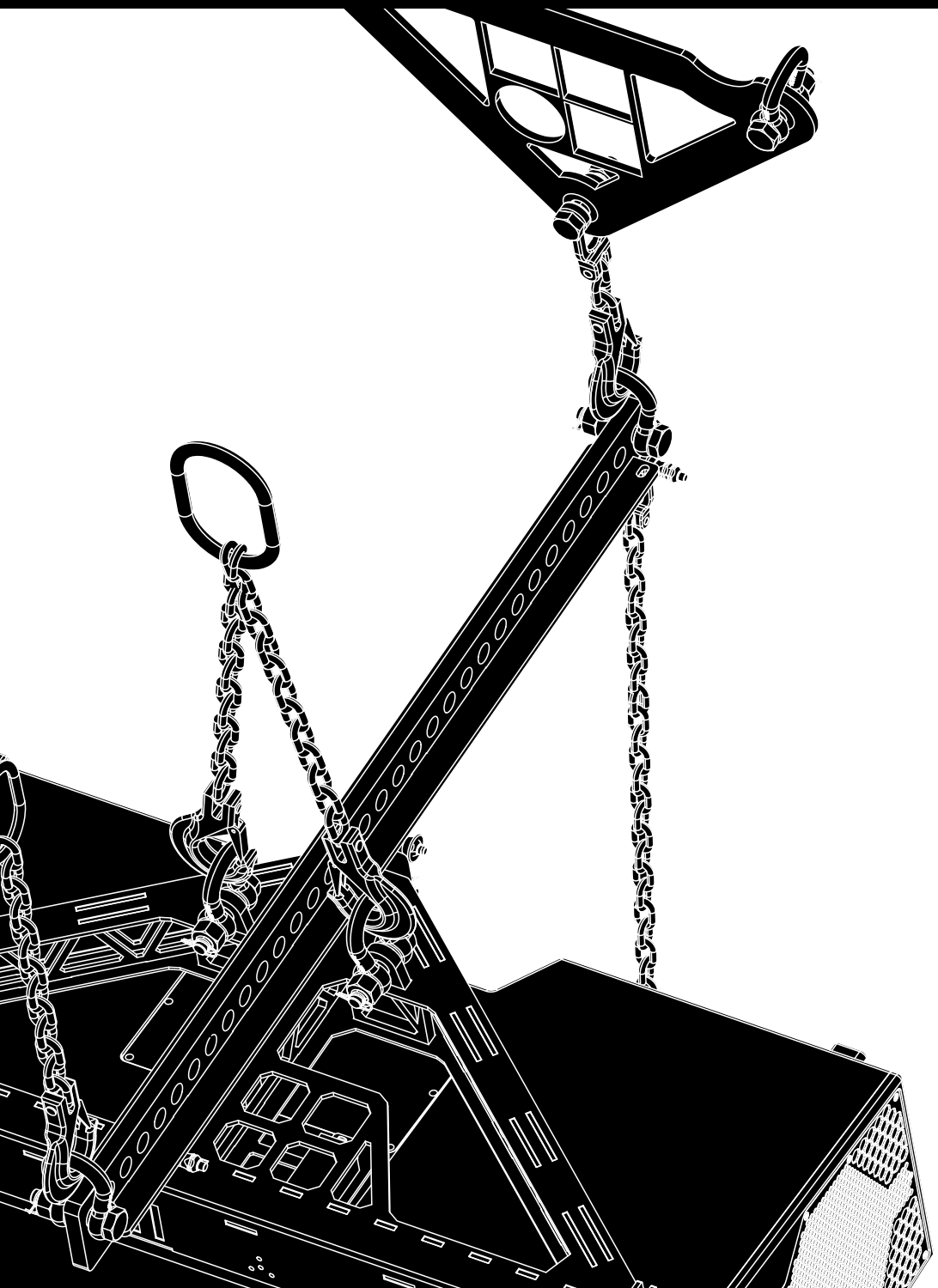
SL

GSL/KSL
Rigging manual
1.16 en



d&b audiotechnik

Notes on document version
All previous versions of this document are hereby no longer valid.

Version 1.16:
B2447.072 .01 Crank lever hoist: Friction clutch description added.

- **Refer to:**
  ⇒ Chapter 3.7.1 “B2447.072 .01 Crank lever hoist” on page 26.

General information

GSL/KSL Rigging manual

Version: 1.16 en, 04/2026, D2734.EN .01

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1.1 Intended use

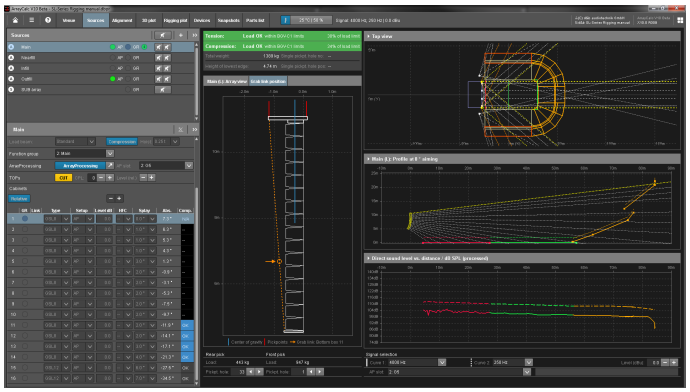
The SL-Series rigging components must only be used in conjunction with d&b SL-Series loudspeakers as described in this manual.

1.1.1 About this manual

This manual provides a comprehensive and detailed documentation of the SL-Series rigging components and procedures.

The basic rigging procedures described in this manual apply to both, the GSL and KSL systems. For reasons of simplicity, the descriptions here mainly refer to the GSL system. Any differences between the two systems are pointed out and/or are described separately.

1.1.2 d&b ArrayCalc



d&b ArrayCalc

For both safety and acoustic reasons, d&b line arrays must be designed using the d&b ArrayCalc simulation software. The software is available as a native stand-alone application for both Microsoft Windows and Mac OS X operating systems and can be downloaded at www.dbaudio.com.

Detailed information on how to use and operate ArrayCalc is provided by the Help system of the software. To access the Help system, press F1 or select the Help button () from the ArrayCalc toolbar. This will launch the HelpViewer which provides an overview of the program as well as a search function and direct access to the related topics.

In addition, ArrayCalc will provide you with typical array configurations within the permitted load limits and will help you get familiar with the mechanical load conditions and limitations.

d&b TI 385

Further information on line array design can be found in "TI 385 d&b Line array design, ArrayCalc". The TI is supplied with the software or can be downloaded from the d&b website at www.dbaudio.com.

d&b Seminar

We also recommend you to attend the regularly hosted d&b Line array training seminars. Further information regarding the d&b seminars and a seminar schedule can also be found on the d&b website at www.dbaudio.com.

d&b Video tutorials

In addition, d&b provides related video tutorials which can also be found on the d&b website at www.dbaudio.com or www.sl-series.com.

1.2 General safety

- Installation and setup should only be carried out by qualified and authorized personnel observing the valid national Rules for the Prevention of Accidents (RPA).
- It is the responsibility of the person installing the assembly to ensure that the suspension/fixing points are suitable for the intended use.
- Always carry out a visual and functional inspection of the items before use. In case there is any doubt as to the proper functioning and safety of the items, these must be withdrawn from use immediately.

Please also refer to ⇒ Chapter 15 “Care and maintenance” on page 84.

1.3 Components and weights/Load capacity

System components and weights - GSL System

Loudspeakers

Z0750/Z0751, GSL8/GSL12 cabinets ..... 80 kg (176 lb)
Z0760 SL-SUB cabinet ..... 138 kg (304 lb)

Rigging components
(including all additional items of the respective component)

Z5701 GSL Flying frame ..... 44 kg (97 lb)
Z5702 GSL Load beam ..... 29 kg (64 lb)
Z5704 GSL Compression set ..... 44 kg (97 lb)
..... including Z5703 GSL Compression frame (18.6 kg/41 lb)
Z5707 SL Aiming plate ..... 13.5 kg (29.8 lb)

System components and weights - KSL System

Loudspeakers

Z0780/Z0781, KSL8/KSL12 cabinets ..... 58 kg (128 lb)
Z0785 KSL-SUB cabinet ..... 82 kg (181 lb)

Rigging components
(including all additional items of the respective component)

Z5722 KSL Flying frame ..... 30.3 kg (66.8 lb)
Z5723 KSL Load beam ..... 21 kg (46.3 lb)
Z5724 KSL Compression set ..... 41 kg (90.4 lb)
..... including Z5725 KSL Compression frame 16 kg (35.3 lb)
Z5707 SL Aiming plate ..... 13.5 kg (29.8 lb)
Z5747 KSL-SUB Adapter frame ..... 38 kg (84 lb)
Z5748 KSL Pullback frame ..... 20 kg (44 lb)

Load capacity - GSL System

NOTICE!

The Z5701 GSL Flying frame together with the Z5702 GSL Load beam and the Z5707 SL Aiming plate is designed to support a total system weight of 2000 kg (4409 lb) – SWL including all rigging components.

This allows the suspension of a maximum of 24 x GSL-TOP cabinets or a SUB column consisting of a maximum of 14 x SL-SUB cabinets.

The rigging components allow arrays of up to 10 x GSL-TOP cabinets with a total system weight of 800 kg (1764 lb) to be flown in any vertical splay angle configuration between the cabinets.

For any other array configuration the load conditions within the array have to be checked using the d&b ArrayCalc simulation software.

Load capacity - KSL System

NOTICE!

The Z5722 KSL Flying frame together with the Z5723 KSL Load beam and the Z5707 SL Aiming plate is designed to support a total system weight of 1500 kg (3307 lb) – SWL including all rigging components.

This allows the suspension of a maximum of 24 x KSL-TOP cabinets or a SUB column consisting of a maximum of 16 x KSL-SUB cabinets.

The rigging components allow arrays of up to 10 x KSL-TOP cabinets with a total system weight of 685 kg (1510 lb) to be flown in any vertical splay angle configuration between the cabinets.

For any other array configuration the load conditions within the array have to be checked using the d&b ArrayCalc simulation software.

The Z5747 KSL-SUB Adapter frame together with the Z5722 KSL Flying frame allows the suspension of mixed KSL array setups with a total system weight of 1500 kg (3307 lb) – SWL including all rigging components.

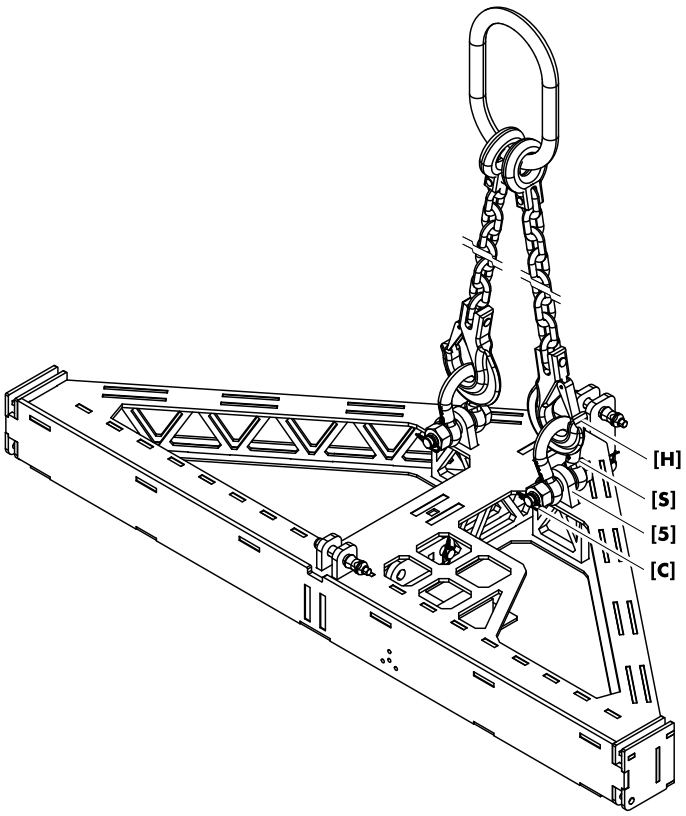
TheZ5748 KSL Pullback frame allows KSL-TOP cabinets to be deployed with any splay angle combination and any total vertical inclination of the entire array with an additional pullback point at the bottom of the array.

General
All d&b rigging systems are inherently safe up to their uppermost suspension point. According to the "German regulation DGUV Information 215-313", hence they do not require a secondary safety device.

However, the user is solely responsible for ensuring that suspension devices which connect the uppermost suspension point of a d&b rigging system to a structure or building are properly dimensioned and single-fault safe.
If this additional equipment is not single-fault safe, a secondary safety device must be used.

Example
When the array is suspended with D8 Plus electric chain hoists only, it does not require a secondary safety device.

When using multiple electric chain hoists to suspend an array, each individual chain hoist must be capable of lifting the entire weight of the array.



Shown:
Z5701 GSL Flying frame
Same applies to the Z5722 KSL Flying frame.

1.4 Secondary safety

d&b Rigging systems
d&b rigging systems offer dedicated safety connection points for a secondary safety device and are delivered with a matching safety chain. The dedicated connection points must be used under all circumstances.
Any third-party safety devices must be dimensioned for the intended load.

Any secondary safety device must be mounted in a way that prevents the array from dropping and swinging should the primary suspension device fail.

Secondary safety devices must be suspended independently from the primary suspension device and must have a load capacity which is at least equal to the total weight of the entire system.

The GSL/KSL Flying frames are equipped with two safety points **[5]** fitted with two 4.75 t shackles to accept a secondary safety device.

For this purpose, use the d&b Z5705 Safety chain which is supplied with the flying frames or an appropriate equivalent according to the specifications which are defined in ⇒ Chapter 3.8.2 "Z5705 Safety chain 4 t" on page 30.

Assembly
1. Before attaching the safety device, ensure the two 4.75 t shackles **[S]** are properly fitted to the Frame's safety points **[5]** and secured against loosening using a locked ring cotter **[C]**, as shown in the graphic opposite.
2. Attach the safety chain set and ensure the chains are not twisted and the hooks **[H]** are in the right direction, as shown in the graphic opposite.

1.5 Wind loads

WARNING!
Potential risk of personal injury and material damage!

Flying loudspeakers overhead at wind forces higher than 6 bft (22-27 knots, 39-49 km/h, 25-31 mph) is not recommended.

If the wind force exceeds 8 bft (34-40 knots, 62-74 km/h, 39-46 mph):

- Make sure that no person remains in the vicinity of the array.
- Lower and secure the array.

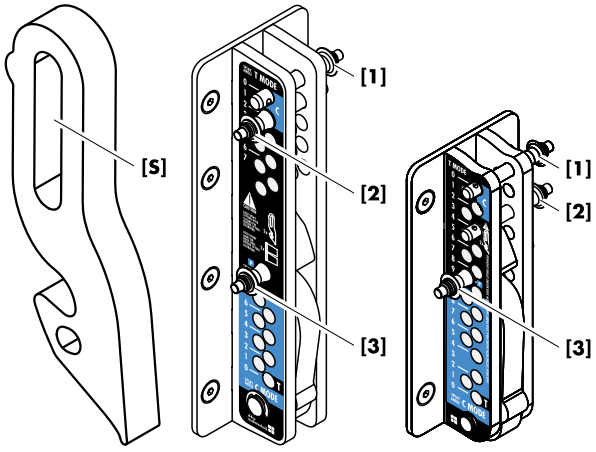
1.6 Operational safety







- The assembly should always be carried out by two persons.
- During assembly, pay attention to the possible risk of crushing. Wear suitable protective clothing.
- Observe all instructions given on the respective instruction labels of the rigging components, such as load beams, flying and compression frames, touring carts, and loudspeaker cabinets.
- In connection with the d&b Z5711 ArraySight sender unit (laser inclinometer), take precautions to prevent anyone from looking directly into the laser beam, and wear appropriate eye protection.
- Be aware that any object or tool left on the top of the array during setup may fall when the array is operated. Always check that no tools or other objects are left on the array before final hoisting.
- When chain hoists are in operation, ensure that there is nobody directly underneath or in the vicinity of the load.
- Do not under any circumstances climb on the array.



The GSL/KSL rigging system allows for two different rigging modes:

- Tension mode,
- Compression mode,
- or a combination of both, depending on the array length and the compression force required.

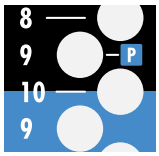
Rear rigging strand
Splay link, Locking pins and hole grids

The Splay link on the rear rigging strand of the TOP cabinet is equipped with a slotted hole **[S]** which allows for either Tension or Compression mode setup without any further modification to the cabinet.

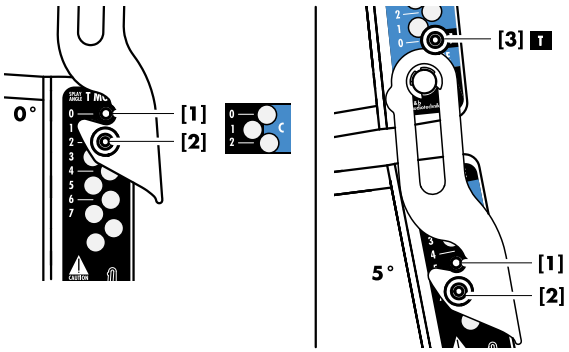
For this purpose, the rear rigging strand provides three (3) Locking pins and two dedicated hole grids. The bi-colored label (black/blue on GSL8/KSL8 and black/grey on GSL12/KSL12 cabinets) simplifies the assignment of the appropriate hole grid to the respective rigging mode.

The top hole grid (black area) is used in Tension mode (⇒ T) while the bottom hole grid (colored area) is used in Compression mode (⇒ C).

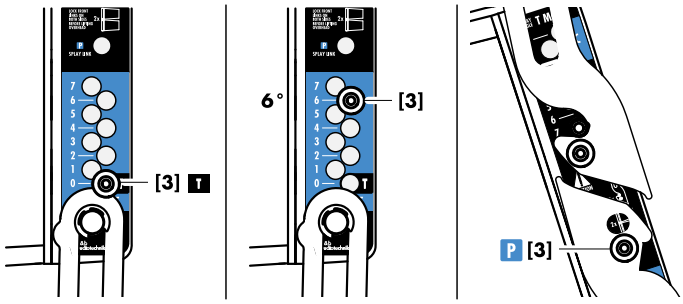
Note: On KSL8/KSL12 cabinets, the **10°** hole is used for both rigging modes, while the 9° hole of the Tension mode hole grid is used to park the Splay link (⇒ P).



Common hole on KSL8/KSL12 cabinets



Pin [1]/[2] convention
Tension and Compression mode



Pin [3] convention
Tension, Compression mode and Park position

Locking pin conventions

Pin [1]
Pin [2]

Tension mode:
In Tension mode, pin **[1]** is used to preset the splay angle of a certain cabinet on the top hole grid of the cabinet itself. During hoisting, the Splay link of the upper cabinet will engage and safety pin **[2]** is inserted in the hole directly below.

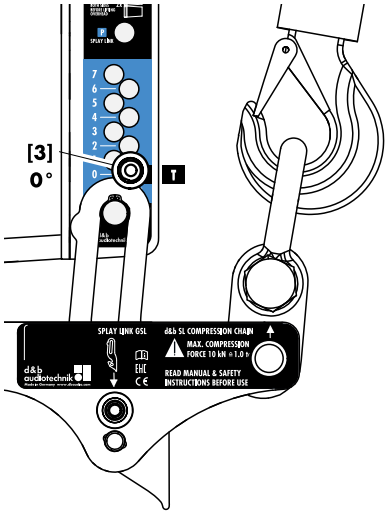
Compression mode:
In Compression mode, pin **[1]** and safety pin **[2]** are always inserted in the **0° / 2°** holes of the top hole grid of all cabinets (⇒ C).

Pin [3]

Tension mode:
In Tension mode, pin **[3]** is always inserted in the **0°** hole of the bottom hole grid to fix the Splay link in place (⇒ T).

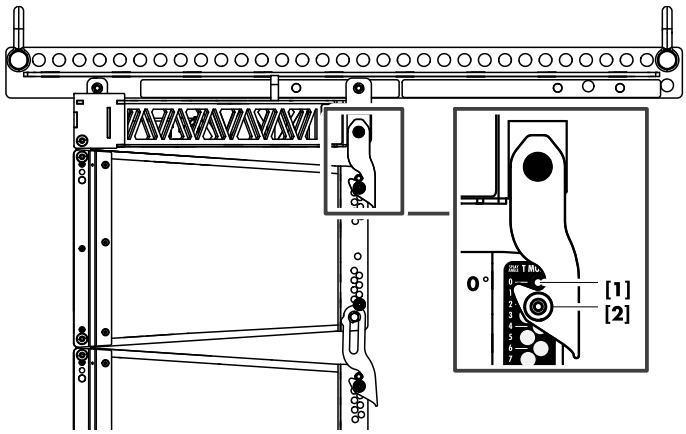
Compression mode:
In Compression mode, the splay angle between two cabinets is set on the rear rigging strand of the upper cabinet using pin **[3]**.

Park position:
Pin **[3]** is also used to fix the Splay link in its park position (⇒ P), e.g. when the Splay link of the last cabinet is in Tension mode.



Pin [3]

Compression frame:
In Compression mode the compression frame is attached below the last cabinet of the array. In this case, pin **[3]** is always inserted in the **0°** hole of the bottom hole grid (⇒ **T**).

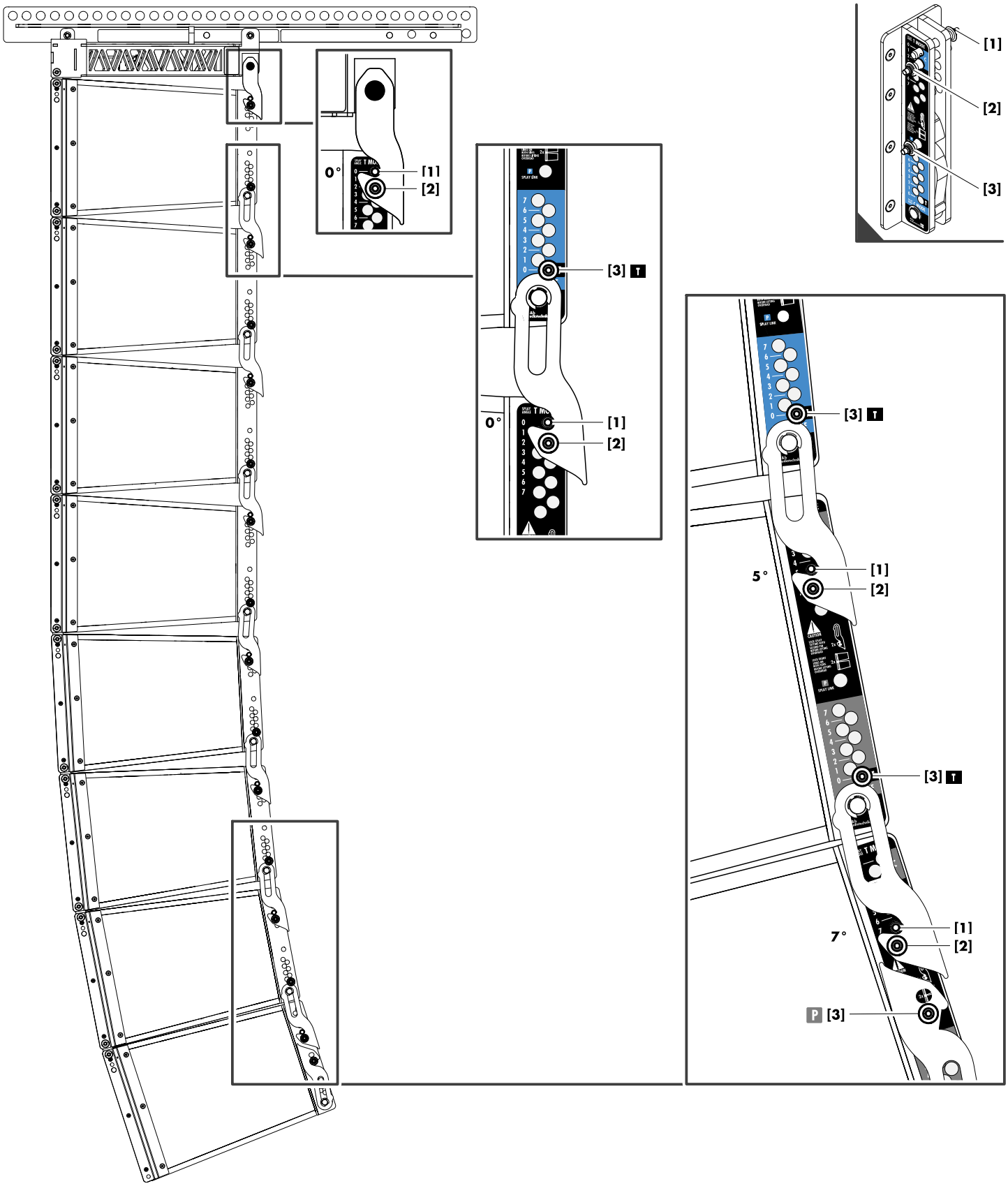


First cabinet to frame
For both, Tension and Compression modes, the Splay link of the flying frame is always engaged in the **0°** hole of the top hole grid of the first cabinet using pin **[1]** and safety pin **[2]**.

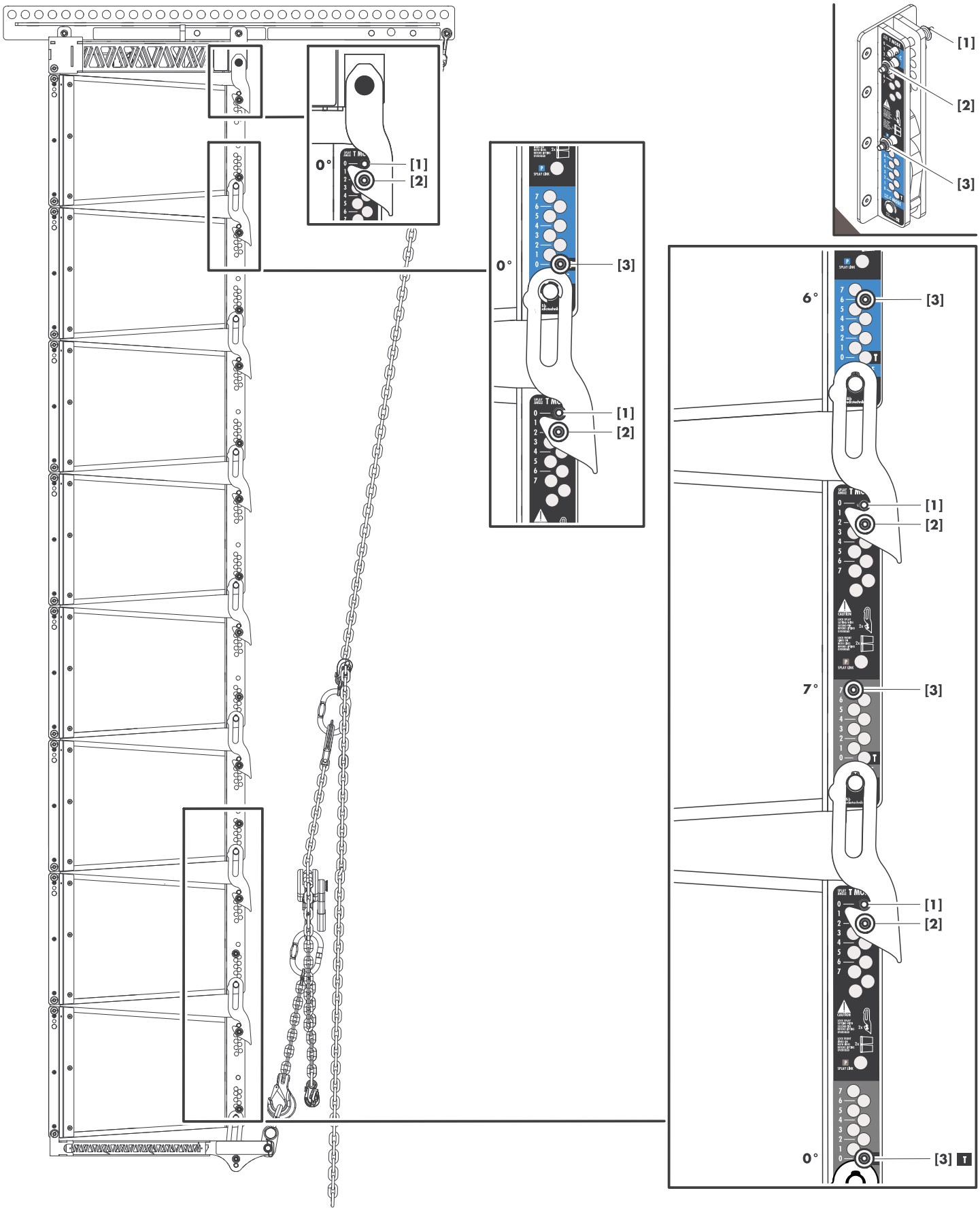
Overview charts
The following charts provide an overview of the rigging mode principles of the GSL system at one glance.

The same principles also apply to the KSL system.

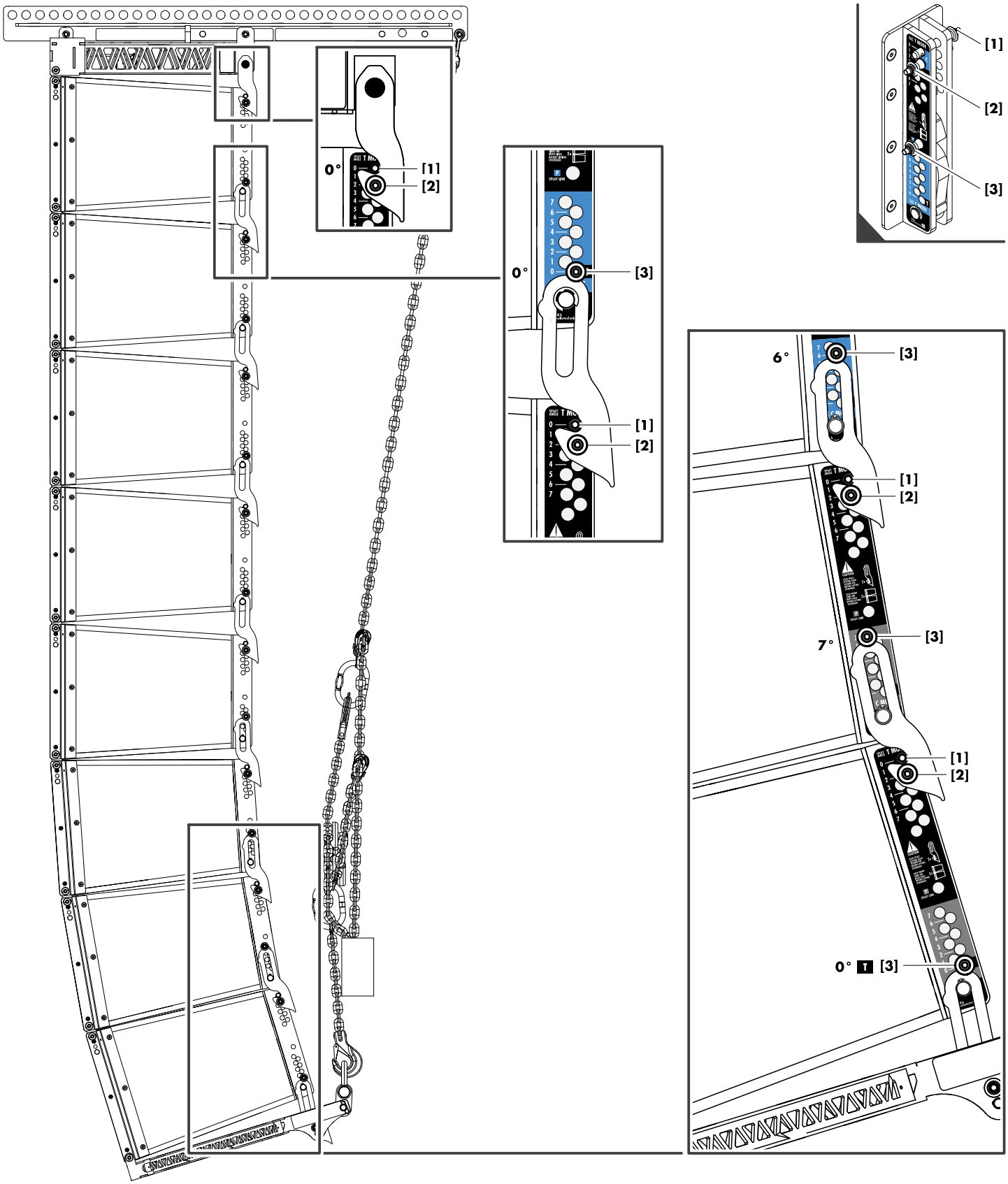
Tension mode principle

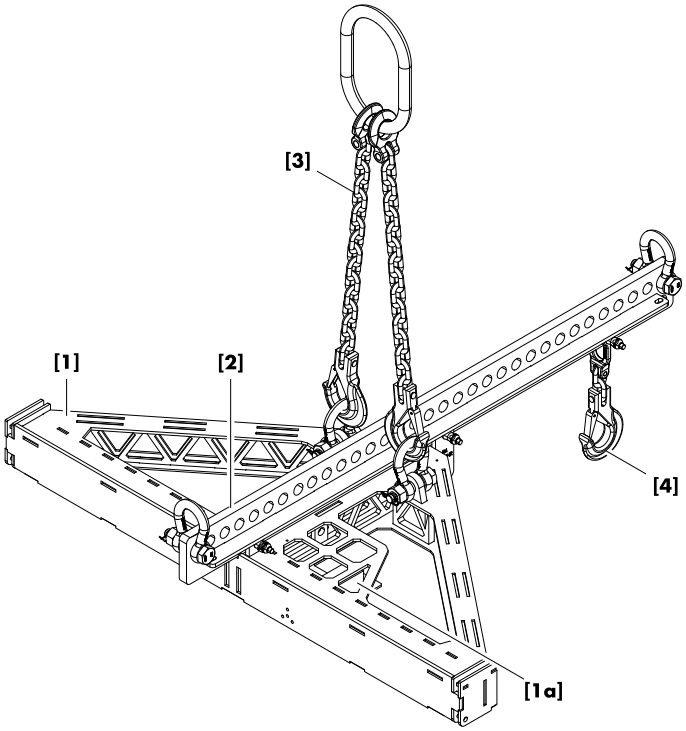


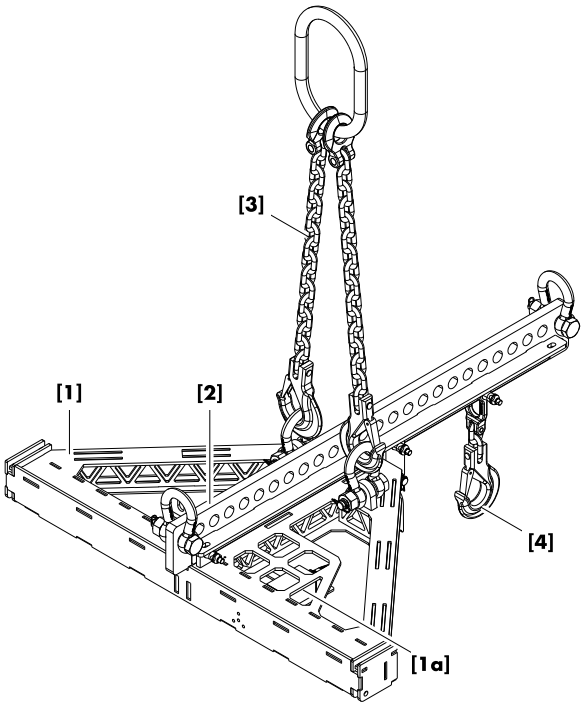
Compression mode principle - Preset



Compression mode principle - Curved (Compressed)







3.1 GSL/KSL rigging sets

Please verify the shipment for completeness and proper condition of the items.

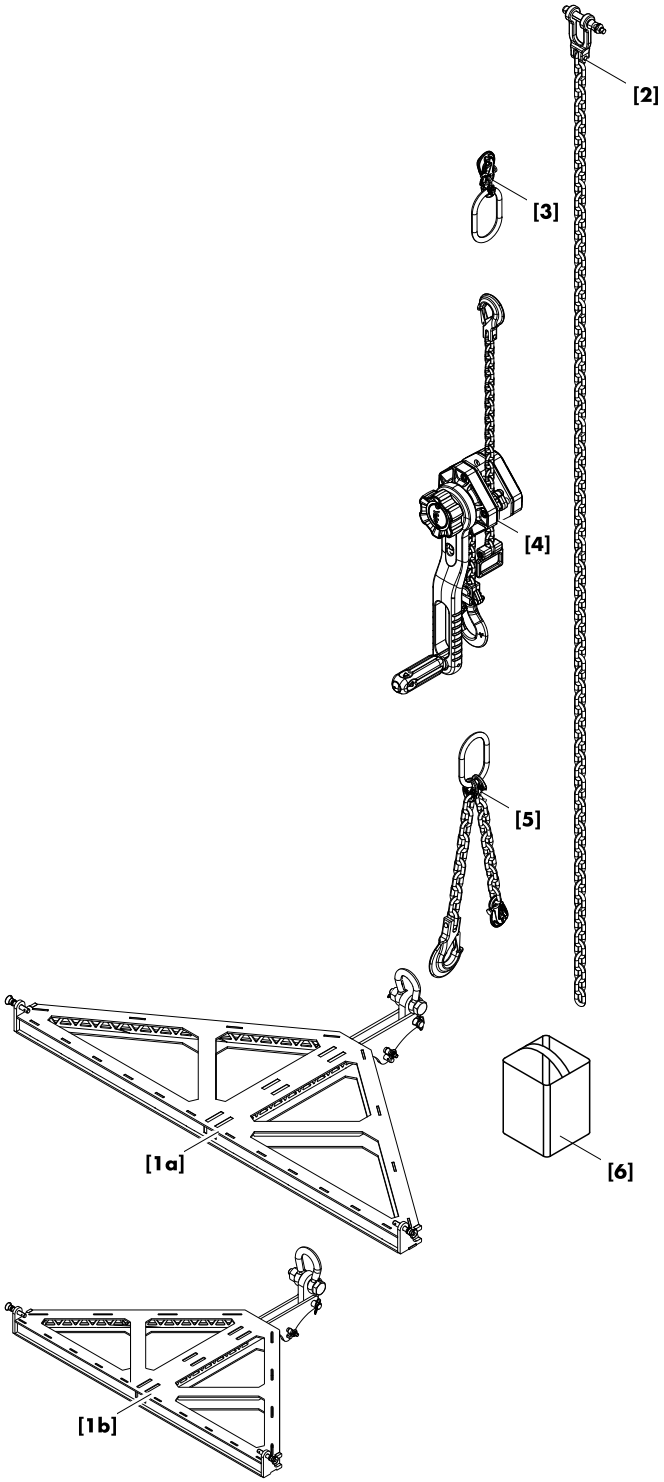
In addition to the individual GSL/KSL rigging components, the following GSL/KSL rigging sets are available:

Z5708 GSL Flying frame set

Set	Including
Z5708 GSL Flying frame set (80 kg/176.4 lb)	**[1]** **Z5701** GSL Flying frame (44 kg/97 lb) equipped with a Z5711 **ArraySight** sender unit **[1a]**. An appropriate shielded CAT5e 1:1 cable (K6006.200.00), 30 m (100 ft) is also enclosed. **[2]** **Z5702** GSL Load beam(29 kg/64 lb). **[3]** **Z5705** Safety chain 4 t (7 kg/15.4 lb). **[4]** **Z5713** SL Cable pick (1.5 kg/3.3 lb).

Z5721 KSL Flying frame set

Set	Including
Z5721 KSL Flying frame set (60 kg/132.3 lb)	**[1]** **Z5722** KSL Flying frame (30.3 kg/66.8 lb) equipped with a Z5711 **ArraySight** sender unit **[1a]**. An appropriate shielded CAT5e 1:1 cable (K6006.200.00), 30 m (100 ft) is also enclosed. **[2]** **Z5723** KSL Load beam (21 kg/46.3 lb). **[3]** **Z5705** Safety chain 4 t (7 kg/15.4 lb). **[4]** **Z5713** SL Cable pick (1.5 kg/3.3 lb).



Z5704 GSL Compression set

Set	Including	
Z5704 GSL Compression set (44 kg/97 lb)	**[1a]**	**Z5703** GSL Compression frame (18.6 kg/41 lb).
	[2]	**Z5709** SL Compression chain 2.5 t (12.1 kg/26.7 lb).
	[3]	**B2447.073** Compression grab link (1.4 kg/3.1 lb).
	[4]	**B2447.072 .01** Crank lever hoist (9.8 kg/22 lb).
	[5]	**B2447.074** Compression frame master link (3.5 kg/7.7 lb).
	[6]	**B2447.075** Chain bag (0.75 kg/1.65 lb).

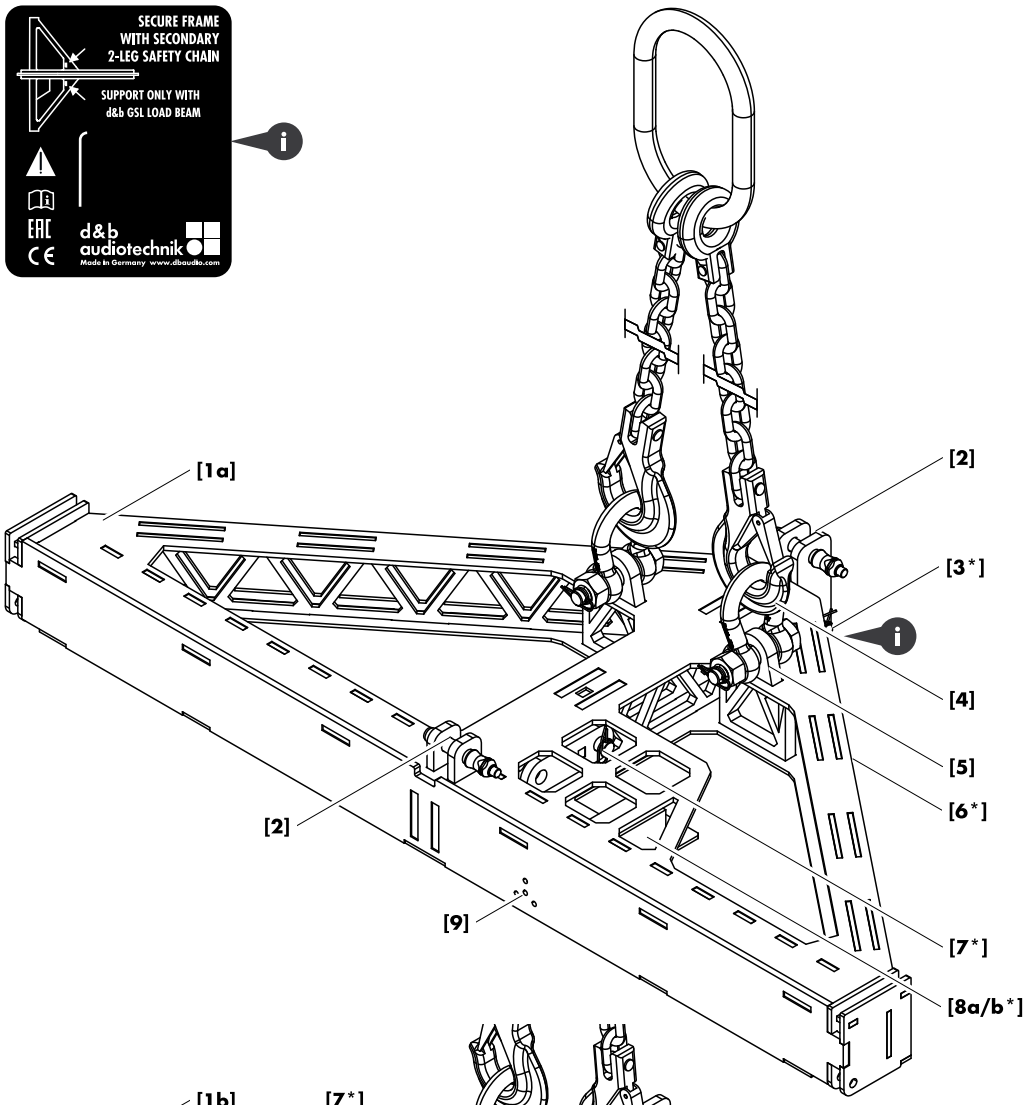
Z5724 KSL Compression set

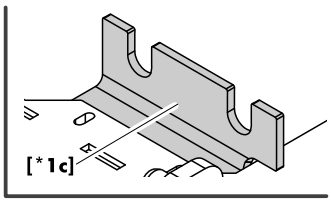
Set	Including	
Z5724 KSL Compression set (41 kg/90.4 lb)	**[1b]**	**Z5725** KSL Compression frame (16 kg/35.3 lb).
	[2]	**Z5709** SL Compression chain 2.5 t (12.1 kg/26.7 lb).
	[3]	**B2447.073** Compression grab link (1.4 kg/3.1 lb).
	[4]	**B2447.072 .01** Crank lever hoist (9.8 kg/22 lb).
	[5]	**B2447.074** Compression frame master link (3.5 kg/7.7 lb).
	[6]	**B2447.075** Chain bag (0.75 kg/1.65 lb).

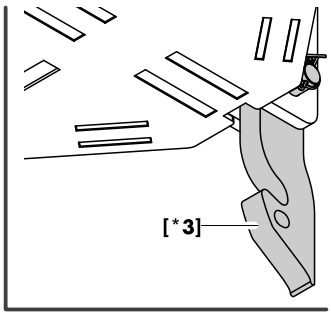
3.2 GSL/KSL flying frames

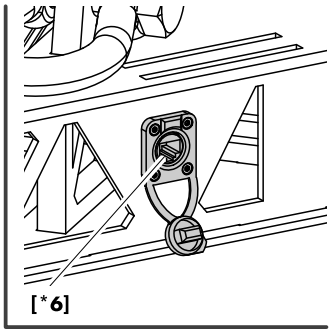
Please verify the shipment for completeness and proper condition of the items.

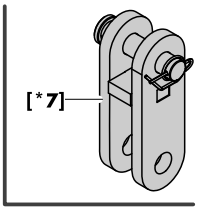
The GSL/KSL flying frames are equipped and supplied with the following rigging components:

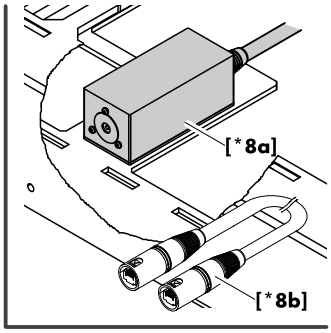




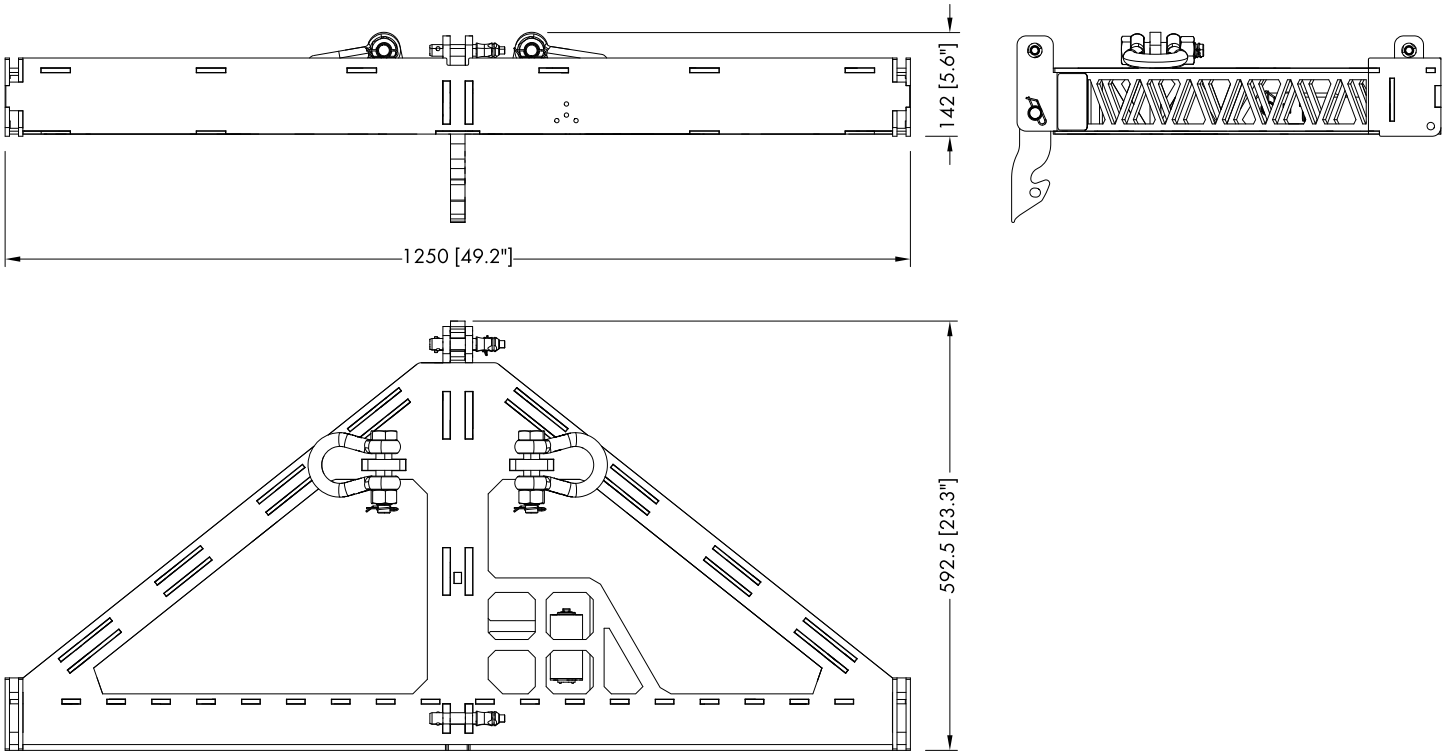




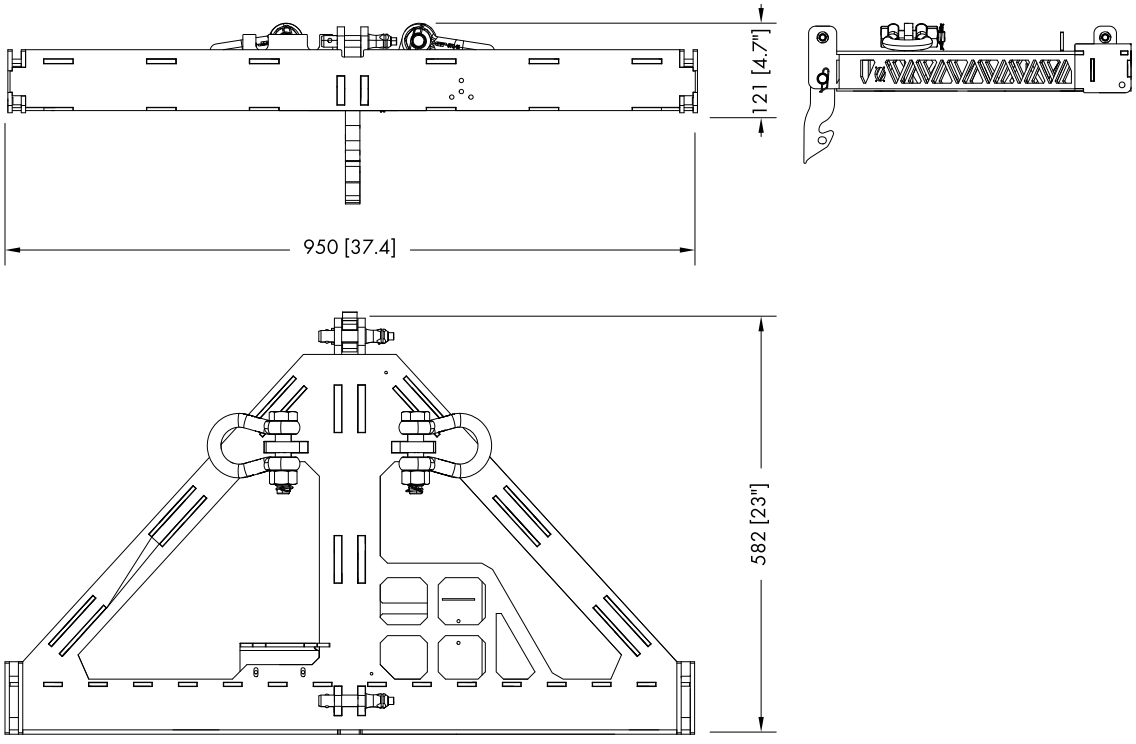




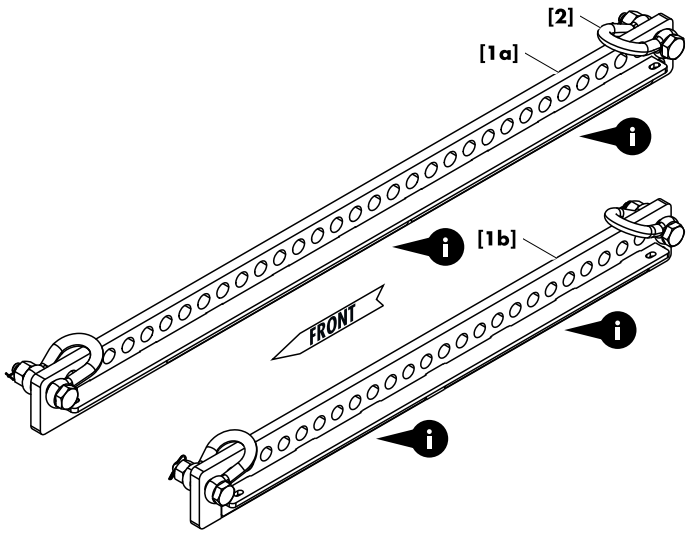
Pos.	Component	Description
[1a] **[1b]**	Z5701 GSL Flying frame Z5722 KSL Flying frame	The flying frames **[1a]**/**[1b]** are constructed from high-grade steel following the principles of truss construction to achieve the lowest possible dead weight. They are designed to support arrays (columns) consisting of either: **Z5701 GSL Flying frame:** ⇒ Z0750/Z0751 GSL8/GSL12 cabinets, or... ⇒ Z0760 SL-SUB cabinets. **Z5722 KSL Flying frame:** ⇒ Z0780/Z0781 KSL8/KSL12 cabinets, or... ⇒ Z0785 KSL-SUB cabinets.
[*1c]	Parking slot for Z5723 KSL Load beam	In connection with the KSL Touring cart, the KSL Load beam is stored on top of the KSL Flying frame (please also refer to ⇒ Chapter 3.14.1.4 "Loading the carts" ⇒ "Storing and fixing the load beam" on page 43).
[2]		At the center front and rear of the frames, dedicated pickpoints **[2]** and corresponding Locking pins (Type A: 16 x 55 mm) are provided to accept the corresponding load beam.
[*3]	Rear link (Frame)	The rear links of the frames are used to attach the first TOP cabinet to the frame. To attach the frame to SUB cabinets, the Rear link of the frame can be moved to the respective SUB position of the Load beam using the enclosed Rear link adapter **[*7]** (please also refer to ⇒ Chapter 9.2 “Rear link of the Flying frames” on page 65).
[4]	Z5705 Safety chain 4 t	The Z5705 Safety chain is supplied with the corresponding GSL or KSL Flying frame set (please also refer to ⇒ Chapter 1.4 “Secondary safety” on page 7).
[5]	Safety point(s)	The flying frames are fitted with two safety points, each equipped with a 4.75 t shackle to attach a secondary safety device using the enclosed Safety chain (please also refer to ⇒ Chapter 1.4 “Secondary safety” on page 7).
[*6]	etherCON connector socket	In connection with the d&b Z5711 ArraySight sender unit, the etherCON connector socket acts as a feed through to allow for easy connection of the sender unit.
[*7]	Rear link adapter	To attach the frame to SUB cabinets, the Rear link of the frame can be moved to the respective SUB position of the Load beam using the enclosed Rear link adapter, which provides the necessary extension length (please also refer to ⇒ Chapter 9.2 “Rear link of the Flying frames” on page 65).
[*8a/8b]	Z5711 ArraySight sender unit	By factory default, the flying frames are equipped with a calibrated and adjusted d&b Z5711 ArraySight sender unit **[8a]** (laser inclinometer). An appropriate, shielded CAT5e 1:1 cable, 30 m (100 ft) is also provided (K6006.200.00 - **[8b]**) to allow either read out via the d&b Z5712 ArraySight meter unit (single operation) or via R1 in connection with the d&b Remote control network (remote operation - OCA/AES70). For detailed information on the d&b ArraySight inclinometer system, please refer to the ArraySight manual which is also supplied with the flying frames.
[9]		Four dedicated holes are provided at the front of the frame. The center hole serves as the exit for the laser beam, while the three surrounding holes allow for the adjustment of the ArraySight sender unit **[8a]**, if necessary.
ⓘ		Instruction labels providing vital safety and rigging instructions.



Z5701 GSL Flying frame dimensions in mm [inch]



Z5722 KSL Flying frame dimensions in mm [inch]



3.3 GSL/KSL load beams

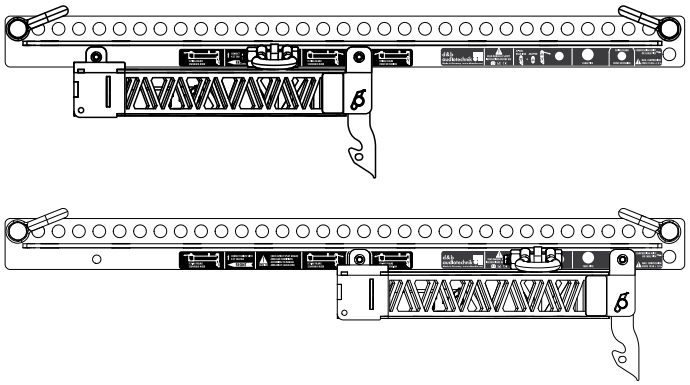
Please verify the shipment for completeness and proper condition of the items.

The GSL/KSLload beams are equipped and supplied with the following rigging components:

Pos.	Component	Description
[1a]	Z5702 GSL Load beam	The load beams are constructed from high-grade steel with a dead weight of: **GSL:** 29 kg (64 lb) **KSL:** 21 kg (46.3 lb) They are attached on top of the flying frames to allow either single or dual pickpoint operation. For this purpose, the load beams are equipped with a hole grid consisting of: **GSL:** 33/**KSL:** 26... ...25 mm (1") holes.
[1b]	Z5723 KSL Load beam	
[2]		Two 4.75 t shackles are provided to allow direct connection to the chain hoist motor hook or to attach the Z5706 Hoist connector chain and/or the Z5707 SL Aiming plate.
ⓘ		Instruction labels providing vital safety and rigging instructions.

Load beam operating modes

The GSL/KSL load beams allow for two operating modes:



STANDARD MODE

In standard mode, the load beam extends to the rear. This mode is used for standard array setup and allows for the required downtilt.

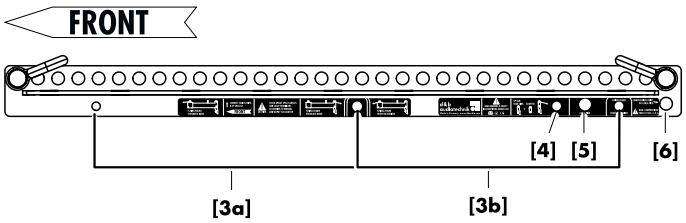
FRONT EXTENSION

In extension mode, the load beam extends to the front and allows for the required uptilt.

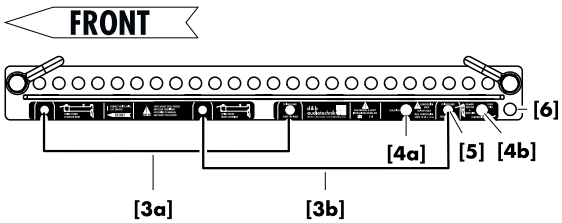
Note: The FRONT EXTENSION mode of the GSL Load beam is not applicable for SUB columns.

Load beam instruction labels

Two instruction labels are located at the bottom strand of the load beams, indicating the hole positions for:



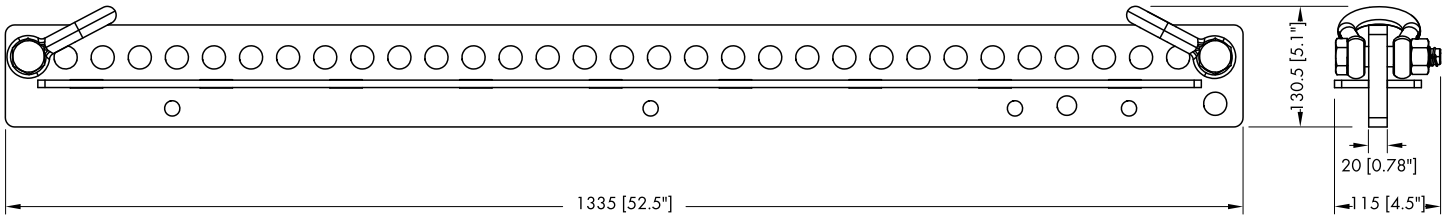
Z5702 GSL Load beam instruction labels



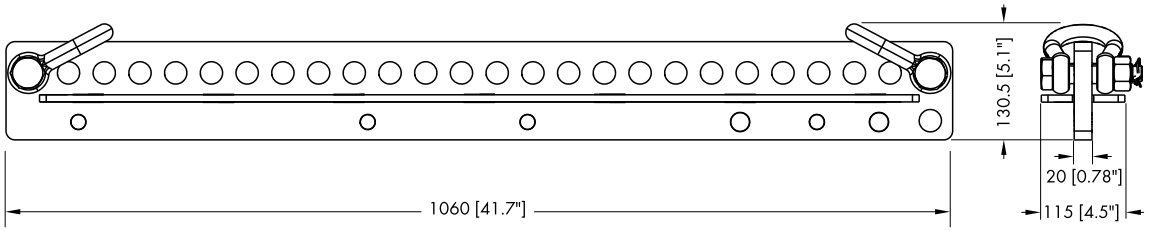
Z5723 KSL Load beam instruction labels

Pos.	Description
[3a/b]	Hole positions for the two rigging modes: ▪ Hole pair **[3a]** for STANDARD MODE. ▪ Hole pair **[3b]** for FRONT EXTENSION.
[4]	Hole position for the additional Rear link adapter for the deployment of SL-SUB cabinets.
[5]	Hole position for the cable pick providing a 21 mm (0.8") hole for the attachment of the Z5713 SL Cable pick or a standard 3.25 t shackle.
[6]	Hole position for the attachment of the Z5709 SL Compression chain.

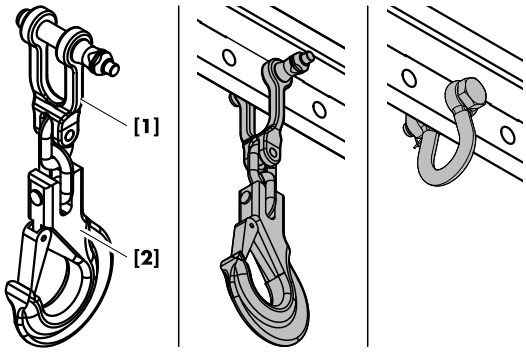
Pos.	Description
[3a/b]	Hole positions for the two rigging modes: ▪ Hole pair **[3a]** for STANDARD MODE. ▪ Hole pair **[3b]** for FRONT EXTENSION.
[4a/b]	Hole position for the cable pick providing a 21 mm (0.8") hole for the attachment of the Z5713 SL Cable pick or a standard 3.25 t shackle.
[5]	Hole position for the additional Rear link adapter for the deployment of KSL-SUB cabinets.
[6]	Hole position for the attachment of the Z5709 SL Compression chain.



Z5702 GSL Load beam dimensions in mm [inch]



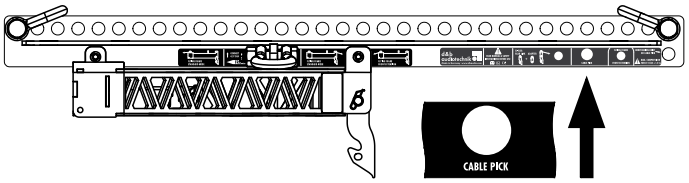
Z5723 KSL Load beam dimensions in mm [inch]



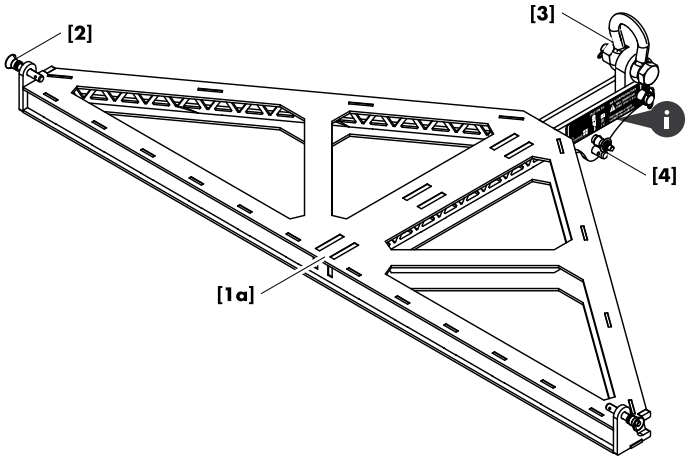
3.3.1 Z5713 SL Cable pick

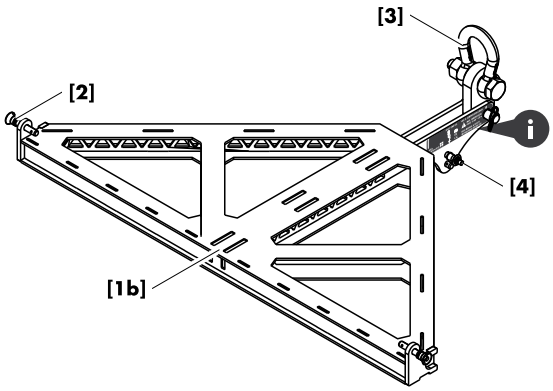
The Z5713 SL Cable pick consists of coupling shackle **[1]** with a corresponding Locking pin (Type A: 16 x 55 mm) and a hook with safety latch **[2]**.

It is intended to be attached to the load beam. For this purpose, the load beam provides a dedicated 21 mm hole.



Alternatively, a standard 3.25 t shackle can be used for this purpose.





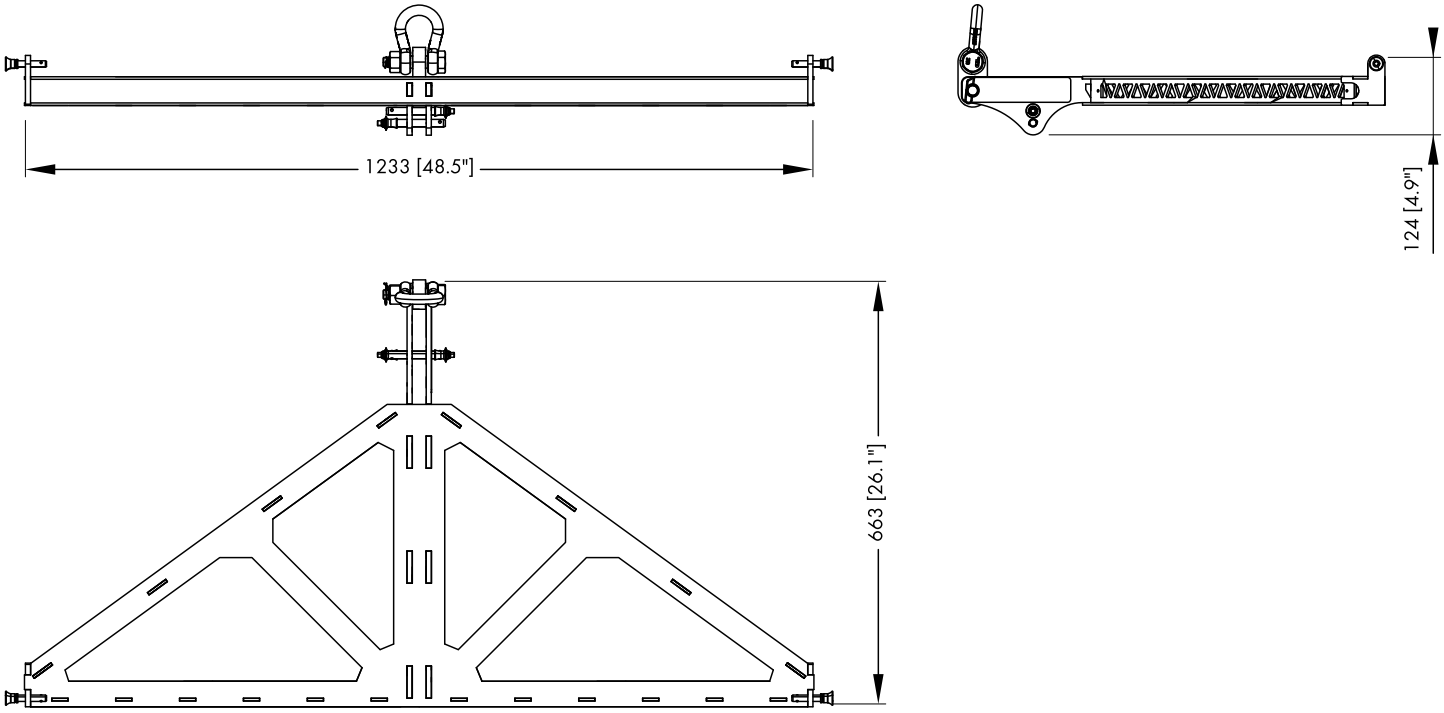


3.4 GSL/KSL compression frames

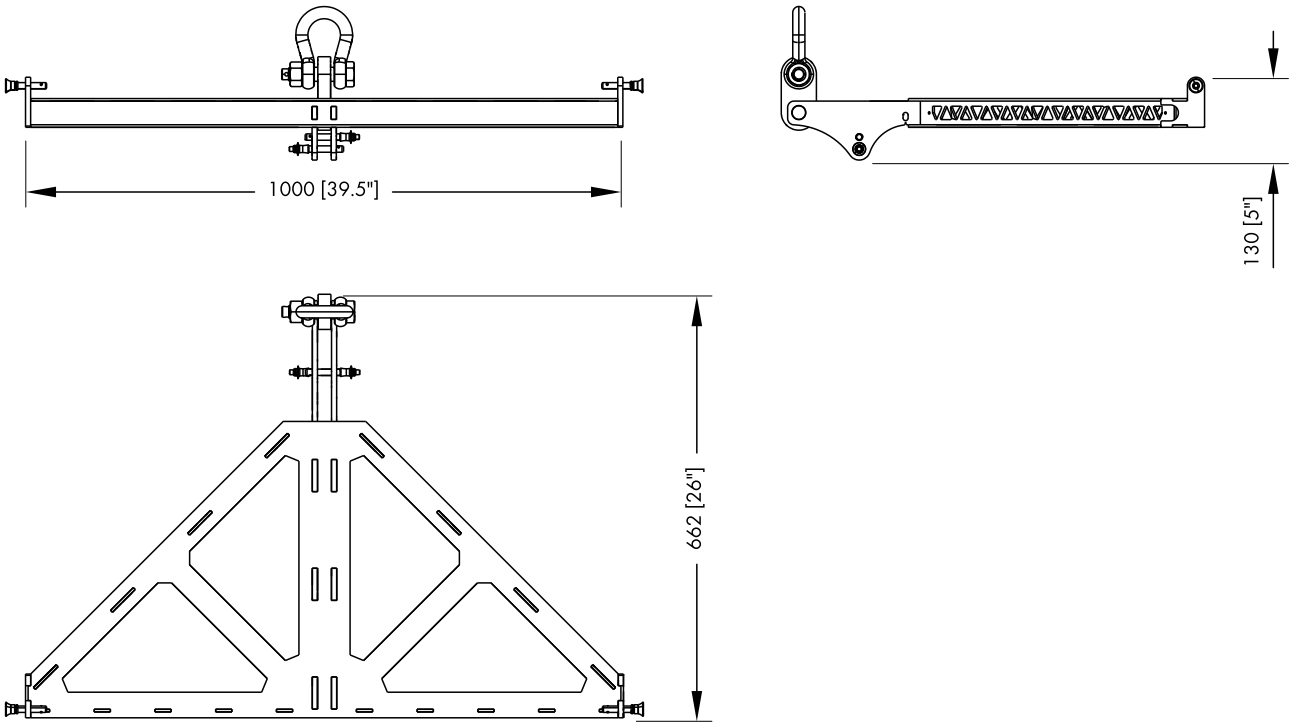
Please verify the shipment for completeness and proper condition of the items.

The GSL/KSL compression frames are equipped and supplied with the following rigging components:

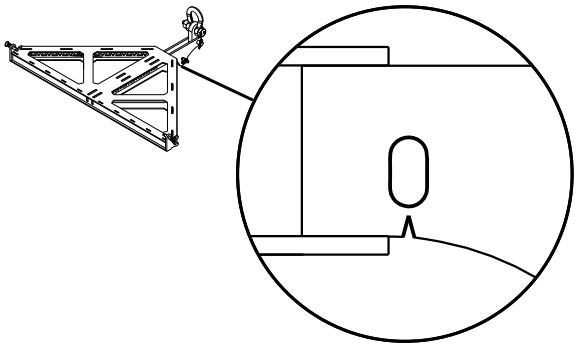
Pos.	Component	Description
[1a] **[1b]**	Z5703 GSL Compression frame Z5725 KSL Compression frame	The compression frames are constructed from high-grade steel following the principles of truss construction to achieve the lowest possible dead weight of: **GSL:** 18.6 kg (41 lb) **KSL:** 16 kg (35.3 lb) including all rigging components. They are attached to the bottom of the last cabinet of the array.
[2]	Locking pins front	Two Locking pins (Type C: 10 x 35 mm) are provided to attach the compression frame to the front rigging strands of the bottom cabinet.
[3]	Compression pickpoint	At the center rear, a dedicated pickpoint is provided to accept the d&b B2447.074 Compression frame master link or the hook of a chain hoist. It comprises an O-ring and a dedicated 4.75 t shackle.
[4]	Splay link slot	A corresponding slot accepts the Splay link of the bottom cabinet which is fixed and secured using the two Locking pins (Type B: 12 x 45 mm).
ⓘ		Instruction labels providing vital safety and rigging instructions.



Z5703 GSL Compression frame dimensions in mm [inch]



Z5725 KSL Compression frame dimensions in mm [inch]



3.4.1 KSL Compression frame - Rated break point

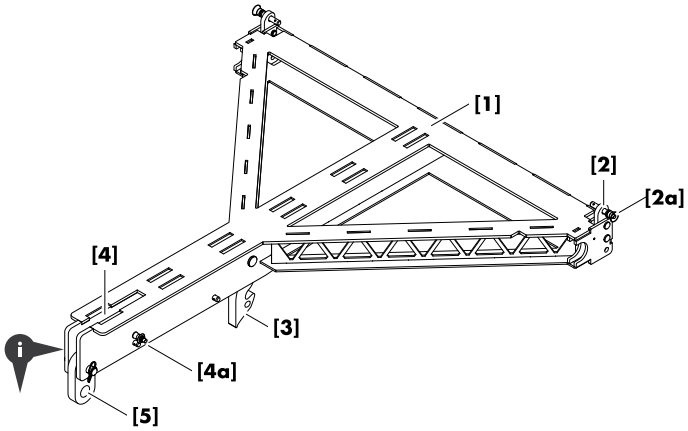
NOTICE!

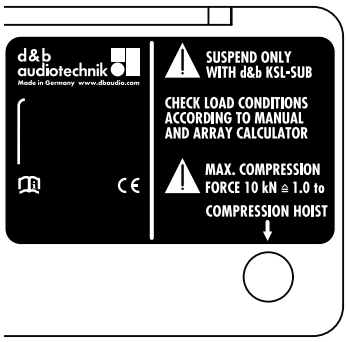
To prevent the rigging components from any damage, the Splay link slot of the KSL Compression frame features a rated break point.

If the Splay link is subjected to excessive compression force, the Splay link slot will break in a defined manner and direction.

In this case, the KSL Compression frame can no longer be used and **must be withdrawn** from any further use immediately.

Please also refer to ⇒ Chapter 15 "Care and maintenance" ⇒ "GSL/KSL flying frames and compression frames" on page 85.



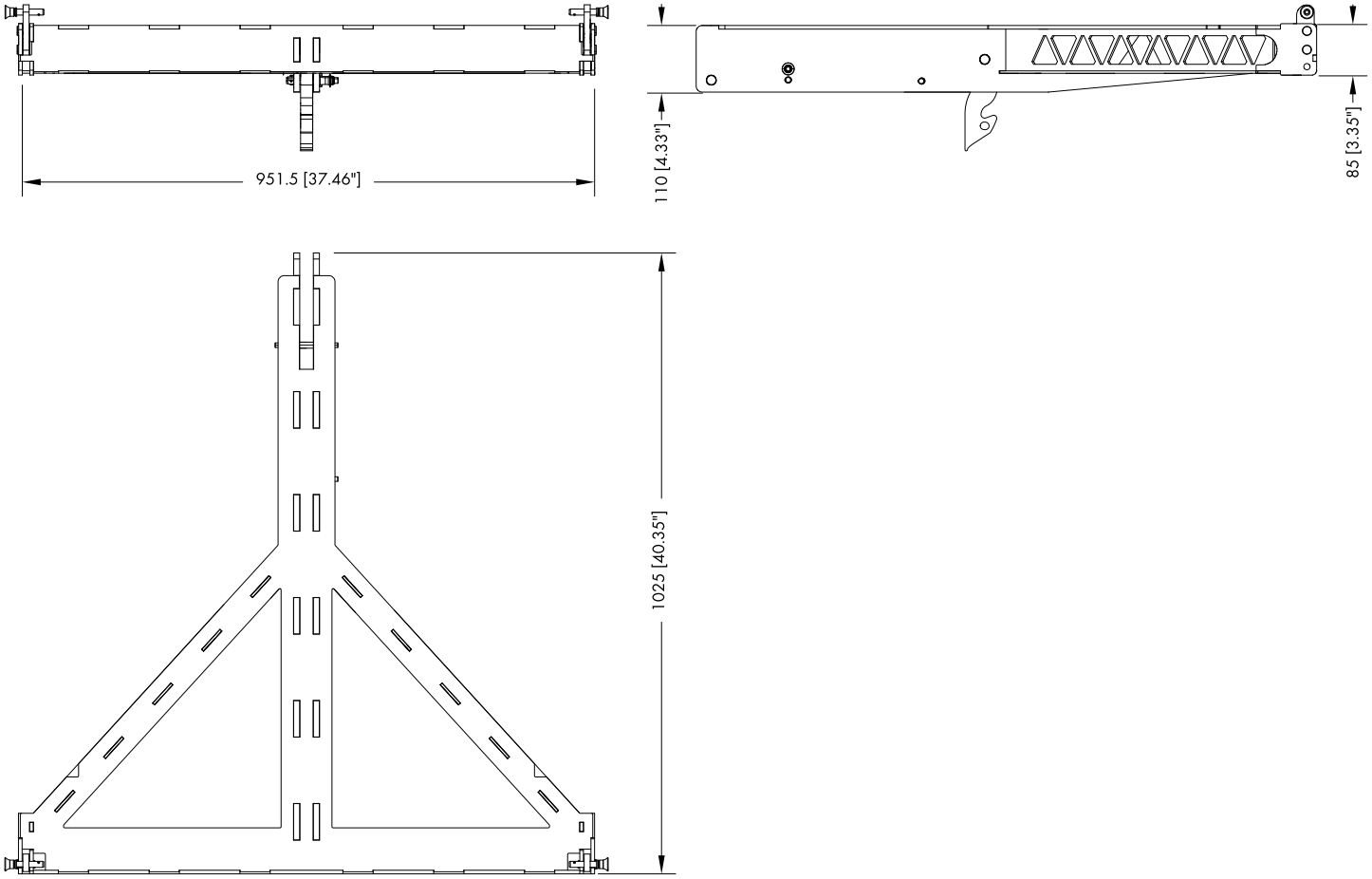


3.5 Z5747 KSL-SUB Adapter frame

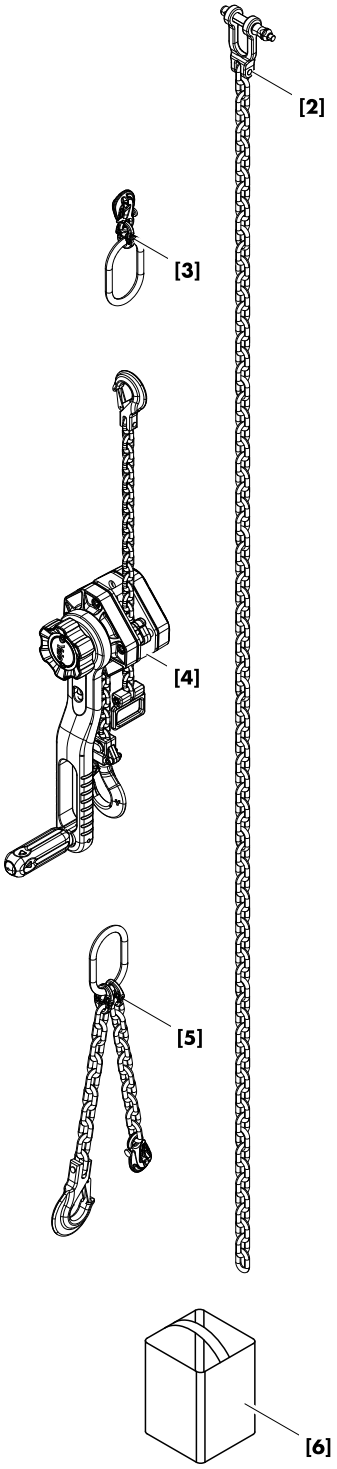
Please verify the shipment for completeness and proper condition of the items.

The KSL-SUB Adapter frame is equipped and supplied with the following rigging components:

Pos.	Component	Description
[1]	Z5747 KSL-SUB Adapter frame	The KSL-SUB Adapter frame is constructed from high-grade steel following the principles of truss construction to achieve the lowest possible dead weight of 38 kg (84 lb), including all rigging components.
[2]	Locking pins front	Two fixed Front links including corresponding Locking pins **[2a]** (type C: 10 x 35 mm) are provided to attach the adapter frame to the front rigging strands of the bottom SUB cabinet.
[3]	Rear link (frame)	The rear link of the adapter frame is used to attach the first KSL-TOP cabinet to the frame.
[4]	Rear link slot	A corresponding slot accepts the Rear link of the bottom KSL-SUB cabinet which is fixed and secured using the two Locking pins **[4a]** (Type B: 10 x 45 mm).
[5]	Compression pickpoint	Pickpoint for the attachment of the Z5709 SL Compression chain.
ⓘ		Instruction label providing vital safety and rigging instructions.



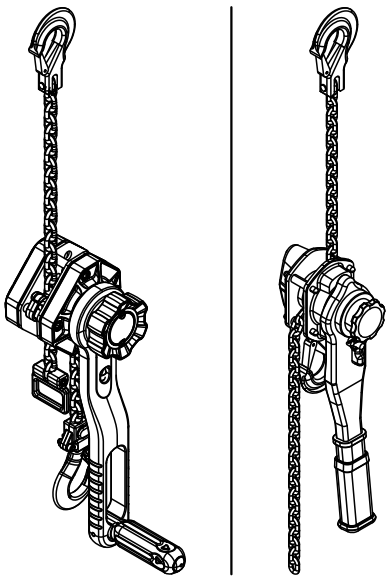
Z5747 KSL-SUB Adapter frame dimensions in mm [inch]



3.6 GSL/KSL compression set components

In addition to compression frames, the GSL/KSL compression sets (Z5704 GSL Compression set/Z5724 KSL Compression set) comprise the following components:

Pos.	Component and weight	Description
[2]	Z5709 SL Compression chain (12.1 kg/26.7 lb)	The Z5709 SL Compression chain consists of a 7.6 m (25 ft)/8 mm chain (grade 10) and a coupling shackle with a corresponding Locking pin (Type A: 16 x 55 mm). The shackle allows direct attachment to the appropriate hole at the bottom rear of the corresponding load beam.
[3]	B2447.073 Compression grab link (1.4 kg/3.1 lb)	For GSL/KSL line arrays in Compression mode, the grab link is used as "pickpoint" for the B2447.072 .01 Crank lever hoist. For this purpose, the link is attached to the compression chain. Its position is calculated and indicated in ArrayCalc. The Compression grab link consists of an O-ring, a connecting link and a grab hook with safety latch.
[4]	B2447.072 .01 Crank lever hoist (9.8 kg/22 lb)	For GSL/KSL line arrays in Compression mode, the lever hoist is used to manually curve the array.
[5]	B2447.074 Compression frame master link (3.5 kg/7.7 lb)	For GSL/KSL line arrays in Compression mode, the compression frame master link is used to link the B2447.072 .01 Crank lever hoist to the rear pickpoint of the GSL or KSL Compression frame. The link itself consists of an O-ring, one chain leg including hook for attachment to the compression frame and a second chain leg with a corresponding grab hook with safety latch. Once the array is completely set up and curved, this second chain leg is used as secondary safety for the B2447.072 .01 Crank lever hoist and must be attached to the compression chain.
[6]	B2447.075 Chain bag (0.75 kg/1.65 lb)	Once the array is completely set up, the chain bag is used to store the remaining compression chain and lever hoist chain. For this purpose, the chain bag can be attached to the O-ring of the compression frame master link using the enclosed chain link with S-hook.



B2467.072 .01 Crank lever hoist | B2447.072 .00 Lever hoist

3.7 SL-Series lever hoists

With the introduction of the d&b SL-Series GSL and KSL line arrays, d&b also introduced the possibility of "Compression mode setup".

For this purpose, the "B2447.072 .00 Lever hoist" was specified to use.

For an improved and more sufficient setup, the "B2447.072 .01 Crank lever hoist" was introduced later on, which is similar to the "B2467.072 Crank lever hoist" known from the XSL rigging system.

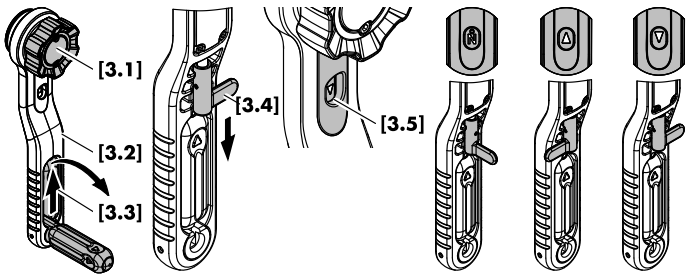
As both variants are now in use in the field, this manual describes and covers the use and operation of both lever hoists.

3.7.1 B2447.072 .01 Crank lever hoist

With GSL/ KSL line arrays in ⇒ "Compression mode setup", we recommend the use of the B2447.072 .01 Crank lever hoist in connection with the d&b GSL/KSL compression sets to manually curve (compress) the array.

The lever hoist provides a compression force of up to 1.0 ton (10 kN) which corresponds to the maximum permitted compression force.

> **Note:** The lever hoist is fitted with a friction clutch that disengages when the maximum allowed compression force is reached. The crank then freewheels and the hoist cannot apply any additional force to the compression chain.



Apart from the gear housing, load chain and hook, the lever hoist consists of the following controls and indicators:

[3.1] Free chain knob

[3.2] Lever

[3.3] Pull-out crank:

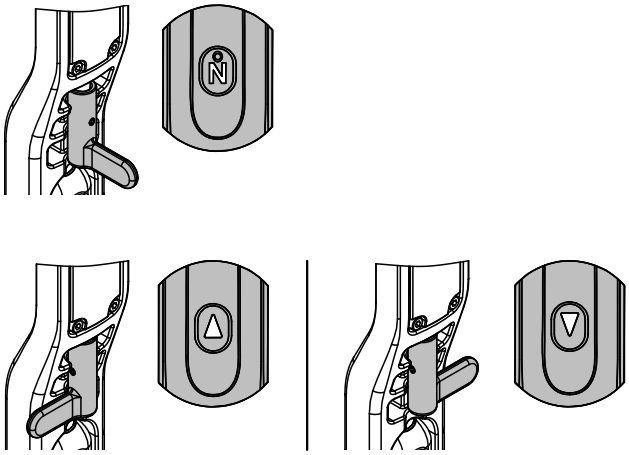
1. Slightly lift the handle to unlock it.
2. Fold out the handle until it clicks into place.
3. To return the handle back to its upright position, simply pull the handle outwards and fold it back.

[3.4] Lever mode selector:

1. Pull down the lever to unlock it.
2. Turn it to the desired lever mode and release the lever.
   The lever automatically snaps back into its lock position.

[3.5] Lever mode indicator:

ℕ **: Neutral** - free chaining.
△ **: Lifting** - clockwise.
▽ **: Lowering** - counter clockwise.



3.7.1.1 Operation

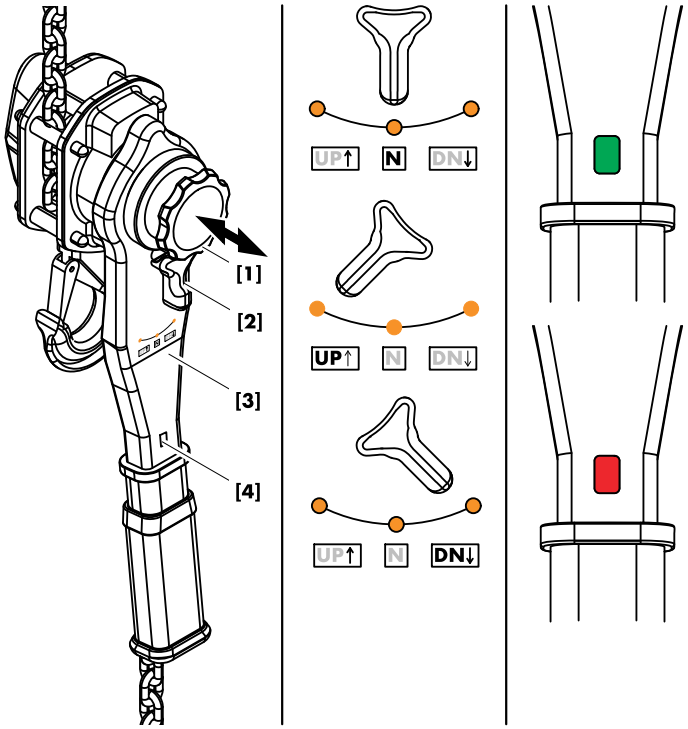
Free chaining operation
In free chaining mode, the brake is released and the load chain can be freely pulled through the hoist in either direction to its required length.

⇒ Set the lever mode selector **[3.4]** to the neutral (N) position.
↳ During free chaining operation, pull the chain slowly and continuously.

Load operation
Set the lever mode selector **[3.4]** to the desired position.

When operating the lever with the lever mode selector set to the lifting (△) or the lowering (▽) position, the hoist performs as follows:

- During lifting and lowering operations, braking is always applied.
- In lifting mode, the tightened mechanical brake supports the load on the pawls when the lever stops.
- In lowering mode, lever operation un-tightens the mechanical brake and lowers the load chain. When the lever stops, the mechanical brake is tightened again and supports the load instantly.



3.7.2 B2447.072 .00 Lever hoist

With GSL/KSL line arrays in ⇒ "Compression mode setup", the B2447.072 .00 Lever hoist in connection with the d&b GSL/KSL compression sets allows the array to be manually curved (compressed).

The lever hoist provides a compression force of up to 1.0 ton (10 kN) which corresponds to the maximum permitted compression force.

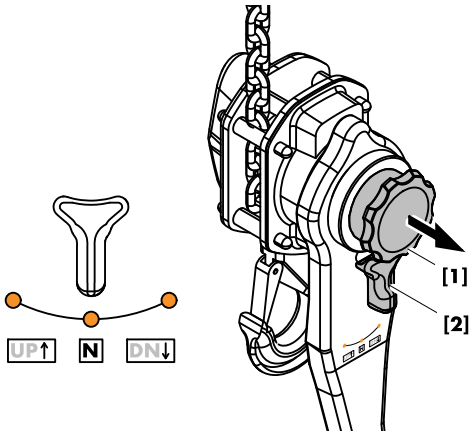
Apart from the gear housing, load chain and hooks, the lever hoist consists of the following controls and indicators:

[1] Free chain knob.

[2] Lever mode selector:
N: Neutral.
UP: Lifting - clockwise.
DN: Lowering - counter clockwise.

[3] Lever.

[4] Load indicator:
Green: Safe load ⇒ Continue operation.
Red: Overload ⇒ Lever kinks ⇒ **Stop** operation.



3.7.2.1 Operation

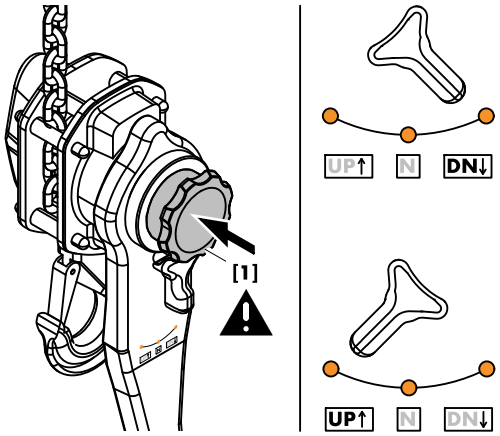
Free chaining operation

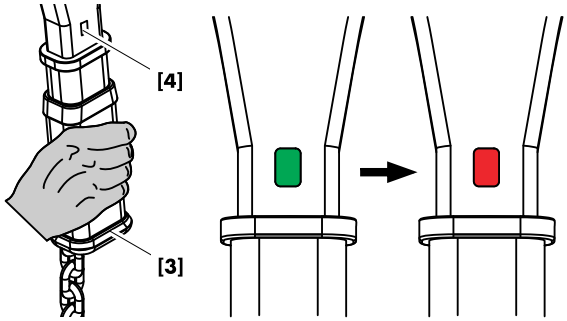
WARNING!
Potential risk of personal injury and/or damage to material.

Do NOT operate the hoist in free chaining mode under load.

In free chaining mode, the brake is released and the load chain can be freely pulled through the hoist in either direction to its required length.

1. Set the lever mode selector **[2]** to the neutral (**N**) position.
2. Pull the free chain knob **[1]**.
   ↳ During free chaining operation, pull the chain slowly and continuously.





Load operation

WARNING!
Potential risk of personal injury and/or damage to material.

Do NOT operate the free chain knob [1] in lowering mode.

Set the lever mode selector **[2]** to the desired position.

When operating the lever with the lever mode selector set to the lifting (**UP**) or the lowering (**DN**) position, the hoist performs as follows:

- During lifting and lowering operations, braking is always applied.
- In lifting mode, the tightened mechanical brake supports the load on the pawls when the lever stops.
- In lowering mode, lever operation un-tightens the mechanical brake and lowers the load chain. When the lever stops, the mechanical brake is tightened again and supports the load instantly.

Load indicator

The load indicator is designed as an overload detecting device.

In connection with d&b SL-Series line arrays in Compression mode, this device indicates that the maximum permitted compression force has been achieved.

NOTICE!

To provide correct detection of the compression force applied, operate the hoist by holding the lever grip **[3]** in the middle as shown in the graphic opposite.

1. Operate the hoist correspondingly.
   The following states of the load signal indicate that the maximum permitted compression force has been achieved:
   - The lever **[3]** kinks.
   - The load indicator window **[4]** changes from green to red.
2. Stop further operation and place the lever into its straight position (back into place).

3.8 Lifting and safety devices

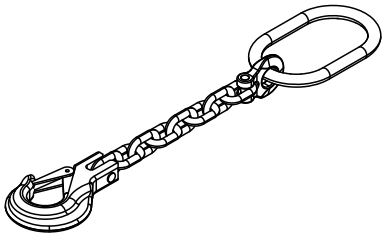
NOTICE!
Inspection plate – Chains

Hoist connector chains and safety chains are safety-relevant equipment and are subject to specific inspection and monitoring requirements.
For new chains purchased through d&b, an unmarked inspection plate is supplied.

- Deboss this inspection plate with the date of the next required periodic safety and functionality inspection relative to your first use.
- Inspect chains at defined intervals for signs of wear and tear, damage, or malfunction.
- Use the supplied inspection plate and check the inspection sheet for chain monitoring to document these inspections.
  Refer to ⇒ Chapter 15 "Care and maintenance" on page 84 for details on inspection intervals.
- Observe local regulations on specific legal monitoring or inspection requirements for chain systems. Users are responsible for obtaining information about applicable regulations in the country of use.
- Carefully read and follow all safety instructions and information provided by the chain manufacturer.

Proper initial marking and consistent documentation of inspections significantly contribute to operational safety and help reduce potential damage and liability risks.

3.8.1 Z5706 Hoist connector chain 4 t

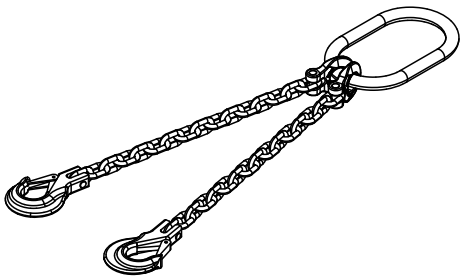


The Z5706 Hoist connector chain is used to connect the lifting motor(s) to the GSL/KSL load beams using the 4.75 t shackles of the corresponding load beam.
Its length of 530 mm (21") allows enough space for the hang of most 2 t motor chain containers and avoids any impact on the vertical balance of the array.

Specification

Lifting chain (DIN EN 818)	1-leg, 10 mm
Grade	10
Nominal length incl. hook	530 mm (21")
Load rating	4 t
Weight	3.1 kg/6.8 lb

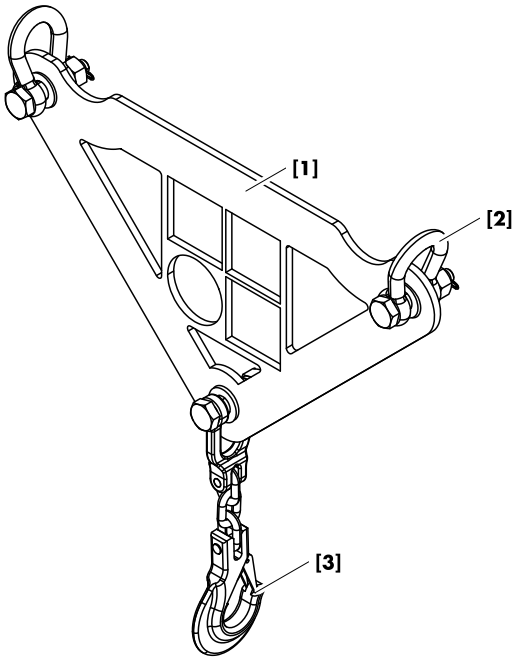
3.8.2 Z5705 Safety chain 4 t

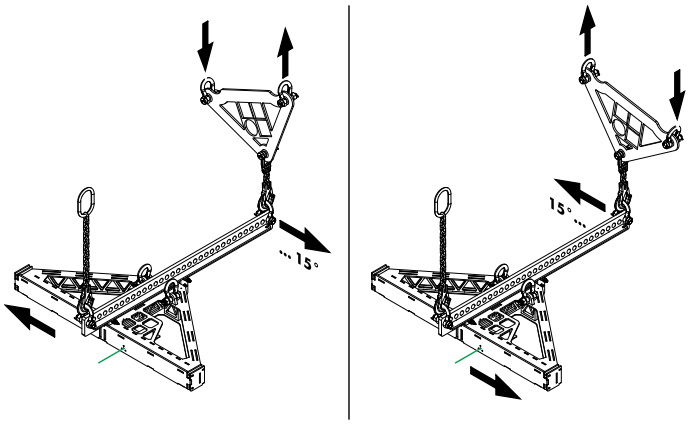


The Z5705 Safety chain is supplied with the corresponding GSL/KSL flying frames and is used as a secondary safety device. Please also refer to ⇒ Chapter 1.4 "Secondary safety" on page 7.

Specification

Lifting chain (DIN EN 818)	2-leg, 10 mm
Grade	10
Nominal length incl. hook	800 mm (31.5")
Load rating	4 t
Weight	7 kg/15.4 lb



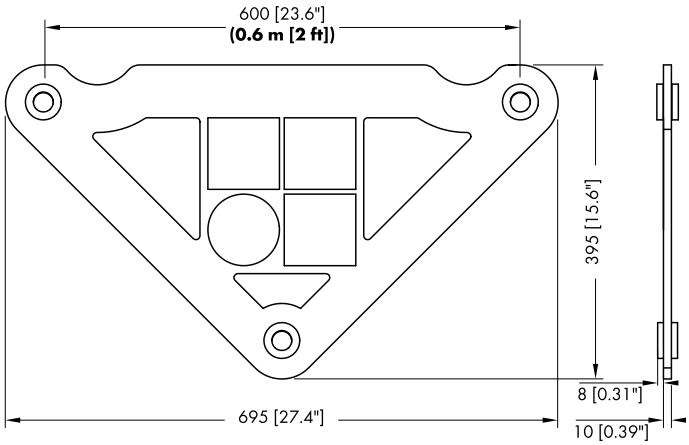


3.8.3 Z5707 SL Aiming plate

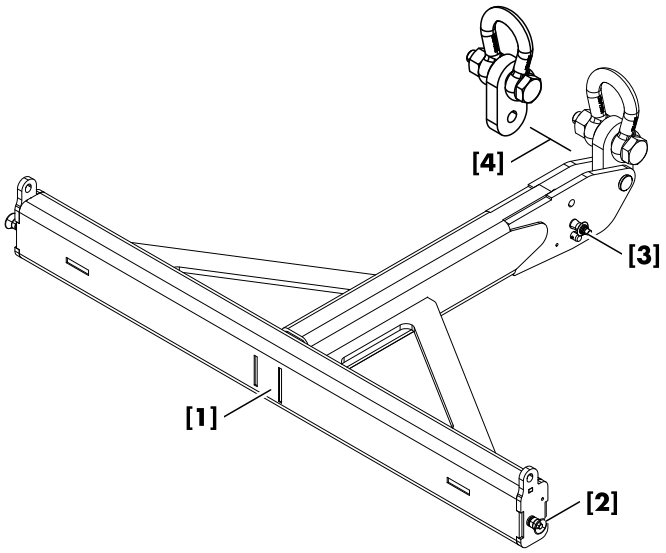
Please verify the shipment for completeness and proper condition of the items.

The Z5707 Aiming plate is equipped and supplied with the following rigging components:

Pos.	Component	Description
[1]	Z5707 SL Aiming plate	The Z5707 SL Aiming plate is constructed from high grade steel with a dead weight of 13.5 kg (29.8 lb). It is used for the horizontal aiming of an entire array using two motor hoists. With a chain hoist distance of minimum 0.6 m (2 ft), preferably approx 1 m (3 ft), the SL Aiming plate provides a horizontal angle range of ±15° (first and last pick holes of the load beam used).
[2]		Two 4.75 t shackles are provided to allow direct connection to the motor hoist hooks or to attach the Z5706 Hoist connector chain.
[3]		Load hook for attachment to the 4.75 t shackle of the corresponding SL-Series load beam or applicable d&b flying frame.



Z5707 SL Aiming plate dimensions in mm [inch]

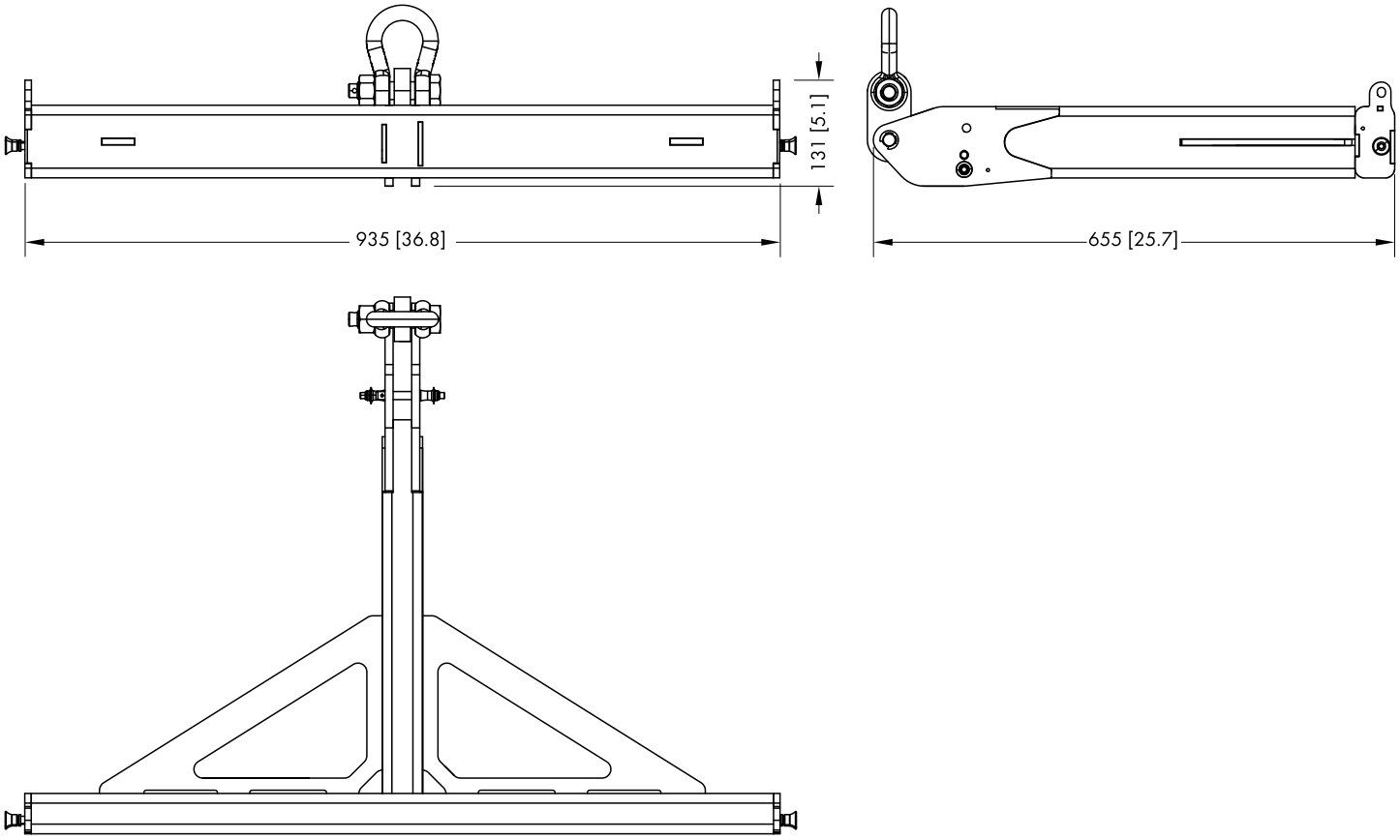


3.9 Z5748 KSL Pullback frame

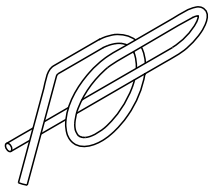
Please verify the shipment for completeness and proper condition of the items.

The Z5748 KSL Pullback frame is equipped and supplied with the following rigging components:

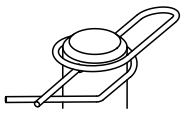
Pos.	Component	Description
[1]	Z5748	KSL Pullback frame (20 kg/44 lb).
[2]		Two Locking pins front (type C: 10 x 35 mm - stored in park position).
[3]		Two Locking pins rear (Type B: 10 x 45 mm).
[4]		**2x** Suspension device with corresponding 4.75 t shackle. One device is attached to the frame and is intended to connect the pullback chain hoist. The second device is intended to be attached to the rear pick point of the KSL Flying frame to connect the chain hoist.



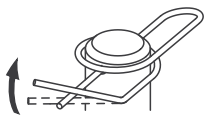
Z5748 KSL Pullback frame dimensions in mm [inch]

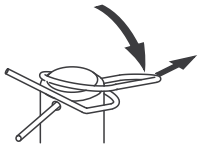


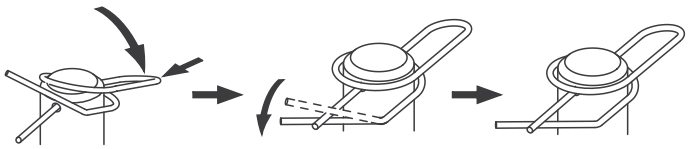
Ring cotter



Ring cotter locked







3.10 Ring cotters

In connection with the SL-Series rigging system, ring cotters are used for the following items to prevent the respective item from slackening and/or loosening:

- Fixing bolt of the shackles attached to the load beam and safety points of the flying frame.
- Fixing bolt of the flying frames Rear link and Rear link adapter.
- Fixing bolt of the shackle attached to the compression frame.
- Fixing bolt of the shackles attached to the aiming plate.

Function of the ring cotter

By default, the ring cotters are "locked" to prevent them from loosening.

For modification reasons such as altering the position of the Frame's Rear link or exchanging a shackle, it may be necessary to temporarily remove the ring cotter and reattach it afterwards.

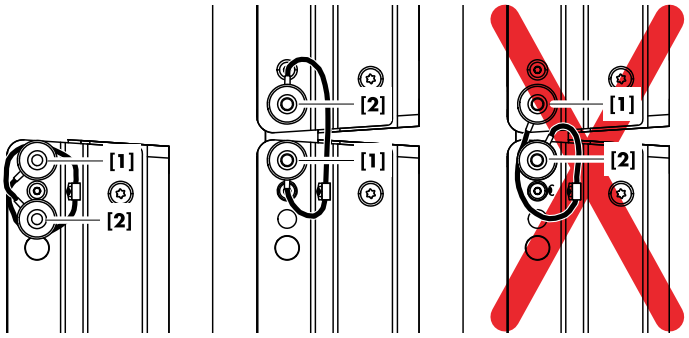
> **Note:** Please also refer to ⇒ Chapter 15 "Care and maintenance" ⇒ 15.3 "Visual and functional inspection" ⇒ "Ring cotters" on page 85.

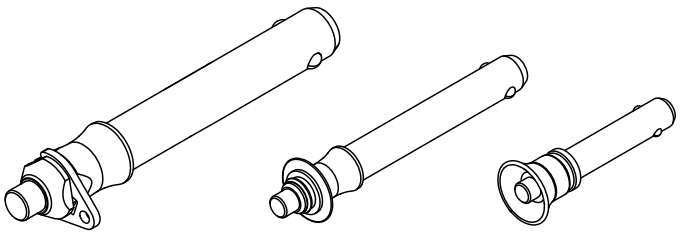
For this purpose, proceed as follows:

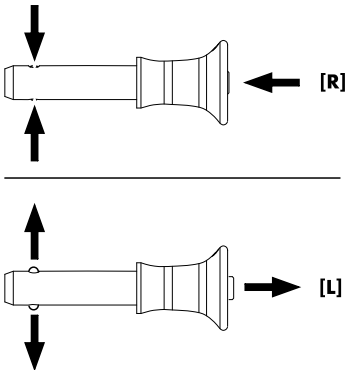
1. **Unlock**
   Unlock the ring cotter by pushing up the front wire loop over the straight wire shaft.

2. **Release and remove**
   Push down the rear wire loop until the ring cotter snaps over the edge of the bolt and remove the ring cotter.

3. **Refit and lock**
   Refit the ring cotter by pushing the straight wire shaft through the hole and pressing the front wire loop underneath the straight wire shaft.







Locking pin functionality
Shown with pin type **[C]**

3.11 Locking pins

WARNING!
Potential risk of personal injury and/or damage to material!

The steel wires between the Locking pins of the cabinets and rigging components are not intended to carry any load. The cabinet's weight must only be carried by the Front and Splay/Rear links in connection with the front and rear rigging strands of the loudspeaker cabinets and the Flying frame.

Please observe the following:

- The steel wire must run from the upper to the lower Locking pin.
- Do not cross the Locking pins to avoid twisting of the steel wires.
- Ensure all Locking pins are fully inserted and securely locked before lifting any load by briefly pulling the Locking pin towards you.

The SL-Series loudspeaker cabinets, frames, and touring carts are equipped with three types of Locking pins:

[A] Locking pin 16 x 55 mm.
Used for the flying frames and the coupling shackle of the SL Compression chain and the SL Cable pick.

[B] Locking pin 12 x 45 mm for GSL-TOP/SL-SUB cabinets.
Locking pin 10 x 45 mm for KSL-TOP/KSL-SUB cabinets.
Used for the cabinets' Splay/Rear links, the compression frames' pickpoints, the touring carts' Splay/Rear link slot(s).

[C] Locking pin 10 x 35 mm.
Used for the Front links of the loudspeaker cabinets, the compression frames' and the touring carts' front supports.

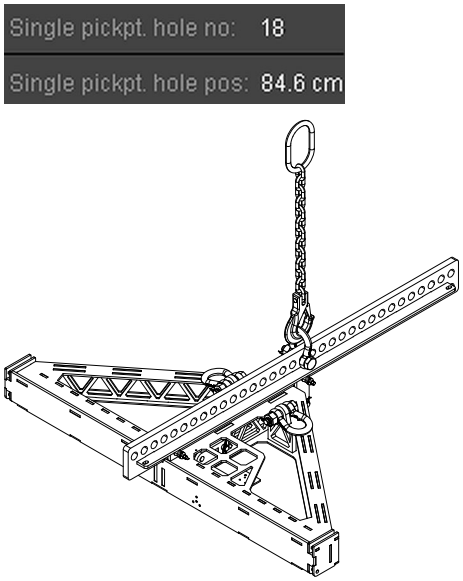
Functionality (Quick lock mechanism)
The quick lock mechanism applies to all types of Locking pins listed above. Proceed as follows:

1. Press the button to **R**elease the locking mechanism (◀ **[R]**).
2. Remove the Locking pin through the respective link or socket.
3. Insert the Locking pin through the respective link or socket until it is fixed in place.
4. Release the button to **L**ock the pin (▶ **[L]**).
5. Recheck the Locking pin is securely locked by briefly pulling the Locking pin towards you.

3.12 Suspension of the flying frame

The suspension of the flying frames is carried out using the corresponding load beam. The load beam allows for either Single or Dual pickpoint operation. For this purpose, the load beam is equipped with a dedicated hole grid that accept the enclosed shackles.

3.12.1 Single pickpoint operation



NOTICE!

Single pickpoint operation is not recommended for Compression mode.

With "Single pickpoint operation" the position of the shackle defines the vertical aiming of the entire array.

The corresponding hole position (one hole detent) is calculated using ArrayCalc.

> **Note:** The target angle of the entire array is achieved when the array is fully set up, hoisted, and secured as intended.

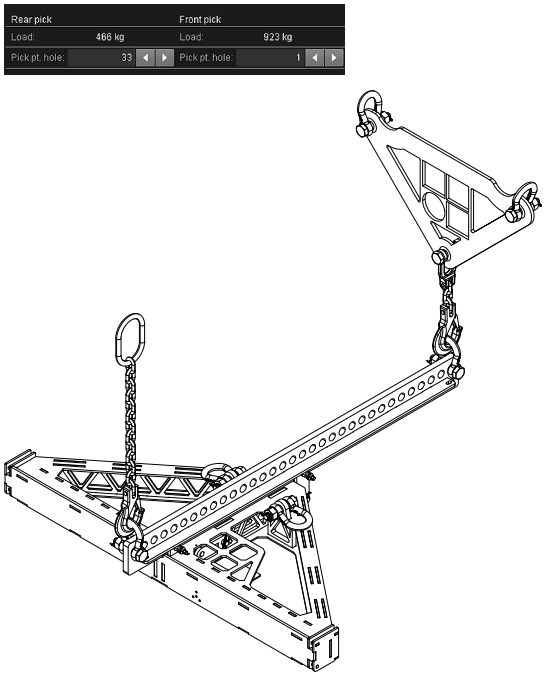
Attachment

1. Choose the appropriate hole position on the load beam according to the ArrayCalc calculation and attach the shackle correspondingly.
2. Attach the hoist connector chain or motor hook to the shackle of the load beam respectively.

3.12.2 Dual pickpoint operation

With "Dual pickpoint operation" the vertical aiming of the array is set by trimming the hoist motors after the array has been fully assembled and lifted to its operating position.

The corresponding hole positions are selected according to ArrayCalc.



Attachment

1. Choose the appropriate hole positions for the front and rearpick on the load beam according to ArrayCalc and attach the enclosed shackles correspondingly.
2. Connect the hoist connector chain, aiming plate and/or motor hooks to the shackles of the load beam, respectively.

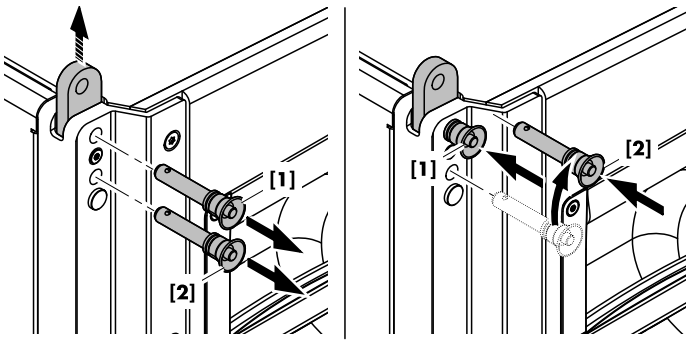
3.13 Cabinet rigging mechanism

The cabinets are mechanically connected to the flying frame and subsequent loudspeakers using the Front links attached to both sides of the cabinet front and the central Splay/Rear link at the rear of the cabinet.

All necessary rigging components are mounted to the cabinet and slide out when needed.

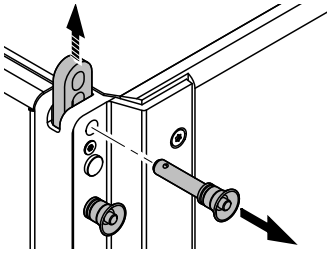
In principle, the Front link mechanism applies to both the TOP and SUB cabinets. The Front links are spring loaded and therefore extend automatically as soon as the respective Locking pins are released and pulled out.

3.13.1 Front link mechanism



TOP cabinets

1. Release the bottom Locking pin **[2]**.
2. Release the upper Locking pin **[1]**.
   ↳ The Front link extends automatically.
3. Reinsert and lock Locking pin **[1]** to fix the Front link in place.
   ↳ Locking pin **[2]** is inserted to the upper cabinet.



SUB cabinets

⇒ Release the upper Locking pin.
↳ The Front link extends automatically.

The Front link mechanism of the SUB cabinets provides four different settings:

1. SUB to Frame (⇒ Fig. 1).
2. SUB to SUB with 0° splay between the cabinets (⇒ Fig. 2).
3. SUB to SUB with 2° splay (free) between the cabinets (⇒ Fig. 3).
4. SUB to SUB with 2° splay (blocked) between the cabinets (⇒ Fig. 4).
   This setting is used to prevent the cabinets from folding up.

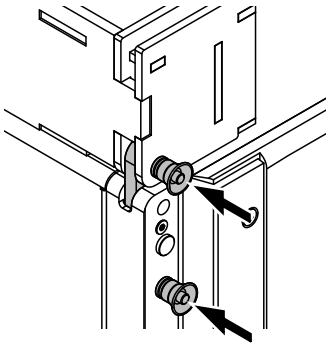


Fig. 1: SUB to Frame

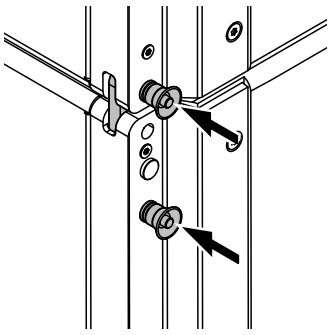


Fig. 2: SUB to SUB 0° splay

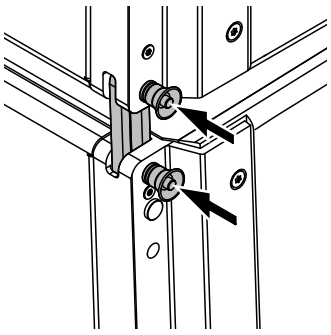


Fig. 3: SUB to SUB 2° splay, free

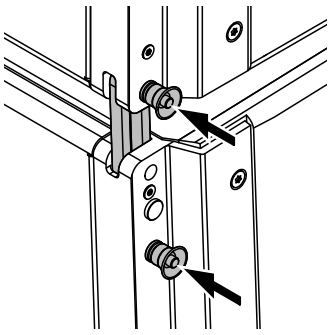
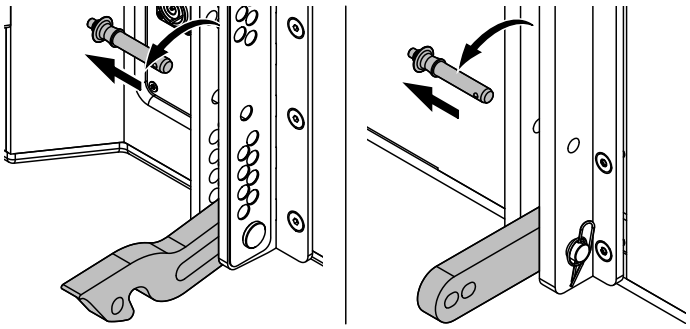


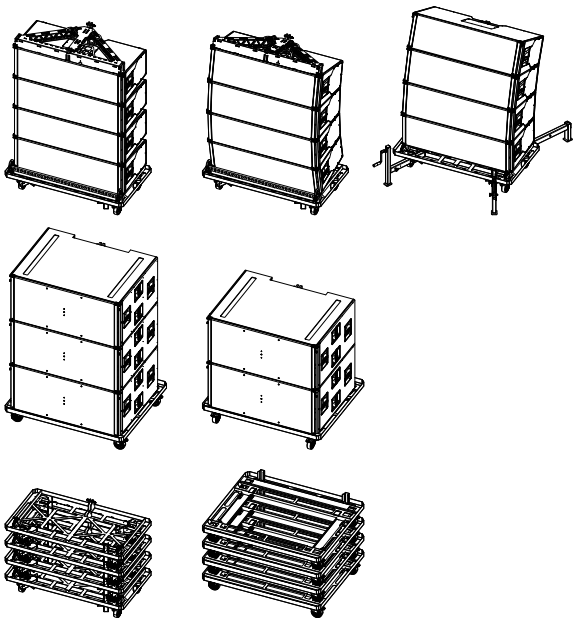
Fig. 4: SUB to SUB 2° splay, blocked



TOP | SUB

3.13.2 Splay/Rear link mechanism

Release the respective Locking pin(s) and fold out the Splay/Rear link.



3.14 SL-Series touring carts

Intended use

The SL-Series touring carts are an integrated part of the d&b SL-Series rigging system. They are intended as transport solution as well as for setup, requiring less space on-site.

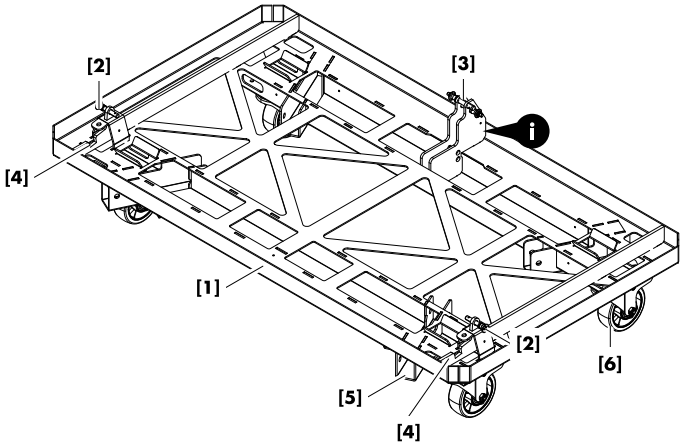
In addition, the load beams can also be stored in the cart, while the flying frames may be mounted and remain on top of the entire cabinet assembly during transport and storage in the cart.

Once the cabinet assemblies are suspended, the touring carts can be stacked and stored away.

The touring carts are also intended as ground support for SL-Series ground stack setups. Please refer to ⇒ Chapter 11 “Ground stack setups” on page 74.

The touring carts are equipped and supplied with the following rigging components.

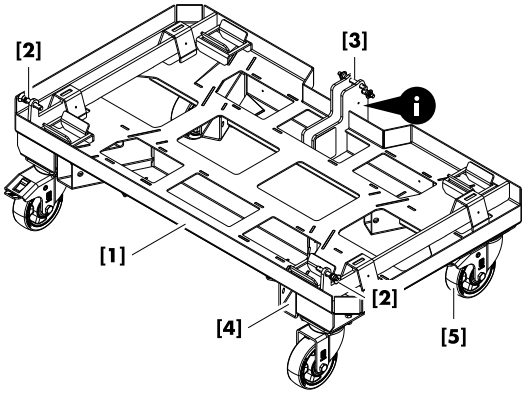
Please verify the shipment for completeness and proper condition of the items.



3.14.1 GSL/KSL Touring carts

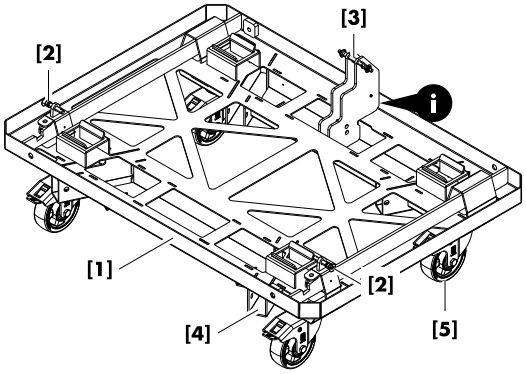
3.14.1.1 E7490 GSL Touring cart

Pos.	Component	Description
[1]	E7490	Touring cart 4 x GSL8/GSL12 **Dead weight:** 58 kg (128 lb). **Total weight:** 378 kg (833 lb), 4 x TOP cabinets incl cover. **Total weight:** 453 kg (1000 lb), incl. flying frame and load beam. **Dimensions:** H x W x D (cm) 205 x 140 x 78 H x W x D (inch) 81 x 55 x 30.5
[2]	Locking pins front	2 x Locking pins (Type C, 10 x 35 mm) at the front.
[3]	Locking pins rear	2 x Locking pins (Type B, 12 x 45 mm) at the center rear Splay link slot.
[4]		Two storage slots for the Z5702 GSL Load beam.
[5]		Four slots, one at each corner, that accept the E7494 SL Outrigger.
[6]		Four heavy duty brake wheels 125 x 40 mm.
ⓘ		Touring cart instruction label providing vital safety and rigging instructions.



3.14.1.2 E7802 KSL Touring cart

Pos.	Component	Description
[1]	E7802	Touring cart 4 x KSL8/KSL12 **Dead weight:** 50 kg (110 lb). **Total weight:** 288 kg (635 lb), 4 x TOP cabinets incl cover. **Total weight:** 340 kg (750 lb), incl. flying frame and load beam. **Dimensions:** H x W x D (cm) 183 x 110 x 60 H x W x D (inch) 72 x 43 x 23.5
[2]	Locking pins front	2 x Locking pins (Type C, 10 x 35 mm) at the front.
[3]	Locking pins rear	2 x Locking pins (Type B, 10 x 45 mm) at the center rear Splay link slot.
[4]		Four slots, one at each corner, that accept the E7494 SL Outrigger.
[5]		Four heavy duty wheels 125 x 40 mm, two of them as brake wheels, cross-mounted.
i		Touring cart instruction label providing vital safety and rigging instructions.



3.14.1.3 E7495 KSL Touring cart - Tension

Pos.	Component	Description
[1]	E7495	Touring cart 4 x KSL8/KSL12 **Dead weight:** 55 kg (121 lb). **Total weight:** 293 kg (646 lb), 4 x TOP cabinets incl. cover. **Total weight:** 344 kg (758 lb), incl. flying frame and load beam. **Dimensions:** H x W x D (cm) 175 x 110 x 78 H x W x D (inch) 69 x 43 x 30.5
[2]	Locking pins front	2 x Locking pins (Type C, 10 x 35 mm) at the front.
[3]	Locking pins rear	2 x Locking pins (Type B, 10 x 45 mm) at the center rear Splay link slot.
[4]		Four slots, one at each corner, that accept the E7494 SL Outrigger.
[5]		Four heavy duty brake wheels 125 x 40 mm.
i		Touring cart instruction label providing vital safety and rigging instructions.

3.14.1.4 Loading the carts

Safety precautions

CAUTION!
Potential risk of personal injury and/or damage to material!

To avoid any risk of personal injury and/or damage to material, please observe the following.

- The assembly should always be carried out by two persons.
- During assembly, be aware of the possible risk of crushing fingers. Wear suitable protective clothing (e.g. protective gloves and safety shoes).

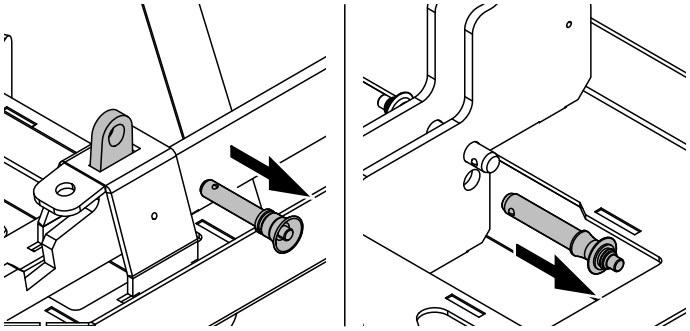
Due to the size and weight of the GSL cabinets, we recommend you whenever possible to load the cart using appropriate lifting devices. KSL cabinets can be loaded without the need of additional lifting devices.

Once the lifting device is attached, proceed as follows:

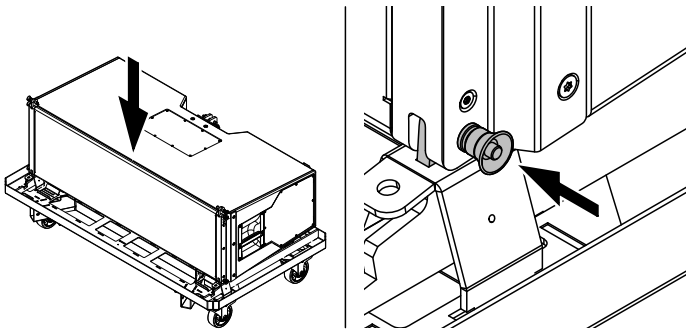
Storage modes
With respect to the SL-Series rigging modes (Compression or Tension mode), GSL and KSL cabinets can be stored in the cart in a prepared condition for operation in one of the two modes.

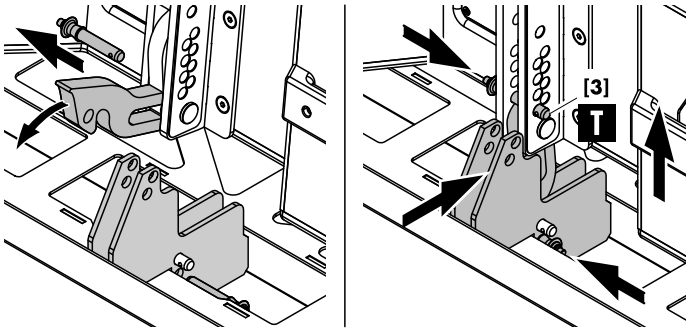
Manually loading for Compression mode
The following procedure describes the loading for GSL cabinets. For KSL cabinets proceed in the same manner.

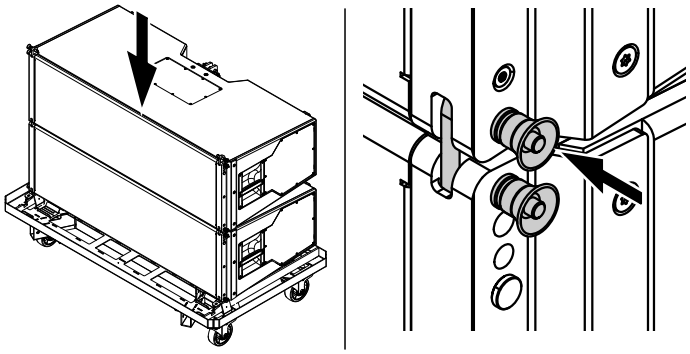
1. At the front of the cart, release the Locking pins on both sides.
2. At the rear center Splay link slot, release the bottom Locking pin.



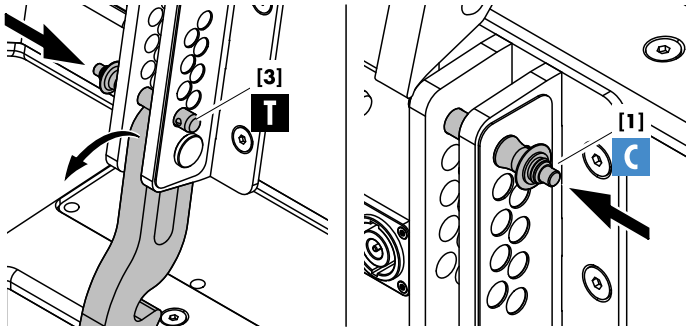
3. Attach the first cabinet to the front support and reinsert the Locking pins on both sides.



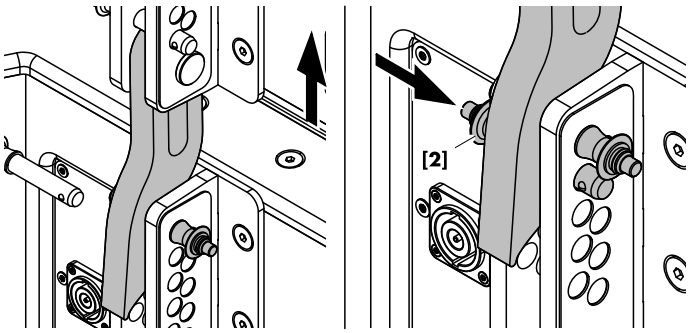




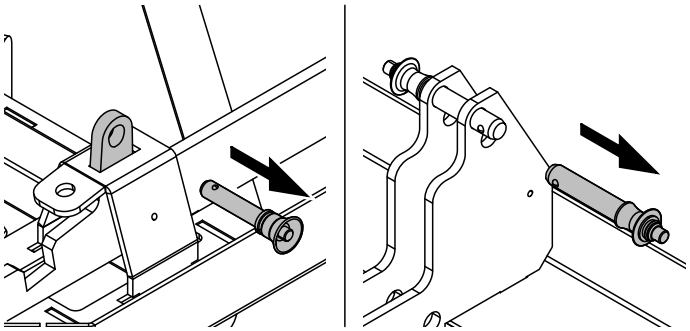
4. At the rear of the cabinet, release all Locking pins and fold out the Splay link.
5. Insert Locking pin **[3]** to the Tension mode hole at the bottom of the rigging strand (⇒ T).
6. Insert the Splay link into the Splay link slot.
7. Lift the back of the cabinet until the Splay link has engaged and reinsert the bottom Locking pin to fix the link in place.
8. Finally, extend the Front links of the first cabinet to attach the next cabinet.
9. Attach the next cabinet to the previously extended Front links of the first cabinet and reinsert its Locking pins on both sides.

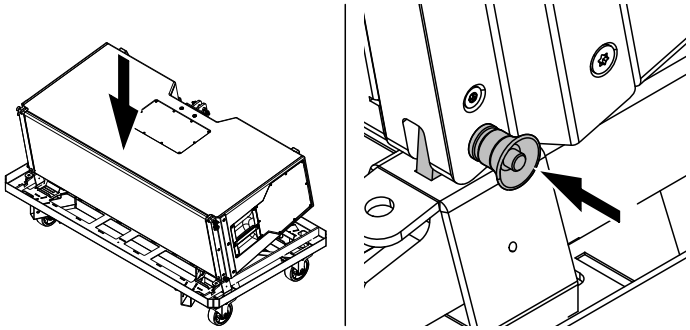


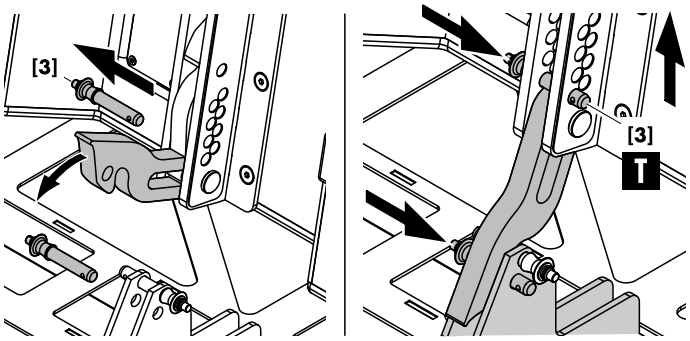
10. Raise the back of the cabinet and release all Locking pins.
11. Fold out the Splay link and insert Locking pin **[3]** to the Tension mode hole at the bottom of the rigging strand (⇒ T).
12. At the bottom cabinet, reinsert Locking pin **[1]** to the 0° hole (⇒ C) at the top of the rigging strand.

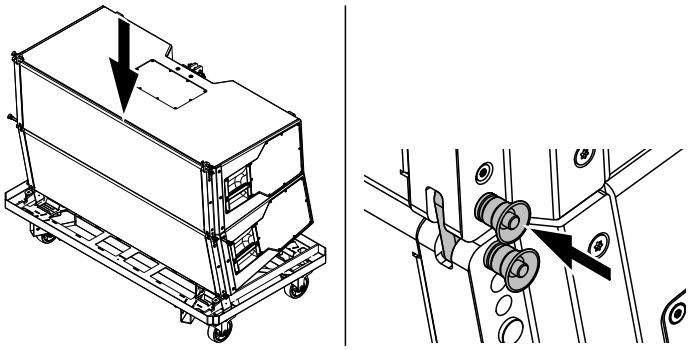


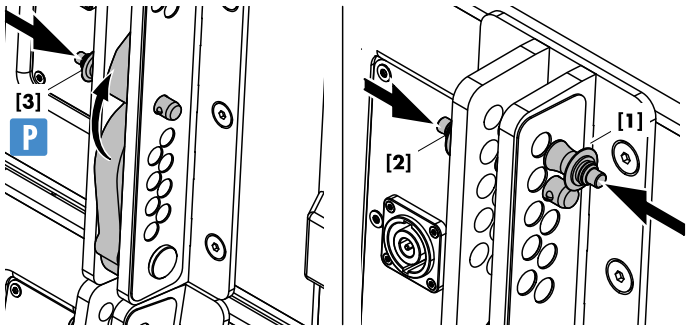
13. Lower the cabinet and insert the Splay link into the rear rigging strand of the bottom cabinet.
14. Raise the back of the cabinet until the Splay link has engaged and reinsert Locking pin **[2]** (Safety pin).
15. For the remaining two cabinets, proceed in the same manner as for the second cabinet.
16. On the last cabinet, ensure the Front links are stored in their Park positions.







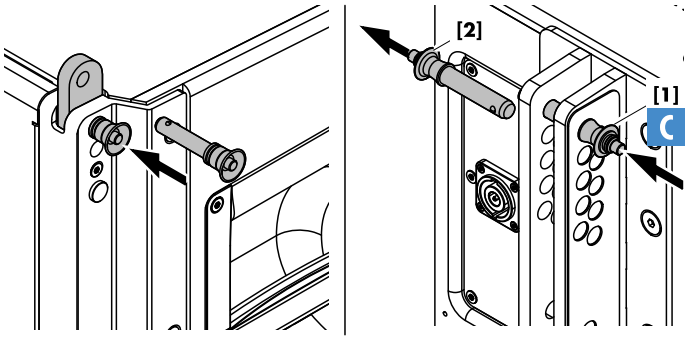




Manually loading for Tension mode

The following procedure describes the loading for GSL cabinets. For KSL cabinets proceed in the same manner.

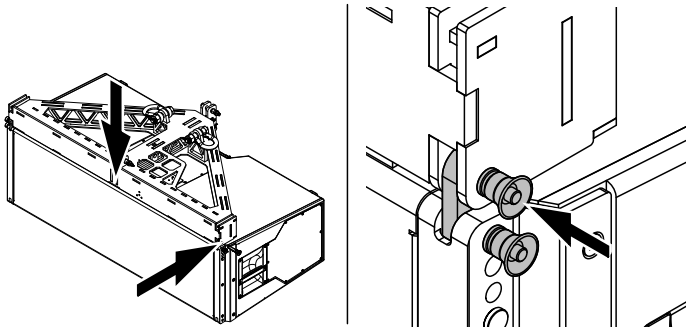
1. At the front of the cart, release the Locking pins on both sides.
2. At the rear center Splay link slot, release the bottom Locking pin.
3. Attach the first cabinet to the front support and reinsert the Locking pins on both sides.
4. At the rear of the cabinet, release Locking pin **[3]** and fold out the Splay link.
5. Reinsert Locking pin **[3]** to the Tension mode hole at the bottom of the rigging strand (⇒ T).
6. Insert the Splay link into the Splay link slot.
7. Lift the back of the cabinet until the Splay link has engaged and reinsert the bottom Locking pin to fix the link in place.
8. Finally, extend the Front links of the first cabinet to attach the next cabinet.
9. Attach the next cabinet to the previously extended Front links of the first cabinet and reinsert its Locking pins on both sides.
10. At the rear, store the Splay link in its Park position (⇒ P) using Locking pin **[3]**.
    ↳ Locking pins **[1]** and **[2]** can remain in their hole positions.
11. For the remaining two cabinets, proceed in the same manner as for the second cabinet.
12. On the last cabinet, ensure the Front links are stored in their Park positions.



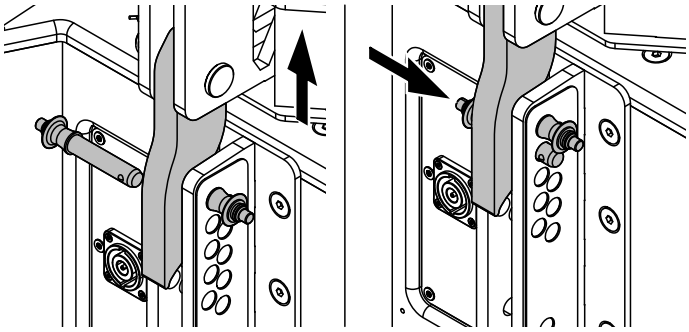
Attaching the flying frame

The touring cart is also intended to carry the flying frame during transport. To attach the flying frame, proceed as follows:

1. Extend the Front links of the cabinet on both sides.
2. At the rear, release Locking pin **[2]** and ensure Locking pin **[1]** is inserted in the 0° hole (⇒ C) at the top of the rear rigging strand.



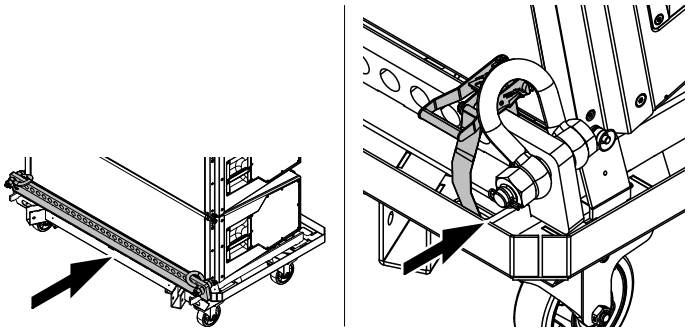
3. Attach the flying frame to the Front links of the cabinet and reinsert the Locking pins on both sides.



4. At the rear, insert the flying frame's Rear link into the rear rigging strand of the cabinet.
5. Raise the back of the flying frame until the Rear link has engaged.
6. Reinsert the Locking pin **[2]** (Safety pin).

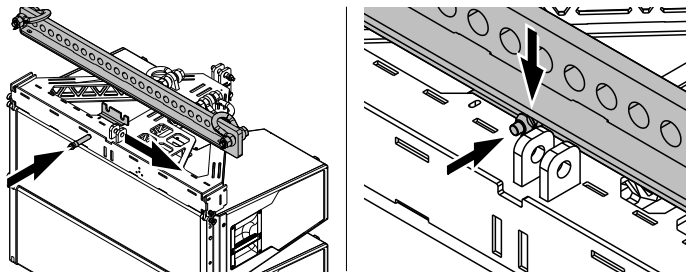
Storing and fixing the load beam

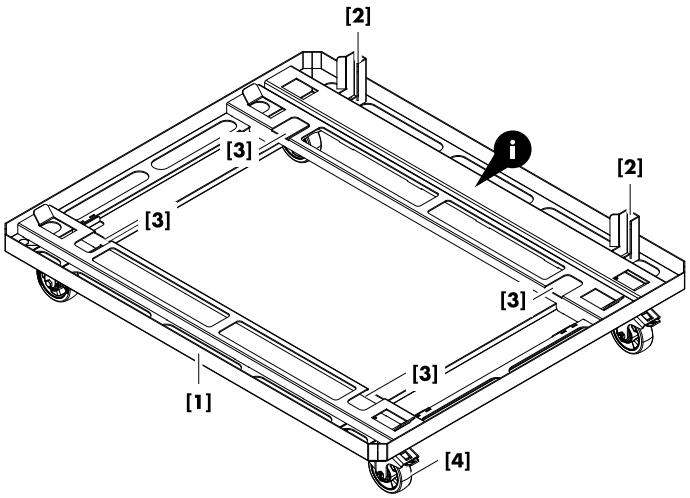
The **GSL** Touring cart provides a storage tray for the Z5702 GSL Load beam. Underneath this storage tray, additional slotted holes are provided on each side to fix the load beam using an appropriate ratchet strap.



In **KSL** Touring carts, the Z5723 KSL Load beam is stored and fixed on top of the Z5722 KSL Flying frame. For this purpose, the flying frame provides a dedicated slot to fix the load beam in place.

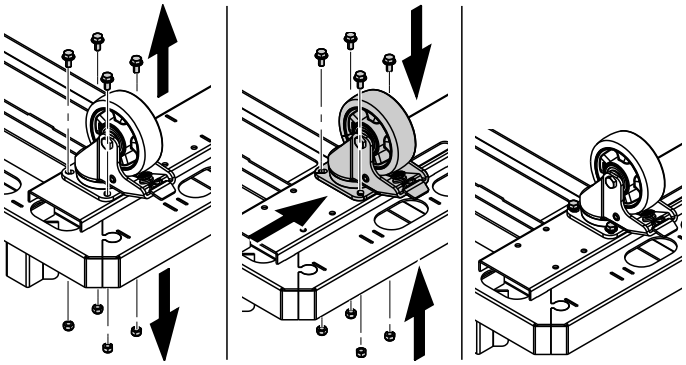
To fix the load beam, use the Locking pin of the front fixing slot of the flying frame, as shown in the graphic opposite.





3.14.2 E7492 Touring cart SL-SUB/SL-GSUB

Pos.	Component	Description
[1]	E7492	Touring cart 3 x SL-SUB/SL-GSUB **Dead weight:** 44 kg (97 lb). **Total weight:** 458 kg (1010 lb), 3 x SUB cabinet. **Dimensions:** H x W x D (cm) 200 x 140 x 116 H x W x D (inch) 79 x 55 x 46
[2]		Two slots at the rear acting as guide rails for the wheels of the first cabinet.
[3]		Recesses that accept the runners at the bottom panel of the cabinet.
[4]		Four heavy duty brake wheels 125 x 40 mm.
ⓘ		Touring cart instruction label providing vital safety and rigging instructions.



Altering the wheel position

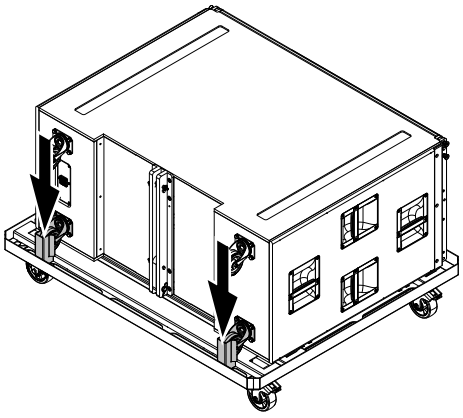
Two wheels of the cart can be slightly moved to the inner of the cart tray to reduce the track width from approx.: 90 cm (3 ft) to 80 cm (2.5 ft).

The wheels are fixed using M8 x 20 mm, grade 8.8 locking screws and self-locking nuts M8.

To alter the position, proceed as follows:

Tools required: Torque wrench size #13 (1/2" AF).

1. Slacken and undo the four self-locking nuts and remove the locking screws.
2. Move the wheel to its new position.
3. Redo all screws and nuts and tighten the screws to a torque of 24 N×m.

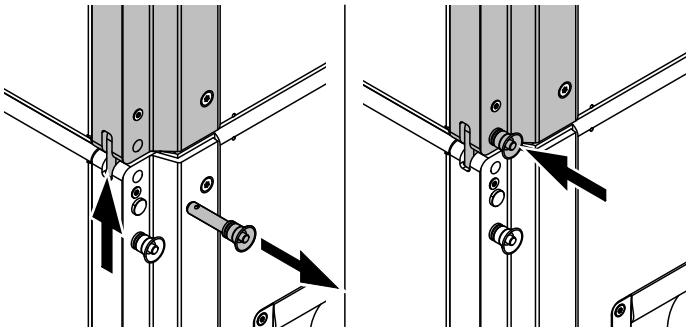


Loading the cart

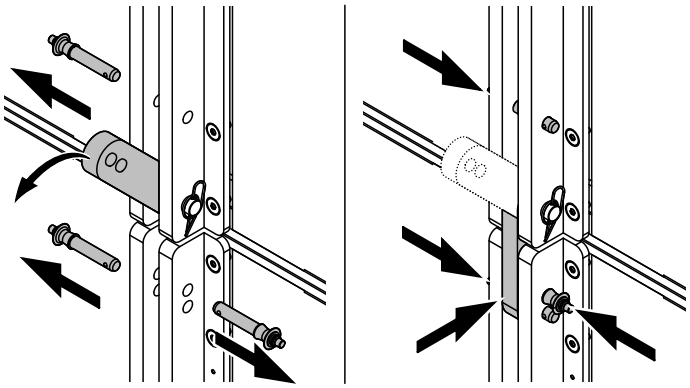
As for SL-GSUB cabinets, simply stack the cabinets onto the cart.

As for SL-SUB cabinets, proceed in the same manner and interconnect the cabinets using their Front and Rear links as follows:

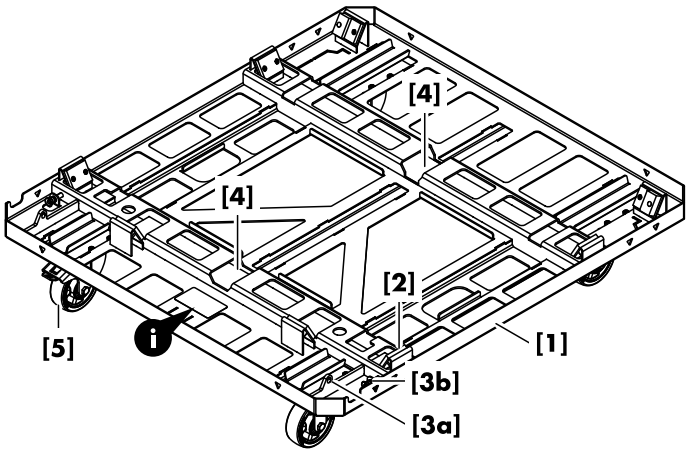
1. Attach the first cabinet to the cart.
   ↳ Due to the runners on the bottom panel and the corresponding recesses in the top panel, the cabinets are already aligned and the Front links will directly extend into the respective slots of the upper cabinet.
2. Attach the second cabinet.



3. Extend the Front links of the bottom cabinet on both sides.
4. Reinsert the Locking pins on both sides and ensure they are fully inserted and locked.

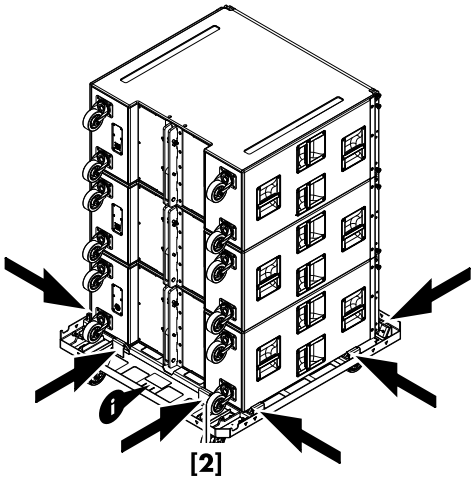


5. On the rear rigging strand, release the corresponding Locking pins on the top and bottom cabinets.
6. Fold the rear link into the rigging strand of the bottom cabinet.
7. Reinsert all Locking pins and ensure they are fully inserted and locked.
8. For the third cabinet, proceed in the same manner.



3.14.3 E7804 Touring cart KSL-SUB

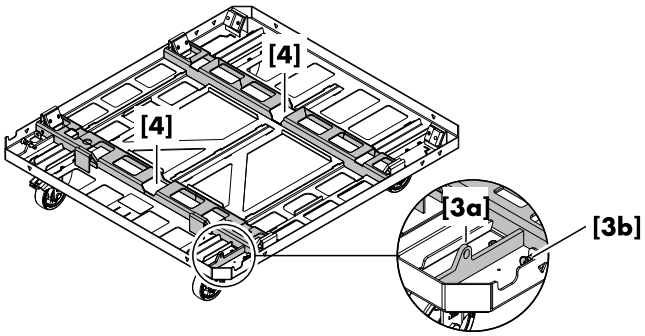
Pos.	Component	Description
[1]	E7804	Touring cart 3 x KSL-SUB **Dead weight:** 45 kg (100 lb). **Total weight:** 291 kg (642 lb), 3 x SUB cabinet. **Total weight:** 380 kg (840 lb), incl. flying frame, load beam and adapter frame. **Dimensions:** H x W x D (cm) 185 x 120 x 110 H x W x D (inch) 73 x 47.5 x 43.5
[2]		Eight guiding lugs at the front, left/ right and rear of the cart.
[3a] **[3b]**		Dedicated supports at the front left and right **[3a]** and corresponding Locking pins **[3b]** (Type C, 10 x 35 mm) to fix the Z5747 KSL-SUB Adapter frame when stored in the cart.
[4]		Two slots acting as guide rails allowing the Z5747 KSL-SUB Adapter frame to be stored in the cart.
[5]		Four heavy duty wheels (two cross mounted brake wheels) 125 x 40 mm.
ⓘ		Touring cart instruction label providing vital safety and rigging instructions.



Loading the cart

When the cart is loaded with KSL-SUB cabinets only, simply stack the cabinets onto the cart and interconnect them using their Front and Rear links as follows:

1. With the transport wheels facing towards the instruction label (ⓘ), attach the first cabinet onto the cart.
   ↳ Due to the guiding lugs **[2]** at the front, left/right and rear of the cart, the cabinet is centered on the cart.
2. Attach the second cabinet and interconncet the cabinets as described in the previous section ⇒ 3.14.2 "E7492 Touring cart SL-SUB/SL-GSUB" ⇒ “Loading the cart” on page 44.
3. For the third cabinet, proceed in the same manner.

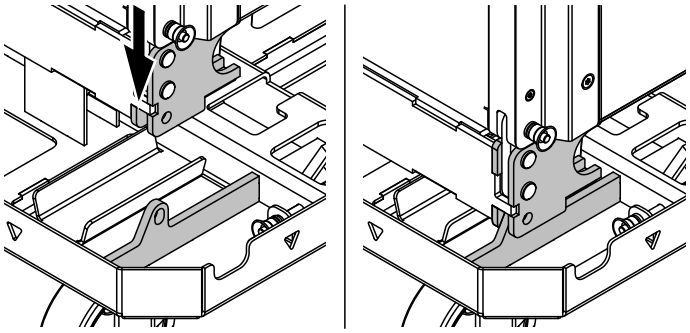


Adapter frame storage tray

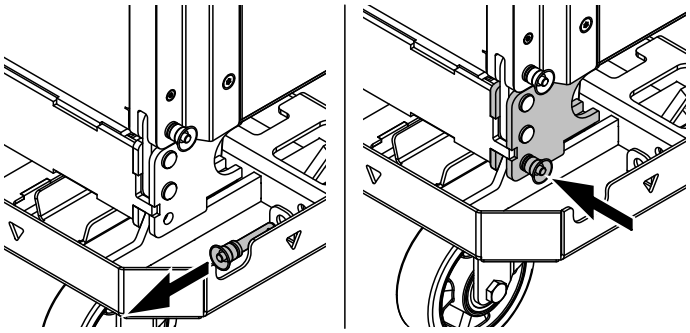
The cart also allows the storage of a SUB cabinet assembly with the KSL-SUB Adapter frame already mounted to the bottom SUB cabinet.

For this purpose, the cart is equipped with dedicated supports at the front left and right **[3a]** and corresponding Locking pins **[3b]** (Type C, 10 x 35 mm) as well as two slots **[4]** acting as guide rails to fix the assembly in place.

To store the assembly in the cart, proceed as follow:



1. Slowly lower the assembly onto the cart until the front supports fit into the slots of the adapter frame.

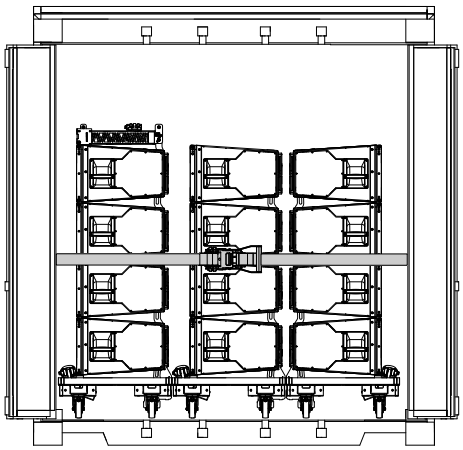


2. Release the Locking pins on the cart from their park positions.
3. Insert the Locking pins to the frame on both sides and ensure they are fully inserted and locked.

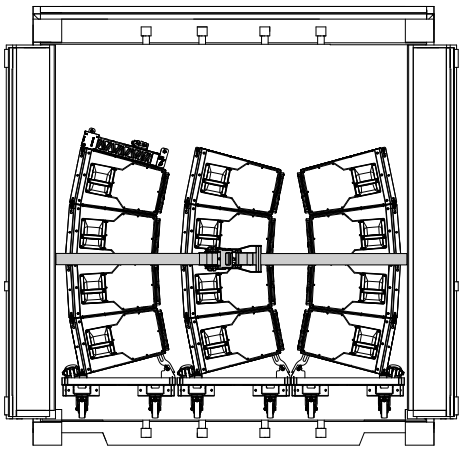
3.14.4 Truck loading

During transport, the front of the outer touring cart assemblies should be facing towards the sides of the truck's tail. In this way, a proper support base is provided when the load is secured using ratchet straps.

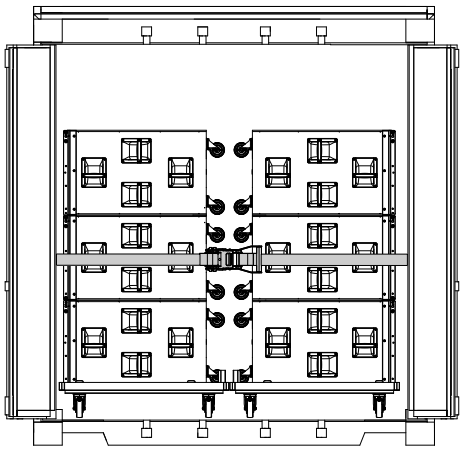
When securing the load, place the ratchet strap or any other securing device in the middle of the assembly, as shown in the examples below.



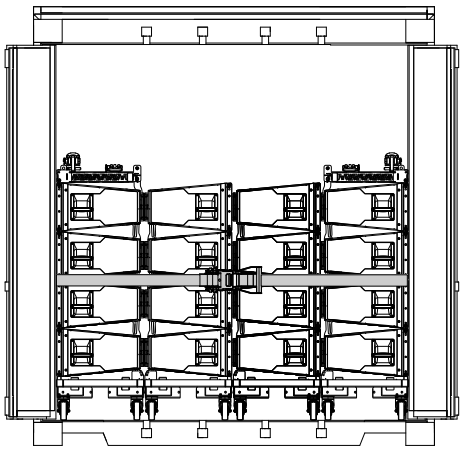
E7490 GSL8/GSL12 Touring cart Compression mode



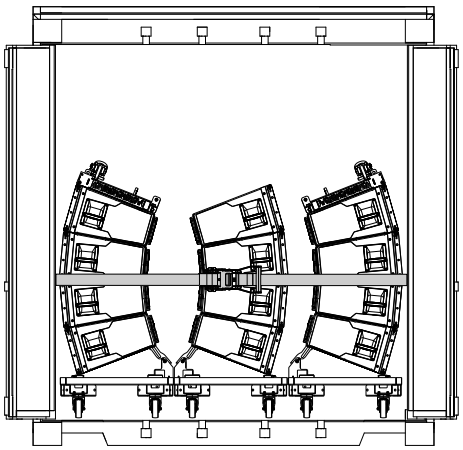
E7490 GSL8/GSL12 Touring cart Tension mode



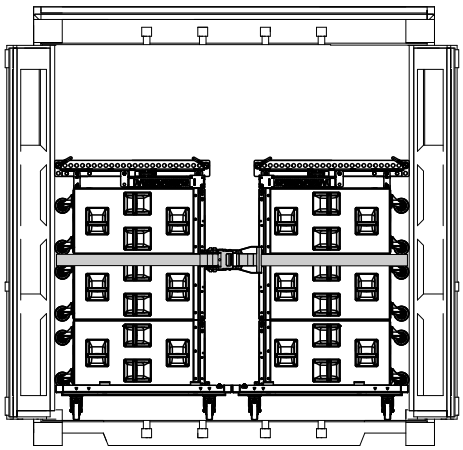
E7492 SL-SUB/SL-GSUB Touring cart



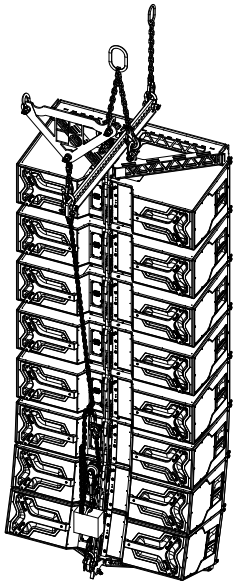
E7802 KSL8/KSL12 Touring cart Compression mode



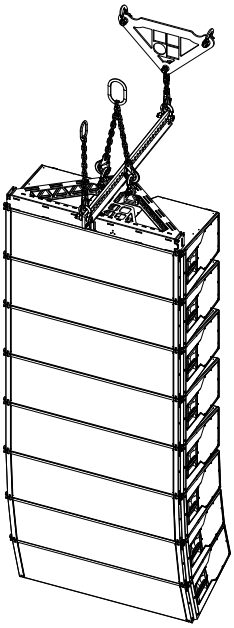
E7495 KSL8/KSL12 Touring cart Tension mode



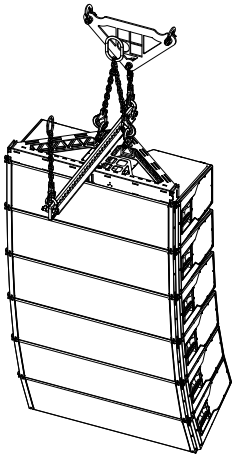
E7804 KSL-SUB Touring cart



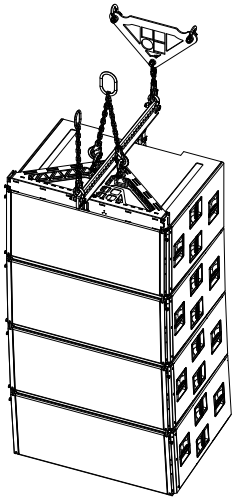
GSL8/GSL12 Line array 8-deep, Compression mode setup
Refer to:
⇒ Chapter 6 “Compression mode setup” on page 52.



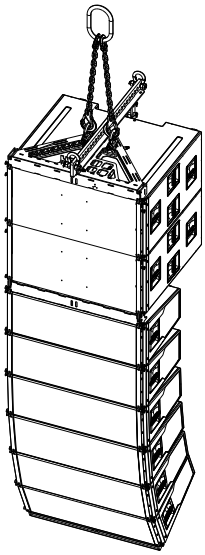
GSL8/GSL12 Line array 8-deep, Tension mode setup
Refer to:
⇒ Chapter 7 “Tension mode setup” on page 60.



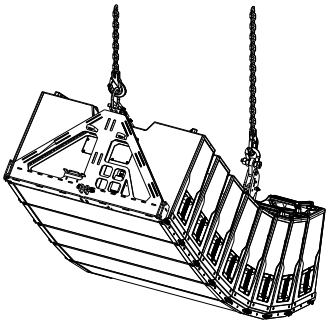
GSL8/GSL12 Line array 6-deep, FRONT EXTENSION mode
Refer to:
⇒ Chapter 3.3 “GSL/KSL load beams” on page 19.



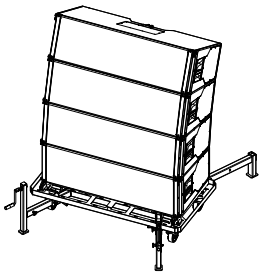
SL-SUB column with 2° splay between the cabinets
Refer to:
⇒ Chapter 9 “SUB columns” on page 65.



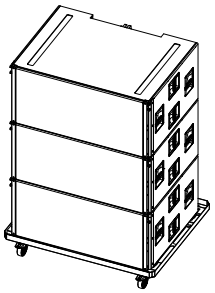
Mixed KSL-System setup
Refer to:
⇒ Chapter 10 “ Mixed KSL array configuration” on page 70.



KSL Pullback mode setup
Refer to:
⇒ Chapter 8 “KSL Pullback mode setup” on page 64.



GSL8/GSL12 ground stack setup
Refer to:
⇒ Chapter 11.1 “GSL/KSL-TOP ground stacks” on page 74.



SL-SUB/SL-GSUB ground stack setup
Refer to:
⇒ Chapter 11.2 “SL-SUB/SL-GSUB ground stack” on page 76.

5.1 Setup preparation

Notes
For both, Compression and Tension mode setups, it is assumed that the Touring carts are appropriately loaded and the flying frame is already attached as described in ⇒ Chapter 3.14.1.4 "Loading the carts" on page 40.

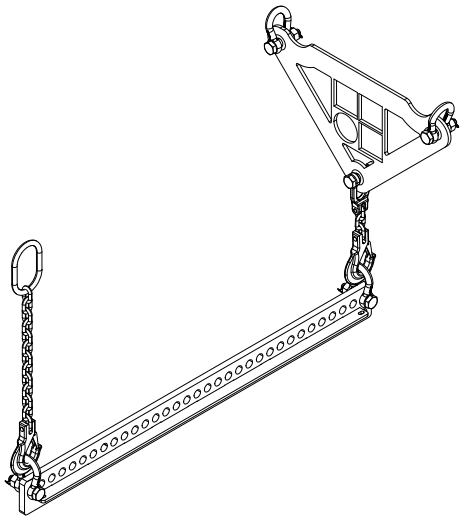
Preparatory steps
Check the acoustical and mechanical setup using ArrayCalc and prepare enough printouts for each array. Alternatively, the ArrayCalc Viewer App can be used for this purpose.

The plan enables the riggers to set up the suspension points, the securing points and the chain hoists.

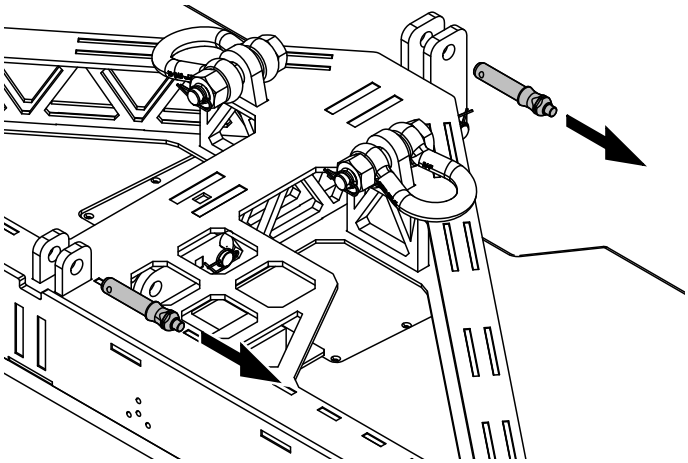
When on site first:
- Clear the working areas and ensure there is enough space to set up and lift the array.
- Check that the hoists are exactly in the specified position.
- Ensure the chains are not twisted.

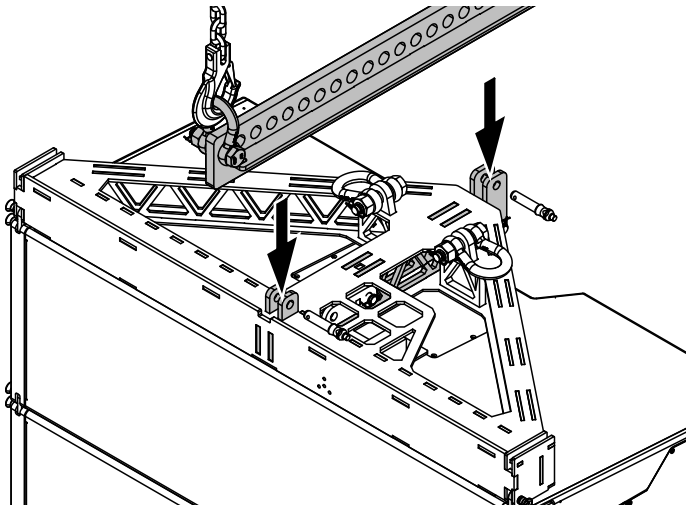
Inspections before setup
Before setting up the array, carry out a visual inspection of all system components for faults. This also includes the loudspeakers and in particular the rigging parts of the cabinets (Front and Splay/Rear links).
Damaged components must be withdrawn from use immediately.

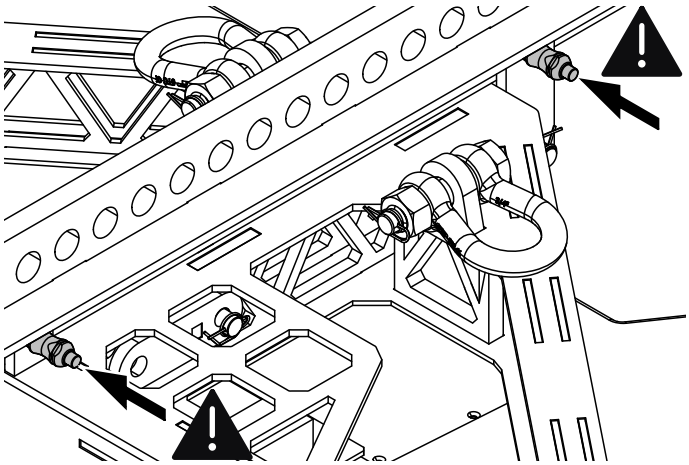
Please follow the instructions given in ⇒ Chapter 15 "Care and maintenance" on page 84.



5.1.1 Suspending the load beam
Depending on the type of motor hoist (standard or climbing suspension), the hooks can be directly connected to the shackles of the load beam and the Z5707 SL Aiming plate or the Z5706 Hoist connector chain can be connected in-between.







5.1.2 Attaching the load beam to the flying frame

The attachment of the load beam applies to both, Compression and Tension mode setups.

Depending on the desired operating mode (STANDARD MODE or FRONT EXTENSION), attach the load beam as follows:

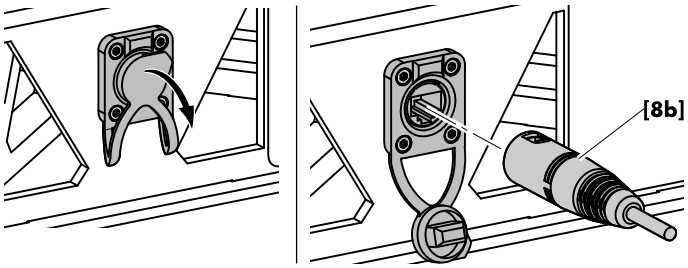
WARNING!
Potential risk of personal injury and/or damage to material!

The two Locking pins of the flying frame's load beam slots at the center front and rear of the frame carry the load of the entire array.

For this reason, ensure the corresponding Locking pins are fully inserted and locked.

1. On the flying frame, release the Locking pins of the load beam slots at the center front and rear of the frame.
2. Attach the load beam to the slots on the frame according to the desired operating mode.

3. Reinsert and lock the two Locking pins.
   ↳ Ensure the Locking pins are fully inserted and locked.



5.1.3 Connecting the d&b ArraySight sender unit

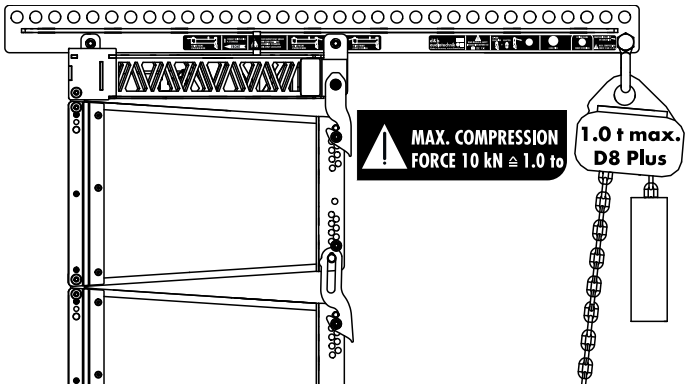
WARNING!
Potential risk of personal injury.

Please observe the safety instructions provided in the ArraySight manual.

⇒ Connect the ArraySight sender unit using the enclosed d&b K6006.200.00 CAT5e 1:1 cable **[8b]** and perform a basic test of the laser unit.

For this purpose, the SL-Series flying frames are equipped with a dedicated etherCON connector socket which is directly accessible on the frame to allow for easy connection, as shown in the graphic opposite.

↳ For detailed information on the d&b ArraySight laser inclinometer system, please refer to the ArraySight manual which is also provided with the SL-Series flying frames.



For Compression mode setup, we recommend the use of the dedicated d&b GSL/KSL compression sets including the B2447.072 .01 Crank lever hoist to manually curve the array, as described in section ⇒ “11. Curving the array (B2447.072 .01 Crank lever hoist)” on page 57.

WARNING!
Potential risk of personal injury and/or damage to material.

When using a motor hoist instead of the lever hoist, observe the following:

- The maximum permitted compression force is 1000 kg (1.0 t/10 kN).
  The hoist overload clutch must be correspondingly adjusted.
- The motor hoist must be equipped with two independent brakes (according to the German **D8 Plus** standard).
- Observe your local legal requirements and Rules for the Prevention of Accidents (RPA).



Depending on the total length (total number of cabinets) of the array, the motor hoist may not be able to apply the required force to completely curve (compress) the entire array in Compression mode setup.

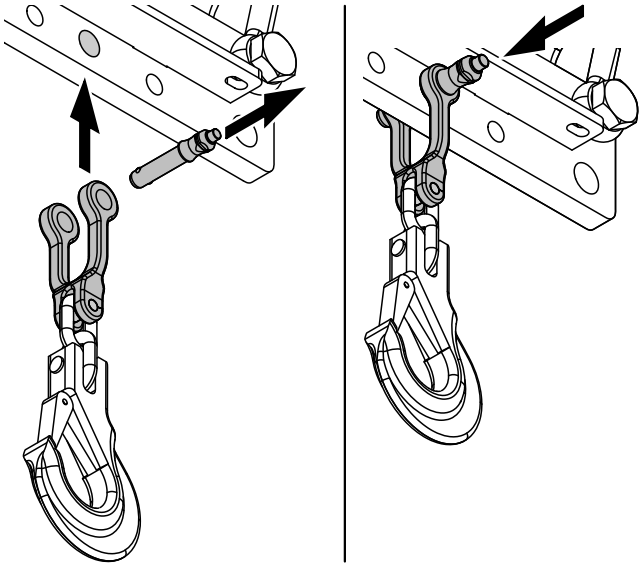
In this case, ArrayCalc indicates those cabinets from top to bottom (marked as "**––**") that need to be curved manually in Tension mode first, cabinet by cabinet.

The remaining cabinets, marked as "**OK**" (OK), can then be curved (compressed) by the motor hoist.

Provided...:

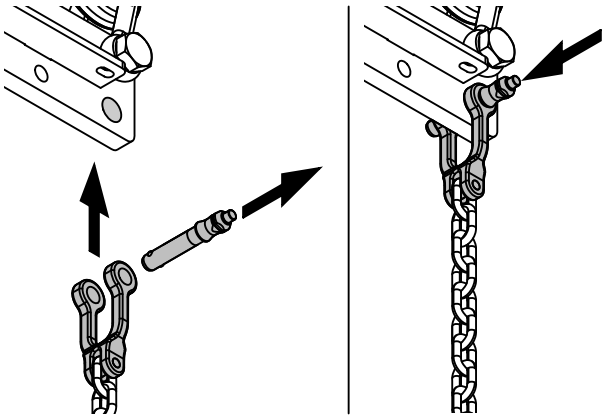
- The touring cart is loaded and prepared for Compression mode as described in ⇒ “Manually loading for Compression mode” on page 40) and in position.
- The load beam has been already attached to the flying frame as described in the previous section ⇒ "Attaching the load beam to the flying frame" on page 50.
- The safety chain has been already attached to the flying frame as described in ⇒ Chapter 1.4 “Secondary safety” on page 7.
- The entire assembly is lifted to a height of approx. 30 cm (1 ft) above ground.

... proceed as follows:



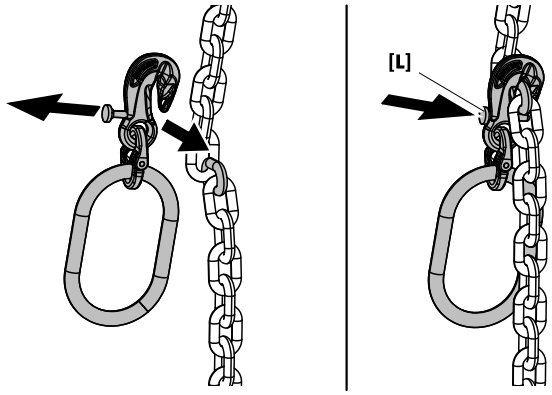
1. Attaching the cable pick (Z5713)

1. Release the Locking pin of the coupling shackle.
2. Attach the coupling shackle to the dedicated hole position at the rear end of the load beam.
3. Reinsert the Locking pin and ensure the pin is fully inserted and locked.
4. Set suitable lengths of the individual loudspeaker cables, and attach split sets when applicable and connect the cables subsequently during the entire setup procedure.



2. Attaching the compression chain

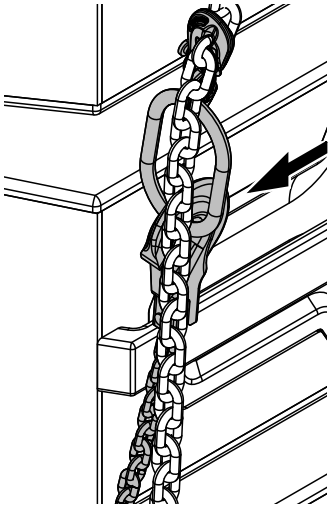
1. Release the Locking pin of the coupling shackle.
2. Attach the coupling shackle to the dedicated hole position at the rear end of the load beam.
3. Reinsert the Locking pin and ensure the pin is fully inserted and locked.



3. Attaching the compression grab link

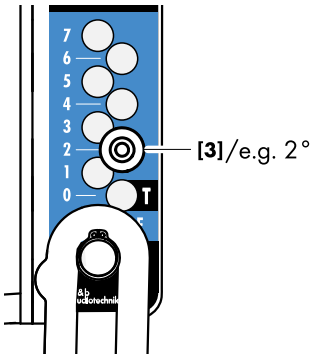
At a certain point during setup, the compression grab link has to be attached to the compression chain. Its position depends on the length and the final curvature of the array and is calculated and indicated in ArrayCalc («Sources» view ⇒ «Grab link position»).

1. Attach the grab link, as shown in the graphic opposite.
2. Ensure the grab link is properly attached and the safety latch **[L]** is locked.



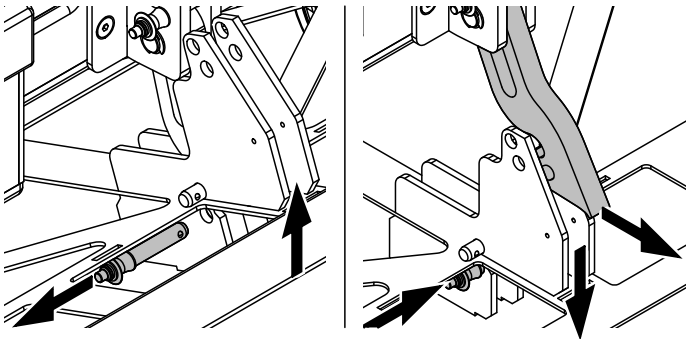
4. Attaching the lever hoist

As opposed to normal operation, the lever hoist is attached upside down with the hoist's chain hook attached to the grab link, as shown in the graphic opposite.



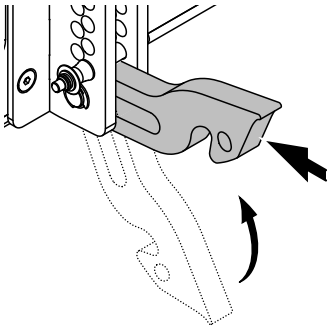
5. Preset the splay angles

At the bottom hole index, preset the splay angles according to your ArrayCalc project using Locking pin **[3]**
(See also ⇒ Chapter 2 "GSL/KSL rigging modes - 2 in 1" ⇒ "Compression mode principle - Preset" on page 12).

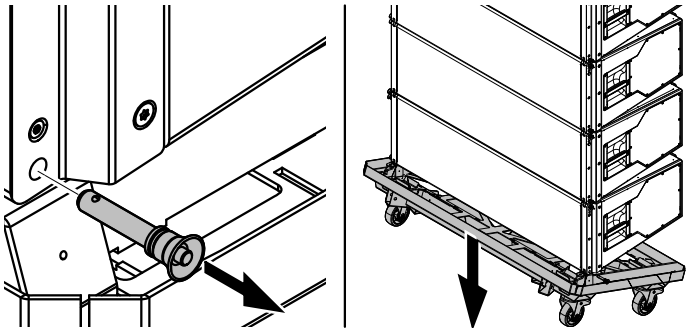


6. Dismantling the touring cart

1. At the center rear Splay link slot, release the bottom Locking pin.
2. Slightly lift the cart and disengage the Splay link.
3. Reinsert the Locking pin and lower the cart.

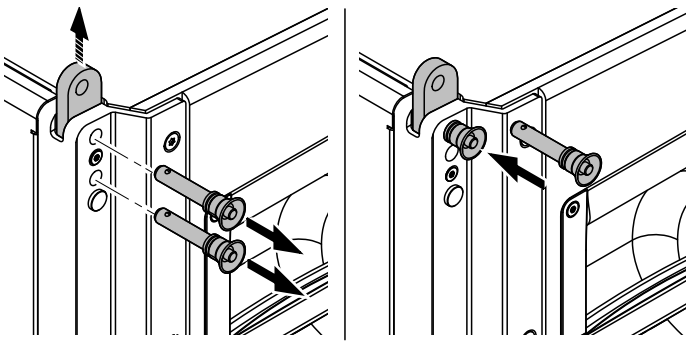


4. The Splay link of the bottom cabinet can be temporarily parked to allow an easy attachment of the next assembly.
   ↳ For this purpose, raise the Splay link by 90° and slightly push it into the rear rigging strand.

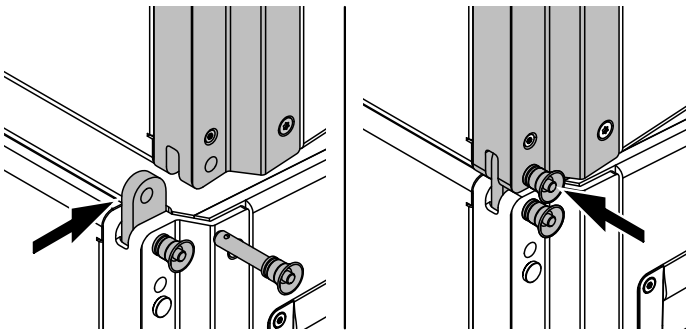


5. With one person on each side, release the Locking pins at the front of the cart.
6. Lower the cart and put it aside.

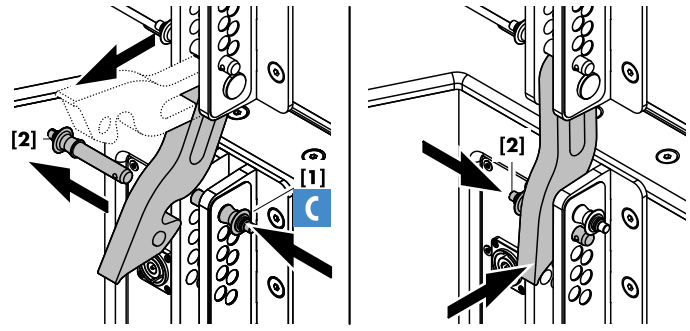
7. Attaching the next assembly



1. Lift the first assembly to allow the next assembly to be positioned below.
2. Position the next assembly and extend the Front links of the uppermost cabinet.

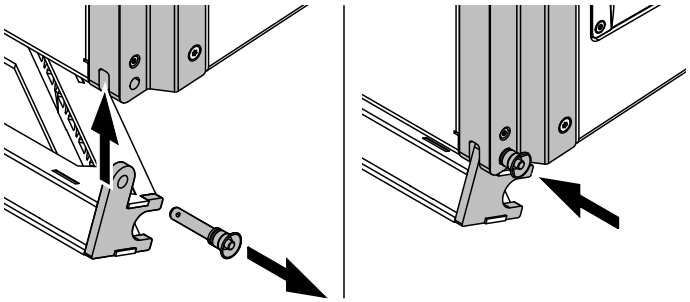


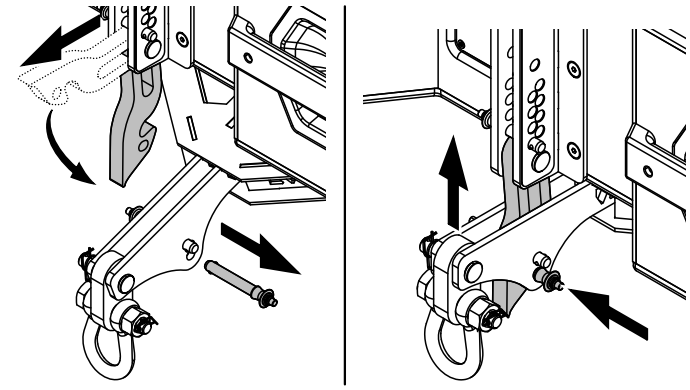
3. Lower the array until the Front links of the top cabinet in the cart fit into the slots at the front of the bottom cabinet of the array.
4. Insert and lock the second Locking pins of the cabinet's Front links on both sides.

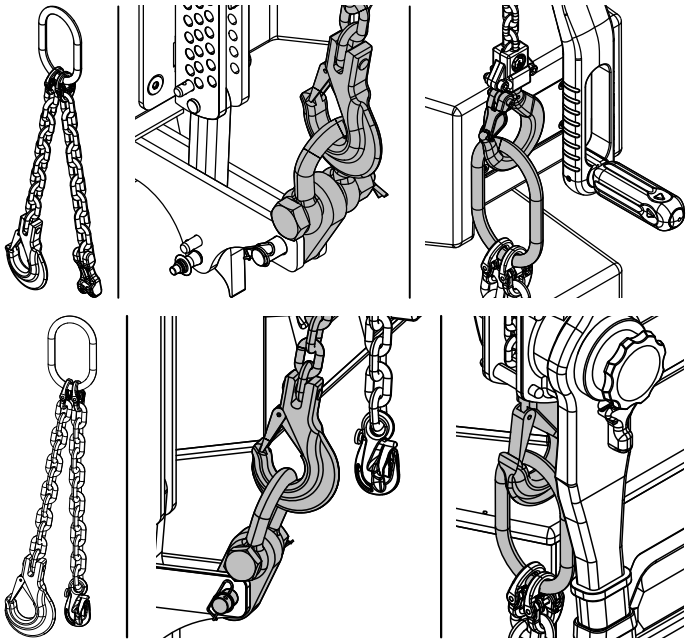


5. On the rear rigging strand, release Locking pin **[2]** and check Locking pin **[1]** is set to **0°** (⇒ C).
6. Pull the Splay link of the upper cabinet out of its temporary park position.
7. Slightly lower the array and fold the Splay link into the rigging strand.
8. Slightly lift the array until the Splay link has engaged into the preset Locking pin **[1]**.
9. Insert and lock Locking pin **[2]** (Safety pin) to secure the Splay link in place.
10. Lift the entire array approx. 30 cm (1 ft) above ground and dismantle the Touring cart as described previously.
11. Preset the splay angles as described previously.

For the attachment of further touring cart assemblies, proceed in the same manner.







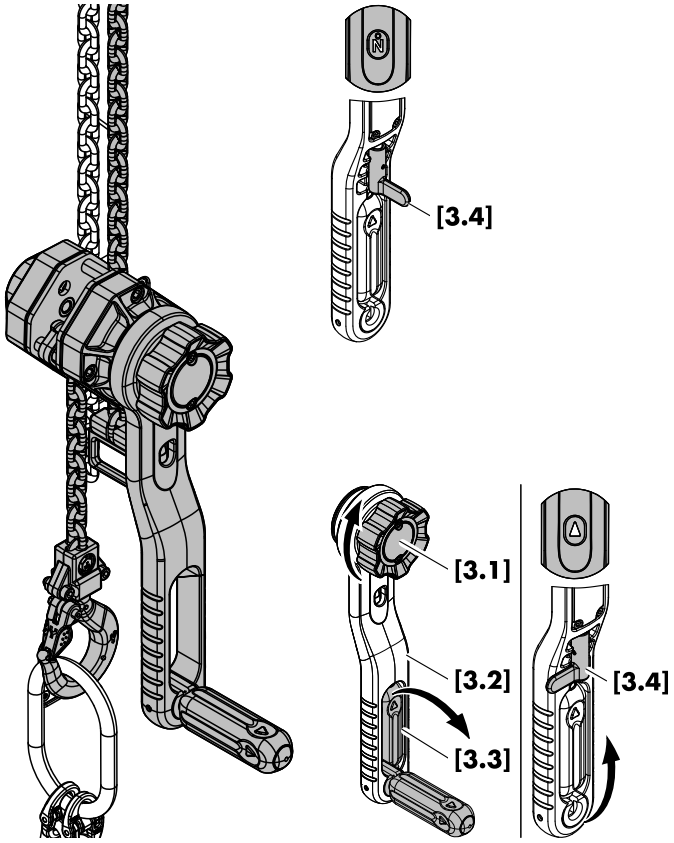
Upper graphic: B2447.072 .01 Crank lever hoist
Bottom graphic: B2447.072 Lever hoist

8. Attaching the compression frame

1. Lift the entire array to a suitable working height.
2. With one person on each side, release the Locking pins at the front of the compression frame.
3. Insert the front studs into the corresponding slots at the front of the cabinet.
4. Reinsert the Locking pins on both sides.
5. At the center rear, release the bottom Locking pin of the compression frame's Splay link slot.
6. Pull the Splay link out of its temporary park position.
7. Raise the frame until the Splay link has engaged into the Locking pin.
8. Reinsert the bottom Locking pin (Safety pin) to secure the Splay link in place.

9. Attaching the compression frame master link

1. Attach the hook to the shackle of the compression frame.
2. Attach the O-ring of the master link to the hook on the housing of the lever hoist.



10. Adjusting the B2447.072 .01 Crank lever hoist

To adjust the lever hoist, proceed as follows:

⇒ Set the lever mode selector **[3.4]** to the neutral position (⇒ ℕ).

↳ In this mode, the load chain can be freely pulled through the hoist to its required length.

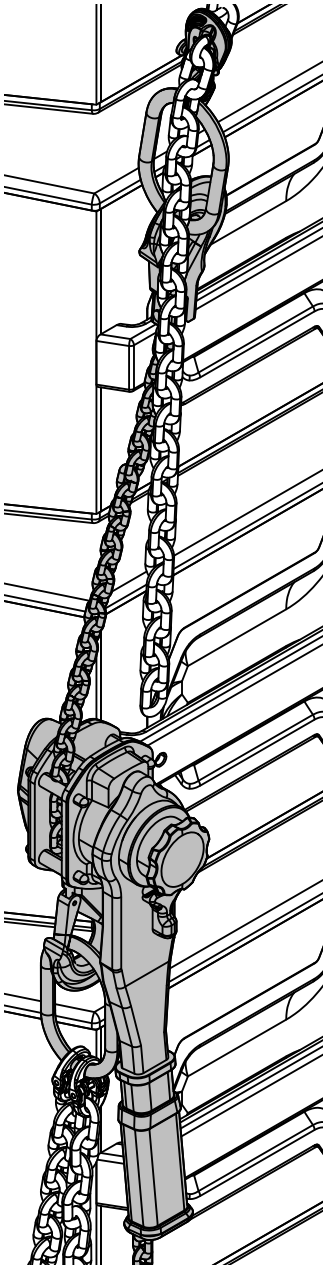
11. Curving the array (B2447.072 .01 Crank lever hoist)

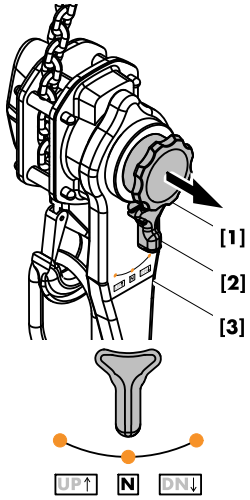
Before curving the array, recheck the actual status of the entire assembly according to the checklist given in ⇒ Chapter 12 "Safety and system checks" on page 77.

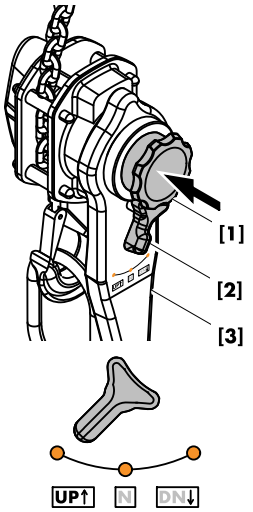
To curve the array, proceed as follows:

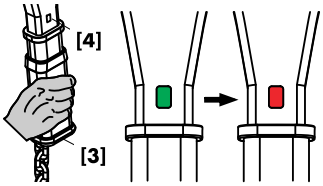
1. Set the lever mode selector **[3.4]** to the lifting position (⇒ △).
2. Turn the free chain knob **[3.1]** clockwise until the hoist has engaged to its load chain.
3. Fold out the crank **[3.3]**.
4. Operate the lever **[3.2]** clockwise until the array is completely curved.

   ↳ The maximum permitted compression force has been achieved when the lever kinks.
5. Stop further operation and set the lever mode selector **[3.4]** back to the neutral position (⇒ ℕ) and fold the crank **[3.3]** back into place.









10. Adjusting the B2447.072 .00 Lever hoist

To adjust the lever hoist, proceed as follows:

Note: For better illustration, the compression chain is not shown in full length.

1. Set the lever mode selector **[2]** to the neutral (**N**) position.
2. Pull the free chain knob **[1]**.
   ↳ In this mode, the load chain can be freely pulled through the hoist to its required length.

11. Curving the array (B2447.072 .00 Lever hoist)

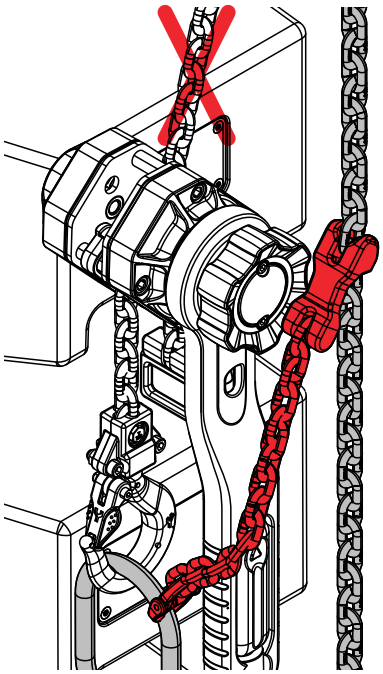
Before curving the array, recheck the actual status of the entire assembly according to the checklist given in ⇒ Chapter 12 “Safety and system checks” on page 77.

To curve the array proceed as follows:

NOTICE!

To provide correct detection of the compression force applied, operate the hoist by holding the lever grip **[3]** in the middle as shown in the graphic opposite.

1. Push the free chain knob **[1]**.
2. Set the lever mode selector **[2]** to the **UP** position.
3. Operate the lever **[3]** clockwise until the array is completely curved.
   ↳ The maximum permitted compression force has been achieved when the lever handle kinks and the load indicator **[4]** changes from green to red.
4. Stop further operation and set the lever mode selector **[2]** back to the neutral (**N**) position and place the lever **[3]** into its straight position (back into place).

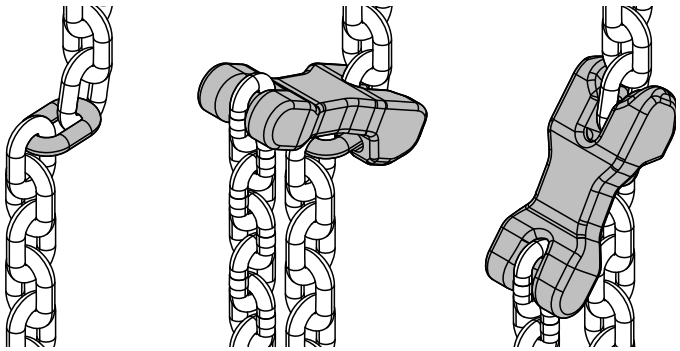


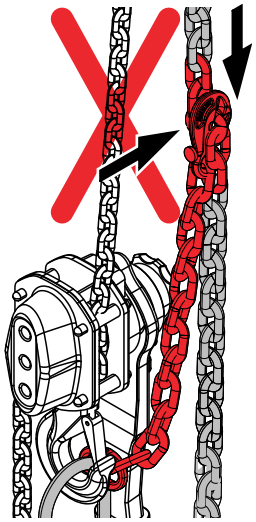
12. Securing the B2447.072 .01 Crank lever hoist

WARNING!
Potential risk of personal injury and/or damage to material.

The second chain leg of the Compression frame master link is intended as a secondary safety device to secure (bridge) the Crank lever hoist in the event that its primary suspension or its breaking system should fail.

- Therefore the grab link of the chain leg has to be attached to the **compression chain** and **NOT** to the load chain of the crank lever hoist.
- Ensure the grab link is properly attached as shown in the graphic below.





12. Securing the B2447.072 .00 Lever hoist

WARNING!
Potential risk of personal injury and/or damage to material.

The second chain leg of the B2447.074 Compression frame master link is intended as a secondary safety device to secure (bridge) the B2447.072 .00 Lever hoist in the event that its primary suspension or its breaking system should fail.

- Therefore the grab link of the chain leg has to be attached to the **compression chain** and **NOT** to the load chain of the crank lever hoist, as shown in the graphic opposite.
- Ensure the grab link is properly attached and its safety latch is locked.

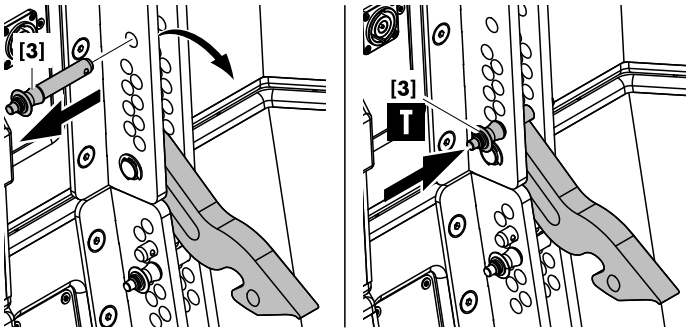
13. Check the assembly

Before hoisting the array to its operating position, recheck the actual status of the entire assembly according to the checklist given in ⇒ Chapter 12 “Safety and system checks” on page 77.

Provided...

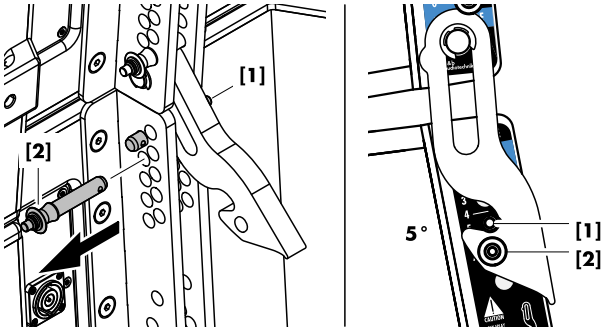
- The touring cart is loaded and prepared for Tension mode as described in ⇒ “Manually loading for Tension mode” on page 42 and in position.
- The load beam has already been attached to the flying frame, as described in the previous section ⇒ "Attaching the load beam to the flying frame" on page 50.
- The safety chain has already been attached to the flying frame, as described in ⇒ Chapter 1.4 “Secondary safety” on page 7.

... proceed as follows:

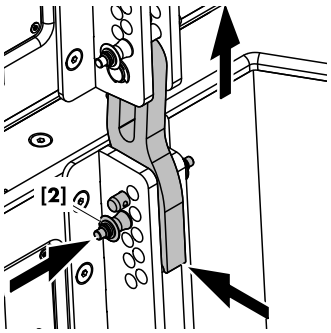


1. Preparing the first assembly

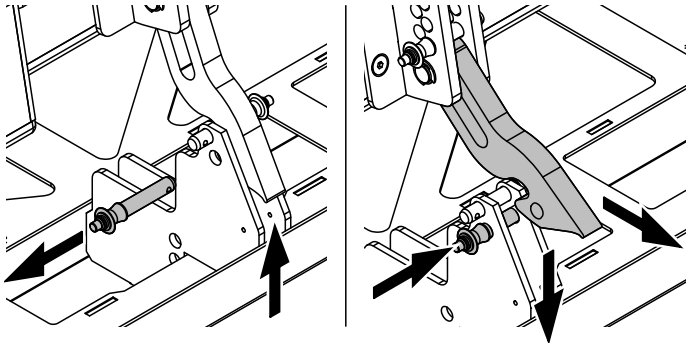
1. For the upper three cabinets, release Locking pin **[3]** and fold out the Splay link.
2. Reinsert Locking pin **[3]** to the lowest hole position of the bottom hole grid to fix the Splay link in its Tension mode position (⇒ **T**).



3. On every cabinet, release Locking pin **[2]**.
4. On the top hole index, preset the splay angles according to your ArrayCalc project using Locking pin **[1]** (See also ⇒ Chapter 2 "GSL/KSL rigging modes - 2 in 1" ⇒ "Tension mode principle" on page 11).

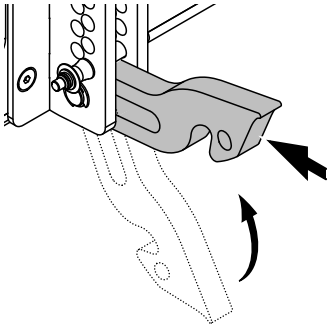


5. Lift the assembly including the cart until all Splay links have engaged.
6. Reinsert Locking pin **[2]** (Safety pin) on all cabinets.

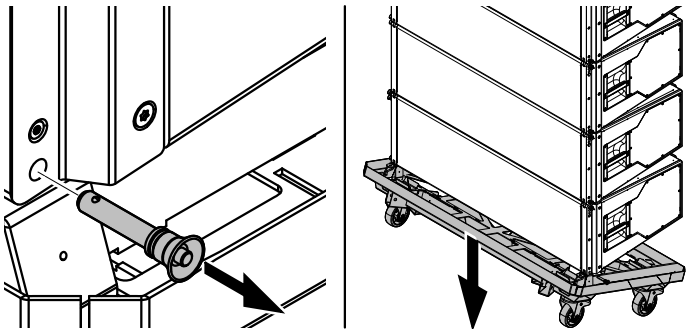


2. Dismantling the touring cart

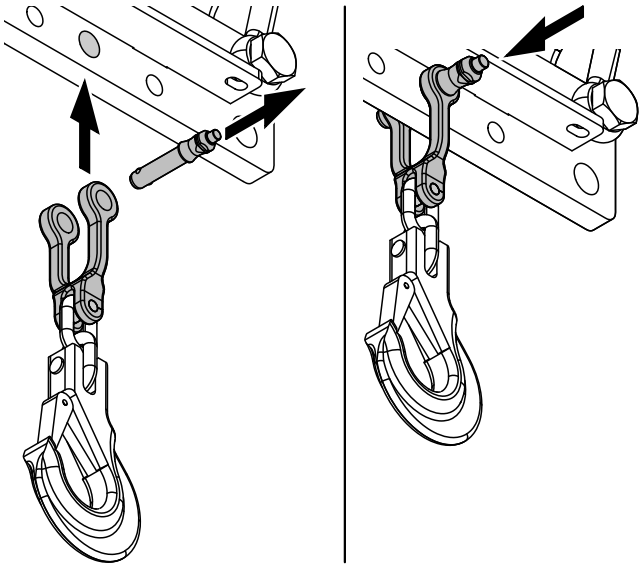
1. Lift the entire assembly to a height of approx. 30 cm (1 ft) above ground.
2. At the center rear Splay link slot, release the bottom Locking pin.
3. Slightly lift the cart and disengage the Splay link.
4. Reinsert the Locking pin and lower the cart.



5. The Splay link of the bottom cabinet can be temporarily parked to allow an easy attachment of the next assembly.
   ↳ For this purpose, raise the Splay link by 90° and slightly push it into the rear rigging strand.



6. With one person on each side, release the Locking pins at the front of the cart.
7. Lower the cart and put it aside.

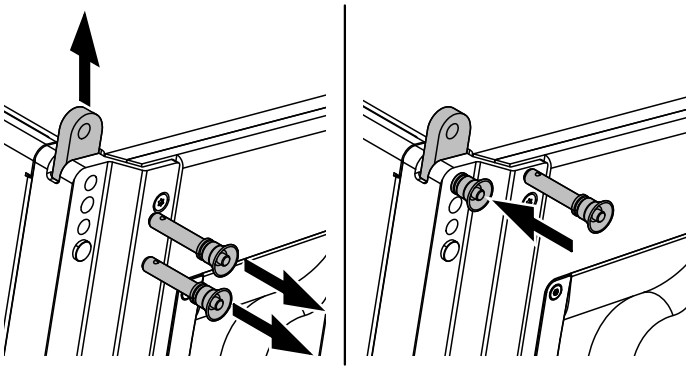


3. Attaching the cable pick (Z5713)

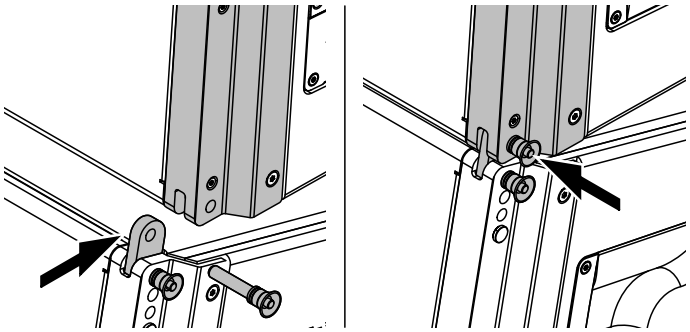
1. Release the Locking pin of the coupling shackle.
2. Attach the coupling shackle to the dedicated hole position at the rear end of the load beam.
3. Reinsert the Locking pin and ensure the pin is fully inserted and locked.
4. Set suitable lengths of the individual loudspeaker cables, and attach split sets when applicable and connect the cables subsequently during the entire setup procedure.

4. Attaching the next assembly

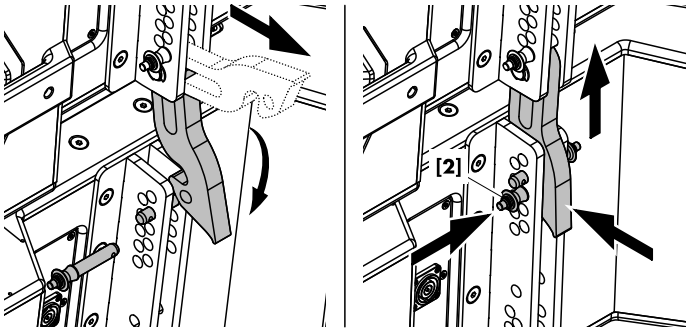
Due to the weight of the cabinets, further assemblies cannot be attached out of the cart in one go. The Splay links have to be engaged manually cabinet by cabinet. Proceed as follows:



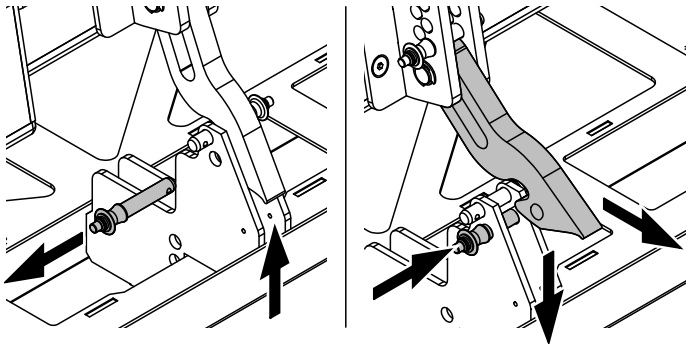
1. Lift the first assembly to allow the next assembly to be positioned below.
2. Position the next assembly and extend the Front links of the uppermost cabinet.



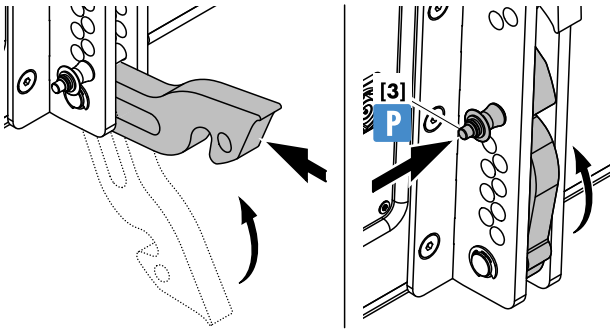
3. Lower the array until the Front links of the top cabinet in the cart fit into the slots at the front of the bottom cabinet of the array.
4. Insert and lock the second Locking pins of the cabinet's Front links on both sides.



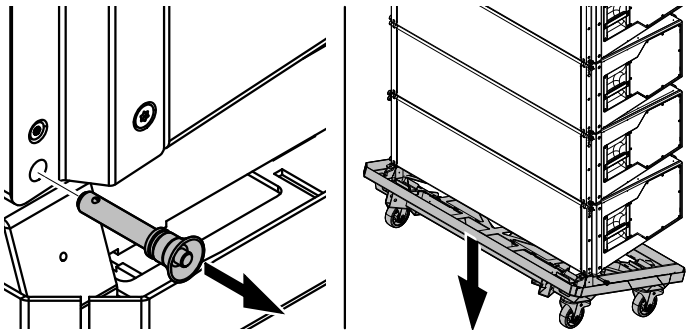
5. At the rear, prepare the Splay links in the same manner as described in the previous section (⇒ "1. Preparing the first assembly" on page 60).
6. On the bottom cabinet of the array, release the Splay link from its temporary park position and fold it down.
7. With one person on each side (rear handle), lift the back of the first cabinet of the assembly until the Splay link has engaged.
   ↳ During lifting, one person should also support the Splay link of the cabinet.
8. Reinsert Locking pin **[2]** (Safety pin).
9. For the next two cabinets, follow the previous two steps in the same manner.



10. For the last cabinet, first release the bottom Locking pin at the center rear Splay link slot of the cart.
11. Slightly lift the cart and disengage the Splay link.
12. Reinsert the Locking pin and lower the cart.



13. The Splay link can be temporarily parked or, if it is the last cabinet of the array, the Splay link can be stored in its Park position (P) and fixed using Locking pin **[3]**.

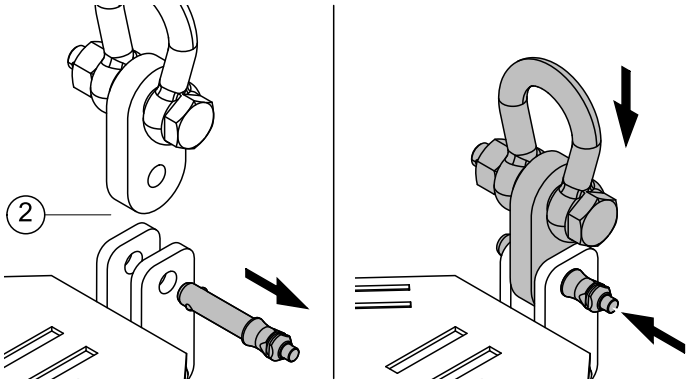


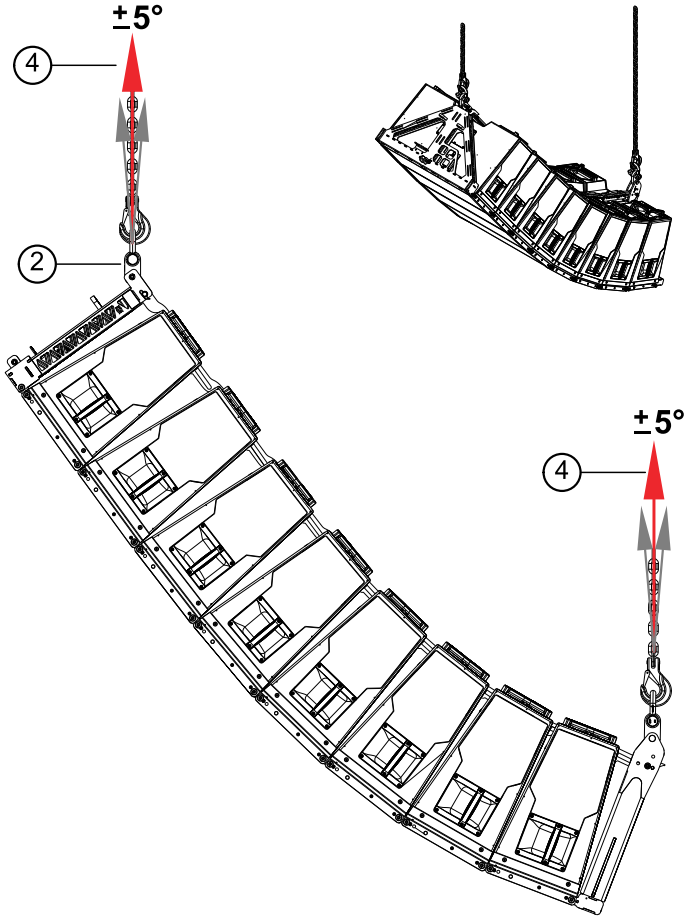
14. With one person on each side, release the Locking pins at the front of the cart.
15. Lower the cart and put it aside.

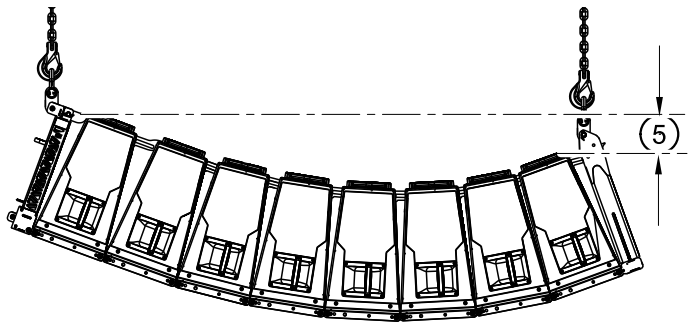
For the attachment of further touring cart assemblies, proceed in the same manner.

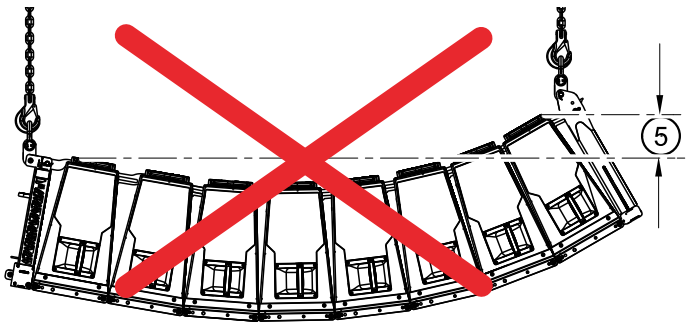
5. Check the assembly

Before hoisting the array to its operating position, recheck the actual status of the entire assembly according to the checklist given in ⇒ Chapter 12 “Safety and system checks” on page 77.









Specifications and recommendations

NOTICE!
Load safety information

KSL-TOP cabinets can be deployed with any splay angle combination and any total vertical inclination of the entire array using an additional pullback point at the bottom of the array, as long as the conditions described below are met.
For this purpose, the dedicated d&b Z5748 KSL Pullback frame must be used.
The assembly of the frame is similar to the assembly of the d&b Z5725 KSL Compression frame. For assembly instructions, please refer to the Compression mode setup section and follow step ⇒ "8. Attaching the compression frame" on page 56.

1. **Tension mode rigging**
   The array **must** be set up in Tension mode.
   For assembly instructions, please refer to ⇒ Chapter 7 "Tension mode setup" on page 60.
2. It is necessary to suspend the array directly from the rear pick point of the flying frame using the suspension device that is enclosed with the KSL Pullback frame.
   ↳ This ensures a maximum angle range between array and hoist chain without any hooks or shackles touching the frame, something which could cause unsafe load conditions for these components.
   When using an O-Ring for this purpose, make sure the O-Ring is big enough to move freely without mechanical obstruction.
3. In ArrayCalc, select the «**flown pullback**» mounting method.
   ↳ ArrayCalc will calculate the load conditions and force direction of each individual connection. Based on these results, the actual resulting angles will be chosen depending on the force direction of each interconnection.
4. The hoist connector and pullback chain must always lift the array straight upwards (⇒ max. diagonal pull: **±5°**).
5. The height of the first cabinet must always be greater than the height of the last cabinet.

9.1 Limitations

NOTICE!

A maximum of:

- 14 x SL-SUB
- 16 x KSL-SUB

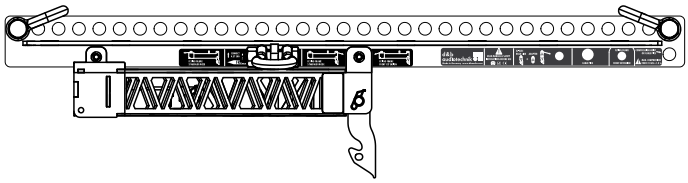
cabinets are allowed to be suspended, including all rigging components.

9.2 Rear link of the Flying frames

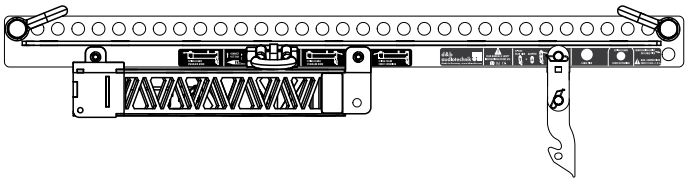
Rear link position

By factory default, the Rear link is attached to the Flying frame for the deployment of applicable TOP cabinets.

To attach applicable SUB cabinets, the Rear link position has to be changed and moved to the dedicated hole position on the load beam. For this purpose, a corresponding adapter (extender) is provided with the flying frame.



Rear link of the frame in default position



Rear link of the frame in SUB position

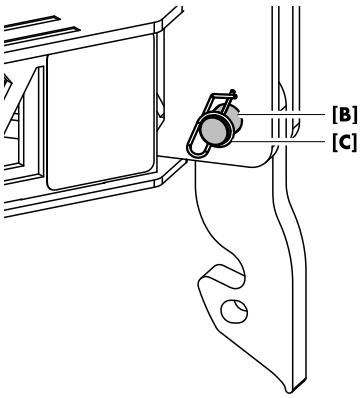
Changing the Rear link position

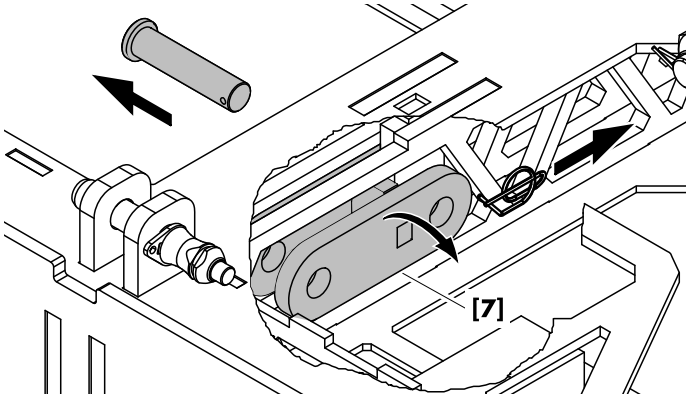
WARNING!
Potential risk of personal injury and/or damage to material!

The fixing bolt **[B]** of the frame's Rear link bears the full load of the array.

It is essential that the bolt is fitted correctly and secured by a locked ring cotter **[C]**.

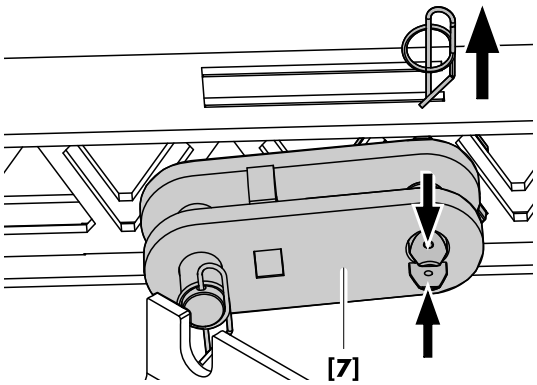
To change the Rear link position, proceed as follows:





GSL Flying frame

Rear link adapter

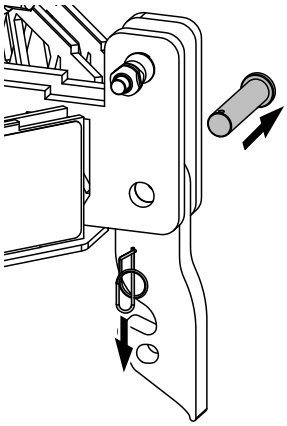


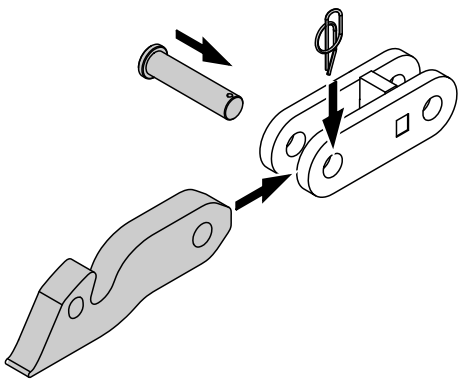
KSL Flying frame

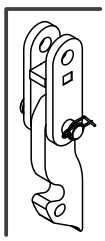
The Rear link adapter is located and fixed in its park position **[7]** on the Flying frame.

1. Unlock and remove the ring cotter of the fixing bolt/pin holding the Rear link adapter in its park position.
2. On GSL Flying frames, pull out the fixing bolt and take off the Rear link adapter.

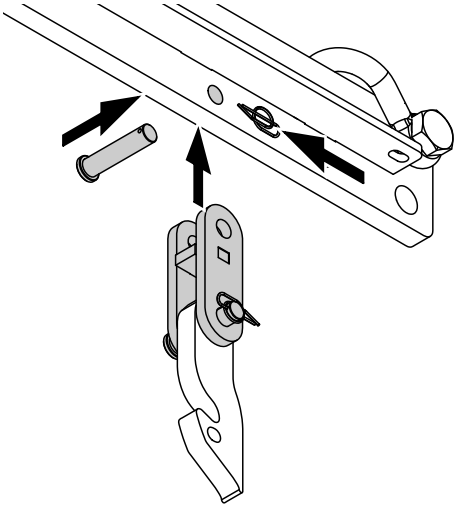
   On KSL Flying frames, release the fixing pin and take off the Rear link adapter.
3. For the Rear link of the frame, proceed in the same manner.

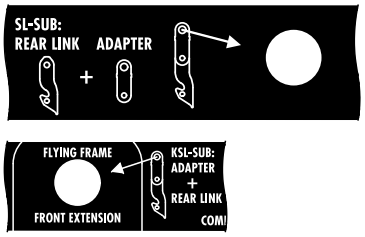


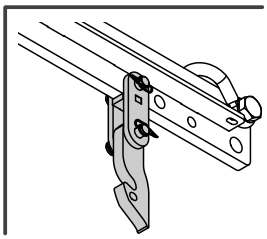




4. Attach the Rear link to the adapter.
5. Insert the fixing bolt.
6. Secure the fixing bolt using the ring cotter and ensure the ring cotter is properly locked.







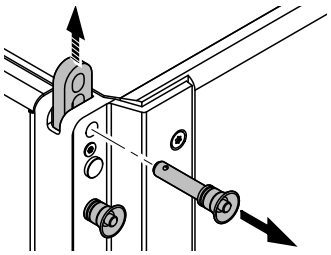
7. Attach the Rear link assembly to the dedicated hole position of the load beam.
8. Insert the fixing bolt.
9. Secure the fixing bolt using the ring cotter and ensure the ring cotter is properly locked.

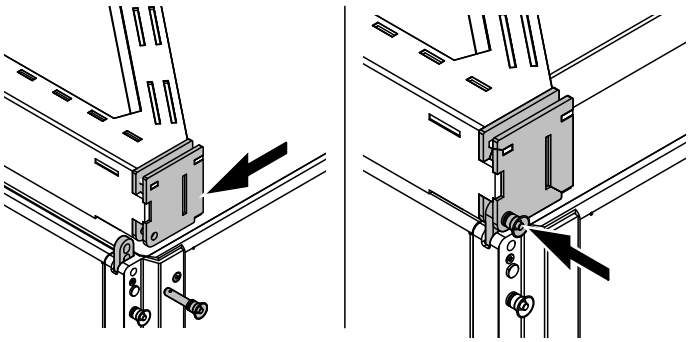
9.3 SUB column setup

Provided the Touring cart is loaded with the SUB cabinets interconnected by their Front and Rear links as described in the previous section ⇒ Chapter 3.14.2 "E7492 Touring cart SL-SUB/ SL-GSUB" ⇒ "Loading the cart" on page 44 and in position and the load beam has been already attached to the flying frame as described in the previous section ⇒ Chapter 5.1.2 "Attaching the load beam to the flying frame" on page 50, proceed as follows:

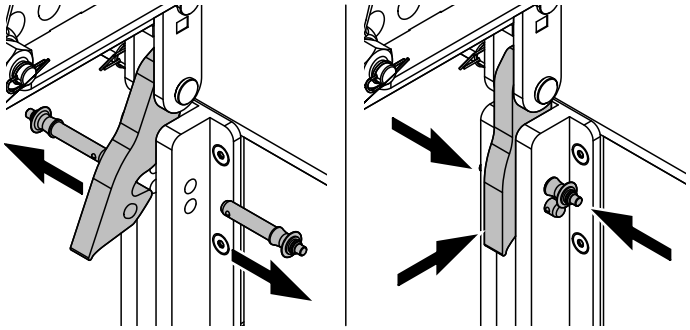
1. Attaching the flying frame

1. Extend the Front links of the uppermost SUB cabinet on both sides.

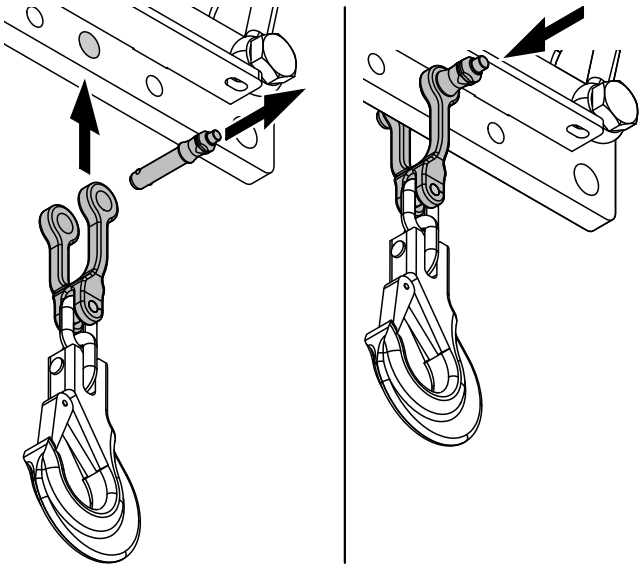




2. Lower the frame onto the SUB cabinet until the Front links fit into the slots at the front of the frame.
3. Reinsert the Locking pins of the Front links on both sides.

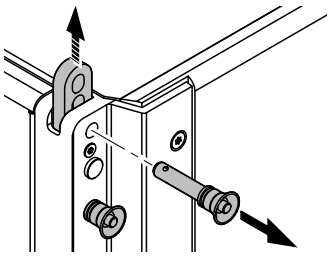


4. On the rear rigging strand, release both Locking pins.
5. Fold the Rear link into the rigging strand and reinsert the Locking pins.



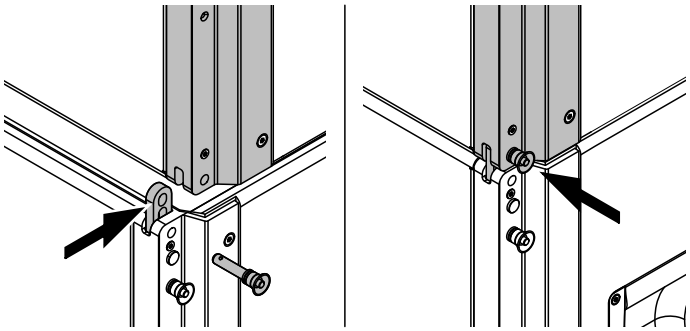
2. Attaching the cable pick (Z5713)

1. Release the Locking pin of the coupling shackle.
2. Attach the coupling shackle to the dedicated hole position at the rear end of the load beam.
3. Reinsert the Locking pin and ensure the pin is fully inserted and locked.
4. Set suitable lengths of the individual loudspeaker cables, and attach split sets when applicable and connect the cables subsequently during the entire setup procedure.

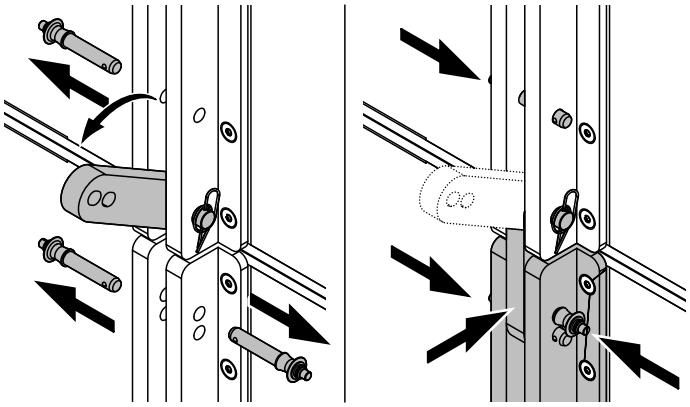


3. Attaching the next SUB assembly

1. Provided the SUB cabinets are interconnected by their Front and Rear links as described in ⇒ Chapter 3.14.2 "E7492 Touring cart SL-SUB/SL-GSUB" ⇒ "Loading the cart" on page 44, lift the assembly out of the Touring cart to position the next assembly below and put the cart aside.
2. Position the next Touring cart below and extend the Front links.

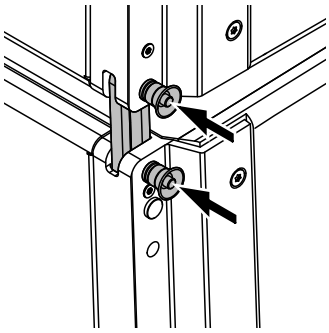


3. Lower the array onto the cabinet until the Front links of the bottom cabinet fit into the slots of the upper cabinet.
4. Insert the second Locking pins of the cabinet's Front links on both sides.

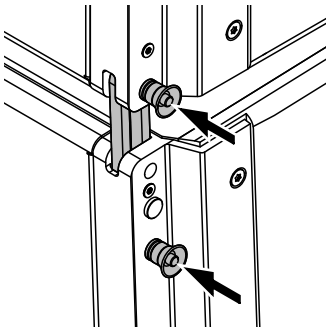


5. On the rear rigging strand, release the Locking pins of both cabinets.
6. Fold out the Rear link of the upper cabinet.
7. Reinsert the Locking pin on the upper cabinet.
8. Fold the Rear link into the rigging strand of the bottom cabinet.
9. Reinsert the two Locking pins on the bottom cabinet.

To add further cabinets, proceed in the same manner until the assembly is completed.



SUB to SUB, 2° splay, free



SUB to SUB, 2° splay, blocked

Splay option

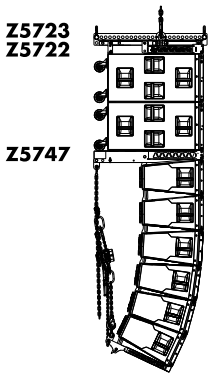
The Front links of the SUB cabinets allow for a splay angle of 2° between adjacent SUB cabinets. Before hoisting the array, the angle can be set in two ways:

free The second Locking pin of the cabinet's Front link is inserted in the top hole of the front rigging strand, as shown in the graphic opposite. This can be done for all cabinets in one step.
The angle opens up as soon as the array is hoisted.

blocked The second Locking pin of each cabinet's Front link is inserted into the second hole cabinet by cabinet during hoisting, as shown in the graphic opposite. Due to the design of the Front link mechanism, the Locking pin can be inserted free of load.

4. Check the assembly

Before hoisting the array to its operating position, recheck the actual status of the entire assembly according to the checklist given in ⇒ Chapter 12 “Safety and system checks” on page 77.



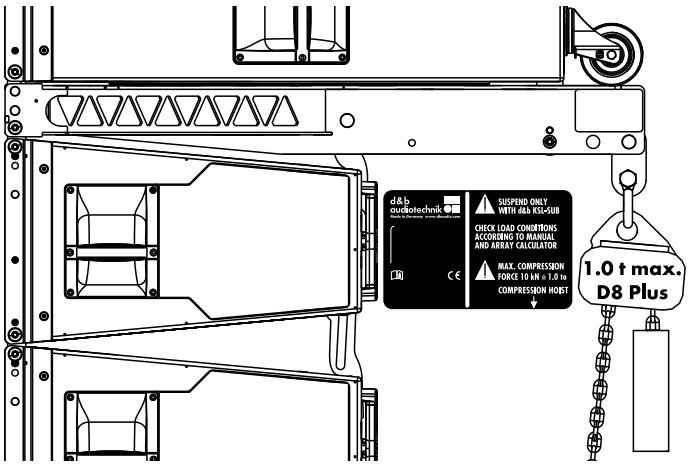
10.1 Remarks

NOTICE!

- For a mixed setup, the Z5722 KSL Flying frame together with the Z5723 KSL Load beam must always be used as a suspension device. The Z5747 KSL-SUB Adapter frame is required in addition.
- Observe the maximum total system weight of 1500 kg (3307 lb) – SWL including all rigging components.
- The SUB cabinets must always be interconnected with **0°** splay. Please also refer to ⇒ Chapter3.13.1 "Front link mechanism" ⇒ "SUB cabinets" ⇒ Fig.2: "SUB to SUB 0° splay" on page36.

10.1.1 Rigging modes

In connection with the adapter frame, the TOP cabinets underneath the SUB cabinets can also be set up in either tension or compression mode. However, for the compression mode setup, the same safety rules apply.



WARNING!
Potential risk of personal injury and/or damage to material.

When using a motor hoist instead of the lever hoist, observe the following:

- The maximum permitted compression force is 1000 kg (1.0 t/10 kN).
  The hoist overload clutch must be correspondingly adjusted.
- The motor hoist must be equipped with two independent brakes (according to the German **D8 Plus** standard).
- Observe your local legal requirements and Rules for the Prevention of Accidents (RPA).

10.2 Order of assembly

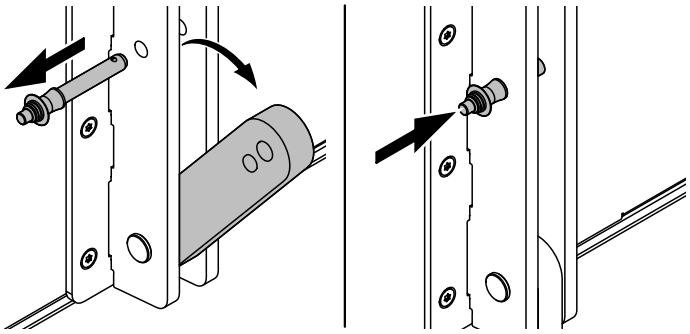
The assembly of a mixed array configuration is divided into the following three main procedures:

1. Suspending the desired number of SUB cabinets.
2. Attaching the adapter frame.
3. Attaching the TOP cabinets.

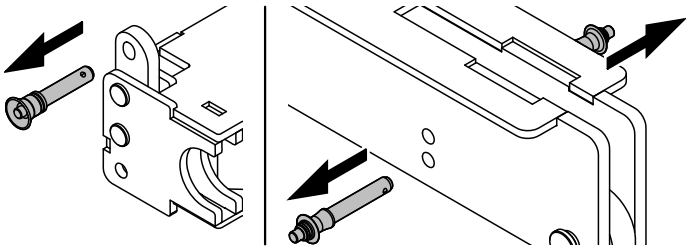
10.2.1 Suspending the desired number of SUB cabinets

The suspension and assembly of the SUB cabinets is similar to the suspension and assembly of a pure SUB column, as described in ⇒ Chapter 9 “SUB columns” on page 65.

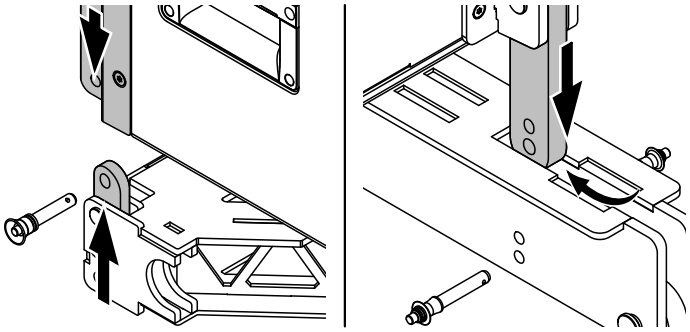
10.2.2 Attaching the adapter frame



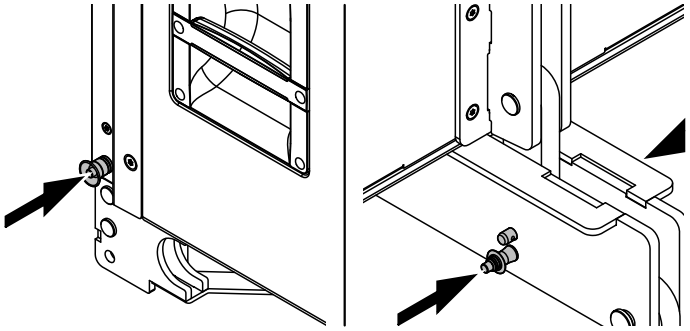
1. On the rear rigging strand of the last SUB cabinet, release the Locking pin holding the Rear link in its park position.
2. Fold out the Rear link and reinsert the Locking pin.



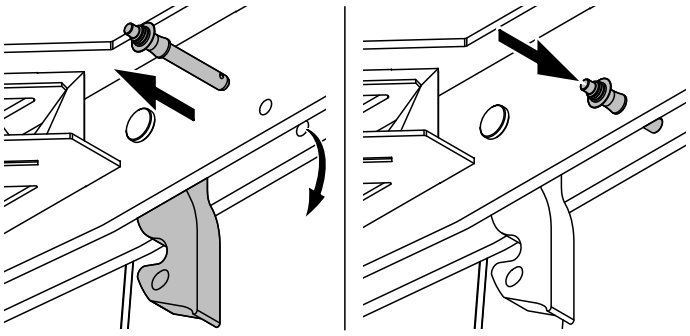
3. At the front of the adapter frame, release the Locking pins of the Front links on both sides.
4. At the rear of the adapter frame, release both Locking pins of the Rear link slot of the frame.



5. Lift the SUB assembly to a suitable working height.
6. Attach the adapter frame to the SUB cabinet until:
   - the Front links of the frame fit into the slots on the front rigging strands of the cabinet.
   - the Rear link of the cabinet fits into the Rear link slot of the frame.



7. Reinsert the Locking pins of the Front links on both sides.
8. Reinsert both Locking pins of the Rear link slot.

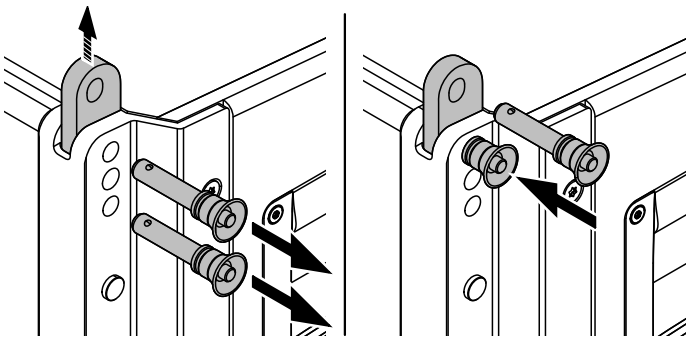


9. Release the Locking pin holding the Rear link of the frame in its park position.
10. Fold out the Rear link and reinsert the Locking pin.

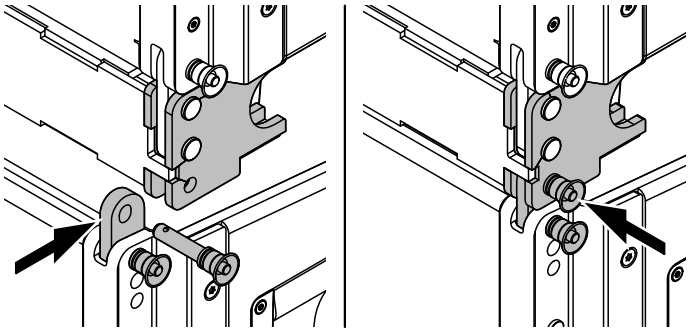
10.2.3 Attaching the TOP cabinets

The attachment of the TOP cabinets (Touring cart assemblies) is similar to the assembly of a pure TOP column, as described in
⇒ Chapter 6 “Compression mode setup” on page 52 and/or
⇒ Chapter 7 “Tension mode setup” on page 60.

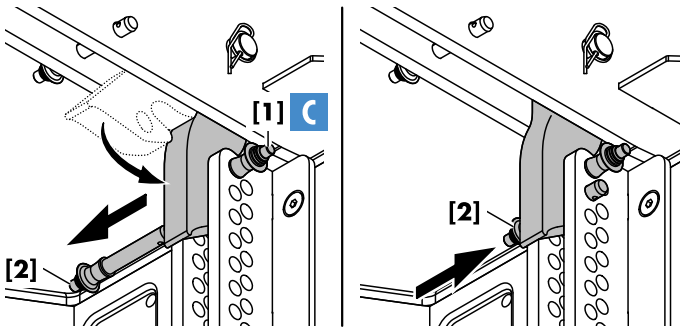
However, to connect the first TOP assembly to the adapter frame, proceed as follows:



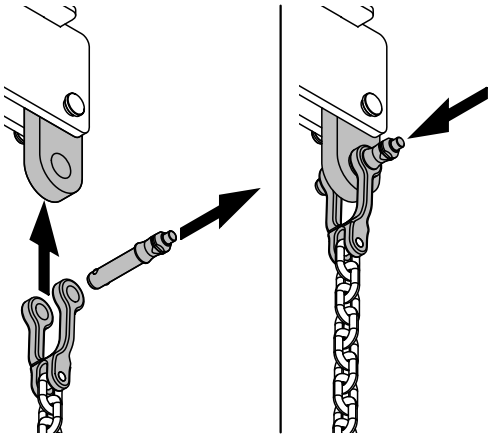
1. Lift the current assembly to a suitable working height.
2. Position the first TOP assembly and extend the Front links of the uppermost cabinet.



3. Lower the array until the Front links of the top cabinet in the cart fit into the slots at the front of the adapter frame.
4. Insert and lock the second Locking pins of the cabinet's Front links on both sides.



5. On the rear rigging strand, release Locking pin **[2]** and check Locking pin **[1]** is set to **0°** (⇒ C).
6. Slightly lower the array and fold the Splay link into the rigging strand.
7. Slightly lift the array until the Splay link has engaged into the preset Locking pin **[1]**.
8. Insert and lock Locking pin **[2]** (Safety pin) to secure the Splay link in place.

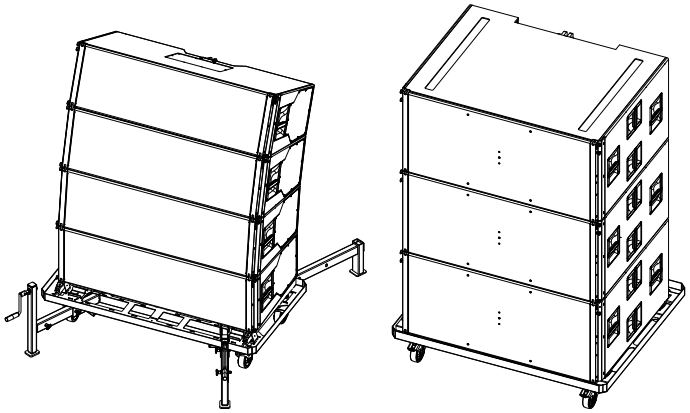


Attaching the compression chain

When the TOP cabinets are to be set up in compression mode, we recommend you at this point of the procedure to attach the compression chain as follows:

1. Release the Locking pin of the coupling shackle.
2. Attach the coupling shackle to the compression pickpoint of the adapter frame.
3. Reinsert the Locking pin and ensure the pin is fully inserted and locked.

To complete the assembly, please follow the further setup procedures, as described in ⇒ Chapter 6 "Compression mode setup" following step ⇒ "3. Attaching the compression grab link" starting from page 53 onwards.



WARNING!
Potential risk of personal injury and/or damage to material!

Always secure ground stacked setups against movement and possible tipping over.

Observe the maximum number of cabinets permitted.

11.1 GSL/KSL-TOP ground stacks

In the following, the rigging procedure for GSL-TOP cabinets ground stacks is described. The same procedure also applies to KSL-TOP cabinets.

Safety precautions

CAUTION!
Potential risk of personal injury and/or damage to material!

To avoid any risk of personal injury and/or damage to material, please observe the following.

- The assembly should always be carried out by two persons.
- During assembly, be aware of the possible risk of crushing fingers. Wear suitable protective clothing (e.g. protective gloves and safety shoes).

Limitations

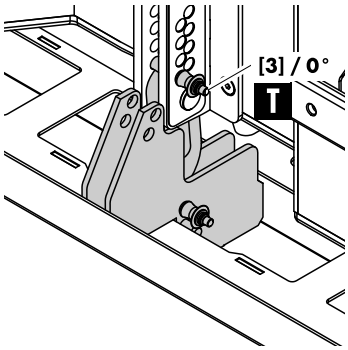
A maximum of 4 x TOP cabinets together with the E7490 (GSL) or E7802 (KSL) Touring carts and the E7494 SL Outriggers serving as ground support are allowed to be set up as ground stack.

11.1.1 Setting the splay angles

Preparations

We recommend you to have the Touring cart loaded for Compression mode setup (refer to ⇒ "Manually loading for Compression mode" on page 40).

This will simplify the assembly and in particular the splay angle setting as only one Locking pin (Pin **[3]**) on the rear rigging strand is required for this purpose.



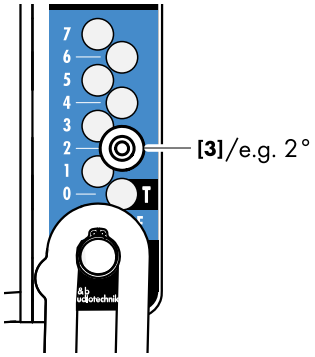
With the Touring cart loaded in Compression mode, the Splay link of the lowest cabinet is fixed to the Compression mode holes on the rear Splay link slot of the cart. The resulting angle for this cabinet is set at **0°** (Locking pin **[3]** ⇒ **T**).

The splay angles for the upper three cabinets can be set either:

- with the help of appropriate lifting devices (e.g. flying frame temporarily attached to the top of the stack),
- or manually.

We recommend you whenever possible to set the splay angles using appropriate lifting devices.

Once the lifting device is attached, proceed as follows:



1. Lift the entire assembly until it is slightly lifted above the ground.
2. At the bottom hole index, preset the splay angles according to your ArrayCalc project using Locking pin **[3]** (See also ⇒ Chapter 2 "GSL/KSL rigging modes - 2 in 1" ⇒ "Compression mode principle - Preset" on page 12).
3. Slowly lower the assembly onto the ground until all splay angles have been reached.
4. Remove the lifting device and move the stack to its operating position.

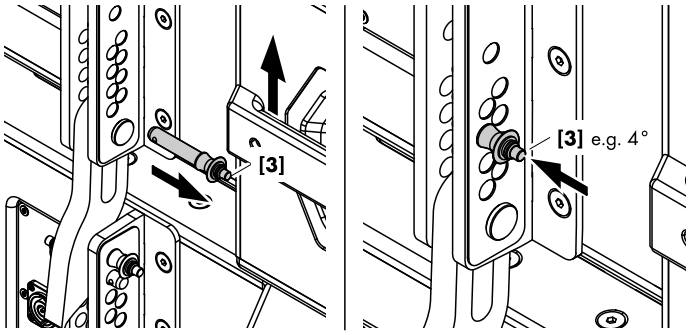
Setting the splay angles manually

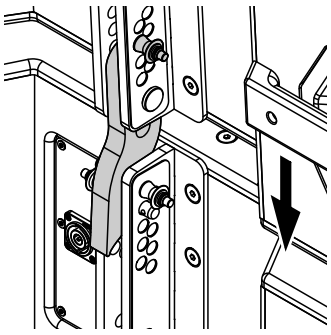
To apply the splay angles for the upper three cabinets manually, proceed as follows:

CAUTION!
Heavy object. Potential risk of lifting injuries.

Setting splay angles manually is hard work. It requires three persons.

Observe the initial lifting force of 1.2 kN (120 kg/265 lb)!

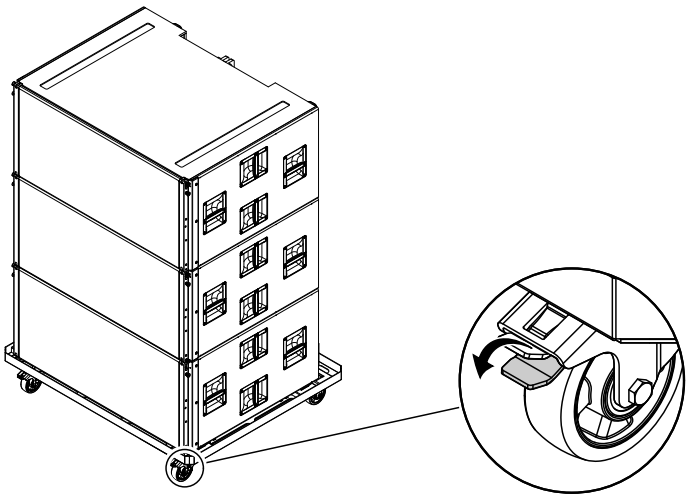




1. Move the stack to its operating position.
2. With one person on each side, slightly raise the backs of the cabinets to allow the Locking pin **[3]** to be released.
3. While the two persons are holding the cabinets, a third person should release the Locking pin **[3]** on the bottom cabinet.
4. Reinsert the Locking pin **[3]** into the corresponding Splay link hole of the Compression mode hole index (e.g. 4°).
   ↳ Ensure the pin is fully inserted and locked.
5. Slowly lower the cabinets until the splay angle is reached.
6. For the remaining two cabinets, proceed in the same manner until all splay angles are set.

Check the assembly

Recheck the actual status of the entire assembly according to the checklist given in ⇒ Chapter 12 “Safety and system checks” on page 77.



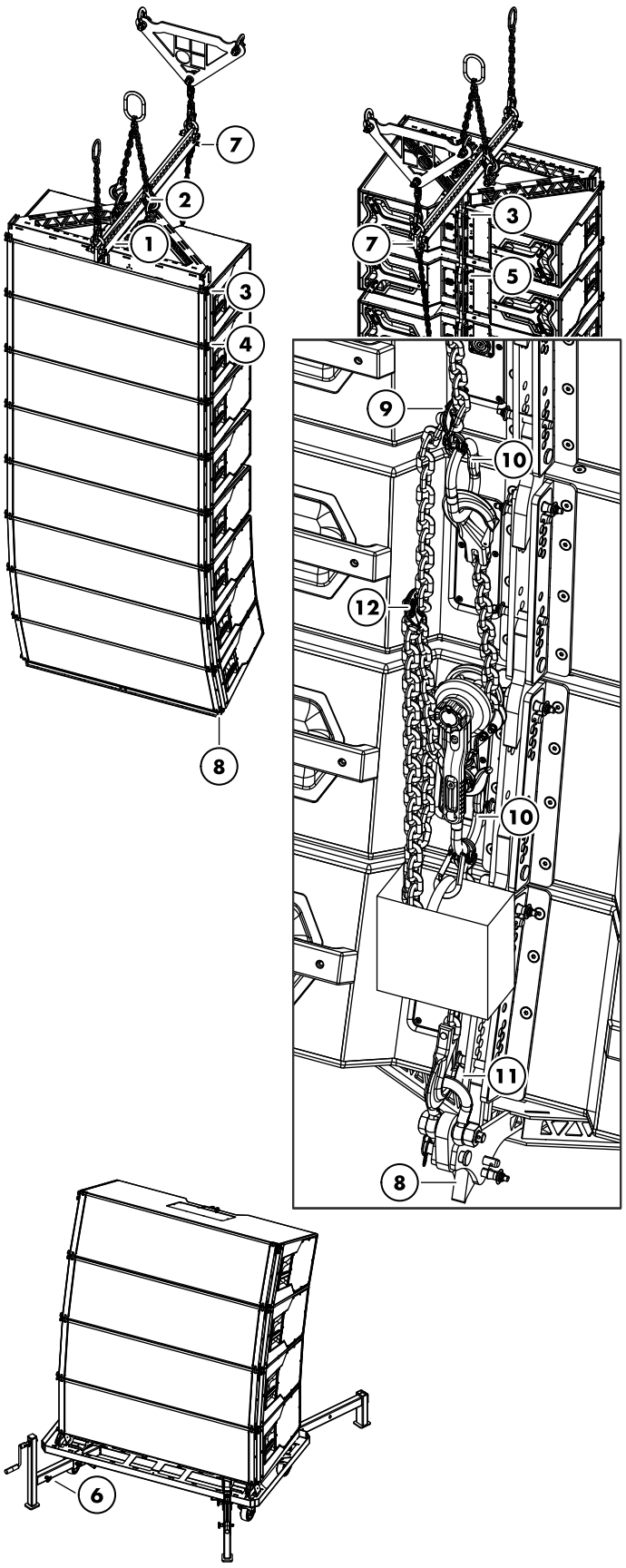
11.2 SL-SUB/SL-GSUB ground stack

Limitations

A maximum of 3 x SUB cabinets together with the E7492 Touring cart serving as ground support are allowed to be set up as ground stack.

Setup procedure

With the touring cart serving as ground support, simply place the cart in position and lock all wheel brakes.



Before hoisting the array to its operating position, recheck the actual status of the assembly. When applicable, the same safety and system checks also apply to ground stack assemblies.

12.1 Mechanical setup

General

Be aware that any object or tool left on the top of the array during setup may fall when the array is operated. Always check that no tools or other objects are left on the array before final hoisting.

1. Check the attachment of the load beam to the flying frame and ensure all Locking pins are fully inserted and locked.
2. Check the attachment of the secondary safety device at the flying frame (refer to ⇒ Chapter 1.4 "Secondary safety" on page 7).
3. Check the attachment of the flying frame to the cabinets and ensure all Locking pins are fully inserted and locked.
4. Check the attachment of all Front links on both sides of the cabinets and ensure all Locking pins are fully inserted and locked.
5. Check the splay angles and the attachment of the Splay/Rear links at the rear of the cabinets and ensure all Locking pins are fully inserted and locked.
6. With ground stack setups, check the attachment of the outrig rods and ensure all Socket pins are fully inserted and locked.

In Compression mode

7. Check the attachment of the compression chain's coupling shackle to the load beam and ensure the Locking pin is fully inserted and locked.
8. Check the attachment of the compression frame and ensure all Locking pins are fully inserted and locked.
9. Check the position and attachment of the compression grab link and ensure the safety latch is locked.
10. Check the attachment of the lever hoist to the O-ring of the compression grab link and compression frame master link and ensure both safety latches of the hooks are closed.
11. Check the attachment of the compression frame master link to the shackle of the compression frame and ensure the safety latch of the hook is closed.
12. Ensure the grab link of the second chain leg of the compression frame master link is properly attached to the compression chain and the safety latch is locked.

12.2 Wiring

- If the amplifiers are already wired and powered on, use their System check functions or channel mute switches and a test signal to check the correct operation and routing of all channels and cabinets.
- Alternatively check the wiring using the Array verification function in R1.

13.1 Hoisting the array

WARNING!
Potential risk of personal injury and/or damage to material!

Always ensure that each of the hoists is able to carry the total weight of the array.

When hoisting the array, unpredictable dynamic forces as well as swinging of the array must be taken into account. This may lead to personal injury and/or damage to the rigging components and loudspeaker cabinets.

Ensure there is nobody directly underneath or in the vicinity of the load who is not involved in the setup.

When all the mechanical adjustments, safety and system checks have been made, the array can be hoisted up to its operating position.

When hoisting the array, ensure that the loudspeaker cables do not get caught anywhere. The cables can be strapped together with the motor cables to form a loom while the system is hoisted.

The chain hoist motors must raise the system slowly and evenly so that it does not swing or move from side to side during hoisting.

13.2 Aiming the array

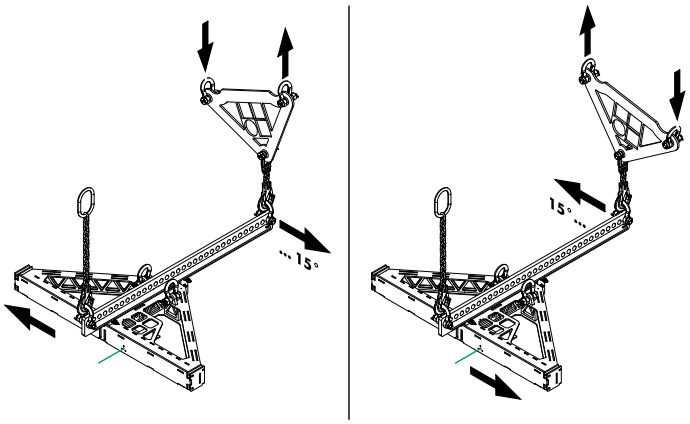
In connection with the Z5711 ArraySight sender unit (laser inclinometer), the horizontal and vertical aiming of the array can be sufficiently and easily adjusted.



CAUTION!
Laser beam
Potential risk of personal injury.

The high brightness laser of the d&b ArraySight sender unit requires additional safety considerations.

1. Take precautions to prevent anyone from looking directly into the laser beam.
2. Wear appropriate eye protection.
3. When making adjustments to the array with motor hoists, watch the hoist - **not** the meter unit!
4. Check the measurement only when you are sure that the hoist has finished moving.
5. However, the chain hoist motors must raise the array slowly and evenly.

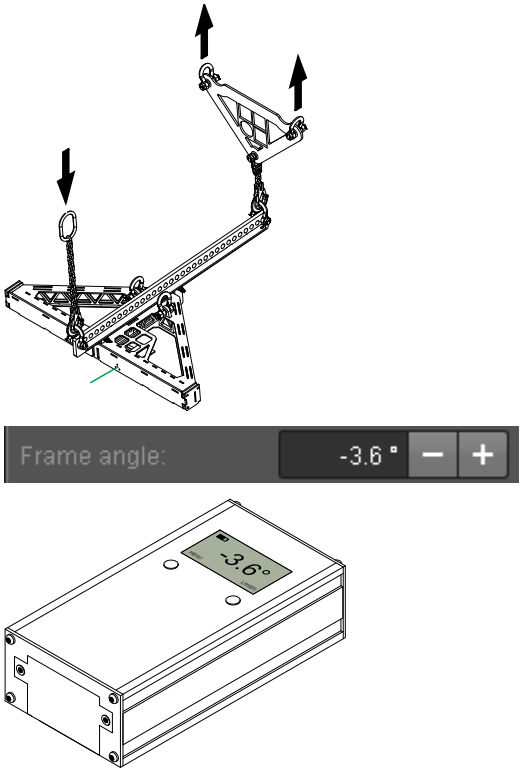


13.2.1 Horizontal aiming

In connection with the Z5707 SL Aiming plate the horizontal aiming of the array can be sufficiently and easily adjusted.

> **Note:** To prevent the array from heavy movements, raise one hoist while lowering the other.
>
> However, the chain hoist motors must be operated slowly and evenly.

With a chain hoist distance of minimum 0.6 m (2 ft), preferably approx 1 m (3 ft), the SL Aiming plate provides a horizontal angle range of ±15° (first and last pick holes of the load beam used).



13.2.2 Vertical aiming

Application example

To take an example: ArrayCalc indicates a frame angle of –3.6° vertically.

1. When you use ArraySight to measure this angle, you raise the first array to its operating height and then check the meter unit screen.
2. The figures displayed settle as the meter compensates for the swing of the array. When the settled display shows +0.5°, you then use the hoists to lift the rear or lower the front of the array. Make small adjustments and allow the meter unit to calculate the new angle. Continue to make adjustments until you achieve the angle of –3.6°.
3. Once the first array is complete, disconnect the meter unit from the first sender unit and reconnect it to the sender unit of the second array.
4. Repeat the procedure, starting with resetting the angle to zero for the second sender unit. Raise the second array, check the angle and adjust the angle as necessary.
5. If subsequent re-adjustment of the first array is required the meter unit can be re-connected to the first sender unit and the correct offset will be recalled.

13.3 Securing the array

WARNING!
Potential risk of personal injury and/or damage to material!

If required, once the array is in its final operating position, the secondary safety must be applied to its dedicated suspension points.
A detailed description is given in ⇒ Chapter 1.4 “Secondary safety” on page 7.

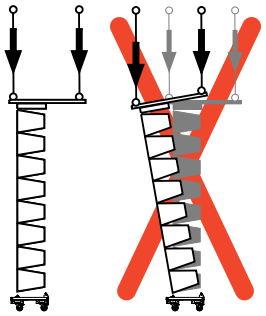
The secondary safety suspension must be independent of the primary suspension points and capable of carrying the total system weight.

The additional safety device must be mounted in a way that the array is caught by the safety device without any drop and swing in the event that the primary suspension fails.

14.1 General

To dismantle any of the assemblies, follow the corresponding assembly and setup instructions in reverse order.

The same safety instructions apply!

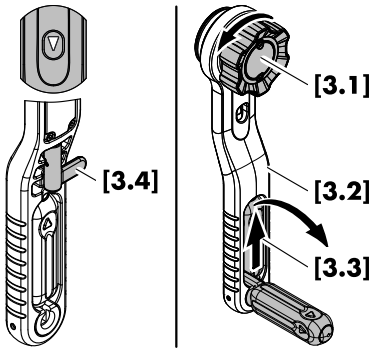


WARNING!
Potential risk of personal injury and/or damage to material!

In particular, make sure that when lowering and decompressing the array nobody is directly underneath or in the vicinity of the array.

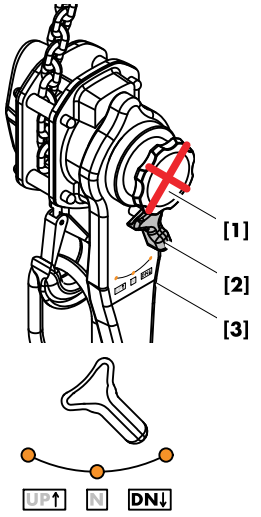
When lowering the array, **avoid diagonal pull**.
This could lead to the potential risk of the array tipping over towards the front.

14.2 Compression mode disassembly



1. Decompressing the array (B2447.072 .01 Crank lever hoist)

1. Lower the array to a height of approx. 30 cm (1 ft) above ground.
2. Set the lever mode selector **[3.4]** to the lowering position (▽).
3. Release the hoist by turning the free chain knob **[3.1]** counterclockwise.
4. Fold out the crank **[3.3]**.
5. Operate the crank lever **[3.2]** counterclockwise until the array is completely straight (decompressed).



1. Decompressing the array (B2447.072 Lever hoist)

WARNING!
Potential risk of personal injury and/or damage to material.

Do NOT operate the free chain knob [1] in lowering mode.

1. Lower the array to a height of approx. 30 cm (1 ft) above ground.
2. Set the lever mode selector **[2]** to the **DN** position.
3. Operate the lever **[3]** counterclockwise until the array is completely straight (decompressed).

2. Detaching the compression set
Small hint: Apart from the compression frame, the compression set items can remain interconnected and stored. This simplifies further setups.

⇒ For this purpose, detach the compression grab link from the compression chain and the hook of the compression frame master link from the shackle of the compression frame.

3. Preparing the first four cabinets for loading
Change the position of Locking pin **[3]** from its splay angle hole back to the lowest hole of the bottom hole index (⇒ T).

4. Detaching the compression frame
Detach the compression frame in reverse order starting at the rear.

5. Attaching the touring cart
1. Reattach the touring cart in reverse order starting at the front.
2. Lift the rear of the cart until the Splay link has engaged and reinsert the bottom locking pin.

6. Separating the first cabinet assembly
1. Slowly lower the array onto the ground until the Front and Splay links are free of load.
2. At the rear, release Locking pin **[1]** and **[2]** of the uppermost cabinet of the assembly and fold out the Splay link.
3. Reinsert the Locking pins to the same hole positions (⇒ C).
4. At the front, release the Locking pins of the Front links on both sides.
5. Lift the array and store the Front links.
6. For the remaining cabinet assemblies, proceed in the same manner.

7. Detaching the compression and safety chain
Once the last assembly is stored on the cart and lowered onto the ground, detach the compression and the safety chain.

8. Detaching and storing the load beam
1. Release the Locking pins of the flying frame.
2. Lift the load beam and reinsert the Locking pins of the flying frame.
3. Lower the load beam and disconnect the chains and the aiming plate.
4. Store the load beam in the dedicated slots of the touring cart (GSL) or the flying frame (KSL).

9. Finally...
Disconnect the aiming plate and the hoist connector chain (if applicable) from the motor hoists.

14.3 Tension mode disassembly

In Tension mode, the derigging procedure follows the setup procedure in reverse order. That means the Splay links have to be disengaged manually cabinet by cabinet. Proceed as follows:

1. Attaching the touring cart

1. Lower the array to a height of approx. 30 cm (1 ft) above ground.
2. Attach the touring cart to the front of the lowest cabinet.
3. At the rear, with one person on each side (rear handle) release Locking pin **[2]** and **[3]** of the lowest cabinet.
4. Slightly lift the back of the cabinet and disengage the Splay link of the upper cabinet and keep on holding the cabinet.
5. Fold the Splay link of the cabinet out of its park position.
6. Reinsert Locking pin **[3]** to the lowest hole of the bottom hole index (⇒ T).
7. Reinsert Locking pin **[2]** into the park position hole (⇒ P).
8. At the center rear Splay link slot of the cart, release the bottom Locking pin.
9. Lower the cabinet until the Splay link fits into the slot.
10. Slightly lift the back of the cabinet until the Splay link has engaged and reinsert the bottom Locking pin.

2. Disengaging cabinet by cabinet

1. On the next cabinet, release Locking pin **[2]** and reinsert the pin into the park position hole (⇒ P).
2. Slightly lift the back of the cabinet and disengage the Splay link.
3. Lower the cabinet onto the bottom cabinet.
4. For the next two cabinets, proceed in the same manner.
5. Finally store the Splay link of the lowest cabinet of the array in its temporary park position.

3. Separating the first cabinet assembly

1. Slowly lower the array onto the ground until the Front links are free of load.
2. Release the Locking pins of the Front links on both sides.
3. Lift the array and store the Front links.
4. For the remaining cabinet assemblies, proceed in the same manner.

4. Derigging of the last cabinet assembly

The last four cabinets can be directly lowered onto the cart in one go. For this purpose, proceed as follows:

1. Lower the array to a height of approx. 30 cm (1 ft) above ground.
2. Attach the Touring cart to the front of the lowest cabinet.
3. At the rear, release the bottom Locking pin at the center rear Splay link slot of the cart.
4. Lift the cart until the Splay link of the lowest cabinet fits into the slot.
5. Lower the cart until the Splay link has engaged and reinsert the bottom Locking pin.
   Ensure that Locking pin **[3]** of the lowest cabinet is inserted to the lowest hole position of the bottom hole index (⇒ T).
6. On the remaining cabinets, release Locking pin **[2]** (Safety pin) and reinsert the pin into the park position hole (⇒ P).
7. Lower the array onto the ground.

5. Detaching the safety chain

Once the last assembly is stored on the cart and lowered onto the ground, detach the safety chain.

6. Detaching and storing the load beam

1. Release the Locking pins of the flying frame.
2. Lift the load beam and reinsert the Locking pins of the flying frame.
3. Lower the load beam and disconnect the chains and the aiming plate.
4. Store the load beam in the dedicated slots of the touring cart (GSL) or flying frame (KSL).

7. Finally...

Disconnect the aiming plate and hoist connector chain (if applicable) from the motor hoists.

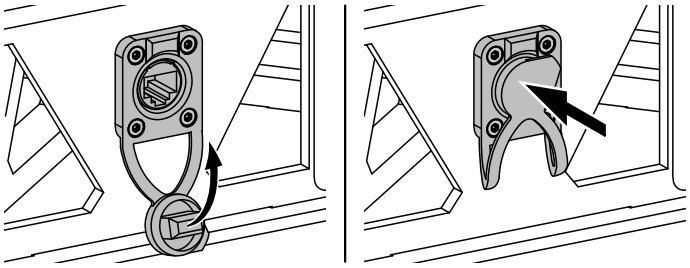
15.1 Transport/Storing

During transport ensure the rigging components are not stressed or damaged by mechanical forces.

Please also refer to ⇒ Chapter 3.14.4 “Truck loading” on page 47.

Due to their surface treatment the rigging components are temporarily protected against moisture. However, ensure the components are in a dry state while stored or during transport.

15.2 etherCON connector socket protection



To prevent corrosion of the etherCON connector socket's spring contacts, always make sure to properly attach (close) the connector socket's dust cap during transport or when it is not in use.

15.3 Visual and functional inspection

WARNING!
Potential risk of personal injury and/or damage to material

To eliminate the potential risk of accident due to malfunctioning of a component, regularly inspect all system components.

Cabinet enclosure

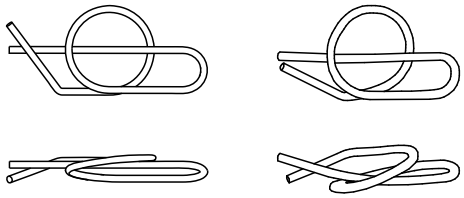
- Visual inspection of all fitting plates for obvious damage (e.g. cracks or corrosion).
- Visual inspection of the rear rigging strand for obvious damage (e.g. cracks, deformation or corrosion) including all drilled holes of the component.
- Inspection of all fitting plates including front grills to ensure they are securely attached.
- Regularly lubricate the sockets using WD-40® or a similar product.

Front and Splay/Rear links

Visual inspection regarding deformation and damage (e.g. cracks and corrosion) including all drilled holes of the component.

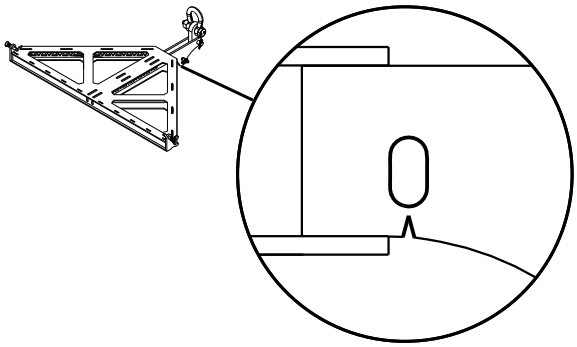
Locking pins

- Visual inspection for deformation, cracks and corrosion of the component.
- Inspection for missing ball bearings and damage.
- Functional inspection of the release mechanism to ensure it operates properly.
- Regularly lubricate the Locking pins using WD-40® or a similar product.



[a] [b]

Condition of the ring cotter
[a]: Ring cotter OK
[b]: Exchange the ring cotter



KSL Compression frame - Rated break point

Ring cotters

- Visual inspection for obvious damage and deformation.
- Functional test of the locking mechanism as described in ⇒ Chapter 3.10 “Ring cotters” on page 33.
  If a ring cotter can no longer be properly fitted to the fixing bolt and locked, it must be exchanged.

GSL/KSL flying frames and compression frames

- Visual inspection regarding any indication of deformation and damage (e.g. cracks and corrosion) including all drilled holes of the component.
- Regularly check the rated break point of the KSL Compression frame for any indication of deformation. Please also refer to ⇒ Chapter 3.4.1 “KSL Compression frame - Rated break point” on page 23.
- Visual inspection regarding the attachment and securing of the shackles.
- Regularly check the flatness of the frames. For this purpose position the frames on a flat surface and visually check the frames for deformation and/or torsion. For obvious deformation and/or torsion contact d&b audiotechnik for further advice on how to proceed.

GSL/KSL load beams

- Visual inspection regarding any indication of deformation and damage (e.g. cracks and corrosion) including all drilled holes of the component.
- Visual inspection regarding the attachment and securing of the shackles.
- Regularly check the flatness of the beam. For this purpose, position the beam on a flat surface and visually check the beam for deformation and/or torsion. For obvious deformation and/or torsion, contact d&b audiotechnik for further advice on how to proceed.

Z5707 SL Aiming plate

- Visual inspection regarding any indication of deformation and damage (e.g. cracks and corrosion) including all drilled holes of the component.
- Visual inspection regarding the attachment and securing of the shackles, coupling shackle and chain.

GSL/KSL compression set components
Z5706 Hoist connector chain
Z5705 Safety chain
Z5707 SL Aiming plate

Inspection according to the appropriate regulations for lifting devices (EN 818-6:2000).

- Regularly inspect within a 12 months period.
- Regularly inspect for cracks within a 36 months period.

16.1 Conformity of rigging components

This declaration applies to:

d&b GSL/KSL loudspeaker cabinets
(With integrated rigging components)

- Z0750 GSL8
- Z0751 GSL12
- Z0780 KSL8
- Z0781 KSL12
- Z0760 SL-SUB
- Z0761 SL-GSUB
- Z0785 KSL-SUB
- Z0786 KSL-GSUB

d&b GSL/KSL touring carts

- E7490 Touring cart GSL8/GSL12
- E7492 Touring cart SL-SUB/SL-GSUB
- E7495 Touring cart KSL8/KSL12 - Tension
- E7802 Touring cart KSL8/KSL12
- E7804 Touring cart KSL-SUB/KSL-GSUB
- E7494 SL Outrigger

d&b GSL/KSL rigging components
(Including all additional items)

- Z5701 GSL Flying frame
- Z5702 GSL Load beam
- Z5703 GSL Compression frame
- Z5722 KSL Flying frame
- Z5723 KSL Load beam
- Z5725 KSL Compression frame
- Z5747 KSL-SUB Adapter frame
- Z5748 KSL Pullback frame
- Z5705 Safety chain 4 t
- Z5706 Hoist connector chain 4 t
- Z5707 SL Aiming plate
- Z5709 SL Compression chain 2.5 t
- Z5713 SL Cable pick
- B2447.072 .00 Lever hoist
- B2447.072 .01 Crank lever hoist
- B2447.073 Compression grab link
- B2447.074 Compression frame master link

by d&b audiotechnik GmbH & Co. KG.

All product variants are included, provided they correspond to the original technical version and have not been subject to any later design or electromechanical modifications.

We herewith declare that said products are in conformity with the provisions of the respective directives including all applicable amendments.

Detailed and applicable declarations are available on request and can be ordered from d&b or downloaded from the d&b website at www.dbaudio.com.

16.2 Disposal

When out of use, the rigging components must be disposed of in accordance with the national environmental regulations.

Ensure that damaged rigging components are disposed of in a way that they cannot be used again.

WEEE-Reg.-Nr. DE: 13421928

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