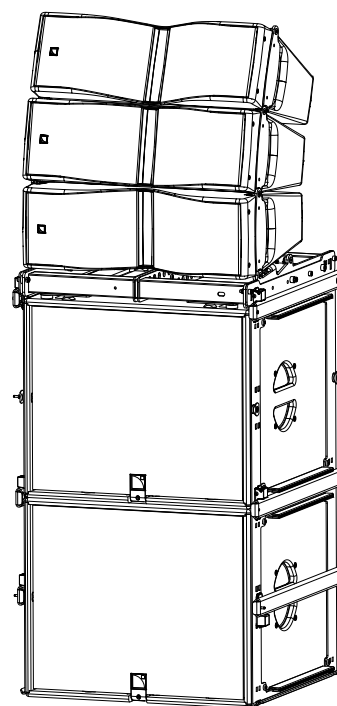
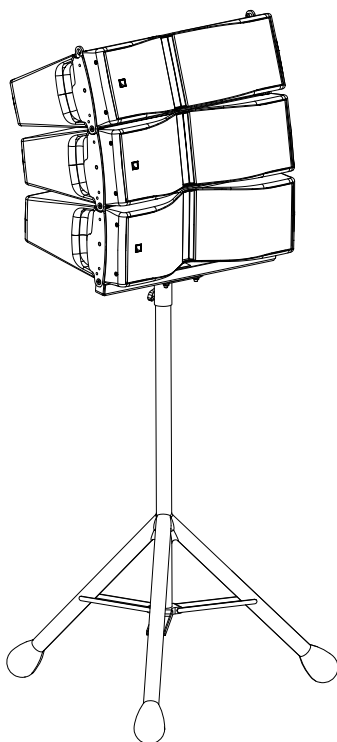
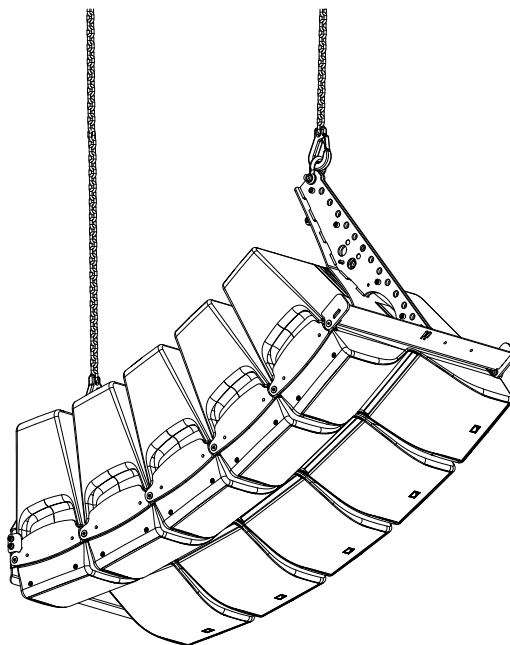


Kiva II



owner's manual (EN)



Document reference: Kiva II owner's manual (EN) version 3.0

Distribution date: October 11, 2021

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Safety

Instructions



Inspect the system before any deployment.

Perform safety related checks and inspections before any deployment.

Perform preventive maintenance at least once a year.

Refer to the preventive maintenance section for a list of actions and their periodicity.

Insufficient upkeep of the product can void the warranty.

If any safety issue is detected during inspection, do not use the product before performing corrective maintenance.

Check for issues. A rigging system part or fastener is missing or loose. A rigging system part exhibits: bends, breaks, broken parts, corrosion, cracks, cracks in welded joints, deformation, denting, wear, holes. A safety cue or label is missing.



Never incorporate equipment or accessories not approved by L-Acoustics.

Read all the related PRODUCT INFORMATION documents shipped with the products before exploiting the system.



Do not store the product on an unstable cart, stand, tripod, bracket, or table.



Beware of sound levels.

Do not stay within close proximity of loudspeakers in operation.

Loudspeaker systems are capable of producing very high sound pressure levels (SPL) which can instantaneously lead to permanent hearing damage to performers, production crew and audience members. Hearing damage can also occur at moderate level with prolonged exposure to sound.

Check the applicable laws and regulations relating to maximum sound levels and exposure times.



Work with qualified personnel for rigging the system

Installation should only be carried out by qualified personnel that are familiar with the rigging techniques and safety recommendations outlined in this manual.

Ensure personnel health and safety

During installation and set-up personnel must wear protective headgear and footwear at all times. Under no circumstances is personnel allowed to climb on a loudspeaker assembly.

Respect the Working Load Limit (WLL) of third party equipment.

L-Acoustics is not responsible for any rigging equipment and accessories provided by third party manufacturers.

Verify that the Working Load Limit (WLL) of the suspension points, chain hoists and all additional hardware rigging accessories is respected.

Respect the maximum configurations and the recommended safety precautions.

For safety issue, respect the maximum configurations outlined in this manual. To check the conformity of any configuration in regards with the safety precautions recommended by L-Acoustics, model the system in Soundvision and refer to the warnings in Mechanical Data section.

Be cautious when flying a loudspeaker configuration.

Before installing/raising the product, check each individual element to make sure that it is securely fastened to the adjacent element. Always verify that no one is standing underneath the product when it is being installed/raised. Never leave the product unattended during the installation process.

As a general rule, L-Acoustics recommends the use of secondary safety at all times.

Be cautious when ground-stacking a loudspeaker array.

Do not stack the loudspeaker array on unstable ground or surface. If the array is stacked on a structure, platform, or stage, always check that the latter can support the total weight of the array.

As a general rule, L-Acoustics recommends the use of safety straps at all times.

Risk of falling objects

Verify that no unattached items remain on the product or assembly.

Risk of tipping

Remove all rigging accessories before transporting a product or an assembly.

Take into account the wind effects on dynamic load.

When a loudspeaker assembly is deployed in an open air environment, wind can produce dynamic stress to the rigging components and suspension points.

If the wind force exceeds 6 bft (Beaufort scale), lower down and/or secure the product or the assembly.

**Intended use**

This system is intended for use by trained personnel for professional applications.



As part of a continuous evolution of techniques and standards, L-Acoustics reserves the right to change the specifications of its products and the content of its documents without prior notice.

Check www.l-acoustics.com on a regular basis to download the latest document and software updates.

**Long term exposure to extreme conditions may damage the product.**

For more information, refer to the **Products weather protection** document, available on the website.

**Read the maintenance section of this document before servicing the product.****Contact L-Acoustics for advanced maintenance.**

Any unauthorized maintenance operation will void the product warranty.



This marking indicates that this product should not be disposed of with other household waste throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.



Introduction

Kiva II ultra-compact modular line source

Part of the K Series, Kiva II is an ultra-compact modular line source system that can be deployed standalone or with its companion subwoofer SB15m. Assembled as a variable curvature line source with outstanding SPL for its format, Kiva II is ideal for applications that require clear vocal reinforcement and minimal visual impact such as theatrical acts, congregations, orchestral music or corporate and special events.

The coplanar transducer arrangement on the new K-shaped front grill combines with L-Fins produces a consistent 100° symmetric horizontal dispersion with smooth tonal response free of secondary lobes over the entire frequency range. The minimalist proportions allow Kiva II to achieve inter-element angles up to 15°, ensuring wide and precise vertical coverage with few elements. Kiva II impedance of 16 ohms maximizes enclosure density per amplified controller.

On its own Kiva II can be used as a main system for vocal reinforcement or as a complement to large sound systems in fill and delay applications. Associated with its companion subwoofer SB15m, Kiva II modular system can accommodate musical program material with extended bandwidth and contour.

How to use this manual

The Kiva II owner's manual is intended for all actors involved in the system design, implementation, preventive and corrective maintenance of the Kiva II system. It must be used as follows:

1. Read the technical description for an overview of all system elements, their features, and their compatibilities.
 - [Electro-acoustical description](#) (p.11)
 - [Rigging system description](#) (p.14)
2. Prepare the system configuration. Consider the mechanical limits and the available acoustical configurations.
 - [Mechanical safety](#) (p.22)
 - [Loudspeaker configurations](#) (p.24)
3. Before rigging the system, perform mandatory inspections and functional checks.
 - [Inspection and preventive maintenance](#) (p.31)
4. To deploy the system, follow the step-by-step rigging instructions and refer to the cabling schemes.
 - [Rigging procedures](#) (p.51)
 - [Connection to LA amplified controllers](#) (p.82)



The [Corrective maintenance](#) (p.84) section contains the operations authorized for the end user. Performing another operation exposes to hazardous situations. For advanced maintenance, contact your L-Acoustics representative.

As part of a continuous evolution of techniques and standards, L-Acoustics reserves the right to change the specifications of its products and the content of its document without prior notice. Please check www.l-acoustics.com on a regular basis to download the latest document and software updates.

Contact information

For information on advanced corrective maintenance:

- contact your Certified Provider or your L-Acoustics representative
- for Certified Providers, contact the L-Acoustics customer service: customer.service@l-acoustics.com

Symbols

The following symbols are used in this document:

-  This symbol indicates a potential risk of harm to an individual or damage to the product. It can also notify the user about instructions that must be strictly followed to ensure safe installation or operation of the product.
-  This symbol notifies the user about instructions that must be strictly followed to ensure proper installation or operation of the product.
-  This symbol notifies the user about complementary information or optional instructions.

Revision history

version number	publication date	modification
1.0	Oct. 2018	Migrated to owner's manual format.
2.0	Mar. 2021	- Updated maximum drive capacity for SB18 on LA8. - Added LA2Xi. - Replaced SB18i with SB18 Ili. - Added xxx_xxx_Cx presets.
3.0	Oct. 2021	Changed maximum limit for pullback configuration following the release of Soundvision 3.6.0. See Mechanical safety (p.22).

System components

Loudspeaker enclosures

Kiva II	2-way passive WST® enclosure: 2 x 6.5" LF + 1.75 HF diaphragm
SB15m	High power compact subwoofer : 1 x 15"
SB18	High power compact subwoofer: 1 x 18"
SB18 Ili	High power compact subwoofer: 1 x 18" (installation version)
SB18m	High power compact subwoofer: 1 x 18"

Powering and driving system

LA2Xi / LA4X / LA8 / LA12X Amplified controller with DSP, preset library and networking capabilities

-  Refer to the LA2Xi / LA4X / LA8 / LA12X owner's manual for operating instructions.

Racks

LA-RAK	Touring rack containing three LA8 and power, audio and network distribution
LA-RAK II AVB	Touring rack containing three LA12X, LA-POWER II for power distribution, LA-PANEL II for audio and network distribution, and two LS10 for AVB distribution

Cables

SP cables	4-point speakON loudspeaker cables (4 mm ² gauge)
	SP cables come in four sizes: SP.7 (0.7 m/2.3 ft), SP5 (5 m/16.4 ft), SP10 (10 m/32.8 ft) and SP25 (25 m/82 ft)

SP-Y1	Breakout cable for two passive enclosures (2.5 mm ² gauge) provided with a CC4FP adapter 4-point speakON to 2 × 2-point speakON
DO cables	8-point PA-COM loudspeaker cables (4 mm ² gauge) DO cables come in three sizes: DO.7 (0.7 m/2.3 ft), DO10 (10 m/32.8 ft) and DO25 (25 m/82 ft)
DOSUB-LA8	Breakout cable for four passive enclosures (4 mm ² gauge) 8-point PA-COM to 4 × 2-point speakON
speaker cable	2.5 mm ² cable Speaker cable used to connect enclosures in parallel. Adapt the cable length to the installation.
custom 4-point speakON cable	4-point speakON cable (2.5 mm ² gauge) to bare wire cable This cable needs to be custom made.

i Information about the connection of the enclosures to the LA amplified controllers is given in this document.

Refer to the LA2Xi / LA4X / LA8 / LA12X owner's manual for detailed instructions about the whole cabling scheme, including modulation cables and network.

Rigging elements

KIBU II	Rigging frame for flying Kiva II/Kiva
KIBU-SB	Rigging frame for flying or stacking KIVA II/KIVA and SB15m
KIET II	Rigging plate for ceiling or pole-mount of 3 KIVA II/KIVA maximum
KIVA-PULLBACK	Pullback accessory for KIVA II/KIVA

Transportation accessories

L-Case	2U Electronics transport and protection case
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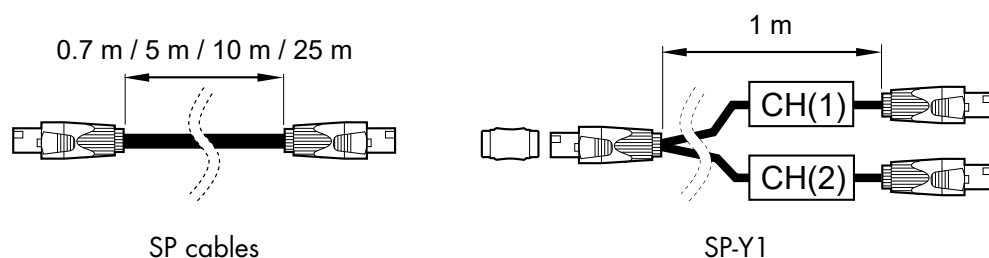
Software applications

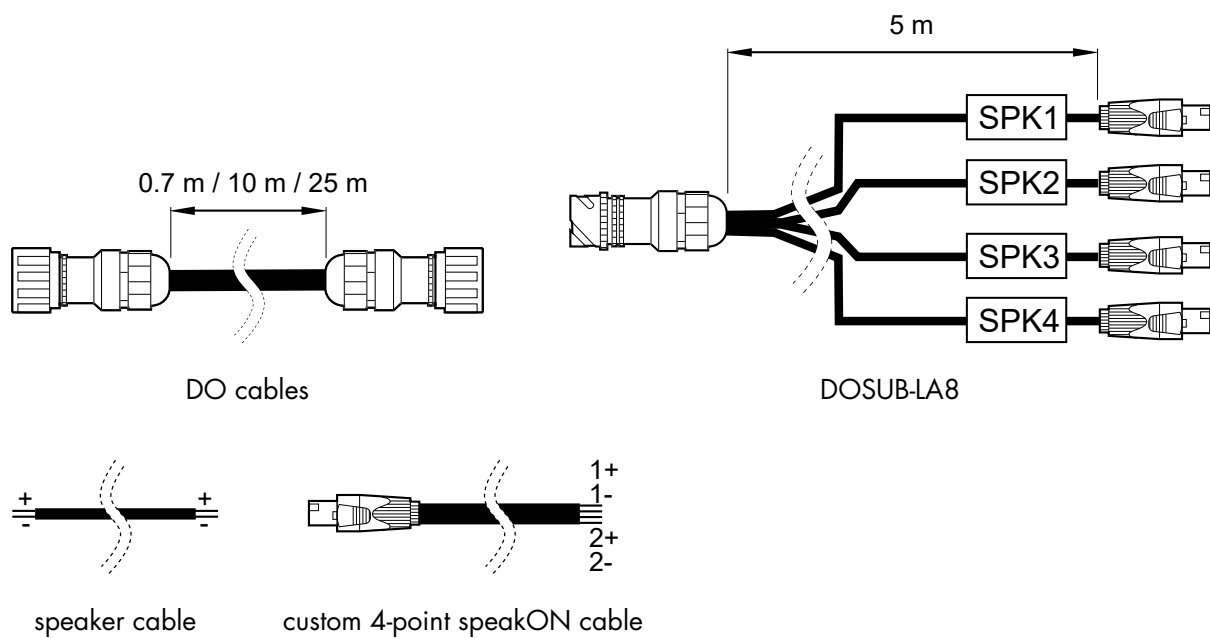
Soundvision	3D acoustical and mechanical modeling software
LA Network Manager	Software for remote control and monitoring of amplified controllers

i Refer to the **Soundvision** help.
Refer to the **LA Network Manager** help.

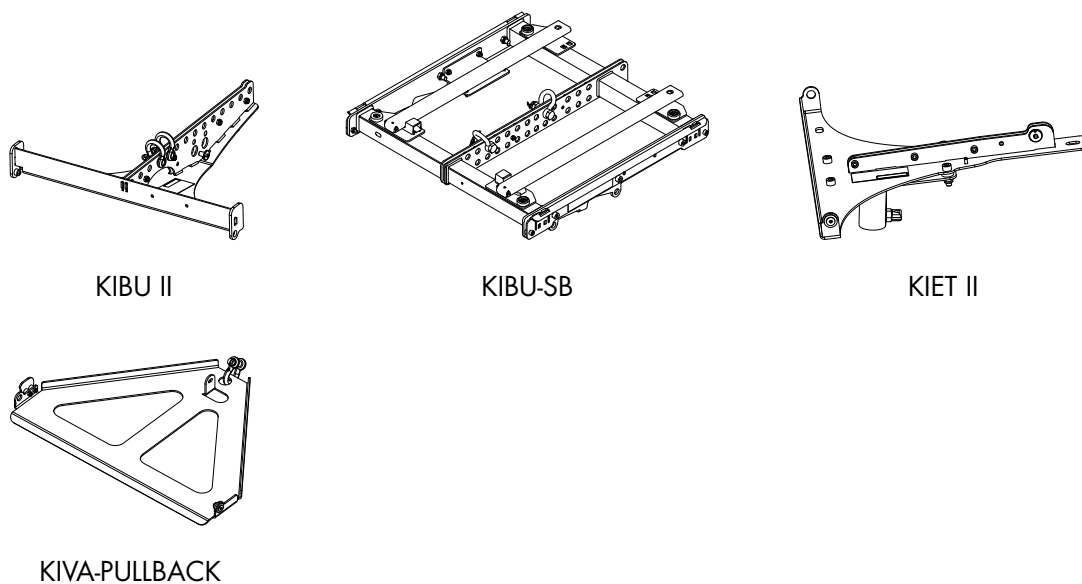
System component illustrations

Cables





Rigging accessories

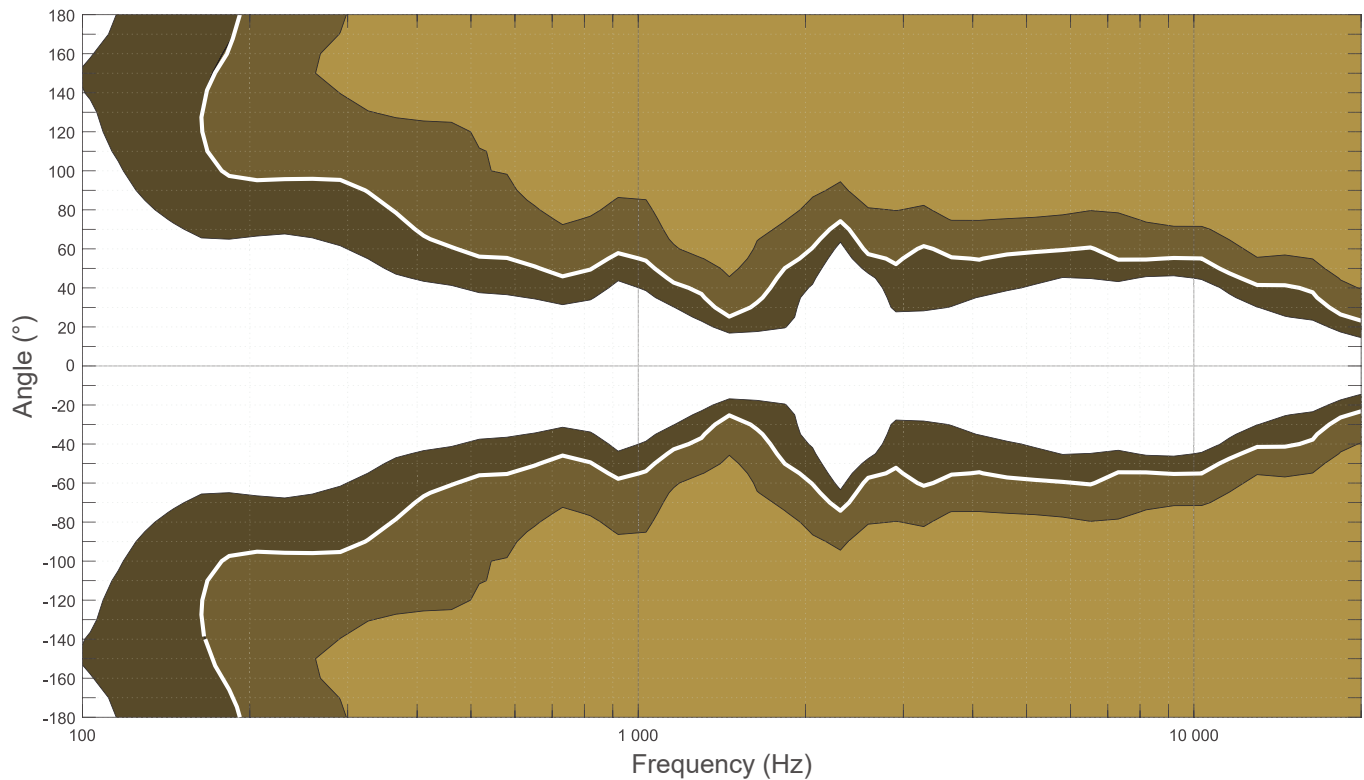


Electro-acoustical description

Directivity

Kiva II features a V-shaped transducer arrangement coupled with a DOSC waveguide that generates a horizontal directivity pattern of 100°.

Kiva II beamwidth



Dispersion angle diagram of an array of six enclosures with 0° inter-enclosure angle, using lines of equal sound pressure at -3 dB, -6 dB, -12 dB.

Preset description

[KIVA II]

outputs	channels	routing	gain	delay	polarity	mute
OUT 1	PA	IN A	0 dB	0 ms	+	ON
OUT 2	PA	IN A	0 dB	0 ms	+	ON
OUT 3	PA	IN A	0 dB	0 ms	+	ON
OUT 4	PA	IN A	0 dB	0 ms	+	ON

[KIVA II_FI]

outputs	channels	routing	gain	delay	polarity	mute
OUT 1	PA	IN A	0 dB	0 ms	+	ON
OUT 2	PA	IN A	0 dB	0 ms	+	ON
OUT 3	PA	IN B	0 dB	0 ms	+	ON
OUT 4	PA	IN B	0 dB	0 ms	+	ON

[SB18_60] [SB15_100]

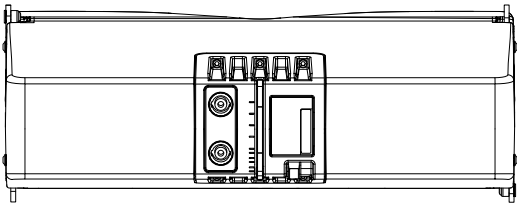
outputs	channels	routing	gain	delay	polarity	mute
OUT 1	SB	IN A	0 dB	0 ms	+	ON
OUT 2	SB	IN A	0 dB	0 ms	+	ON
OUT 3	SB	IN A	0 dB	0 ms	+	ON
OUT 4	SB	IN A	0 dB	0 ms	+	ON

[SB18_60_C] [SB18_60_Cx] [SB15_100_C] [SB15_100_Cx]

loudspeaker elements	outputs	channels	routing	gain	delay	polarity	mute
SR	OUT 1	SR	IN A	0 dB	0 ms	+	ON
SB	OUT 2	SB					ON
SB	OUT 3	SB					ON
SB	OUT 4	SB					ON

Connectors

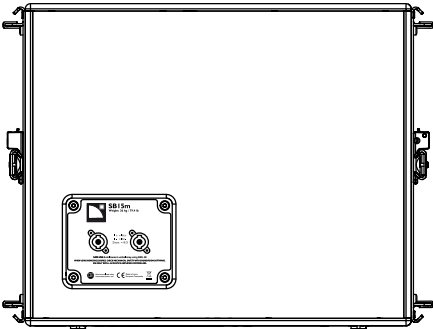
i SpeakON connectors can be used interchangeably as IN or LINK connector.



Kiva II
2 × 4-point speakON

Internal pinout for L-Acoustics 2-way passive enclosures

SpeakON points	1 +	1 -	2 +	2 -
Transducer connectors	+	-	Not linked	Not linked



SB15m
2 × 4-point speakON

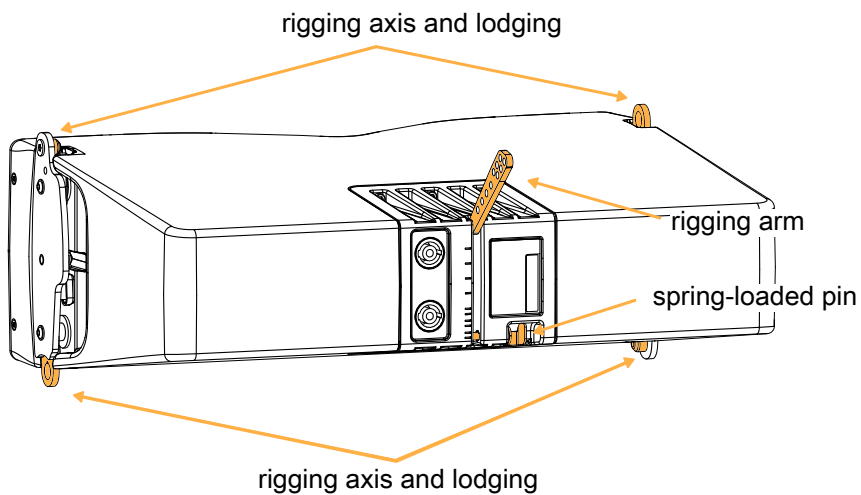
Internal pinout for L-Acoustics subwoofers

SpeakON points	1 +	1 -	2 +	2 -
Transducer connectors	LF +	LF -	Not linked	Not linked

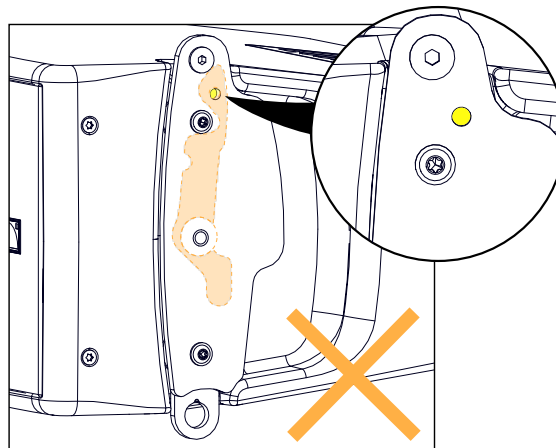
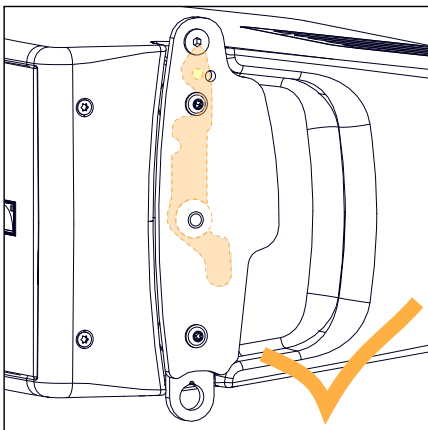
Rigging system description

Kiva II

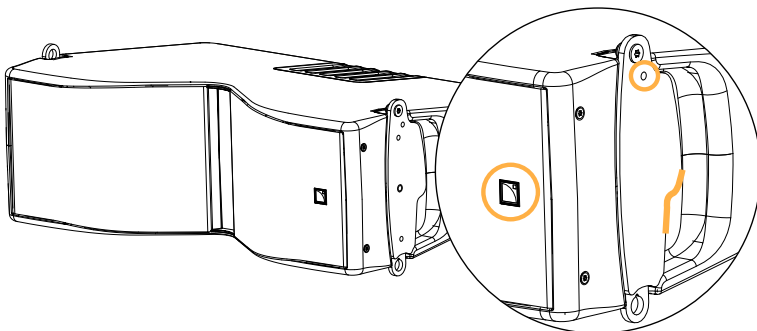
Kiva II features a three-point rigging system composed of a rigging arm and a spring-loaded pin at the back and two pairs of rigging axis and lodging at the front.



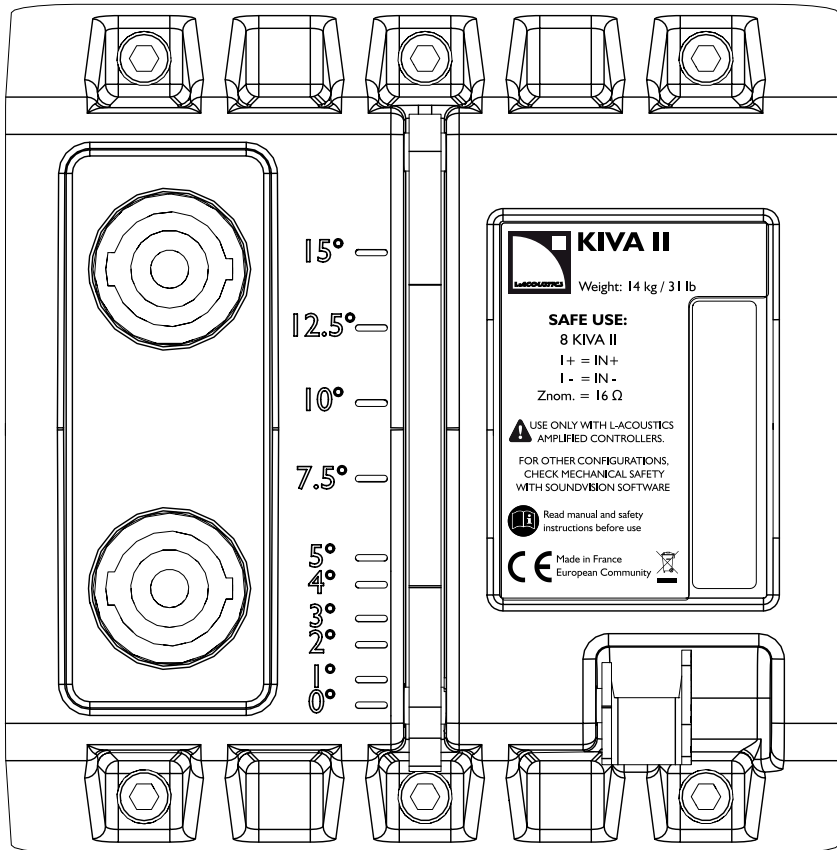
The front linking points are locked with a spring-loaded safety mechanism inside the right handle. A yellow safety label is visible if the mechanism is not fully engaged.



! On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).



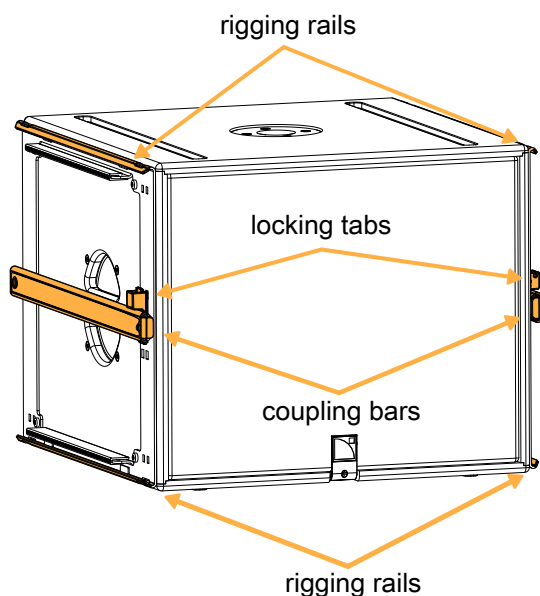
Kiva II can be connected to other Kiva II or to dedicated rigging accessories. The inter-enclosure angle can be set between 0° and 15°.



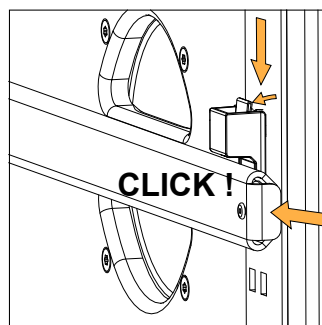
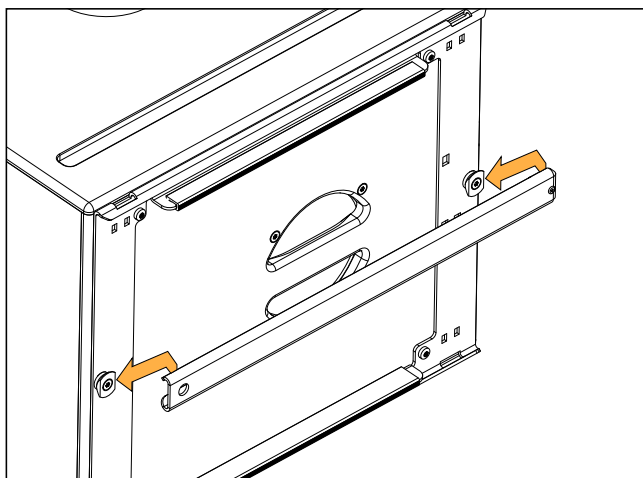
Subwoofers

SB15m

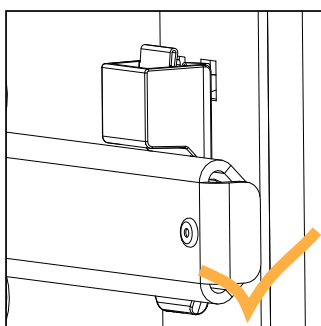
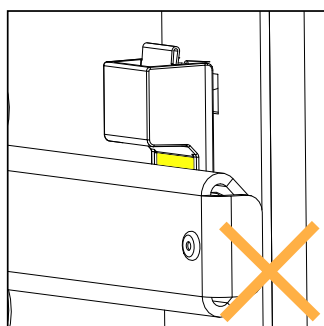
SB15m features four rigging rails on top and bottom faces. Connection with other elements is ensured by two coupling bars with locking tabs.



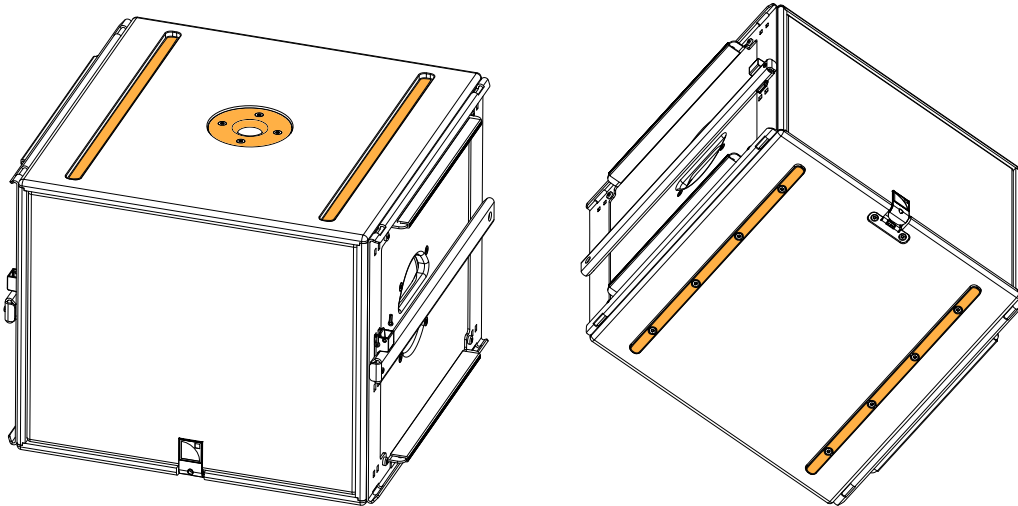
The coupling bars can be stored on both sides on the storage pins. The locking tabs slide inside the coupling bars to keep them in place.



The locking tabs lugs fit into notches. A yellow safety label is visible if the locking tabs are not fully engaged.



The top face is equipped with a 35 mm pole socket. Two stacking runners meet two runner tracks in stacked deployments.



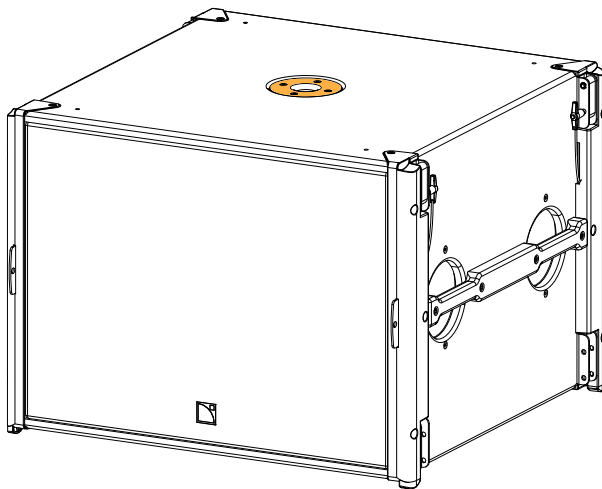
SB15m rigging is compatible with KIBU-SB.

SB18/SB18m



For more information on rigging SB18/SB18m, refer to the **SB18/SB18m rigging manuals**.

SB18/SB18m feature a 35 mm pole socket.



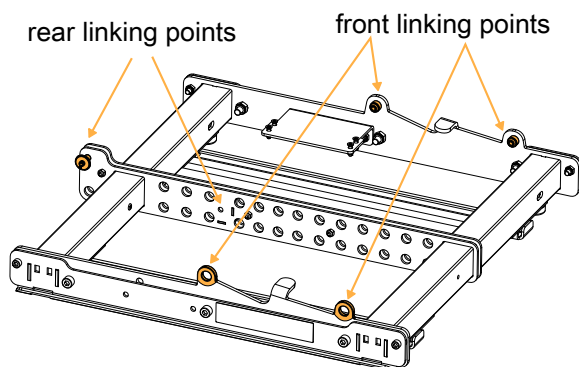
Rigging elements

KIBU-SB

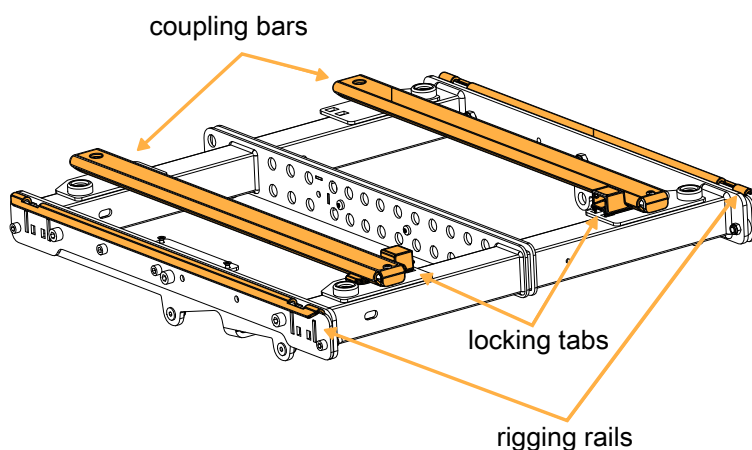
Kiva II/SB15m rigging interface

KIBU-SB is a rigging interface to connect Kiva II to SB15m. Each side of the rigging structure is designed to fit one enclosure type.

One side is compatible with the Kiva II three-point rigging system.

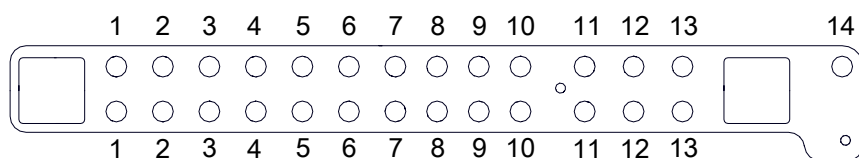


The other side features two rigging rails and two coupling bars with two locking tabs for securing the SB15m.



Flying frame

KIBU-SB provides 13 pickup points for flying SB15m and 14 pickup points for flying Kiva II.



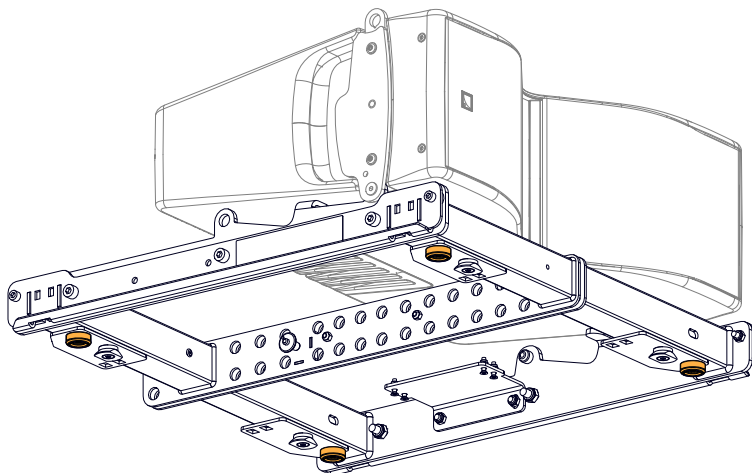
Refer to the Soundvision configuration to choose the pickup point.

Stacking platform

KIBU-SB features four runners for stacking Kiva II.

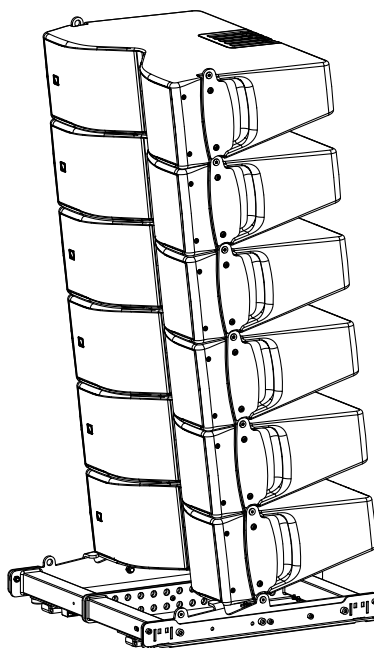
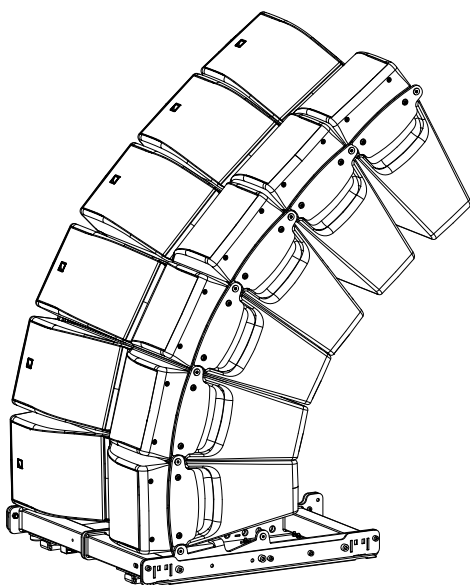


The coupling bars must be removed.



In stacked configuration, Kiva II can be secured in front or rear position on KIBU-SB.

For optimal stability, the array must be secured in front position when tilted towards the rear, and in rear position when tilted towards the front.



Kiva II in rear position with a positive 7.5° angle

The positive 7.5° angle is only available when Kiva II and KIBU-SB are stacked on SB15m. When Kiva II and KIBU-SB are ground-stacked, the rigging arm cannot be secured at 7.5°.

KIET II



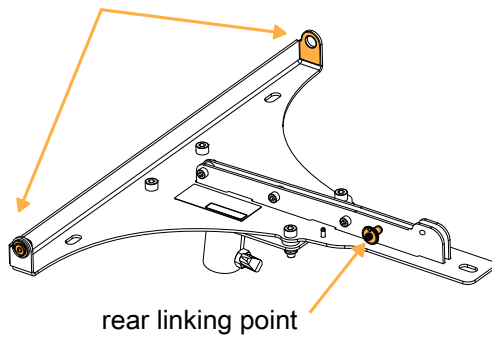
KIET II rear linking point

KIET II features two dedicated rear linking points, one for pole-mounting and one for ceiling-mounting deployment.

Pole-mount

KIET II is a rigging accessory compatible with the Kiva II rigging system. It is delivered with a removable 35 mm pole socket. It can be used to mount up to three Kiva II on a pole.

front linking points



rear linking point



Pole-mounting on SB15m

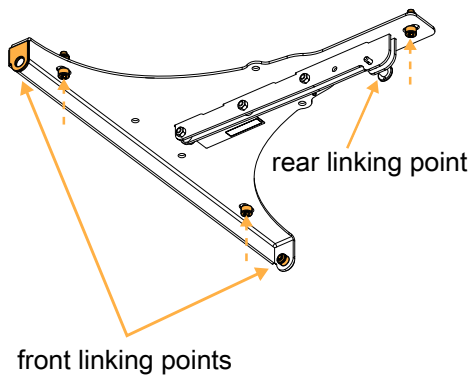
A maximum of two Kiva II can be pole-mounted on a SB15m.

Ceiling-mount

KIET II can be used to secure up to three Kiva II under a ceiling, a balcony or structure.

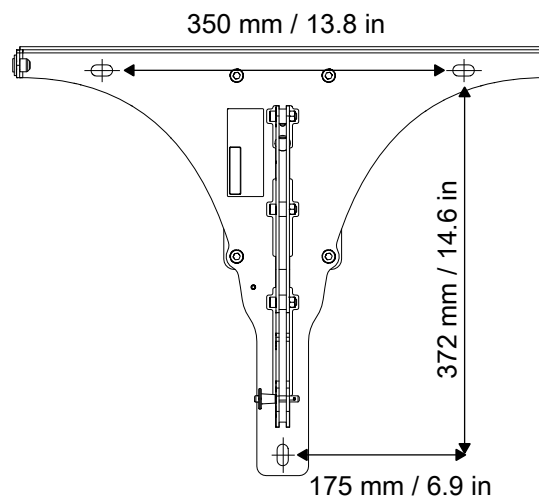


Use the spacers provided with the pole-mount socket.



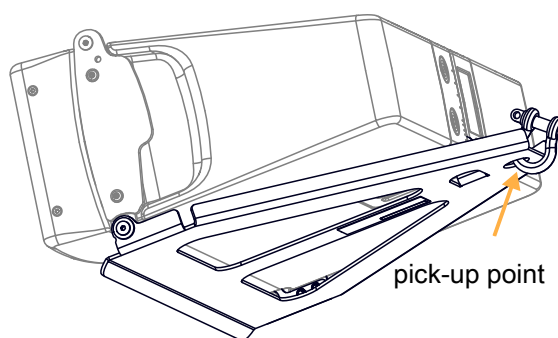
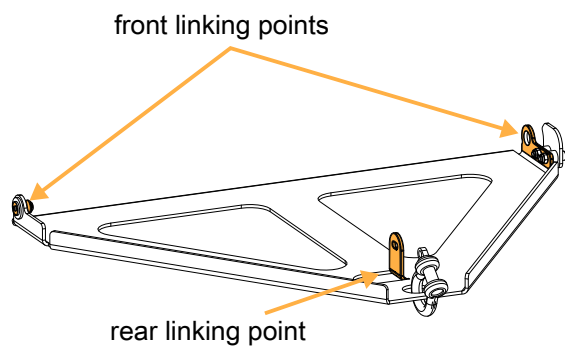
rear linking point

front linking points



KIVA-PULLBACK

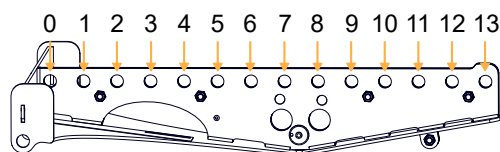
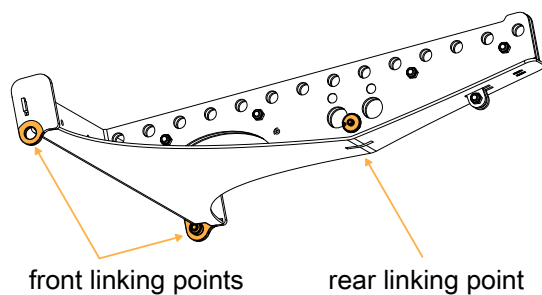
KIVA-PULLBACK is used to implement pull-back configurations with up to nine Kiva II.



KIBU II

Flying frame

KIBU II is a rigging structure designed to fit the Kiva II rigging system in flown configuration. 13 pickup points are available.



Mechanical safety

Flown configurations

The Kiva II rigging system complies with 2006/42/EC: Machinery Directive. It has been designed following the guidelines of BGV-C1.

2006/42/EC: Machinery Directive specifies a safety factor of 4 against the rupture. The flown deployments described in this manual achieve a safety factor of **4 or more**.

Refer to Soundvision for the safety factor of a specific deployment.

The **safe limit** gives the maximum number of elements for which the safety factor is compliant with the 2006/42/EC: Machinery Directive, within the use defined in this manual and regardless of the other deployment parameters (site angles, inter-element angles, etc.).

The **maximum limit** gives the maximum number of elements for which the safety factor can be compliant with the 2006/42/EC: Machinery Directive, when the other deployment parameters provide the best mechanical conditions.

For mixed arrays refer to your Soundvision model.

Kiva II

configuration	rigging accessory	safe limit	maximum limit
flown	KIBU-SB	8	20
flown	KIBU II	8	20
pullback	KIBU II / KIBU-SB + KIVA-PULLBACK	16	
ceiling-mounted	KIET II	3	

SB15m

configuration	rigging accessory	safe / maximum limit
flown	KIBU-SB	8

Kiva II + SB15m

configuration	rigging accessory	maximum limit
pullback	KIBU-SB + KIVA-PULLBACK	9 Kiva II + 3 SB15m

Other configurations

For other configurations, respect the recommended maximum limit for optimal stability.

Kiva II

configuration	rigging accessory	safe limit	maximum limit
stacked	KIBU-SB	4	9
pole-mounted	KIET II + 35 mm pole	3	
pole-mounted	KIET II + 35 mm pole + SB15m	2	

SB15m

configuration	rigging accessory	maximum / safe limit
ground-stacked	no rigging accessory	4

SB18

configuration	rigging accessory	maximum / safe limit
ground-stacked	no rigging accessory	4

Assessing mechanical safety



Mechanical safety of the rigging system

Before any installation, always model the system in Soundvision and check the **Mechanical Data** section for any stress warning or stability warning.

In order to assess the actual safety of any array configuration before implementation, refer to the following warnings:



Rated working load limit (WLL) is not enough

The rated WLL is an indication of the element resistance to tensile stress. For complex mechanical systems such as loudspeaker arrays, WLLs cannot be used per se to determine the maximum number of enclosures within an array or to assess the safety of a specific array configuration.

Maximum pullback angle

If a pullback accessory is available, the pullback angle must not exceed a 90° negative site angle.

Mechanical modeling with Soundvision

The working load applied to each linking point, along with the corresponding safety factor, will depend on numerous variables linked to the composition of the array (type and number of enclosures, splay angles) and the implementation of the flying or stacking structure (number and location of flying points, site angle). This cannot be determined without the complex mechanical modeling and calculation offered by Soundvision.

Assessing the safety with Soundvision

The overall safety factor of a specific mechanical configuration always corresponds to the lowest safety factor among all the linking points. Always model the system configuration with the Soundvision software and check the **Mechanical Data** section to identify the weakest link and its corresponding working load. By default, a stress warning will appear when the mechanical safety goes beyond the recommended safety level.

Safety of ground-stacked arrays in Soundvision

For ground-stacked arrays, a distinct stability warning is implemented in Soundvision. It indicates a tipping hazard when the array is not secured to the ground, stage or platform. It is the user's responsibility to secure the array and to ignore the warning.

Additional safety for flown arrays

When flying an array, use available holes to implement a secondary safety.

Considerations must be given to unusual conditions

Soundvision calculations are based on usual environmental conditions. A higher safety factor is recommended with factors such as extreme high or low temperatures, strong wind, prolonged exposition to salt water, etc. Always consult a rigging specialist to adopt safety practices adapted to such a situation.

Loudspeaker configurations

Kiva II line source

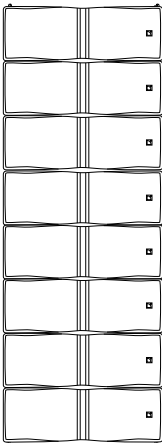
In this configuration the system operates over the nominal bandwidth of the enclosure.

The [KIVA II] preset allows for a reference frequency response in medium to long throw applications.

Kiva II is driven by the LA2Xi / LA4X / LA8 / LA12X amplified controllers.



Reduced maximum SPL or drive capacity with LA2Xi: refer to the **LA2Xi owner's manual**.



Enclosure	Kiva II
Preset	[KIVA II]
Frequency range (-10 dB)	70 Hz - 20 kHz

Kiva II line source with low-frequency element

In this configuration, the bandwidth of the Kiva II system is extended in the low end and the LF contour is reinforced.

The [KIVA II] preset allows for a reference frequency response in medium to long throw applications.

The [SB15_100] and [SB18_60] presets provide SB15m and SB18 with an upper frequency limit at 100 Hz and 60 Hz respectively.

Kiva II, SB18 and SB15m are driven by the LA2Xi / LA4X / LA8 / LA12X amplified controllers.



Reduced maximum SPL or drive capacity with LA2Xi: refer to the **LA2Xi owner's manual**.

Kiva II line source with SB15m

With SB15m, the system bandwidth is extended down to 40 Hz.

3 Kiva II : 1 SB15m

reinforced contour

2 Kiva II : 1 SB15m

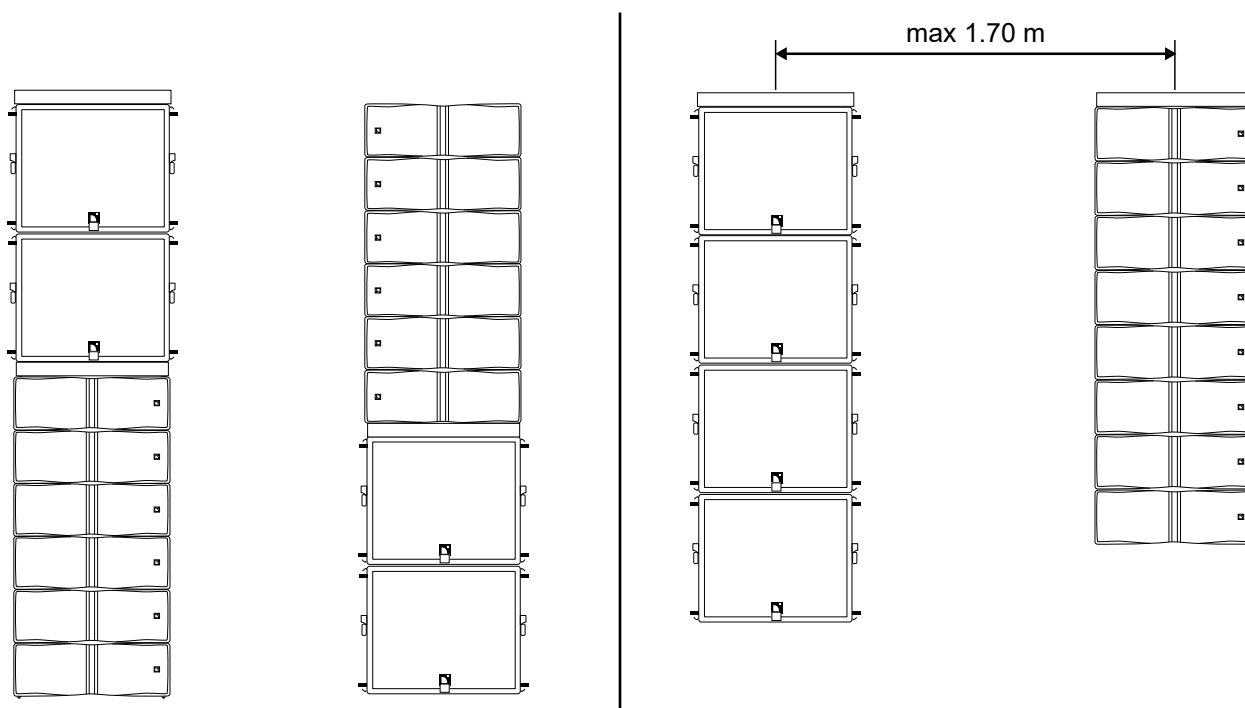
reinforced contour

+ 3 dB at 100 Hz



Maximum line length:

12 Kiva II + 4 SB15m



Enclosure	Kiva II	SB15m
Preset	[KIVA II]	[SB15_100]
Frequency range (-10 dB)	40 Hz - 20 kHz	



Use [xxxx_xx_C] or [xxxx_xx_Cx] on a reversed subwoofer in a cardioid configuration

The cardioid configuration consists in reversing 1 element in an array of 4 subwoofers.

Refer to the subwoofer owner's manual and to the **Cardioid configurations** technical bulletin.



Delay values

Do not forget to add the pre-alignment and geometric delays depending on the configuration.

Pre-alignment delays

presets	pre-alignment delay values and polarity settings			
[KIVA II] + [SB15_100]	Kiva II = 0 ms		SB15m = 1 ms	
[KIVA II] + [SB15_100_C]	Kiva II = 2.5 ms		SB15m = 0 ms	

Kiva II line source with SB15m and SB18

With SB15m and SB18, the system bandwidth is extended down to 32 Hz.

3 Kiva II : 1 SB15m : 1 SB18

reinforced contour

2 Kiva II : 1 SB15m : 1 SB18

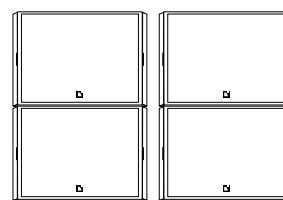
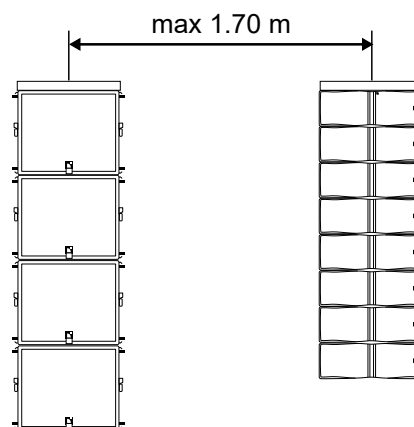
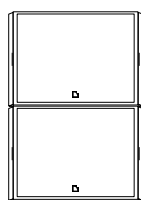
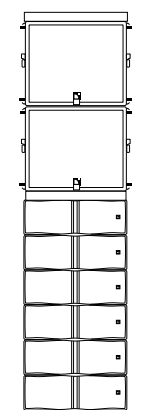
reinforced contour

+ 3 dB at 100 Hz



Maximum line length:

12 Kiva II + 4 SB15m



Enclosure	Kiva II	SB15m	SB18
Preset	[KIVA II]	[SB15_100]	[SB18_60]
Frequency range (-10 dB)	32 Hz - 20 kHz		



Use [xxxx_xx_C] or [xxxx_xx_Cx] on a reversed subwoofer in a cardioid configuration

The cardioid configuration consists in reversing 1 element in an array of 4 subwoofers.

Refer to the subwoofer owner's manual and to the **Cardioid configurations** technical bulletin.



Grouping subwoofers

Place the subwoofer enclosures side by side. If not possible, the maximum distance between two adjacent acoustic centers must be 2.8 m or 1.7 m if the upper frequency limit of the subwoofer system is at 60 Hz or 100 Hz, respectively.



Delay values

Do not forget to add the pre-alignment and geometric delays depending on the configuration.

Pre-alignment delays

presets	pre-alignment delay values and polarity settings		
[KIVA II] + [SB15_100] + [SB18_60]	Kiva II = 0 ms 	SB15m = 1 ms 	SB18 = 1 ms 
[KIVA II] + [SB15_100] + [SB18_60_C]	Kiva II = 4.5 ms 	SB15m = 5.5 ms 	SB18 = 0 ms 
[KIVA II] + [SB15_100_C] + [SB18_60]	Kiva II = 2.5 ms 	SB15m = 0 ms 	SB18 = 3.5 ms 
[KIVA II] + [SB15_100_C] + [SB18_60_C]	Kiva II = 4.5 ms 	SB15m = 2 ms 	SB18 = 0 ms 

Kiva II line source element

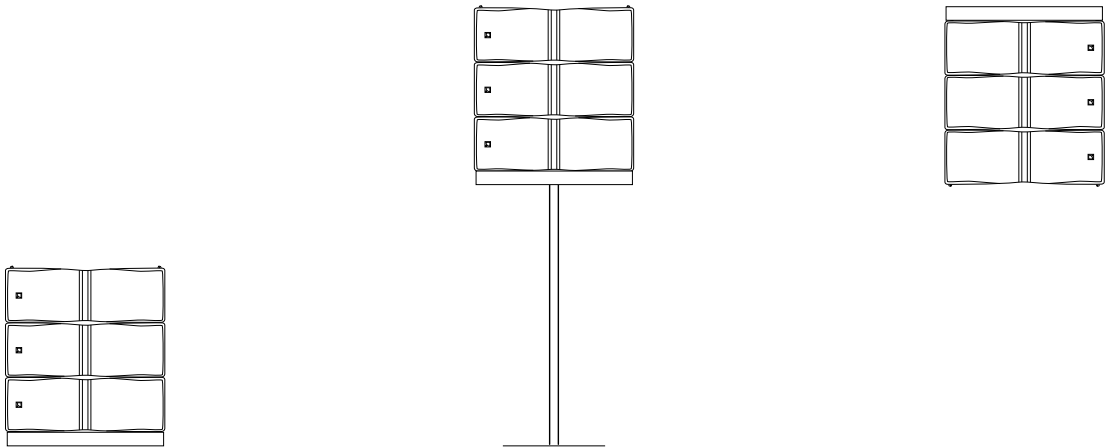
Up to three Kiva II can be used as a line source element. In this configuration, the system operates over the nominal bandwidth of Kiva II.

The [KIVA II_FI] preset allows for a reference frequency response in short throw applications.

Kiva II is driven by the LA2Xi / LA4X / LA8 / LA12X amplified controllers.



Reduced maximum SPL or drive capacity with LA2Xi: refer to the **LA2Xi owner's manual**.



Enclosure	Kiva II
Preset	[KIVA II_FI]
Frequency range (-10 dB)	70 Hz - 20 kHz

Kiva II line source element with low-frequency element

Up to three Kiva II can be used as a line source element with a complementary subwoofer. In this configuration, the system bandwidth is extended in the low end and the LF contour is reinforced.

The [KIVA II_FI] preset allows for a reference frequency response in medium to long throw applications.

The [SB15_100] preset provides SB15m with an upper frequency limit at 100 Hz.

Kiva II and SB15m are driven by the LA2Xi / LA4X / LA8 / LA12X amplified controllers.



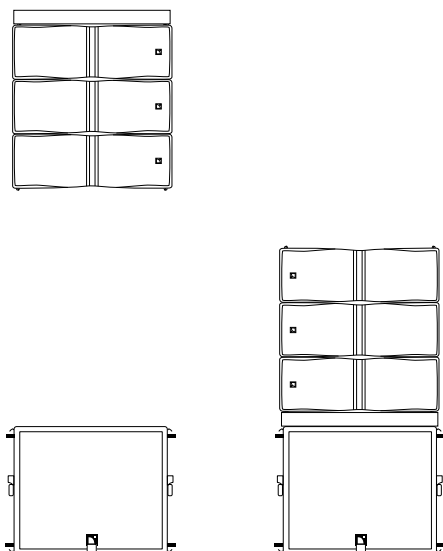
Reduced maximum SPL or drive capacity with LA2Xi: refer to the **LA2Xi owner's manual**.

Kiva II line source element with SB15m

With SB15m, the system bandwidth is extended down to 40 Hz.

3 Kiva II : 1 SB15m

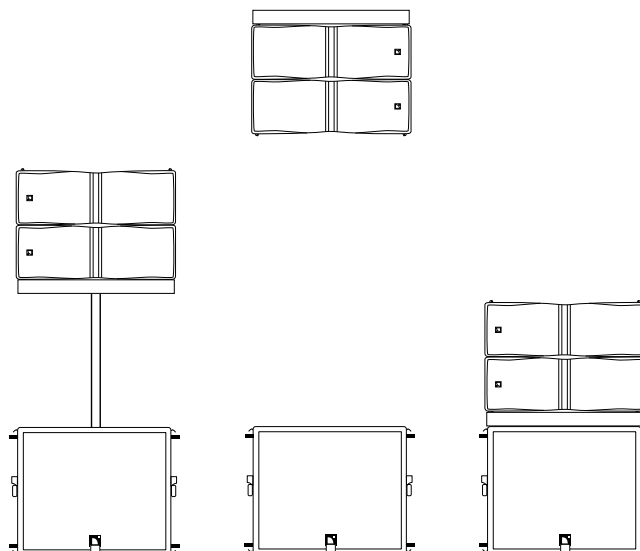
reinforced contour



2 Kiva II : 1 SB15m

reinforced contour

+ 3 dB at 100 Hz



Enclosure	Kiva II	SB15m
Preset	[KIVA II_FI]	[SB15_100]
Frequency range (-10 dB)	40 Hz - 70 Hz	



Delay values

Do not forget to add the pre-alignment and geometric delays depending on the configuration.

Pre-alignment delays

presets	pre-alignment delay values and polarity settings	
[KIVA II_FI] + [SB15_100]	Kiva II = 0 ms	SB15m = 1 ms
[KIVA II_FI] + [SB15_100_C]	Kiva II = 2.5 ms	SB15m = 0 ms



Use [xxxx_xx_C] or [xxxx_xx_Cx] on a reversed subwoofer in a cardioid configuration

The cardioid configuration consists in reversing 1 element in an array of 4 subwoofers.

Refer to the subwoofer owner's manual and to the **Cardioid configurations** technical bulletin.



Grouping subwoofers

Place the subwoofer enclosures side by side. If not possible, the maximum distance between two adjacent acoustic centers must be 2.8 m or 1.7 m if the upper frequency limit of the subwoofer system is at 60 Hz or 100 Hz, respectively.

Inspection and preventive maintenance

How to do preventive maintenance

Inspect the system before any deployment and after any corrective maintenance operation.

Perform preventive maintenance at least once a year.

Refer to the maintenance manuals for advanced maintenance.

Rigging and hardware

Perform the [Rigging part inspection](#) (p.31) on each rigging part.

Use the [Mechanical system overview](#) (p.32) to identify critical parts of the system and apply the specific checks described in the [Inspection references](#) (p.37).

Do the [Rigging check](#) (p.44).

If any parts are damaged, contact your L-Acoustics representative for further instructions.

Acoustics

Perform the [Enclosure check](#) (p.47).

Perform the [Listening test](#) (p.49) to detect any degradation in sound quality.

If necessary, refer to the [Corrective maintenance](#) (p.84) section for speaker repair kits and maintenance instructions.

Rigging part inspection

About this task

For critical rigging parts, use the [Inspection references](#) (p.37) for comparison and specific manipulations.

The term "rigging part" comprises:

- lifting accessories such as clamps and shackles
- rigging accessories such as rigging frames, rigging interfaces, and brackets
- fasteners used for assembling two products together such as ball-locking pins, rigging axes, and safety pins
- rigging elements integrated in the product such as rigging arms and rails
- transportation accessories

This inspection procedure covers only L-Acoustics products. To inspect other products that are part of the lifting chain, refer to the manufacturer's instructions.

Prerequisite

Perform the inspection in a well-lit environment.

Procedure

1. Check that the rigging part is present.
2. If applicable, disassemble the rigging part from the enclosure or the rigging accessory.
Check that the tethers are intact and safely secured.
3. Inspect the part from every side.
Compare with the **reference pictures**.
Check for:
 - corrosion
 - wear and cracks
 - bends and dents
 - holes

- missing safety cues
- missing identification labels
- missing or loose fasteners



Replacing screws

If a screw is loose, remove and replace it.

Always use the new screws provided in the repair kit.

If no new screw is available, add blue threadlocker before reusing the screw.

Do not apply more than the indicated torque.

4. Check the **geometry** of the part to identify critical deformations.

Place the rigging part on a flat surface or hold a level against it.

5. Check the **moving parts**.

Make sure that the mechanism engages correctly.

What to do next

If a problem is detected, perform the authorized maintenance operations or contact your L-Acoustics representative.

Mechanical system overview

Critical parts of the lifting chains are highlighted.



The  indicates a visual inspection. The  indicates a functional check.



Perform the [Rigging part inspection](#) (p.31) on critical parts.

For each part, refer to the [Inspection references](#) (p.37).



Replacing screws

If a screw is loose, remove and replace it.

Always use the new screws provided in the repair kit.

If no new screw is available, add blue threadlocker before reusing the screw.

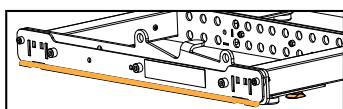
Do not apply more than the indicated torque.

Mixed Kiva II array with SB15m and KIBU-SB

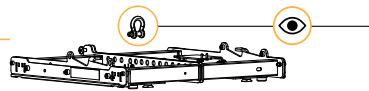
Refer to [Rigging part inspection](#) (p.31).



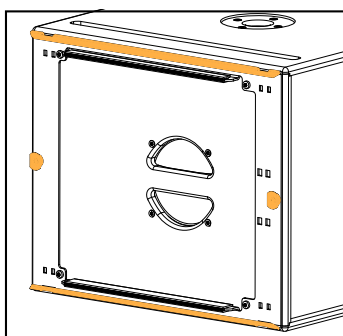
Rigging rails, storage pins (p.41)



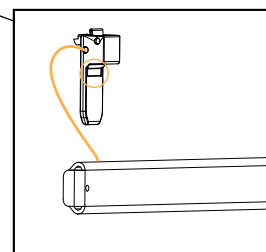
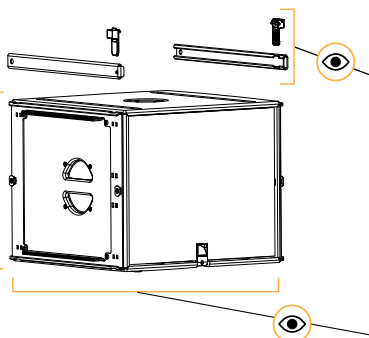
Shackles (p.43)



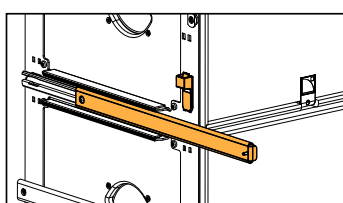
Rigging rails, storage pins (p.41)



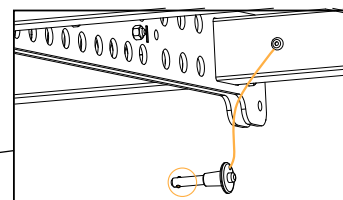
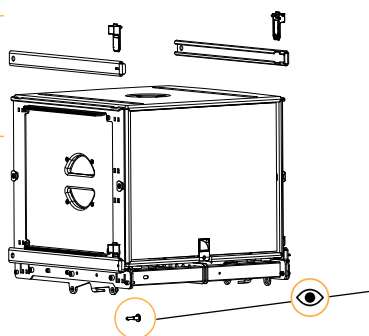
Coupling bars, locking tabs (p.38)



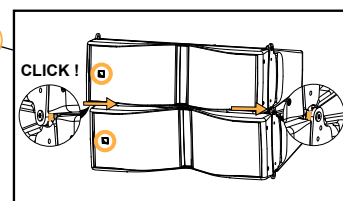
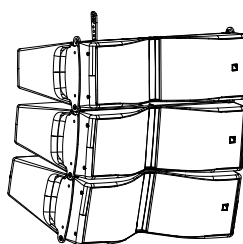
Coupling bars, locking tabs (p.38)



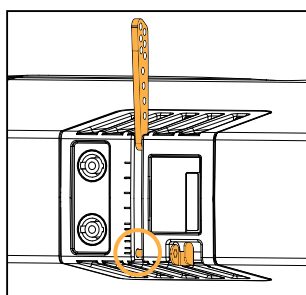
Ball-locking pins (p.39)



Rigging check (p.44)

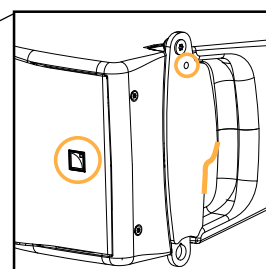
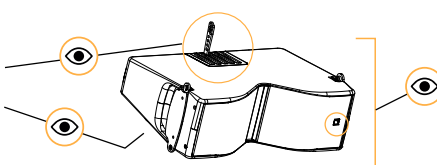


Back cover inspection (p.37)



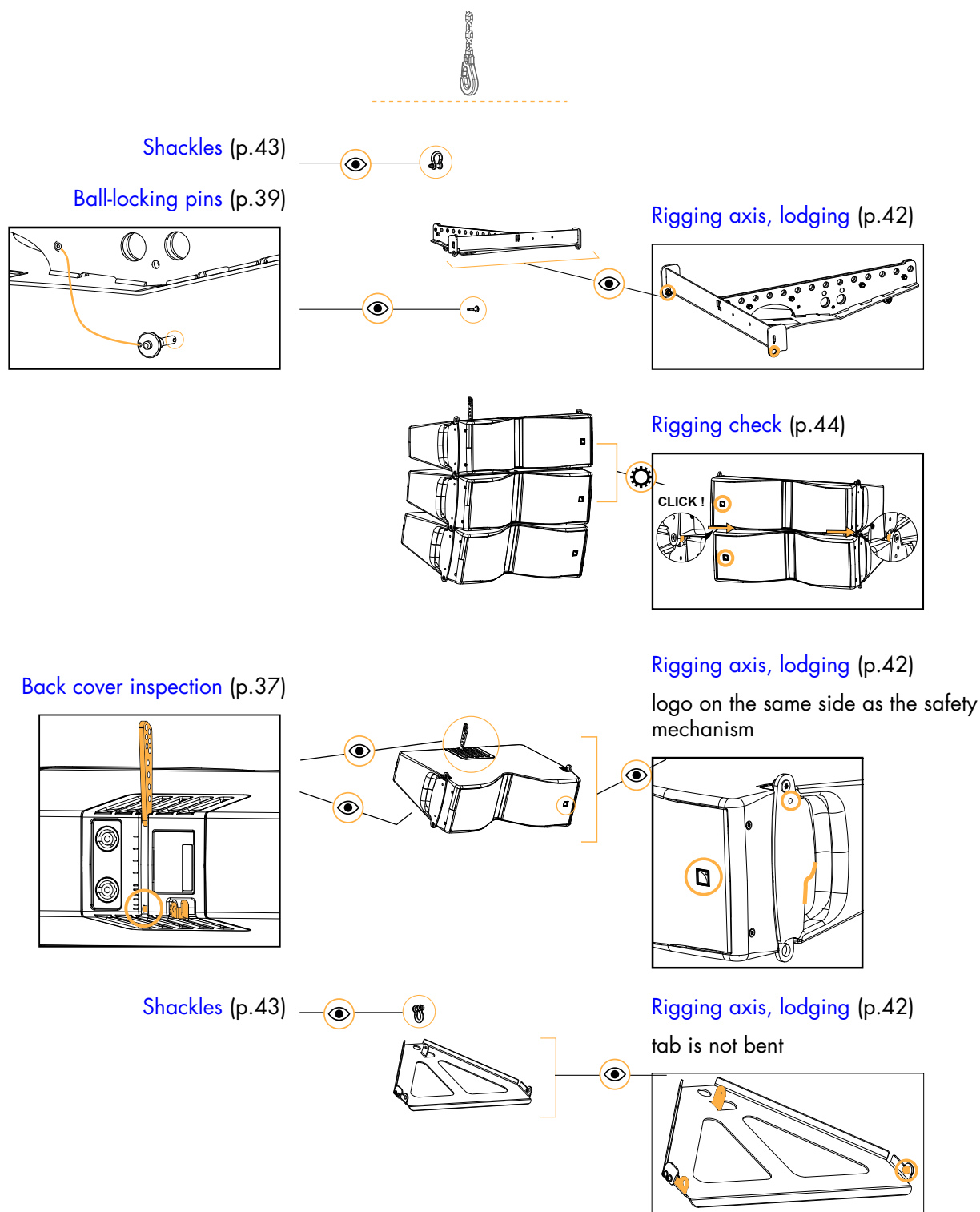
Rigging axis, lodging (p.42)

logo on the same side as the safety mechanism



Kiva II array with KIBU II and KIVA-PULLBACK

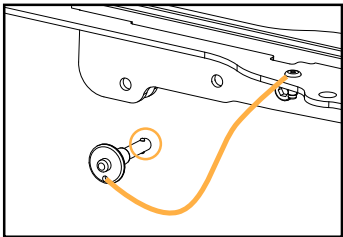
Refer to [Rigging part inspection](#) (p.31).



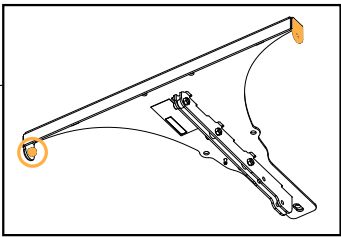
Kiva II ceiling-mounted with KIET II

Refer to [Rigging part inspection](#) (p.31).

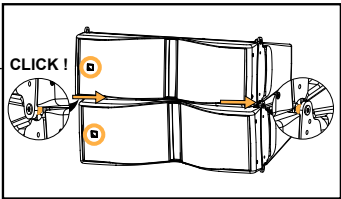
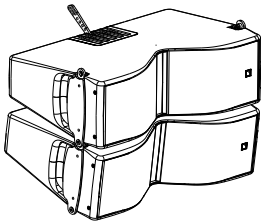
[Ball-locking pins](#) (p.39)



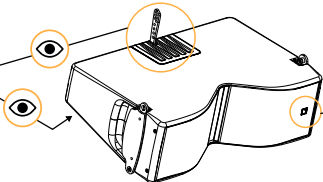
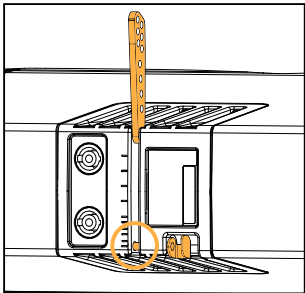
[Rigging axis, lodging](#) (p.42)



[Rigging check](#) (p.44)

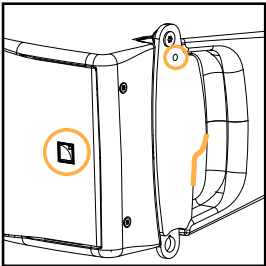


[Back cover inspection](#) (p.37)



[Rigging axis, lodging](#) (p.42)

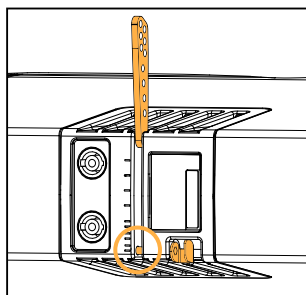
logo on the same side as the safety mechanism



Kiva II pole-mounted on SB15m with KIET II

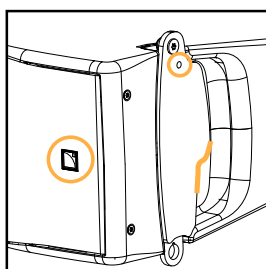
Refer to [Rigging part inspection](#) (p.31).

[Back cover inspection](#) (p.37)

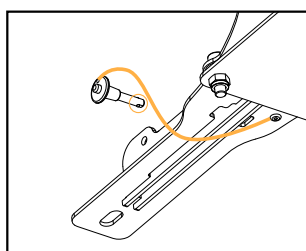


[Rigging axis, lodging](#) (p.42)

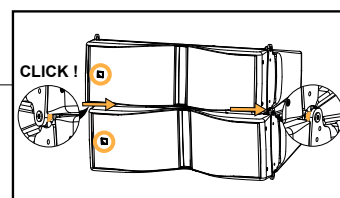
logo on the same side as the safety mechanism



[Ball-locking pins](#) (p.39)



[Rigging check](#) (p.44)

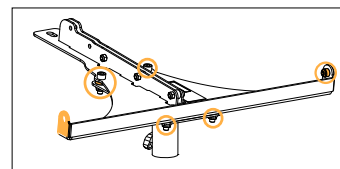


[Rigging axis, lodging](#) (p.42)

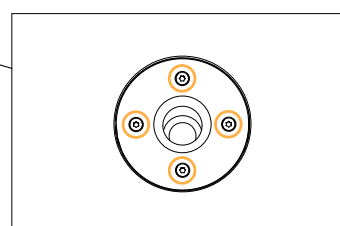
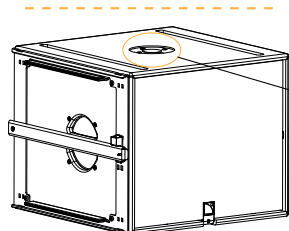
[Pole-mount](#) (p.108)

screws are tightened

washers are present



screws are tightened



Inspection references

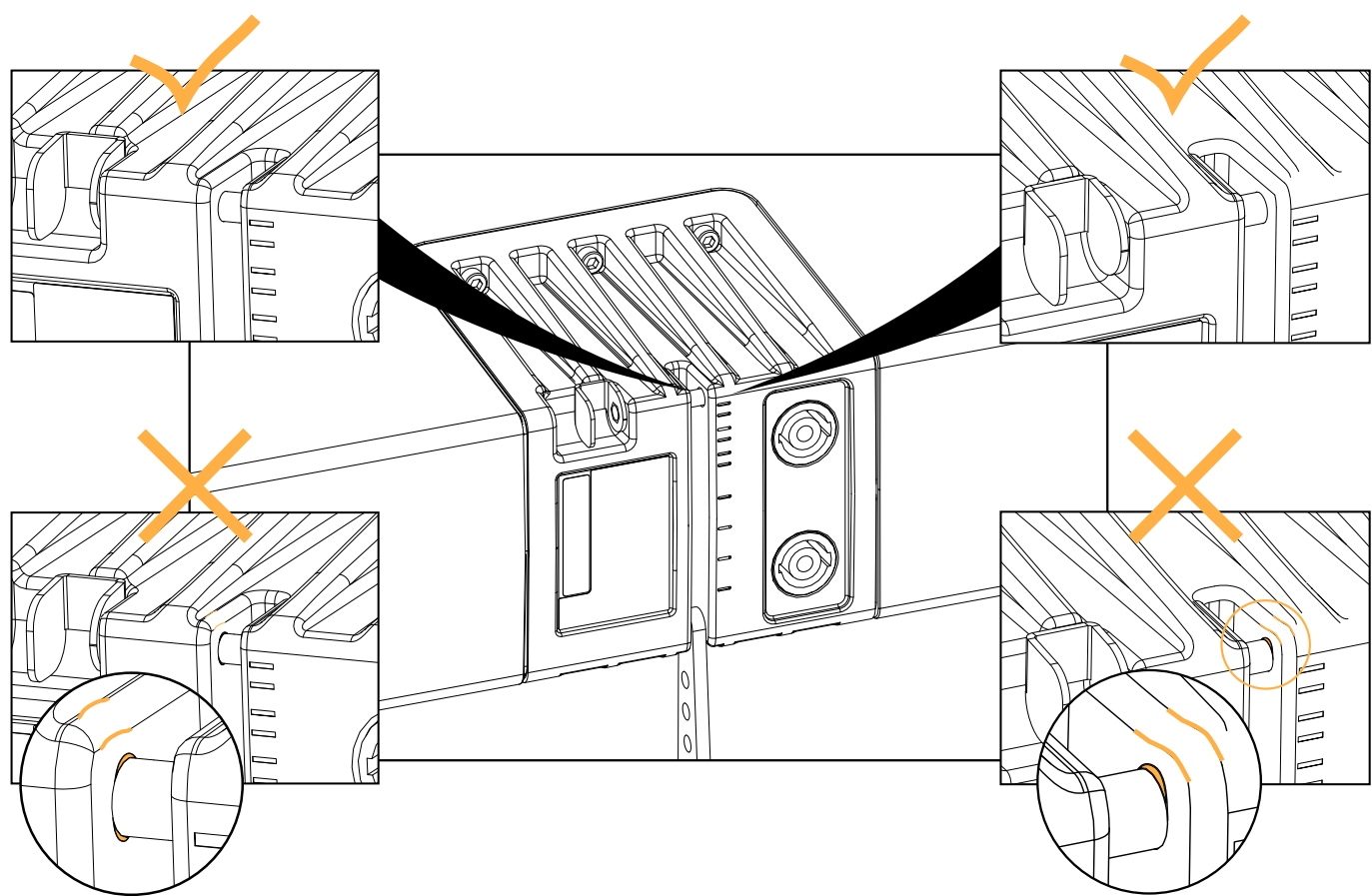
Back cover inspection

About this task

In order to assess the deformation of the back cover of Kiva II, inspect the back cover on every single enclosure.
Take down the enclosure before inspection.

Procedure

- Check the rigging pin holes for signs of **ovalization**.
The hole should fit the pin with no visible gap.
- Touch the rim around the rigging pin and make sure no **bump** is perceptible.



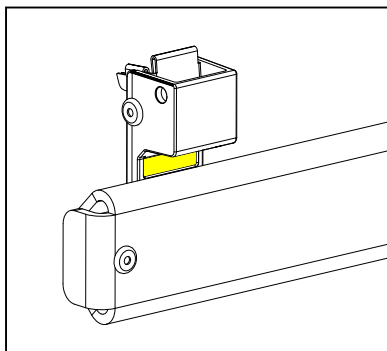
What to do next

If any deformation is detected, immediately withdraw the product from use for corrective maintenance:

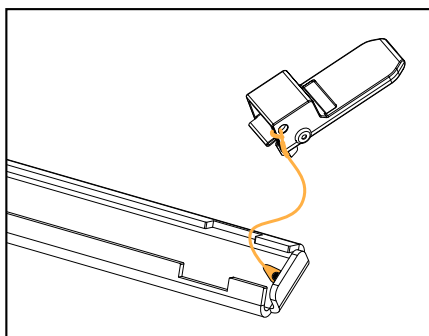
enclosure	repair kit(s)	procedure
Kiva II	• 1 × G03298 (KR rear rigging KIVA II) • 1 × G03303 (KR screws and fasteners KIVA II)	Kiva II back cover (p.87)

Coupling bars and locking tabs

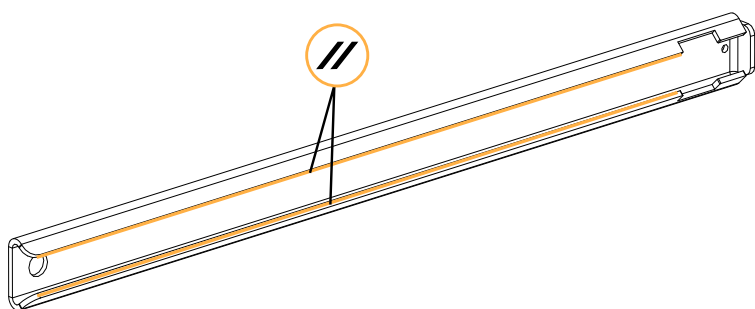
Reference pictures



safety cue



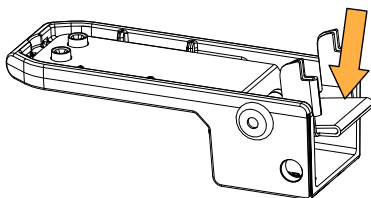
tether



geometry

Moving parts

The tab returns to its initial position upon release.

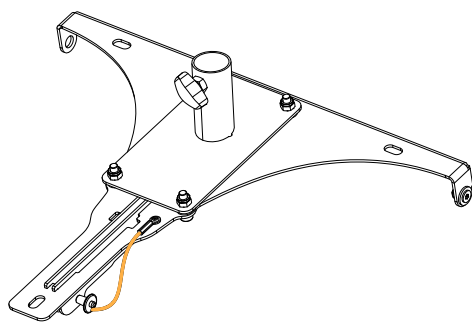


Related tasks

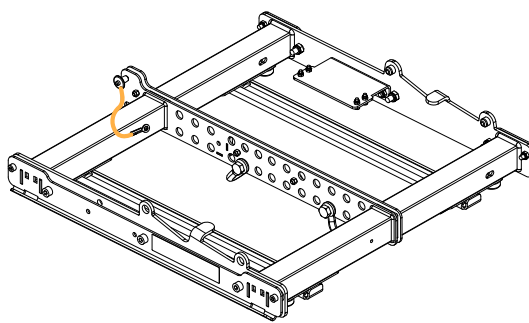
[Rigging part inspection](#) (p.31)

Ball-locking pins

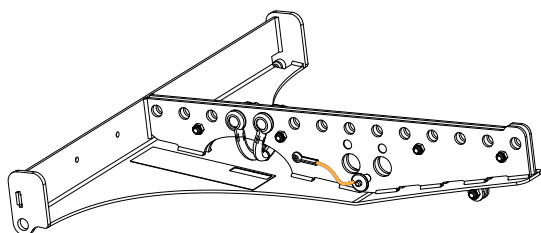
Reference pictures



tether (KIET II)



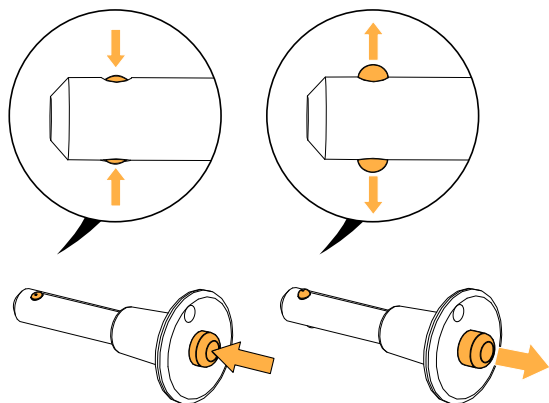
tether (KIBU-SB)



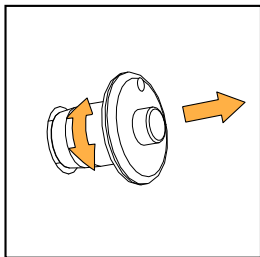
tether (KIBU II)

Moving parts

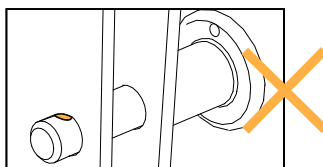
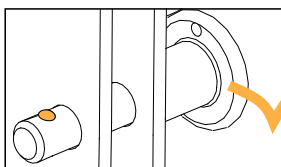
1. Press the push button. The ball-locking mechanism is retracted.
2. Release the button. The ball-locking mechanism is activated.



3. Insert the pin in each storage and rigging hole. Pull and rotate the pin.
The pin must remain inside the hole.



If the pin is inserted in two plates, the ball must pass through both plates and lock the pin in place.



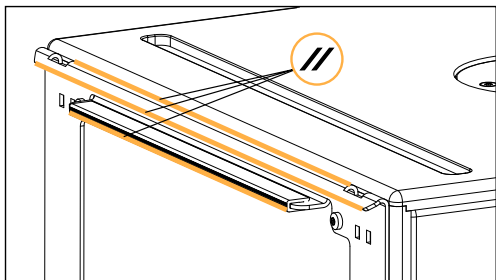
If the check fails, **immediately withdraw the product from use and contact L-Acoustics.**

Related tasks

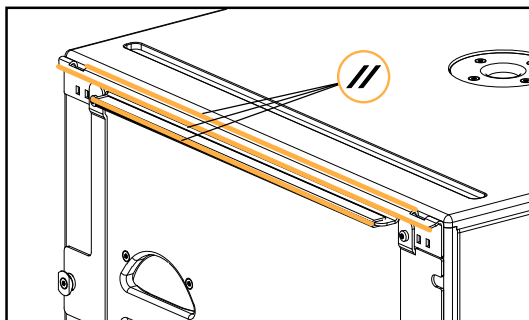
[Rigging part inspection](#) (p.31)

Rigging rails and storage pins

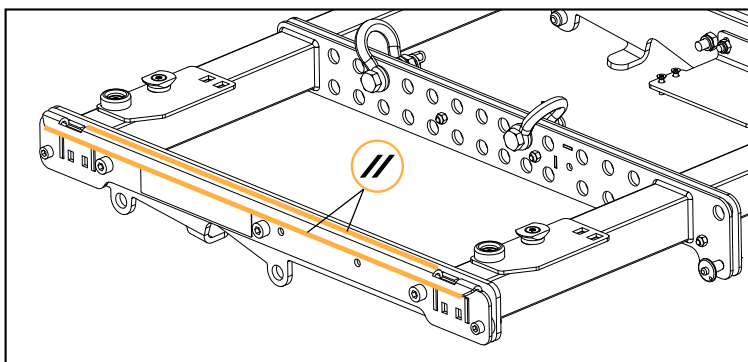
Reference pictures



SB15m geometry



SB18m geometry



KIBU-SB geometry

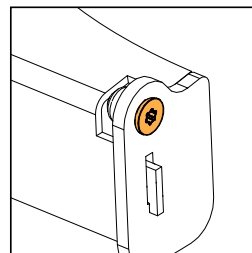
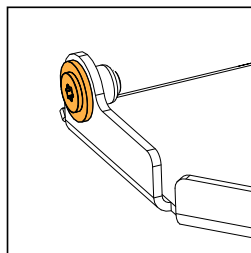
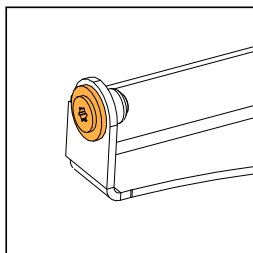
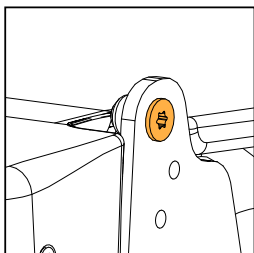
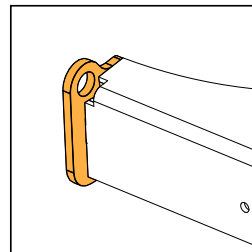
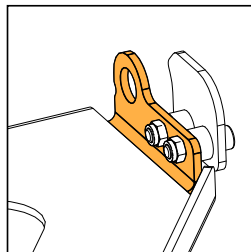
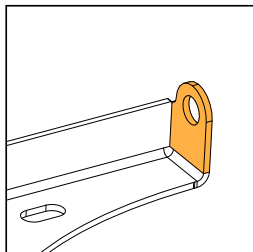
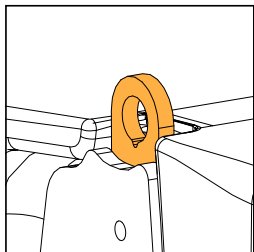
Related tasks

[Rigging part inspection](#) (p.31)

Rigging axis and lodging

Reference pictures

- Check that the screws are tightened.
- Check that the tabs are not bent.

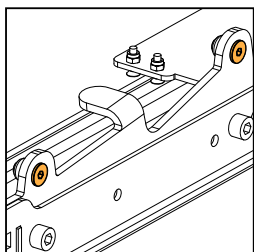
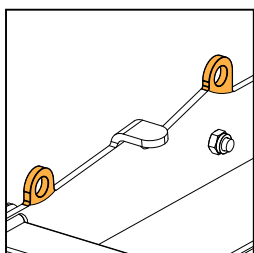


Kiva II

KIET II

KIVA-PULLBACK

KIBU II



KIBU-SB

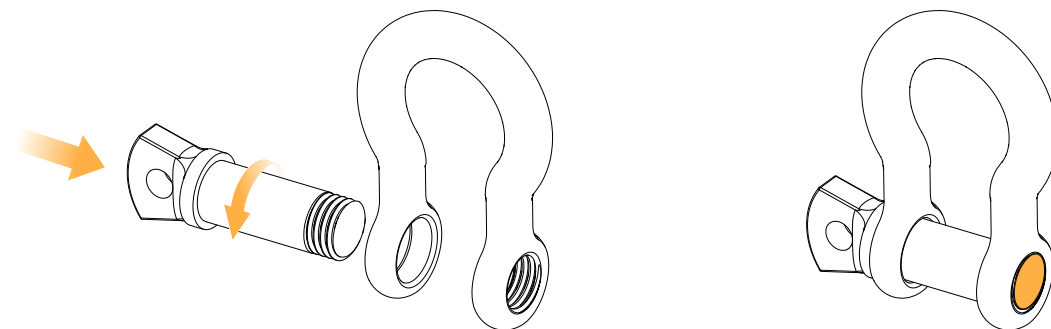
Related tasks

[Rigging part inspection](#) (p.31)

Shackles

Moving parts

Drive the shackle axis in its lodging. Make sure that the end is flush with the shackle.



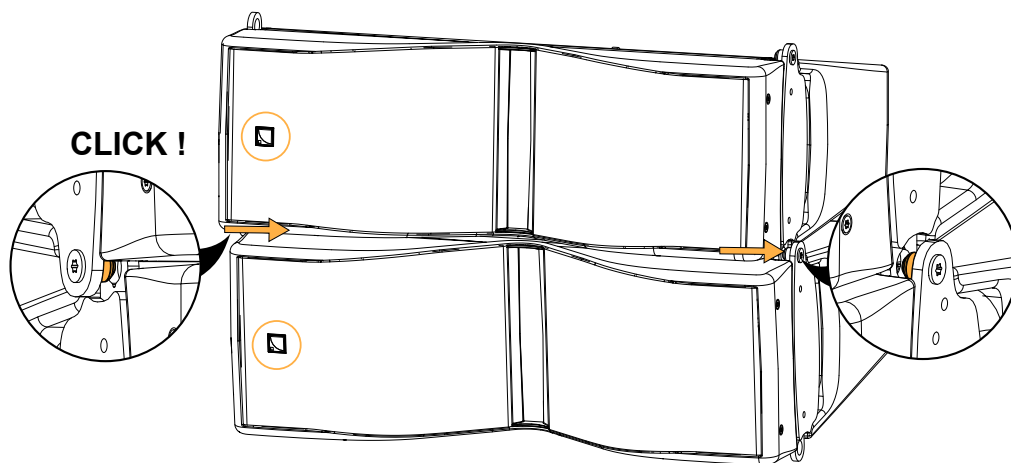
Related tasks

[Rigging part inspection](#) (p.31)

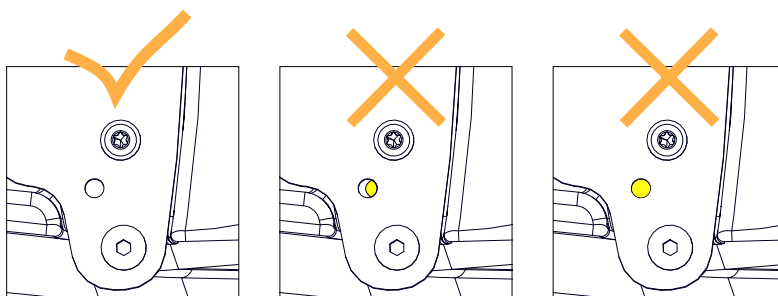
Rigging check

Procedure

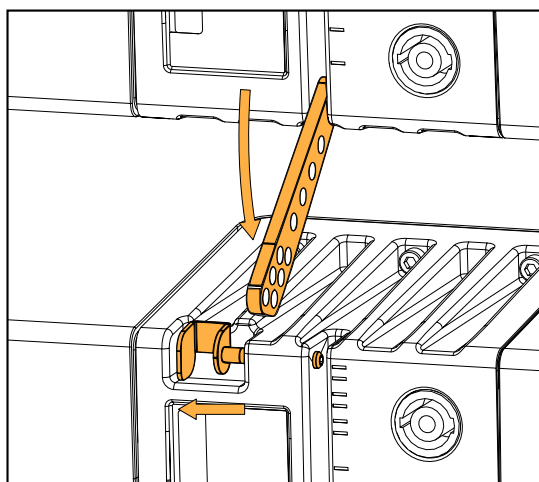
1. Secure one Kiva II on top of a second one (logos on the left).

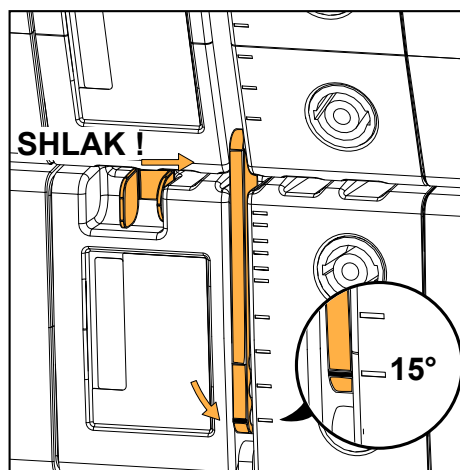
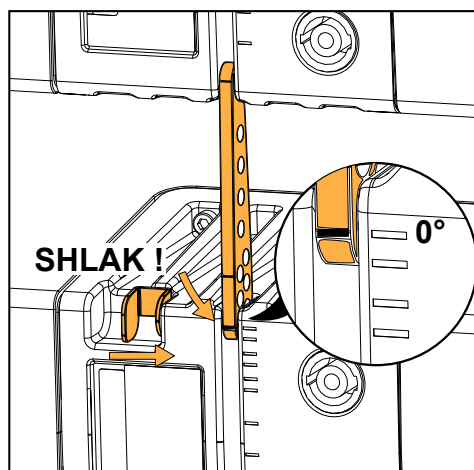


- The safety clicks back into place.
- Both rigging axis fit in their lodgings.
- The yellow label is not visible at all on the logo side.



2. Secure the rear rigging arm at the 0° and at the 15° position.

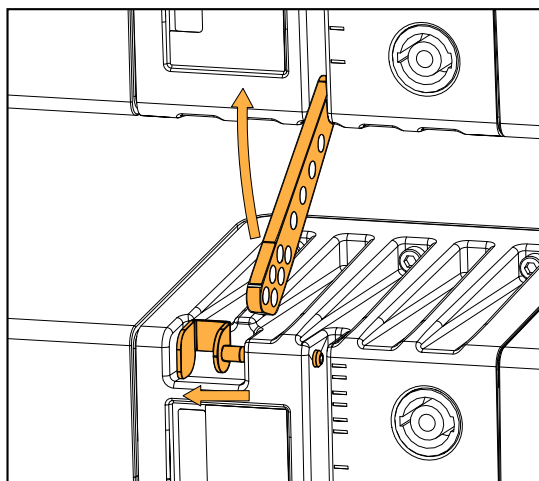




3. Hold the top enclosure by the handles and shake the assembly.

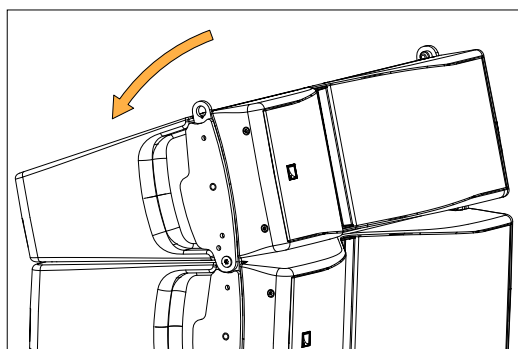
The two enclosures remain attached.

4. Release the rigging arm of the top enclosure.

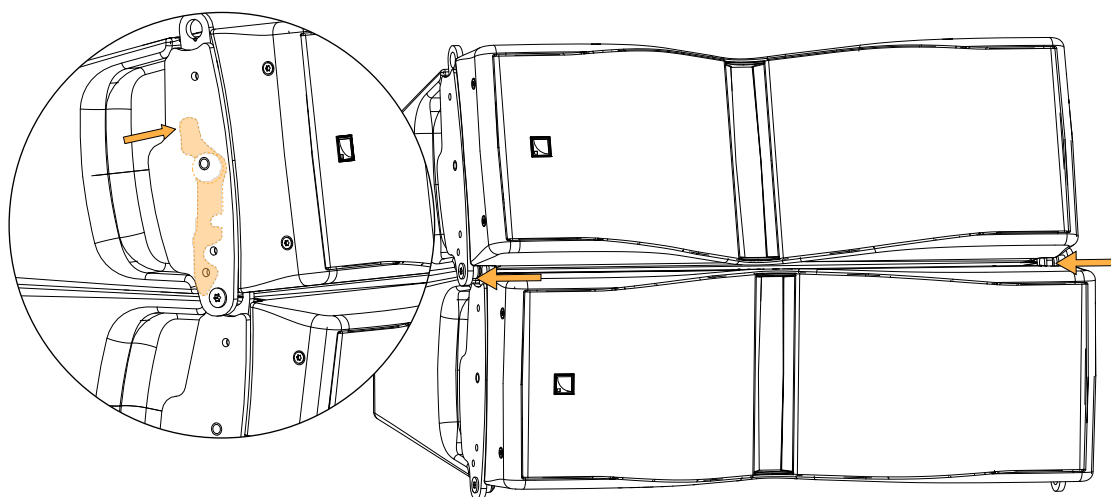


Risk of trapping hand/fingers

Carefully release the back of the enclosure until it rests on the assembly.



5. Unlock the mechanism inside the left handle of the top enclosure and slide the enclosure to the left.



6. Switch the enclosures and repeat the procedure.

Acoustical check

Enclosure check



This feature is available on:

LA4X

LA12X

ENCLOSURE CHECK measures impedance at the reference frequencies for the connected loudspeaker family. The measured impedance is compared to the expected range allowing for fast detection of loudspeakers presenting circuit continuity issues.



The results can be used for preliminary diagnosis but cannot replace a comprehensive quality control.

Prerequisite



ENCLOSURE CHECK measurements can only be reliable if the following requirements are met:

Environment and temperature:

- Ambient temperature must be comprised between 0 °C / 32 °F and 40 °C / 104 °F. Ideal temperature is 20 °C / 68 °F.
- Enclosures must be at room temperature. If warm from a recent high level use or recently moved from a cold environment, let the loudspeakers reach room temperature before starting.

Enclosures:

- Enclosures must be included in the embedded factory preset library.
- Enclosures must be in nominal operating conditions:
 - Remove covers or dollies obstructing the loudspeakers or the vents.
 - Check for obvious physical damage or air leak: visually inspect the grill, gasket, cabinet, and connector plate for loose, missing or damaged parts.

Connection:

- Use only 10 m / 30 ft 4 mm² / AWG 11 speaker cables.
- Do not connect enclosures in parallel.

Amplified controllers:

- LA4X must run at least firmware version 1.1.0.
- LA4X load sensors must be calibrated. Refer to the **Load Sensor Calibration Tool** technical bulletin for more information.
- LA4X must warm up for at least 10 minutes after power up. Do not power off, reboot or switch to standby mode to avoid resetting the countdown.
- Load a preset corresponding to the connected loudspeaker's family. Presets from the user memories may be used on condition they are made of presets supported in the embedded factory preset library.

Procedure

1. Power up the amplified controller. Let LA4X warm up for at least 10 minutes.
2. Connect the loudspeaker enclosures to the amplified controller.
3. Load a preset from or built from the embedded library corresponding to the connected loudspeaker family.
4. On the amplified controller, use the encoder wheel to select **MONITORING & INFO**. Press the OK key or the encoder wheel to validate.
5. Use the encoder wheel to select **ENCLOSURE CHECK**.



Beware of sound levels.

Although the sound pressure levels generated for the ENCLOSURE CHECK are moderate, do not stay within close proximity of the loudspeakers and consider wearing ear protection.

6. Press the OK key or the encoder wheel to launch the ENCLOSURE CHECK.

The amplified controller generates short sinusoidal signals simultaneously for each connected output.

The amplified controller displays the results for each output.

7. Depending on the displayed results, follow the instructions in the table.

result	interpretation	instructions
OK	measured impedance is within expected range	enclosure is in working order electrically
?	unsupported preset family	only supported enclosures should be tested
NC	Not Connected	if cables are connected: a. inspect the cables and connections b. go to step 8 (p.48)
NOK	measured impedance is not within expected range	a. check that all the prerequisites are met, in particular that the loaded preset corresponds to the connected speaker's family b. inspect the cables and connections c. go to step 8 (p.48)
UNDEF	measured impedance is undefined	

8. Under NC, NOK and UNDEF results, press and hold the corresponding OUT key.

The amplified controller displays:

- the tested frequencies,
- information on the measured impedance:
 - OPEN for open circuit (found in NC results),
 - SHORT for short circuit (found in NOK results), or
 - a percentage of variation from the expected range (found in NOK and UNDEF results)
- the number of operational transducers out of the total



Low variations from the expected range are acceptable: displayed percentage can be different from 0 and all transducers considered operational.

Listening test

enclosure	preset	usable bandwidth
Kiva II	[KIVA II]	70 Hz - 20 kHz

Procedure

1. Load the preset on an LA2Xi / LA4X / LA8 / LA12X amplified controller.
2. Connect a sinus generator to the amplified controller.



Risk of hearing damage

Set a low sound level to start and use ear protection to adjust before testing.

3. Scan the bandwidth focusing on the usable range.
The sound should remain pure and free of unwanted noise.

Troubleshooting for LF speakers

One or more LF speaker produces distorted, buzzing, rubbing, clicking, muffled or weak sound.

Possible causes

- The screws are not tightened with the appropriate torque.
- There is an air leak in the gasket.
- There is dust on the cone.
- The cone is damaged.
- The surround is torn or delaminated.
- The voice coil or the spider is damaged.

Procedure

1. Perform the speaker disassembly procedure.
2. Visually inspect the cables and the connectors.
3. Visually inspect the speaker cone, the voice coil and the spider.

If any damage is visible, replace the speaker.

4. Carefully clean the speaker with a dry cloth.
5. Perform the reassembly procedure.
Replace the speaker gasket and the screws.
Apply the recommended torque.

6. Repeat the listening test.

If the problem persists, replace the speaker.

Troubleshooting for HF drivers

One or more HF driver produces high-frequency harmonic distortions, strange vibrations or weak sound.

Possible causes

- There are foreign particles on the air gap.
- The diaphragm is not centered correctly.
- The screws used for reassembly are too loose.
- The diaphragm is damaged.

Procedure

1. Perform the diaphragm disassembly procedure.
2. Visually inspect the diaphragm and the voice coil.
If any damage is visible, replace the diaphragm.
3. Clean the air gap thoroughly.
Use double-face adhesive tape to remove any particles.

- 4.** Perform the diaphragm reassembly procedure.
Apply the recommended torque.
- 5.** Repeat the listening test.
If the problem persists, replace the driver.

Rigging procedures

Flying

Flying a Kiva II array

type of deployment	flown array
rigging accessory	KIBU II / KIBU-SB
	2 x Ø12 mm shackles WLL 1 t (provided)
min number of operators	2

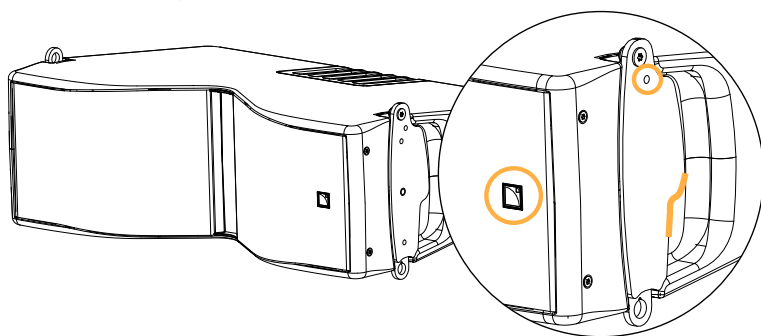


Risk of falling objects

Verify that no unattached items remain on the product or assembly.



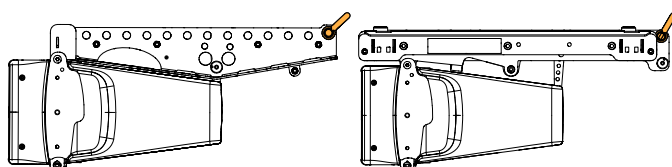
On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).



Pickup point for pullback deployment

Use hole 13 on KIBU II.

Use hole 14 on KIBU-SB for Kiva II.



Assembly

Procedure

1. Bring a stack of four Kiva II (logos on the right-hand side) under the lifting point.
All angles must be at 0°.
2. Secure the rigging frame on top of the stack.

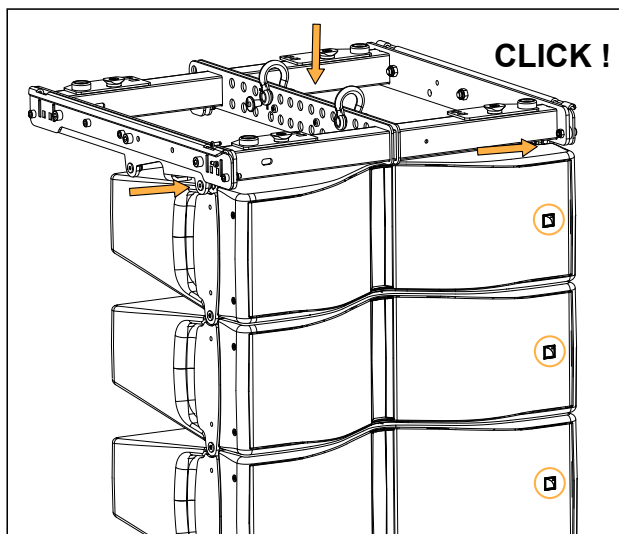
- With KIBU-SB

Use the front or rear position.

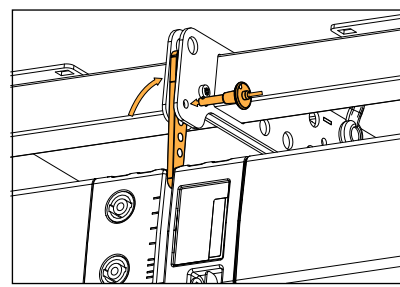
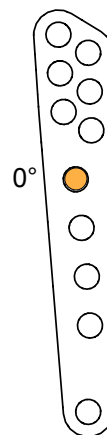
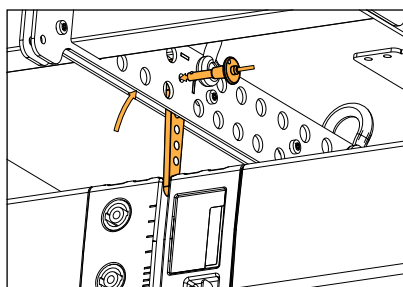
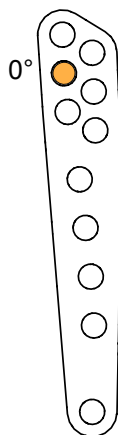
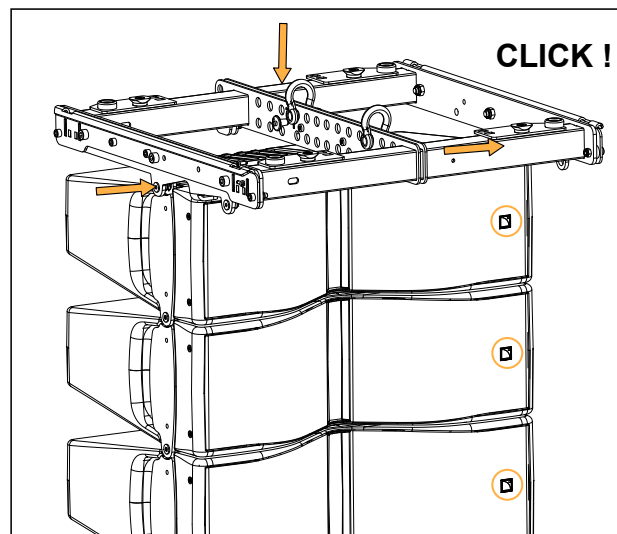
Select the 0° angle on the rigging arm.

Secure the rigging arm with the ball-locking pin.

front position



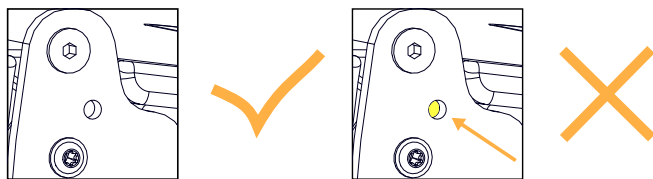
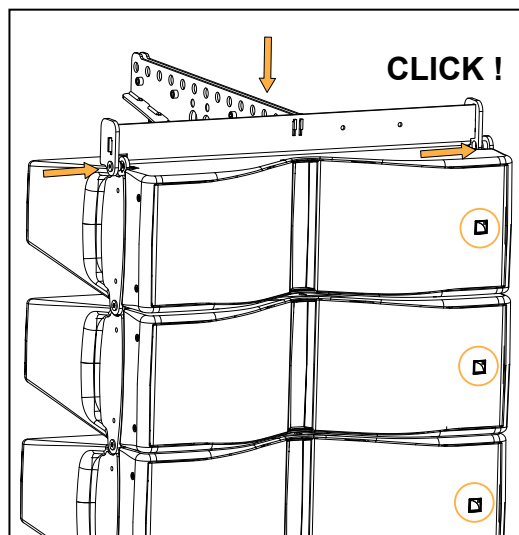
rear position



**Final check**

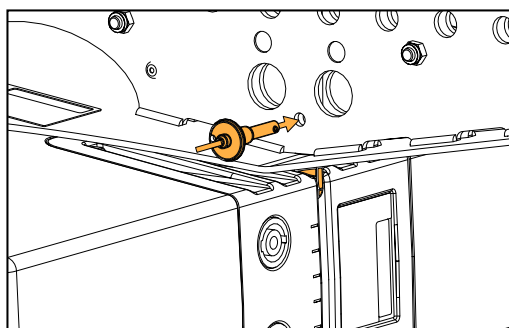
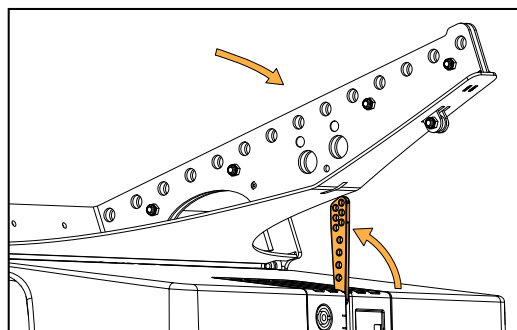
The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.

**- With KIBU II**

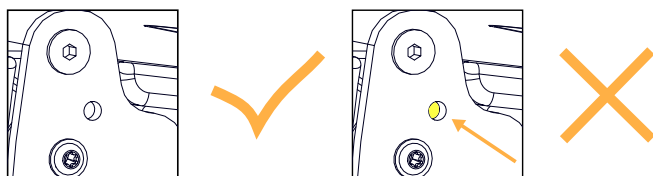
Insert the rigging arm in the slot. Lower the KIBU II until it rests on the enclosure to ensure a 0° angle.

Secure the rigging arm with the ball-locking pin.

**Final check**

The yellow label is not visible on the logo side.

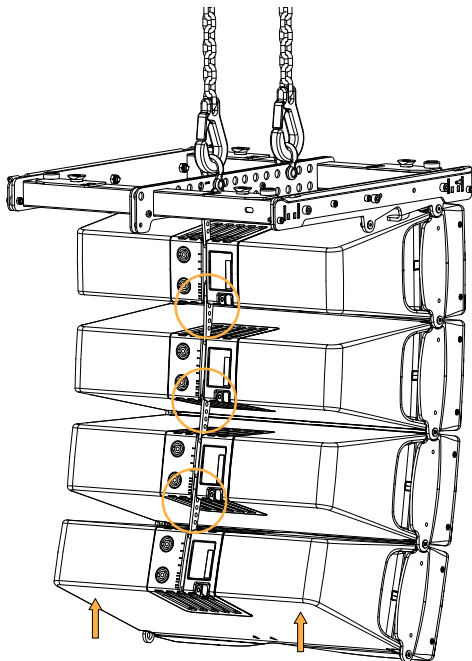
Shake the assembly up and down and from side to side to verify that all linking points are secured.

**3. Choose the pickup point(s) and fly the assembly.**

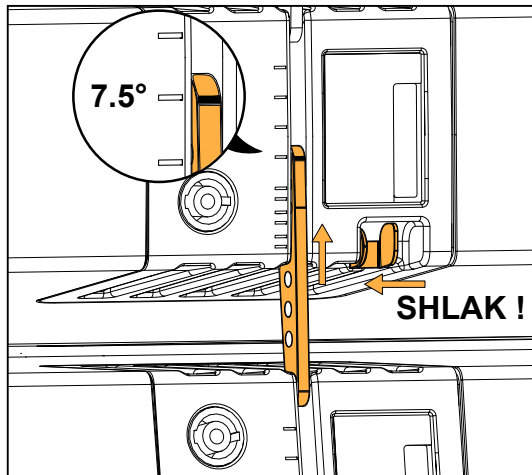
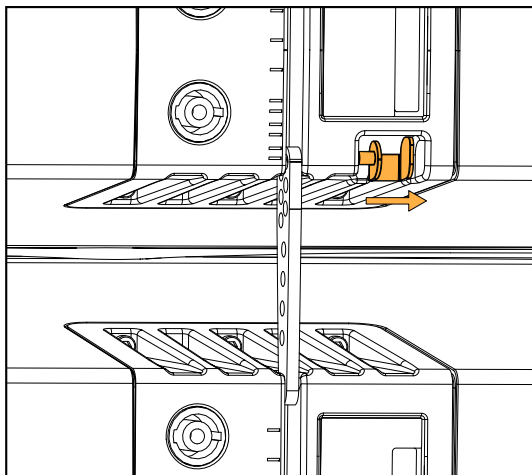


Hold the bottom enclosure at all times.

4. Set each inter-enclosure angle by lifting the array.



Align the mark on the rigging arm with the chosen angle mark.



5. Bring a second stack of four Kiva II (logos on the right-hand side) under the array.
All angles must be at 0°.



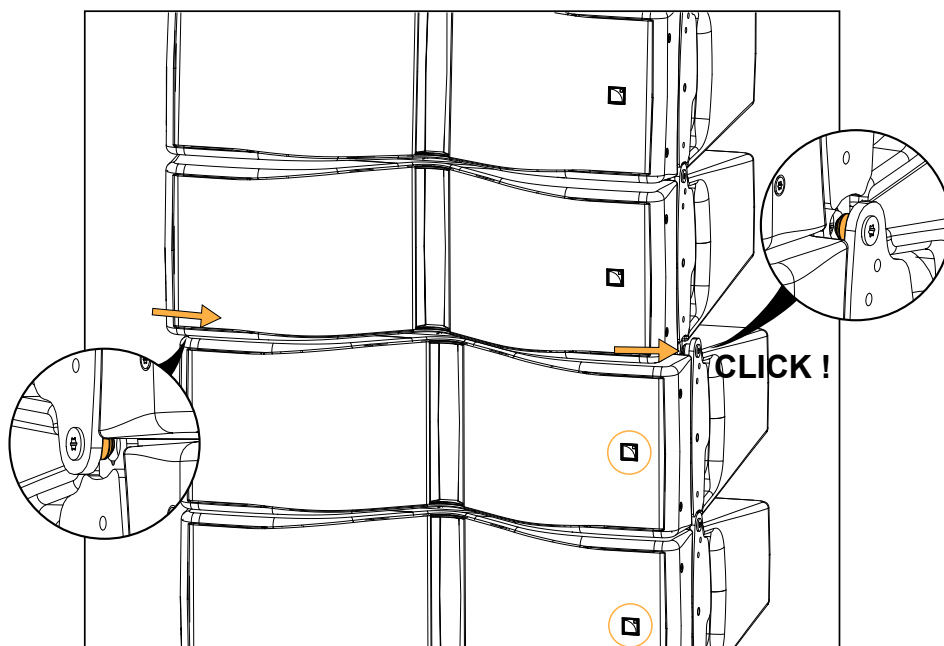
Risk of trapping hand/fingers



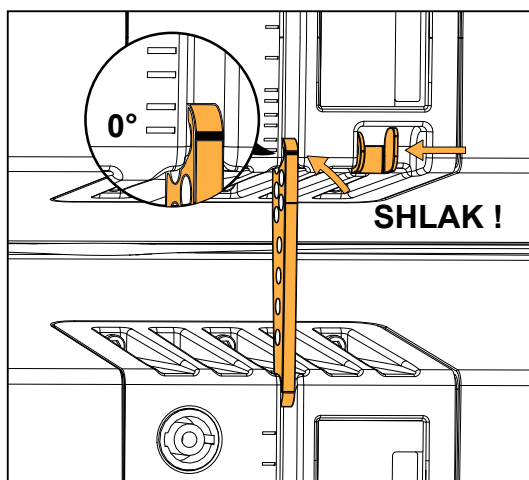
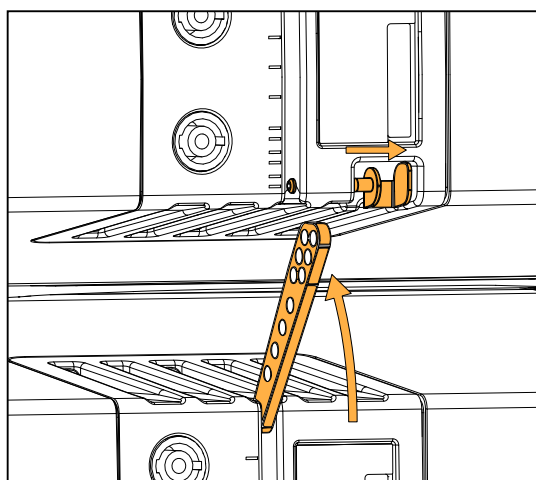
Do not rest the array completely on the stack

Make adjustments to align the rigging points.

6. Lower the array and connect it to the stack.



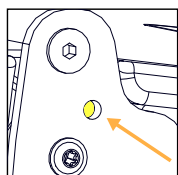
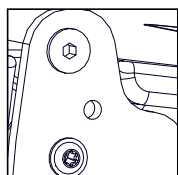
Set the inter-enclosure angle at 0°.



Final check

The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.



Do not stand behind the array.

The array swings backward when it is raised.

7. Raise the assembly.

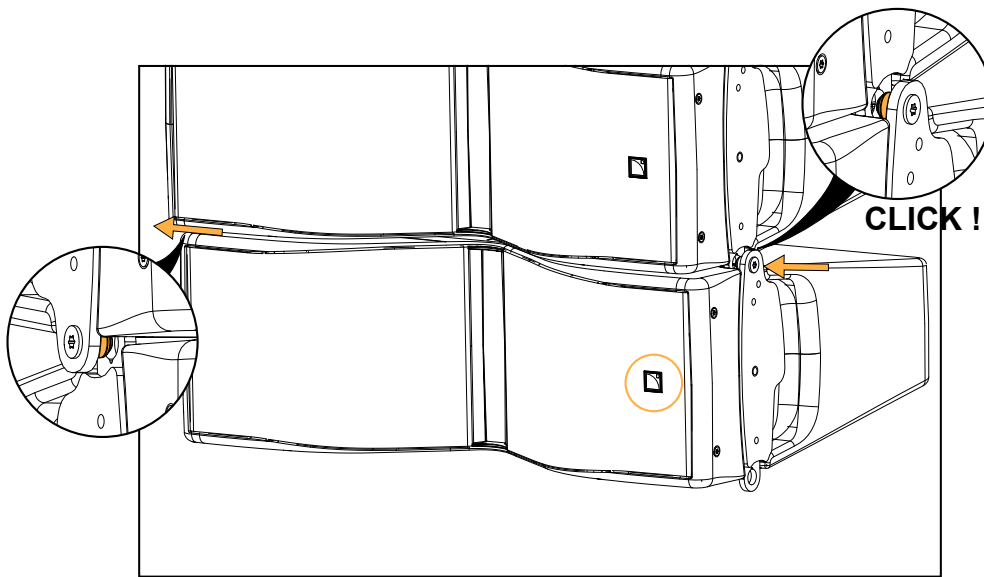
8. Set the inter-enclosure angles.



Do not use this method for an array bigger than eight enclosures.

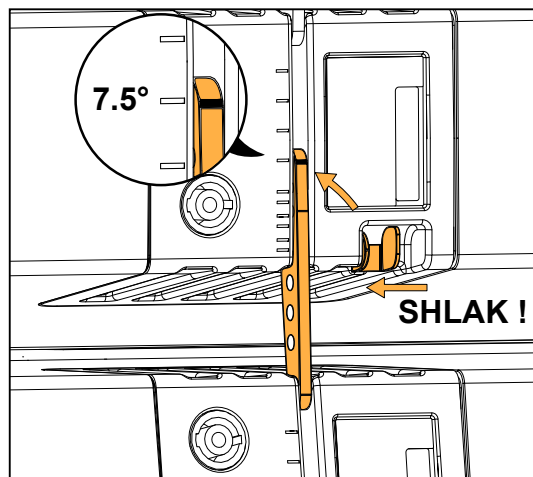
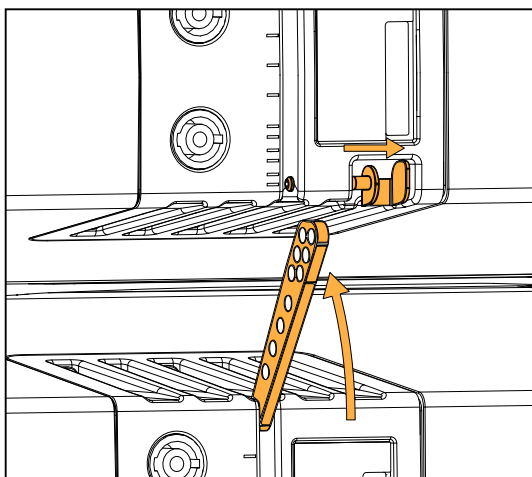
Any additional enclosure must be connected one by one as follows.

9. Connect a Kiva II (logo on the right-hand side) under the array.



Set the inter-enclosure angle.

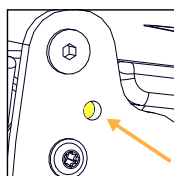
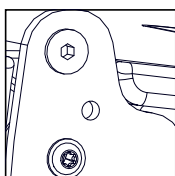
Align the mark on the rigging arm with the chosen angle mark.



Final check

The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.



Flying a Kiva II / SB15m array

type of deployment	flown array
rigging accessory	KIBU-SB
	2 x Ø12 mm shackles WLL 1 t (provided)
min number of operators	2

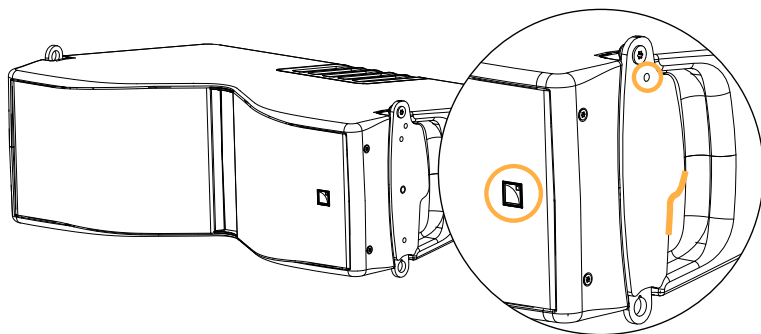


Risk of falling objects

Verify that no unattached items remain on the product or assembly.

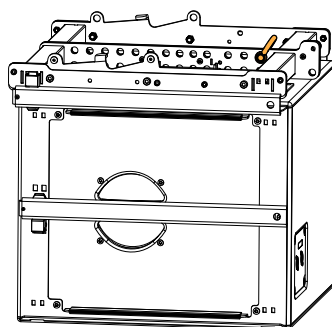


On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).



Pickup point for pullback deployment

Use hole 13 on KIBU-SB for SB15m.



Maximum negative site angle with SB15m

The negative site angle is limited by the lifting element.

The element must not come in contact with KIBU-SB



Cardioid configuration

A cardioid configuration is an array of four subwoofers with one reversed element.

Refer to the subwoofer user manual and to the **Cardioid configurations** technical bulletin for details about the use of this configuration.

Any of the following subwoofer arrays can be set in cardioid configuration.

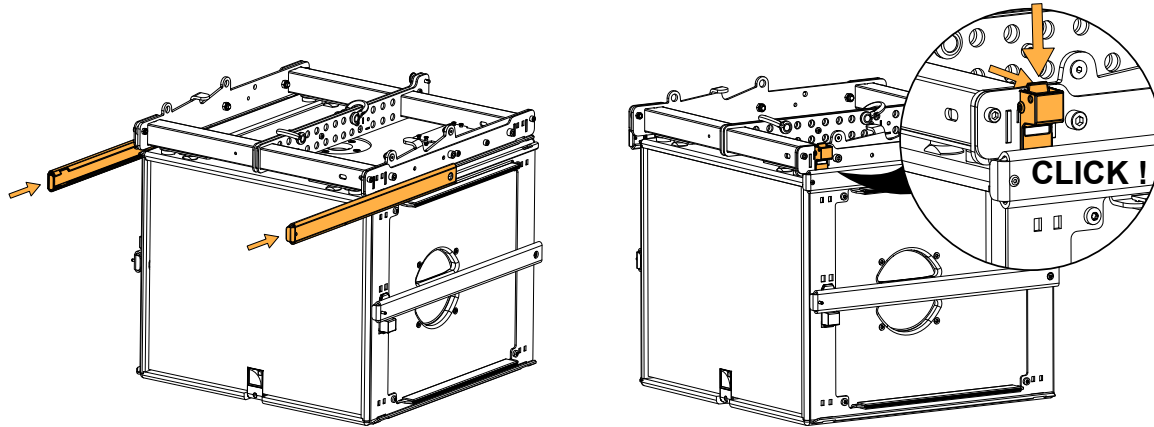
Assembly

Procedure

1. Secure KIBU-SB on SB15m.

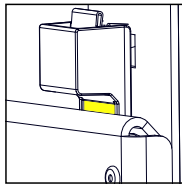
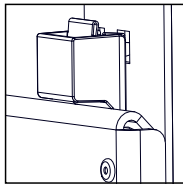
Use the coupling bars provided with the KIBU-SB.

Secure the coupling bars with the locking tabs.



Make sure the safety label on each locking tab is fully covered.

Make sure the lugs are in the notches.



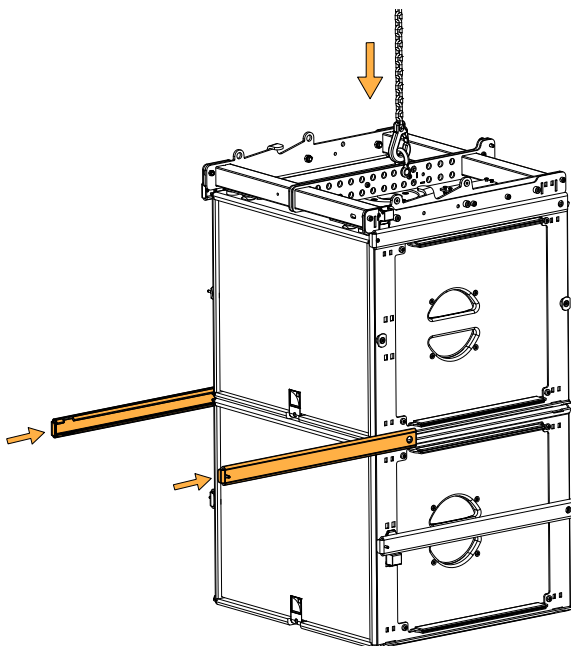
2. Lift the array.

3. Position a SB15m under the assembly.

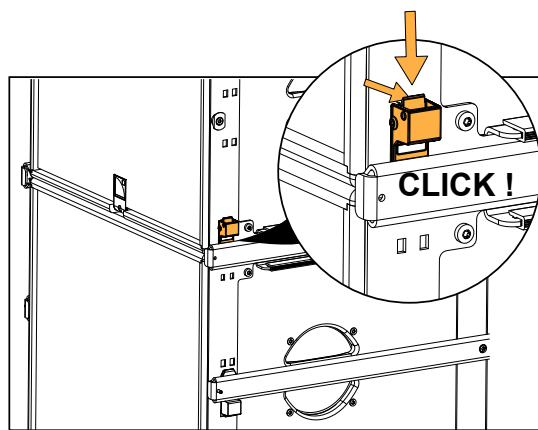
4. Lower the array until it rests on the subwoofer

5. Secure the SB15m under the array.

Use the coupling bars from the top subwoofer.

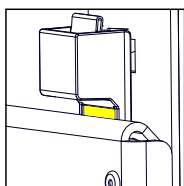
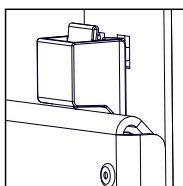


Secure the coupling bars with the locking tabs.



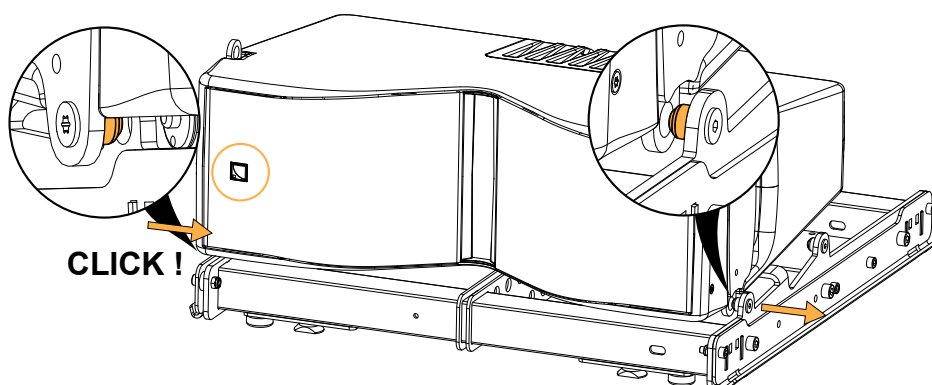
Make sure the safety label on each locking tab is fully covered.

Make sure the lugs are in the notches.

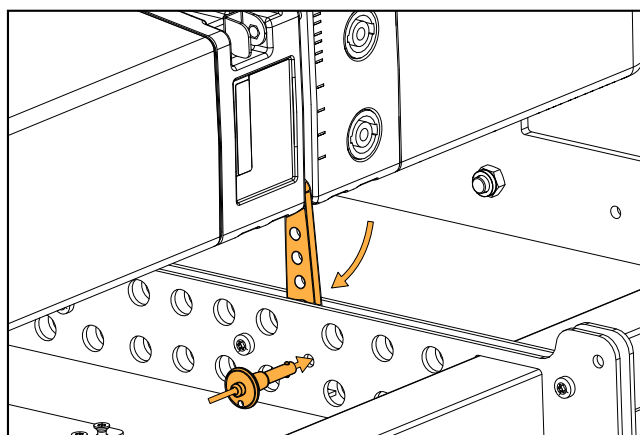
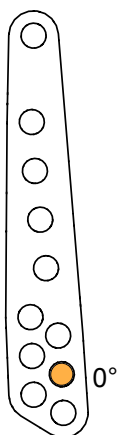


6. Repeat steps 2 (p.58) to 5 (p.58) until the subwoofer array is complete.
7. Secure a Kiva II (logo on the left-hand side) on a KIBU-SB (coupling bars removed).

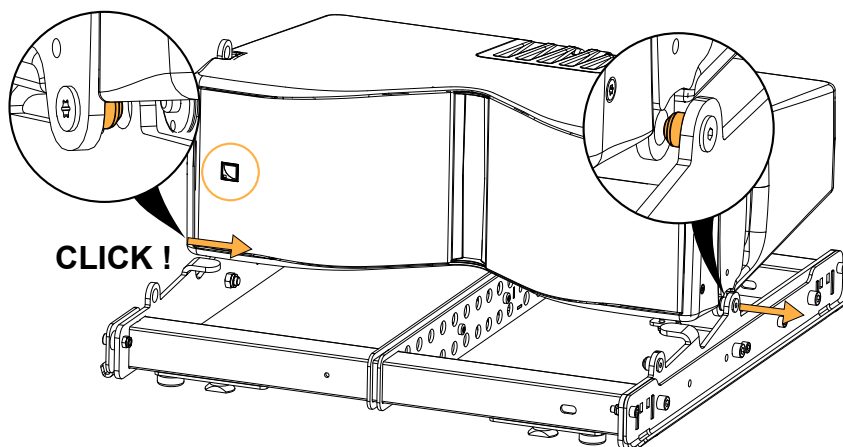
- Front position



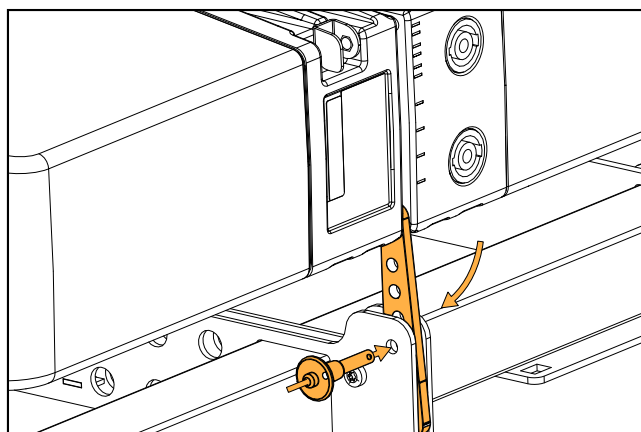
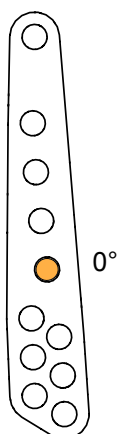
Select the 0° angle on the rigging arm.



- Rear position



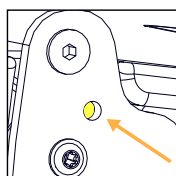
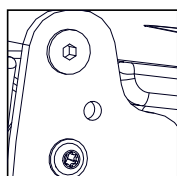
Select the 0° angle on the rigging arm.



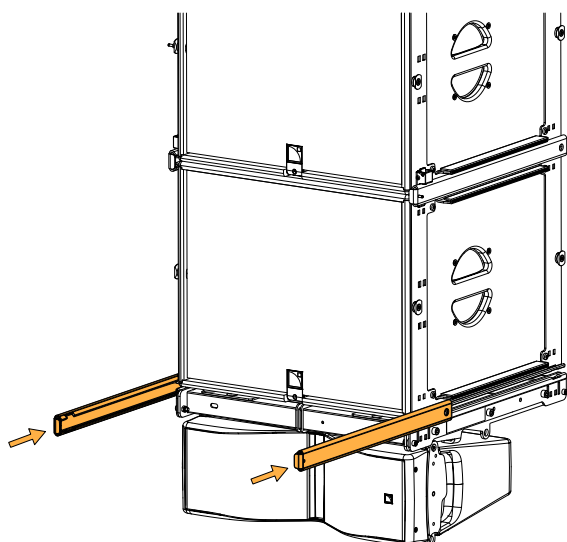
Final check

The yellow label is not visible on the logo side.

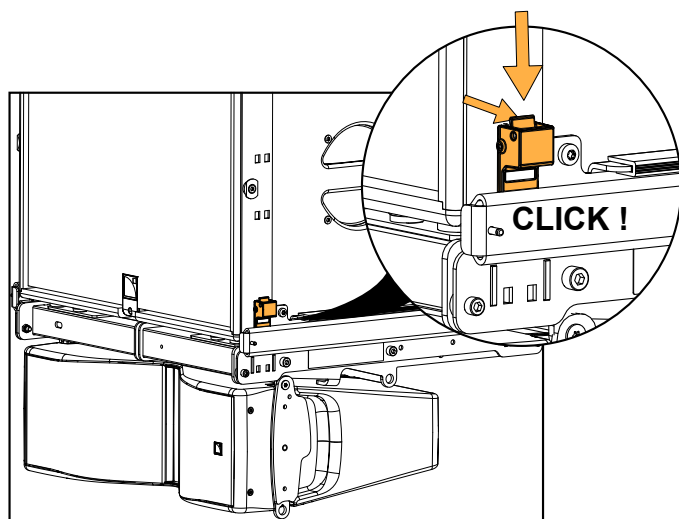
Shake the assembly up and down and from side to side to verify that all linking points are secured.



8. Turn the assembly upside-down and secure it under the SB15m array with coupling bars.

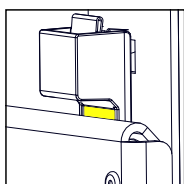
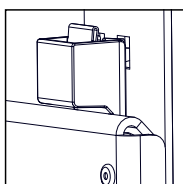


Secure the coupling bars with the locking tabs.

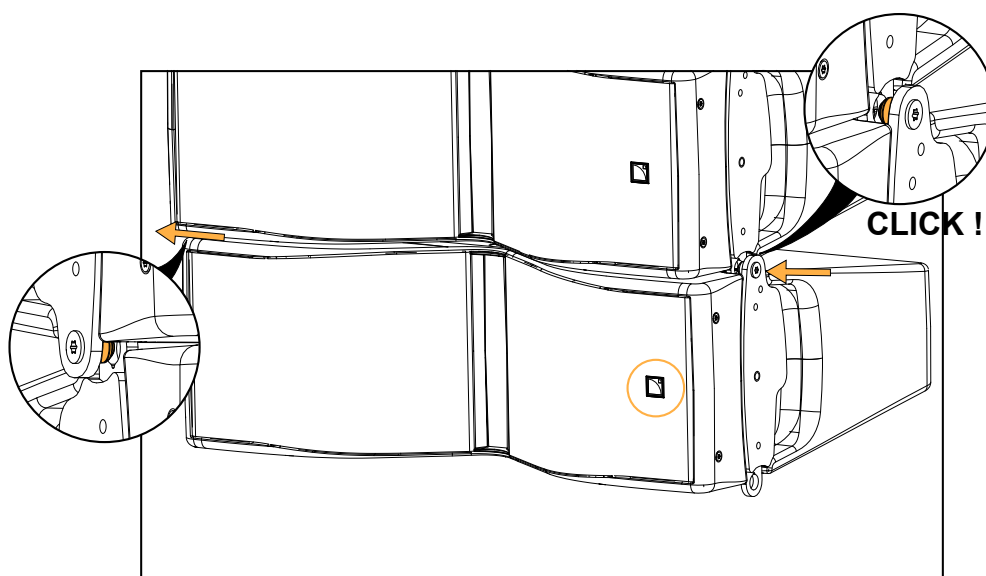


Make sure the safety label on each locking tab is fully covered.

Make sure the lugs are in the notches.

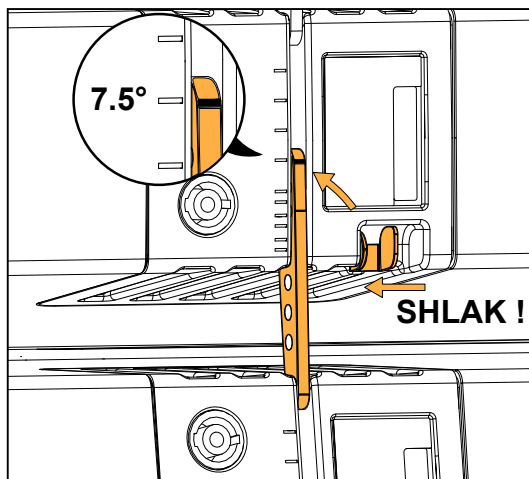
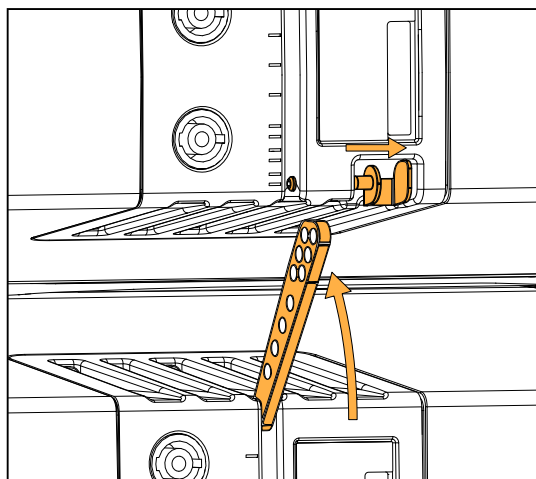


9. Connect a Kiva II (logo on the right-hand side) under the array.



Set the inter-enclosure angle.

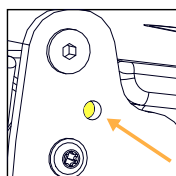
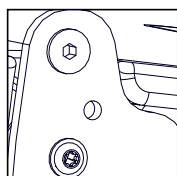
Align the mark on the rigging arm with the chosen angle mark.



Final check

The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.



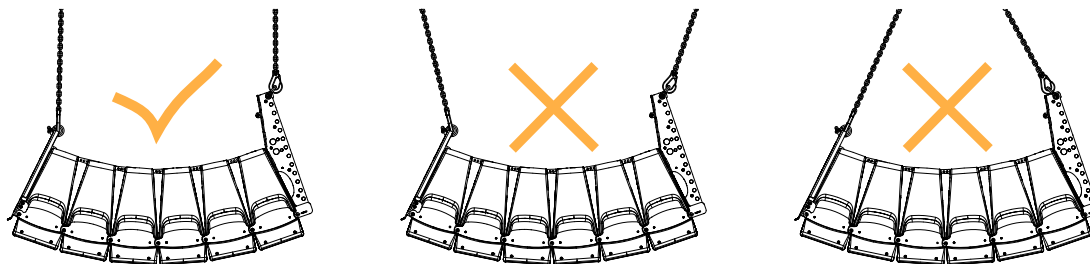
Adding a pull-back under Kiva II

type of deployment	flown array
rigging accessory	KIVA-PULLBACK
	1 x Ø12 mm shackle WLL 1 t
min number of operators	1

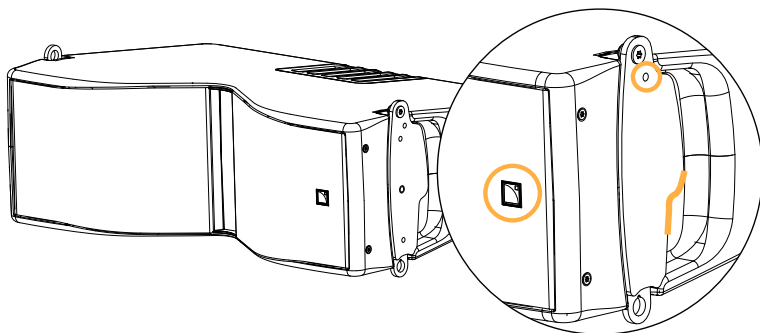


Space between lifting points

The space between the two lifting points must be aligned with the array pickup points. The deployment load-bearing lines must be parallel to each other.



On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).

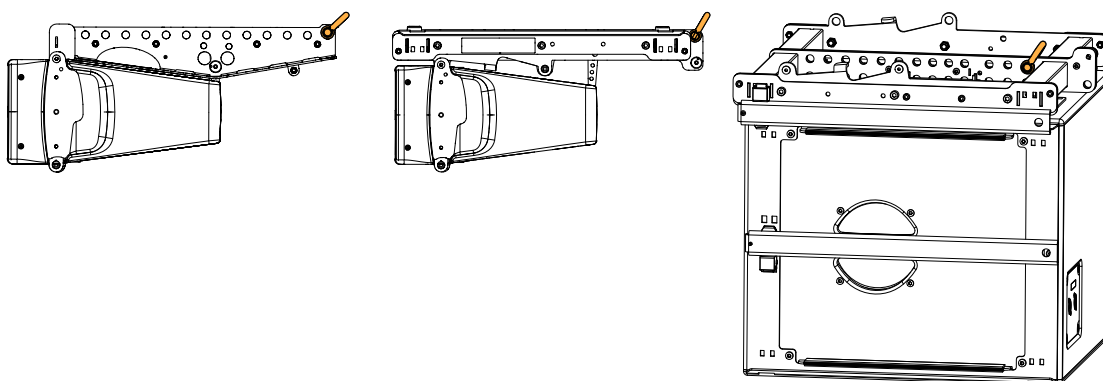


Pickup point for pullback deployment

Use hole 13 on KIBU II.

Use hole 14 on KIBU-SB for Kiva II.

Use hole 13 on KIBU-SB for SB15m.



Maximum negative site angle with SB15m

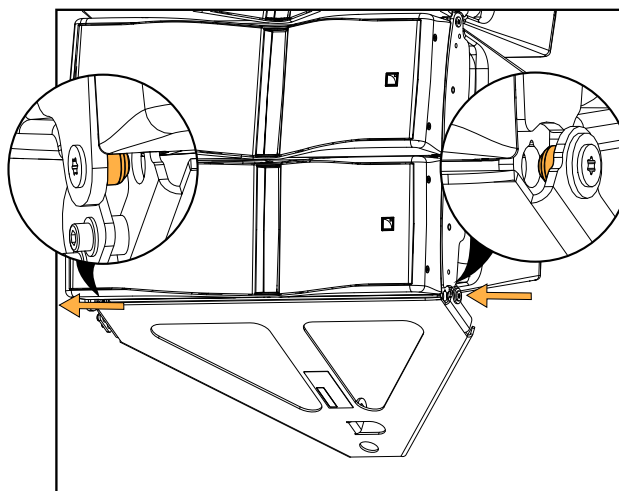
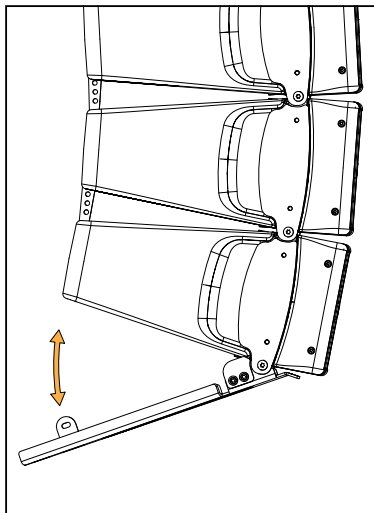
The negative site angle is limited by the lifting element.

The element must not come in contact with KIBU-SB

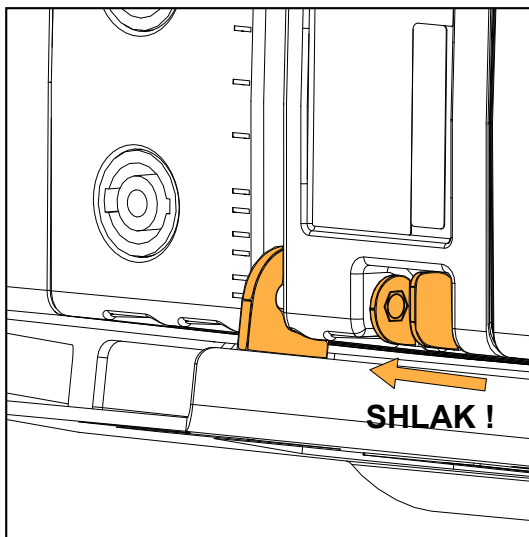
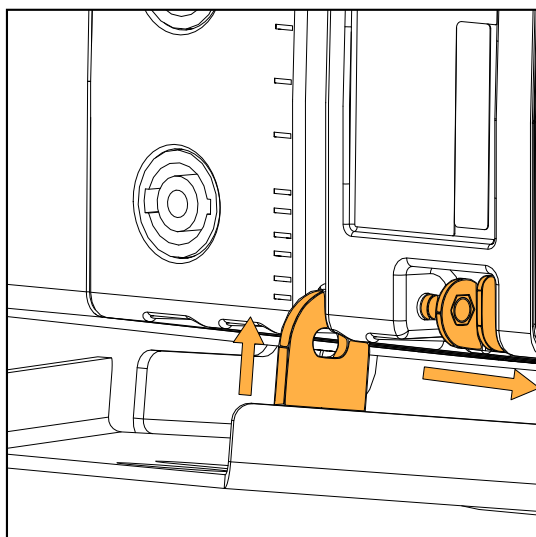
Assembly

Procedure

1. Secure a KIVA-PULLBACK under the bottom enclosure.
Rotate the accessory to find the correct locking position.



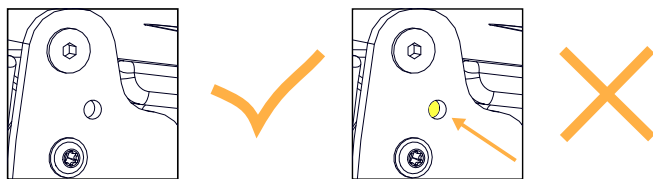
Secure the rear piece in the spring-lock safety of the bottom enclosure.



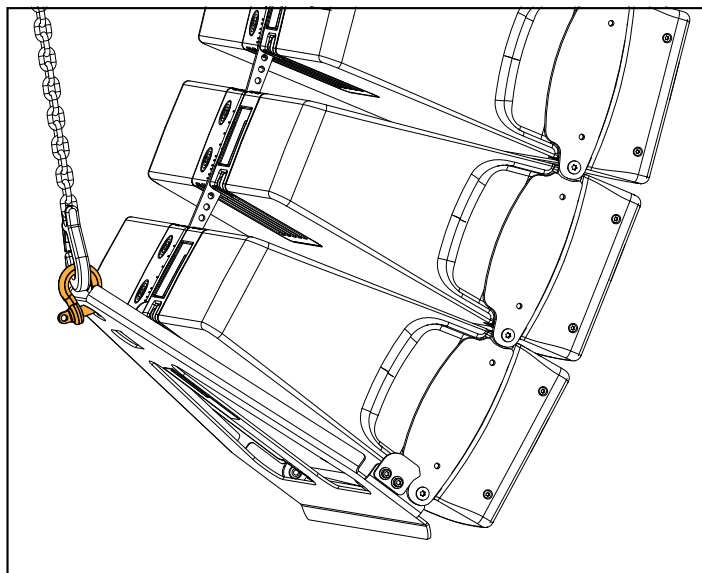
**Final check**

The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.



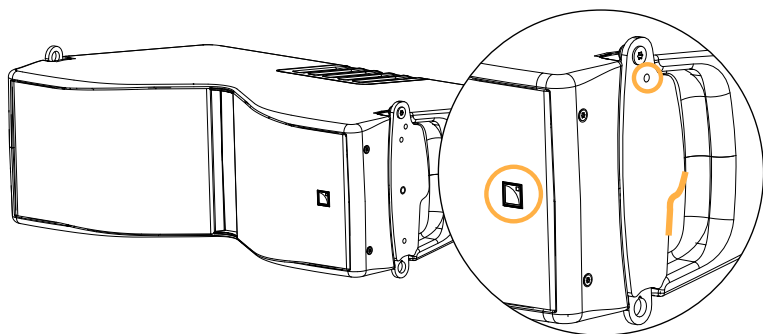
2. Secure a shackle to KIVA-PULLBACK and lift it with an additional motor.



Ceiling-mounting Kiva II

type of deployment	ceiling-mount
rigging accessory	KIET II
	3 M8 spacers (provided)
	3 M8 screws (depending on the ceiling material)
min number of operators	2

! On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).

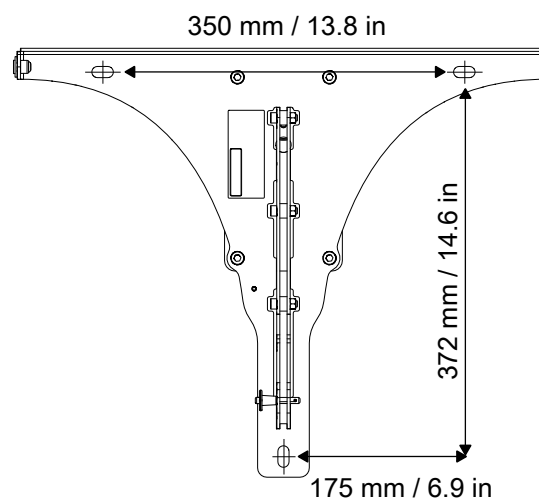
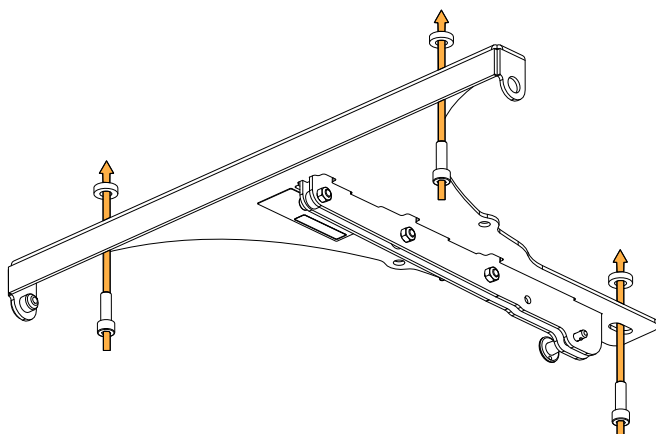


Assembly

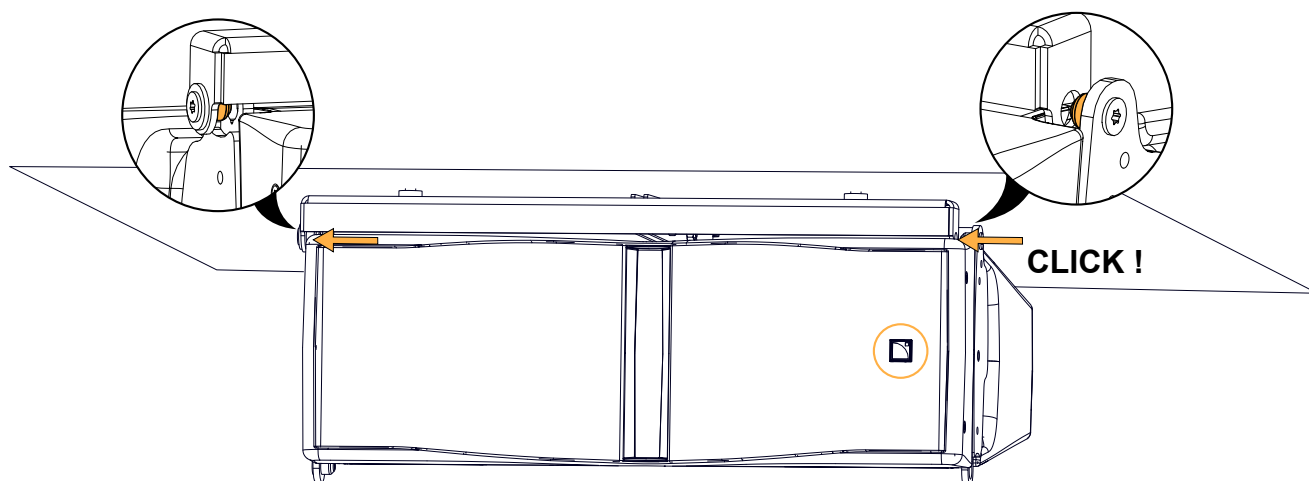
Procedure

1. Secure KIET II (pole socket removed) with the three M8 screws and spacers.

! Use the spacers provided with the pole-mount socket.



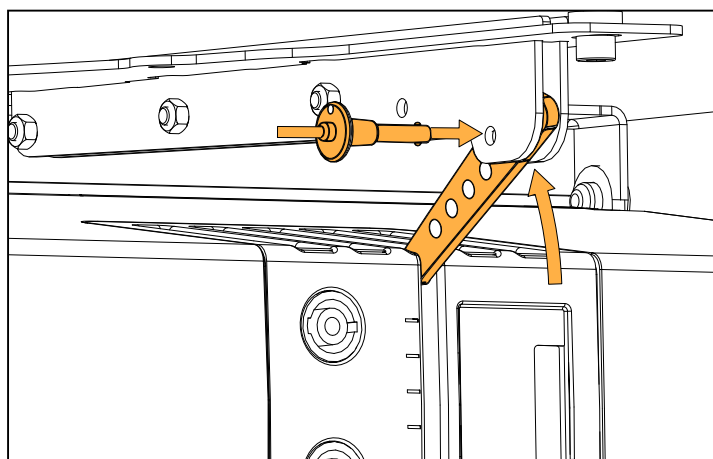
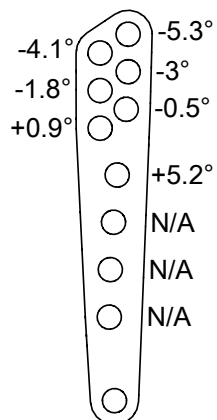
2. Secure Kiva II (logo on the right-hand side) under KIET II.



Select the site angle on the rigging arm.



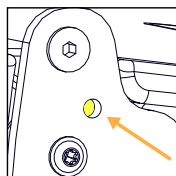
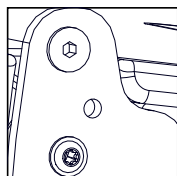
Use the applicable rear linking point, as illustrated.



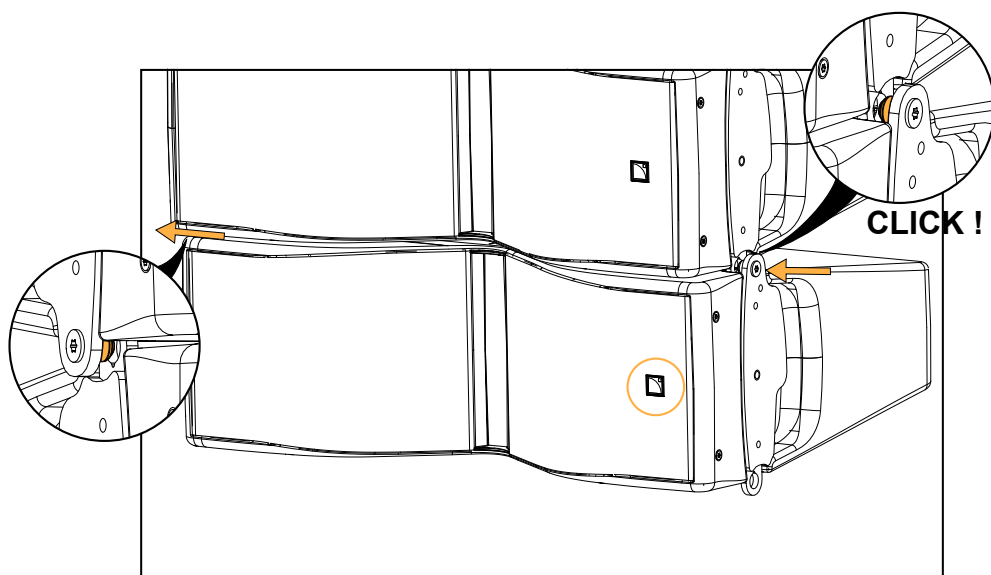
Final check

The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.

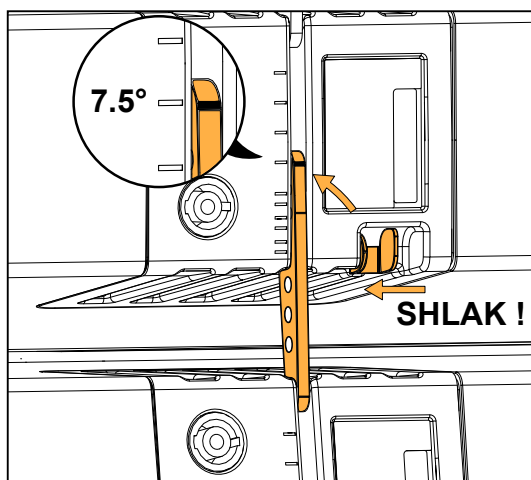
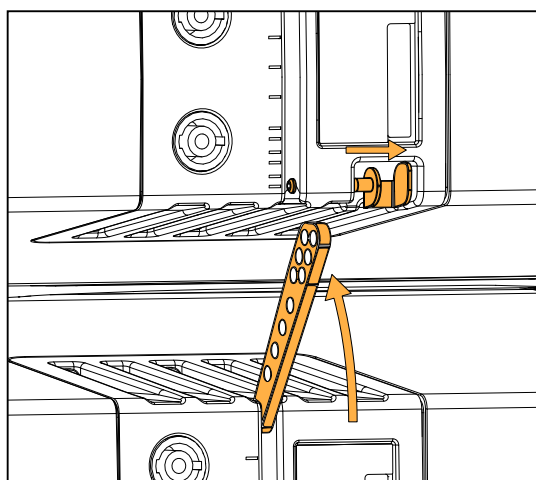


3. Connect a Kiva II (logo on the right-hand side) under the array.



Set the inter-enclosure angle.

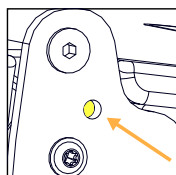
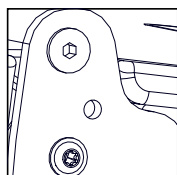
Align the mark on the rigging arm with the chosen angle mark.



Final check

The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.

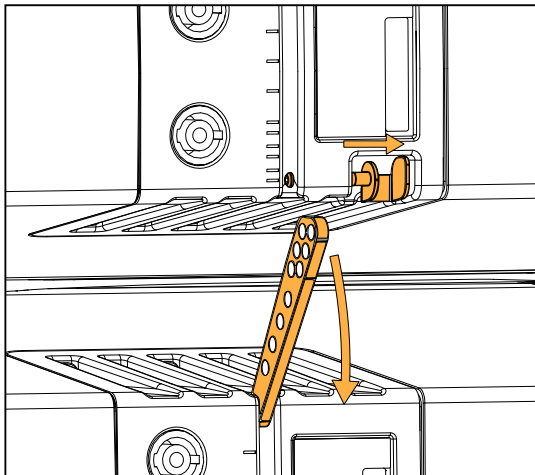


Disassembly

Removing one Kiva II

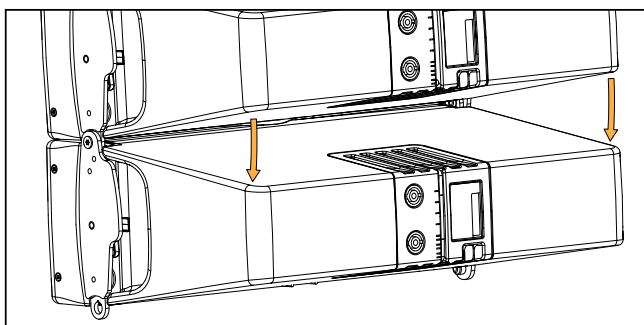
Procedure

1. Release the rigging arm of the bottom enclosure.
Slightly lift the enclosure if necessary.

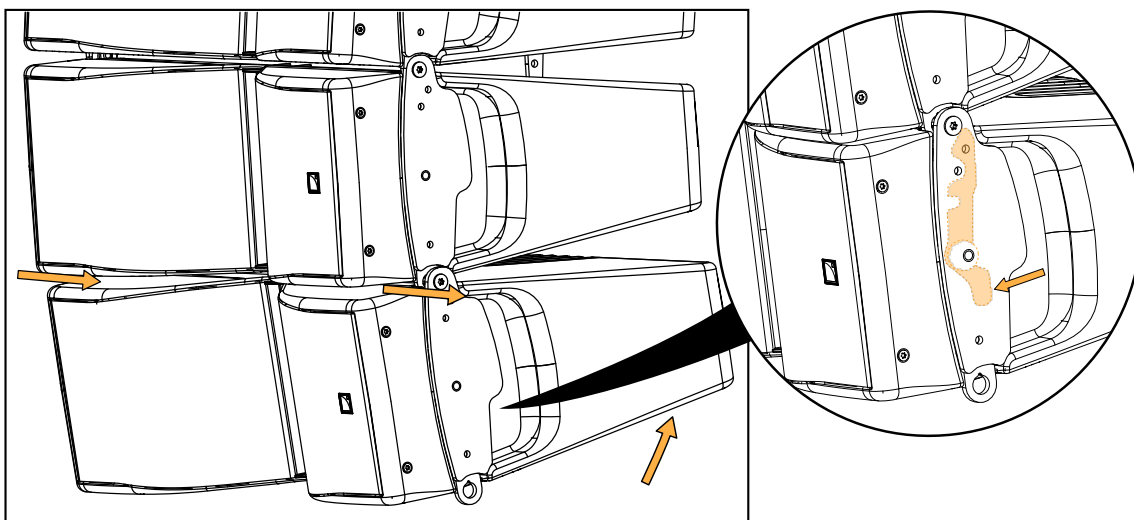


Risk of fall

Carefully lower the rear of the enclosure.



2. Release the enclosure.
Slightly lift the rear of the enclosure if necessary.



Removing a stack of four Kiva II

About this task

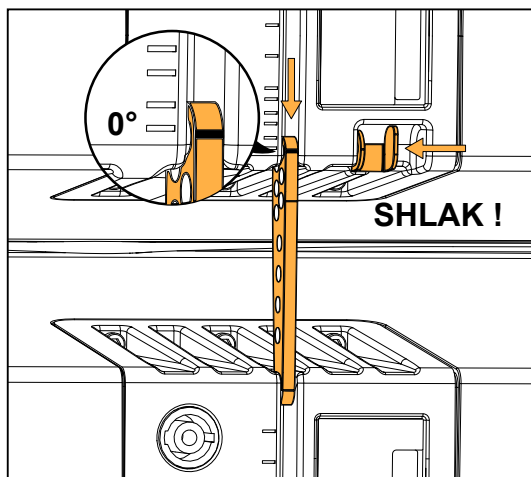
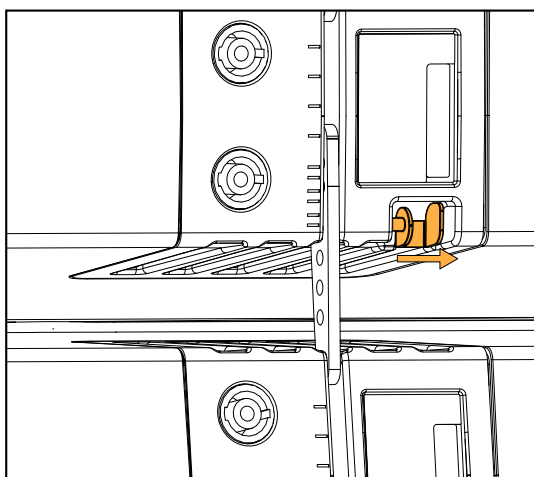
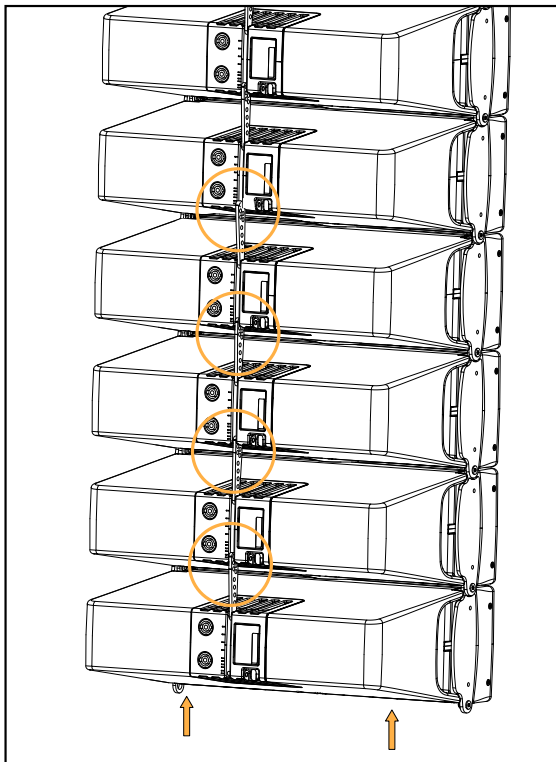
! Use this method for an array of eight or less Kiva II.
Any additional enclosure must be removed one by one.

! Minimum number of operators: 2

Procedure

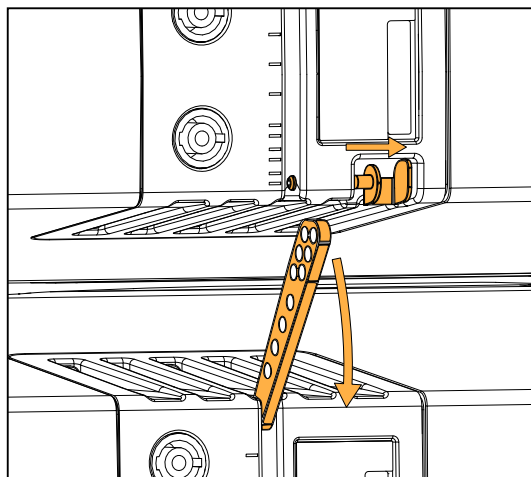
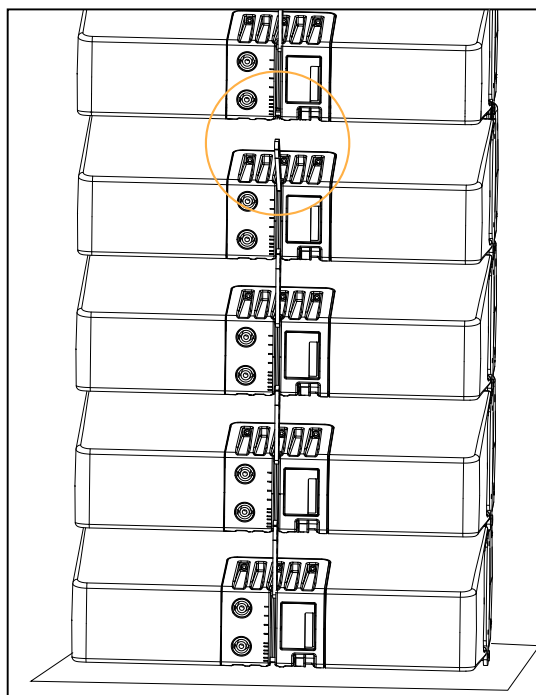
! Hold the bottom enclosure at all times.

1. Set the inter-enclosure angles at 0° for the four bottom enclosures.

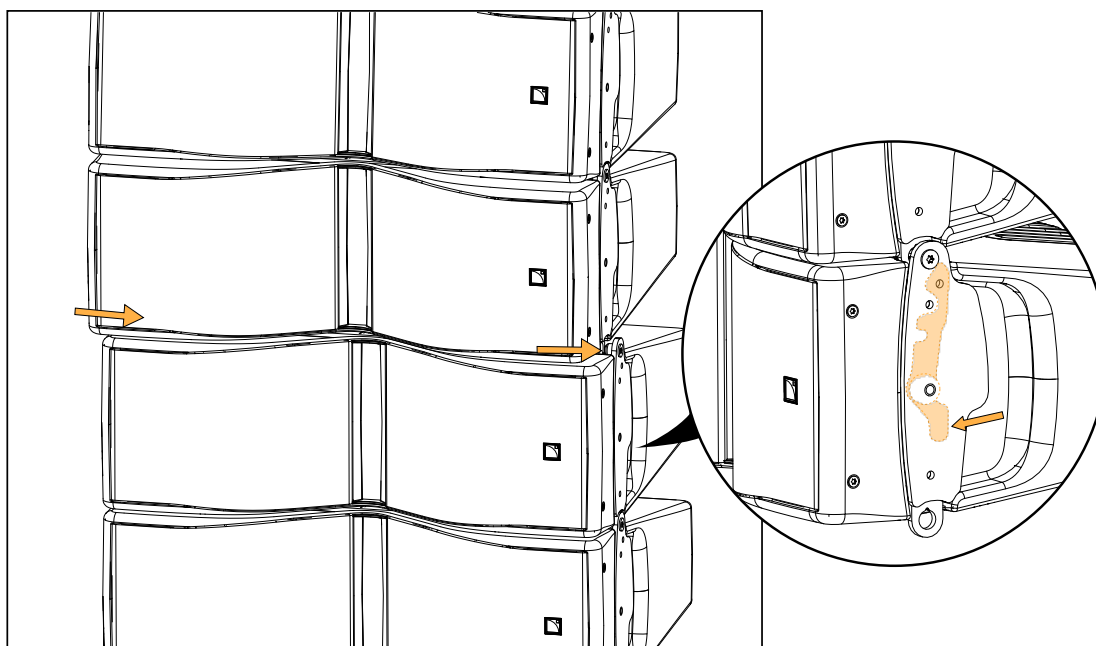


2. Lower the array onto a platform or a chariot.

- 3.** Release the rigging arm of the upper enclosure to disconnect the stack at the rear.



- 4.** Release the top enclosure.



- 5.** Raise the array and put the stack aside.

Stacking

Stacking Kiva II on SB15m

type of deployment	stacking
rigging accessory	KIBU-SB
min number of operators	1



Additional safety

Secure the stack with straps.



Risk of falling objects

Verify that no unattached items remain on the product or assembly.



Cardioid configuration

A cardioid configuration is an array of four subwoofers with one reversed element.

Refer to the subwoofer user manual and to the **Cardioid configurations** technical bulletin for details about the use of this configuration.

Any of the following subwoofer arrays can be set in cardioid configuration.

Assembly

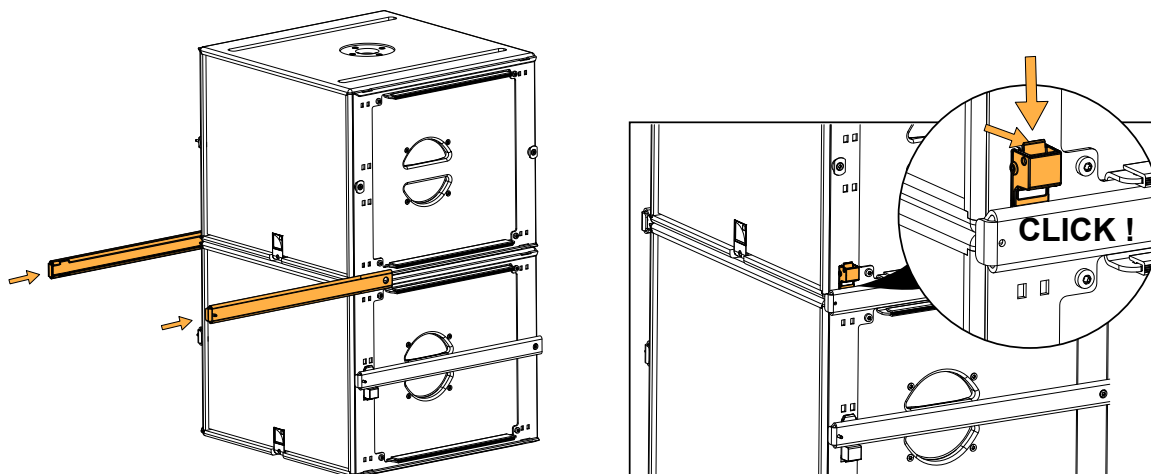
About this task

To ground-stack Kiva II on KIBU-SB, start at step 3 (p.73).

Procedure

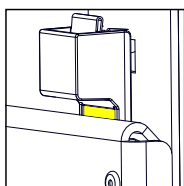
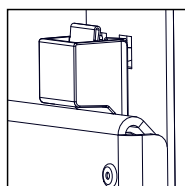
1. Prepare a stack of SB15m.

Secure the coupling bars with the locking tabs.



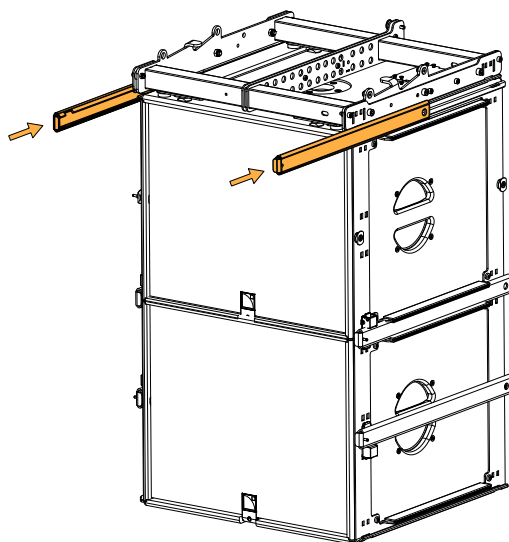
Make sure the safety label on each locking tab is fully covered.

Make sure the lugs are in the notches.

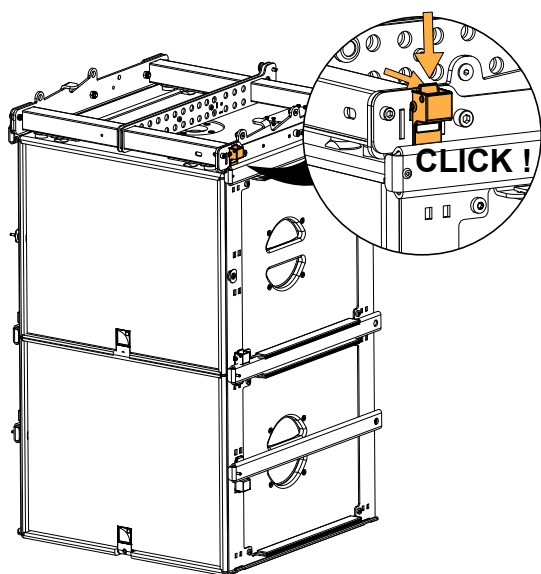


2. Secure KIBU-SB on top of the SB15m stack.

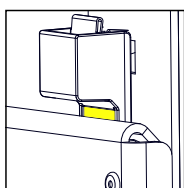
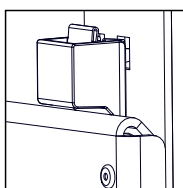
Use the KIBU-SB coupling bars.



Secure the coupling bars with the locking tabs.



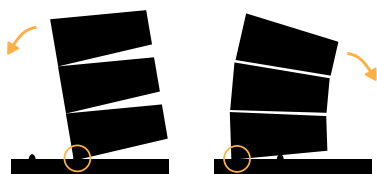
Make sure the safety label on each locking tab is fully covered.
Make sure the lugs are in the notches.



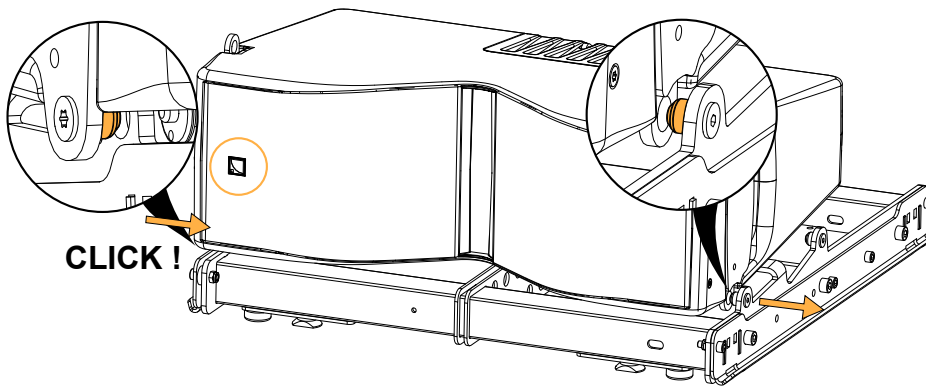
3. Secure Kiva II (logo on the left-hand side) on KIBU-SB (coupling bars removed).



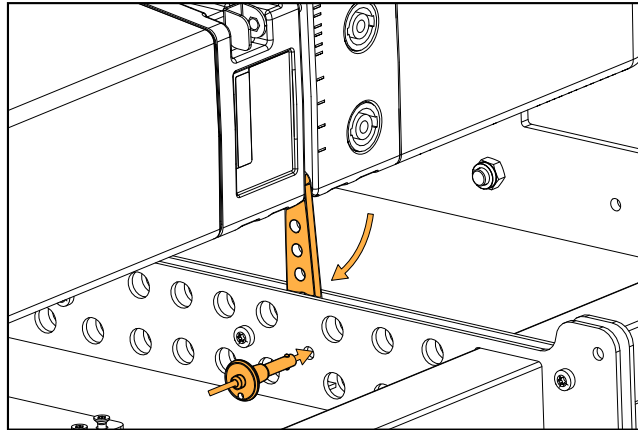
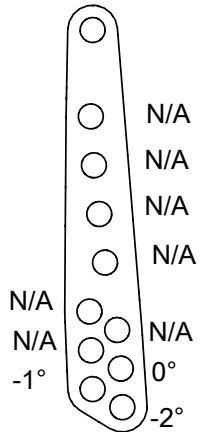
For optimal stability, prefer the rear position for a front-tilting array and the front position for a rear-tilting array.



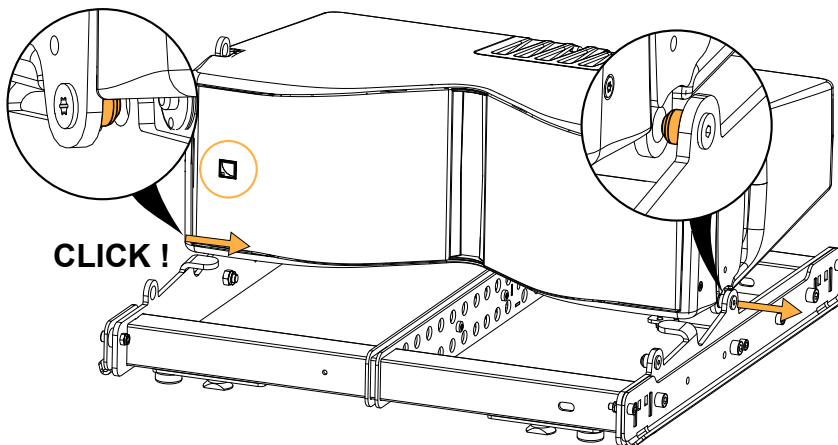
- Front position



Select the site angle on the rigging arm.



- Rear position

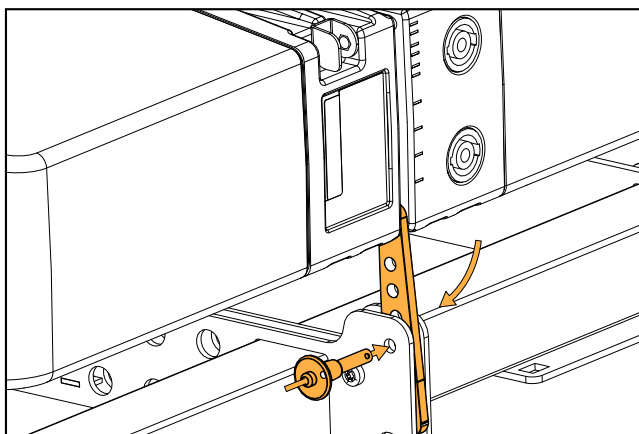
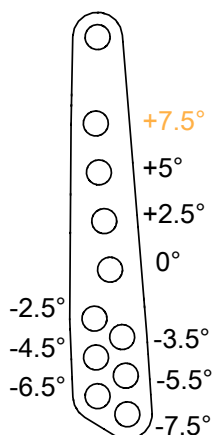


Select the site angle on the rigging arm.



Kiva II in rear position with a positive 7.5° angle

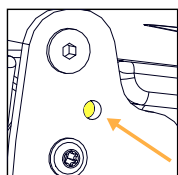
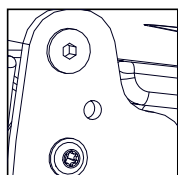
The positive 7.5° angle is only available when Kiva II and KIBU-SB are stacked on SB15m. When Kiva II and KIBU-SB are ground-stacked, the rigging arm cannot be secured at 7.5°.



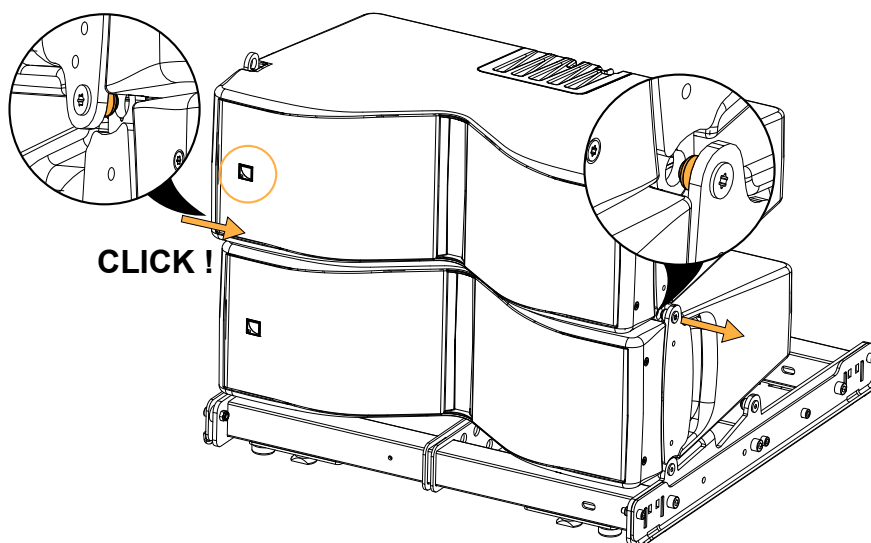
Final check

The yellow label is not visible on the logo side.

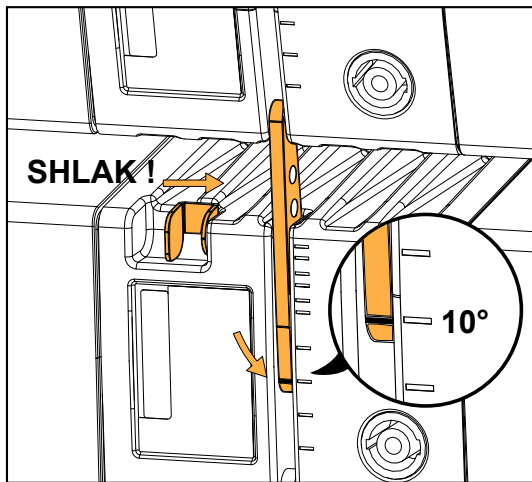
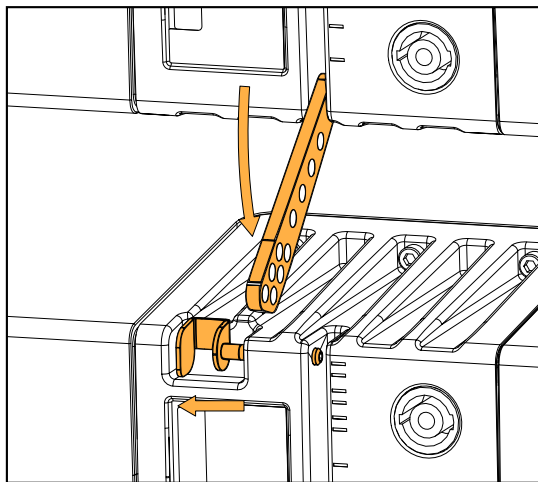
Shake the assembly up and down and from side to side to verify that all linking points are secured.



4. Secure a Kiva II (logo on the left-hand side) on top of the first one.



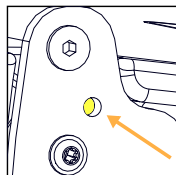
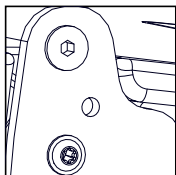
Align the mark on the rigging arm with the chosen angle mark on the bottom enclosure.



Final check

The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.



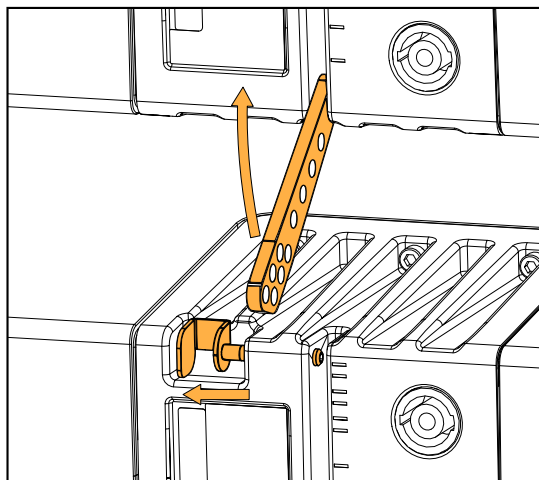
5. Repeat the previous step until the array is complete.

Disassembly

Removing Kiva II

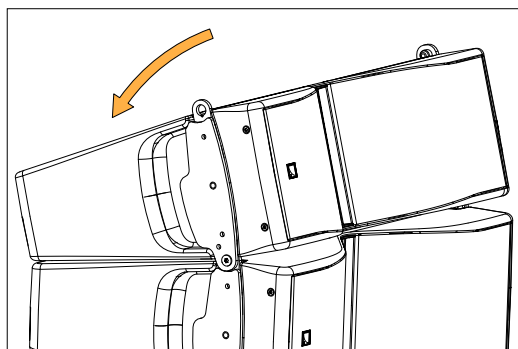
Procedure

1. Release the rigging arm of the top enclosure.

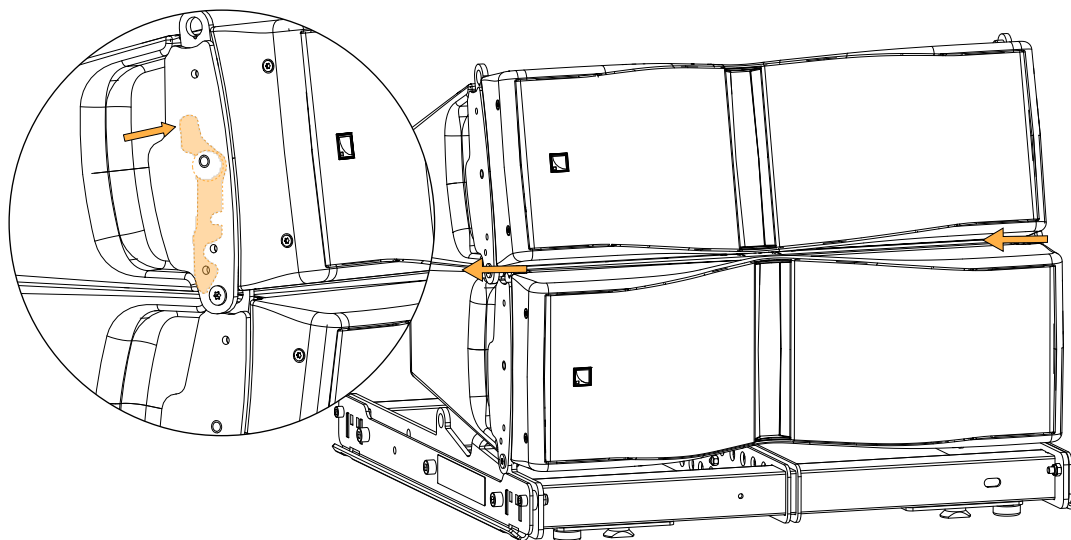


Risk of trapping hand/fingers

Carefully release the back of the enclosure until it rests on the assembly.



2. Unlock the mechanism inside the left handle of the top enclosure and slide the enclosure to the left.



3. Repeat until all enclosures are removed.

Pole-mounting

Pole-mounting Kiva II

type of deployment	pole-mount
rigging accessory	KIET II
	4 x M8 screws, nuts and spacers (provided)
additional material	35 mm / 1.4" pole
	torque screwdriver
	6 mm hex bit
	13 mm hex key
min number of operators	1



Pole-mounting on SB15m

A maximum of two Kiva II can be pole-mounted on a SB15m.



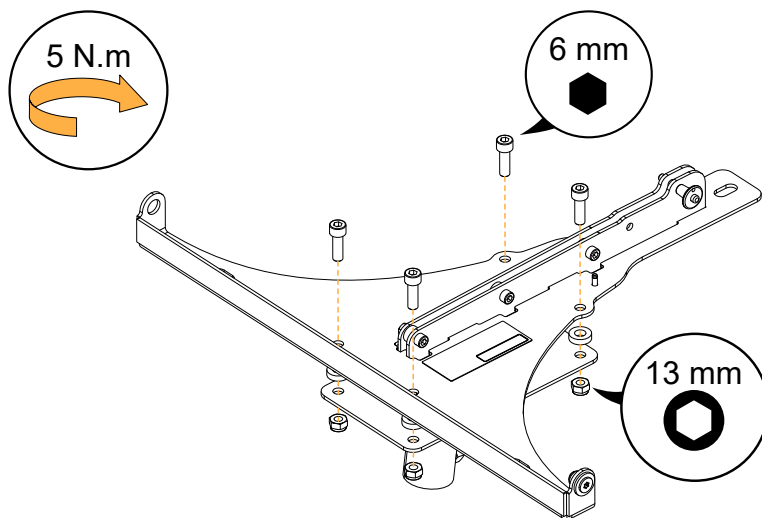
Risk of falling objects

Verify that no unattached items remain on the product or assembly.

Assembly

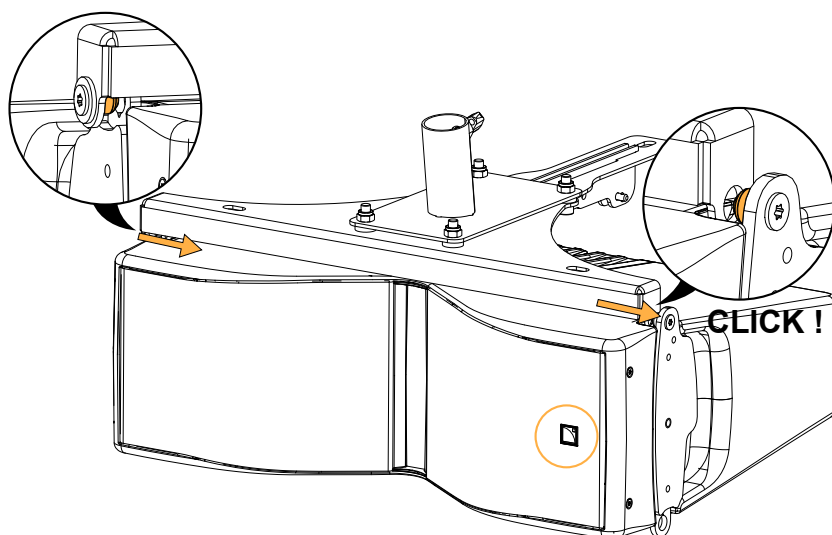
Procedure

1. Assemble KIET II and the pole-socket with the four M8 hex bolts, spacers and nuts.



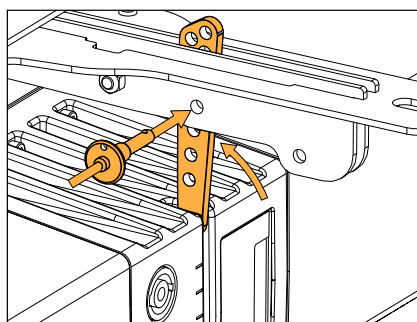
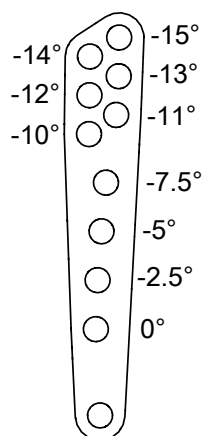
2. Place Kiva II on a stable surface with the logo on the right.

3. Secure KIET II on top of Kiva II.



Select the site angle on the rigging arm.

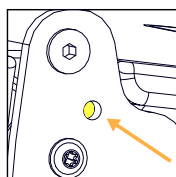
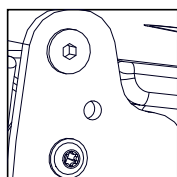
! Use the applicable rear linking point, as illustrated.



Final check

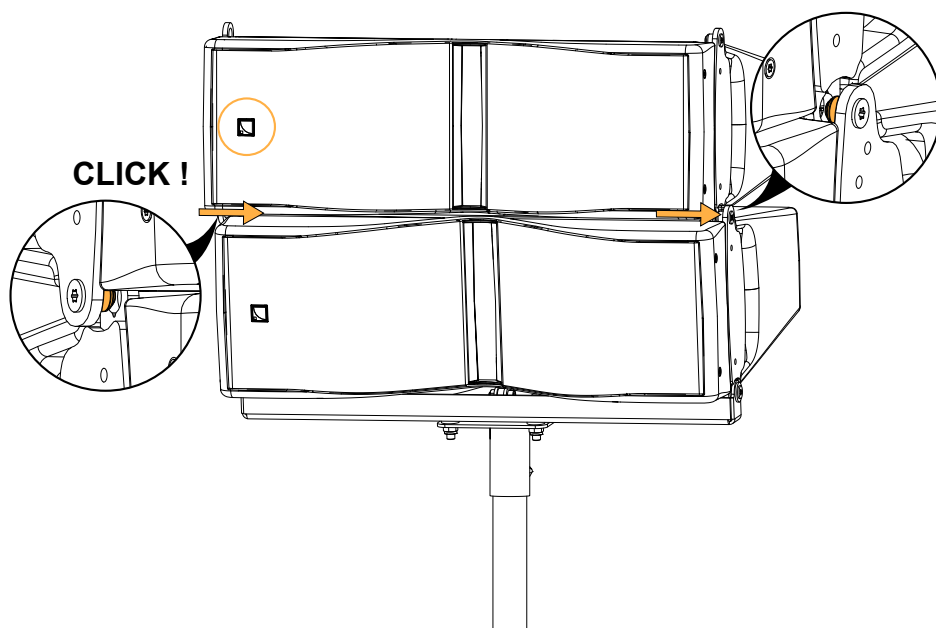
The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.

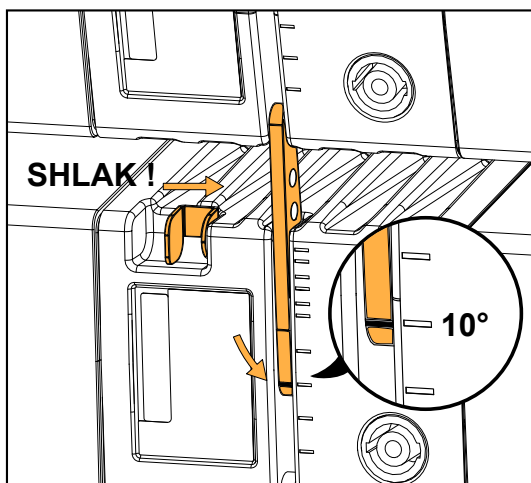
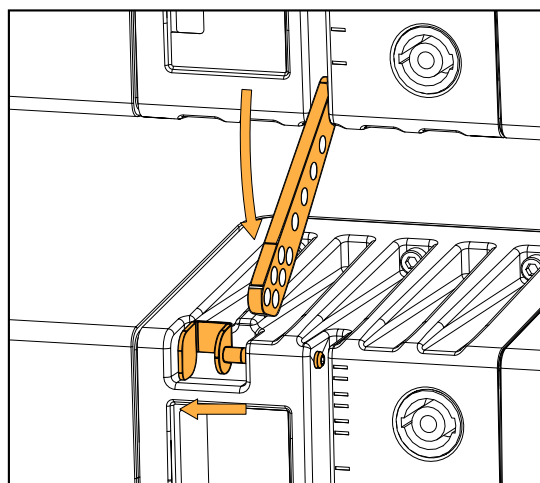


4. Reverse the assembly and mount it on the pole.

5. Secure a Kiva II (logo on the left-hand side) on top of the assembly.



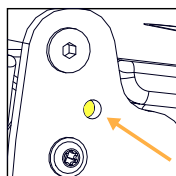
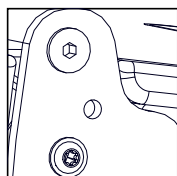
Align the mark on the rigging arm with the chosen angle mark on the bottom enclosure.



Final check

The yellow label is not visible on the logo side.

Shake the assembly up and down and from side to side to verify that all linking points are secured.

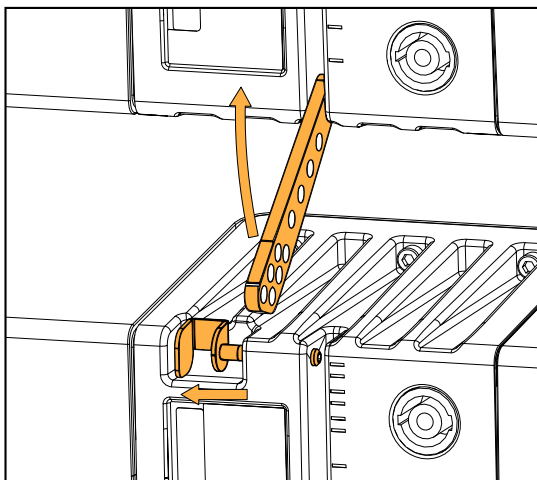


6. Repeat the previous step until the array is complete.

Disassembly

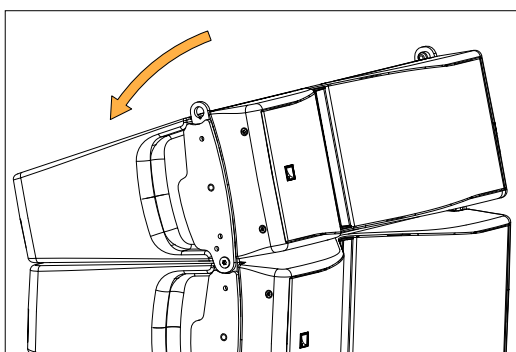
Procedure

1. Lower the pole.
2. Release the rigging arm of the top enclosure.

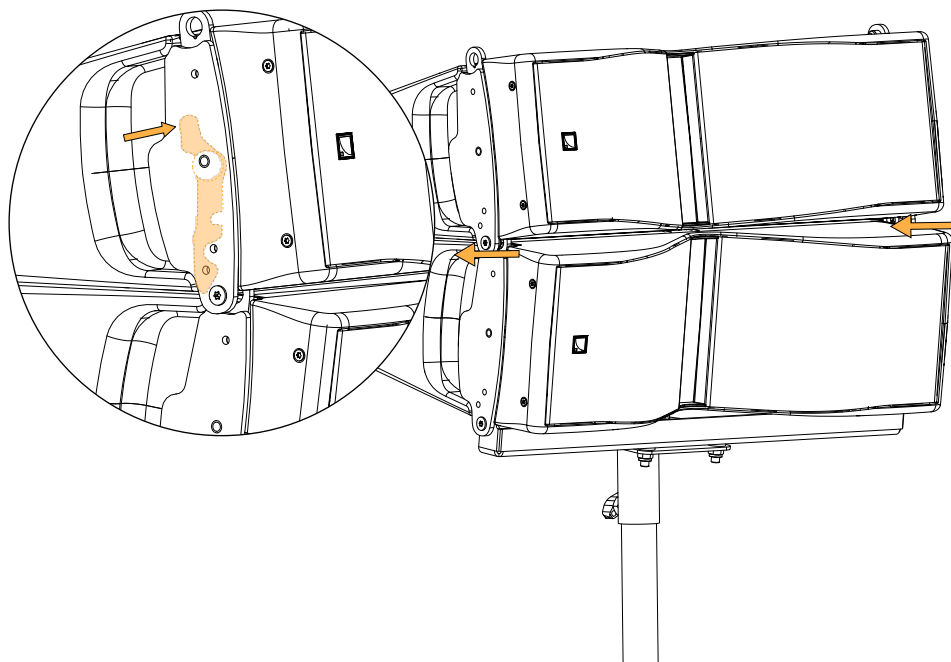


Risk of trapping hand/fingers

Carefully release the back of the enclosure until it rests on the assembly.



3. Unlock the mechanism inside the left handle of the top enclosure and slide the enclosure to the left.



Connection to LA amplified controllers

Enclosure drive capacity per amplified controller

Make sure the total number of connected enclosures does not exceed the maximum number of enclosures per controller (refer to the footnotes).

 Refer to the **Amplification reference** technical bulletin for the latest information on compatibility with amplified controllers and cabling schemes for all enclosure types.

	LA2Xi	LA4X	LA8	LA12X
	per output * / total	per output * / total	per output * / total	per output * / total
Kiva II	2 / 8 (SE), 2 / 4 (BTL)	2 / 8	4 / 16	6 / 24
SB15m	1 / 4 (SE), 1 / 2 (BTL)	1 / 4	2 / 6 ¹	3 / 12

 Reduced maximum SPL or drive capacity with LA2Xi: refer to the **LA2Xi owner's manual**.

¹ LA8 can drive up to two SB15m per output, but no more than six per controller at high level.

* For passive loudspeakers, the value corresponds to the number of enclosures in parallel on the output. For active loudspeakers, the value corresponds to the number of sections in parallel on the output.

Cabling schemes

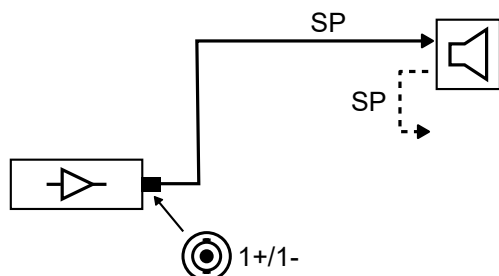
Refer to the cabling schemes to connect the enclosures to different types of output connectors.

Cabling schemes for Kiva II / SB15m

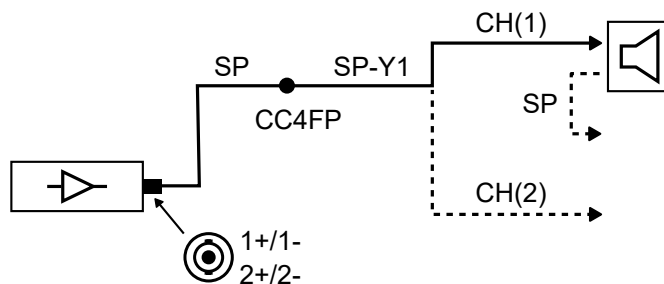


Refer to the **LA2Xi owner's manual** for more information on output configurations.

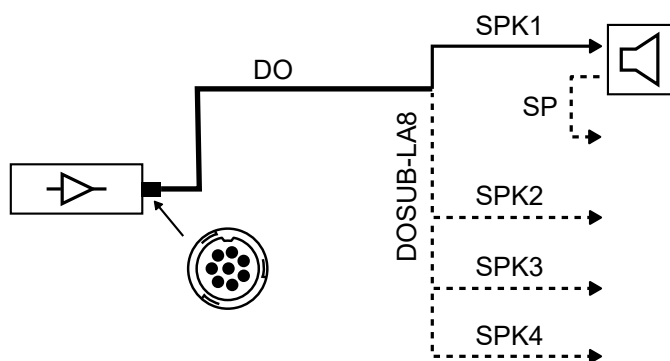
One-channel speakON output



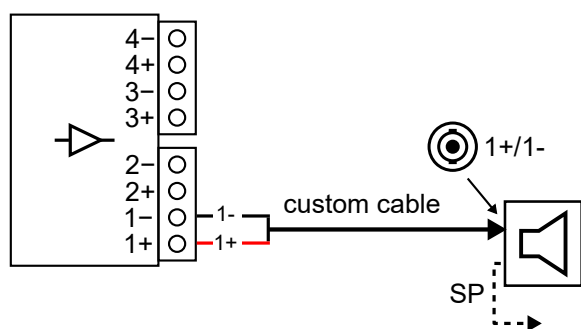
Two-channel speakON output



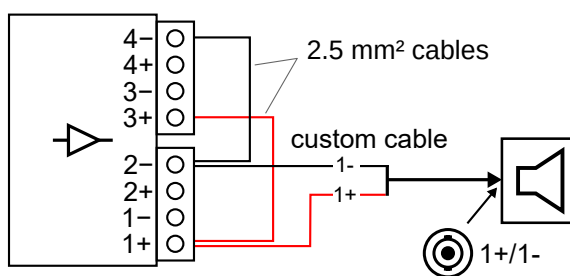
Four-channel CA-COM output



Terminal block output (SE)



Terminal block output (BTL)



Corrective maintenance

Introduction

This section contains the following maintenance procedures:

Kiva II:

- [Kiva II back cover](#) (p.87)
- [HF diaphragm](#) (p.91)
- [HF loudspeaker](#) (p.92)
- [Grill](#) (p.93)
- [LF loudspeaker](#) (p.94)

SB15m:

- [Grill](#) (p.96)
- [LF loudspeaker](#) (p.97)

KIBU II:

- [Pin](#) (p.99)

KIBU-SB:

- [Lasermount](#) (p.101)
- [Runners](#) (p.103)
- [Locking tabs](#) (p.104)
- [Pin](#) (p.105)

KIET II:

- [Pin](#) (p.107)
- [Pole-mount](#) (p.108)

For advanced maintenance, contact your L-Acoustics representative.



SB18 Ili

Refer to the **SB18 Ili owner's manual** for more information on the corrective maintenance.

Tools

Before performing corrective maintenance, make sure all the tools listed are available. Reference are given for FACOM® products in this table. Other manufacturers can be used.

name	reference	distributor
Set of 6-point 1/4" sockets*	RL.NANO1 / R.360NANO	FACOM
T10 Torx bit*	EX.110	FACOM
Torque screwdriver (2 - 10 N.m)*	A.404	FACOM
riveting pliers	Y.103B	FACOM



* included in the L-Acoustics Maintenance Toolcase.

Maintenance Toolcase

The Maintenance Toolcase is a carry-on suitcase that includes all the tools required to perform maintenance on L-Acoustics products. This toolcase is aimed at Certified Providers.

The Maintenance Toolcase uses a Peli™ 1510 Protector case that features three pre-cut layers of foam to safely fit the tools. The Maintenance Toolcase includes tools manufactured by FACOM®, Fluke®, Tohnichi, ABUS, and Würth.

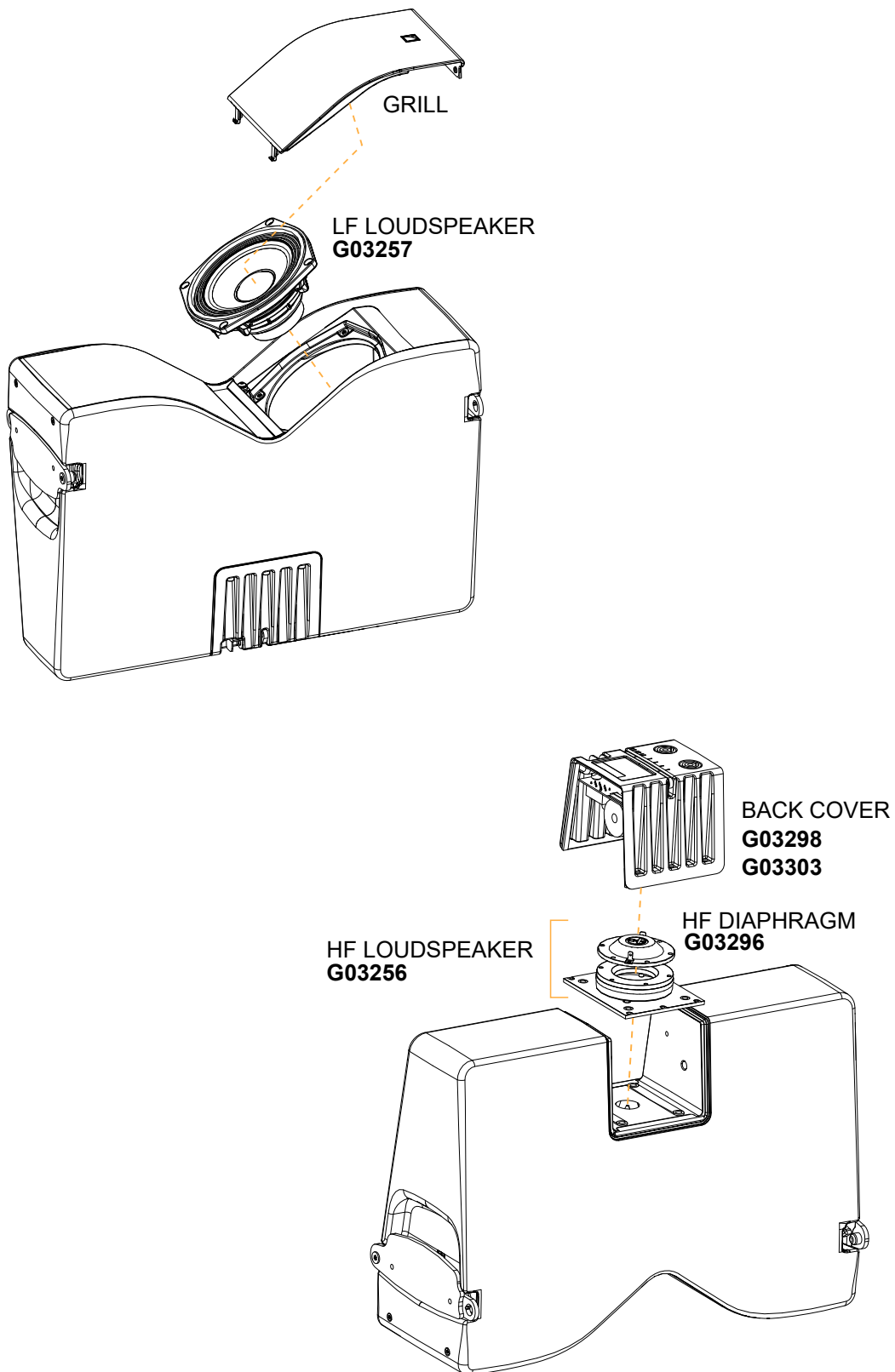


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Kiva II

Exploded view

In the exploded view, each assembly corresponds to a D/R procedure and the necessary repair kit(s).



D/R - Kiva II back cover

How to replace the back cover on Kiva II.

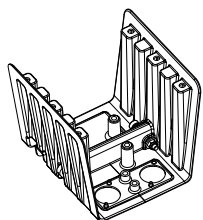
Tools

- torque screwdriver
- screwdriver extension
- 4 mm hex bit

Repair kits

G03298

KR rear rigging KIVA II



×1

G100004

back cover

G03303

KR screws and fasteners KIVA II



×6

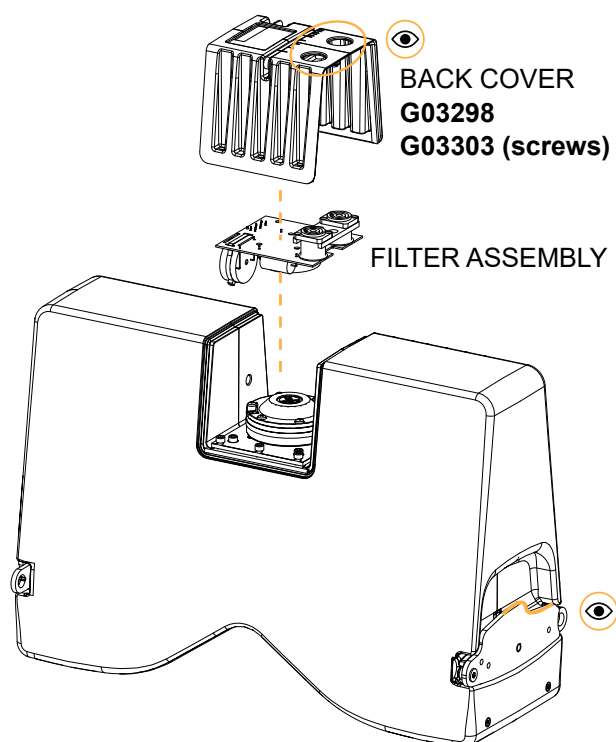
S338

M5×10 hex



For safety reasons, always use the new screws and spare parts provided in the KR.

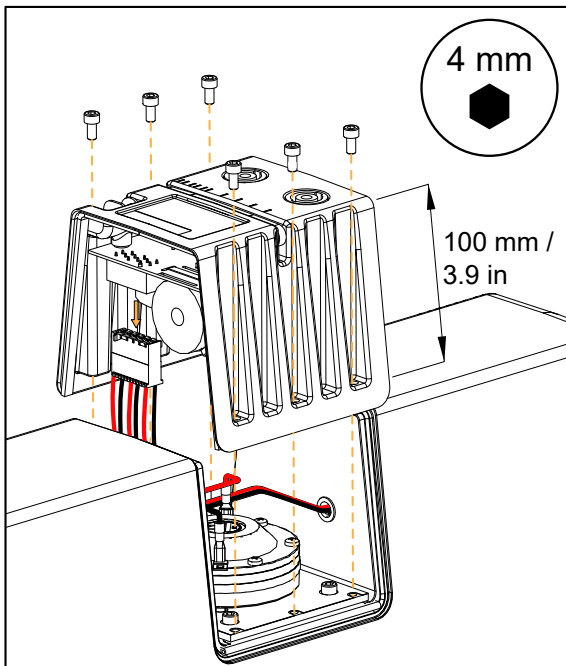
Exploded view



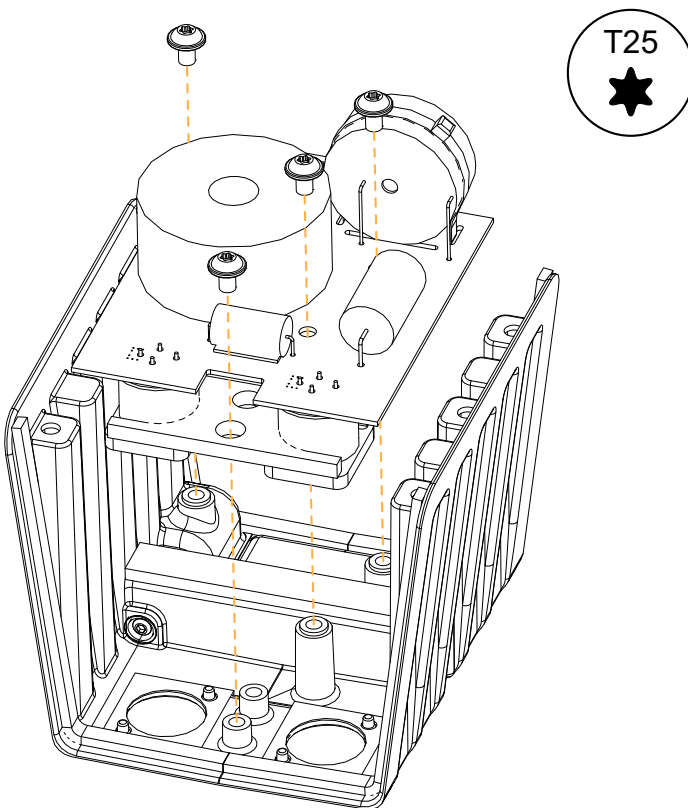
Disassembly

Procedure

1. Remove the six screws and carefully disconnect the cables to remove the back cover.
Use a screwdriver extension.



2. Remove the filter assembly.



Reassembly

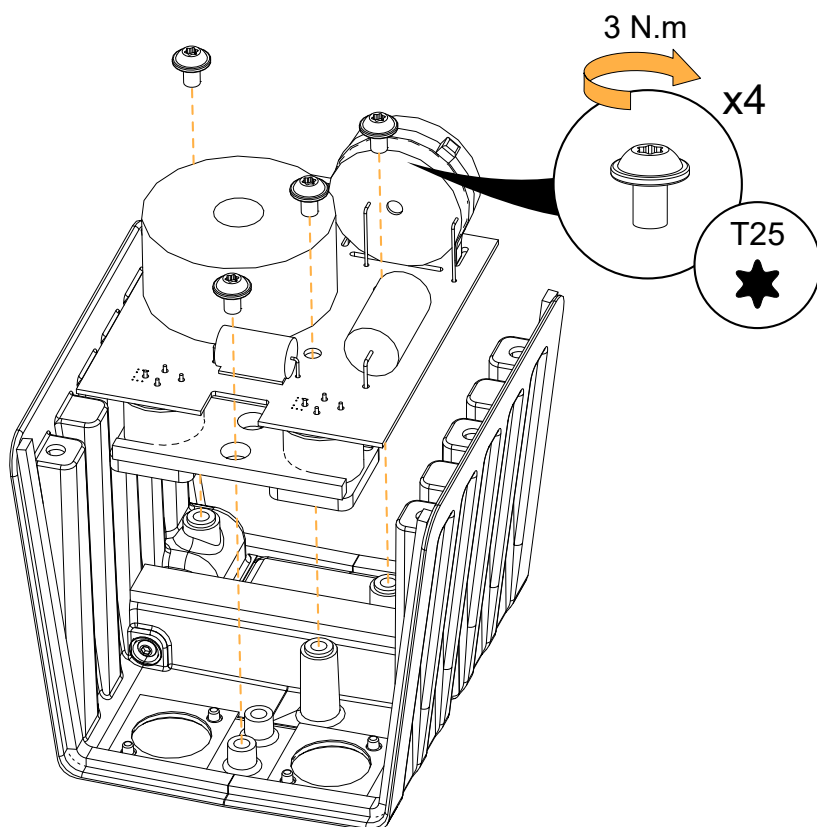
About this task



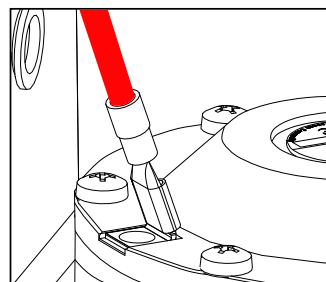
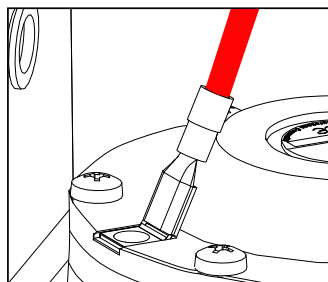
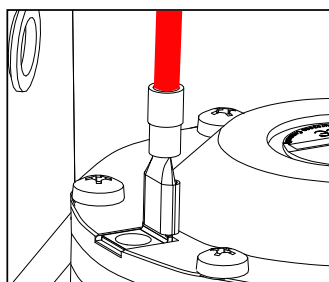
For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Procedure

1. Secure the filter assembly on the new back cover.

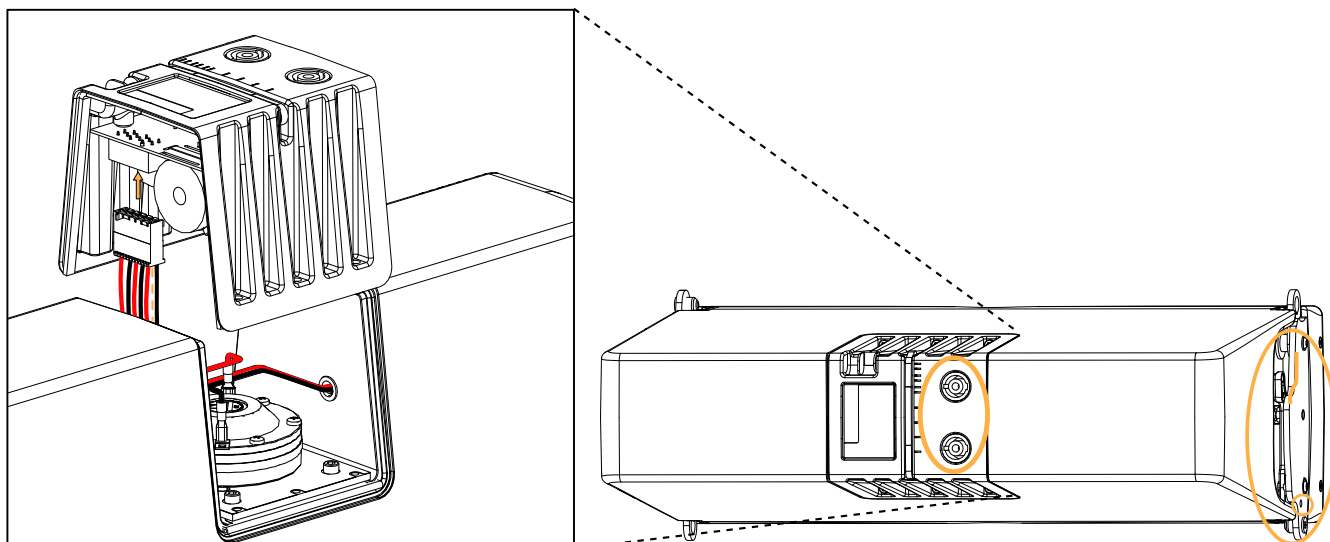


2. Check that the HF speaker terminals are not bent.

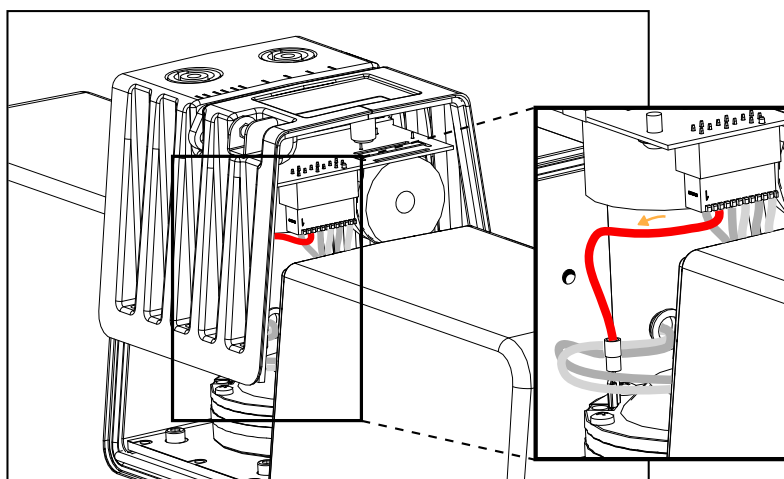


3. Position the back cover and connect the cables.

The speakON connectors must be on the same side as the safety mechanism.

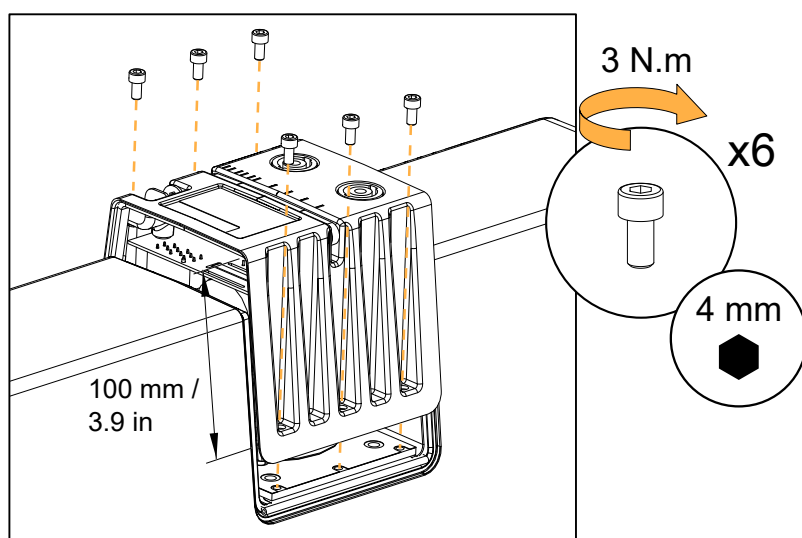


4. Position the HF speaker positive cable (red) against the back cover.



5. Secure the back cover with the six screws.

Use a screwdriver extension.



D/R - HF diaphragm

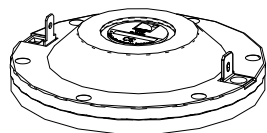
Tools and consumables

- torque screwdriver
- T20 Torx bit
- compressed air blower
- double face adhesive

Repair kits

G03296

KR diaphragm 1.75" KIVA II



x1



x6

17736

S17736

diaphragm kit for 1.75" driver - 16 Ω M4x8 Torx

Prerequisite

Back cover disassembled.

See [Kiva II back cover](#) (p.87).

Exploded view



For safety reasons, always use the new screws and spare parts provided in the KR.

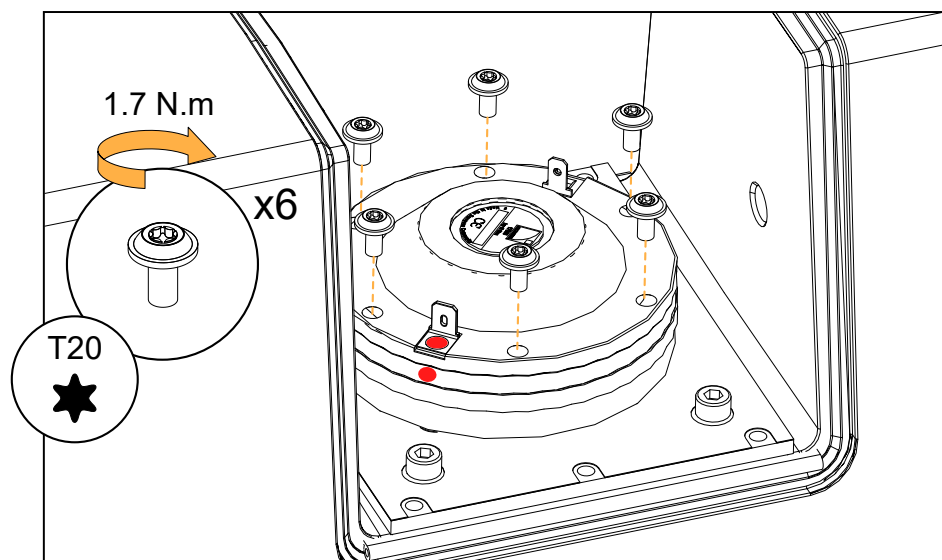


Make sure the air gap is perfectly clean before reassembly.

Use a blower or double face adhesive to remove any particle.

Position the diaphragm assembly with the positive (red) connector aligned with the red mark.

Gradually tighten the screws following a star pattern.



What to do next

Perform the [Acoustical check](#) (p.47) procedures.

D/R - HF loudspeaker

Tools

- torque screwdriver
- 4 mm hex bit

Repair kits

G03256 ¹

KR compression driver 1.75" KIVA II



¹ The screws are also available in G03296 - KR diaphragm 1.75" KIVA II.

Prerequisite

Back cover disassembled.

See [Kiva II back cover](#) (p.87).

Exploded view

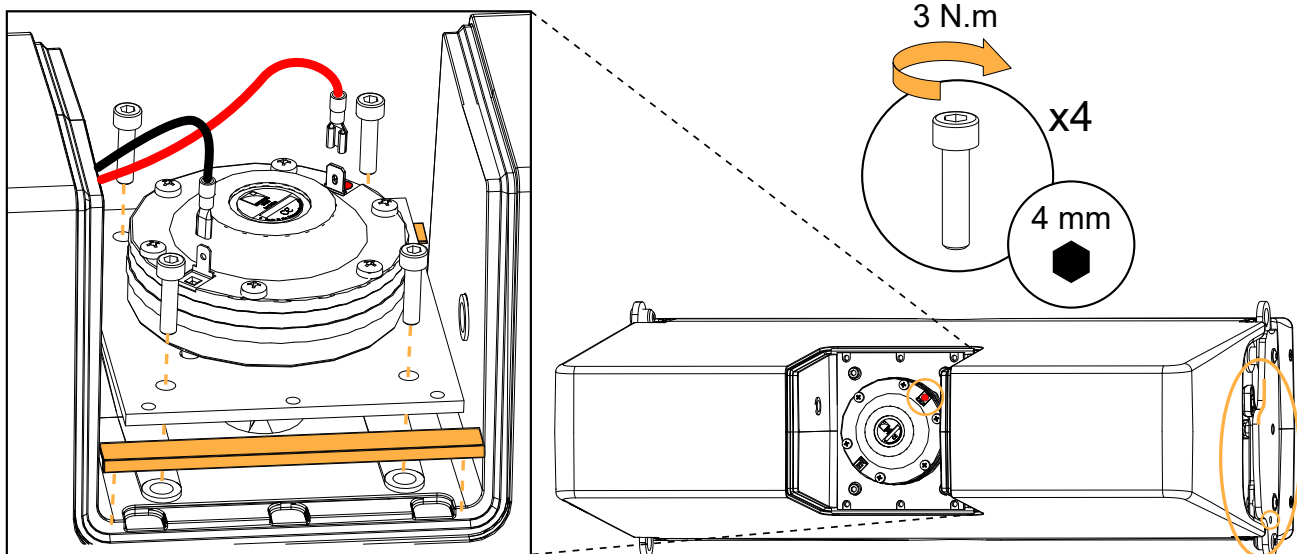


For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Position the positive (red) connector on the same side as the safety mechanism.



Gradually tighten the screws following a star pattern.



What to do next

Perform the [Acoustical check](#) (p.47) procedures.

D/R - Grill

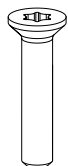
Tools

- torque screwdriver
- T20 Torx bit

Repair kits

G03257

KR loudspeaker 6.5" KIVA II



x2

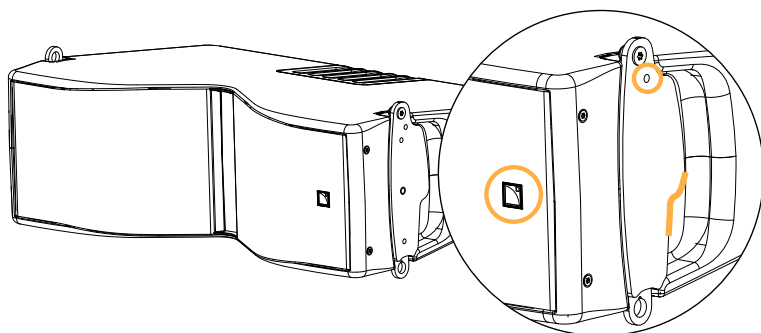
S337

M4x20 Torx

Exploded view



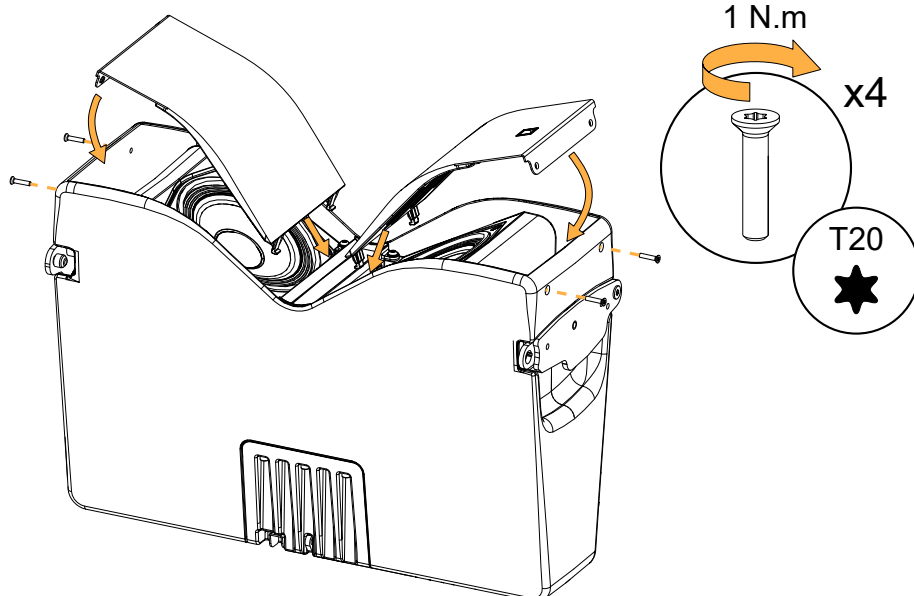
Position the logo on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).



For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Use a lever.

Insert the tabs first when reassembling.



D/R - LF loudspeaker

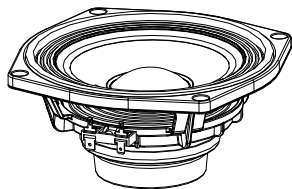
Tools

- torque screwdriver
- 4 mm hex bit

Repair kits

G03257

KR loudspeaker 6.5" KIVA II



x1

1741

6.5" speaker - 16 Ω (with gasket)



x4

S342

M5x20 hex

Prerequisite

Grill disassembled.

See [Grill](#) (p.93).

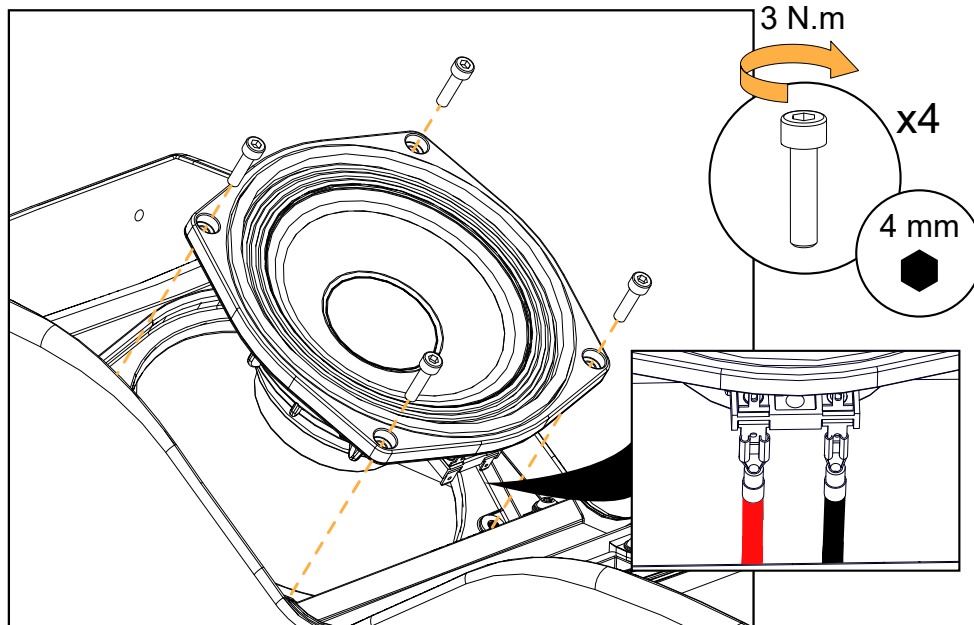
For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Exploded view

Use a lever.



Gradually tighten the screws following a star pattern.
Position the connectors toward the center of the enclosure.



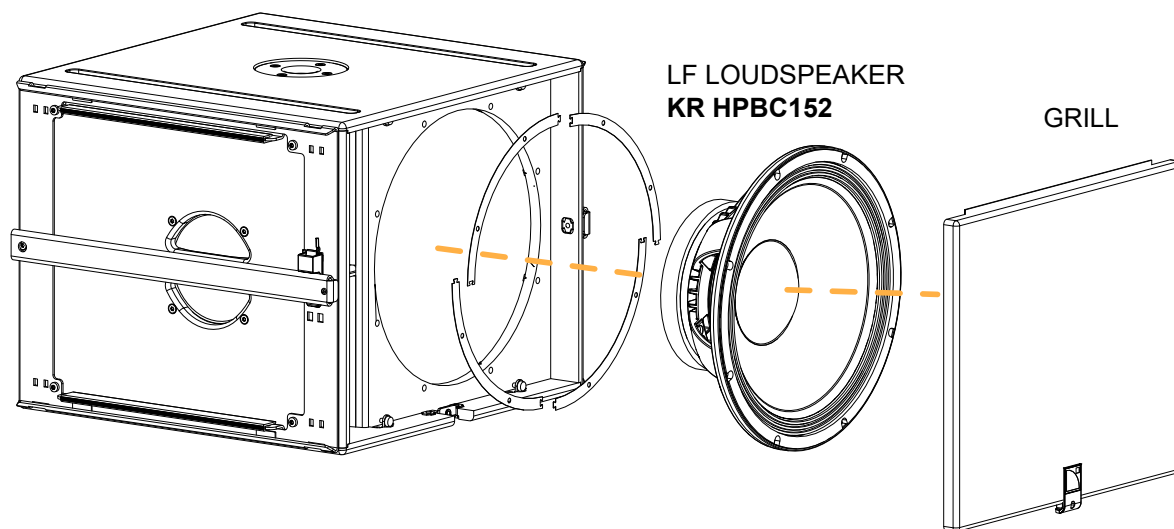
What to do next

Perform the [Acoustical check](#) (p.47) procedures.

SB15m

Exploded view

In order to operate, follow the order outlined here.



Disassembly and Reassembly procedures

D/R - Grill

Tools

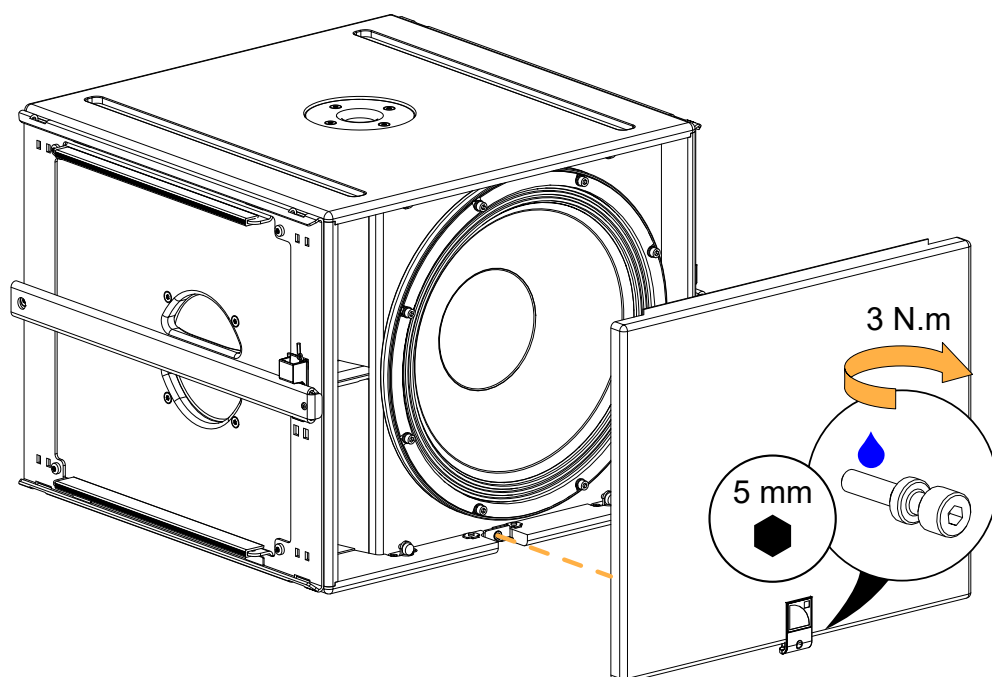
- torque screwdriver
- 5 mm hex bit

Consumables

- blue threadlocker

Exploded view

Use blue threadlocker on the captive screw.



D/R - LF loudspeaker

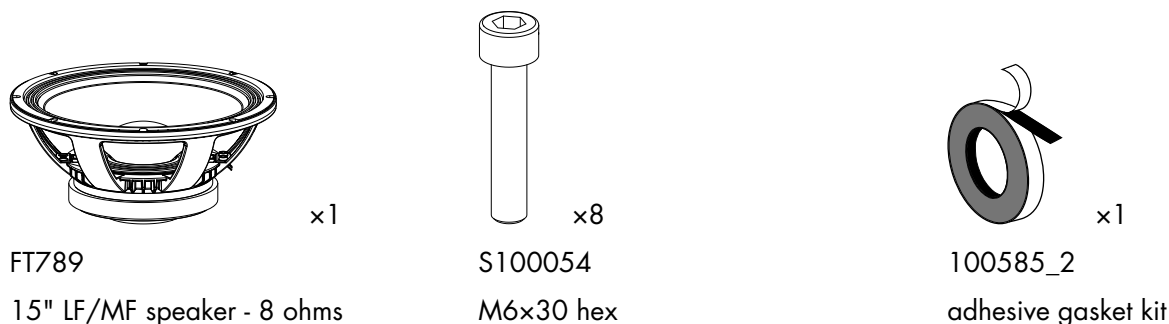
Tools

- torque screwdriver
- 5 mm hex bit

Repair kit

KR HPBC152*

Kit HP BC152 Speaker coaxial 15"



* The screws and fasteners are also provided in the ().

Prerequisite

Grill disassembled.

See [Grill](#) (p.96).

Exploded view



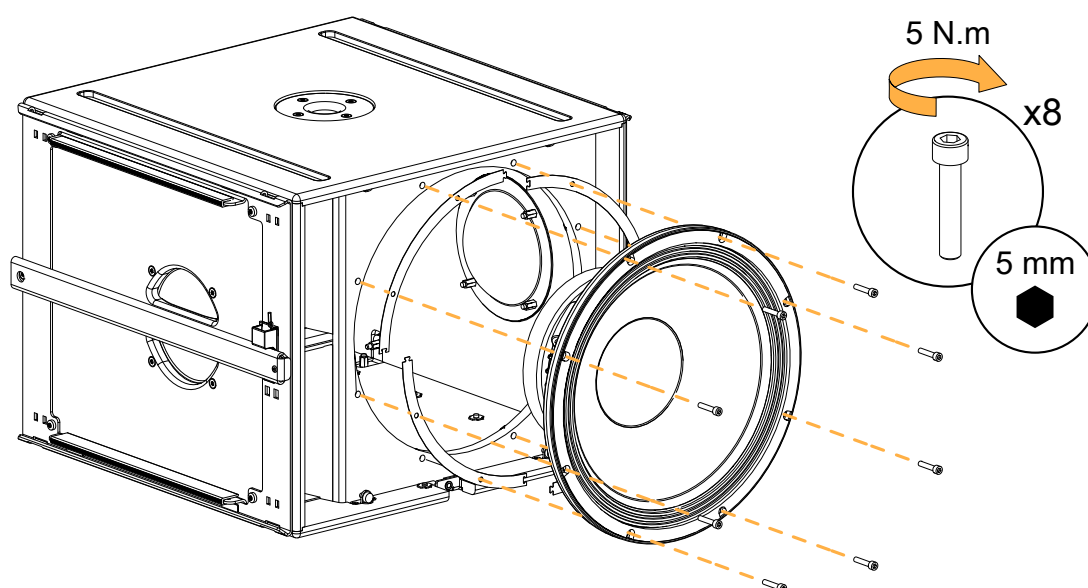
For safety reasons, always use the new screws and spare parts provided in the KR.



Gradually tighten the screws following a star pattern.



If the gasket is damaged, remove and replace it using the speaker gasket kit.



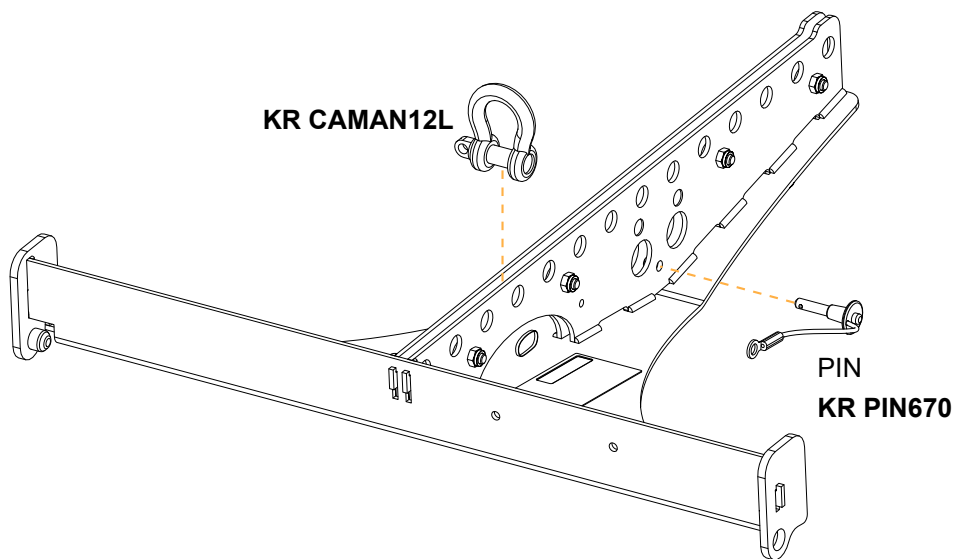
What to do next

Perform the [Acoustical check](#) (p.47) procedures.

KIBU II

Exploded view

In order to operate, follow the order outlined here. Each assembly refers to the corresponding D/R procedure and the necessary repair kit(s).



D/R - Pin

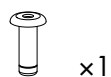
Tools

- riveting pliers

Repair kits

KR PIN670

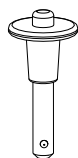
KR ball-locking pin KIBU/KIBU II



x1

S142

M4x10 rivet



x1

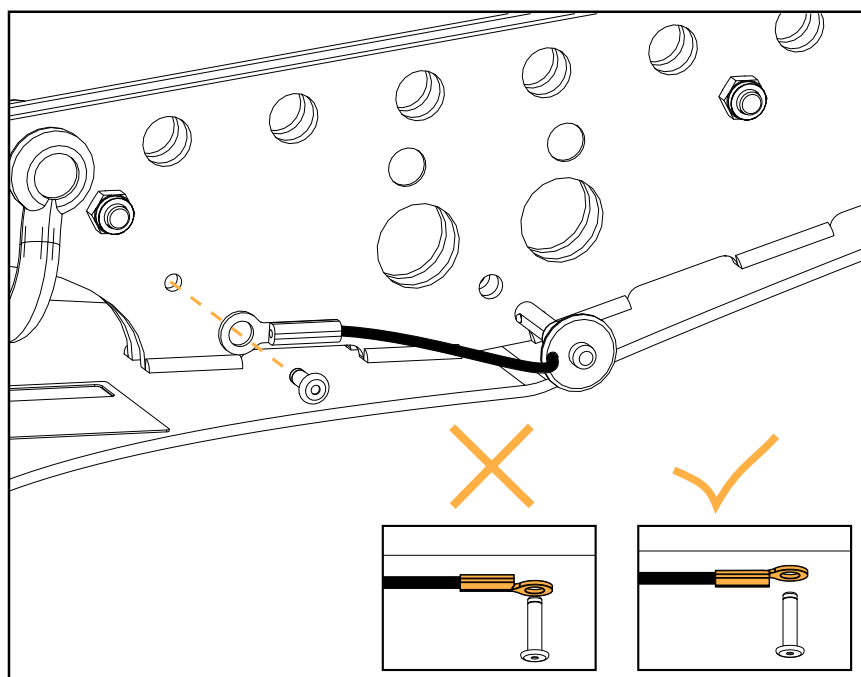
470

ball-locking pin (with lanyard)

Exploded view



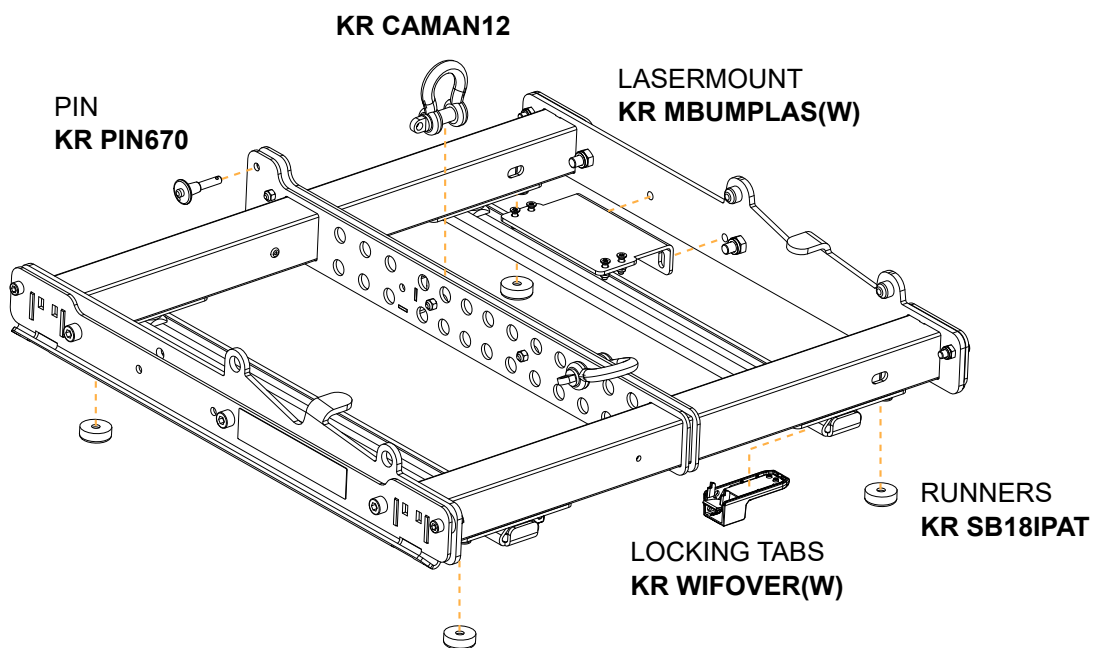
For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.



KIBU-SB

Exploded view

In order to operate, follow the order outlined here. Each assembly refers to the corresponding D/R procedure and the necessary repair kit(s).



D/R - Lasermount

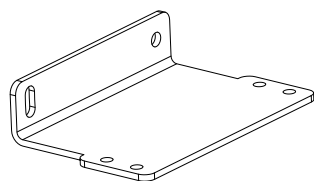
Tools

- torque screwdriver
- T20 Torx bit
- 5 mm hex bit
- 7 mm hex socket
- 10 mm hex socket

Repair kits

KR MBUMPLAS

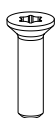
Kit laser mount for MBUMP



x1

S50

laser support plate



x4

S210

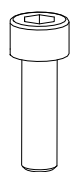
M4x16 Torx



x4

S121

M4 hex lock nut



x2

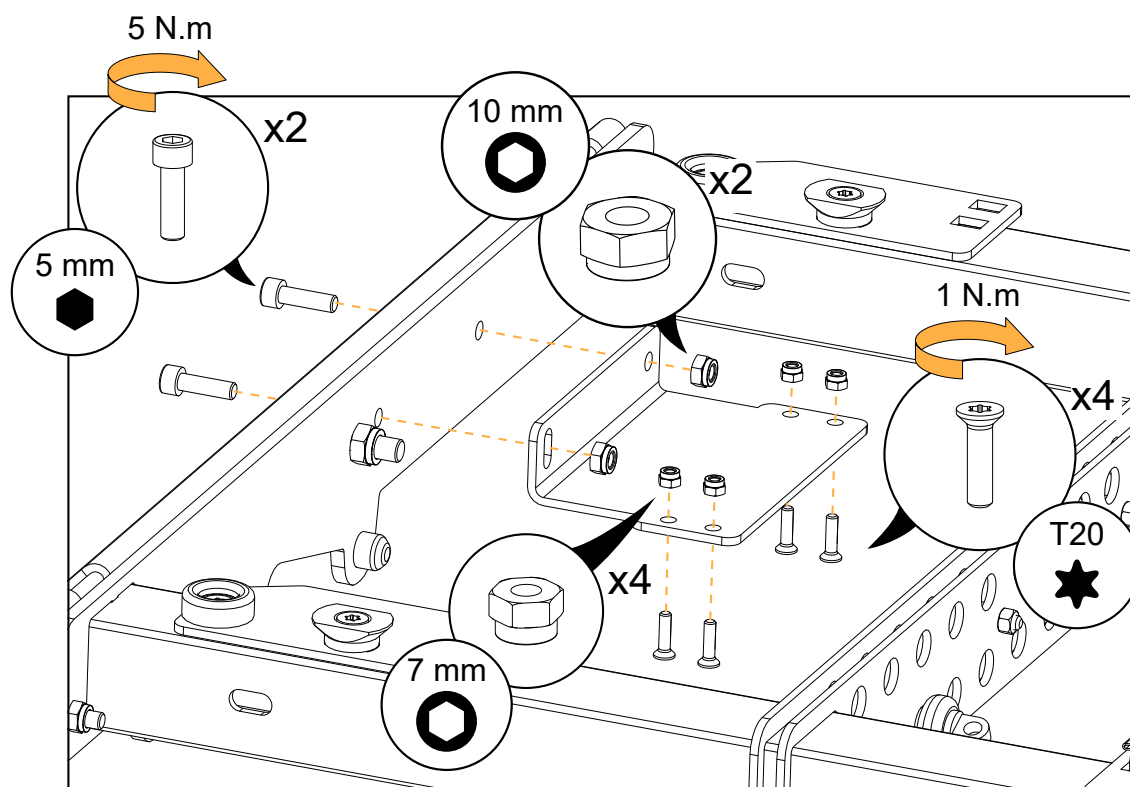
S100105

M6x20 hex

Exploded view



For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.



D/R - Runners

Tools

- torque screwdriver
- T30 Torx bit

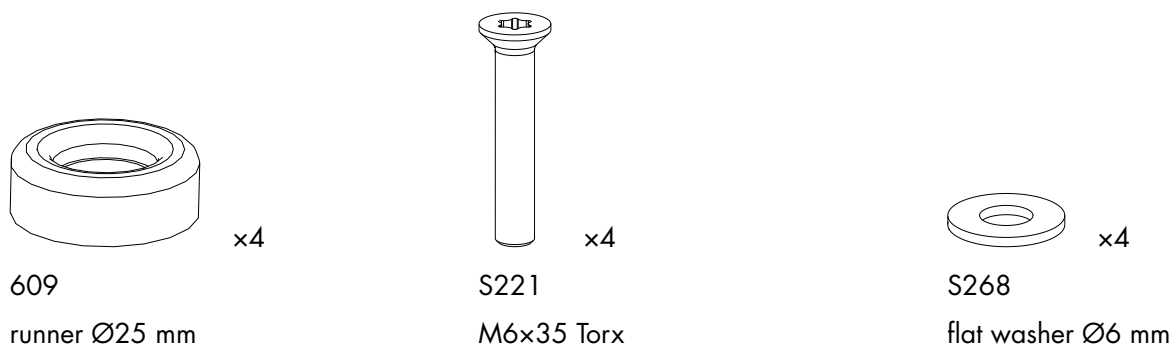
Consumables

- blue threadlocker

Repair kits

KR SB18IPAT

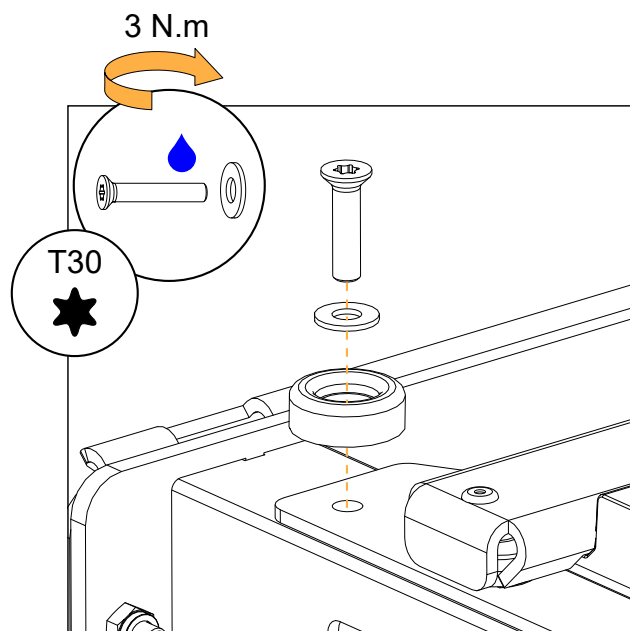
Kit SB18i 4 pads



Exploded view



For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.



D/R - Locking tabs

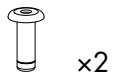
Tools

- riveting pliers

Repair kits

KR WIFOVER

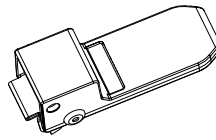
Kit 2 locking tabs with slings



x2

S142

M4x10 rivet



x2

G1734

locking tab (with lanyard)

Prerequisite

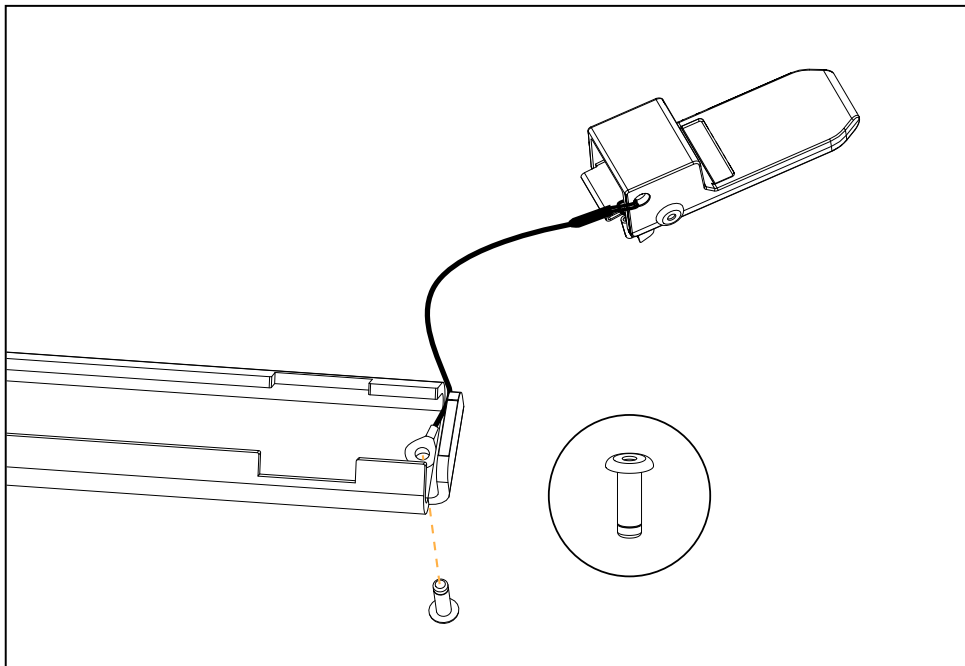
Coupling bar removed.

Exploded view



For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Pop the rivet from the outside of the coupling bar.



D/R - Pin

Tools

- riveting pliers

Repair kits

KR PIN670

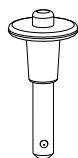
KR ball-locking pin KIBU/KIBU II



x1

S142

M4x10 rivet



x1

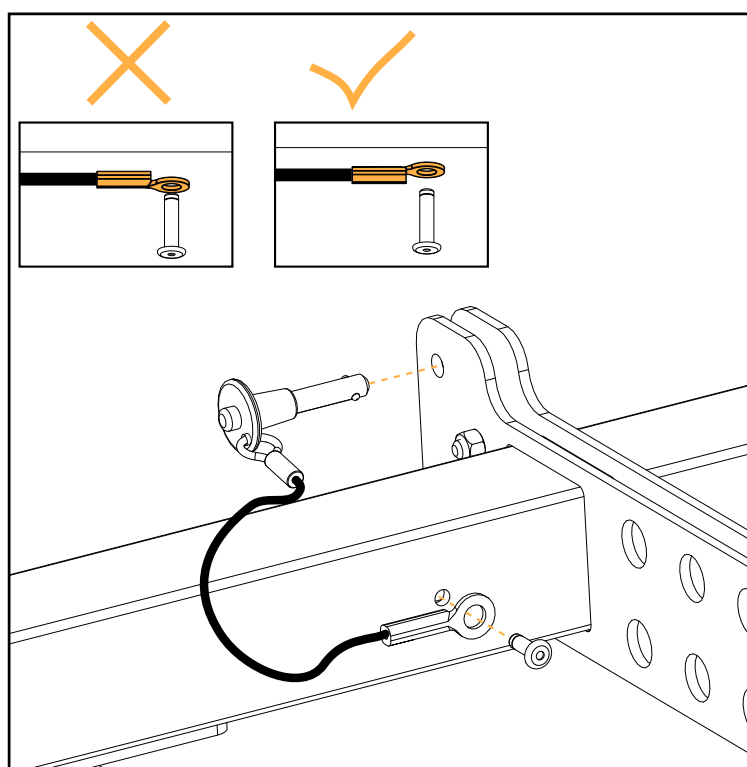
470

ball-locking pin (with lanyard)

Exploded view



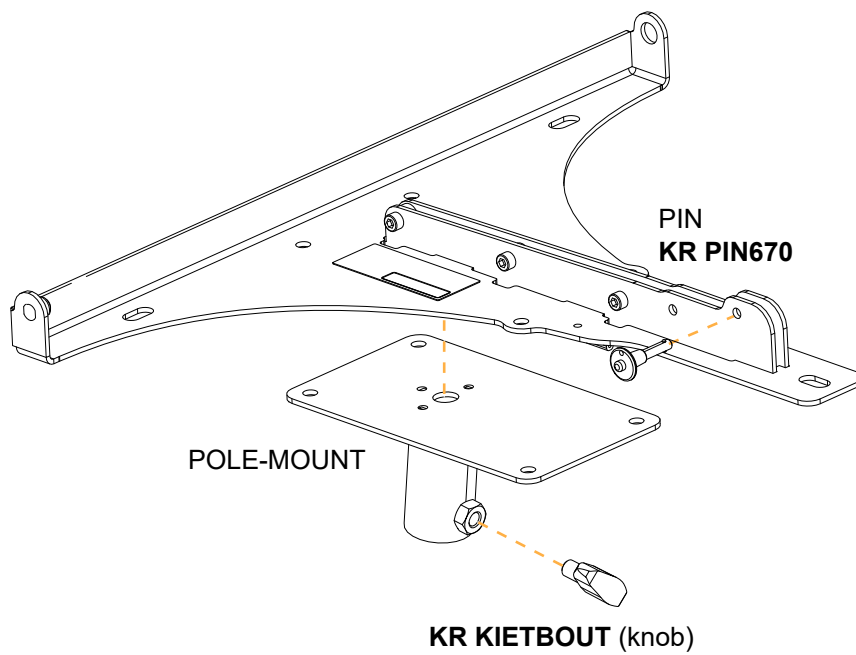
For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.



KIET II

Exploded view

In order to operate, follow the order outlined here. Each assembly refers to the corresponding D/R procedure and the necessary repair kit(s).



D/R - Pin

Tools

- riveting pliers

Repair kits

KR PIN670

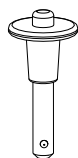
KR ball-locking pin KIBU/KIBU II



x1

S142

M4x10 rivet



x1

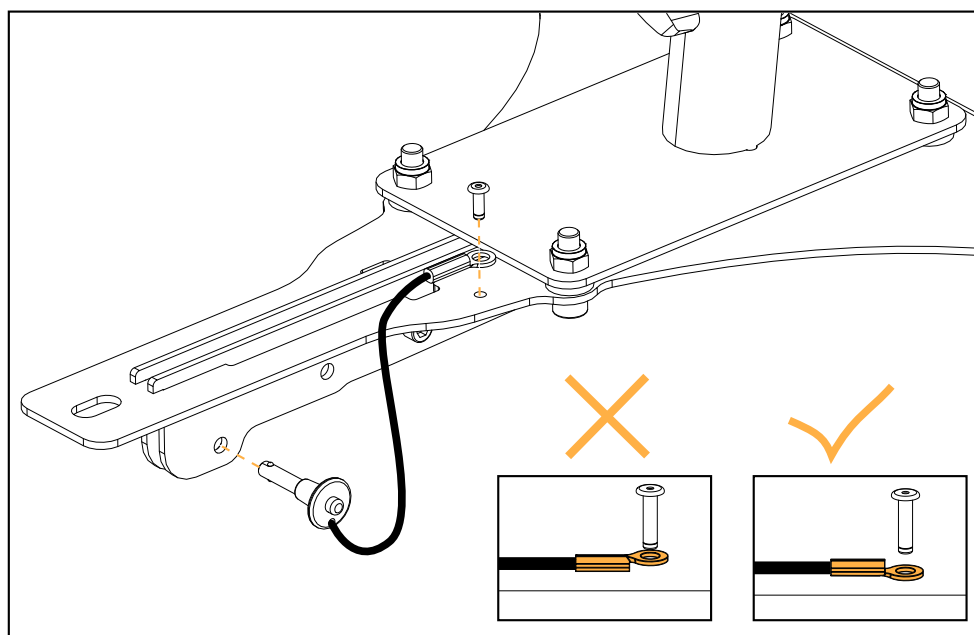
470

ball-locking pin (with lanyard)

Exploded view



For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.



D/R - Pole-mount

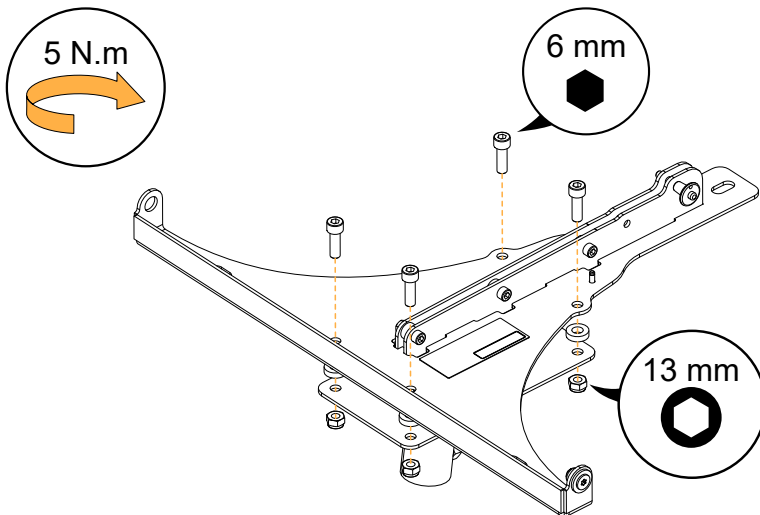
Tools

- torque screwdriver
- 6 mm hex bit
- 13 mm hex socket

Exploded view



For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.



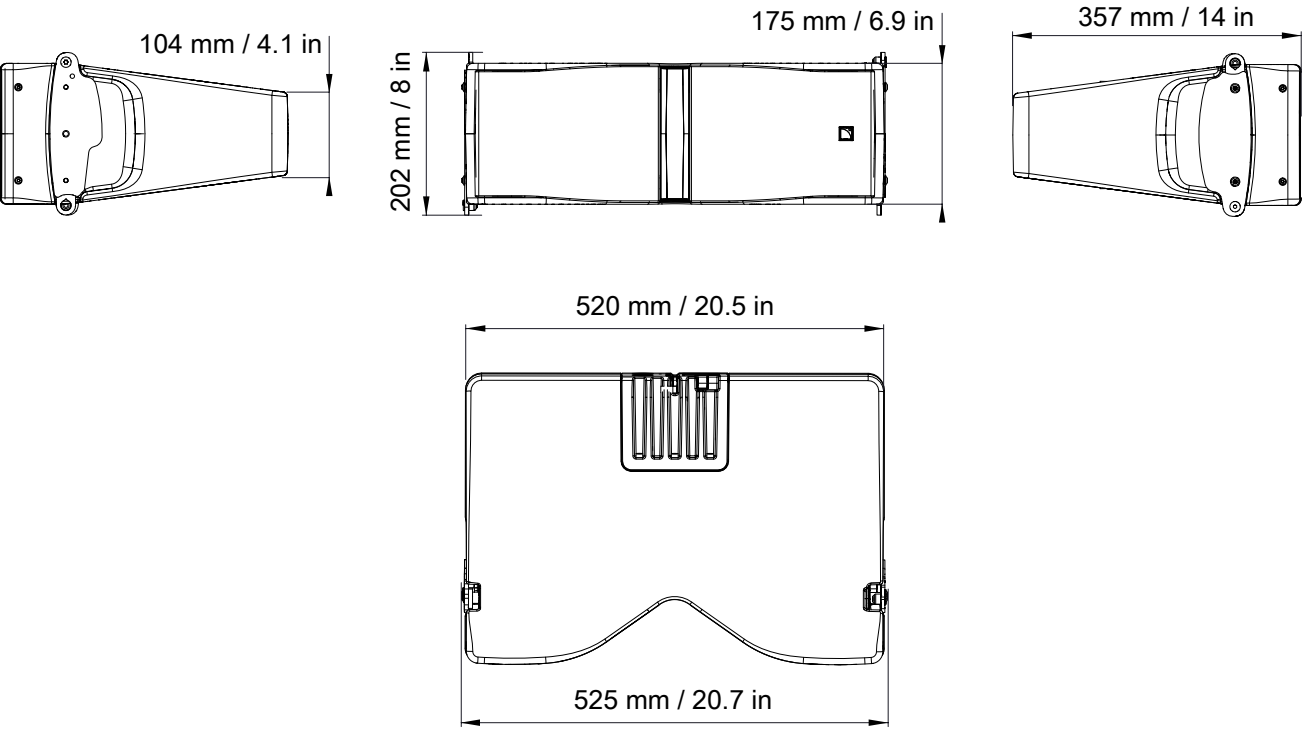
Specifications

Kiva II specifications

Description	2-way passive WST® enclosure: 2 x 6.5" LF + 1.75 HF diaphragm, amplified by LA2Xi / LA4X / LA8 / LA12X
Usable bandwidth (-10 dB)	70 Hz - 20 kHz ([KIVA II])
Maximum SPL ¹	138 dB ([KIVA II]) with LA12X/LA4X/LA8/LA2Xi (bridge mode) 133 dB ([KIVA II]) with LA2Xi
Nominal directivity (-6 dB)	horizontal: 100° symmetrical vertical: 15° (single), depending on the number of elements and array curvature
Transducers	LF: 2 x 6.5" neodymium cone driver HF: 1 x 1.75" neodymium diaphragm compression driver
Acoustical load	LF: bass-reflex HF: DOSC waveguide, L-Fins
Nominal impedance	16 Ω
Connectors	IN: 1 x 4-point speakON LINK: 1 x 4-point speakON
Rigging and handling	flush-fitting 3-point rigging system inter-enclosure angles: 0°, 1°, 2°, 3°, 4°, 5°, 7.5°, 10°, 12.5° and 15° 2 handles
Weight (net)	14 kg / 31 lb
Cabinet	composite sandwich structure
Front	composite grill with anti-corrosion coating acoustically neutral 3D fabric
Rigging components	high grade steel
Finish	dark grey brown Pantone 426 C pure white RAL 9010 custom RAL code on special order
IP	IP55

¹ Peak level measured at 1 m under free field conditions using pink noise with crest factor 4 (preset specified in brackets).

Kiva II dimensions

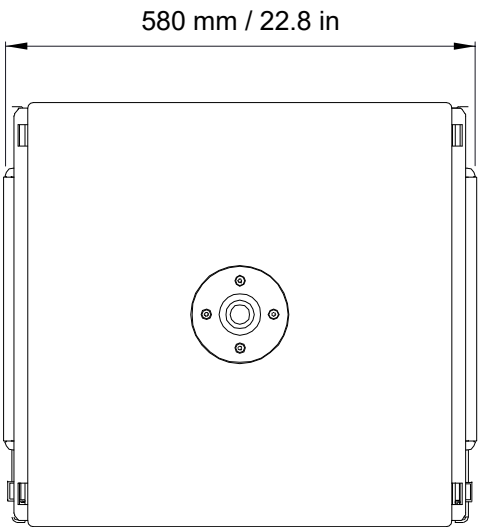
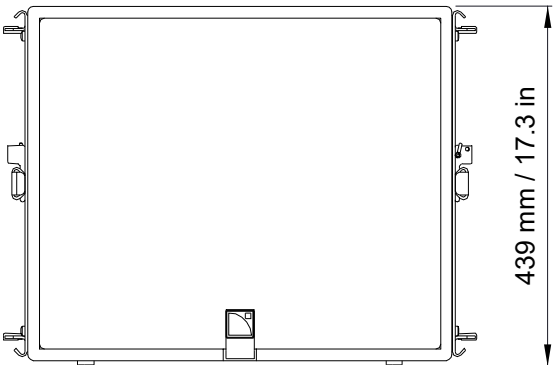
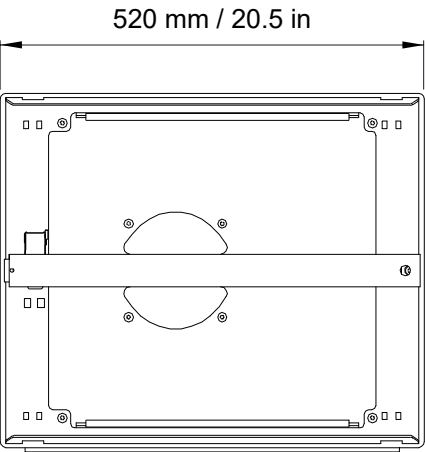


SB15m specifications

Description	High power compact subwoofer : 1 x 15" , amplified by LA2Xi / LA4X / LA8 / LA12X
Low frequency limit	40 Hz ([SB15_100])
Maximum SPL¹	137 dB ([SB15_100]) with LA2Xi (bridge mode) / LA4X / LA8 / LA12X 131 dB ([SB15_100]) with LA2Xi
Directivity	standard or cardioid
Transducers	1 x 15" cone driver
Acoustical load	bass-reflex, L-Vents
Nominal impedance	8 Ω
Connectors	IN: 1 x 4-point speakON LINK: 1 x 4-point speakON
Rigging and handling	2 handles 2 coupling bars and 2 locking tabs 1 x 35 mm pole socket
Weight (net)	36 kg / 79.4 lb
Cabinet	premium grade Baltic birch plywood
Front	coated steel grill acoustically neutral 3D fabric
Rigging components	high grade steel with anti-corrosion coating
Finish	dark grey brown Pantone 426 C pure white RAL 9010 custom RAL code on special order
IP	IP55

¹ Peak level at 1 m under half space conditions using pink noise with crest factor 4 (preset specified in brackets).

SB15m dimensions

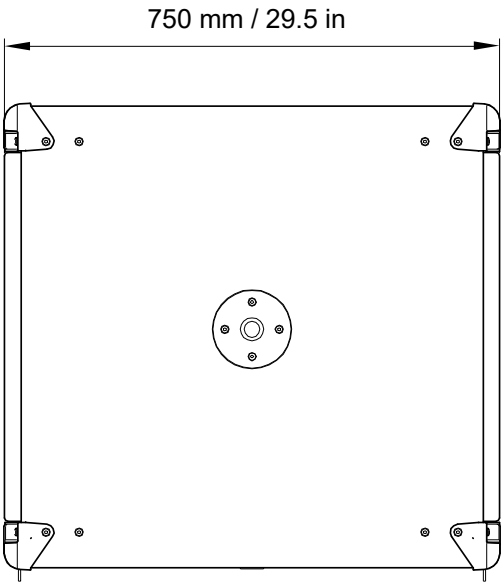
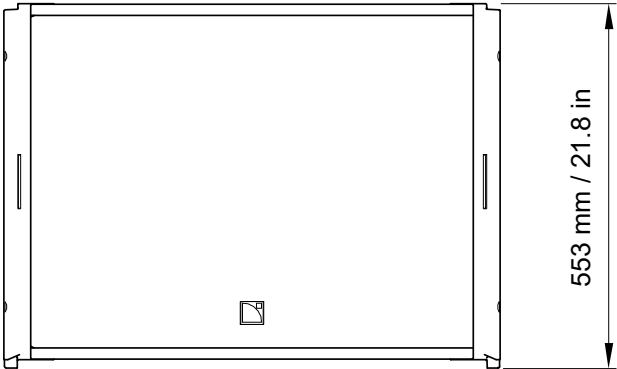
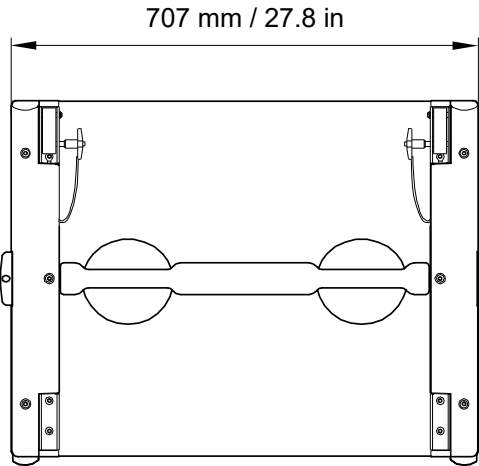


SB18 specifications

Description	High power compact subwoofer: 1 x 18" , amplified by LA2Xi / LA4X / LA8 / LA12X
Low frequency limit (-10 dB)	32 Hz ([SB18_100])
Maximum SPL¹	138 dB ([SB18_100])
Nominal directivity (-6 dB)	standard or cardioid
Transducers	1 x 18"
Acoustical load	dual bass-reflex, L-Vents
Nominal impedance	8 Ω
Connectors	IN: 1 x 4-point speakON LINK: 1 x 4-point speakON
Rigging and handling	4 handles integrated into the cabinet captive rigging system 1 x 35 mm pole socket
Weight (net)	52 kg / 115 lb
Cabinet	premium grade Baltic birch plywood
Front	coated steel grill acoustically neutral 3D fabric
Rigging components	steel with anti-corrosion coating
Finish	dark grey brown Pantone 426 C
IP	IP55

¹ Peak level at 1 m under half space conditions using pink noise with crest factor 4 (preset specified in brackets).

SB18 dimensions

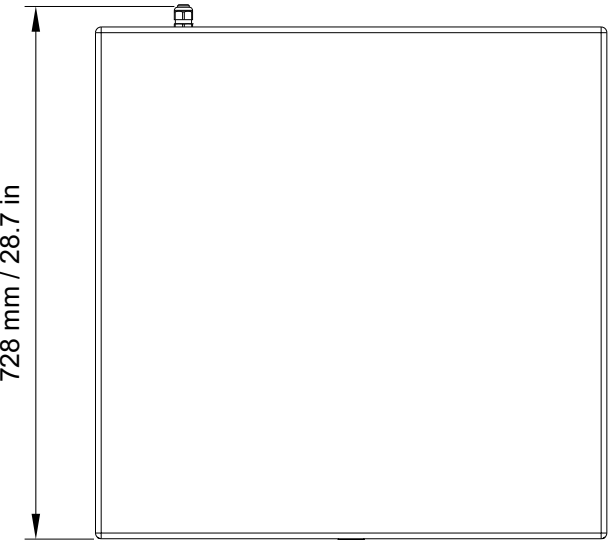
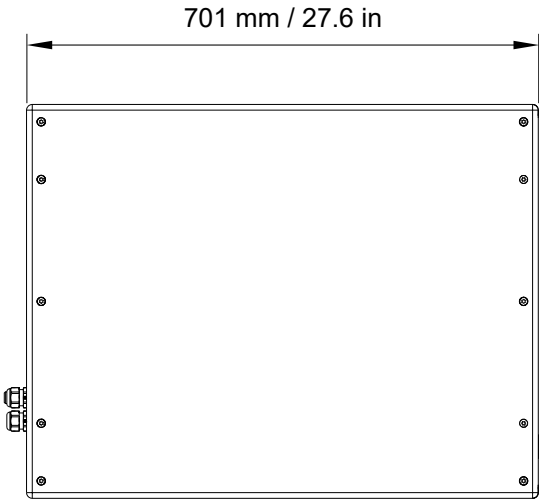
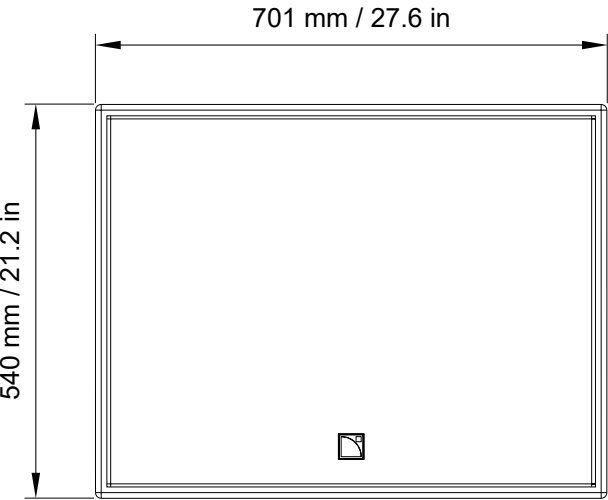


SB18 Ili specifications

Description	High power compact subwoofer: 1 x 18" (installation version), amplified by LA2Xi / LA4X / LA8 / LA12X
Low frequency limit (-10 dB)	32 Hz ([SB18_100])
Maximum SPL¹	138 dB ([SB18_100]) with LA2Xi (bridge mode) / LA4X / LA8 / LA12X 133 dB ([SB18_100]) with LA2Xi
Directivity	standard or cardioid
Transducers	1 x 18" cone driver
Acoustical load	dual bass-reflex
Nominal impedance	8 Ω
Connectors	1 x 4-point terminal block with push-in connection
Rigging and handling	external rigging kits 12 M6 inserts for rigging 8 M6 inserts for screens
Weight (net)	48 kg / 106 lb
Cabinet	premium grade Baltic birch plywood
Front	coated steel grill acoustically neutral 3D fabric
Finish	dark grey brown Pantone 426 C pure white RAL 9010 custom RAL code on special order
IP	IP55

¹ Peak level at 1 m under half space conditions using pink noise with crest factor 4 (preset specified in brackets).

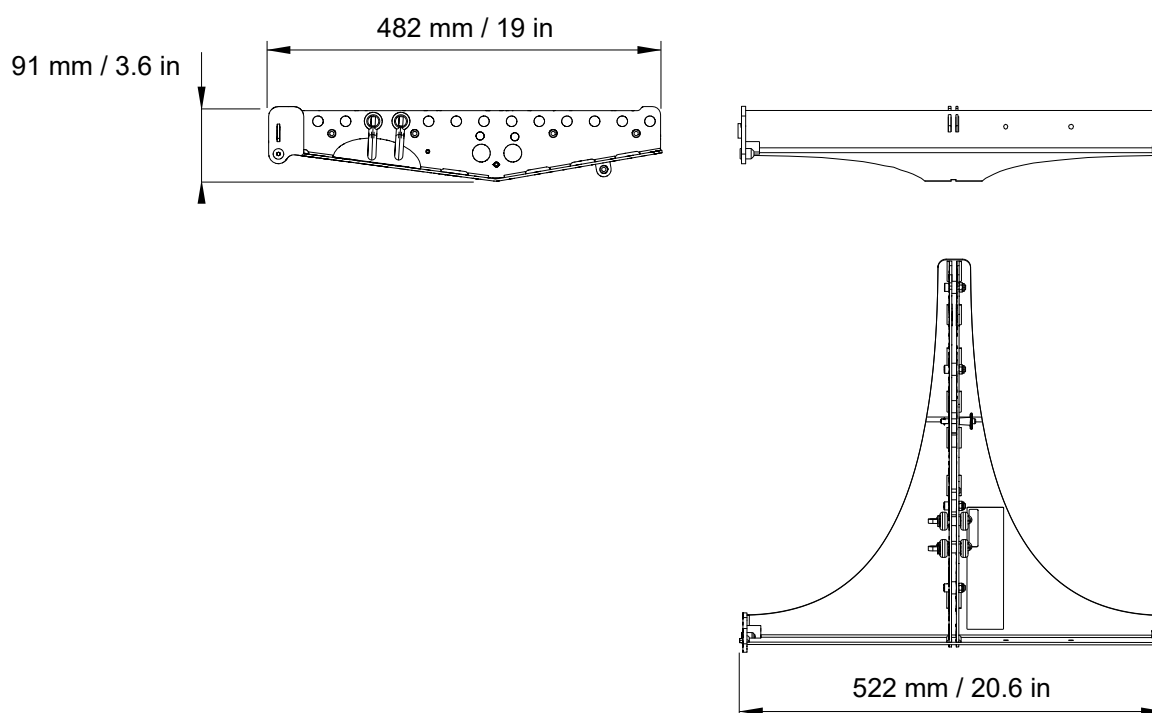
SB18 Ili dimensions



KIBU II specifications

Description	Rigging frame for flying Kiva II/Kiva 2 × Ø12 mm shackles WLL 1 t
Weight (net)	3.8 kg / 8.4 lb
Material	high grade steel with anti-corrosion coating

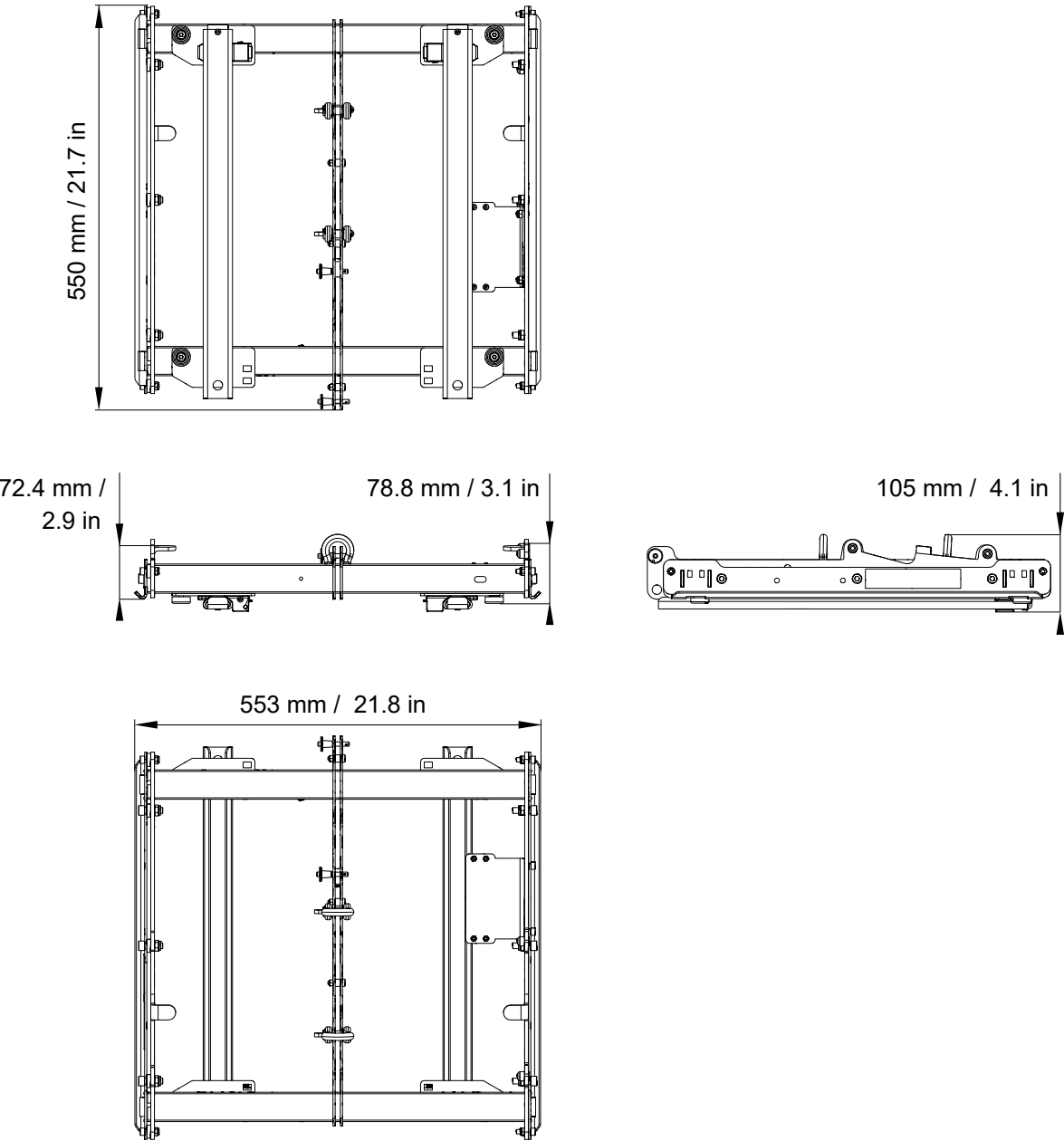
KIBU II dimensions



KIBU-SB specifications

Description	Rigging frame for flying or stacking KIVA II/KIVA and SB15m 2 x Ø12 mm shackles WLL 1 t
Weight (net)	10.7 kg / 23.6 lb
Material	high grade steel with anti-corrosion coating

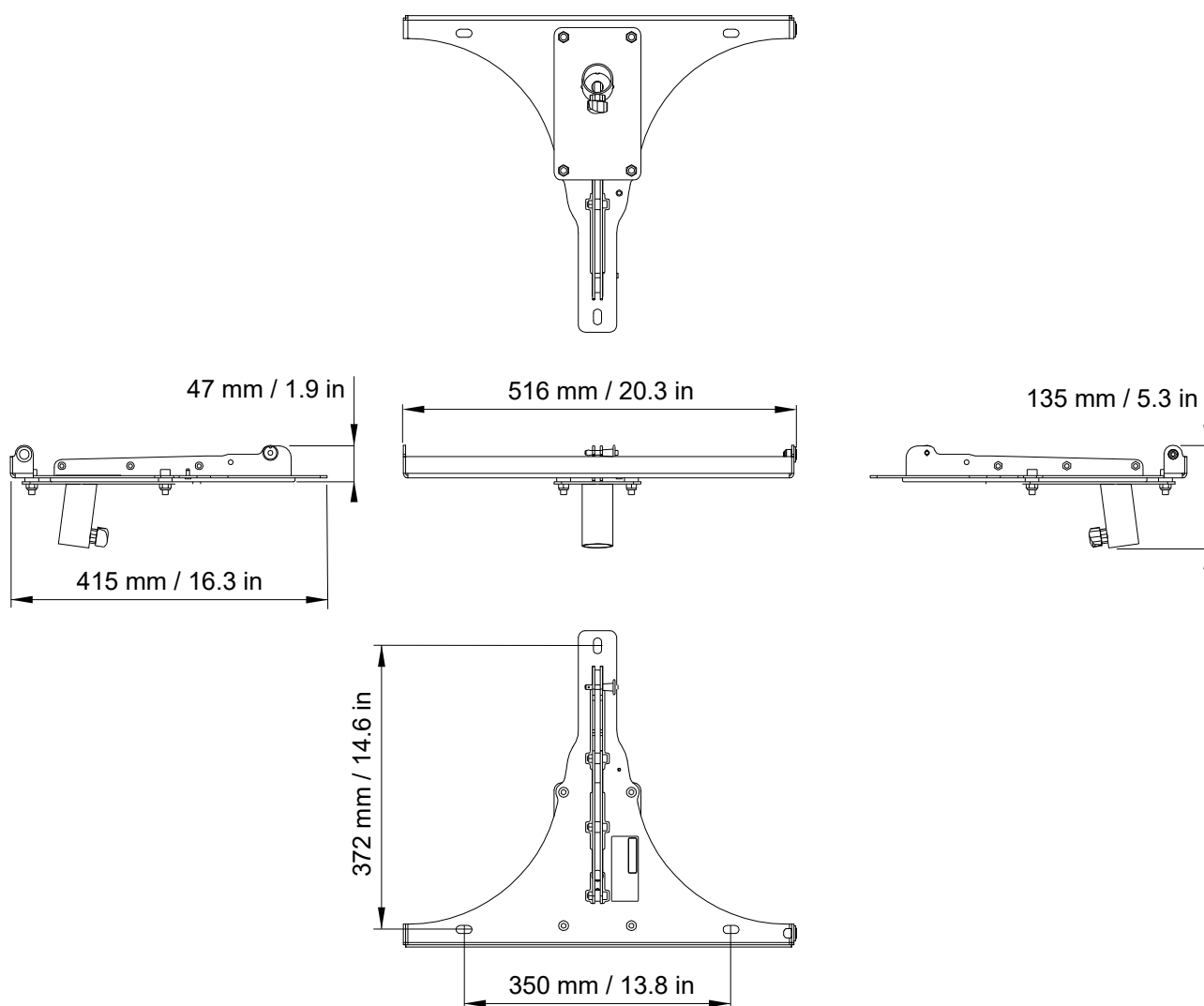
KIBU-SB dimensions



KIET II specifications

Description	Rigging plate for ceiling or pole-mount of 3 KIVA II/KIVA maximum
Weight (net)	3.2 kg / 7.1 lb
Material	high grade steel with anti-corrosion coating

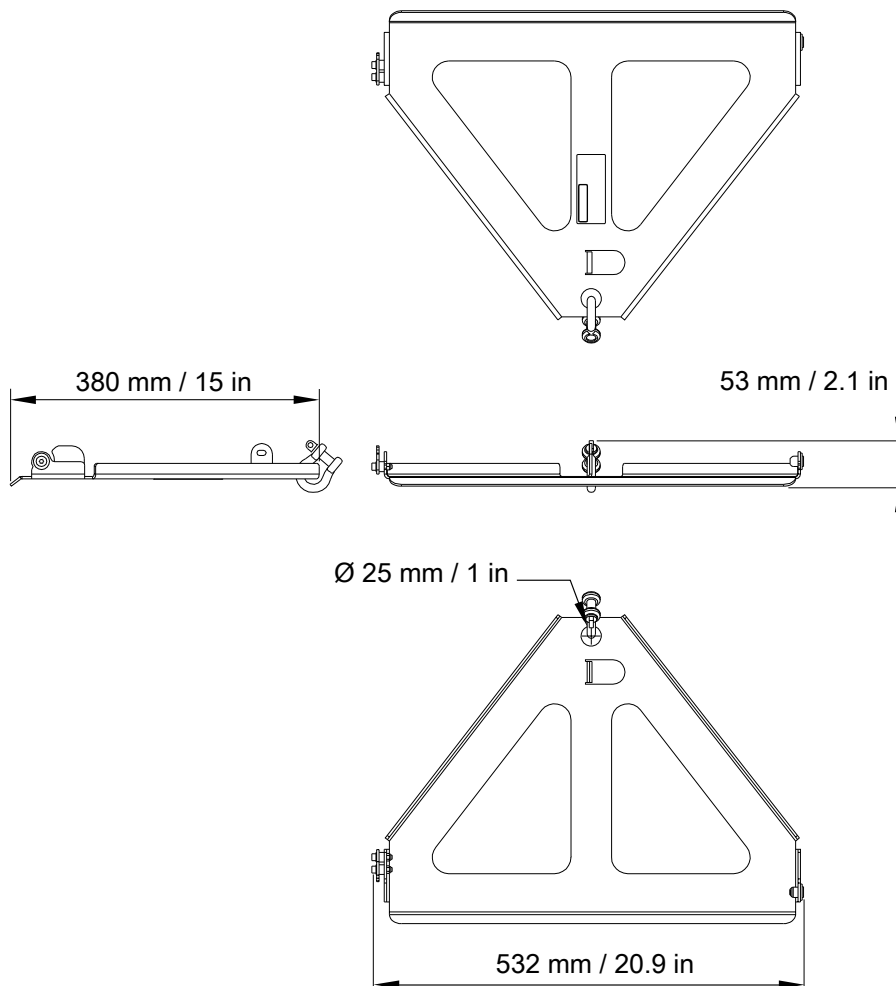
KIET II dimensions



KIVA-PULLBACK specifications

Description	Pullback accessory for KIVA II/KIVA 1 × Ø12 mm shackle WLL 1 t
Weight (net)	2.6 kg / 5.7 lb
Material	high grade steel with anti-corrosion coating

KIVA-PULLBACK dimensions



Installing an inclinometer on KIBU-SB

Tools

- torque screwdriver
- T20 Torx bit
- 7 mm wrench

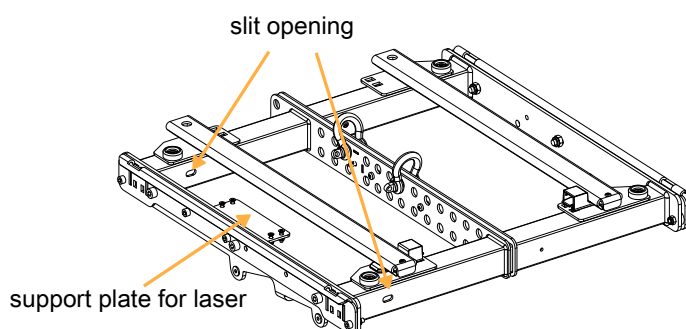
About this task

KIBU-SB is equipped with a support plate for installing an optional inclinometer. Three models are compatible: TEQSAS® LAP-TEQ PLUS (provided in the **TECH TOOLCASE**), TEQSAS® LAP-TEQ (legacy model), and KSG® RECLINE Compact.



LAP-TEQ / LAP-TEQ PLUS sensor and display compatibility

The legacy LAP-TEQ sensors are compatible with the new TEQSAS® LAP-TEQ PLUS displays. Conversely, the new sensors are **not** compatible with the legacy displays.



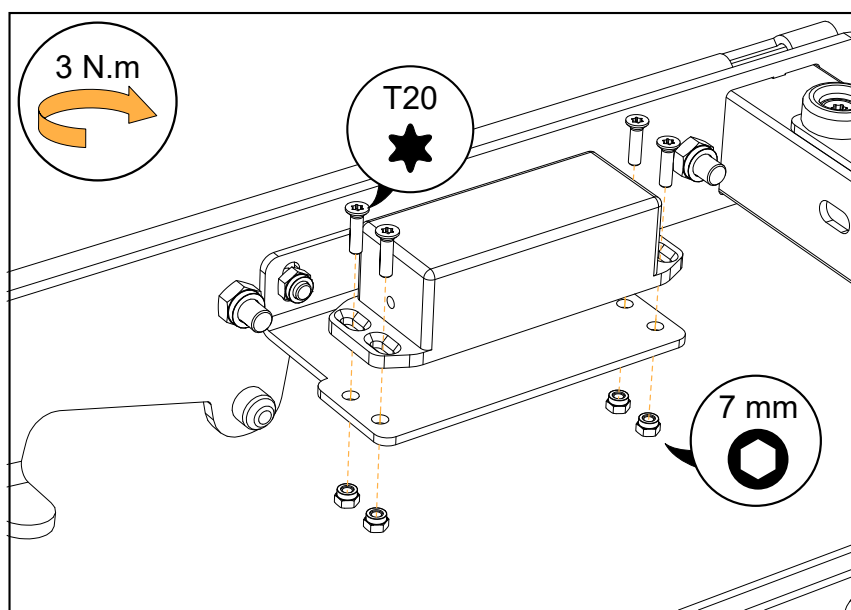
Calibrating the inclinometer

Refer to the manufacturer instructions.
An additional XLR cable is needed.

Exploded view

Use the screws and nuts provided with KIBU-SB.

Before tightening the screws, align the laser with the slit opening.



LAP-TEQ mounted on KIBU-SB.

Recommendation for speaker cables

Follow the recommended maximum length for loudspeaker cables to ensure minimal SPL attenuation.



Cable quality and resistance

Only use high-quality fully insulated speaker cables made of stranded copper wire.

Use cables with a gauge offering low resistance per unit length and keep the cables as short as possible.

The table below provides the recommended maximum length for loudspeaker cables depending on the cable gauge and on the impedance load connected to the amplifier.

cable gauge			recommended maximum length					
			8 Ω load		4 Ω load		2.7 Ω load	
mm ²	SWG	AWG	m	ft	m	ft	m	ft
2.5	15	13	30	100	15	50	10	33
4	13	11	50	160	25	80	17	53
6	11	9	74	240	37	120	25	80

Use the more detailed L-Acoustics calculation tool to evaluate cable length and gauge based on the type and number of enclosures connected. The calculation tool is available on our website:

<https://www.l-acoustics.com/installation-tools/>



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