General information

SL-Series Rigging manual

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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

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 13 "Care and maintenance" on page 72.

1.3 Load capacity/System components and weights

Load capacity GSL system

**NOTICE!**

The Z5701 GSL Flying frame together with the Z5702 GSL Load beam is designed to support a total system weight of 2000 kg (4409 lb) – SWL.

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 is designed to support a total system weight of 1500 kg (3307 lb) – SWL.

This allows the suspension of a maximum of 24 x KSL-TOP 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.

System components and weights GSL system

**Loudspeaker**
- Z0750/Z0751, GSL8/GSL12 cabinets ............................................ 80 kg (176 lb)
- Z0760 SL-SUB cabinets .............................................................. 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)
- Z5707 SL Aiming plate ............................................................. 13.5 kg (29.8 lb)

System components and weights KSL system

**Loudspeaker**
- Z0780/Z0781, KSL8/KSL12 cabinets ........................................... 58 kg (128 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)
- Z5707 SL Aiming plate ............................................................. 13.5 kg (29.8 lb)
1.4 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.

1.5 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 SL-Series 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 SL-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 (⇒ 1) while the bottom hole grid (colored area) is used in Compression mode (⇒ 2).

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 (⇒ 3).

Locking pin conventions

**Pin [1]**

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 (⇒ 4).

**Pin [2]**

Tension mode:
In Tension mode, pin [2] is always inserted in the 0° hole of the bottom hole grid to fix the Splay link in place (⇒ 1).

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 $0^\circ$ hole of the bottom hole grid ($\rightarrow 1$).

---

**First cabinet to frame**

For both, Tension and Compression modes, the Splay link of the flying frame is always engaged in the $0^\circ$ 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.
Compression mode principle - Curved (Compressed)
3.1 SL-Series rigging sets

Apart from the single SL-Series rigging components the following SL-Series rigging sets are available:

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

Z5708 GSL Flying frame set

<table>
<thead>
<tr>
<th>Set</th>
<th>Including</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z5708</td>
<td>GSL Flying frame set (80 kg/176.4 lb)</td>
</tr>
<tr>
<td>[1]</td>
<td>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.</td>
</tr>
<tr>
<td>[2]</td>
<td>Z5702 GSL Load beam (29 kg/64 lb).</td>
</tr>
<tr>
<td>[4]</td>
<td>Z5713 SL Cable pick (1.5 kg/3.3 lb).</td>
</tr>
</tbody>
</table>

Z5721 KSL Flying frame set

<table>
<thead>
<tr>
<th>Set</th>
<th>Including</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z5721</td>
<td>KSL Flying frame set (60 kg/132.3 lb)</td>
</tr>
<tr>
<td>[1]</td>
<td>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.</td>
</tr>
<tr>
<td>[2]</td>
<td>Z5723 KSL Load beam (21 kg/46.3 lb).</td>
</tr>
<tr>
<td>[4]</td>
<td>Z5713 SL Cable pick (1.5 kg/3.3 lb).</td>
</tr>
</tbody>
</table>
### Z5704 GSL Compression set

<table>
<thead>
<tr>
<th>Set</th>
<th>Including</th>
</tr>
</thead>
</table>
| **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**  
Lever hoist  
(7.5 kg/16.5 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

<table>
<thead>
<tr>
<th>Set</th>
<th>Including</th>
</tr>
</thead>
</table>
| **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**  
Lever hoist  
(7.5 kg/16.5 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 SL-Series flying frames

The SL-Series flying frames are equipped and supplied with the following rigging components.

Please verify the shipment for completeness and proper condition of the items.
<table>
<thead>
<tr>
<th>Pos.</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1a]</td>
<td>Z5701 GSLFlying frame</td>
<td>The SL-Series flying frames [1a]/[1b] are constructed from high-grade steel following the principles of truss construction to achieve the lowest possible dead weight.</td>
</tr>
</tbody>
</table>
| [1b] | Z5722 KSLFlying frame | 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 |
| [*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 (refer to ⇒ Chapter 3.15.1.4 "Loading the carts" ⇒ "Storing and fixing the load beam" on page 37). |
| [2] | Rear link (Frame) | 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 link of the frames are used to attach the first cabinet to the frame.  
By default, the rear link of the frame allows direct attachment to:  
**Z5701 GSL Flying frame**  
GSL8/GSL12 cabinets.  
To attach the frame to SL-SUB cabinets, the rear link can be moved to the SL-SUB position of the GSL Load beam using the enclosed Rear link adapter [7] (refer to ⇒ Chapter 8.2 "Rear link of the GSL Flying frame" on page 56).  
**Z5722 KSL Flying frame**  
KSL8/KSL12 cabinets.  
\[4\] | Z5705 Safety chain 4 t | The Z5705 Safety chain is supplied with the corresponding GSL or KSL Flying frame set. |
| [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 (refer to ⇒ Chapter 3.13 "Secondary safety" on page 30). |
| [*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  
(Only applicable in connection with the Z5701 GSL Flying frame.) | To attach the frame to SL-SUB cabinets, the Rear link can be moved to the SL-SUB position of the GSL Load beam using the enclosed adapter [6], which provides the necessary extension length (refer to ⇒ Chapter 8.2 "Rear link of the GSL Flying frame" on page 56). |
| [*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] | Rear link (Frame) | 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. |
| [*i] | Rear link (Frame) | Instruction labels providing vital safety and rigging instructions. |
3.2.1 Dimensional drawings

Z5701 GSL Flying frame dimensions in mm [inch]

Z5722 KSL Flying frame dimensions in mm [inch]
3.3 SL-Series load beams

The SL-Series load beams are equipped and supplied with the following rigging components.

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

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| [1a] | Z5702 GSL Load beam | The SL-Series Load beams are constructed from high-grade steel with a dead weight of:  
|      |           | **GSL**: 29 kg (64 lb)  
| [1b] | Z5723 KSL Load beam | **KSL**: 21 kg (46.3 lb)  
|      |           | It is attached on top of the flying frame to allow either single or dual pickpoint operation. For this purpose, the load beam is equipped with a hole grid consisting of:  
|      |           | **GSL**: 33/  
|      |           | **KSL**: 26...  
|      |           | ...25 mm (1") holes.  
| [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. |

3.3.1 Load beam operating modes

The SL-Series 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.
3.3.2 Load beam instruction labels

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

### Z5723 KSL Load beam instruction labels

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Description</th>
</tr>
</thead>
</table>
| [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. |

3.3.3 Dimensional drawings

**Z5702 GSL Load beam dimensions in mm [inch]**

- 1335 [52.5"]
- 1060 [41.7"]

**Z5723 KSL Load beam dimensions in mm [inch]**

- 1385 [54.5"]
- 20 [0.78"]
- 115 [4.5’’]
### 3.3.4 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 SL-Series compression frames

The SL-Series compression frames are equipped and supplied with the following rigging components.

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

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| [1a] | Z5703 GSL Compression frame | The SL-Series 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.  
It is attached to the bottom of the last cabinet of the array. |
| [1b] | Z5725 KSL Compression frame | Two Locking pins (Type C: 10 x 35 mm) are provided to attach the compression frame to the front rigging strand of the bottom cabinet. |
|      | 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. |
| [2]  | Locking pins front       | 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). |
| [3]  | Splay link slot          | Instruction label providing vital safety and rigging instructions. |
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 13 "Care and maintenance" ⇒ "SL-Series flying and compression frames" on page 73.
3.4.2 Dimensional drawings

Z5703 GSL Compression frame dimensions in mm [inch]

Z5725 KSL Compression frame dimensions in mm [inch]
3.5 SL-Series compression set components
Apart from the SL-Series compression frames the SL-Series compression sets (Z5704 GSL Compression set/Z5724 KSL Compression set) comprises of the following components:

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Component and weight</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[2]</td>
<td>Z5709 SL Compression chain (12.1 kg/26.7 lb)</td>
<td>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.</td>
</tr>
<tr>
<td>[3]</td>
<td>B2447.073 Compression grab link (1.4 kg/3.1 lb)</td>
<td>For SL-Series line arrays in Compression mode, the grab link is used as &quot;pickpoint&quot; for the B2447.072 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.</td>
</tr>
<tr>
<td>[4]</td>
<td>B2447.072 Lever hoist (7.5 kg/16.5 lb)</td>
<td>For SL-Series line arrays in Compression mode, the lever hoist is used to manually curve the array.</td>
</tr>
<tr>
<td>[5]</td>
<td>B2447.074 Compression frame master link (3.5 kg/7.7 lb)</td>
<td>For SL-Series line arrays in Compression mode, the compression frame master link is used to link the B2447.072 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 Lever hoist and must be attached to the compression chain.</td>
</tr>
<tr>
<td>[6]</td>
<td>B2447.075 Chain bag (0.75 kg/1.65 lb)</td>
<td>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 Shook.</td>
</tr>
</tbody>
</table>
3.6 B2447.072 Lever hoist

With SL-Series line arrays in Compression mode, we recommend the use of the B2447.072 Lever hoist in connection with the d&b SL-Series 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.

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


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


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

### 3.6.1 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.

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 load indicator window [4] changes from green to red.

2. Stop further operation and place the lever into its straight position (back into place).
3.7 Z5705 Safety chain 4 t
The Z5705 Safety chain is supplied with the corresponding SL-Series flying frames and is used as a secondary safety device. Please also refer to Chapter 3.13 “Secondary safety” on page 30.

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 Z5706 Hoist connector chain 4 t
The Z5706 Hoist connector chain is used to connect the lifting motor(s) to the SL-Series 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
3.9 Z5707 SL Aiming plate

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

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

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
<td>Z5707 SL Aiming plate</td>
<td>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 <strong>chain hoist distance of minimum 0.6 m (2 ft)</strong>, the SL Aiming plate provides a horizontal angle range of ±15° (first and last pick hole of the load beam used).</td>
</tr>
<tr>
<td>[2]</td>
<td>Two 4.75 t shackles</td>
<td>Provided to allow direct connection to the motor hoist hooks or to attach the Z5706 Hoist connector chain.</td>
</tr>
<tr>
<td>[3]</td>
<td>Load hook</td>
<td>For attachment to the 4.75 t shackle of the corresponding SL-Series load beams or applicable d&amp;b flying frames.</td>
</tr>
</tbody>
</table>

3.9.1 Dimensional drawing

![Z5707 SL Aiming plate dimensions in mm [inch]](image)
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 13 "Care and maintenance" 13.3 "Visual and functional inspection" "Ring cotters" on page 73.

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.
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 respectively:

[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 system/SL-SUB cabinets.
   Locking pin 10x45 mm for KSL system.
   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 Release the locking mechanism (\(\text{[R]}\)).
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 Lock the pin (\(\text{[L]}\)).
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 SL-Series flying frames is carried out using the corresponding SL-Series load beam. The load beam allows for either Single or Dual pickpoint operation. For this purpose, the load beams are equipped with 25 mm holes that accept the enclosed 4.75 t 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 Secondary safety

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

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.

The SL-Series flying frames are equipped with two safety points [S] 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 3.7 “Z5705 Safety chain 4 t” on page 25.

**Assembly**

1. Before attaching the safety device, ensure the two 4.75 t shackles [S] are properly fitted to the Frame’s safety points [S] 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.

3.14 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.
3.14.1 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 2.5° splay (free) between the cabinets (⇒ Fig. 3).
4. SUB to SUB with 2.5° splay (blocked) between the cabinets (⇒ Fig. 4).
   This setting is used to prevent the cabinets from folding up.

---

3.14.2 Splay/Rear link mechanism

Release the respective Locking pin(s) and fold out the Splay/Rear link.
3.15 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 stacks. Please refer to ⇒ Chapter 9 "SL-Series ground stacks" on page 61.

The SL-Series Touring carts are equipped and supplied with the following rigging components.

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

3.15.1 GSL/KSL Touring carts

3.15.1.1 E7490 GSL Touring cart

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
<td>E7490</td>
<td>Touring cart 4 x GSL8/GSL12</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Dead weight</strong>: 58 kg (128 lb).</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total weight</strong>: 378 kg (833 lb), 4 x TOP cabinets incl cover.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total weight</strong>: 453 kg (1000 lb), incl. flying frame and load beam.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Dimensions</strong>: H x W x D (cm) 205 x 140 x 78</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H x W x D (inch) 81 x 55 x 30.5</td>
</tr>
<tr>
<td>[2]</td>
<td>Locking pins front</td>
<td>2 x Locking pins (Type C, 10 x 35 mm) at the front.</td>
</tr>
<tr>
<td>[3]</td>
<td>Locking pins rear</td>
<td>2 x Locking pins (Type B, 12 x 45 mm) at the center rear Splay link slot.</td>
</tr>
<tr>
<td>[5]</td>
<td></td>
<td>Four slots, one at each corner, that accept the E7494 SL Outrigger.</td>
</tr>
<tr>
<td>[6]</td>
<td></td>
<td>Four heavy duty brake wheels 125 x 40 mm.</td>
</tr>
<tr>
<td></td>
<td>i</td>
<td>Touring cart instruction label providing vital safety and rigging instructions.</td>
</tr>
</tbody>
</table>
### 3.15.1.2 E7802 KSL Touring cart

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

- Touring cart instruction label providing vital safety and rigging instructions.

### 3.15.1.3 E7495 KSL Touring cart - Tension

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

- Touring cart instruction label providing vital safety and rigging instructions.
3.15.1.4 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. With KSL cabinets the loading can be carried out 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.
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].
12. For the remaining two cabinets, proceed in the same manner as for the second cabinet.
13. 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 (⇒ [4]) 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.

**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 connection with 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.
### 3.15.2 SL-SUB/SL-GSUB Touring cart

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| [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 40mm. |

#### 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

With respect to SL-GSUB cabinets, simply stack the cabinets onto the cart.

With respect to 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.
2. Attach the second cabinet.
3. 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.
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.
3.15.3 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.
GSL8/GSL12 Line array 8-deep, Compression mode setup.
Refer to:
⇒ Chapter 6 "Compression mode setup" on page 45.

GSL8/GSL12 Line array 8-deep, Tension mode setup.
Refer to:
⇒ Chapter 7 "Tension mode setup" on page 52.

GSL8/GSL12 Line array 6-deep, FRONT EXTENSION mode.
Refer to:
⇒ Chapter 3.3 "SL-Series load beams" on page 17.

SL-SUB column with 2.5° splay between the cabinets.
Refer to:
⇒ Chapter 8 "SL-SUB columns" on page 56.

GSL8/GSL12 ground stack setup.
Refer to:
⇒ Chapter 9.1 "SL-Series TOP-cabinets ground stack" on page 61.

SL-SUB/SL-GSUB ground stack setup.
Refer to:
⇒ Chapter 9.2 "SL-SUB/SL-GSUB ground stack" on page 64.
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 3.15.1.4 "Loading the carts" on page 34.

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 13 "Care and maintenance" on page 72.

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.

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.
For Compression mode setup, we recommend the use of the dedicated d&b SL-Series compression sets, including the B2447.072 Lever hoist to manually curve the array as described in section "11. Curving the array" on page 50.

**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).

Provided...:
- The touring cart is loaded and prepared for Compression mode as described in "Manually loading for Compression mode" on page 34) 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 43,
- The safety chain has been already attached to the flying frame as described in Chapter 3.13 "Secondary safety" on page 30,
- 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 "SL-Series rigging modes - 2 in 1" ⇒ "Compression mode principle - Preset" on page 10).

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.


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.
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 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
Before curving the array, recheck the actual status of the entire assembly according to the checklist given in Chapter 10 "Safety and system checks" on page 65.

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 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 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 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 10 "Safety and system checks" on page 65.
Provided...

- The touring cart is loaded and prepared for Tension mode as described in "Manually loading for Tension mode" on page 36 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 43,
- The safety chain has been already attached to the flying frame as described in Chapter 3.13 "Secondary safety" on page 30,

... 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 (⇒ 1).

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 "SL-Series rigging modes - 2 in 1" ⇒ "Tension mode principle" on page 9).

5. Lift the assembly including the cart until all Splay links have engaged.
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 52).

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.


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 (2) 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 10 “Safety and system checks” on page 65.
8.1 Limitations

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

A maximum of 14 x SL-SUB cabinets are allowed to be suspended.

8.2 Rear link of the GSL Flying frame

Rear link position
By factory default, the Rear link is attached to the flying frame for the deployment of GSL8/GSL12 cabinets.

To attach SL-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.

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:
**Rear link adapter**

The Rear link adapter is located in its park position at the front of the Frame's center truss.

1. Unlock and remove the ring cotter of the fixing bolt holding the Rear link adapter in its park position.
2. Pull out the fixing bolt and remove 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.

8.3 SL-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 3.15.2 "SL-SUB/SL-GSUB Touring cart" ⇒ "Loading" on page 38 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 43, 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 3.15.2 "SL-SUB/SL-GSUB Touring cart" on page 38, 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.

Splay option
The Front links of the SUB cabinets allow for a splay angle of 2.5° 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 10 “Safety and system checks” on page 65.
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.

9.1 SL-Series TOP-cabinets ground stack

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 Touring cart and E7494 SL Outriggers serving as ground support are allowed to be set up as ground stack.

9.1.1 Setting the splay angles

Preparations

We recommend you to have the Touring cart loaded for Compression mode setup (see also “Manually loading for Compression mode” on page 34).

This will simplify the assembly and in particular the splay angle setting as only one Locking 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] ⇒ I).

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 "SL-Series rigging modes - 2 in 1" ⇒ "Compression mode principle - Preset" on page 10).

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 10 "Safety and system checks" on page 65.
9.1.2 E7494 SL Outriggers

In connection with SL-Series ground stacks consisting of GSL8/GSL12 or KSL8/KSL12 cabinets, the E7494 SL Outriggers are used to provide an adequate and stable ground support. Two rods with winder are provided to adjust the horizontal inclination of the entire ground stack.

For this purpose, the corresponding touring carts are equipped with corresponding slots at the bottom of each corner.

Once the stack is placed in its operating position, the outriggers have to be attached to the cart.

Extension length

Each outrig rod is provided with hole pairs positioned at specific distances to allow for two different extension lengths of the rods. This provides more flexibility on-site.

Footprints* (dimensions)

* Graphics shown without loudspeaker cabinets for better illustration
### Attaching the rods to the cart

**Note:** Graphics shown without loudspeaker cabinets for better illustration.

To release and reinsert the Socket pins, you have to access them from underneath the cart.

1. On the cart, release all Socket pins of the corresponding slot.
2. Insert the rod to the desired extension length.
3. Reinsert all Socket pins and ensure they are fully inserted and locked.
4. For the remaining rods, proceed in the same manner.

### 9.2 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.

10.1 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 3.13 "Secondary safety" on page 30).
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 on 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 (refer to Chapter 6 "Compression mode setup" ⇒ "12. Securing the lever hoist" on page 51).

10.2 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.
11.1 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 that 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.

11.2 Aiming the array

11.2.1 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), the SL Aiming plate provides a horizontal angle range of ±15° (first and last pick hole of the load beam used).
11.2.2 Vertical aiming

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

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**CAUTION!**

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 satisfied that the hoist has finished moving safely.
5. However, the chain hoist motors must raise slowly and evenly.

---

**Application example**

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

1. Using 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. If 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.

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11.3 Securing the array

When the array is in its final operating position the secondary safety must be applied to its dedicated suspension point. Please also refer to Chapter 3.13 "Secondary safety" on page 30.
12.1 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.

---

12.2 Compression mode disassembly

1. Decompressing the array

**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 (⇒ [1]).

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.

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 flying frame (KSL).

9. Finally...
Disconnect the aiming plate and hoist connector chain (if applicable) from the motor hoists.
12.3 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 (↦ 1).
   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 (↦ 2).
   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.
   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 (⇒ 1).

6. On the remaining cabinets, release Locking pin [2] (Safety pin) and reinsert the pin into the park position hole (⇒ 2).

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.
13.1 Transport / Storing
During transport ensure the rigging components are not stressed or damaged by mechanical forces.

Please also refer to ⇒ Chapter 3.15.3 "Truck loading" on page 40.

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.

13.2 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.

13.3 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.
**Ring cotters**
- Visual inspection for obvious damage and deformation.
- Functional test of the locking mechanism as described in Chapter 3 "SL-Series rigging components" ⇒ 3.10 "Ring cotters" on page 27.

If a ring cotter can no longer be properly fitted to the fixing bolt and locked, it must be exchanged.

**SL-Series flying 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 20.
- 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.

**SL-Series 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.

**SL-Series compression set components**
- Z5705 Safety chain
- Z5706 Hoist connector 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.
We hereby declare that the equipment designated below is designed and built in the version sold by us in such a way as to comply with the relevant fundamental safety and health criteria of the applicable EC Directive(s). This declaration shall cease to be valid if alterations are made to the equipment without our prior agreement.

This declaration covers:

**d&b SL-Series loudspeaker cabinets**
(With integrated rigging components.)
- Z0750 GSL8
- Z0751 GSL12
- Z0780 KSL8
- Z0781 KSL12
- Z0760 SL-SUB
- Z0761 SL-GSUB

**d&b SL-Series touring carts**
- E7490 Touring cart 4 x GSL8/GSL12
- E7492 Touring cart 3 x SL-SUB/SL-GSUB
- E7495 Touring cart 4 x KSL8/KSL12 - Tension
- E7802 Touring cart 4 x KSL8/KSL12

**d&b SL-Series 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
- 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 Lever hoist
- B2447.073 Compression grab link
- B2447.074 Compression frame master link

National standards and technical specifications applied:
DIN EN ISO 12 100, DIN EN 1050, DIN EN 818,
DGUV regulation 17 (formerly BGV C1).

Backnang, 2017-08-22

Frank Bothe,
Chief Technology Officer (CTO)
d&b audiotechnik GmbH

14.1 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.