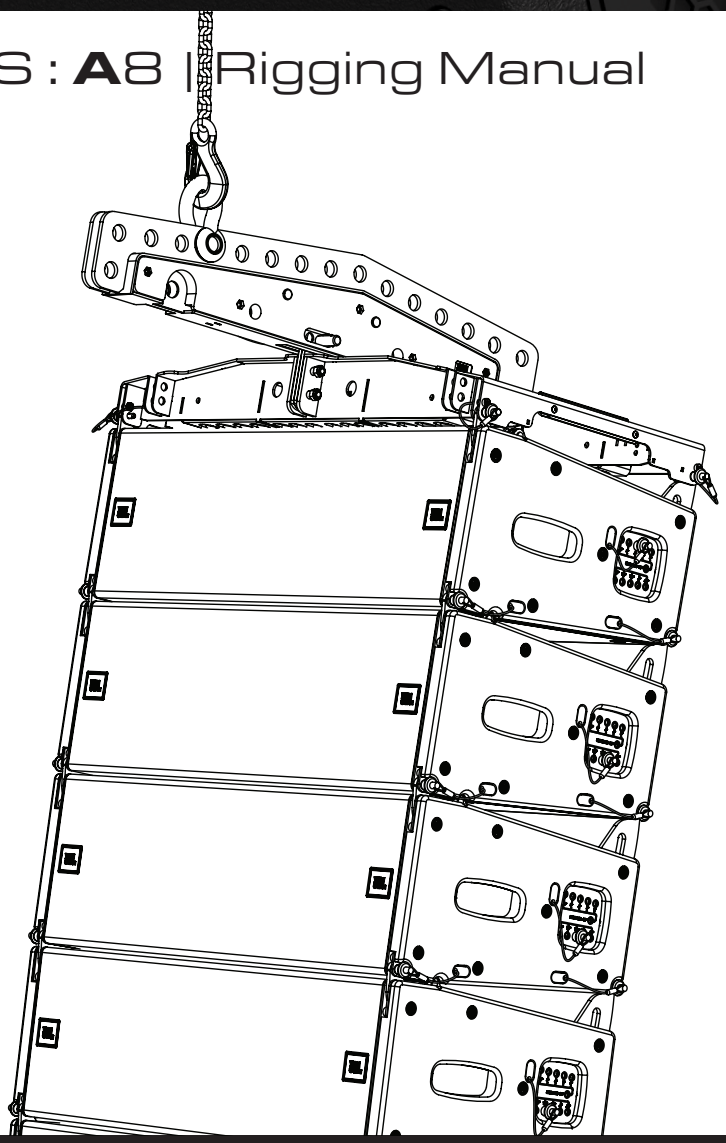
VTX SERIES : A8 | Rigging Manual



GENERAL INFORMATION

VTX A8 - Rigging Manual
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Distribution Date: July 13, 2023

JBL PROFESSIONAL

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Northridge, CA 91329
USA

Thank you for purchasing JBL VTX Series products

In more than 75 years of JBL innovations, the VTX Series stands apart as a milestone in the practical application of creative engineering. VTX products herald the next generation in line array loudspeaker systems: a new era in performance, system integration and user friendliness. VTX products draw on multiple JBL patents in driver, waveguide, and suspension technology, as well as custom amplification, DSP, control, and system management designs created in collaboration with HARMAN Professional sister companies.

VTX loudspeakers marry custom transducer design and in-house manufacture, breakthrough technologies, and a comprehensive system approach to deliver a premium experience for all who come into contact with it, from the FOH mixing engineer to the systems engineer, rigger, road crew, warehouse manager, and, of course, the audience. Designed for operators of portable and fixed systems alike, the VTX Series features JBL's legendary sound quality coupled with expert support and advanced tools that enable optimal specification, configuration, and operation of VTX systems in any venue, anywhere in the world. The VTX Series delivers a comprehensive solution: the finest sound quality available, plus efficient and intuitive setup, tuning, networking, and control.

TABLE OF CONTENTS

1 - DOCUMENT REVISION HISTORY

VERSION	RELEASE DATE	CHANGES
Version A	October 25, 2018	• Initial VTX A8 Rigging Manual
Version B	January 5, 2019	• Updated Mechanical Limits section • Added VT-Top ground stack examples • Added the VTX A8 MF section (page 63) • Added RC500 examples • Added ground stacking section (page 69) • Added VTX A8 BP information
Version C	January 21, 2021	• Updated Mechanical Limits section • Added the VTX B28 to the rigging manual • Updated the LAC-3 section • Minor formating updates
Version D	July 13, 2023	• Update the LAC-3 section • Added the VTX B1 GND to the list of supported accessories • Added Resource and Documentation section • Updated the Contact Information section

2 - DECLARATION OF CONFORMITY

BRAND: JBL Professional

FAMILY NAME: VTX A8/B18 loudspeaker and suspension accessories

MODEL NAMES:

- **VTX A8**
- **VTX A8 AF**
- **VTX A8 AF EB**
- **VTX A8 MF**
- **VTX A8 SB**
- **VTX A8 BP**
- **VTX RC500**
- **VTX A8 VT**

We, HARMAN International, declare under our sole responsibility that the product, to which this declaration relates, is in conformity with the following standards:

STANDARD	DESCRIPTION	TEST AGENCY
2006/42/EC MACHINERY DIRECTIVE	Applies to machinery and lays down essential health and safety requirements. ISO12100	Tested at JBL Professional
2014/35/EC LOW VOLTAGE DIRECTIVE	Applies to loudspeaker and lays down essential health and safety requirements. EN60065	Tested at JBL Professional

Frank Lacelle

Compliance Manager - Harman International

3 - SAFETY

3.1 SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not expose the product to direct rain or sea spray.
6. Clean only with a dry cloth.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
8. Only use attachments/accessories specified by the manufacturer.
9. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
10. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as if liquid has been spilled or objects have fallen into the apparatus, or if the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
11. Contact JBL Professional for advanced servicing issues.
12. CAUTION - DO NOT PERFORM ANY SERVICING UNLESS YOU ARE QUALIFIED TO DO SO.
13. Prolonged exposure to excessive SPL can cause hearing damage. The loudspeaker is easily capable of generating sound pressure levels (SPL) sufficient to cause permanent hearing damage to performers, production crew, and audience members. Caution should be taken to avoid prolonged exposure to SPL in excess of 90 dB.
14. Read the System Rigging Manual before installation and use of the product.

3.2 GENERAL HARDWARE INFORMATION

Any hardware used in an overhead suspension application must be load rated for the intended use. Generally, this type of hardware is available from rigging supply houses, industrial supply catalogs, and specialized rigging distributors. Local hardware stores do not usually stock these products. Compliant hardware will be referenced with a working load limit (WLL) and a traceability code.

3.3 ATTACHMENT TO STRUCTURES

A licensed Professional Engineer must approve the placement and method of attachment to the structure prior to the installation of any overhead object. The following performance standards should be provided to the Professional Engineer for design purposes: Uniform Building Code as applicable, Municipal Building Code as applicable, and Seismic Code as applicable. The installation of the hardware and method of attachment must be carried out in the manner specified by the Professional Engineer. Improper installation may result in damage, injury, or death.

3.4 IMPORTANT SAFETY WARNING

The information in this section has been assembled from recognized engineering data and is intended for informational purposes only. None of the information in this section should be used without first obtaining competent advice with respect to applicability to a given circumstance. None of the information presented herein is intended as a representation or warranty on the part of JBL. Anyone making use of this information assumes all liability arising from such use.

All information presented herein is based upon materials and practices common to North America and may not directly apply to other countries because of differing material dimensions, specifications, and/or local regulations. Users in other countries should consult with appropriate engineering and regulatory authorities for specific guidelines.

Correct use of all included hardware is required for secure system suspension. Careful calculations should always be performed to ensure that all components are used within their working load limits before the array is suspended. Never exceed the maximum recommended load ratings.

Before suspending any speaker system, always inspect all components (enclosure, rigging frames, pins, eyebolts, track fittings, etc.) for cracks, deformations, corrosion, or missing/loose/damaged parts that could reduce strength and safety of the array. Do not suspend the speaker until the proper corrective action has been taken. Use only load-rated hardware when suspending JBL suspendable loudspeaker models.

3.5 ARE YOU NEW TO RIGGING?

If you are new to rigging, you should:

- Know the rules for safe rigging.
- Attend a safe rigging seminar.
- Meet and establish a relationship with a licensed mechanical or structural engineer. Get in the habit of asking them questions instead of assuming their answers. Learn from what they tell you.
- Research and understand the codes, practices and requirements of the venues where you intend to operate your sound system.

3.6 INSPECTION AND MAINTENANCE

Suspension systems are comprised of mechanical devices and, as such, require regular inspection and routine maintenance to ensure proper functionality. Before suspending or pole mounting any speaker system, always inspect all components (enclosure, suspension frames or brackets, pins, eyebolts, etc.) for cracks, deformations, corrosion, or missing/loose/damaged parts that could reduce strength and safety of the array. Do not suspend or pole mount a speaker until the proper corrective action has been taken.

Installed systems should be inspected at least once a year. The inspection must include a visual survey of all corners and load-bearing surfaces for signs of cracking, water damage, delamination, or any other condition that may decrease the strength of the loudspeaker enclosure.

Accessory suspension hardware provided with or for VTX systems must be inspected for fatigue at least once a year or as required by local ordinance. The inspection must include a visual survey of the material for signs of corrosion, bending, or any other condition that may decrease the strength of the fastener. Additionally, any eyebolts must be checked for possible spin-out of the enclosure.

For all other hardware and fittings, refer to the hardware manufacturer's inspection and maintenance guidelines for process.

JBL is not responsible for the application of its products for any purpose or the misuse of this information for any purpose. Furthermore, JBL is not responsible for the abuse of its products caused by avoiding compliance with inspection and maintenance procedures or any other abuse.

Prior to suspending the system, an expert, trained and experienced in suspending speaker systems, should inspect all parts and components.

3.7 SYMBOLS

The following symbols are used in this document:

CAUTION: This symbol gives notice of a potential risk of harm to the individual or the equipment. Instruction marked with this symbol must be strictly followed.

TIP: This symbol gives notice of helpful, relevant information about the topic.

INSTRUCTIONS: This symbol gives notice of instructions that must be followed for proper installation and use of the product.

TOOLS REQUIRED: This symbol gives notice of tools that must be used for proper installation and use of the product.

3.8 RESOURCES AND DOCUMENTATION

Several resources are available to VTX Series owners to illustrate proper and safe use of the equipment. Below is an overview of what is available and a brief description of each resource:

USER MANUAL: This document focuses on the electromechanical aspects of the system, including amplification, wiring, speaker presets, tuning, and optimization. User manuals do not include information regarding rigging and suspension hardware.

RIGGING MANUAL: This document focuses on the mechanical aspects of the system, including step-by-step rigging instructions, accessory usage, mechanical limits, and safety instructions. All users must read this document.

SPECIFICATION SHEETS: These documents include detailed specifications for loudspeakers and accessories. Specifications include acoustical performance, material types, weight, and general mechanical information. Specification sheets are available for each product.

CUSTOMER DRAWINGS: This is a collection of files that includes detailed drawings for each SKU. The collection consists of detailed dimensional 2D PDF/DXF documents and simplified 3D DXF models. Depending on the product, additional types of 3D files might be available for download at www.jblpro.com.

VIDEO TUTORIALS: Software and hardware video tutorials are available for watching on the JBL Professional YouTube channel.

4 - MECHANICAL LIMITS

The VTX A8 suspension system and accessories comply with the 2006/42/EC Machinery Directive and have been designed following the guidelines of DGUV regulation 17 (BGV-C1) for a minimum safety factor of 4:1. Minimum safety factor requirements for suspended arrays are often set by local regulations. Use the JBL Line Array Calculator™ software to check mechanical limits and ensure compliance with local regulations. ANSI Standard E1.8 (Entertainment Technology Loudspeaker Enclosures Intended for Overhead Suspension), Section 5.3.4, specifies a minimum safety factor of 5:1. If compliance with the ANSI standard is needed, make sure that the array design produces a minimum safety factor of 5:1.

4.1 VTX A8 LIMITS - SUSPENDED ARRAY

ARRAY FRAME	NOTES	SAFE LIMIT	MAXIMUM LIMIT
VTX A8 AF + EB	VTX A8 Array Frame with Extension Bar attached	(22) A8	(24) A8
VTX A8 SB	(1) Suspension Bar used as an Array Frame (top)	(24) A8	(24) A8
VTX A8 SB X2	(2) Suspension Bars are used (top and bottom)	(12) A8	(24) A8
VTX A8 MF	Arrays using the VTX A8 Mini Frame	(10) A8	(10) A8

4.2 VTX A8 - GROUND-STACKED ARRAYS

ACCESSORY	NOTES	SAFE LIMIT	MAXIMUM LIMIT
VTX A8 BP	Base plate for ground stacking A8 systems	(2) A8	(8) A8

TERMINOLOGY:

Safe Limit: The safe limit provides the number of cabinets that can be used in an array while maintaining a safety factor of 4:1 or higher. The safety factor of an array is determined by the number of cabinets, the array shape, and the overall array angle. An array constructed within the safe limit will always yield a safety factor greater than 4:1 regardless of array parameters and conditions. Ground-stacked arrays within the safe limit are stable under normal conditions. Designs exceeding the safe limit and up to the maximum limit, are possible, but the JBL Line Array Calculator software should be used to check mechanical safety for the given configuration.

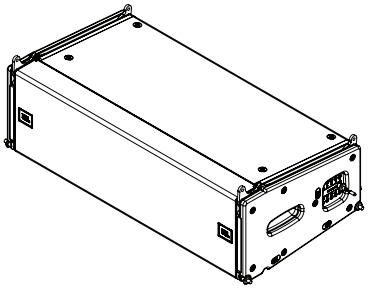
Maximum Limit: Arrays larger than the maximum limit are not allowable under any conditions.

NOTES:

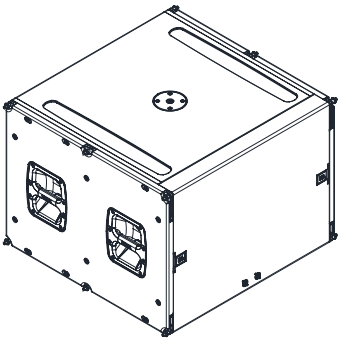
- LAC-3 allows for array designs with a minimum design factor of 4:1. Anything lower than that is not allowed
- For exact mechanical limits of mixed arrays (A8s suspended under B18s) always check the design with LAC-3
- For mechanical limits when using dual Suspension Bars always check the design with LAC-3
- Safe and maximum limits are only applicable to the specified accessory (i.e. base plate or array frame). When several accessories are combined (for example, ground-stacked arrays with a base plate and subwoofers underneath), the design should always be evaluated and checked with LAC-3.
- For additional information on B18 limits, refer to the VTX B18 Rigging Manual

CAUTION: Limits for ground-stacked arrays always assume that the stacking surface (floor or stage) is flat. Do not deploy ground-stacked arrays on non-flat surfaces to avoid tipping hazards.

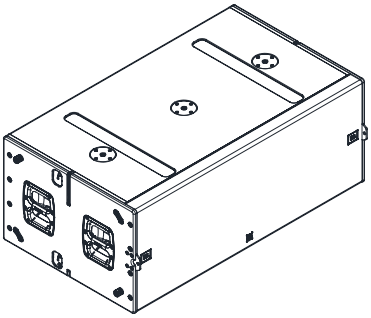
5 - SYSTEM COMPONENTS



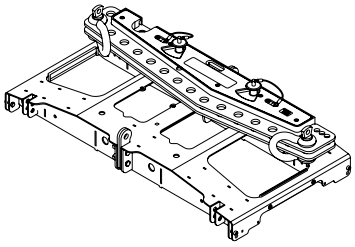
VTX A8



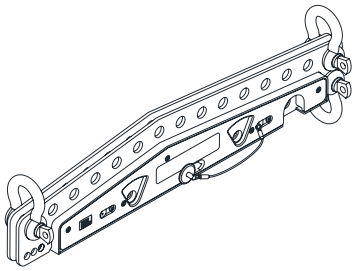
VTX B18



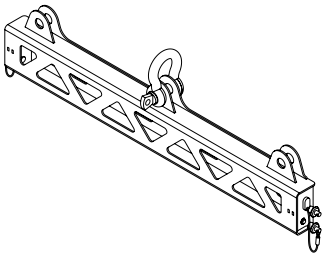
VTX B28



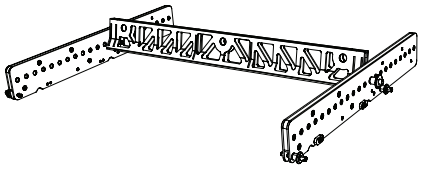
VTX A8 AF | Array Frame



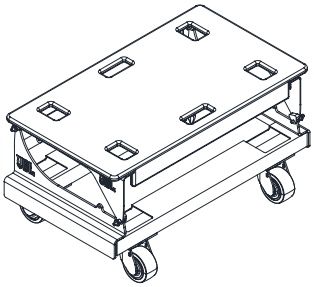
VTX A8 AF EB | Extension Bar



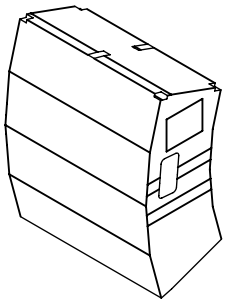
VTX A8 SB | Suspension Bar



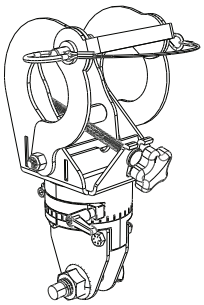
VTX A8 MF| Mini Frame



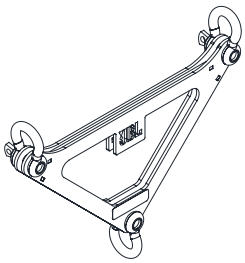
VTX A8 VT | Vertical Transporter



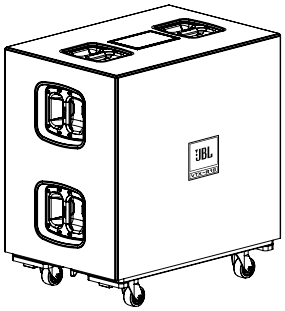
VTX A8 VT CVR | Cover



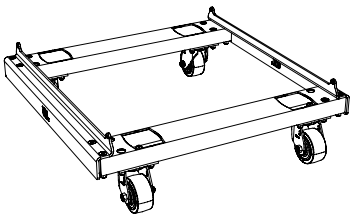
VTX RC500 | Rotating Clamp



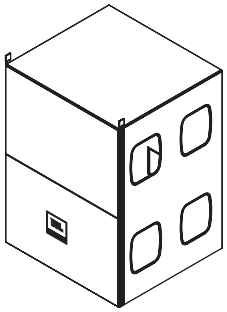
VTX DELTA | Delta Plate



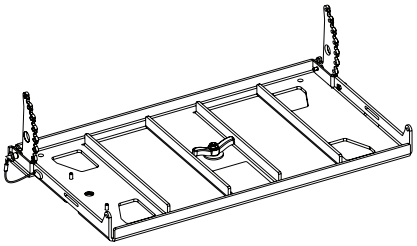
VTX B18 ACC | Caster Board & Cover



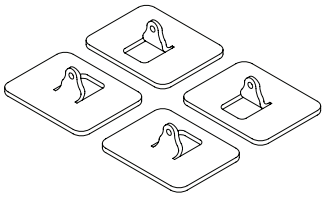
VTX B18 VT | Vertical Transporter



VTX B18 VT CVR | Soft Cover



VTX A8 BP | Base Plate



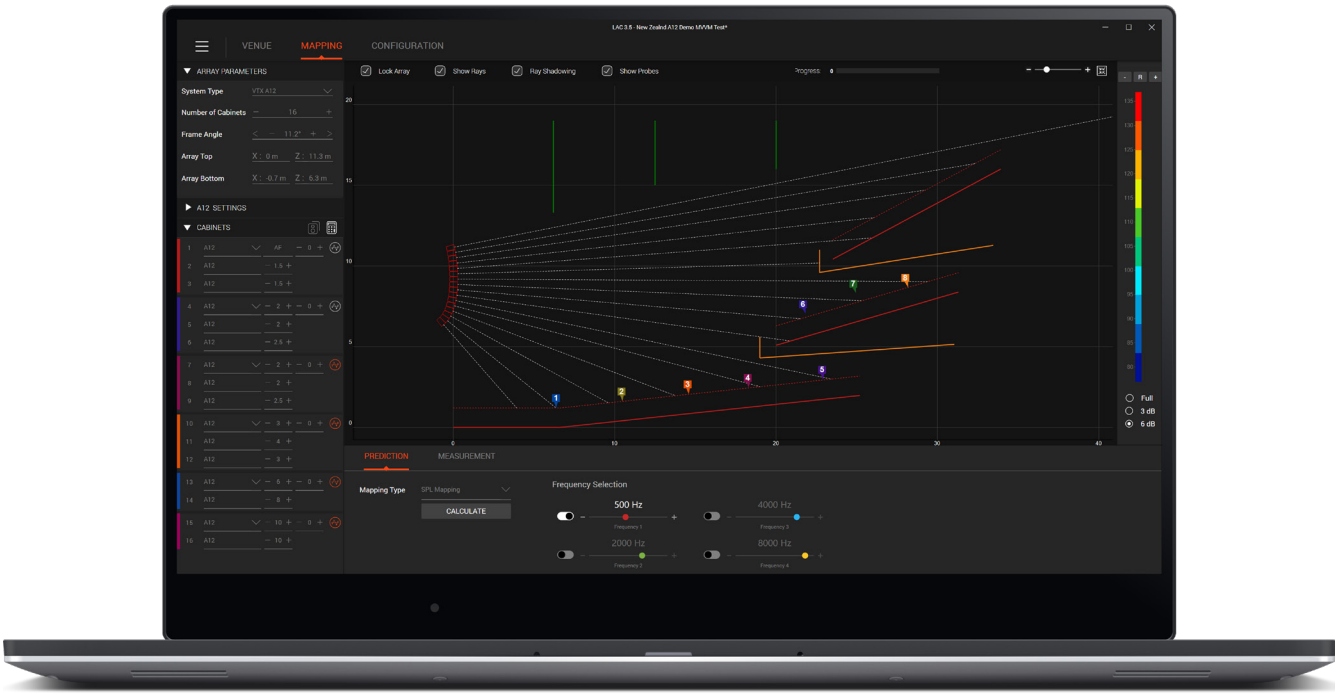
VTX B1 GND

CAUTION: Always use components and accessories specified and approved by JBL Professional. When a cart is used, use caution when moving the cart to avoid injury from tip-over.

6 - SOFTWARE

6.1 LINE ARRAY CALCULATOR 3™

Line Array Calculator 3 acoustical prediction software is used for the design and mechanical validation of VTX Series line array systems. Using LAC-3 is a three-step process. First, venue dimensions are defined using either X/Y/Z coordinates or the fast distance/angle method. Second, array configurations are built from VTX Series loudspeaker models. Third, virtual measurement microphones and a suite of built-in DSP functions are applied to make predictions of the system's coverage and the linearity that will be delivered by the defined array configuration in the specified space. Loudspeaker quantities and models, splay angles, and array aiming can be modified until prediction shows that the desired coverage is attained throughout the venue. The built-in coverage-and-delay calculator determines subwoofer delay values for electronic delay steering (EDS) that achieves optimal low frequency coverage.

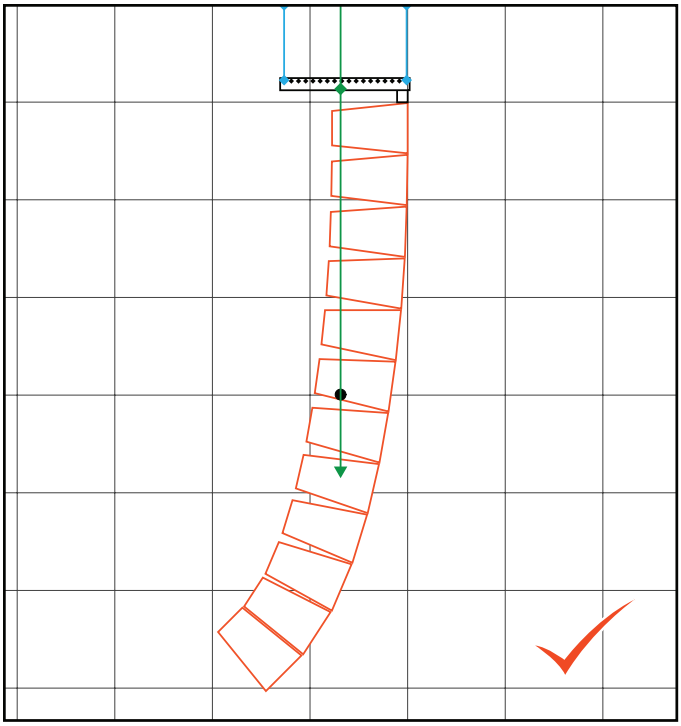


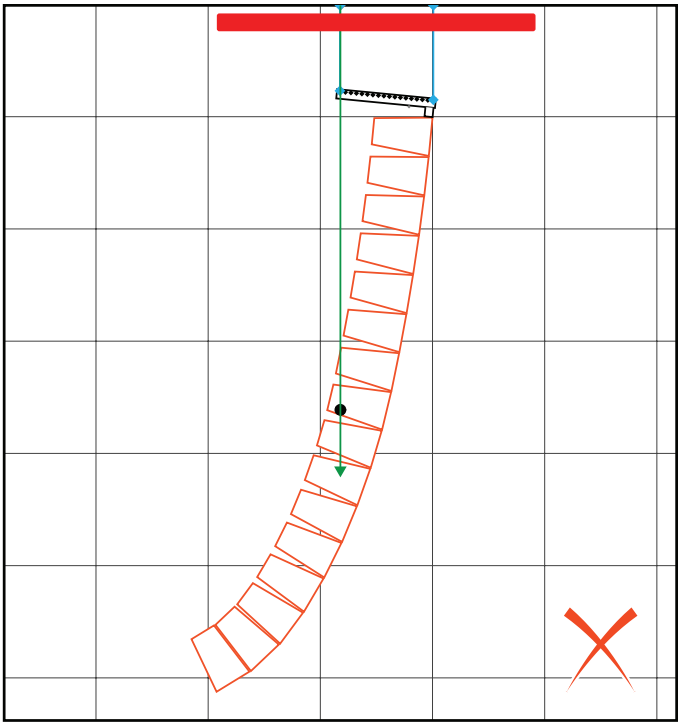
Beyond acoustical predictions, LAC-3 validates the mechanical properties of arrays and selected JBL accessories. Configuration limits are calculated in real time, for either suspended or ground-stacked arrays, based on array parameters such as the number of cabinets, cabinet-to-cabinet splay angles, overall array aiming, and selected accessories. In the case of suspended arrays, a safety factor is calculated to aid in designing systems that conform to local regulations. Warnings and error messages notify the user when an array or a specific accessory is outside safe working limits. For ground-stacked arrays, a tipping factor calculated from a complex set of variables suggests whether an array design is likely to be stable, potentially unstable, or unsafe. Array statistics like array size, depth, and weight are also calculated, and a PDF report facilitates system deployment. Mechanical data can be transferred to JBL's Array Link™ app running on an iOS® or Android™ mobile phone using a QR code, with no need for internet connectivity. All relevant rigging information and options are presented in an easy-to-understand layout.

CAUTION: All VTX systems should be designed and validated using the LAC-3 software application. This is the only way to ensure that safe mechanical conditions are met for any given configuration.

6.2 SUSPENDED ARRAYS

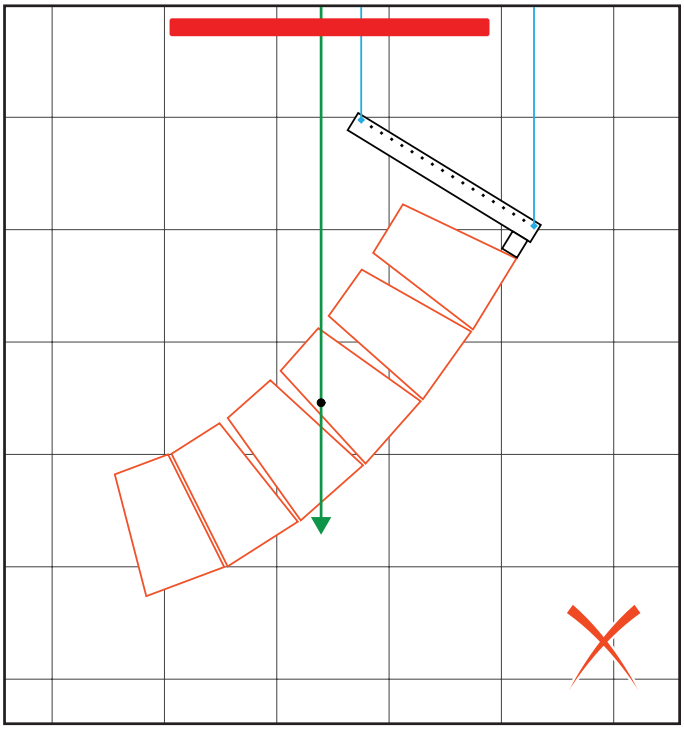
Line Array Calculator 3 checks the mechanical safety of suspended arrays and takes into consideration all variables that can affect the mechanical safety and safety factors. The software validates the mechanical stresses on the enclosures, speaker rigging components, and all accessories used as part of an array. Parameters like array down angle and curvature are considered and a safety factor is generated for the given configuration. The generated safety factor value represents the minimum of any components used, and values are always rounded down.





A red banner appears at the top of the array views when the software detects a mechanical error. The banner explains the issue, and some configurations might include more than one error. In that case, the software will present the additional messages as the errors are cleared. Configurations generating a mechanical error should never be used, as their safety factor falls under the minimum of 4:1. The safety factor generated by the application can be used to design arrays with safety factors other than 4:1 and based on local regulations.

In addition to mechanical and safety errors, the software notifies of configurations that cannot be realized in real life. An example of such a condition is when the center of gravity of an array falls outside of the footprint of the array frame. In this case, the error can be cleared by changing the down angle or using a pull-back at the bottom of the array.



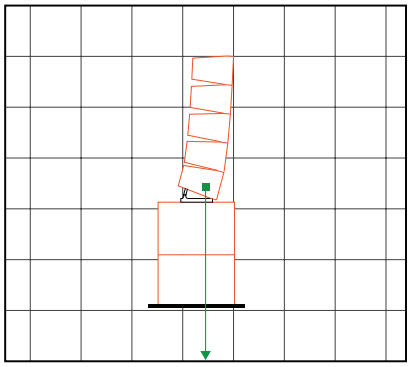
● Center of Gravity ● Suspension Points

6.3 GROUND-STACKED ARRAYS

Line Array Calculator 3 checks for the mechanical safety of ground-stacked arrays. The software takes into consideration several variables that can affect the stability of an array, including outside factors such as someone pushing on an array. Based on this data, LAC-3 generates a safety assessment factor and notifies the user of potential mechanical or stability problems. Errors and warnings generated fall into one of the following categories:

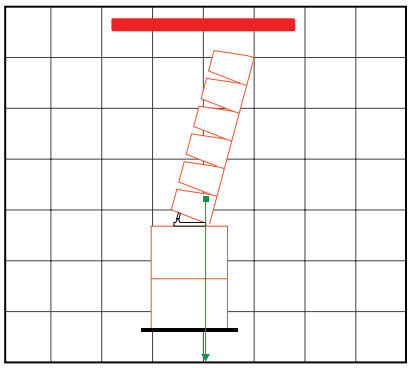
No errors or messages

In this case, the array is stable under normal conditions and can be used as is. The array also complies with the mechanical limits set by JBL for the speakers and selected accessories.



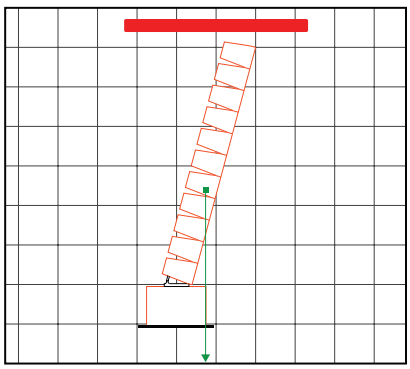
WARNING: Stability Hazard! - Stack Could Become Unstable - Secure to Ground

This message is an alert that the array is potentially unstable and a tipping hazard condition has been detected. The user is responsible for securing the array to the ground, stage, or other structure that can provide additional support and is rated for the weight of the array. This message may also be warning of external factors that can influence stability, such as someone accidentally pushing the array.



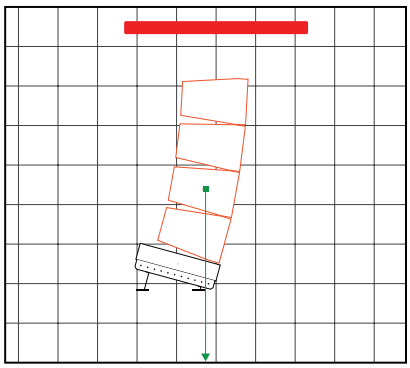
Configuration exceeds the maximum number of boxes allowed

This message is presented when the specified array design exceeds the mechanical limits set by the JBL team for the speakers or selected accessories. Array designs that trigger this message should not be used under any conditions, as they can lead to hardware damage and/or injury.



Invalid CG Location

This message is presented when the center of gravity of an array design exceeds the footprint of the selected accessory. Array designs that trigger this message should not be used under any conditions, as they can lead to hardware damage and/or injury.

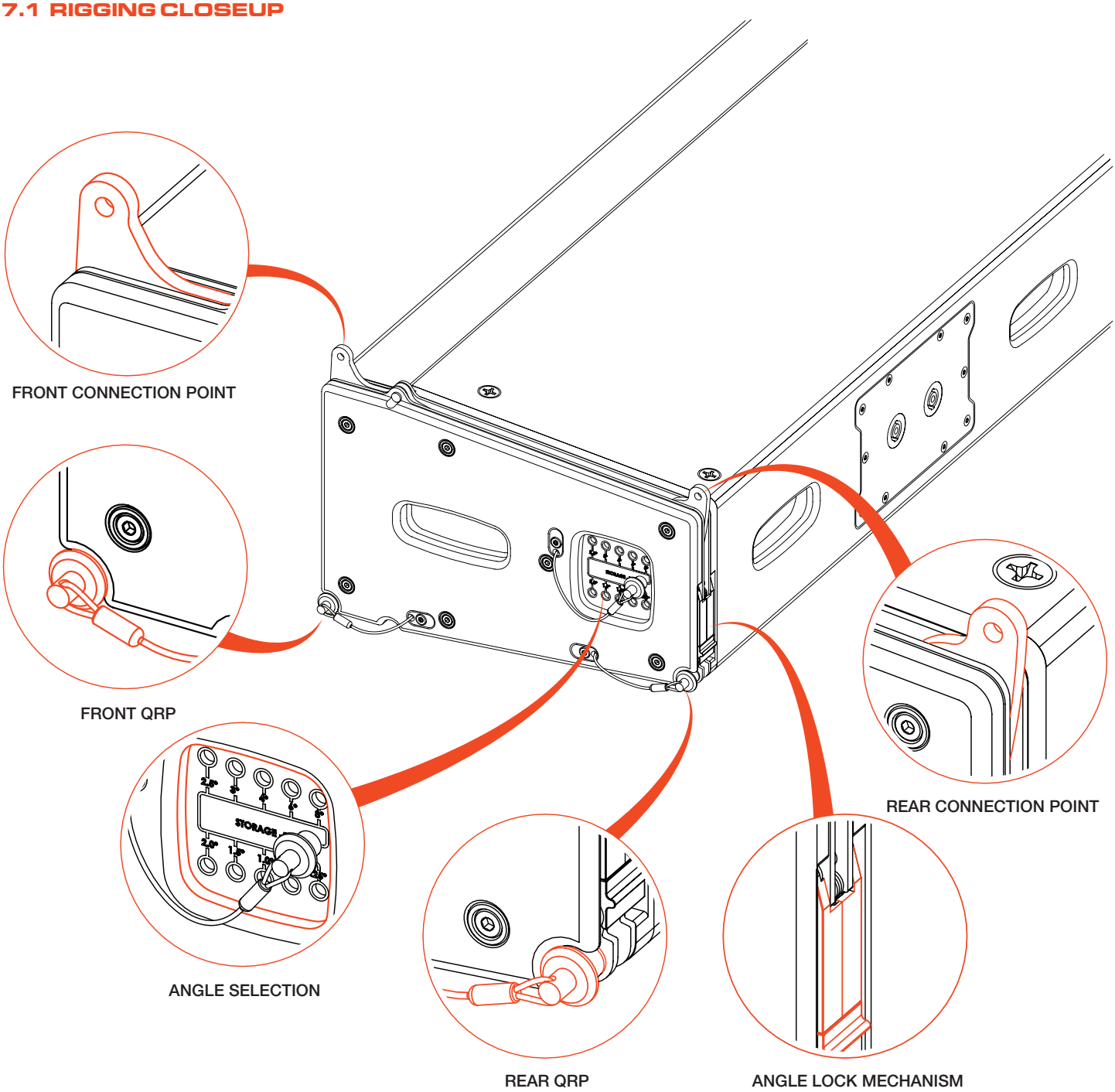


● Center of Gravity

7 - A8 RIGGING SYSTEM OVERVIEW

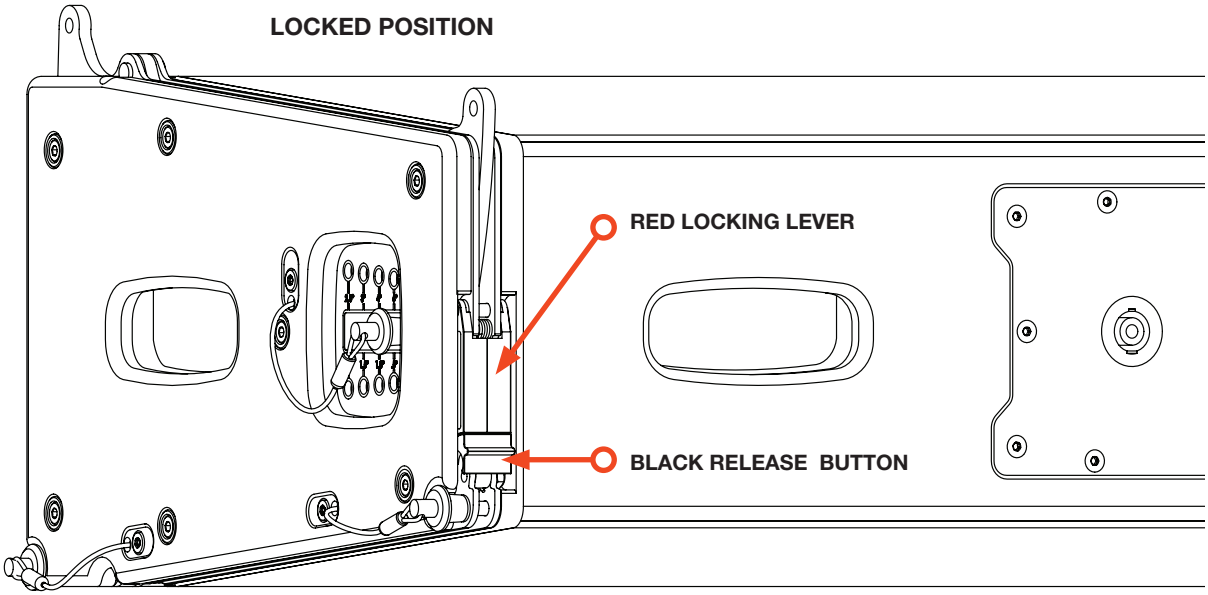
VTX A8 cabinets include a next-generation rigging system that is easy to use, simple to understand, and highly accurate. VTX A8 enclosures are transported vertically on carts of four using the VTX A8 VT Vertical Transporter cart accessory. During transportation, all four cabinets travel collapsed and set to the 10-degree position. Cabinet-to-cabinet splay angle selection is done while the system is still on the ground, simply by moving the angle selection quick release pin (QRP) to the desired position. When speakers are lifted off the VTX A8 VT carts, an automatic Angle Lock mechanism engages to secure the cabinets to the selected position. The cabinets maintain their splay positions until the user releases the Angle Lock mechanism, at which point the cabinet angles collapse back to 10 degrees and the cabinets can be stored on the cart.

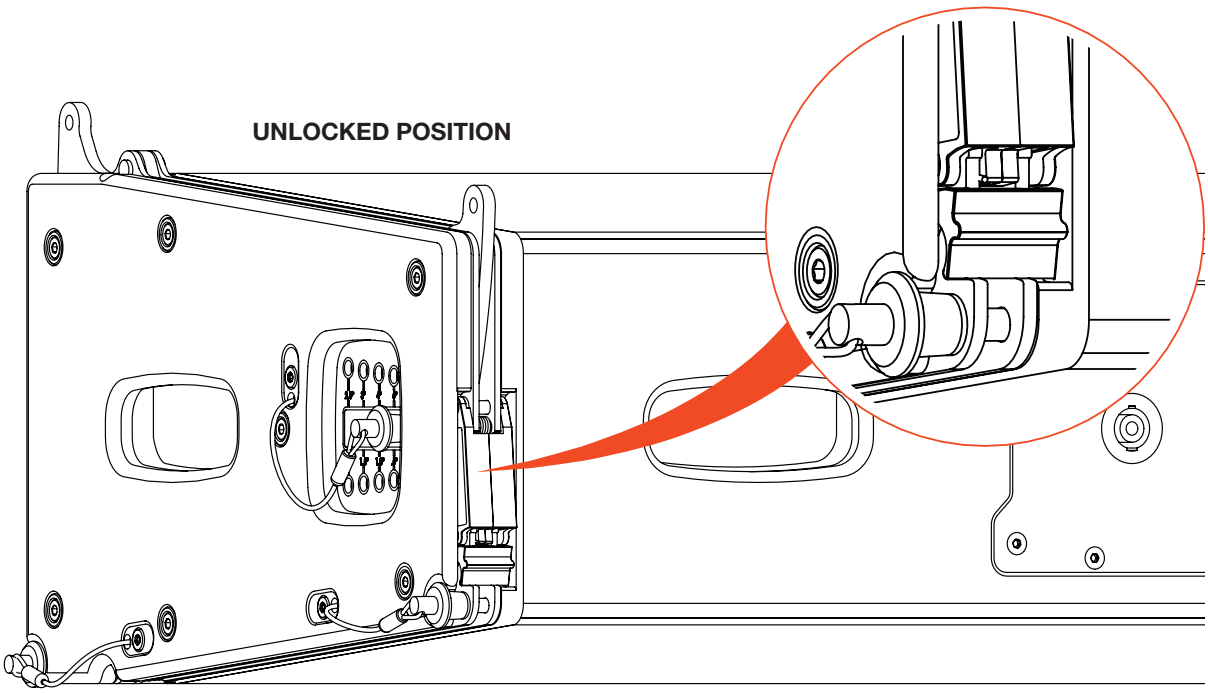
7.1 RIGGING CLOSEUP



7.2 ANGLE LOCK MECHANISM

VTX A-Series cabinets include an innovative Angle Lock mechanism that automatically engages to fix the angles at the selected positions when the system is suspended. Angles can be preselected while the system is still on the ground, eliminating extra steps. The Angle Lock mechanism consists of two main parts: the red **LOCKING LEVER** and the black **RELEASE BUTTON**. The system is locked when the locking lever is recessed into the cabinet, and remains locked until the Angle Lock mechanism is released. When it's time to de-rig the system, pressing the **RELEASE BUTTON** disengages the Angle Lock mechanism, which allows the cabinets to collapse again to an angle of 10 degrees for travel on the transportation cart.





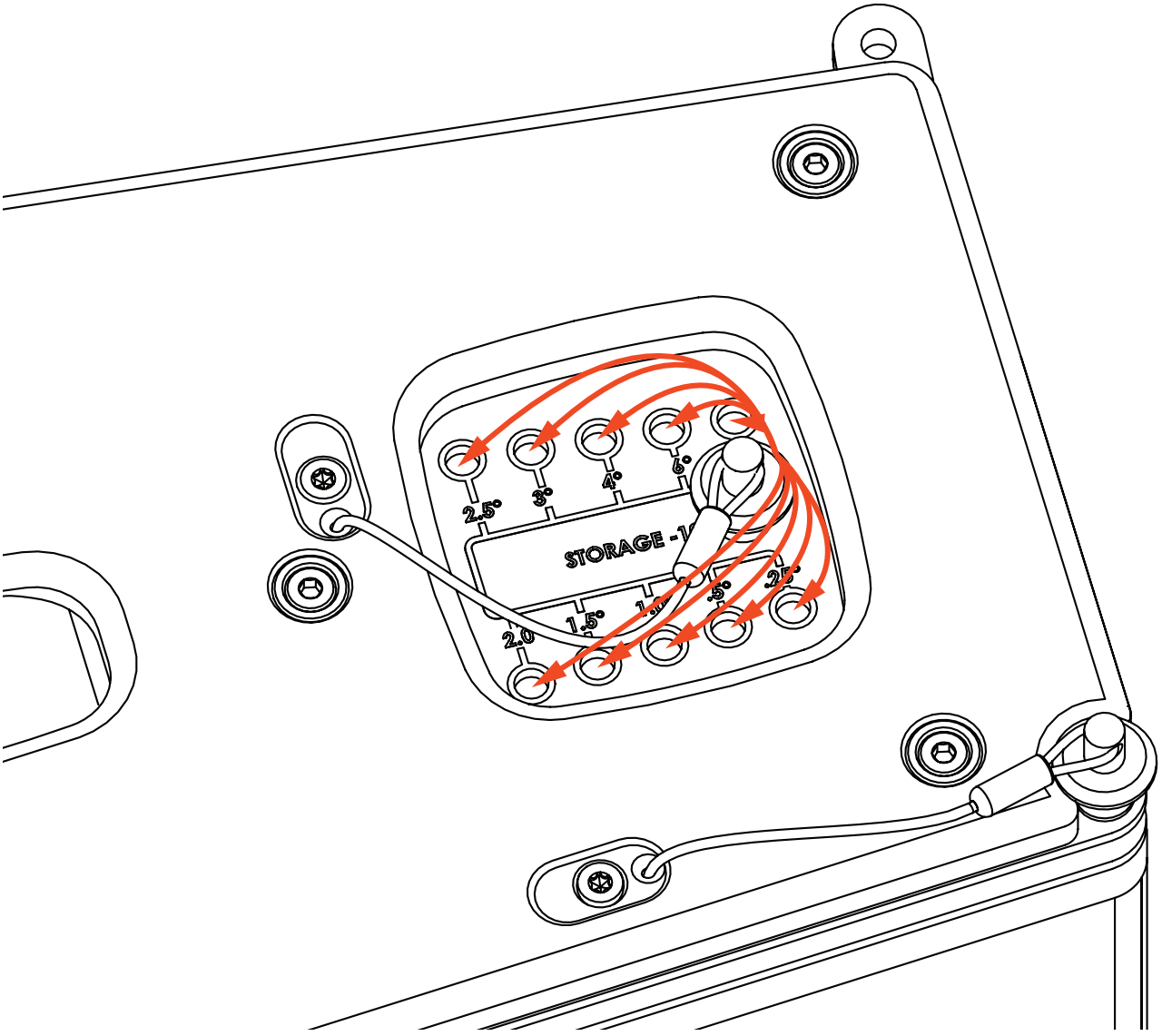
7.3 ANGLE SELECTION

Every VTX A8 has an Angle Selection panel on either side of the cabinet. These panels are used to select the cabinet-to-cabinet splay angle. The panels offer eleven unique positions, labeled in degrees. The positions range from 0.25 to 10 degrees.

VTX A8 ANGLE OPTIONS: 0.25°, 0.5°, 1°, 1.5°, 2°, 2.5°, 3°, 4°, 6°, 8°, 10°

A dedicated quick release pin is available for setting the angle. Angles are selected while VTX A8 cabinets sit on a VTX A8 VT cart resting on the ground. Since the quick release pins are not under load when the system is on the ground, they can be moved freely to the desired position. During transportation, VTX A8 cabinets should always be set to 10 degrees. This ensures the rigging system is locked, preventing any accidental movement or unintended change of angle.

To select an angle, remove the quick release pins from the storage position (10°) and set them to the position for the desired angle. Lifting the array from the ground shifts weight to the quick release pins, making angle selection no longer possible.



CAUTION: Every quick release pin in a VTX A8 system must be set in a hole before the array is flown. Do not suspend a VTX A8 system if any pins hang free.

8 - A8 TRANSPORTATION

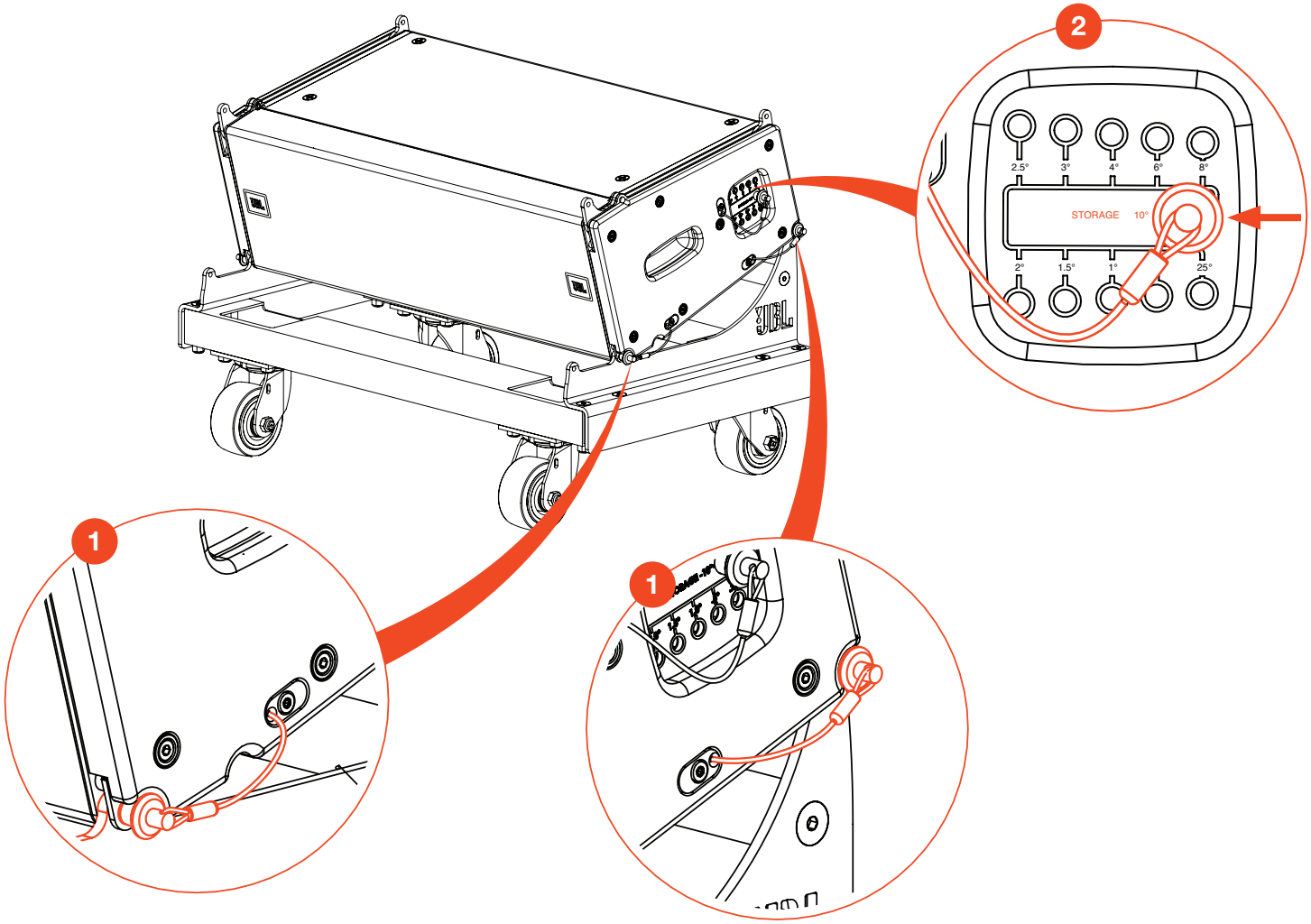
The VTX A8 VT Vertical Transporter carries four VTX A8 cabinets for travel. All four cabinets should be set to the 10-degree (STORAGE) position when stacked on the VTX A8 VT to secure the rigging for transportation. The optional VTX A8 VT CVR cover can be used for additional protection.

8.1 INSTALLING VTX A8 CABINETS ON A VT

VTX A8 cabinets should be installed on a VTX A8 VT one by one, starting with the lowest cabinets in the array.

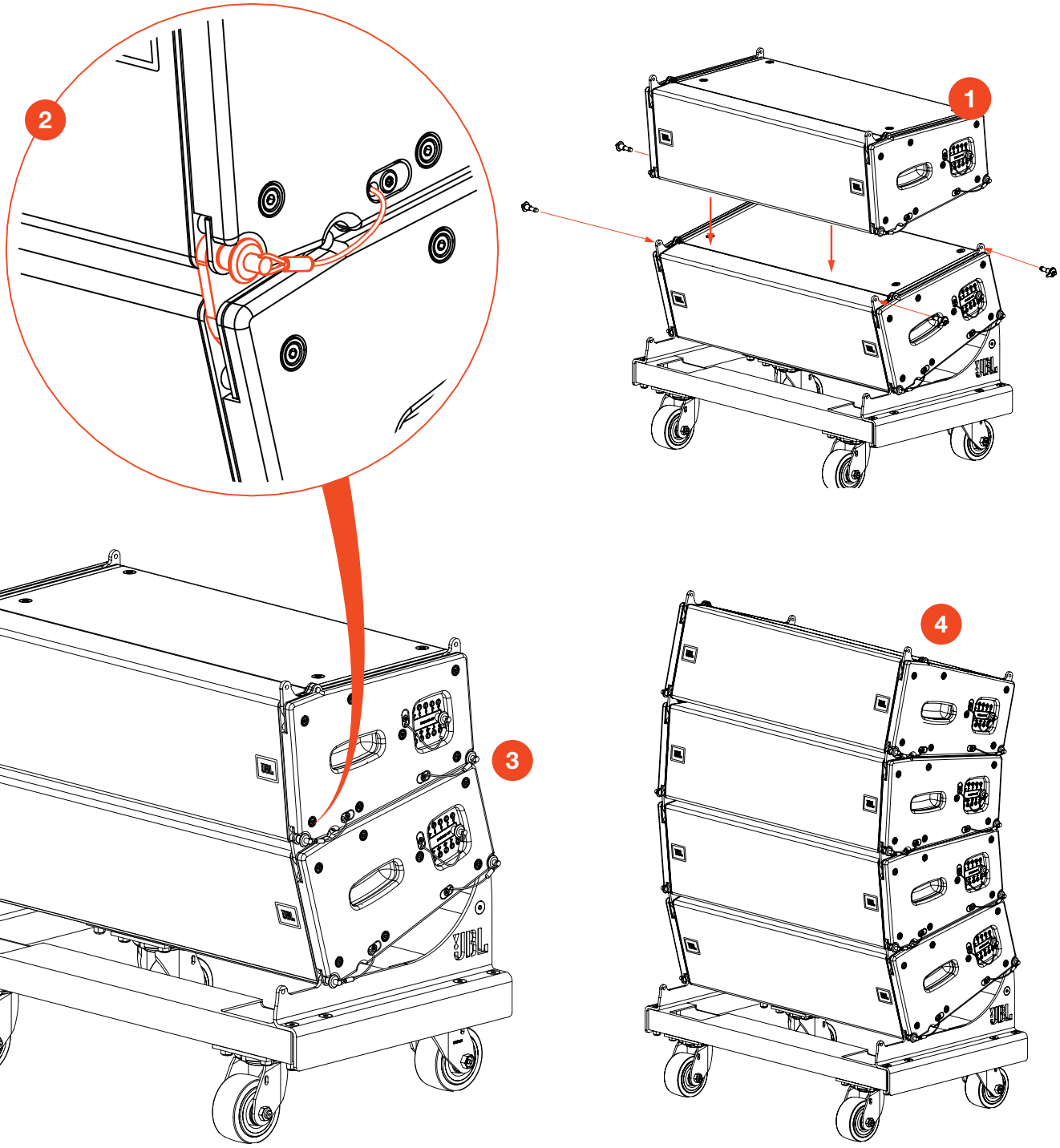
STEPS:

1. Use the four front and rear A8 quick release pins to secure the first VTX A8 cabinet to the VTX A8 VT.
2. Select the 10-degree (STORAGE) position for the cabinet and set the red locking lever to the locked position.



STEPS:

1. Lower the next A8 cabinet onto the first enclosure, making sure all four corners are aligned and the rigging arms engaged.
2. Use the two quick release pins on each side to secure the cabinet to the A8 cabinet below it.
3. Set the cabinet angle to the 10-degree (STORAGE) position and make sure the red locking lever is in the locked position.
4. Repeat this process until all four cabinets are secured on the VTX A8 VT.

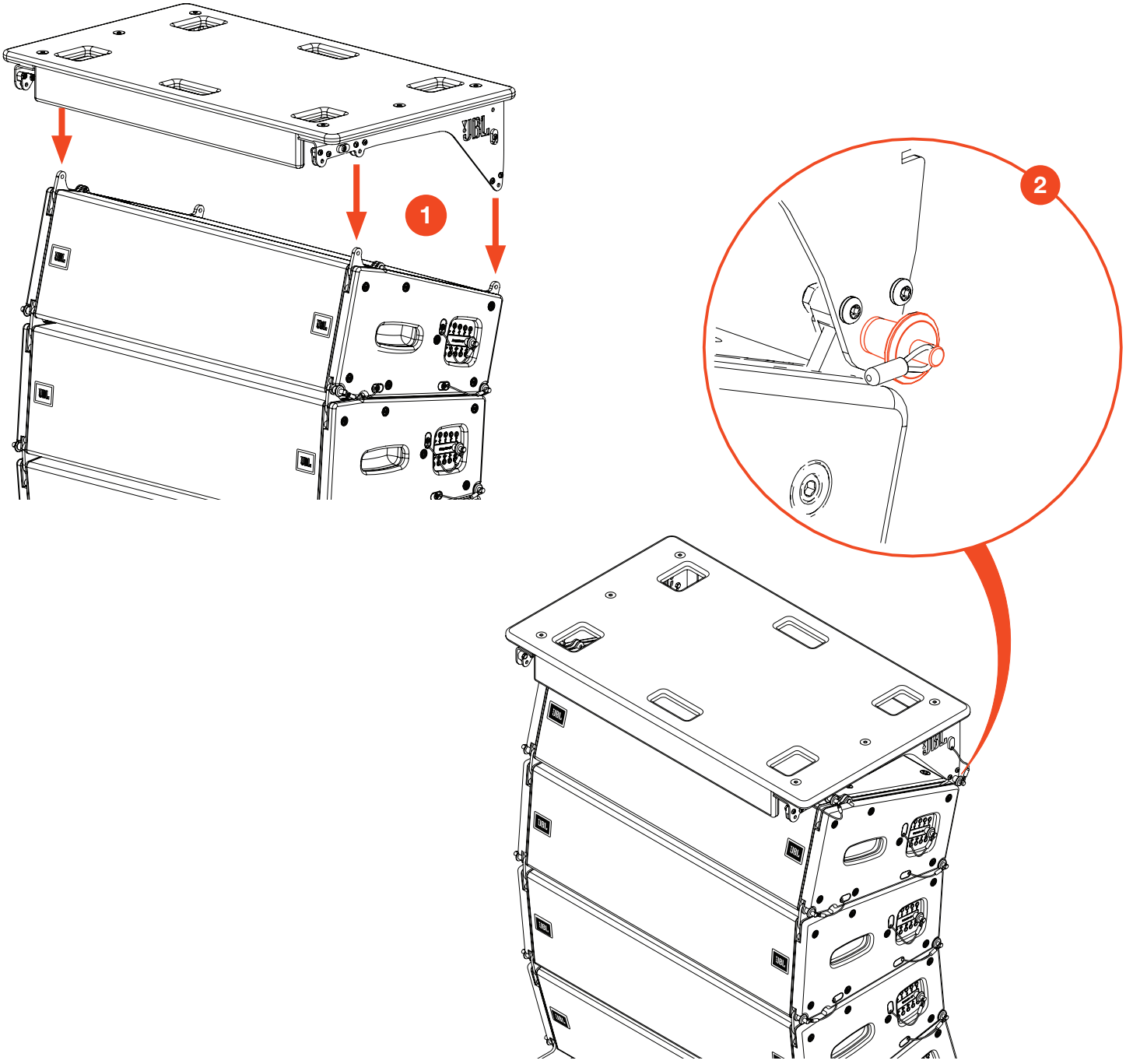


8.2 INSTALLING THE TOP PART OF THE VTX A8 VT

The VT-TOP connects to the top cabinet of an A8 stack to form a robust and defined footprint that stabilizes the carts during transportation. The flat top allows other gear to be stacked on top of A8 arrays traveling on VTX A8 VT carts for a more efficient truck pack.

STEPS:

1. Lower the VT-TOP onto the top VTX A8 cabinet. Be sure the four rigging corners of the A8 cabinet engage with the VT-TOP.
2. Secure the VT-TOP by installing the four quick release pins onto the top VTX A8 cabinet.

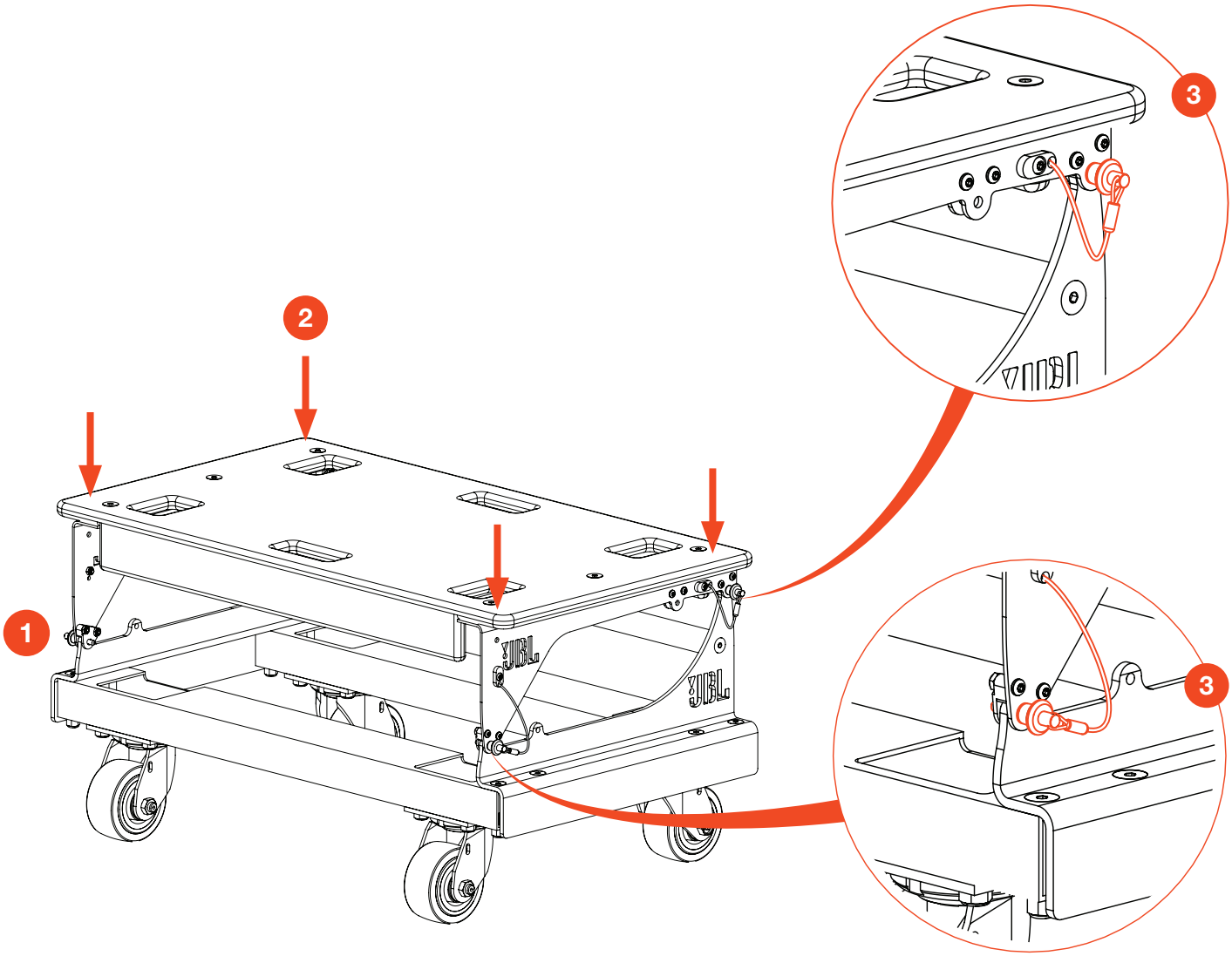


8.3 STORING THE VTX A8 VT

Once an A8 stack has been deployed, the VT-TOP can attach to the VTX A8 VT for storage. Several carts can be stacked together for efficient storage.

STEPS:

1. Line up the corners of the VTX A8 VT and the VT-TOP.
2. Lower the VT-TOP onto the VTX A8 VT until all four corner connection points engage.
3. Use the four quick release pins to secure the VT-TOP to the VT.



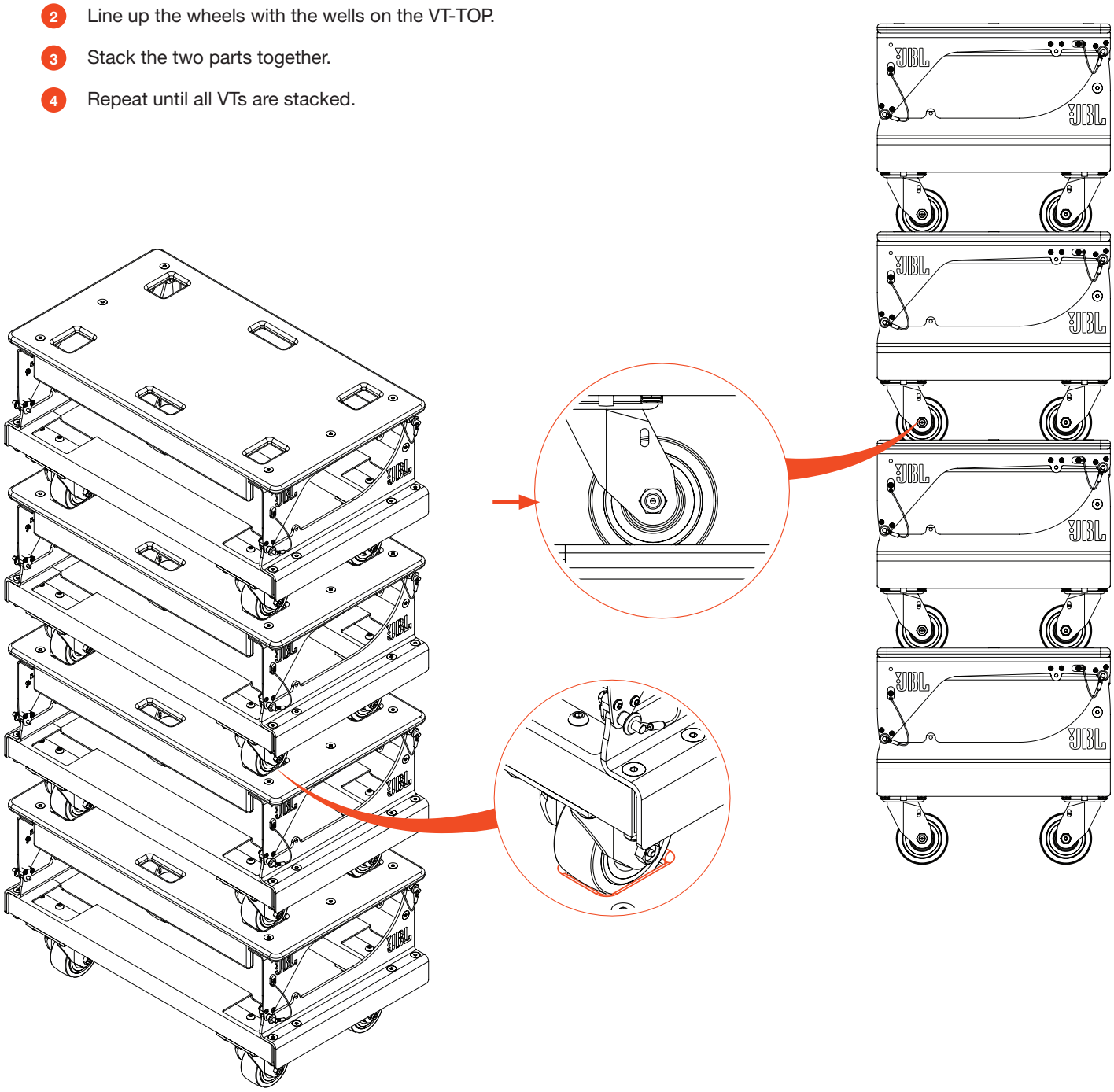
TIP: The VTX A8 VT CVR cover can be stored in the empty space between the VT and VT-TOP. Fold the cover and place it in the VT before pinning the VT-TOP.

8.4 STACKING THE VTX A8 VT WITH THE VT-TOP

When the VTX A8 VT and VT-TOP are attached, several assemblies can be stacked together for storage.

STEPS:

1. Rotate the VT wheels inward to point towards the opposite end of the cart.
2. Line up the wheels with the wells on the VT-TOP.
3. Stack the two parts together.
4. Repeat until all VTs are stacked.



CAUTION:

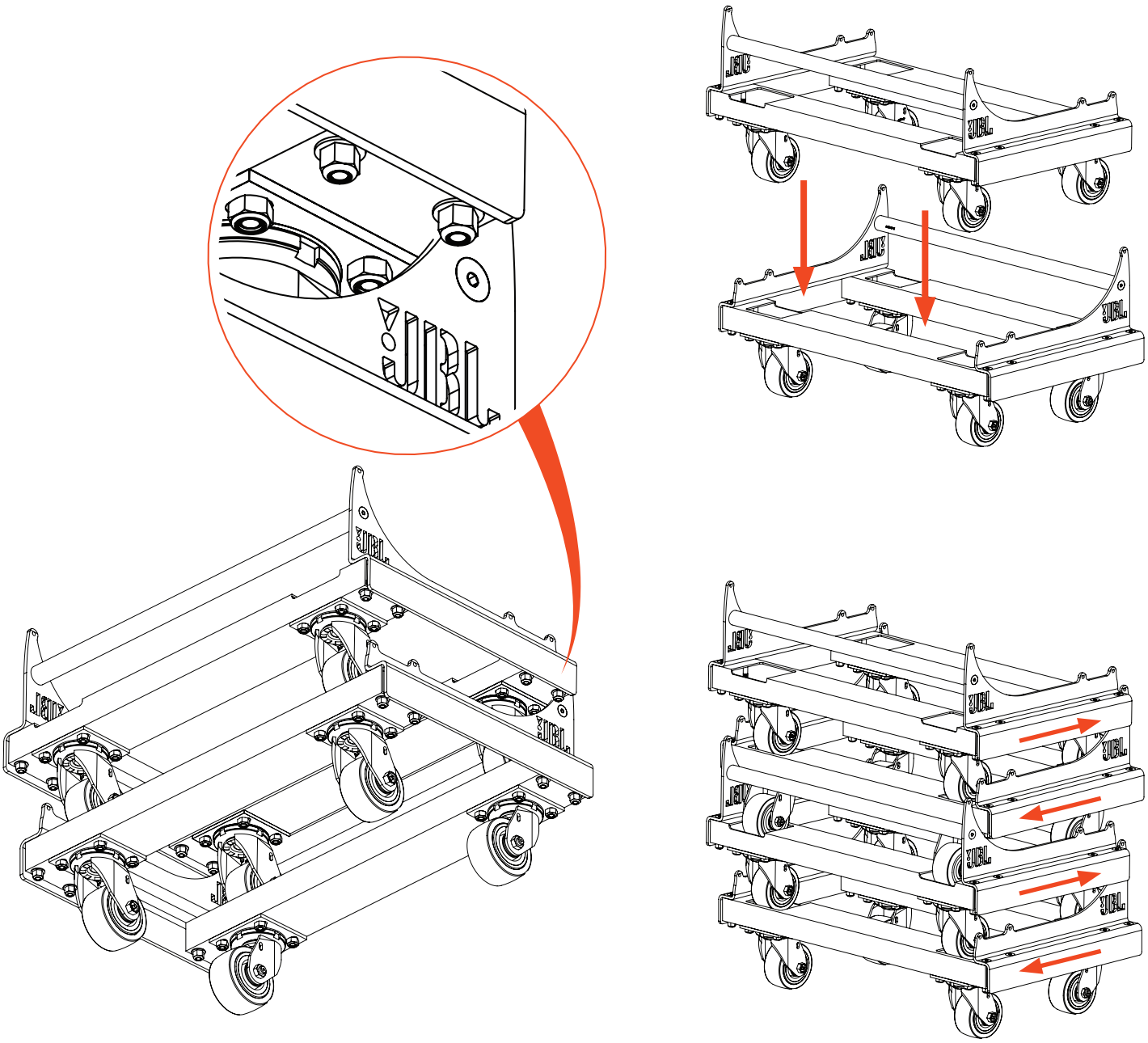
- Make sure the VT and VT-TOP are pinned together and secure before stacking.
- No more than four VTs should be stacked together.

8.5 STACKING THE VTX A8 VT

If necessary, the VTX A8 VT can be stacked for storage without using the VT-TOP.

STEPS:

1. Rotate the VT wheels inward to point towards the opposite end of the cart.
2. Line up the wheels.
3. Stack the two carts together.
4. Repeat until all VTs are stacked.



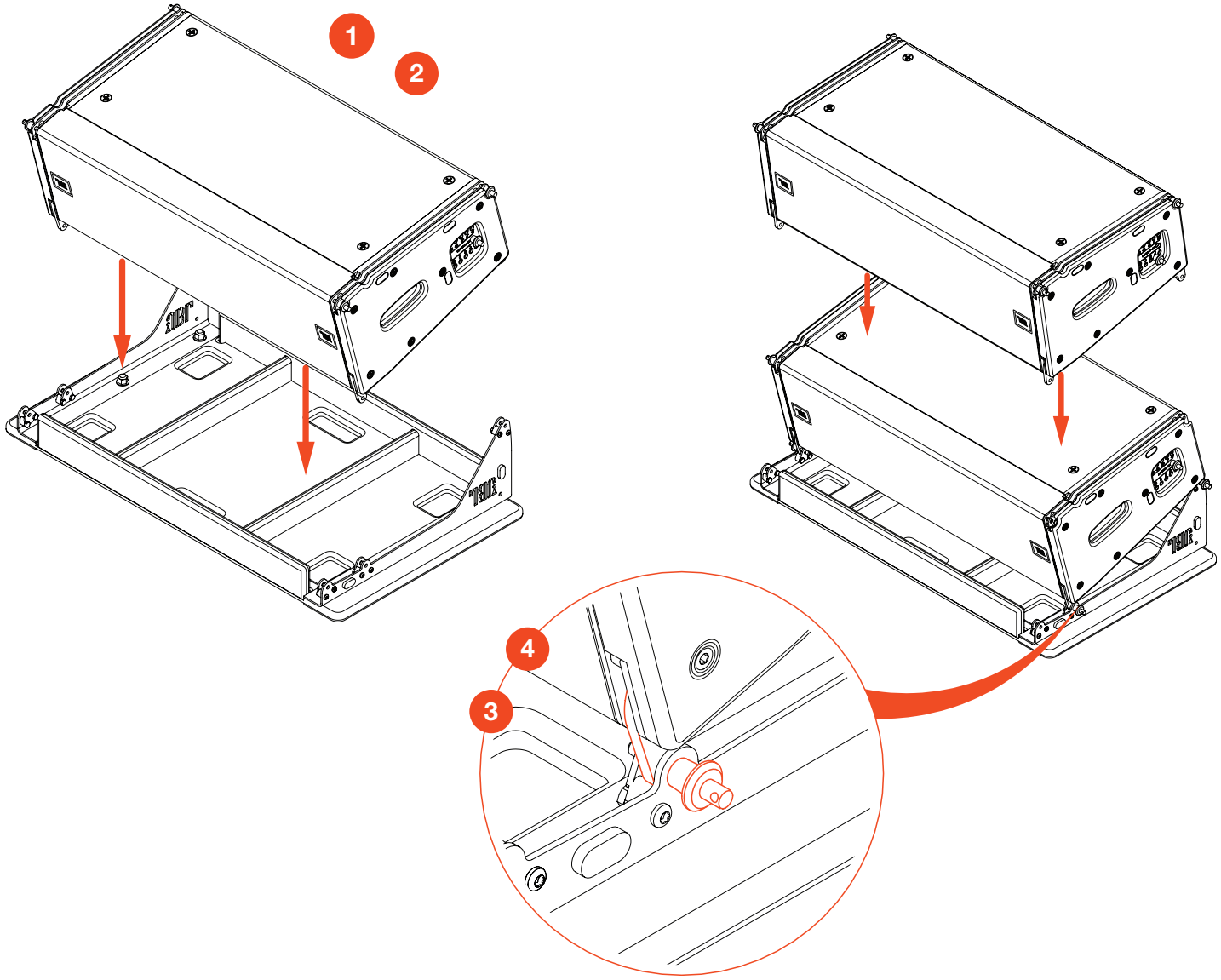
CAUTION: To maintain good balance and stability, no more than eight VTX A8 VTs should be stacked together.

8.6 GROUND STACKING USING THE VT-TOP

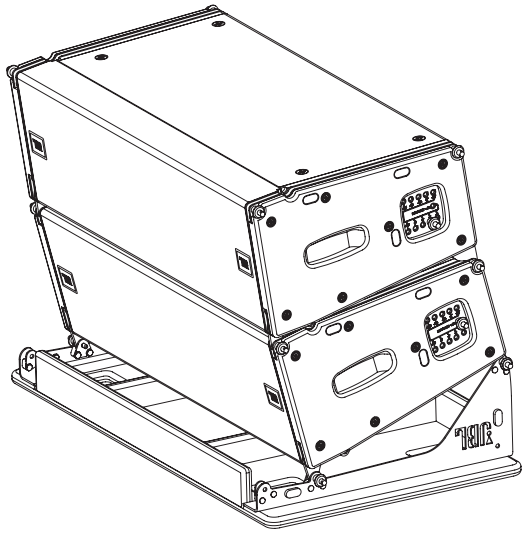
The VT-TOP can be used to create small ground-stacked arrays of one to three VTX A8 cabinets. This can be especially useful when small A8 arrays are used in applications such as front fill or auxiliary arrays. In this configuration, the VT-TOP and A8 cabinets are placed upside down and the VT-TOP is used as the base of the ground stacked array. The A8 cabinet connected to the VT-TOP is fixed to a -15-degree angle; cabinets above that can be adjusted to meet coverage needs. Stacks using the VT-TOP can be placed on a flat surface such as the edge of a stage or ground-stacked subwoofers (like the G28).

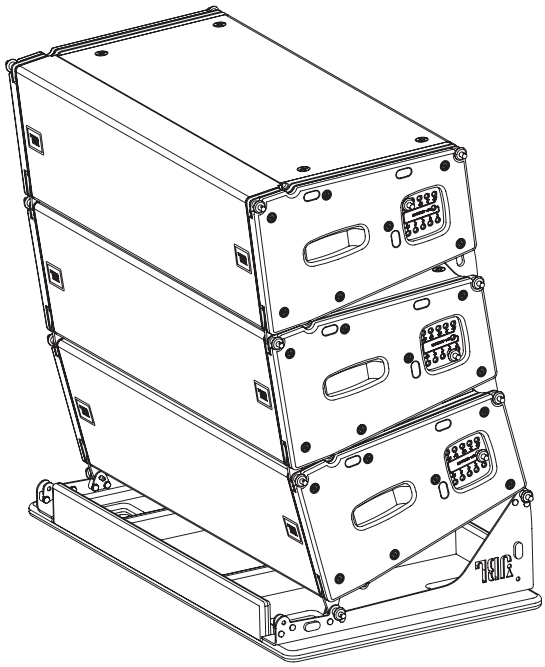
STEPS:

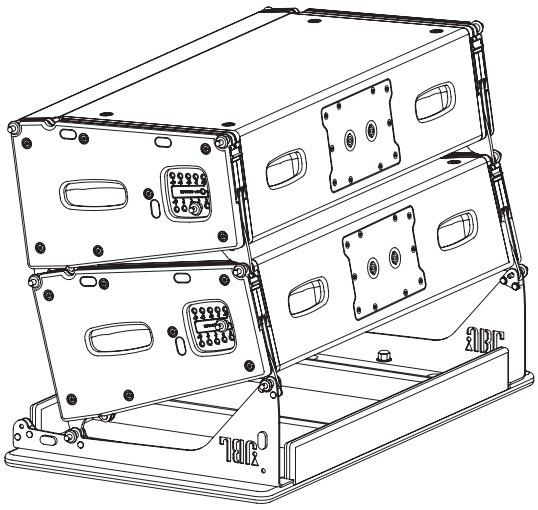
1. Remove the VT-TOP from a stack of A8 cabinets and place it upside down on the ground.
2. Set the angle of the first A8 cabinet to the 10-degree position and place it upside down onto the VT-TOP.
3. Use the two VT-TOP quick release pins on each side of the cabinet to secure the A8 onto the VT-TOP.
4. Repeat until the array has been assembled.

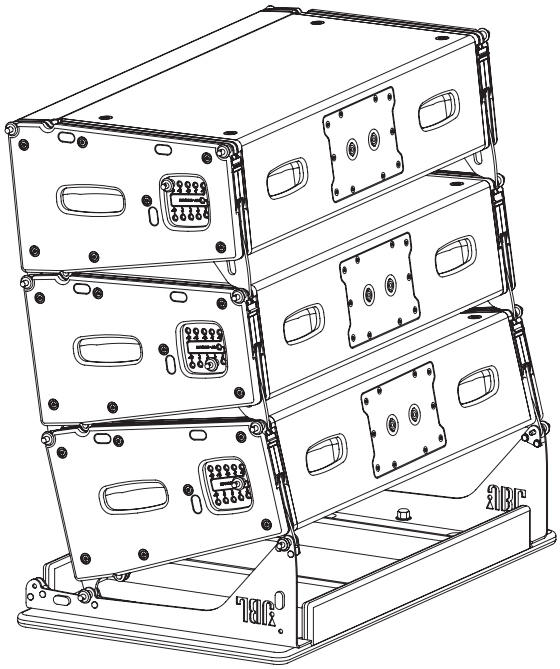


8.7 VT-TOP GROUND STACKING EXAMPLES



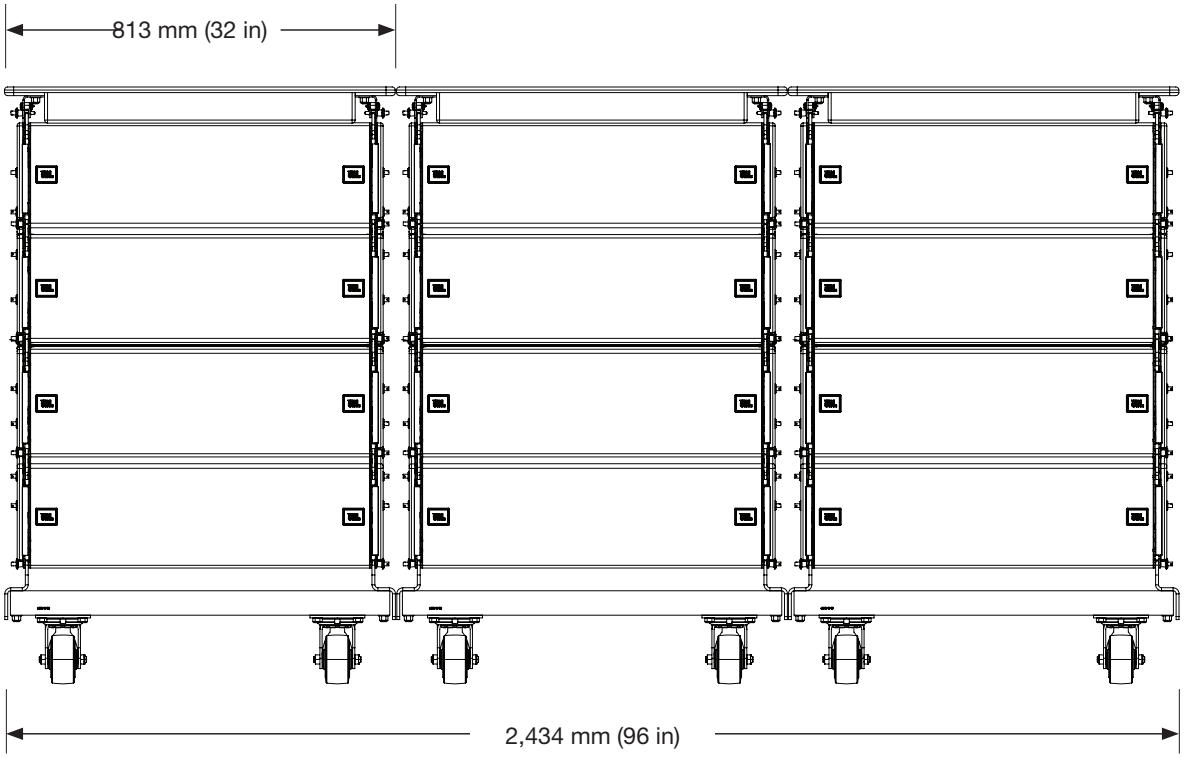


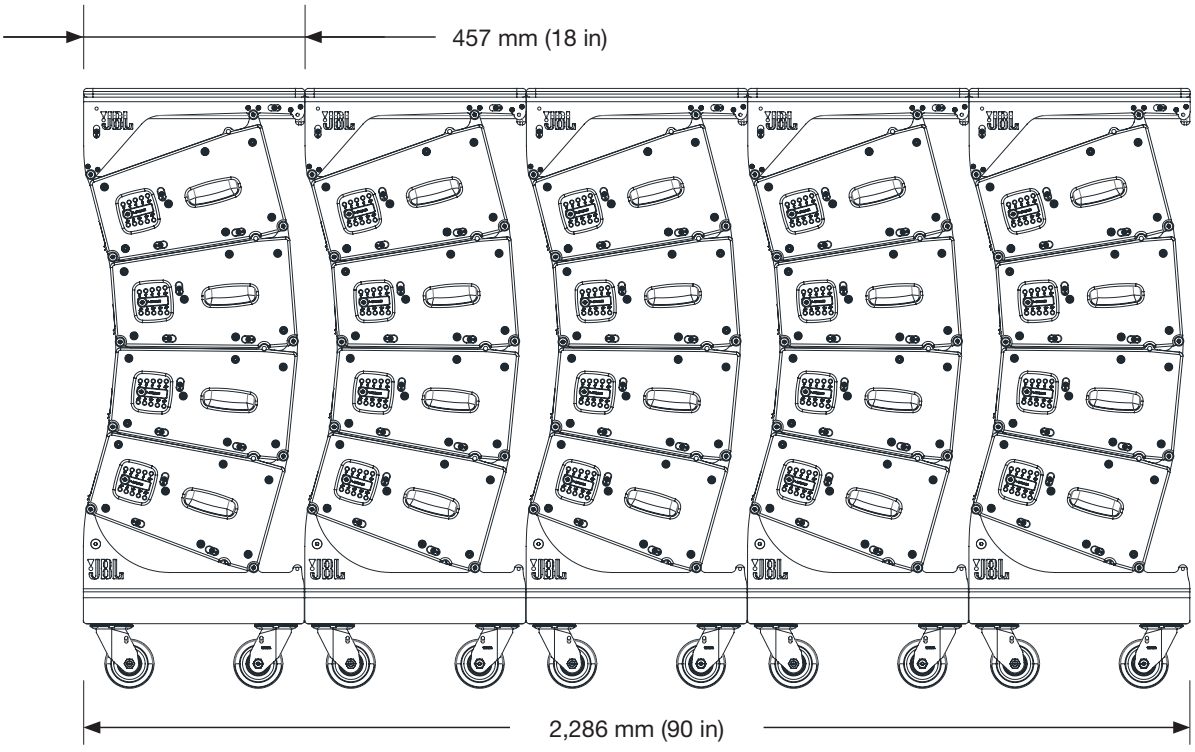




CAUTION: Always be certain ground-stacked arrays are firmly secured to avoid tipping hazards.

8.8 TRUCK PACKING

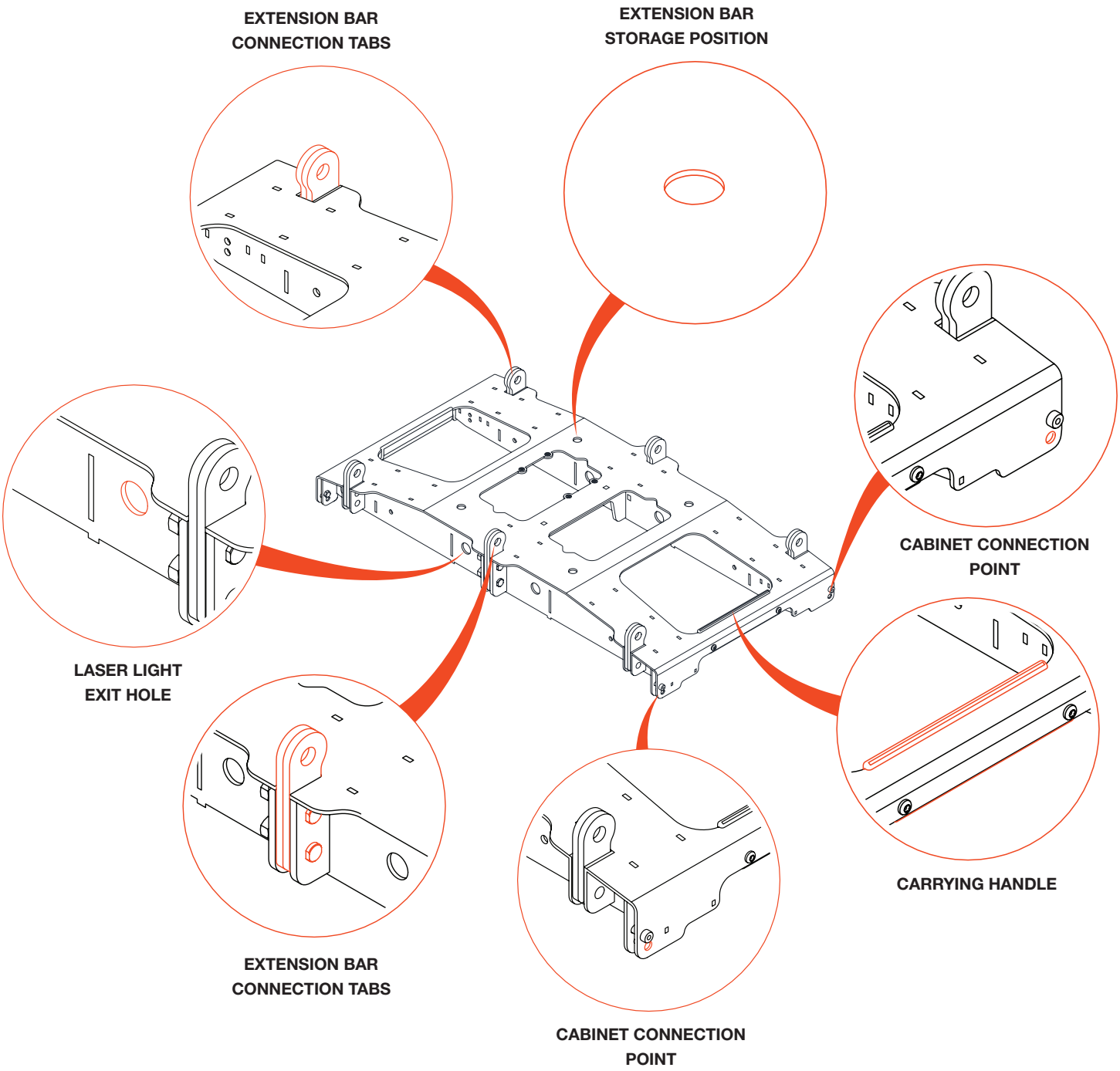




9 - ARRAY FRAME AND EXTENSION BAR

The VTX A8 AF is a lightweight array frame used for suspending VTX A8 and B18 cabinets. The frame was designed to operate in a single-point, front-to-back, or side-by-side suspension mode using the VTX A8 AF EB Extension Bar. One Extension Bar is included with the frame and a second Extension Bar can be added to facilitate side-by-side suspension.

9.1 ARRAY FRAME OVERVIEW

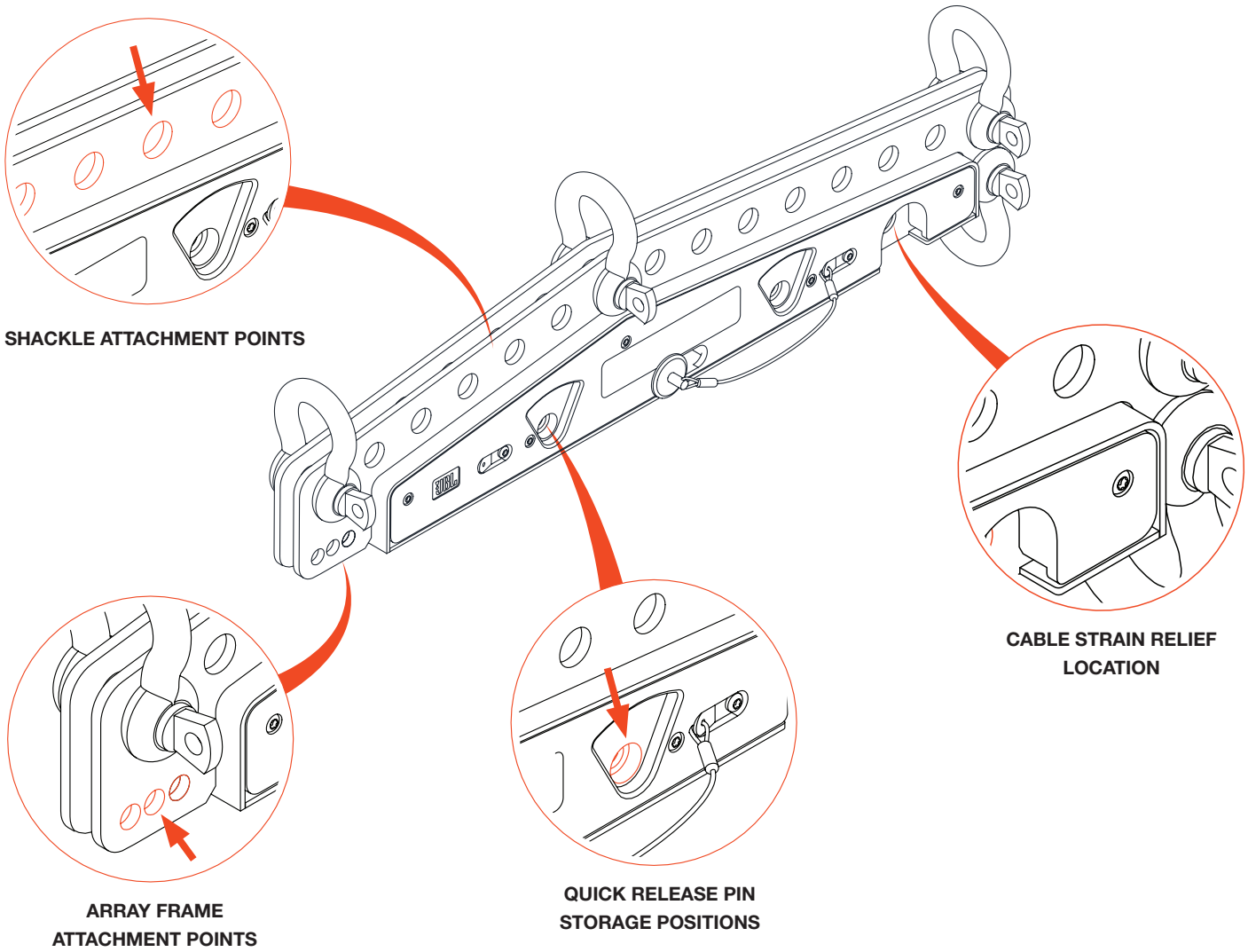


9.2 EXTENSION BAR OVERVIEW

The Array Frame Extension Bar is used to connect the VTX A8 AF Array Frame to the suspension points. One Extension Bar is included with the VTX A8 AF and additional Extension Bars can be purchased and used depending on the application. The extension is compatible with 5/8-inch shackles; three of which are included. Two shackles are used for suspension and one for cable relief. Two included quick release pins connect the Extension Bar to the Array Frame.

TIP: The VTX A8 AF Extension Bar is only compatible with 5/8-inch shackles. Three 5/8-inch shackles are included with each Extension Bar and Array Frame.

CAUTION: Always use high-quality 5/8-inch rigging shackles made by reputable manufacturers. Inspect all rigging components for potential defects before each use.

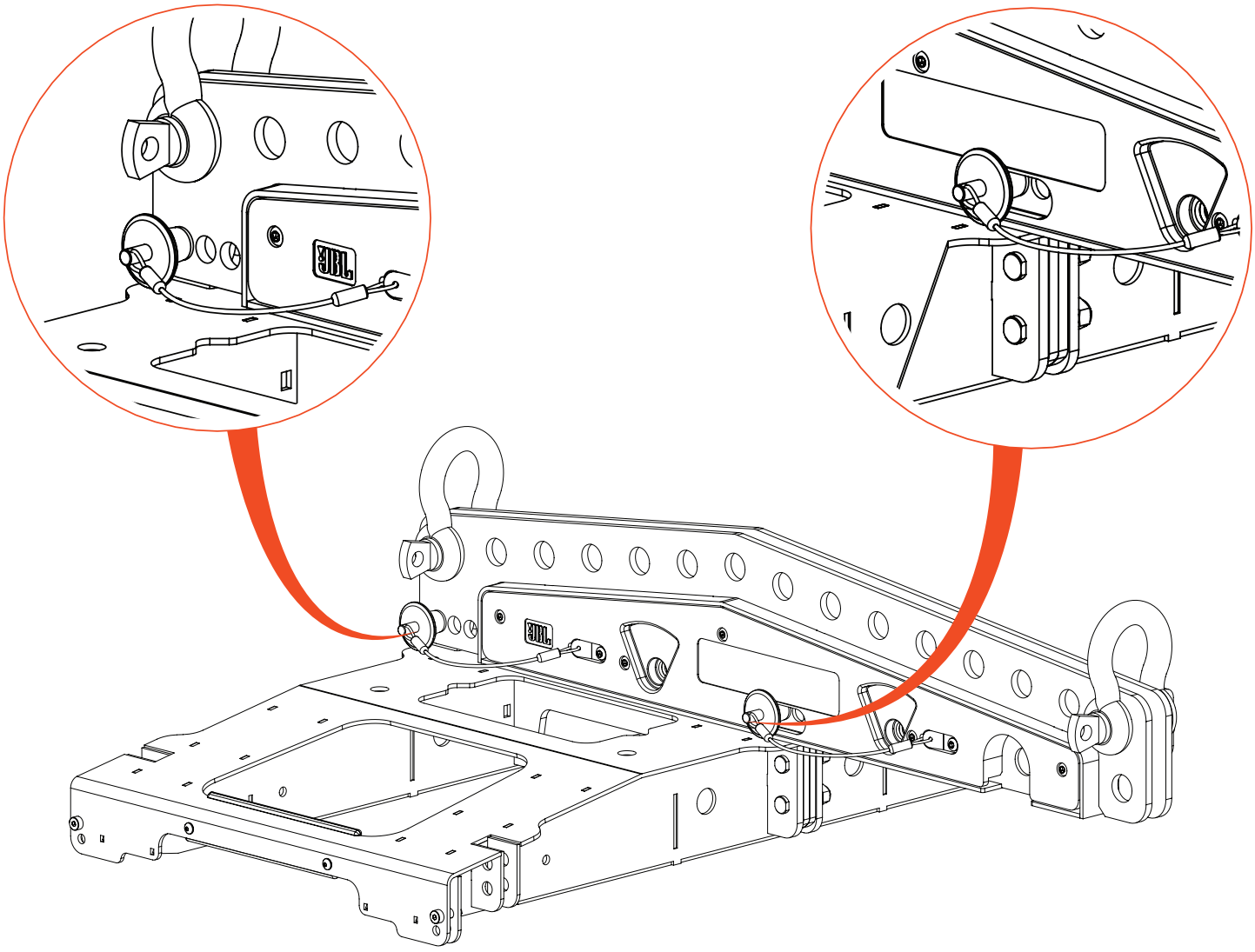


9.3 ATTACHING THE EXTENSION BAR

The Extension Bar includes two tab positions and two quick release pins for attaching the VTX A8 AF Array Frame.

STEPS:

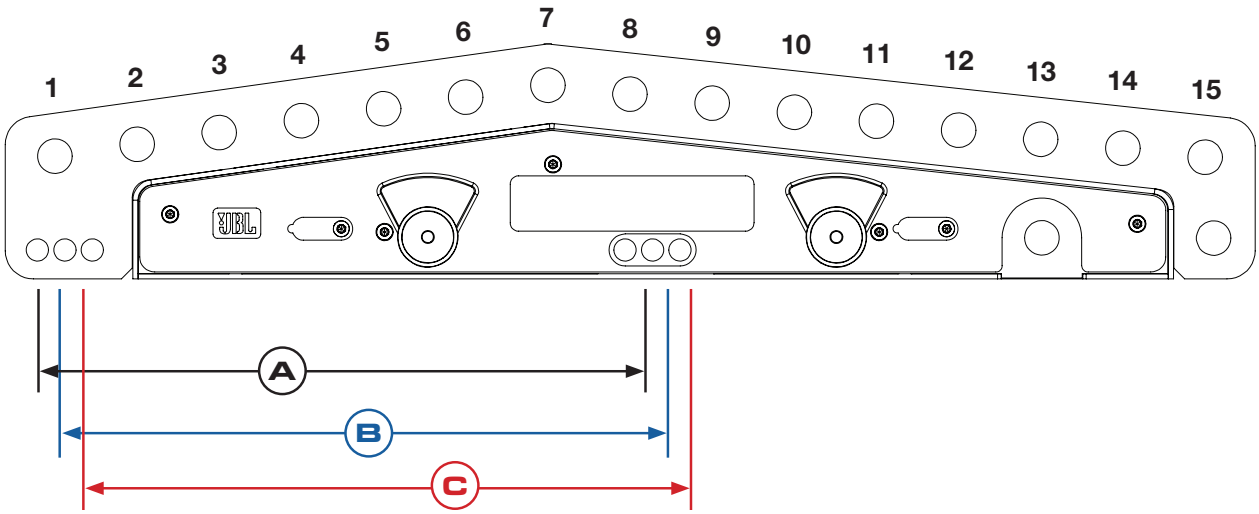
1. Line up the Extension Bar with the connection tabs on the Array Frame.
2. Lower the Extension Bar on to the Array Frame.
3. Use the two included quick release pins to secure the Extension Bar to the Array Frame.



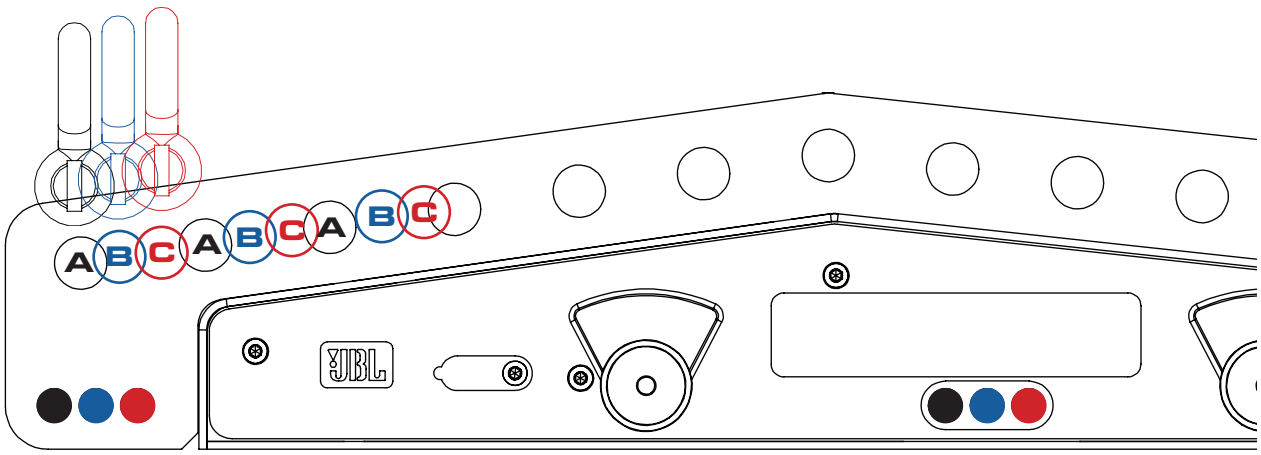
CAUTION: Always use both included quick release pins to attach the Extension Bar to the Array Frame. Inspect both connection points before suspending an array.

9.4 EXTENSION BAR ATTACHMENT OPTIONS

The VTX A8 AF EB Extension Bar includes three attachment positions for connection to the VTX A8 AF Array Frame. The three positions allow for greater aiming resolution when an array is suspended from a single point. In single-point applications, the array aiming is determined by the shackle position on the Extension Bar. The A8 Extension Bar includes 15 shackle positions, spaced 51 mm (2 in) apart, to maintain the structural integrity of the bar. Even at 51 mm apart, however, the spacing is typically too coarse for precise sub-degree aiming, and a shackle position is needed between two holes. The three attachment positions (A, B and C) allow for two additional shackle positions between holes, increasing the total shackle positions to 60.



The example below shows how the real and “virtual” positions are spaced across the extension bar.



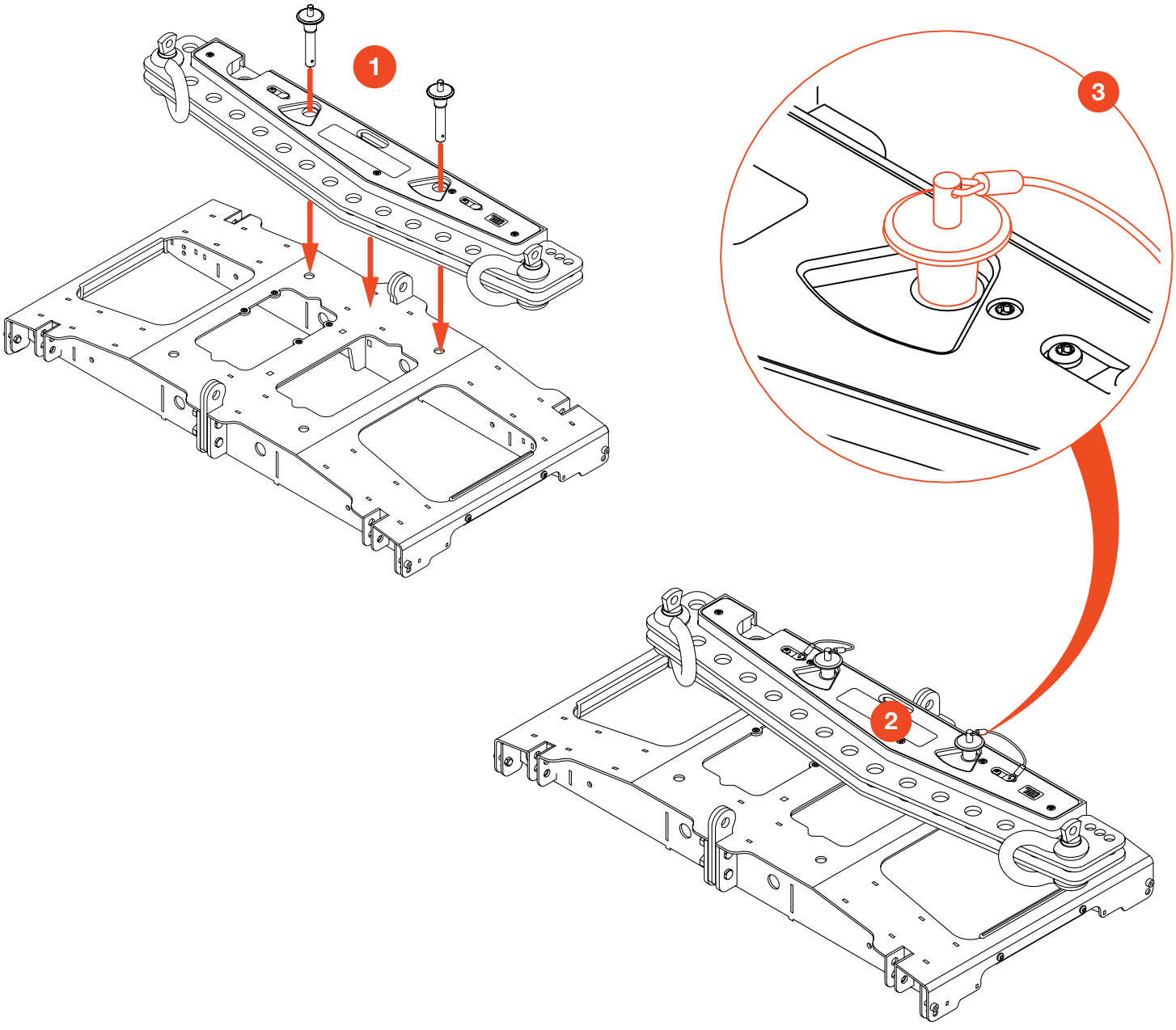
TIP: Refer to JBL’s Line Array Calculator software to determine the best shackle position and attachment combination to achieve the required array angle.

9.5 EXTENSION BAR STORAGE POSITIONS

The Extension Bar can be stored at the top of the Array Frame for transportation and storage when not in use. Guides are available at the top of the Array Frame to guide the Extension Bar to the storage positions. The two large QRPs are used to secure the Extension Bar on to the Array Frame. Each A8 Array Frame can store two Extension Bars.

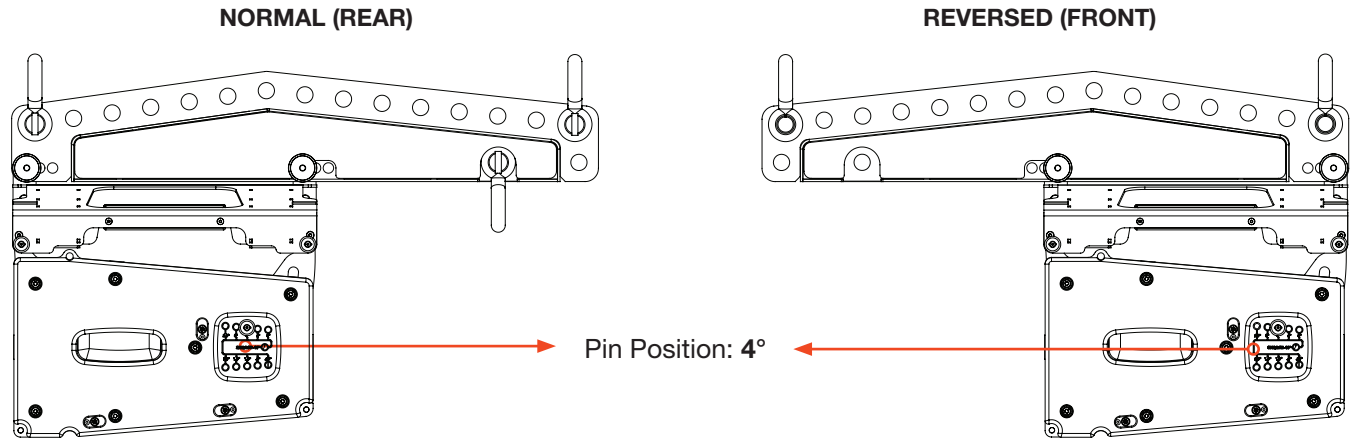
STEPS:

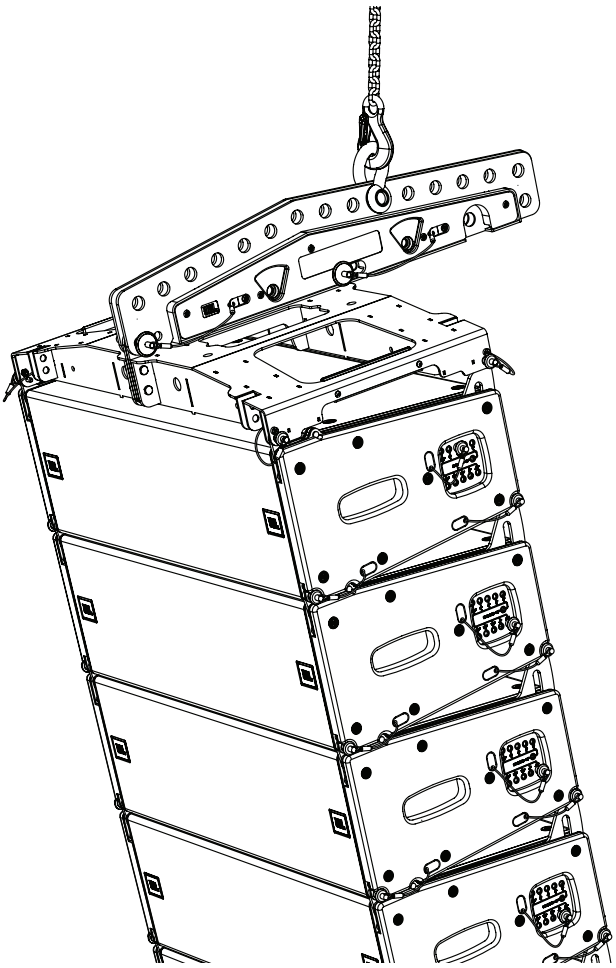
1. Align the Extension Bar lengthwise above the Array Frame, ensuring that the side of the Extension Bar with the label is pointed upwards.
2. Slide the Extension Bar into place so that the two alignment locators from the bottom side of the Extension Bar seat into the storage position cutouts in the top of the Array Frame.
3. Secure the Extension Bar to the Array Frame using the two included quick release pins.

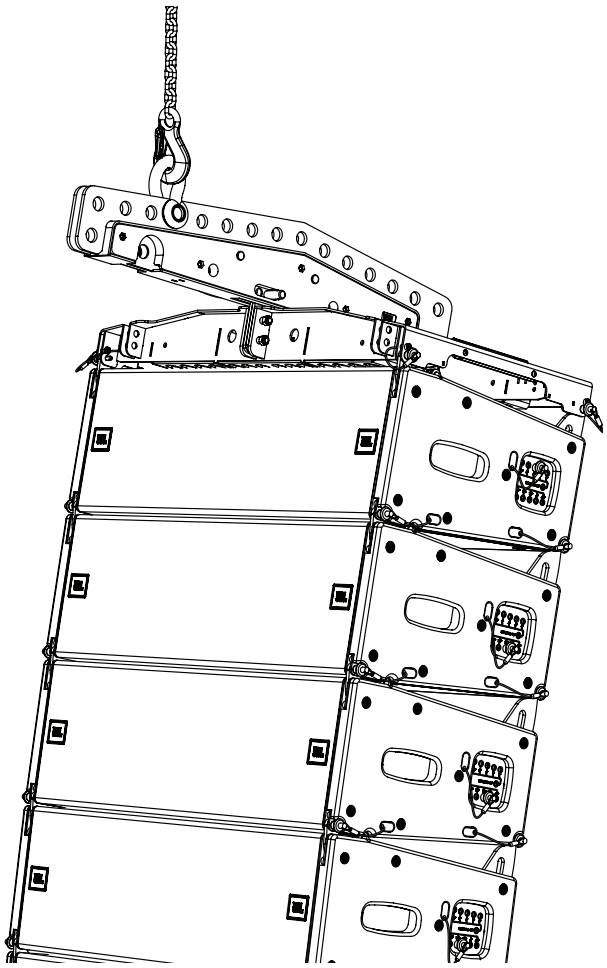


9.6 EXTENSION BAR POSITIONING

When the Extension Bar is attached to the Array Frame in its normal orientation, it extends towards the rear of the array, permitting the maximum possible downtilt for the array. The Extension Bar also can be attached in a reversed position, which provides the maximum possible uptilt. This orientation is typically used when the array is trimmed lower than the highest seat of the venue and required to point upwards. The VTX A8 cabinet connected to the array frame is always set to the 4° position regardless of the extension bar orientation.

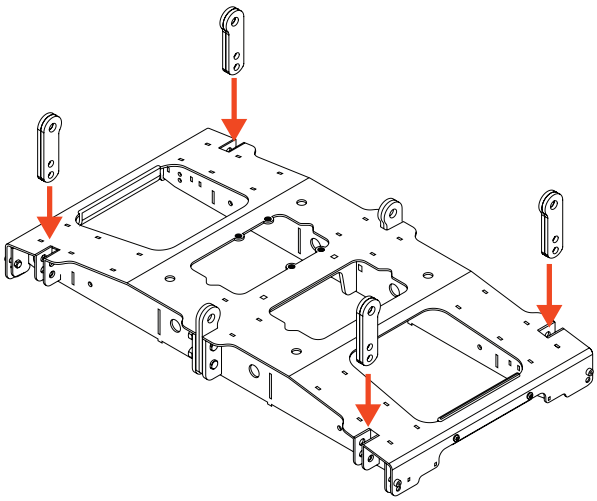


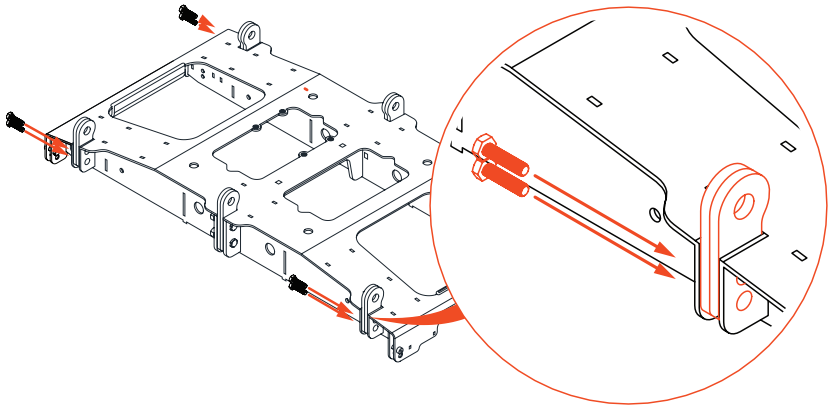


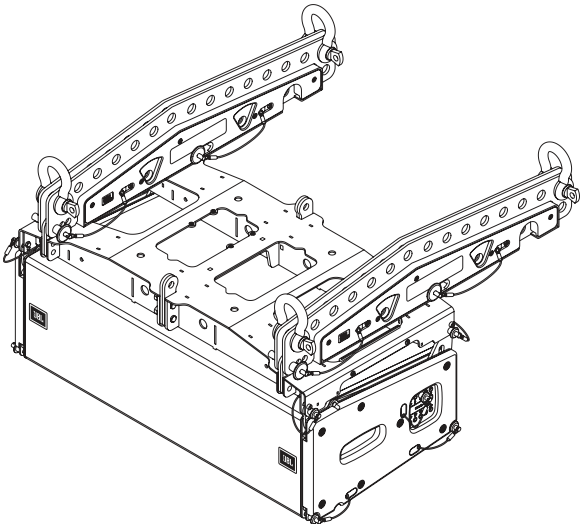


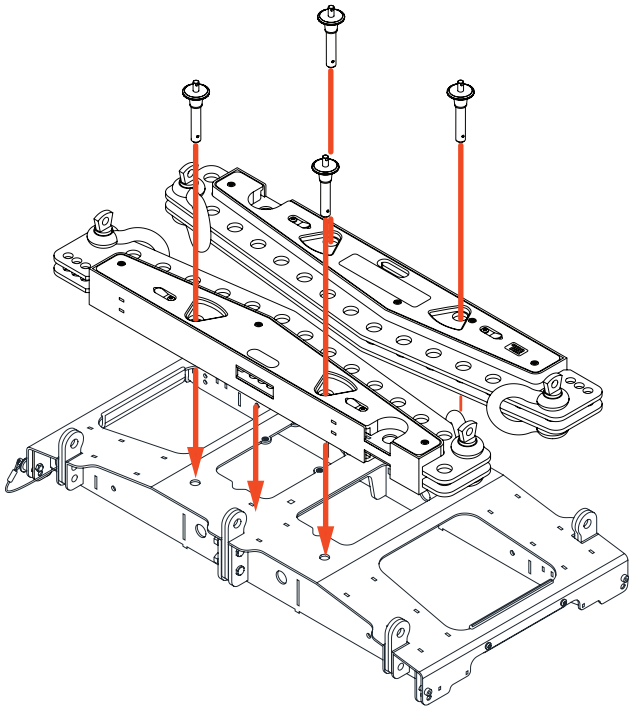
9.7 USING DUAL EXTENSION BARS

The VTX A8 AF Array Frame can be used with either one or two Extension Bars. The Array Frame ships from the factory with one Extension Bar; an additional Extension Bar can be purchased for use in scenarios where side-by-side suspension points are needed. The standalone version of the Extension Bar (Part# VTX A8 AF EB) includes one Extension Bar, two additional quick release pins, and all hardware (tabs, bolts, and nuts) required for mounting to the VTX A8 Array Frame. The additional attachment tabs must be installed to the outer Extension Bar locations using the manufacturer-supplied bolts and locking nuts.









TOOLS REQUIRED: Attachment of the extension bar connection tabs is a one-time operation. To properly install the tabs, a 1/2-inch wrench should be used for the nut and a 7/16 inch wrench for the bolts. All necessary hardware is included with the VTX A8 AF EB.

TIPS:

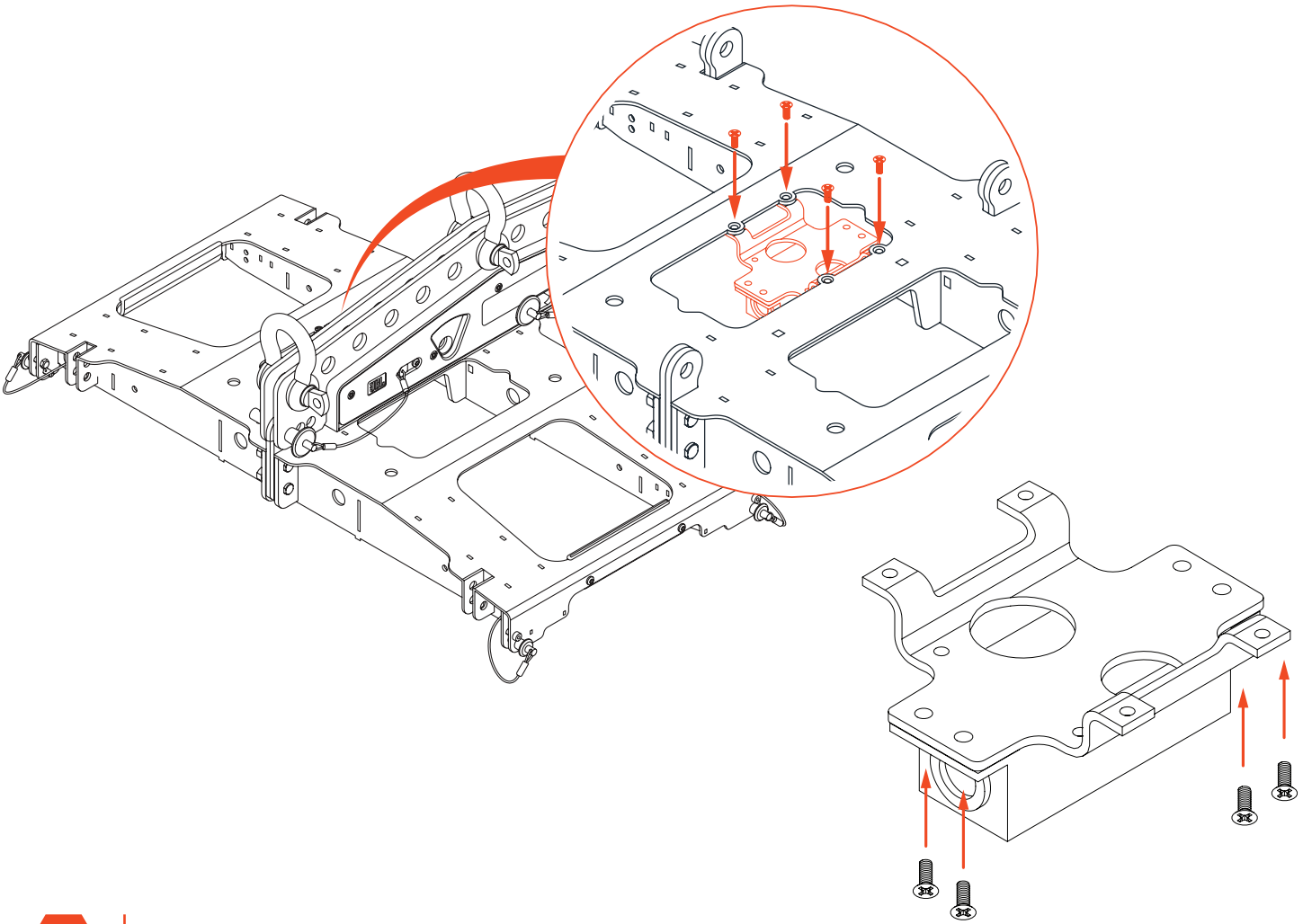
- If the additional Extension Bar is not needed, the side tabs and hardware can be purchased without the Extension Bar. The bellow part numbers can be used to order the parts.
- (8) Side Tabs # 5085088 | (8) Pins #5034413 | (8) 5/16 in Nylock Nut #835-36010-00

9.8 INSTALLING THE LASER BRACKET

The VTX A8 AF Array Frame includes a mounting bracket that enables installing a laser/inclinometer in the Array Frame. Front and back laser exit holes in the Array Frame allow the light to shine through. The included laser bracket was designed to work with the JBL VTX LZ laser unit, and the third-party TEQSAS LAP-TEQ and KSG Sensors RECLINE laser inclinometer units.

STEPS:

1. Secure the laser unit to the laser bracket with the included screws.
2. Make sure the laser unit is centered in the bracket before tightening the four screws that hold it.
3. Once the laser unit has been installed, secure the laser bracket to the Array Frame with the remaining included M4 fasteners.
4. The Array Frame's orientation determines whether the bracket should be installed facing the frame's front or its rear.



TOOLS REQUIRED:

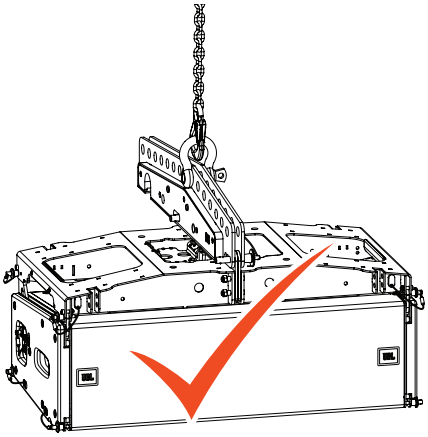
A **Phillips #2** screwdriver is needed to attach the laser bracket. All necessary hardware is included with the VTX A8 AF.

TIPS:

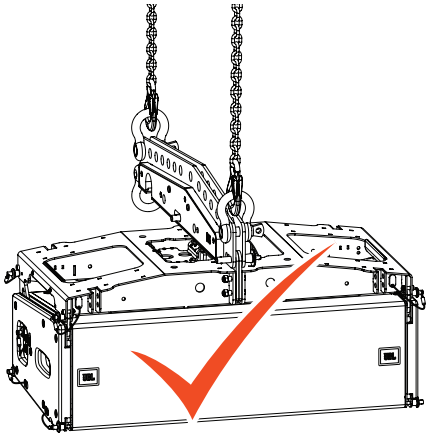
- Additional laser brackets can be purchased separately. (**Part Number: 5095504-00**)
- Make sure to orient the laser bracket appropriately before installation.

9.9 EXTENSION BAR USE CASES

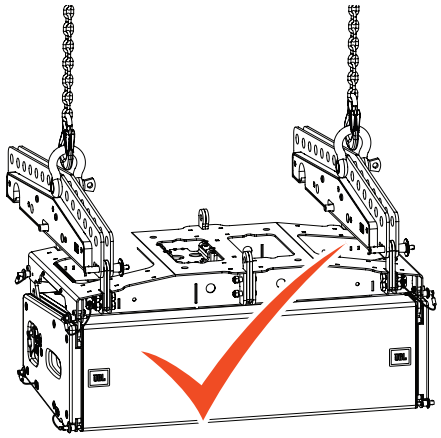
The VTX A8 AF Array Frame can be deployed in a number of configurations using one or two VTX A8 Extension Bars. It is important to note that only certain configurations are correct and safe for suspension of VTX A8 and B18 arrays. The images below illustrate proper configurations for attaching VTX A8 Extension Bars, and where suspension points sound be attached to them. A suspension point should never be attached to two extension bars.



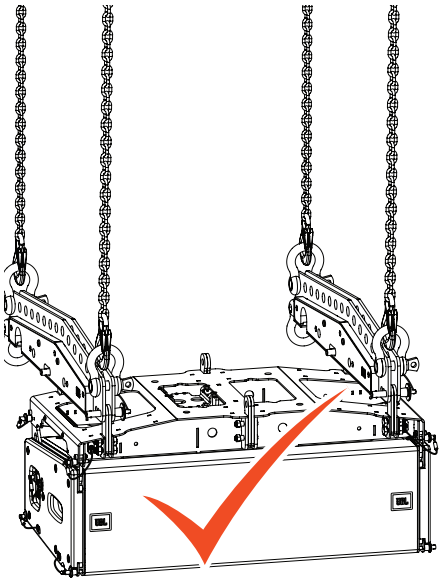
SINGLE POINT



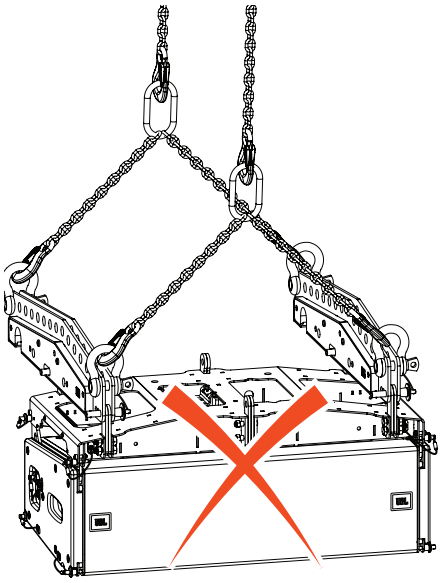
DUAL POINT
FRONT-TO-BACK



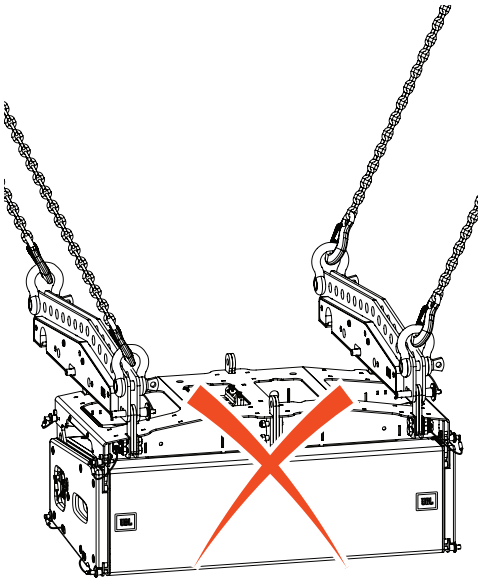
DUAL POINT
SIDE-BY-SIDE



FOUR POINTS



DUAL POINT USING BRIDALS
FRONT-TO-BACK



DUAL POINT / QUAD
SIDE-BY-SIDE

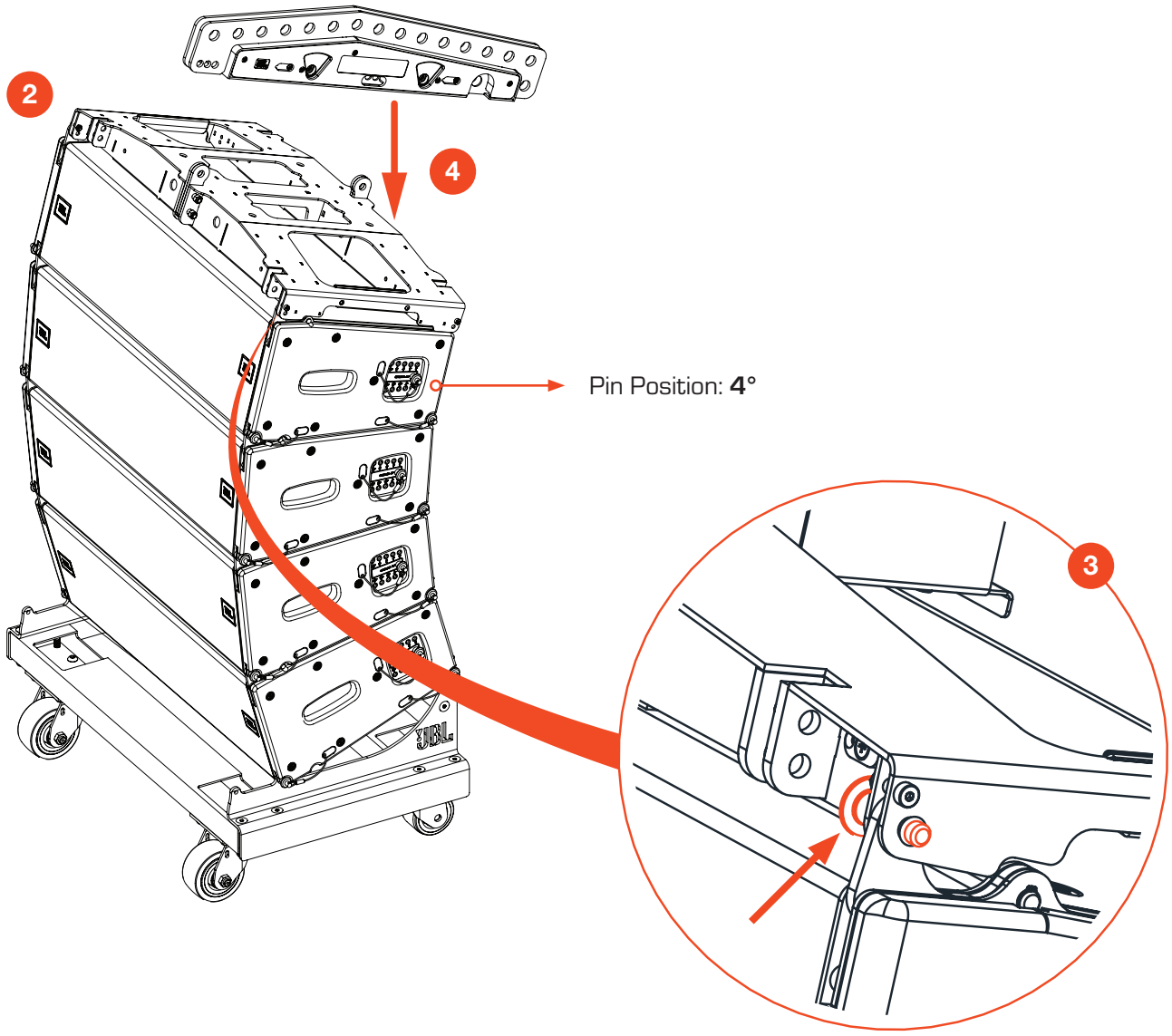
CAUTION: When multiple suspension points are used, always make sure all of them are evenly or properly loaded.

9.10 ATTACHING THE ARRAY FRAME

Below are the steps for attaching a VTX A8 AF to a stack of four VTX A8 enclosures.

STEPS:

1. For easiest attachment, separate the Array Frame from the Extension Bar.
2. Ensure that the top cabinet is set to a 4-degree angle and that the Array Frame is properly oriented. Lift the frame over the top A8 cabinet on the cart and rest it on the four quick release pin attachment points on the top cabinet.
3. Remove the quick release pins from their storage positions and place each into its respective attachment position. The quick release pins should be attached from the inside of the Array Frame.
4. Once the Array Frame is secured to the top of the cabinet, the Extension Bar can be attached. Confirm correct orientation by consulting LAC and ensure that the correct A, B, or C position is attached using both of the included large-gauge quick release pins.



Note: The quick release pins connecting the array frame to the first A8 or B18 cabinet are mounted from the inside of the frame as shown above. The QRP lanyards are not long enough to reach the outside positions.

10 - DEPLOYING STANDALONE A8 SYSTEMS

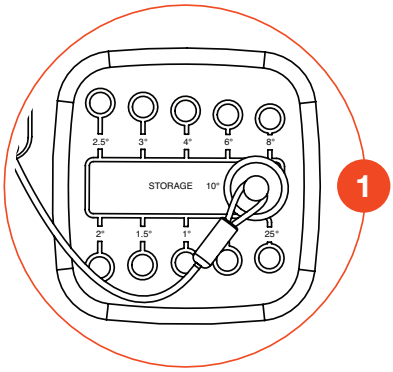
Suspending standalone VTX A8 arrays is a simple and straightforward process. Carefully follow the steps below to correctly and safely suspend an array. Instructions on suspending mixed A8/B18 arrays can be found later in this document.

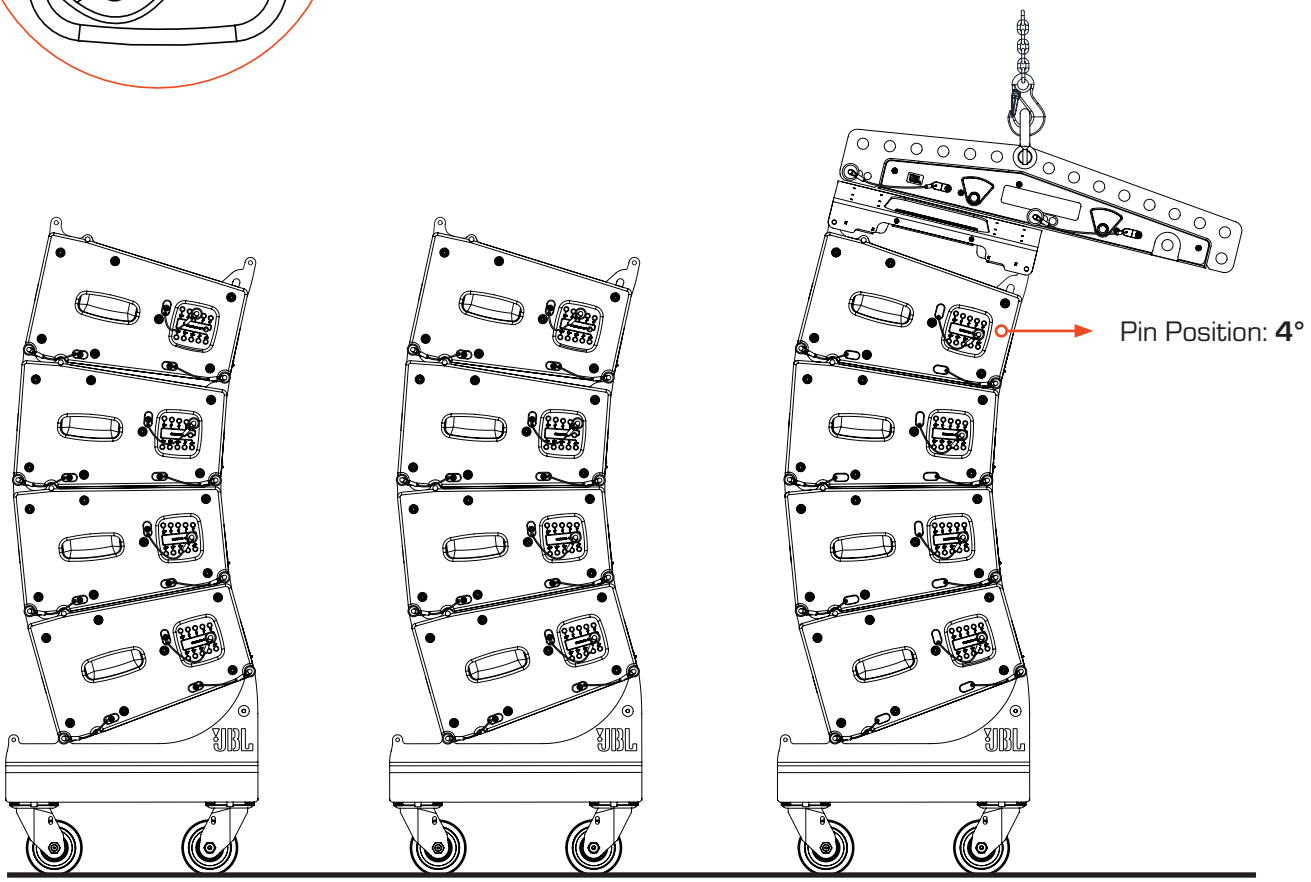
10.1 PRESELECT THE ANGLES

STEPS:

1. Using the quick release pins (QRPs) located on the Angle Selection Panels, select the desired inter-enclosure splay angles for all cabinets. For each enclosure, move the QRP from its 10-degree storage position to the desired position, as indicated on the label. If the desired angle is 10 degrees, the QRP does not need to be moved.

ANGLE SELECTION PANEL



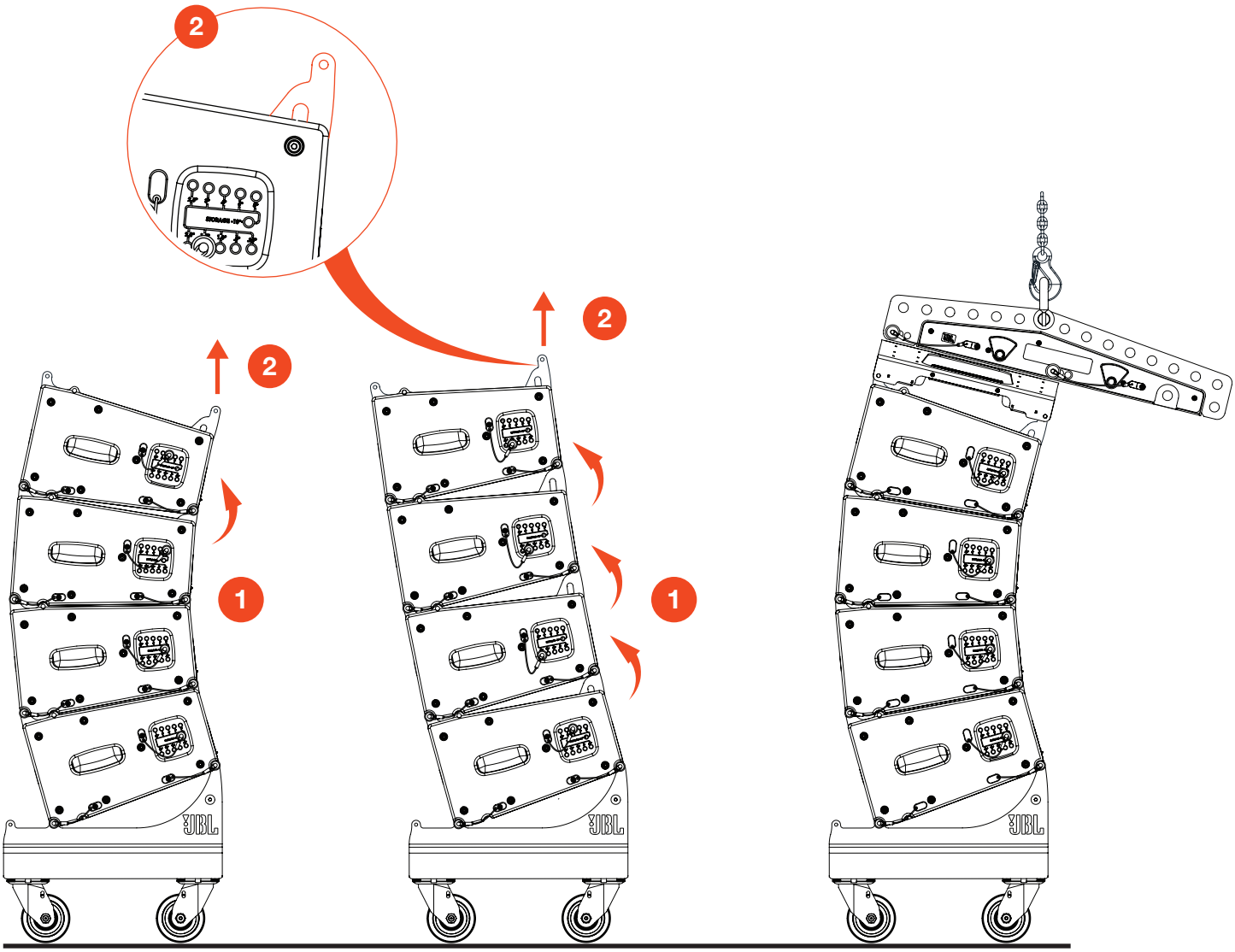


10.2 PRE-LOCKING THE ANGLES (OPTIONAL STEP)

This step is not required, but provides a convenient shortcut. After selecting the angles, the A8 cabinets can be extended and locked while still on the ground. This can make connecting flown cabinets to cabinets on the ground much easier, since the rear rigging connection points sit at a much higher elevation enabling them to connect more easily to the flown arrays . The A8 cabinets are lightweight enough that angles can be locked simply by lifting each enclosure by its rear panel handles.

STEPS:

1. Lift each A8 enclosure using its rear panel handle until the cabinet extends to its final position.
2. Use your hands to pull up the top rigging arms until they fully engage. The stack connected to the array frame does not need to be manually extended since the electric hoist will lock the cabinets once suspended.

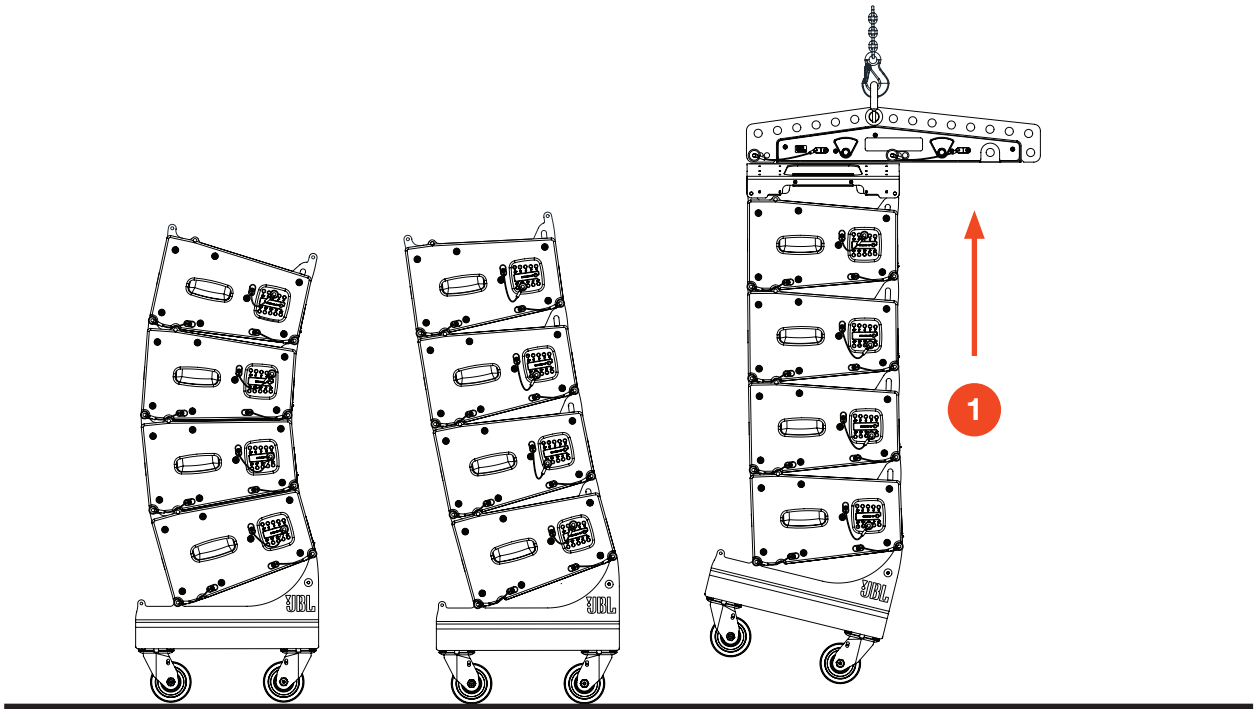


CAUTION: If all enclosures of a stack are set to narrow angle positions (0.25° - 3°), not all enclosures should be fully extended to avoid potential risk of tipping. Extend the cabinets just enough to make connecting to the flown array easier. The A8 auto-locking mechanism keeps the cabinets locked and secured.

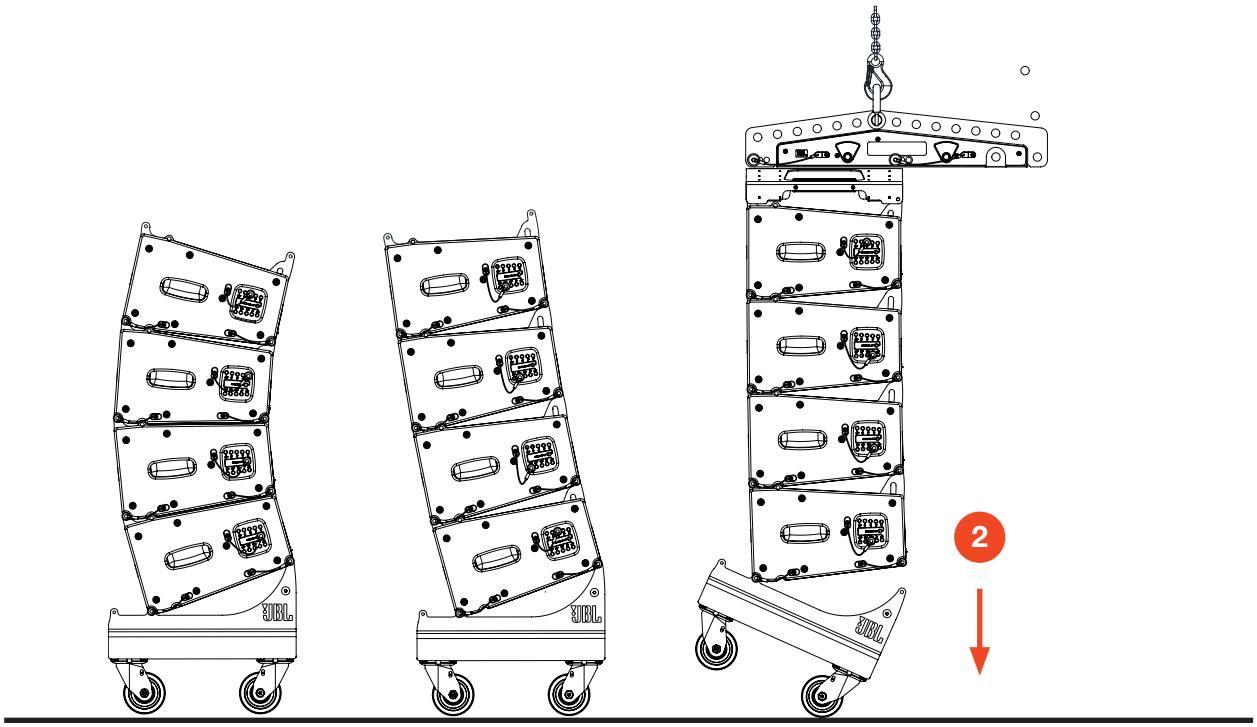
10.3 SUSPEND THE FIRST STACK

STEPS:

1. Check that all red Locking Levers are in the locked position, then engage the hoist to lift the array off the ground. As the hoist lifts, each cabinet will expand to the correct angle. As each cabinet reaches the correct inter-enclosure angle , it stops expanding.



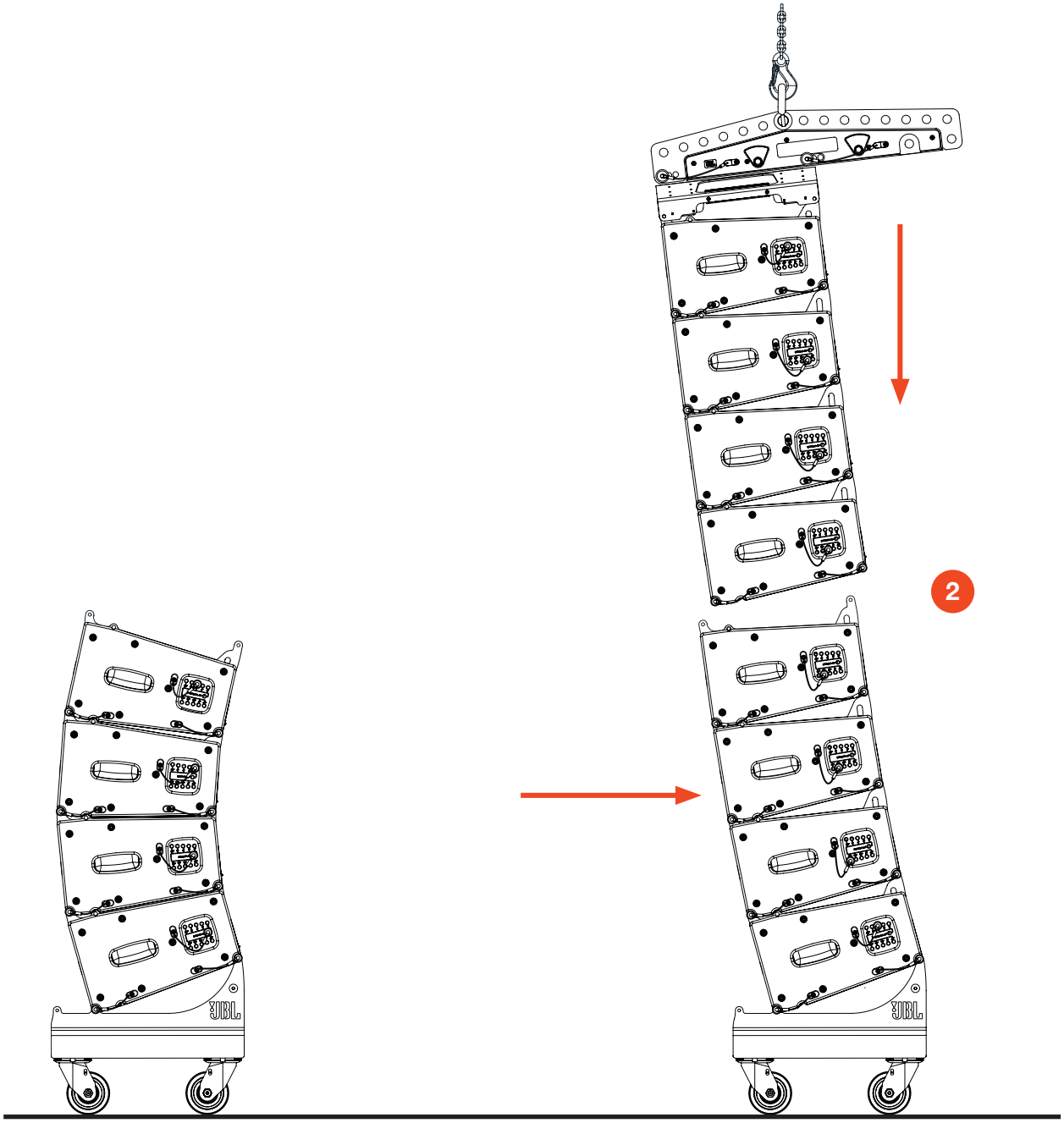
2. When all cabinet angles are set, and the array is suspended a short distance off the ground, disconnect the Vertical Transporter by removing the two rear quick release pins, followed by the front pins.



10.4 ATTACH THE NEXT STACK

STEPS:

1. Raise the suspended cluster of VTX A8 cabinets and align the next cart of cabinets below the suspended cluster.
2. Once the clusters are aligned, carefully lower the suspended cluster until the front attachment points are nearly touching. Check that the attachment points are aligned, then lower the suspended cluster until the front attachment points join together. Insert the two front quick release pins.

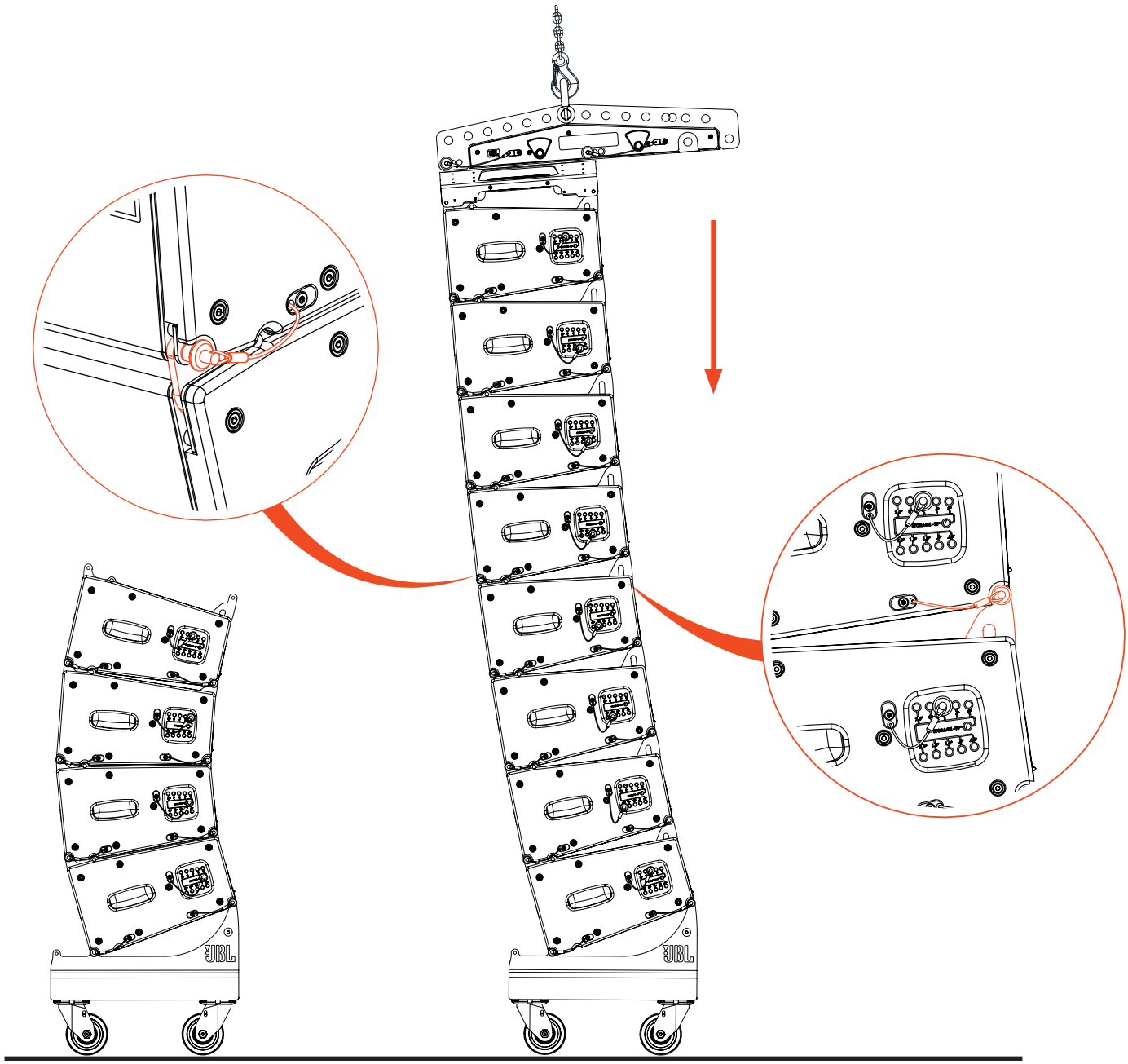


CAUTION:

- **Always confirm that each cabinet is pinned to the same angle on both sides of the enclosure.**
- **The top cabinet in each array should be pinned in accordance with the Array Frame and Extension Bar positioning instructions in section 8.3.**

STEPS:

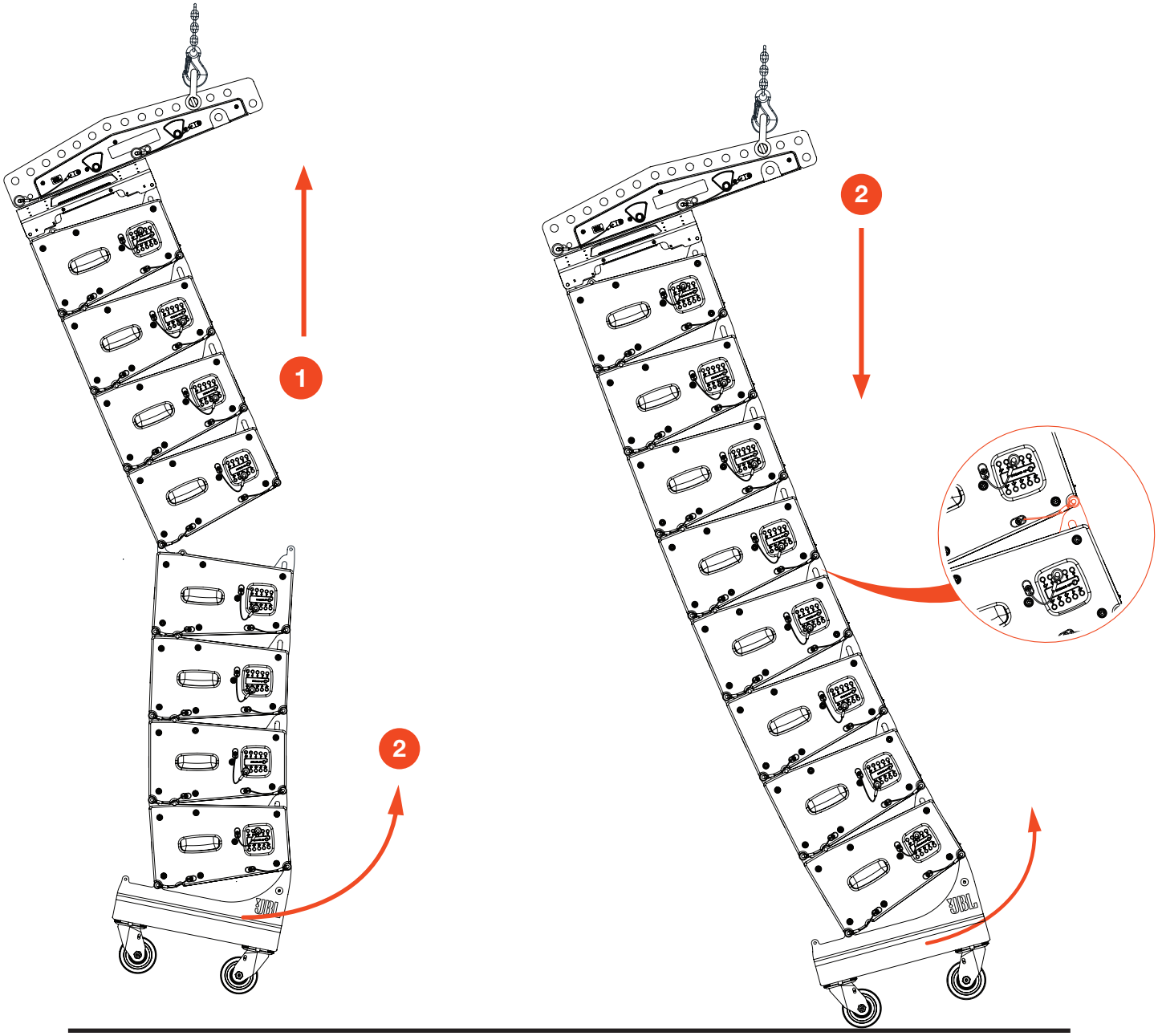
1. After the two front QRPs have been secured, lower the flown array until the two rear connection points join together. Once touching, insert the two rear QRPs to secure the clusters together. If the angle of the flown cluster is too steep (too much down-tilt) and the rear connection points are too far apart, follow the steps shown below to safely connect the clusters.



In some cases, the angle of the flown array may be too steep to fully connect to the cluster on the ground. This can happen when assembling large arrays or when the frame pick-point is too far back as shown in the example below. In this situation, a two-step process is used to engage all four connection points for the array.

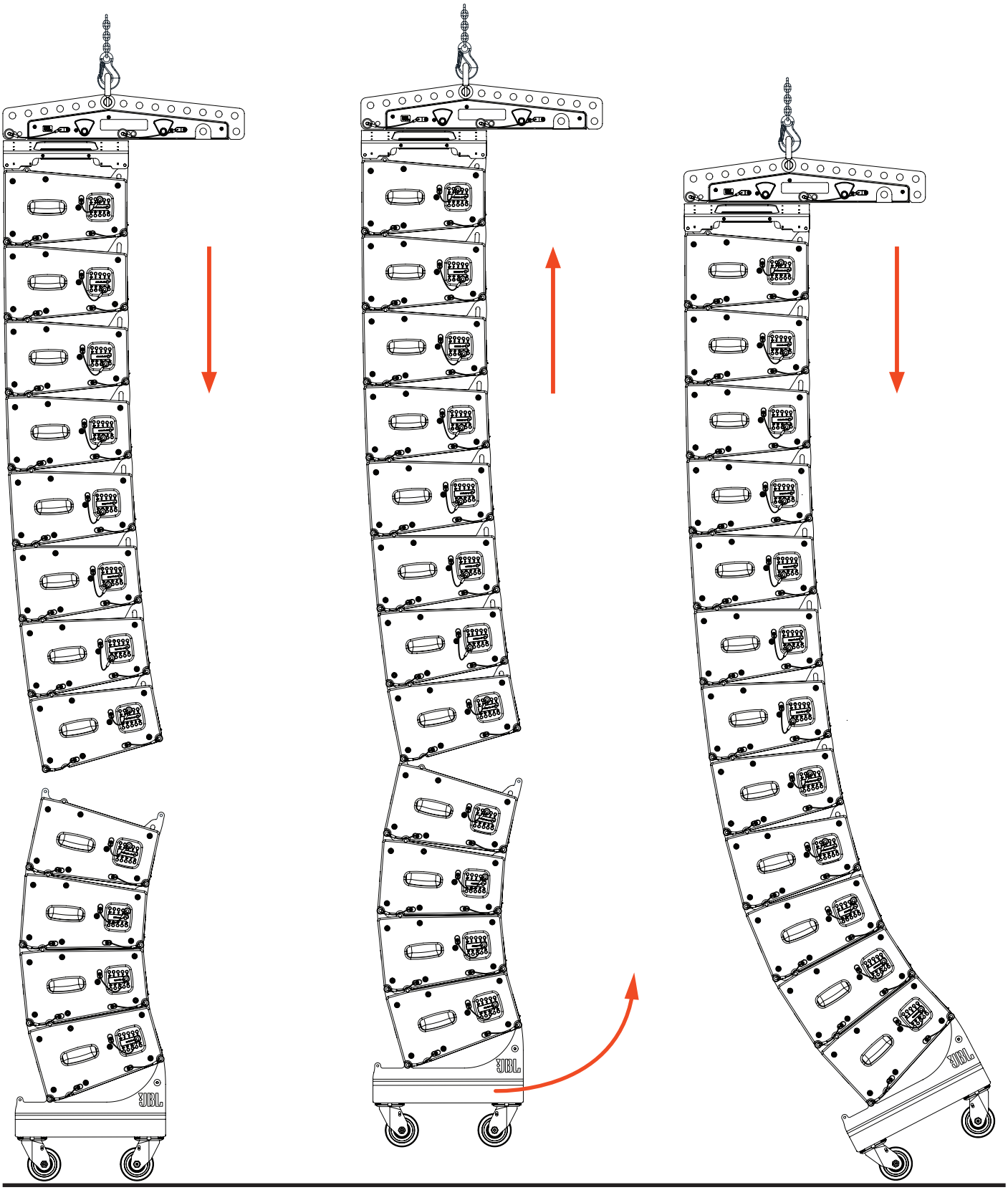
STEPS:

1. With the front QRPs set, use the electric hoist to raise the array. Be aware that the second cluster may swing forward slightly as it lifts off the ground.
2. Once the array is off the ground, grab the lower cluster by the handlebar at the rear of the VT (on the bottom) and gently pull back towards the rear of the array. While doing this, lower the array so the front wheels of the VT touch the ground. Lower the array until the rear attachment points engage, then insert the two rear QRPs.
3. Once all four QRPs have been secured, lift the array off the ground and remove the VT.



10.5 REPEAT UNTIL COMPLETED

Repeat the previous steps until the entire array has been assembled.

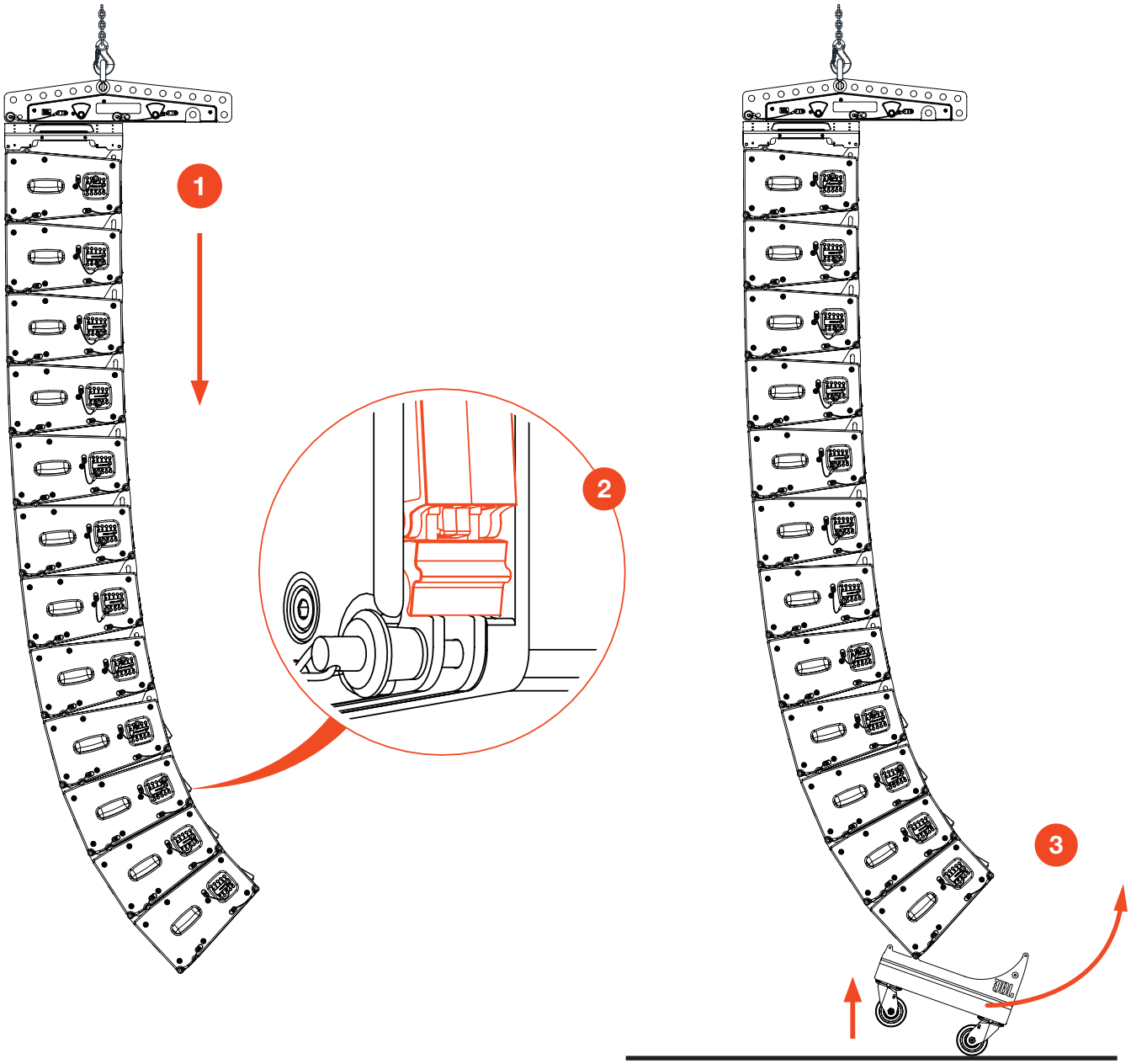


11 - DISASSEMBLING AN A8 ARRAY

11.1 OPEN THE ANGLE LOCKS AND ATTACH THE VT

STEPS:

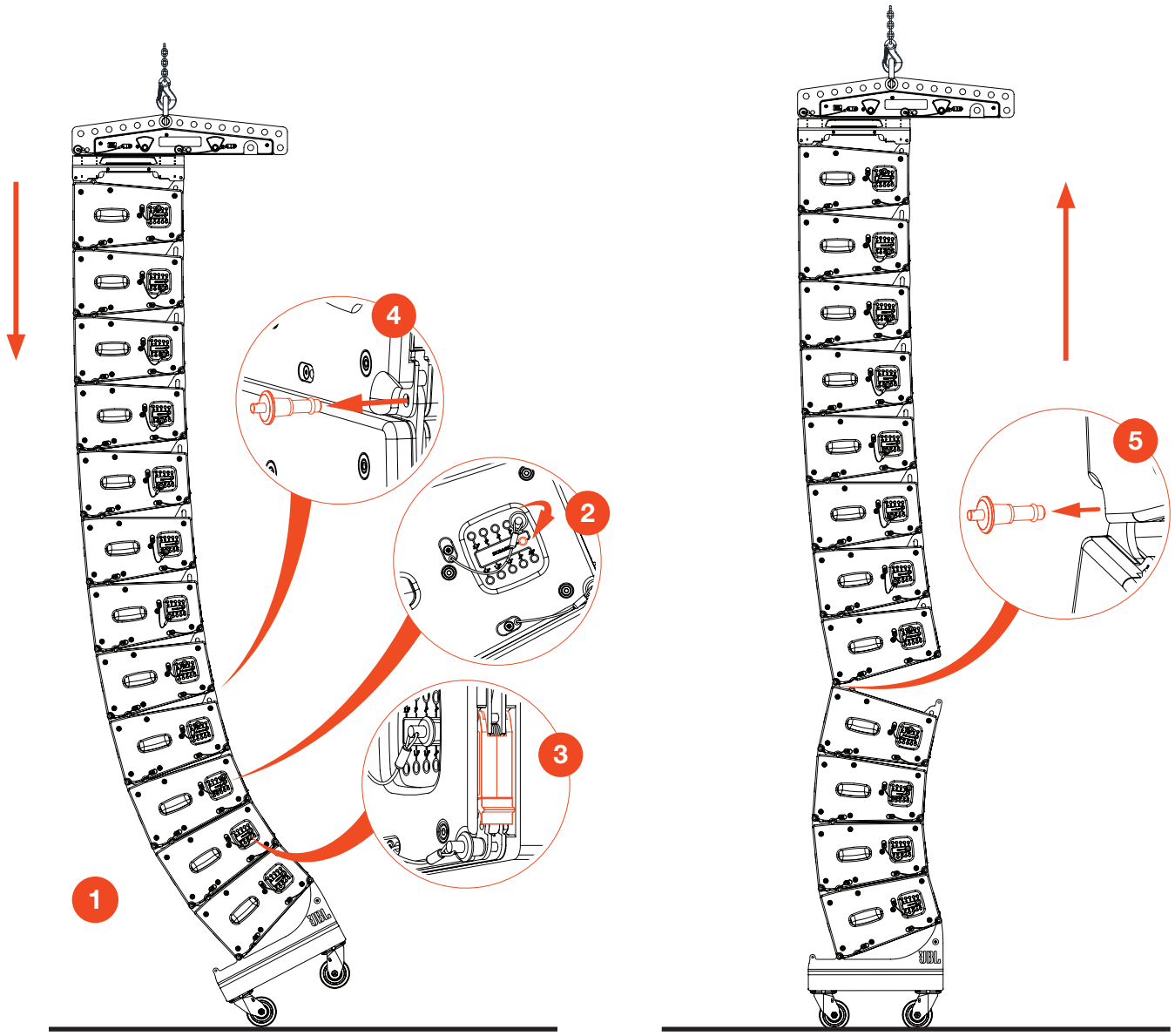
1. Safely lower the entire array to a workable height.
2. Press the Release Buttons on all four lower cabinets to unlock the rigging mechanisms. This enables the bottom four cabinets to collapse back to the 10-degree position once the array is lowered to the ground.
3. Attach the VT to the bottom cabinet. Connect the two points at either the front or rear, then lift the other side of the VT and attach the other two points.



11.2 CLOSE THE ANGLE LOCKS AND MOVE PINS TO STORAGE

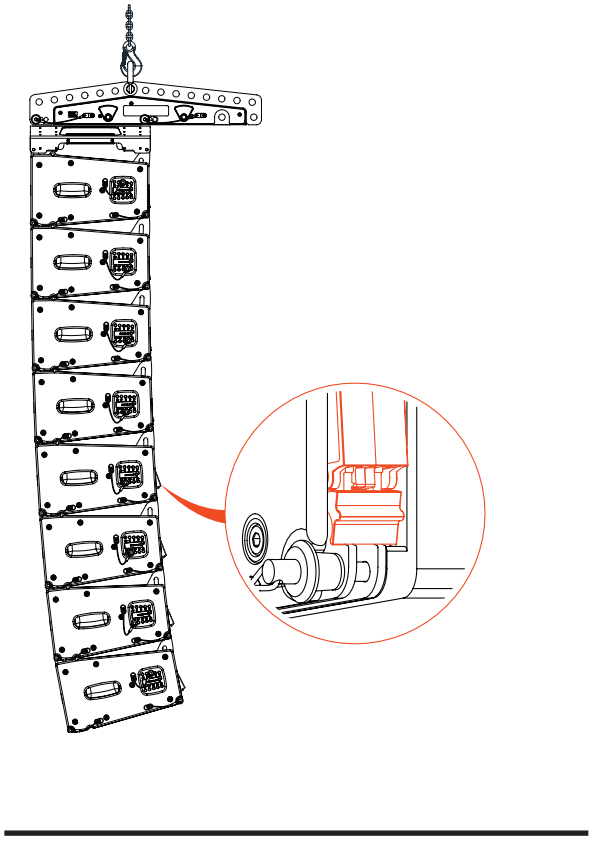
STEPS:

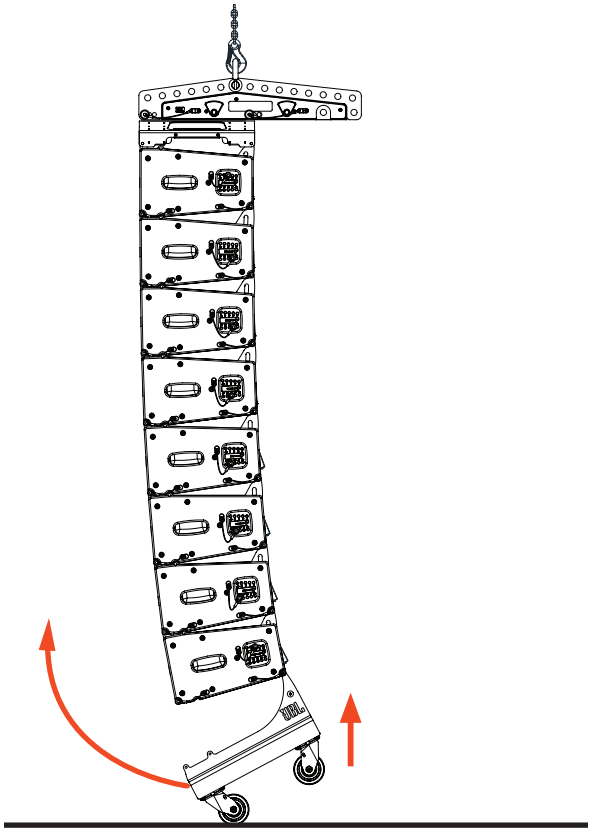
1. With the VT completely secured, lower the array until the front wheels of the VT touch the ground. The array should start to roll backwards slightly and, as the array is lowered, the inter-enclosure angles of the bottom four boxes will close to the 10-degree position.
2. Once the lowest four boxes are entirely collapsed and the gap between cabinets four and five from the bottom is closed, set the angle selection QRPs on the bottom four A8 cabinets to the 10-degree STORAGE position.
3. Close all eight RED Locking latches.
4. Remove the rear QRPs joining the fourth and fifth cabinets from the ground. These QRPs should move easily, as the weight of the array is being held by the front wheels of the Vertical Transporter resting on the ground.
5. Raise the array and allow the four A8 cabinets to roll forward until the cart is resting safely on all four wheels. When the A8 cabinets on the VT reach this position, stop lifting the array. Remove the front QRPs and separate the suspended array from the stack on the Vertical Transporter cart.

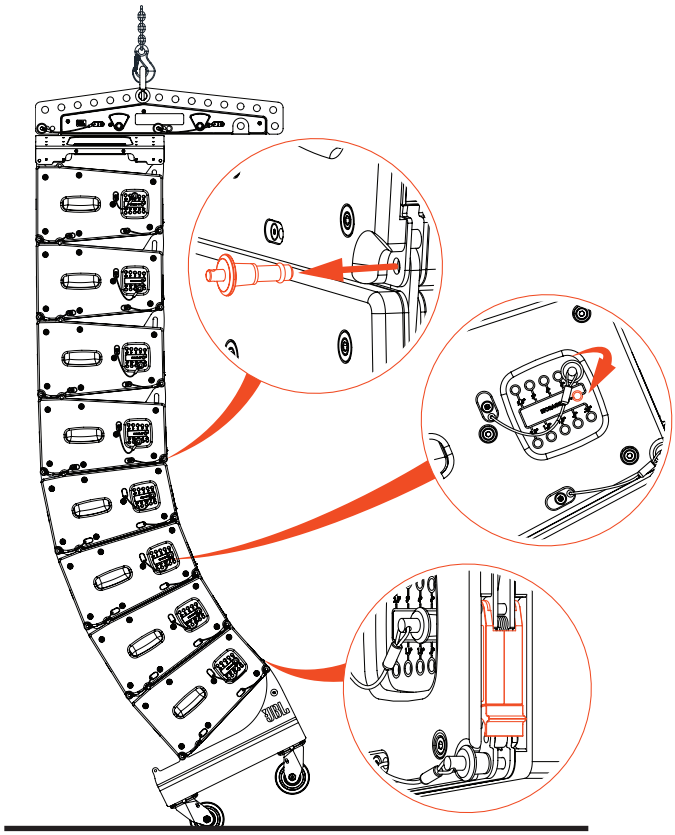


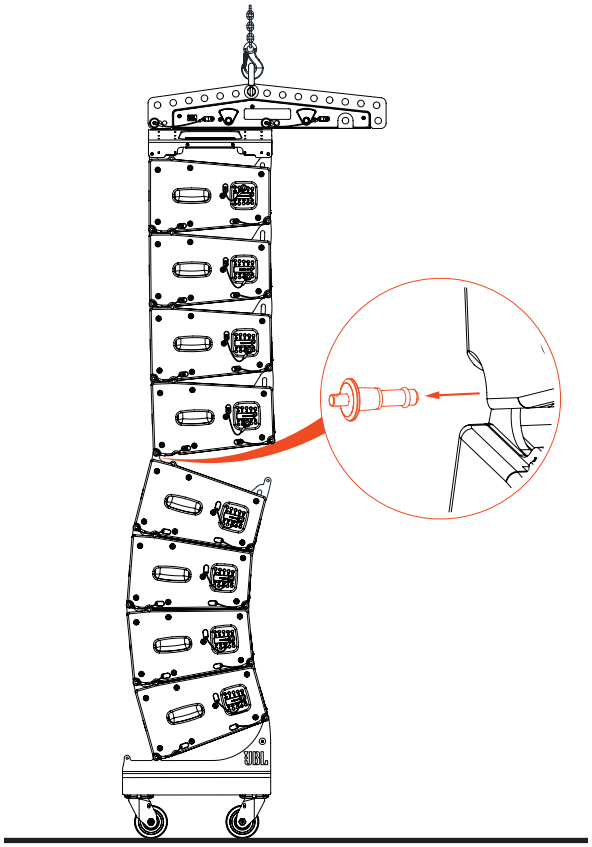
11.3 REPEAT STEPS TO DISCONNECT THE NEXT FOUR CABINETS

Repeat the previous steps to disconnect and store the next four cabinets of the array.

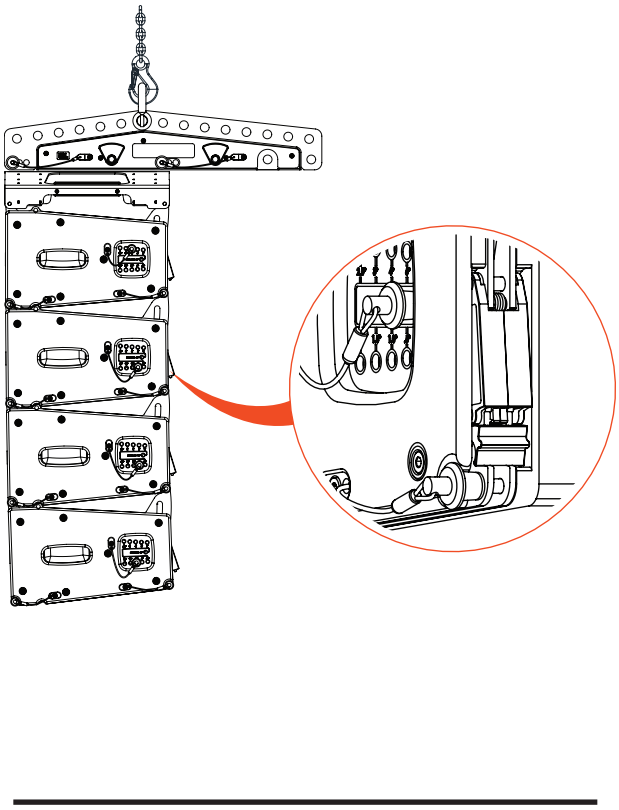


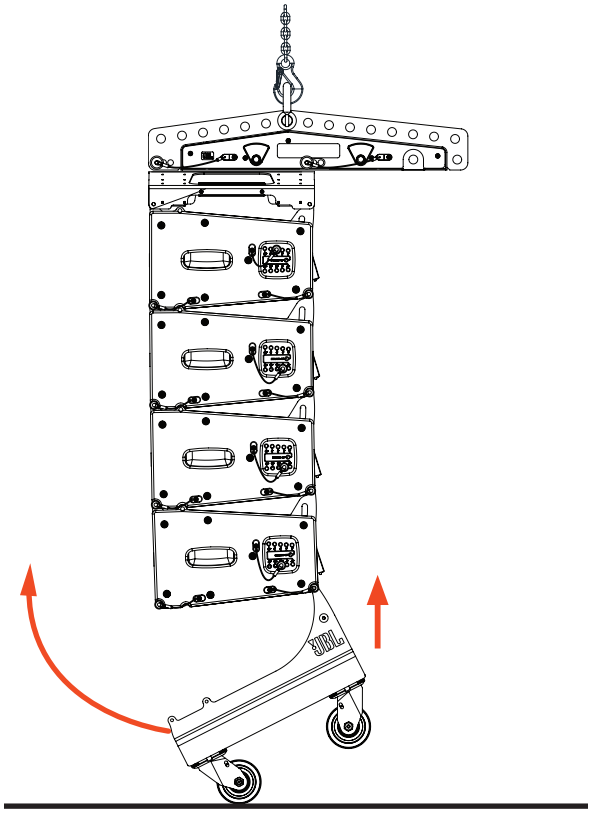


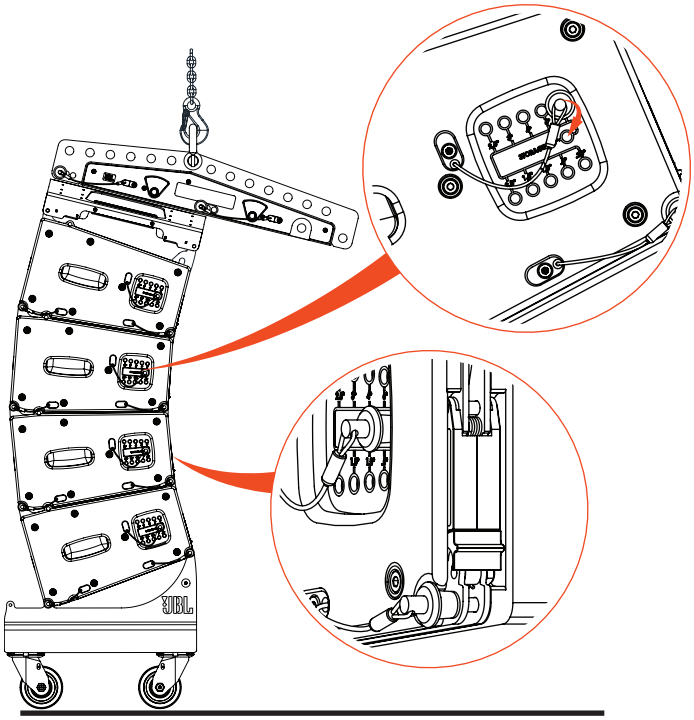


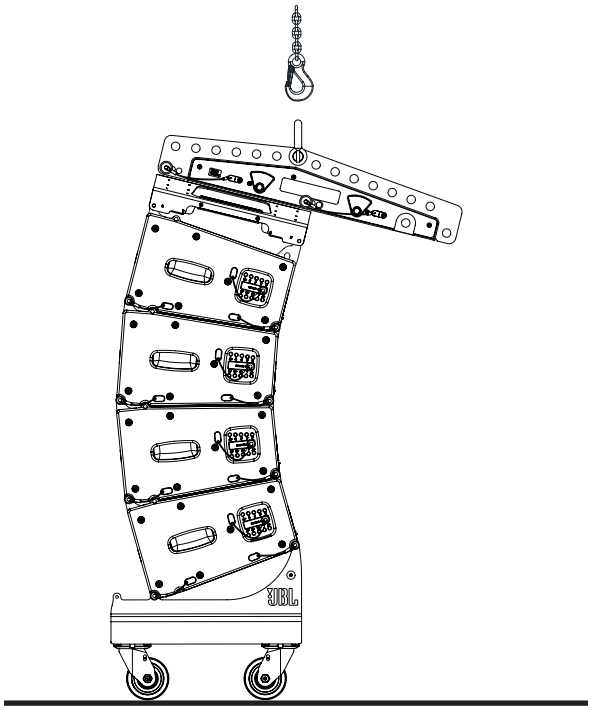


11.4 REPEAT STEPS TO DISASSEMBLE THE ARRAY









12 - MIXED ARRAYS WITH A8 AND B18

VTX A8 cabinets are mechanically and acoustically compatible with VTX B18 single-18-inch subwoofers. All A8 suspension accessories are compatible with the VTX B18, enabling mixed arrays with VTX A8s suspended under B18 subwoofers to be created.

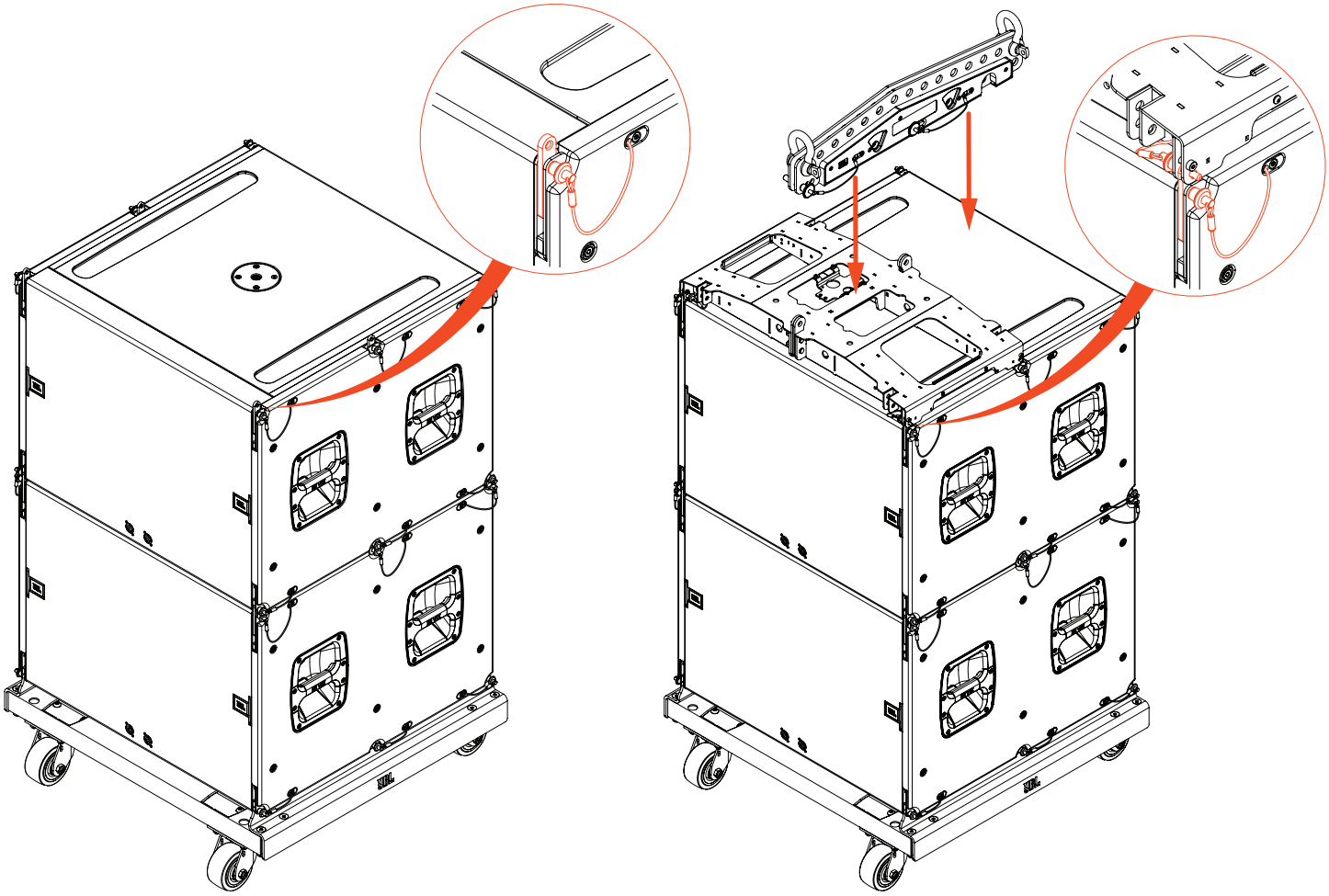
This section of the manual covers creating mixed VTX A8/B18 arrays. For more detailed information on the B18 rigging system and how to create standalone B18 suspended arrays, refer to the **VTX B18 Rigging Manual**.

12.1 ATTACHING THE ARRAY FRAME TO THE B18

The first step in this process is attaching the VTX A8 AF Array Frame to the top VTX B18 cabinet. The array design used for this example, consists of two forward-facing B18 subwoofers, with eight A8 cabinets under them. Below is the procedure for attaching the array frame to the first B18.

STEPS:

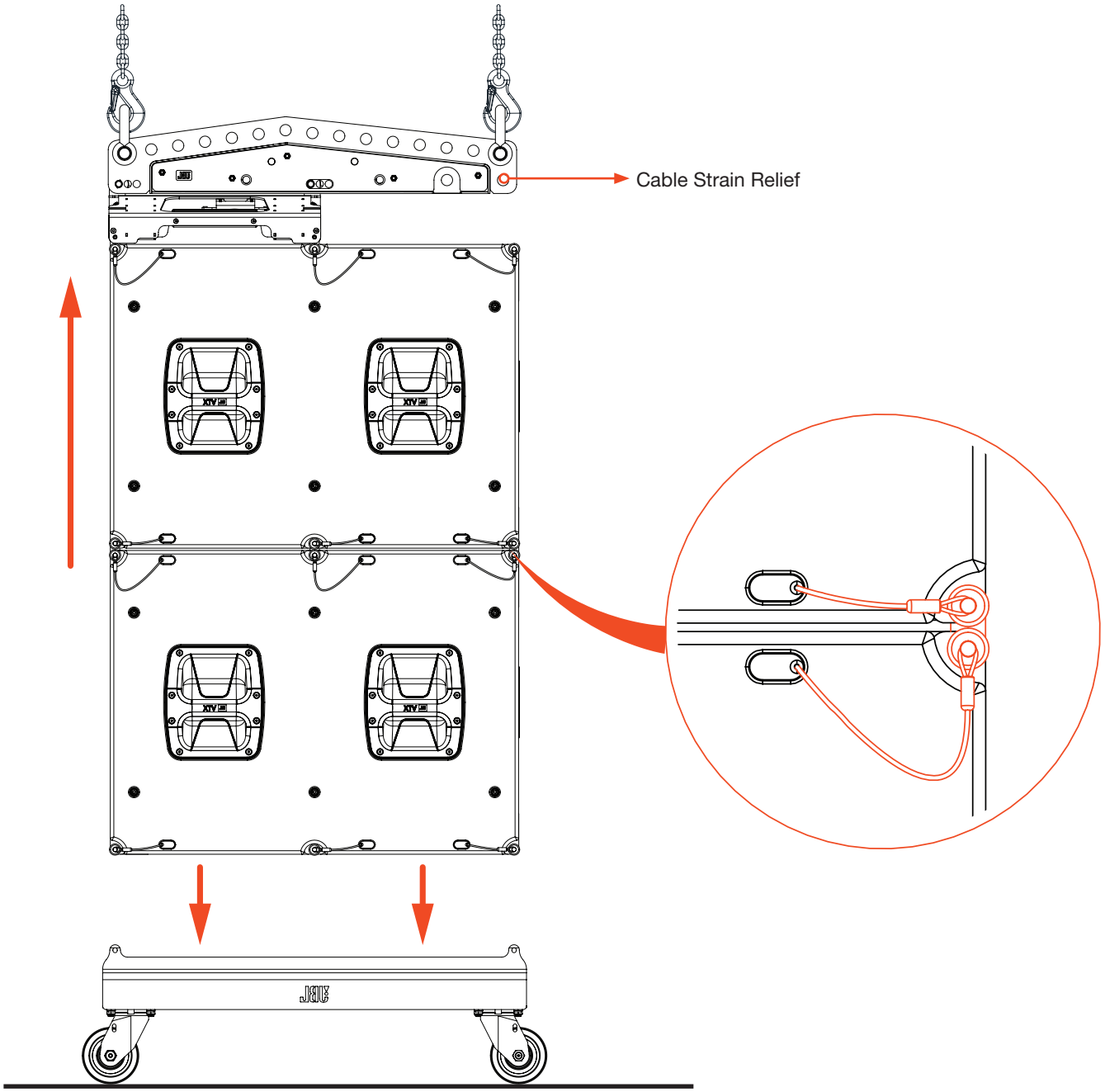
1. For easiest attachment, separate the Array Frame from the Extension Bar.
2. Remove the quick release pins securing the four B18 rigging arms. The spring-loaded mechanism will extend the arms outside the B18. Restore the QRPs to their previous positions.
3. Lower the Array Frame onto the B18 and use the four QRPs to secure it.
4. Once the Array Frame is secured to the top of the cabinet, the Extension Bar can be attached.



With the frame properly connected, lift the B18 off the ground and disconnect the Vertical Transport cart.

STEPS:

1. Use the electric hoists to raise the B18s off the ground.
2. Once suspended, remove the VT by first removing the front two QRPs and then the two at the rear.
3. Restore the two rear QRPs to their storage positions. The front and mid QRPs should remain free for attaching the first A8 cabinet.



CAUTION: All six quick release pins and rigging arms should always be used when connecting one B18 subwoofer to another. Under no circumstances should any pin be left unused. A8 cabinets can only be attached to the B18 rigging points corresponding to those connected to the array frame. Normally, these are the four forward most connection points.

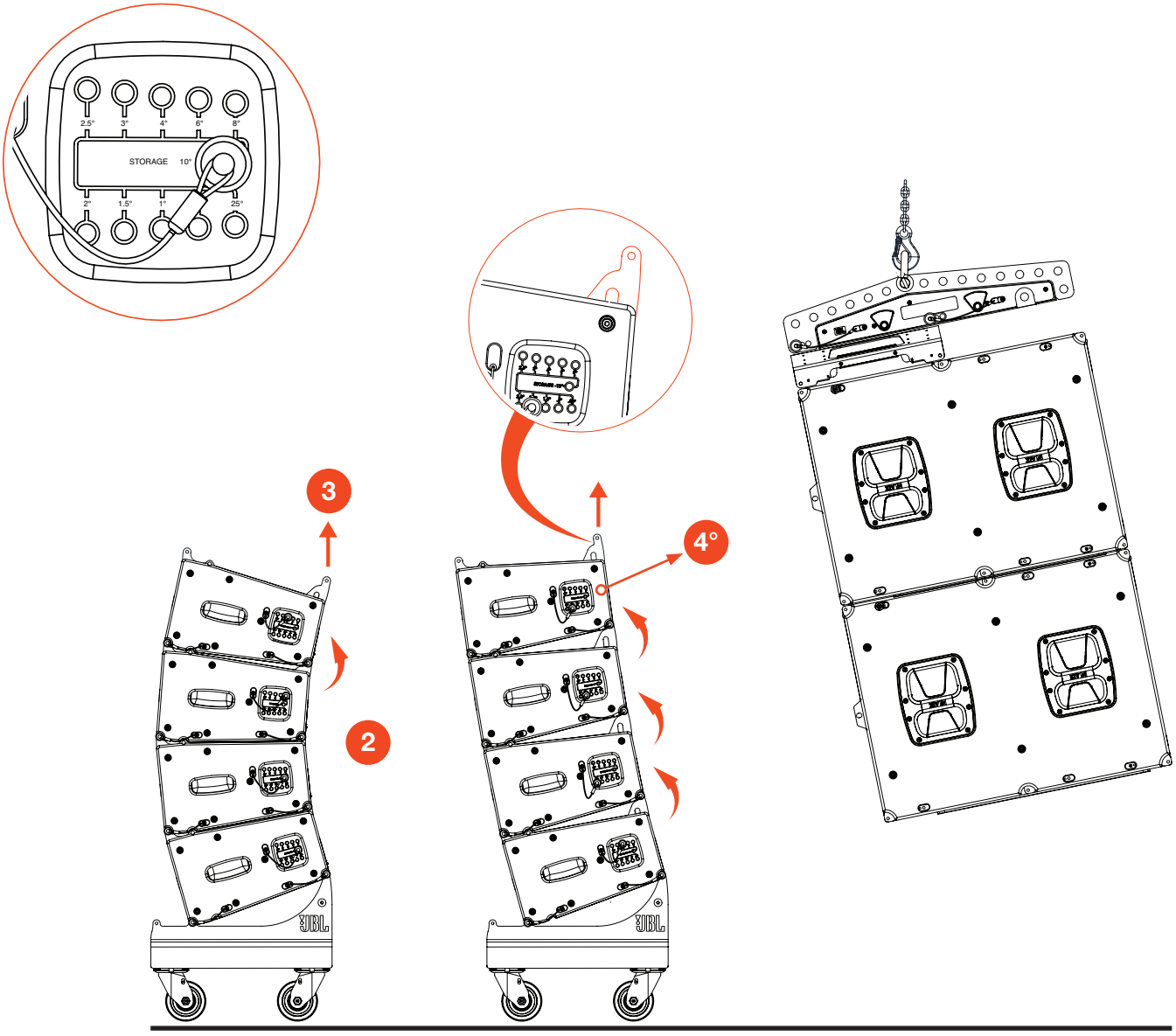
12.2 ATTACHING A8 TO B18

Once the VT has been disconnected from the flown array of B18s, the first cluster of A8 cabinets can be added to the array. Note that the first VTX A8 connected to a B18 subwoofer is always pinned to the 4° position. This allows the top A8 cabinet to sit parallel with the Array Frame.

STEPS:

1. Follow the procedures in chapter 9 - Deploying Standalone A8 Systems of this manual to assemble the A8 clusters.
2. Preset the angles of the A8 cabinets, then use the rear panel handle to lift each cabinet until it extends to its final position.
3. Use your hands to pull up the top rigging arms until they fully engage. The stack connected to the array frame does not need to be manually extended, since the electric hoist will lock those cabinets once the array is suspended.

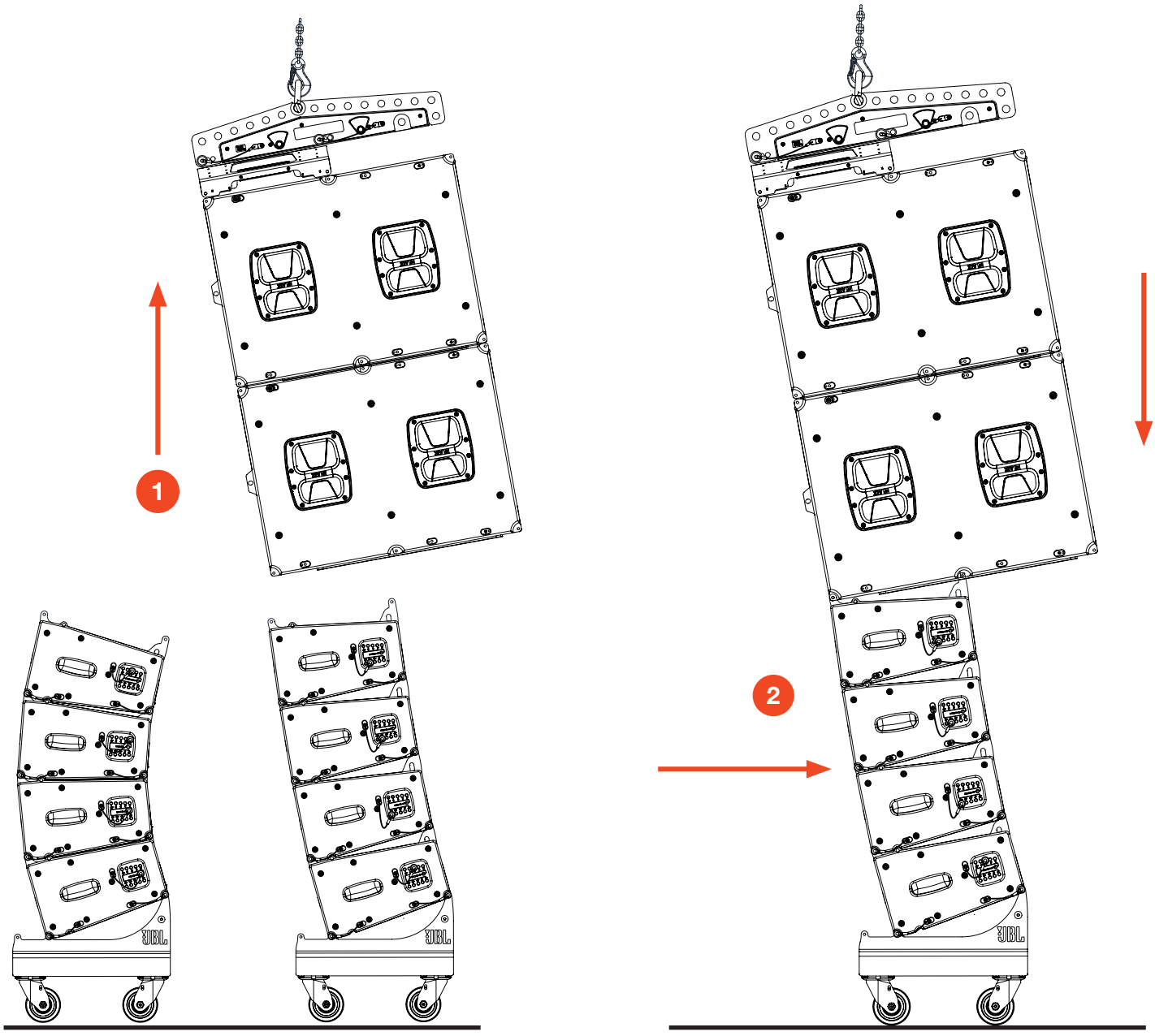
ANGLE SELECTION PANEL



Once the VT has been disconnected from the flown array of B18s, the first cluster of A8 cabinets can be added to the array. Note that the first VTX A8 connected to a B18 subwoofer is always pinned to the 4° position. This allows the top A8 cabinet to sit parallel with the Array Frame.

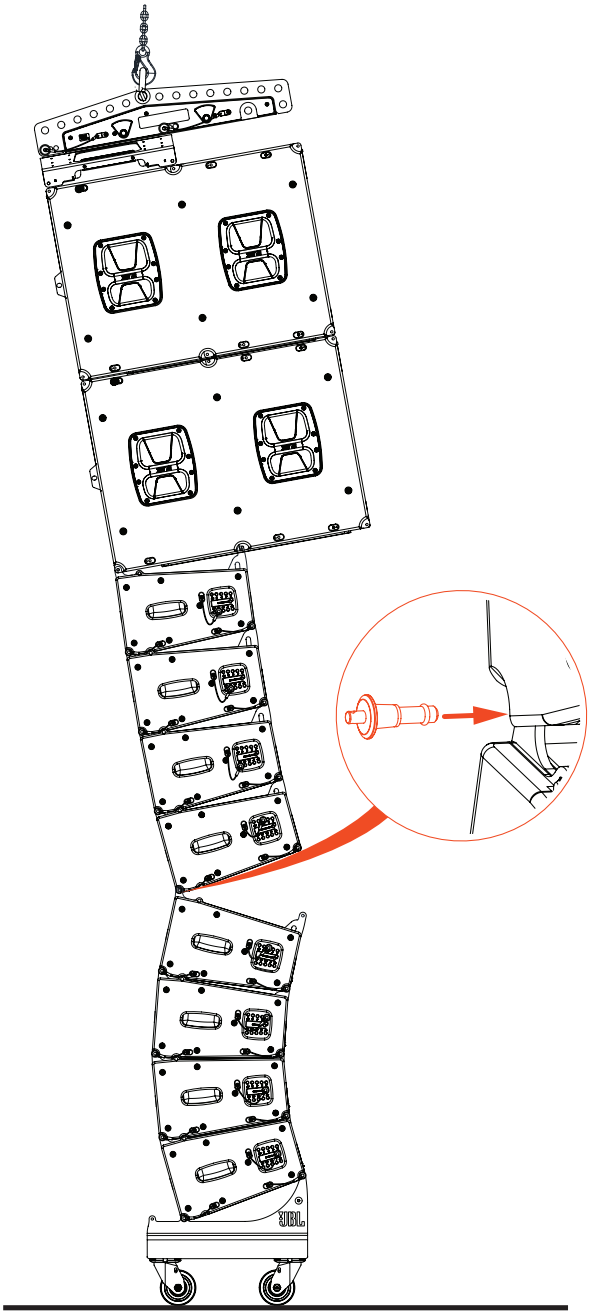
STEPS:

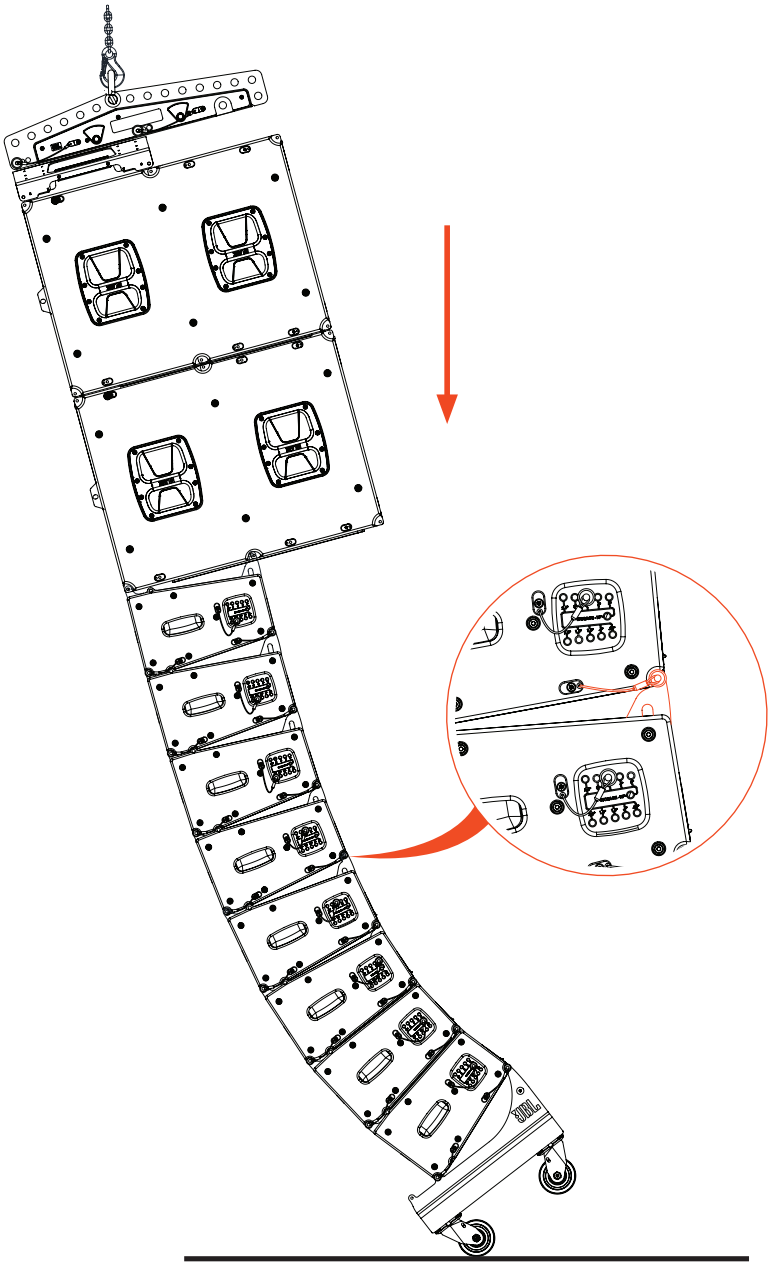
1. Raise the suspended cluster of VTX B18s cabinets and align the A8 cart of cabinets below the suspended cluster.
2. Once the clusters are aligned, carefully lower the suspended cluster until the front or rear attachment points are nearly touching. Check that the attachment points are aligned, then lower the suspended cluster until the front or rear attachment points join.
3. Lower the array and insert the quick release pins. Add additional A8 clusters until the array is fully built.



STEPS:

1. Raise the suspended cluster of A8 and B18 cabinets, then align the cart of A8s on the ground underneath the suspended cluster.
2. Once the clusters are aligned, carefully lower the suspended cluster until the front attachment points are nearly touching. Check that the attachment points are aligned, then lower the suspended cluster until the front attachment points join. Insert the two front quick release pins.
3. With the front QRPs set, use the electric hoist to raise the array. Be aware that the lower cluster may swing forward slightly as it lifts off the ground. Once the array is off the ground, grab the lower cluster by the handle at the rear of the VT and gently pull back towards the rear of the array. While doing this, lower the array so that the front wheels of the VT touch the ground. Continue lowering the array until the rear attachment points engage. Insert the two rear QRPs.
4. With all four QRPs secured, lift the array off the ground and remove the VT.



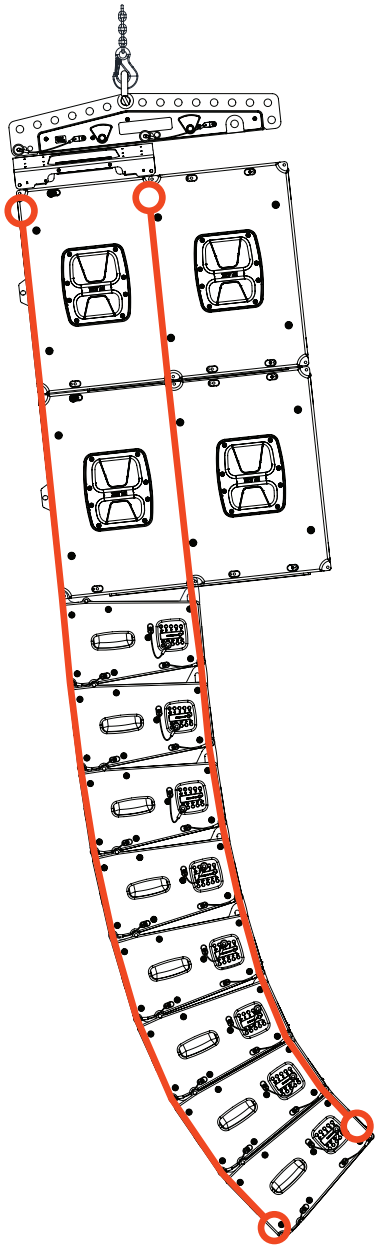


12.3 DE-RIGGING THE ARRAY

The steps to de-rig a mixed array are the same as for a standalone A8 array. Follow the steps in chapter 10 – Disassembling an A8 Array to safely de-rig the array.

12.4 MIXED ARRAY SAFETY NOTE

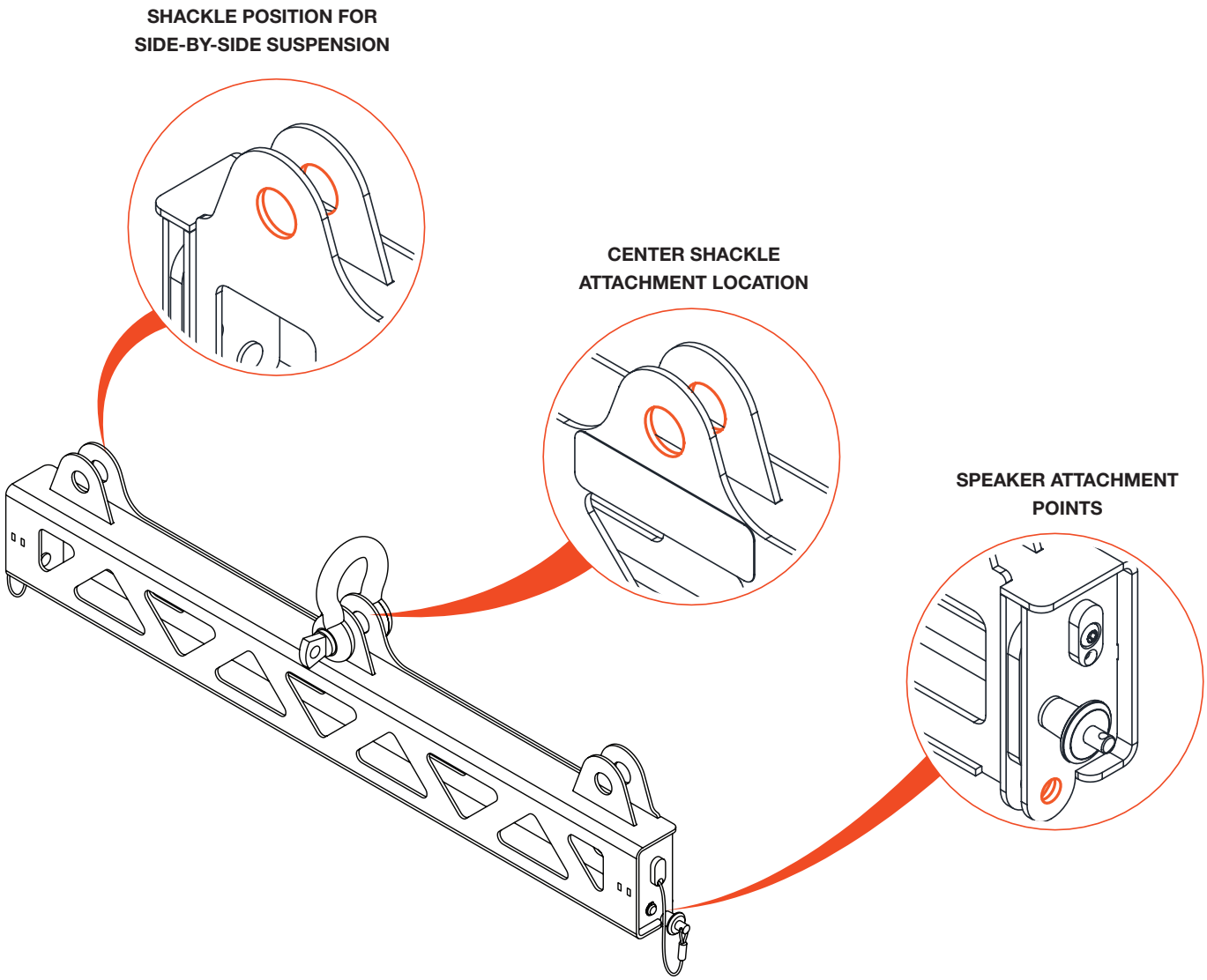
To create a rigid and secure structure when building mixed arrays with A8 and B18 cabinets, each cabinet should always use all four of the connection points corresponding to the points connecting the array to the array frame. It is recommended that all six connection points of the B18s be used at all times, even though only four are under load in this situation. For additional B18 configurations and safety recommendations, refer to the B18 Rigging Manual.



13 - THE VTX A8 SUSPENSION BAR

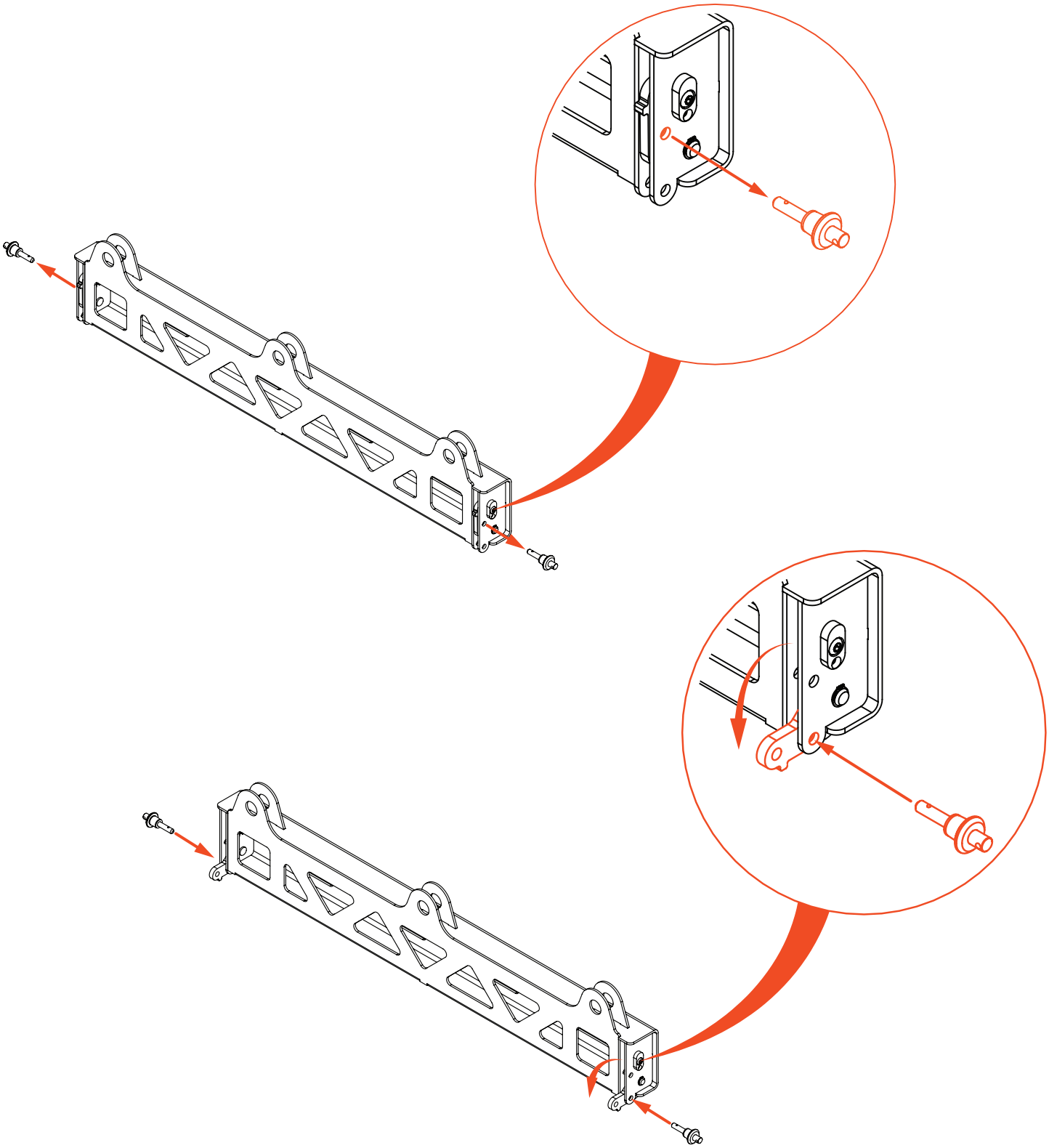
The VTX A8 SB is a lightweight suspension bar that can be used as an array frame or to implement pull-back for VTX A8 or B18 arrays. When used for pull-back, the VTX A8 SB enables more downtilt than is possible using the VTX A8 AF alone, by attaching it to the bottom cabinet of an array and then connecting to the suspension point for the rear of the array. The SB can also be attached to the top cabinet of an array and used as a compact array frame. Two VTX A8 SB Suspension Bars can be used, one at the top of the array and one at the bottom, for dual-point applications and added aiming flexibility. For more information on using the VTX A8 SB with the B18, refer to the B18 Rigging Manual.

13.1 VTX A8 SB SUSPENSION BAR OVERVIEW



13.2 VTX A8 SB SUSPENSION BAR ATTACHMENT TABS

The VTX A8 SB Suspension Bar is designed to connect to the top or bottom of a suspended array of VTX A8s or B18s. When connected to the bottom (lowest cabinet in the array), the array attachment tabs must be released from their storage positions in order to attach to a VTX A8 or B18 cabinet. Remove the holding pins on either side of the SB and let the attachment tabs spring to their operating positions. The attachment tabs can then be pinned to the VTX A8 or B18 cabinet using the cabinet's quick release pins.

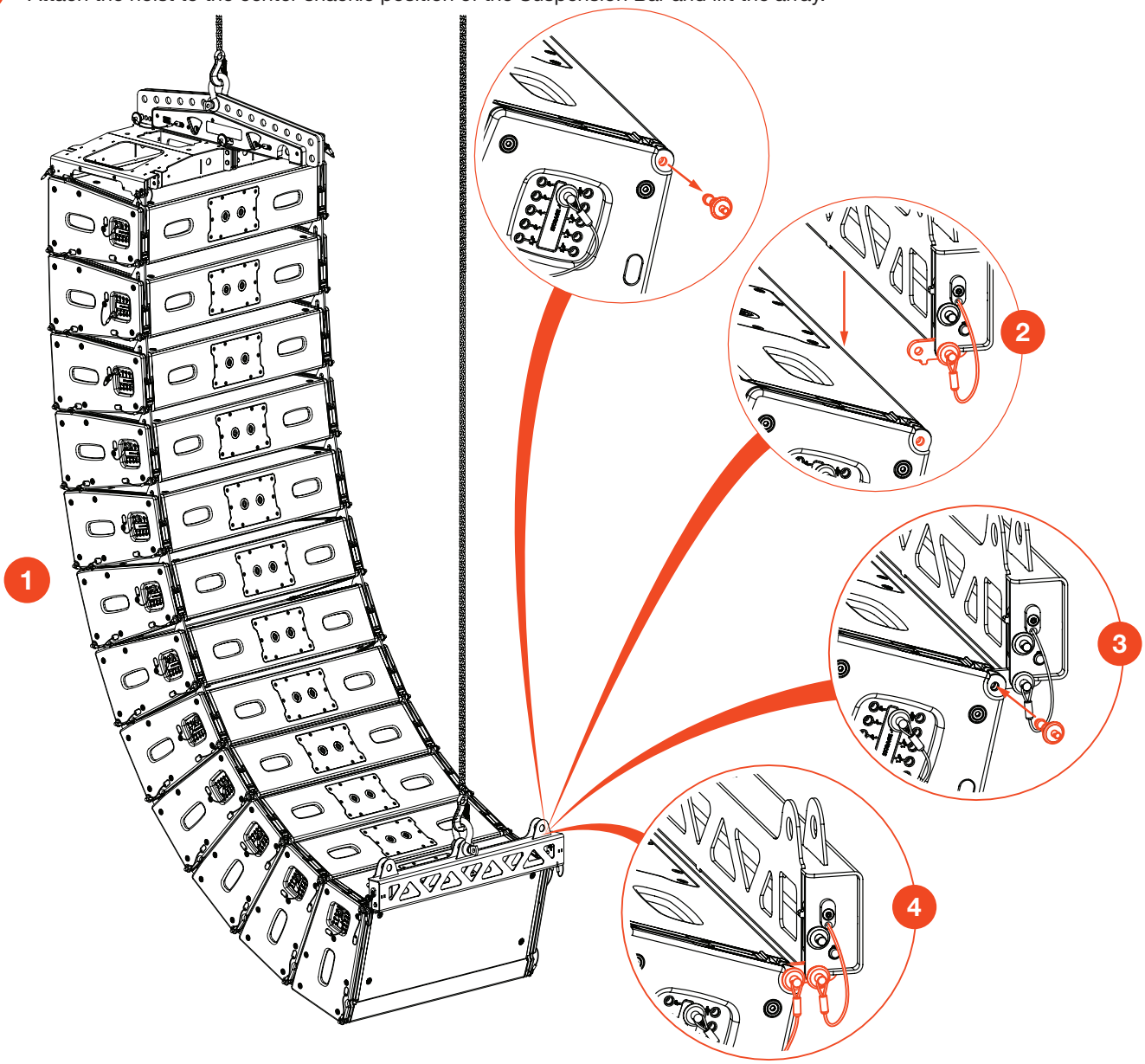


13.3 VTX A8 SB FOR PULL-BACK

The primary role of the VTX A8 SB Suspension Bar is as a pull-back attachment at the bottom of an array for configurations requiring a significant amount of downtilt. In this case, the VTX A8 AF connects to the primary suspension point at the top of the array, with the VTX A8 SB mounted to the bottom of the array and lifted by a second motor point at the rear of the array. The two motors are adjusted to achieve the desired array downtilt.

STEPS:

1. Follow the steps in chapter 9 – Deploying Standalone A8 Systems to suspend the VTX A8 array using the hoist attached to the Array Frame.
2. Make sure the Suspension Bar attachment tabs have been extended to their operating positions, so the SB can be connected to an A8 cabinet.
3. Use the VTX A8 quick release pins to attach the Suspension Bar to the lowest VTX A8 in the array.
4. Attach the hoist to the center shackle position of the Suspension Bar and lift the array.

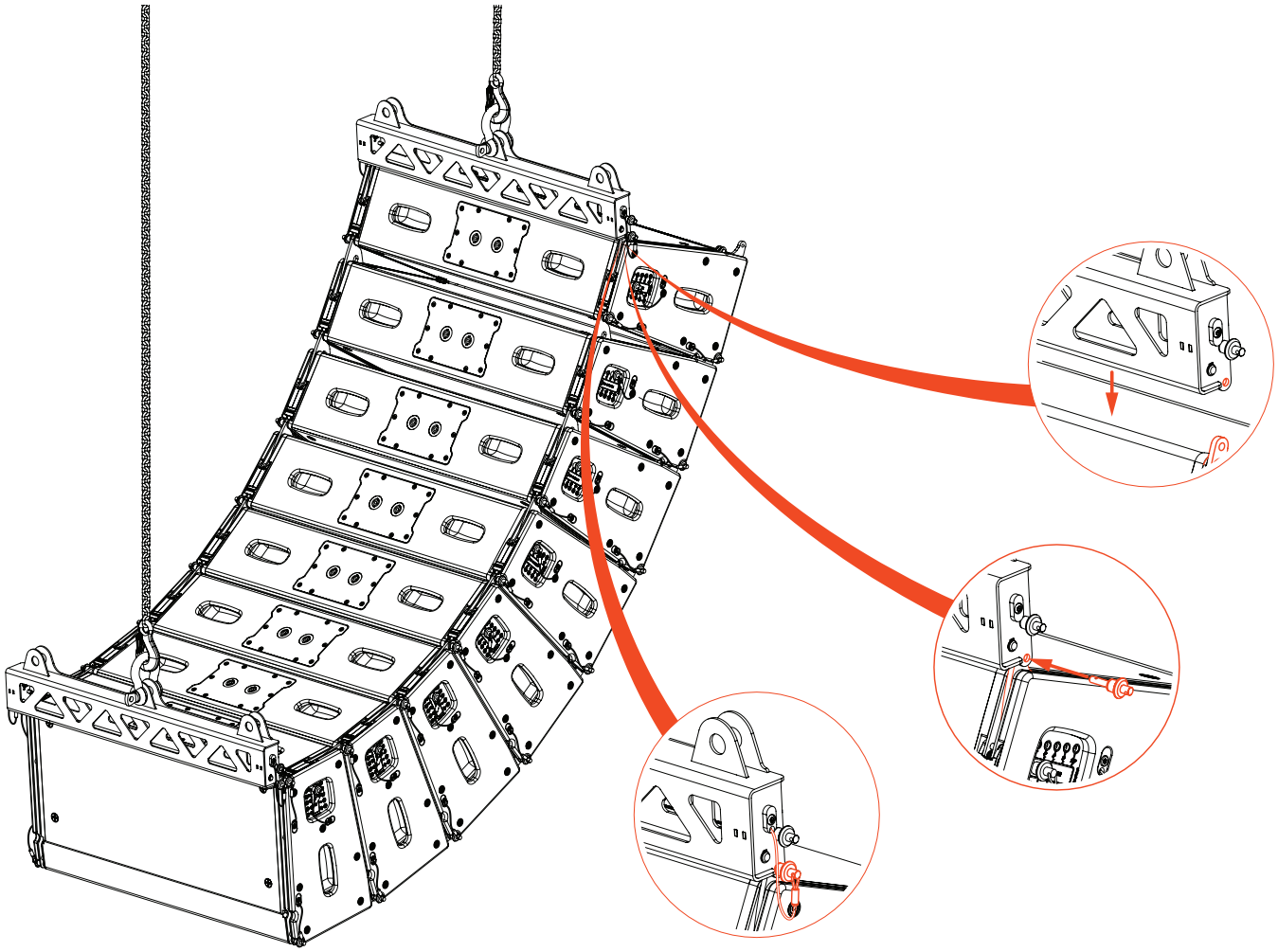


13.4 USING TWO A8 SUSPENSION BARS

Two VTX A8 SB Suspension Bars can be mounted to the top and bottom of a VTX A8 array at the same time. This configuration can reduce cost and overall array weight when the flexibility of a VTX A8 AF Array Frame is not needed. Fixed installations often benefit from this arrangement. However, since this setup is not as flexible as the combination of an Array Frame and Suspension Bar, assembling the array can take longer than normal.

STEPS:

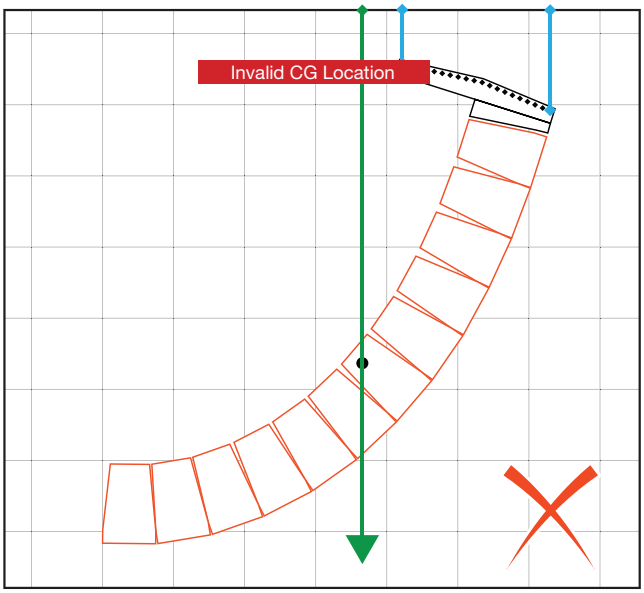
1. Connect the first VTX A8 SB to the top cabinet of the array. Use the pins included with the Suspension Bar to attach it to the A8 cabinet. The Suspension Bar should always be connected to the A8's rear suspension points.
2. Set the A8 cabinet (connected to the Suspension Bar) to the 4° position.
3. Attach the motor to the Suspension Bar and lift the first stack of A8s. Follow the instructions in chapter 9 - Deploying Stand-alone A8 Systems to suspend the A8 array.
4. After the entire A8 array has been assembled, connect the second Suspension Bar to the lowest cabinet of the array.
5. Check that the Suspension Bar attachment tabs are extended to their operating positions so the SB can be attached to an A8 cabinet.
6. Use the VTX A8 quick release pins to attach the Suspension Bar to the bottom VTX A8 in the array.
7. Attach the hoist to the center shackle position of the Suspension Bar and lift the array.



13.5 WHEN TO USE A PULL-BACK

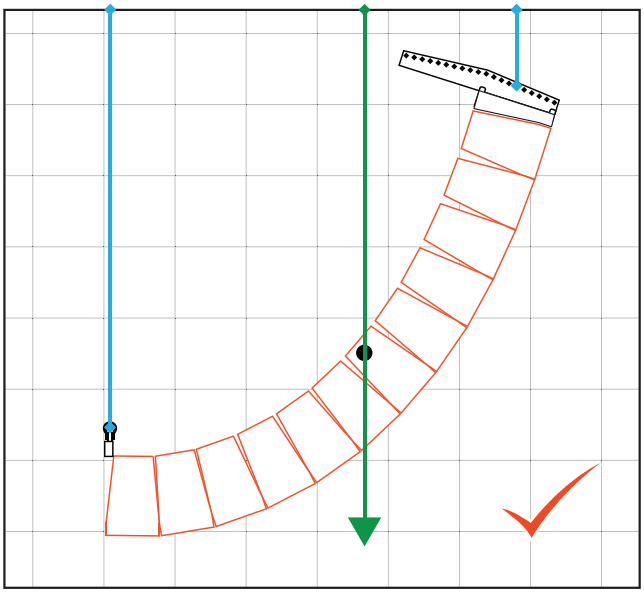
The use of a pull-back is common when the center of gravity (CoG) of an array falls outside the footprint of the Array Frame. Typically, long curved arrays with a large downtilt qualify for this condition. When this occurs, LAC displays an error to indicate that the array frame alone cannot achieve the down angle needed for the design (Example 1 - No pull-back). Using a VTX A8 SB Suspension Bar as a bottom frame will move the array CoG between the two suspension points, enabling almost any down angle to be achieved (Example 2 - With pull-back).

LAC Example 1



Center of Gravity Suspension Points

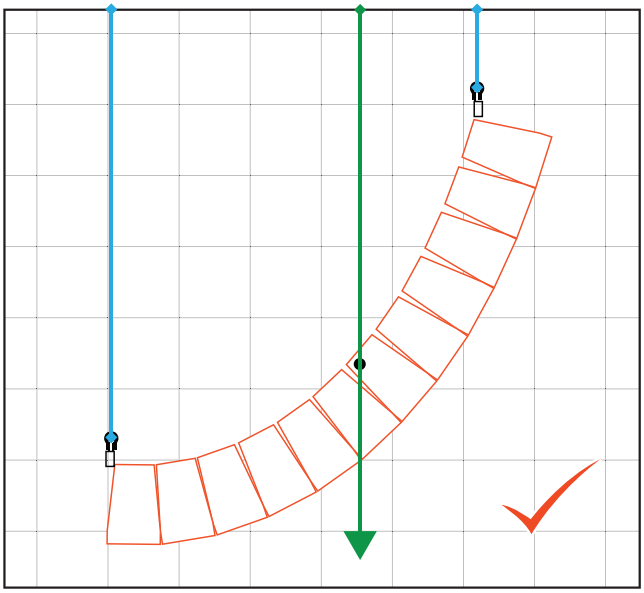
LAC Example 2



Center of Gravity Suspension Points

However, when using the motors for the two suspension points to adjust the array angle, the pick-point flexibility of the AF array frame is not needed. Using a Suspension Bar at the top and another at the bottom yields the same outcome, while saving some weight and cost (Example 3 - Two Suspension Bars).

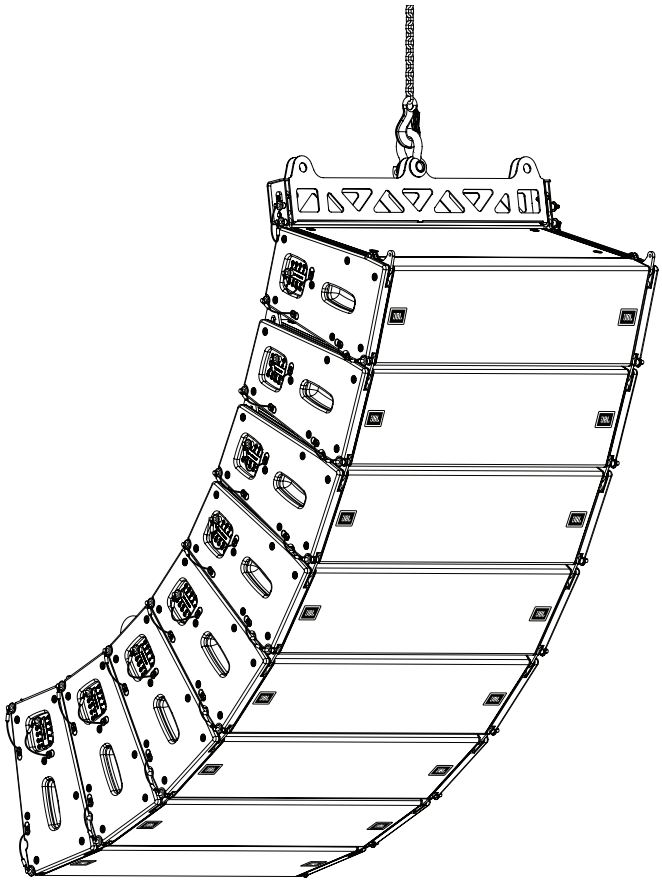
LAC Example 3

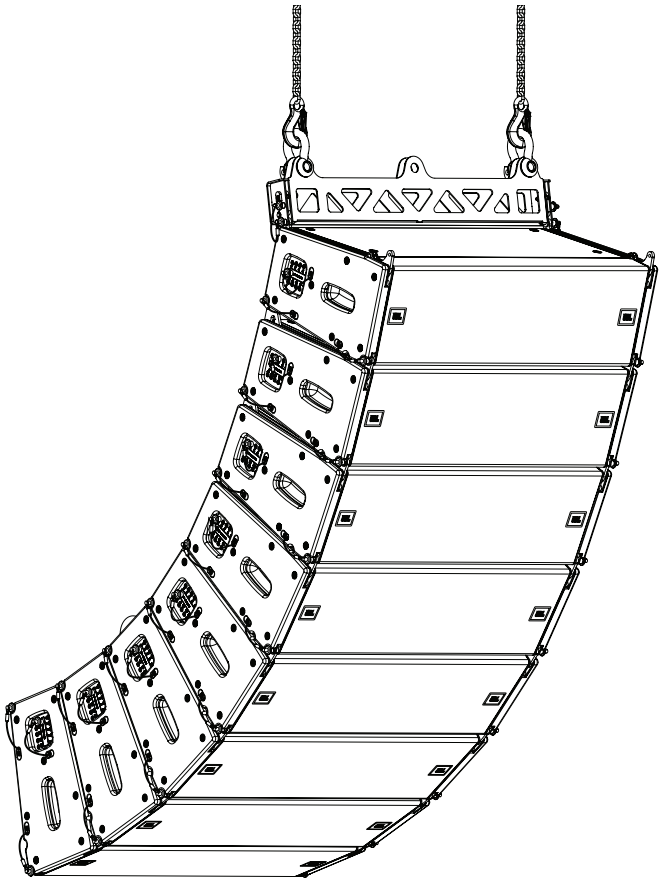


Center of Gravity Suspension Points

13.6 USING A SINGLE VTX A8 SB

The VTX A8 SB Suspension Bar can also be used as the main suspension frame, but this configuration is not recommended for regular use. While the SB is simpler, lighter, and more cost-effective than using a VTX A8 AF, when using the SB the center of gravity (CoG) of the array must perfectly line up with the shackle attachment position on the suspension bar. If the CoG is in front of or behind the suspension bar, aiming of the array will be incorrect. Use LAC-3 to determine if this configuration is appropriate for a given array.

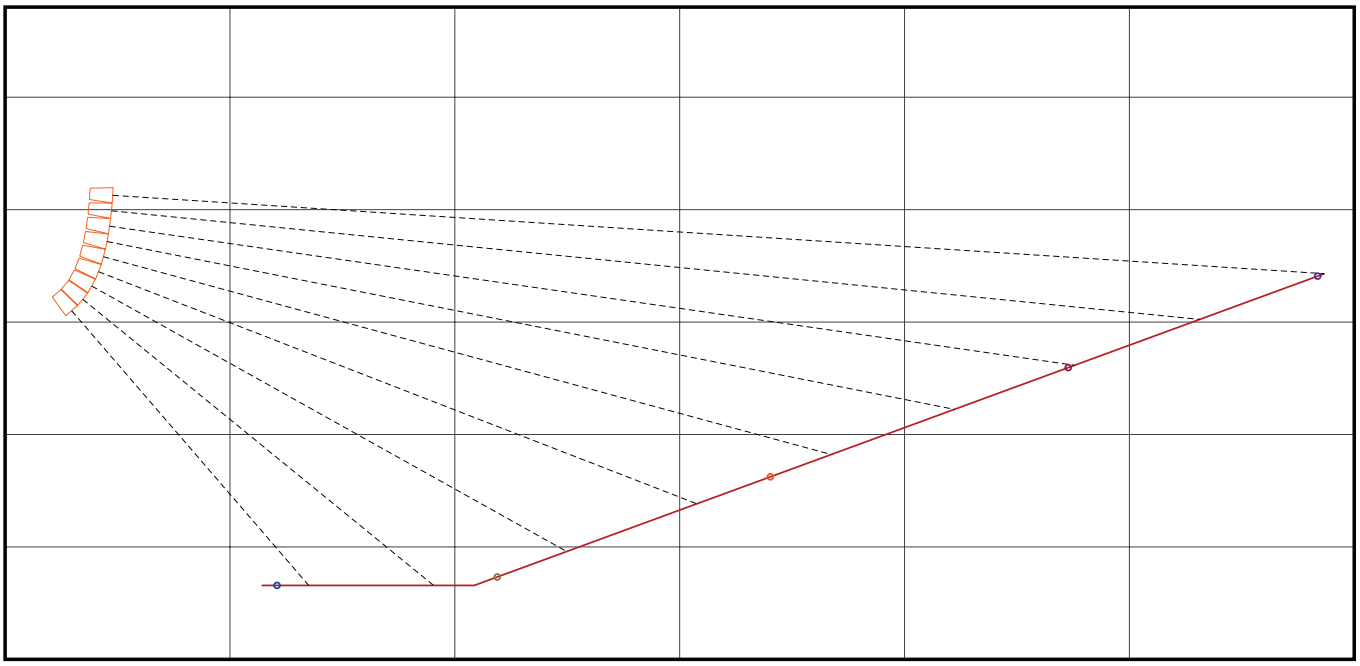




This configuration also supports side-by-side attachment for suspension hoists on the SB being used as a top frame.

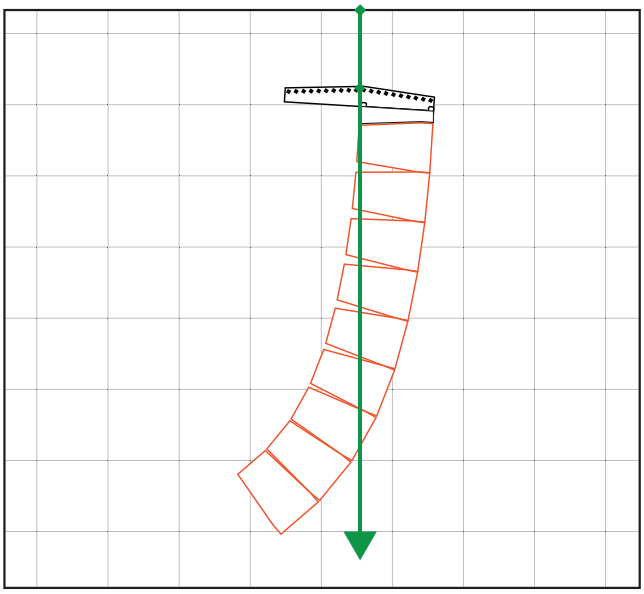
Below is an example from LAC of a scenario appropriate to using the VTX A8 SB as the main array frame.

LAC Venue Example



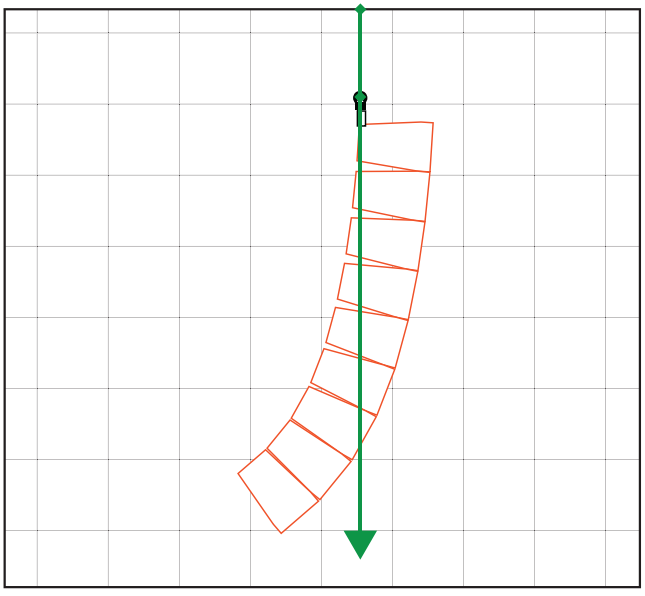
The venue geometry in Examples 4 and 5 calls for an array design in which the array CoG is perfectly lined up with the rear suspension point of the top A8 enclosure (Example 4 - CoG with array frame). In this case, the flexibility of the Array Frame and Extension Bar is not needed and a Suspension Bar can be used instead of an Array Frame (Example 5 - CoG with suspension bar).

Example 4 - CoG with array frame



● Center of Gravity

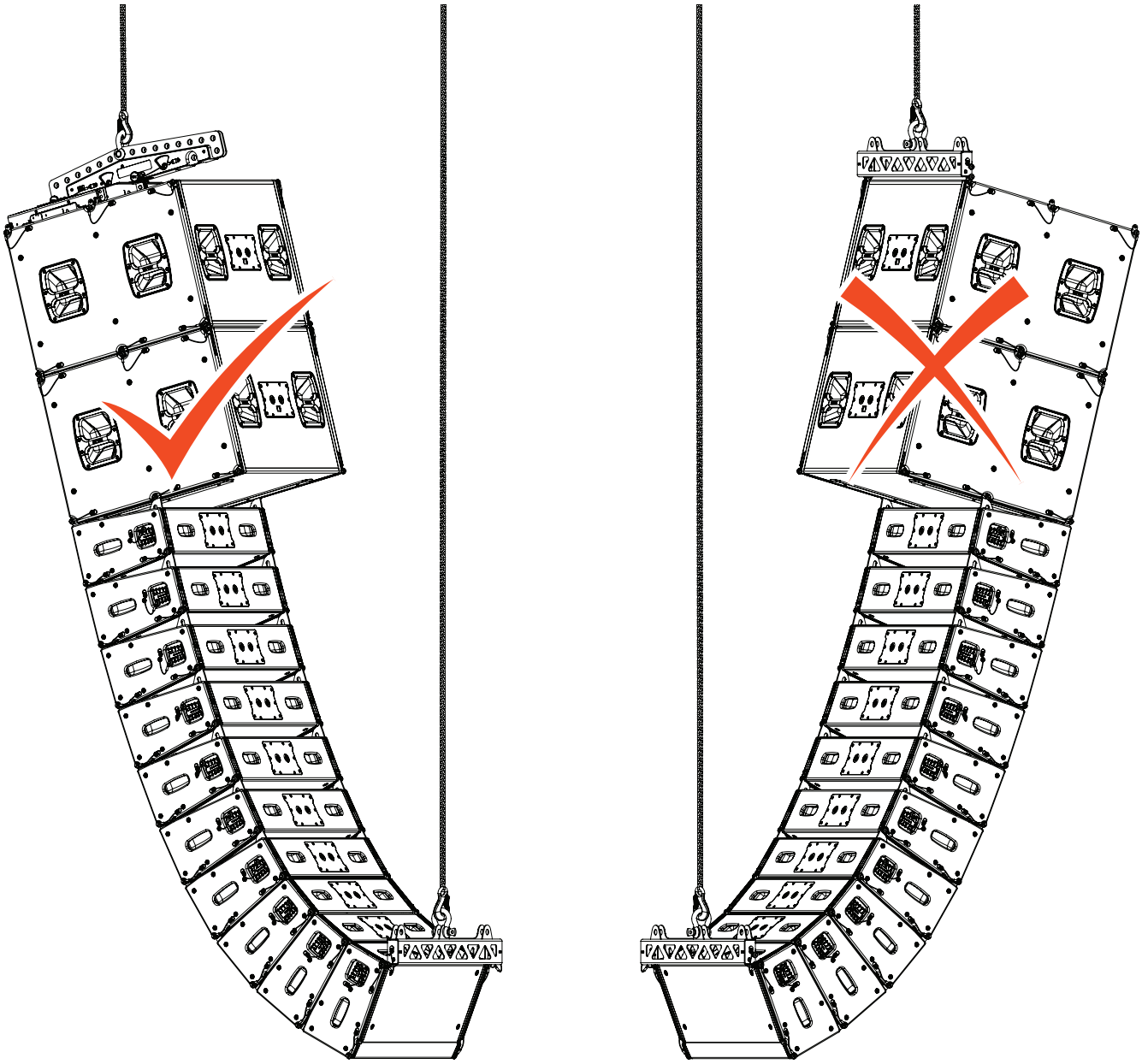
Example 5 - CoG with suspension bar



● Center of Gravity

13.7 SUSPENSION BAR AND MIXED ARRAYS

The VTX A8 SB can used as a pull back for mixed arrays, but not in place of an Array Frame at the top of the array. In mixed array situations, an Array Frame is always used at the top to provide the structural rigidity needed for mechanical safety. Note that the Suspension Bar can be used at the top of a B18-only array. Details on the Suspension Bar and B18 usage are available in the B18 Rigging Manual. All mixed array configurations should be checked with LAC-3 for mechanical safety.



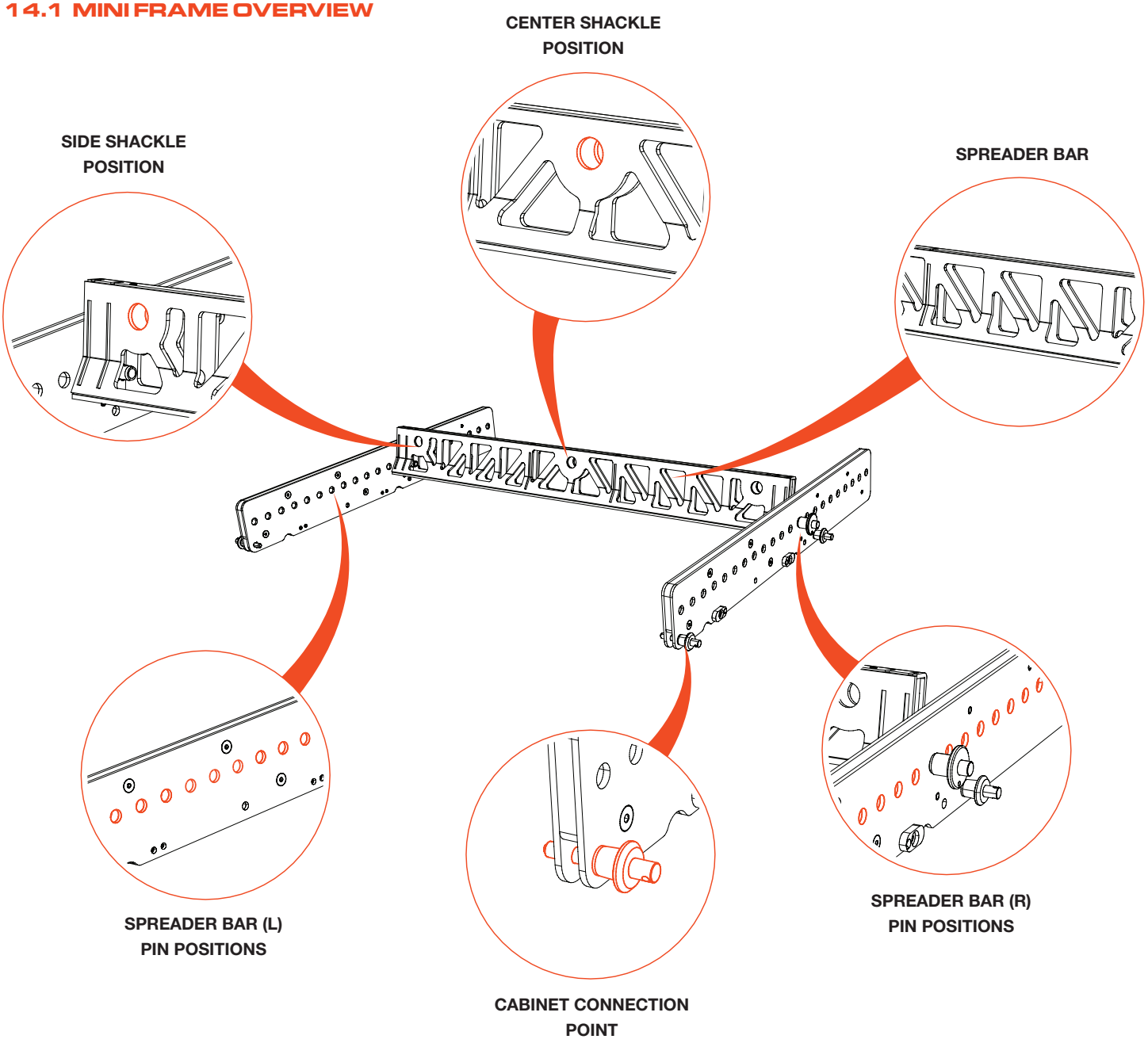
TIP: The VTX A8 SB Suspension Bar can be used at the top of B18-only arrays as the main suspension frame. Refer to the VTX B18 Rigging Manual for suspension bar usage examples.

CAUTION: The VTX A8 SB Suspension Bar should never be used at the top of an array when VTX A8 and VTX B18 products are used as part of the same array. Always check with LAC-3 for mechanical safety.

14 - THE VTX A8 MINI FRAME

The VTX A8 MF Mini Frame is a lightweight, compact and inexpensive array frame used for suspending smaller VTX A8 and VTX B18 arrays. The three-piece design is comprised of two side arms and one spreader bar. The side arms connect to the cabinets, and the spreader bar can be pinned to one of the 22 pick-point positions, providing excellent tilt resolution. The Mini Frame was designed to work primarily in single-point applications, although dual-point is supported by using the two spreader bar side shackle positions. The Mini Frame can be used in conjunction with the VTX RC500 rotating clamp, allowing smaller A8/B18 arrays to be suspended from standard sized trusses or pipes. The three pieces can be collapsed and pinned together for storage.

14.1 MINI FRAME OVERVIEW



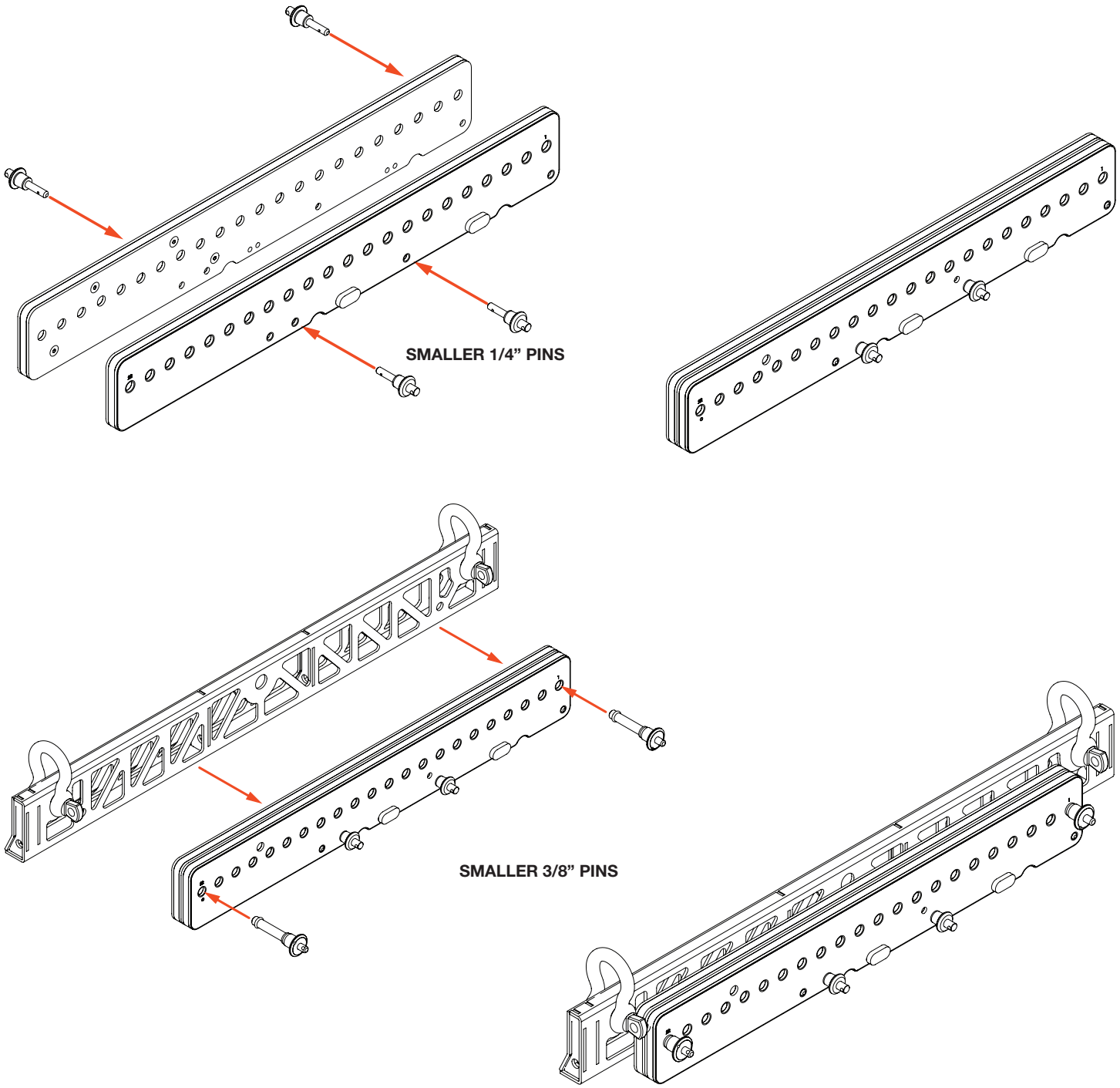
TIP: The Mini Frame is compatible with ½-inch shackles. Two, high-quality, black ½-inch shackles are included with every Mini Frame. Always use high-quality shackles from reputable sources.

14.2 MINI FRAME STORAGE CONFIGURATION

The Mini Frame can be disassembled and pinned together in a small and compact package for storage and transportation. Follow the instructions below to set the Mini Frame in storage mode.

STEPS:

1. First, pin the two side arms together using the four quick release pins connected to the side arms. It is not important which storage holes are used for the pins, as this is just for storage.
2. With the two side arms pinned together, use hole positions 1 and 22 to pin the spreader bar onto the side arms.

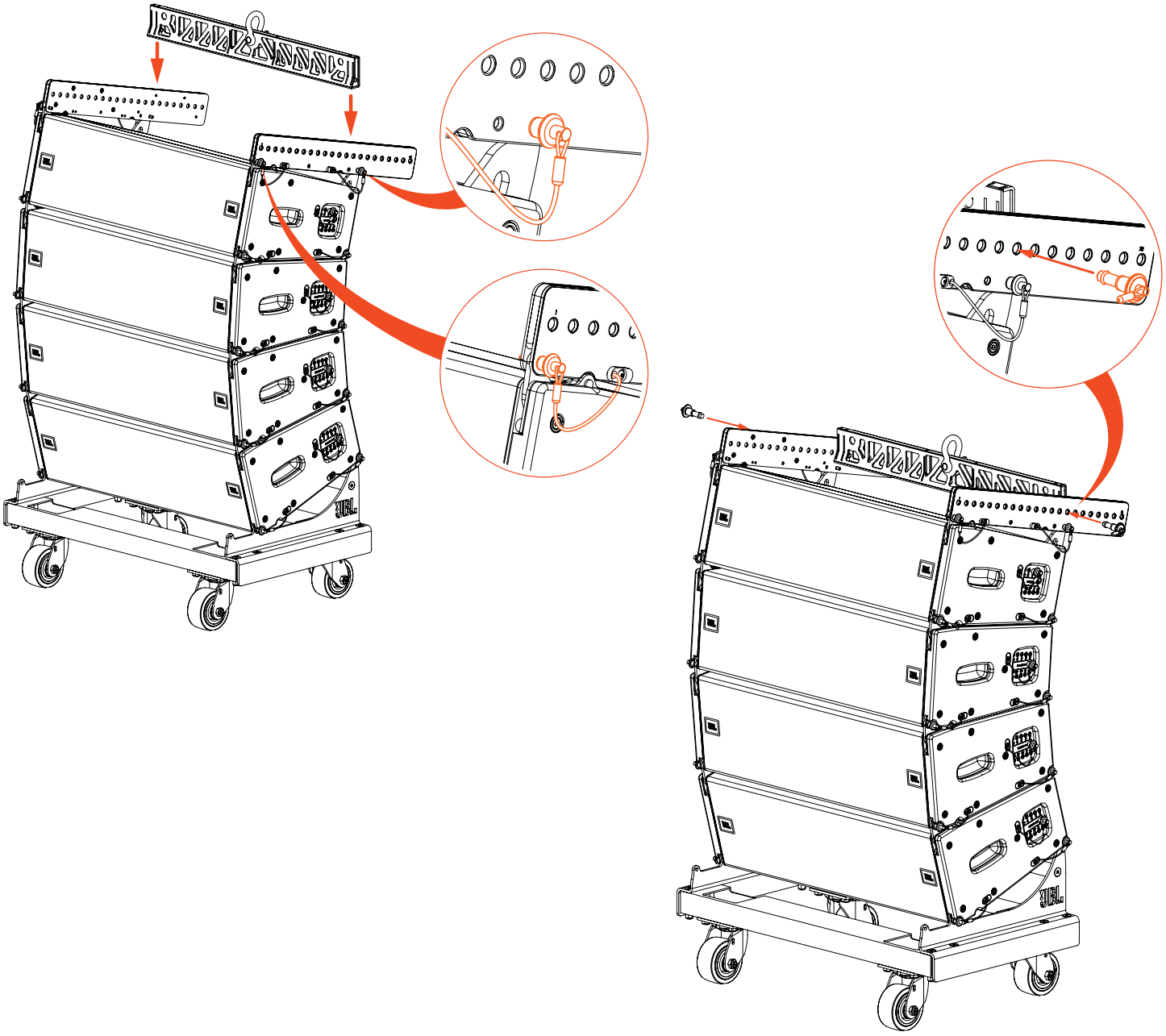


14.3 ATTACHING THE MINI FRAME TO A8

Here are the steps to attach a Mini Frame to an A8 cabinet:

STEPS:

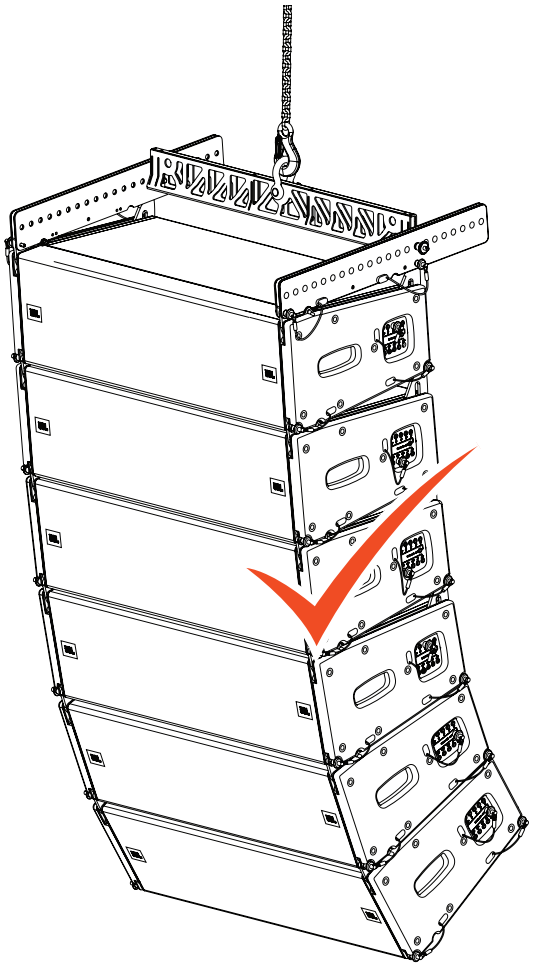
1. Check that the top cabinet angle is at the 4° setting.
2. Attach the two side arms to the top A8 cabinet using the four Mini Frame quick release pins, installed from the outside of the Mini Frame.
3. With the side arms secured, attach the spreader bar to the side arms using the two spreader bar quick release pins.



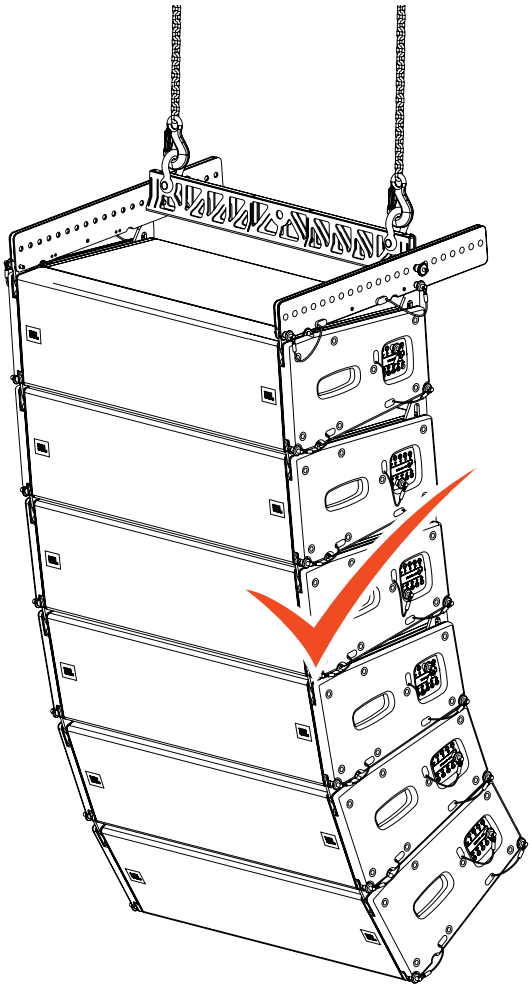
CAUTION: Always be certain that the two spreader bar quick release pins are fully seated and engaged before suspending an array. Make sure to fully insert the QRPs into the spreader bar and check for correct installation by pulling on them. The QRPs should be fully seated with minimal movement.

14.4 MINI FRAME SUSPENSION OPTIONS

The VTX A8 Mini Frame can be used in single-point configurations using the center shackle position of the spreader bar. Alternatively, the two side shackle positions can be used to facilitate dual-point configurations. When a single-point is used, the side shackle positions can be used for safety attachment and vice-versa.



SINGLE-POINT

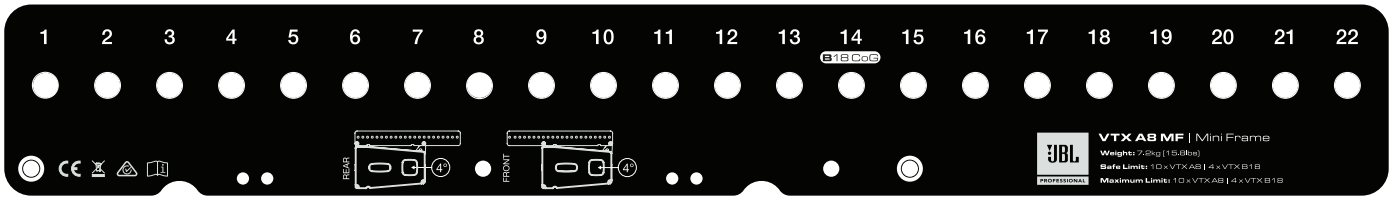


DUAL-POINT
SIDE-BY-SIDE

CAUTION: Always make sure that the same hole position is used on both side arms. Failing to use the same position on both sides can result in damaging the Mini Frame.

14.5 SELECTING SPREADER-BAR POSITIONS

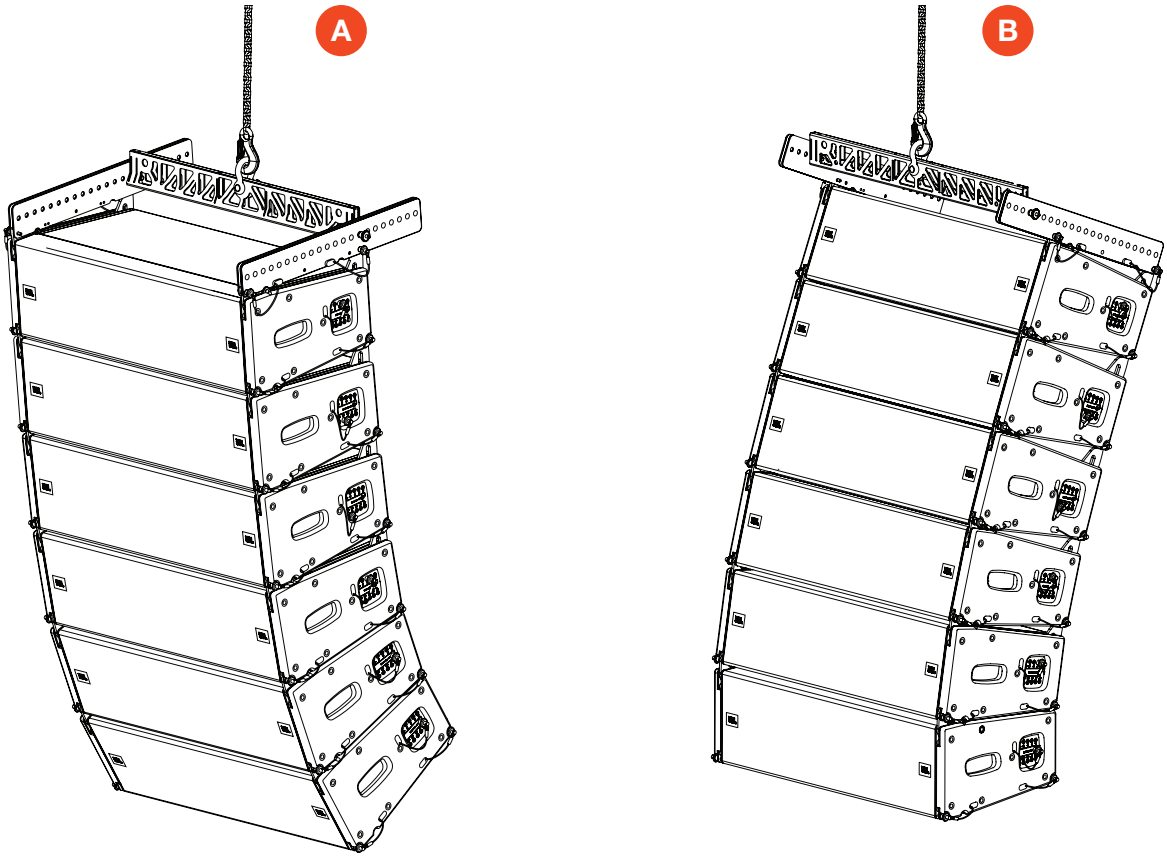
Each of the Mini Frame side arms includes 22 hole positions for attaching the spreader bar. The position of the spreader bar determines the overall site angle of the array. The further back the spreader bar is attached, the more down angle is generated and vice versa. The exact position of the spreader bar for a given angle is determined using Line Array Calculator 3 software. Position 14 corresponds to the center-of-gravity of the B18, and is marked as such on the Mini Frame side arms. It can be used to suspend B18s flat (aimed parallel to the ground).



The Mini Frame can be attached to an array in either the standard (rear) or reverse (front) positions depending on the required overall array angle. The standard orientation is more suitable for large down angles, while the reverse orientation is more appropriate when large up angles are required. In both configurations, the top A8 cabinet should be set to the 4° position.

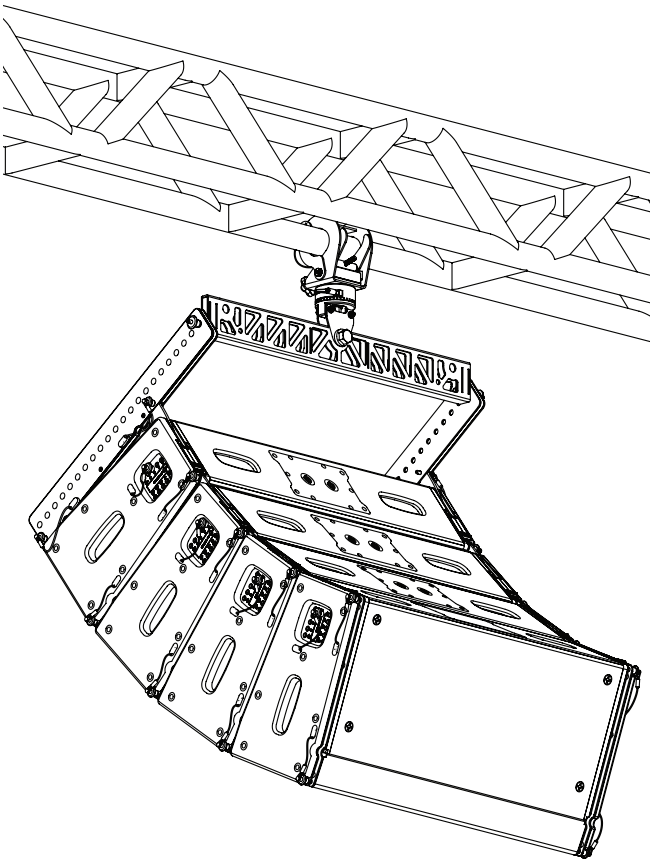
EXAMPLES:

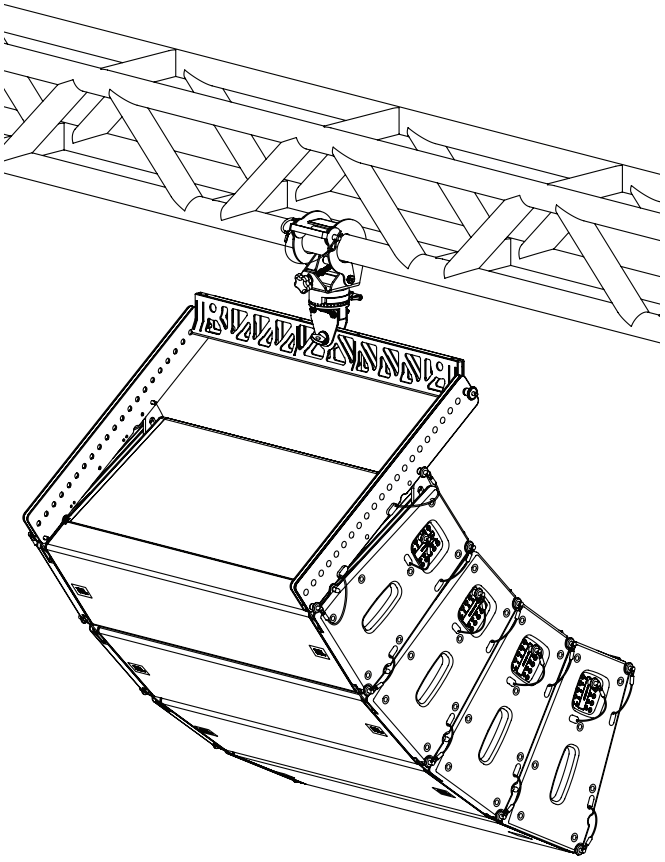
- **A** Normal frame orientation with spreader bar set to position 15, creating downtilt.
- **B** Reversed frame orientation with spreader bar set to position 18, creating uptilt.



14.6 MINI FRAME AND RC500

The Mini Frame can be used in combination with the VTX RC500 rotating clamp. The VTX RC500 is a universal truss/pipe adapter designed for vertically suspending speaker arrays from standard truss structures or pipes. The RC500 supports arrays of up to 500 kg (1,100 lbs) and is compatible with array frames that support ½-inch shackles, such as the VTX A8 MF. The RC500 is attached to the center shackle position of the Mini Frame and allows for 360 degree rotation. For more information on the RC500, refer to the RC500 User Manual.



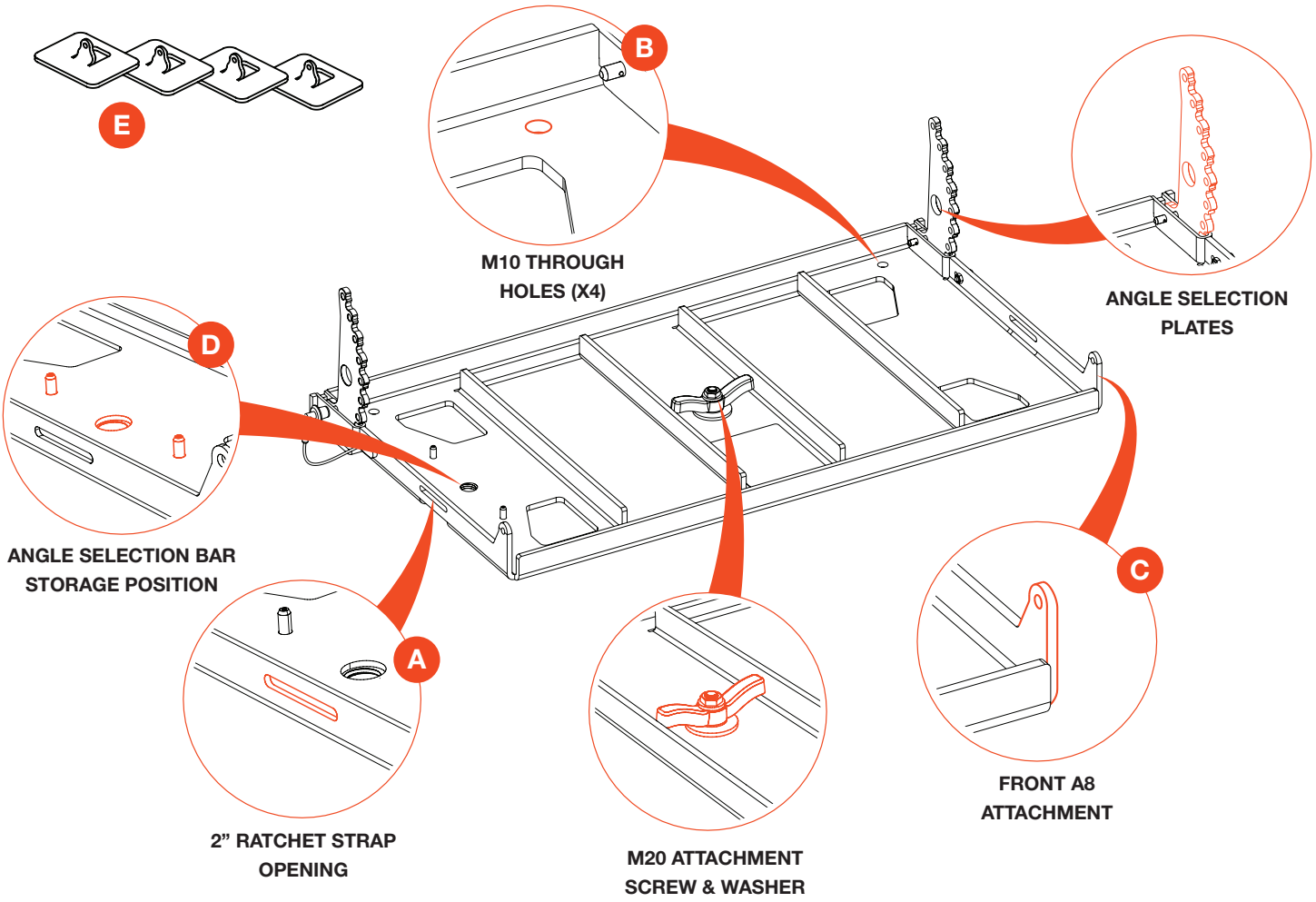


CAUTION: Array weight must always be within the 500 kg capacity of the RC500. For more information on mechanical limits and use cases refer to the RC500 User Manual.

15 - VTX A8 BASE PLATE

The VTX A8 BP Base Plate is a universal adapter frame that enables VTX A8 arrays to be ground stacked on top of compatible subwoofers or support structures such as stages, scaffolding, or carts. Using the included M20 screw, the VTX A8 BP connects to any supported subwoofer equipped with a standard M20 pole mount adapter, such as the VTX B28 or the VTX B18. The base plate attaches directly to the bottom of an A8 array, and the rear angle selection bar allows for angles ranging from -15 to +5-degrees. When not used with subwoofers, M10 through holes at the four corners can be used to permanently attach an A8 array to other support structures. The base plate includes one 50 mm (2 in) through hole on each side for easy use with ratchet straps. Configurations and load conditions for using the VTX A8 BP can be obtained using JBL's LAC-3 prediction software application.

15.1 BASE PLATE OVERVIEW

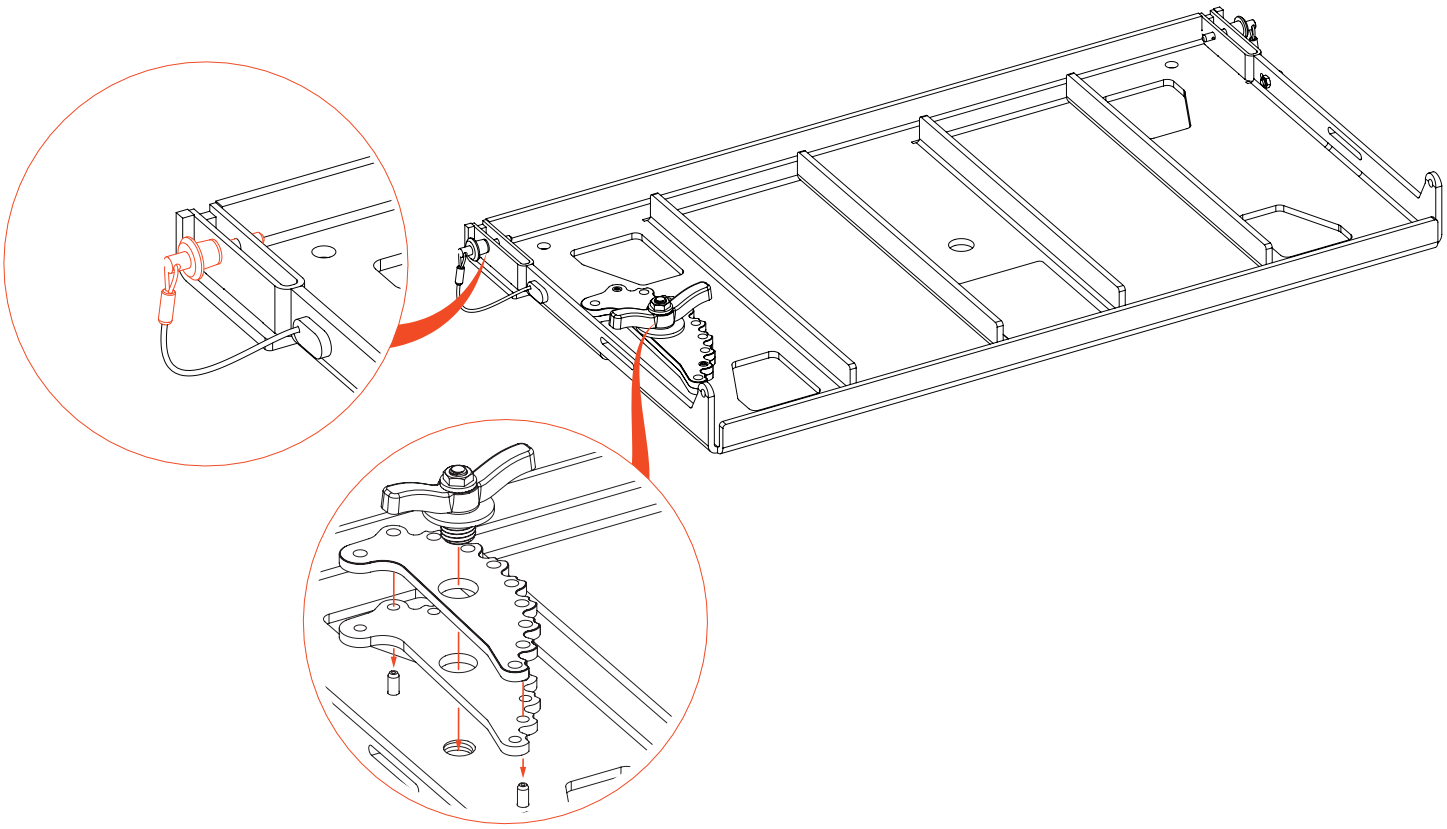


NOTES:

- **A** A ground-stacked array can be kept from tipping by securing it to a structure with a 2-inch ratchet strap.
- **B** Four M10 screws enable the base plate to be secured onto a fixed structure (like a stage or a cart) in permanent installations.
- **C** M20 knob and screw for attaching the base plate onto supported VTX subwoofers like the VTX B18, VTX B28 and VTX S25.
- **D** Storage position for the two angle selection bars. Use M20 knob to secure.
- **E** VTX B1 GND accessory

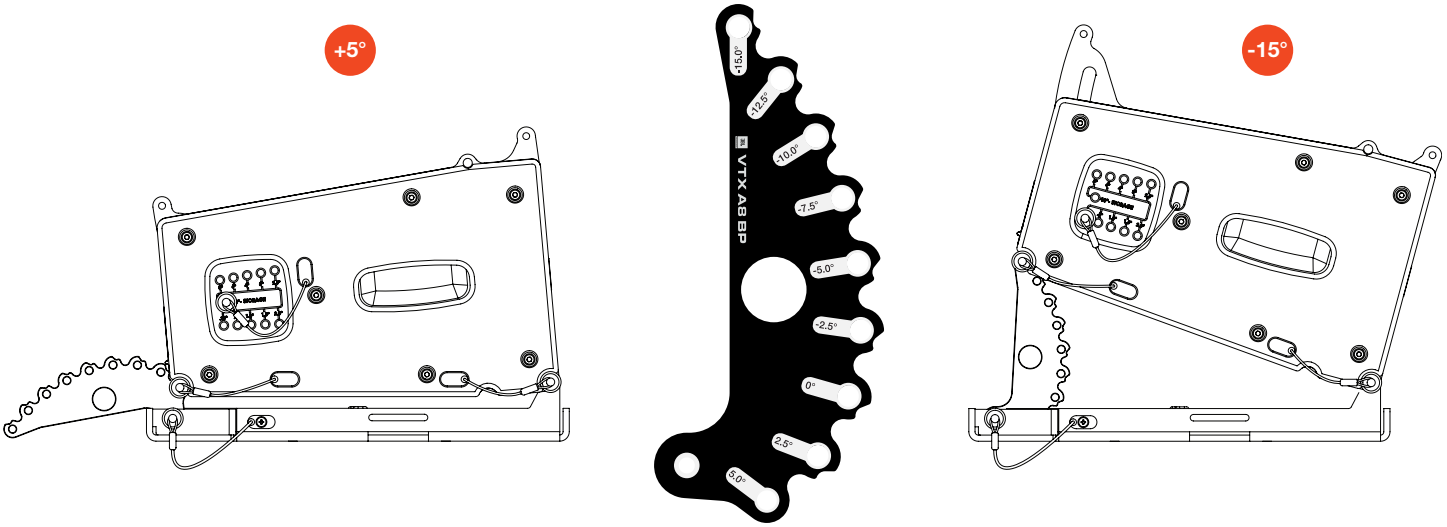
15.2 STORAGE POSITION

The two angle selection plates can be removed from their normal positions and placed in a storage location. The M20 knob is used to secure the two angle selection plates onto the base plate.



15.3 ANGLE SELECTION PLATES

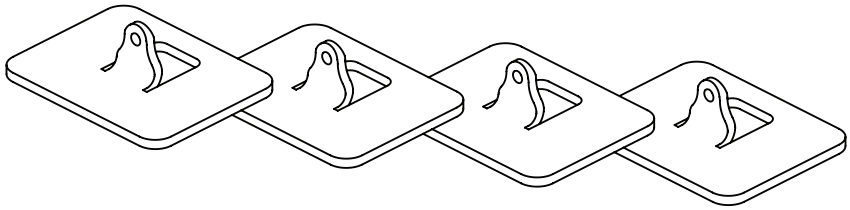
The Base Plate angle selection plates include nine pin positions, allowing for a range of angles from -15 to +5 degrees in 2.5-degree steps. This facilitates selection of the most appropriate position for establishing the required array down angle. JBL's Line Array Calculator software is used to determine the best position and check array safety.



15.4 VTX B1 GND

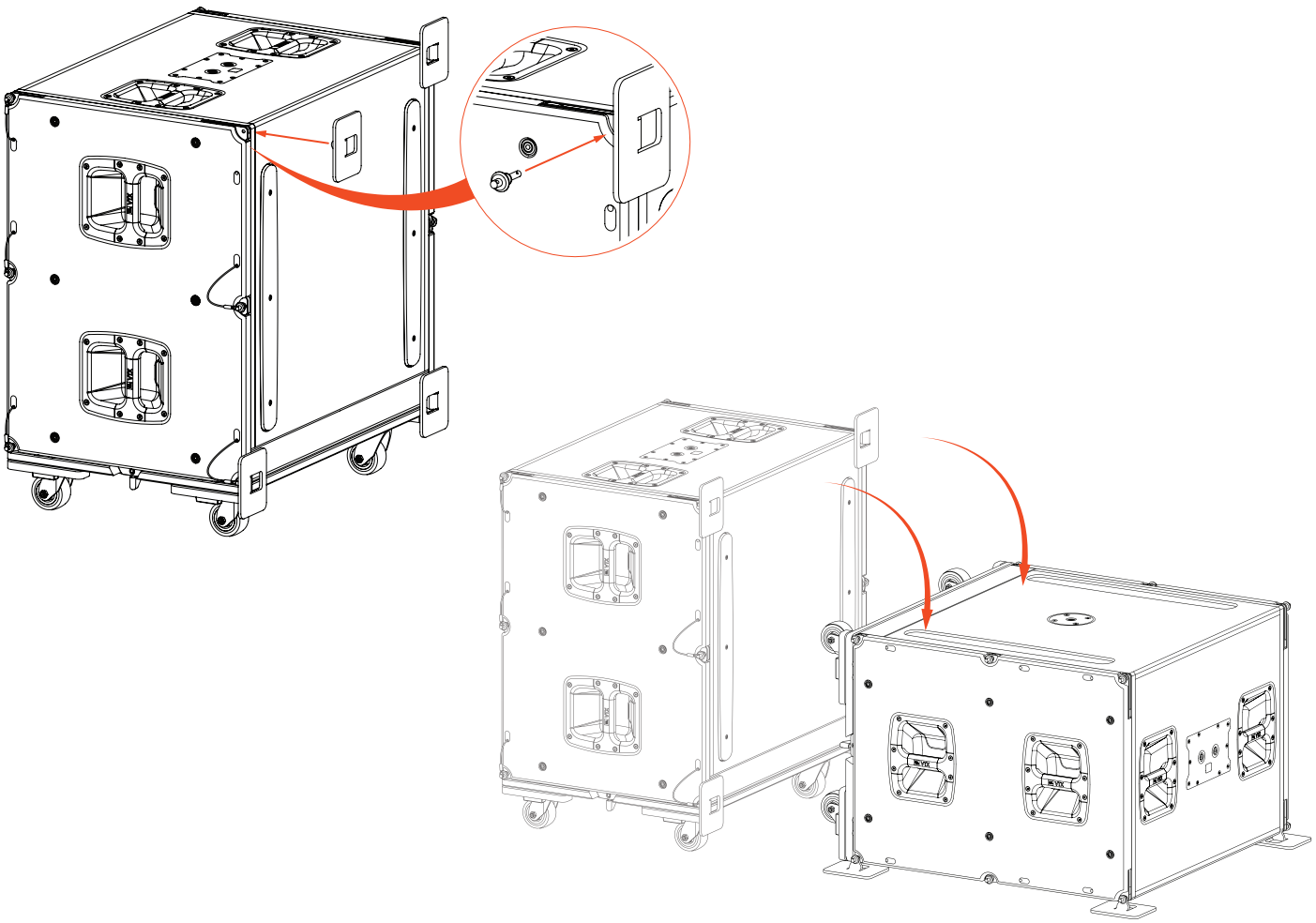
The VTX B1 GND accessory connects to the B18 using the four corner quick release pins and provide additional stability for taller arrays.

The feet are only needed when the Base Plate is used in conjunction with the VTX B18. When the Base Plate is used with other VTX subwoofers like the VTX B28, different accessories may be needed, such as the VTX B28 GND.



STEPS:

1. While the B18 is still on the ACC dolly, remove each of the four corner QRPs, slide the feet in place and restore the QRP.
2. With all four feet in place, use the rear two handles on the B18 to flip the it onto the feet.
3. Remove the ACC dolly. Additional B18 cabinets can be stacked on top if needed.

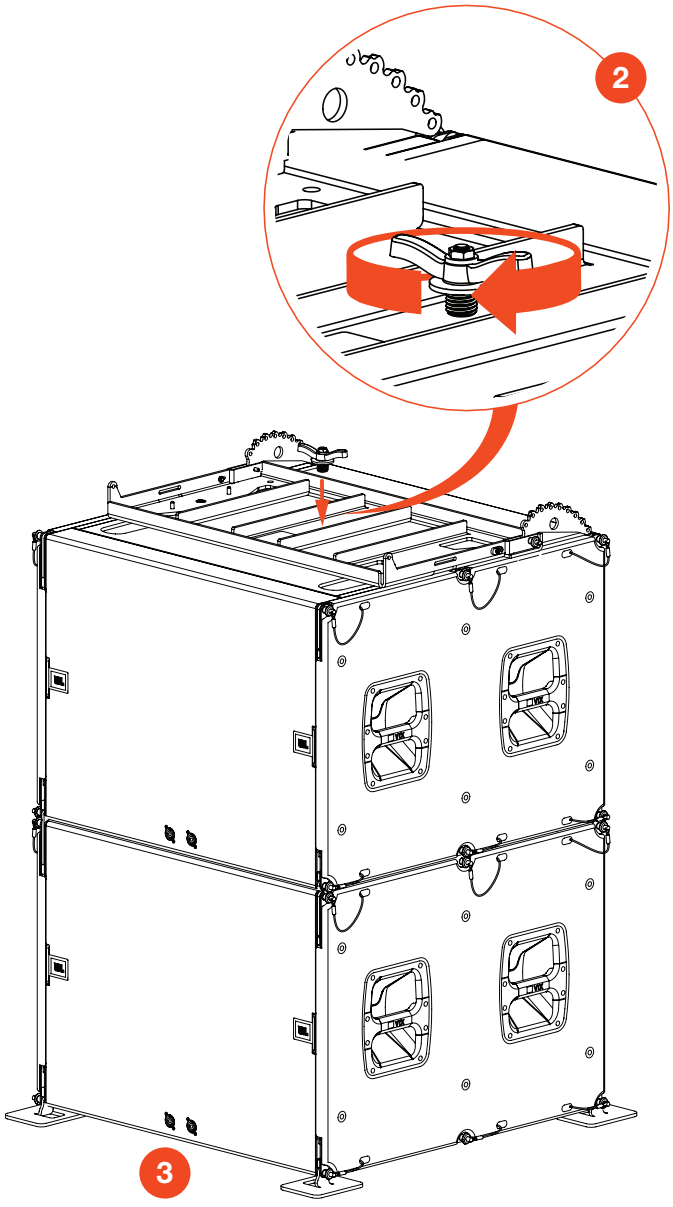


15.5 ASSEMBLING GROUND-STACKED ARRAYS

The Base Plate attaches to any JBL VTX subwoofer with an M20 pole mount adapter/plate. Before attaching the Base Plate, assemble the subwoofer array/stack and place it with the desired location and position. The Base Plate connects to the subwoofers using the included M20 knob. A8 cabinets connect to the Base Plate using the cabinet's quick release pins. Follow the instructions below to assemble the A8 ground stacked array. The same steps are used regardless of the subwoofer type.

STEPS:

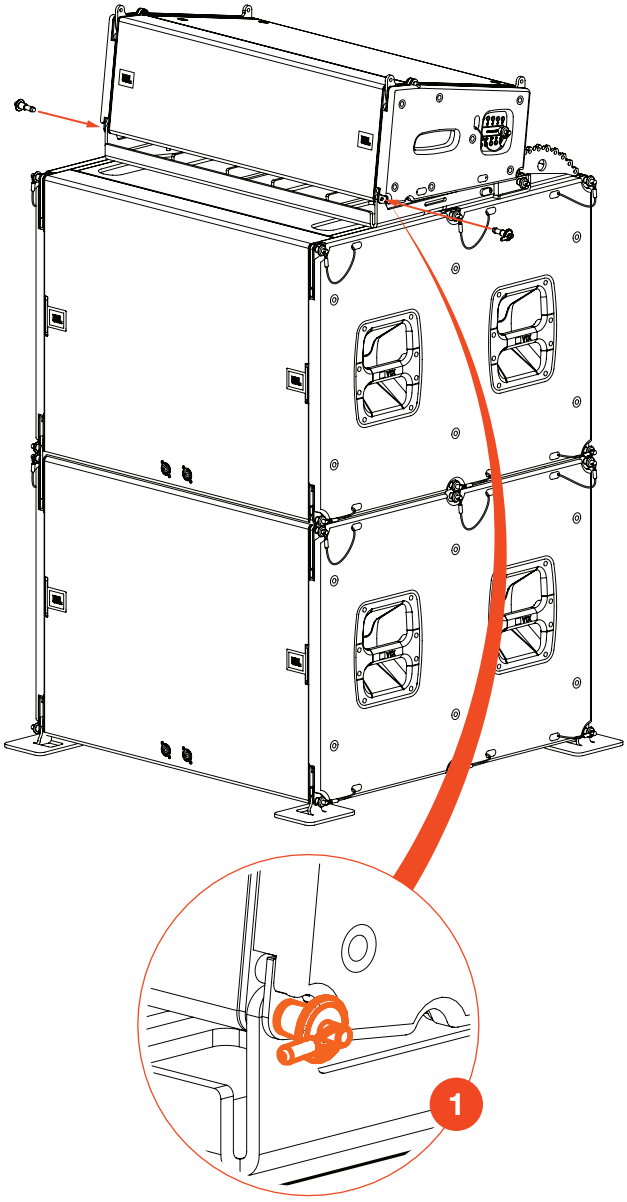
1. Place the Base Plate onto the top subwoofer in the array.
2. Use the included M20 knob to secure the Base Plate onto the subwoofer.
3. If B18s are used, make sure all are pinned together, and that either the stabilization feet or a VT cart is used at the bottom.

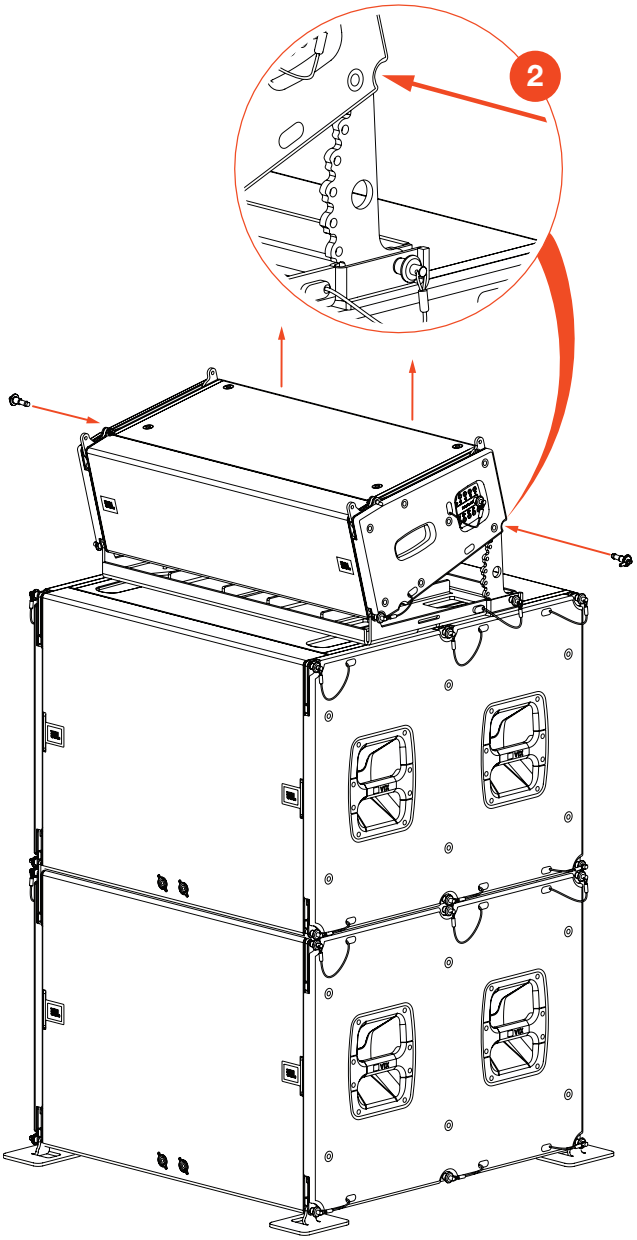


CAUTION: Safe limits for ground-stacked arrays always assume that the stacking surface (floor and or stage) is flat. Do not deploy ground-stacked arrays on non-flat surfaces to avoid tipping hazards.

STEPS:

1. Place the first A8 onto the Base Plate and pin the front two corners.
2. Lift the back of the A8 and position the angle selection plate at the desired location. Pin the rear two corners.

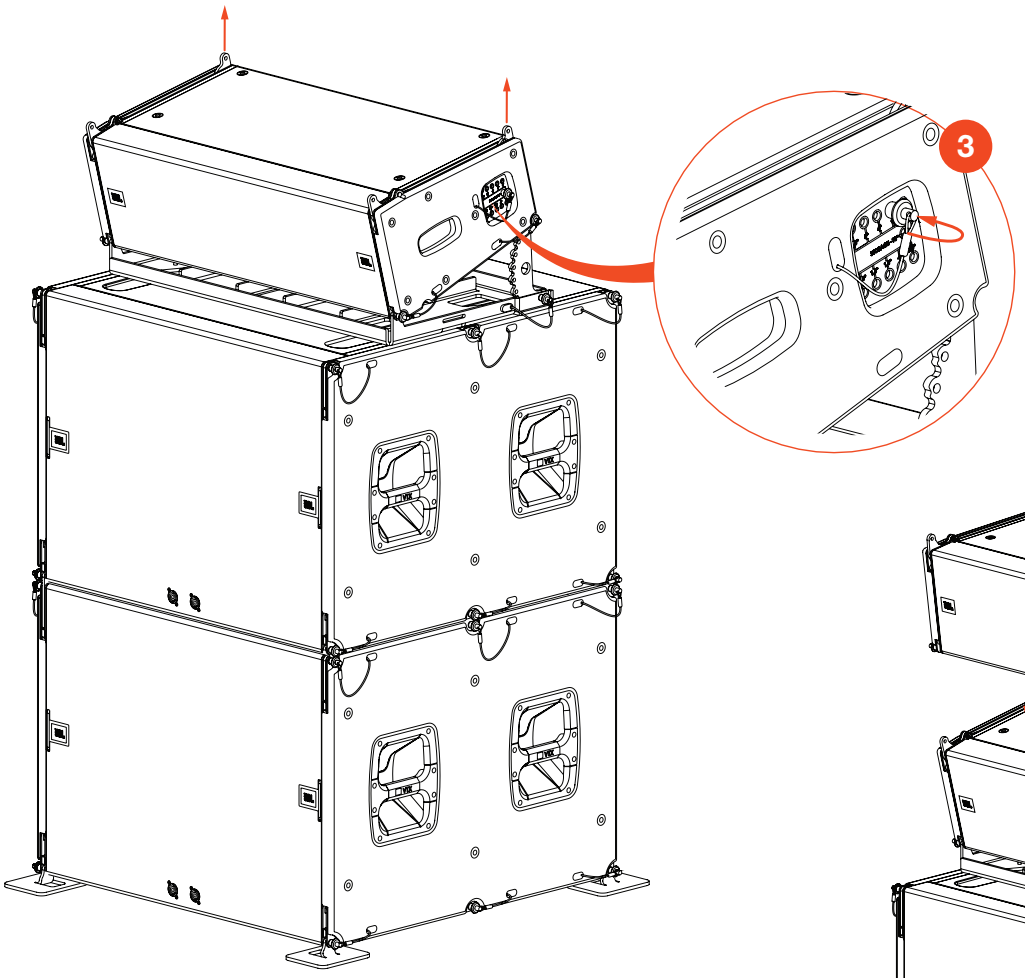


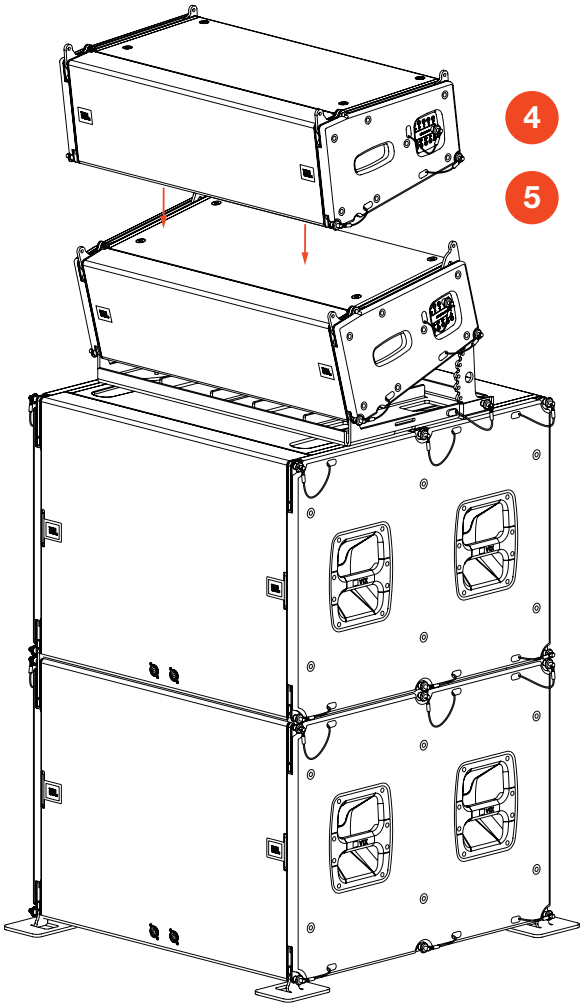


CAUTION: Safe limits for ground-stacked arrays always assume that the stacking surface (floor and stage) is flat. Do not deploy ground-stacked arrays on non-flat surfaces to avoid tipping hazards.

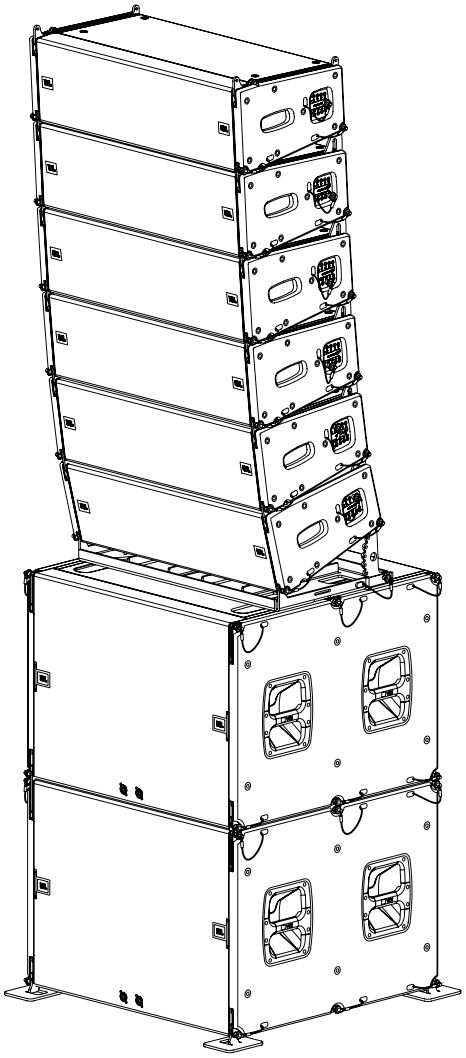
STEPS:

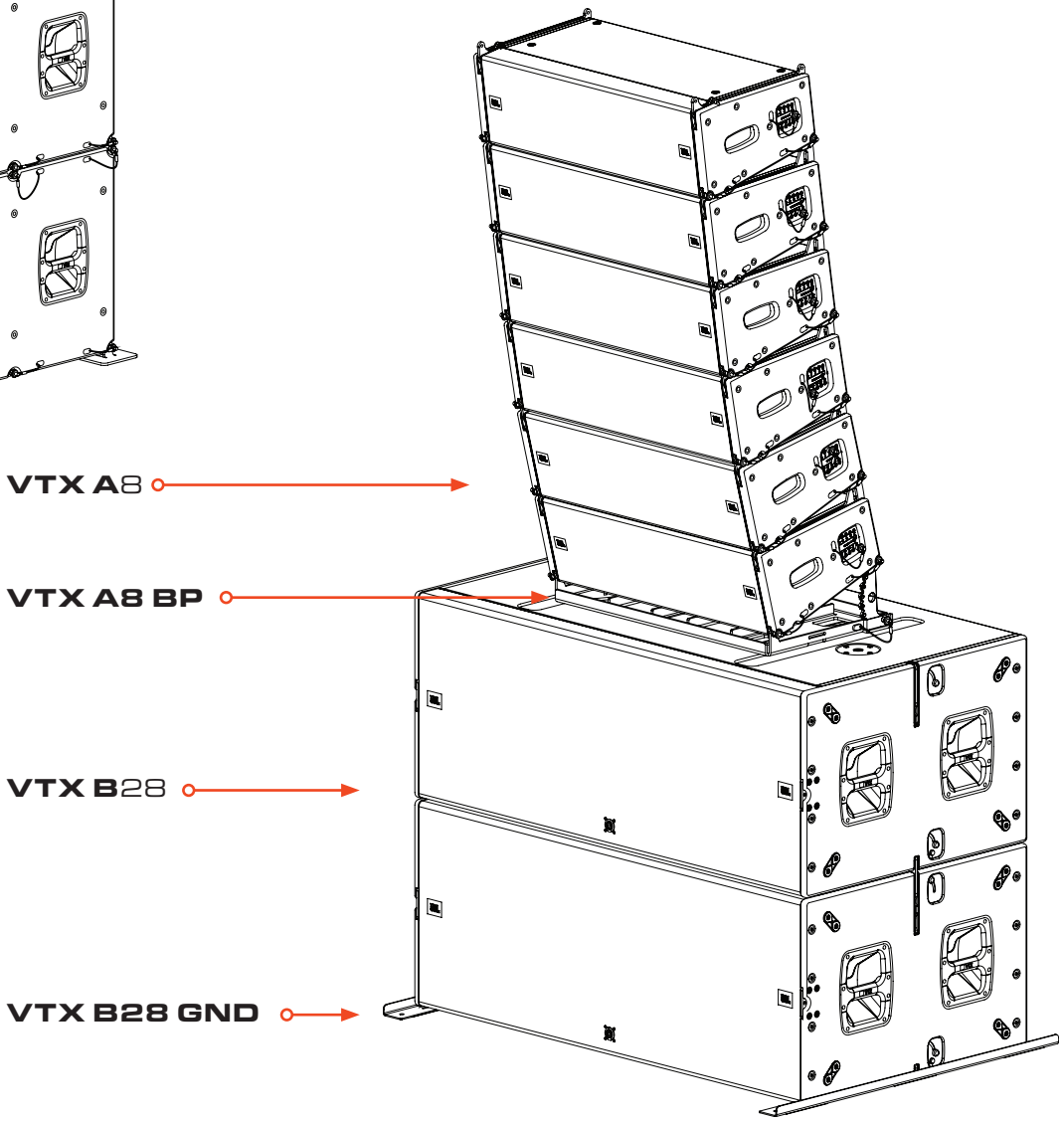
3. Select the desired inter-cabinet angle for the first A8 and extend the rigging arm to set the angle on the first A8.
4. Stack the next A8 on top, pin the cabinets together, and set the angle for the next cabinet.
5. Repeat steps 3 and 4 as needed to assemble the full array.





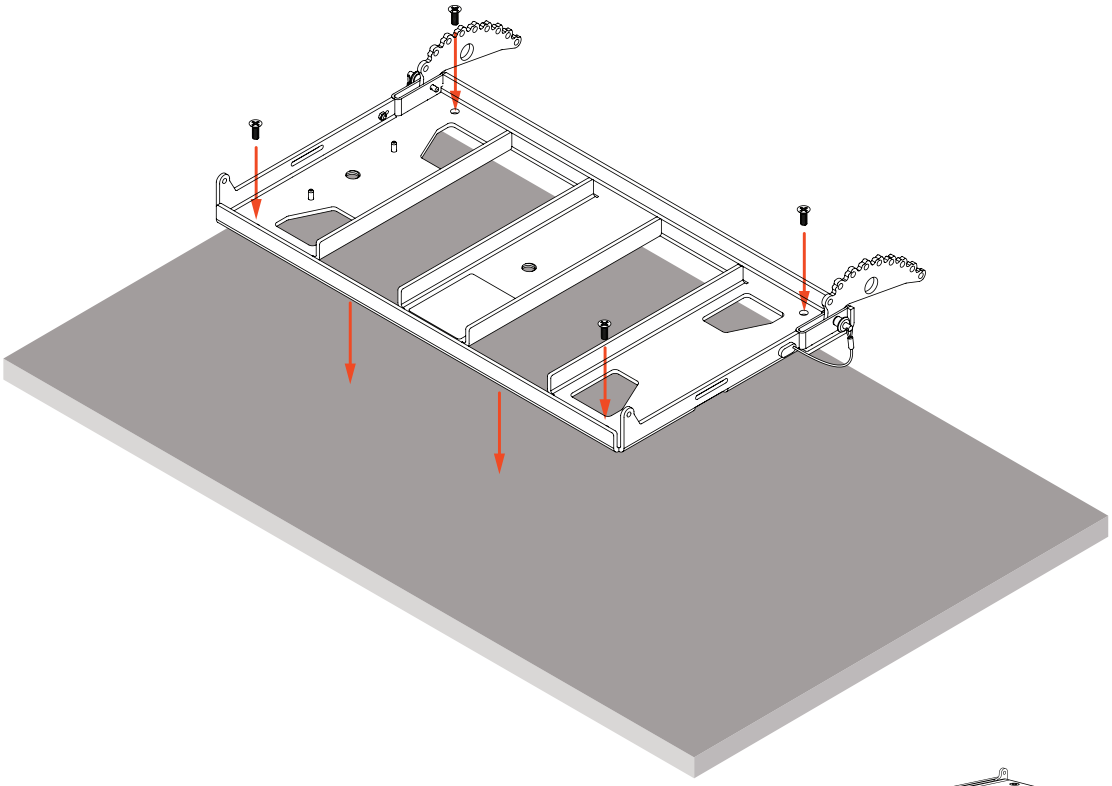
15.6 GROUND STACK EXAMPLES

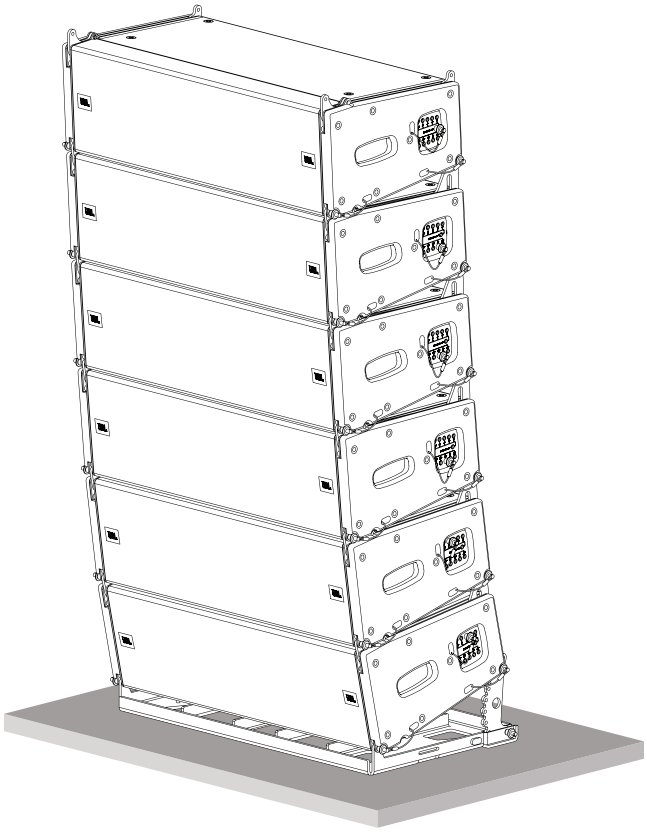




15.7 ATTACHING THE BASE PLATE ONTO A STRUCTURE

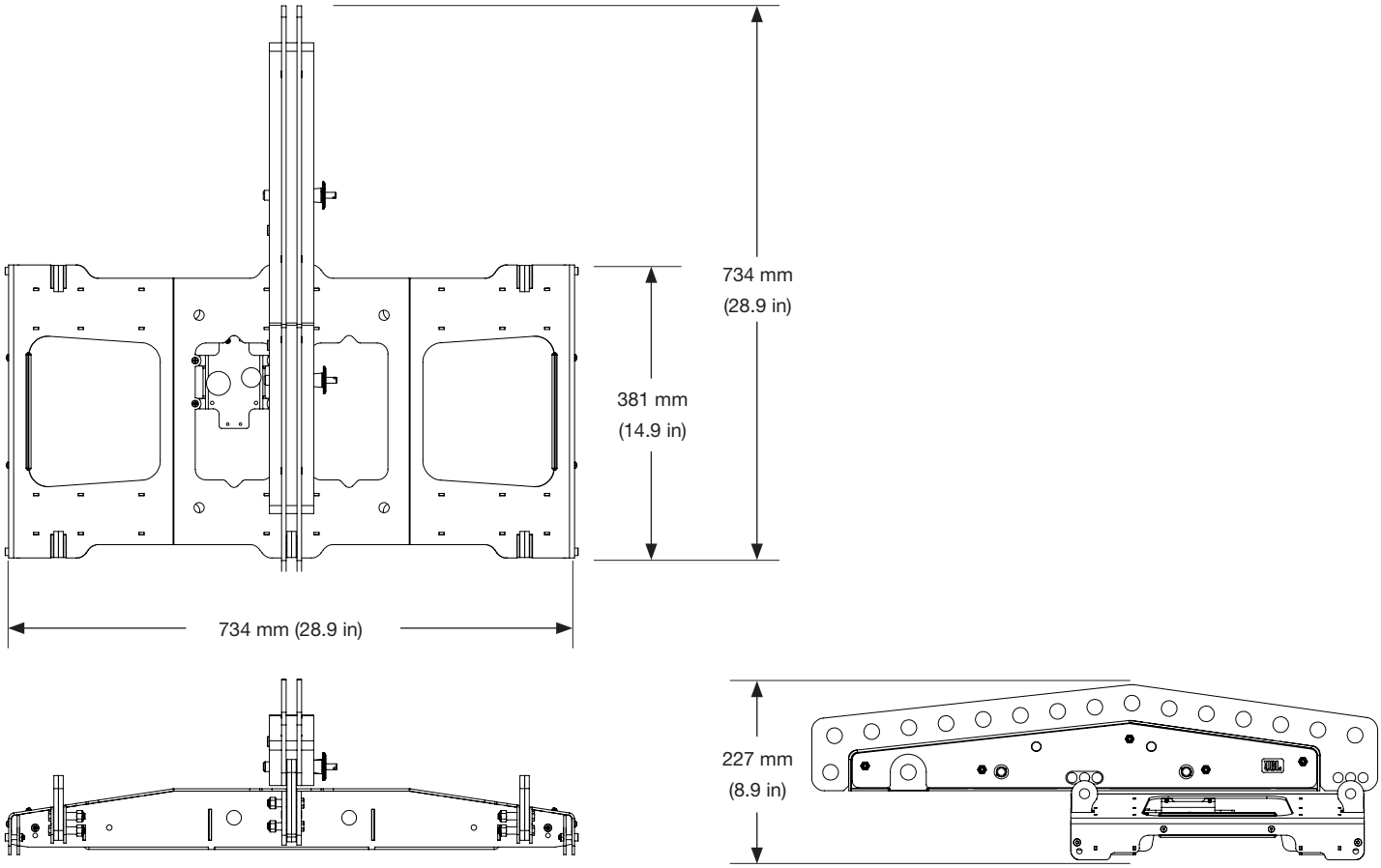
The Base Plate can be permanently attached to a structure like a stage or platform using its four through-holes. This is especially useful for permanent installations or other fixed applications where a ground-stacked A8 system is needed, but not often moved. In such situations, the base plate is permanently attached to the structure and subwoofers are not used beneath the array. For detailed drawings of the A8 Base Plate and the position and size of its holes, refer to the VTX A8 Customer Drawings.





16 - SPECIFICATIONS

16.1 - VTX A8 AF

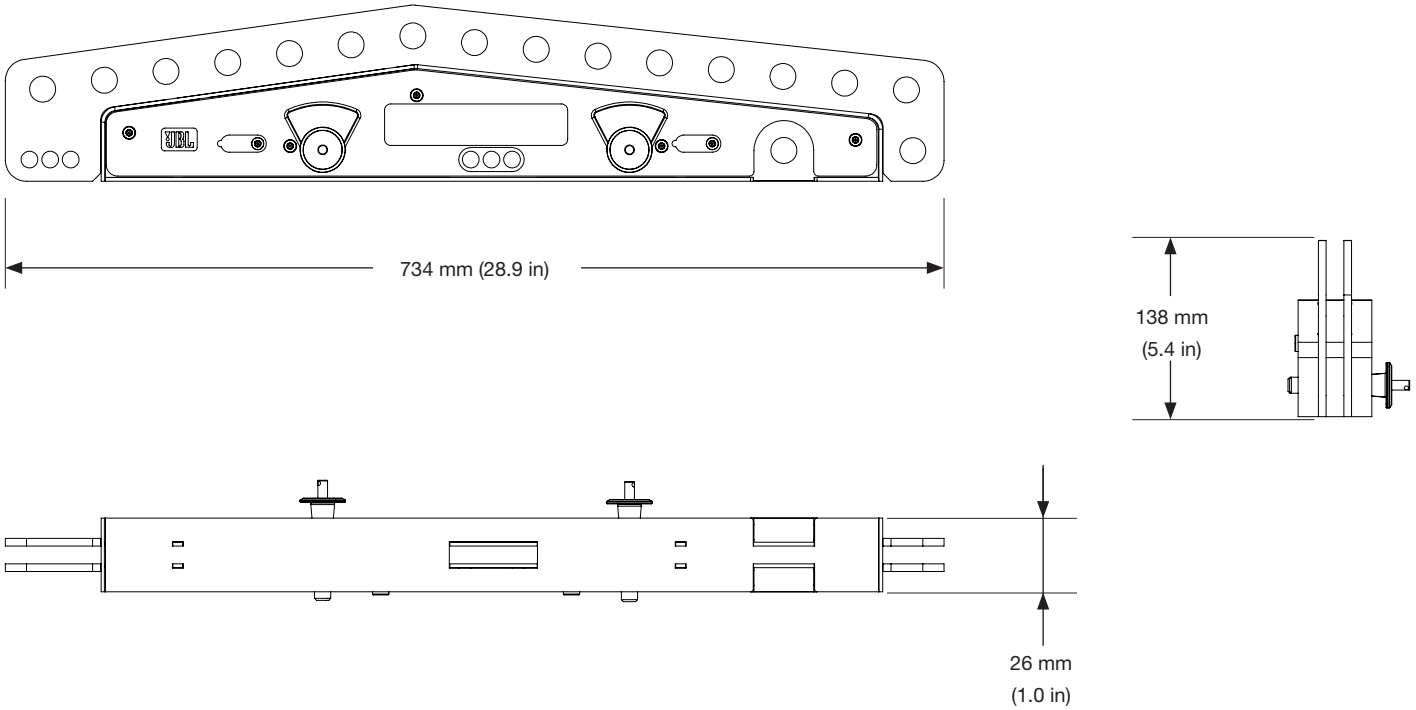


Construction:	High-grade steel with anti-corrosion coating
Finish:	Black powder coat
Compatible Shackle Size:	5/8 inch
Supported Lasers:	JBL VTX LZ, TEQ-SAS, Recline
Mechanical Limits[1]	
Maximum:	(24) VTX A8 | (13) VTX B18
Safe Limit:	(22) VTX A8 | (10) VTX B18
Dimensions (H x W x D)[2]:	227 mm x 734 mm x 734 mm (8.9 in x 28.9 in x 28.9 in)
Net Weight[3]:	20.2 kg (44.5 lbs)

Footnotes:

1: For arrays larger than the safe limit always use the JBL Line Array Calculator to determine mechanical safety
2: Refer to the 2D and 3D Customer Drawings for more detailed dimensions
3: Weight includes AF and EB. Shackles and other rigging parts not included

16.2 - VTX A8 AF EB

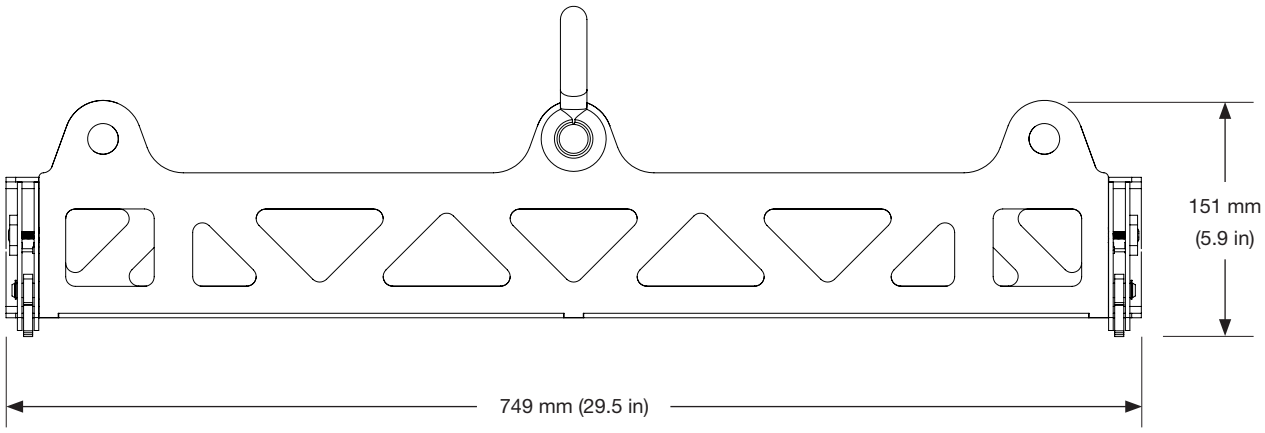


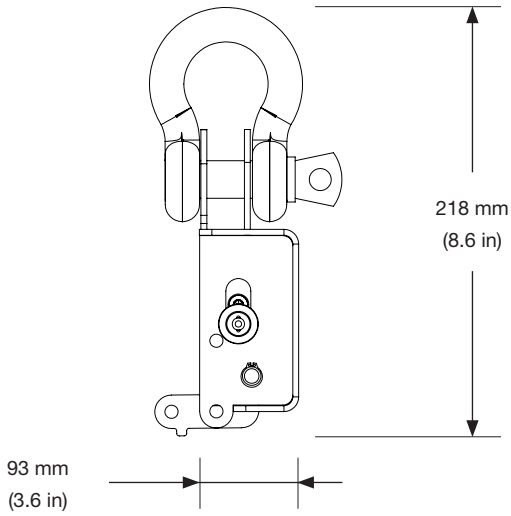
Construction:	High-grade steel with anti-corrosion coating
Finish:	Black powder coat
Compatible Shackle Size:	5/8 inch
Mechanical Limits[1]	
Maximum:	(24) VTX A8 | (13) VTX B18
Safe Limit:	(22) VTX A8 | (10) VTX B18
Dimensions (H x W x D)[2]:	138 mm x 734 mm x 26 mm (5.4 in x 28.9 in x 1.0 in)
Net Weight[3]:	7.5 kg (16.5 lbs)

Footnotes:

1: For arrays larger than the safe limit always use the JBL Line Array Calculator to determine mechanical safety
2: Refer to the 2D and 3D Customer Drawings for more detailed dimensions
3: Weight includes EB only. Shackles and other rigging parts not included

16.3 - VTX A8 SB

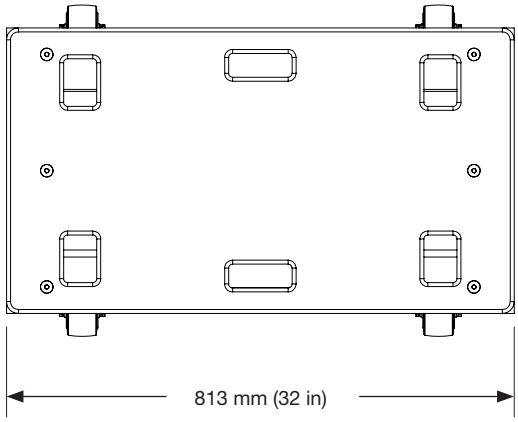


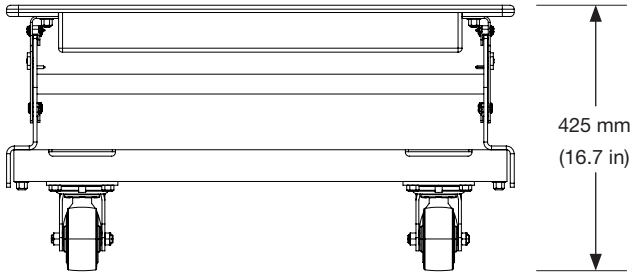


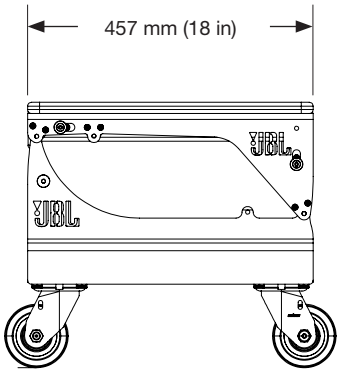
Construction:	High-grade steel with anti-corrosion coating
Finish:	Black powder coat
Compatible Shackle Size:	5/8 inch
Mechanical Limits[1] **Maximum:** **Safe Limit:**	 (24) VTX A8 | (16) VTX B18 (12) VTX A8 | (14) VTX B18
Dimensions (H x W x D)[2]:	151 mm x 749 mm x 93 mm (5.9 in x 29.5 in x 6.6 in)
Net Weight[3]:	4.8 kg (10.58 lbs)

Footnotes:
1: Refer to the 2D and 3D Customer Drawings for more detailed dimensions
2: Shackles and other rigging parts not included

16.4 - VTX A8 VT



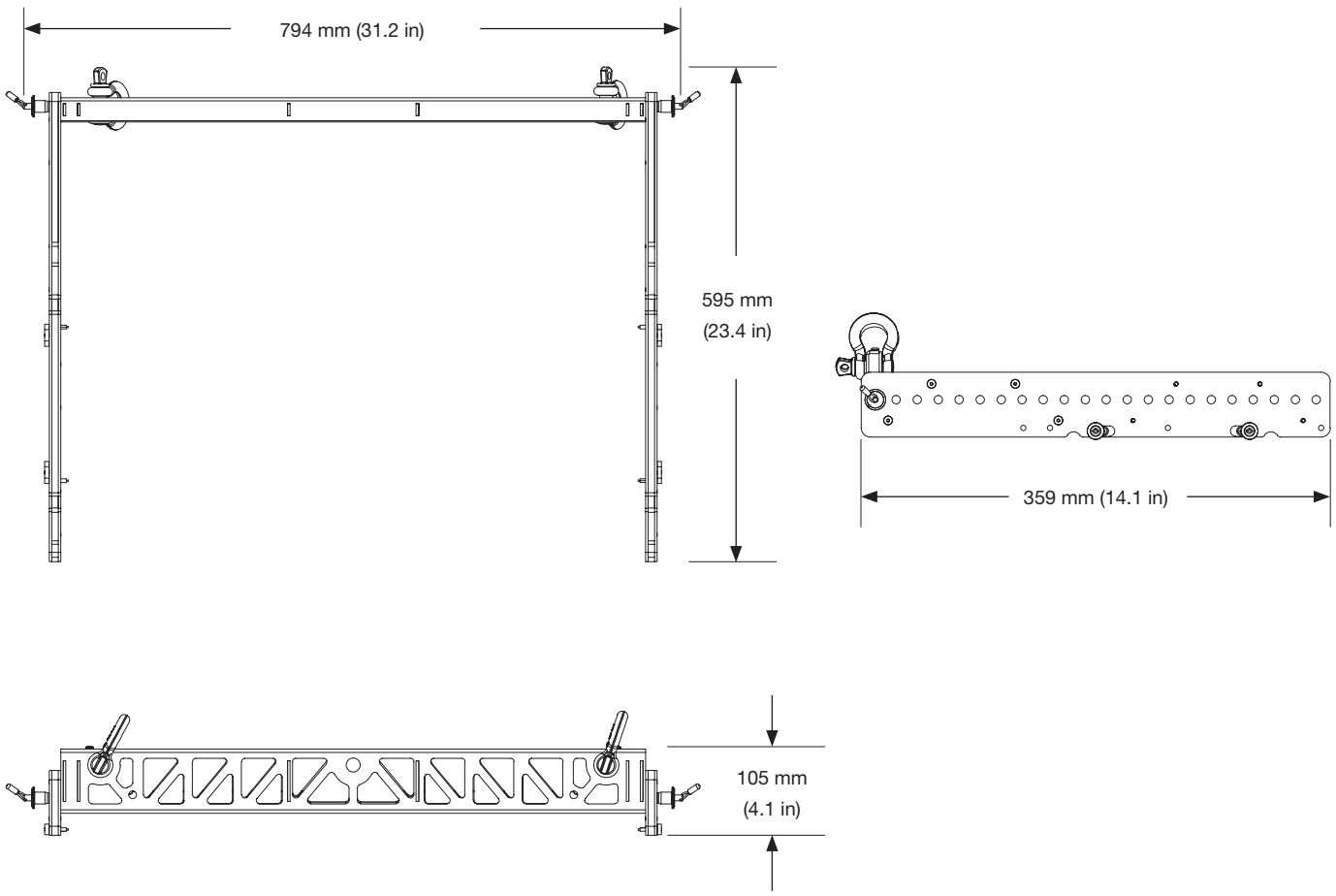




Construction:	High-grade steel with anti-corrosion coating, aluminum, 18 mm 11-ply Finnish birch plywood
Finish:	Black powder coat, black DuraFlex™
Mechanical Limits	
Maximum:	(4) VTX A8
Safe Limit:	(4) VTX A8
Dimensions (H x W x D)[1]:	425 mm x 813 mm x 457 mm (16.7 in x 32 in x 18 in)
Net Weight	
Total[2]:	29.1 kg (64 lbs)
VTX V8 VT:	25.5 kg (45 lbs)
VT-TOP:	8.6 kg (19 lbs)
Loaded:	147.1 kg (324.3 lbs)

Footnotes:
1: Refer to the 2D and 3D Customer Drawings for more detailed dimensions
2: Weight does not include the VTX A8 VT CVR soft cover

16.5 - VTX A8 MF

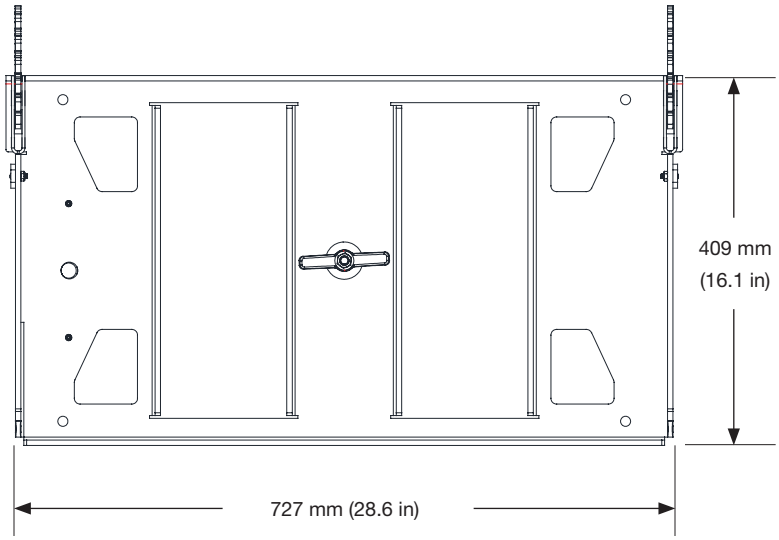


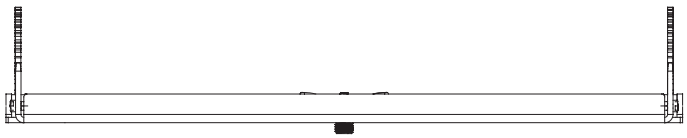
Construction:	High-grade steel with anti-corrosion coating
Finish:	Black powder
Compatible Shackle Size:	1/2 inch
Mechanical Limits[1]	
Maximum:	(10) VTX A8 | (4) VTX B18
Safe Limit:	(10) VTX A8 | (4) VTX B18
Dimensions (H x W x D)[2]:	105 mm x 794 mm x 595 mm (4.1 in x 31.2 in x 23.4 in)
Net Weight[3]:	7.0 kg (15.5 lbs)

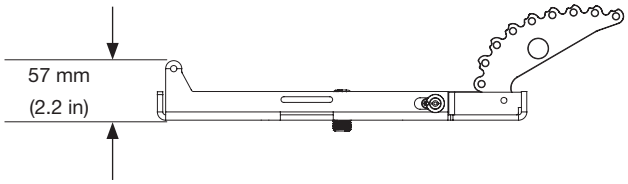
Footnotes:

1: For arrays larger than the safe limit always use the JBL Line Array Calculator to determine mechanical safety
2: Refer to the 2D and 3D Customer Drawings for more detailed dimensions
3: Weight includes sidearms and spreader. Shackles and other rigging parts not included

16.6 - VTX A8 BP





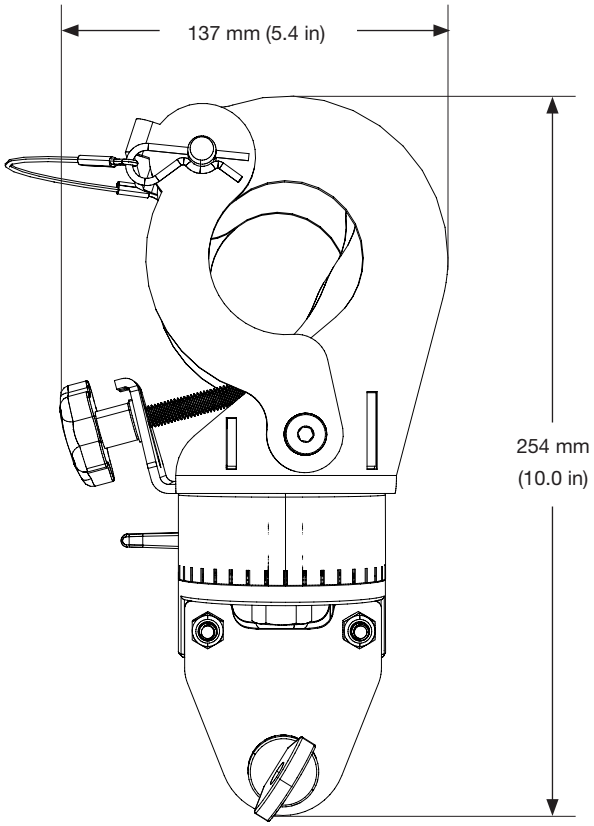


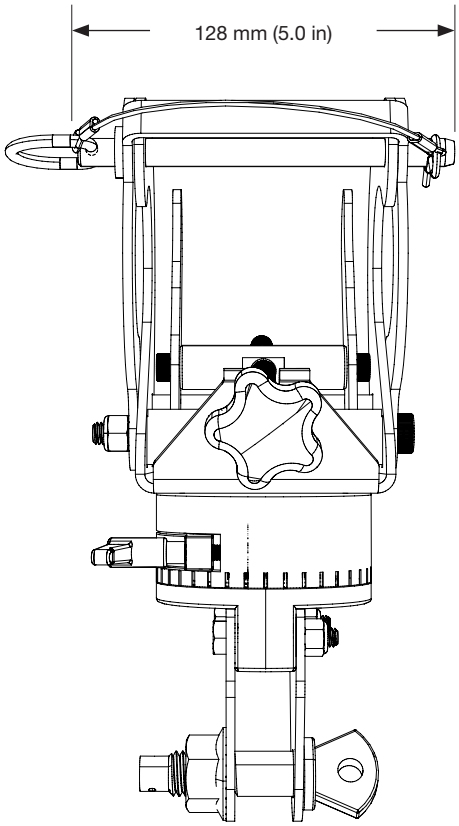
Construction:	High-grade steel with anti-corrosion coating
Finish:	Black powder coat
Mechanical Limits[1]	
Maximum:	(6) VTX A8
Safe Limit:	(2) VTX A8
Dimensions (H x W x D)[2]:	57 mm x 727 mm x 409 mm (2.2 in x 28.6 in x 16.1 in)
Net Weight[3]:	12.7 kg (28 lbs)

Footnotes:

1: Always use the JBL Line Array Calculator to check mechanical safety when using the VTX A8 BP Base Plate
2: Refer to the 2D and 3D Customer Drawings for more detailed dimensions
3: Weight includes VTX A8 BP only

16.7 - VTX RC500



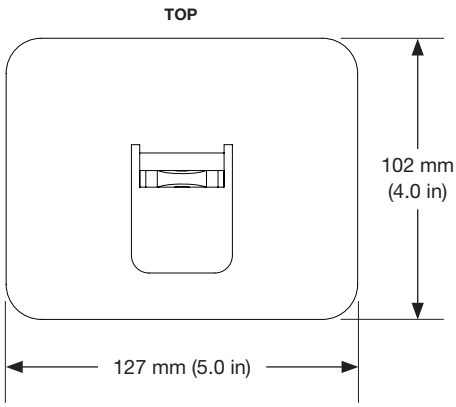


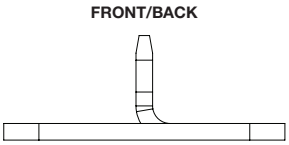
Construction:	High-grade steel with anti-corrosion coating
Finish:	Black powder coat
Mechanical Limits[1] **Working Load Limit:**	500 kg (1,100 lbs)
Dimensions (H x W x D)[2]:	254 mm x 128 mm x 137 mm (10.0 in x 5.0 in x 5.4 in)
Net Weight[3]:	3.3 kg (7.3 lbs)

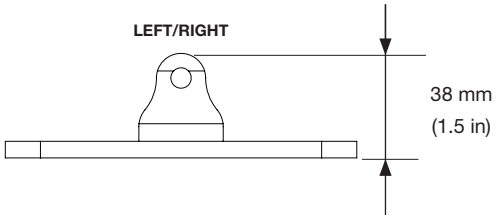
Footnotes:

1: WLL refers to the RC500 only. Always make sure the structure the RC500 is attached to can support the weight of the array
2: Refer to the 2D and 3D Customer Drawings for more detailed dimensions
3: Weight includes VTX RC500 only

16.8 - VTX B1 GND







PHYSICAL

Construction :	High-grade steel with anti-corrosion coating
Finish :	Black powder coat
Dimensions (H x W x D)[1] :	38 mm x 102 mm x 127 mm (1.5 in x 4.0 in x 5.0 in)
Net Weight :	0.5 kg (1.2 lbs) each | 2.0 kg (4.8 lbs) total
Shipping Weight :	2.9 kg (6.5 lbs)

ORDERING INFORMATION

SKU :	JBL-P3258MX | VTX B1 GND
Included :	(4) Ground stack plates

Footnotes:
1: Refer to the 2D and 3D Customer Drawings for more detailed dimensions.

17 - CONTACT INFORMATION

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