



SL Brackets and Flybars

User Guide

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- Parts & Components
- Weights & Strengths
- Configurations

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Introduction

This manual is presented by KV2 Audio, to enable the clear and precise instructions for the safe practice and execution and vertical ground stacking and flying/suspension of the SL Loudspeaker products, using the SL Brackets and Flybars.

It is vitally important that operators and users familiarize themselves with all of the components, parts, products and safety instructions, as described and indicated within this document, before attempting any stacking or flying of the SL systems. The SL Loudspeaker enclosures are designed with integral suspension points to facilitate secure vertical stacking as well as flying and rigging, providing that no modifications or external parts are substituted, and that all instructions are adhered to at all times.

KV2 Audio operates a continuing process policy of attaining and improving standards. This means that instructions and methods may be subject to change without notification, and it is the sole responsibility of the operator/user to check for any updated information regarding safe stacking and flying procedures whether locally or internationally.

Warning - Safety Rigging

There are accepted '**General Rigging Practices**' appropriate to the entertainment industry and this Document aims to encapsulate them specifically to the safe vertical ground stacking and flying of the KV2 SL Loudspeaker systems described here.

It is extremely vital and important that only personnel whom have the qualifications and certificates, Prior knowledge and experience of rigging techniques, attempt the execution of any stacking or flying configuration utilizing the SL Brackets for the KV2 SL products.

All advice and instructions expressed and stated within this document, are based upon the highest engineering data available at the time of publication, from within the Country of manufacture, with regards to materials and general practice techniques. Specifications are subject to change, due to constant testing, product updates and refinements and R&D.

'**General Rigging Practices**' means that Regulations and requirements are possibly subject to alterations in different countries and may be superseded locally.

KV2 Audio, as such is not responsible for the safety of any suspension, flying overhead of all specific KV2 Audio Loudspeaker products, or Rigging configurations as executed in practice by users.

It is expressly the sole responsibility of the user to ensure that at all times any KV2 Audio product, or system is Ground-stacked, suspended and rigged in accordance with current International and local regulations.

All non KV2 Audio products such as hoists, clamps, wires, truss, supports used ,or required to assure stability, or suspend KV2 Audio Loudspeaker product are the sole responsibility of the user.

Warranty

Your SL Brackets and Flybars are covered against defects in material and workmanship. Refer to your supplier for more details.

Service

In the unlikely event that your SL Brackets develops a problem, it must be returned to an authorised distributor, service centre or shipped directly to our factory. Because of the complexity of the design and the risk of electrical shock, all repairs must be attempted only by qualified technical personnel.

If the unit needs to be shipped back to the factory, it must be sent in its original carton. If improperly packed, the unit may be damaged.

To obtain service, contact your nearest KV2 Audio Service Centre, Distributor or Dealer.

SL Brackets and Flybars · Parts & Components

Parts & Components

The **SL BRACKETS** consist of three individual brackets and are identified as:

SL Top Bracket kit with screws

with screwspart name:

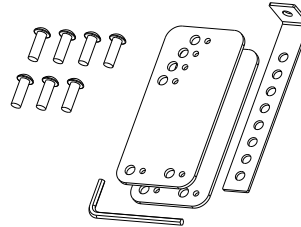
SL TOP BRACKET WITH SCREWS

part number:

KVV 987 300

description:

- 7 pcs M10 hex screws included
- 1pc allen key - 6mm included



SL Top Bracket kit with Quick-lock pins

part name:

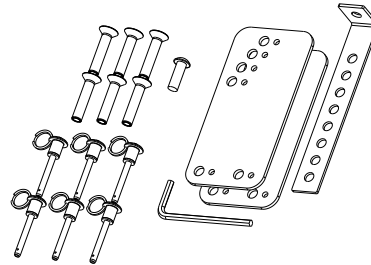
SL TOP BRACKET WITH QUICK PINS

part number:

KVV 987 312

description:

- 1x Screw HXG button head M10X3
- 6 pcs (Drilling) Screw HXG Countersunk M10X25
- 6 pcs Quick-lock-pins 6mm included
- 1pc allen key - 6mm included



SL Sub Bracket kit with screws

with screwspart name:

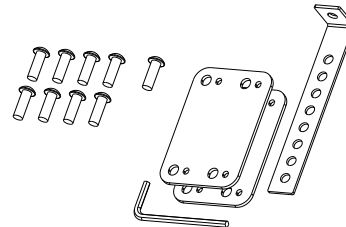
SL SUB BRACKET

part number:

KVV 987 299

description:

- 9 pcs M10 hex screws included
- 1pc allen key - 6mm included



SL Sub Bracket with Quick-lock pins

with screwspart name:

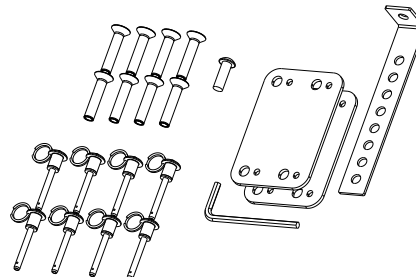
SL SUB BRACKET

part number:

KVV 987 341

description:

- 1x Screw HXG button head M10X3 included
- 8x (Drilling) Screw HXG Countersunk M10X25 included
- 8x Quick Pin Quick-lock-pins 6mm included
- 1pc allen key - 6mm included



SL Brackets and Flybars · Parts & Components

Parts & Components

SL Ground Stack kit

with screwpart name:

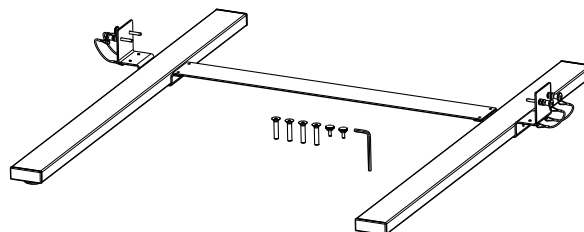
SL GROUND STACK

part number:

KVV 987 320

description:

- 6 pcs M10 hex screws with hole included
- 6 pcs Quick-lock-pins 6mm included
- 2pcs knob with screw included
- 1pc allen key - 6mm included



Flybar for SL412

part name:

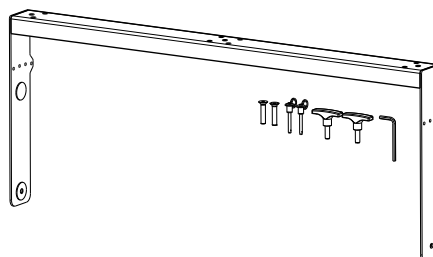
SL412 Flybar

part number:

KVV 987 331

description:

- 2x M10 Hex Screwthreads with integral aperture
- 2x D6 Quick release pins
- 2x Handscrew locks
- 1pc allen key - 6mm included



Fly Bar for SL systems

part name:

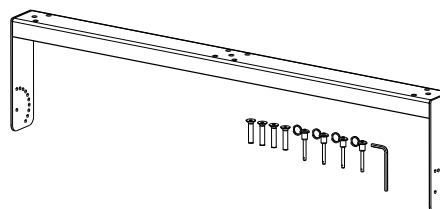
VB - SL412

part number:

KVV 987 293

description:

- 4x M10 Hex Screwthreads with integral aperture
- 4x D6 Quick release pins
- 1pc allen key - 6mm included



The SL BRACKET KITS ARE NOT DESIGNED OR CERTIFIED FOR OVERHEAD SUSPENSION USE.

Parts & Components

Double SL Bracket

part name:

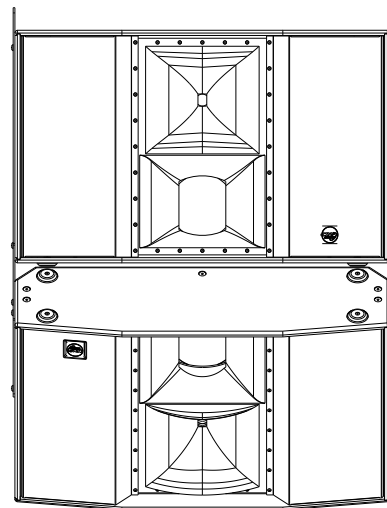
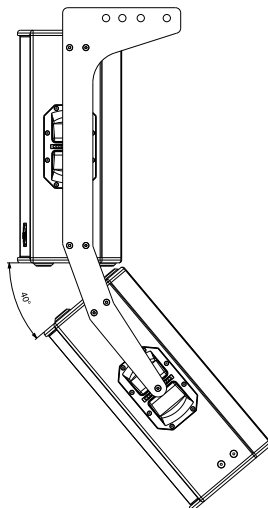
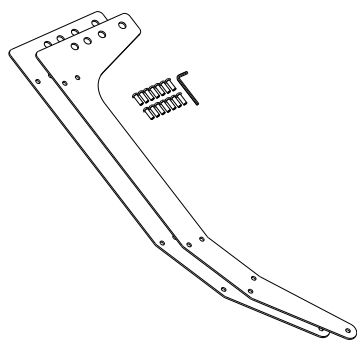
Double SL Bracket

part number:

KVV 987 464

description:

- Bracket for deployment of two suspended SL412 with correct aperture angles



SL Sub / SL412 bracket

part name:

SL Sub / SL412 bracket

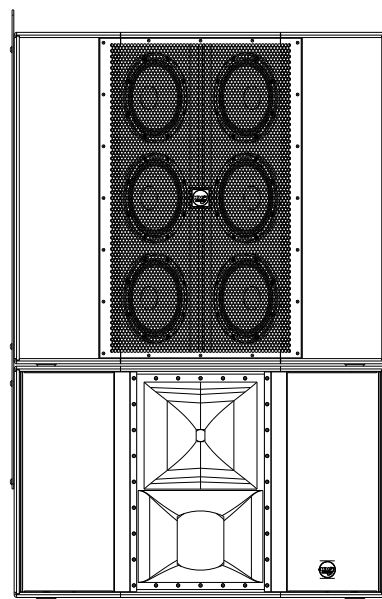
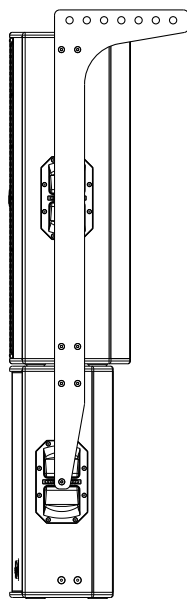
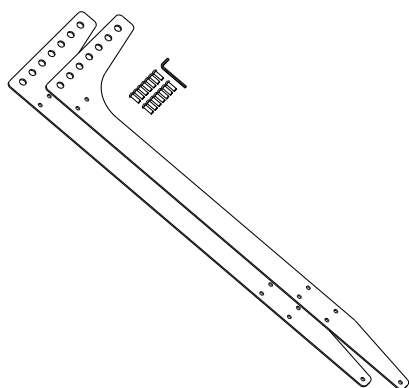
part number:

KVV 987 515

description:

- Bracket for deployment of one suspended SL2.15 or SL6.10 and one SL412

*Note: Special request order



SL Top and Sub Bracket Kit

The **SL TOP BRACKET KIT** consists of a pre-drilled oblong steel plate that has apertures with pre-fixed points to allow the securing of the SL412 enclosure to multiple stacked SL2.15/SL6.10 Bass enclosures by either inserting 2 x M10 Hex bolts, (**KVV 987 300**) or D6 quick release pins, (**KVV 987 312**), through the plate and into each M10 mounting point on each side for each enclosure, (6mm Allen key included). Using the alternate apertures in the plate, it is possible to create a downward tilt/angle for the SL412 enclosure.

Included in the kit is a steel wall-securing arm which attaches to the top edge of the upper SL2.15/SL6.10 Bass enclosure, by inserting one M10 Hex bolt through the arm and into the M10 mounting point.

The extended arm is then attached to a wall or beam structure for stability of the vertical stack employed.

The **SL SUB BRACKET KIT** consists of a pre-drilled oblong steel plate that has four corner apertures to allow the secure vertical stacking and fixing of multiple SL2.15/SL6.10 subwoofers, by inserting 2 x M10 Hexbolts through the plate and into each M10 mounting point on each side for each enclosure, (6mm- Allen key included).

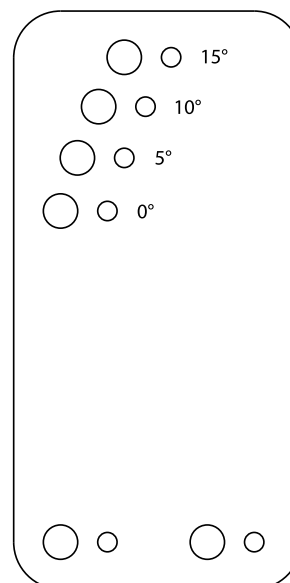
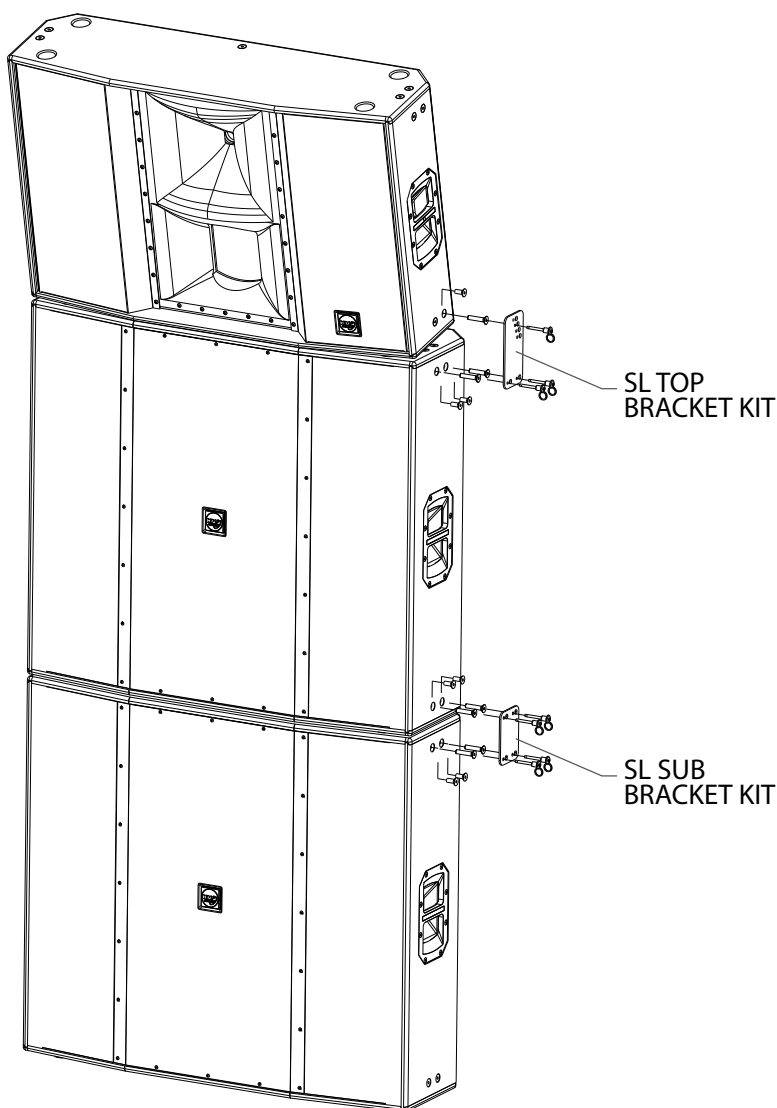
Included in the kit is a steel wall-securing arm which attaches to the top edge of the upper SL2.15/SL6.10 Bass enclosure by inserting one M10 Hex bolt through the arm and into the M10 mounting point.

The extended arm is then attached to a wall or beam structure for stability of the vertical stack employed.

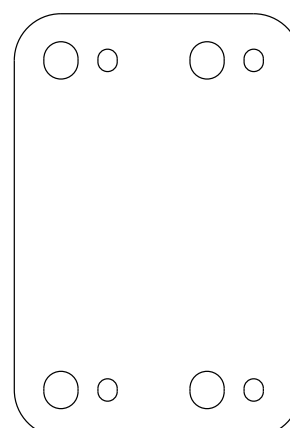
The SL412 and SL2.15/SL6.10 come complete with pre-loaded M10 mounting points and Bolts with a total of 20 fixing points at different locations of the enclosure.

Please refer to diagram example below

SL Top bracket with marked angles



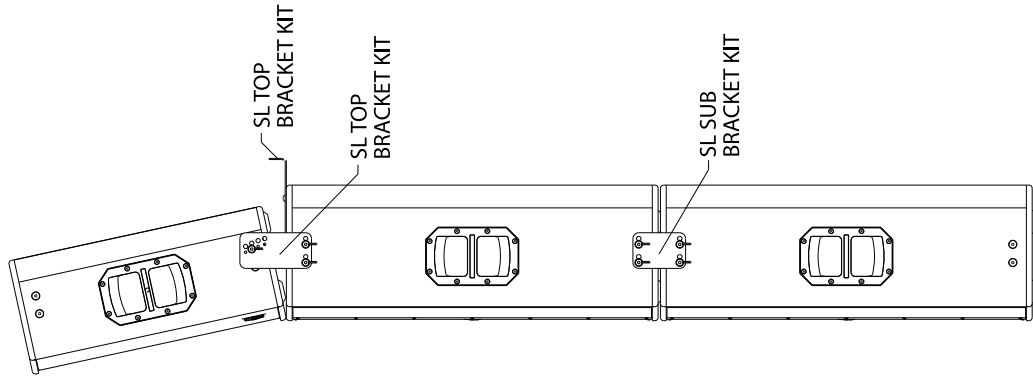
SL Sub bracket



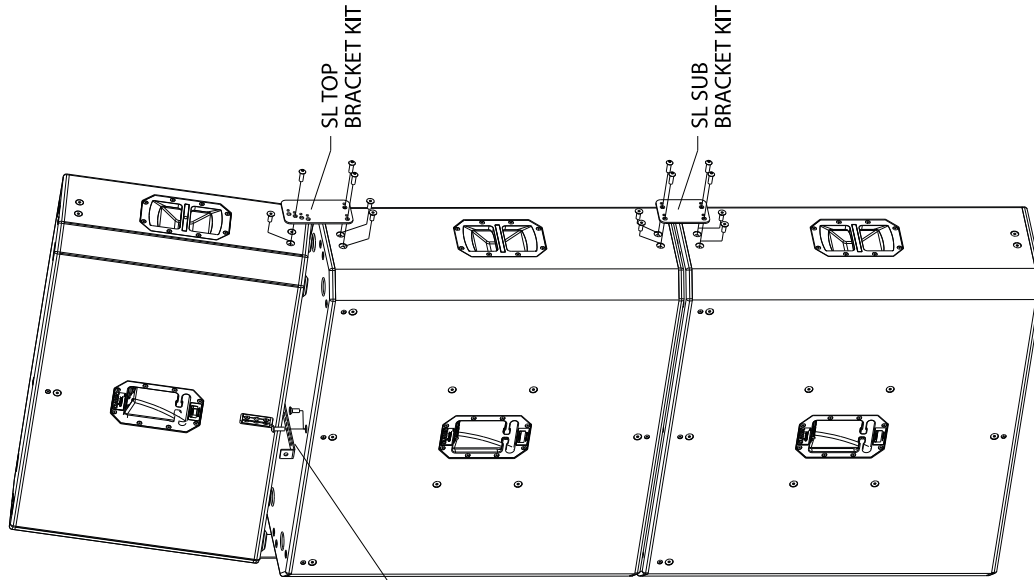
SL Top and Sub Bracket Kit



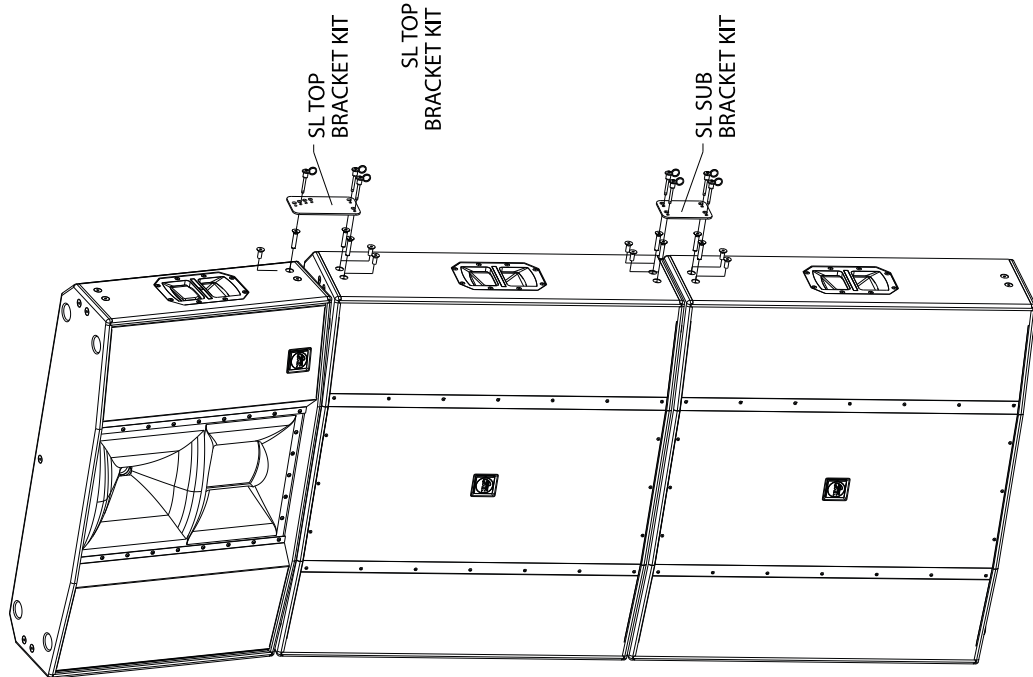
SL Top and Sub Bracket Kit



Fixing SL412 with 2x SL6.10/SL2.15 using
SL TOP BRACKET KIT and SL SUB BRACKET KIT



Fixing SL412 with 2x SL6.10/SL2.15 using
SL TOP BRACKET KIT and SL SUB BRACKET KIT



Fixing SL412 with 2x SL6.10/SL2.15 using
SL TOP BRACKET KIT and SL SUB BRACKET KIT

SL Ground Stack Kit

SL GROUND STACK Kit (KVV 987 320)

The SL Ground Stack consists of a two supporting legs, connecting to a metal strip, that has apertures with fixed points to allow the securing of the multiple stacked SL2.15/SL6.10 Bass enclosures with an SL412 and to prevent tipping when using the SL system stacked, away from the wall, or stacked on a VHD2.21 enclosure.

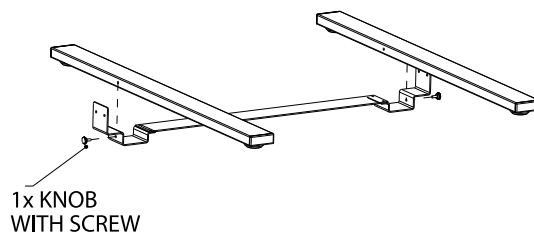
Assemble the Ground Stack by either inserting two supporting legs and fixing with the metal strip, using two knobs with screws as shown on the diagram.

Before it is possible to place the SL2.15/SL6.10 speaker into a Ground Stack, it is necessary to replace four M10 screws with the M10 screws with hole (included with SL Ground Stack) using the included Allen key.

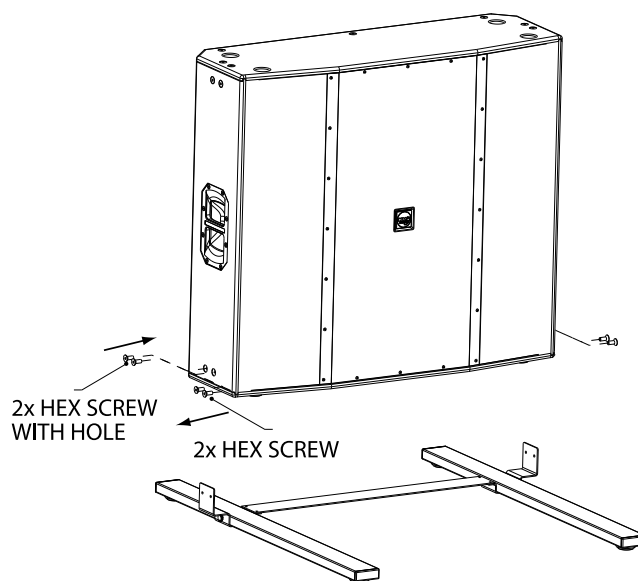
Settle the SL2.15/SL6.10 into the Ground Stack and secure it using four Quick-lock-pins.

SL Ground Stack allows stacking:

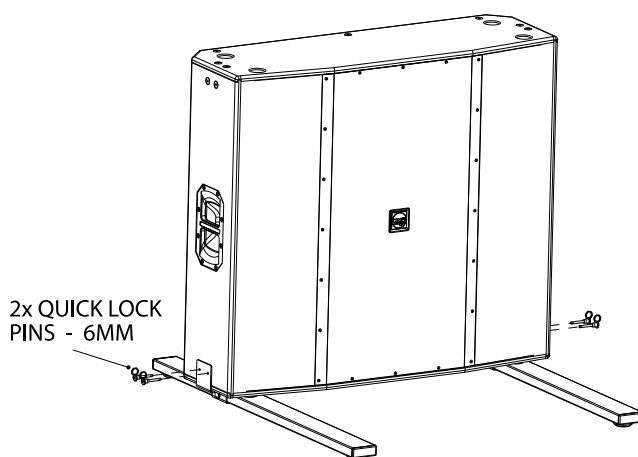
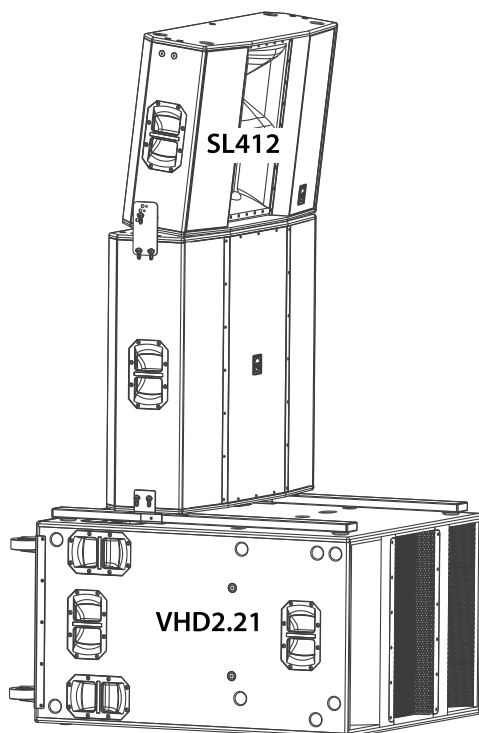
- 1x SL2.15/SL6.10, 1x SL412
- 2x SL2.15/SL6.10, 1x SL412
- 1x VHD2.21, 1x SL2.15/SL6.10, 1x SL412
- 1x VHD2.21, 2x SL2.15/SL6.10, 1x SL412
- 2x VHD2.21, 2x SL2.15/SL6.10, 1x SL412



SL GROUND STACK - assembling



Replacing 4x M10 bolts with M10 with hole



Settlement SL6.10/SL2.15 into Ground Stack

Example: 1x VHD2.21, 1x SL6.10/SL2.15, 1x SL412 Ground Stack + SL Top Bracket

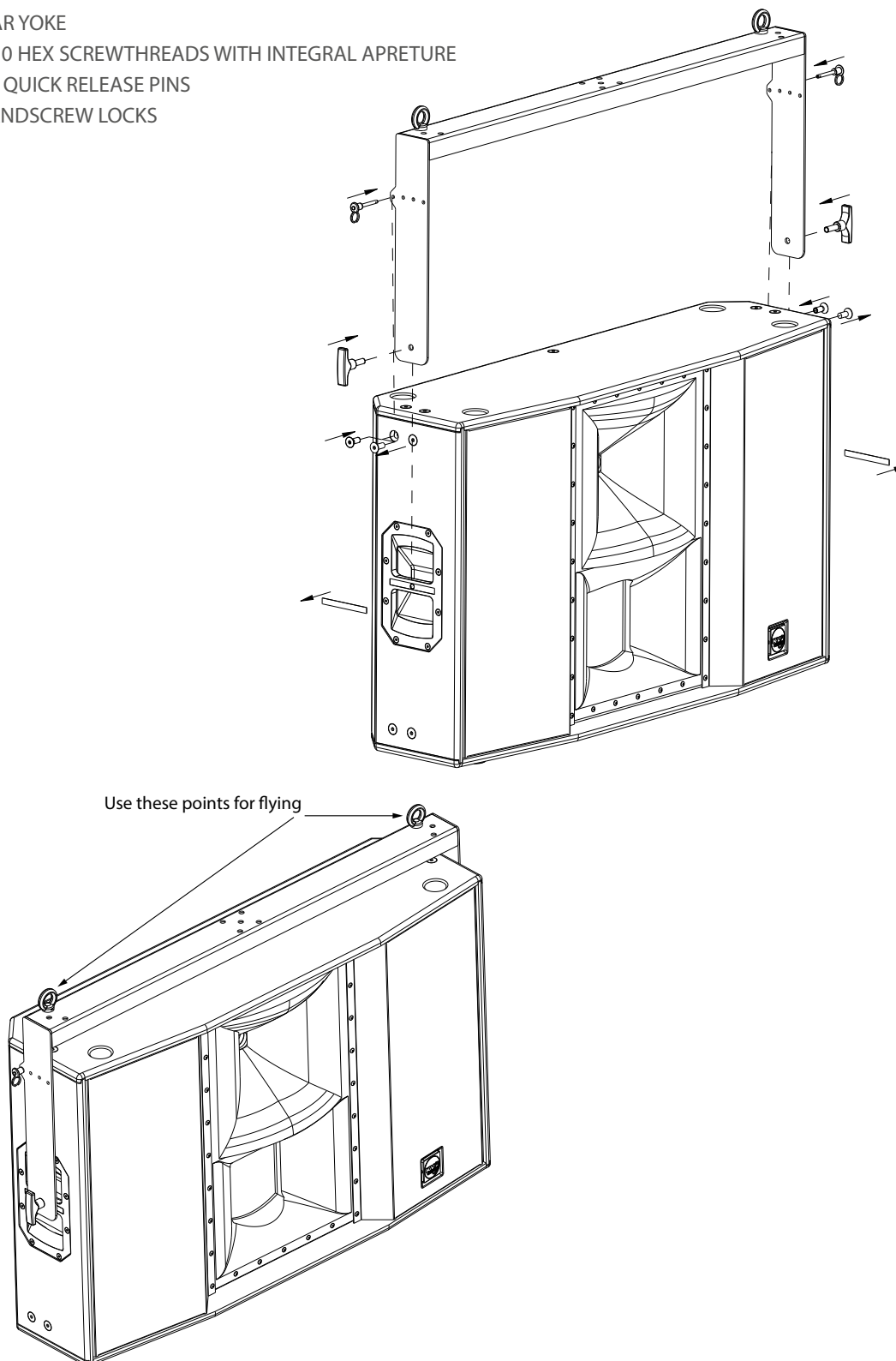
Suspension

The SL412 Flybar is a dedicated system to facilitate fast and safe suspension of a single SL412 or SL2.15/SL6.10 unit, for touring and production and has a variable angle of tilt from 0 -15 degrees.

***NOTE* The FLYBAR is not certified to allow any suspension of additional enclosures, or cabinet from cabinet.**

The system consists of individual parts that form the basis of attaching the SL module to the FLYBAR, these are:

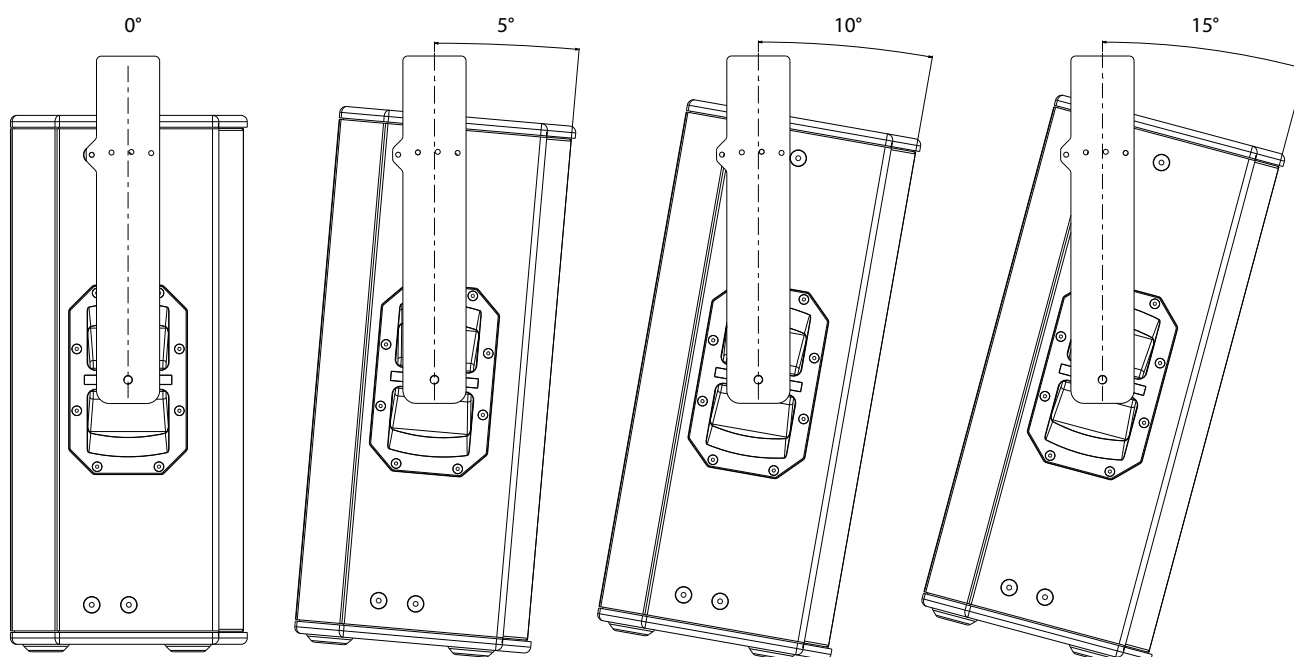
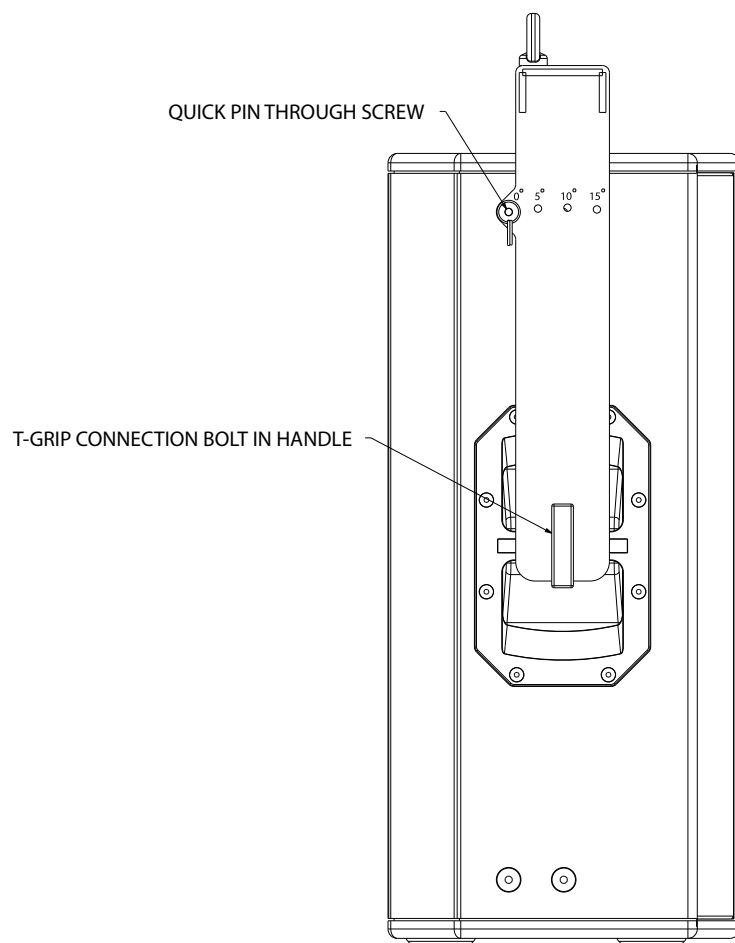
1. FLYBAR YOKE
2. 2x M10 HEX SCREWTHREADS WITH INTEGRAL APRETURE
3. 2x D6 QUICK RELEASE PINS
4. 2x HANDSCREW LOCKS



SL412 Flybar

The SL FLYBAR is a fixed steel folded edge bar with extended arms at each end. The main horizontal bar has multiple apertures across the top plate to allow flexible attachments such as clamps, Eye-bolts and threads to facilitate connection to hoists, truss etc.

To secure the FLYBAR to the SL unit, there are two fixing points on each extended arm, one lower point to allow the attachment to the SL handle unit via use of a handscrew and one upper point to allow attachment via quick-lock pins through four pre-selected angle-apertures.



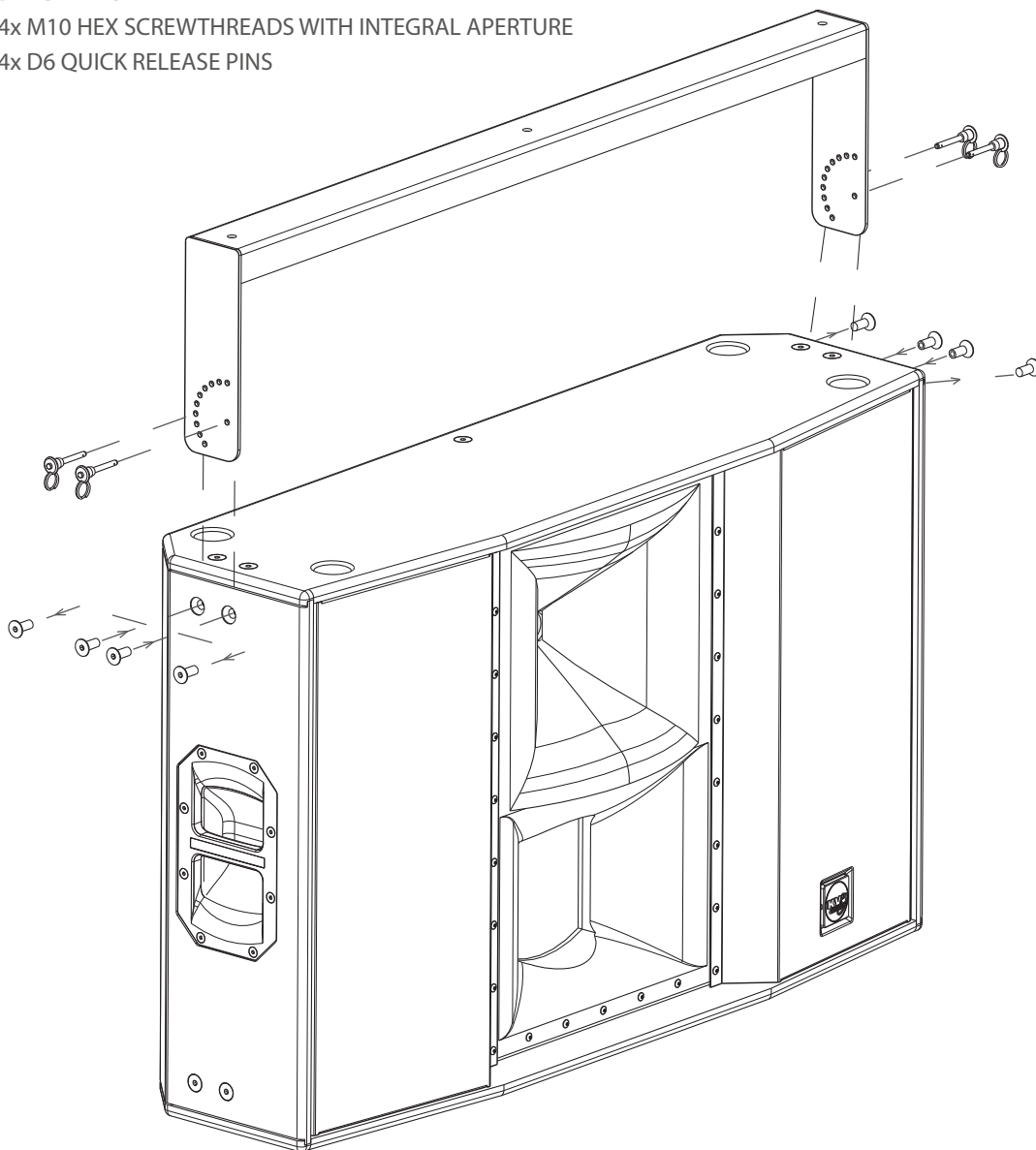
SL412 Vertical Bracket

The SL412 Vertical Bracket is a complete system to allow the safe suspension of a *single SL412 or SL2.15/SL6.10 Unit.

NOTE: The SL412 Vertical Bracket is not certified to allow any suspension of any additional enclosures

The system consists of individual parts that form the basis of attaching a loudspeaker module to the bracket, these are:

1. BRACKET YOKE
2. 4x M10 HEX SCREWTHREADS WITH INTEGRAL APERTURE
3. 4x D6 QUICK RELEASE PINS



The SL412 Vertical bracket is a pre-fixed steel bar with folded edges and short extension arms at each end.

The long bar has prefixed apertures along the top plate to allow attachments such as clamps, Eye-bolts and threads to facilitate connection to hoists, truss etc.

On each extended arm, there is a single aperture which allows the fixing of the bracket to the SL412 and there is a secondary semi-circle of a total of ** 10 apertures which allow a pre-settable fixed angle of suspension in the tilt orientation.

**** NOTE:** The SL412 Vertical bracket has a front and back, to make sure it is used in the correct orientation, identify that the semi-circle of aperture fixings are facing to the rear of the enclosure**

SL412 Vertical Bracket · Instructions · Single point flying

The SL412 comes complete with pre-loaded M10 mounting points and Bolts with a total of 20 fixing points at different locations of the enclosure.

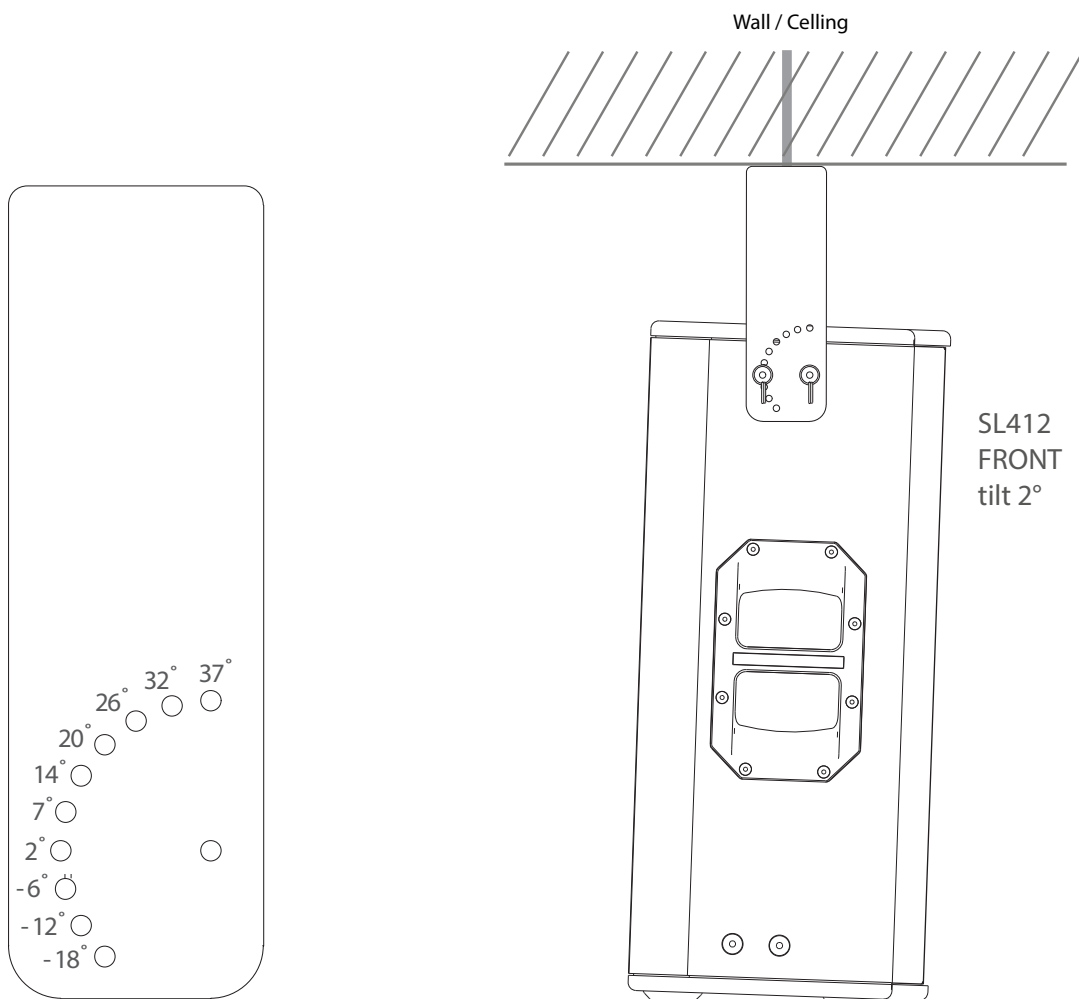
It is important to locate the **top two** mounting bolts which are at the top end of each side of the enclosure, remove these and replace with the **4 x M10 HEX SCREWTHREADS WITH INTEGRAL APERTURE** that come supplied with the **SL412 Vertical Bracket** system.

Place the complete **SL412 Vertical Bracket** over the top of the SL412 so that the extension arms are parallel to the sides of the enclosure and place a single **D6 QUICK RELEASE PIN** through the single hole in the arm and then into the aperture of the two which is **nearest to the front edge** of the SL412 enclosure. The **SL412 Vertical Bracket** is now attached safely to the enclosure.

To achieve the correct angle of tilt and hang, now select an aperture from one of the 10 holes within the semi-circular row on each arm and enter a second **D6 QUICK RELEASE PIN** through the arm on each side into the second aperture which is **nearest to the rear edge** of the SL412 enclosure. Now the whole assembly is ready to be suspended.

Single point flying

If the SL412 is suspended from a single point, the tilt angle varies with the location of the center of gravity. For the resulting tilt angle, please see SL Flybar picture with marked angles. Use this flybar for fixed installations only.





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