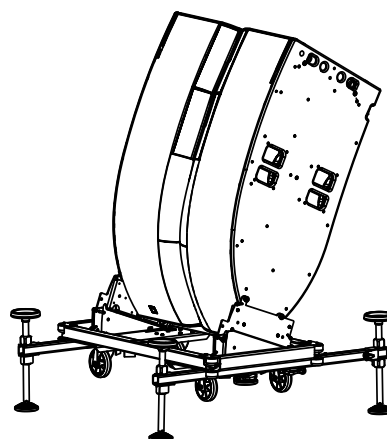
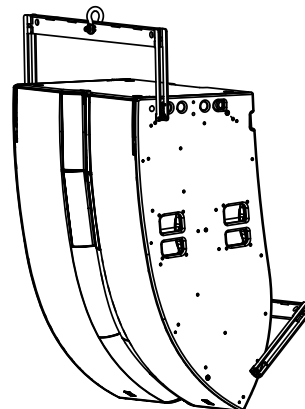
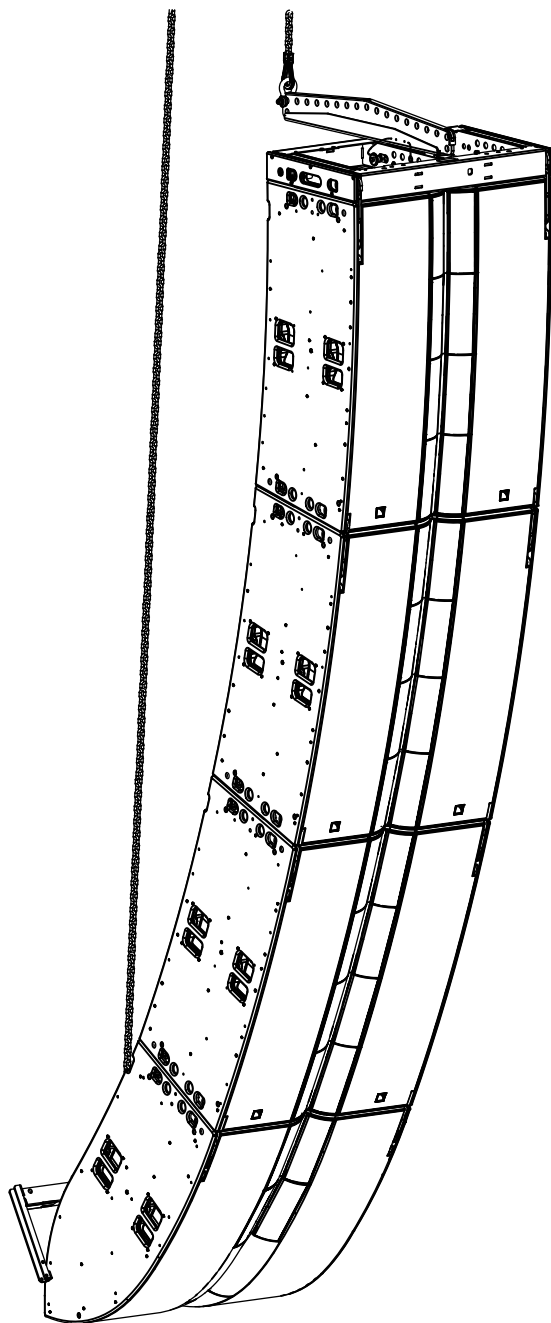


L2



owner's manual (EN)



Document reference: L2 owner's manual (EN) version 3.0

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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

L2/L2D 16-channel active progressive curvature WST enclosures

L Series

Based on the patented PULS technology, the L Series is the ultimate line source adapted to long throw applications in rental productions and fixed installations. Born from more than 30 years of constant line source technology evolution and from statistical analysis of sound system deployment on the field, L Series is a definitive answer to all the challenges rental productions and integrators face. The L Series leverages the WST technology and advanced electronic enhancement to deliver state-of-the-art SPL per meter, SPL per weight, and SPL per surface area, forming an ultra-light, ultra-fast, and ultra-simple system to deploy.

L2 Progressive Ultra-dense Line Source



Inaugurating the L Series, L2 and L2D are full-range line source elements designed for medium to large-sized mobile and installation applications. Based on the Progressive Ultra-dense Line Source (PULS) technology, the L Series offers the industry challenge-solver combination of sonic performance, power-to-size and weight ratios, with unprecedented ease of deployment, making it the ideal choice for stereo and LISA deployments in mid-sized festivals and tours yet also in performing arts, musical, broadcast or corporate events, and much more.

Each L2 and L2D element is composed of eight 3" compression drivers loaded on DOSC waveguides, eight 10" drivers and four 12" drivers mounted on the sides. This high component density enables L2 and L2D elements to produce a max SPL of up to 155 dB and 151 dB. Despite their low weight and compact size, L2 and L2D offer a bandwidth from to with typical large format system contour.

L2 forms a fixed progressive vertical coverage of 10° through four horizontal modules that are all fitted with Panflex™ to offer four directivity patterns: 70° or 110° symmetrical or 90° asymmetrical on either side. L2D forms a fixed progressive vertical coverage of 60° and comprises four modules. The top two feature Panflex™ while the bottom two modules have a fixed, progressive coverage starting at 110° and progressively widening to 140° at the bottom.

The optimized mechanical arrangement of L2 and L2D is enhanced by the amplification and DSP power of LA7.16(i) amplified controllers and the advanced Autofilter. With 16 channels of independent DSP enhancement, the wavefront sculpted produces a truly consistent response on the audience area and substantially reduces noise pollution on stage and in neighboring areas.

How to use this manual

The L2 owner's manual is intended for all actors involved in the system design, implementation, preventive and corrective maintenance of the L2 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.14)
 - [Rigging system description](#) (p.24)
2. Prepare the system configuration. Consider the mechanical limits and the available acoustical configurations.
 - [Mechanical safety](#) (p.45)
 - [Loudspeaker configurations](#) (p.47)
3. Before rigging the system, perform mandatory inspections and functional checks.
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.87)

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 (EMEA/APAC), laus.service@l-acoustics.com (Americas).

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	Jan. 2023	Initial version.
2.0	Oct. 2023	Various updates and improvements.
3.0	Jan. 2024	<ul style="list-style-type: none"> • Updated System components (p.10). • Updated Loudspeaker configurations (p.47). • Updated Securing LA-RAK III on L2-BUMP with LA-RAKMOUNT (p.57). • Updated the visuals of L2-RIGBAR. • Added the specifications of L2-BUMPFLIGHT (p.144) and L2-BUMPFLIGHTADDLAYER (p.145).

System components

Loudspeaker enclosures

L2	16-channel active progressive curvature WST 10° enclosure: 4 × 12" LC + 8 × 10" LF + 8 × 3" HF
L2D	16-channel active progressive curvature WST 60° enclosure: 4 × 12" LC + 8 × 10" LF + 8 × 3" HF
KS28	Flyable subwoofer 2 × 18"

Powering and driving system

LA7.16	Amplified controller 16 × 1300 W / 8 ohms
LA7.16i	Install-specific amplified controller 16 × 1300 W / 8 ohms



Refer to the LA7.16 / LA7.16i owner's manual for operating instructions.

Racks

LA-RAK III	Touring rack containing three LA7.16, one LA-POWER II for power distribution, one LA-PANEL III for audio signal distribution, and two LS10 for AVB distribution
------------	---

Cases

L-CASE II	2U electronics transport and protection case
-----------	--

Cables

SC32 cables	16-channel loudspeaker cables for touring application (37-point female connector to 37-point male connector, 32 points used, 1.5 mm ² gauge) Come in different lengths: SC32-5 (5 m / 16.4 ft), SC32-10 (10 m / 32.8 ft), SC32-25 (25 m / 82 ft), SC32-50 (50 m / 164 ft)
SC32P	16-channel loudspeaker cable extension adaptor (37-point female connector to 37-point male connector, 32 points used, without locking rings, 1.5 mm ² gauge) Length: 0.3 m / 1 ft
SC32 BE cables	16-channel loudspeaker cable for fixed installation (37-point female connector to 32 bare end cables for connection to a 16-channel amplified controller, 1.5 mm ² gauge) Come in different lengths: SC32-5 BE (5 m / 16.4 ft), SC32-10 BE (10 m / 32.8 ft)
SC32ROLL-500 BE	16-channel loudspeaker cable for custom cable creation (32 bare end cable, 1.5 mm ² gauge) Length: 500 m / 1640 ft (on a spool)



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

Refer to the LA7.16 / LA7.16i owner's manual for detailed instructions about the whole cabling scheme, including modulation cables and network.

Rigging elements

L2-BUMP	Flying frame for L2 and L2D (incl. 1 extension sling + 1 laser adapter)
L2-BAR	Extension bar for L2-BUMP
L2-RIGBAR	Rigging bar and pullback for L2 and L2D
LA-RAKMOUNT	Mounting cradles for racks, including screws

LA-SLING2T	Lifting chain (DIN EN 818-4) 2-leg , 8 mm
BPCHAIN 1.5T	Extension sling 1.5 tons (included in K3-BUMP)
K2-JACK	4 tilt adjustment screw jacks + 2 bars for chariots
L2-LASERMOUNT	Lasermount for L2 and L2D
DELTA 1.5T	Azimuth angle tuning accessory 1.5T

Transportation accessories

L2-CHARIOT	Chariot for one L2
L2-CHARIOTCOV	Protective cover for L2
L2-CHARIOTLID	Protective lid for L2-CHARIOT
L2D-CHARIOT	Chariot for one L2D
L2D-CHARIOTCOV	Protective cover for L2D
L2D-CHARIOTLID	Protective lid for L2D-CHARIOT
L2-BUMPFLIGHT	Modular flightcase for 1 L2-BUMP and rigging elements
L2-BUMPFLIGHTADDLAYER	L2-BUMPFLIGHT extension for one additional L2-BUMP
L2-ROLL	Lift and roll accessory for L2 and L2D (to be used with L2-RIGBAR)

Software applications

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

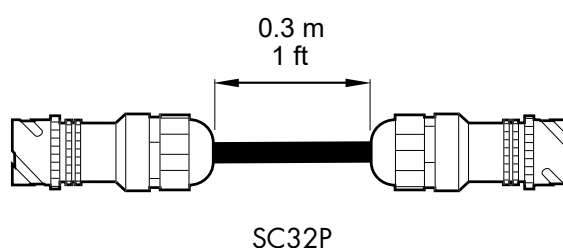
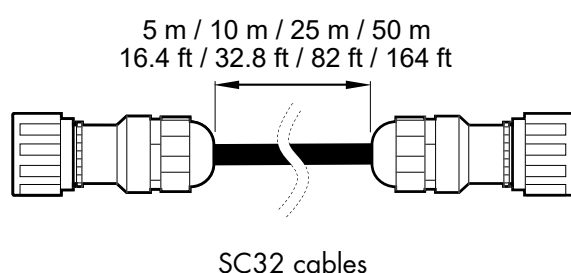


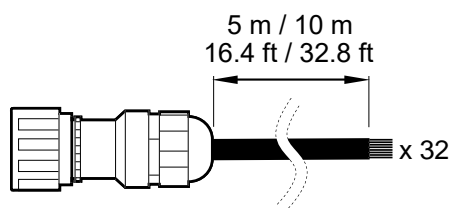
Refer to the Soundvision help.

Refer to the LA Network Manager help.

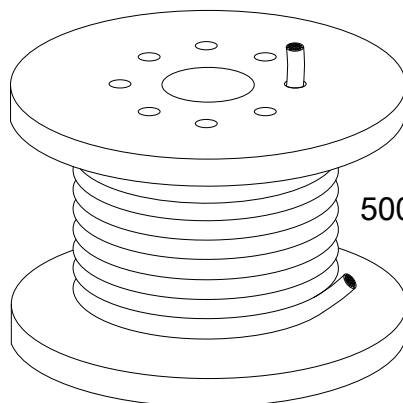
System component illustrations

Cables





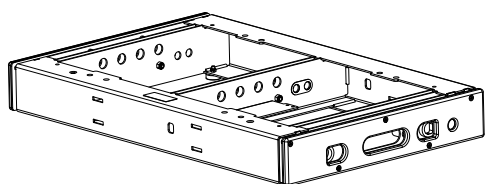
SC32 BE cables



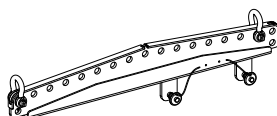
500 m / 1640 ft

SC32ROLL-500 BE

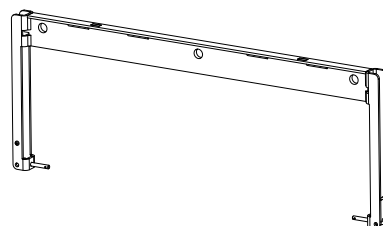
Rigging accessories



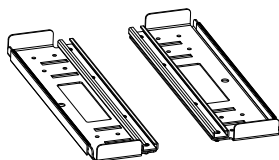
L2-BUMP



L2-BAR



L2-RIGBAR



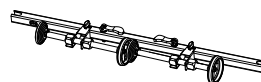
LA-RAKMOUNT



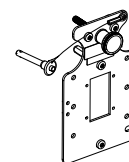
LA-SLING2T



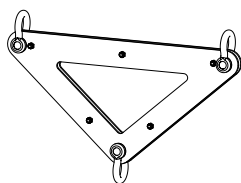
BPCHAIN
1.5T



K2-JACK

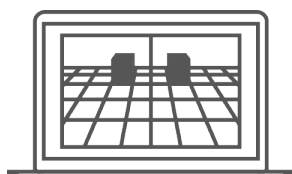


L2-
LASERMOUNT



DELTA 1.5T

Software applications

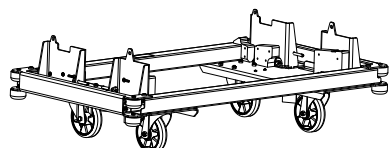


Soundvision

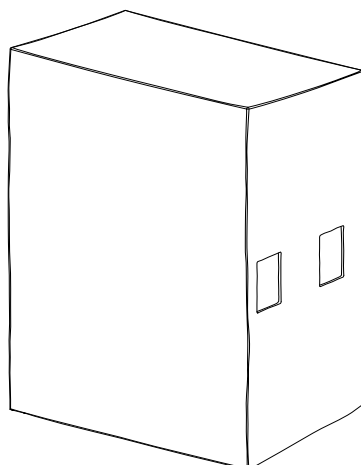


LA Network Manager

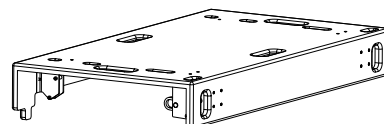
Transportation



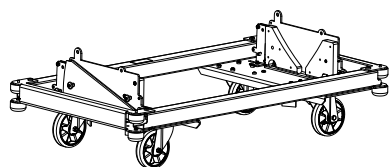
L2-CHARIOT



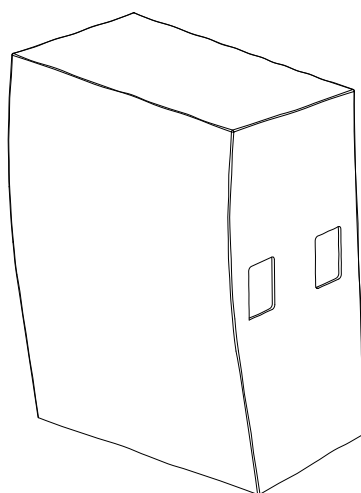
L2-CHARIOTCOV



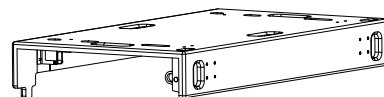
L2-CHARIOTLID



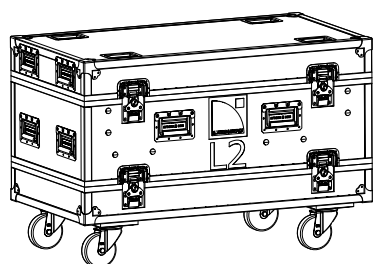
L2D-CHARIOT



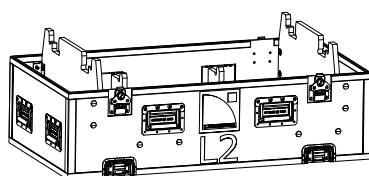
L2D-CHARIOTCOV



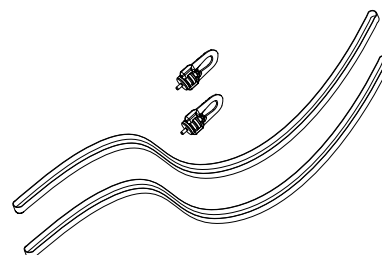
L2D-CHARIOTLID



L2-BUMPFLIGHT



L2-BUMPFLIGHTADDLAYER

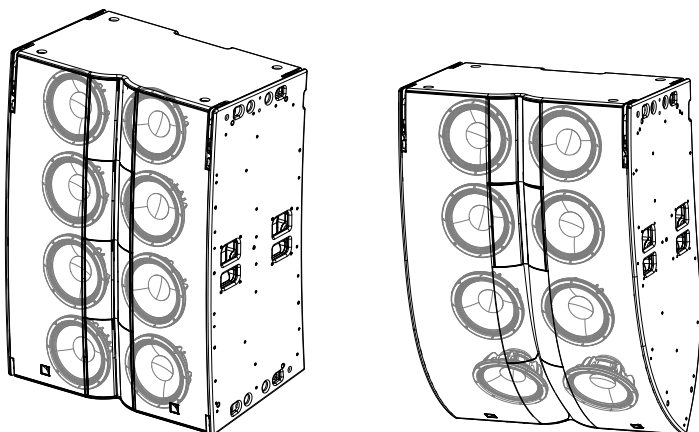


L2-ROLL

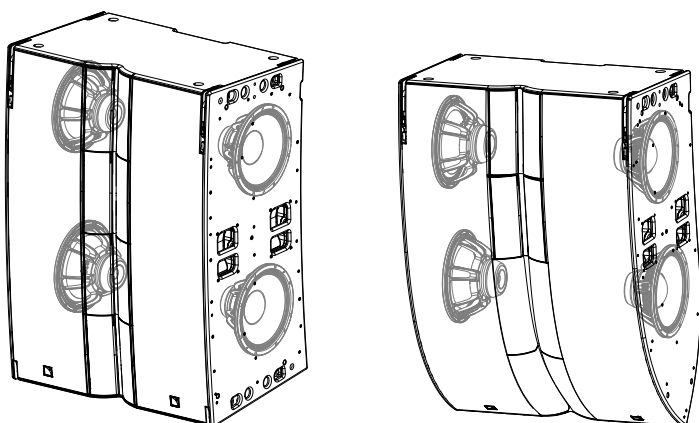
Electro-acoustical description

Polar pattern

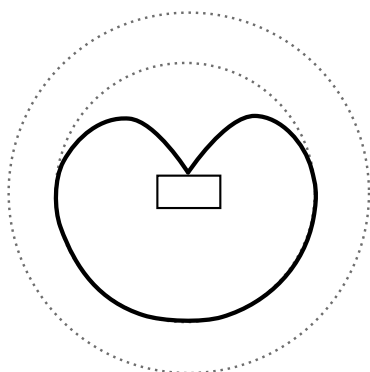
L2 and L2D each feature eight low frequency loudspeakers.



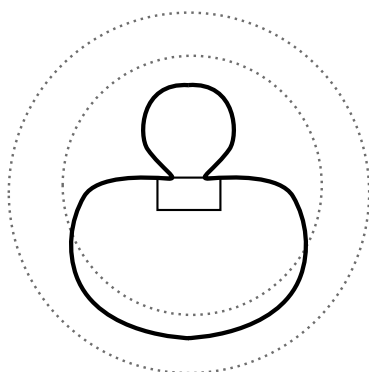
L2 and L2D each feature four low cardioid (LC) loudspeakers on the sides, allowing a standard array to exhibit a broadband cardioid pattern that minimizes rear SPL at low frequencies.



With the appropriate presets, the array can alternatively exhibit a supercardioid pattern that minimizes side SPL at low frequencies.



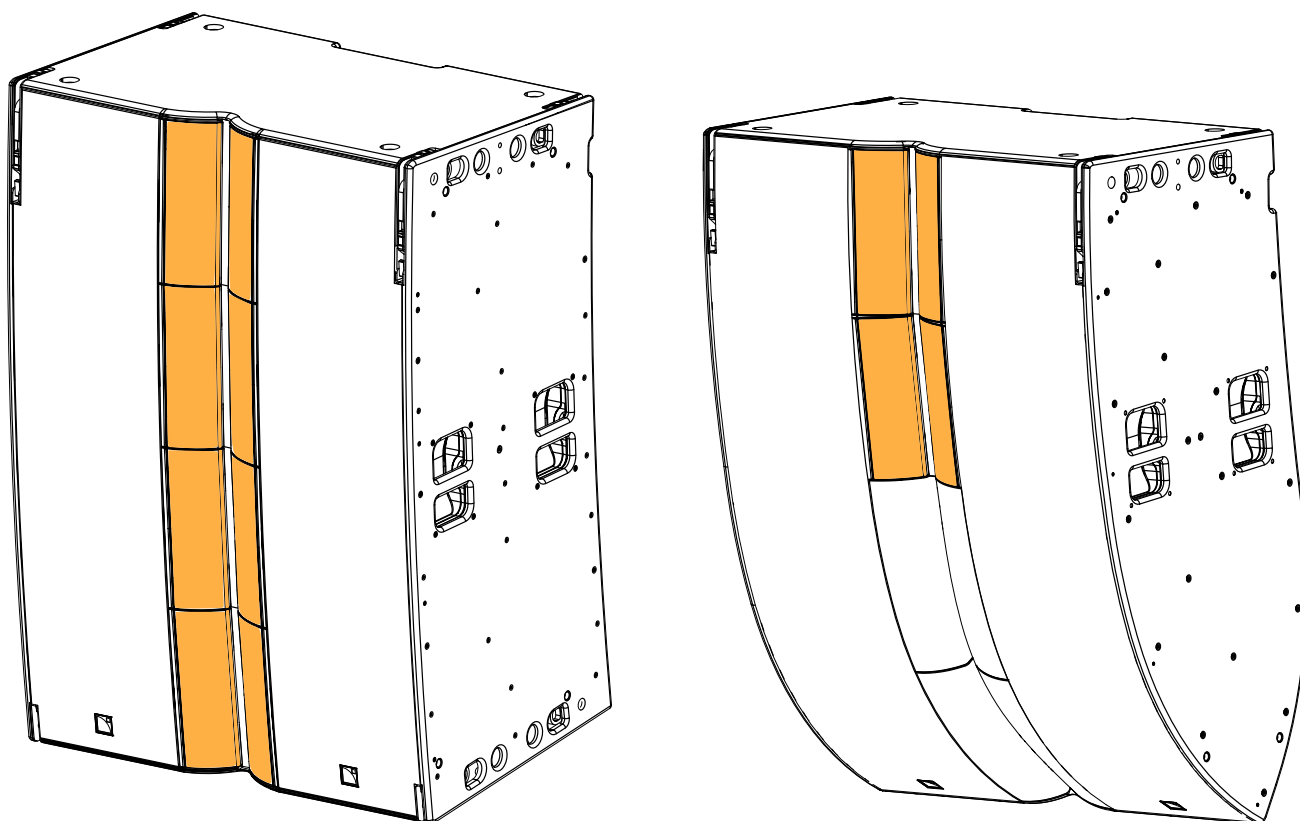
cardioid pattern (preset
[L2 xxx] / [L2D xxx])



supercardioid pattern (preset
[L2 xxx_S] / [L2D xxx_S])

Adjustable fins

Horizontal directivity can be set independently on the four Panflex modules of L2 and the top two Panflex modules of L2D using the push-push mechanism of the fins in combination with the specific electronic presets. There are four possible settings: 70° / 110° symmetric or 90° asymmetric (35°/55° or 55°/35°).



The bottom two Panflex modules of L2D have a fixed progressive directivity pattern from 110° to 140°.

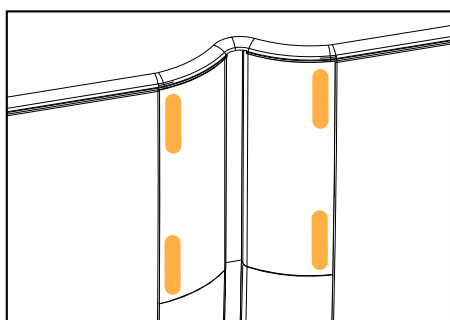
The Panflex modules are equipped with a push-push mechanism: push on the retracted fin to deploy it, push on the deployed fin to retract it.



Risk of breaking the fin hooks

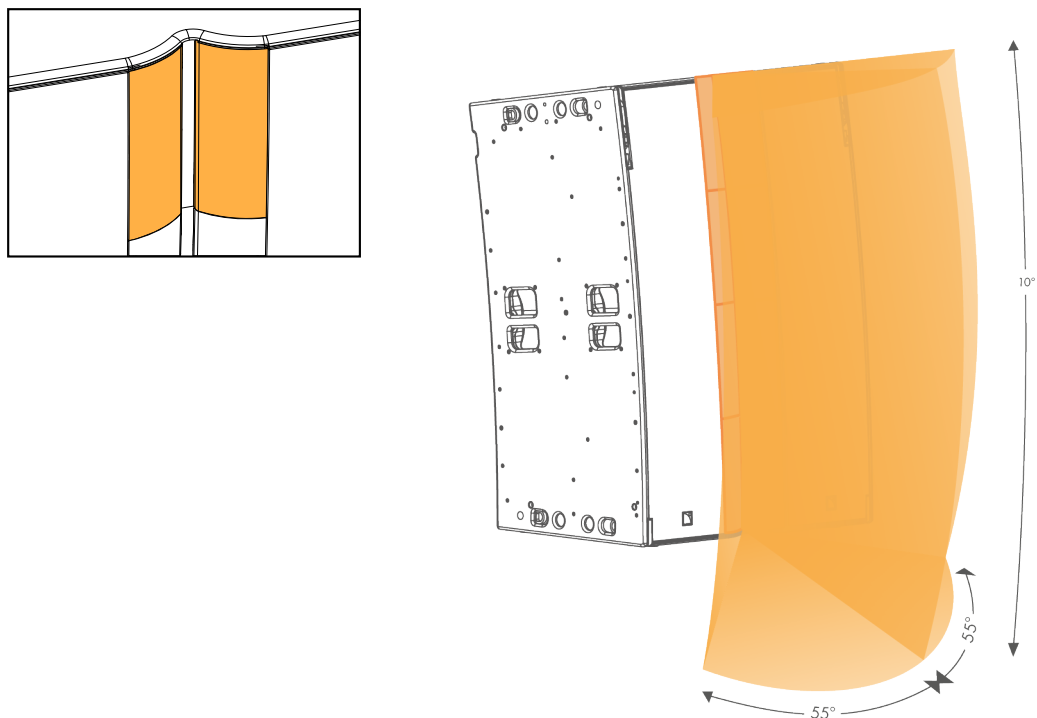
Do not use excessive force when deploying the fins.

Apply pressure on the external side of the fin on both the upper and lower areas at the same time.



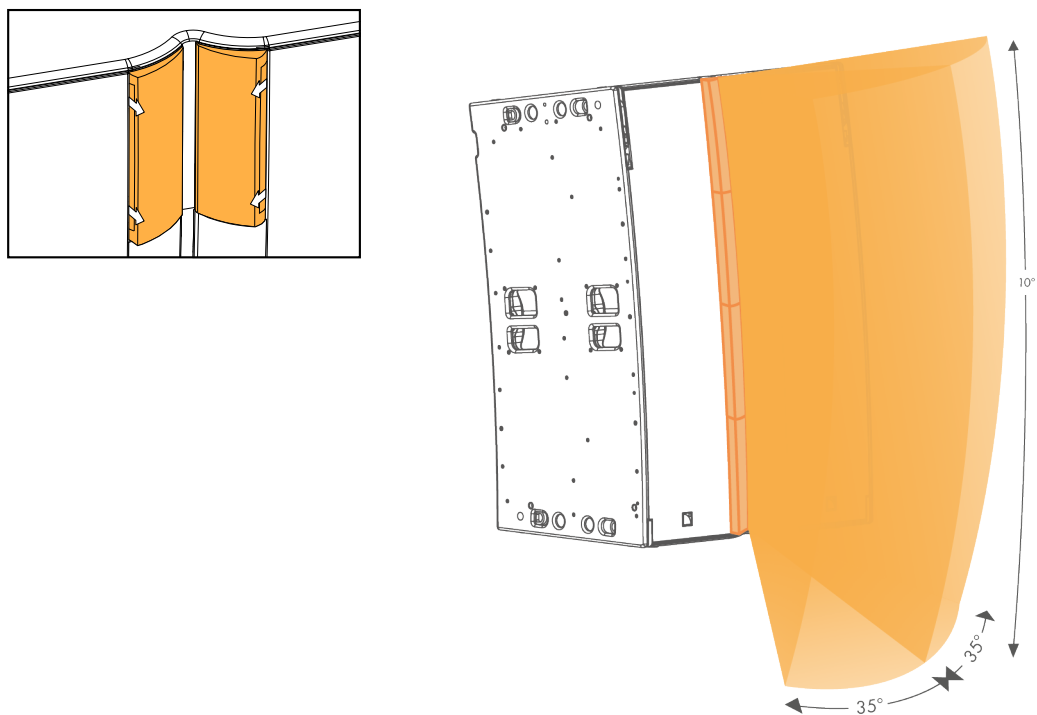
Within a line source, combine L2 and L2D with custom directivity settings to improve the coverage of the audience geometry.

110° setting (preset [L2 110xx] / [L2D 110xx])



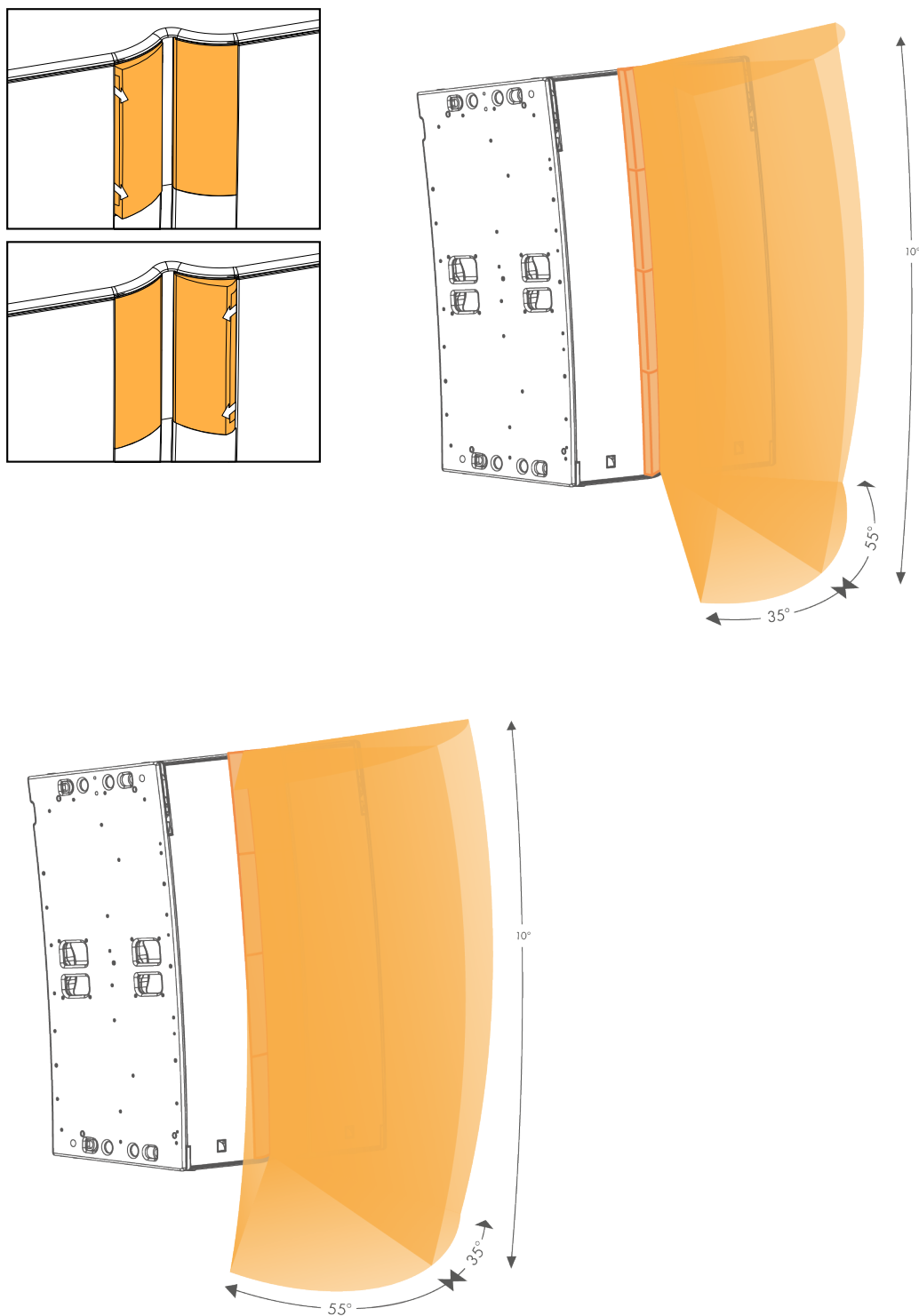
70° setting (preset [L2 70xx] / [L2D 70xx])

Setting the fins in the 70° position offers an additional 2 dB on-axis (> 2 kHz).

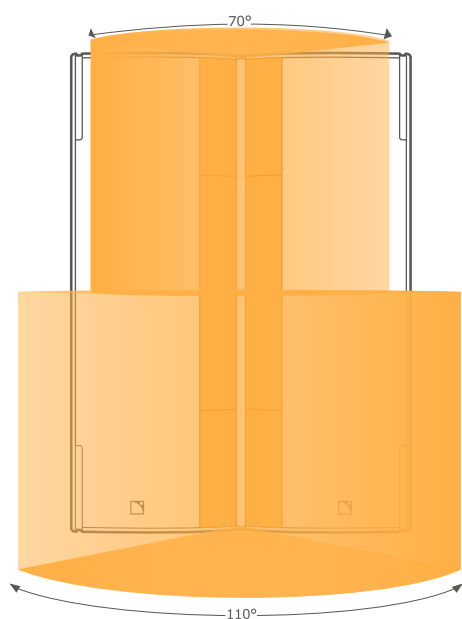


90° setting (preset [L2 90xx] / [L2D 90xx])

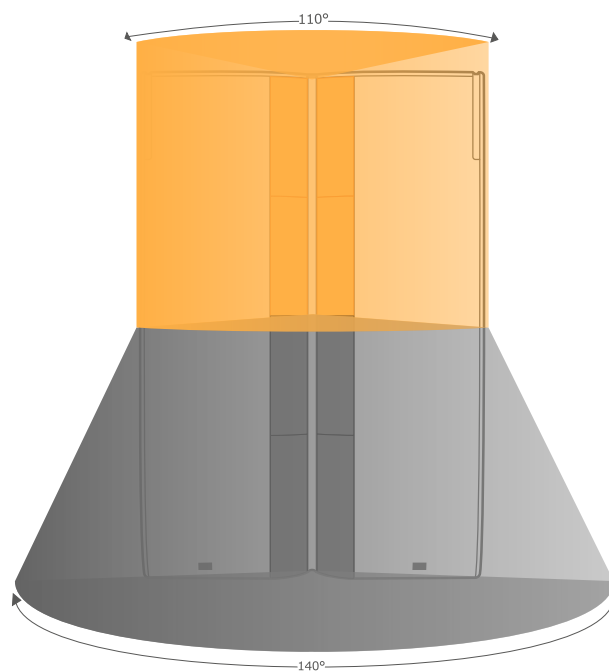
Setting the fins in the 90° position offers an additional 1 dB on-axis (> 2 kHz).



Mixed setting



L2 with a 70° setting on module 1 and 2, and a 110° setting on module 3 and 4

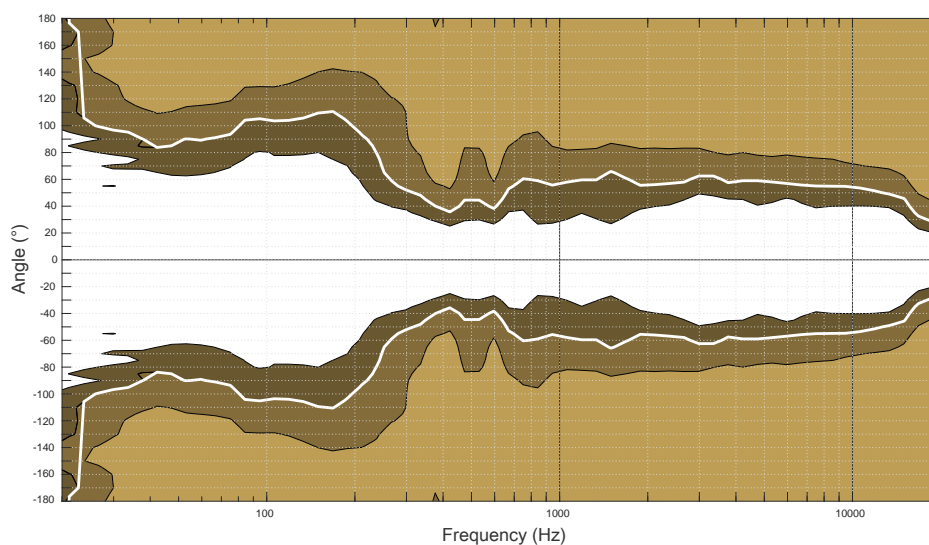
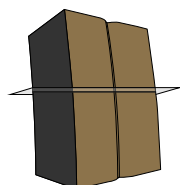


L2D with a 110° setting on module 1 and 2, and a fixed directivity pattern from 110° to 140° on module 3 and 4

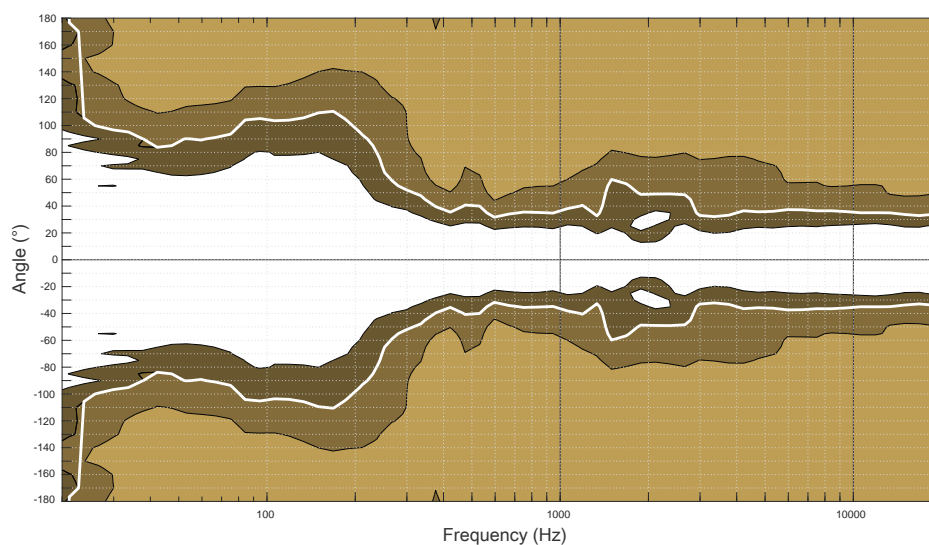
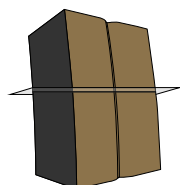
Directivity

L2

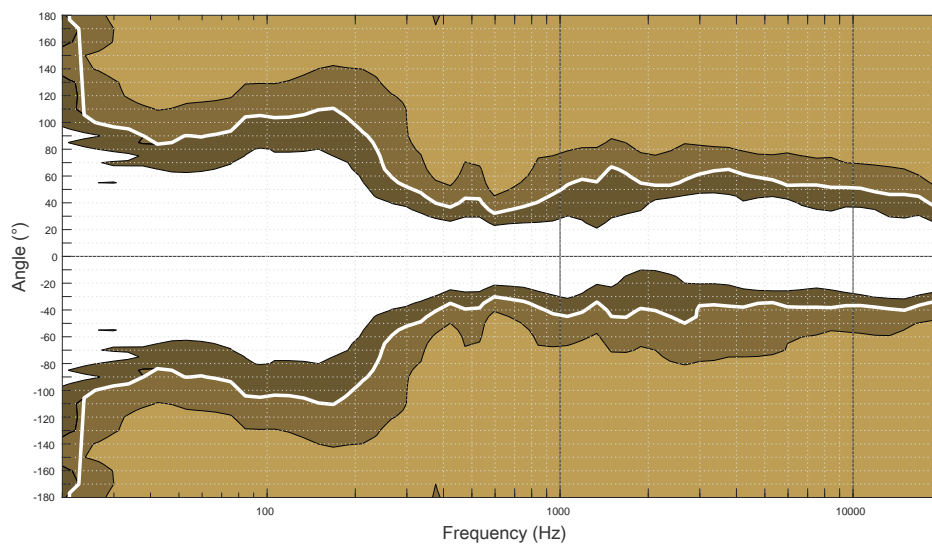
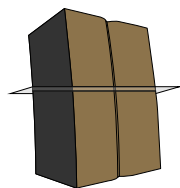
L2 generates an enclosure directivity pattern of 10° and a waveguide directivity pattern of $70^\circ / 110^\circ$ symmetric or 90° asymmetric (-6 dB) depending on the fins settings.



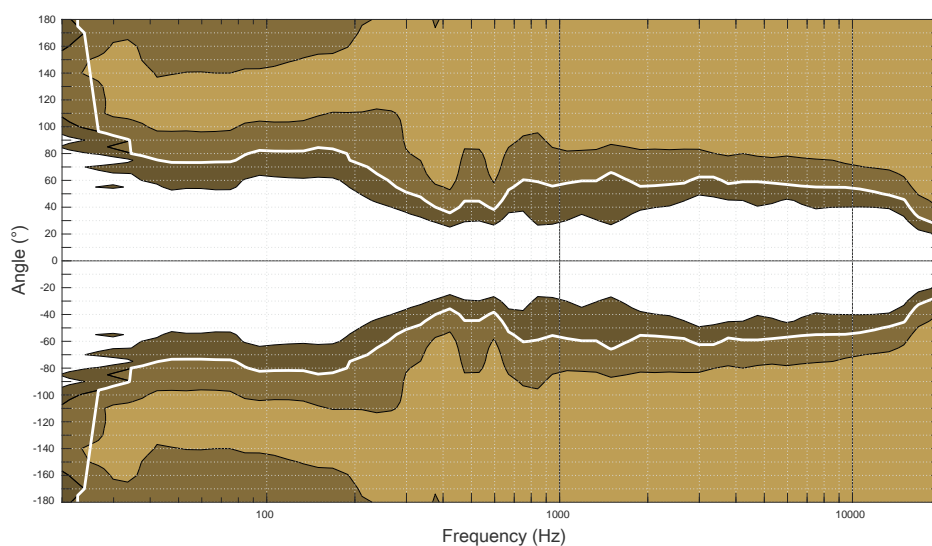
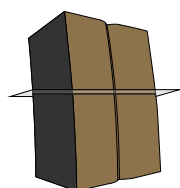
Dispersion angle diagram of one L2 with 110° fins settings and a cardioid pattern, using lines of equal sound pressure at -3 dB, -6 dB, -12 dB.



Dispersion angle diagram of one L2 with 70° fins settings and a cardioid pattern, using lines of equal sound pressure at -3 dB, -6 dB, -12 dB.



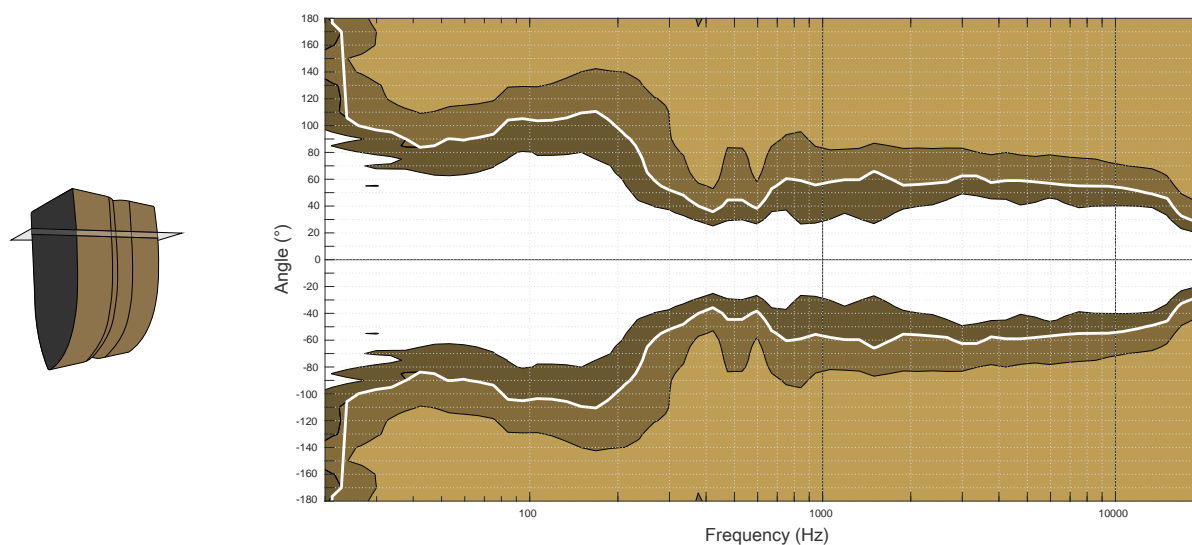
Dispersion angle diagram of one L2 with 90° fins settings and a cardioid pattern, using lines of equal sound pressure at -3 dB, -6 dB, -12 dB.



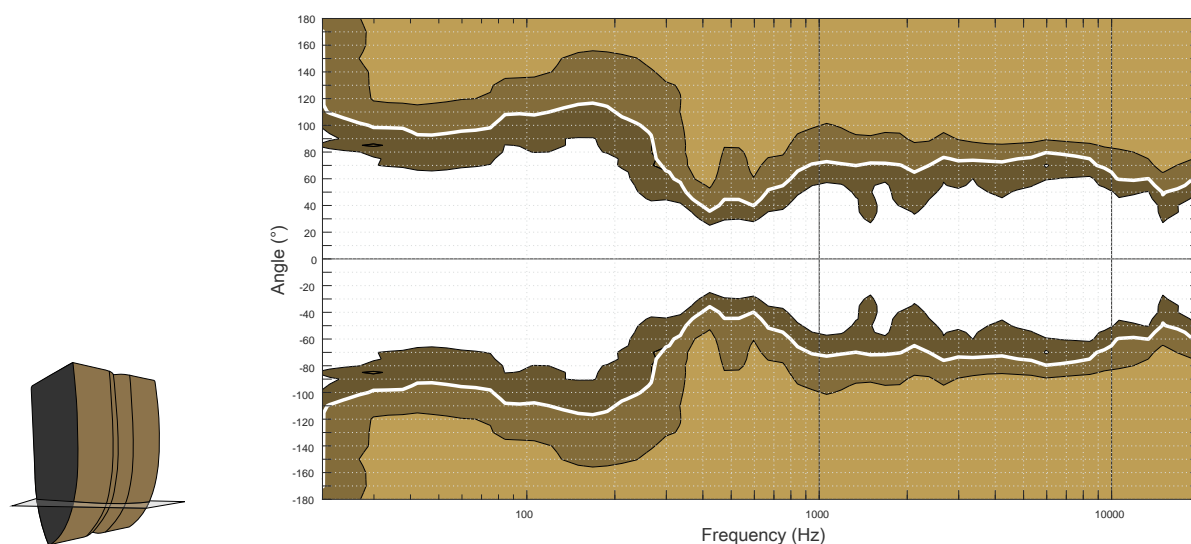
Dispersion angle diagram of one L2 with 110° fins settings and a supercardioid pattern, using lines of equal sound pressure at -3 dB, -6 dB, -12 dB.

L2D

L2D generates an enclosure directivity pattern of 60° and a waveguide directivity pattern of (upper part) $70^\circ / 110^\circ$ symmetric or 90° asymmetric (-6 dB) depending on the fins settings and (lower part) progressive from 110° to 140° .



Dispersion angle diagram of one L2D with 110° fins settings and a cardioid pattern, using lines of equal sound pressure at -3 dB, -6 dB, -12 dB.



Dispersion angle diagram of one L2D at 140° with a cardioid pattern, using lines of equal sound pressure at -3 dB, -6 dB, -12 dB.

Preset description

[L2 70] [L2 90] [L2 110] [L2 70_S] [L2 90_S] [L2 110_S] [L2D 70] [L2D 90] [L2D 110] [L2D 70_S] [L2D 90_S] [L2D 110_S]

outputs	channels	routing	gain	delay	polarity	mute
OUT 1	LC	IN 1	0 dB	0 ms	+	ON
OUT 2	LF	IN 1				ON
OUT 3	HF	IN 1				ON
OUT 4	HF	IN 1				ON
OUT 5	LC	IN 1				ON
OUT 6	LF	IN 1				ON
OUT 7	HF	IN 1				ON
OUT 8	HF	IN 1				ON
OUT 9	LC	IN 1				ON
OUT 10	LF	IN 1				ON
OUT 11	HF	IN 1				ON
OUT 12	HF	IN 1				ON
OUT 13	LC	IN 1				ON
OUT 14	LF	IN 1				ON
OUT 15	HF	IN 1				ON
OUT 16	HF	IN 1				ON

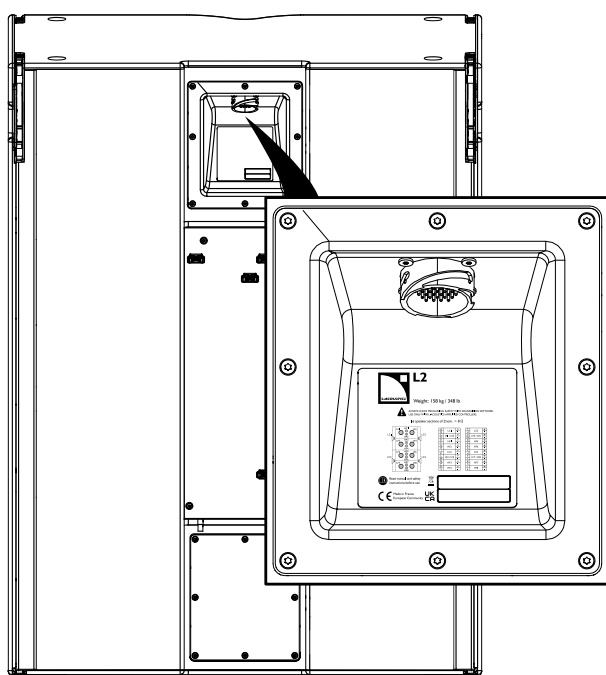
[KS28 L2]

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

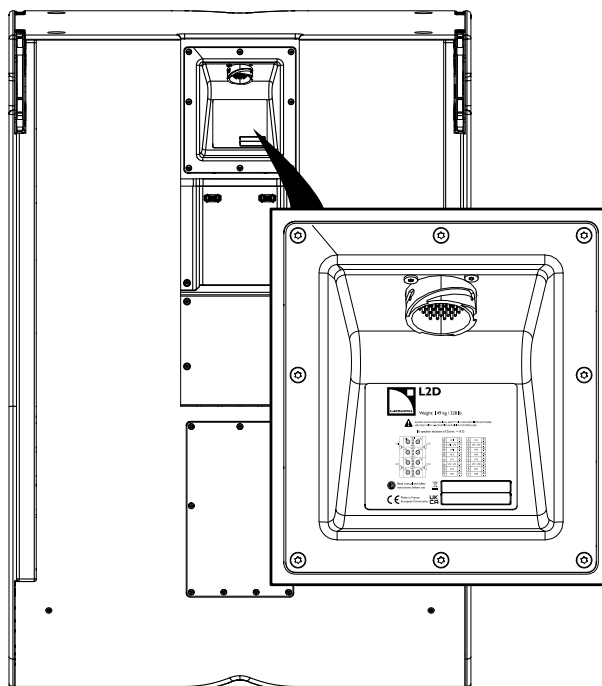
[KS28 L2_C] [KS28 L2_Cx]

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



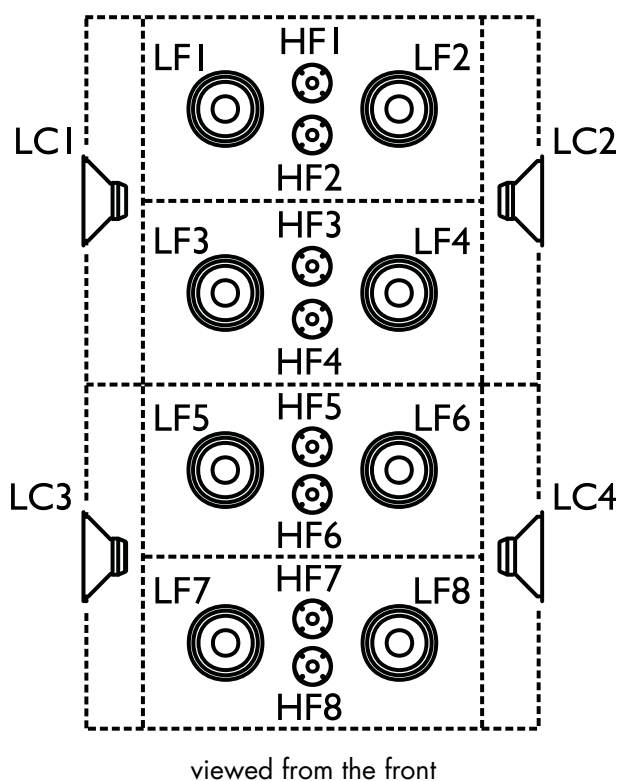
L2
1 x 37-point male connector (32 points used)



L2D
1 x 37-point male connector (32 points used)

Internal pinout for L-Acoustics active 16-channel enclosures

connector points	Transducer connectors
A/B	LC1
C/D	LF1/LF2
E/F	HF1
G/H	HF2
J/K	LC2
L/M	LF3/LF4
N/P	HF3
R/S	HF4
T/U	LC3
V/W	LF5/LF6
X/Z	HF5
a/b	HF6
c/d	LC4
e/f	LF7/LF8
g/h	HF7
i/k	HF8
m/n/p/r/s	not used

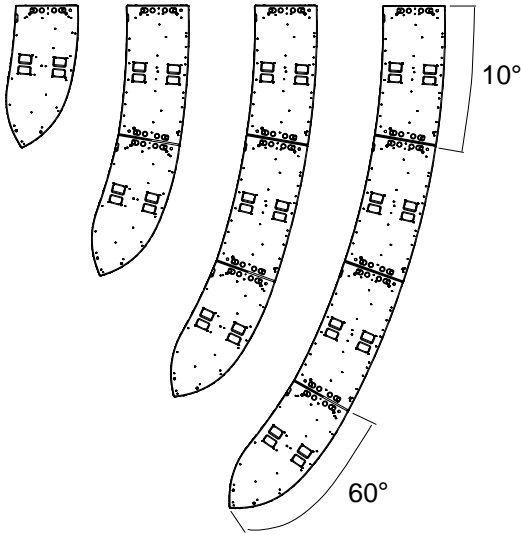


Rigging system description

L2/L2D

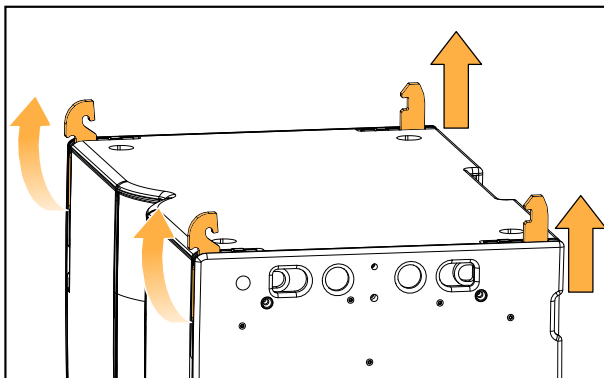
The L2 system includes two enclosures: L2 and L2D. Each enclosure can be flown or stacked alone, or assembled into a flown array.

The coverage of the array is achieved by the 10° curvature of the L2 enclosures, while the 60° curvature of L2D is designed to make it the last enclosure at the bottom of the array.

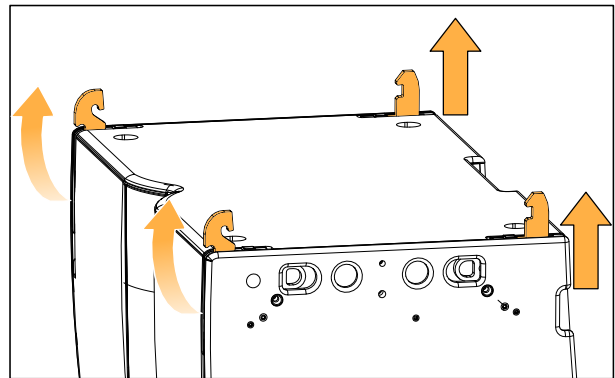


On both sides, L2/L2D integrate two arms to connect another element of the rigging system, such as an enclosure or a flying frame.

- At the front, a rotating arm provides a fixed point around which the enclosure can rotate until its connection at the rear.
- At the rear, a sliding arm enables the inter-element rear connection.



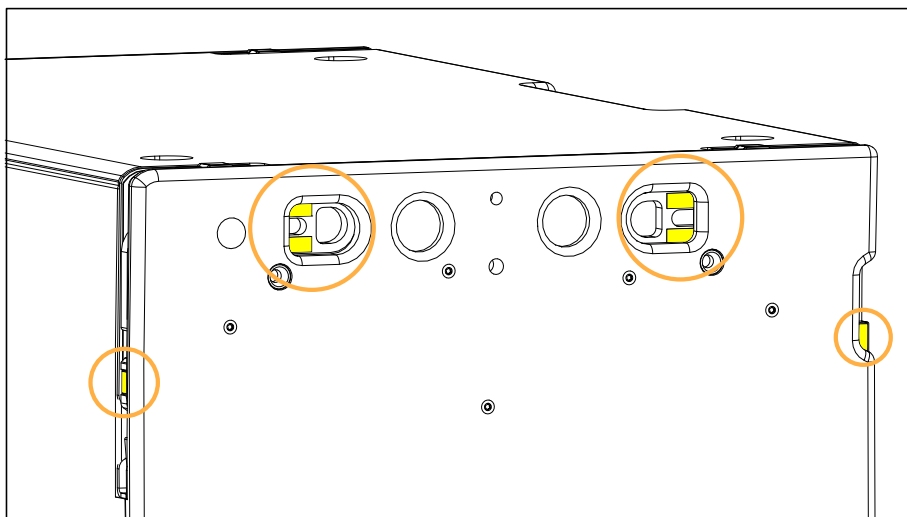
L2



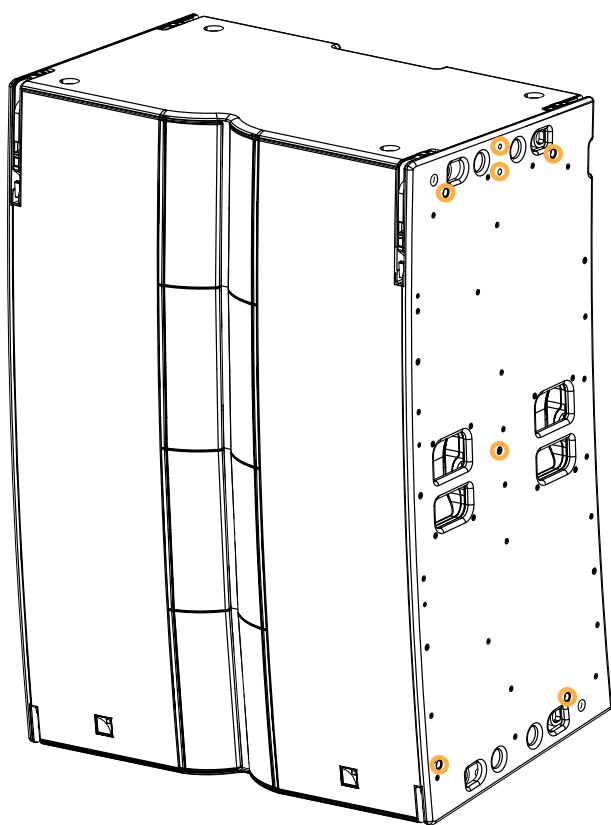
L2D

Adjacent enclosures or rigging accessories are secured by an automatic system with buttons and latches. The system is activated in advance and locks itself during the lifting procedures.

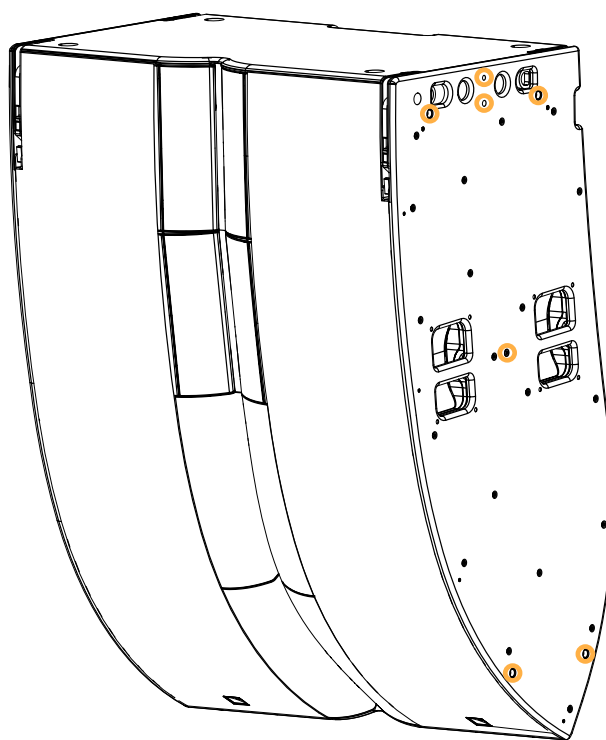
The rigging elements and latches are fitted with yellow safety labels that are visible when they are not safely locked.



On both enclosures, seven inserts on each side provide further options such as flying with L2-RIGBAR as the main or pullback accessory, stacking on L2-CHARIOT/L2D-CHARIOT, securing L2-LASERMOUNT or L2-ROLL.

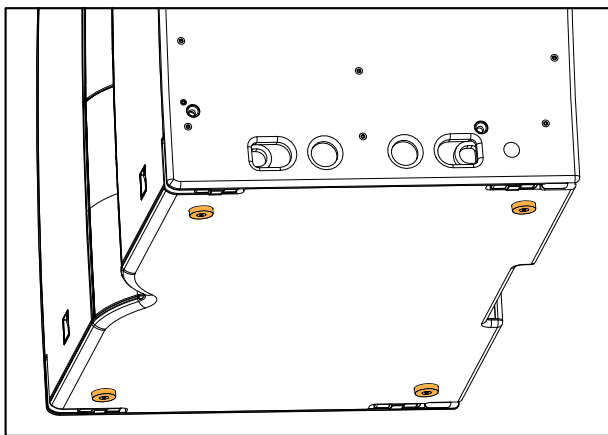


L2

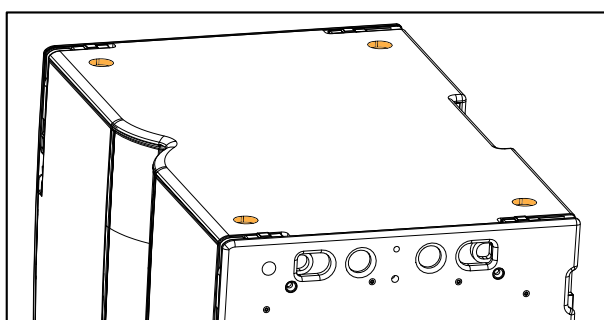


L2D

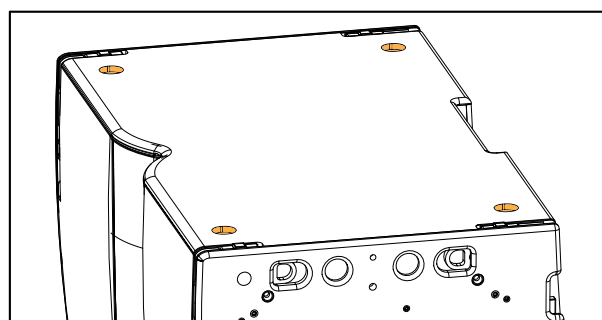
L2 features four ground runners on the bottom, and both L2 and L2D feature matching tracks on the top.



L2

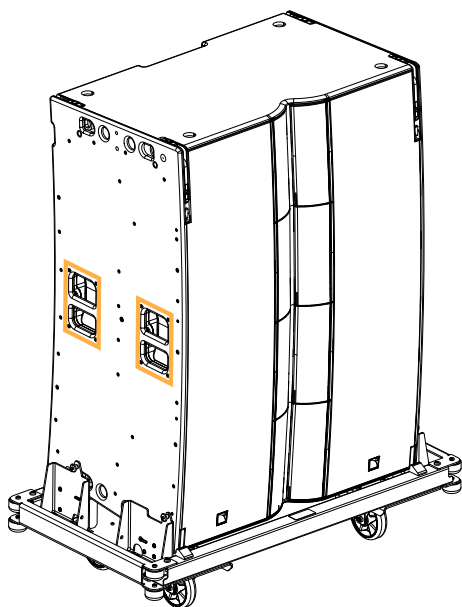


L2

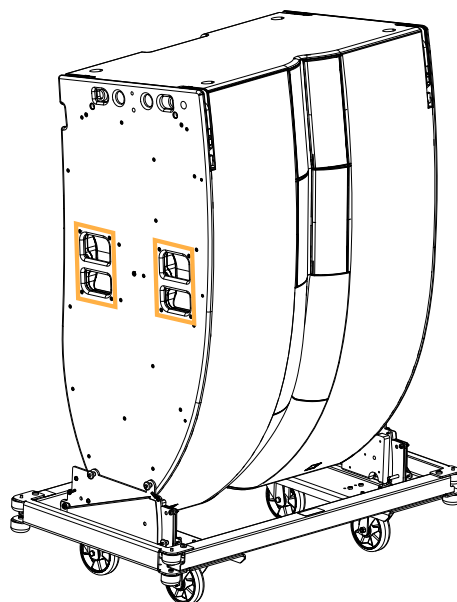


L2D

Two ergonomic handles on each side of the enclosures are available for handling.



L2



L2D



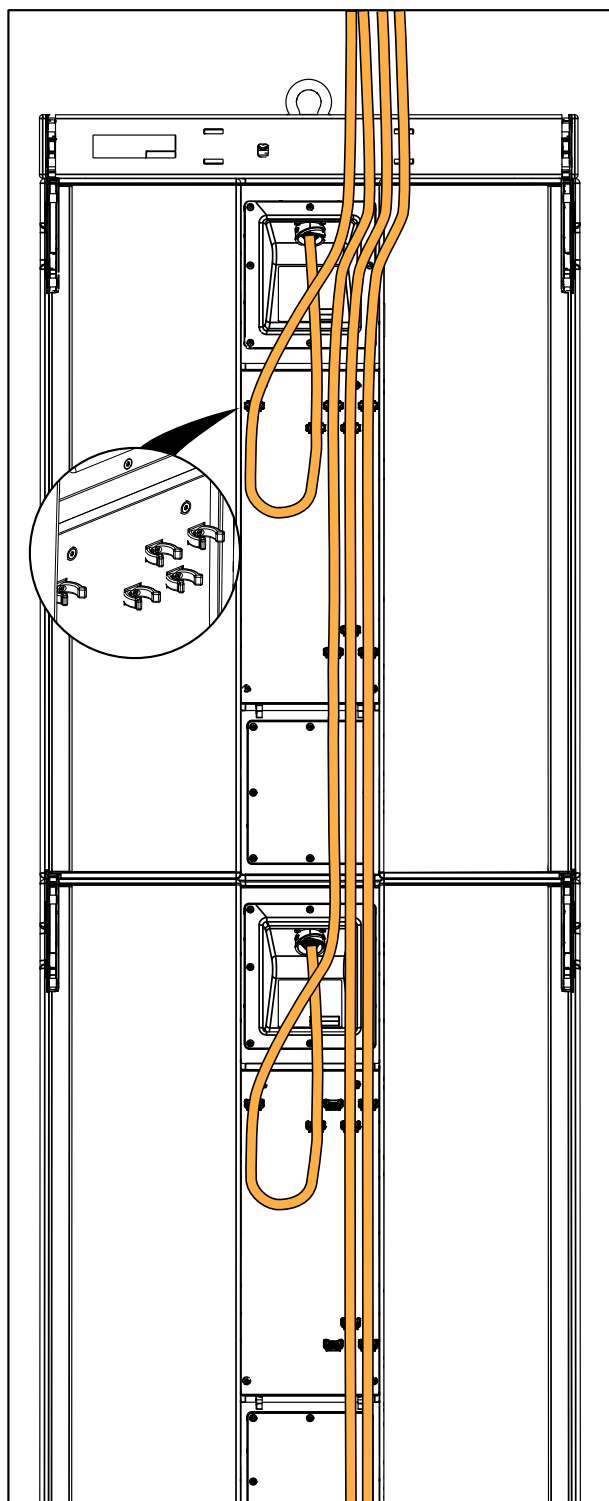
Dedicated chariots for L2/L2D

L2 is intended for use only with L-Acoustics L2-CHARIOT.

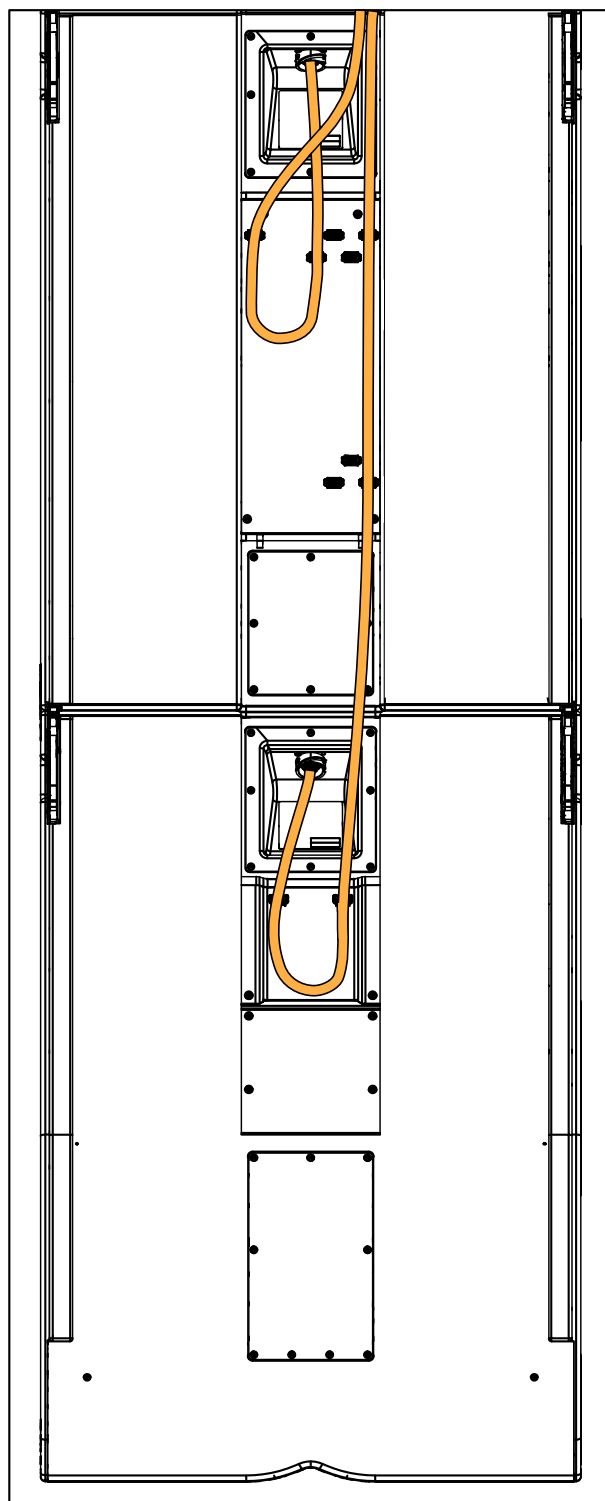
L2D is intended for use only with L-Acoustics L2D-CHARIOT.

Use with other equipment may result in instability causing injury.

L2 and L2D feature cable clips at the rear to secure the SC32 cables.



Two L2 at the top of an array



One L2 and one L2D at the bottom of an array



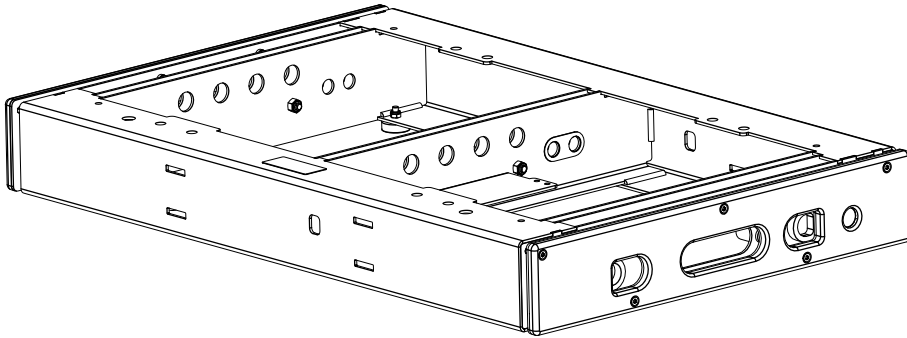
Risk of site angle modification

Do not secure the SC32 cables to the rigging element. Secure the cables to the truss instead.

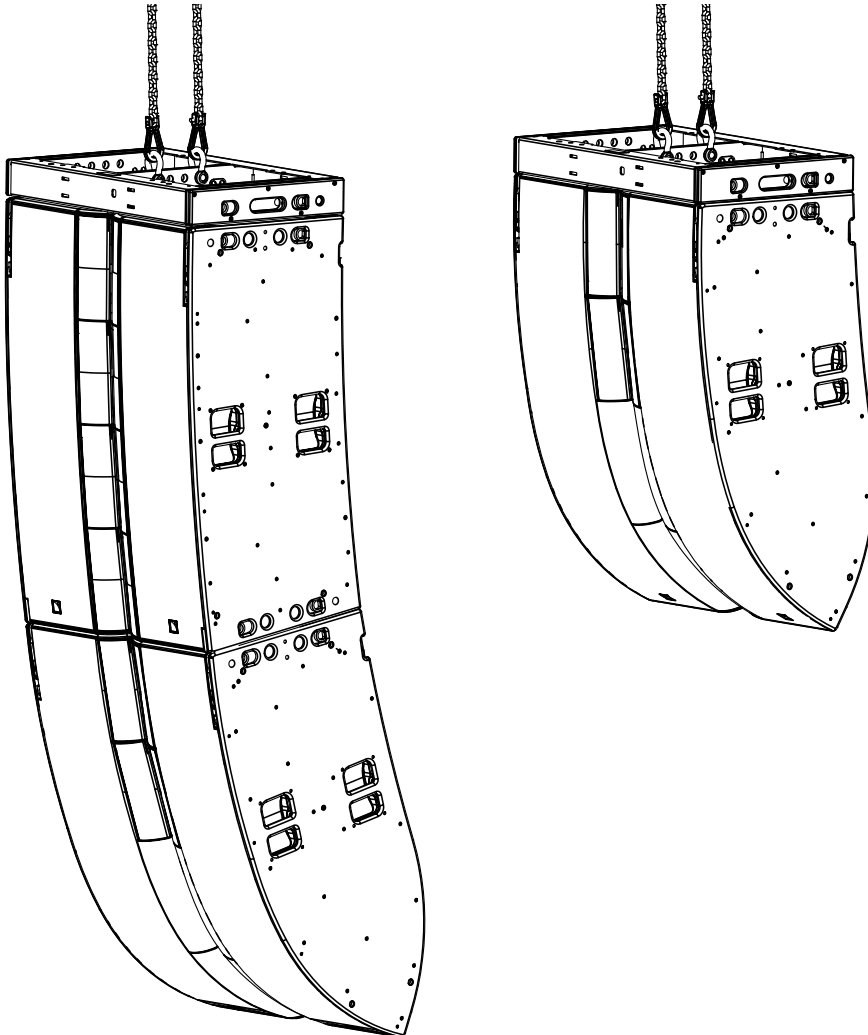
Rigging elements

L2-BUMP

L2-BUMP is a rigging frame designed for flying L2 and L2D.



L2-BUMP can be used as the main lifting accessory for flying arrays of L2 with L2D, or a single L2D using the included two Ø19 mm shackles WLL 3.25 t and extension sling.

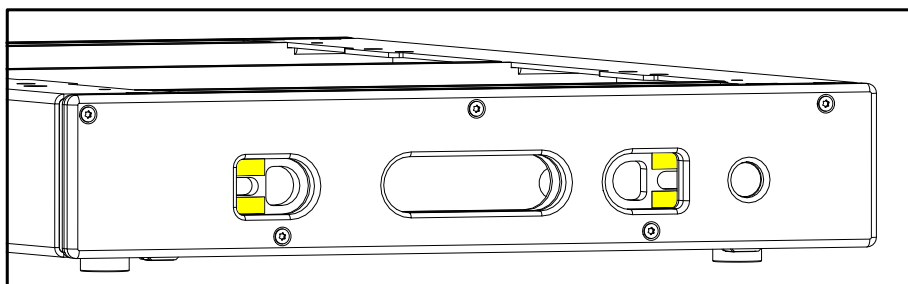


L2-BUMP features a plate and openings for the use of a laser inclinometer. Refer to [APPENDIX B: Installing a laser inclinometer](#) (p.148).

L2-BUMP is equipped with four spring-loaded lock systems to match the rigging arms of L2 and L2D.

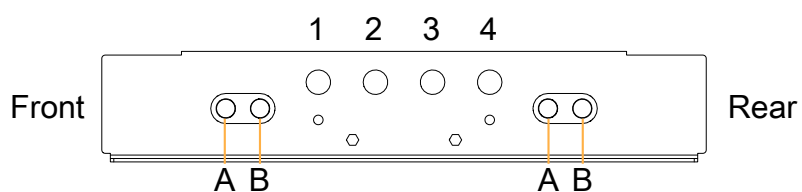


Slide to unlock the spring-loaded lock.

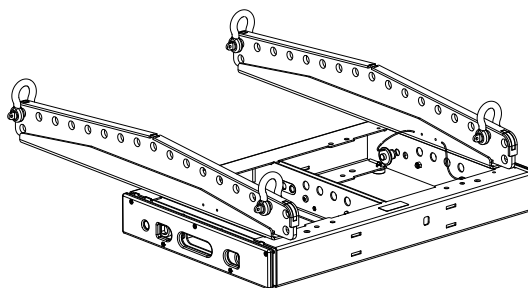
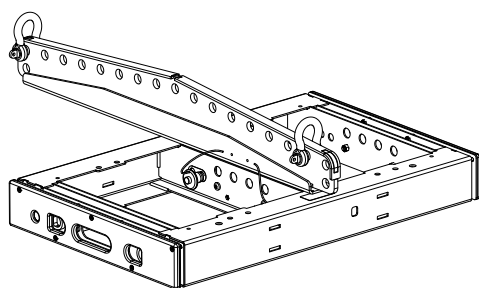


The rigging elements are fitted with yellow safety labels that are visible when they are not safely locked.

The central and side bars of L2-BUMP have four holes each for site angle adjustments.



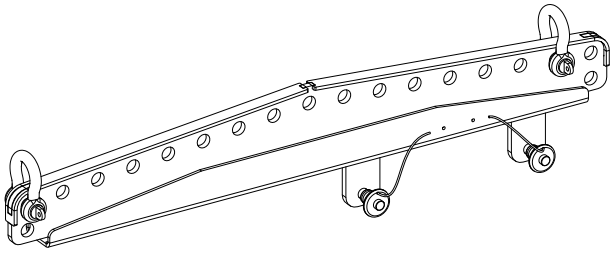
To increase the site angle, four additional holes are available to add one L2-BAR on the central bar or two on each side bar.



L2-BUMP is compatible with LA-RAKMOUNT to secure a single LA-RAK III above the array. Refer to [LA-RAKMOUNT](#) (p.34).

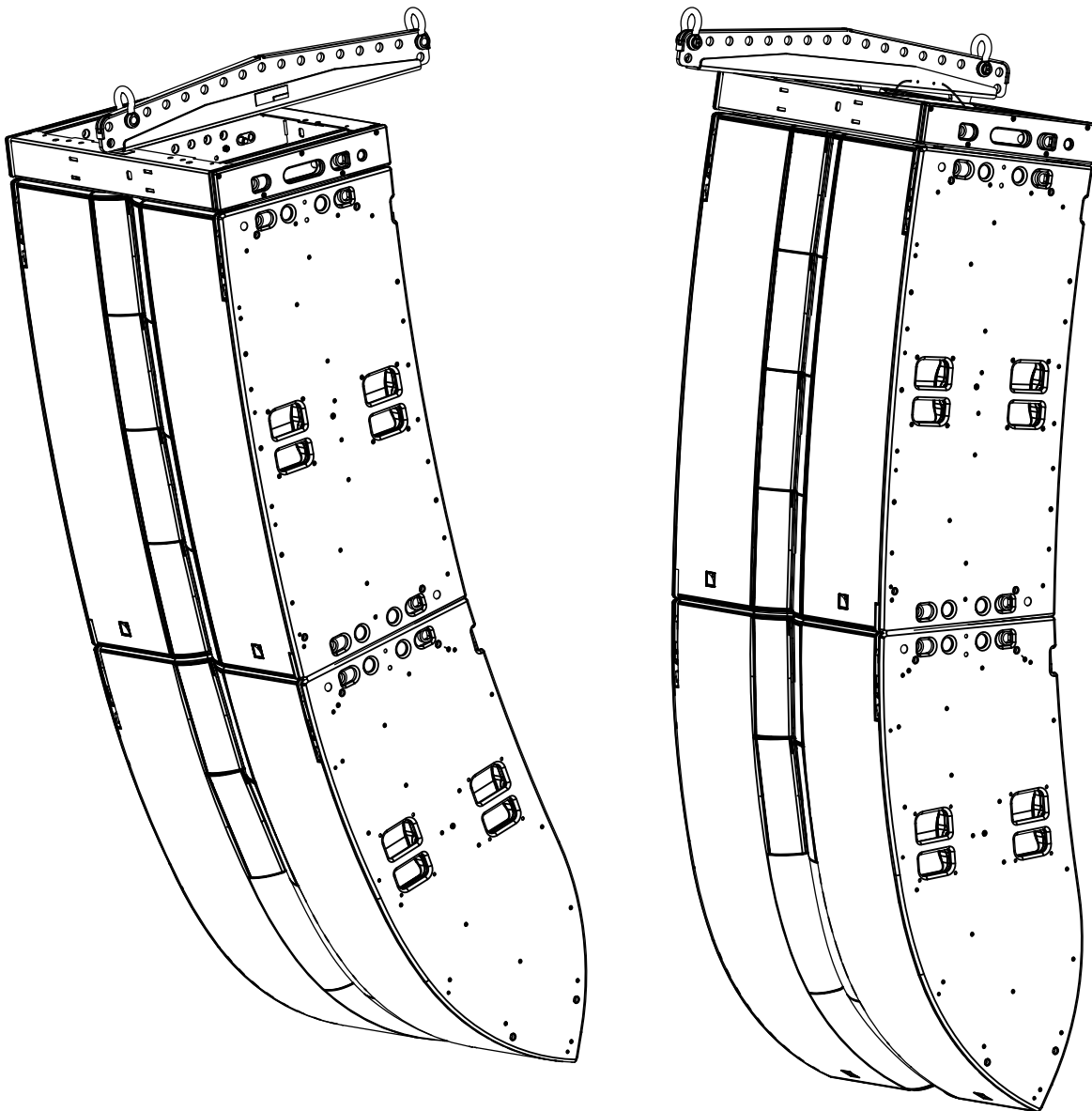
L2-BAR

L2-BAR is an extension bar that can be combined with L2-BUMP using two ball-locking pins.



By adding L2-BAR to L2-BUMP, the site angle range can be increased. Seventeen holes are available on L2-BAR, which can be attached to L2-BUMP as a rear or a front extension and in position A or B, thus offering a total of 68 discrete positions for pickup points.

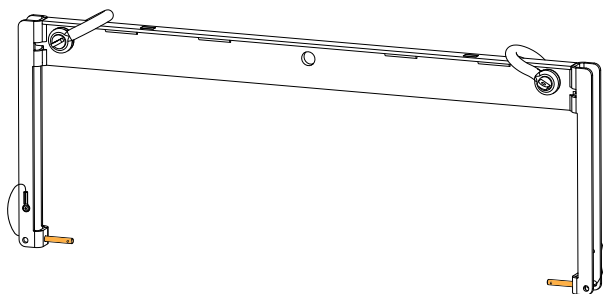
The rear extension is suited to downwards site angles. The front extension is suited to upwards site angles.



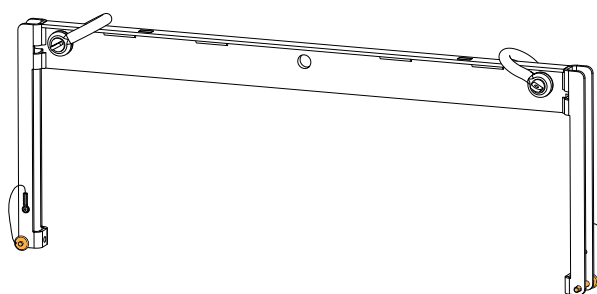
Alternatively, two L2-BAR can be attached to the sides of the L2-BUMP, in particular if using LA-RAKMOUNT and LA-RAK III. Refer to [LA-RAKMOUNT](#) (p.34).

L2-RIGBAR

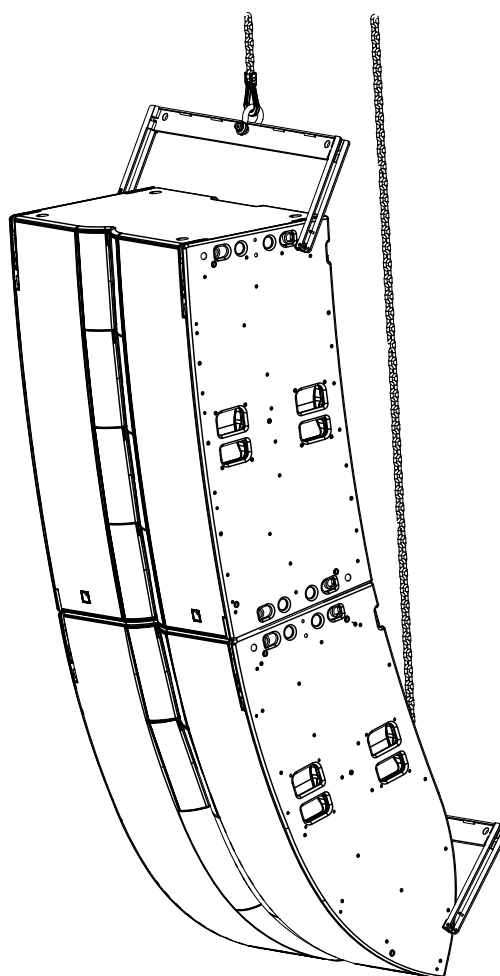
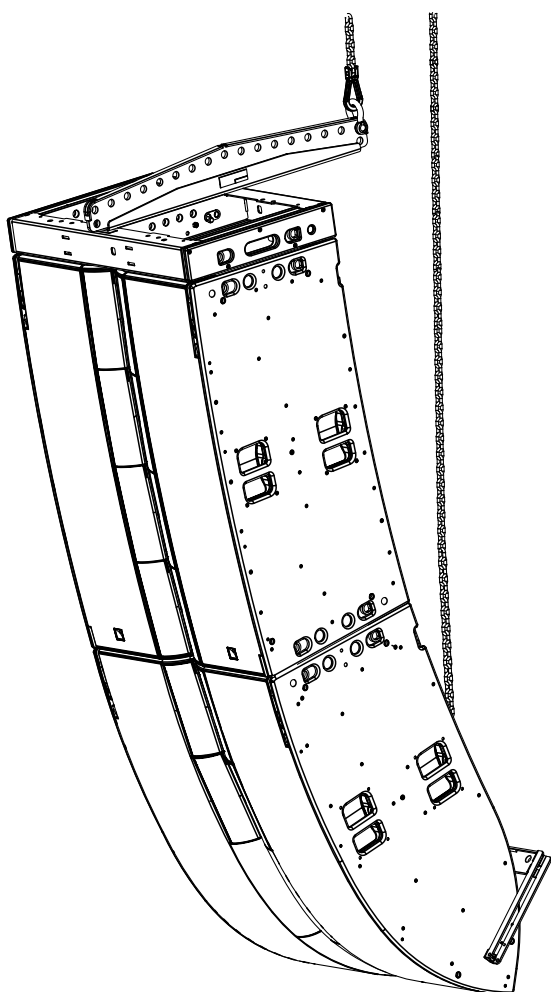
Secured at the bottom of the array using two ball-locking pins, L2-RIGBAR can be used as a pullback either with L2-BUMP combined with L2-BAR or another L2-RIGBAR as the main lifting accessory, to provide a lightweight solution for flying an L2 array.



position in use



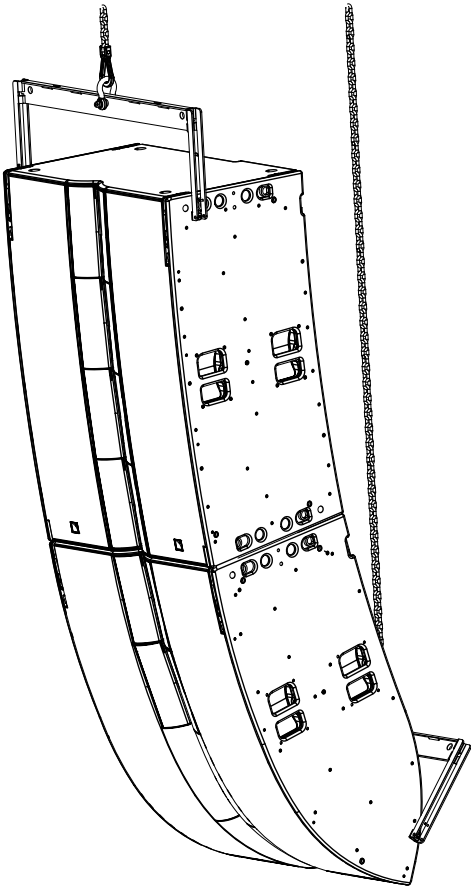
storage position



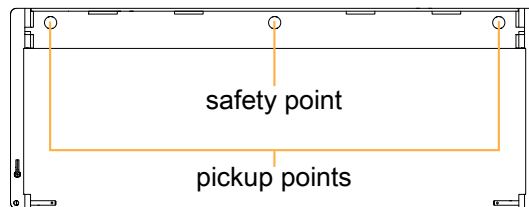
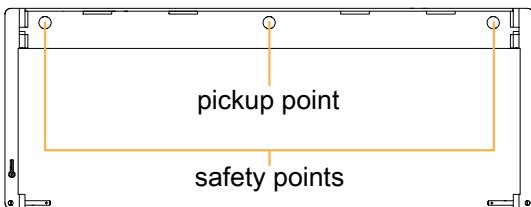
L2-RIGBAR is equipped with two Ø19 mm shackles WLL 3.25 t.



Secure L2-RIGBAR at the front for a positive initial site angle.



Always implement a secondary safety using available holes.

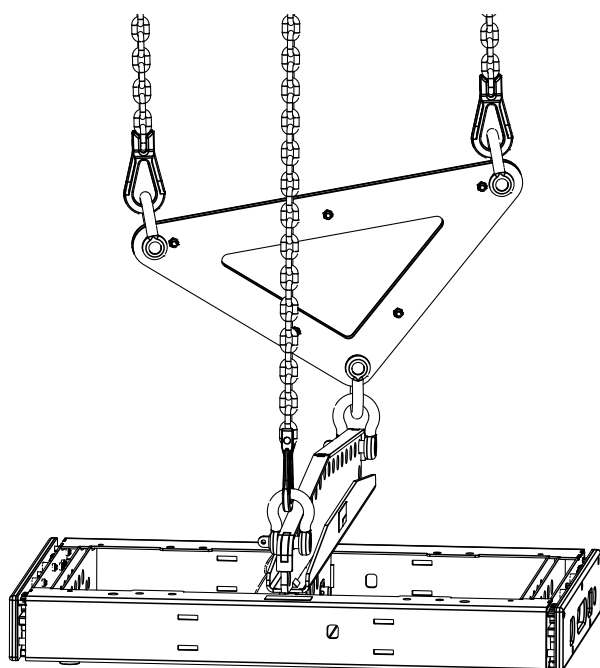


DELTA 1.5T

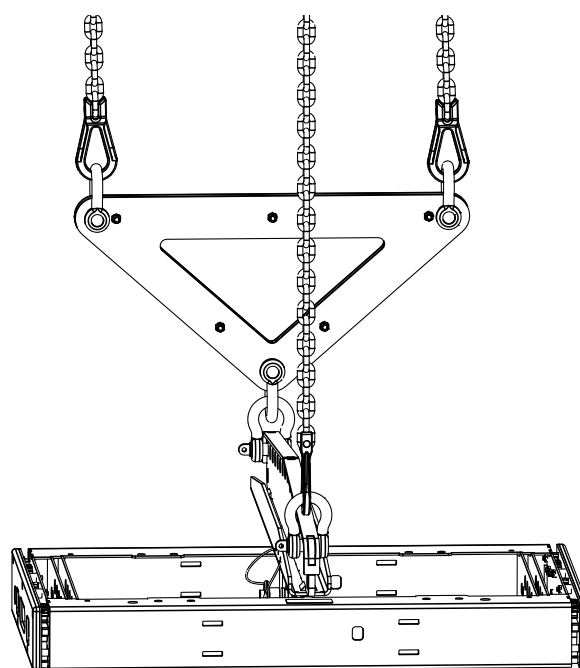
Combined with L2-BUMP and L2-BAR, DELTA 1.5T can be used to control the azimuth angle while L2-BAR controls the site angle.

The recommended space between the two lifting points is 1 m / 3.3 ft.

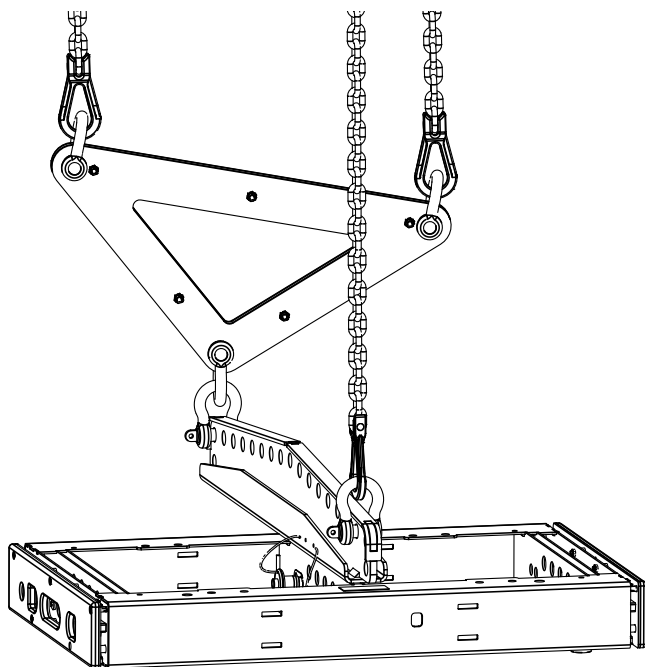
By adjusting the height of both pickup points, it is possible to adjust the azimuth angle from -10° to $+10^{\circ}$.



$+10^{\circ}$



0°

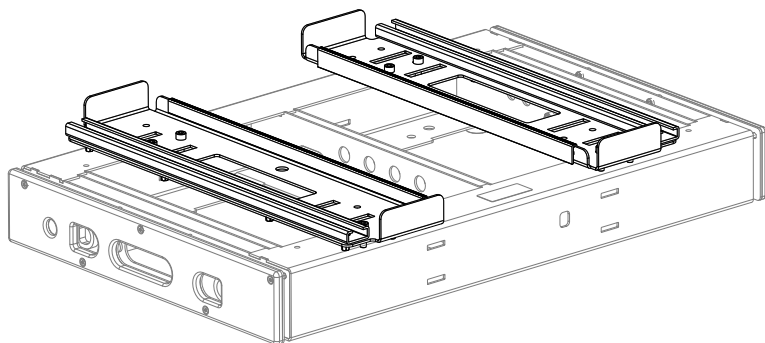


-10°

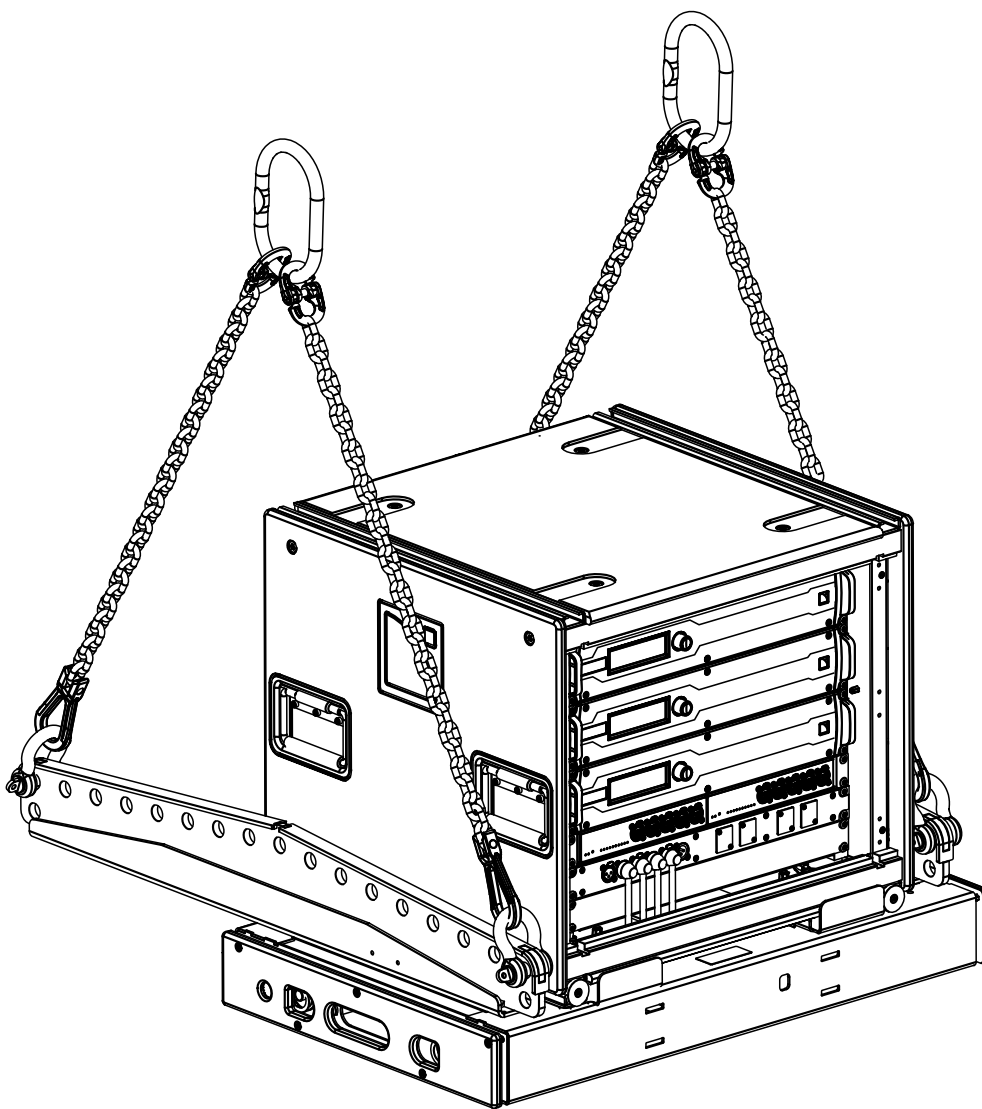
DELTA 1.5T is equipped with three $\varnothing 19$ mm shackles WLL 3.25 t.

LA-RAKMOUNT

LA-RAKMOUNT is designed to stack one LA-RAK III on top of a flown array. LA-RAKMOUNT is composed of two mounting cradles with rails.



The two cradles are screwed on L2-BUMP. LA-RAKMOUNT must be used with two L2-BAR.

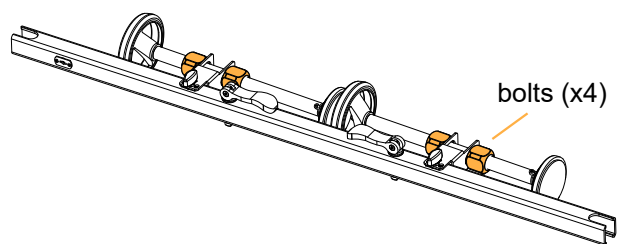


K2-JACK

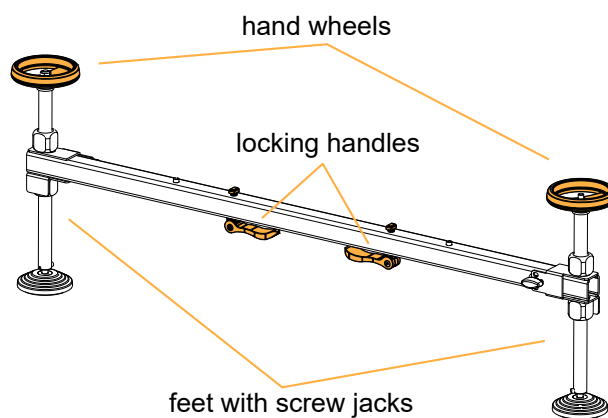
K2-JACK is a set of two bars and four feet with screw jacks and hand wheels. K2-JACK can be fitted onto L2-CHARIOT or L2D-CHARIOT to improve stability or to correct floor discrepancies.



During transportation, make sure the bolts are tightened.

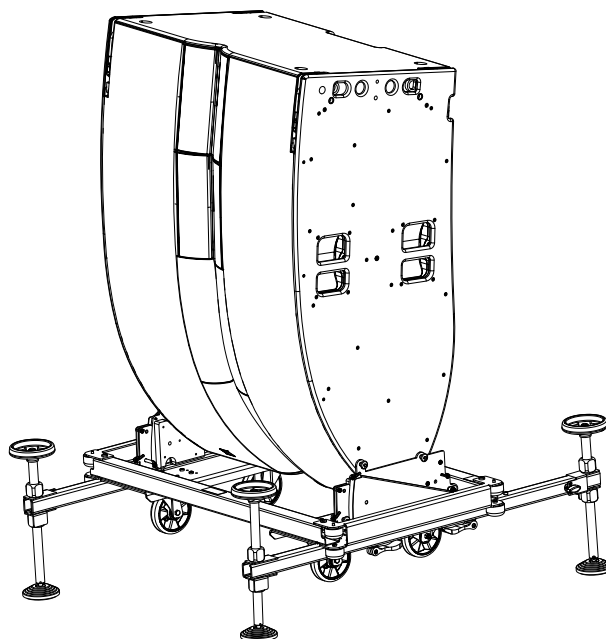
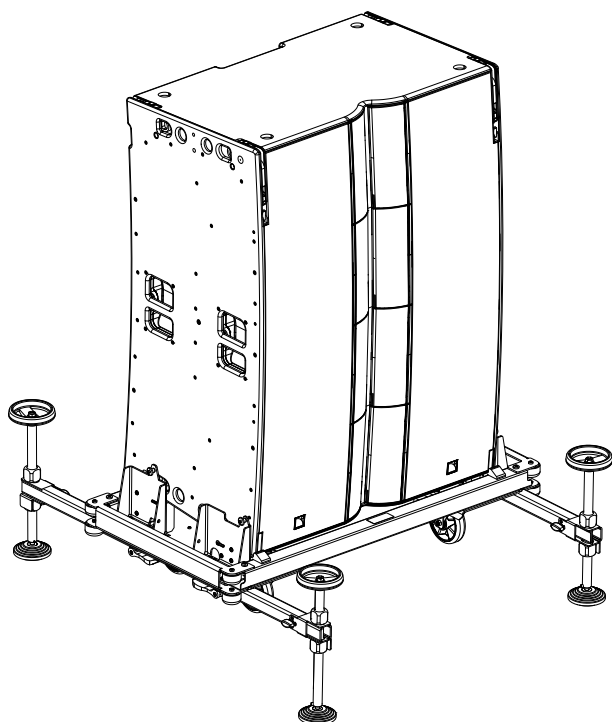


storage position



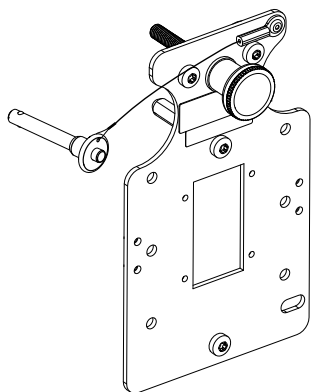
position in use

With K2-JACK, the site angle of L2 or L2D can be adjusted between -8° and 8° .

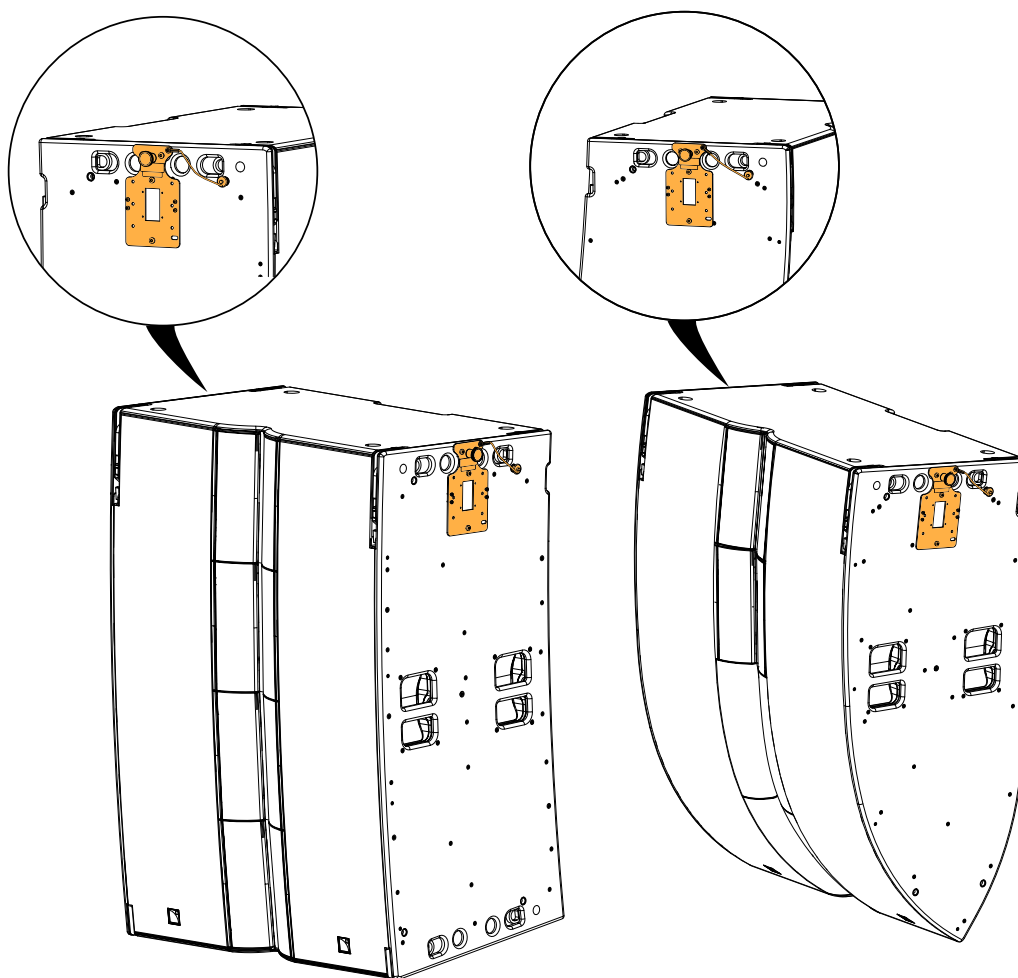


L2-LASERMOUNT

L2-LASERMOUNT is designed to secure a laser inclinometer to the inserts of L2 or L2D using a knob and a ball-locking pin.



L2-LASERMOUNT is installed on one side of the enclosure depending on the availability of the insert for the ball-locking pin. On the right side of the enclosure, the ball-locking pin is secured using the rear insert. On the left side of the enclosure, the ball-locking pin is secured using the front insert.

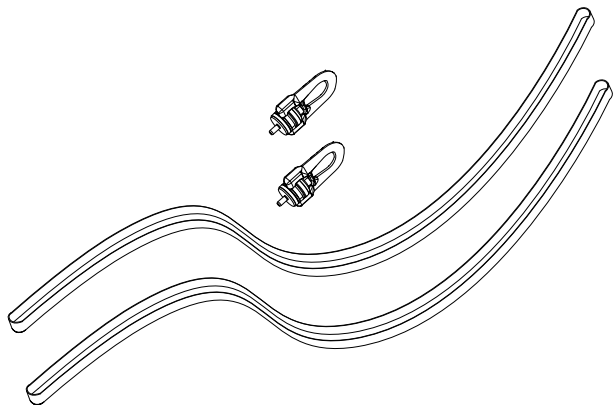


Refer to [APPENDIX B: Installing a laser inclinometer](#) (p.148).

Storage and handling

L2-ROLL

As L2/L2D are delivered upside down, L2-ROLL can be used with L2-RIGBAR to reverse the enclosure and secure it on its chariot. It can also be used to turn L2/L2D upside down to perform maintenance procedures.



Do not use L2-ROLL for rigging.

L2-ROLL is a temporary handling tool, not a long-term rigging accessory.

Refer to [Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT](#) (p.51) and [Preparing enclosures for maintenance](#) (p.89) for more information.

L2-CHARIOT

L2-CHARIOT is a chariot designed to transport one L2. It features four ball-locking pins to secure L2.

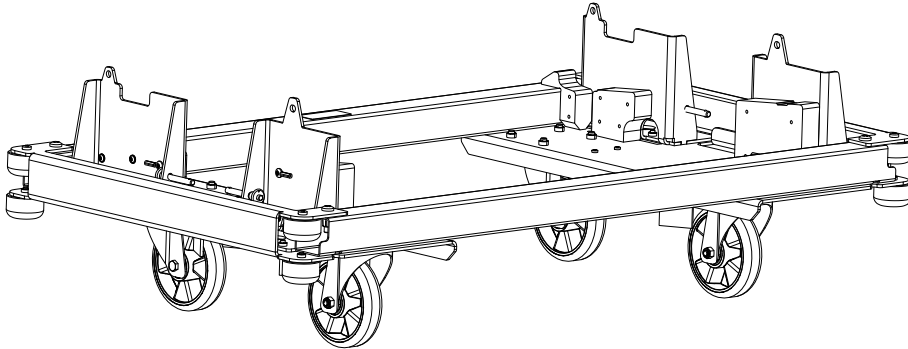


Do not move or transport more than one L2 on L2-CHARIOT.



L2-CHARIOT is intended for use only with L-Acoustics L2.

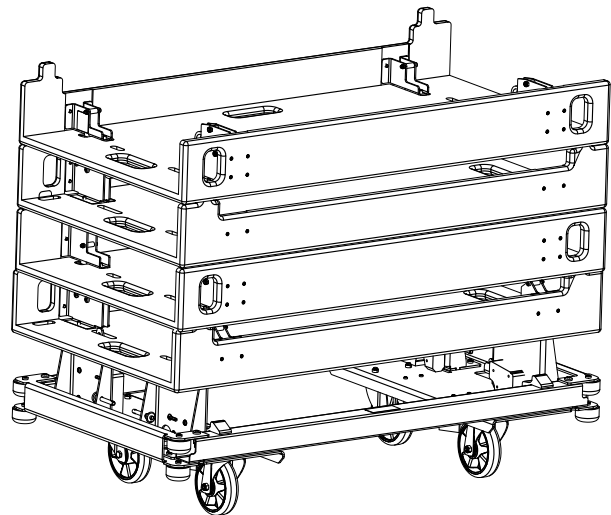
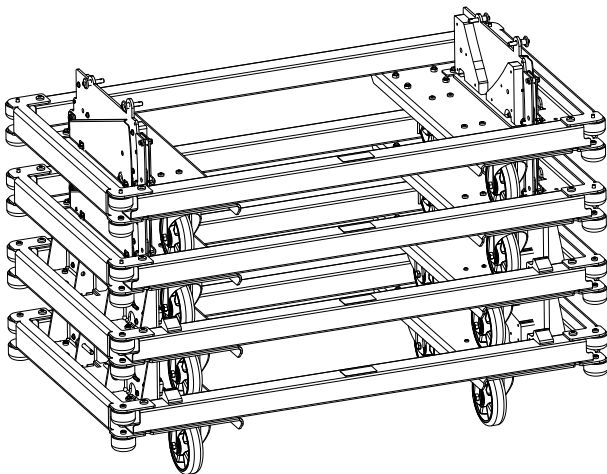
Use with other equipment may result in instability causing injury.



Refer to [Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT](#) (p.51) procedure for more information.

Multiple L2-CHARIOT can be stacked for storage (optionally with L2D-CHARIOT, and L2-CHARIOTLID/L2D-CHARIOTLID).

Refer to [Stacking multiple L2-CHARIOT/L2D-CHARIOT](#) (p.85).



L2D-CHARIOT

L2D-CHARIOT is a chariot designed to transport one L2D. It features six ball-locking pins to secure L2D.



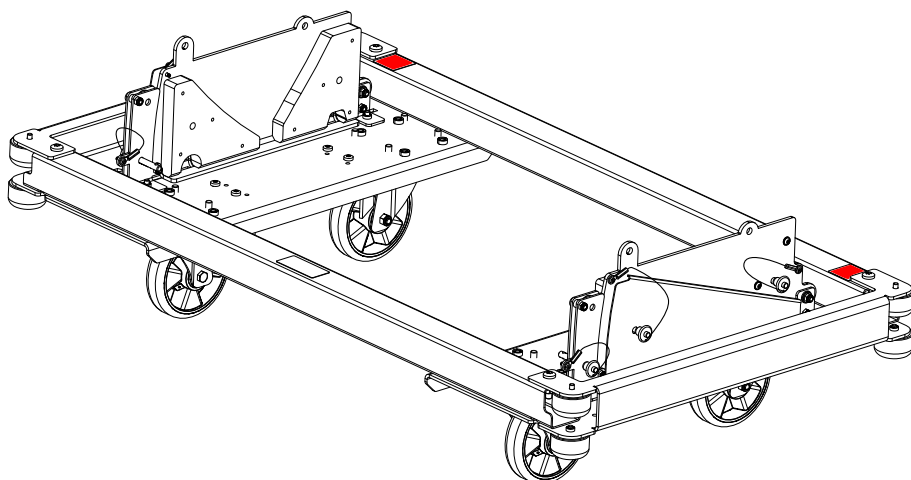
Do not move or transport more than one L2D on L2D-CHARIOT.



L2D-CHARIOT is intended for use only with L-Acoustics L2D.

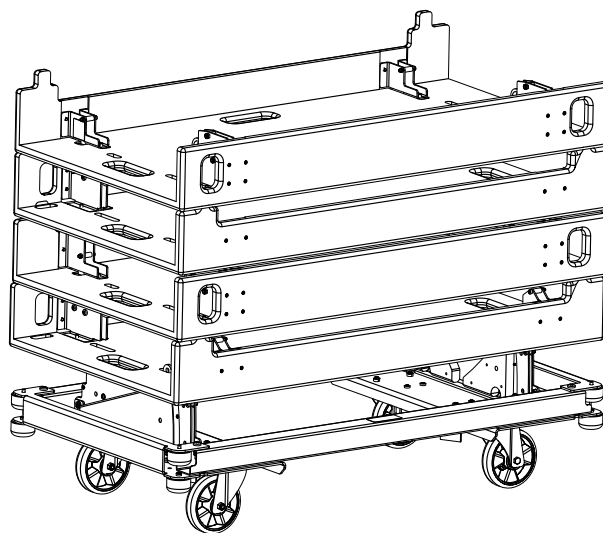
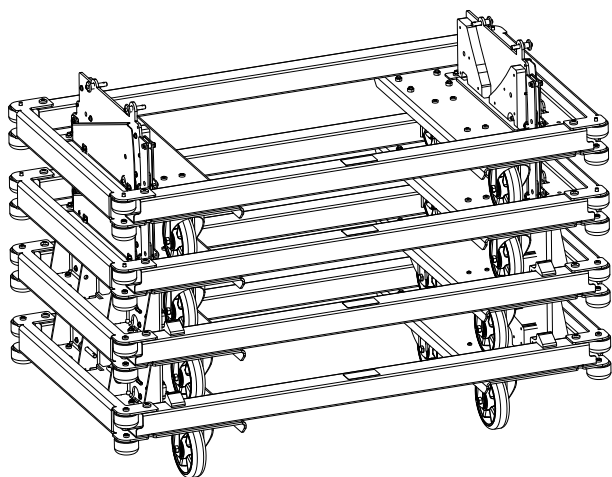
Use with other equipment may result in instability causing injury.

L2D-CHARIOT features red labels for quick identification from L2-CHARIOT.



The default position of L2D-CHARIOT sets L2D at 0° site angle, and with K2-JACK three more positions can set L2D at 8°, 12°, or 20°. During transportation, the position must be at 0°. Refer to [Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT](#) (p.51) procedure for more information.

Multiple L2D-CHARIOT can be stacked for storage (optionally with L2-CHARIOT, and L2-CHARIOTLID/L2D-CHARIOTLID). Refer to [Stacking multiple L2-CHARIOT/L2D-CHARIOT](#) (p.85).



L2-CHARIOTCOV

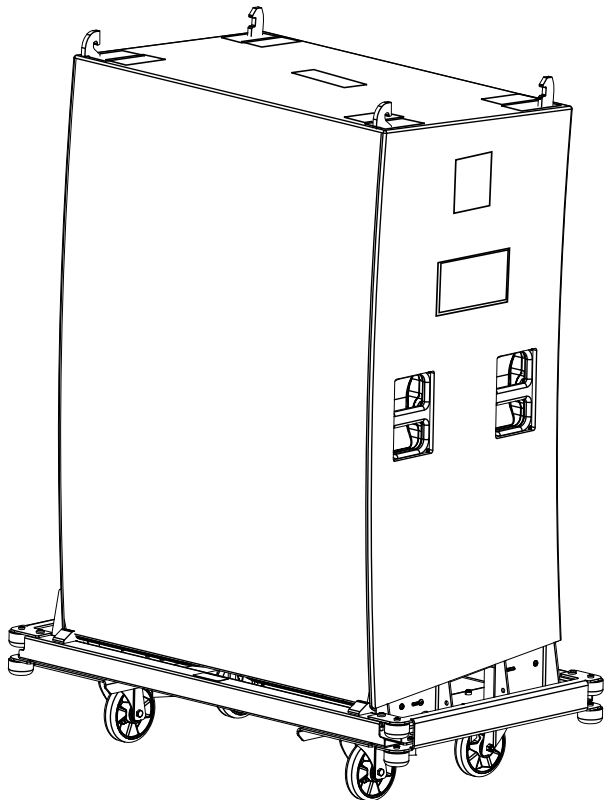
L2-CHARIOTCOV is a protective cover for one L2 on L2-CHARIOT.

L2-CHARIOTCOV features a flap at the back with a velcro fastener to give access to L2 connector plate for identification.



Do not use L2 with L2-CHARIOTCOV on, even with the front side lifted.

The fabric is not acoustically neutral and is not compatible with the LC loudspeakers.



L2-CHARIOTCOV features four flaps with velcro fasteners at the top to pull out the rigging arms of L2 in order to mount L2-CHARIOTLID.

L2D-CHARIOTCOV

L2D-CHARIOTCOV is a protective cover for one L2D on L2D-CHARIOT.

L2D-CHARIOTCOV features a flap at the back with a velcro fastener to give access to L2D connector plate for identification. The flap features a red label to distinguish it from L2-CHARIOTCOV.



Do not use L2D with L2D-CHARIOTCOV on, even with the front side lifted.

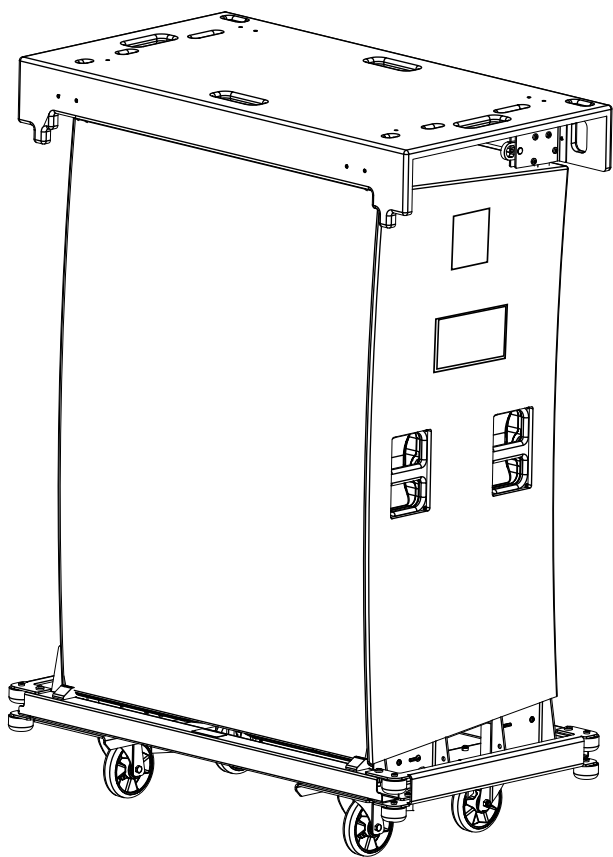
The fabric is not acoustically neutral and is not compatible with the LC loudspeakers.



L2D-CHARIOTCOV features four flaps with velcro fasteners at the top to pull out the rigging arms of L2D in order to mount L2D-CHARIOTLID.

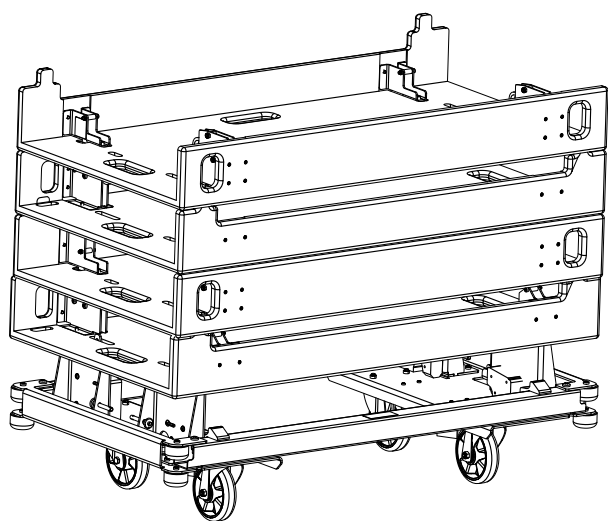
L2-CHARIOTLID

L2-CHARIOTLID can be secured on top of L2 to store equipment during transportation. Its load capacity is up to 400 kg / 881.8 lb.

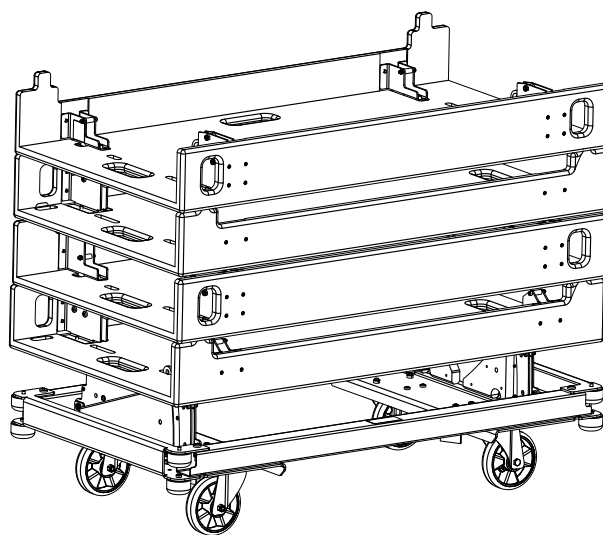


Refer to [Mounting L2-CHARIOTLID/L2D-CHARIOTLID on L2/L2D](#) (p.82) procedure for more information.

Multiple L2-CHARIOTLID can be stacked for storage (optionally with L2D-CHARIOTLID, and L2-CHARIOT/L2D-CHARIOT). Refer to [Stacking multiple L2-CHARIOTLID/L2D-CHARIOTLID](#) (p.86).



On top of L2-CHARIOT

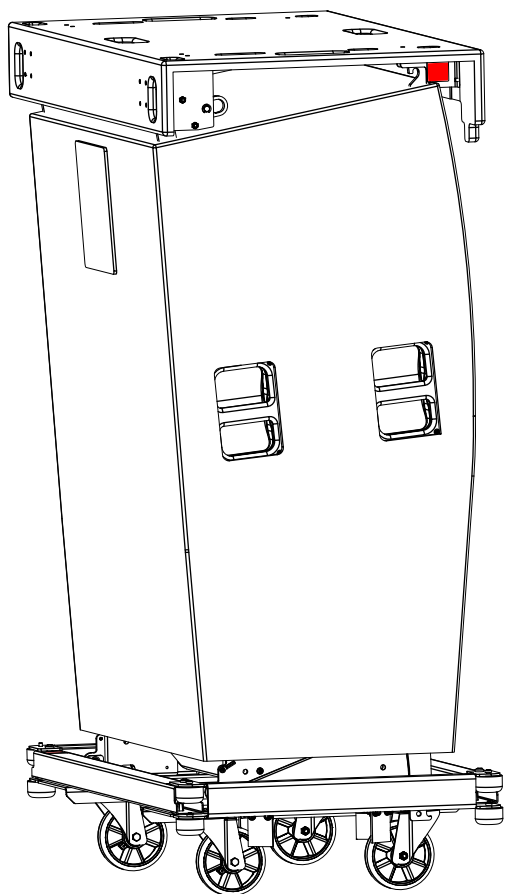


On top of L2D-CHARIOT

L2D-CHARIOTLID

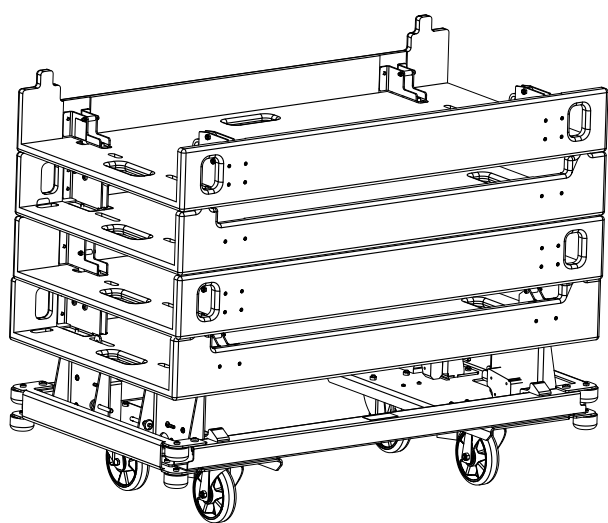
L2D-CHARIOTLID can be secured on top of L2D to store equipment during transportation. Its load capacity is up to 400 kg / 881.8 lb.

L2D-CHARIOTLID features red labels to distinguish it from L2-CHARIOTLID.

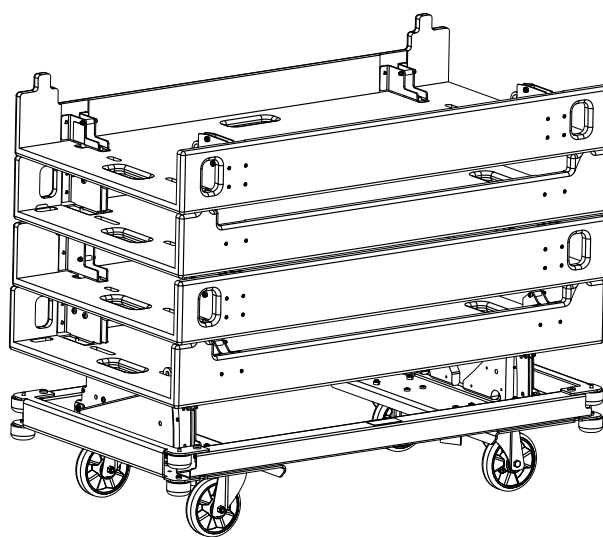


Refer to [Mounting L2-CHARIOTLID/L2D-CHARIOTLID on L2/L2D](#) (p.82) procedure for more information.

Multiple L2D-CHARIOTLID can be stacked for storage (optionally with L2-CHARIOTLID, and L2-CHARIOT/L2D-CHARIOT). Refer to [Stacking multiple L2-CHARIOTLID/L2D-CHARIOTLID](#) (p.86).



On top of L2-CHARIOT



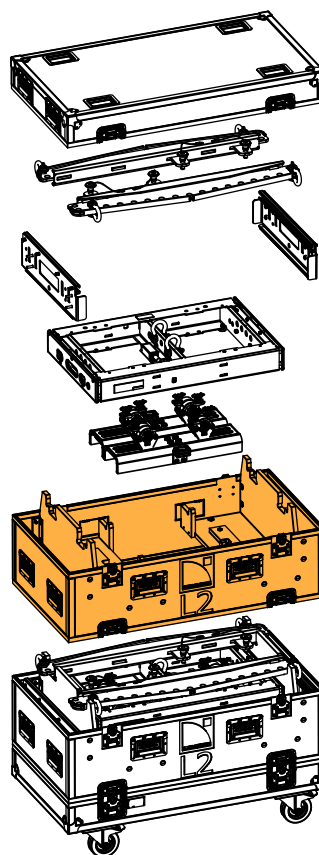
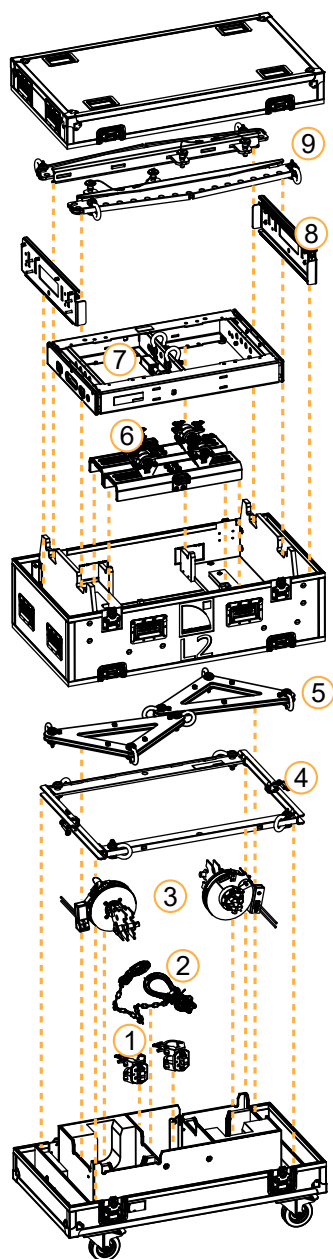
On top of L2D-CHARIOT

L2-BUMPFLIGHT

L2-BUMPFLIGHT is a flightcase for transporting the accessories of the L2 system.

1. 2 CLAMP1000-SINGLE
2. 2 BPCHAIN 1.5T / LA-SLING2T
3. 2 CLAMP1000-BASE
4. 2 L2-RIGBAR
5. 2 DELTA 1.5T
6. 2 CLAMP1000-DUAL (clamps open and towards the center)
7. 1 L2-BUMP
8. 2 LA-RAKMOUNT (or mounted on L2-BUMP)
9. 2 L2-BAR

It is possible to add the L2-BUMPFLIGHTADDLAYER extension in order to store an additional 2 CLAMP1000-DUAL, 1 L2-BUMP, 2 LA-RAKMOUNT, and 2 L2-BAR.



L2-BUMPFLIGHT with L2-BUMPFLIGHTADDLAYER is the same height as L2 on L2-CHARIOT with L2-CHARIOTLID or L2D on L2D-CHARIOT with L2D-CHARIOTLID.

Mechanical safety

Flown configurations

The L2 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.

L2 or L2D or L2 + L2D

configuration	rigging accessory	safe limit	maximum limit
flown	L2-BUMP + L2-BAR (optional)	4 L2 or 3 L2 + 1 L2D	
	L2-BUMP + LA-RAKMOUNT + 2 L2-BAR + 2 LA-SLING2T	4 L2 + 1 LA-RAK III or 3 L2 + 1 L2D + 1 LA-RAK III	
	L2-ROLL	1 L2 or 1 L2D	
flown and pullback	L2-BUMP + L2-BAR + L2-RIGBAR	2 L2 or 1 L2D	4 L2 or 3 L2 + 1 L2D
	L2-RIGBAR x 2	2 L2	
		1 L2D	1 L2 + 1 L2D

Other configurations

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

L2 or L2D

configuration	rigging accessory	maximum / safe limit
stacked	L2-CHARIOT + K2-JACK	1 L2
	L2D-CHARIOT + K2-JACK	1 L2D

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

Line source

Deployed as a line source, the system operates over the nominal bandwidth of the L2/L2D enclosure, with an adjustable horizontal directivity. All presets allow for a reference frequency response in long throw applications.

Three configurations are possible : L2 line source, L2D line source, or L2/L2D line source.

Two LF polar patterns are available: a cardioid pattern or a supercardioid pattern. Use the same LF polar pattern for the entire system. Refer to [Polar pattern](#) (p.14).

Three horizontal directivity settings are available independently on each Panflex module: 70° symmetric, 90° asymmetric (with 35°/55° or 55°/35°), or 110° symmetric. The L2D lower two modules have a fixed progressive directivity pattern from 110° to 140° and use the 110° electronic setting. Refer to [Adjustable fins](#) (p.15).



Risk of breaking the fin hooks

Do not use excessive force when deploying the fins.



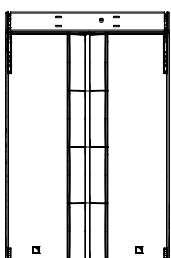
It is strongly recommended to use Soundvision to optimize any L2/L2D source.

Use the Soundvision Autofilter algorithm, then open the project file in LA Network Manager to automatically load the calculated electronic settings into the amplified controllers.

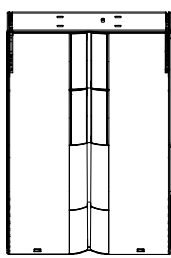
Refer to the Soundvision and LA Network Manager Helps.

L2/L2D can be driven by the LA7.16 / LA7.16i amplified controllers.

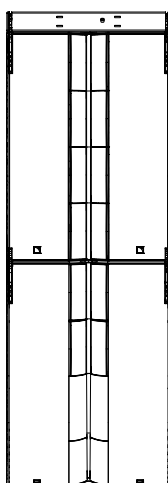
L2/L2D line source



single L2



single L2D



L2/L2D line source

Enclosure	L2	L2D
Preset	[L2 70] [L2 90] [L2 110] [L2 70_S] [L2 90_S] [L2 110_S]	[L2D 70] [L2D 90] [L2D 110] [L2D 70_S] [L2D 90_S] [L2D 110_S]
Frequency range (-10 dB)	45 Hz - 20 kHz	

Line source with low-frequency element

A L2/L2D line source can be deployed with additional subwoofer enclosures to extend the bandwidth in the low-end or increase sub-low resources.

The [L2 xxxx] / [L2D xxxx] presets deliver a reference frequency response in long throw applications with horizontal directivity settings and cardioid or supercardioid LF polar pattern. Refer to [Line source](#) (p.47).

The [KS28 L2xxx] presets provide an optimal frequency coupling of the subwoofers with the L2/L2D line source in separated or coupled configuration.

KS28 can be driven by LA2Xi / LA12X amplified controllers.

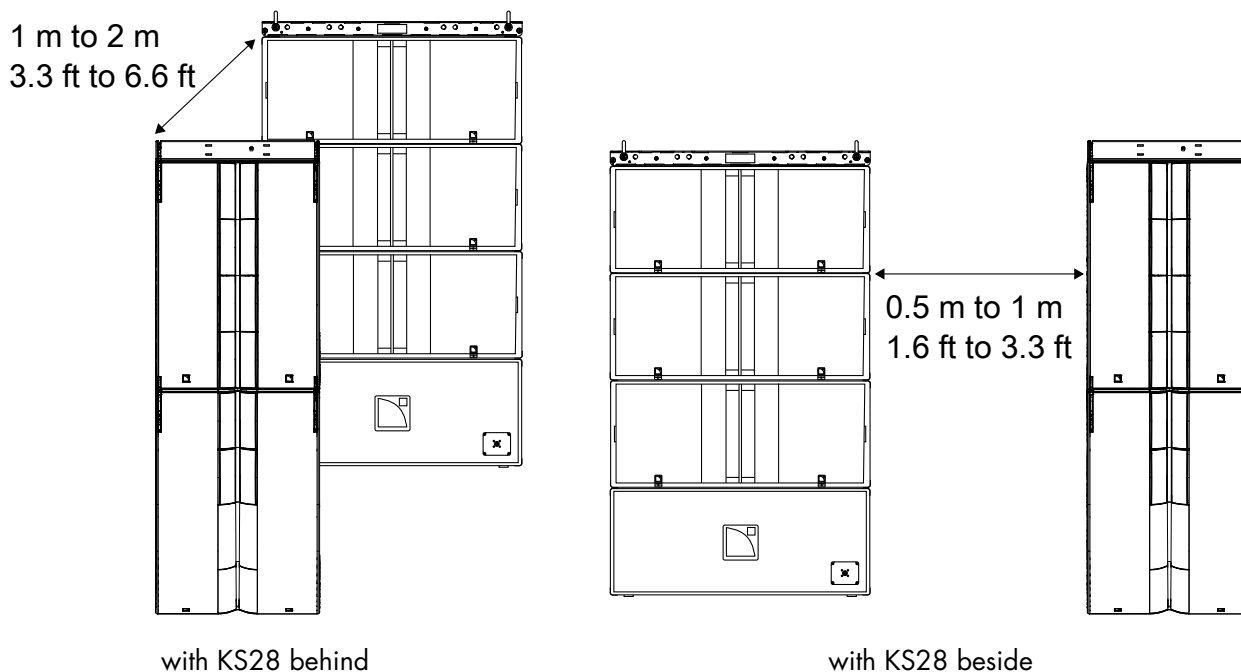


Reduced maximum SPL or drive capacity with LA2Xi: refer to the **LA2Xi owner's manual**.

L2/L2D line source with coupled KS28

Two deployments are available in this configuration:

- KS28 behind the L2/L2D line source (recommended)
- KS28 beside the L2/L2D line source



Enclosure	L2	L2D	KS28
Preset	[L2 70] [L2 90] [L2 110] [L2 70_S] [L2 90_S] [L2 110_S]	[L2D 70] [L2D 90] [L2D 110] [L2D 70_S] [L2D 90_S] [L2D 110_S]	[KS28 L2_C] [KS28 L2_Cx]
Frequency range (-10 dB)	25 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.

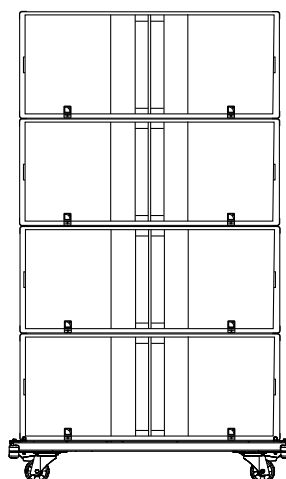
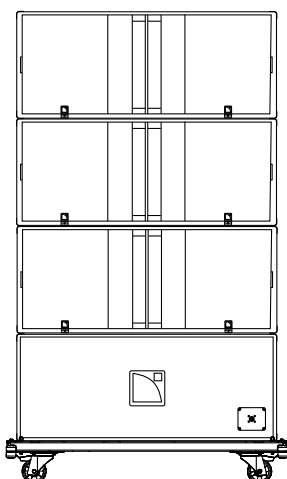
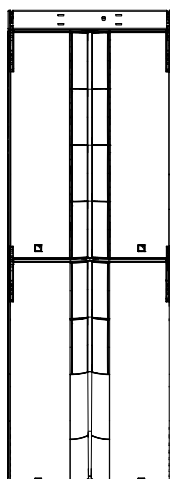
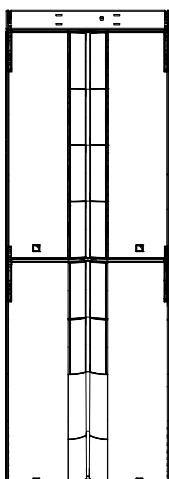
Refer to the subwoofer owner's manual and to the **Cardioid configurations** technical bulletin.



Delay values

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

Refer to [Pre-alignment delays](#) (p.50).

L2/L2D line source with separated KS28

Enclosure	L2	L2D	KS28
Preset	[L2 70] [L2 90] [L2 110] [L2 70_S] [L2 90_S] [L2 110_S]	[L2D 70] [L2D 90] [L2D 110] [L2D 70_S] [L2D 90_S] [L2D 110_S]	[KS28 L2] [KS28 L2_C] [KS28 L2_Cx]
Frequency range (-10 dB)	25 Hz - 20 kHz		

**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 if the upper frequency limit of the subwoofer system is at 60 Hz.

**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

 Pre-alignment delay values are optimized considering the extended latency applied by the Soundvision Autofilter algorithm.

L2/L2D + KS28

presets	pre-alignment delay values and polarity settings			
[L2]/[L2D] + [KS28 L2]	L2/L2D = 0 ms		KS28 = 5 ms	
[L2]/[L2D] + [KS28 L2_C]	L2/L2D = 0 ms		KS28 = 0 ms	
[L2]/[L2D] + [KS28 L2_Cx]	L2/L2D = 0 ms		KS28 = 5 ms	

Rigging procedures

Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT

Type of deployment	stacking
Rigging accessories	L2-CHARIOT/L2D-CHARIOT L2-RIGBAR BPCHAIN 1.5T L2-ROLL
Tools	screwdriver 8 mm hex bit
Min number of operators	2

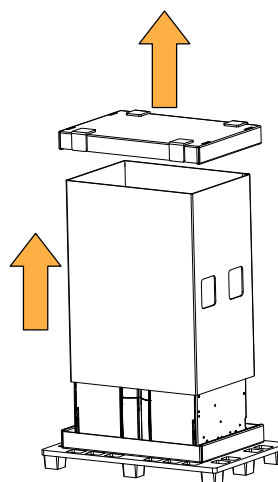
! **Do not use L2-ROLL for rigging.**
L2-ROLL is a temporary handling tool, not a long-term rigging accessory.

! **Never position L2D on its narrow edge, even temporarily.**

To reverse L2/L2D for maintenance operations, refer to [Preparing enclosures for maintenance](#) (p.89).

Prerequisite

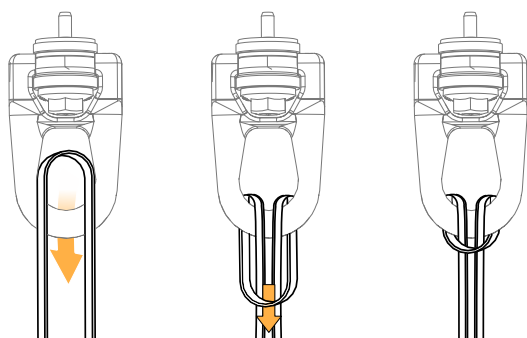
The top lid and main body of the delivery packaging are removed.



! **Inspect L2-ROLL before use.**
Do not use if any safety issue is detected during inspection (fraying, deformation, etc.).

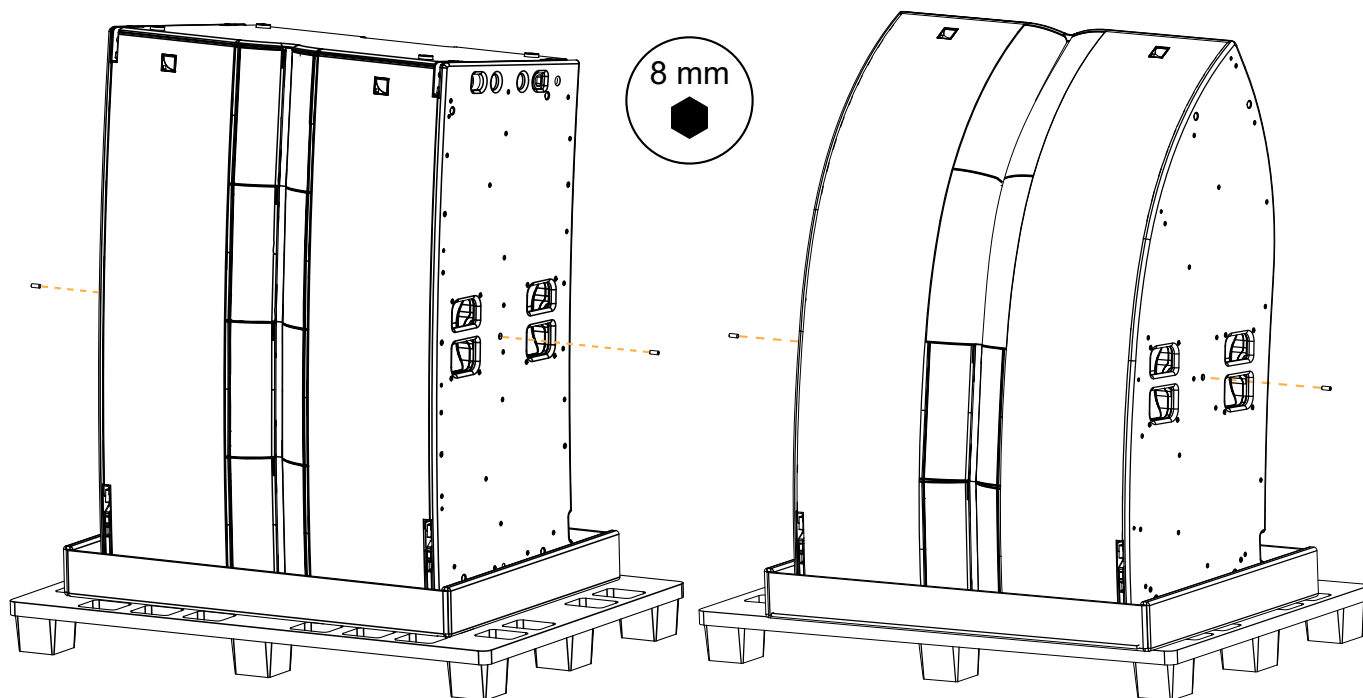
Procedure

1. Make sure each strap is secured to one ring with a lark's head knot.



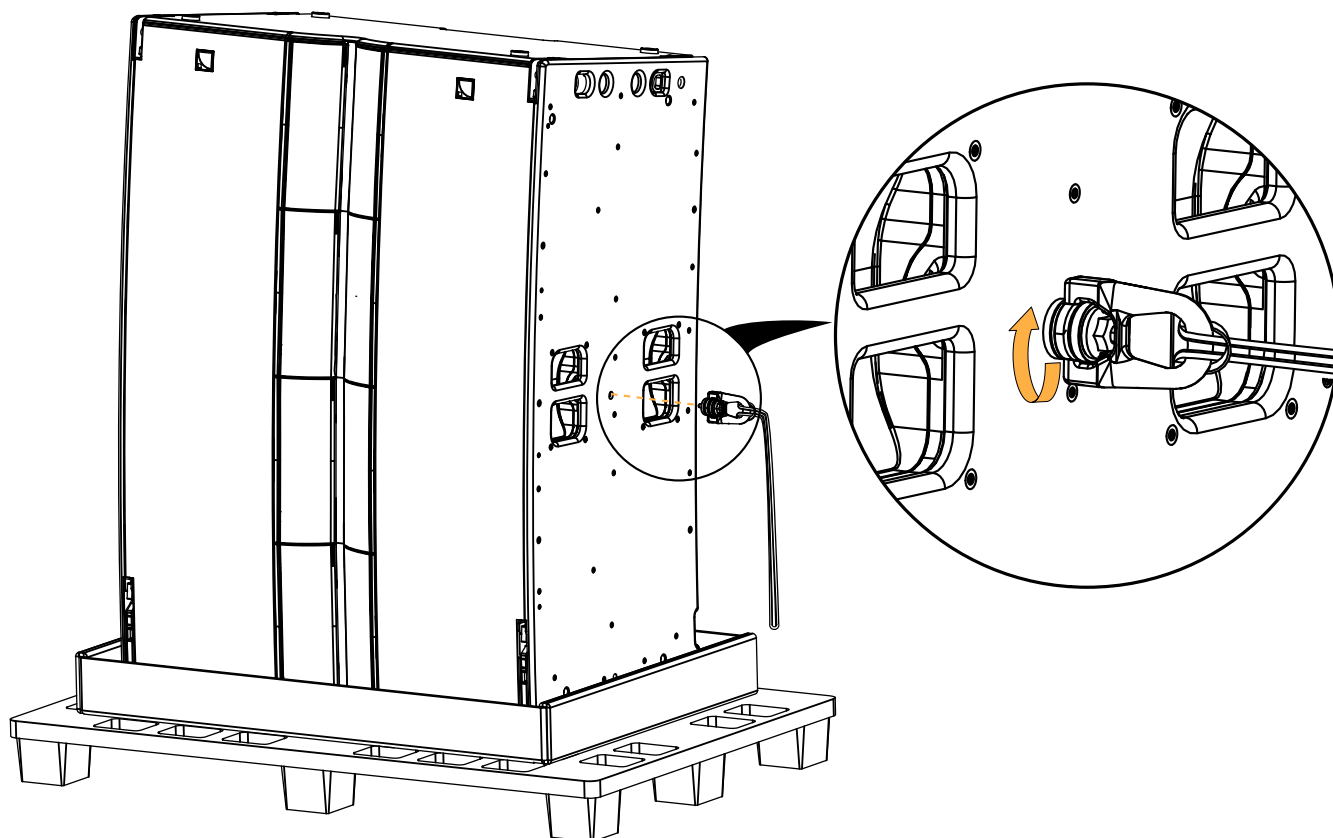
2. On each side of the enclosure, remove the screw at the center of gravity.

Use the screwdriver with an 8 mm hex bit.



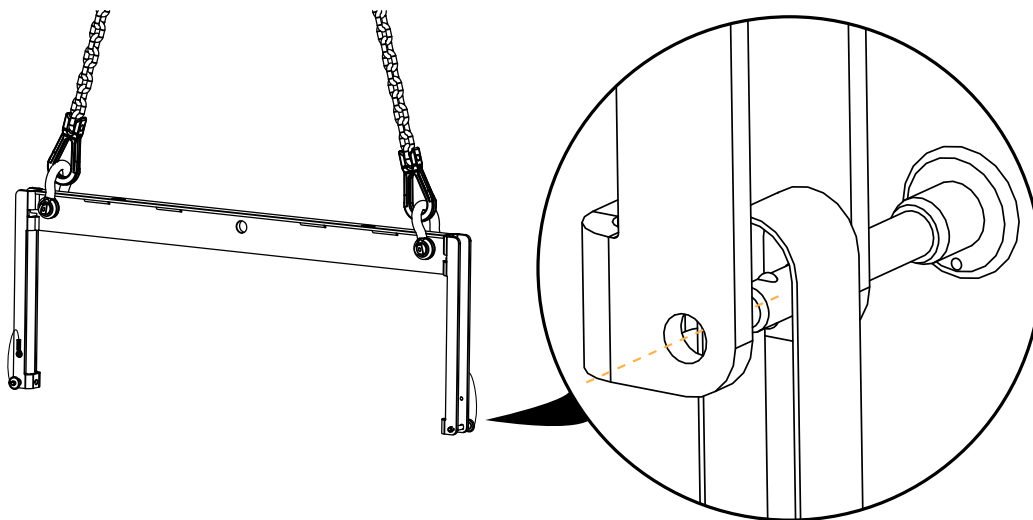
Retain the screws for reassembly.

3. Tighten the L2-ROLL rings to the enclosure by hand.



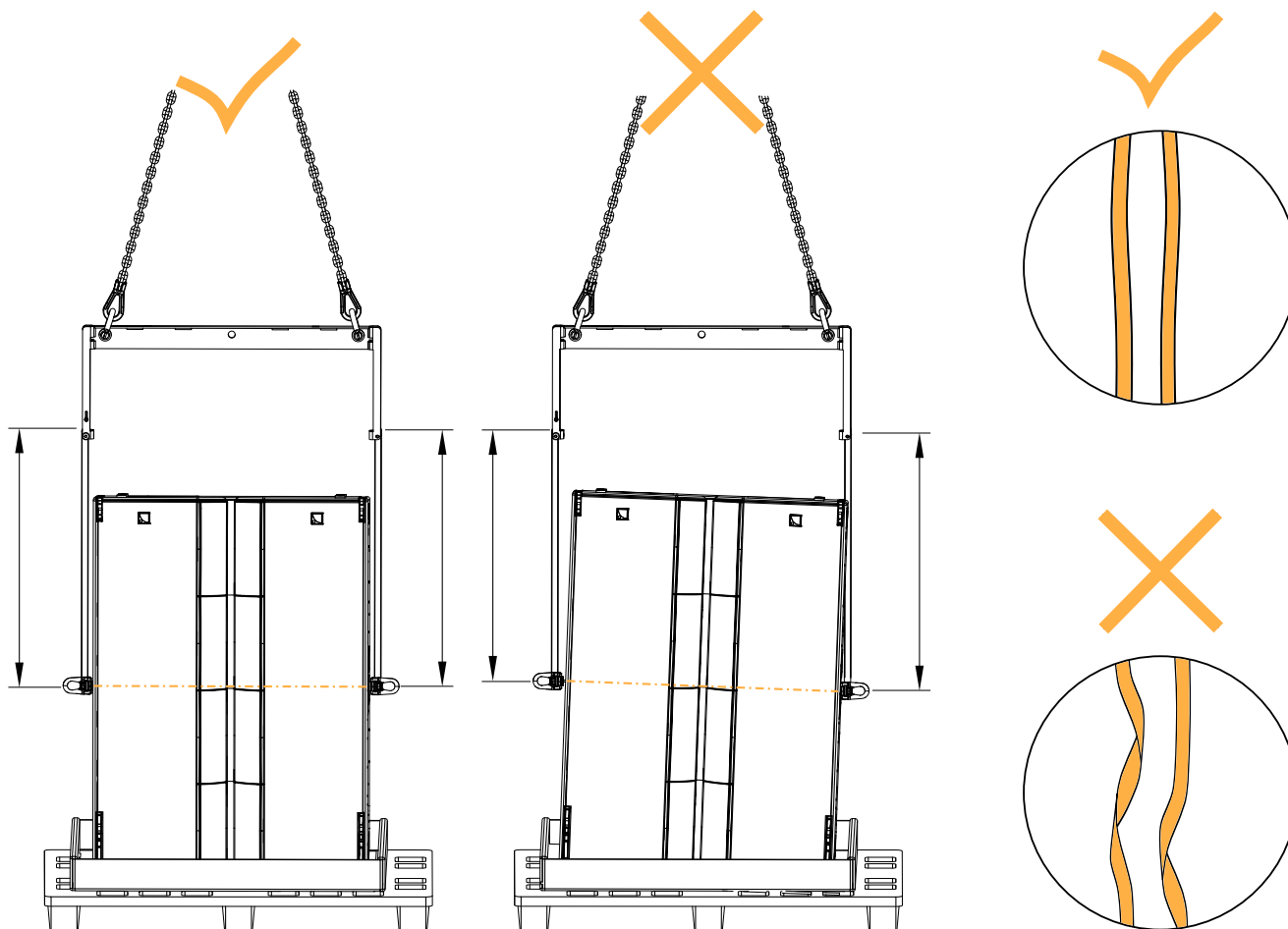
4. Secure L2-RIGBAR to BPCHAIN 1.5T and slightly raise the assembly.

5. Secure the other ends of the straps to L2-RIGBAR through the ball-locking pins in their storage position.



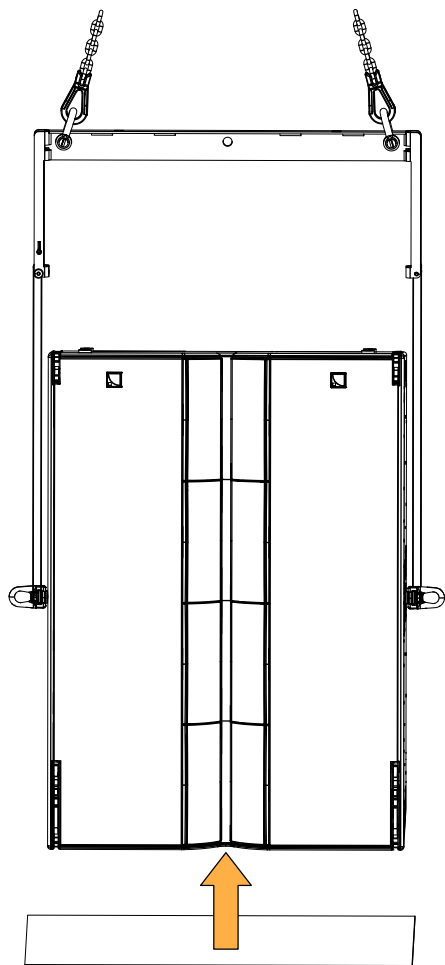
6. Adjust the height so that the straps are taut but the enclosure is still on the ground.

Make sure the straps are the same length on both sides, and are not twisted.

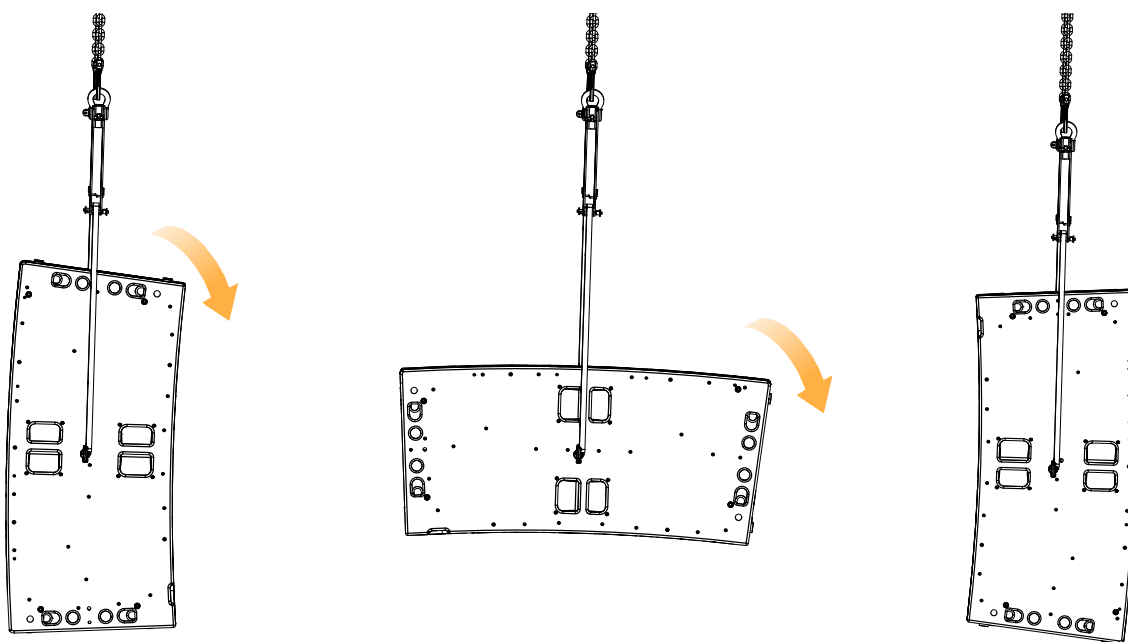


7. Slowly and carefully raise the enclosure about 40 cm / 1.33 ft from the ground.

Remove the pallet and bottom lid of the delivery packaging.

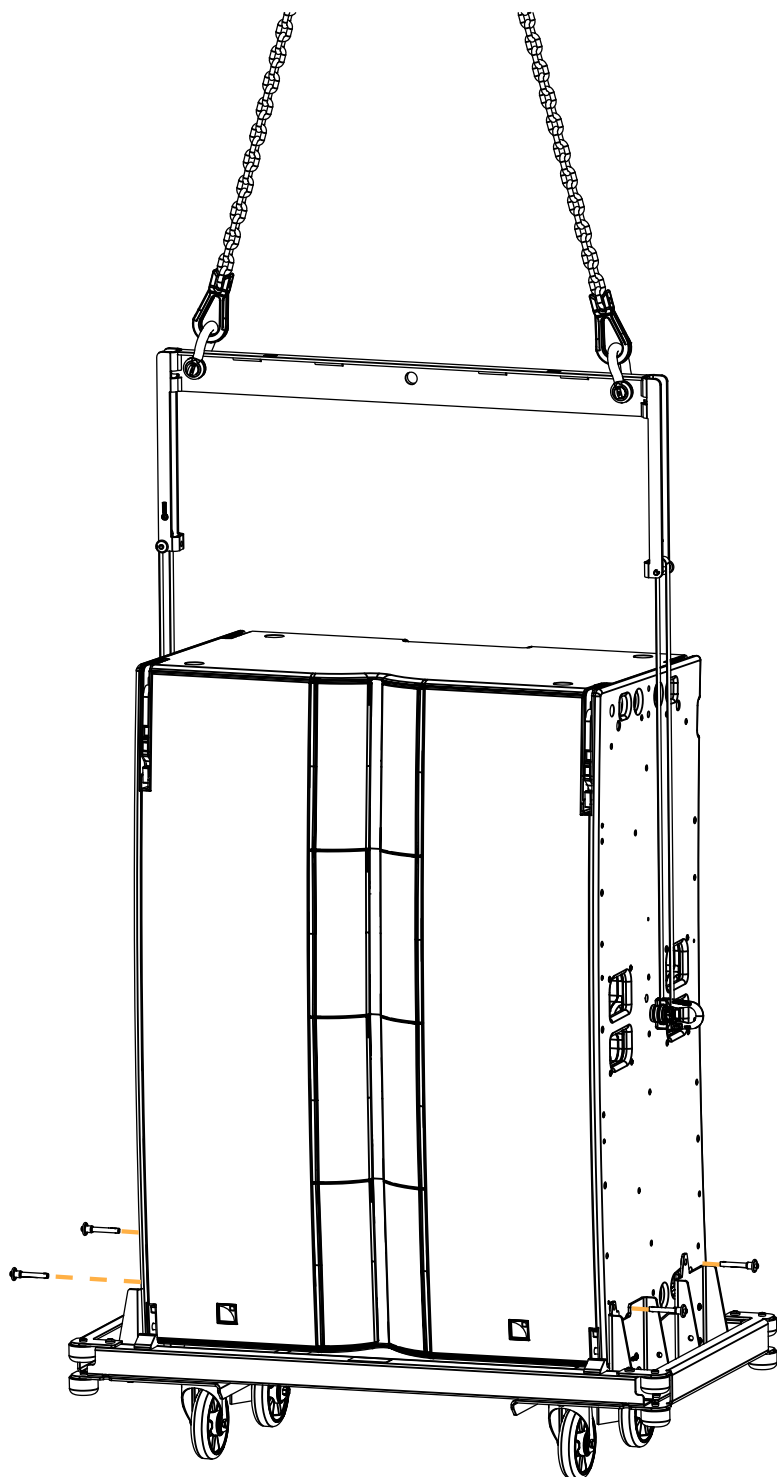


8. Carefully turn over the enclosure.



9. Position L2-CHARIOT/L2D-CHARIOT underneath the assembly.
10. Carefully lower the assembly until the enclosure rests in L2-CHARIOT/L2D-CHARIOT.

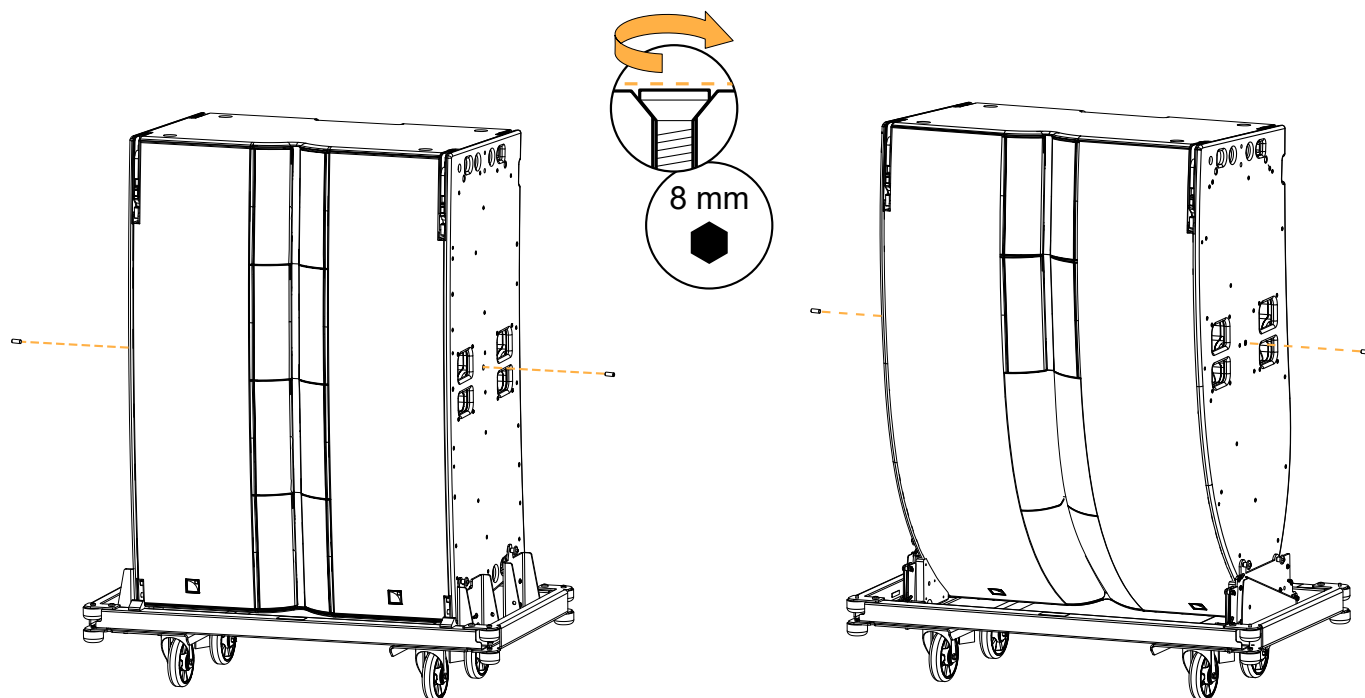
- 11.** Secure the L2-CHARIOT/L2D-CHARIOT ball-locking pins.



- 12.** Unscrew the L2-ROLL rings from the enclosure by hand.

- 13.** On each side of the enclosure, tighten the screw at the center of gravity.

Use the screwdriver with an 8 mm hex bit.



Flying

Securing LA-RAK III on L2-BUMP with LA-RAKMOUNT

Type of deployment	flown array
Rigging accessories	L2-BUMP LA-RAKMOUNT 8 M8×30 screws (provided with LA-RAKMOUNT) 2 L2-BAR
Tools	4 Ø19 mm shackles WLL 3.25 t screwdriver T30 Torx bit
Min number of operators	2

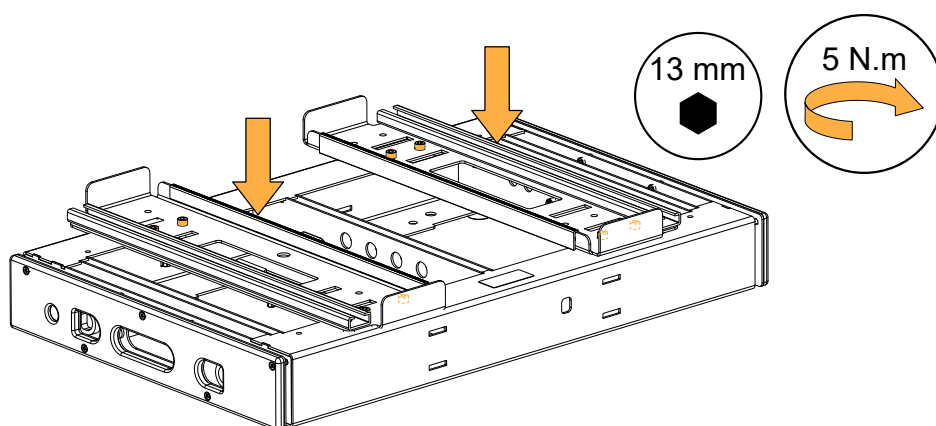


Risk of falling objects

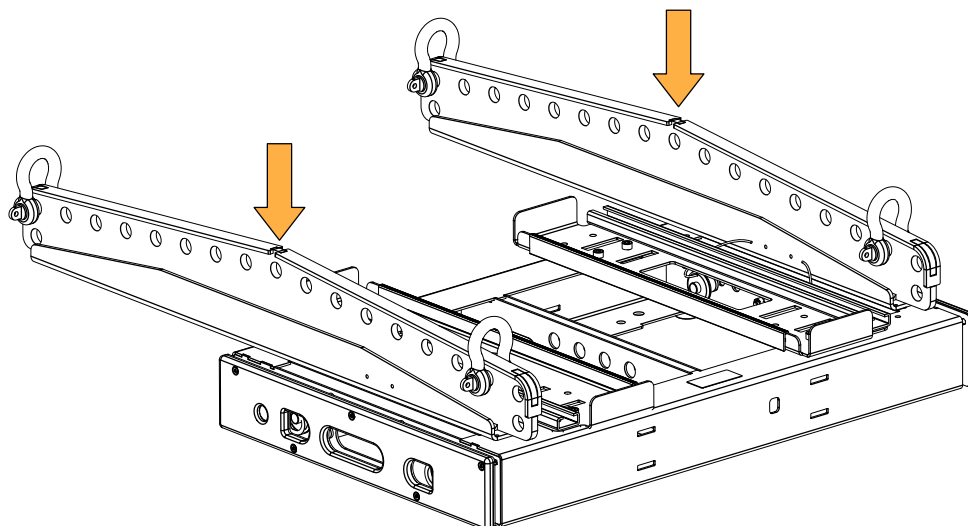
Verify that no unattached items remain on the product or assembly.

Procedure

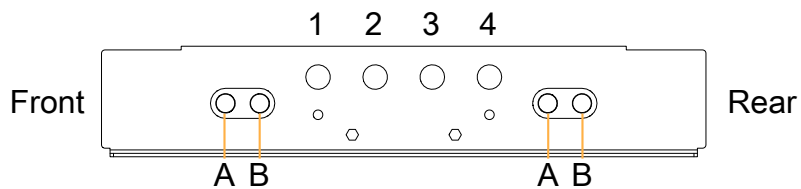
1. Position and secure the two rails of LA-RAKMOUNT to L2-BUMP with the 8 M8×30 screws.
Use the electric screwdriver. Set the torque to 5 N.m.



2. Install L2-BAR on each side of L2-BUMP.

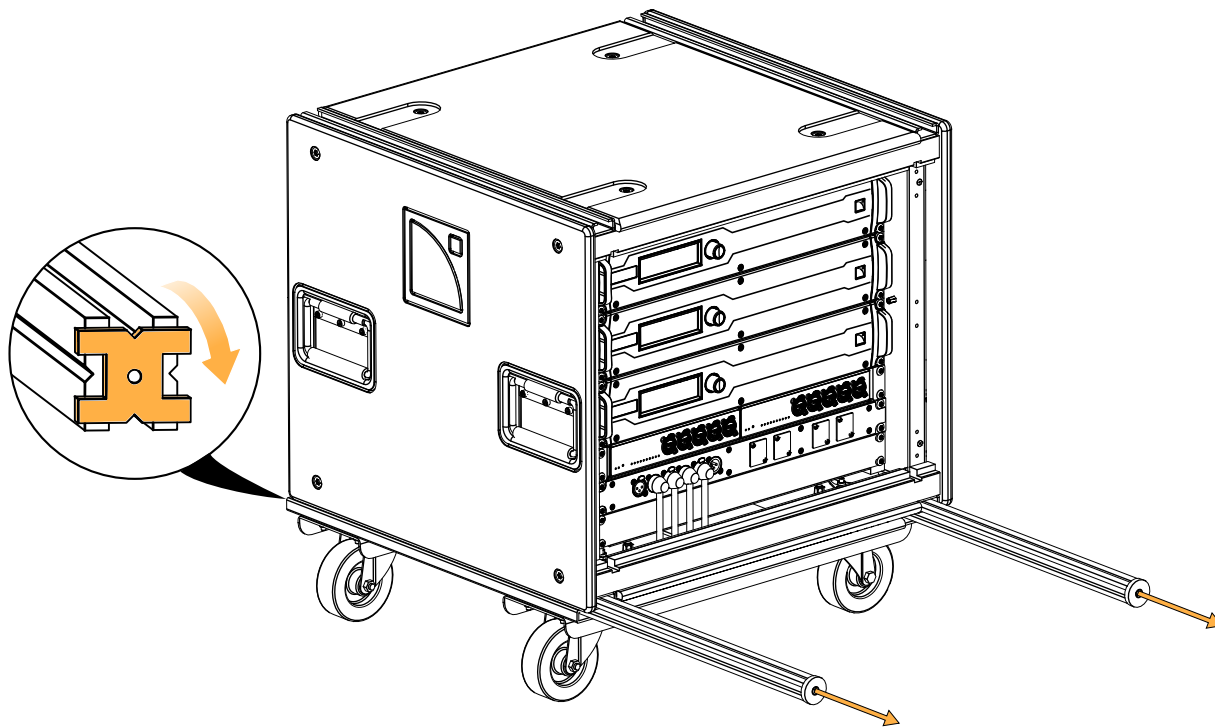


L2-BAR can be attached to the L2-BUMP as a rear or a front extension and in position A or B.

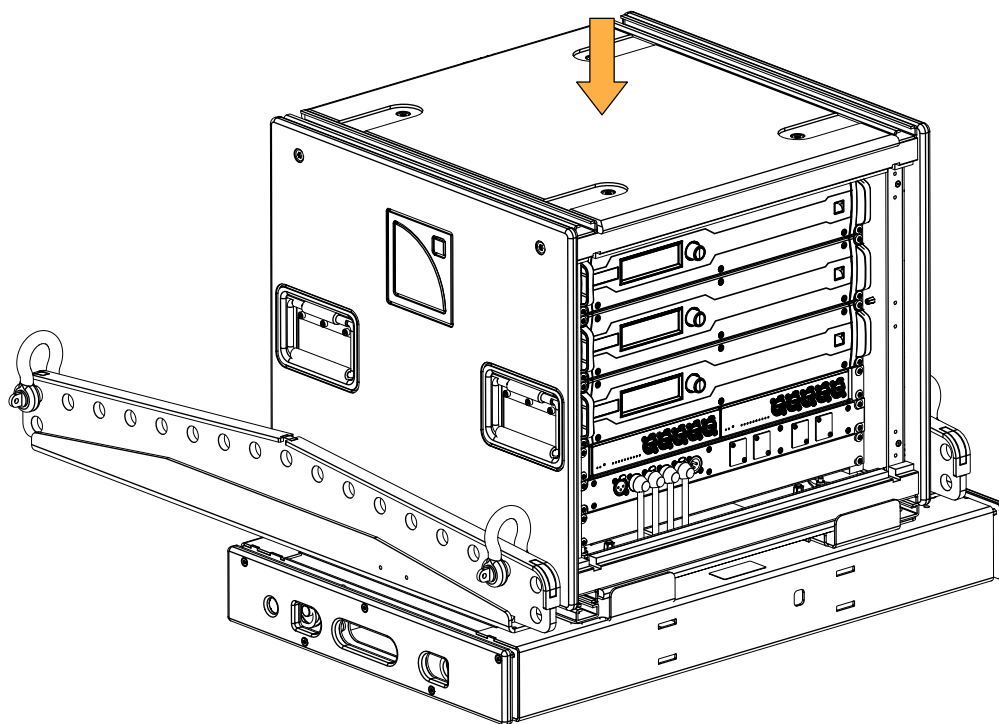


3. Remove the coupling bars from LA-RAK III.

Turn the spring-loaded safety mechanisms to release the bars and slide them out.



4. Position LA-RAK III on the rails.



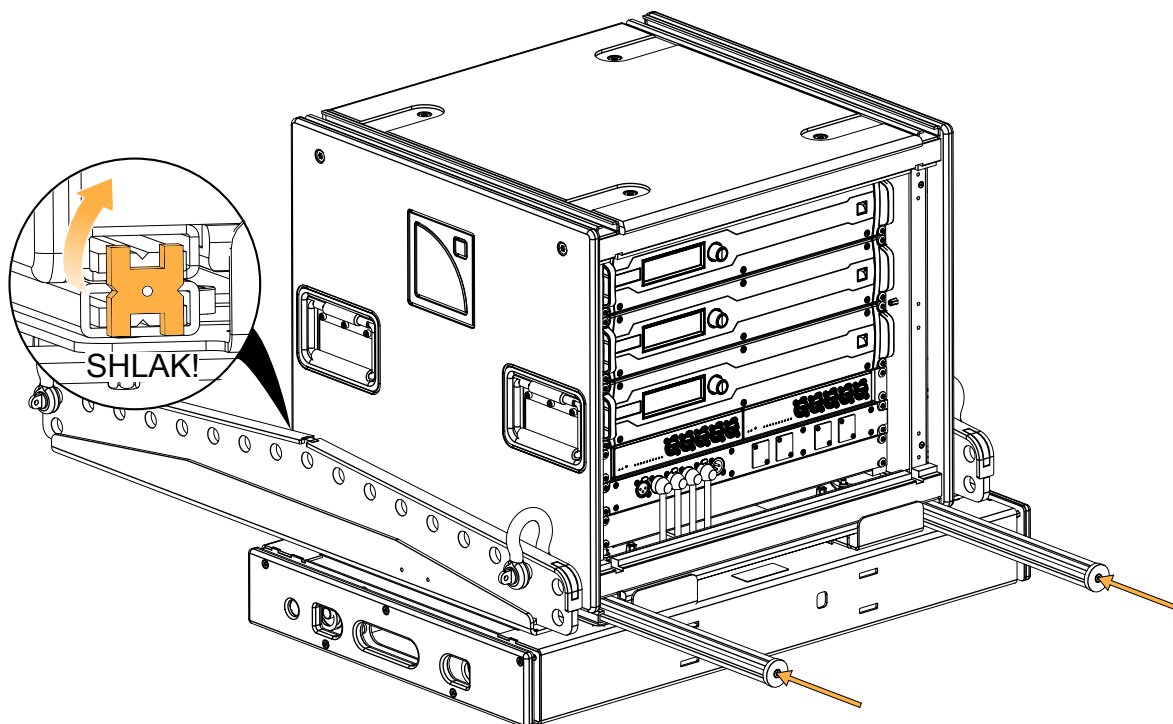
5. Secure LA-RAK III with the coupling bars.

! Always insert the coupling bars so that the round safety mechanisms are pointed upward (depending on the site angle):

from the back for a negative angle (rear extension)

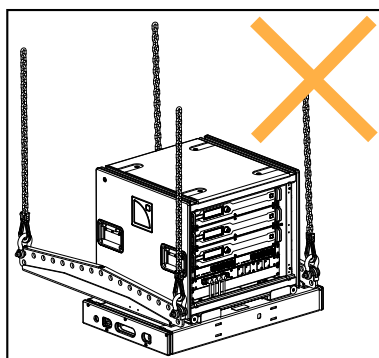
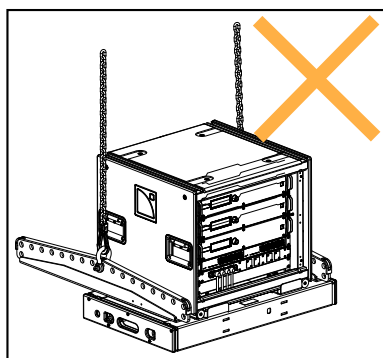
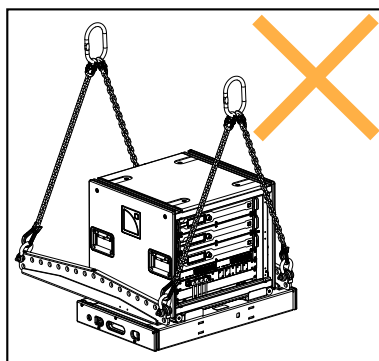
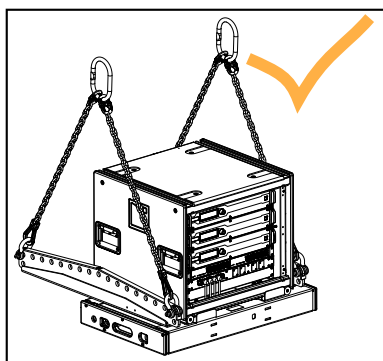
from the front for a positive angle (front extension)

Insert the spring-loaded safety in the LA-RAK III rails, give a quarter turn and slide the bar until the safety locks into place.

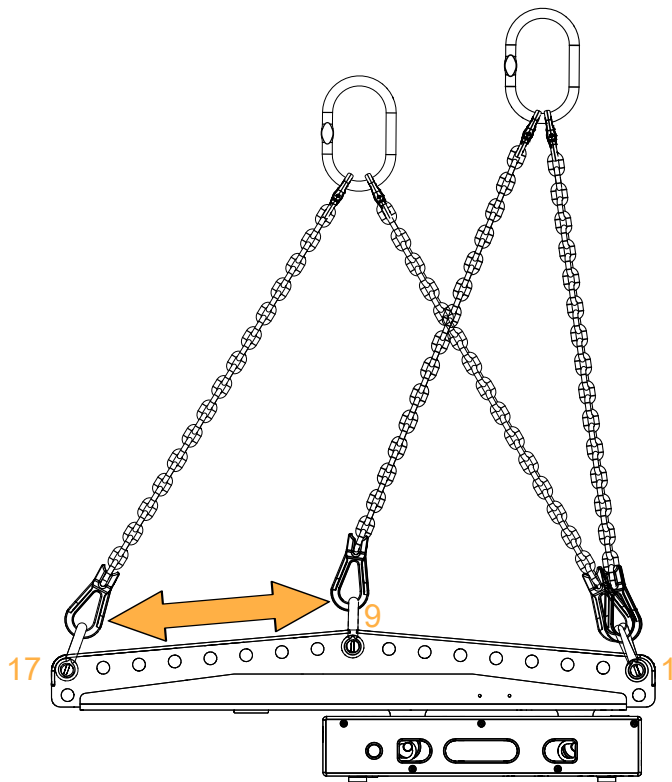


6. Select the pickup points on each L2-BAR:

Always implement a bridle suspension using two LA-SLING2T.



One leg of each LA-SLING2T must always be connected to the L2-BAR hole 1 (the closest to the front of the array). The other legs can be connected to holes 9 to 17.



What to do next

Refer to [Flying an L2/L2D array with L2-BUMP and L2-BAR](#) (p.61).

Flying an L2/L2D array with L2-BUMP and L2-BAR

Type of deployment	flown array
Rigging accessories	L2-BUMP BPCHAIN 1.5T 1 or 2 L2-BAR (optional) 2 Ø19 mm shackles WLL 3.25 t + 2 Ø19 mm shackles WLL 3.25 t (if using a second L2-BAR)
Min number of operators	2



Risk of falling objects

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



Additional safety for flown arrays

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

Prerequisite

Each L2/L2D is secured to its chariot.

See [Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT](#) (p.51).

L2-CHARIOTLID/L2D-CHARIOTLID and L2-CHARIOTCOV/L2D-CHARIOTCOV are removed.

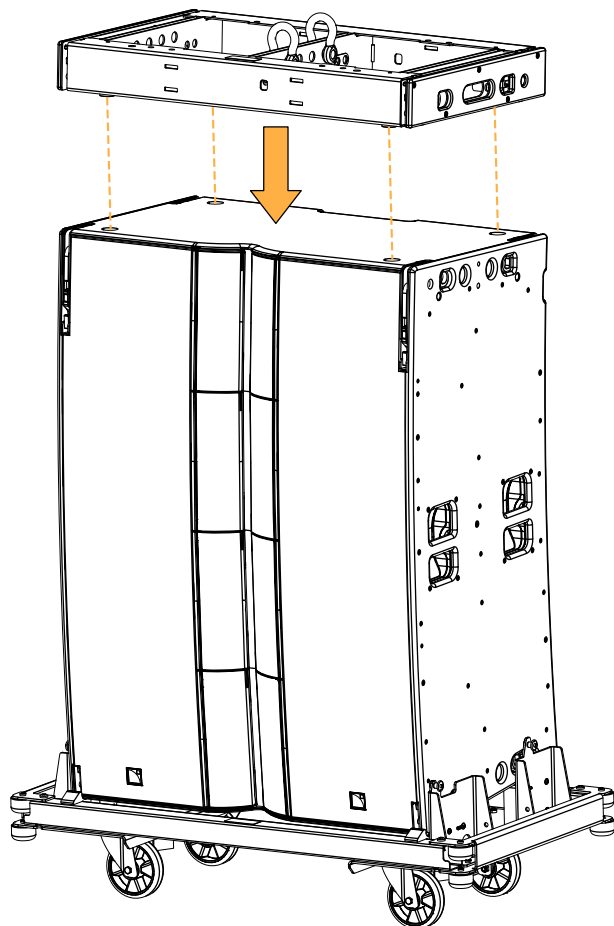
See [Mounting L2-CHARIOTLID/L2D-CHARIOTLID on L2/L2D](#) (p.82)

LA-RAK III is secured on L2-BUMP (optional)

See [Securing LA-RAK III on L2-BUMP with LA-RAKMOUNT](#) (p.57).

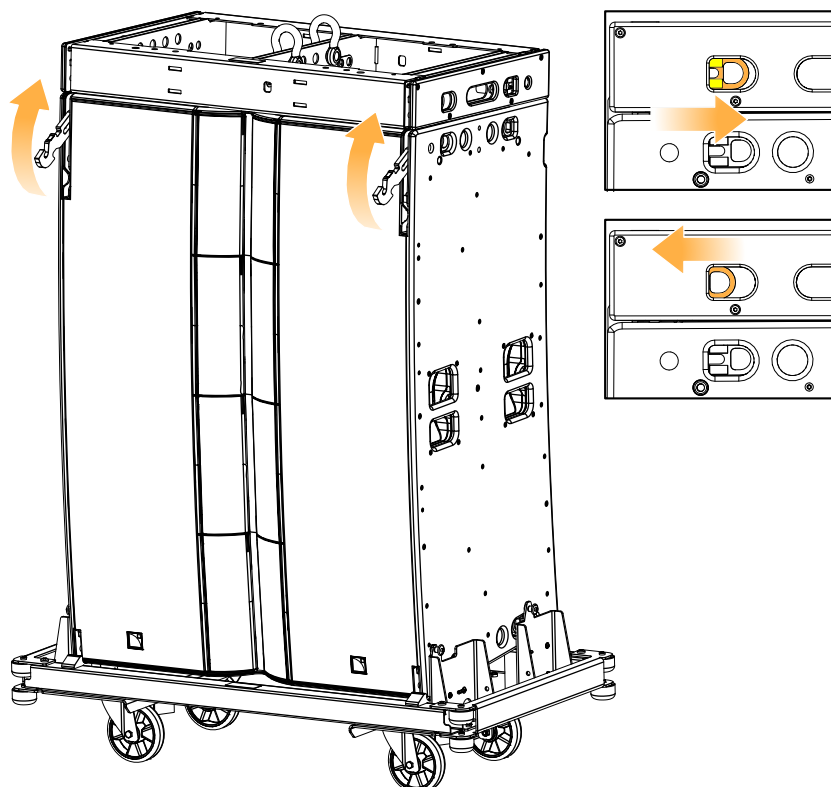
Procedure

1. Secure the L2-BUMP on top of the enclosure:
 - a) Position the L2-BUMP runners on the enclosure matching tracks.



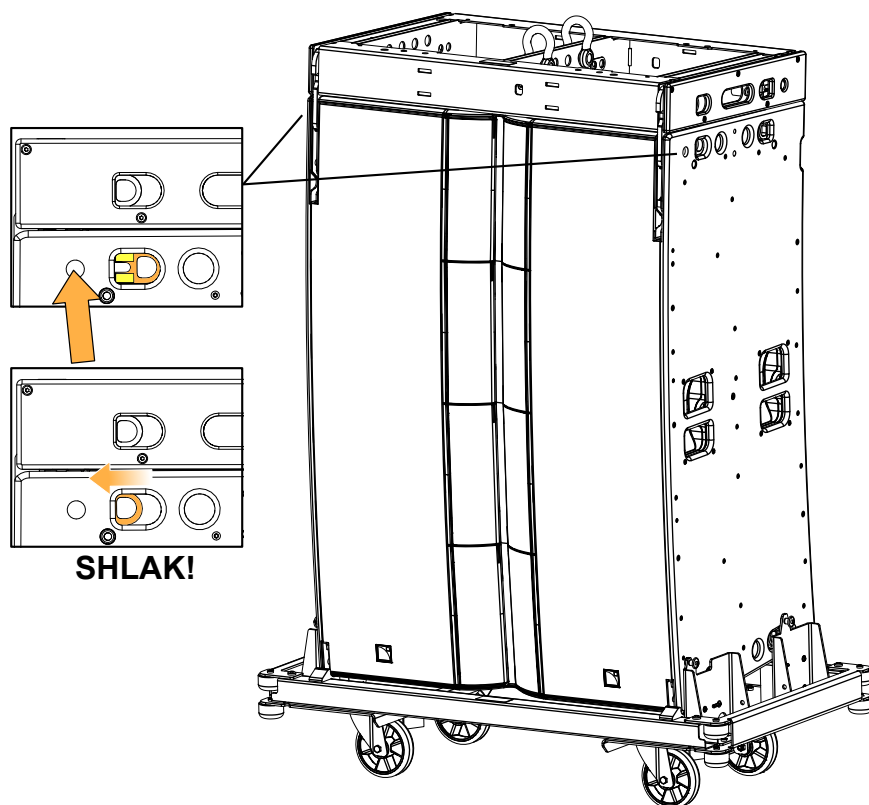
- b) Pull on the front latches and rotate the rigging arms of the enclosure.

The latches of L2-BUMP slide out slightly and come back into their positions.



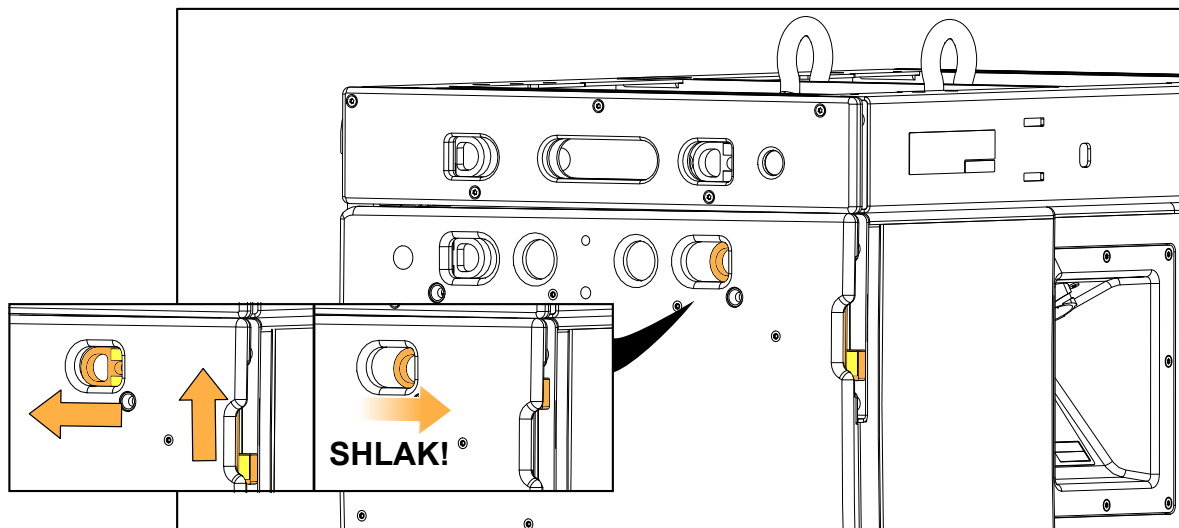
- c) Press the front buttons on both sides of the enclosure to activate the automatic locking system.

The latch retracts when the button is pushed (no yellow label visible).



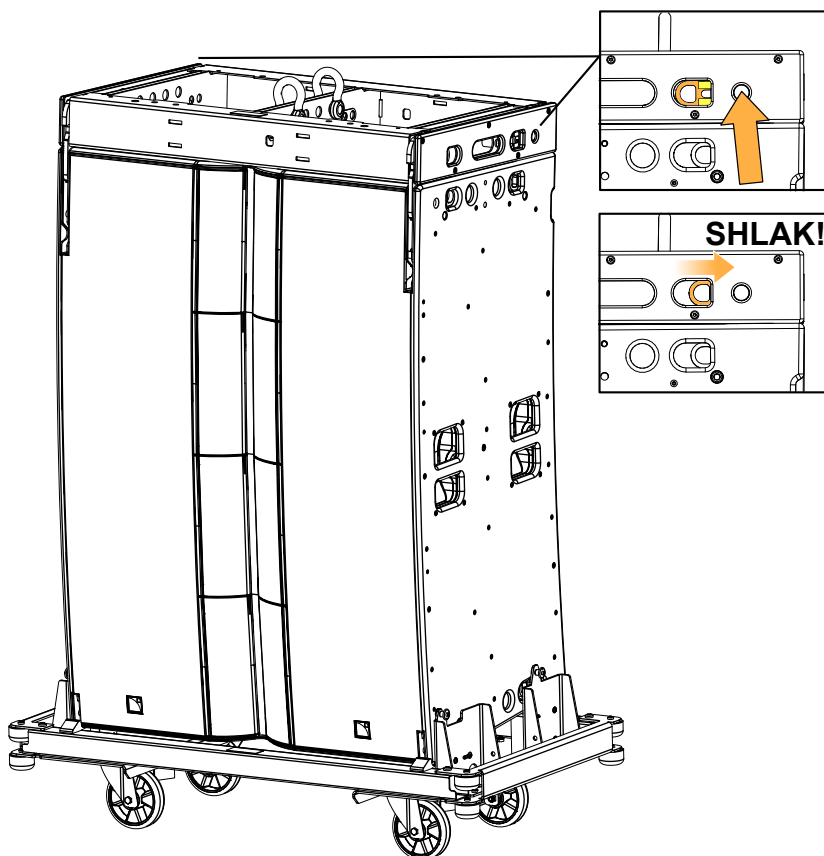
- d) Pull on the rear latches of the enclosure while extending the rear rigging arms.

Release the latches to lock the rigging arms in position.



- e) Press the buttons on both sides of L2-BUMP to activate the automatic locking system.

The latch retracts when the button is pushed (no yellow label visible).

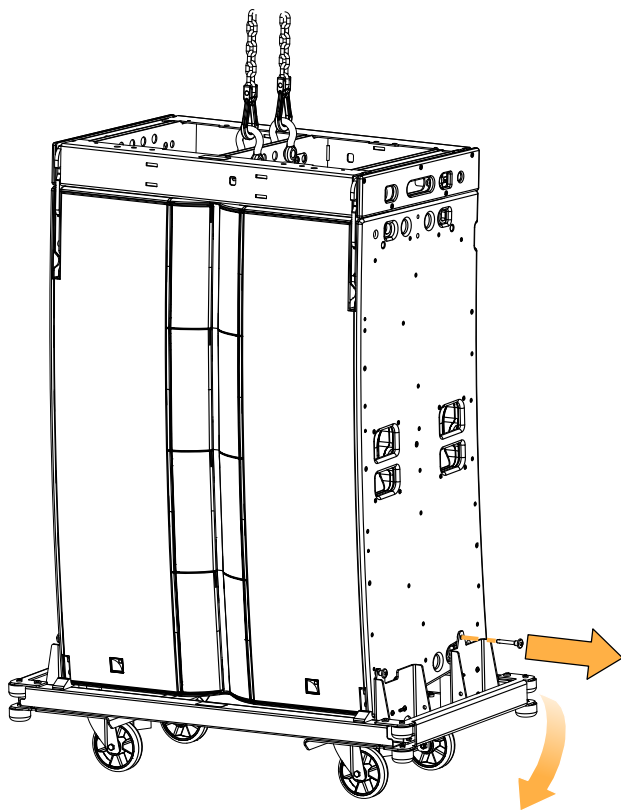


Optionally to extend the site angle capability, secure one or two L2-BAR on L2-BUMP using pins.

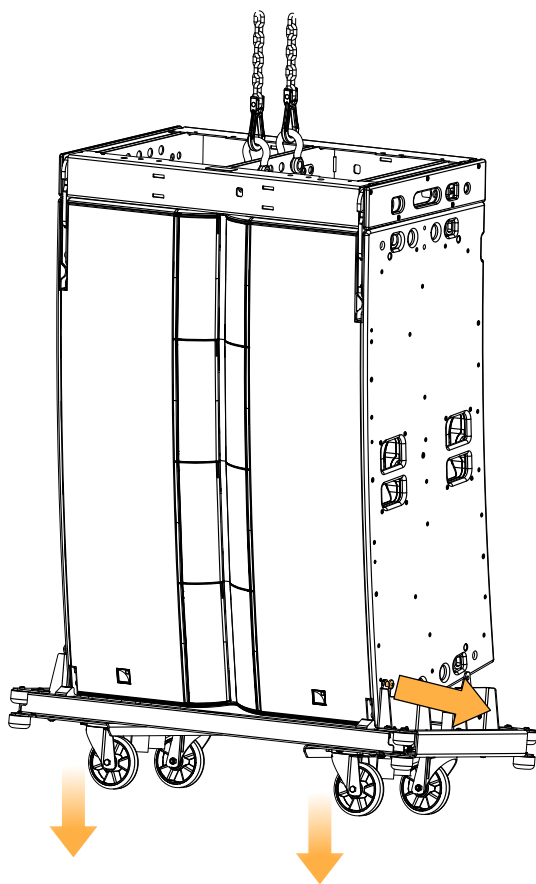
L2-BAR can be attached in position A or B, as a rear or a front extension.

2. Select the pickup points on the rigging element.
3. Remove the chariot from the enclosure:
 - a) Slightly raise the array.

b) Hold the chariot with one hand. Remove both back pins.



c) Hold the chariot with one hand. Remove both front pins.

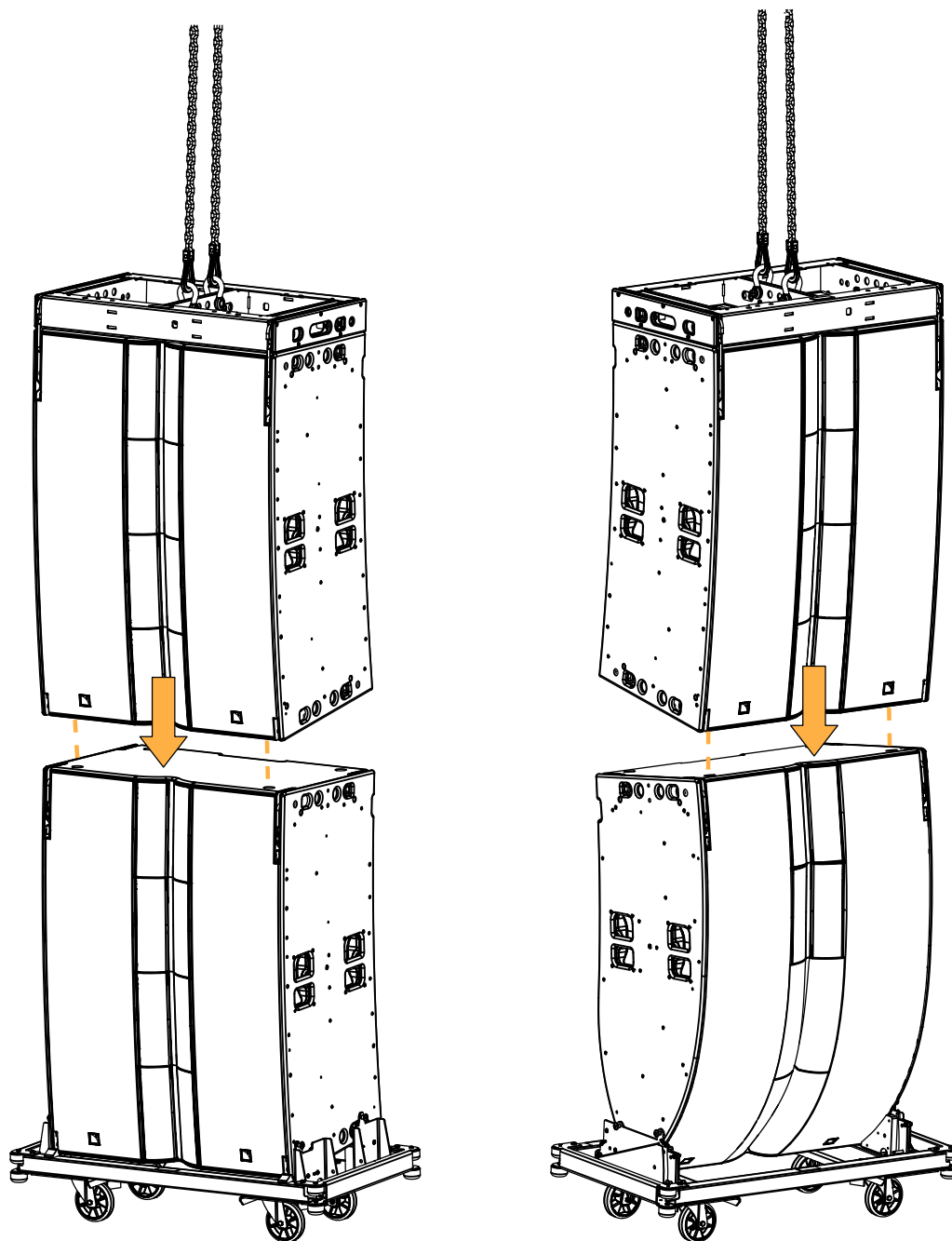


4. Raise the array.

5. Add more L2/L2D as necessary:

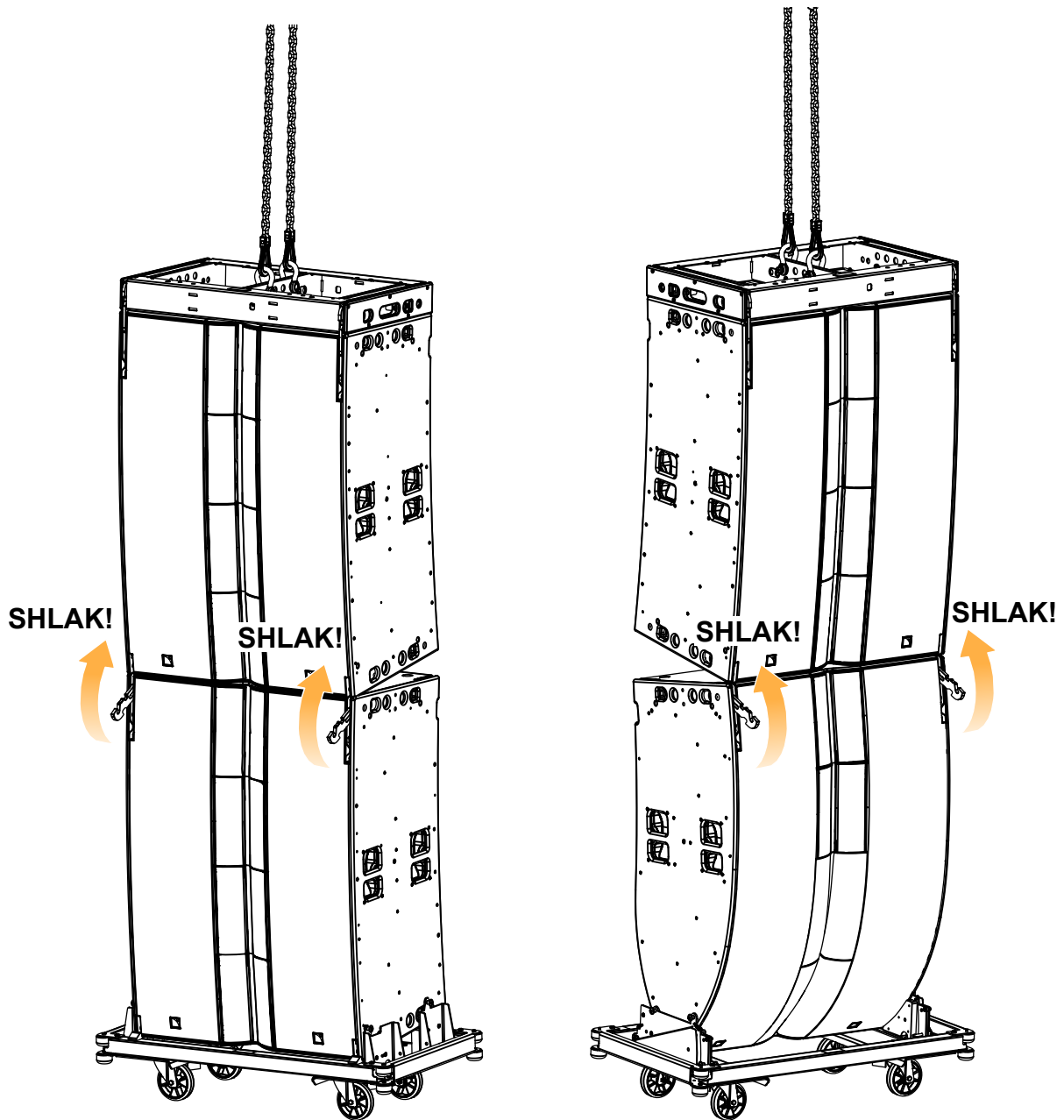
a) Position the enclosure below the array.

- b) Lower the array until the ground runners of the top enclosure meet the matching tracks of the bottom enclosure at the front.



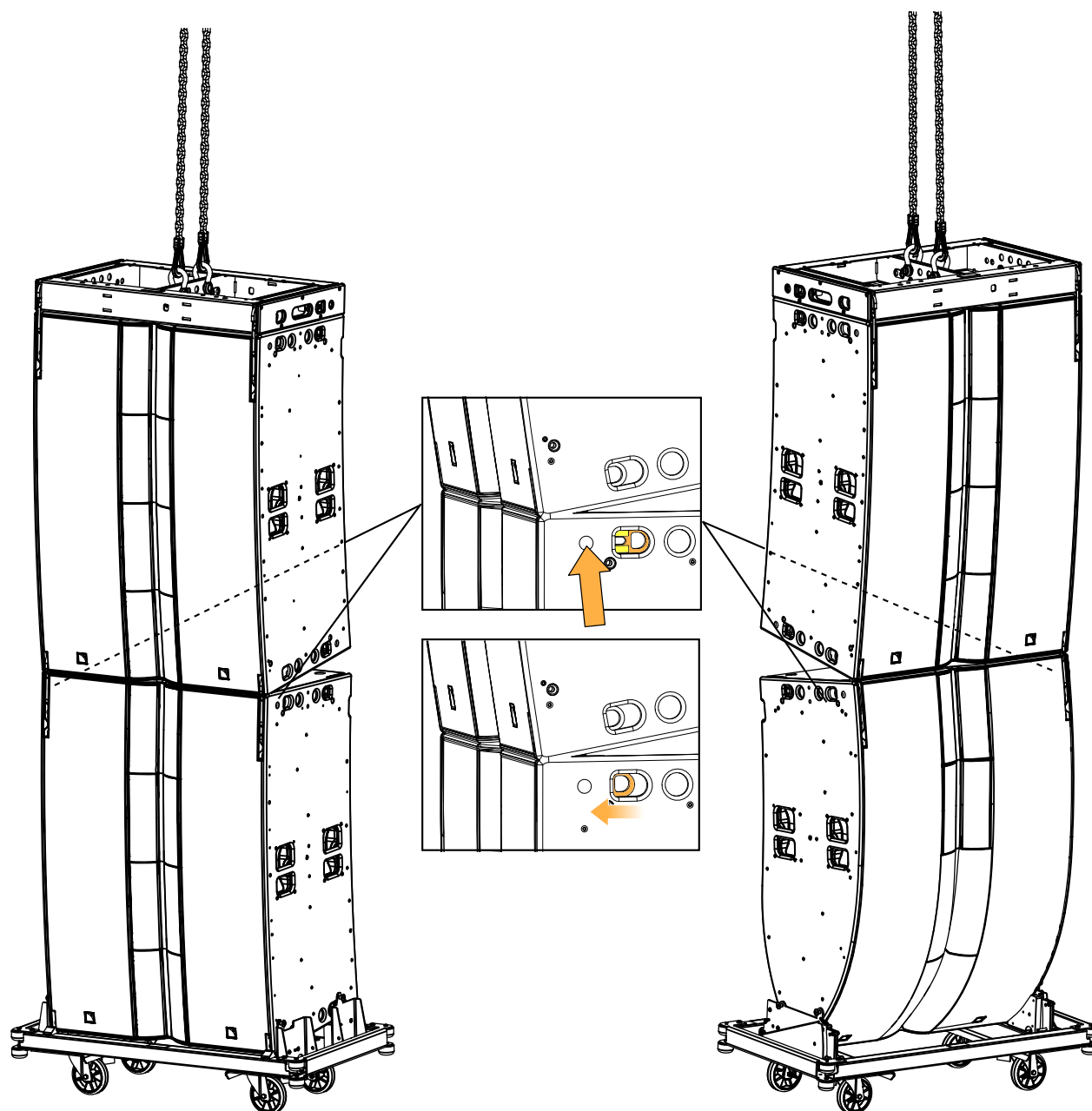
- c) Pull on the front latches and rotate the rigging arms of the bottom enclosure.

The latches of the top enclosure slide out slightly and come back into their positions.



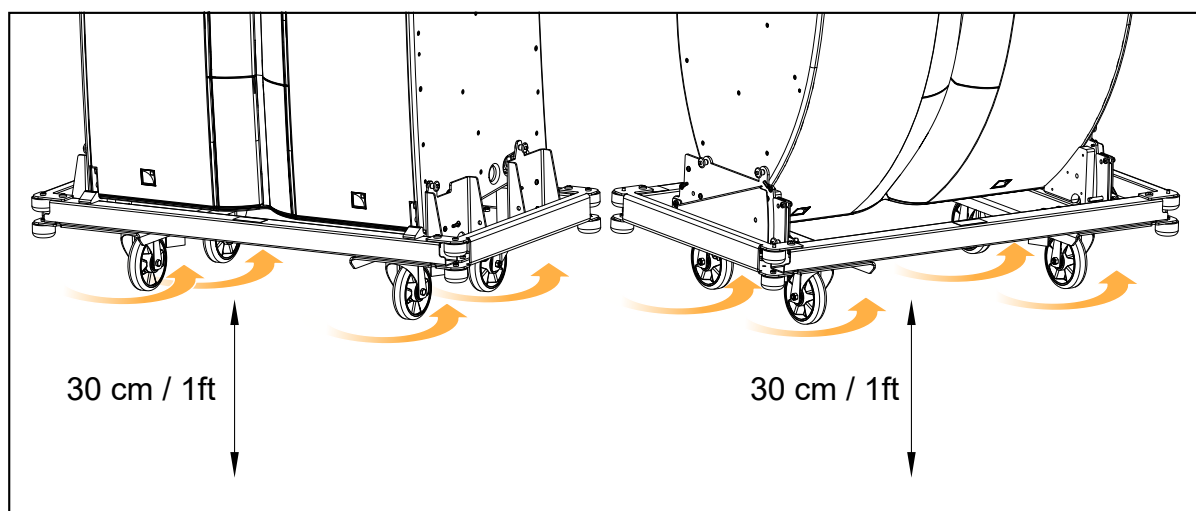
- d) Press the buttons on both sides of the bottom enclosure to activate the automatic locking system.

The latch retracts when the button is pushed (no yellow label visible).

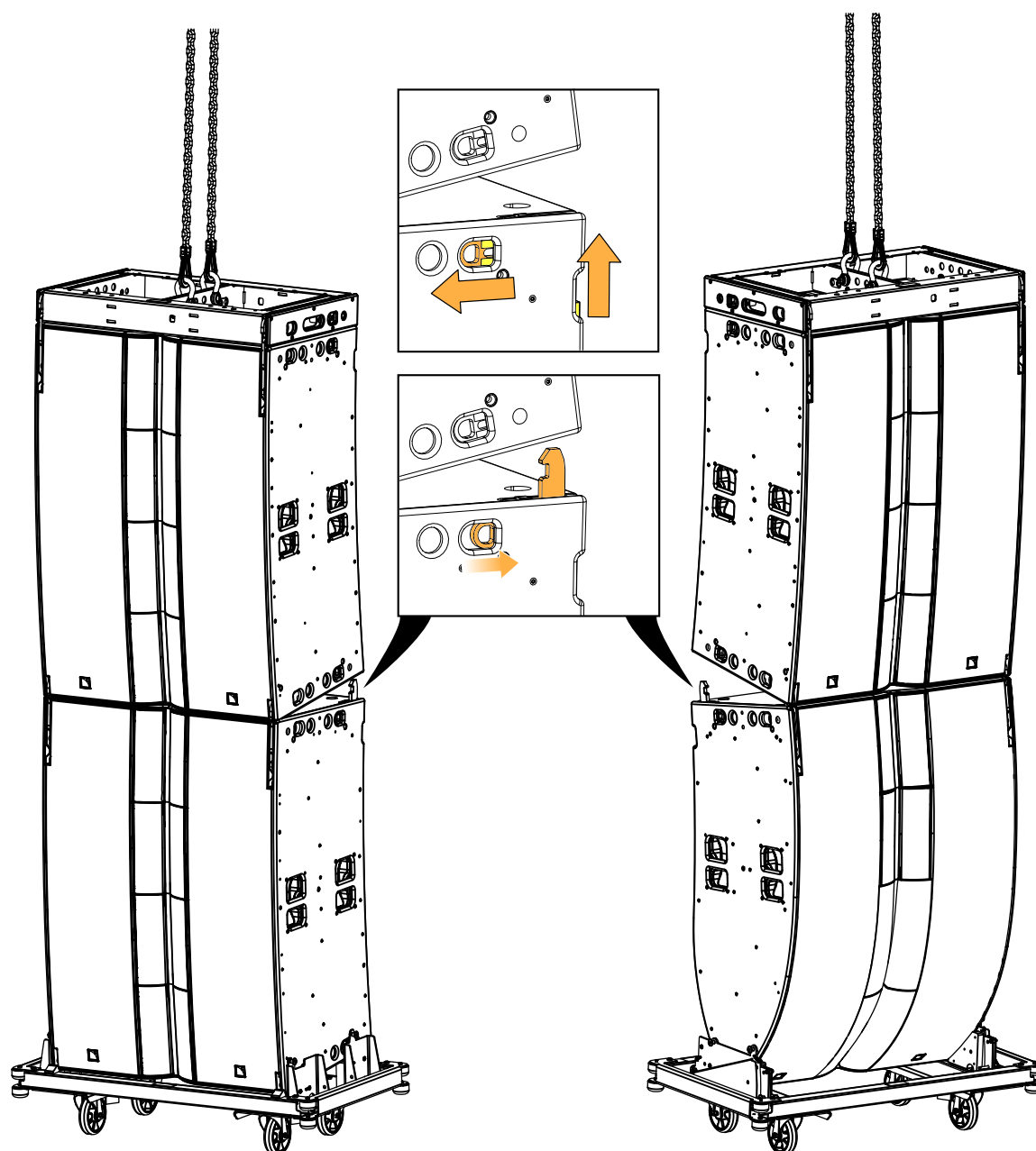


- e) Slightly raise the array so that the wheels are 30 cm / 1 ft from the ground.

- f) Turn the wheels inside the chariot.

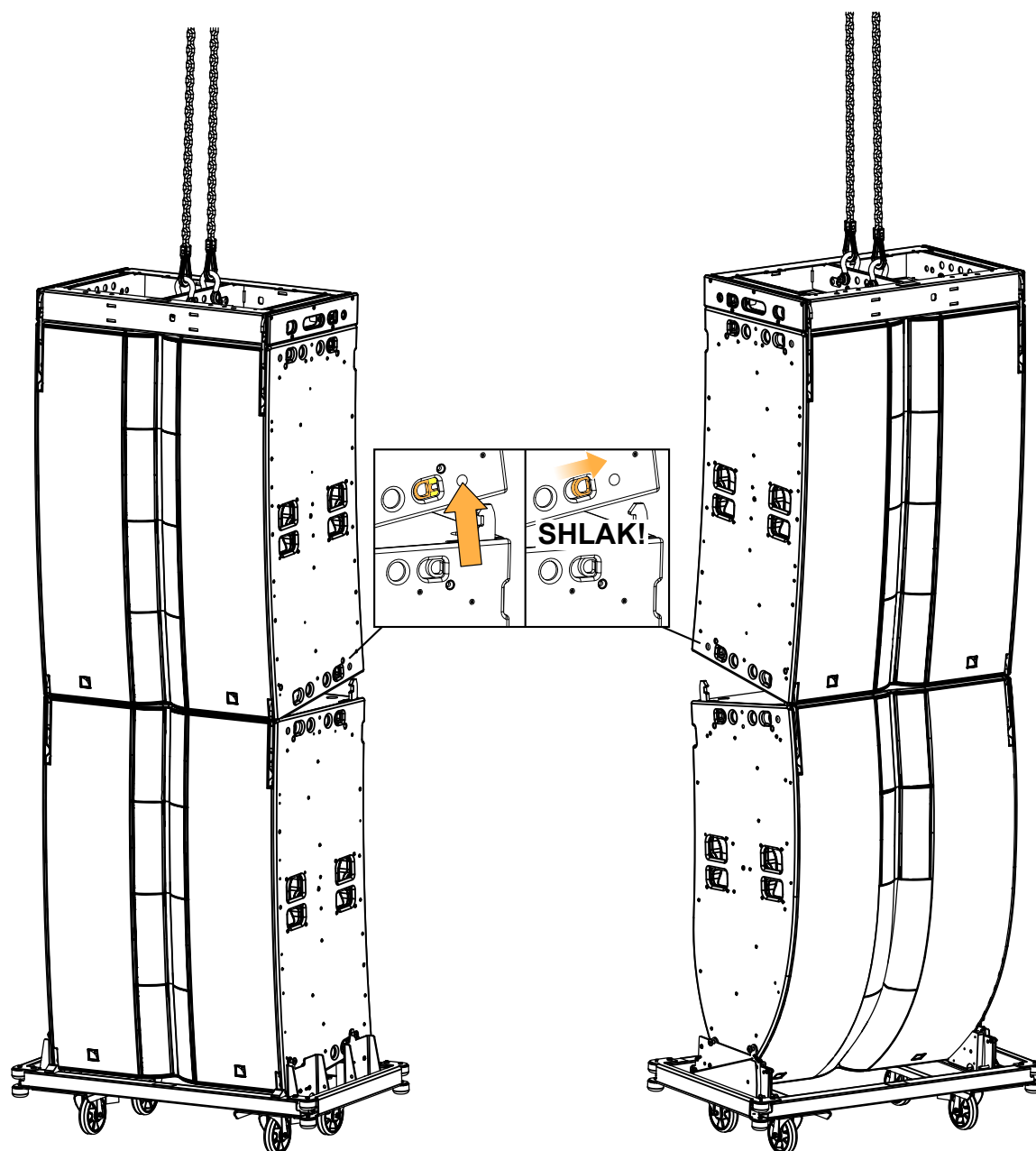


- g) Pull on the rear latches of the bottom enclosure while extending the rear rigging arms.



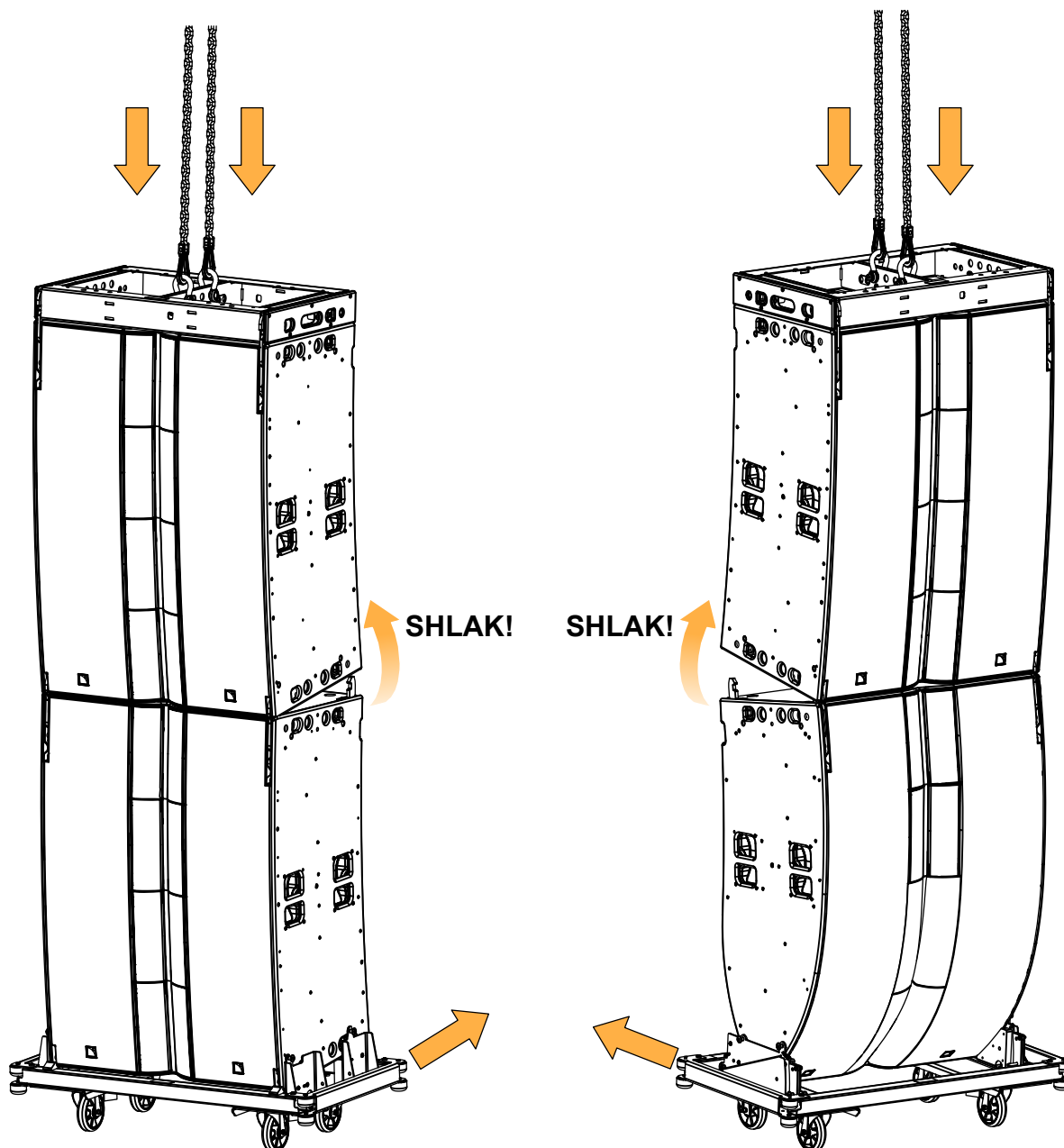
- h) Press the buttons on both sides of the top enclosure to activate the automatic locking system.

The latch retracts when the button is pushed (no yellow label visible).



- i) Pull back the bottom enclosure while lowering the array.

The automatic locking system button locks and the latches engage.



- j) Repeat from step 3 (p.63) to step 5 (p.64) until the array is complete.

Flying an L2/L2D array with L2-RIGBAR

Type of deployment	flown array
Rigging accessories	L2-RIGBAR 2 Ø19 mm shackles WLL 3.25 t
Min number of operators	2



Risk of falling objects

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



Additional safety for flown arrays

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

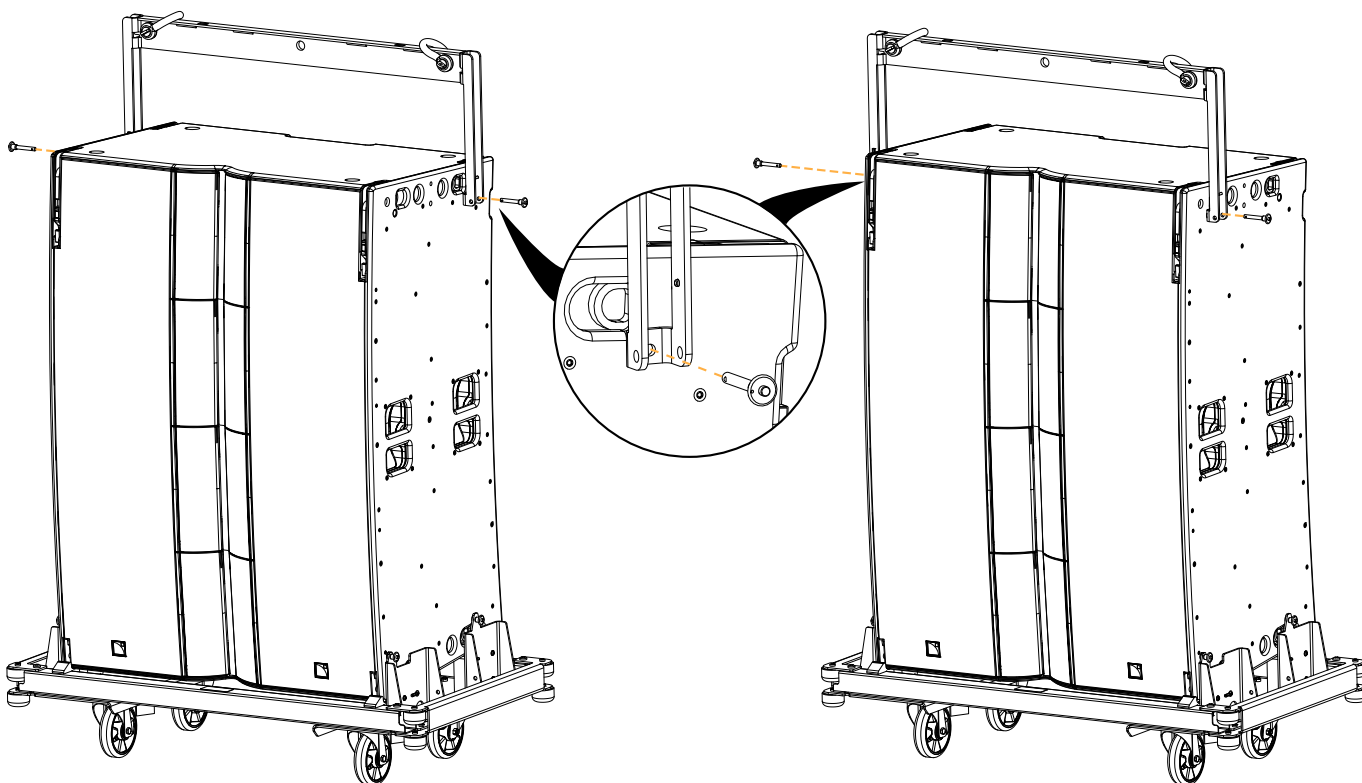
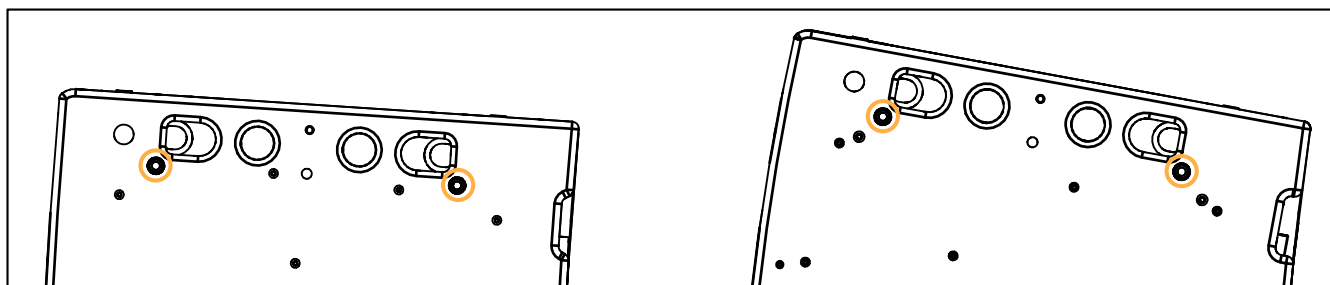
Prerequisite

Each L2/L2D is secured to its chariot. See [Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT](#) (p.51).

Procedure

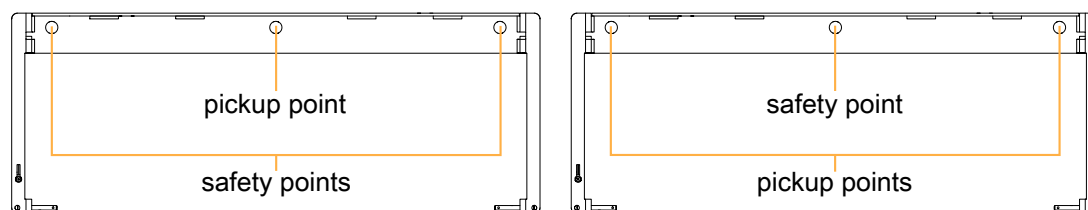
1. Secure L2-RIGBAR on top of the enclosure using the ball-locking pins.

Secure L2-RIGBAR at the front for a positive initial site angle, or at the back for a negative initial site angle.



2. Secure L2-RIGBAR to the sling using Ø19 mm shackles WLL 3.25 t.

Always implement a secondary safety using available holes.



3. Remove the chariot from the enclosure, raise the array, and add more L2/L2D as necessary.

Refer to [Flying an L2/L2D array with L2-BUMP and L2-BAR](#) (p.61).

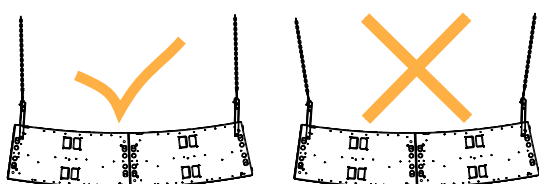
Adding a pullback with L2-RIGBAR

Type of deployment	flown array
Rigging accessories	L2-RIGBAR 2 Ø19 mm shackles WLL 3.25 t
Min number of operators	2

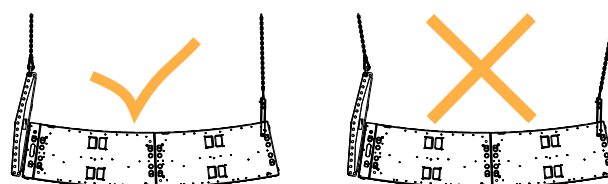
Horizontal arrays

! Do not raise the rear pickup point above the front pickup point.
Pickup points must be aligned with the linking points.

! The chains must be as vertical as possible.



With L2-RIGBAR on top



With L2-BUMP and L2-BAR on top

Prerequisite

The array is completed and secured under L2-BUMP with L2-BAR or

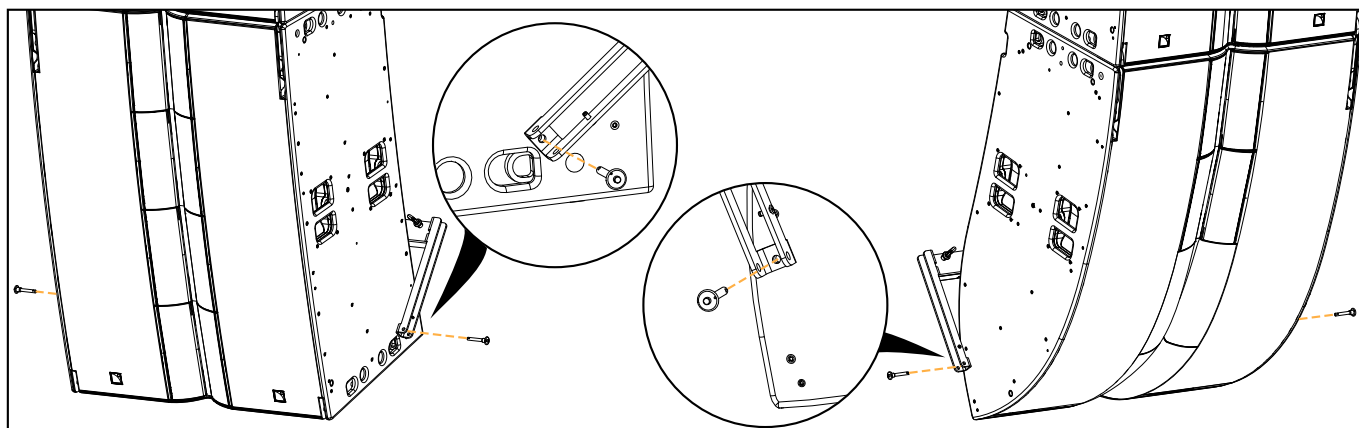
another L2-RIGBAR

See [Flying an L2/L2D array with L2-BUMP and L2-BAR](#) (p.61) or

[Flying an L2/L2D array with L2-RIGBAR](#) (p.71).

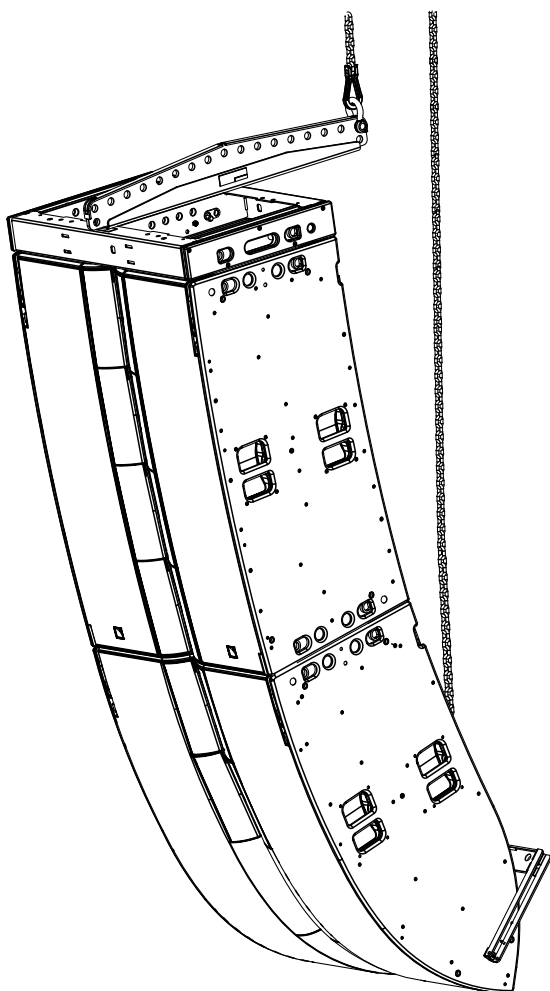
Procedure

1. Secure L2-RIGBAR on the bottom enclosure using the ball-locking pins.

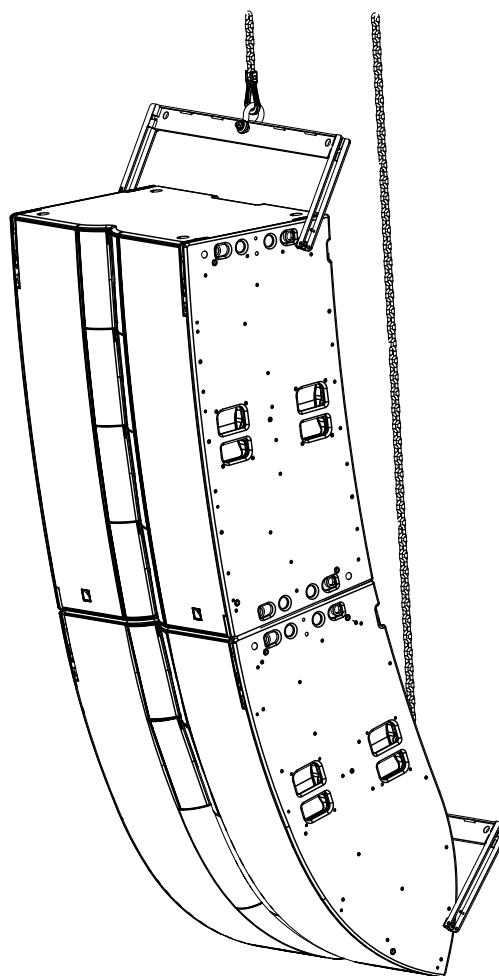


2. Secure a Ø19 mm shackles WLL 3.25 t to L2-RIGBAR and lift with an additional motor.

3. Adjust the height of the pickup points.



Under L2-BUMP



Under L2-RIGBAR

Stacking

Attaching K2-JACK stabilizers to L2-CHARIOT/L2D-CHARIOT

Type of deployment	stacked array
Rigging accessories	K2-JACK L2-CHARIOT/L2D-CHARIOT
Min number of operators	2

Prerequisite

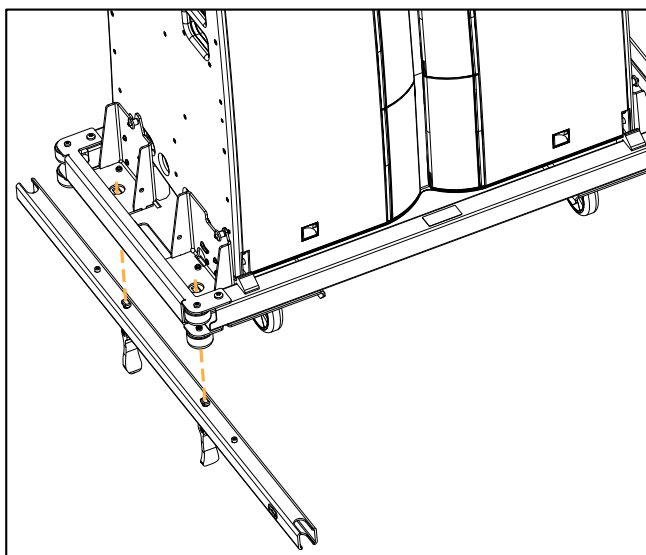
Each L2/L2D is secured to its chariot.

See [Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT](#) (p.51).

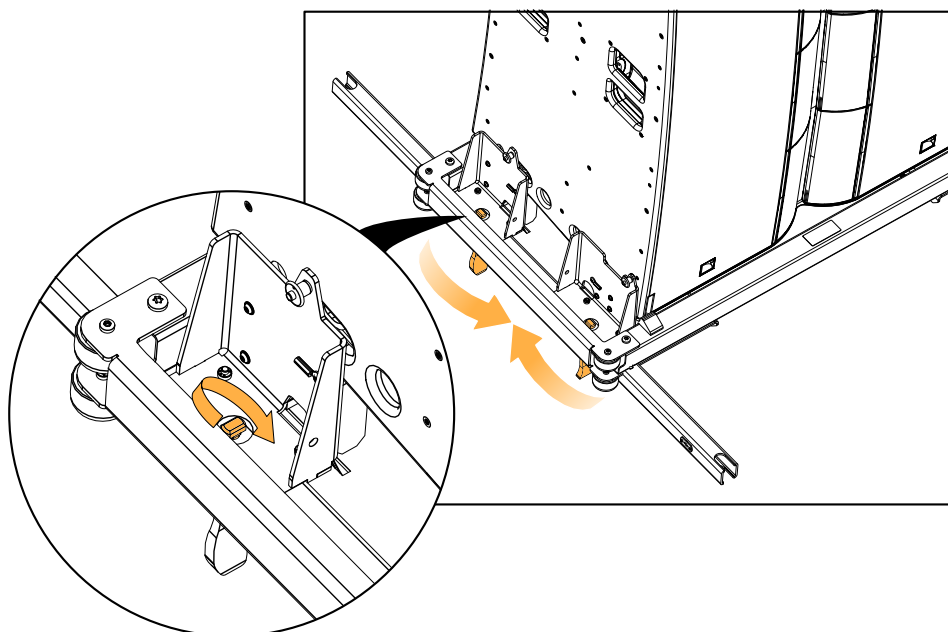
Procedure

1. Attach the K2-JACK to the L2-CHARIOT/L2D-CHARIOT:

- a) Insert the K2-JACK studs through the chariot.



- b) Raise and turn the K2-JACK handle to secure the locking system.



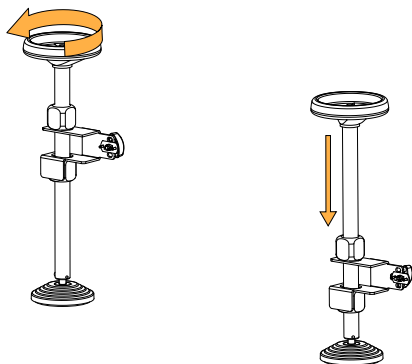


Dust

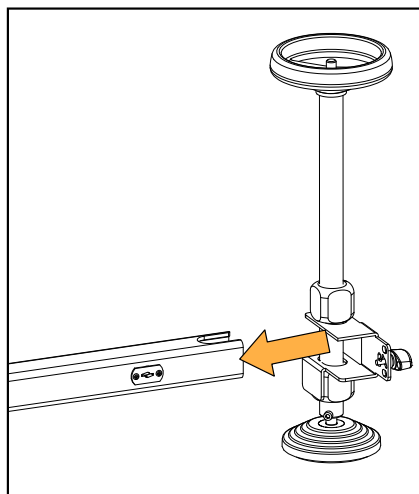
During the K2-JACK stabilizers first use, dust comes off the threaded rod. It is expected and does not indicate a malfunction.

2. Prepare the K2-JACK stabilizers.

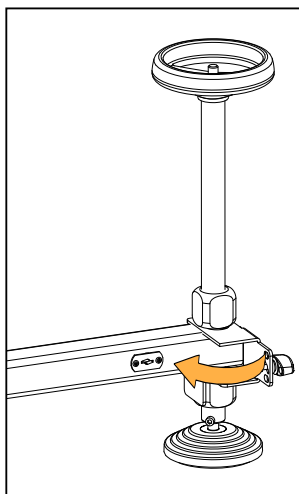
Rotate the threaded rod counter-clockwise so the central part of the stabilizer is closest to the base.



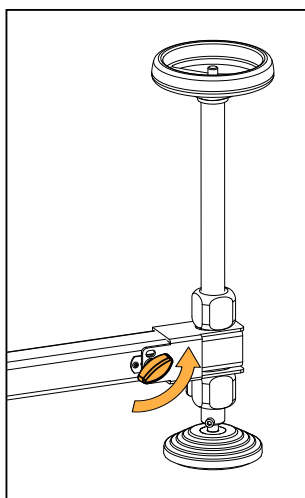
3. Attach the stabilizers to the bar.



Insert the feet in the guides at both ends of the bars.



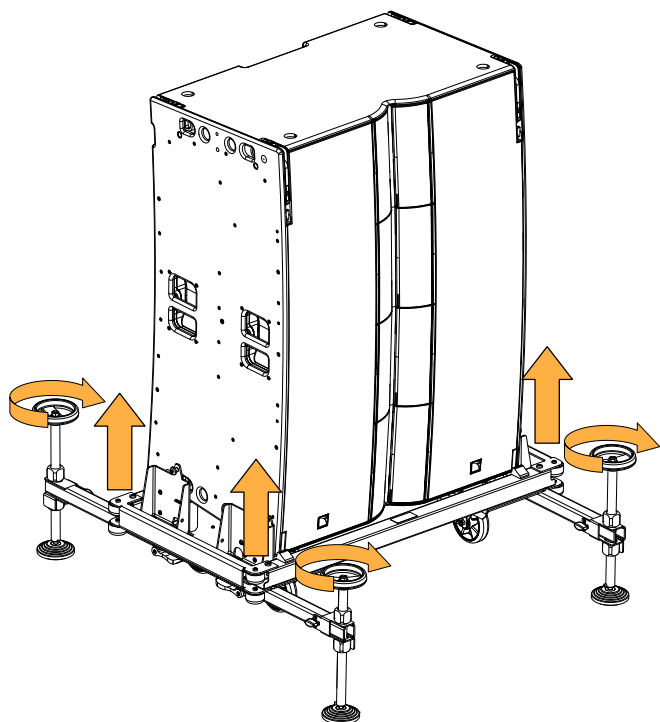
Pivot the feet so they come into contact with the bars.



Lock the feet into position by giving a quarter-turn to the locking system.

4. Rotate the feet clockwise to raise the chariot off the ground.

Stop raising the enclosure as soon as the wheels get off the ground.



What to do next

Adjust site angle using K2-JACK (refer to [Adjusting L2-CHARIOT site angle with K2-JACK](#) (p.78)), or using L2D-CHARIOT (refer to [Adjusting L2D-CHARIOT site angle with K2-JACK](#) (p.80)).

Adjusting L2-CHARIOT site angle with K2-JACK

Type of deployment	stacked array
Rigging accessories	K2-JACK L2-CHARIOT
Min number of operators	2

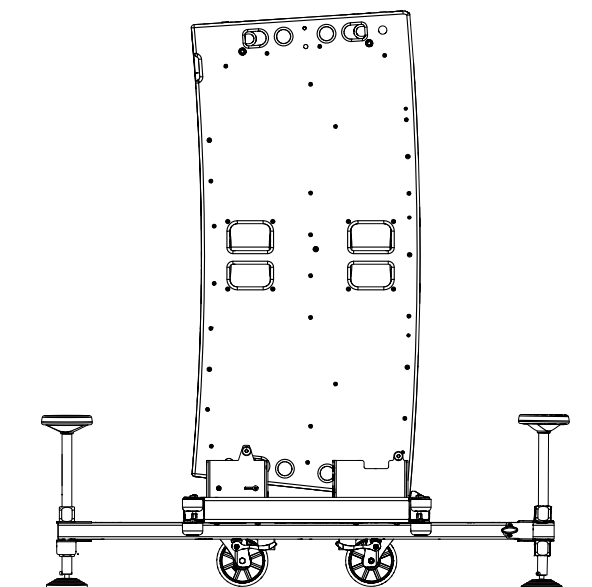
Prerequisite

K2-JACK is secured to L2-CHARIOT/L2D-CHARIOT.

See [Attaching K2-JACK stabilizers to L2-CHARIOT/L2D-CHARIOT](#) (p.75).

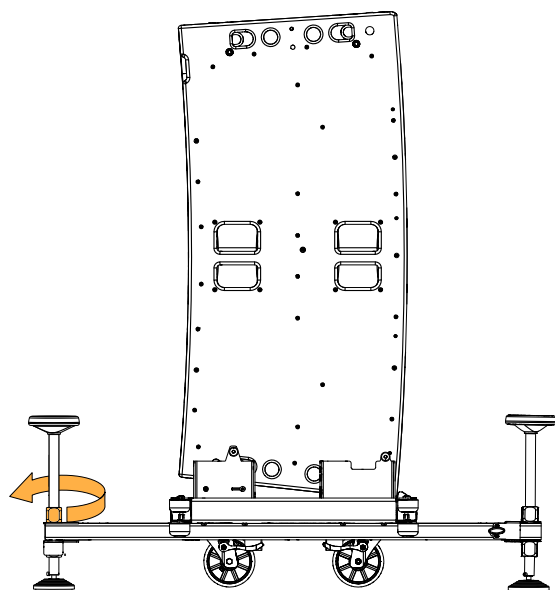
Procedure

1. Verify the wheels are as close as possible to the ground without touching it.

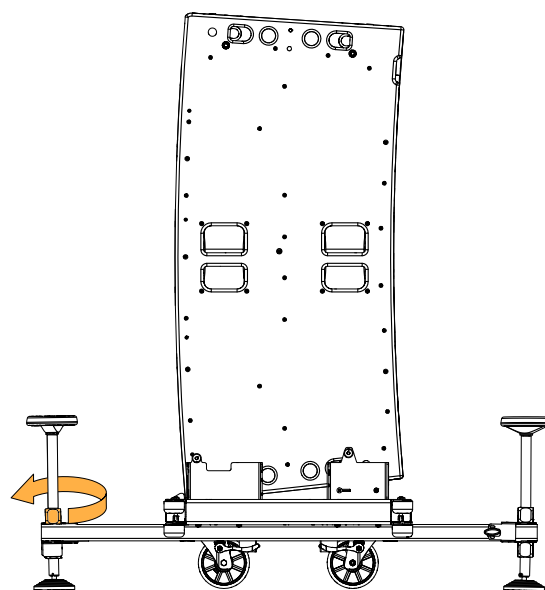


! Loosen the bolts by hand only.

2. Loosen the front or the rear stabilizer bolts, depending on the target site angle.



Negative site angle



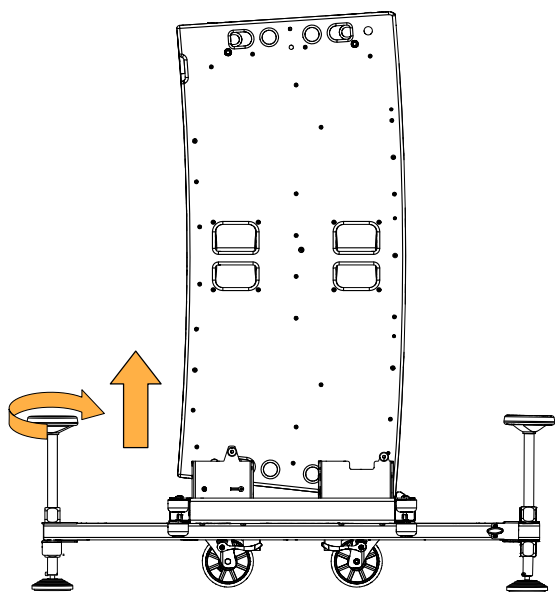
Positive site angle



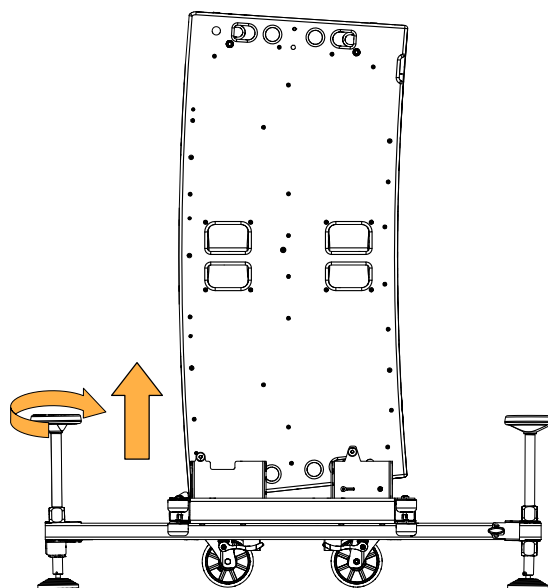
Tipping hazard

Adjust either the stabilizer at the front or at the back of the enclosure. Do not adjust both the front and back of the enclosure.

3. Adjust the site angle:



Rotate the rear screw jacks for a negative site angle.

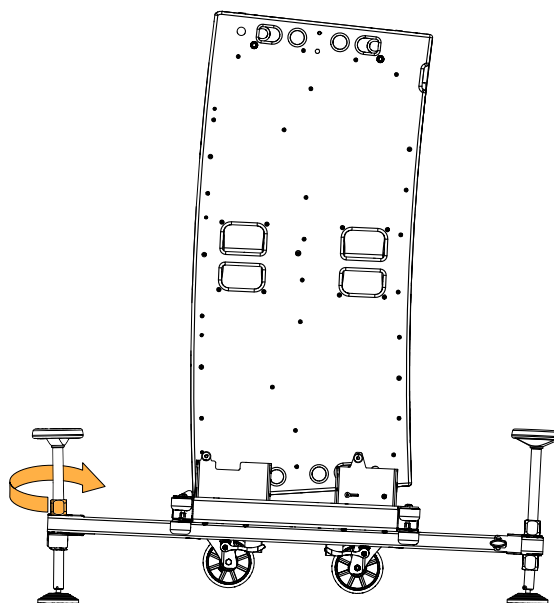
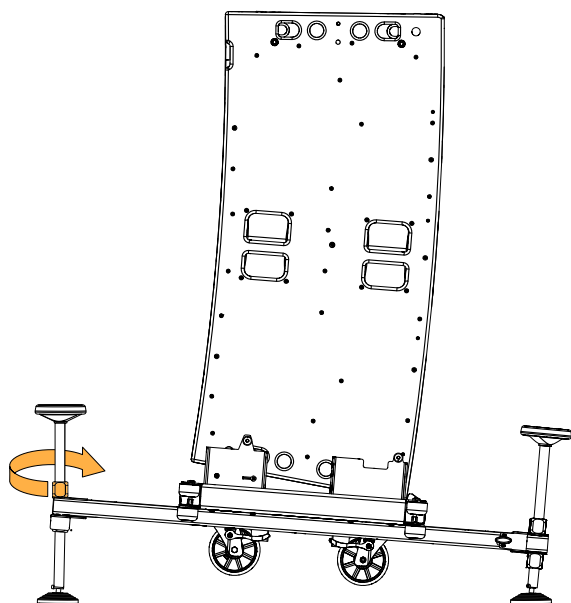


Rotate the front screw jacks for a positive site angle.



Tighten the bolts by hand only.

4. Tighten the front or rear bolts depending on the site angle.



Adjusting L2D-CHARIOT site angle with K2-JACK

Type of deployment	stacking
Rigging accessories	K2-JACK L2D-CHARIOT
Min number of operators	2



Tipping hazard

Always install K2-JACK before setting the L2D-CHARIOT site angle.

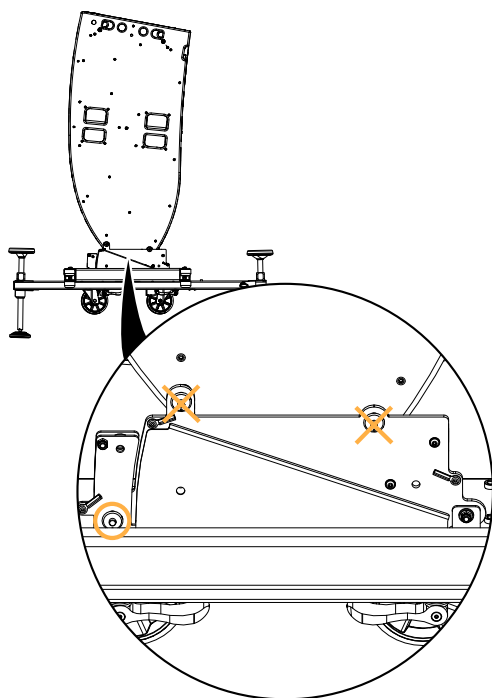
See [Attaching K2-JACK stabilizers to L2-CHARIOT/L2D-CHARIOT](#) (p.75).

Procedure

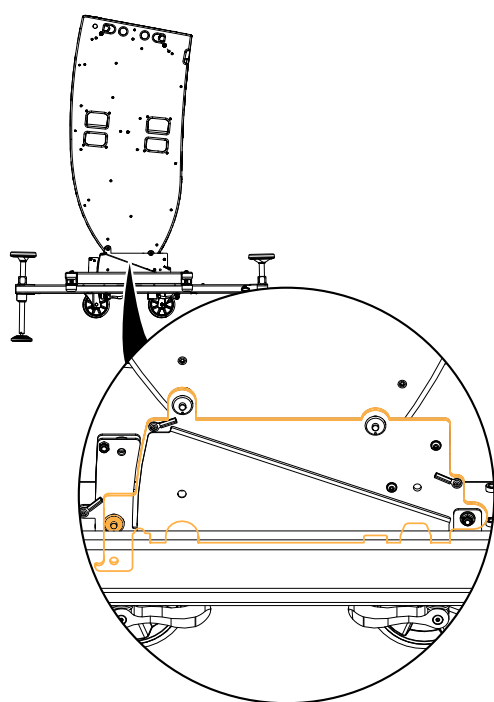


Do not remove the ball-locking pins securing L2D to L2D-CHARIOT.

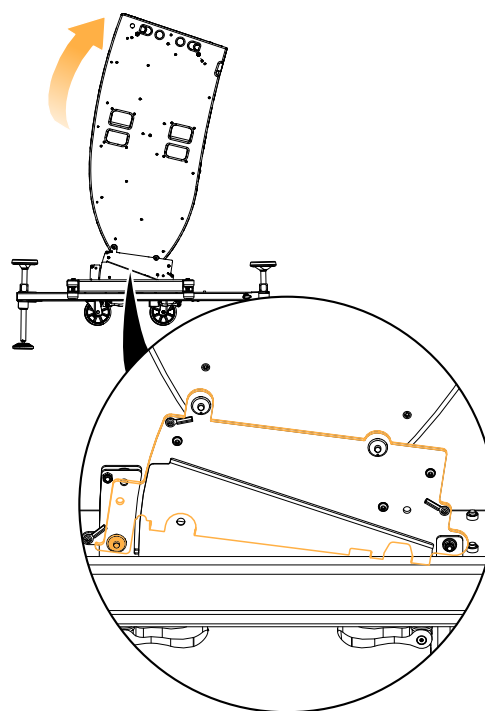
1. Remove the bottom ball-locking pin on each side.



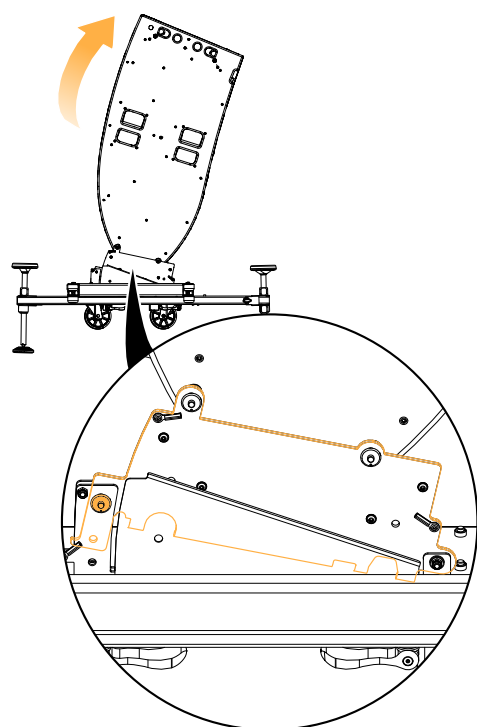
2. Tilt the enclosure and secure the ball-locking pins.



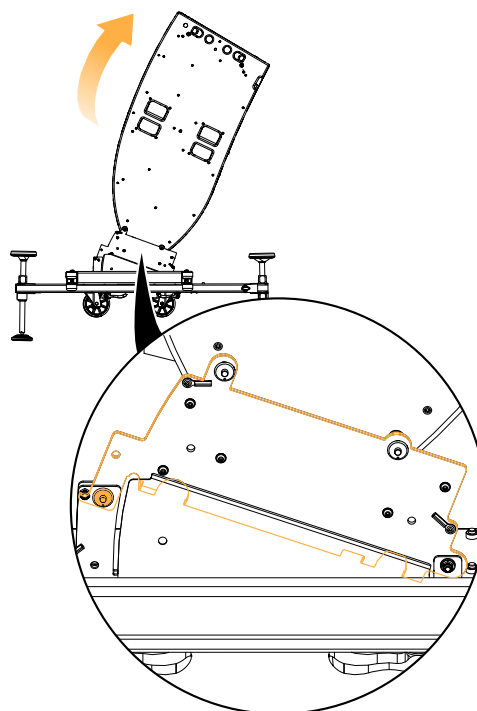
at 0°



at 8°



at 12°



at 20°

Transporting

Mounting L2-CHARIOTLID/L2D-CHARIOTLID on L2/L2D

Type of deployment	transporting
Rigging accessories	L2-CHARIOT/L2D-CHARIOT L2-CHARIOTLID/L2D-CHARIOTLID L2-CHARIOTCOV/L2D-CHARIOTCOV
Min number of operators	2

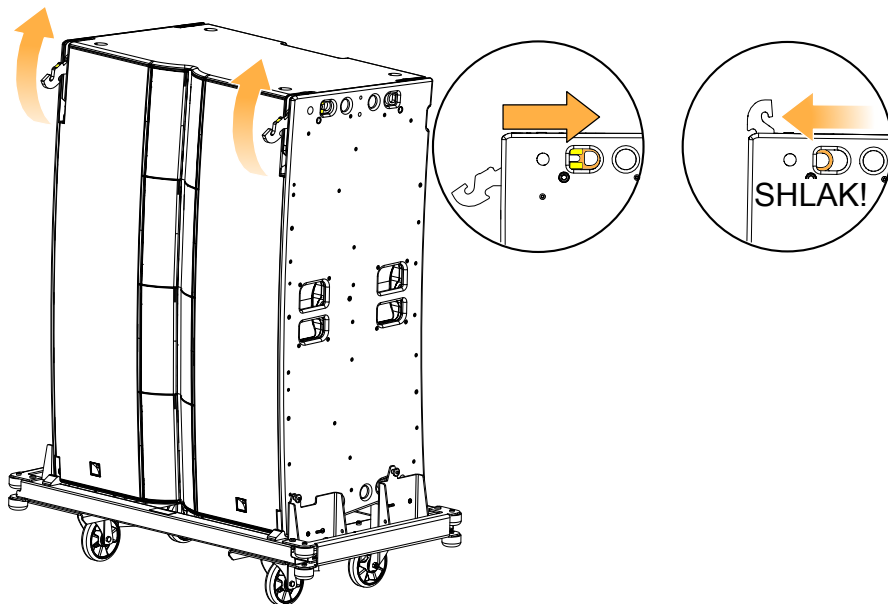
Prerequisite

Each L2/L2D is secured to its chariot.

See [Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT](#) (p.51).

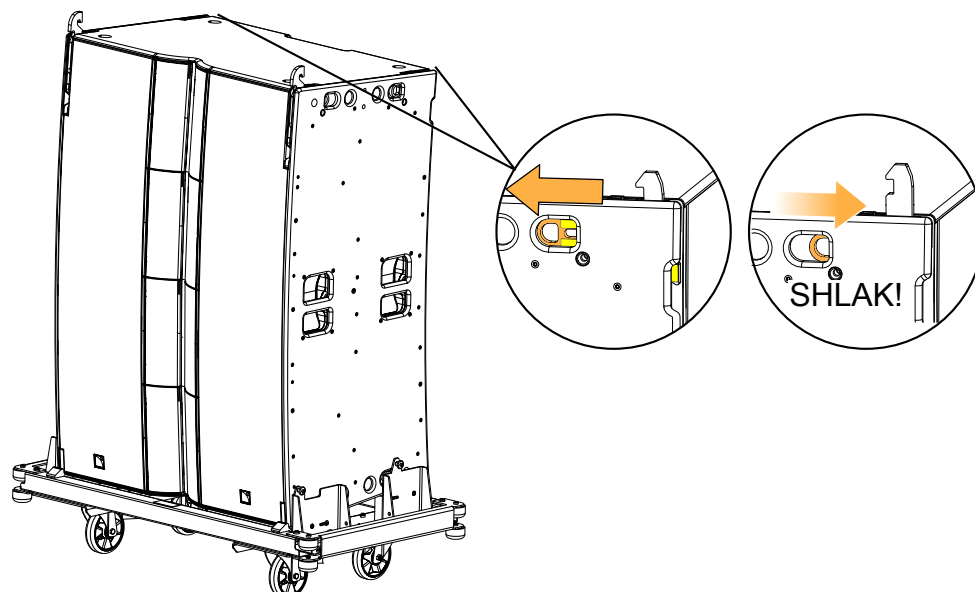
Procedure

1. Pull out the rigging arms:
 - a) Pull on the latches while rotating the front rigging arms of the enclosure.
Release the latches to lock the rigging arms in their upward positions.



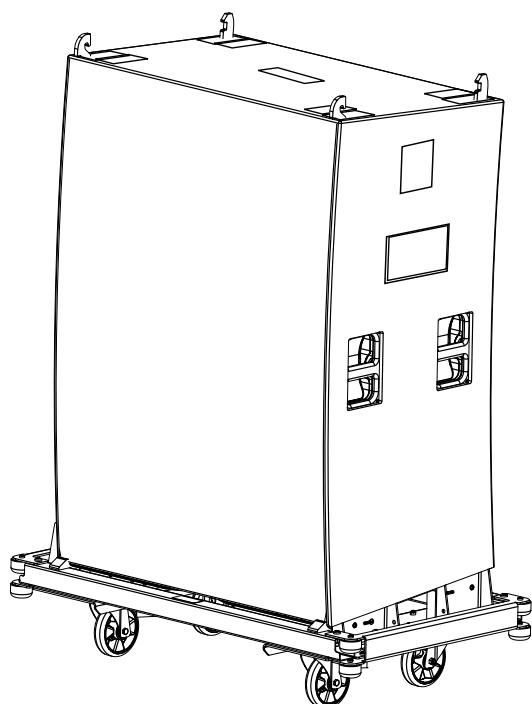
b) Pull on the latches while extending the rear rigging arms of the enclosure.

Release the latches to lock the rigging arms in their upward positions.



2. Put L2-CHARIOTCOV on L2 or L2D-CHARIOTCOV on L2D.

Open the top flaps to let out the rigging arms.



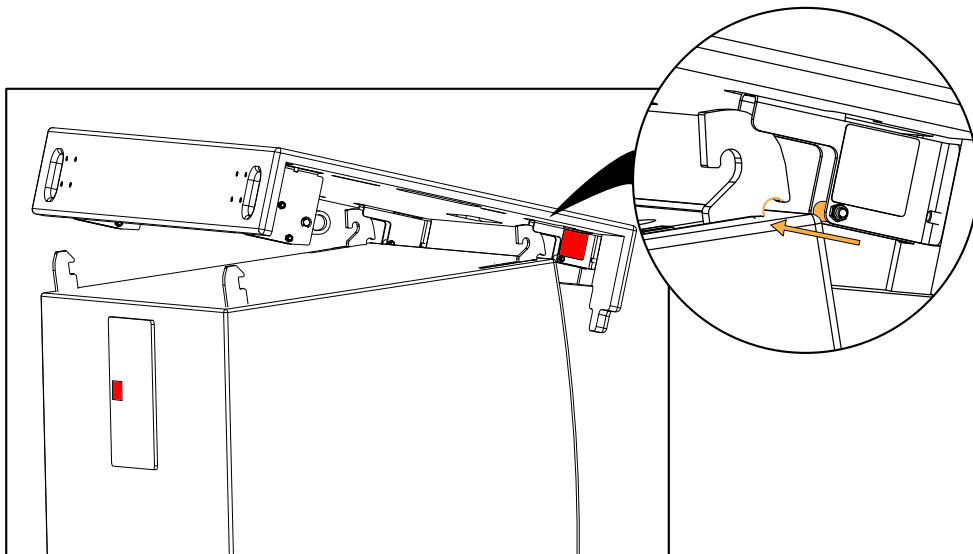
L2-CHARIOTCOV



L2D-CHARIOTCOV features a red label.

3. Position L2-CHARIOTLID on L2 or L2D-CHARIOTLID on L2D:

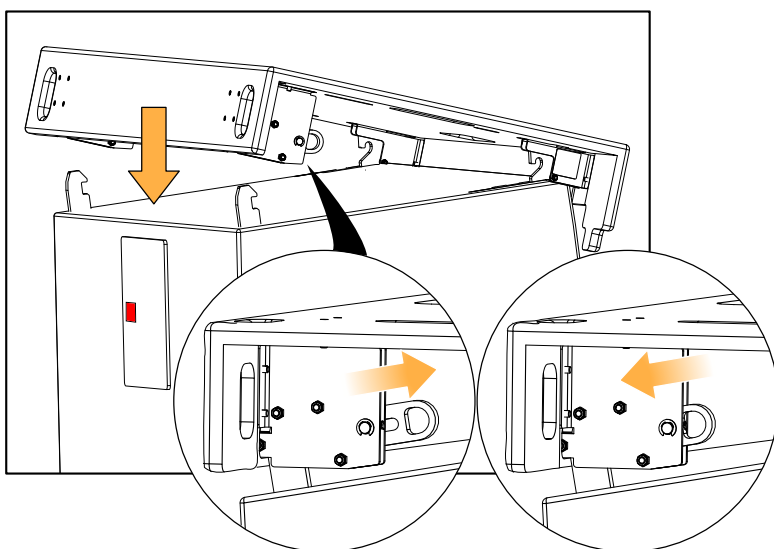
- a) Tilt the lid towards the front to position the axes inside the front rigging arms.



L2D-CHARIOTLID features red labels.

- b) Connect the rear rigging arms.

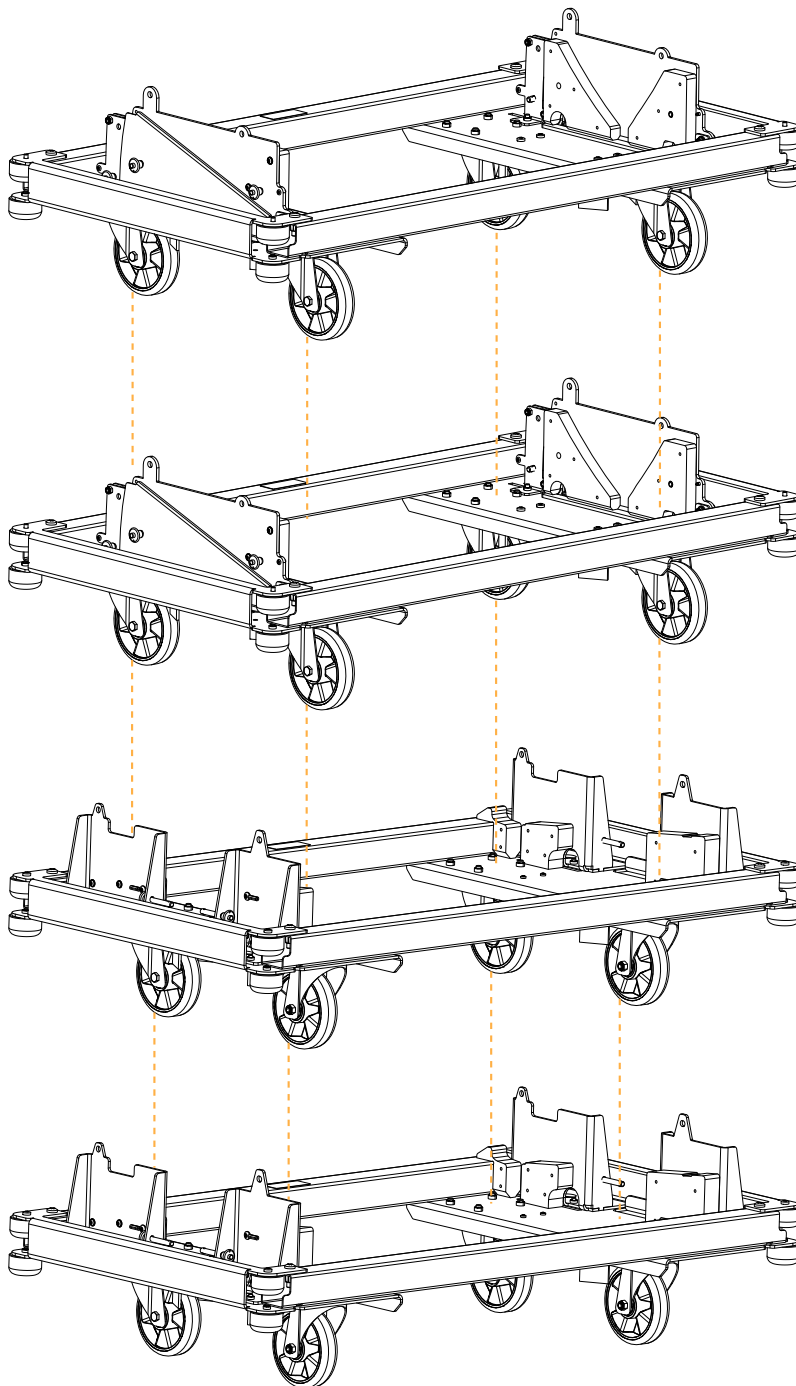
The latches on the lid slide out slightly and come back into their positions.



Stacking multiple L2-CHARIOT/L2D-CHARIOT

Type of deployment	storing
Rigging accessories	L2-CHARIOT/L2D-CHARIOT
Min number of operators	1

Stack the chariots in any direction and in any order, up to four chariots plus four chariotlids.



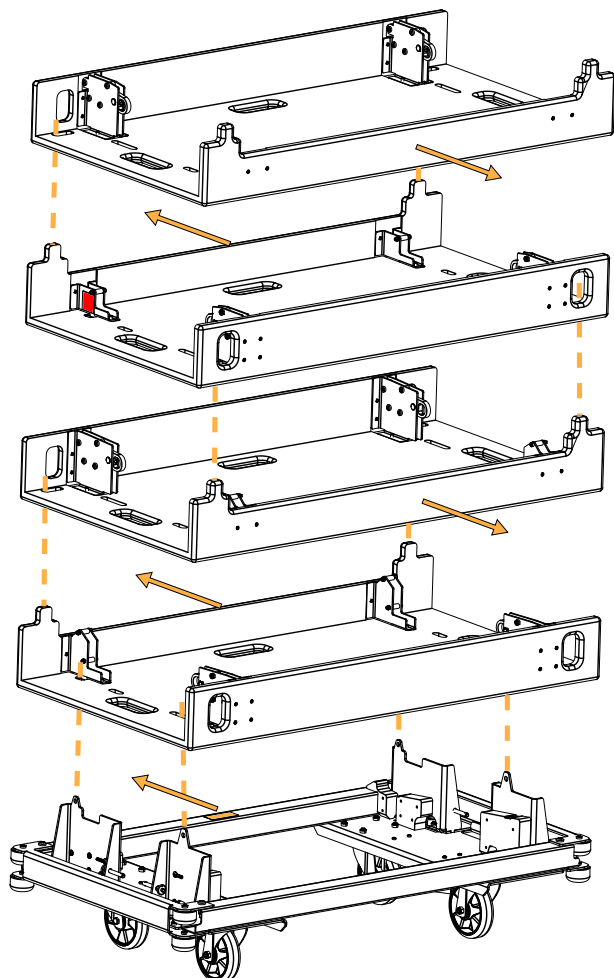
What to do next

Optionnally, stack L2-CHARIOTLID/L2D-CHARIOTLID on top. Refer to [Stacking multiple L2-CHARIOTLID/L2D-CHARIOTLID](#) (p.86).

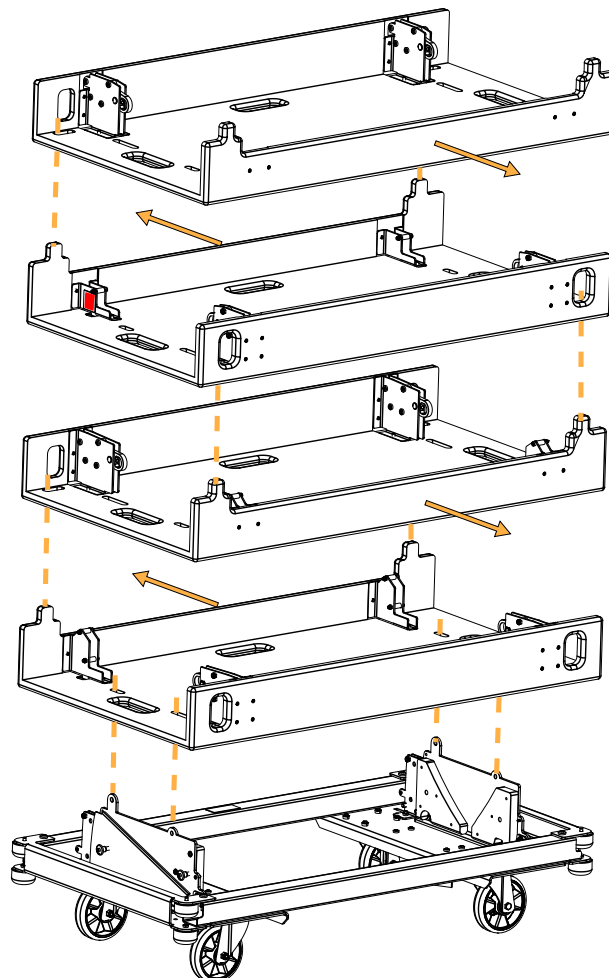
Stacking multiple L2-CHARIOTLID/L2D-CHARIOTLID

Type of deployment	storing
Rigging accessories	L2-CHARIOTLID/L2D-CHARIOTLID
Min number of operators	2

Stack the lids front to back and back to front, in any order, up to four chariots plus four chariotlids.



Bottom lid must be front to front with the L2-CHARIOT.



Bottom lid can be in any direction
on top of L2D-CHARIOT.

Connection to LA amplified controllers

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

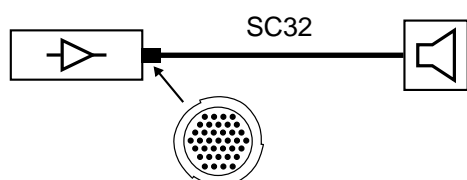
Enclosure drive capacity per amplified controller

	LA7.16/LA7.16i
	per output / total
L2	1
L2D	1

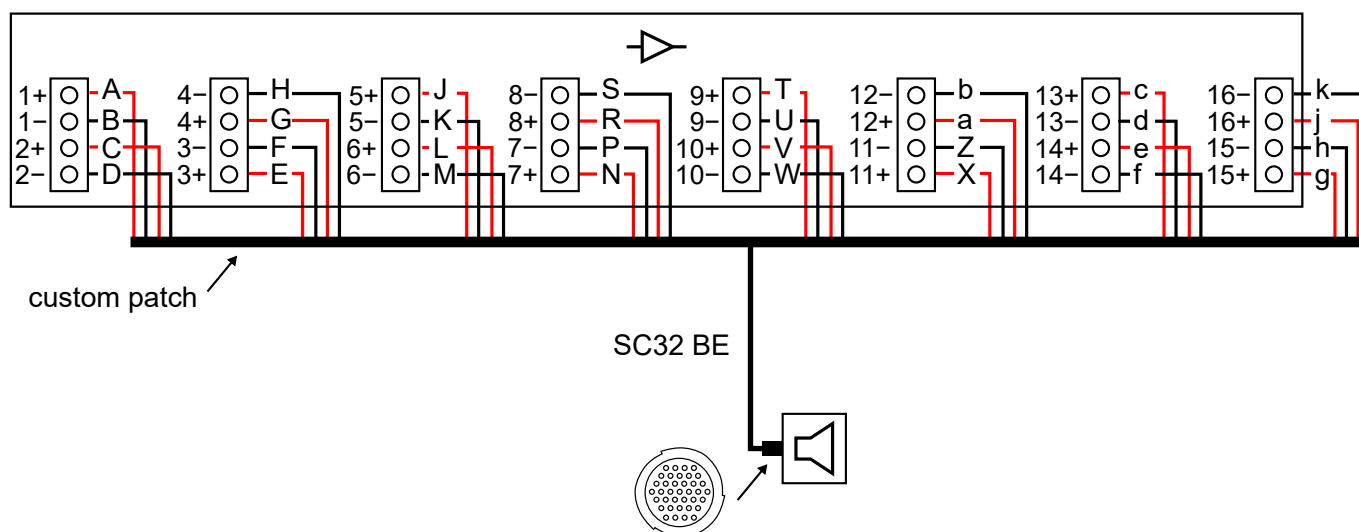
Cabling schemes for L2 / L2D

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

16-channel connector output



LA7.16i terminal block output



Corrective maintenance

Tools and consumables

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

name	reference	distributor
torque screwdriver*	A.404	FACOM
set of 6-point 1/4" sockets*	RL.NANO1 / R.360NANO	FACOM
flat plastic tool	—	—
compressed air blower	—	—



* 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.



All third-party trademarks, registered trademarks, or product names are the property of their respective owners.

Preparing enclosures for maintenance

Most maintenance procedures require L2-CHARIOT/L2D-CHARIOT to be removed. This means that the enclosures, in particular L2D, may need to be turned upside-down using L2-ROLL.

Rigging accessories

- L2-RIGBAR
- BPCHAIN 1.5T
- L2-ROLL

Tools

- screwdriver
- 8 mm hex bit



Do not use L2-ROLL for rigging.

L2-ROLL is a temporary handling tool, not a long-term rigging accessory.



Never position L2D on its narrow edge, even temporarily.

Prerequisite

L2-CHARIOTLID/L2D-CHARIOTLID and L2-CHARIOTCOV/L2D-CHARIOTCOV are removed.

See [Mounting L2-CHARIOTLID/L2D-CHARIOTLID on L2/L2D](#) (p.82)

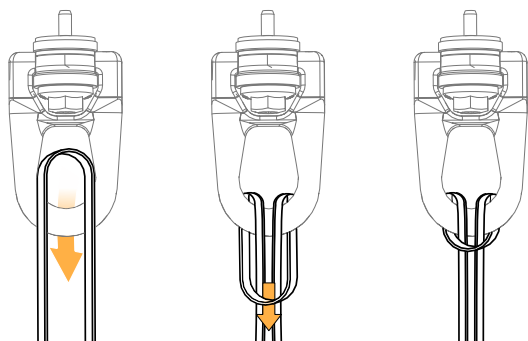


Inspect L2-ROLL before use.

Do not use if any safety issue is detected during inspection (fraying, deformation, etc.).

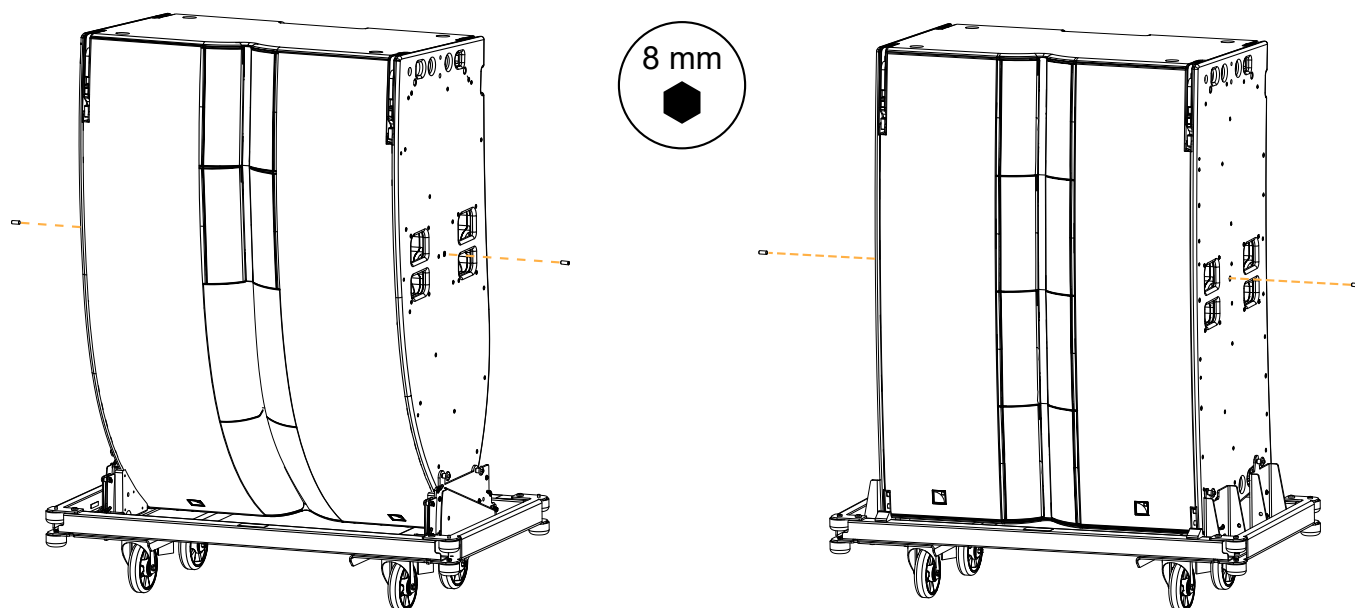
Procedure

1. Make sure each strap is secured to one ring with a lark's head knot.



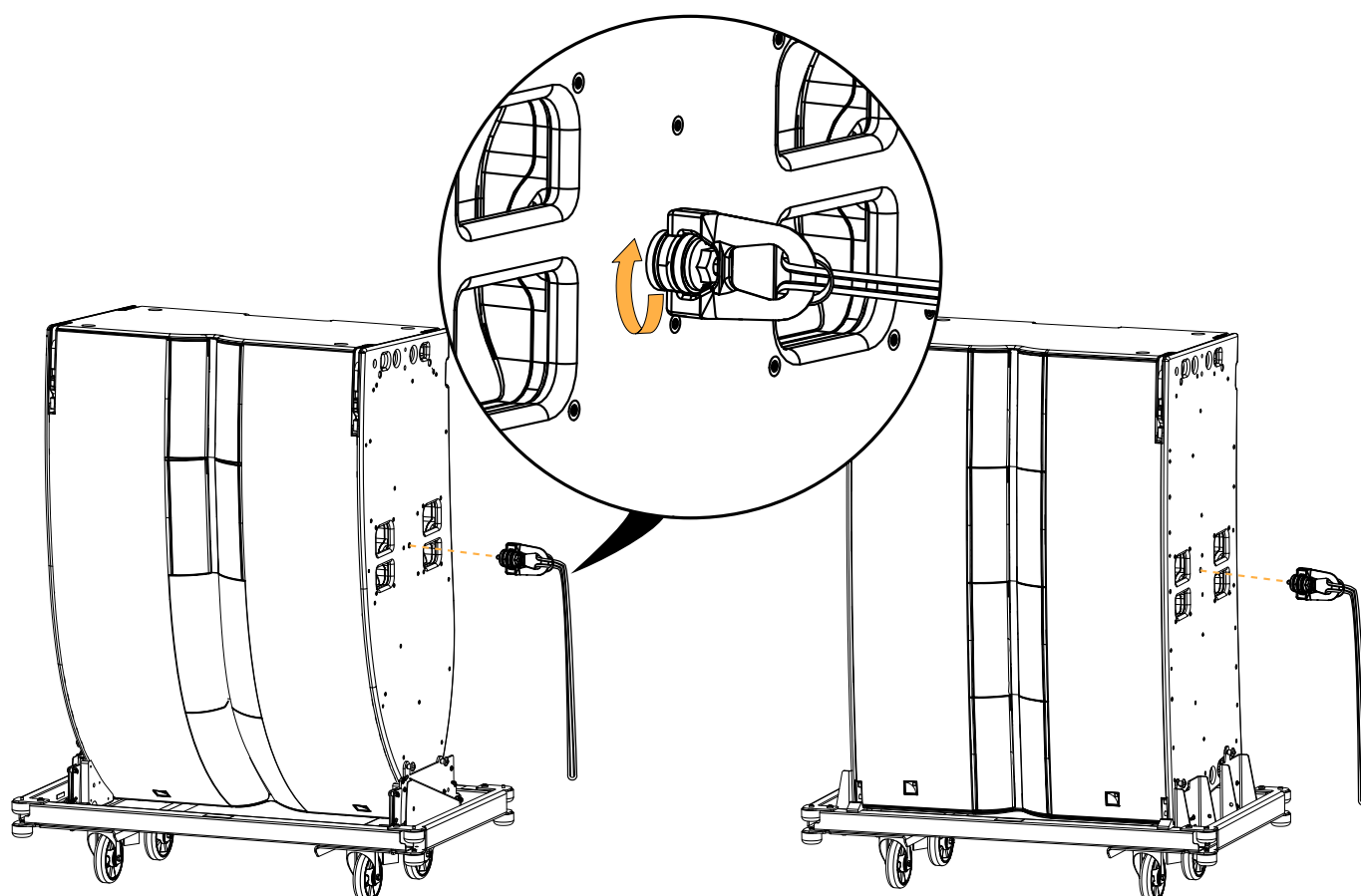
- 2.** On each side of the enclosure, remove the screw at the center of gravity.

Use the screwdriver with an 8 mm hex bit.



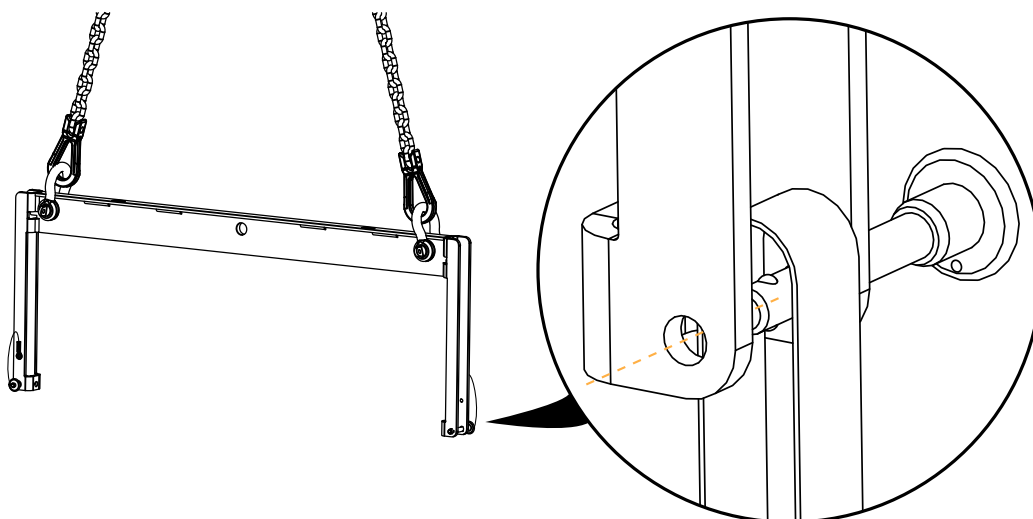
Retain the screws for reassembly.

- 3.** Tighten the L2-ROLL rings to the enclosure by hand.



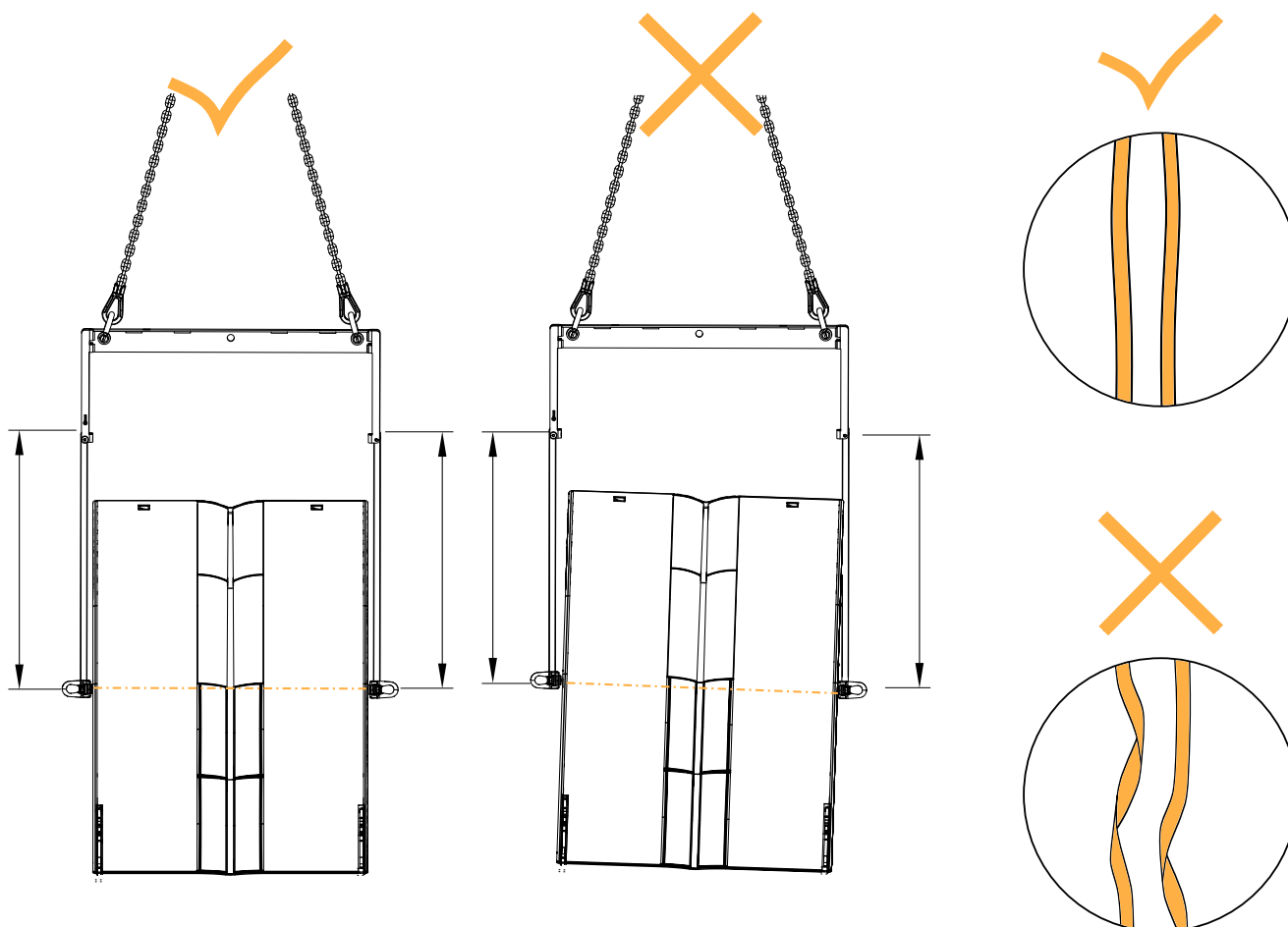
- 4.** Secure L2-RIGBAR to BPCHAIN 1.5T and slightly raise the assembly.

- 5.** Secure the other ends of the straps to L2-RIGBAR through the ball-locking pins in their storage position.



- 6.** Adjust the height so that the straps are taut but the enclosure is still on the ground.

Make sure the straps are the same length on both sides, and are not twisted.

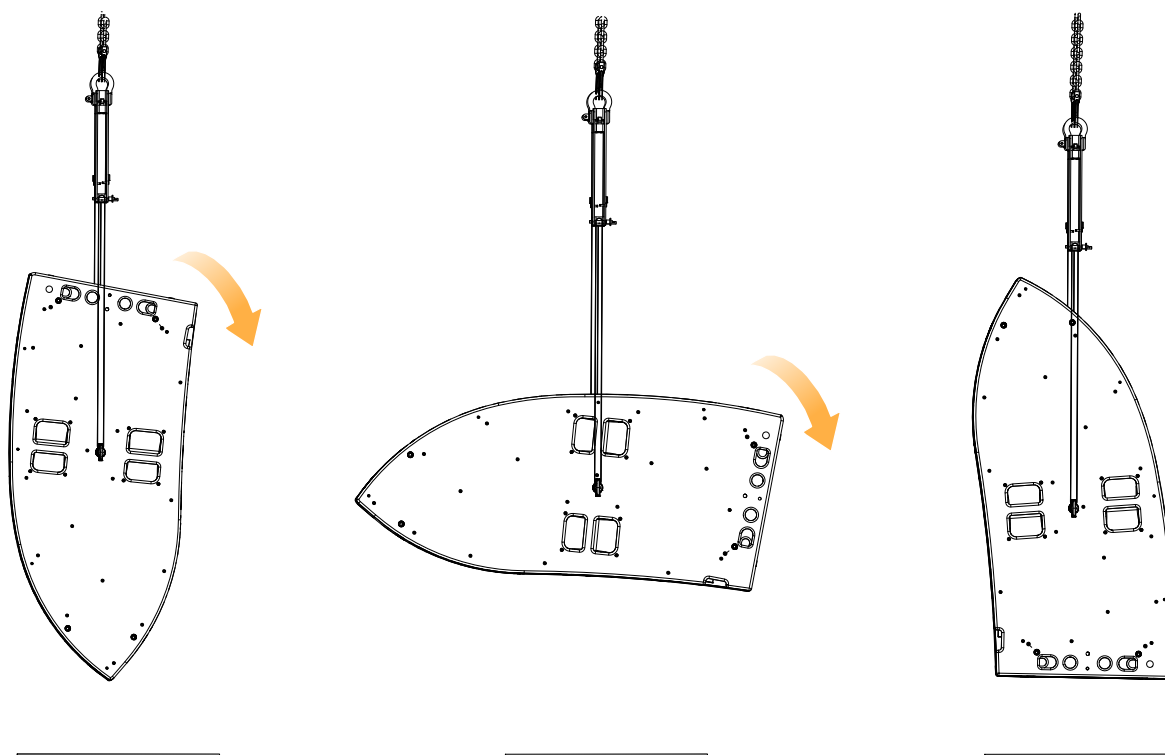


- 7.** Remove the chariot from the enclosure:

- Slightly raise the array.
- Hold the chariot with one hand. Remove both back pins.
- Hold the chariot with one hand. Remove both front pins.

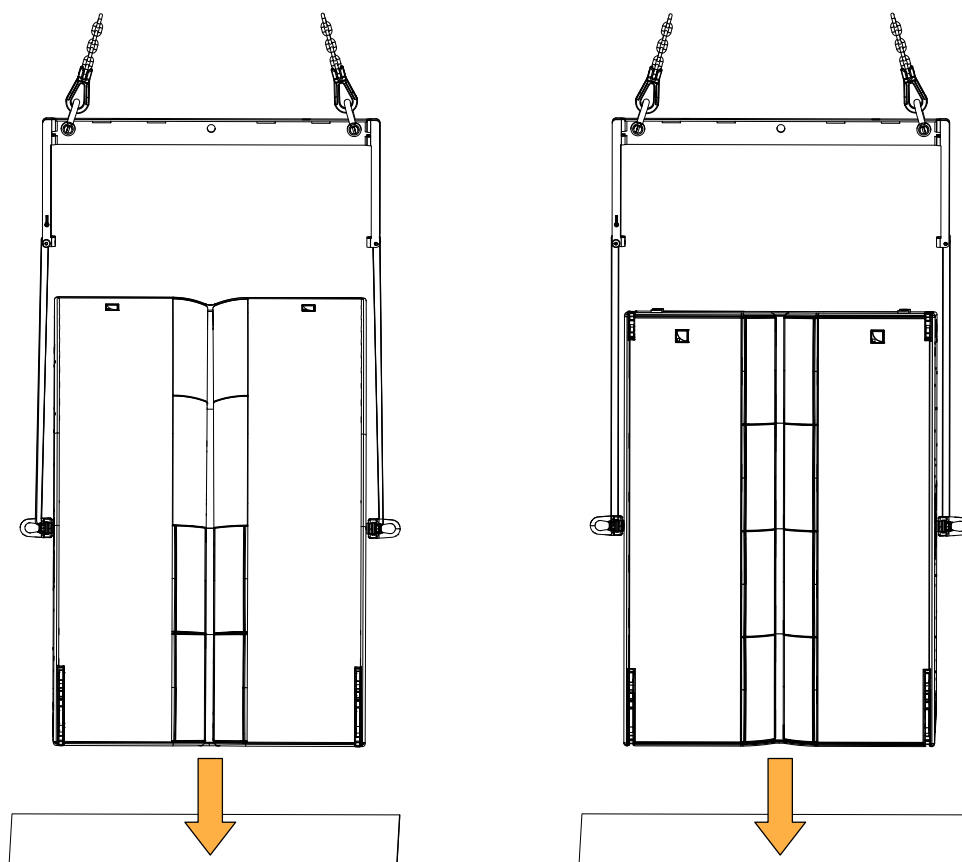
- 8.** Slowly and carefully raise the enclosure about 40 cm / 1.33 ft from the ground.

- 9.** Carefully turn over the enclosure.



- 10.** Position a mat underneath the assembly.

- 11.** Carefully lower the assembly until the enclosure rests on the mat.



- 12.** Unscrew the L2-ROLL rings from the enclosure by hand.

What to do next

To reverse L2/L2D after maintenance operations, refer to [Securing L2/L2D on L2-CHARIOT/L2D-CHARIOT](#) (p.51).

L2

Introduction

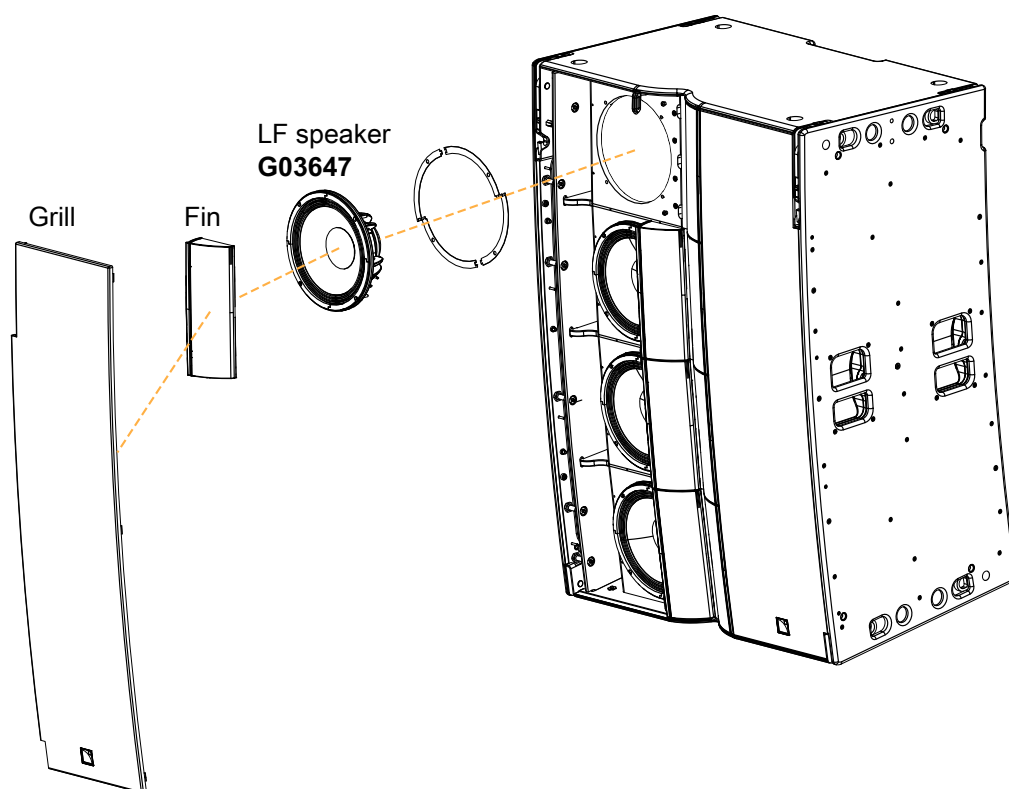
This section contains the following maintenance procedures:

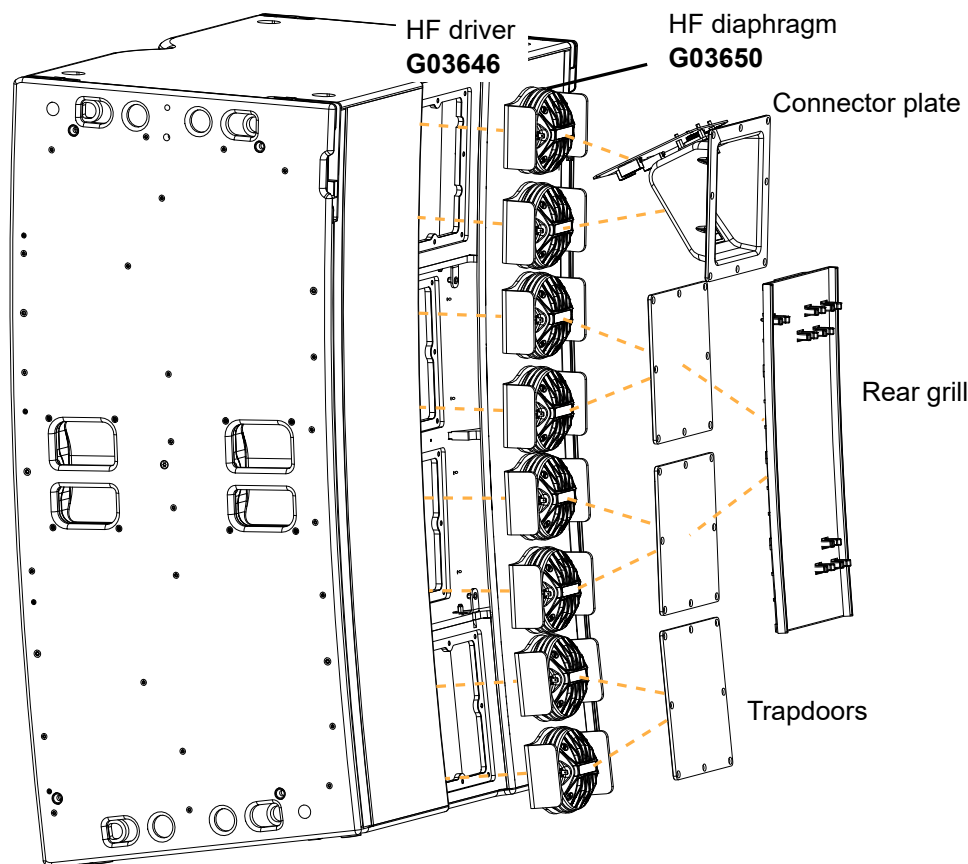
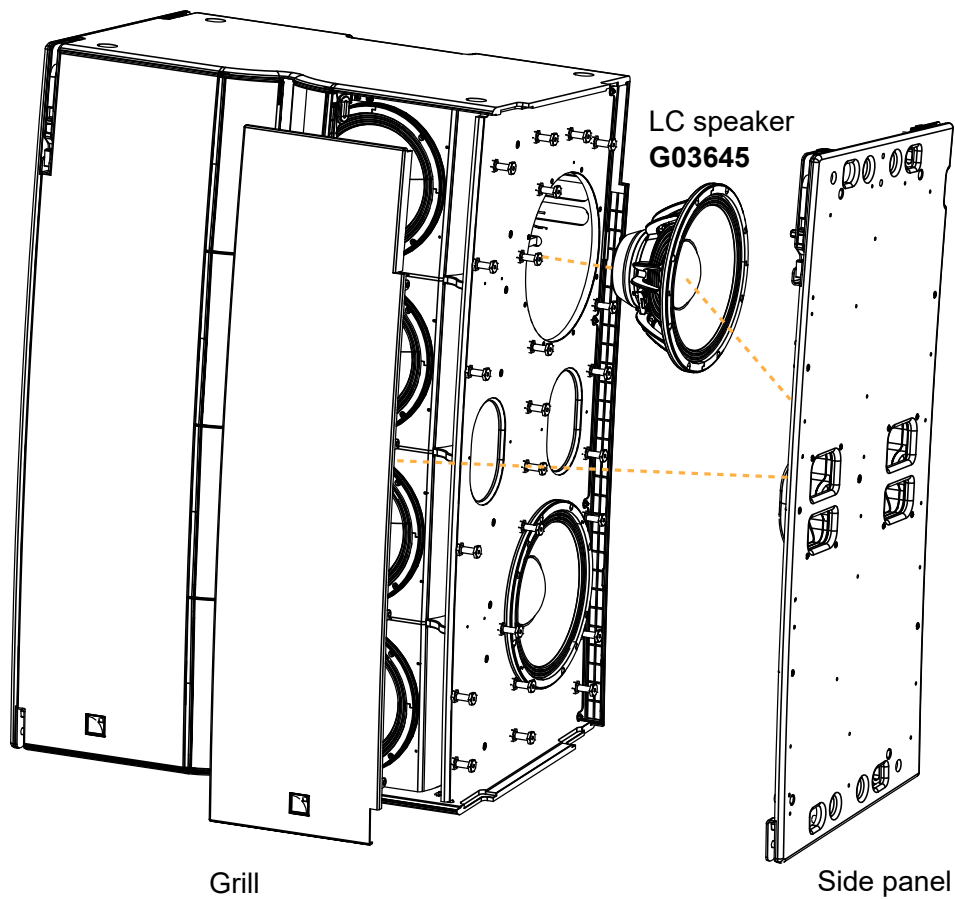
- [D/R - Grill](#) (p.95)
- [D/R - Fin](#) (p.98)
- [D/R - LF speaker](#) (p.99)
- [D/R - Side panel](#) (p.100)
- [D/R - LC speaker](#) (p.101)
- [D/R - Connector plate](#) (p.102)
- [D/R - Rear grill](#) (p.103)
- [D/R - Trapdoors](#) (p.104)
- [D/R - HF driver](#) (p.105)
- [D/R - HF diaphragm](#) (p.106)

For advanced maintenance, contact your L-Acoustics representative.

Exploded views

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





Disassembly and Reassembly procedures

D/R - Grill

Tools

- torque screwdriver
- T20 Torx bit

Repair kit

G03645 - KR loudspeaker 12" L2(D)

G03647 - KR loudspeaker 10" L2(D)



x4

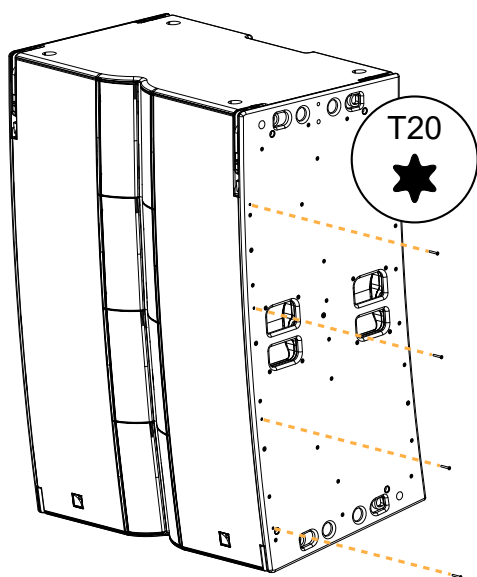
S100156

M4x30 Torx

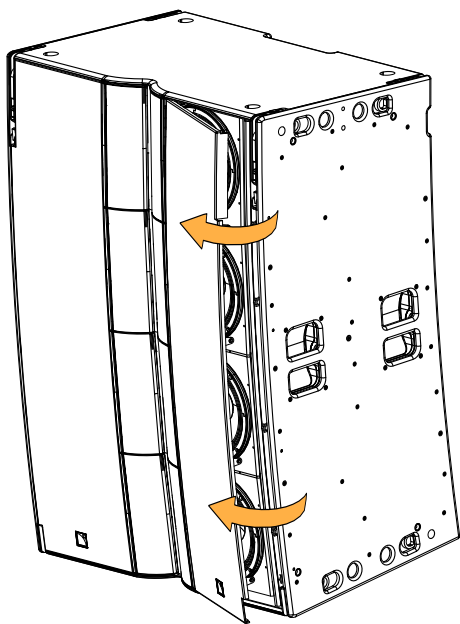
Disassembly

Procedure

1. Remove the four screws securing the grill.
Use the torque screwdriver and the T20 Torx bit.



2. Remove the grill.



Reassembly

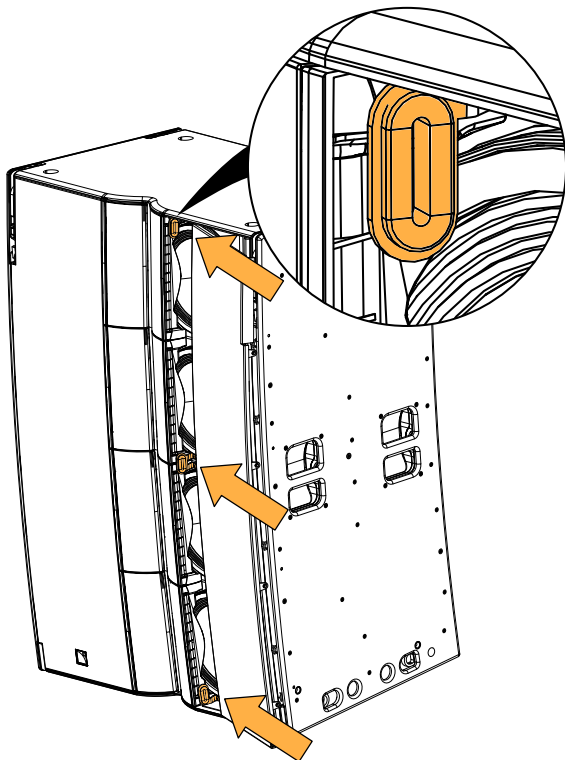
About this task



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

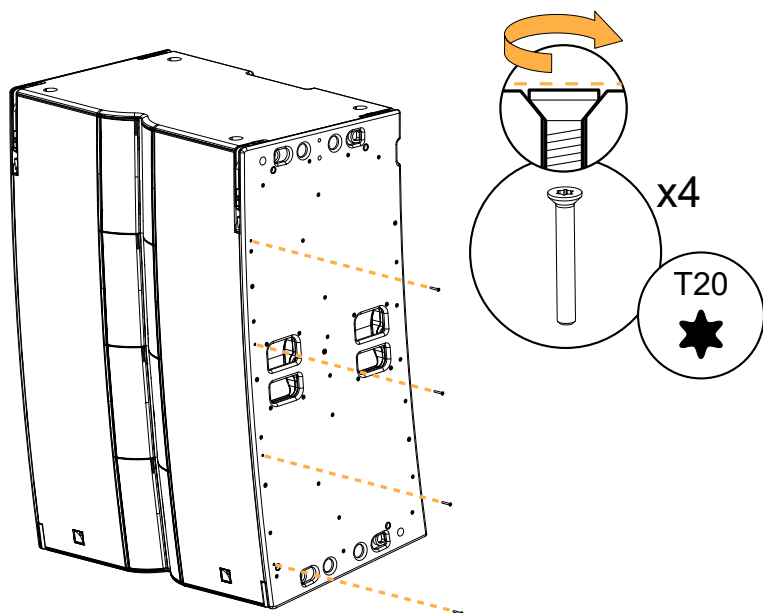
Procedure

1. Insert the side of the grill in the three tabs and push it into place.



2. Tighten the four screws.

Use the torque screwdriver and the T20 Torx bit.



D/R - Fin

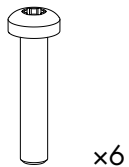
Tools

- flat plastic tool
- torque screwdriver
- T25 Torx bit

Repair kit

G03647

KR loudspeaker 10" L2(D)



x6

S100228

M5x25 Torx

Exploded view

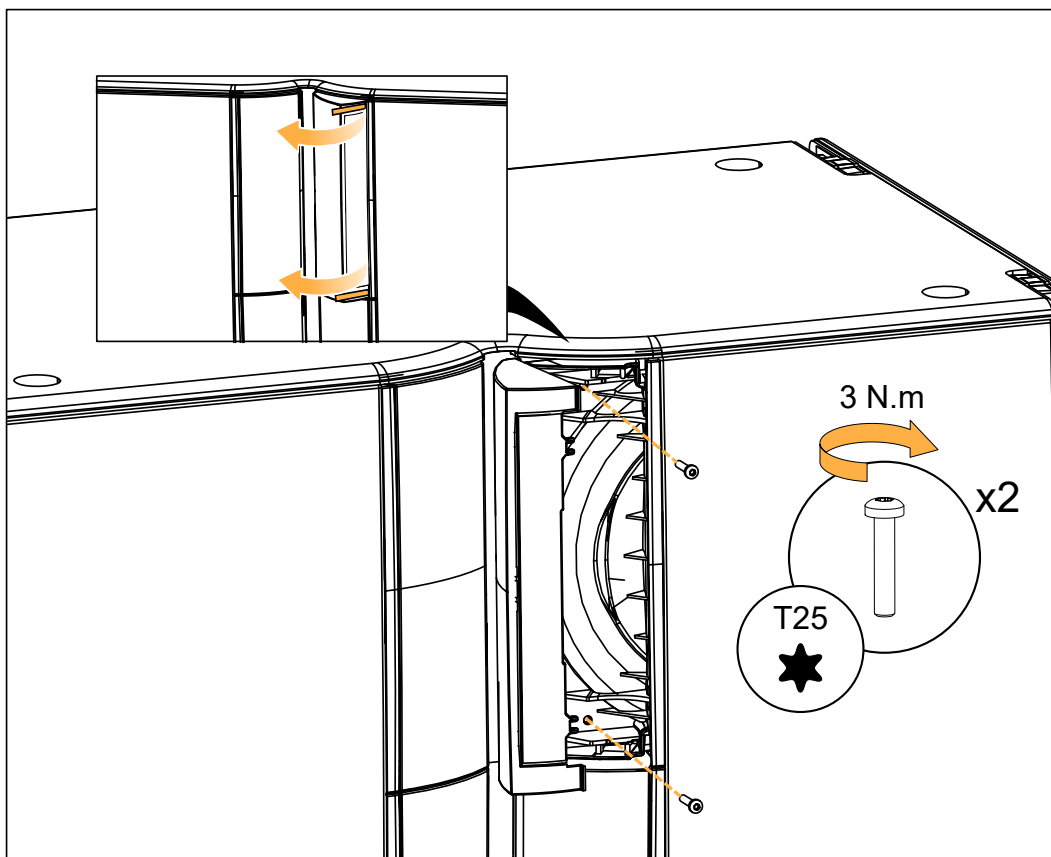


For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.



Use a flat tool made of **smooth plastic** to avoid scratching the fins.

Use the flat tool to unhook the fin clips.



D/R - LF speaker

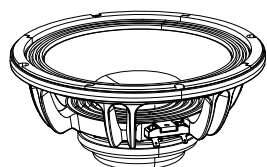
Tools

- torque screwdriver
- T25 Torx bit

Repair kit

G03647

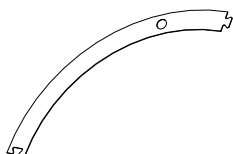
KR loudspeaker 10" L2(D)



x1

17995

10" LF speaker -16 Ω



x4

102325

10" speaker gasket



x6

S100228

M5x25 Torx

Prerequisite

Grill removed.

See [D/R - Grill](#) (p.95).

Fin removed.

See [D/R - Fin](#) (p.98).

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.



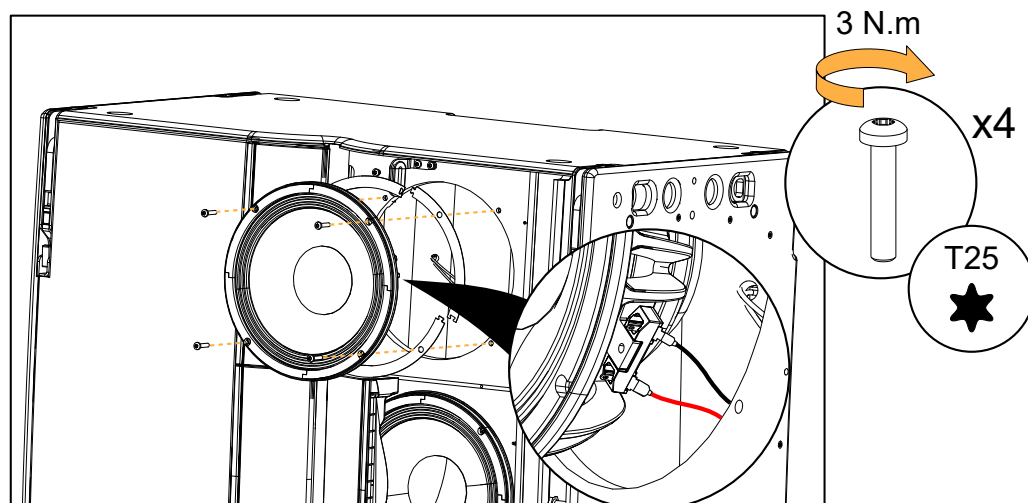
Gradually tighten the screws following a star pattern.



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

Carefully disconnect the cables before removing the speaker.

Position the speaker with the connectors towards the side of the enclosure.



D/R - Side panel

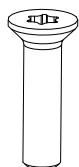
Tools

- torque screwdriver
- T25 Torx bit

Repair kit

G03645

KR loudspeaker 12" L2(D)



x24

S100302

M5x20 Torx

Prerequisite

Grill removed.

See [D/R - Grill](#) (p.95).

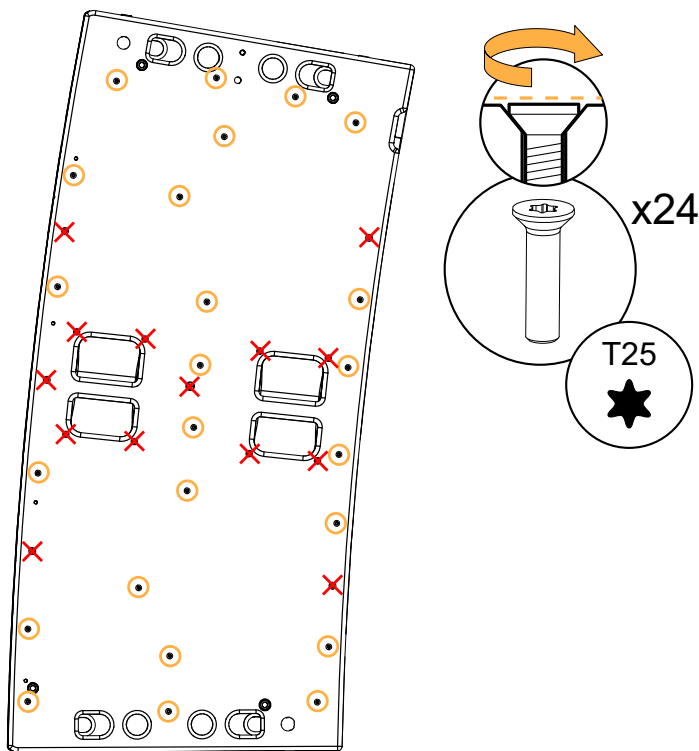
Exploded view



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

If no new screws are available, use blue threadlocker.

The side panel is held by 24 screws (circled in the illustration). **Do not remove the screws that are crossed out.**



right-hand side panel (panels are symmetrical)

D/R - LC speaker

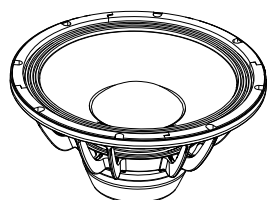
Tools

- torque screwdriver
- T30 Torx bit

Repair kit

G03645

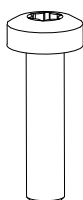
KR loudspeaker 12" L2(D)



x1

18177

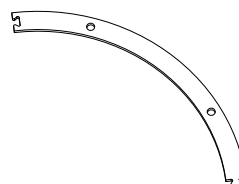
12" LF speaker



x8

S100143

M6x25 Torx



x4

1250

12" speaker gasket

Prerequisite

Grill removed.

See [D/R - Grill](#) (p.95).

Side panel removed.

See [D/R - Side panel](#) (p.100).

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.



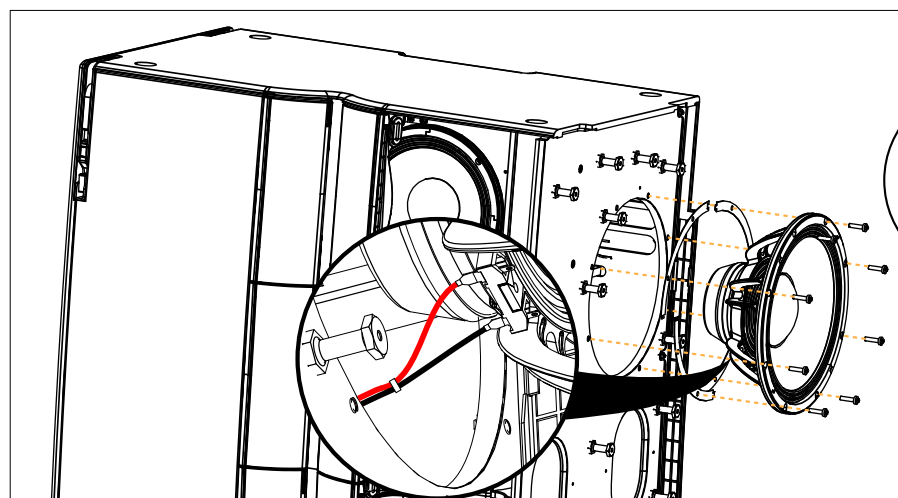
Gradually tighten the screws following a star pattern.



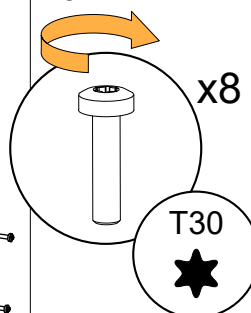
If the speaker gasket is damaged, remove and replace it.

Carefully disconnect the cables before removing the speaker.

Position the speaker with the connectors towards the bottom of the enclosure.



5 N.m



x8

T30

D/R - Connector plate

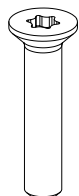
Tools

- torque screwdriver
- T25 Torx bit
- flat plastic tool

Repair kit

G03646 - KR compression driver 3" L2(D)

G03650 - KR diaphragm 3" L2(D)



x8

S100033

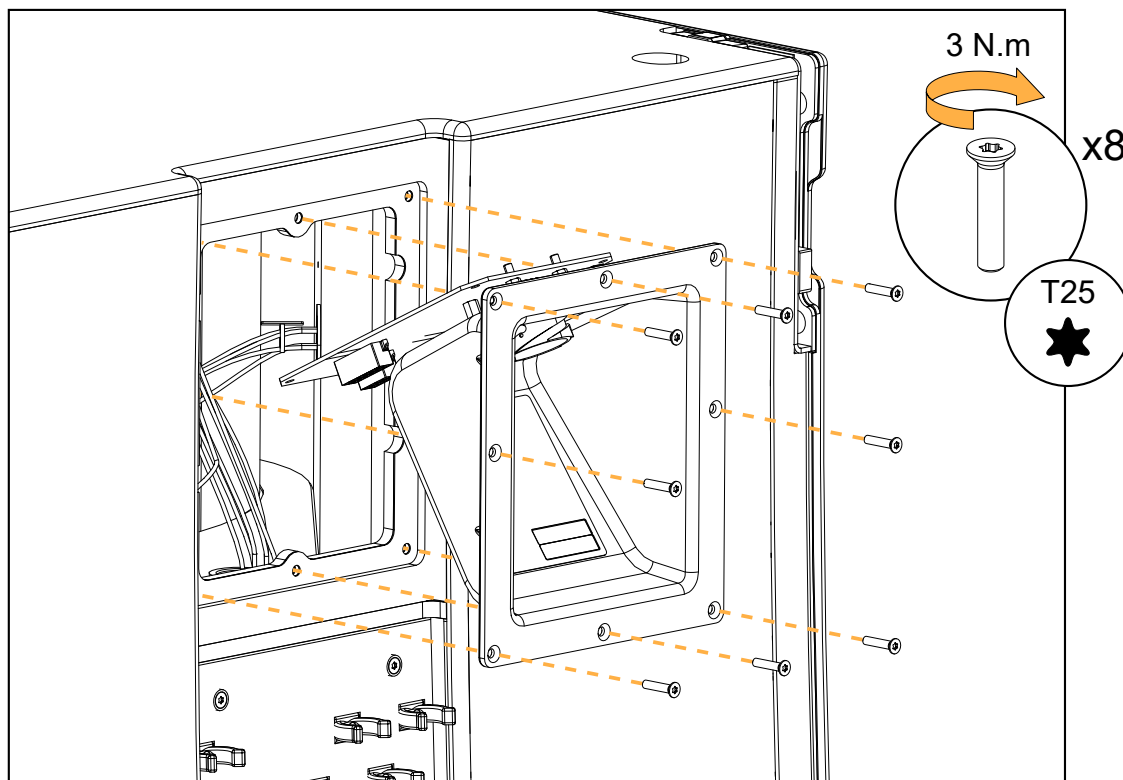
M5x25 Torx

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.

Use a flat plastic tool as a lever to remove the connector plate.



D/R - Rear grill

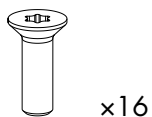
Tools

- torque screwdriver
- T25 Torx bit

Repair kit

G03646 - KR compression driver 3" L2(D)

G03650 - KR diaphragm 3" L2(D)



x16

S100086

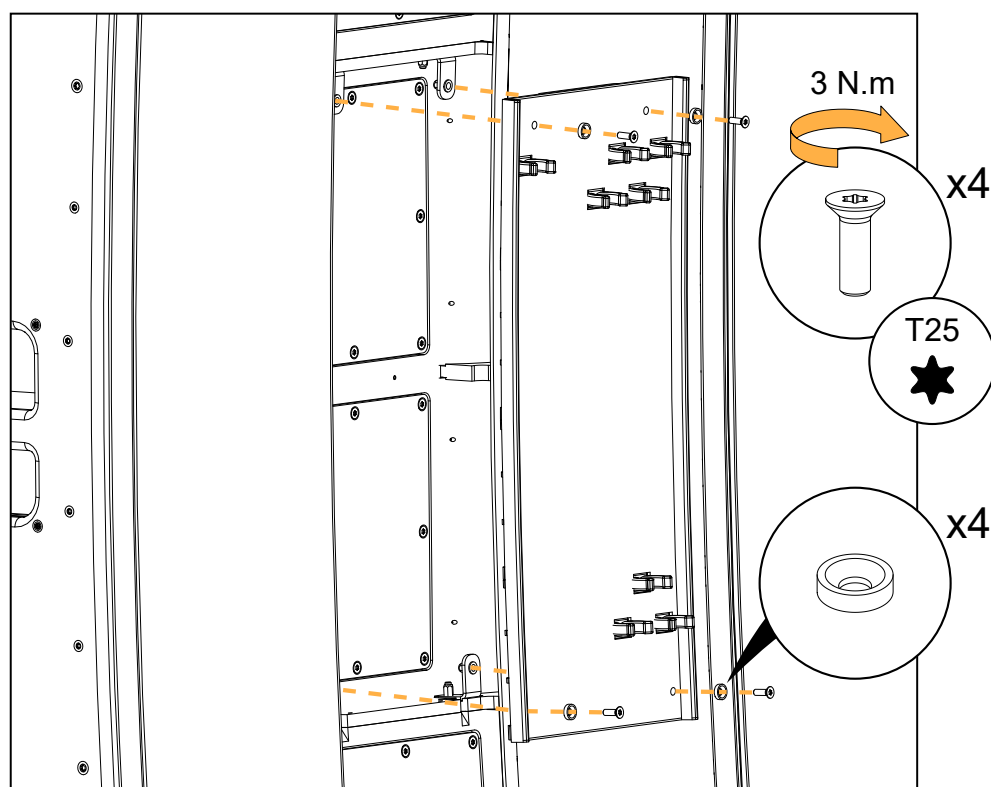
M5x16 Torx

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.

Keep the washers for reassembly.



D/R - Trapdoors

Tools

- torque screwdriver
- T25 Torx bit
- flat plastic tool

Repair kit

G03646 - KR compression driver 3" L2(D)

G03650 - KR diaphragm 3" L2(D)



x8

S100033

M5x25 Torx

Prerequisite

Rear grill removed.

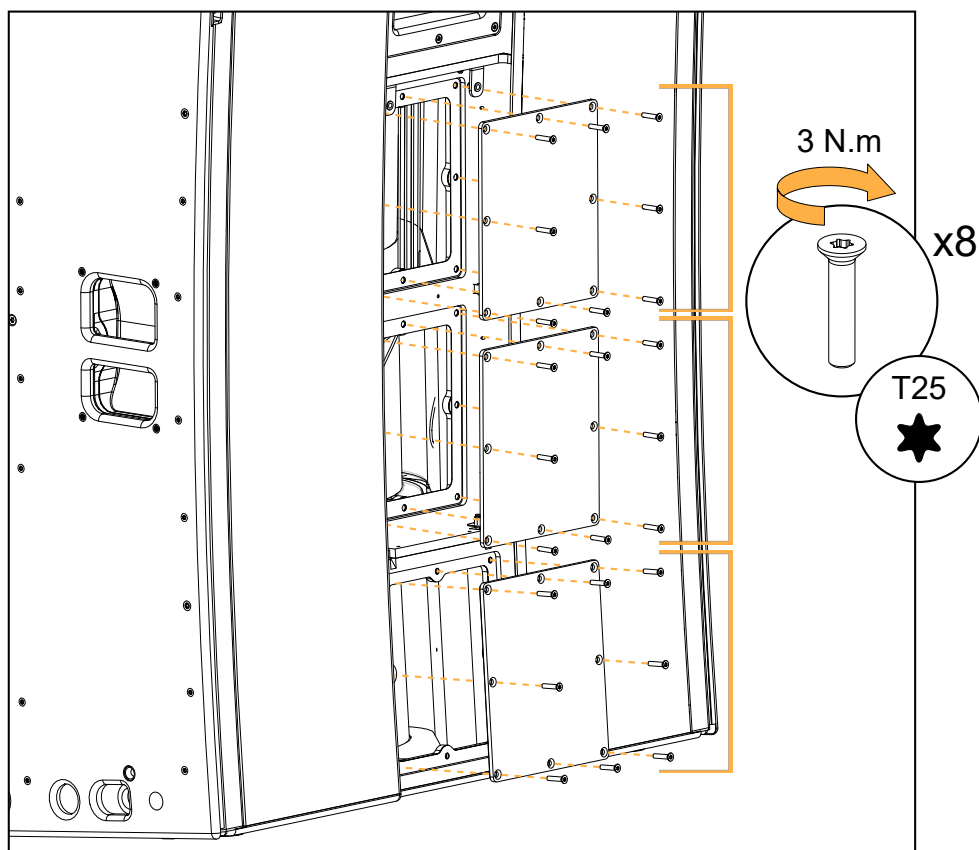
See [D/R - Rear grill](#) (p.103).

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.

Use a flat plastic tool as a lever to remove the trapdoors.



D/R - HF driver

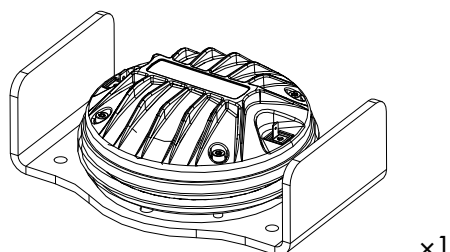
Tools

- torque screwdriver
- T30 Torx bit

Repair kit

G03646

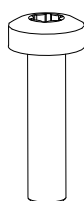
KR compression driver 3" L2(D)



x1

G100528

3" HF driver assembly - 8 Ω



x4

S100143

M6x25 Torx

Prerequisite

Connector plate removed.

Rear grill removed.

Trapdoors removed.

See [D/R - Connector plate](#) (p.102).

See [D/R - Rear grill](#) (p.103).

See [D/R - Trapdoors](#) (p.104).

Exploded view

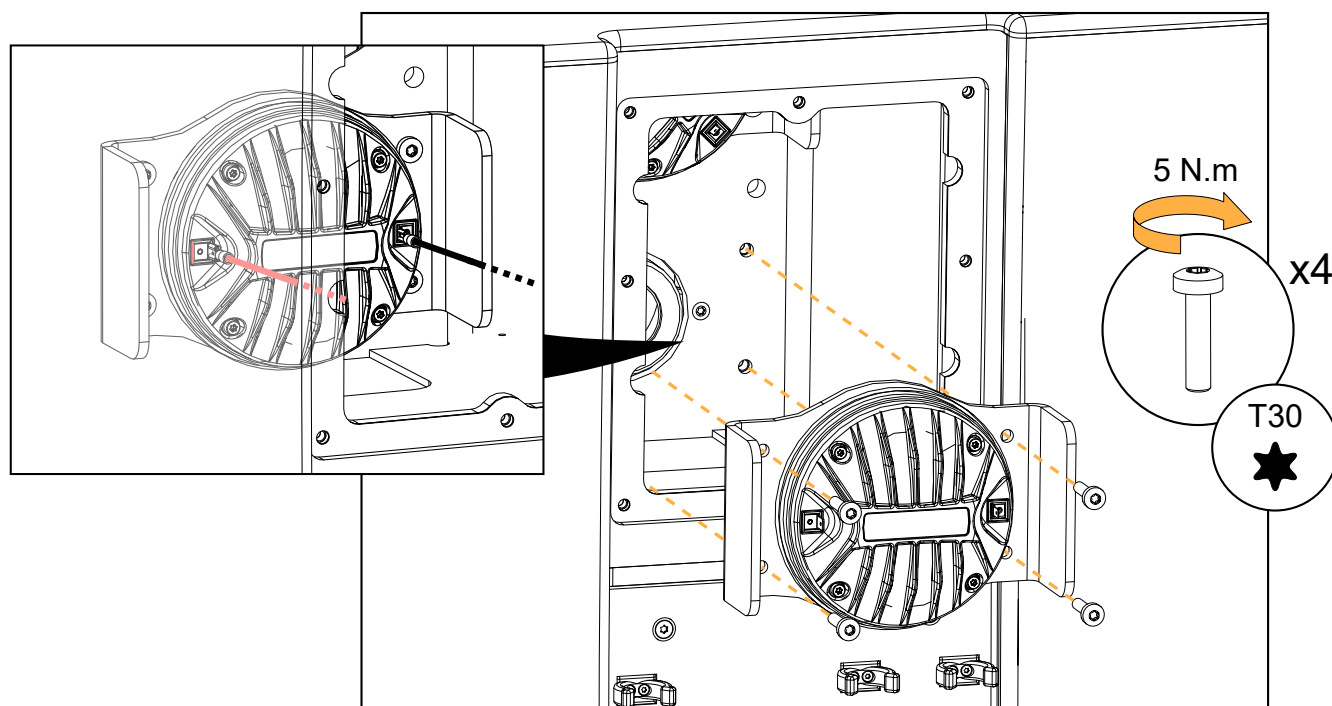


For safety reasons, always use the new screws and spare parts provided in the KR.

If no new screws are available, use blue threadlocker.

Carefully disconnect the cables before removing the driver assembly.

Use the positive (red) connector as a reference point to position the driver assembly.



D/R - HF diaphragm

Tools

- torque screwdriver
- T20 Torx bit
- compressed air blower

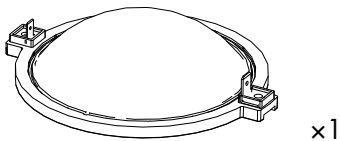
Consumables

- double face adhesive tape

Repair kit

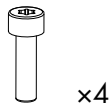
G03650

KR diaphragm 3" L2(D)



18362

diaphragm assembly (with 2 shims)



S18362

M4x14 Torx

Prerequisite

Connector plate removed.

Rear grill removed.

Trapdoors removed.

HF driver removed from the cabinet.

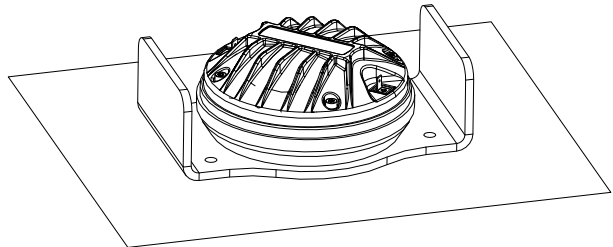
The driver is placed on a flat surface in a dust-free environment.

See [D/R - Connector plate](#) (p.102).

See [D/R - Rear grill](#) (p.103).

See [D/R - Trapdoors](#) (p.104).

See [D/R - HF driver](#) (p.105).



Disassembly

Procedure

1. Remove the four screws securing the cover.
Use the T20 Torx bit.
2. Remove the cover.
3. Carefully remove the diaphragm.
4. If there are shims on the dome, carefully remove them.
Take note of how many and what kind of shims are present.

Reassembly

About this task



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

Procedure

1. Clean the dome and the air gap.

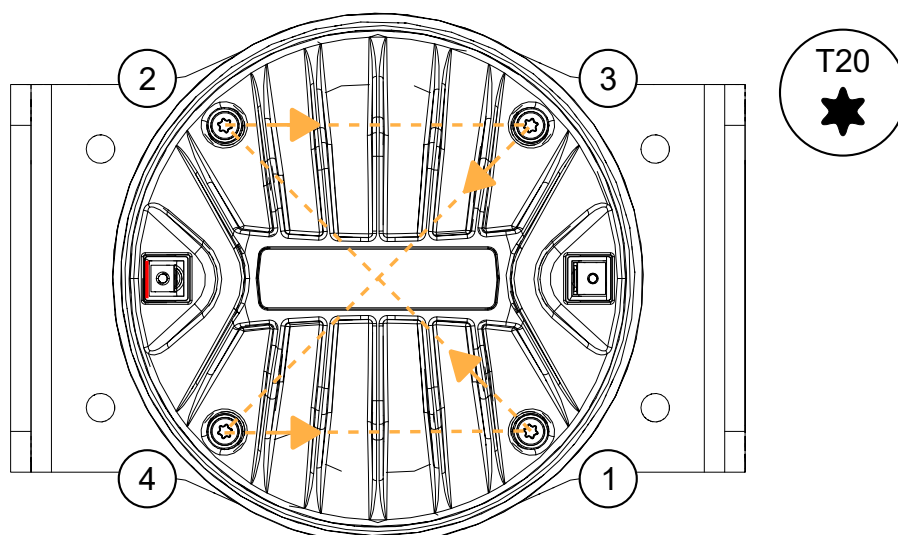


Make sure the air gap is perfectly clean before reassembly.

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

2. Place the same kind and number of shims that were initially present.
3. Carefully place the diaphragm, using the positive (red) connector as reference point.
4. Position the cover and turn it to align it with the screw holes.
5. Secure the cover using four S18362 screws.
 - a) Gradually secure each screw following a star pattern.

Use the T20 Torx bit.



- b) Tighten the screws in the same order with the torque screwdriver.

Use the T20 Torx bit. Set the torque to 3 N.m.

L2D

Introduction

This section contains the following maintenance procedures:

- [D/R - Grill](#) (p.111)
- [D/R - Fin](#) (p.114)
- [D/R - LF speaker](#) (p.116)
- [D/R - Side panel](#) (p.117)
- [D/R - LC speaker](#) (p.118)
- [D/R - Connector plate](#) (p.119)
- [D/R - Rear grill](#) (p.120)
- [D/R - Trapdoors](#) (p.121)
- [D/R - HF driver](#) (p.122)
- [D/R - HF diaphragm](#) (p.123)

For advanced maintenance, contact your L-Acoustics representative.

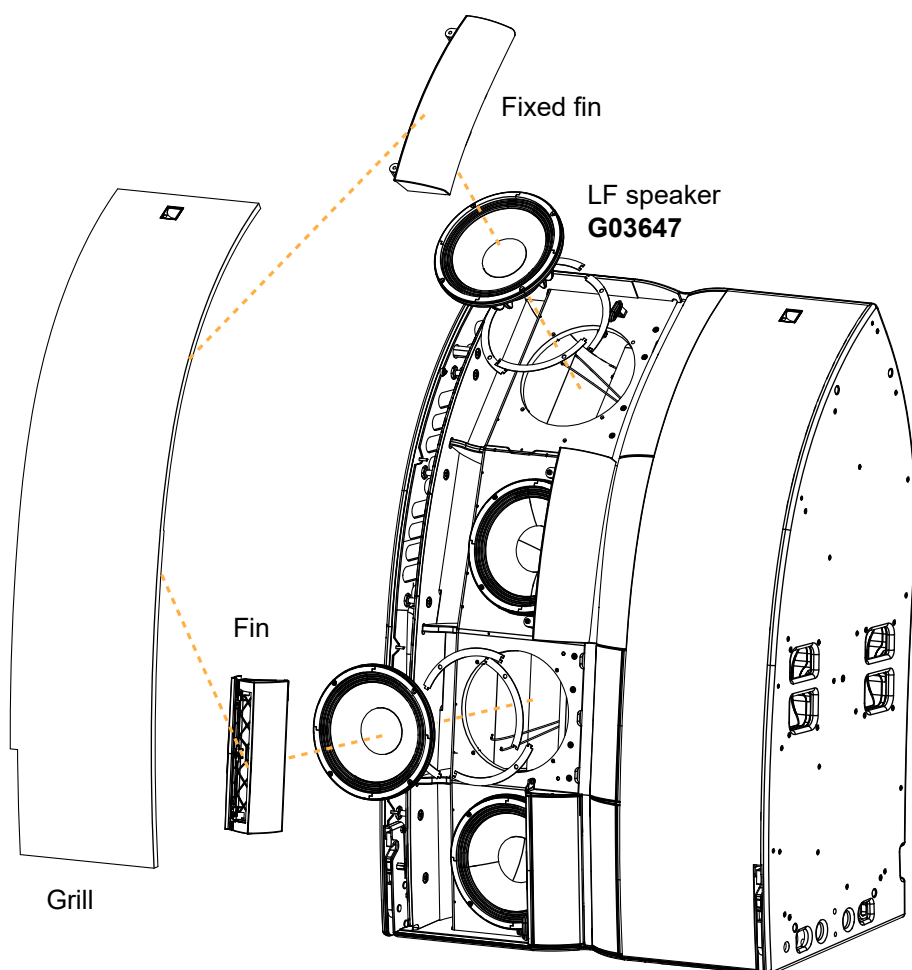
Exploded views

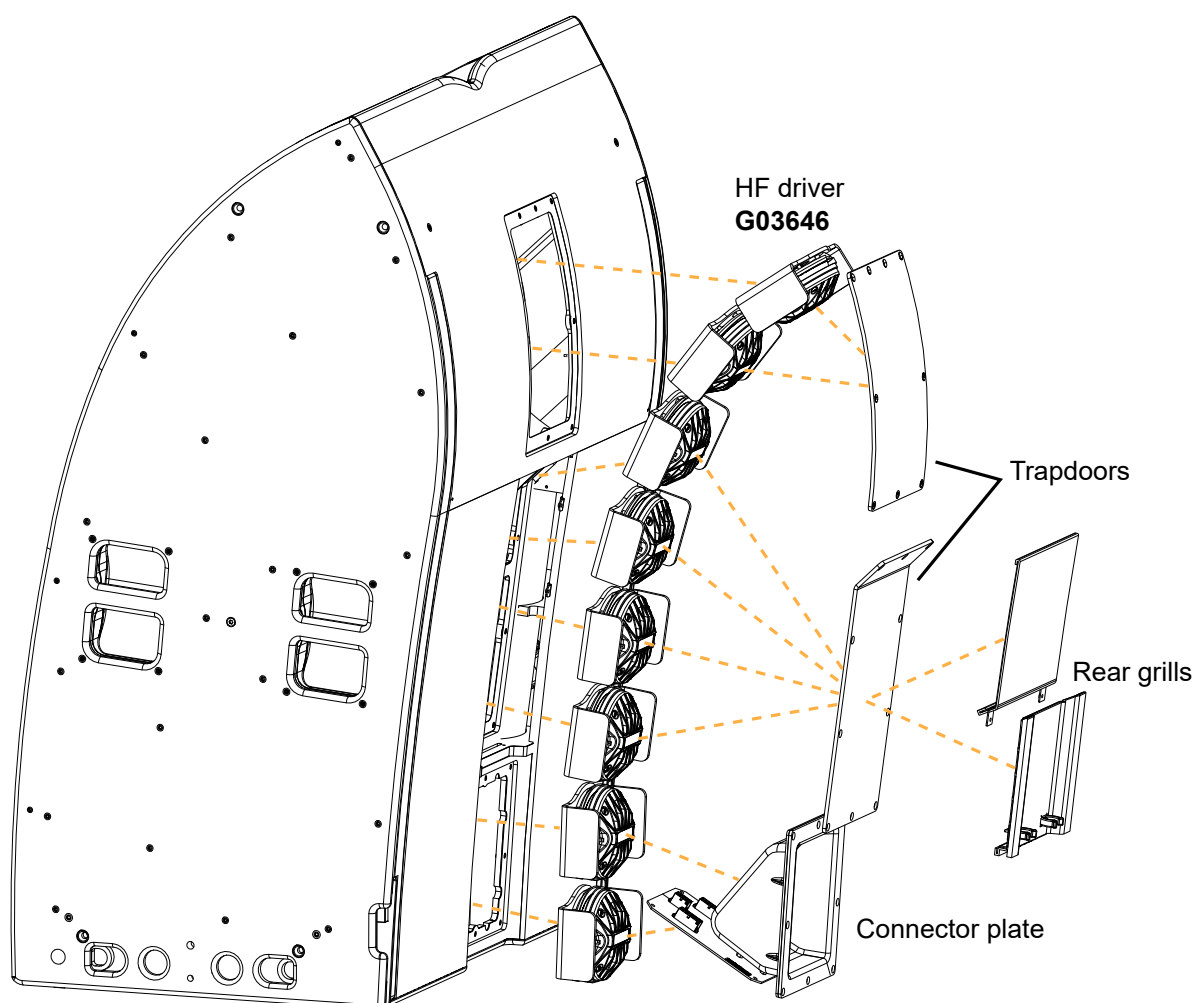
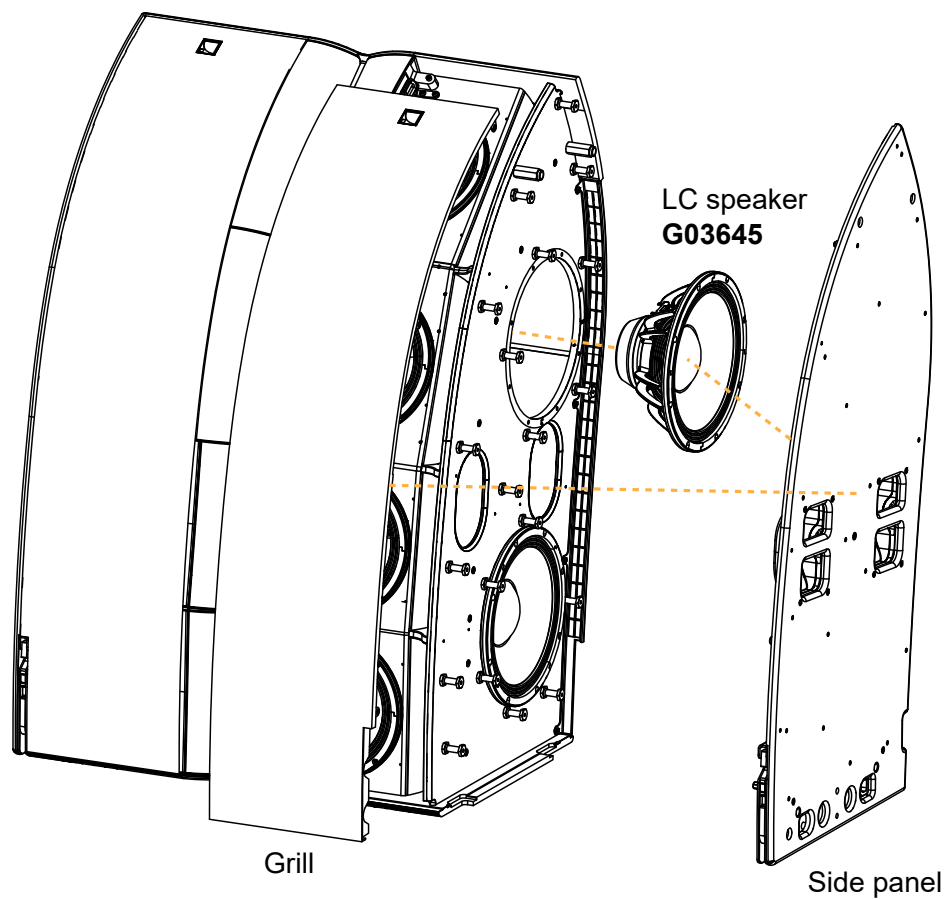
In order to operate, follow the order outlined here. Each assembly refers to the corresponding Disassembly/Reassembly (D/R) procedure and the necessary repair kit.

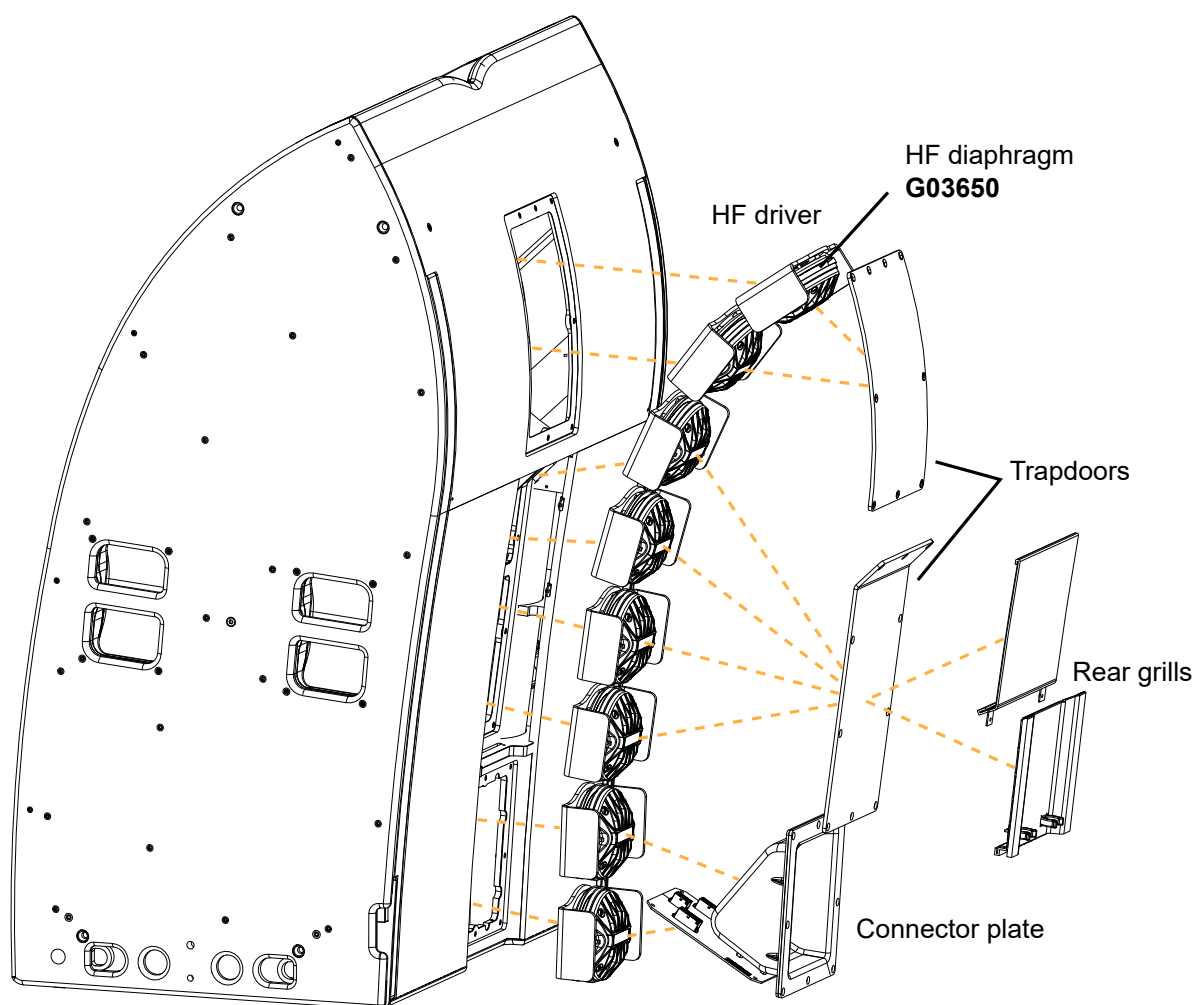


Turn L2D upside-down for maintenance

Use L2-ROLL. Refer to [Preparing enclosures for maintenance](#) (p.89).







Disassembly and Reassembly procedures

D/R - Grill

Tools

- torque screwdriver
- T20 Torx bit

Repair kit

G03645 - KR loudspeaker 12" L2(D)

G03647 - KR loudspeaker 10" L2(D)



x4

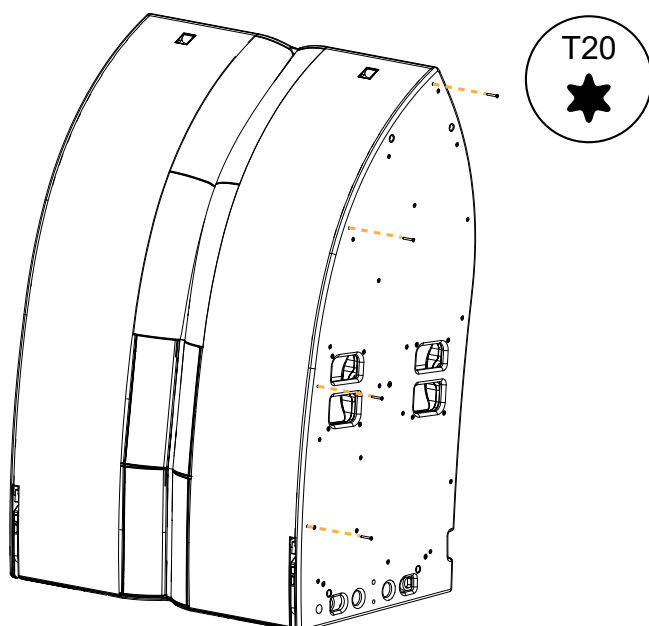
S100156

M4x30 Torx

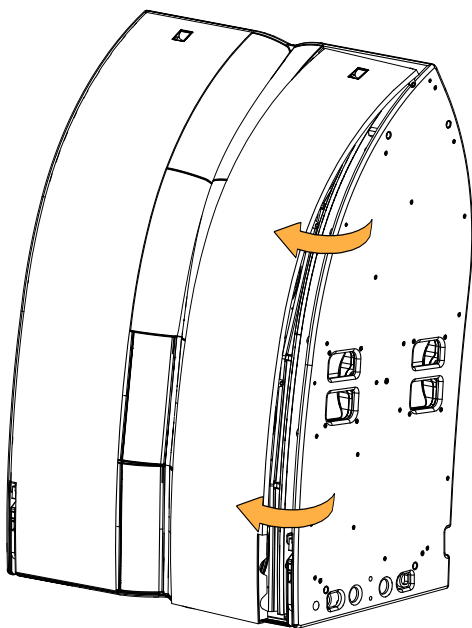
Disassembly

Procedure

1. Remove the four screws securing the grill.
Use the torque screwdriver and the T20 Torx bit.



2. Remove the grill.



Reassembly

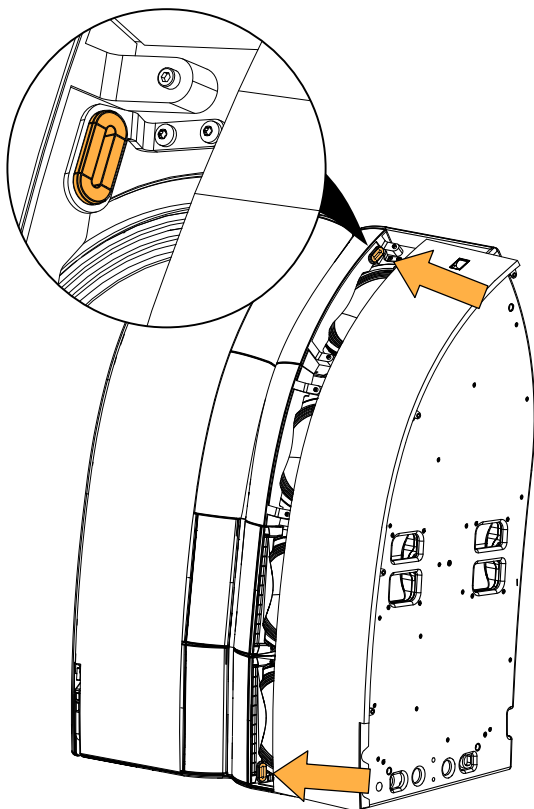
About this task



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

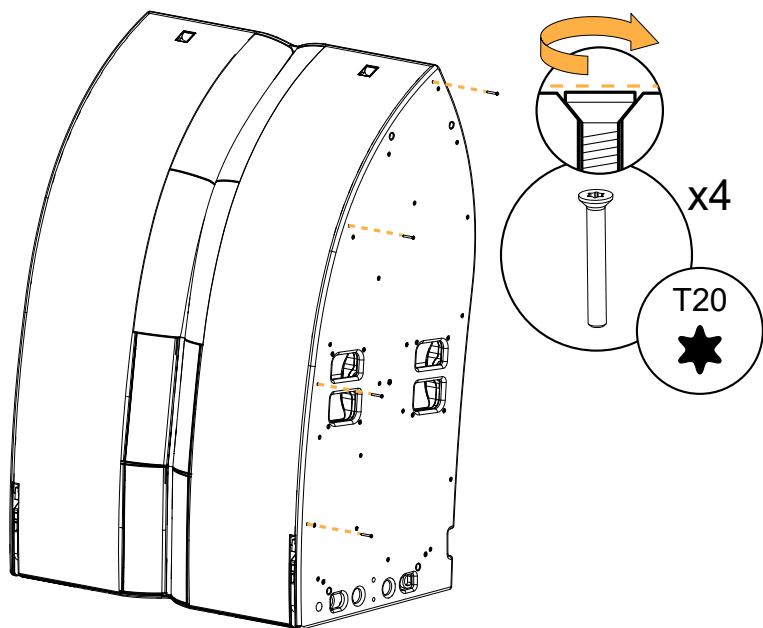
Procedure

1. Insert the side of the grill in the two tabs and push it into place.



2. Tighten the four screws.

Use the torque screwdriver and the T20 Torx bit.



D/R - Fin

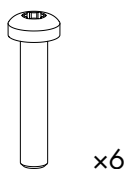
Tools

- flat plastic tool
- torque screwdriver
- T25 Torx bit

Repair kit

G03647

KR loudspeaker 10" L2(D)



S100228

M5x25 Torx

Exploded view

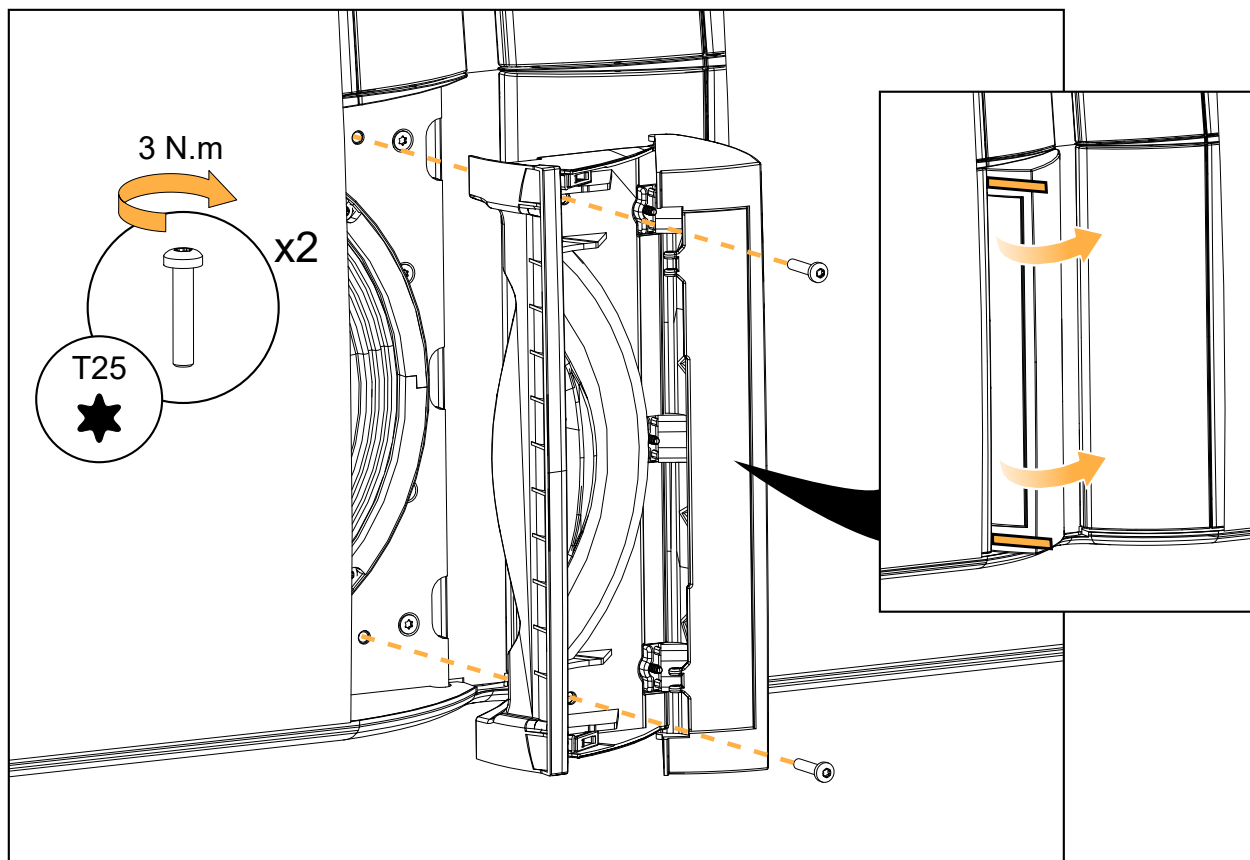


For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.



Use a flat tool made of **smooth plastic** to avoid scratching the fins.

Use the flat tool to unhook the fin clips.



D/R - Fixed fin**Tools**

- torque screwdriver
- T25 Torx bit

Repair kit**G03647**

KR loudspeaker 10" L2(D)



x2

S100108

M5x45 hex



x2

S158

plain washer Ø5 mm

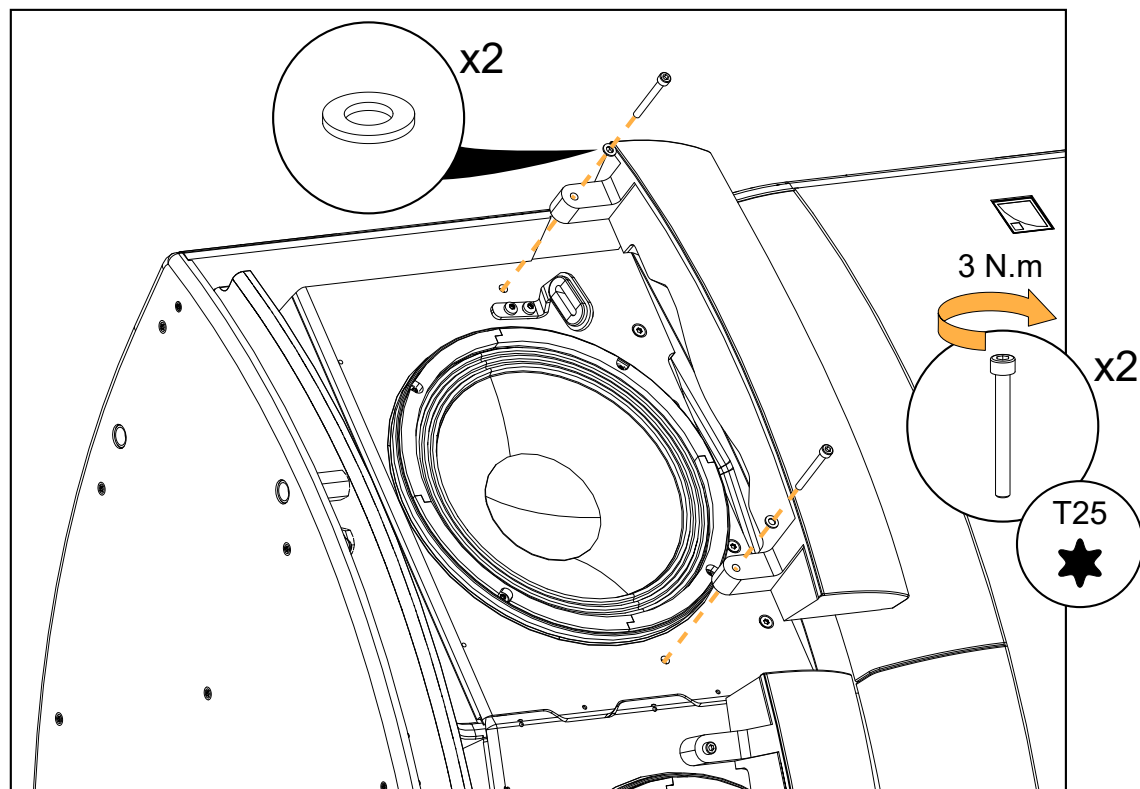
Prerequisite

Grill removed.

See [D/R - Grill](#) (p.111).

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 - LF speaker

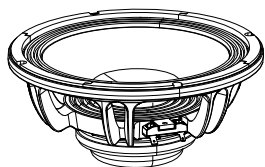
Tools

- torque screwdriver
- T25 Torx bit

Repair kit

G03647

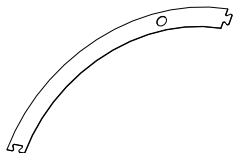
KR loudspeaker 10" L2(D)



x1

17995

10" LF speaker -16 Ω



x4

102325

10" speaker gasket



x6

S100228

M5x25 Torx

Prerequisite

Grill removed.

See [D/R - Grill](#) (p.111).

Fin (two bottom sections) or fixed fin (two top sections) removed.

See [D/R - Fin](#) (p.114) or [D/R - Fixed fin](#) (p.115).

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.



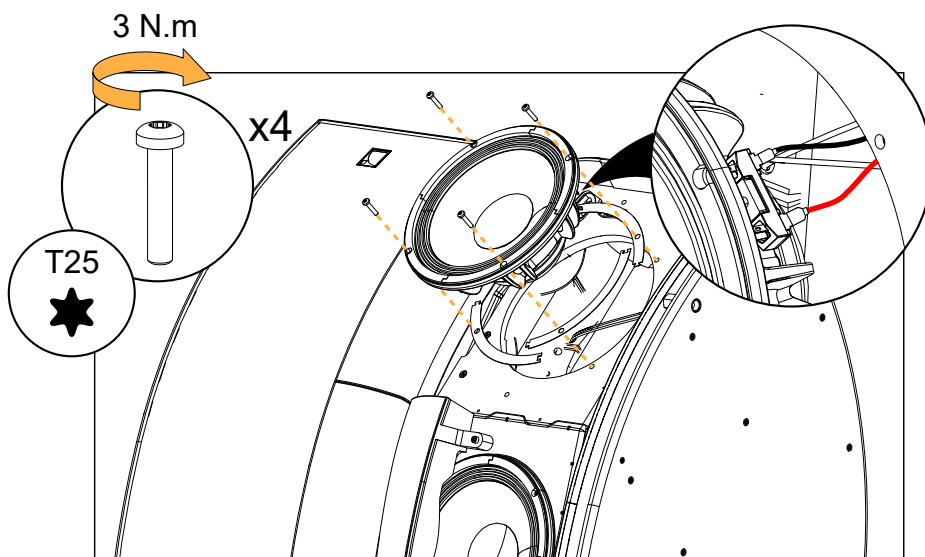
Gradually tighten the screws following a star pattern.



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

Carefully disconnect the cables before removing the speaker.

Position the speaker with the connectors towards the side of the enclosure.



D/R - Side panel

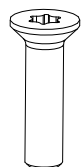
Tools

- torque screwdriver
- T25 Torx bit

Repair kit

G03645

KR loudspeaker 12" L2(D)



x24

S100302

M5x20 Torx

Prerequisite

Grill removed.

See [D/R - Grill](#) (p.111).

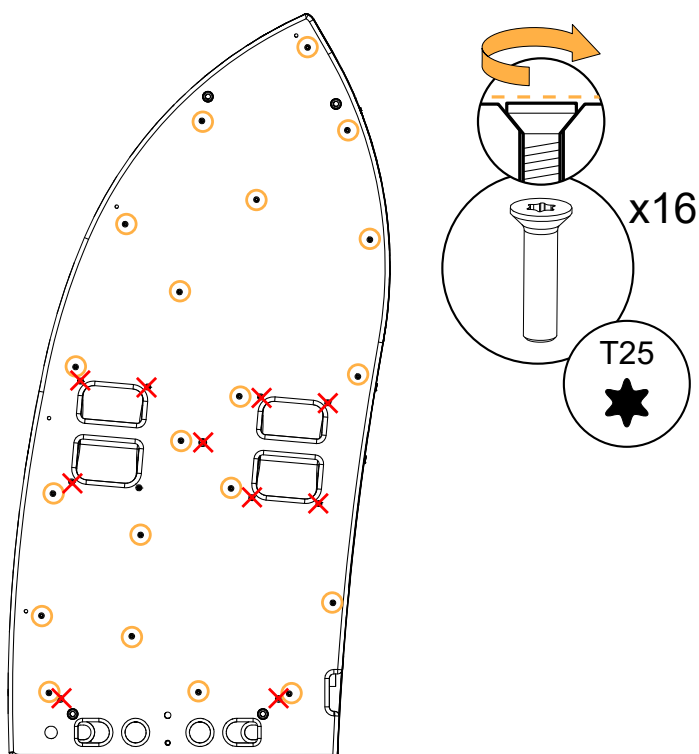
Exploded view



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

If no new screws are available, use blue threadlocker.

The side panel is held by 16 screws (circled in the illustration). **Do not remove the screws that are crossed out.**



right-hand side panel (panels are symmetrical)

D/R - LC speaker

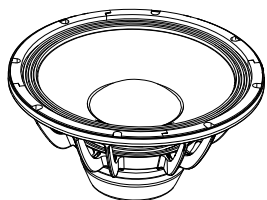
Tools

- torque screwdriver
- T30 Torx bit

Repair kit

G03645

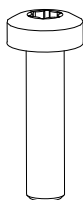
KR loudspeaker 12" L2(D)



x1

18177

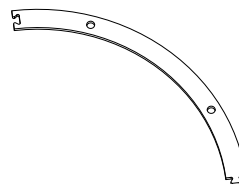
12" LF speaker



x8

S100143

M6x25 Torx



x4

1250

12" speaker gasket

Prerequisite

Grill removed.

See [D/R - Grill](#) (p.111).

Side panel removed.

See [D/R - Side panel](#) (p.117).

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.



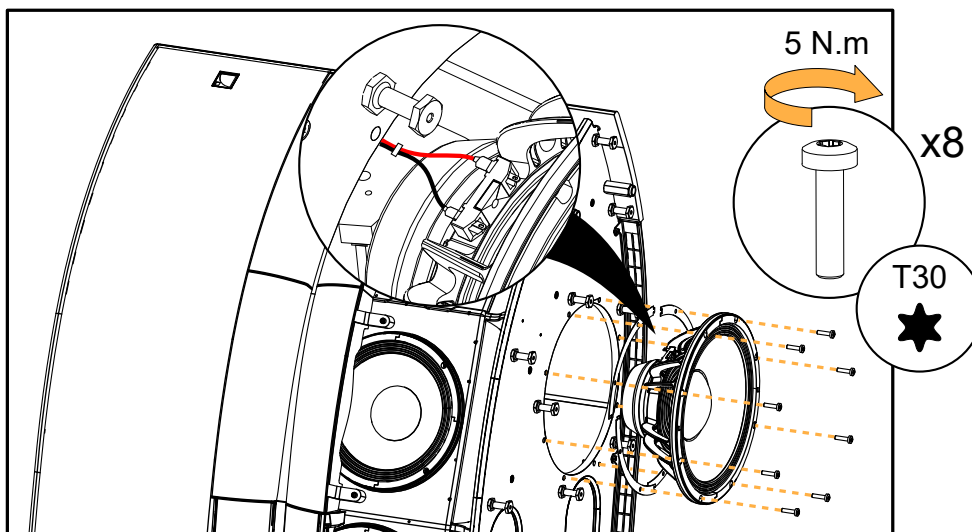
Gradually tighten the screws following a star pattern.



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

Carefully disconnect the cables before removing the speaker.

Position the speaker with the connectors towards the top (bottom of the enclosure).



D/R - Connector plate

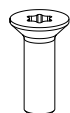
Tools

- torque screwdriver
- T25 Torx bit
- flat plastic tool

Repair kit

G03646 - KR compression driver 3" L2(D)

G03650 - KR diaphragm 3" L2(D)



x16

S100086

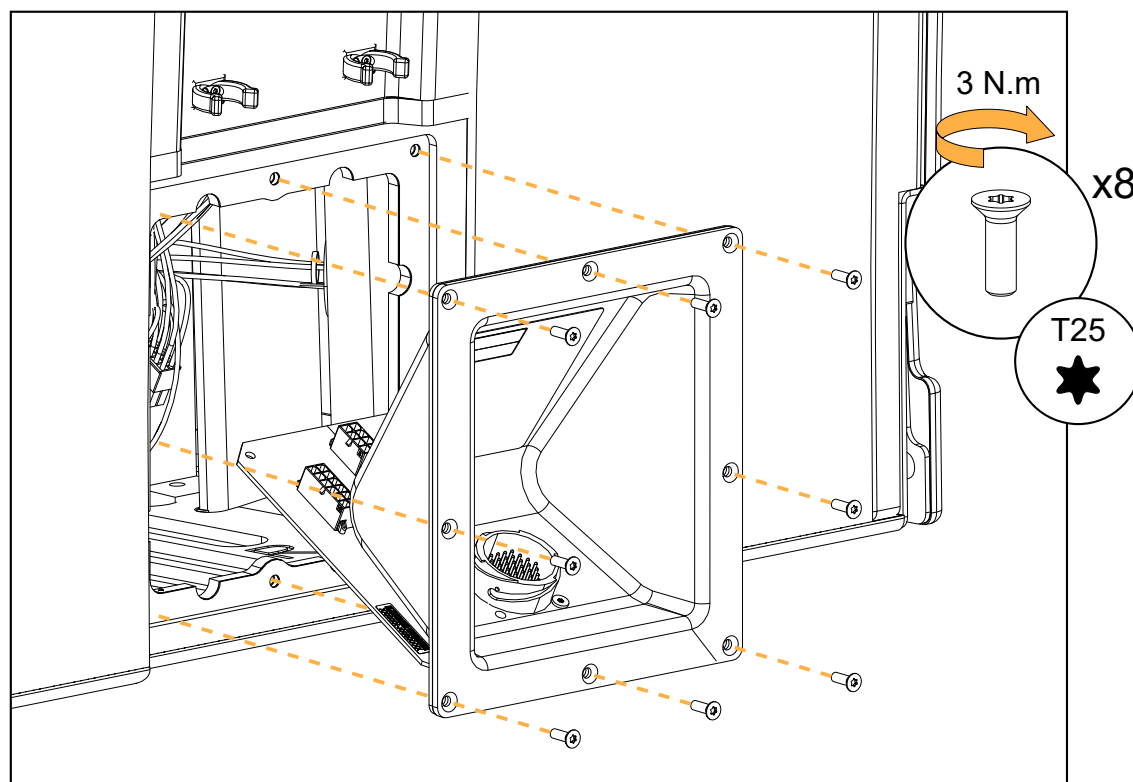
M5x16 Torx

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.

Use a flat plastic tool as a lever to remove the connector plate.



Risk of disconnecting the HF driver

Unplug the connectors from the plate to avoid pulling at the internal cabling.

Before securing the connector plate, plug the connectors, then make sure the HF driver is properly connected.

D/R - Rear grill

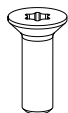
Tools

- torque screwdriver
- T25 Torx bit

Repair kit

G03646 - KR compression driver 3" L2(D)

G03650 - KR diaphragm 3" L2(D)



x16

S100086

M5x16 Torx

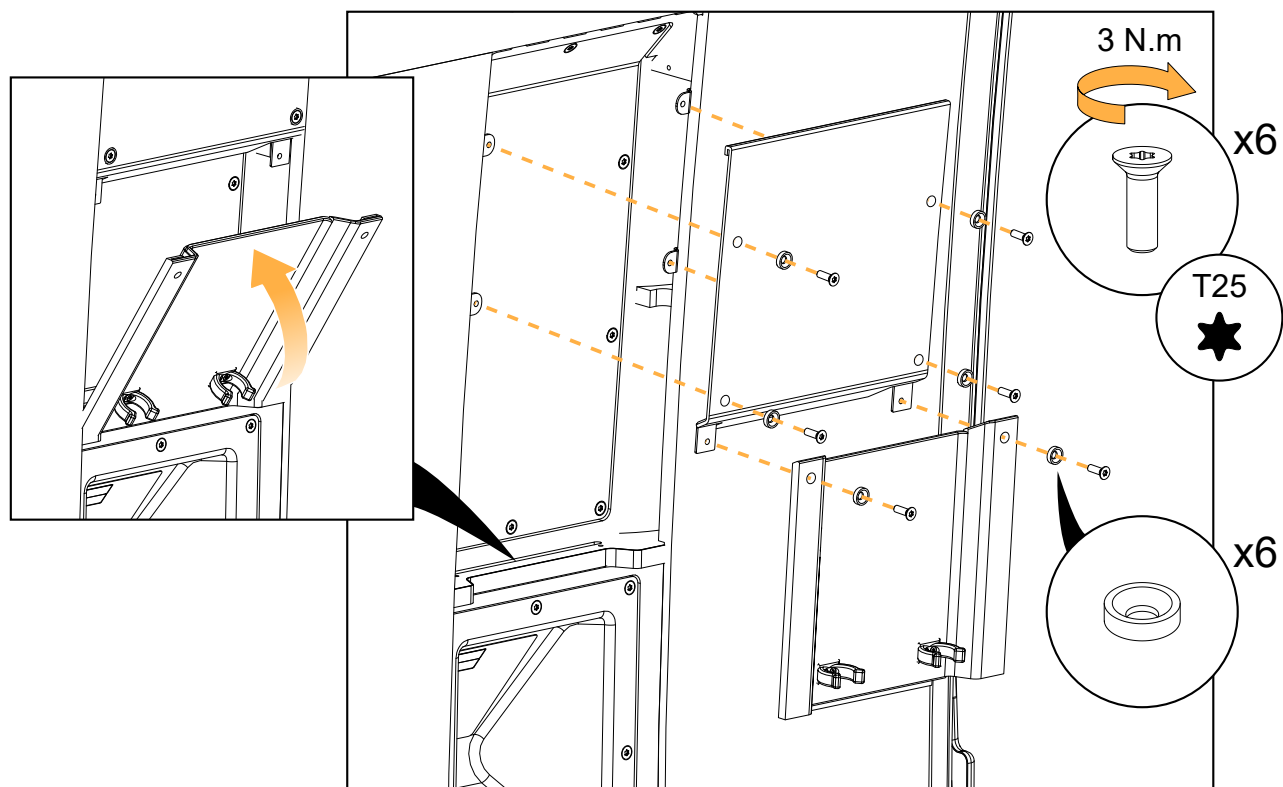
Exploded view



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

If no new screws are available, use blue threadlocker.

Keep the washers for reassembly.



D/R - Trapdoors

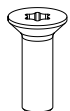
Tools

- torque screwdriver
- T25 Torx bit
- flat plastic tool

Repair kit

G03646 - KR compression driver 3" L2(D)

G03650 - KR diaphragm 3" L2(D)



x16

S100086

M5x16 Torx

Prerequisite

Rear grill removed.

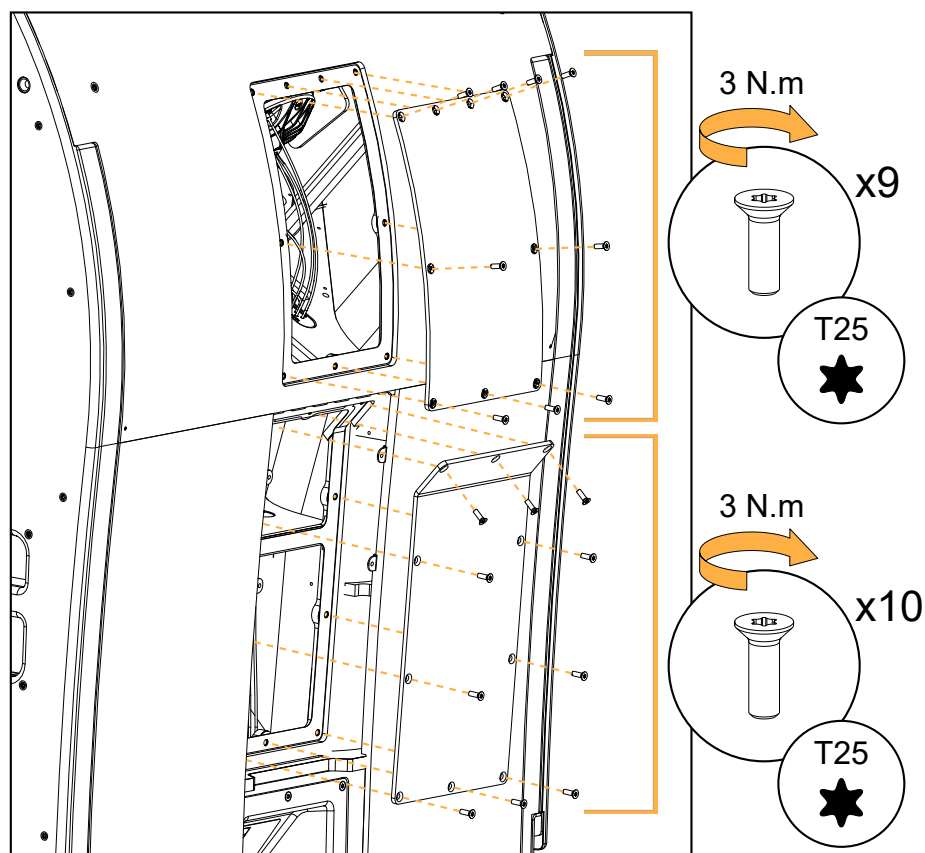
See [D/R - Rear grill](#) (p.120).

Exploded view



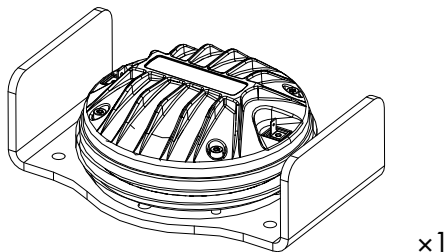
For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Use a flat plastic tool as a lever to remove the trapdoors.



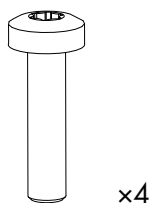
D/R - HF driver**Tools**

- torque screwdriver
- T30 Torx bit

Repair kit**G03646 - KR compression driver 3" L2(D)****G03650 - KR diaphragm 3" L2(D)**

G100528

3" HF driver assembly - 8 Ω



S100143

M6x25 Torx

Prerequisite

Connector plate removed.

Rear grill removed.

Trapdoors removed.

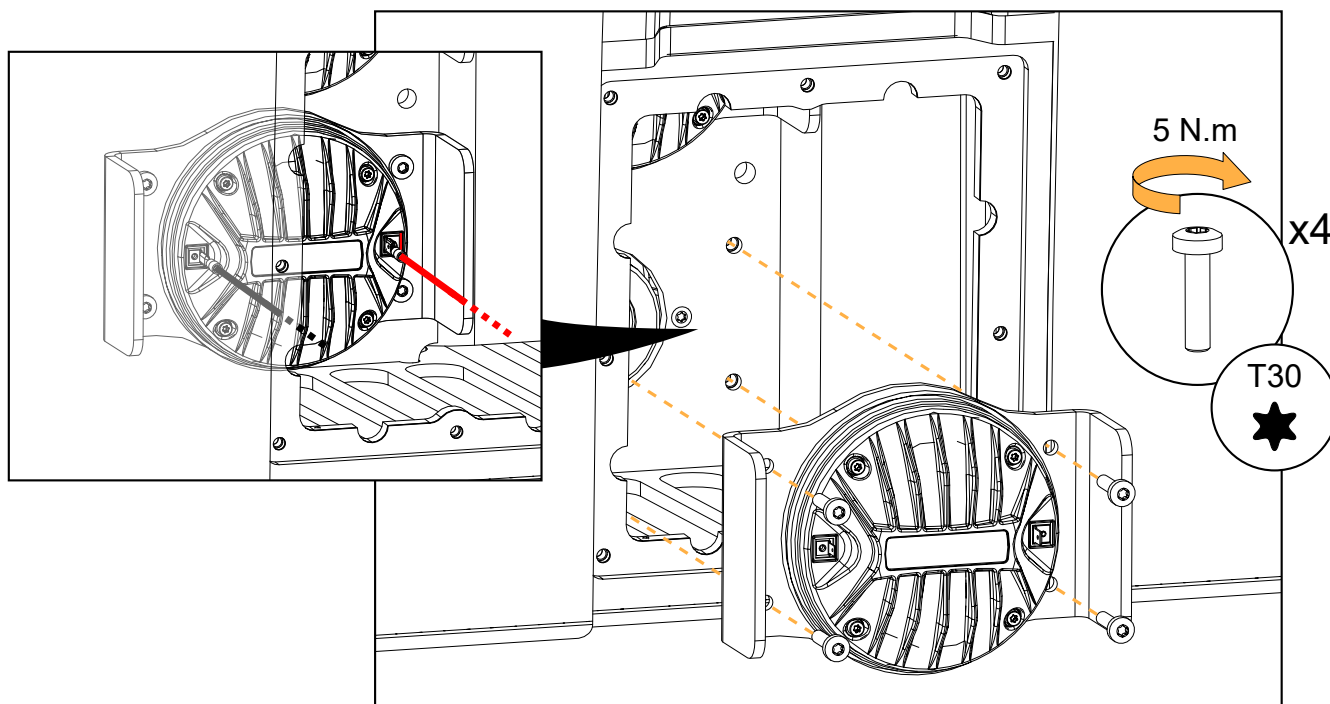
See [D/R - Connector plate](#) (p.119).See [D/R - Rear grill](#) (p.120).See [D/R - Trapdoors](#) (p.121).**Exploded view**

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

If no new screws are available, use blue threadlocker.

Carefully disconnect the cables before removing the driver assembly.

Use the positive (red) connector as a reference point to position the driver assembly.



D/R - HF diaphragm

Tools

- torque screwdriver
- T20 Torx bit
- compressed air blower

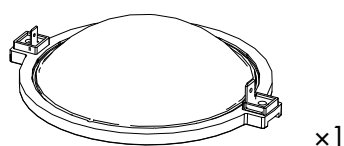
Consumables

- double face adhesive tape

Repair kit

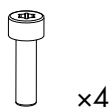
G03650

KR diaphragm 3" L2(D)



18362

diaphragm assembly (with 2 shims)



S18362

M4x14 Torx

Prerequisite

Connector plate removed.

Rear grill removed.

Trapdoors removed.

HF driver removed from the cabinet.

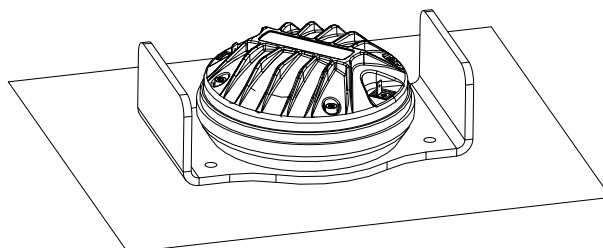
The driver is placed on a flat surface in a dust-free environment.

See [D/R - Connector plate](#) (p.119).

See [D/R - Rear grill](#) (p.120).

See [D/R - Trapdoors](#) (p.121).

See [D/R - HF driver](#) (p.122).



Disassembly

Procedure

1. Remove the four screws securing the cover.
Use the T20 Torx bit.
2. Remove the cover.
3. Carefully remove the diaphragm.
4. If there are shims on the dome, carefully remove them.
Take note of how many and what kind of shims are present.

Reassembly

About this task

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

Procedure

1. Clean the dome and the air gap.



Make sure the air gap is perfectly clean before reassembly.

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

2. Place the same kind and number of shims that were initially present.

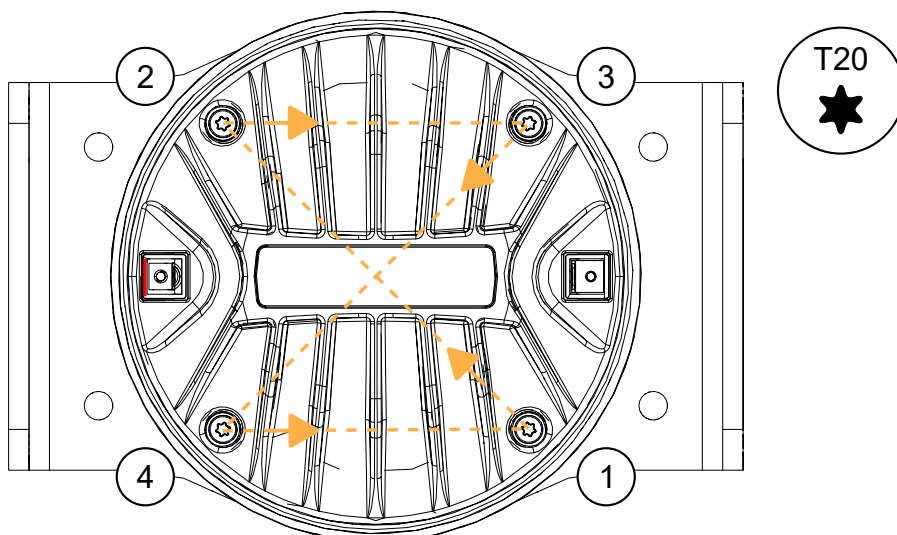
3. Carefully place the diaphragm, using the positive (red) connector as reference point.

4. Position the cover and turn it to align it with the screw holes.

5. Secure the cover using four S18362 screws.

a) Gradually secure each screw following a star pattern.

Use the T20 Torx bit.



b) Tighten the screws in the same order with the torque screwdriver.

Use the T20 Torx bit. Set the torque to 3 N.m.

Specifications

L2 specifications

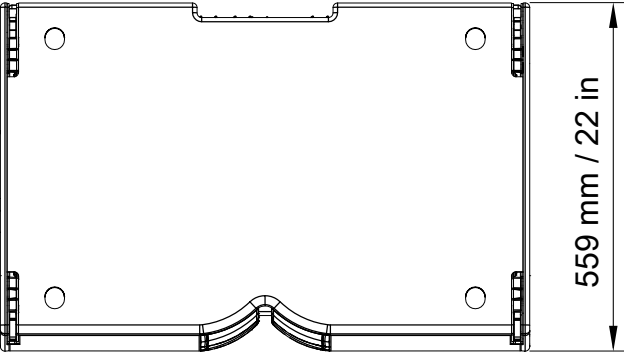
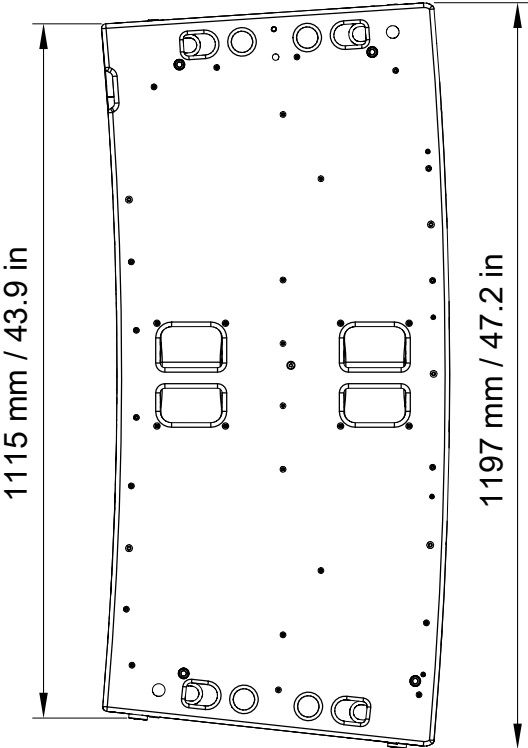
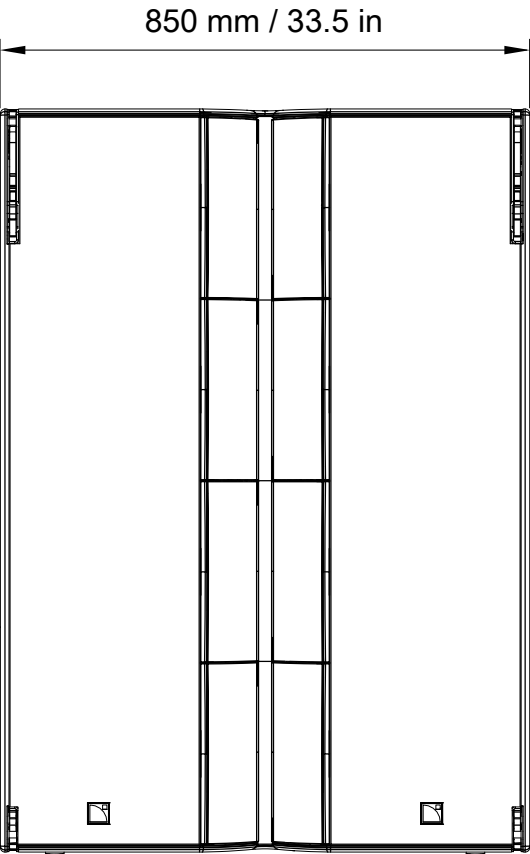
Description	16-channel active progressive curvature WST 10° enclosure: 4 × 12" LC + 8 × 10" LF + 8 × 3" HF amplified by LA7.16 / LA7.16i	
Usable bandwidth	45 Hz - 20 kHz	
Maximum SPL¹	entire enclosure	module 1 only ²
	155 dB ([L2 70])	147 dB ([L2 70])
Nominal directivity (-6 dB)	horizontal: 70° / 110° symmetric or 90° asymmetric vertical: 10°	
Transducers	LC: ³ 4 × 12" neodymium cone drivers LF: 8 × 10" neodymium cone drivers HF: 8 × 3" neodymium diaphragm compression drivers	
Acoustical load	LC: bass-reflex, L-Vents LF: bass-reflex, L-Vents HF: DOSC waveguide, L-Fins	
Nominal impedance	LC: 8 Ω LF: 8 Ω HF: 8 Ω	
Connectors	IN: 37-point male connector (32 points used)	
Rigging and handling	flush-fitting 4-point captive rigging system compatible with L2D 4 handles 4 ground runners	
Weight (net)	158 kg / 348 lb	
Cabinet	premium grade Baltic beech and 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	
IP	IP55	

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

² Provided to enable fair comparison with one enclosure of a constant or variable curvature system.

³ LC: Low frequency Cardioid

L2 dimensions



L2D specifications

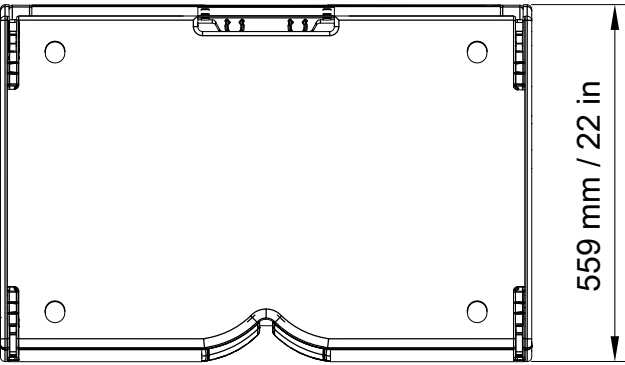
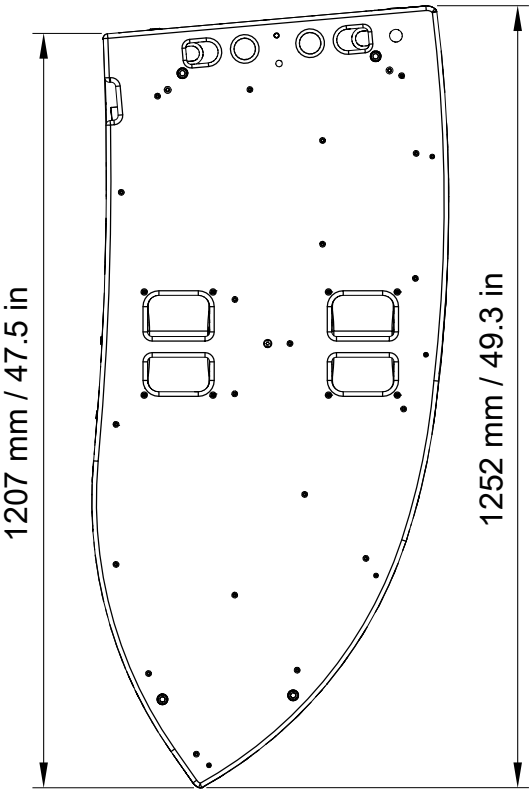
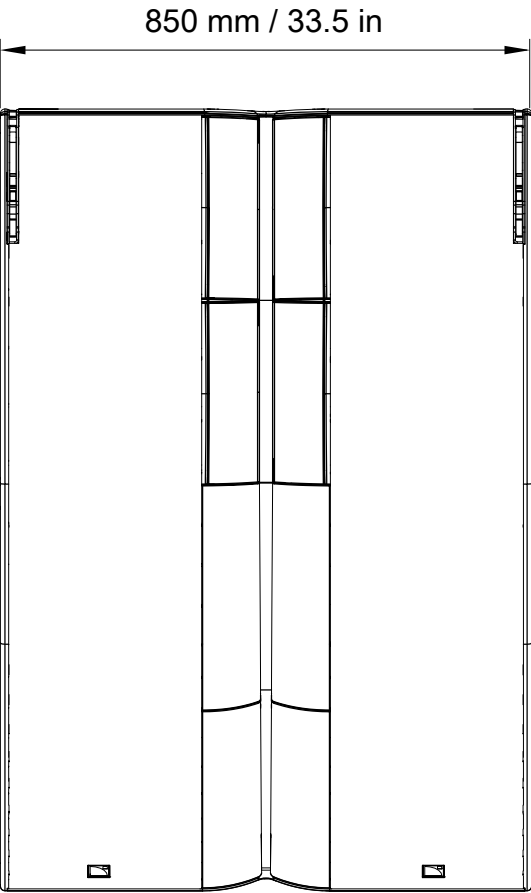
Description	16-channel active progressive curvature WST 60° enclosure: 4 × 12" LC + 8 × 10" LF + 8 × 3" HF amplified by LA7.16 / LA7.16i	
Usable bandwidth	45 Hz - 20 kHz	
Maximum SPL¹	entire enclosure	module 1 only ²
	151 dB ([L2D 70])	147 dB ([L2D 70])
Nominal directivity (-6 dB)	horizontal: (upper part) 70° / 110° symmetric or 90° asymmetric (lower part) progressive from 110° to 140° vertical: 60°	
Transducers	LC: ³ 4 × 12" neodymium cone drivers LF: 8 × 10" neodymium cone drivers HF: 8 × 3" neodymium diaphragm compression drivers	
Acoustical load	LC: bass-reflex, L-Vents LF: bass-reflex, L-Vents HF: DOOSC waveguide, L-Fins (upper part)	
Nominal impedance	LC: 8 Ω LF: 8 Ω HF: 8 Ω	
Connectors	IN: 37-point male connector (32 points used)	
Rigging and handling	flush-fitting 4-point captive rigging system compatible with L2 4 handles	
Weight (net)	149 kg / 328 lb	
Cabinet	premium grade Baltic beech and 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	
IP	IP55	

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

² Provided to enable fair comparison with one enclosure of a constant or variable curvature system.

³ LC: Low frequency Cardioid

L2D dimensions

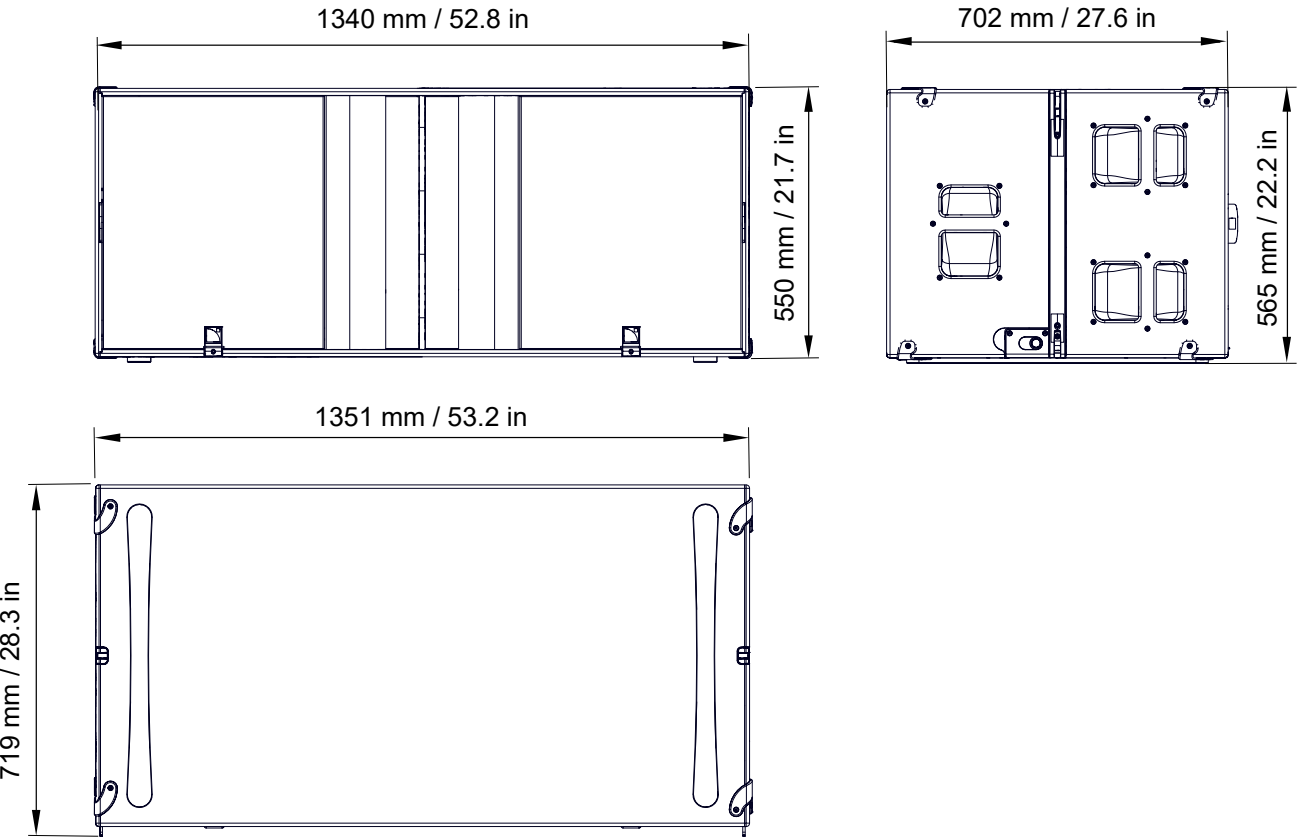


KS28 specifications

Description	Flyable subwoofer 2 × 18", amplified by LA2Xi / LA12X
Low frequency limit (-10 dB)	25 Hz ([KS28_100])
Maximum SPL¹	143 dB ([KS28_100]) with LA2Xi (bridge mode) / LA12X 136 dB ([KS28_100]) with LA2Xi
Directivity	standard or cardioid
Transducers	2 × 18" neodymium cone drivers
Acoustical load	bass-reflex, L-Vents
Nominal impedance	4 Ω
Connectors	IN: 1 × 4-point speakON
Rigging and handling	flush-fitting 2-point rigging system 6 ergonomic handles 2 ground runners 8 side runners
Weight (net)	79 kg / 174 lb
Cabinet	premium grade Baltic beech and birch plywood
Front	coated steel grill acoustically neutral 3D fabric
Rigging components	high grade steel
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).

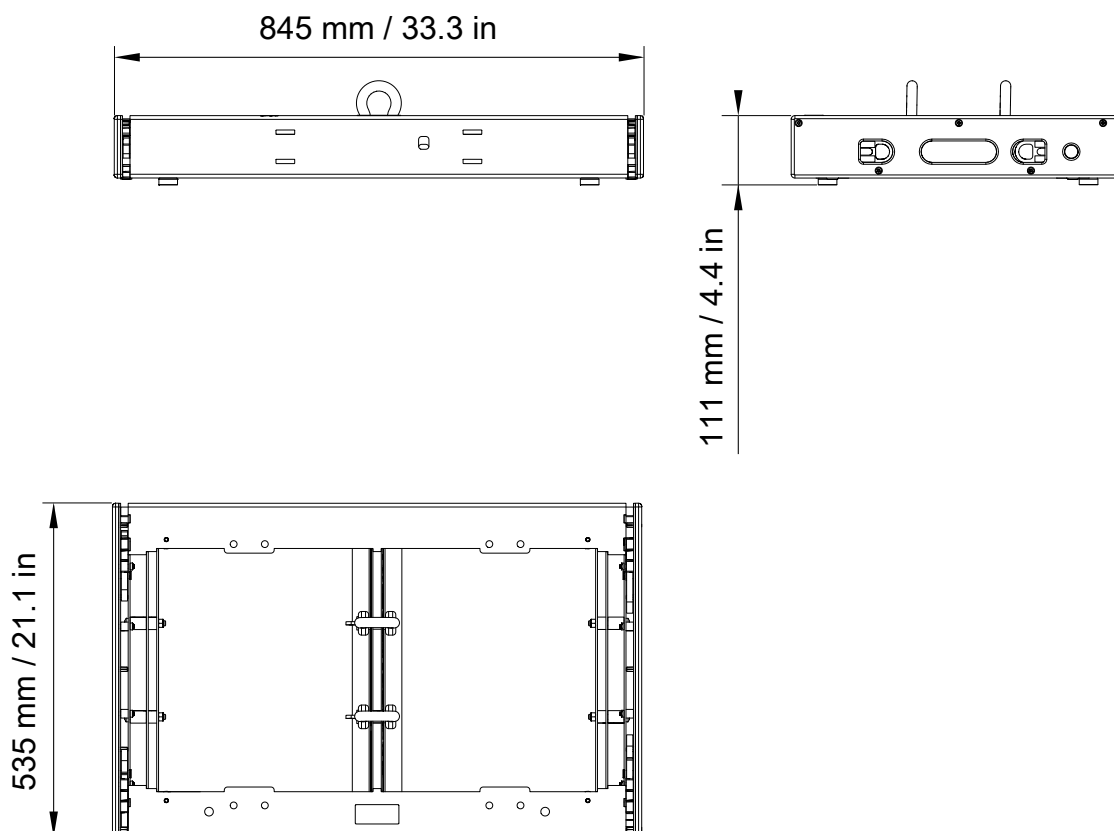
KS28 dimensions



L2-BUMP specifications

Description	Flying frame for L2 and L2D (incl. 1 extension sling + 1 laser adapter) 2 × Ø19 mm shackles WLL 3.25 t
Weight (net)	25 kg / 55 lb
Material	high grade steel with anti-corrosion coating

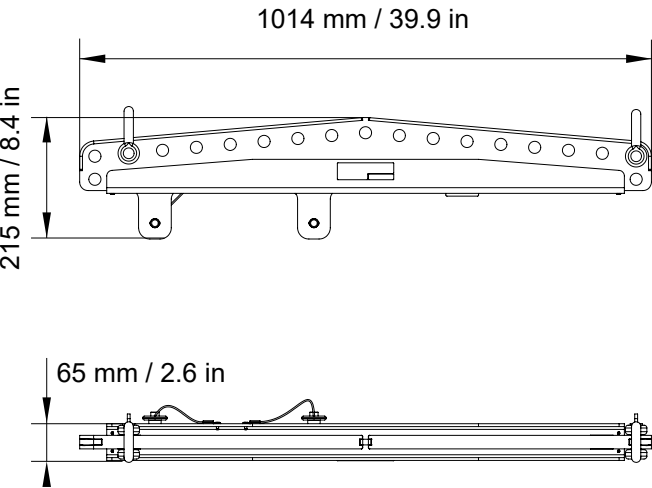
L2-BUMP dimensions



L2-BAR specifications

Description	Extension bar for L2-BUMP 2 Ø19 mm shackles WLL 3.25 t
Weight (net)	16 kg / 35 lb
Material	high grade steel with anti-corrosion coating

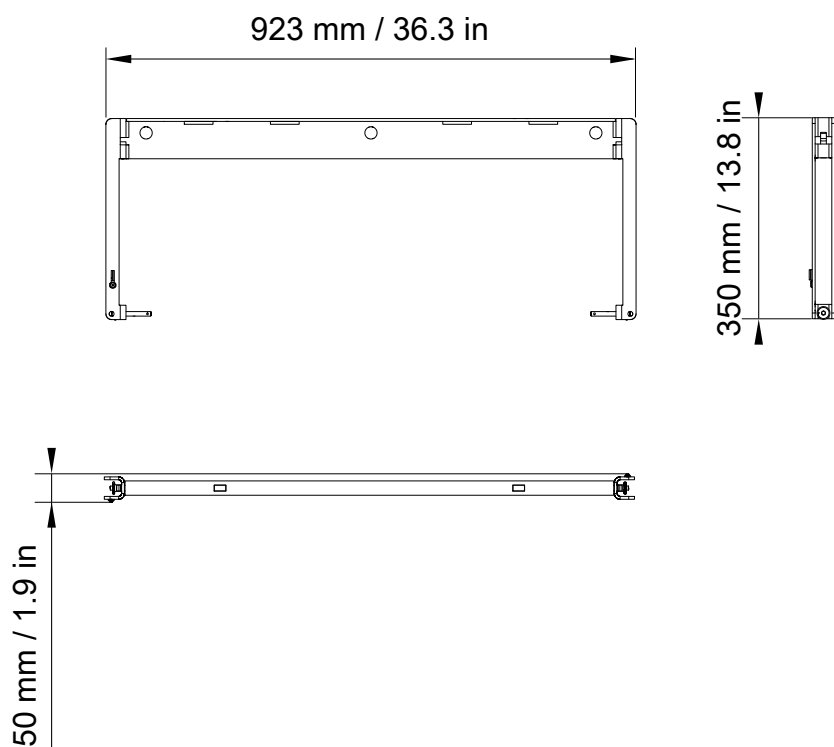
L2-BAR dimensions



L2-RIGBAR specifications

Description	Rigging bar and pullback for L2 and L2D 2 × Ø19 mm shackles WLL 3.25 t
Weight (net)	8 kg / 17.6 lb
Material	high grade steel with anti-corrosion coating

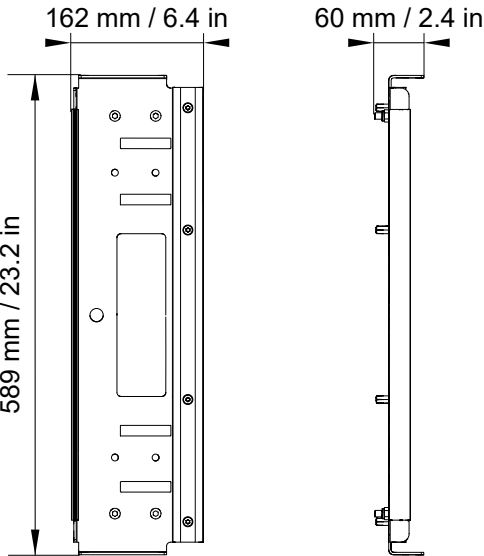
L2-RIGBAR dimensions



LA-RAKMOUNT specifications

Description	Mounting cradles for racks, including screws
Weight (net)	7 kg / 15 lb
Material	high grade steel with anti-corrosion coating

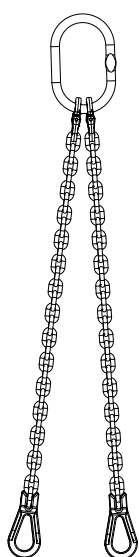
LA-RAKMOUNT dimensions



LA-SLING2T specifications

Description	Lifting chain (DIN EN 818-4) 2-leg , 8 mm
Material	high grade steel with anti-corrosion coating
Weight (net)	3.7 kg / 1.2 lb
Lifting chain (DIN EN 818-4)	2-leg, 8 mm
Steel grade	8
Nominal length incl. hooks	1000 mm / 39.4 in
Maximum sling angle β_{\max}	60°
Load rating	2.8 t for β : 0° - 45° 2 t for β : 46° - 60°

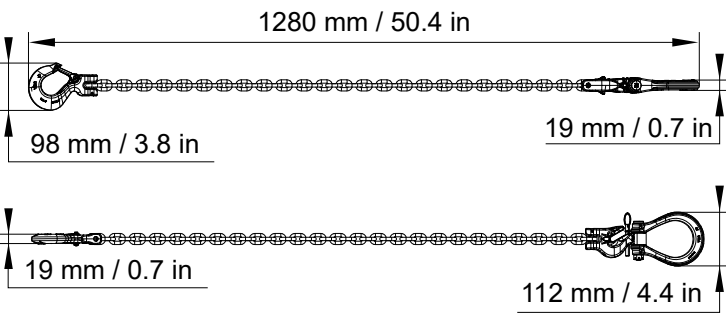
LA-SLING2T illustration



BPCHAIN 1.5T specifications

Description	Extension sling 1.5 tons (included in K3-BUMP)
Weight (net)	4 kg / 9 lb
Material	high grade steel with anti-corrosion coating

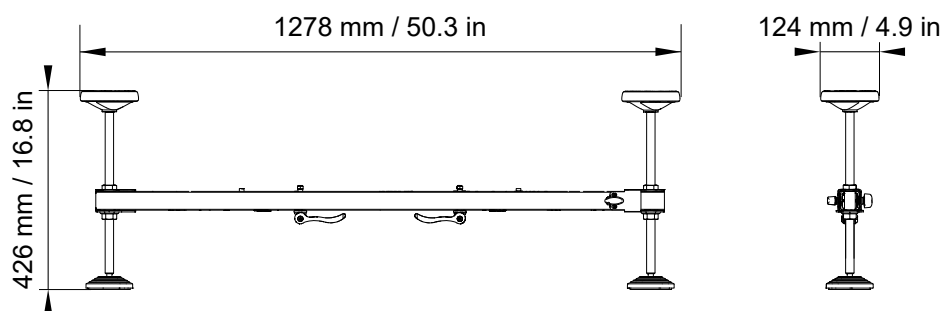
BPCHAIN 1.5T dimensions



K2-JACK specifications

Description	4 tilt adjustment screw jacks + 2 bars for chariots
Weight (net)	10.1 kg / 22.3 lb (for one stabilizer)
Material	high grade steel with anti-corrosion coating

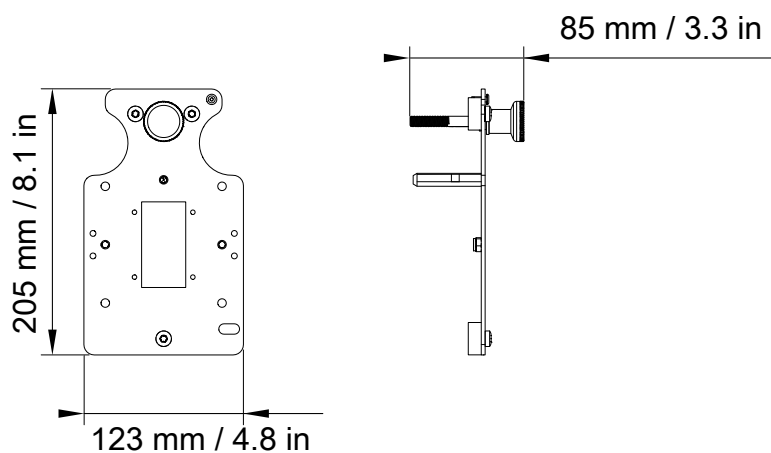
K2-JACK dimensions



L2-LASERMOUNT specifications

Description	Lasermount for L2 and L2D
Weight (net)	1 kg / 2 lb
Material	high grade steel with anti-corrosion coating

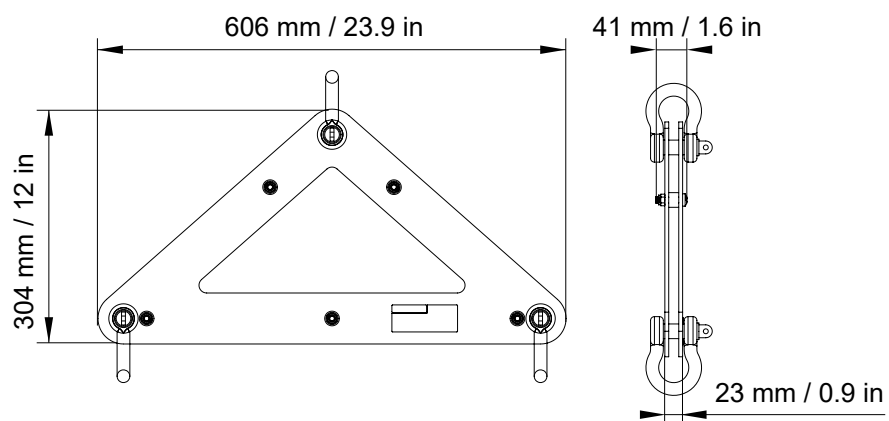
L2-LASERMOUNT dimensions



DELTA 1.5T specifications

Description	Azimuth angle tuning accessory 1.5T
Weight (net)	8 kg / 18 lb
Material	high grade steel with anti-corrosion coating

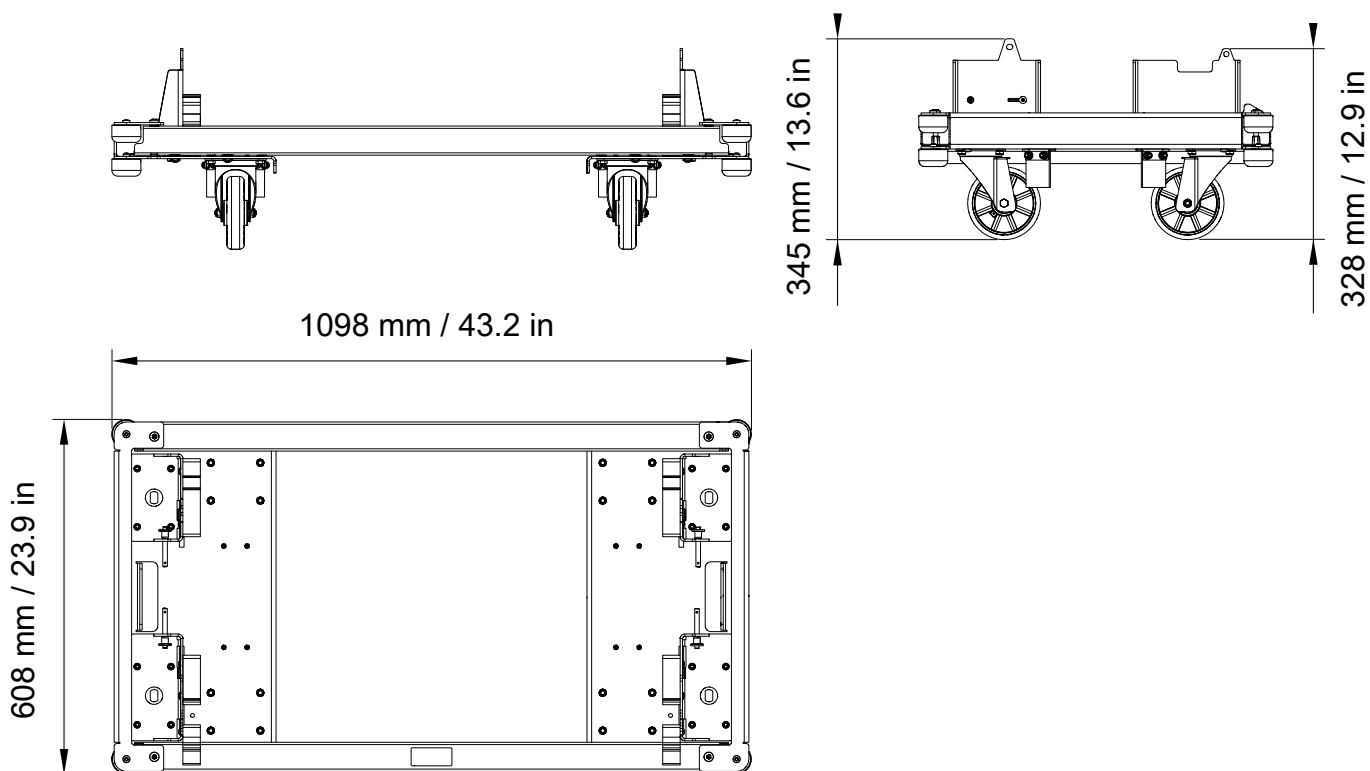
DELTA 1.5T dimensions



L2-CHARIOT specifications

Description	Chariot for one L2
Weight (net)	32 kg / 70 lb
Material	high grade steel with anti-corrosion coating

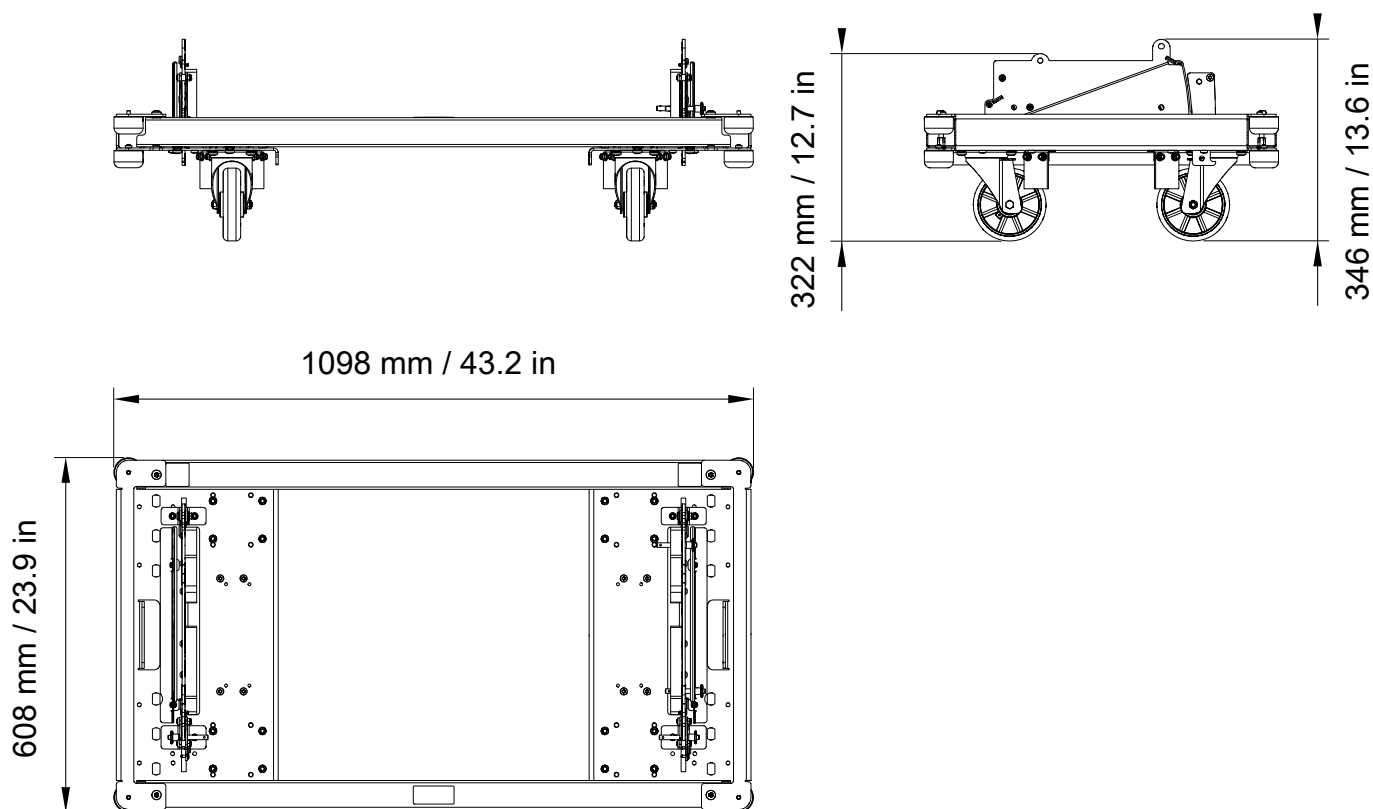
L2-CHARIOT dimensions



L2D-CHARIOT specifications

Description	Chariot for one L2D
Weight (net)	33 kg / 72 lb
Material	high grade steel with anti-corrosion coating

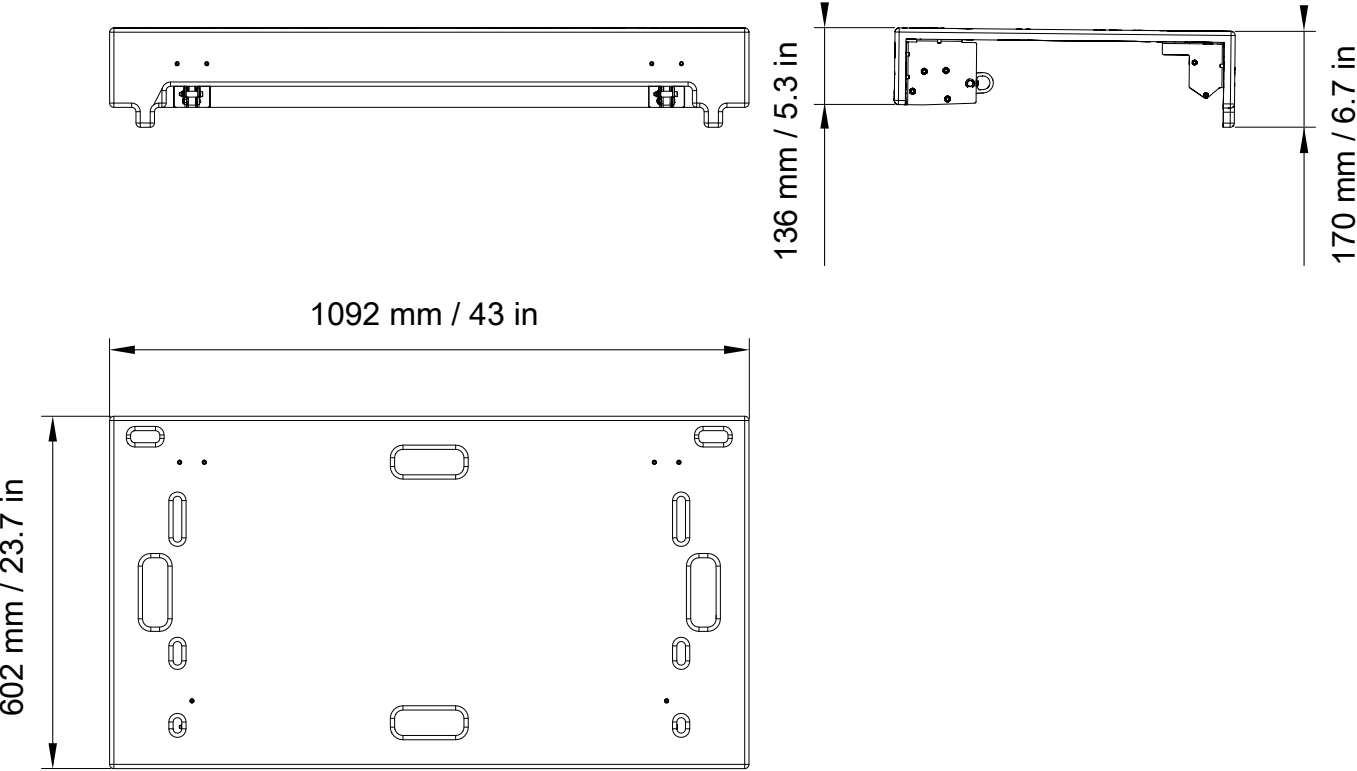
L2D-CHARIOT dimensions



L2-CHARIOTLID specifications

Description	Protective lid for L2-CHARIOT
Weight (net)	15 kg / 33 lb
Material	high grade steel with anti-corrosion coating

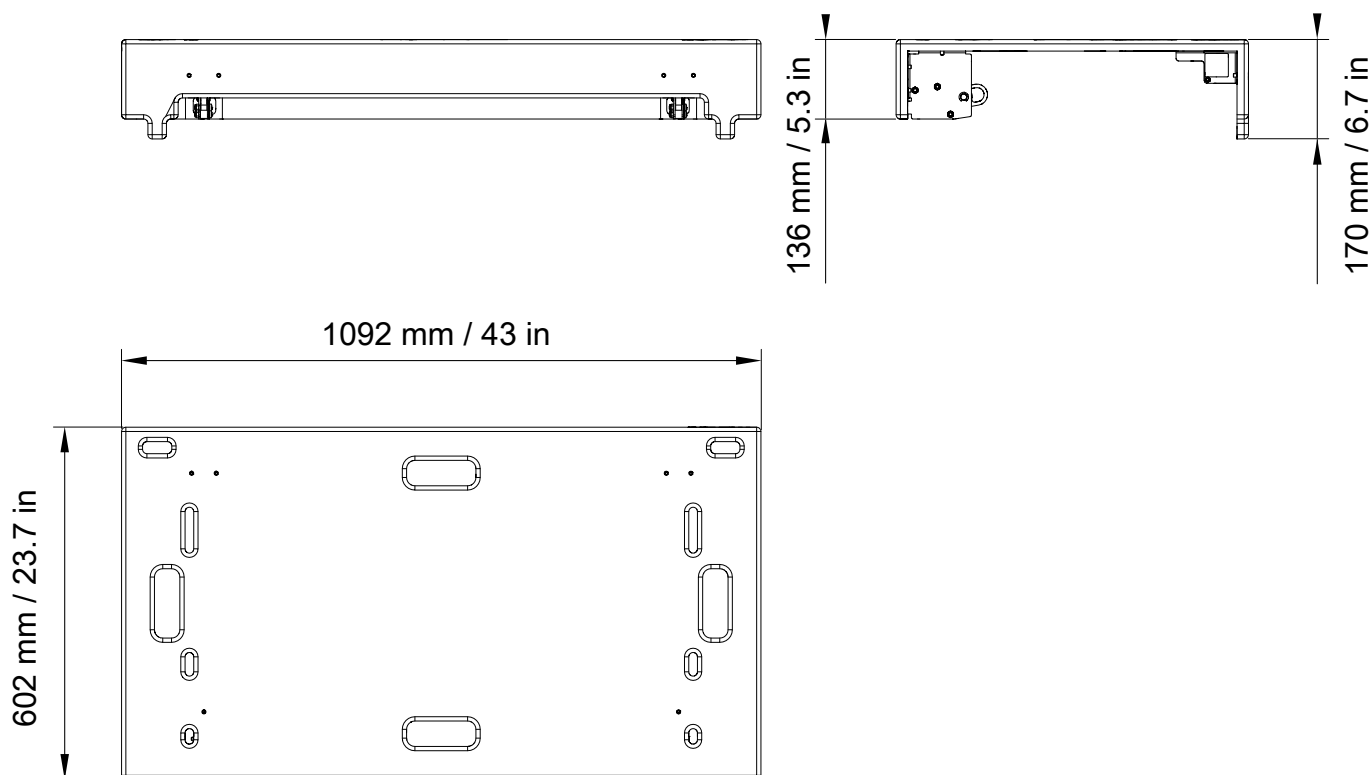
L2-CHARIOTLID dimensions



L2D-CHARIOTLID specifications

Description	Protective lid for L2D-CHARIOT
Weight (net)	14 kg / 31 lb
Material	high grade steel with anti-corrosion coating

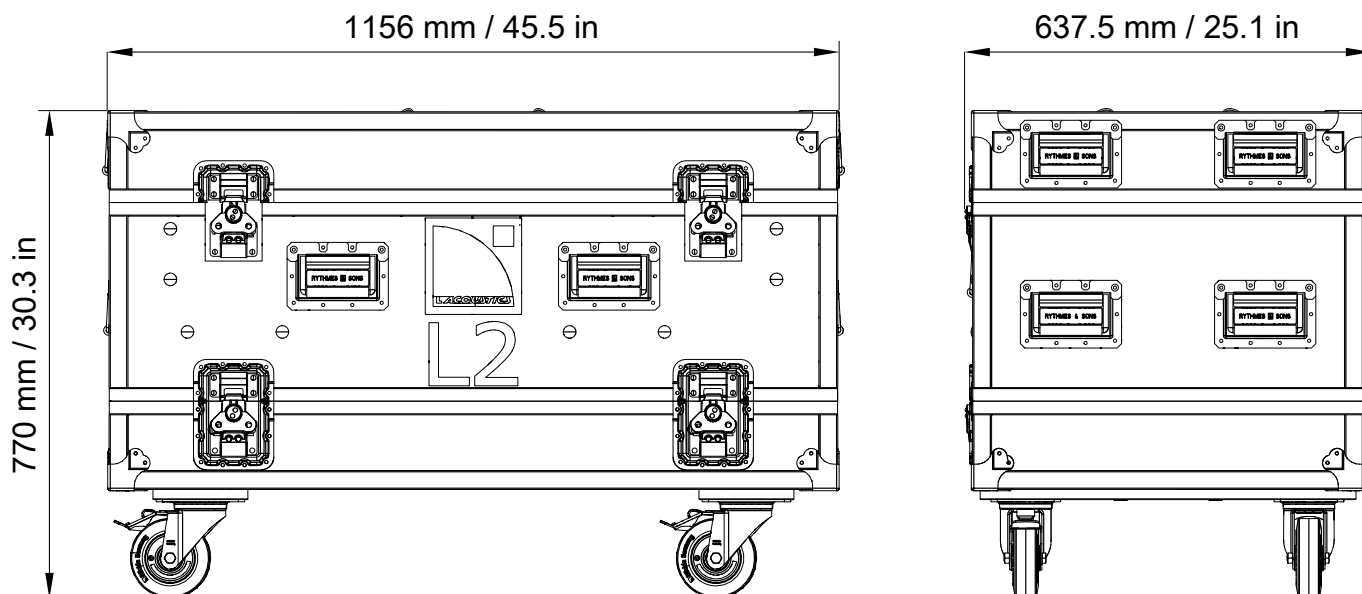
L2D-CHARIOTLID dimensions



L2-BUMPFLIGHT specifications

Description	Modular flightcase for 1 L2-BUMP and rigging elements
Weight (net)	89 kg / 196 lb

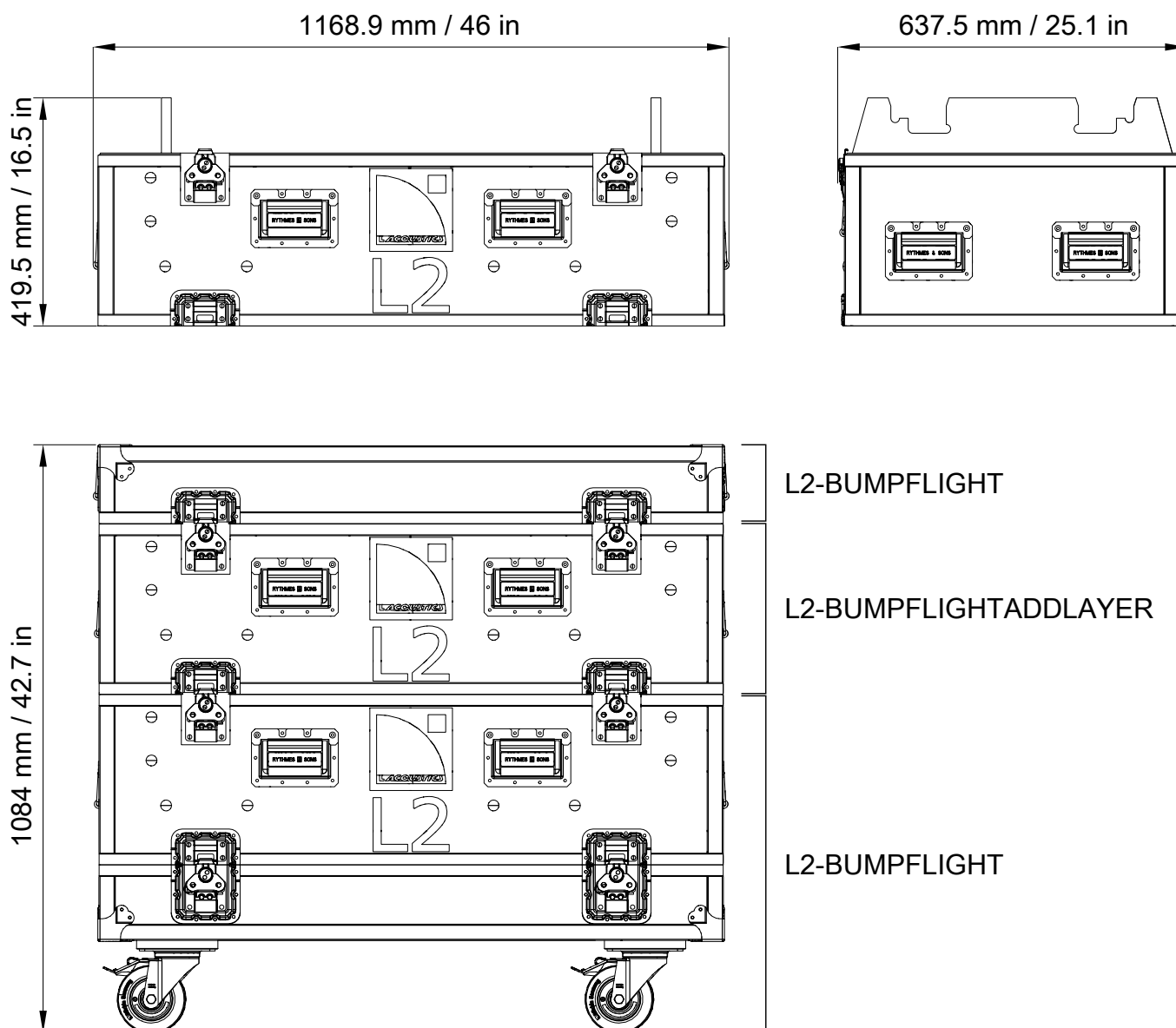
L2-BUMPFLIGHT dimensions



L2-BUMPFLIGHTADDLAYER specifications

Description	L2-BUMPFLIGHT extension for one additional L2-BUMP
Weight (net)	28 kg / 62 lb

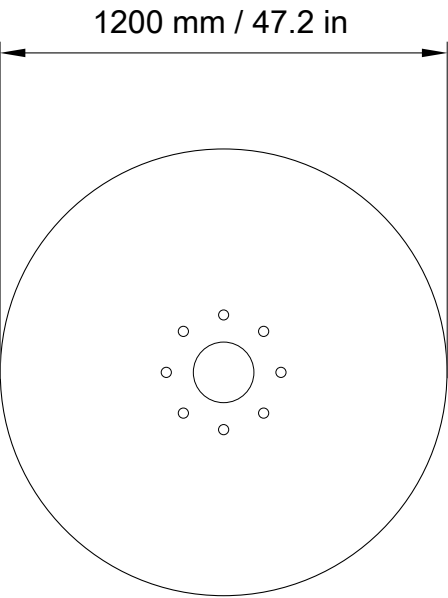
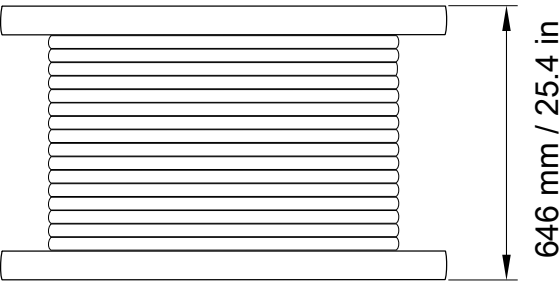
L2-BUMPFLIGHTADDLAYER dimensions



SC32ROLL-500 BE specifications

Description	16-channel loudspeaker cable for custom cable creation (32 bare end cable, 1.5 mm ² gauge) Length: 500 m / 1 640 ft (on a spool)
Weight (net)	473 kg / 1042.7 lb

SC32ROLL-500 BE dimensions



Recommendation for speaker cables



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.

It is good practice to keep loudspeaker cables short to ensure optimal system performance. L-Acoustics strongly recommends using cables of similar type, length, and gauge to address symmetrical deployment of loudspeakers, such as stereo systems, L-ISA frontal systems, or outfill systems.



For more information about cable effect on loudspeaker response, refer to the publication **Demystifying the effects of loudspeaker cables** on the L-Acoustics website, in **Education > Scientific resources > Scientific publications**.

Refer to the following table for recommended cable length for uncompromised performance.

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
1.5	17	15	18	60	9	30	–	–
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/>

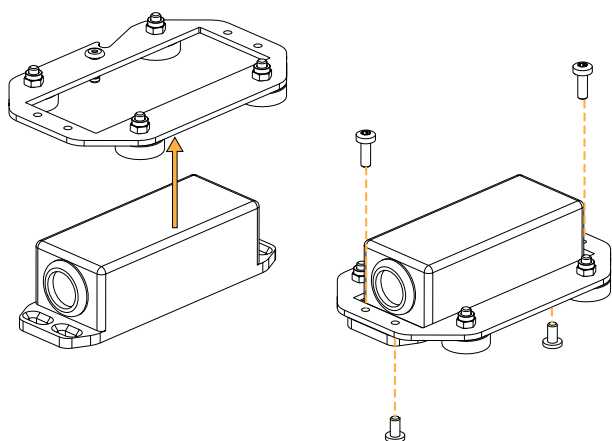
Installing a laser inclinometer

L2-LASERMOUNT

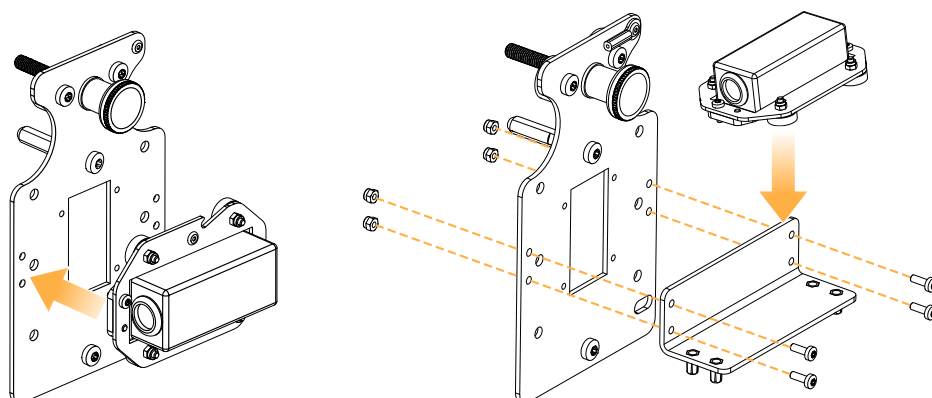
L2-LASERMOUNT can be used to secure a laser inclinometer vertically or horizontally, using the L-Acoustics Tech Toolcase II accessories.

With LASER-MAGPLATE

Mount the inclinometer on the LASER-MAGPLATE:



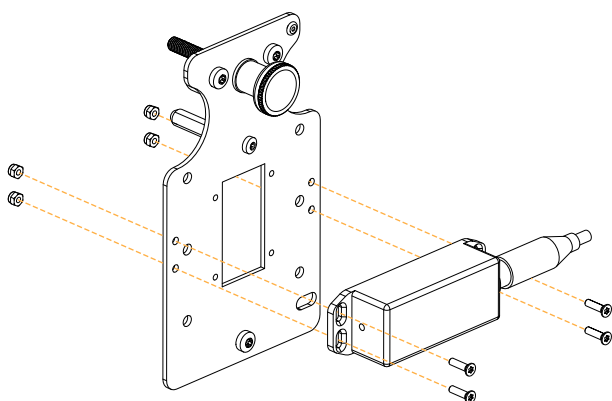
Position the magnetic LASER-MAGPLATE on L2-LASERMOUNT:



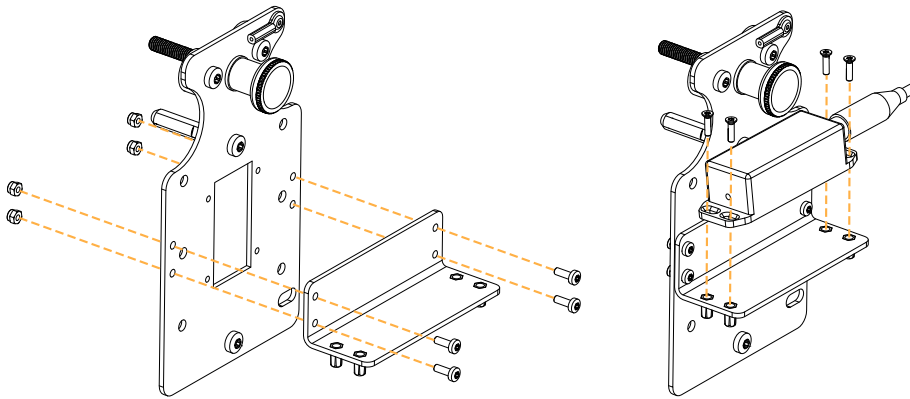
Vertical mount

Horizontal mount, with the bracket

With screws



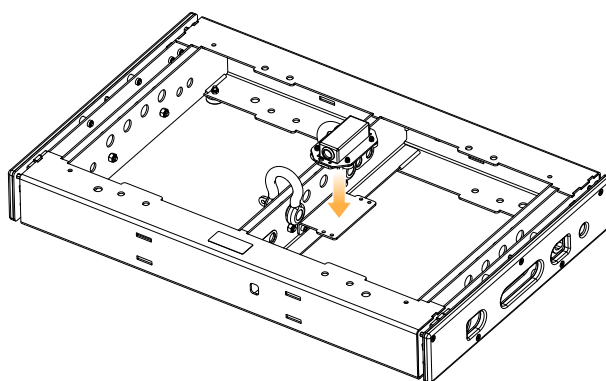
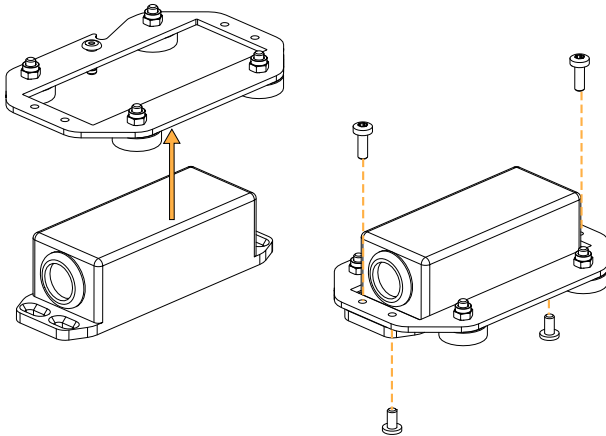
Vertical mount



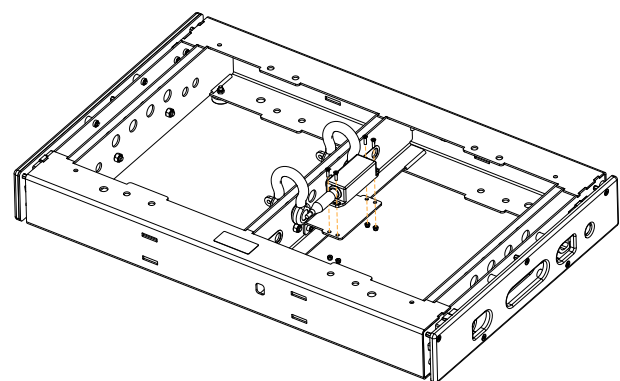
Horizontal mount, with the bracket

L2-BUMP

L2-BUMP can accommodate a laser inclinometer, using the L-Acoustics Tech Toolcase II accessories.



With LASER-MAGPLATE



With screws



L-Acoustics

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 **L-ACOUSTICS**
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