beforehand and then mount the entire assembly, with the tilt angle already set, atop the Active Speaker Tube.

- Position the LCC44 with a rigging plate installed on the bottom, upside-down (Rigging Plate side up) on a floor or table.
- Invert the Tube Mount+Rigging Plate assembly (Tube Mount up) and interlock the forward sections of the two rigging plates in a manner that the Tower Tube Mount is laterally centered over the enclosure (the two plates will not fully interlock in any other condition), and align the forward coupling holes of the two rigging plates.

Figure 98. Coupling the rigging plates between LCC44 and Tower Tube Mount.



- When these are perfectly aligned, take one of the M10x100 ball-lock pins supplied with the rigging plates and press the lock release on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release. When the front of the plates are coupled, it should be possible to freely tilt the upper plate (with the Tube Mount installed) with respect to the LCC44. This done, it is possible to fix the tilt angle of the speaker enclosure.

Setting tilt angle of LCC44 with Tower Tube Mount and Rigging Plates

There are two configurations possible for using the Tower Tube Mount with the Tower Rigging System rigging plate: one that allows the coupled satellite enclosure to be tilted -3°, 0° or +3° with respect to the floor, and another that allows only downward angles of -3°, -6° and -9°.

- With the two plates coupled by the forward ball-lock pin, tilt the upper plate (with the tower tube mount installed) so as to align the rear holes of the two plates that correspond to the desired tilt angle.

Figure 99. Setting tilt angle with the Tower Tube Mount configured for -3°, 0° and +3°.

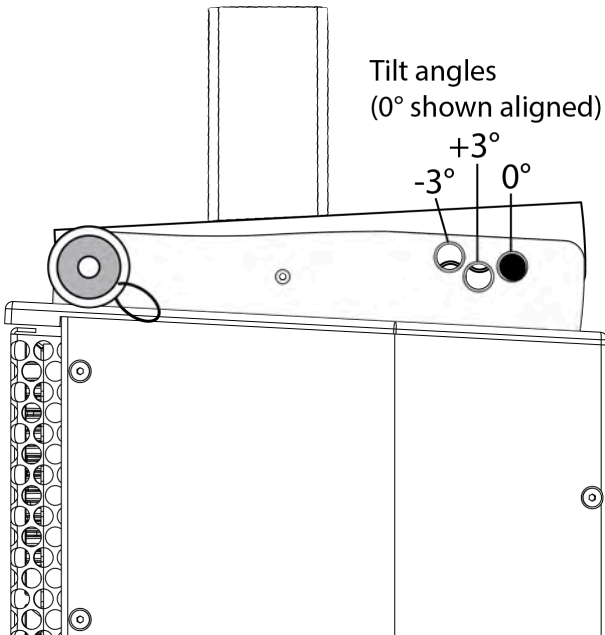


Figure 100. Setting tilt angle with the Tower Tube Mount configured for -3°, -6° and -9°.

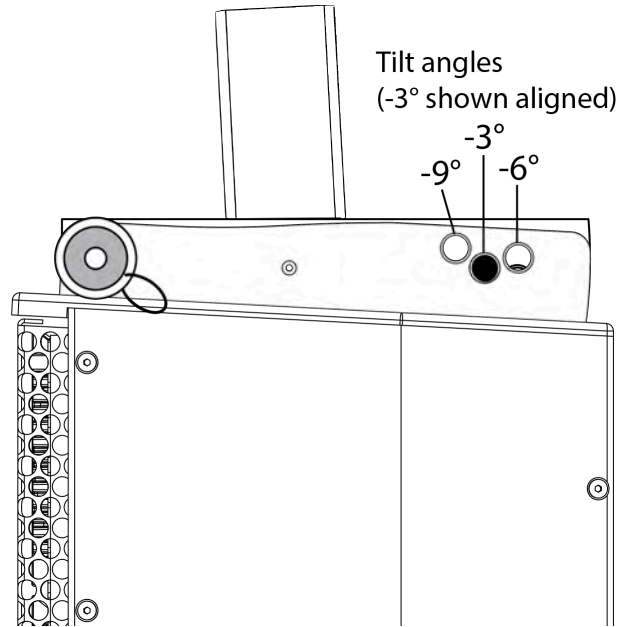
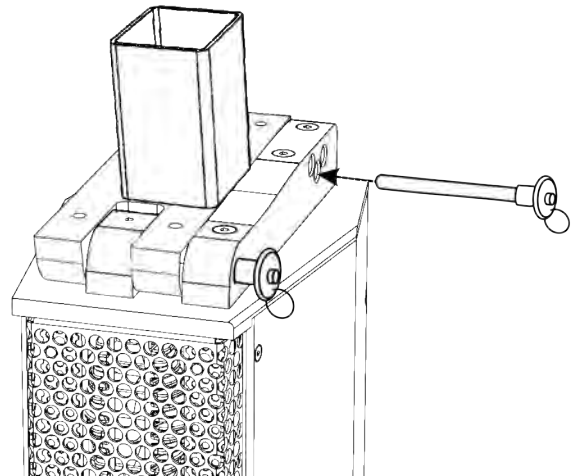


Figure 101. Fixing tilt angle of Tower Rigging System and Tower Tube Mount (-3° shown)



- When the required holes are perfectly aligned, take the other M10x100 ball-lock pin supplied with the rigging plates and press the lock-release button on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, release the button to allow the lock to engage and assure that the pin cannot be removed without again pressing the release. The enclosure is now coupled at the proper angle to the mounting assembly and ready to mount on an Active Speaker Tube.

Mounting LCC44 on Active Speaker Tube using the Tower Rigging System

Once the Tower Tube Mount has been correctly assembled with a Rigging Plate, coupled with an LCC44 enclosure likewise equipped with a rigging plate and the tilt angle has been fixed, the enclosure can then be very simply mounted on an Active Speaker Tube, either atop a CSUB610 or SUB310 subwoofer in a sub/satellite configuration, or independently atop an Active Speaker Tube with base.

⚠ WARNING



Tipping Hazard
 Improper assembly of the Active Speaker Tube with Base or improper installation of the Active Speaker Tube, Sub Pole Cup, or Subwoofer Outriggers on a subwoofer enclosure, or of the Tower Tube Mount on the LCC44 could create a hazardous or unstable condition when the LCC44 is mounted atop them. Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. **DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR A FREE-STANDING SPEAKER STAND WITH AN ENCLOSURE MOUNTED ATOP IT.**

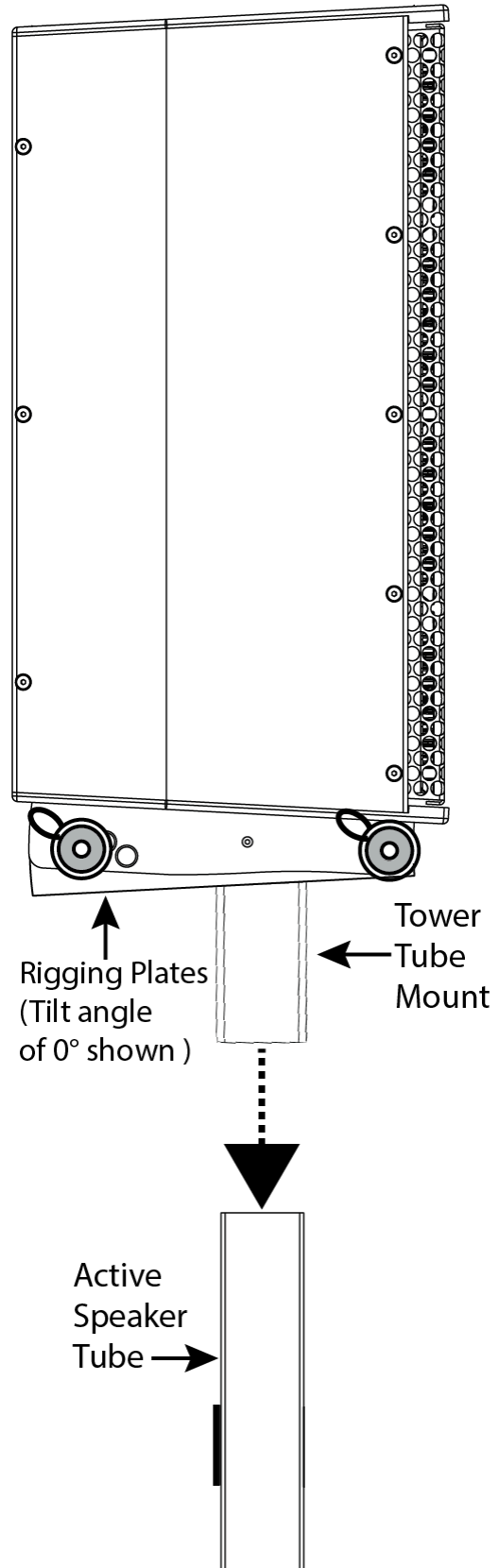
⚠ WARNING



Tipping Hazard
DO NOT USE THE TOWER RIGGING SYSTEM PLATES TOGETHER WITH THE TOWER TUBE MOUNT AND SPEAKER TUBES FOR SUBWOOFER/SATELLITE CONFIGURATIONS ATOP THE SUB12 OR CSUB210 MODELS OR WITH THE ACTIVE SPEAKER TUBE WITH BASE. The use of pole mounted configurations of the LCC44 model enclosure with the inclinable Tower Rigging System plates is possible only atop the CSUB610 or SUB310 model subwoofers.

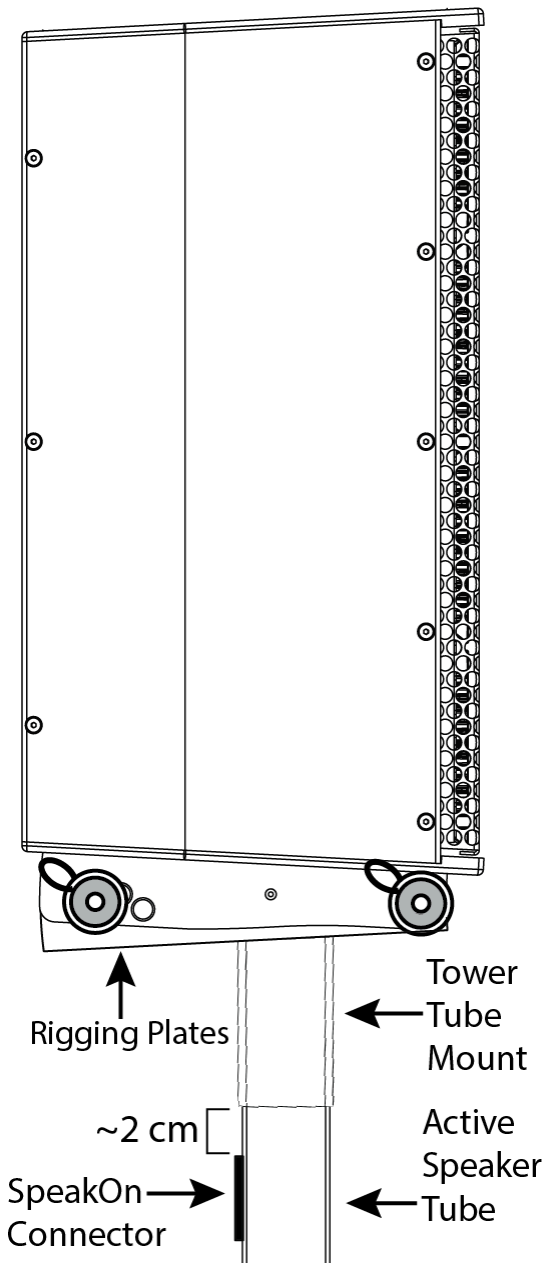
- Make sure that the 95 cm Active Speaker Tube is properly installed in the CSUB610 or SUB310 (either model equipped with Outriggers and properly leveled and positioned for use) or that the free-standing 175 cm Active Speaker Tube and Base is safely positioned. Then simply lift the LCC44 with the Tower Tube Mount above the Speaker Tube and align it in the desired direction. Though not obligatory, this will generally be with the rear of the LCC44 towards the rear of the subwoofer, where the connectors are located.

Figure 102. Mounting LCC44 equipped with Rigging Plates and Tower Tube Mount to Active Speaker Tube.



- Lower the LCC44 enclosure and allow the Active Speaker Tube to slide into the Tower Tube Mount, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the top of the Mount, with the bottom of the Tower Tube Mount coming to 2 cm above the top SpeakOn connector.

Figure 103. LCC44 with Rigging Plates and Tower Tube Mount installed on Active Speaker Tube.



- Physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.

Adjusting tilt

Though it is preferable to set the tilt angle of the enclosure before mounting the LCC44 atop the Active Speaker Tube, it is possible to adjust the tilt angle of the enclosure using the Tower rigging System when it is already mounted on the Speaker Tube.


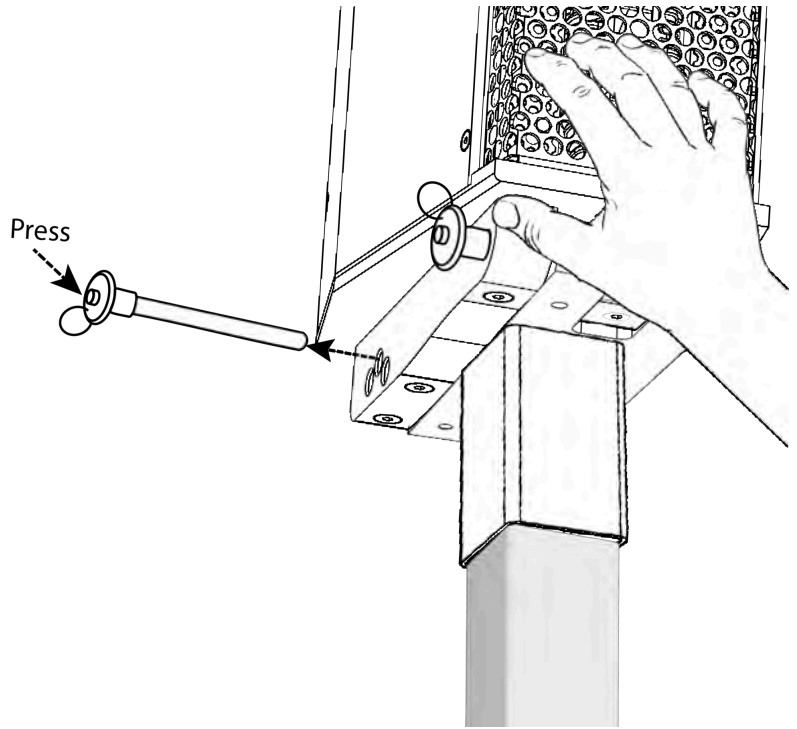
⚠ WARNING	
	<p>Risk of Hand Injury When adjusting the tilt angle of an LCC44 or the splay angle between two units, do not allow your fingers to enter the space between the two rigging plates or any of the holes.</p>

Figure 104. Adjusting tilt of LCC44 while installed on an Active Speaker Tube.



- While one person firmly holds the LCC44 unit, the second person can release and remove the ball-lock pin from the rear of the rigging plates. **DO NOT REMOVE BOTH PINS.**
- With one person maintaining at all times the LCC44, simply adjust the tilt of the enclosure to align the set of holes in the two rigging plates that correspond to the desired angle.
- Re-insert the ball-lock pin into the appropriate holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release.


⚠ WARNING	
	<p>TIPPING HAZARD – Two People Required When adjusting the tilt angle of an LCC44 unit while it is mounted on an Active Speaker Tube, either free-standing or atop a subwoofer, a sudden uncontrolled tipping of the LCC44 could render the entire assembly unstable and cause it to fall. To reduce the risk of injury or damage that could result from possible toppling of loudspeaker enclosures, DO NOT attempt this adjustment alone. One person should maintain control of the LCC44 at all times, while a second operator should carry out the tilt adjustment.</p>

Figure 105. Adjusting tilt of LCC44 on Tower Tube Mount in +3°, 0°, -3° configuration.

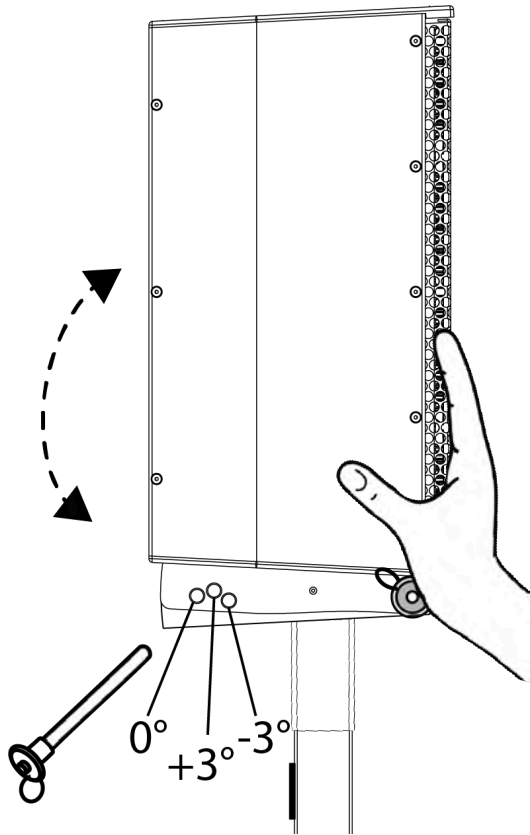
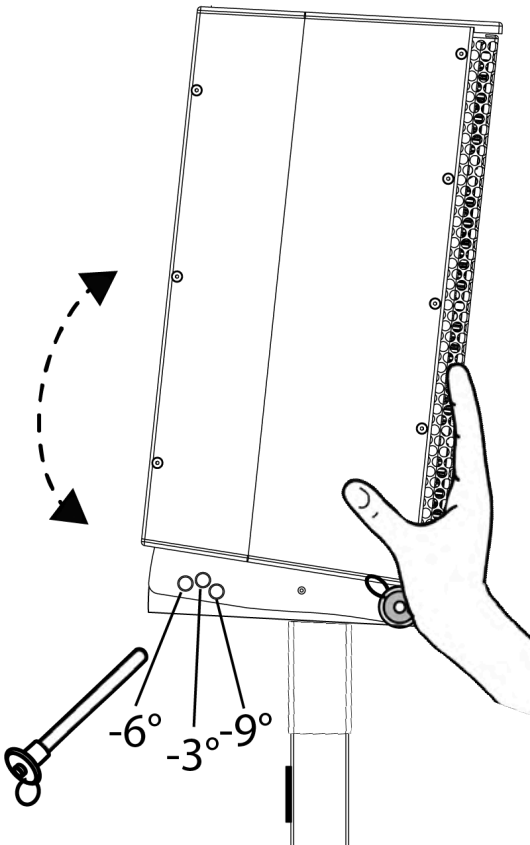


Figure 106. Adjusting tilt of LCC44 on Tower Tube Mount in -3°, -6°, -9° configuration.



- Before releasing the enclosure and allowing the assembly to stand on its own, physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.

Chapter 6. Deploying LCC44 on an Active Speaker Tube atop CSUB210

Figure 107. LCC44 deployed on the 145 cm Active Speaker Tube atop CSUB210.

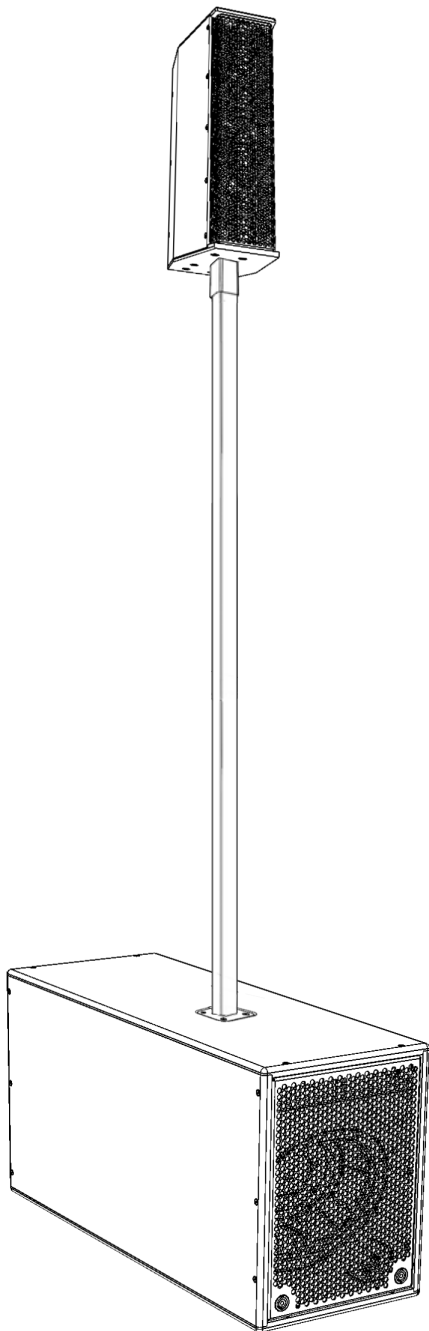
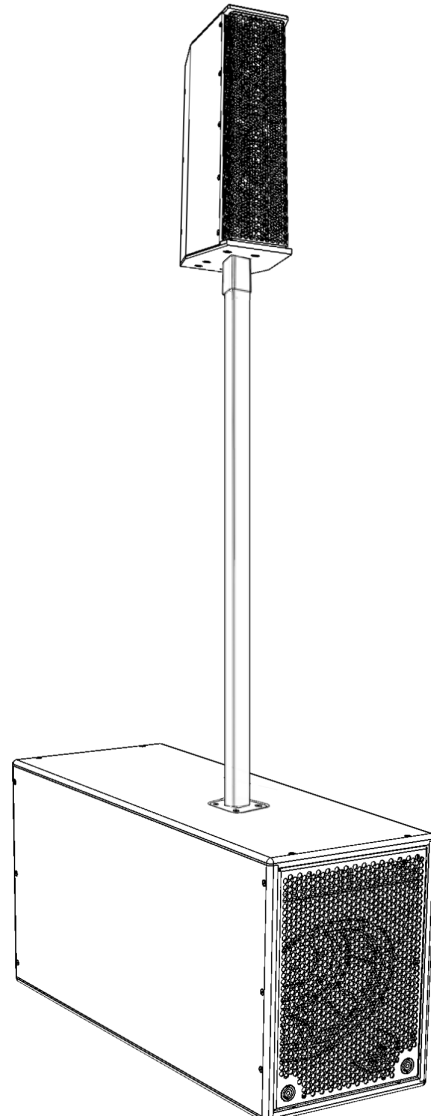


Figure 108. LCC44 deployed on the 95 cm Active Speaker Tube atop CSUB210.



Critical information

! **Attention:** This equipment is intended for installation by qualified professionals.

📢 **Notice:** Please read these instructions carefully and completely before attempting deployment of speaker enclosures on floor stands.

⚠️ WARNING



Tipping Hazard
Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. Exercise extreme care when assembling speaker arrays, as a stack of them toppling or collapsing creates a risk of serious injury or death, as well as likely damage to the enclosures themselves and nearby equipment.

📢 **Notice:** This product must be installed in compliance with all applicable local, state and national regulatory provisions. The responsibility rests with the installer to verify that the installation is carried out in accordance with any applicable legislation.

! **Important:** The installer must assess the appropriate stability and sturdiness of the deployment surface.

⊘ **Restriction:** Only hardware and accessories included with the product or specified by 1 Sound should be used for its installation.

⊘ **Restriction:** Do not modify or alter the loudspeaker or any accessory. Any modification by the user or installer could render the product or the installation unsafe.

⊘ **Restriction:** Do not install a loudspeaker or any accessory near any open flame or heat source.

Products, accessories and tools required

To deploy an LCC44 enclosure as a satellite on a CSUB210 bass unit using an Active Speaker Tube you will need the following:

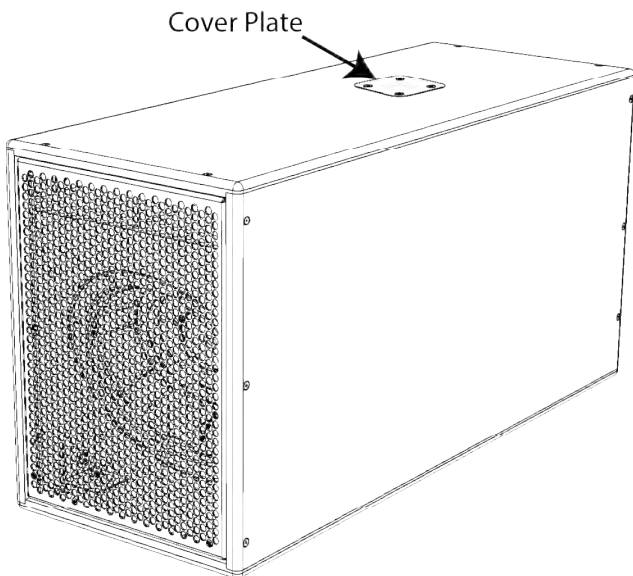
- An LCC44 (on page 4) loudspeaker enclosure
- A CSUB210 (on page 6) subwoofer enclosure
- The Sub Pole Cup (on page 8) adapter flange kit
- The 145 cm Active Speaker Tube (on page 7), the 95 cm Active Speaker Tube (on page 7) or the 40 cm Passive Speaker Tube (on page 7)
- The Tower Tube Mount (on page 7) adapter kit
- A 4 mm hex driver at least 10 cm long, preferably magnetized
- A 4 mm Allen wrench
- Threadlocking compound

Procedures

Installing Sub Pole Cup on CSUB210

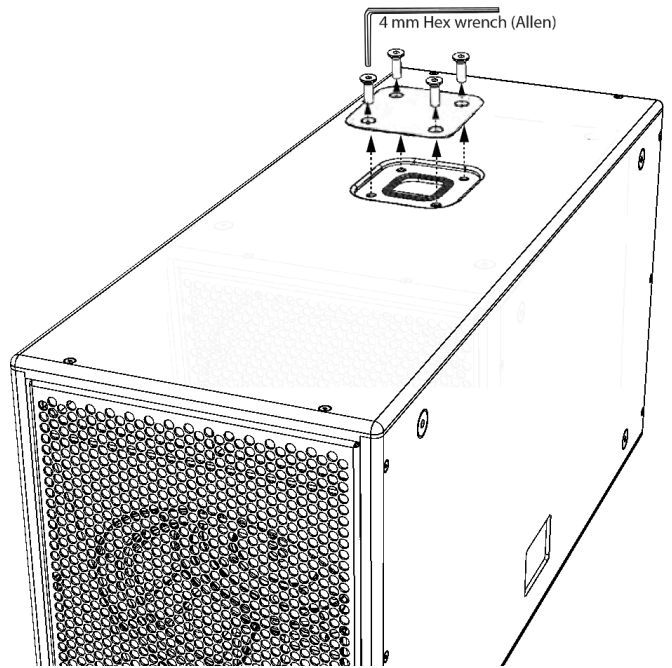
In order to deploy an LCC44 unit in a sub/satellite configuration atop a CSUB210 subwoofer unit, the subwoofer must first be equipped with a Sub Pole Cup. If the SUB310 is already equipped with a Sub Pole Cup, you can proceed to the installation of Active Speaker Tube.

Figure 109. The cover plate for the Sub Pole Cup.



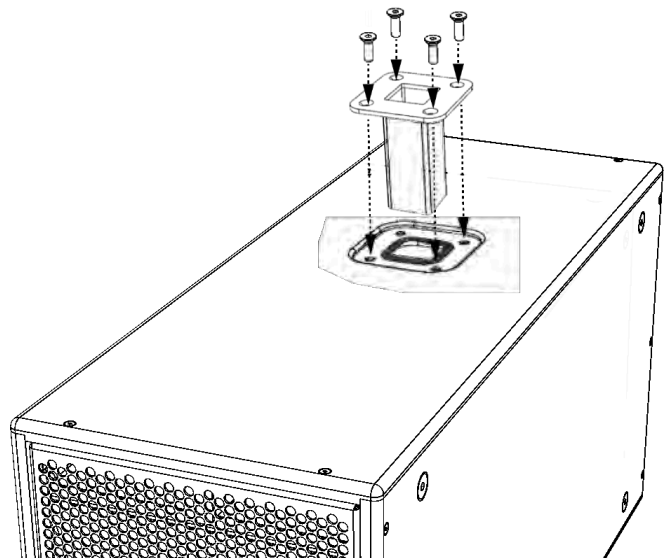
- To install the Sub Pole Cup, first use a 4 mm hex wrench to remove the four M6x20 mm countersunk screws that hold the cover plate in place. When these are removed, remove the cover plate as well and put it aside.

Figure 110. Removing the cover plate for Sub Pole Cup installation.



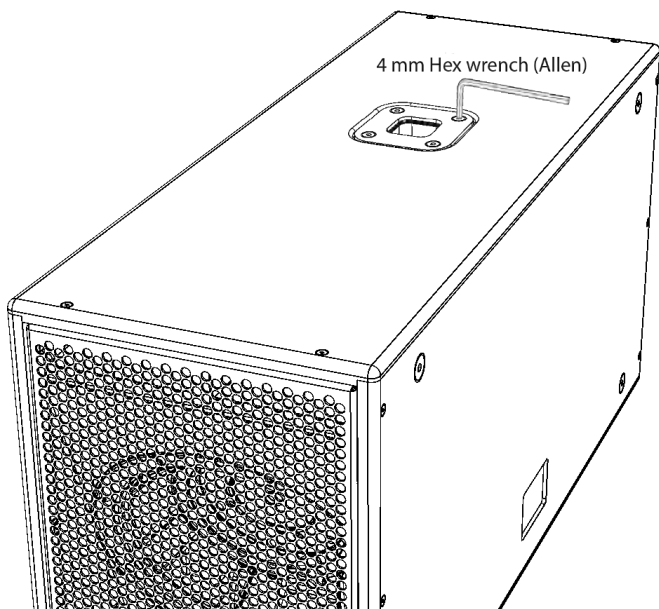
- Insert the Sub Pole Cup flange into the recess in the cabinet and seat it firmly.

Figure 111. Installing the Sub Pole Cup on CSUB210



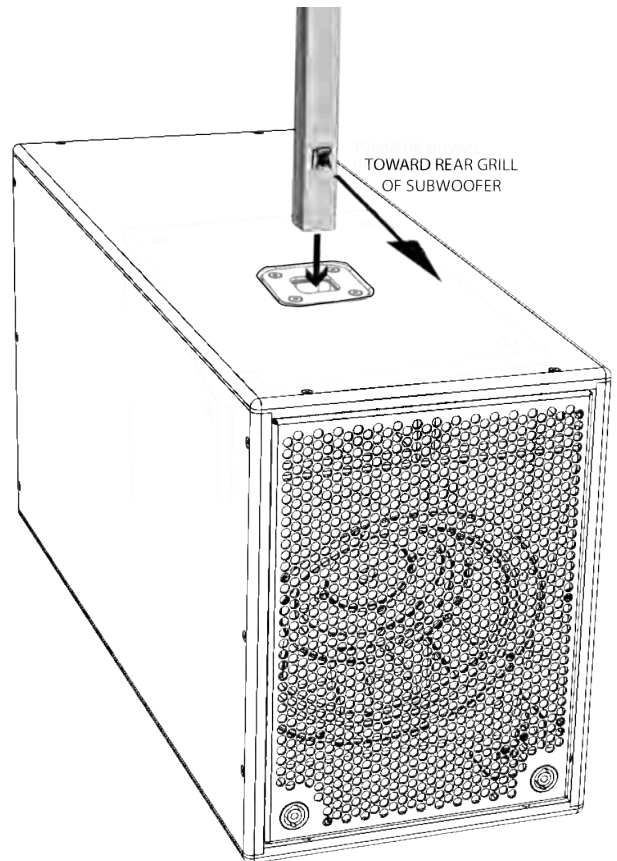
- Re-insert the screws that retained the plate into the four countersunk holes in the Sub Pole Cup, and thread them into the inserts below the cup.

Figure 112. Tightening the screws holding the Sub Pole Cup.



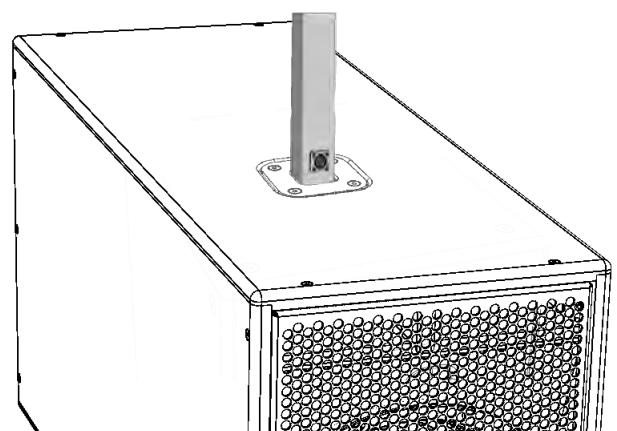
- Again, using the 4 mm hex wrench, tighten the four screws firmly.

Figure 113. Installing the 145 cm Active Speaker Tube on the CSUB210.



- Align the Active Speaker Tube with the Sub Pole Cup installed in the subwoofer, with the SpeakOn connectors oriented toward the rear of the subwoofer cabinet (where the connectors are located).

Figure 114. Active Speaker Tube installed in CSUB210.



- Lower the Active Speaker Tube to slide into the Sub Pole Cup, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the threaded M20 insert at the bottom of the Pole Cup. The bottom SpeakOn connector of the Speaker Tube should come to a stop at 1 cm above the top of the Sub Pole Cup.

Installing Active Speaker Tube on CSUB210

In order to deploy an LCC44 unit in a sub/satellite configuration atop a CSUB210 unit with the Sub Pole Cup installed, it is only necessary to insert the 145 cm Active Speaker Tube into Pole Cup with the SpeakOn connectors facing the rear of the subwoofer cabinet and assure that it is firmly seated in the Pole Cup. For special applications, in order to meet the requirements of the audience's listening height, the 95 cm Active Speaker tube or the 40 cm Speaker Tube can be used in the place of the 145 cm model in this configuration.

⚠ WARNING	
	<p>TIPPING HAZARD DO NOT USE THE 145 cm ACTIVE SPEAKER TUBE TO MOUNT AN LCC44 UNIT ATOP THE CSUB610 OR SUB310 SUBWOOFER TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, ONLY THE 95 cm ACTIVE SPEAKER TUBE TO MOUNT ENCLOSURES IN SUB/SATELLITE CONFIGURATIONS ATOP THE CSUB610 OR SUB310 SUBWOOFER MODELS.</p>

Installing the Tower Tube Mount directly on LCC44

The Tower Tube Mount can be used in two different ways, depending on the requirements of the application. It can be installed directly to an LCC44 or LCC84 unit when the desired coverage can be obtained with the directivity axis of the enclosure parallel (0°) to the floor. Otherwise,

when the application requires that the LCC44/84 unit be adjustable in tilt with respect to the floor, the Tower Tube Mount can be attached to a Tower Rigging System rigging plate to allow different tilt angles.

To install the Tower Tube Mount directly to an LCC44 enclosure:

Figure 115. Threaded inserts for Tower Tube Mount on the bottom of LCC44 or LCC84.

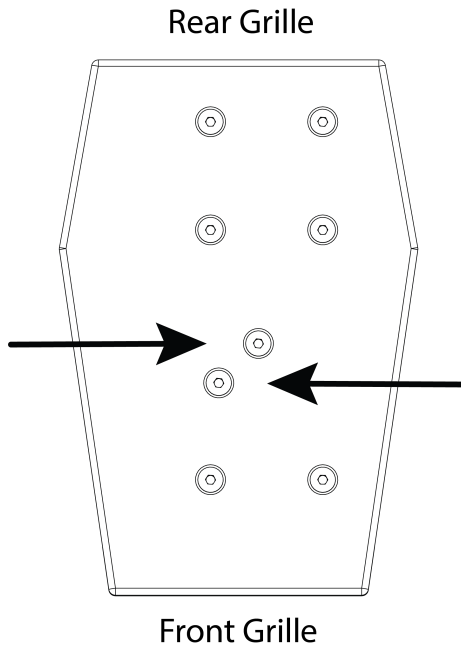
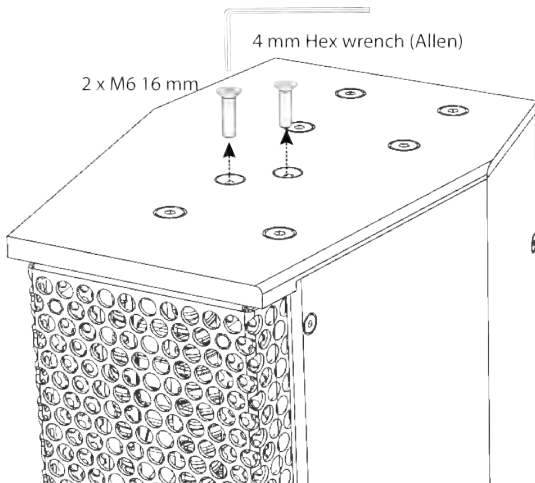
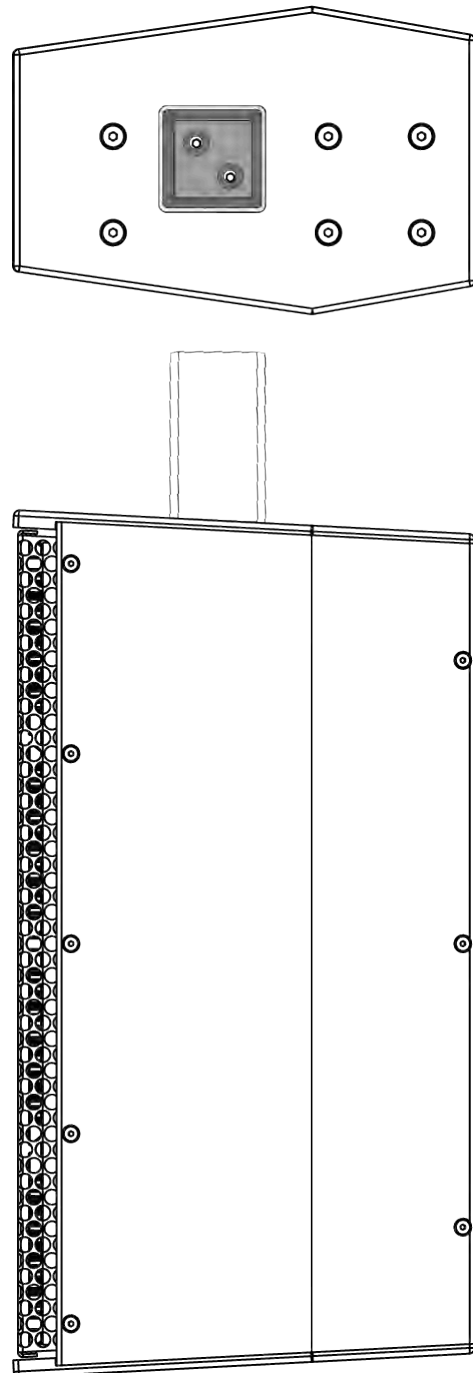


Figure 116. Removing screws from Tower Tube Mount attachment points.



- Invert the LCC44 enclosure and use a 4 mm Allen wrench or hex driver to remove the two M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these aside, as they will be used to mount the Tower Tube Mount.
- Position the Tower Tube Mount upside-down, with the open side up and the countersunk-drilled plate against the bottom of the enclosure, making sure that the -3° angle of the bottom of the enclosure is complemented by the +3° angle of the top plate of the Tower Tube Mount, returning the long side of the Tube Mount to form a straight line parallel to the vertical axis of the enclosure.

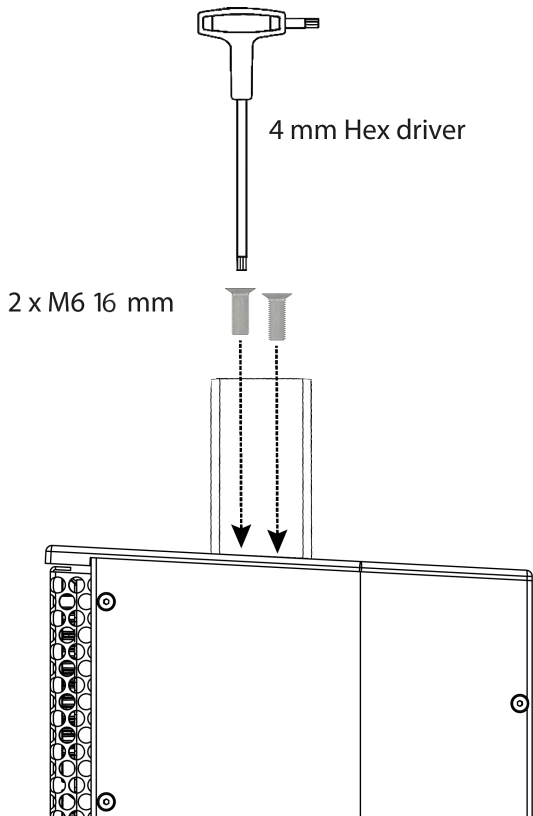
Figure 117. Aligning Tower Tube Mount on LCC44 – top and side view.



- Align the two countersunk holes in the Tower Tube Mount with the threaded inserts in the rigging points from which the screws were removed.
- Carefully thread the two M6x16 mm screws previously removed into the inserts through the holes in the Mount. A magnetized hex driver can facilitate this.

! Important: For permanent or semi-permanent installation of the Tower Tube Mount on the LCC44 enclosure, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 118. Mounting Tower Tube Mount to bottom of LCC44



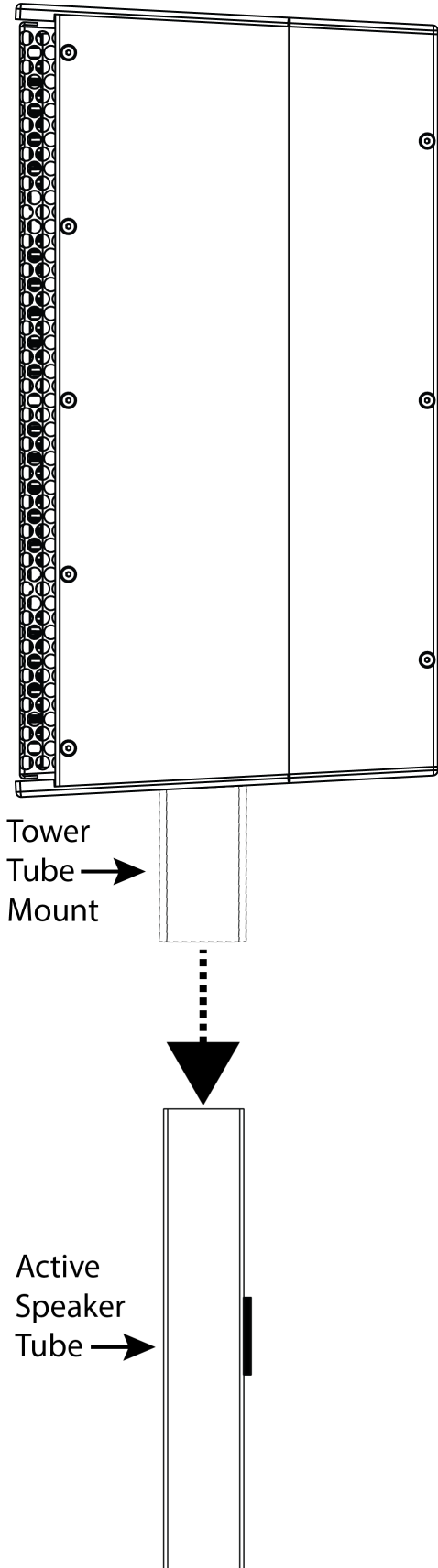
- Using a 4 mm hex driver, tighten the two screws very firmly.


Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount


Once the Tower Tube Mount has been correctly installed directly on an LCC44 enclosure, the enclosure can then be very simply mounted on an Active Speaker Tube, either atop a subwoofer in a sub/satellite configuration, or independently atop an Active Speaker Tube with base.

- Make sure that the 95 cm Active Speaker Tube is properly installed in the CSUB610 or SUB310 (either model equipped with Outriggers and properly leveled and positioned for use) or that the free-standing 175 cm Active Speaker Tube and Base is safely positioned. Then simply lift the LCC44 with the Tower Tube Mount above the Active Speaker Tube and align it in the desired direction. Though not obligatory, this will generally be with the rear of the LCC44 towards the rear of the subwoofer, where the connectors are located.

Figure 119. Mounting LCC44 equipped with Tower Tube Mount to Active Speaker Tube.

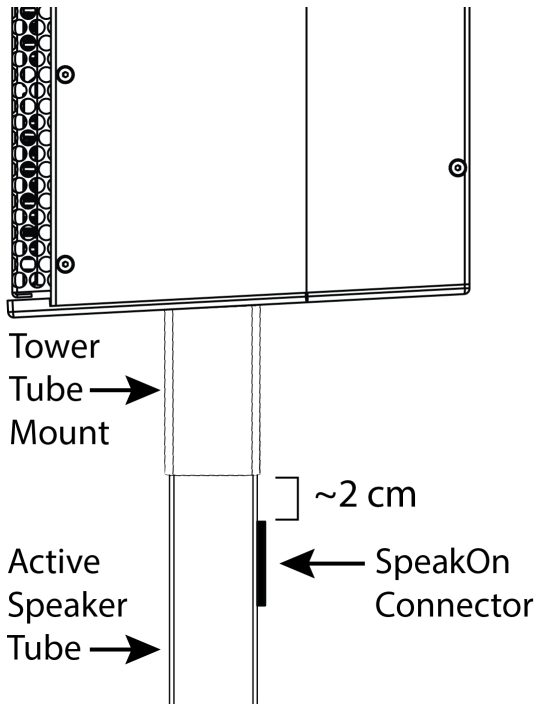


⚠ WARNING	
	<p>Tipping Hazard Improper assembly of the Active Speaker Tube with Base or improper installation of the Active Speaker Tube, Sub Pole Cup, or Subwoofer Outriggers on a subwoofer enclosure, or of the Tower Tube Mount on the LCC44 could create a hazardous or unstable condition when the LCC44 is mounted atop them. Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR A FREE-STANDING SPEAKER STAND WITH AN ENCLOSURE MOUNTED ATOP IT.</p>

⚠ WARNING	
	<p>Tipping Hazard DO NOT USE THE TOWER RIGGING SYSTEM PLATES TOGETHER WITH THE TOWER TUBE MOUNT AND SPEAKER TUBES FOR SUBWOOFER/SATELLITE CONFIGURATIONS ATOP THE SUB12 OR CSUB210 MODELS OR WITH THE ACTIVE SPEAKER TUBE WITH BASE. The use of pole mounted configurations of the LCC44 model enclosure with the inclinable Tower Rigging System plates is possible only atop the CSUB610 or SUB310 model subwoofers.</p>

- Lower the LCC44 enclosure and allow the Active Speaker Tube to slide into the Tower Tube Mount, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the top of the Mount, with the bottom of the Tower Tube Mount coming to 2 cm above the top SpeakOn connector.

Figure 120. LCC44 with Tower Tube Mount installed on Active Speaker Tube.



- Physically assure the stability of the installation and that it will not tip using mild force applied in any direction at the highest point of the assembly.

Chapter 7. Deploying LCC44 on an Active Speaker Tube atop SUB12

Figure 121. LCC44 deployed on the 145 cm Active Speaker Tube atop SUB12.

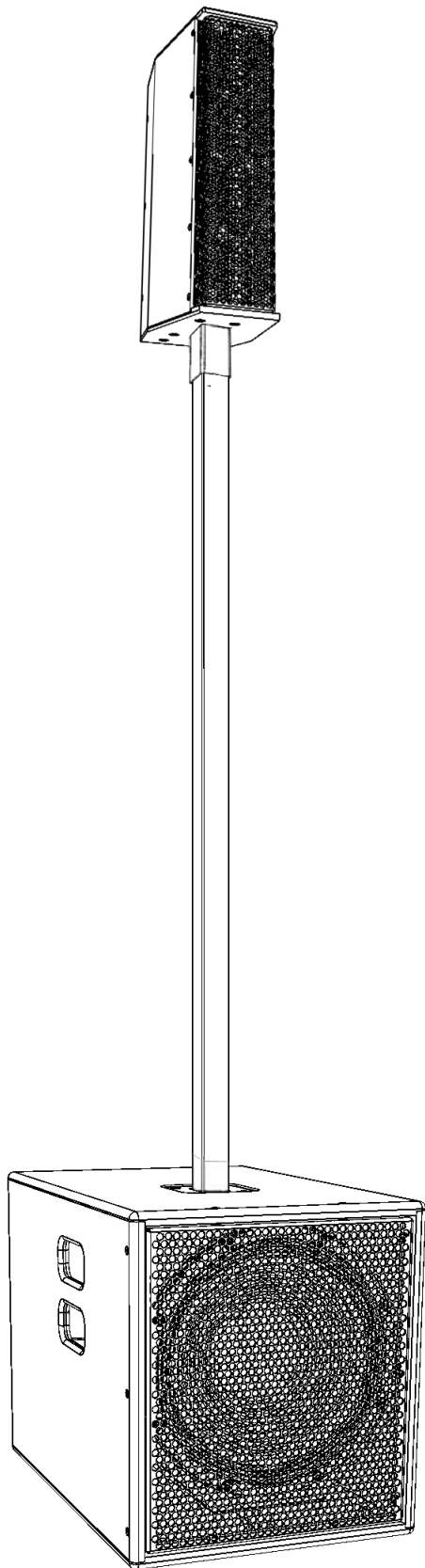
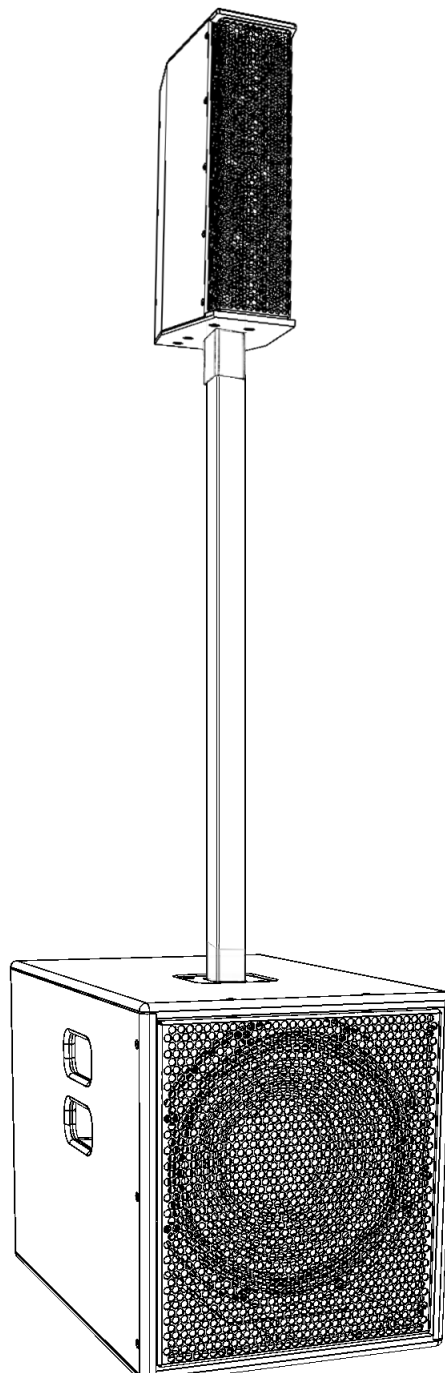


Figure 122. LCC44 deployed on the 95 cm Active Speaker Tube atop SUB12.



Critical information

! **Attention:** This equipment is intended for installation by qualified professionals.

📢 **Notice:** Please read these instructions carefully and completely before attempting deployment of speaker enclosures on floor stands.

⚠ WARNING



Tipping Hazard
 Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. Exercise extreme care when assembling speaker arrays, as a stack of them toppling or collapsing creates a risk of serious injury or death, as well as likely damage to the enclosures themselves and nearby equipment.

📢 Notice: This product must be installed in compliance with all applicable local, state and national regulatory provisions. The responsibility rests with the installer to verify that the installation is carried out in accordance with any applicable legislation.

⚠ Important: The installer must assess the appropriate stability and sturdiness of the deployment surface.

🚫 Restriction: Only hardware and accessories included with the product or specified by 1 Sound should be used for its installation.

🚫 Restriction: Do not modify or alter the loudspeaker or any accessory. Any modification by the user or installer could render the product or the installation unsafe.

🚫 Restriction: Do not install a loudspeaker or any accessory near any open flame or heat source.

Products, accessories and tools required

To deploy an LCC44 enclosure as a satellite on a SUB12 bass unit using an Active Speaker Tube you will need the following:

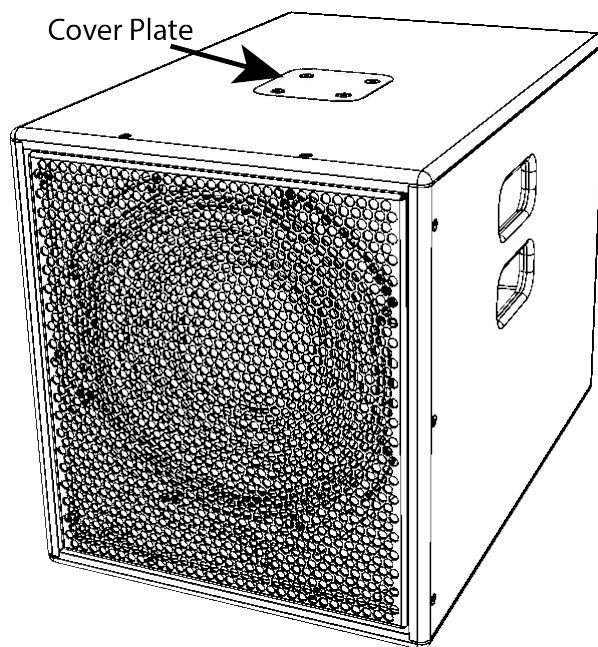
- An LCC44 (on page 4) loudspeaker enclosure
- A SUB12 (on page 6) subwoofer enclosure
- The Sub Pole Cup (on page 8) adapter flange kit
- The 145 cm Active Speaker Tube (on page 7), the 95 cm Active Speaker Tube (on page 7) or the 40 cm Passive Speaker Tube (on page 7)
- The Tower Tube Mount (on page 7) adapter kit
- A 4 mm hex driver at least 10 cm long, preferably magnetized
- A 4 mm Allen wrench
- Threadlocking compound

Procedures

Installing Sub Pole Cup on SUB12

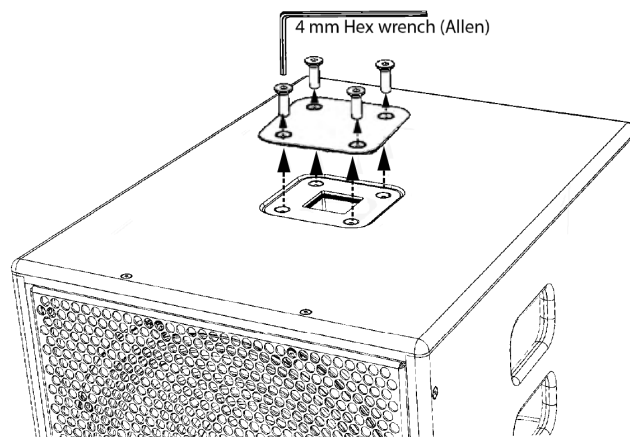
In order to deploy an LCC44 unit in a sub/satellite configuration atop a SUB12 subwoofer unit, the subwoofer must first be equipped with a Sub Pole Cup. If the SUB12 is already equipped with a Sub Pole Cup, you can proceed to the installation of Active Speaker Tube.

Figure 123. The cover plate for the Sub Pole Cup.



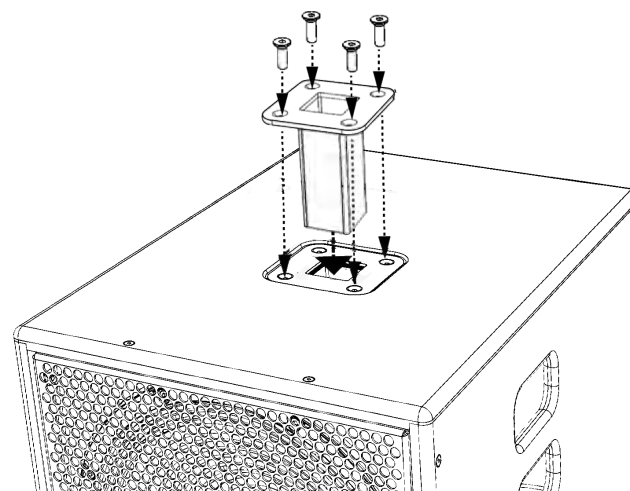
- To install the Sub Pole Cup, first use a 4 mm hex wrench to remove the four M6x20 mm countersunk screws that hold the cover plate in place. When these are removed, remove the cover plate as well and put it aside.

Figure 124. Removing the cover plate for Sub Pole Cup installation.



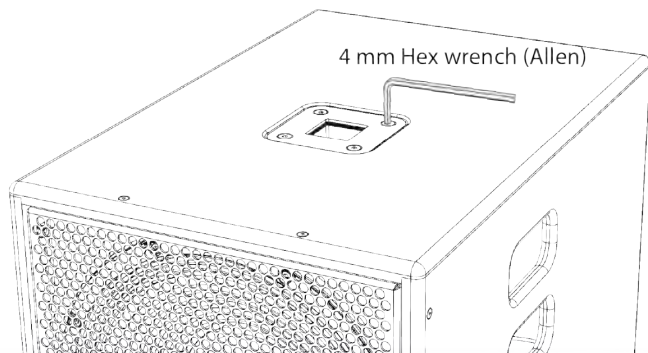
- Insert the Sub Pole Cup flange into the recess in the cabinet and seat it firmly.

Figure 125. Installing the Sub Pole Cup on SUB12.



- Re-insert the screws that retained the plate into the four countersunk holes in the Sub Pole Cup, and thread them into the inserts below the cup.

Figure 126. Tightening the screws holding the Sub Pole Cup.



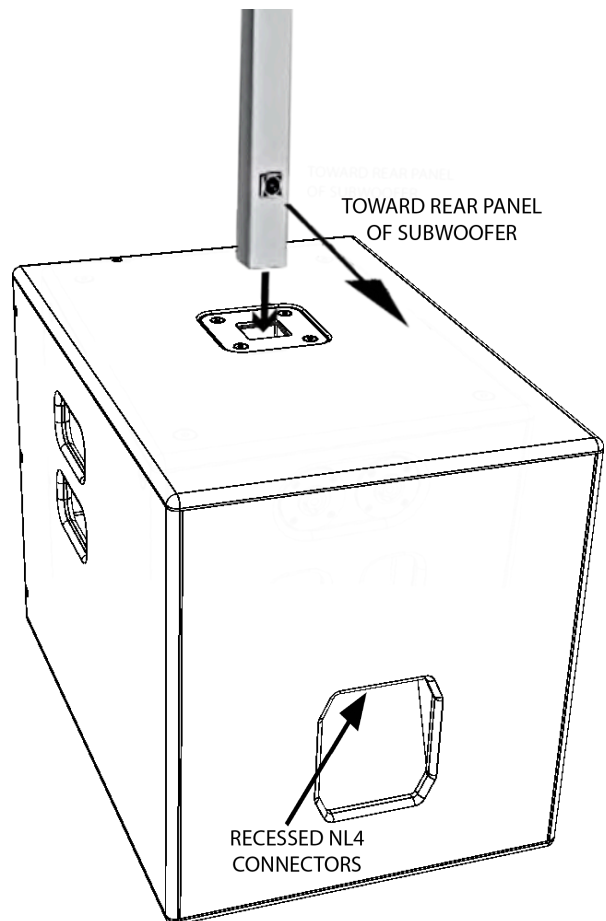
- Again, using the 4 mm hex wrench, tighten the four screws firmly.

Installing Active Speaker Tube on SUB12

In order to deploy an LCC44 unit in a sub/satellite configuration atop a SUB12 unit with the Sub Pole Cup installed, it is only necessary to insert the 145 cm Active Speaker Tube into Pole Cup with the SpeakOn connectors facing the rear of the subwoofer cabinet and assure that it is firmly seated in the Pole Cup. For special applications, in order to meet the requirements of the audience's listening height, the 95 cm Active Speaker tube or the 40 cm Speaker Tube can be used in the place of the 145 cm model in this configuration.

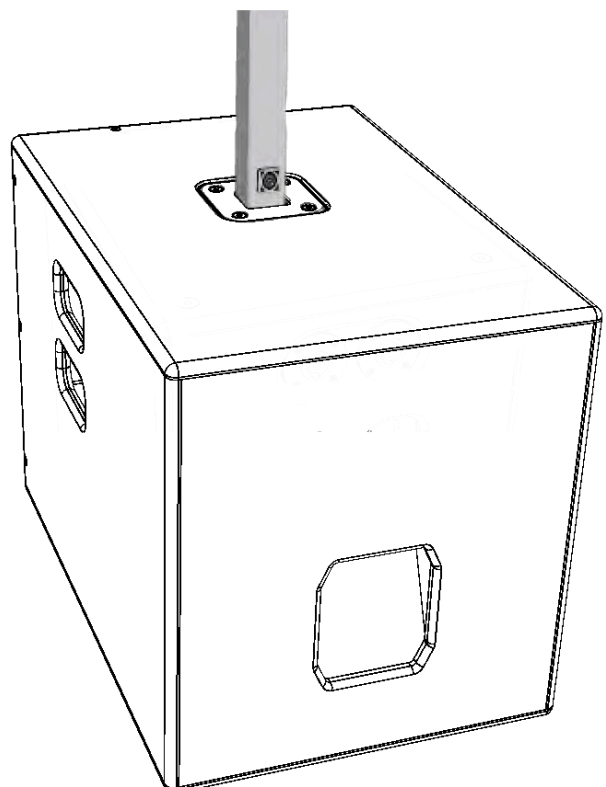
⚠ WARNING	
	<p>TIPPING HAZARD DO NOT USE THE 145 cm ACTIVE SPEAKER TUBE TO MOUNT AN LCC44 UNIT ATOP THE CSUB610 OR SUB310 SUBWOOFER TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, ONLY THE 95 cm ACTIVE SPEAKER TUBE TO MOUNT ENCLOSURES IN SUB/SATELLITE CONFIGURATIONS ATOP THE CSUB610 OR SUB310 SUBWOOFER MODELS.</p>

Figure 127. Installing the 145 cm Active Speaker Tube on the SUB12.



- Align the Active Speaker Tube with the Sub Pole Cup installed in the subwoofer, with the SpeakOn connectors oriented toward the rear of the subwoofer cabinet (where the connectors are located).

Figure 128. Active Speaker Tube installed on SUB12.



- Lower the Active Speaker Tube to slide into the Sub Pole Cup, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the threaded M20 insert at the bottom of the Pole Cup. The bottom SpeakOn connector of the Speaker Tube should come to a stop at 1 cm above the top of the Sub Pole Cup.

Installing the Tower Tube Mount directly on LCC44

The Tower Tube Mount can be used in two different ways, depending on the requirements of the application. It can be installed directly to an LCC44 or LCC84 unit when the desired coverage can be obtained with the directivity axis of the enclosure parallel (0°) to the floor. Otherwise, when the application requires that the LCC44/84 unit be adjustable in tilt with respect to the floor, the Tower Tube Mount can be attached to a Tower Rigging System rigging plate to allow different tilt angles.

To install the Tower Tube Mount directly to an LCC44 enclosure:

Figure 129. Threaded inserts for Tower Tube Mount on the bottom of LCC44 or LCC84.

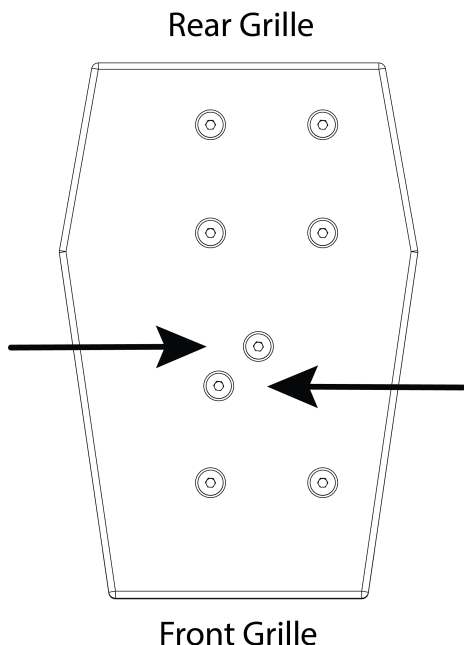
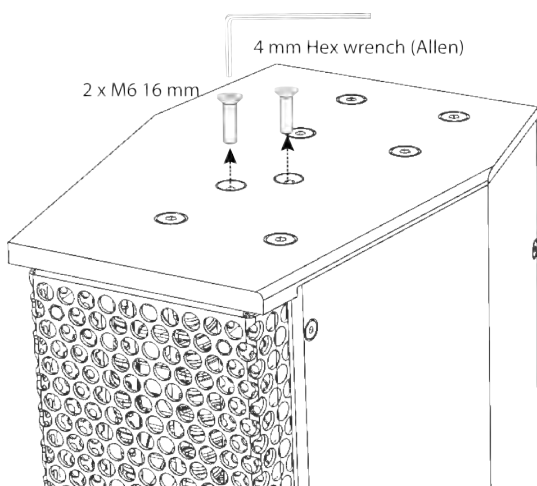
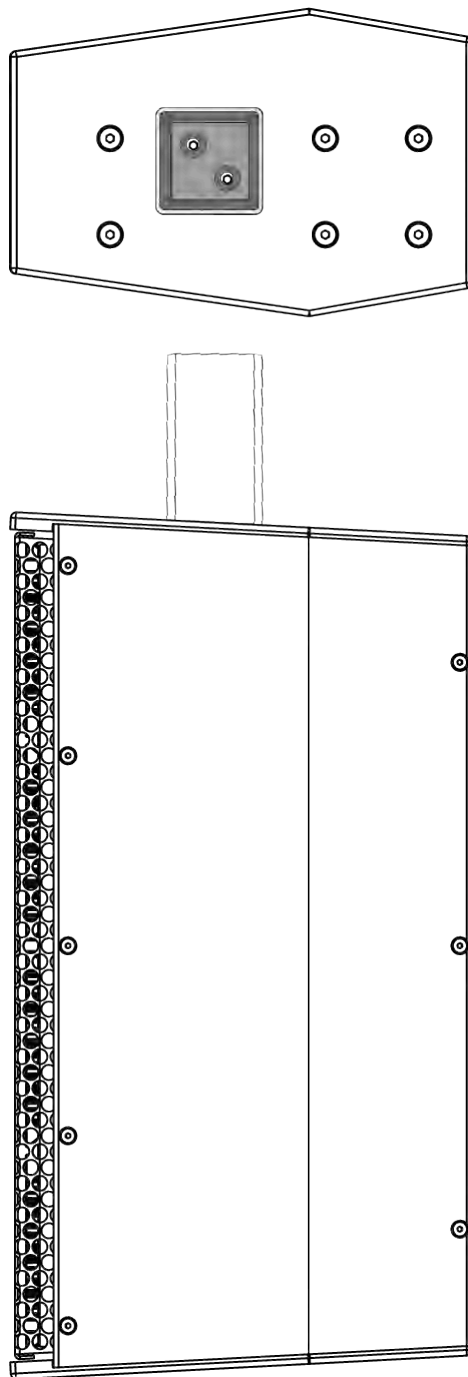


Figure 130. Removing screws from Tower Tube Mount attachment points.



- Invert the LCC44 enclosure and use a 4 mm Allen wrench or hex driver to remove the two M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these aside, as they will be used to mount the Tower Tube Mount.
- Position the Tower Tube Mount upside-down, with the open side up and the countersunk-drilled plate against the bottom of the enclosure, making sure that the -3° angle of the bottom of the enclosure is complemented by the +3° angle of the top plate of the Tower Tube Mount, returning the long side of the Tube Mount to form a straight line parallel to the vertical axis of the enclosure.

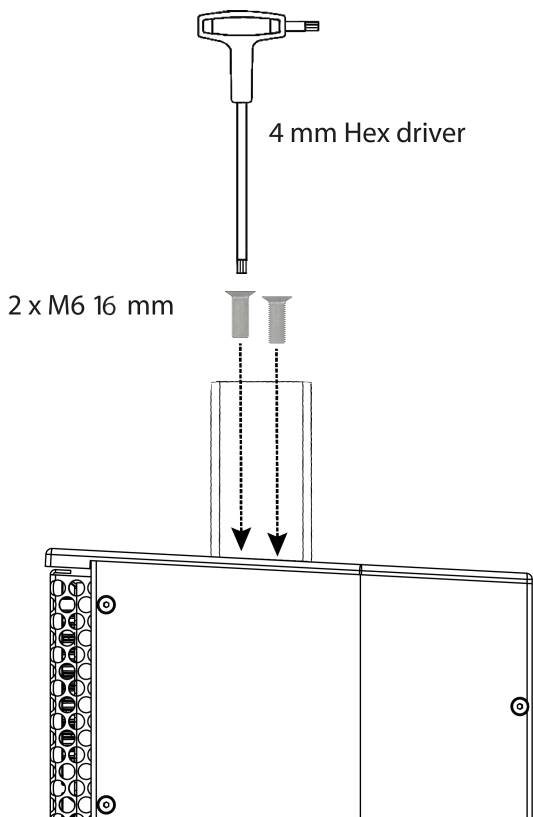
Figure 131. Aligning Tower Tube Mount on LCC44 – top and side view.



- Align the two countersunk holes in the Tower Tube Mount with the threaded inserts in the rigging points from which the screws were removed.
- Carefully thread the two M6x16 mm screws previously removed into the inserts through the holes in the Mount. A magnetized hex driver can facilitate this.

! **Important:** For permanent or semi-permanent installation of the Tower Tube Mount on the LCC44 enclosure, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 132. Mounting Tower Tube Mount to bottom of LCC44



- Using a 4 mm hex driver, tighten the two screws very firmly.

Mounting LCC44 on Active Speaker Tube using the Tower Tube Mount

Once the Tower Tube Mount has been correctly installed directly on an LCC44 enclosure, the enclosure can then be very simply mounted on an Active Speaker Tube, either atop a subwoofer in a sub/satellite configuration, or independently atop an Active Speaker Tube with base.

⚠ WARNING



Tipping Hazard
 DO NOT USE THE TOWER RIGGING SYSTEM PLATES TOGETHER WITH THE TOWER TUBE MOUNT AND SPEAKER TUBES FOR SUBWOOFER/ SATELLITE CONFIGURATIONS ATOP THE SUB12 OR CSUB210 MODELS OR WITH THE ACTIVE SPEAKER TUBE WITH BASE.

The use of pole mounted configurations of the LCC44 model enclosure with the inclinable Tower Rigging System plates is possible only atop the CSUB610 or SUB310 model subwoofers.

- Make sure that the 95 cm Active Speaker Tube is properly installed in the CSUB610 or SUB310 (either model equipped with Outriggers and properly leveled and positioned for use) or that the free-standing 175 cm Active Speaker Tube and Base is safely positioned. Then simply lift the LCC44 with the Tower Tube Mount above the Active Speaker Tube and align it in the desired direction. Though not obligatory, this will generally be with the rear of the LCC44 towards the rear of the subwoofer, where the connectors are located.

⚠ WARNING



Tipping Hazard
 Improper assembly of the Active Speaker Tube with Base or improper installation of the Active Speaker Tube, Sub Pole Cup, or Subwoofer Outriggers on a subwoofer enclosure, or of the Tower Tube Mount on the LCC44 could create a hazardous or unstable condition when the LCC44 is mounted atop them. Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR A FREE-STANDING SPEAKER STAND WITH AN ENCLOSURE MOUNTED ATOP IT.

Figure 133. Mounting LCC44 equipped with Tower Tube Mount to Active Speaker Tube.

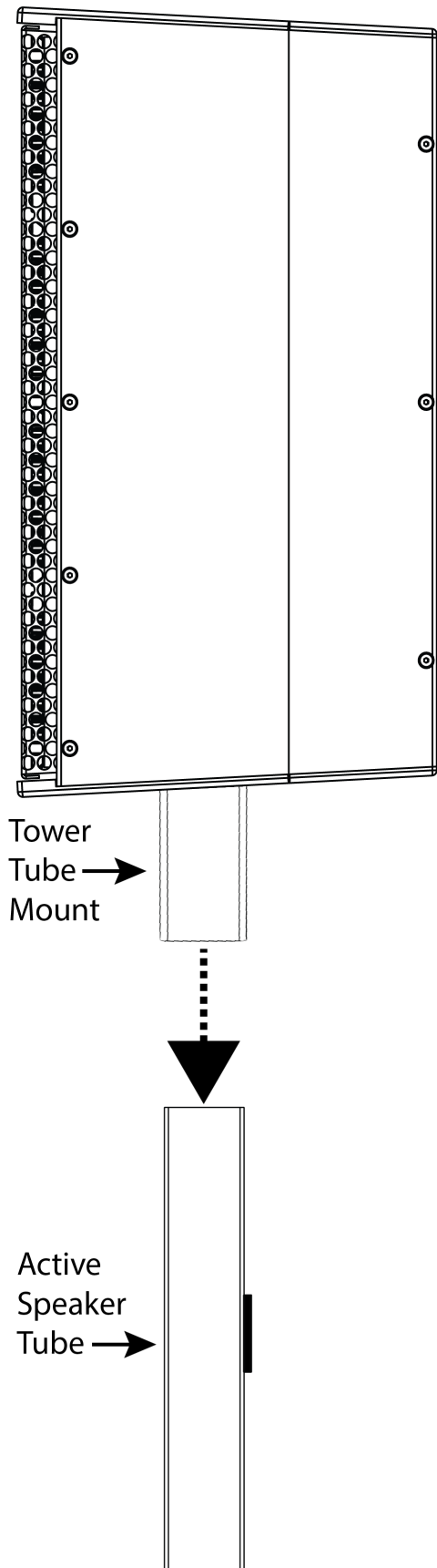
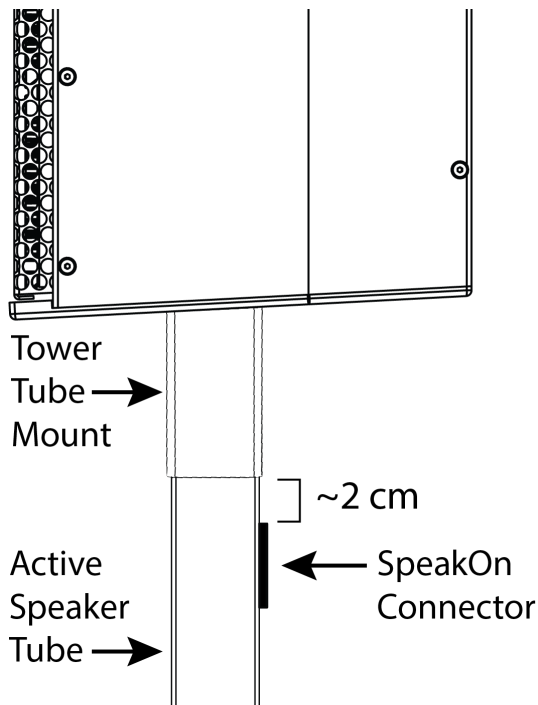


Figure 134. LCC44 with Tower Tube Mount installed on Active Speaker Tube.



- Physically assure the stability of the installation and that it will not tip using mild force applied in any direction at the highest point of the assembly.

- Lower the LCC44 enclosure and allow the Active Speaker Tube to slide into the Tower Tube Mount, making sure that it does not catch or bind as it enters. It should stop firmly when the Tube arrives at the top of the Mount, with the bottom of the Tower Tube Mount coming to 2 cm above the top SpeakOn connector.

Chapter 8. Stacking LCC84/LCC44 on SUB310 using the Tower Rigging System

Figure 135. LCC84 deployed atop SUB310 using the Tower Rigging System.



Figure 136. LCC44 deployed atop SUB310 using the Tower Rigging System.



Critical information

! **Attention:** This equipment is intended for installation by qualified professionals.

📢 **Notice:** Please read these instructions carefully and completely before attempting deployment of speaker enclosures on floor stands.

⚠️ WARNING



Tipping Hazard
Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. Exercise extreme care when assembling speaker arrays, as a stack of them toppling or collapsing creates a risk of serious injury or death, as well as likely damage to the enclosures themselves and nearby equipment.

📢 **Notice:** This product must be installed in compliance with all applicable local, state and national regulatory provisions. The responsibility rests with the installer to verify that the installation is carried out in accordance with any applicable legislation.

! **Important:** The installer must assess the appropriate stability and sturdiness of the deployment surface.

⊘ **Restriction:** Only hardware and accessories included with the product or specified by 1 Sound should be used for its installation.

⊘ **Restriction:** Do not modify or alter the loudspeaker or any accessory. Any modification by the user or installer could render the product or the installation unsafe.

! **Warning:** Do not install a loudspeaker or any accessory near any open flame or heat source.

Products/accessories involved

To deploy LCC44 enclosures atop a SUB310 or CSUB610 bass unit using the Tower Rigging System you will need the following:

- An LCC84 (on page 4) or an LCC44 (on page 4) loudspeaker enclosures
- A SUB310 (on page 5) subwoofer enclosure
- The Subwoofer Outrigger (on page 9) stabilizing leg kit
- The Tower Rigging System Plates (on page 8)
- A 5 mm Allen wrench
- A 4 mm Allen wrench
- **Recommended:** Spirit level

Procedures

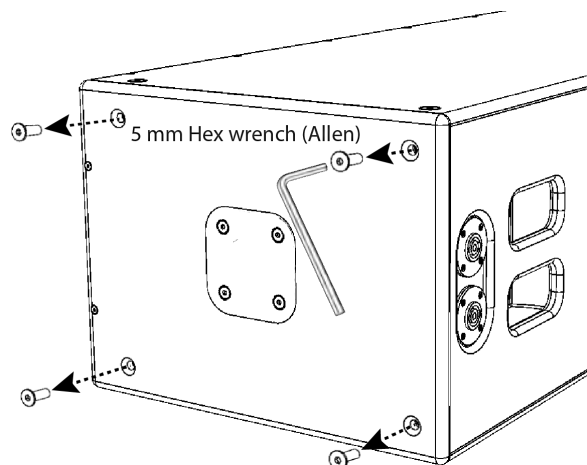
Mounting Rigging Plate on SUB310

In order to use the Tower Rigging System to deploy LCC44 or LCC84 units directly atop a SUB310 bass unit, the subwoofer unit must first be equipped with a Tower Rigging System plate. The compact SUB310 model is designed for use with either the Tower Rigging System or with the Active Speaker Tube. If the SUB310 is already equipped with a rigging plate and configured with the rubber feet on the opposite side from this, you can proceed to the [installation of the outriggers \(on page 31\)](#). If, instead, the SUB310 is configured to be deployed with the Sub Pole Cup side up, it will first be necessary to mount the rubber feet on the opposite side of the cabinet.

! **Important:** For permanent or semi-permanent installation of the Tower Rigging System plates on the SUB310 subwoofer, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

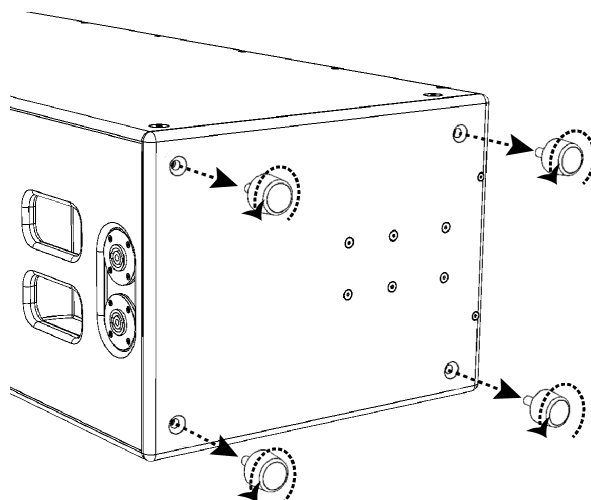
- If the SUB310 unit as previously been configured for use in a sub/satellite configuration using an Active Speaker Tube, it will first be necessary to remove the rubber feet from the side with the mounting inserts for the Tower Rigging System plate. To do this, first lay the SUB310 on one of the long sides, taking whatever necessary precautions to avoid damaging the finish of the cabinet or the grille. Both of the smaller (40 cm x 30 cm) faces of the cabinet should be accessible.

Figure 137. Removing the M8 screws from the Sub Pole Cup side of the SUB310.



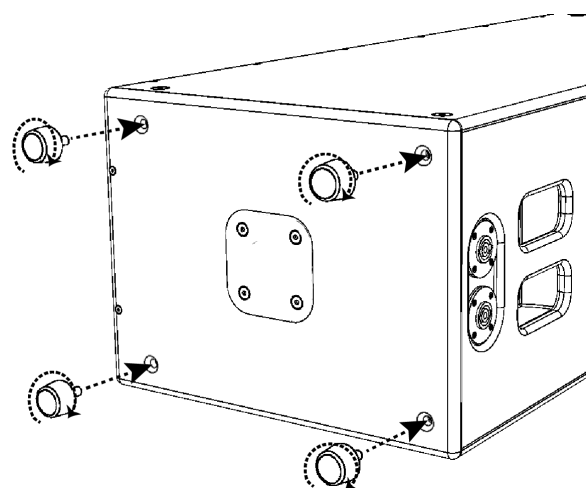
- Use a 5 mm hex wrench to remove the four countersunk M8x25 mm screws from the rigging points in the four corners of the side of the cabinet with the Sub Pole Cup (or cover plate). Keep these screws.

Figure 138. Removing the rubber feet from the rigging plate side of the SUB310.



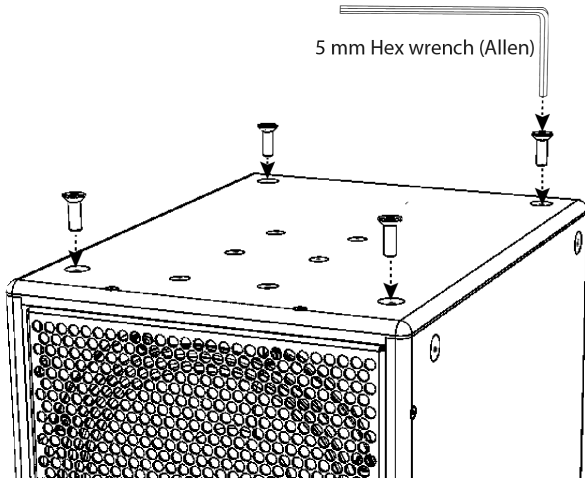
- Unscrew and remove the four rubber feet from the end of the cabinet with the mounting inserts for the Tower Rigging System plate.

Figure 139. Installing the rubber feet on the pole cup side of the SUB310.



- Insert and thread the four rubber feet removed above into the corresponding rigging points on the opposite end of the cabinet. Tighten these firmly by hand.
- The cabinet can now be raised to the upright position, with the mounting inserts for the Tower Rigging System plate on the top.

Figure 140. Replacing the M8 screws in the rigging points left vacant by the rubber feet.



- Insert and thread the four countersunk M8x25 mm screws into the rigging points from which the four rubber feet were removed. Use the 5 mm hex wrench to tighten these.

Figure 141. The threaded inserts for mounting the Tower Rigging System plate on SUB310.

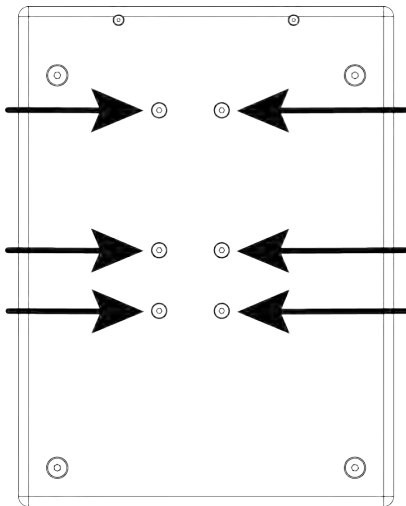
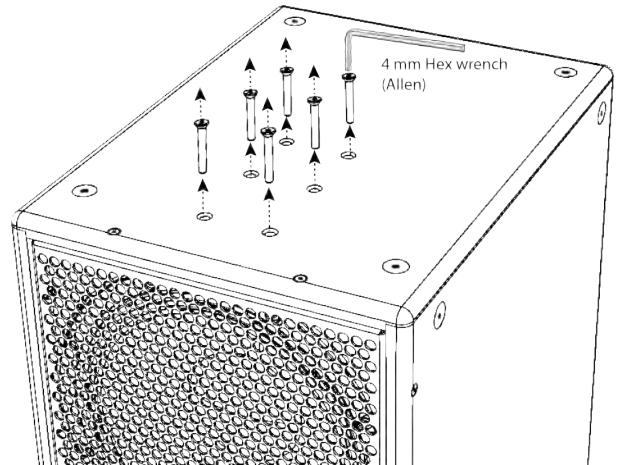
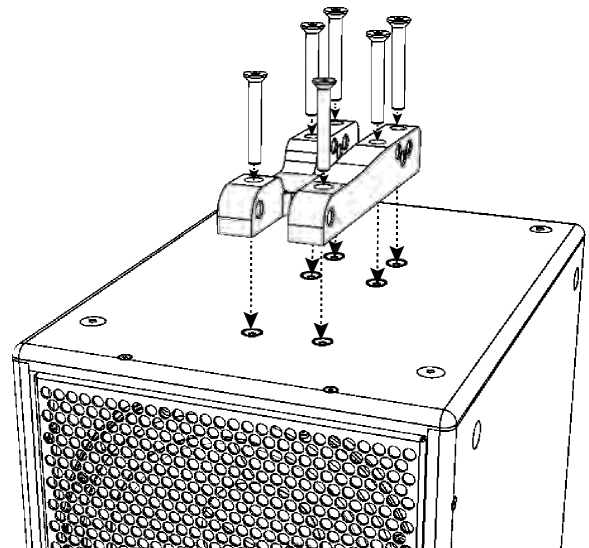


Figure 142. Removing the screws from the inserts for mounting the Tower Rigging System plate.



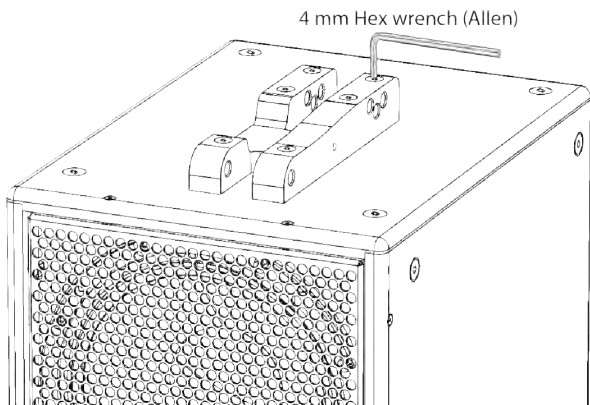
- Use a 4 mm Allen wrench or hex driver to remove the six M6x50 mm screws from the rigging points indicated above on the top of the cabinet. Keep these screws, as they will be used to fix the rigging plate.
- Position the Tower Rigging System Rigging plate atop the SUB310, as shown in the figure, with the six countersunk mounting holes aligned with the six M6 threaded inserts.

Figure 143. Installing the Tower Rigging System plate on SUB310.



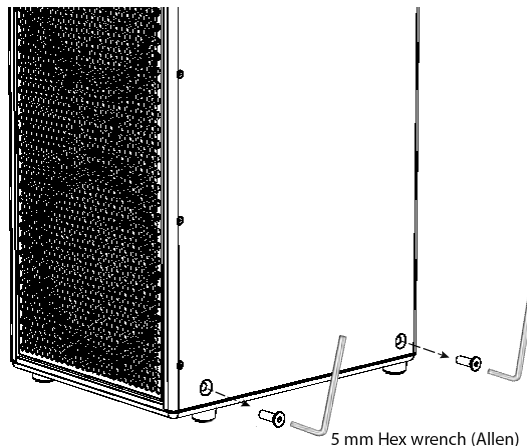
- Insert the six M6x50 mm screws into the six holes in the rigging plate. Thread these without tightening them into the underlying threaded inserts in the SUB310.

Figure 144. Tightening the M6 screws on the installed Tower Rigging System plate.



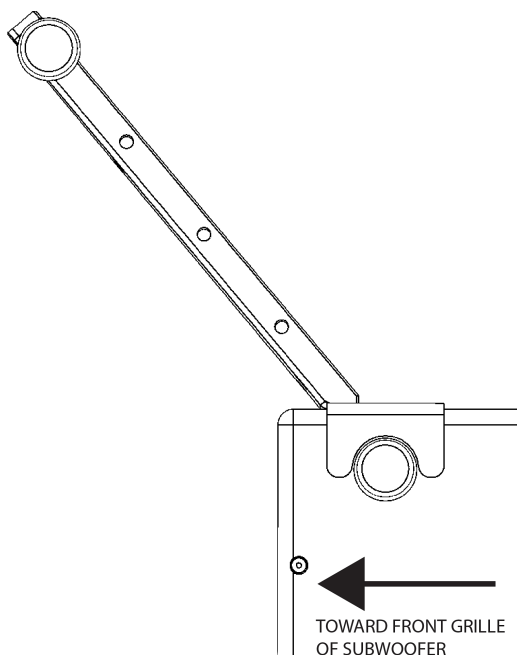
- Using a 4 mm hex key (Allen type) with a length that allows for sufficient leverage, tighten the screws into the inserts in opposing pairs to firmly attach the rigging plate to the SUB310. The plate should be perfectly flush with the cabinet at every point and there should be no movement possible.

Figure 146. Removing rigging point screws from SUB310 for the installation of the Sub Outriggers



- Using a 5 mm hex wrench, remove the two bottom rigging point screws from one long side of the SUB310 cabinet.

Figure 147. Aligning forward Outrigger on SUB310 (bottom view).



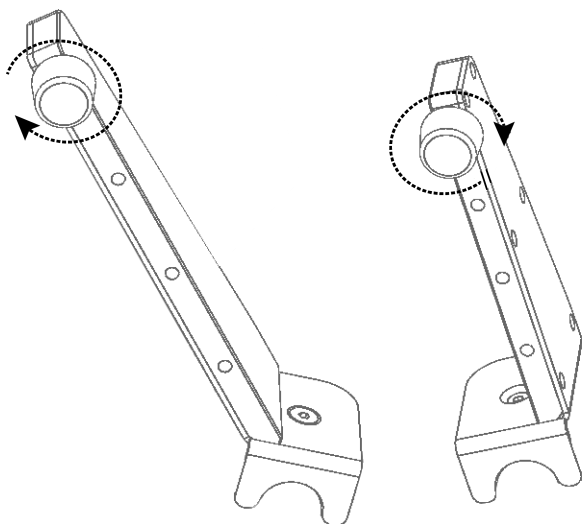
- Align the mounting hole of the longer 50° Outrigger with the bottom rigging point nearest the front grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Installing Outriggers on the SUB310

Installing the subwoofer outriggers improves the stability of the CSUB610 or SUB310 when deployed vertically on the floor. The outriggers are recommended in any application in which the subs are deployed in public areas where people could bump into them or lean on them. These are also REQUIRED in any application in which other loudspeaker enclosures are coupled to the subwoofer in an upright position.

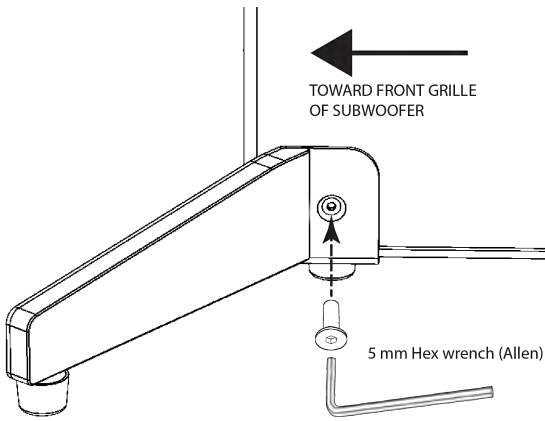
⚠ WARNING	
	<p>TIPPING HAZARD Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, THE INSTALLATION OF THE SUBWOOFER OUTRIGGERS ON THE SUB310 AND CSUB610 IS REQUIRED WHENEVER ONE OR MORE LOUDSPEAKER ENCLOSURES IS MOUNTED ATOP ONE OF THESE UNITS, EITHER IN A STACKED CONFIGURATION USING THE TOWER RIGGING SYSTEM OR IN A SUB/SATELLITE CONFIGURATION USING A SPEAKER POLE.</p>

Figure 145. Raising the leveling feet of the Outriggers.



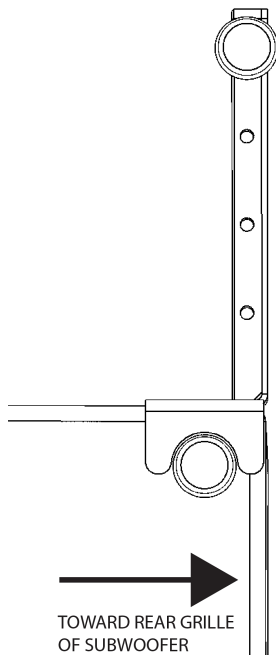
- Before installation, on each of the four Outriggers, raise the leveling feet by screwing them in completely.

Figure 148. Aligning forward Outrigger on SUB310 (side view)



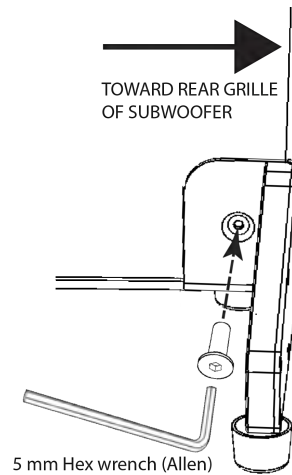
- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.

Figure 149. Aligning rear Outrigger on SUB310 (bottom view)



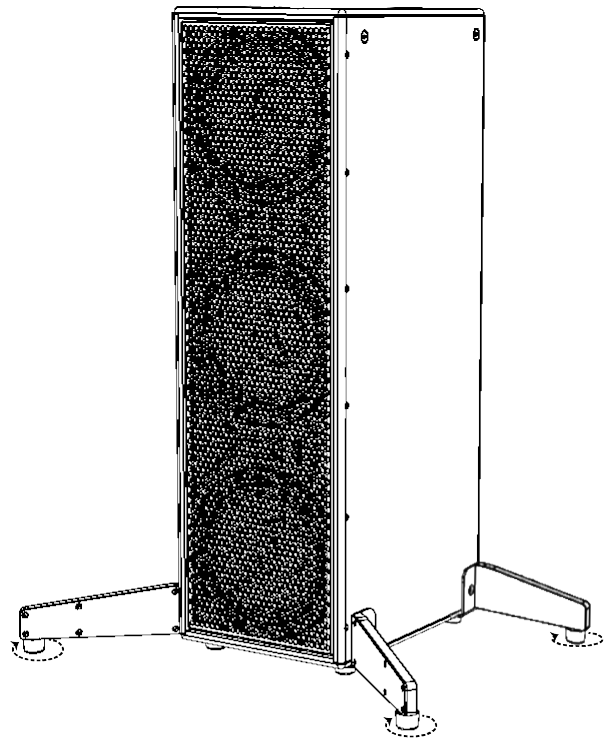
- Align the mounting hole of the shorter 90° Outrigger with the bottom rigging point nearest the rear grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Figure 150. Aligning rear Outrigger on SUB310 (side view).



- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.
- Repeat steps 2 – 6 on the opposite side of the SUB310.

Figure 151. Lowering the Outrigger feet.



- Turn the leveling feet of each outrigger to lower it just to rest firmly against the floor.

Leveling SUB310

Once the Subwoofer Outriggers are securely installed, it is possible to use them for fine adjustments to assure that the subwoofer unit is properly leveled, which is especially important when other speaker enclosures are to be deployed atop the subwoofer.


⚠ CAUTION	
	<p>Tipping Hazard The Subwoofer Outriggers can be used to apply minor adjustments to the leveling of the SUB310 or CSUB610 subwoofer units. DO NOT install any speaker enclosures atop a subwoofer in any configuration if the subwoofer can not be properly leveled in its position.</p> <p>If the subwoofer cannot be properly leveled using the Outrigger feet, it is necessary to adjust the surface supporting the subwoofer (floor, stage deck, riser etc.) in order to level it before deployment. It is the responsibility of the installation personnel to verify and guarantee the safety of the installation.</p>

Figure 152. SUB310 Side-to-side leveling.

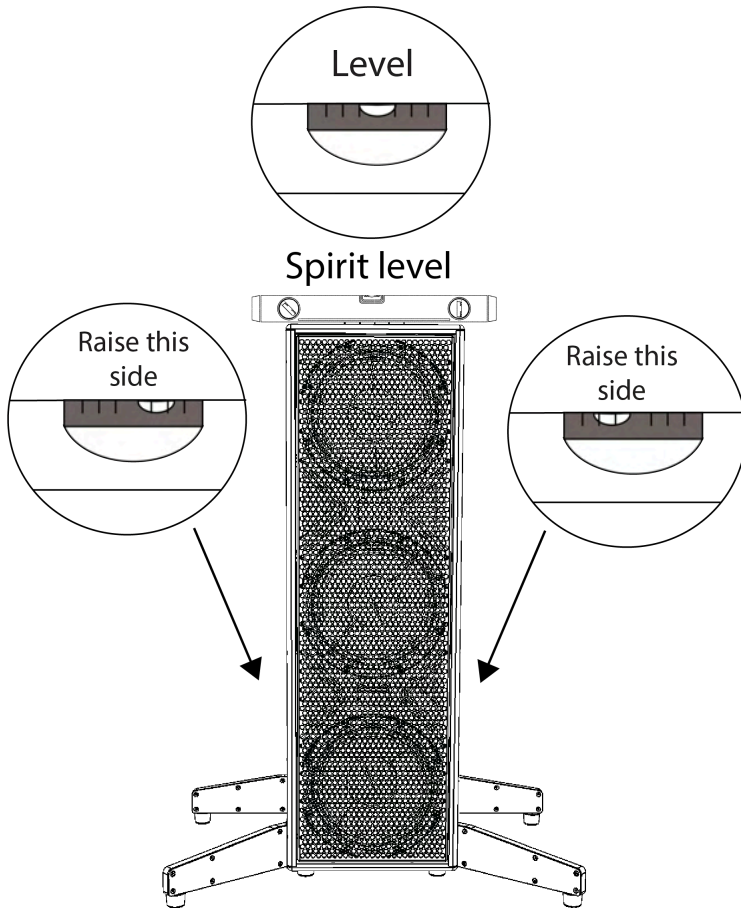
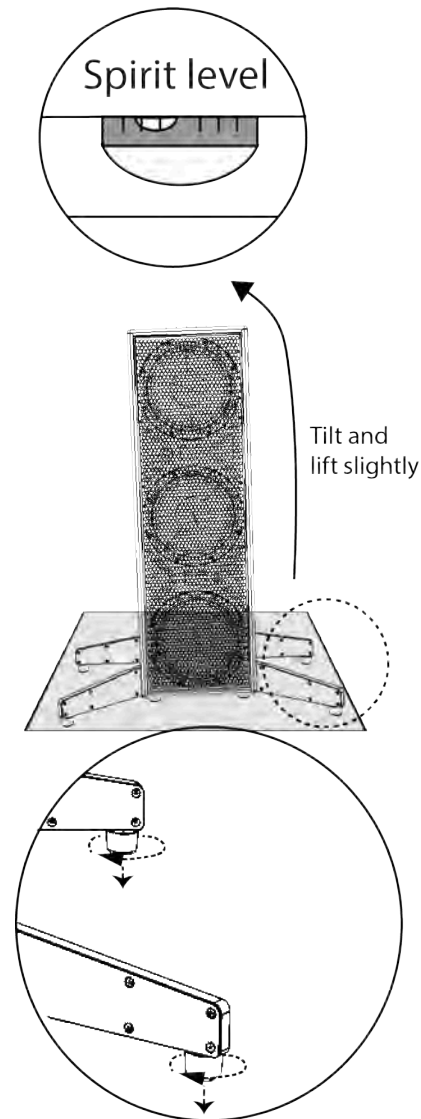


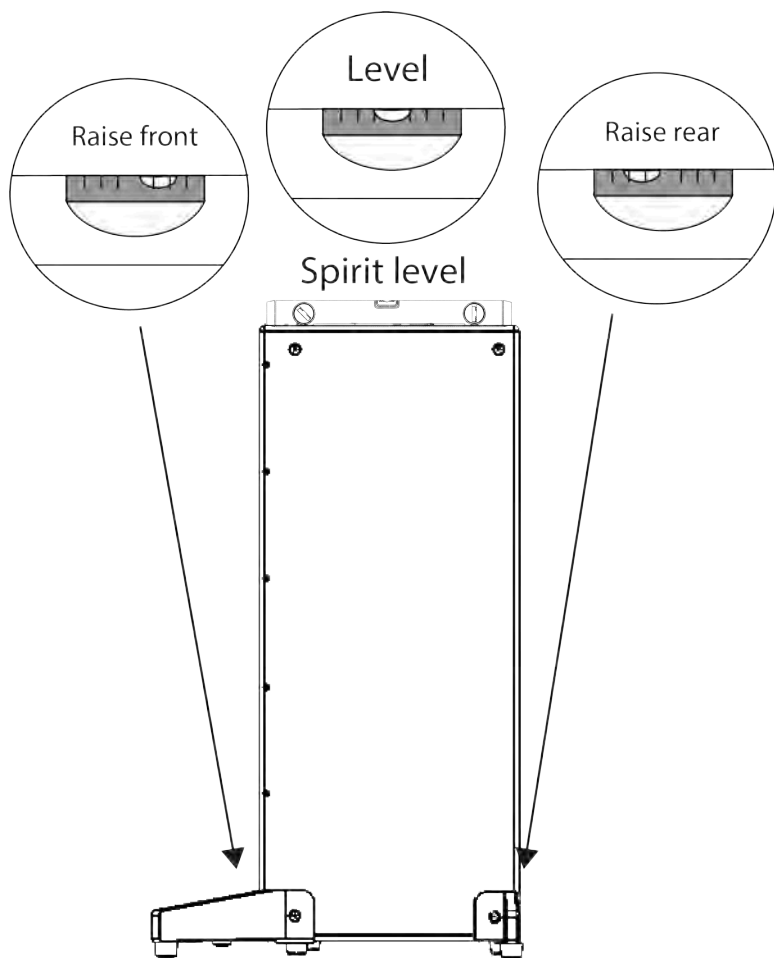
Figure 153. Leveling SUB310 side-to-side – example.



! **Important:** If any of the Outrigger foot being adjusted reaches its limit (completely lowered) before the subwoofer can be properly leveled on any axis, it will be necessary to stop this procedure and either reposition the subwoofer or – where possible, such as on an adjustable platform or riser – adjust the level of the surface where the unit is deployed.

- With all four Subwoofer Outriggers installed, and each of the four adjustable feet of the Outriggers lowered to touch the floor, place a spirit level (or digital level) across the top surface of the subwoofer cabinet, parallel to the front grille of the enclosure. Be careful to avoid placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level side-to-side, adjust the feet of the pair of Outriggers on the side that is lower.
- To raise the side that is lower, the Outrigger feet can be lowered by turning them clockwise (as seen from the top of the cabinet). It may be necessary to tilt the entire subwoofer slightly to raise the outrigger feet off of the floor before turning them. Try to make similar adjustments to each of the pair of feet, returning the subwoofer to rest on the floor after each adjustment and checking the level each time. This process may need to be repeated several times to achieve correct leveling. When this is achieved, proceed to leveling the unit on the front-to-back axis.

Figure 154. SUB310 front-to-back leveling.



- Once the subwoofer has been leveled side-to-side, place the spirit level across the top surface of the subwoofer cabinet, perpendicular to the front grille of the enclosure, again avoiding placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level front-to-back, adjust the feet of the pair of Outriggers on the side (front or back) that is lower, using the same procedure in Step 3 above. Again, this may need to be repeated several times to achieve correct leveling.
- Once the subwoofer unit has been leveled both side-to-side and front-to-back, check again the leveling on both axes, making any slight adjustments necessary until the cabinet is level both side-to-side and front-to-back.

Installing Rigging Plate on LCC44/84

In order to couple LCC44 or LCC84 units to each other, directly to a subwoofer, or to allow for variable tilt angles of the enclosure in sub/satellite configurations using the Tower Tube mount and Active Speaker Tube, the speaker enclosure needs to be equipped with Tower Rigging System plates.

If the LCC44 or LCC84 unit is not pre-equipped with Rigging Plates, these can be mounted by the user.

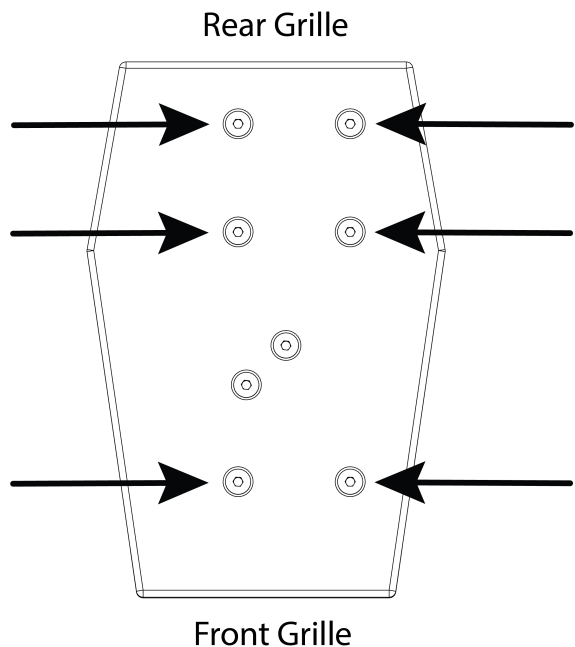
! Attention: For the installation of the Rigging Plates on the LCC44 or LCC84 enclosure, the use of medium-strength threadlocking compound is **REQUIRED** on all user-installed screws.

! WARNING



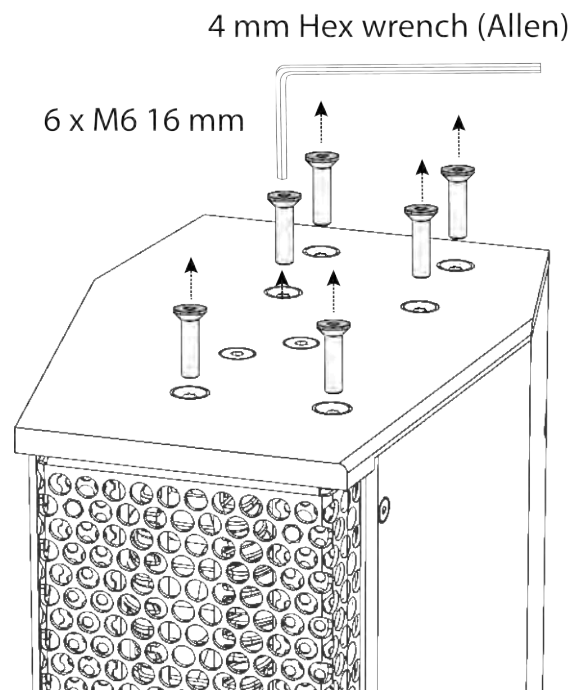
NOT FOR SUSPENDED LOADS
For flown deployments of the LCC44 or LCC84 enclosures, use only units with factory-installed rigging plates. LCC44 or LCC84 units with user-installed rigging plates are only suitable for ground-stacked or pole-mounted deployments.

Figure 155. Threaded inserts for Rigging Plate on the bottom of LCC44 or LCC84.



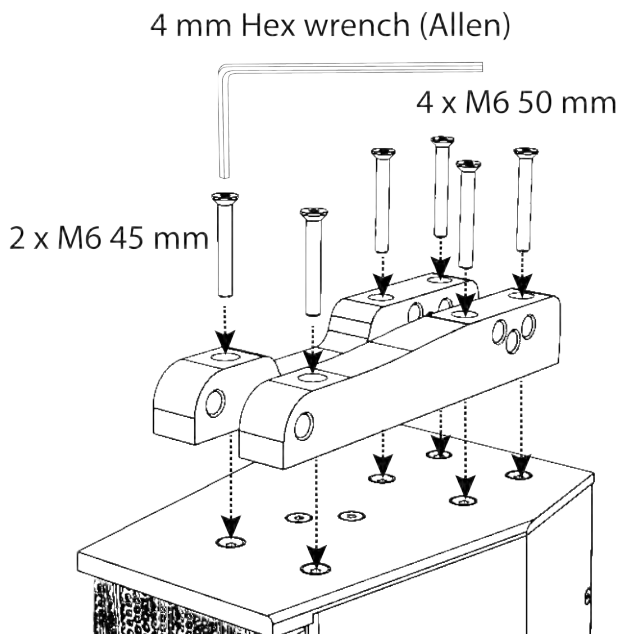
- Invert the LCC44/84 enclosure, bottom-side-up.

Figure 156. Removing the screws from the LCC44/84 Rigging System mounting points.



- Use a 4 mm Allen wrench or hex driver to remove the six M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these screws aside, as they will be replaced by the screws supplied with the rigging plates.
- Position one of the rigging plates as shown on the bottom surface of the LCC44/84, aligning the six countersunk holes in the rigging plate with the threaded inserts in the rigging points from which the screws were removed.
- Insert two of the (shorter) M6x45 mm screws (supplied with the rigging plates) into the two holes in the rigging plate positioned **nearest the front grille of the enclosure**, and thread them into the underlying threaded inserts in the LCC44/84 without tightening them.
- Insert four of the (longer) M6x50 mm screws (supplied with the rigging plates) into the four holes in the rigging plate nearer the rear grille of the LCC44/84. Thread these, without tightening them, into the underlying threaded inserts in the enclosure.

Figure 157. Installing Tower Rigging System Plate to LCC44



- Using a 4 mm hex key (Allen type) with a length that allows for sufficient leverage, tighten the screws into the inserts in opposing pairs to firmly attach the rigging plate to the CSUB610. The plate should be perfectly flush with the cabinet at every point and there should be no movement possible.

If the LCC44 or LCC84 unit is being deployed as a single unit in a sub/satellite configuration atop a subwoofer using a Tower Tube Mount equipped with a rigging plate, or as a single unit (with no further enclosures above it) directly atop a subwoofer equipped with a rigging plate, it is not necessary to mount the second rigging plate on the top of the enclosure.

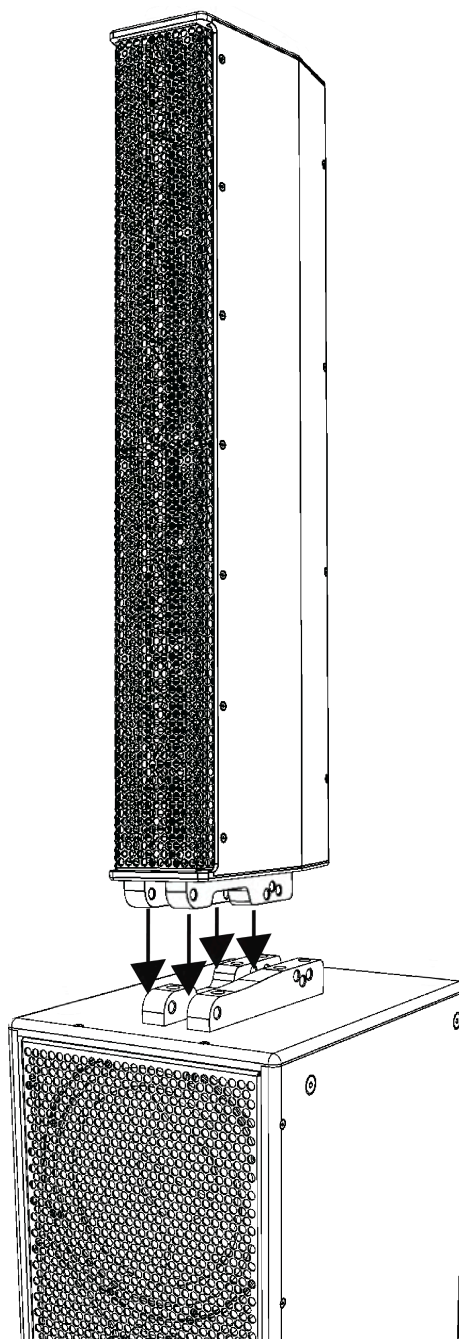
- If, instead, the LCC44 or LCC84 unit is to be used with further units installed above it in a stacked configuration, it will be necessary to install the second rigging plate. If necessary, invert the LCC44/84 unit and repeat Steps 2 through 6 above.

Coupling LCC44/84 to SUB310 using Tower Rigging System

Once a SUB310 has been equipped with outriggers and leveled and a Tower Rigging System plate has been properly installed, it can be coupled in stacked configuration with a single unit of LCC84 (or a single LCC44) likewise equipped with a rigging plate.

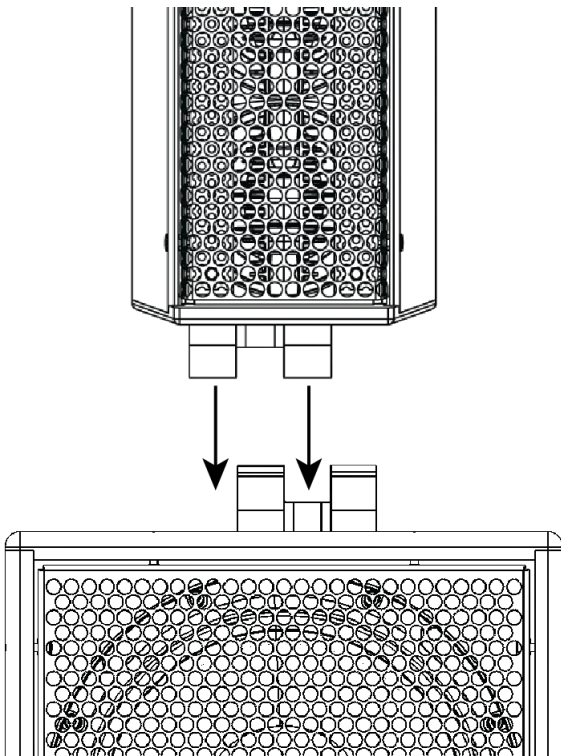
⚠ WARNING	
	<p>Tipping Hazard The SUB310 model subwoofer is designed for use in a stacked and coupled configuration with a maximum of one (1) LCC84 unit, or one (1) LCC44 unit. Mounting further enclosures atop the SUB310 will render the entire assembly unstable. DO NOT ATTEMPT to mount a second LCC84 or LCC44 enclosure atop the assembled array of SUB310 and LCC44/84.</p>
⚠ WARNING	
	<p>Risk of Hand Injury When coupling or setting the splay angle between two LCC44/84 units or a subwoofer unit and an LCC44/84 unit, do not allow your fingers to enter the space between the two rigging plates or any of the holes.</p>

Figure 158. Placing LCC84 atop SUB310 for coupling.



⚠ WARNING	
	<p>Tipping Hazard Improper installation of the Subwoofer Outriggers or the Tower Rigging System plate on a subwoofer enclosure, or of the rigging plate on the LCC44 or LCC84 unit could create a hazardous or unstable condition when the subwoofer and column enclosure are assembled. Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR STACKED AND COUPLED SPEAKER ARRAY.</p>

Figure 159. Alignment of the Tower Rigging System plates, front view.

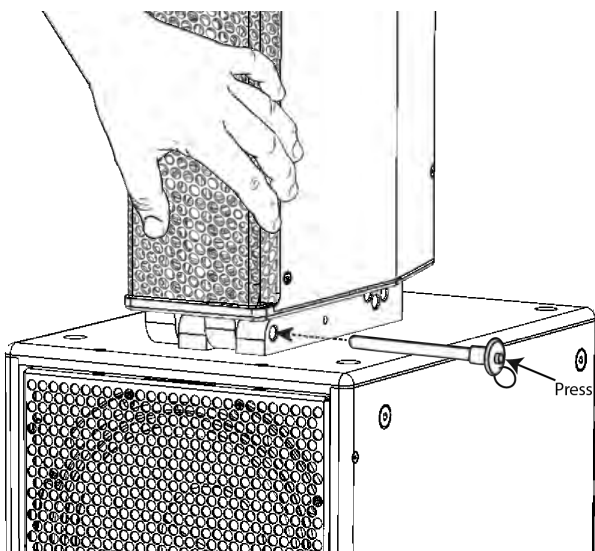


- With the SUB310 unit equipped with outriggers in a stable position and properly leveled, lift the LCC84 (or LCC44) above the SUB310 with the front grille of the two enclosures oriented in the same direction. With the LCC84 centered laterally above the SUB310, the two rigging plates should align to interlock, as in the figure.
- Lower the LCC84 onto the subwoofer so that the rigging plates interlock. The shape of the plates themselves will help align them correctly.

! Attention: Until both lock pins have been completely inserted and locked, maintain a grip on the LCC84 (or LCC44) unit.

- While maintaining a firm hold on the LCC84 enclosure, slide it to align the holes in the rigging plates closest to the front grille of both enclosures.

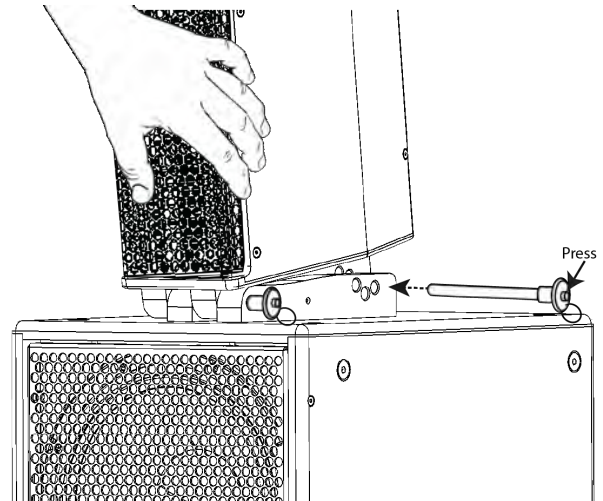
Figure 160. Inserting the first ball-lock pin.



- Take one of the M10×100 ball-lock pins supplied with the rigging plates and press the lock release on the rear of the pin to allow it to pass into the hole. Insert it into the front holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release. When the fronts of the plates are coupled, it should be possible to freely tilt the LCC84 with respect to the SUB310. This done, it is possible to fix the tilt angle of the speaker enclosure.

Setting splay angle between LCC84 and SUB310

Figure 161. Inserting the second ball-lock pin to fix the splay angle.



- Once the first pin has been inserted and locked to couple the two rigging plates, maintain a firm hold on the LCC84 unit, and tilt it to align the holes in the rear of the rigging plates that correspond to the required splay angle between the subwoofer and the LCC84.

Note: Only convergent (negative splay angle) or parallel configurations are possible between the SUB310 unit and LCC84 or LCC44 units.

Figure 162. Setting a 0° tilt angle.

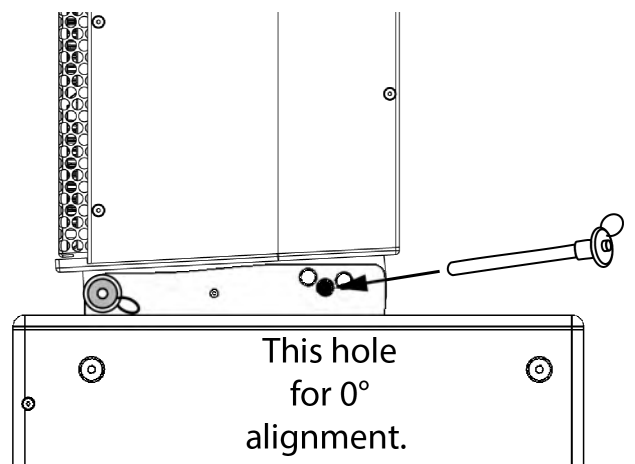
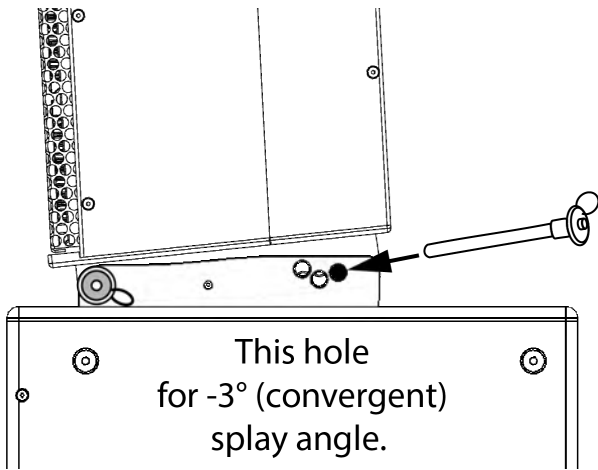
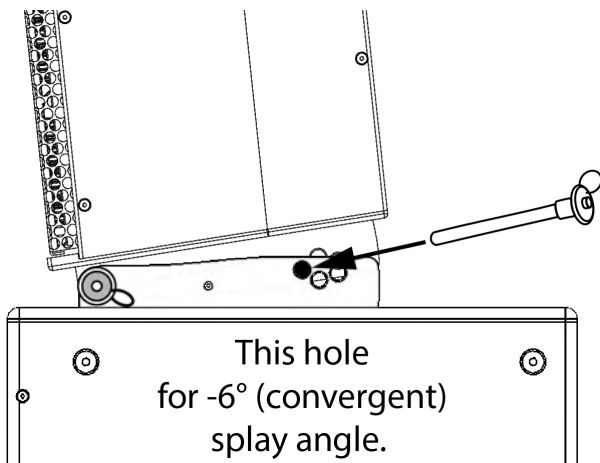


Figure 163. Setting a -3° tilt angle.



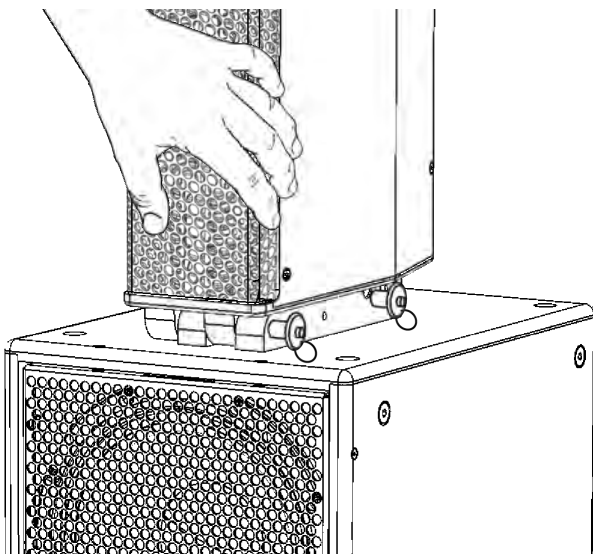
- Once the second pin has been inserted and locked, the array is configured. Before releasing the enclosure and allowing the assembly to stand on its own, physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.

Figure 163. Setting a -6° tilt angle.



- When the required holes are perfectly aligned, take the other M10x100 ball-lock pin supplied with the rigging plates and press the lock-release button on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, release the button to allow the lock to engage and assure that the pin cannot be removed without again pressing the release.

Figure 165. LCC84 fully coupled to SUB310 (0° angle shown).



Chapter 9. Stacking LCC44/84 units on CSUB610 in the parallel configuration using the Tower Rigging System

Figure 166. Three LCC44 enclosures deployed atop CSUB610 using the Tower Rigging System in the parallel (cardioid sub) configuration.

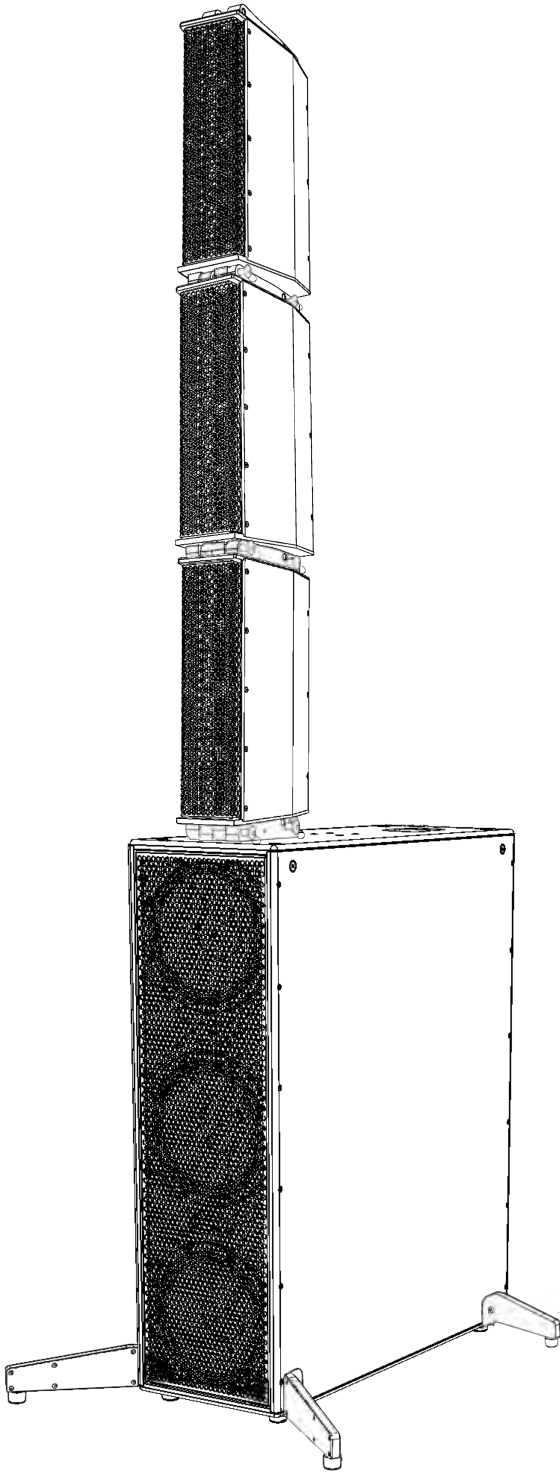
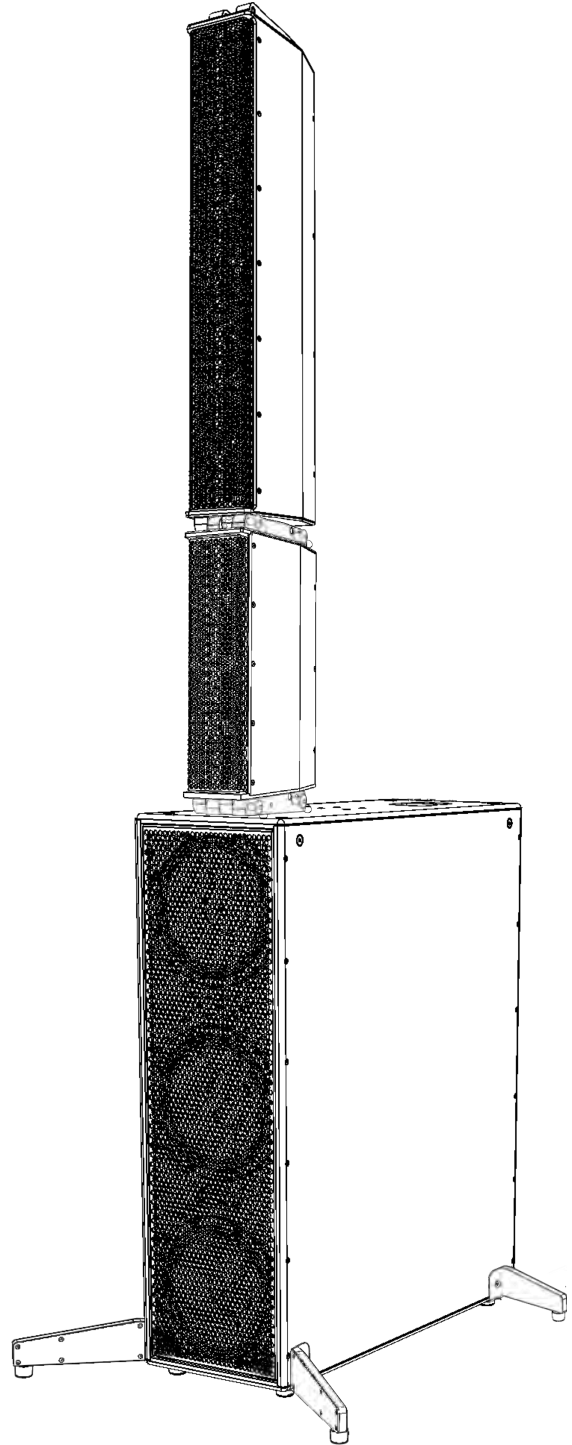


Figure 167. One LCC44 and one LCC84 deployed atop CSUB610 using the Tower Rigging System in the parallel (cardioid sub) configuration.



Critical information

! **Attention:** This equipment is intended for installation by qualified professionals.

📢 **Notice:** Please read these instructions carefully and completely before attempting deployment of speaker enclosures on floor stands.

⚠ WARNING



Tipping Hazard
Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. Exercise extreme care when assembling speaker arrays, as a stack of them toppling or collapsing creates a risk of serious injury or death, as well as likely damage to the enclosures themselves and nearby equipment.

📢 Notice: This product must be installed in compliance with all applicable local, state and national regulatory provisions. The responsibility rests with the installer to verify that the installation is carried out in accordance with any applicable legislation.

! Important: The installer must assess the appropriate stability and sturdiness of the deployment surface.

🚫 Restriction: Only hardware and accessories included with the product or specified by 1 Sound should be used for its installation.

🚫 Restriction: Do not modify or alter the loudspeaker or any accessory. Any modification by the user or installer could render the product or the installation unsafe.

🚫 Restriction: Do not install a loudspeaker or any accessory near any open flame or heat source.

Products, accessories and tools required

To deploy LCC44/84 enclosures atop a CSUB610 bass unit using the Tower Rigging System you will need the following:

- LCC84 (on page 4) and/or LCC44 (on page 4) loudspeaker enclosure(s)
- A CSUB610 (on page 5) subwoofer enclosure
- The Subwoofer Outrigger (on page 9) stabilizing leg kit
- The Tower Rigging System Plates (on page 8) kit
- A 5 mm Allen wrench
- A 4 mm Allen wrench
- **Recommended:** Spirit level

Procedures

Mounting Rigging plate on CSUB610

In order to use the Tower Rigging System to deploy LCC44 or LCC84 units directly atop a CSUB610 bass unit, the subwoofer unit must first be equipped with a Tower Rigging System plate.

The Tower Rigging System Plate can be mounted in one of two different configurations on a CSUB610 unit, either parallel or perpendicular to the front/rear axis of the cabinet.

! Important: For permanent or semi-permanent installation of the Tower Rigging System plates on the CSUB610 subwoofer, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

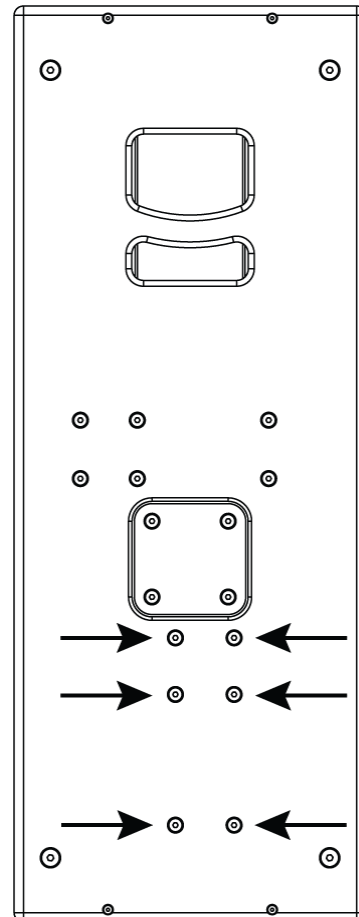
Mounting the Tower Rigging System Plate to CSUB610 in the parallel orientation

If the application requires the use of the cardioid functionality of CSUB610 on axis with the LCC84 or LCC44 unit(s), the rigging plate must be installed on the subwoofer in the parallel configuration. Naturally, this configuration can be used with omnidirectional presets, as well.

! Important:

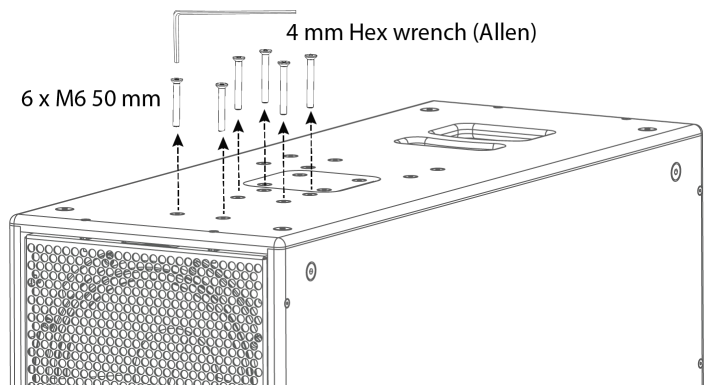
! For permanent or semi-permanent installation of the Tower Rigging System plates on the CSUB610 subwoofer, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 168. Top View of CSUB610 showing parallel mounting inserts for the Tower Rigging System Plate



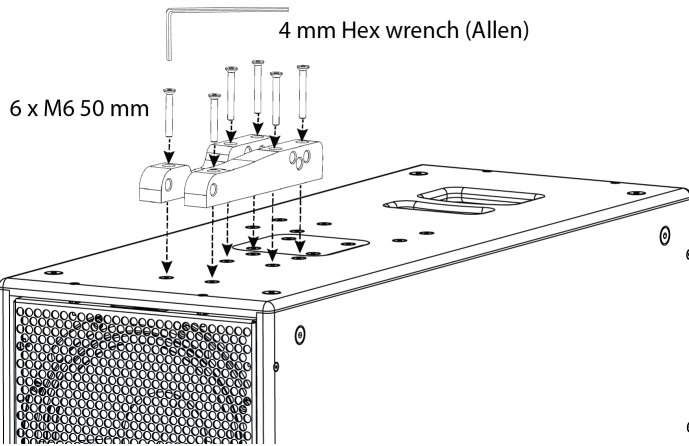
Threaded inserts (6x) for installing the plate in parallel configuration

Figure 169. Removing screws from parallel rigging plate points.



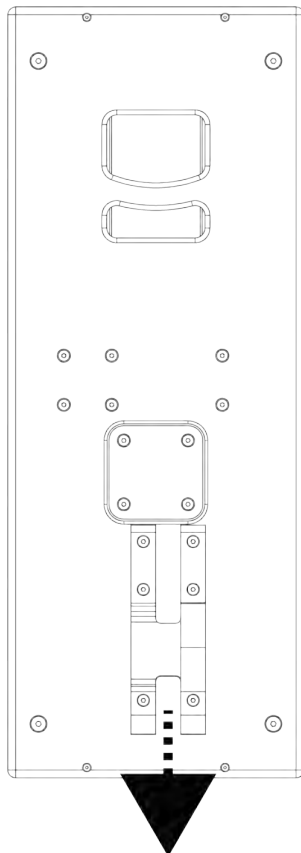
- Use a 4 mm Allen wrench or hex driver to remove the six M6x50 mm screws from the rigging points indicated above on the top of the cabinet. Keep these screws, as they will be used to fix the rigging plate.

Figure 170. Mounting the rigging plate on CSUB610 in the parallel configuration



- Position the Tower Rigging System Rigging plate atop the CSUB610, as shown in the figure, with the six countersunk mounting holes aligned with the six M6 threaded inserts.
- Insert the six M6x50 mm screws into the six holes in the rigging plate. Thread these without tightening them into the underlying threaded inserts in the CSUB610.

Figure 171. Top view of CSUB610 with Tower Rigging System Plate installed in the parallel configuration.



FRONT
(Toward coverage area of coupled LCC44/84 units)

- Using a 4 mm hex key (Allen type) with a length that allows for sufficient leverage, tighten the screws into the inserts in opposing pairs to firmly attach the rigging plate to the CSUB610. The plate should be perfectly flush with the cabinet at every point and there should be no movement possible.

Installing Outriggers on the CSUB610

Installing the subwoofer outriggers improves the stability of the CSUB610 or SUB310 when deployed vertically on the floor. The outriggers are recommended in any application in which the subs are deployed in public areas where people could bump into them or lean on them. These are also REQUIRED in any application in which other loudspeaker enclosures are coupled to the subwoofer in an upright position. The CSUB610 unit can be deployed with LCC44, LCC84 or combinations of these in either a parallel or perpendicular configuration. Each of these configurations requires that the outriggers be installed in the appropriate configuration.

⚠ WARNING



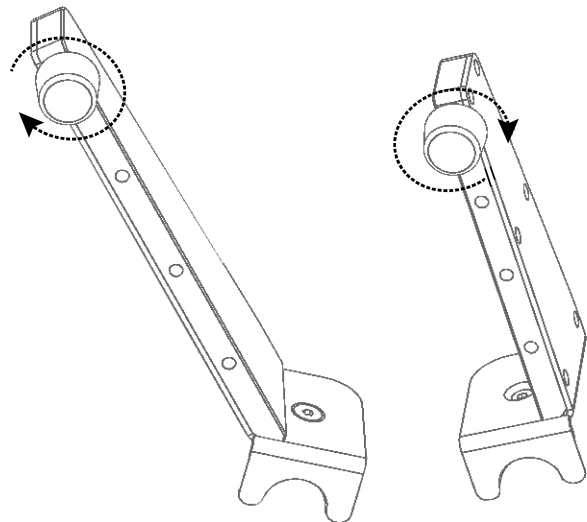
TIPPING HAZARD

Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, THE INSTALLATION OF THE SUBWOOFER OUTRIGGERS ON THE SUB310 AND CSUB610 IS REQUIRED WHENEVER ONE OR MORE LOUDSPEAKER ENCLOSURES IS MOUNTED ATOP ONE OF THESE UNITS, EITHER IN A STACKED CONFIGURATION USING THE TOWER RIGGING SYSTEM OR IN A SUB/SATELLITE CONFIGURATION USING A SPEAKER POLE.

Installing Outriggers for parallel (cardioid) deployment of CSUB610 with LCC44/84

If the application requires the use of the cardioid functionality of CSUB610 on axis with the LCC84 or LCC44 unit(s), the Outriggers must be installed on the subwoofer in the parallel configuration, with the two 50°-angled outriggers extending forward to provide extended stability at the front of the cabinet, while the two 90° outriggers are installed at the rear. Naturally, this configuration can be used with omnidirectional presets on the subwoofer, as well, but only when the LCC44 or LCC84 units are coupled parallel to the CSUB610, with all the forward grilles facing the same direction.

Figure 172. Raising the leveling feet of the Outriggers.



- Before installation, on each of the four Outriggers, raise the leveling feet by screwing them in completely.

Figure 173. Removing rigging point screws from CSUB610 for the installation of the Sub Outriggers

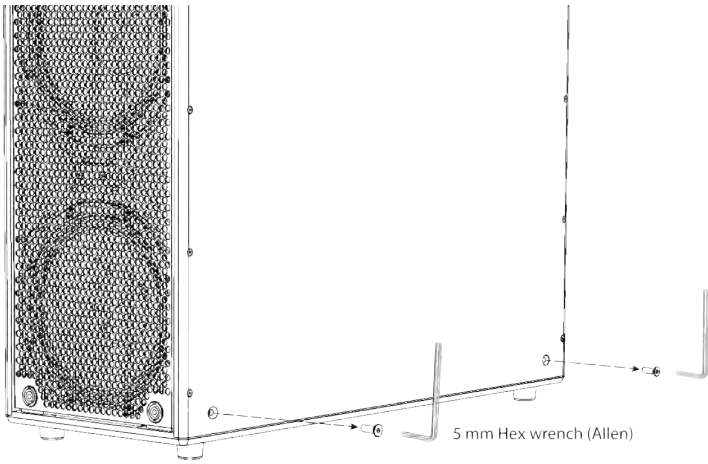
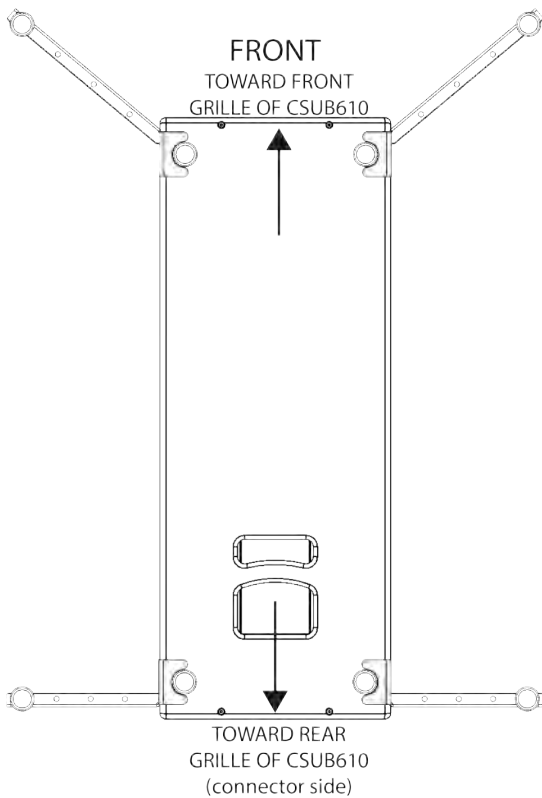
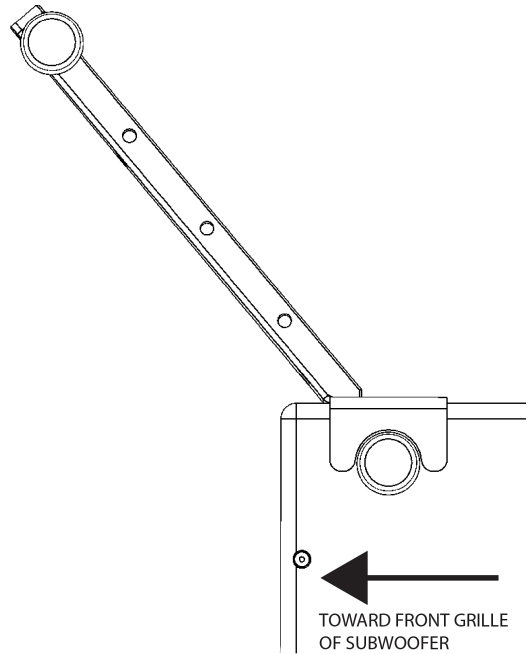


Figure 174. Configuring the outriggers on CSUB610 for parallel deployment of LCC44/84 units (bottom view).



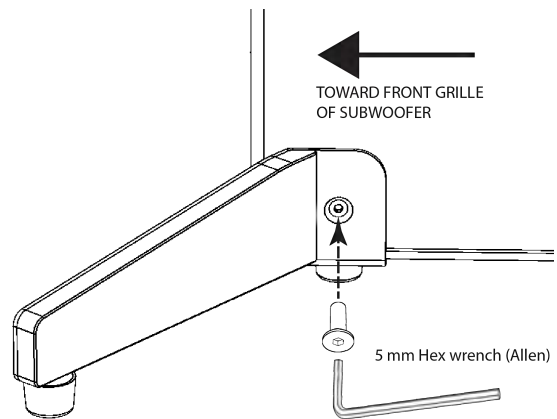
- Using a 5 mm hex wrench, remove the two bottom rigging point screws from one long side of the CSUB610 cabinet.

Figure 175. Aligning forward Outrigger on CSUB610 (bottom view).



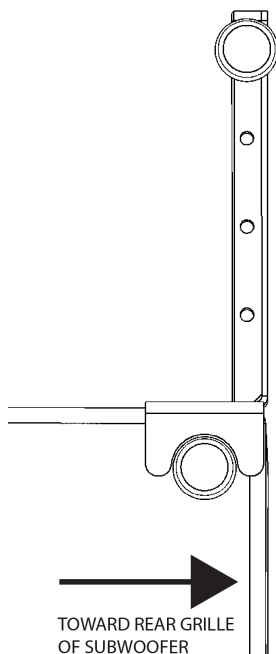
- Align the mounting hole of the longer 50° Outrigger with the bottom rigging point nearest the front grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Figure 176. Aligning forward Outrigger on CSUB610 (side view).



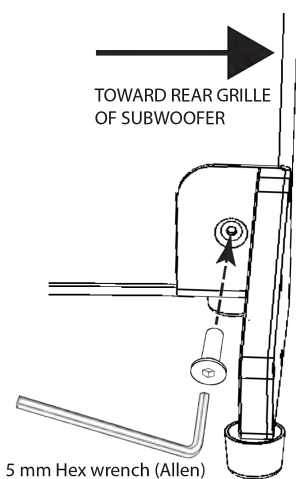
- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.

Figure 177. Aligning rear Outrigger on CSUB610 (bottom view)



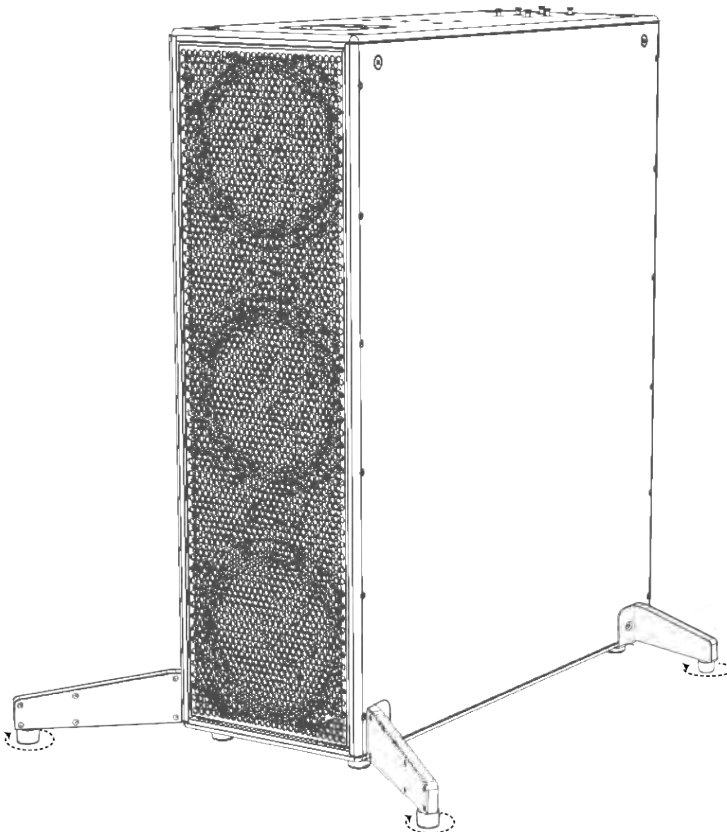
- Align the mounting hole of the shorter 90° Outrigger with the bottom rigging point nearest the rear grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Figure 178. Aligning rear Outrigger on CSUB610 (side view).



- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.
- Repeat steps the steps above on the opposite side of the CSUB610.

Figure 179. Lowering the Outrigger feet.



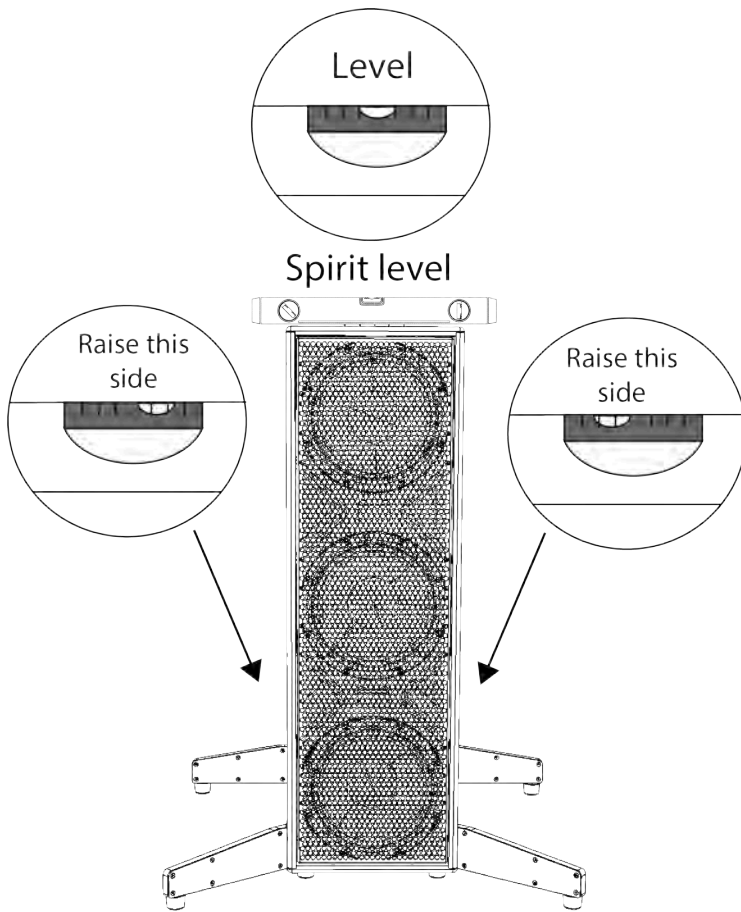
- Turn the leveling feet of each outrigger to lower it just to rest firmly against the floor.

Leveling CSUB610

Once the Subwoofer Outriggers are securely installed, it is possible to use them for fine adjustments to assure that the subwoofer unit is properly leveled, which is especially important when other speaker enclosures are to be deployed atop the subwoofer.

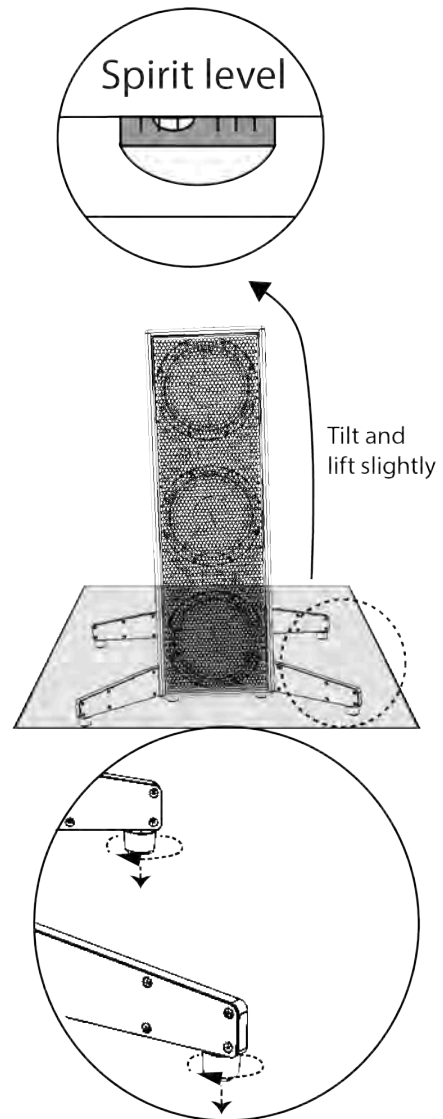
⚠ CAUTION	
	<p>Tipping Hazard The Subwoofer Outriggers can be used to apply minor adjustments to the leveling of the SUB310 or CSUB610 subwoofer units. DO NOT install any speaker enclosures atop a subwoofer in any configuration if the subwoofer can not be properly leveled in its position.</p> <p>If the subwoofer cannot be properly leveled using the Outrigger feet, it is necessary to adjust the surface supporting the subwoofer (floor, stage deck, riser etc.) in order to level it before deployment. It is the responsibility of the installation personnel to verify and guarantee the safety of the installation.</p>

Figure 180. CSUB610 Side-to-side leveling.



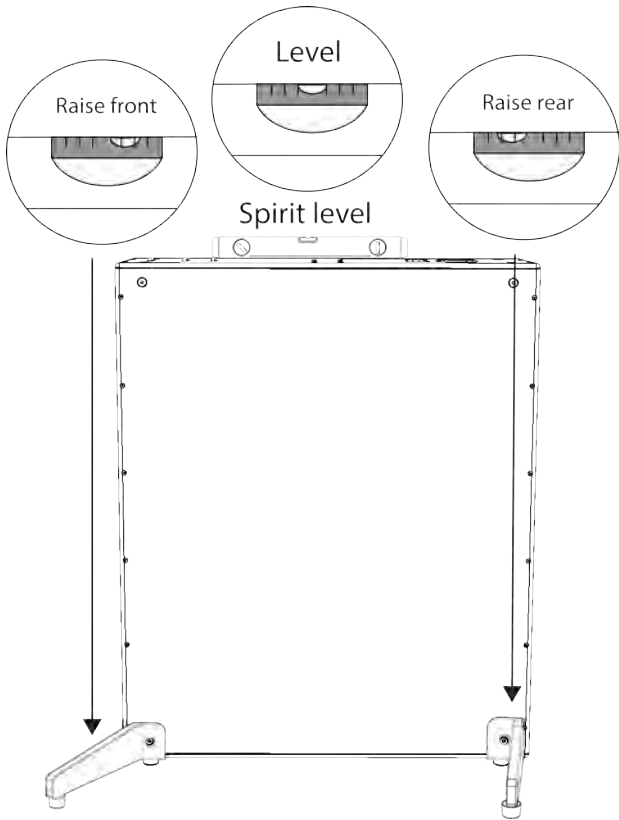
- With all four Subwoofer Outriggers installed, and each of the four adjustable feet of the Outriggers lowered to touch the floor, place a spirit level (or digital level) across the top surface of the subwoofer cabinet, parallel to the front grille of the enclosure. Be careful to avoid placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level side-to-side, adjust the feet of the pair of Outriggers on the side that is lower.
- To raise the side that is lower, the Outrigger feet can be lowered by turning them clockwise (as seen from the top of the cabinet). It may be necessary to tilt the entire subwoofer slightly to raise the outrigger feet off of the floor before turning them. Try to make similar adjustments to each of the pair of feet, returning the subwoofer to rest on the floor after each adjustment and checking the level each time. This process may need to be repeated several times to achieve correct leveling. When this is achieved, proceed to leveling the unit on the front-to-back axis.

Figure 181. Leveling CSUB610 side-to-side – example.



! **Important:** If any of the Outrigger foot being adjusted reaches its limit (completely lowered) before the subwoofer can be properly leveled on any axis, it will be necessary to stop this procedure and either reposition the subwoofer or – where possible, such as on an adjustable platform or riser – adjust the level of the surface where the unit is deployed.

Figure 182. CSUB610 front-to-back leveling.



- Once the subwoofer has been leveled side-to-side, place the spirit level across the top surface of the subwoofer cabinet, perpendicular to the front grille of the enclosure, again avoiding placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level front-to-back, adjust the feet of the pair of Outriggers on the side (front or back) that is lower, using the same procedure in Step 3 above. Again, this may need to be repeated several times to achieve correct leveling.
- Once the subwoofer unit has been leveled both side-to-side and front-to-back, check again the leveling on both axes, making any slight adjustments necessary until the cabinet is level both side-to-side and front-to-back.

Installing Rigging Plate on LCC44/84

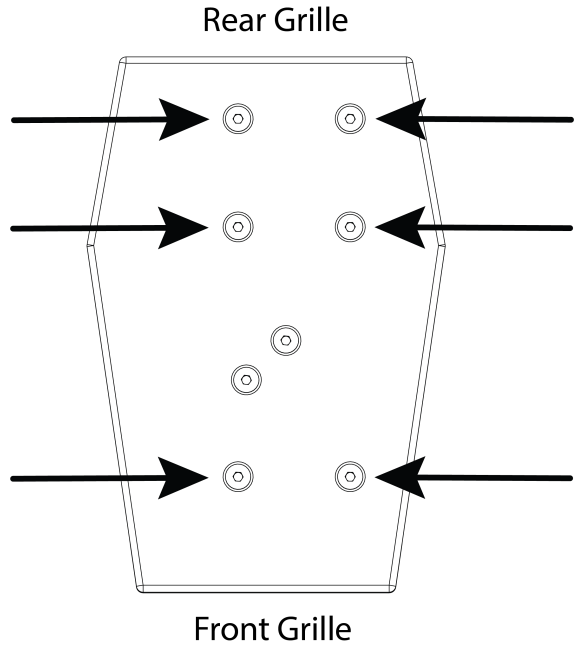
In order to couple LCC44 or LCC84 units to each other, directly to a subwoofer, or to allow for variable tilt angles of the enclosure in sub/satellite configurations using the Tower Tube mount and Active Speaker Tube, the speaker enclosure needs to be equipped with Tower Rigging System plates.

If the LCC44 or LCC84 unit is not pre-equipped with Rigging Plates, these can be mounted by the user.

! Attention: For the installation of the Rigging Plates on the LCC44 or LCC84 enclosure, the use of medium-strength threadlocking compound is REQUIRED on all user-installed screws.

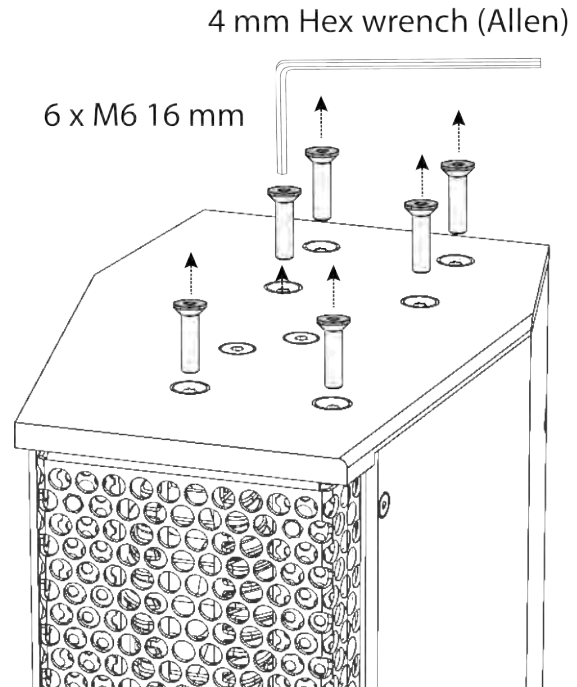
! WARNING	
	<p>NOT FOR SUSPENDED LOADS For flown deployments of the LCC44 or LCC84 enclosures, use only units with factory-installed rigging plates. LCC44 or LCC84 units with user-installed rigging plates are only suitable for ground-stacked or pole-mounted deployments.</p>

Figure 183. Threaded inserts for Rigging Plate on the bottom of LCC44 or LCC84.



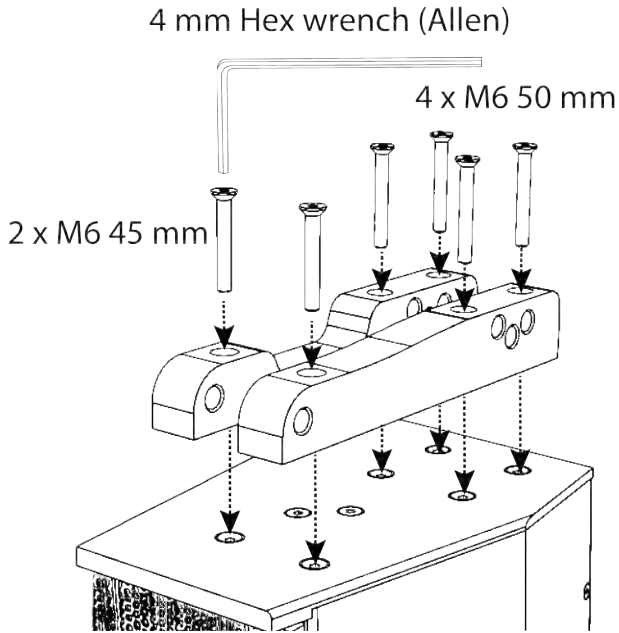
- Invert the LCC44/84 enclosure, bottom-side-up.

Figure 184. Removing the screws from the LCC44/84 Rigging System mounting points.



- Use a 4 mm Allen wrench or hex driver to remove the six M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these screws aside, as they will be replaced by the screws supplied with the rigging plates.
- Position one of the rigging plates as shown on the bottom surface of the LCC44/84, aligning the six countersunk holes in the rigging plate with the threaded inserts in the rigging points from which the screws were removed.
- Insert two of the (shorter) M6x45 mm screws (supplied with the rigging plates) into the two holes in the rigging plate positioned **nearest the front grille of the enclosure**, and thread them into the underlying threaded inserts in the LCC44/84 without tightening them.
- Insert four of the (longer) M6x50 mm screws (supplied with the rigging plates) into the four holes in the rigging plate nearer the rear grille of the LCC44/84. Thread these, without tightening them, into the underlying threaded inserts in the enclosure.

Figure 185. Installing Tower Rigging System Plate to LCC44



- Using a 4 mm hex key (Allen type) with a length that allows for sufficient leverage, tighten the screws into the inserts in opposing pairs to firmly attach the rigging plate to the CSUB610. The plate should be perfectly flush with the cabinet at every point and there should be no movement possible.

If the LCC44 or LCC84 unit is being deployed as a single unit in a sub/satellite configuration atop a subwoofer using a Tower Tube Mount equipped with a rigging plate, or as a single unit (with no further enclosures above it) directly atop a subwoofer equipped with a rigging plate, it is not necessary to mount the second rigging plate on the top of the enclosure.

- If, instead, the LCC44 or LCC84 unit is to be used with further units installed above it in a stacked configuration, it will be necessary to install the second rigging plate. If necessary, invert the LCC44/84 unit and repeat Steps 2 through 6 above.

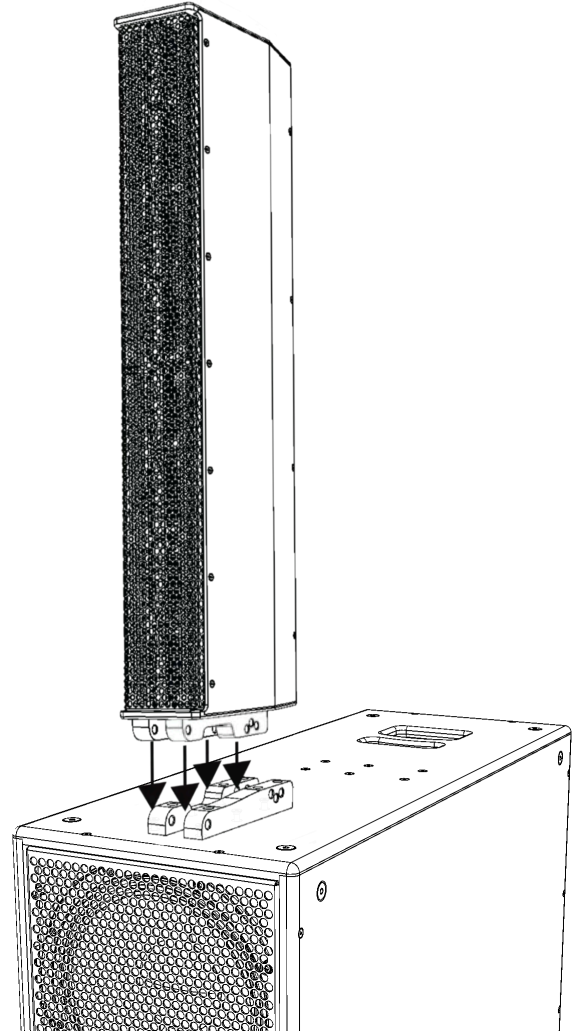
Coupling LCC44/84 units to CSUB610 using Tower Rigging System

Once a CSUB610 has been equipped with outriggers, leveled, and a Tower Rigging System plate has been properly installed, it can be coupled in stacked configuration with LCC84 or LCC44 units likewise equipped with rigging plates.

⚠ WARNING

Risk of Hand Injury
When coupling or setting the splay angle between two LCC44/84 units or a subwoofer unit and an LCC44/84 unit, do not allow your fingers to enter the space between the two rigging plates or any of the holes.

Figure 186. Placing LCC84 atop CSUB610 for coupling in the parallel configuration.



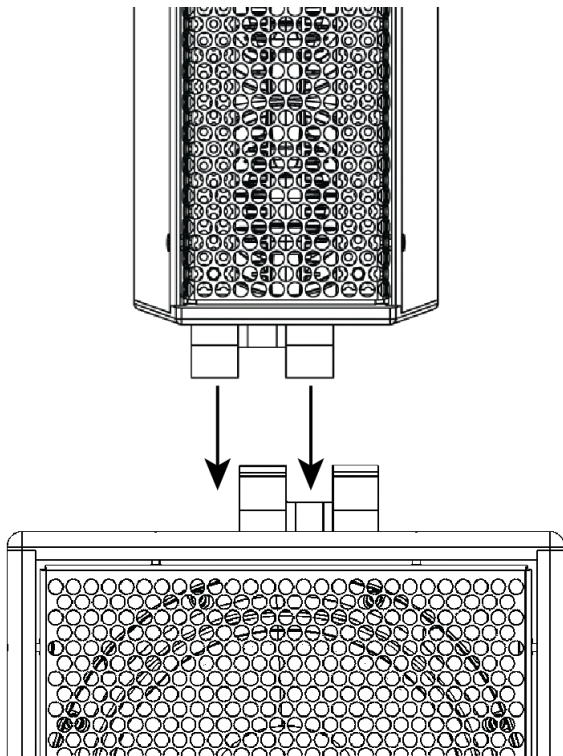
⚠ WARNING

Tipping Hazard
Improper installation of the Subwoofer Outriggers or the Tower Rigging System plate on a subwoofer enclosure, or of the rigging plate on the LCC44 or LCC84 unit could create a hazardous or unstable condition when the subwoofer and column enclosure are assembled.
Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. **DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR STACKED AND COUPLED SPEAKER ARRAY.**

⚠ WARNING

Tipping Hazard
The CSUB610 model subwoofer is designed for use in a stacked and coupled configuration with a maximum of one (1) LCC84 unit plus one (1) LCC44 unit, or three (3) LCC44 units. Mounting further enclosures atop the CSUB610 can render the entire assembly unstable.

Figure 187. Alignment of the Tower Rigging System plates, front view.

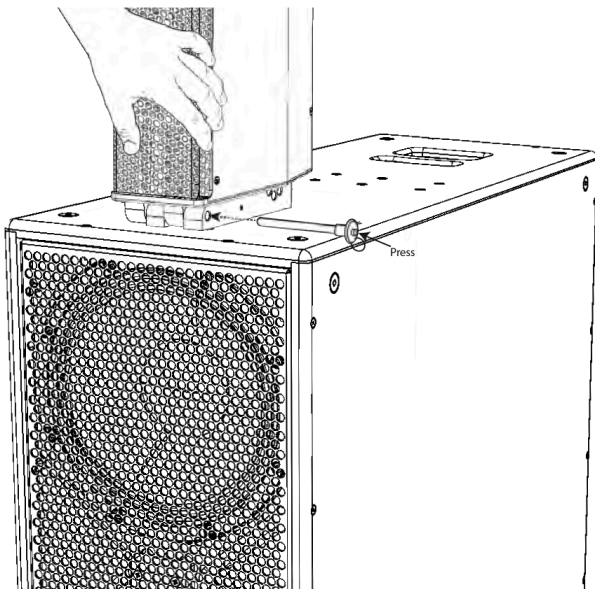


- With the CSUB610 unit equipped with outriggers in a stable position and properly leveled, lift the LCC84 or LCC44 above the rigging plate of the CSUB610, in whichever orientation (parallel or perpendicular) is required. The two rigging plates should align to interlock, as in the figure.
- Lower the LCC84 onto the subwoofer so that the rigging plates interlock. The shape of the plates themselves will help align them correctly.

! Attention: Until both lock pins have been completely inserted and locked, maintain a grip on the LCC84 (or LCC44) unit.

- While maintaining a firm hold on the LCC84 enclosure, slide it to align the holes in the rigging plates closest to the front grille of both enclosures.

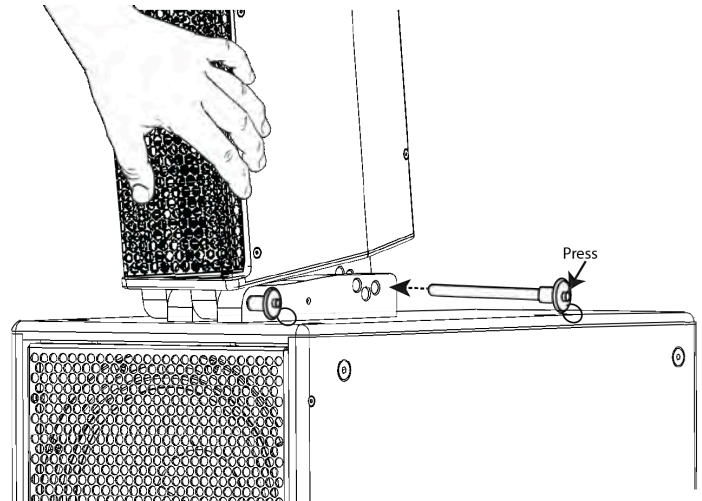
Figure 188. Inserting the first ball-lock pin.



- Take one of the M10×100 ball-lock pins supplied with the rigging plates and press the lock release on the rear of the pin to allow it to pass into the hole. Insert it into the front holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release. When the fronts of the plates are coupled, it should be possible to freely tilt the LCC84/44 with respect to the CSUB610. This done, it is possible to fix the tilt angle of the coupled speaker enclosure.

Setting splay angle between LCC84/44 and CSUB610

Figure 189. Inserting the second ball-lock pin to fix the splay angle.



- Once the first pin has been inserted and locked to couple the two rigging plates, maintain a firm hold on the LCC84/LCC44 unit, and tilt it to align the holes in the rear of the rigging plates that correspond to the required splay angle between the subwoofer and the LCC84.

Note: Only convergent (negative splay angle) or parallel configurations are possible between the CSUB610 unit and LCC84 or LCC44 units.

Figure 190. Setting a 0° tilt angle.

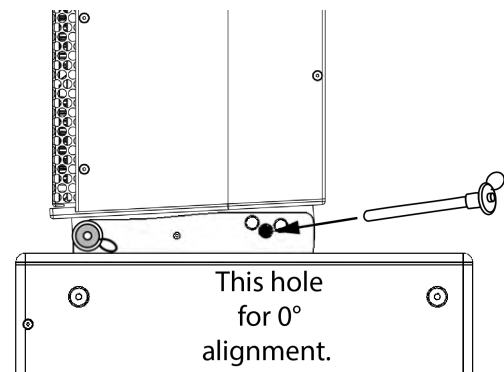


Figure 191. Setting a -3° tilt angle.

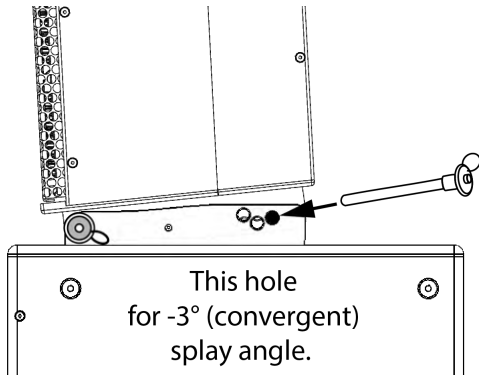
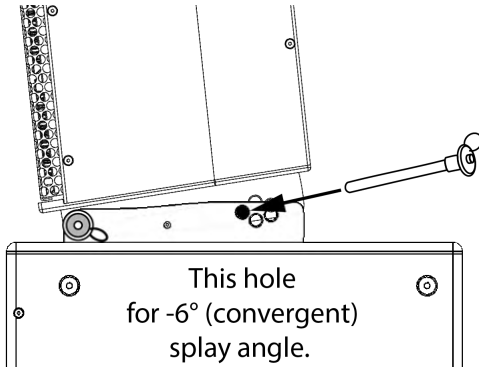
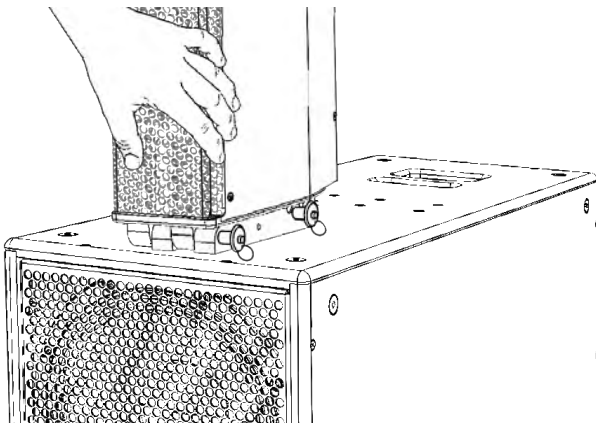


Figure 191. Setting a -6° tilt angle.



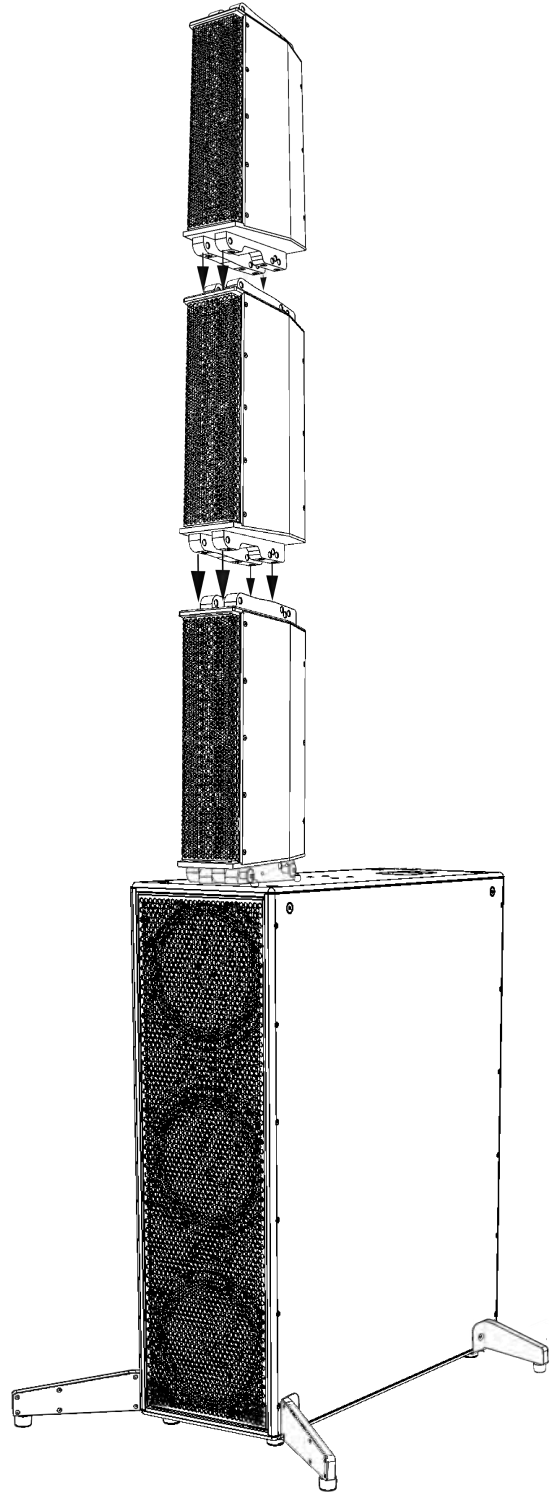
- When the required holes are perfectly aligned, take the other M10x100 ball-lock pin supplied with the rigging plates and press the lock-release button on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, release the button to allow the lock to engage and assure that the pin cannot be removed without again pressing the release.

Figure 193. LCC84/44 fully coupled to CSUB610 (in the 0° configuration).



- Once the second pin has been inserted and locked, the array is configured. Before releasing the enclosure and allowing the assembly to stand on its own, physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.

Figure 194. Adding LCC44 units to a stacked array of CSUB610+LCC44.



Coupling Stacked LCC84 or LCC44 units via the Tower Rigging System

It is possible to create stacked arrays with up to three LCC44 enclosures or one LCC84 plus one LCC44 enclosure atop a CSUB610 subwoofer unit that has equipped with outriggers and properly leveled.

Figure 195. Adding an LCC84 to a stacked array of CSUB610+LCC44.

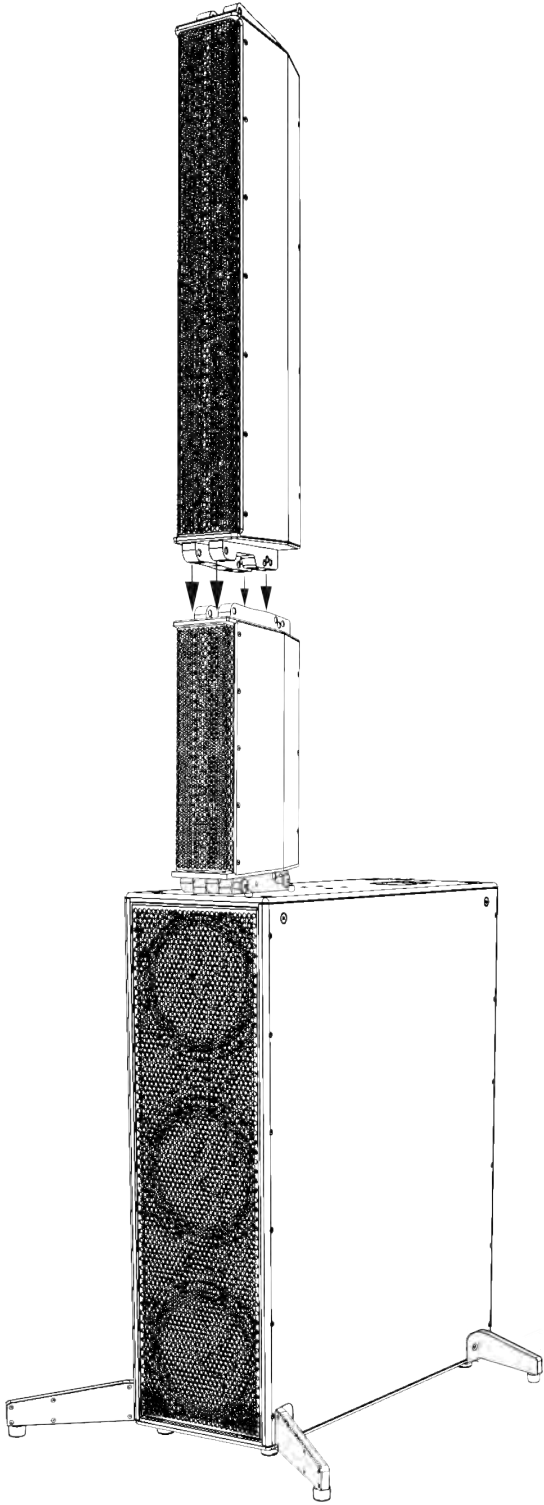


Figure 196. Adding an LCC44 to a stacked array of CSUB610+LCC84.

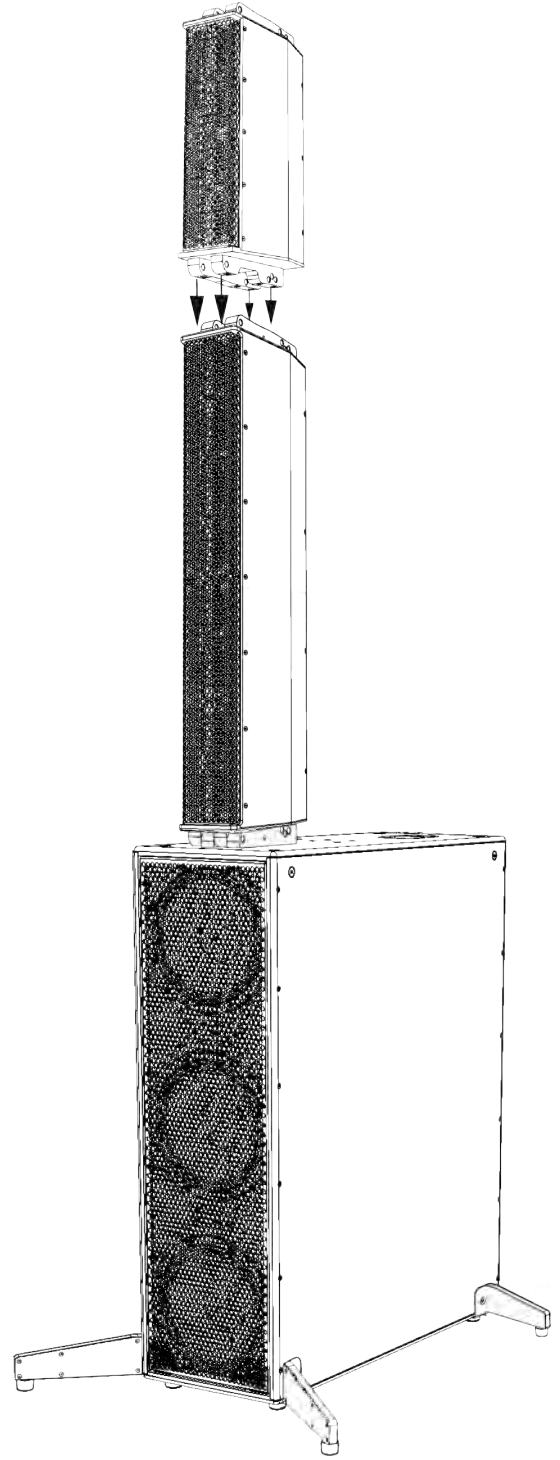
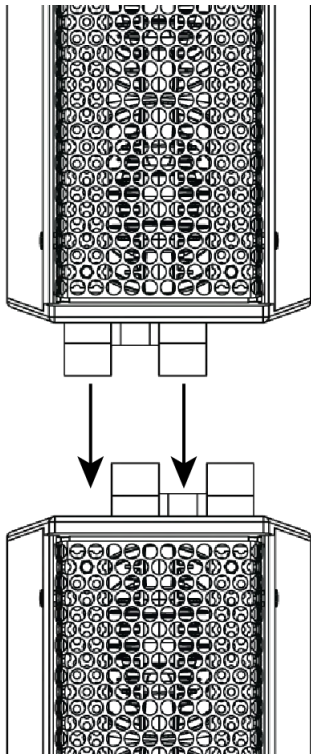


Figure 197. Alignment of the Tower Rigging System plates, front view.

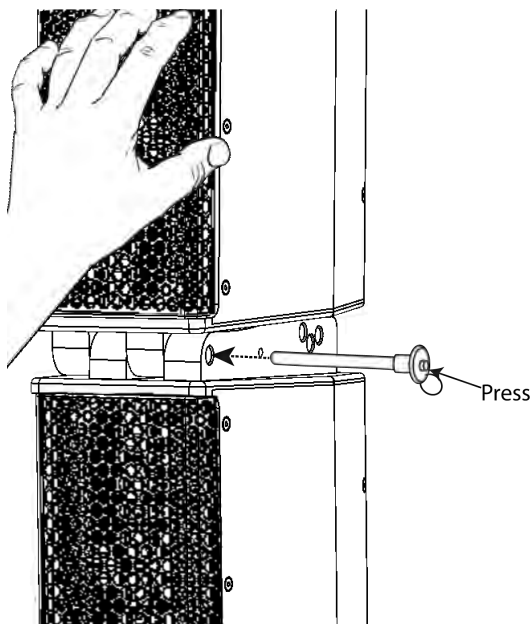


- Lift the LCC84 or LCC44 above the rigging plate of the first coupled LCC44/84. The two rigging plates should align to interlock, as in the figure.
- Lower the LCC84 onto the subwoofer so that the rigging plates interlock. The shape of the plates themselves will help align them correctly.

! Attention: Until both lock pins have been completely inserted and locked, maintain a grip on the upper LCC44 (or LCC84) unit.

- While maintaining a firm hold on the upper enclosure, slide it to align the holes in the rigging plates closest to the front grille of both enclosures.

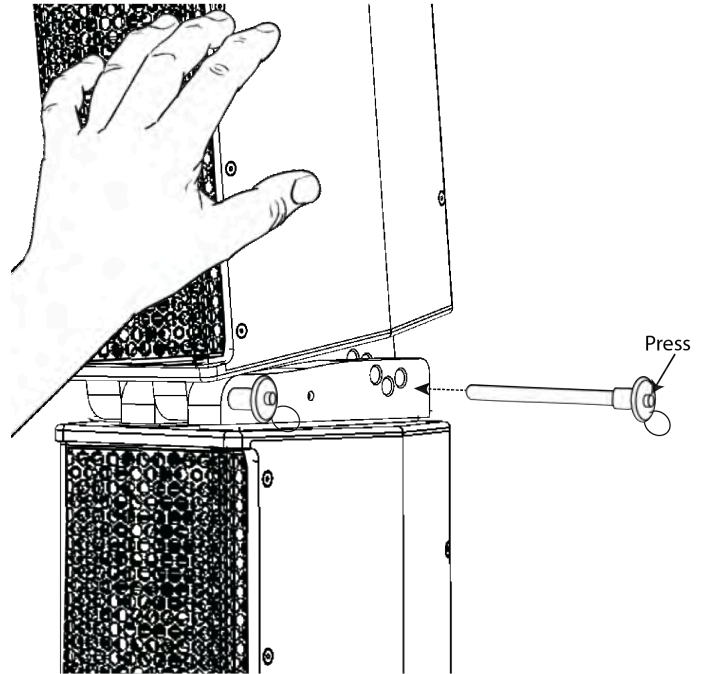
Figure 198. Inserting the first ball-lock pin.



- Take one of the M10×100 ball-lock pins supplied with the rigging plates and press the lock release on the rear of the pin to allow it to pass into the hole. Insert it into the front holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release. When the fronts of the plates are coupled, it should be possible to freely tilt the top LCC84/44 unit with respect to the bottom one. This done, it is possible to fix the splay angle between the speaker enclosures.

Setting splay angle between stacked LCC44/LCC84 units

Figure 199. Inserting the second ball-lock pin to fix the splay angle.



- Once the first pin has been inserted and locked to couple the two rigging plates, maintain a firm hold on the LCC84/LCC44 unit, and tilt it to align the holes in the rear of the rigging plates that correspond to the required splay angle between the subwoofer and the LCC84.

Note: There are three possible splay angles between LCC84 or LCC44 units.

Figure 200. Setting a 0° tilt angle.

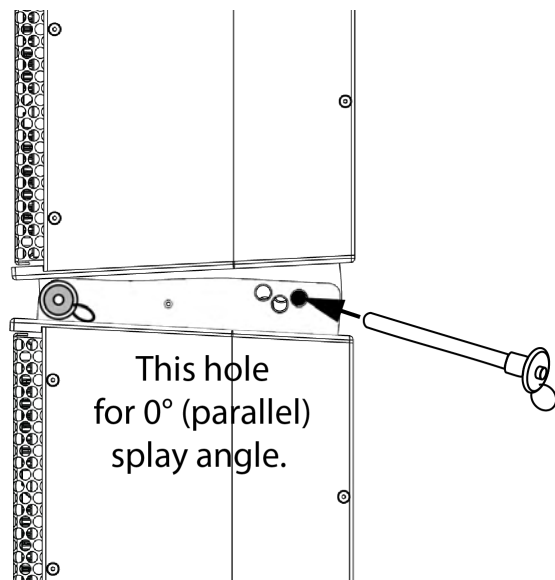


Figure 201. Setting a -3° tilt angle.

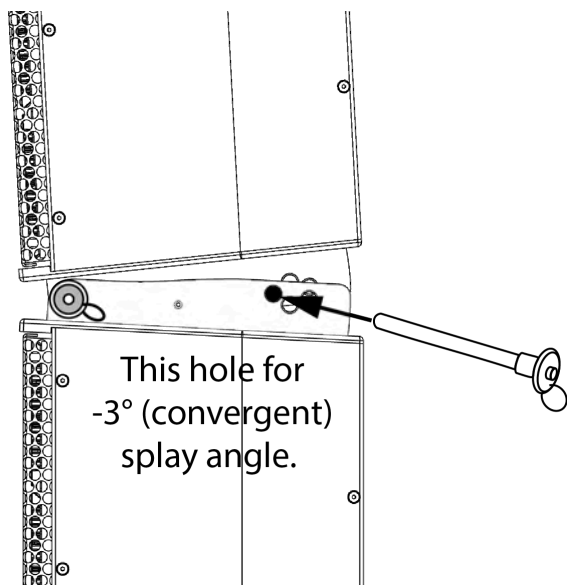


Figure 202. Setting a 3° tilt angle.

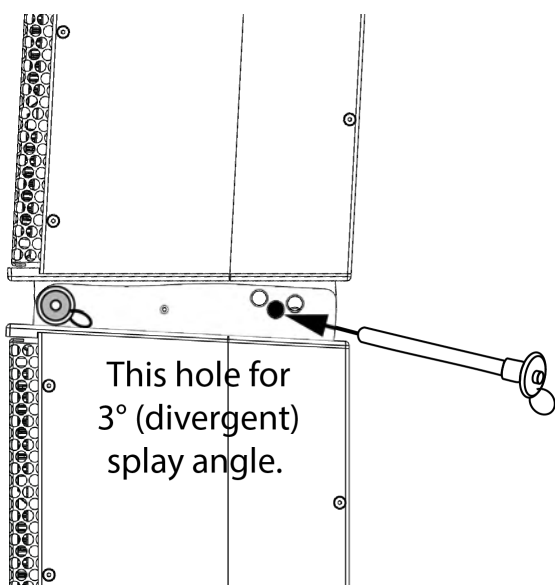
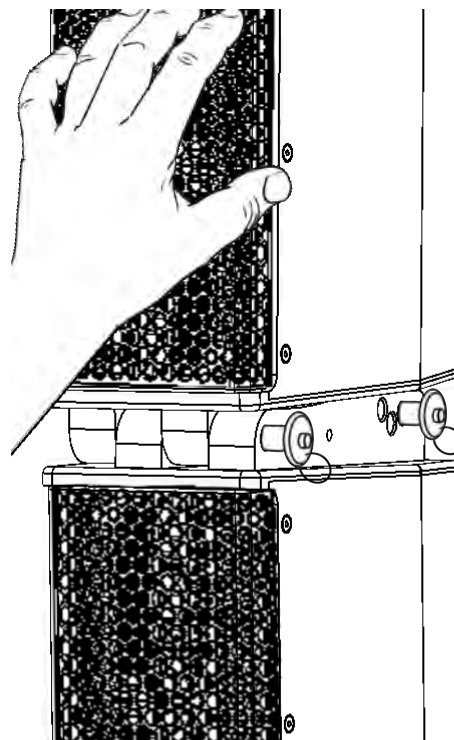


Figure 203. Two LCC84/44 units fully coupled, 0° (parallel) splay angle shown.



- When the required holes are perfectly aligned, take the other M10x100 ball-lock pin supplied with the rigging plates and press the lock-release button on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, release the button to allow the lock to engage and assure that the pin cannot be removed without again pressing the release.

- Once the second pin has been inserted and locked, the array is configured. Before releasing the enclosure and allowing the assembly to stand on its own, physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.

Chapter 10. Stacking LCC44/84 units on CSUB610 in the perpendicular configuration using the Tower Rigging System

Figure 204. One LCC44 and one LCC84 deployed atop CSUB610 using the Tower Rigging System in the perpendicular (omnidirectional sub) configuration.

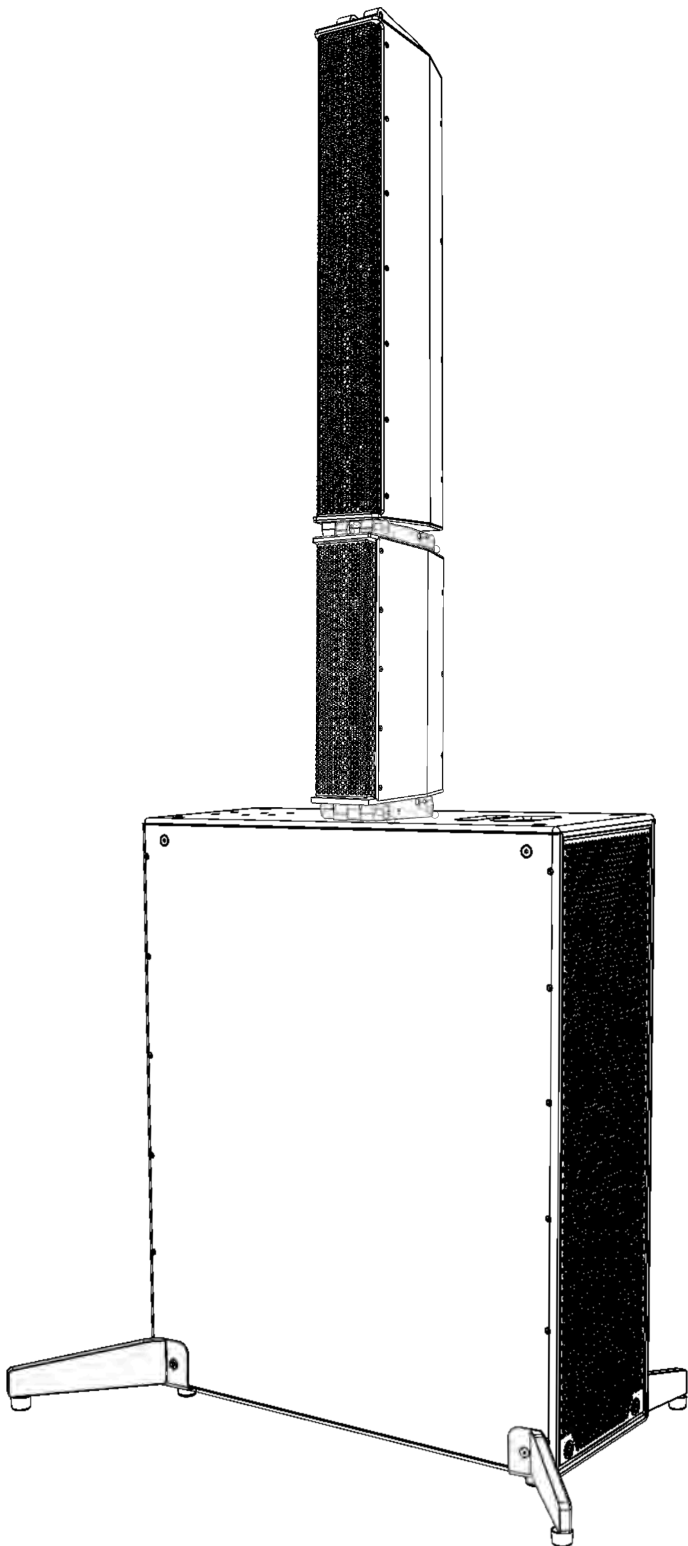
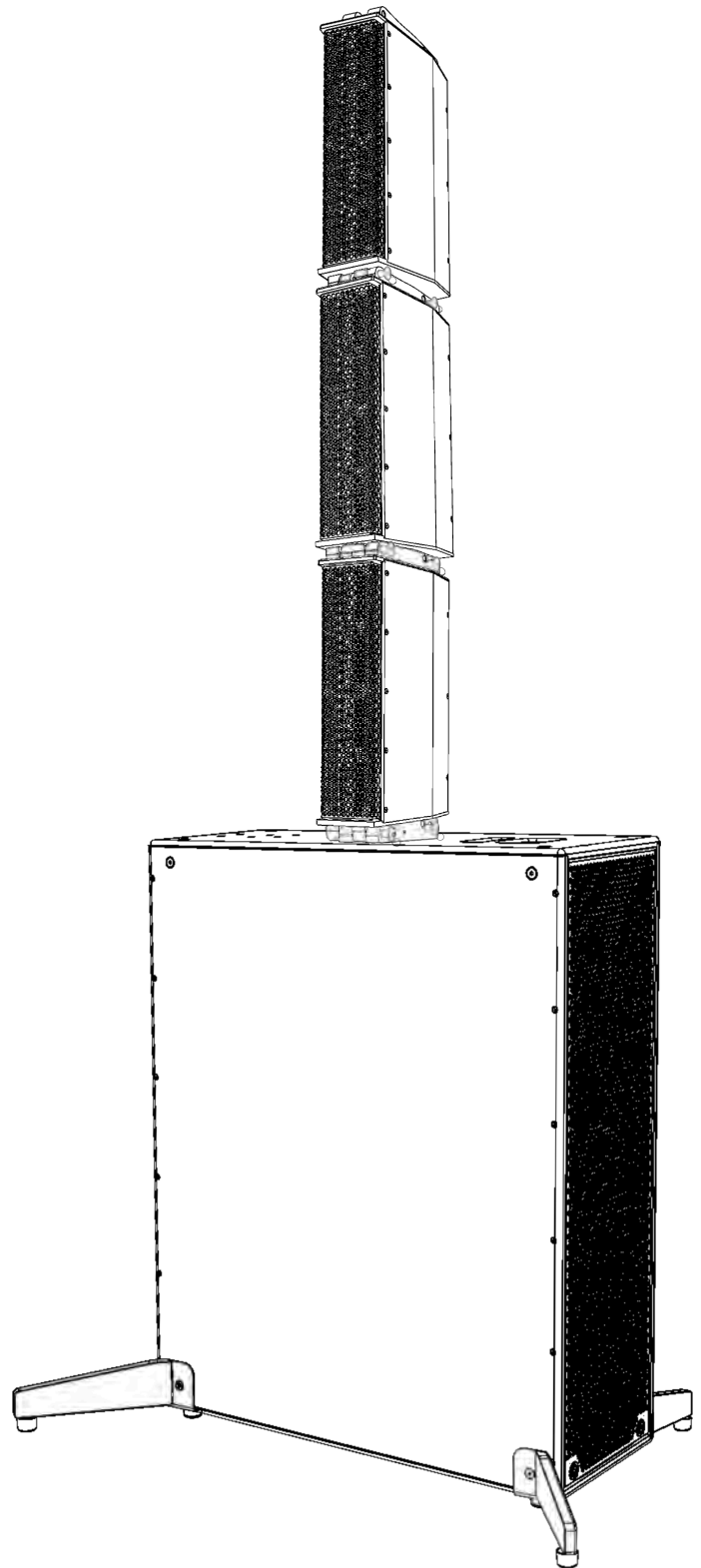


Figure 205. Three LCC44 enclosures deployed atop CSUB610 using the Tower Rigging System in the perpendicular (omnidirectional sub) configuration.



Critical information

Attention: This equipment is intended for installation by qualified professionals.

Notice: Please read these instructions carefully and completely before attempting deployment of speaker enclosures on floor stands.

⚠ WARNING



Tipping Hazard
 Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. Exercise extreme care when assembling speaker arrays, as a stack of them toppling or collapsing creates a risk of serious injury or death, as well as likely damage to the enclosures themselves and nearby equipment.



Notice: This product must be installed in compliance with all applicable local, state and national regulatory provisions. The responsibility rests with the installer to verify that the installation is carried out in accordance with any applicable legislation.



Important: The installer must assess the appropriate stability and sturdiness of the deployment surface.



Restriction: Only hardware and accessories included with the product or specified by 1 Sound should be used for its installation.



Restriction: Do not modify or alter the loudspeaker or any accessory. Any modification by the user or installer could render the product or the installation unsafe.



Restriction: Do not install a loudspeaker or any accessory near any open flame or heat source.

Products, accessories and tools required

To deploy LCC44/84 enclosures atop a CSUB610 bass unit using the Tower Rigging System you will need the following:

- LCC84 (on page 4) and/or LCC44 (on page 4) loudspeaker enclosure(s)
- A CSUB610 (on page 5) subwoofer enclosure
- The Subwoofer Outrigger (on page 9) stabilizing leg kit
- The Tower Rigging System Plates (on page 8) kit
- A 5 mm Allen wrench
- A 4 mm Allen wrench
- **Recommended:** Spirit level

Procedures

Mounting Rigging plate on CSUB610

In order to use the Tower Rigging System to deploy LCC44 or LCC84 units directly atop a CSUB610 bass unit, the subwoofer unit must first be equipped with a Tower Rigging System plate.

The Tower Rigging System Plate can be mounted in one of two different configurations on a CSUB610 unit, either parallel or perpendicular to the front/rear axis of the cabinet.



Important: For permanent or semi-permanent installation of the Tower Rigging System plates on the CSUB610 subwoofer, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Mounting the Tower Rigging System Plate to CSUB610 in the perpendicular orientation

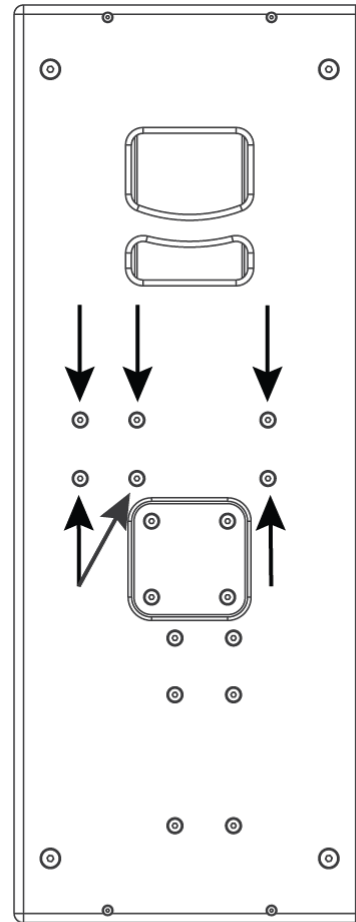
If the application does not require the use of the cardioid functionality of CSUB610 on axis with the LCC84 or LCC44 unit(s), the rigging plate can be installed on the subwoofer in the perpendicular configuration. Use of this configuration is not recommended for applications requiring the cardioid directivity of the CSUB610, as the directivity axes of the subwoofer and the coupled LCC44/84 enclosures would be perpendicular to each other. Therefore it should only be used with the omnidirectional presets.



Important:

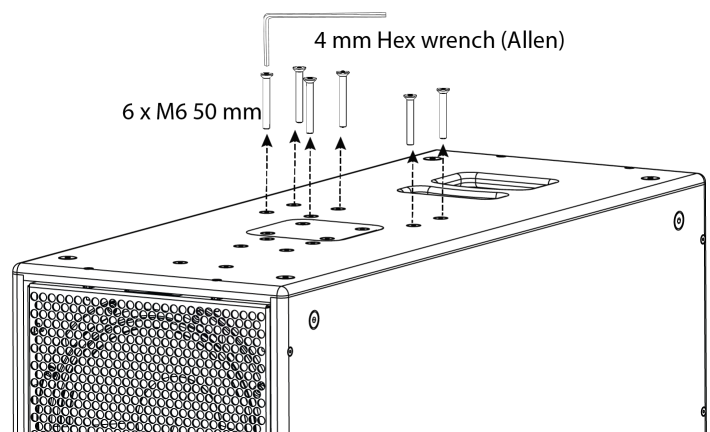
For permanent or semi-permanent installation of the Tower Rigging System plates on the CSUB610 subwoofer, the use of medium-strength threadlocking compound is recommended on all user-installed screws.

Figure 206. Top View of CSUB610 showing perpendicular mounting inserts for the Tower Rigging System Plate



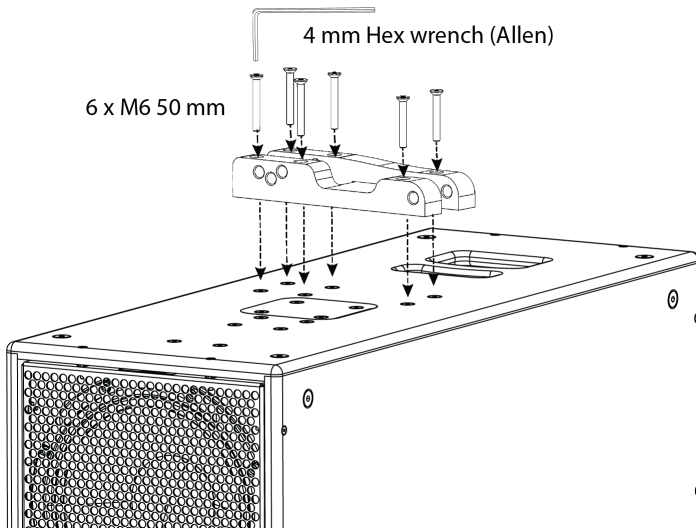
**Threaded inserts (6x)
 for installing the plate in
 perpendicular configuration**

Figure 207. Removing screws from perpendicular rigging plate points.



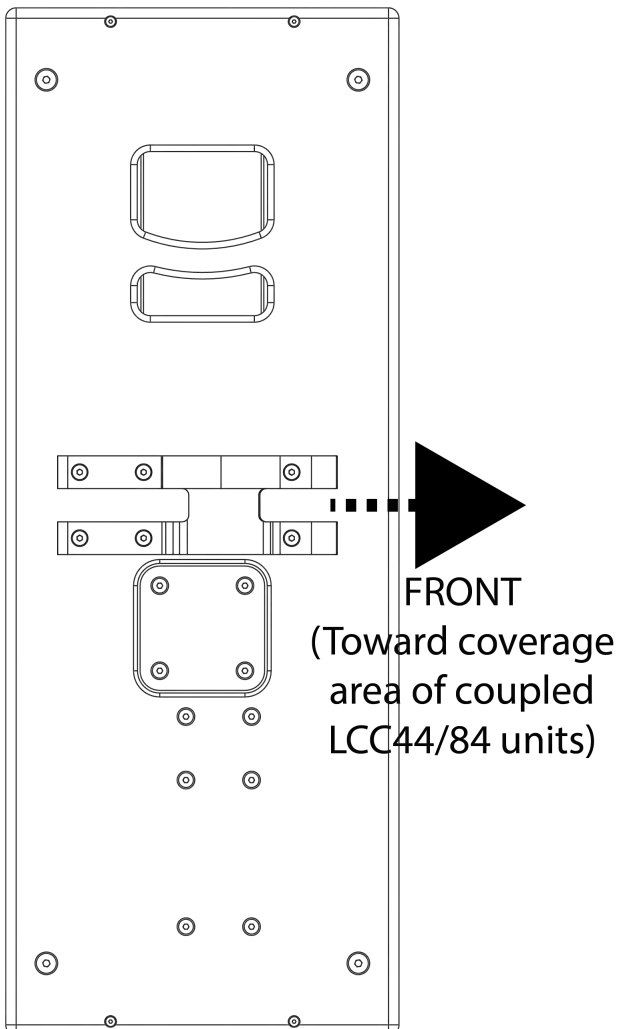
- Position the Tower Rigging System Rigging plate atop the CSUB610, as shown in the figure, with the six countersunk mounting holes aligned with the six M6 threaded inserts.

Figure 208. Mounting the rigging plate on CSUB610 in the perpendicular configuration



- Insert the two (shorter) M6x45 mm screws into the two holes in the rigging plate positioned nearest the right side of the subwoofer, as seen from the front grille, and thread without tightening them into the underlying threaded inserts in the CSUB610.
- Insert the four (longer) M6x50 mm screws into the four holes in the rigging plate positioned nearer to the left side of the enclosure, as seen from the front grille. Thread these without tightening them into the underlying threaded inserts in the CSUB610.

Figure 209. Top view of CSUB610 with Tower Rigging System Plate installed in the perpendicular configuration.



- Using a 4 mm hex key (Allen type) with a length that allows for sufficient leverage, tighten the screws into the inserts in opposing pairs to firmly attach the rigging plate to the CSUB610. The plate should be perfectly flush with the cabinet at every point and there should be no movement possible.

Installing Outriggers on the CSUB610

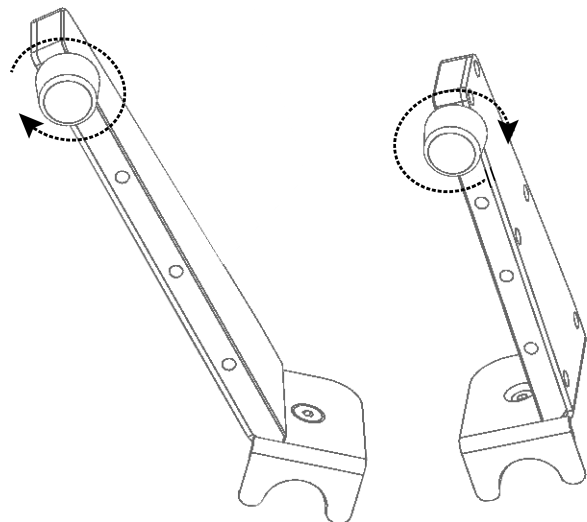
Installing the subwoofer outriggers improves the stability of the CSUB610 or SUB310 when deployed vertically on the floor. The outriggers are recommended in any application in which the subs are deployed in public areas where people could bump into them or lean on them. These are also REQUIRED in any application in which other loudspeaker enclosures are coupled to the subwoofer in an upright position. The CSUB610 unit can be deployed with LCC44, LCC84 or combinations of these in either a parallel or perpendicular configuration. Each of these configurations requires that the outriggers be installed in the appropriate configuration.

⚠ WARNING	
	<p>TIPPING HAZARD Speaker enclosures stacked atop one another, even when properly coupled, represent a tipping hazard. TO REDUCE THE RISK OF INJURY OR DAMAGE THAT COULD RESULT FROM POSSIBLE TOPPLING OF LOUDSPEAKER ENCLOSURES, THE INSTALLATION OF THE SUBWOOFER OUTRIGGERS ON THE SUB310 AND CSUB610 IS REQUIRED WHENEVER ONE OR MORE LOUDSPEAKER ENCLOSURES IS MOUNTED ATOP ONE OF THESE UNITS, EITHER IN A STACKED CONFIGURATION USING THE TOWER RIGGING SYSTEM OR IN A SUB/SATELLITE CONFIGURATION USING A SPEAKER POLE.</p>

Installing Outriggers for perpendicular (omni) deployment of CSUB610 with LCC44/84

If the application requires that the CSUB610 be oriented perpendicular to the throw of the LCC44/84 units mounted atop it in order to save space, the outriggers must be installed on the subwoofer in the perpendicular configuration. This configuration is not recommended for applications requiring the cardioid directivity of the CSUB610, as the directivity axes of the subwoofer and the coupled LCC44/84 enclosures would be perpendicular to each other. Therefore it should only be used with the omnidirectional presets.

Figure 210. Raising the leveling feet of the Outriggers.



- Before installation, on each of the four Outriggers, raise the leveling feet by screwing them in completely.

Figure 211. Removing rigging point screws from CSUB610 for the installation of the Sub Outriggers

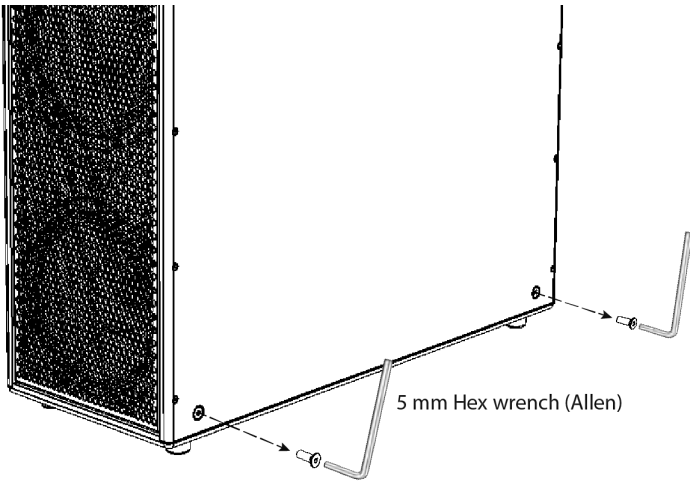
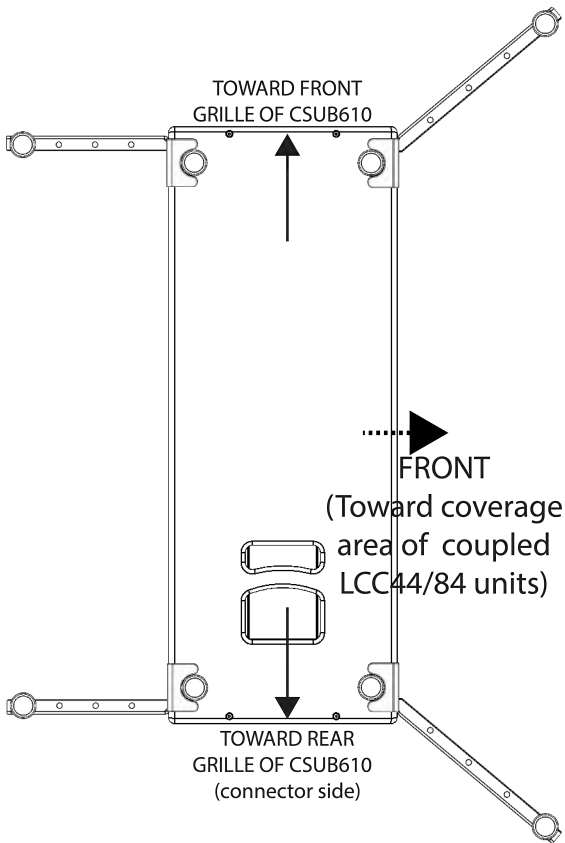
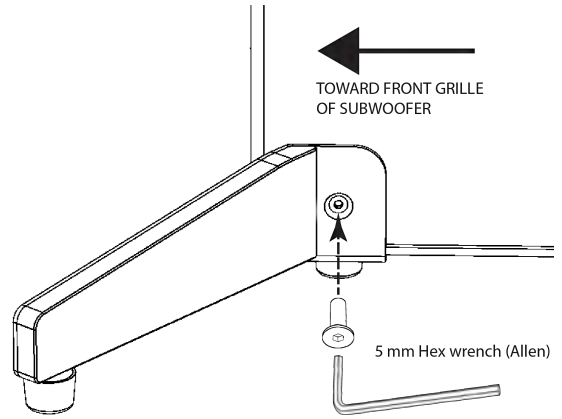


Figure 212. Configuring the outriggers on CSUB610 for perpendicular deployment of LCC44/84 units (bottom view).



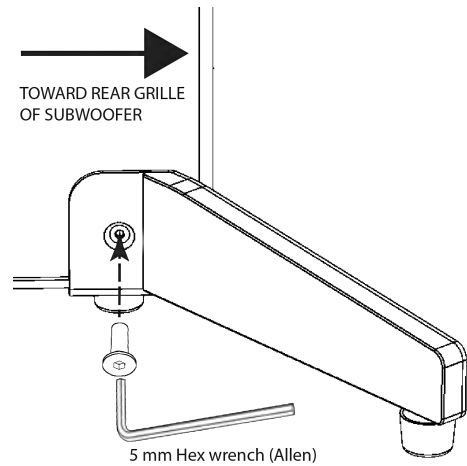
- Only one of the 50° Outriggers will align correctly with the CSUB610 so that it will extend outward and wider than subwoofer cabinet in each position. Align the mounting hole of the 50° Outrigger (as shown in the figure) with the bottom rigging point nearest the front grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.

Figure 213. Installing the first forward Outrigger on CSUB610 (front view)



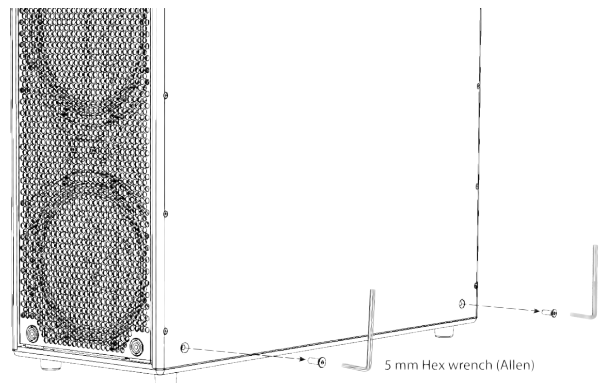
- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.

Figure 214. Installing the second forward Outrigger on CSUB610 (front view)



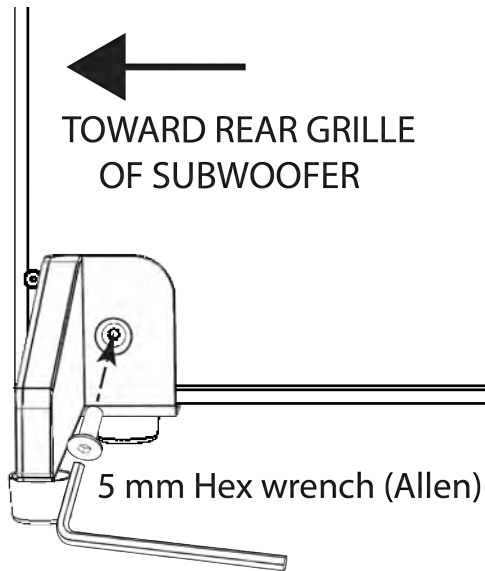
- Repeat this procedure with the second 50° outrigger in the rigging point nearest the rear grille of the subwoofer.
- Using a 5 mm hex wrench, remove the two bottom rigging point screws from the long side of the CSUB610 cabinet that will be oriented in the direction of the front of the coupled LCC44/LCC84 units.

Figure 215. Removing rigging point screws from CSUB610 for the installation of the Sub Outriggers



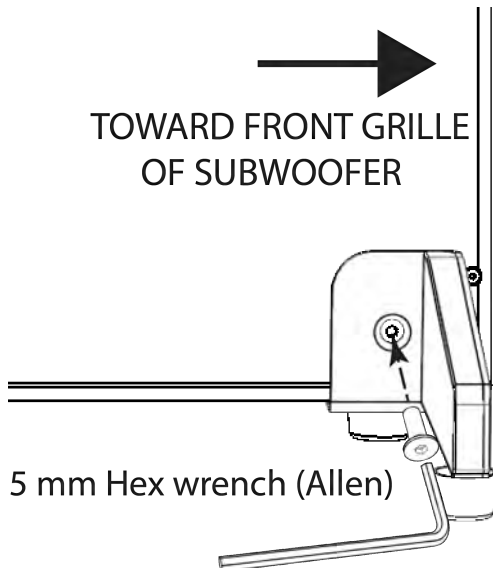
- Remove the other two bottom rigging point screws from the opposite side of the cabinet.

Figure 216. Installing the first rear Outrigger on CSUB610 (side view).



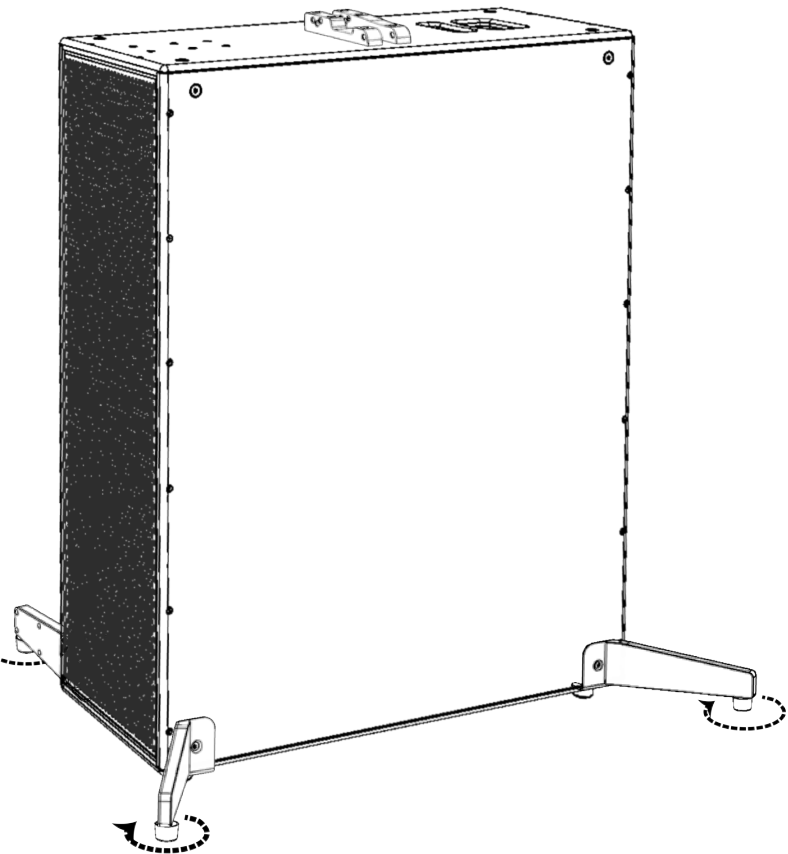
- Align the mounting hole of the shorter 90° Outrigger with the bottom rigging point nearest the rear grille of the subwoofer and thread in the M8 screw into the threaded insert of the rigging point, making sure that the bottom bracket of the Outrigger fits firmly around the rubber foot of the subwoofer and flush with the bottom surface of the subwoofer cabinet.
- Using a 5 mm hex wrench, fully tighten the countersunk M8 screw into the rigging point.

Figure 217. Installing the second rear Outrigger on CSUB610 (side view).



- Repeat this procedure with the second 90° outrigger in the rigging point nearest the front grille of the subwoofer.

Figure 218. Lowering the Outrigger feet.



- Turn the leveling feet of each outrigger to lower it just to rest firmly against the floor.

Leveling CSUB610

Once the Subwoofer Outriggers are securely installed, it is possible to use them for fine adjustments to assure that the subwoofer unit is properly leveled, which is especially important when other speaker enclosures are to be deployed atop the subwoofer.

CAUTION

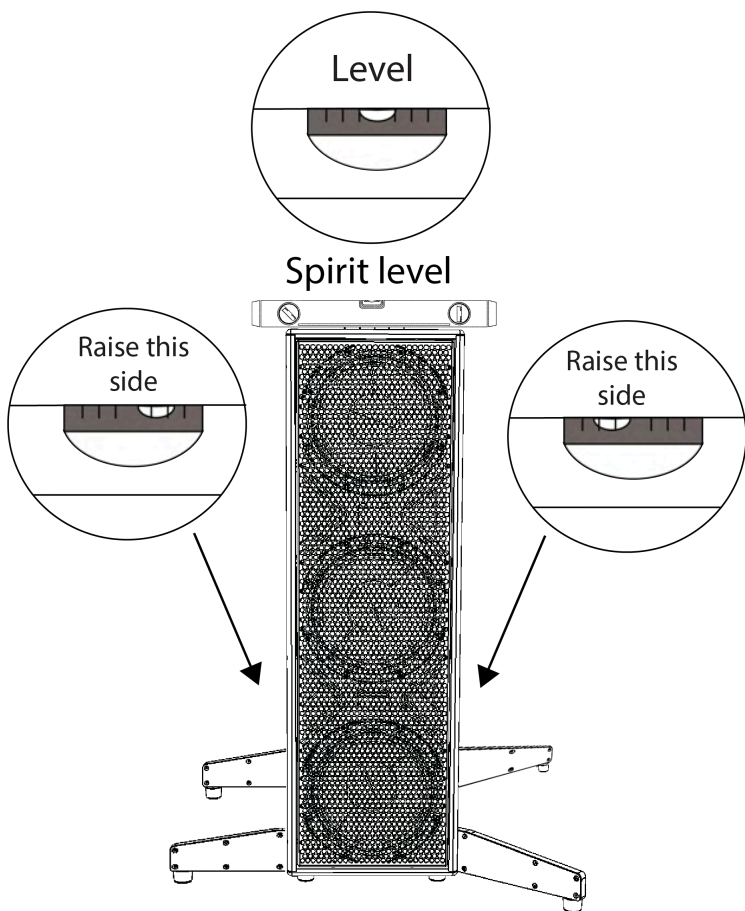


Tipping Hazard

The Subwoofer Outriggers can be used to apply minor adjustments to the leveling of the SUB310 or CSUB610 subwoofer units. DO NOT install any speaker enclosures atop a subwoofer in any configuration if the subwoofer can not be properly leveled in its position.

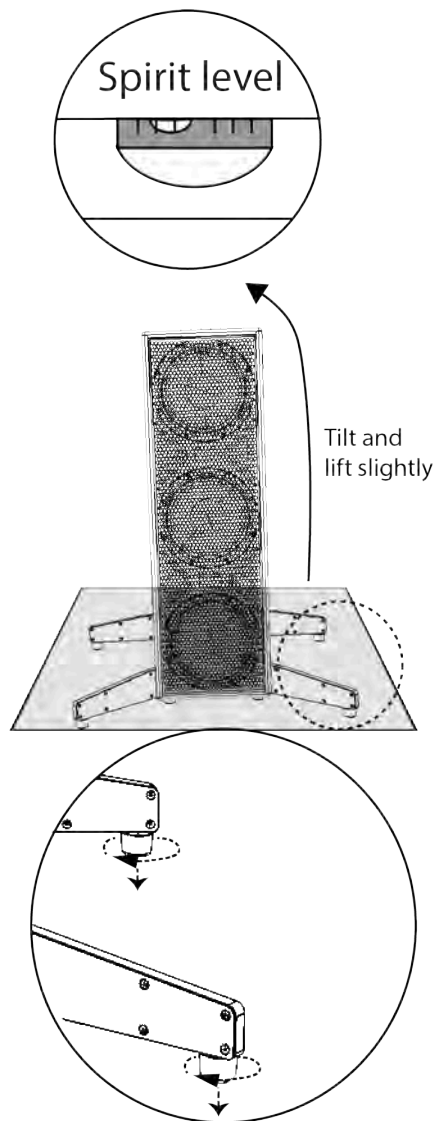
If the subwoofer cannot be properly leveled using the Outrigger feet, it is necessary to adjust the surface supporting the subwoofer (floor, stage deck, riser etc.) in order to level it before deployment. It is the responsibility of the installation personnel to verify and guarantee the safety of the installation.

Figure 219. CSUB610 Side-to-side leveling.



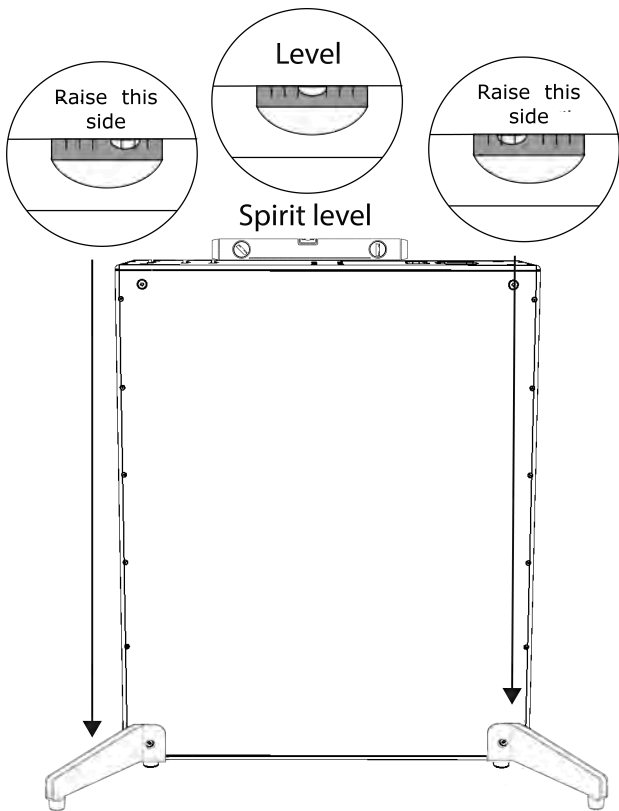
- With all four Subwoofer Outriggers installed, and each of the four adjustable feet of the Outriggers lowered to touch the floor, place a spirit level (or digital level) across the top surface of the subwoofer cabinet, parallel to the front grille of the enclosure. Be careful to avoid placing it on non-flush elements.
- Read the level, and if the Subwoofer is slightly out of level side-to-side, adjust the feet of the pair of Outriggers on the side that is lower.
- To raise the side that is lower, the Outrigger feet can be lowered by turning them clockwise (as seen from the top of the cabinet). It may be necessary to tilt the entire subwoofer slightly to raise the outrigger feet off of the floor before turning them. Try to make similar adjustments to each of the pair of feet, returning the subwoofer to rest on the floor after each adjustment and checking the level each time. This process may need to be repeated several times to achieve correct leveling. When this is achieved, proceed to leveling the unit on the front-to-back axis.

Figure 220. Leveling CSUB610 side-to-side – example.



! **Important:** If any of the Outrigger foot being adjusted reaches its limit (completely lowered) before the subwoofer can be properly leveled on any axis, it will be necessary to stop this procedure and either reposition the subwoofer or – where possible, such as on an adjustable platform or riser – adjust the level of the surface where the unit is deployed.

Figure 221. CSUB610 front-to-back leveling.



- Once the subwoofer has been leveled side-to-side, place the spirit level across the top surface of the subwoofer cabinet, perpendicular to the front grille of the enclosure, again avoiding placing it on non-flush elements, such as the Sub Pole Cup.
- Read the level, and if the Subwoofer is slightly out of level front-to-back, adjust the feet of the pair of Outriggers on the side (front or back) that is lower, using the same procedure in the steps above. Again, this may need to be repeated several times to achieve correct leveling.
- Once the subwoofer unit has been leveled both side-to-side and front-to-back, check again the leveling on both axes, making any slight adjustments necessary until the cabinet is level both side-to-side and front-to-back.

Installing Rigging Plate on LCC44/84

In order to couple LCC44 or LCC84 units to each other, directly to a subwoofer, or to allow for variable tilt angles of the enclosure in sub/satellite configurations using the Tower Tube mount and Active Speaker Tube, the speaker enclosure needs to be equipped with Tower Rigging System plates.

If the LCC44 or LCC84 unit is not pre-equipped with Rigging Plates, these can be mounted by the user.

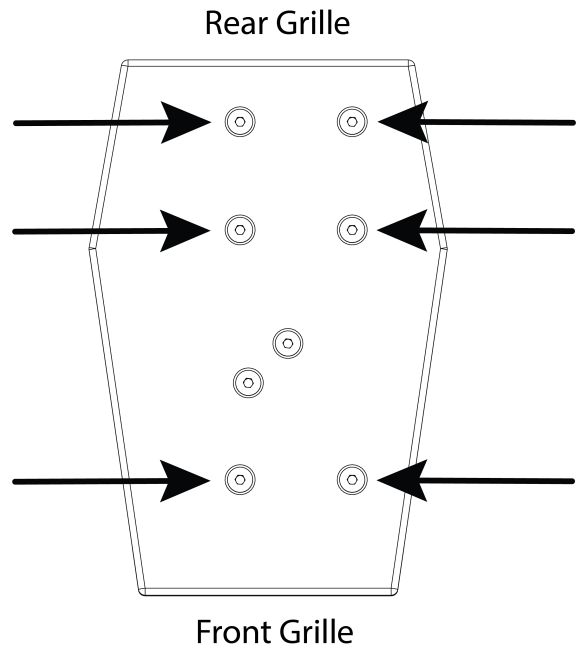
! Attention: For the installation of the Rigging Plates on the LCC44 or LCC84 enclosure, the use of medium-strength threadlocking compound is REQUIRED on all user-installed screws.

! WARNING



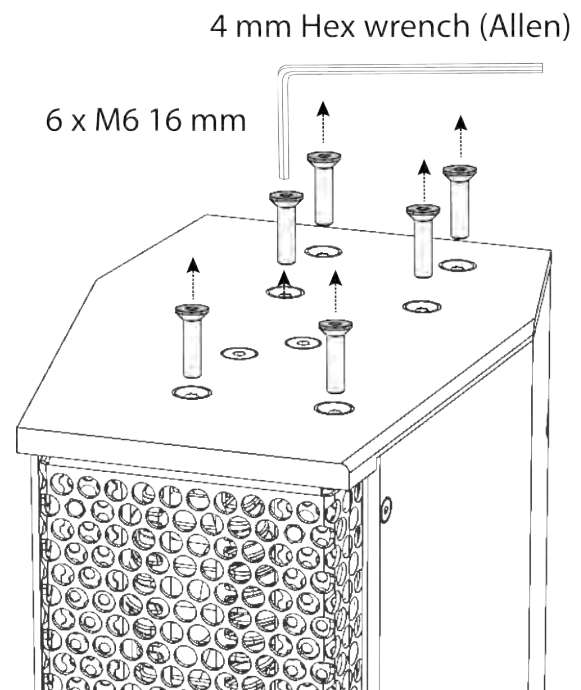
NOT FOR SUSPENDED LOADS
For flown deployments of the LCC44 or LCC84 enclosures, use only units with factory-installed rigging plates. LCC44 or LCC84 units with user-installed rigging plates are only suitable for ground-stacked or pole-mounted deployments.

Figure 222. Threaded inserts for Rigging Plate on the bottom of LCC44 or LCC84.



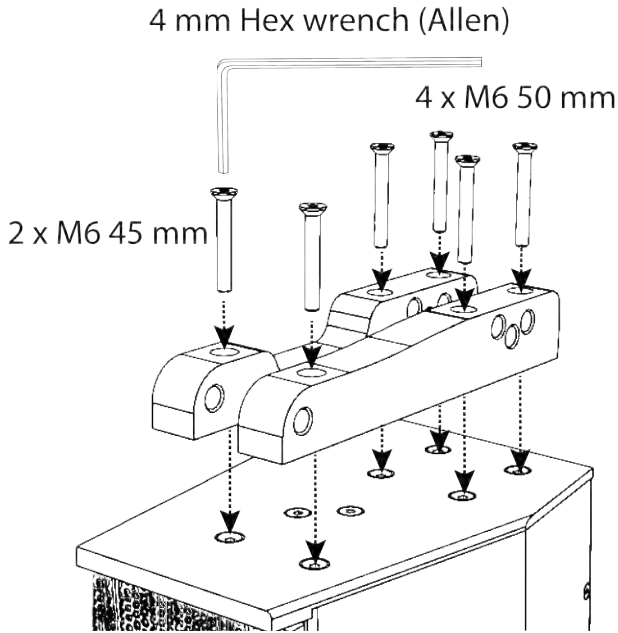
- Invert the LCC44/84 enclosure, bottom-side-up.

Figure 223. Removing the screws from the LCC44/84 Rigging System mounting points.



- Use a 4 mm Allen wrench or hex driver to remove the six M6x16 mm screws from the rigging points indicated above on the bottom side of the cabinet. Put these screws aside, as they will be replaced by the screws supplied with the rigging plates.
- Position one of the rigging plates as shown on the bottom surface of the LCC44/84, aligning the six countersunk holes in the rigging plate with the threaded inserts in the rigging points from which the screws were removed.
- Insert two of the (shorter) M6x45 mm screws (supplied with the rigging plates) into the two holes in the rigging plate positioned **nearest the front grille of the enclosure**, and thread them into the underlying threaded inserts in the LCC44/84 without tightening them.
- Insert four of the (longer) M6x50 mm screws (supplied with the rigging plates) into the four holes in the rigging plate nearer the rear grille of the LCC44/84. Thread these, without tightening them, into the underlying threaded inserts in the enclosure.

Figure 224. Installing Tower Rigging System Plate to LCC44



- Using a 4 mm hex key (Allen type) with a length that allows for sufficient leverage, tighten the screws into the inserts in opposing pairs to firmly attach the rigging plate to the CSUB610. The plate should be perfectly flush with the cabinet at every point and there should be no movement possible.

If the LCC44 or LCC84 unit is being deployed as a single unit in a sub/satellite configuration atop a subwoofer using a Tower Tube Mount equipped with a rigging plate, or as a single unit (with no further enclosures above it) directly atop a subwoofer equipped with a rigging plate, it is not necessary to mount the second rigging plate on the top of the enclosure.

- If, instead, the LCC44 or LCC84 unit is to be used with further units installed above it in a stacked configuration, it will be necessary to install the second rigging plate. If necessary, invert the LCC44/84 unit and repeat Steps 2 through 6 above.

Coupling LCC44/84 units to CSUB610 using Tower Rigging System

Once a CSUB610 has been equipped with outriggers, leveled, and a Tower Rigging System plate has been properly installed, it can be coupled in stacked configuration with LCC84 or LCC44 units likewise equipped with rigging plates.

⚠ WARNING	
	<p>Tipping Hazard Improper installation of the Subwoofer Outriggers or the Tower Rigging System plate on a subwoofer enclosure, or of the rigging plate on the LCC44 or LCC84 unit could create a hazardous or unstable condition when the subwoofer and column enclosure are assembled.</p> <p>Follow all specific instructions for the assembly of each of these products and verify their stable and level condition before attempting to mount a speaker enclosure atop any of them. DO NOT ATTEMPT TO MOVE OR REPOSITION A SUB/SATELLITE ASSEMBLY OR STACKED AND COUPLED SPEAKER ARRAY.</p>

⚠ WARNING	
	<p>Tipping Hazard The CSUB610 model subwoofer is designed for use in a stacked and coupled configuration with a maximum of one (1) LCC84 unit plus one (1) LCC44 unit, or three (3) LCC44 units. Mounting further enclosures atop the CSUB610 can render the entire assembly unstable.</p>

⚠ WARNING	
	<p>Risk of Hand Injury When coupling or setting the splay angle between two LCC44/84 units or a subwoofer unit and an LCC44/84 unit, do not allow your fingers to enter the space between the two rigging plates or any of the holes.</p>

Figure 225. Placing LCC84 atop CSUB610 for coupling in the perpendicular configuration.

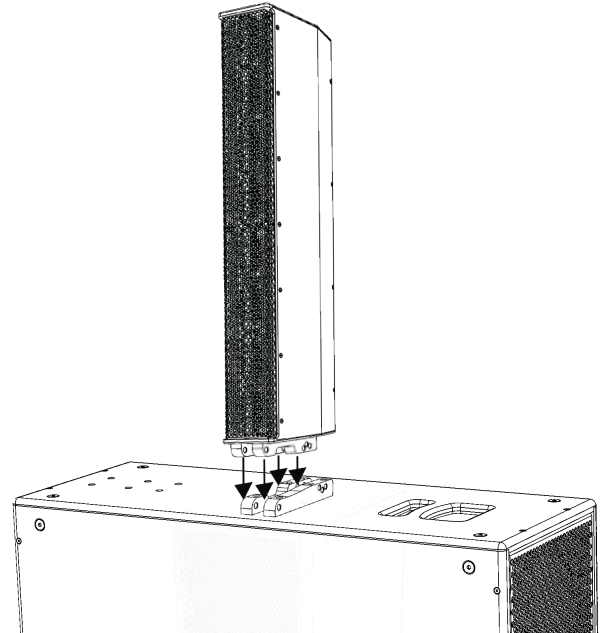
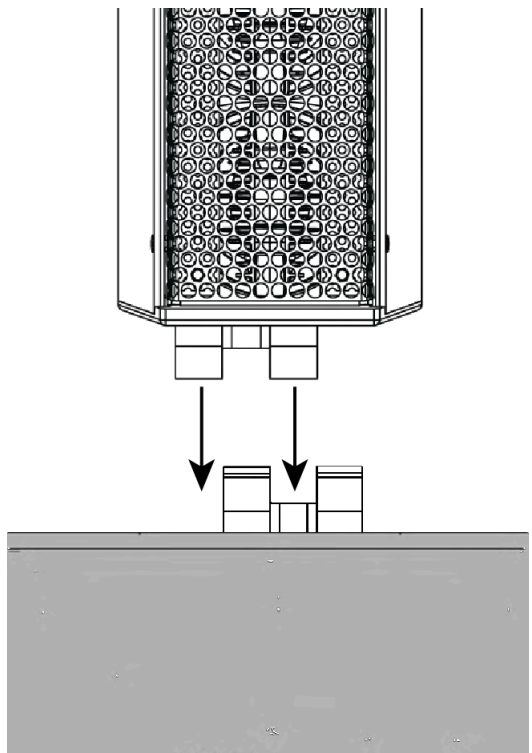


Figure 226. Alignment of the Tower Rigging System plates, front view.

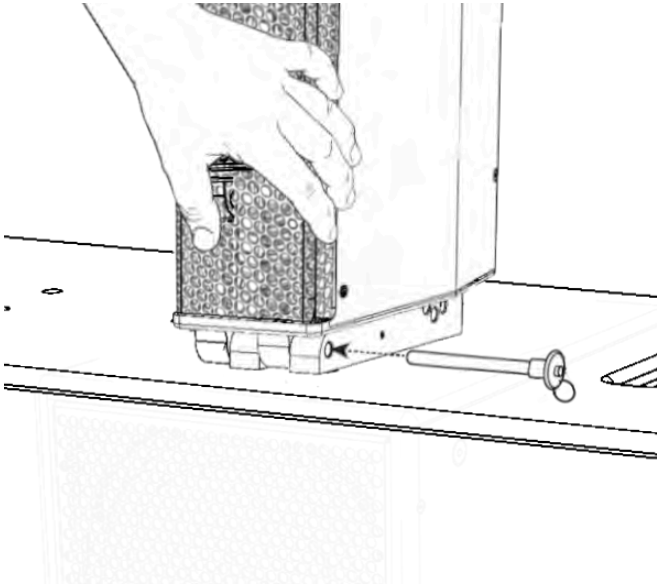


- With the CSUB610 unit equipped with outriggers in a stable position and properly leveled, lift the LCC84 or LCC44 above the rigging plate of the CSUB610, in whichever orientation (parallel or perpendicular) is required. The two rigging plates should align to interlock, as in the figure.
- Lower the LCC84 onto the subwoofer so that the rigging plates interlock. The shape of the plates themselves will help align them correctly.

! Attention: Until both lock pins have been completely inserted and locked, maintain a grip on the LCC84 (or LCC44) unit.

- While maintaining a firm hold on the LCC84 enclosure, slide it to align the holes in the rigging plates closest to the front grille of both enclosures.

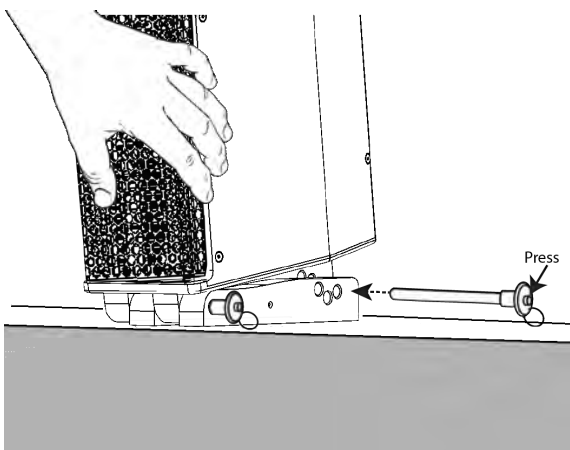
Figure 227. Inserting the first ball-lock pin.



- Take one of the M10x100 ball-lock pins supplied with the rigging plates and press the lock release on the rear of the pin to allow it to pass into the hole. Insert it into the front holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release. When the fronts of the plates are coupled, it should be possible to freely tilt the LCC84/44 with respect to the CSUB610. This done, it is possible to fix the tilt angle of the coupled speaker enclosure.

Setting splay angle between LCC84/44 and CSUB610

Figure 228. Inserting the second ball-lock pin to fix the splay angle.



- Once the first pin has been inserted and locked to couple the two rigging plates, maintain a firm hold on the LCC84/LCC44 unit, and tilt it to align the holes in the rear of the rigging plates that correspond to the required splay angle between the subwoofer and the LCC84.

Note: Only convergent (negative splay angle) or parallel configurations are possible between the CSUB610 unit and LCC84 or LCC44 units.

Figure 229. Setting a 0° tilt angle.

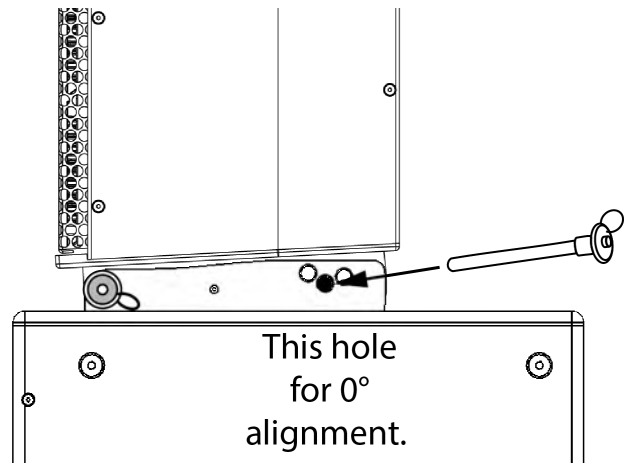


Figure 230. Setting a -3° tilt angle.

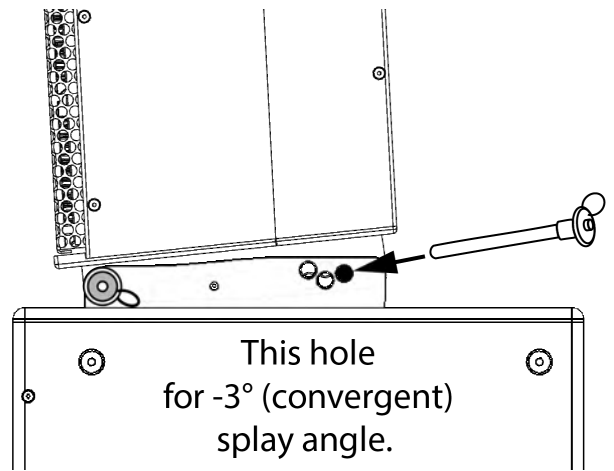
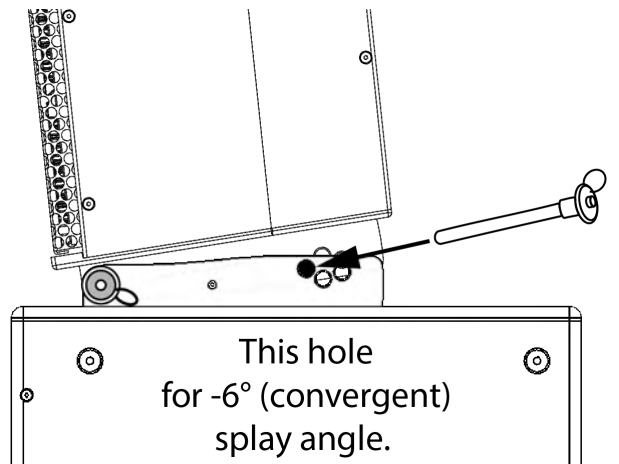
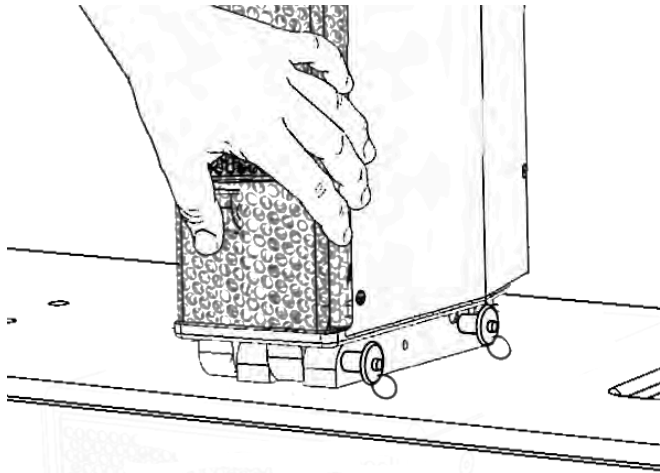


Figure 230. Setting a -6° tilt angle.



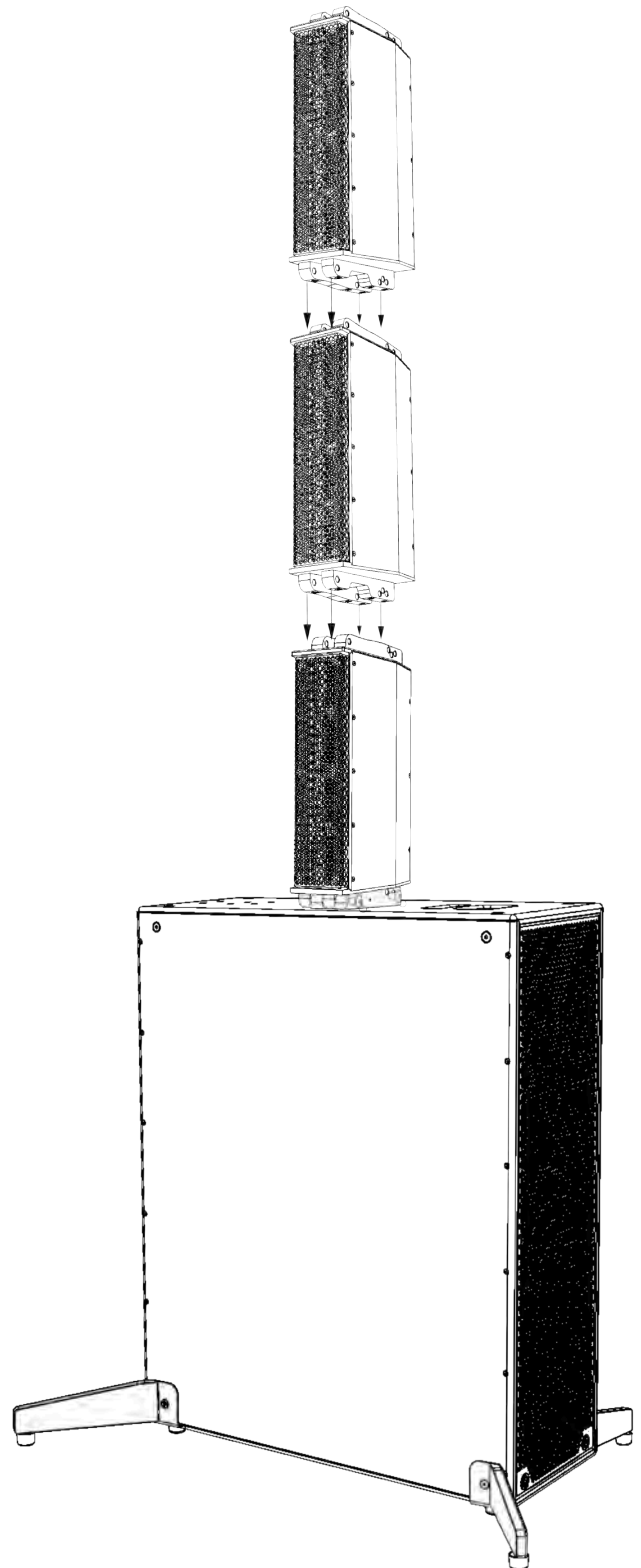
- When the required holes are perfectly aligned, take the other M10x100 ball-lock pin supplied with the rigging plates and press the lock-release button on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, release the button to allow the lock to engage and assure that the pin cannot be removed without again pressing the release.

Figure 232. LCC84/44 fully coupled to CSUB610 (in the 0° configuration).



- Once the second pin has been inserted and locked, the array is configured. Before releasing the enclosure and allowing the assembly to stand on its own, physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.

Figure 233. Adding LCC44 units to a stacked array of CSUB610+LCC44.



Coupling Stacked LCC84 or LCC44 units via the Tower Rigging System

It is possible to create stacked arrays with up to three LCC44 enclosures or one LCC84 plus one LCC44 enclosure atop a CSUB610 subwoofer unit that has equipped with outriggers and properly leveled.

Figure 234. Adding an LCC84 to a stacked array of CSUB610+LCC44.

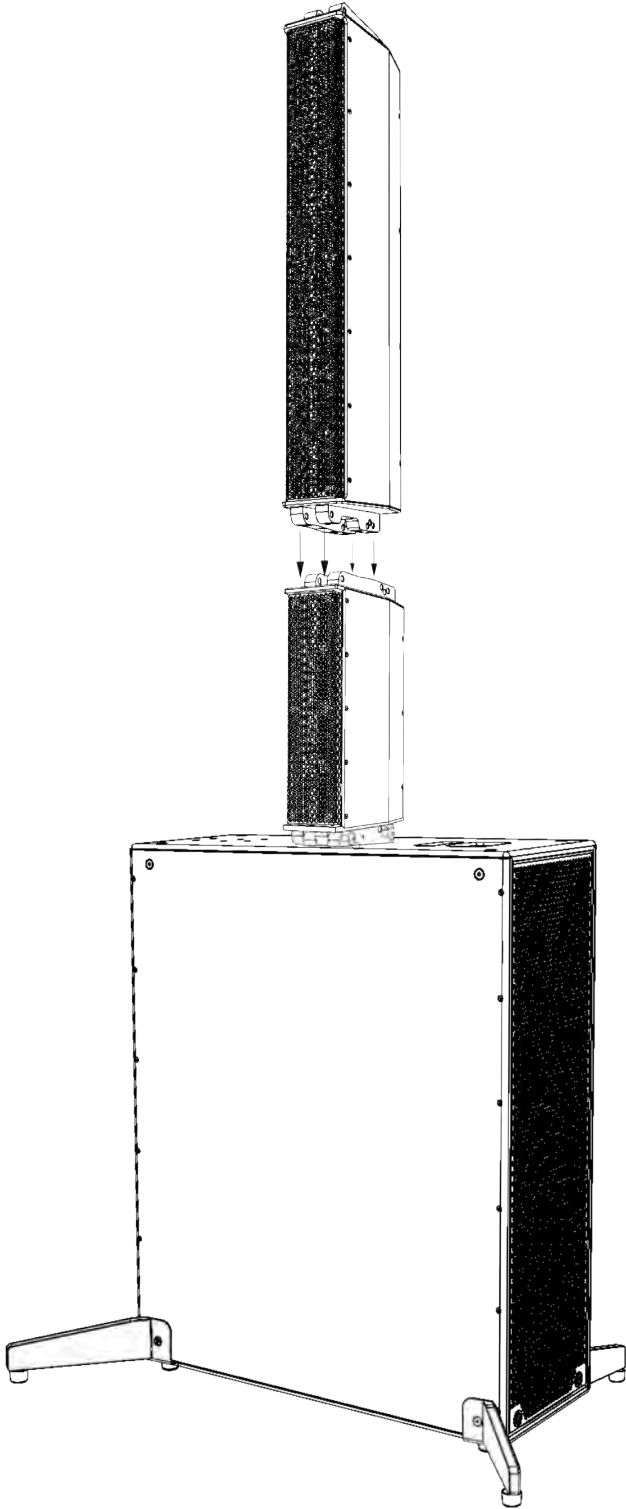


Figure 235. Adding an LCC44 to a stacked array of CSUB610+LCC84.

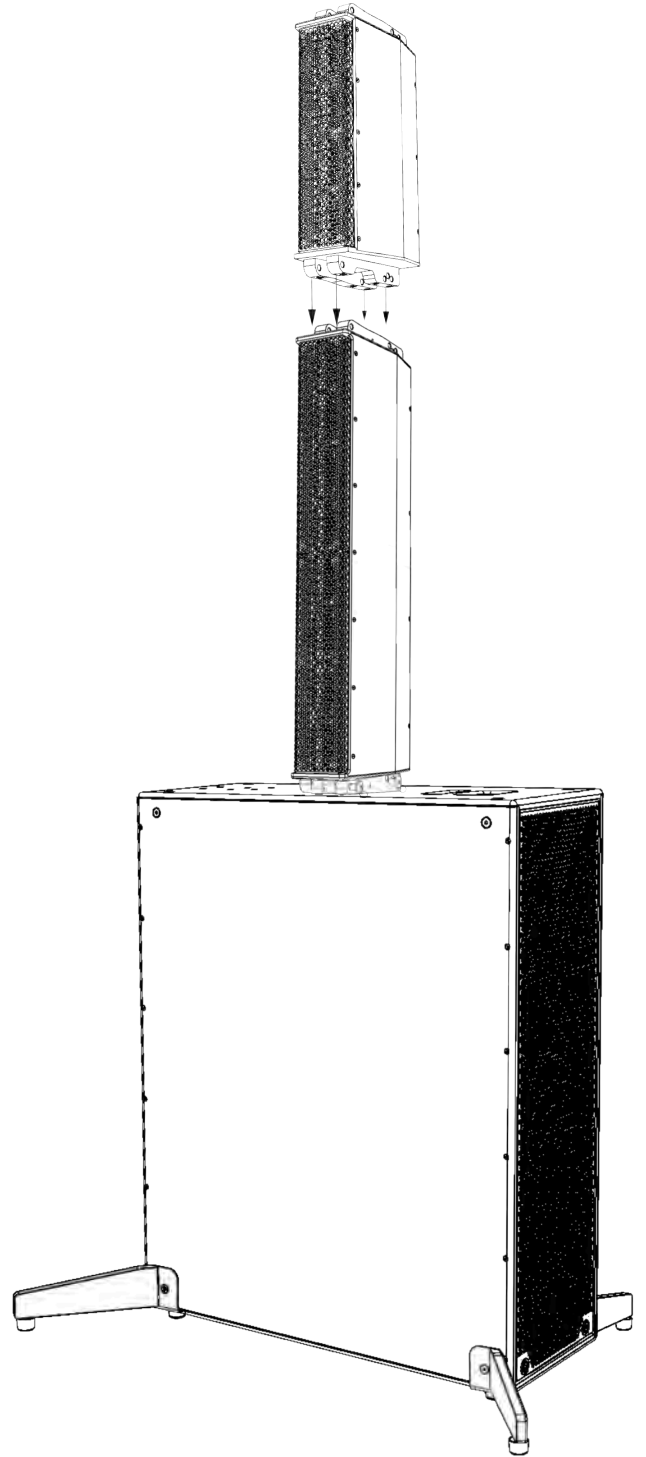
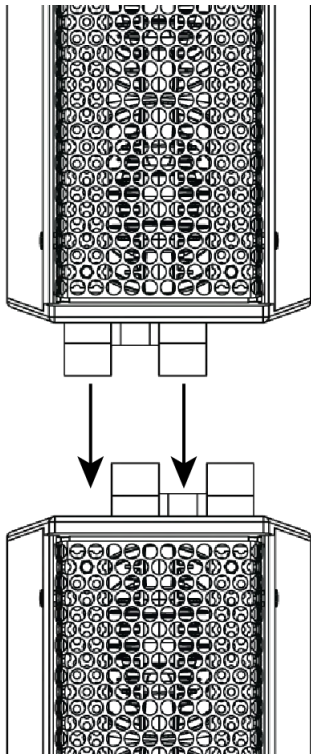


Figure 236. Alignment of the Tower Rigging System plates, front view.

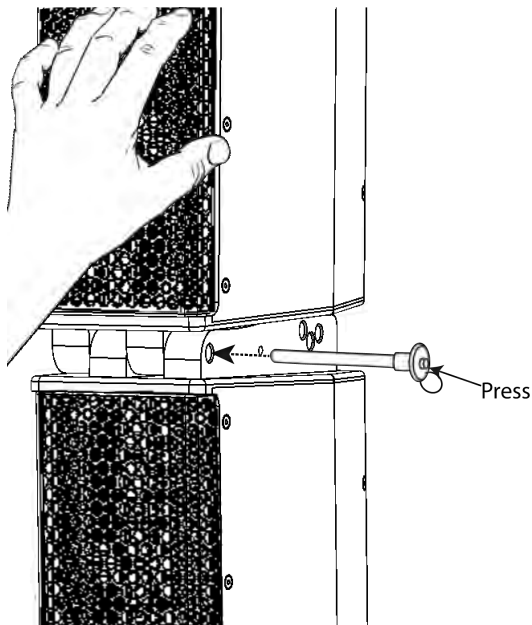


- Lift the LCC84 or LCC44 above the rigging plate of the first coupled LCC44/84. The two rigging plates should align to interlock, as in the figure.
- Lower the LCC84 onto the subwoofer so that the rigging plates interlock. The shape of the plates themselves will help align them correctly.

! Attention: Until both lock pins have been completely inserted and locked, maintain a grip on the upper LCC44 (or LCC84) unit.

- While maintaining a firm hold on the upper enclosure, slide it to align the holes in the rigging plates closest to the front grille of both enclosures.

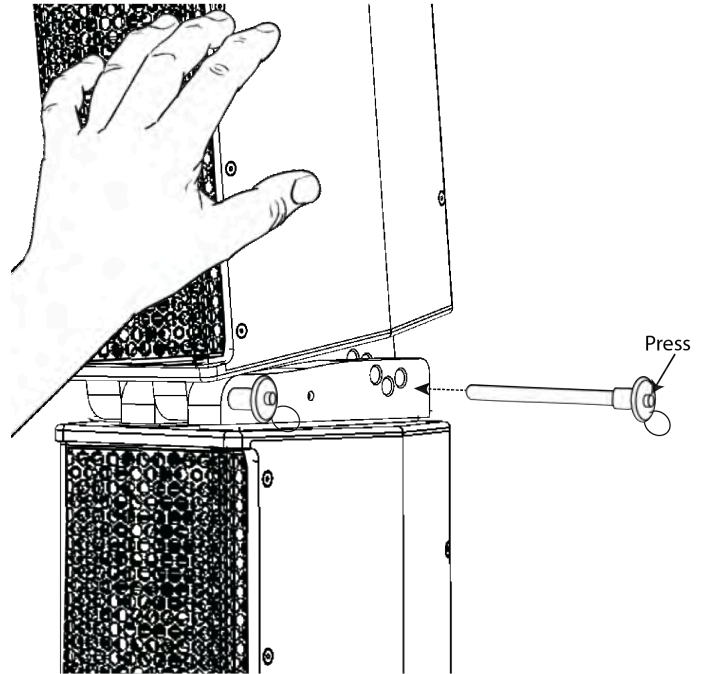
Figure 237. Inserting the first ball-lock pin.



- Take one of the M10×100 ball-lock pins supplied with the rigging plates and press the lock release on the rear of the pin to allow it to pass into the hole. Insert it into the front holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, allow the lock to engage and assure that the pin cannot be removed without again pressing the release. When the fronts of the plates are coupled, it should be possible to freely tilt the top LCC84/44 unit with respect to the bottom one. This done, it is possible to fix the splay angle between the speaker enclosures.

Setting splay angle between stacked LCC44/LCC84 units

Figure 238. Inserting the second ball-lock pin to fix the splay angle.



- Once the first pin has been inserted and locked to couple the two rigging plates, maintain a firm hold on the LCC84/LCC44 unit, and tilt it to align the holes in the rear of the rigging plates that correspond to the required splay angle between the subwoofer and the LCC84.

Note: There are three possible splay angles between LCC84 or LCC44 units.

Figure 239. Setting a 0° tilt angle.

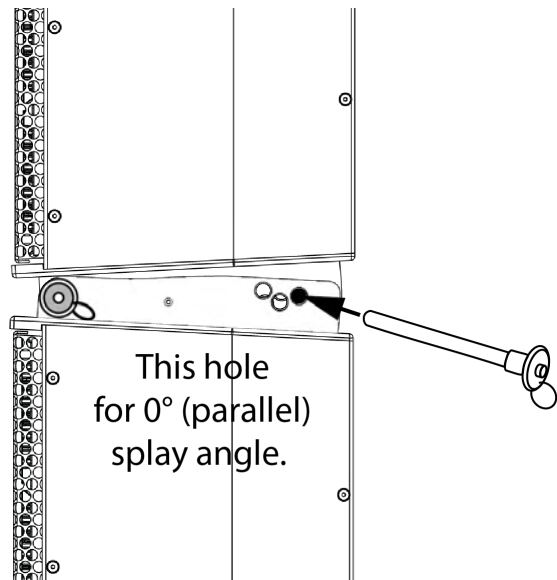


Figure 240. Setting a -3° tilt angle.

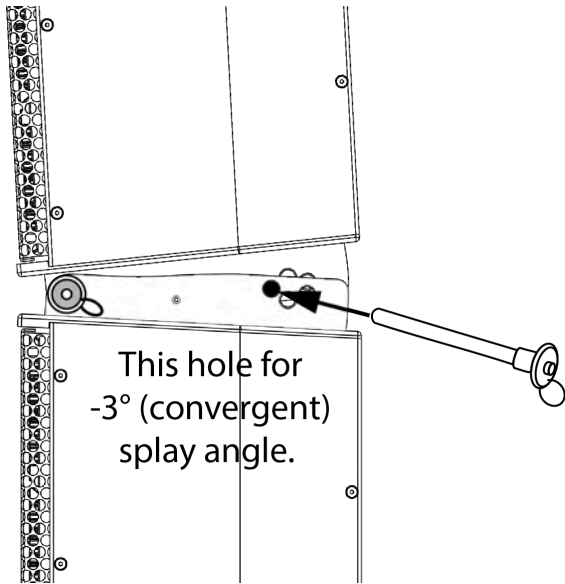


Figure 241. Setting a 3° tilt angle.

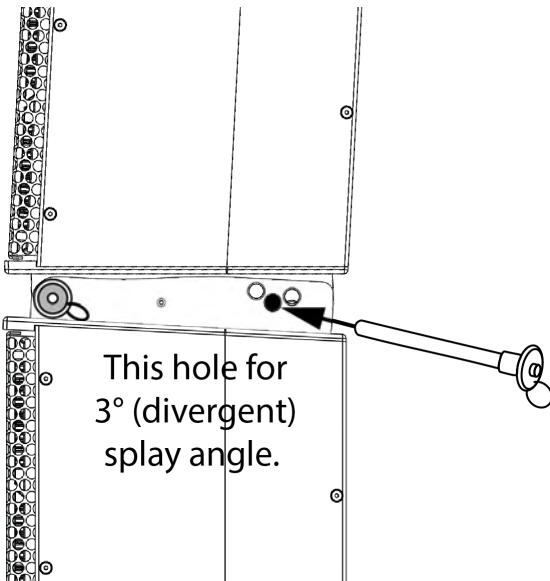
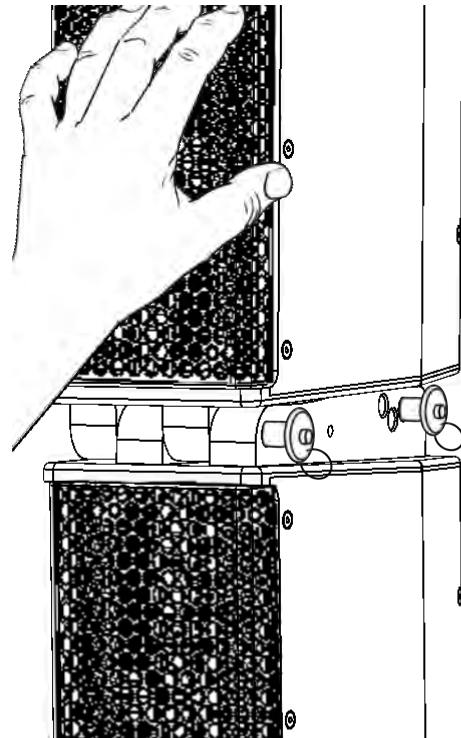


Figure 242. Two LCC84/44 units fully coupled, 0° (parallel) splay angle shown.



- When the required holes are perfectly aligned, take the other M10x100 ball-lock pin supplied with the rigging plates and press the lock-release button on the rear of the pin to allow it to pass into the hole. Insert it into the holes, pushing it completely through all four aligned holes until the ball-lock emerges from the far side. When it emerges, release the button to allow the lock to engage and assure that the pin cannot be removed without again pressing the release.

- Once the second pin has been inserted and locked, the array is configured. Before releasing the enclosure and allowing the assembly to stand on its own, physically assure the stability of the installation and that it will not tip with mild force applied in any direction at the highest point of the assembly.



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