



INSTRUCTION MANUAL

LINE ARRAY SPEAKER

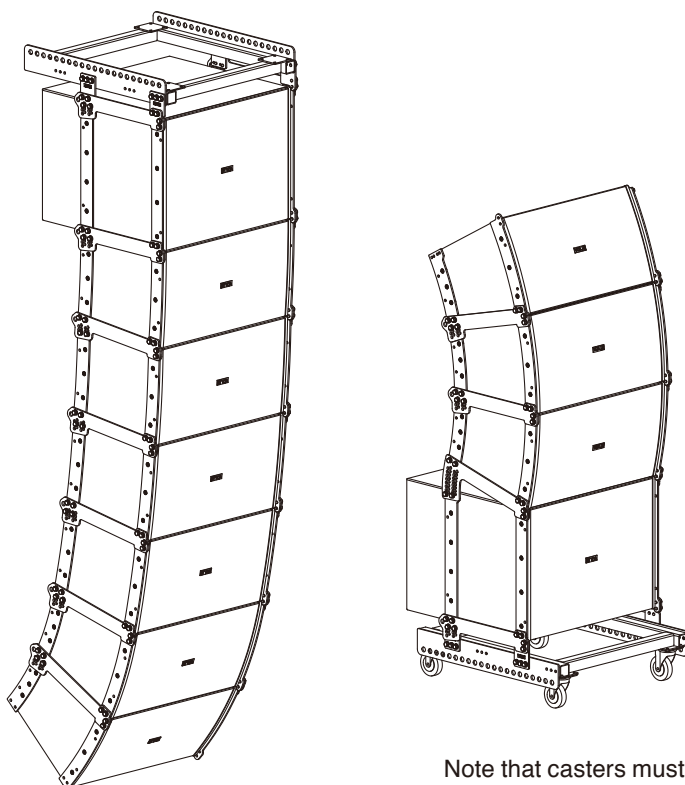
SR-A12L, SR-A12S, SR-A18B,
SR-A12LWP, SR-A12SWP

RIGGING FRAME

SR-RF12, SR-RF12WP

TILT JOINT PLATE

SR-TP12



Note that casters must be prepared separately.

Thank you for purchasing TOA's Line Array speaker system, Rigging Frame and Tilt Joint Frame.
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

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1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.



WARNING

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.



CAUTION

Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.



WARNING

- Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down and causing personal injury and/or property damage.
- Refer all installation work to the dealer from whom the speaker was purchased. Installation for flying requires extensive technical knowledge and experience. The speaker may fall off if incorrectly installed, resulting in possible personal injury.
- Flying Precautions
Be sure to follow the instructions below. Otherwise, the suspension wires or belts may be off or snap and the speaker may fall off, causing personal injury.
 - Check to confirm that the suspension wires and belts are strong enough to withstand the speaker load.
 - The connectors of the suspension wires and belts must be securely linked with those of the speaker.
 - All parts and components (such as enclosures, metal pieces, and screws) must be free from any deformation, crack, and corrosion.
 - Be sure to use screws supplied with the optional flying hardware when installing the speaker using such hardware.
- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- (SR-A12LWP, SR-A12SWP, SR-RF12WP only)
When installing the unit in a snowy area, take appropriate measures to prevent snow from lying on the unit. If the snow lies on the unit, the unit may fall, causing personal injuries.
- Owing to the unit's size and weight, be sure that at least two persons are available to install the unit. Failure to do so could result in personal injury.
- Do not use other methods than specified to mount the bracket. Extreme force is applied to the unit and the unit could fall off, possibly resulting in personal injuries.
- Use nuts and bolts that are appropriate for the ceiling's or wall's structure and composition. Failure to do so may cause the speaker to fall, resulting in material damage and possible personal injury.
- Tighten each nut and bolt securely. Ensure that the bracket has no loose joints after installation to prevent accidents that could result in personal injury.
- Use only the specified mounting brackets. Doing otherwise may cause the unit or component to fall off, resulting in personal injury.
- Do not mount the unit in locations exposed to constant vibration. The mounting bracket can be damaged by excessive vibration, potentially causing the unit to fall, which could result in personal injury.



CAUTION

- When unpacking or moving the unit, be sure to handle it with two or more persons. Falling or dropping the unit may cause personal injury and/or property damage.
- Avoid placing the unit in a doorway or other high traffic area as people may trip on the equipment and cords, or be injured by falling objects.
- Avoid touching the unit's sharp metal edge to prevent injury.
- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.
- Do not stand or sit on, nor hang down from the unit as this may cause it to fall down or drop, resulting in personal injury and/or property damage.
- Have the unit checked periodically by the shop from where it was purchased. Failure to do so may result in corrosion or damage to the speaker or its mounting bracket that could cause the speaker to fall, possibly causing personal injury.

2. GENERAL DESCRIPTION

TOA's SR-A series Line Array speaker employ unique wave front control technology to create a sound field with high sound clarity and uniform sound pressure. The lineup features types with vertical directivity angles of 5 degrees and 15 degrees, as well as subwoofers. Optional components include the Rigging Frame required for installation and the Tilt Joint Plates that allow stacked speakers to be tilted downward, permitting speaker systems to be customized for a wide variety of permanent installation applications.

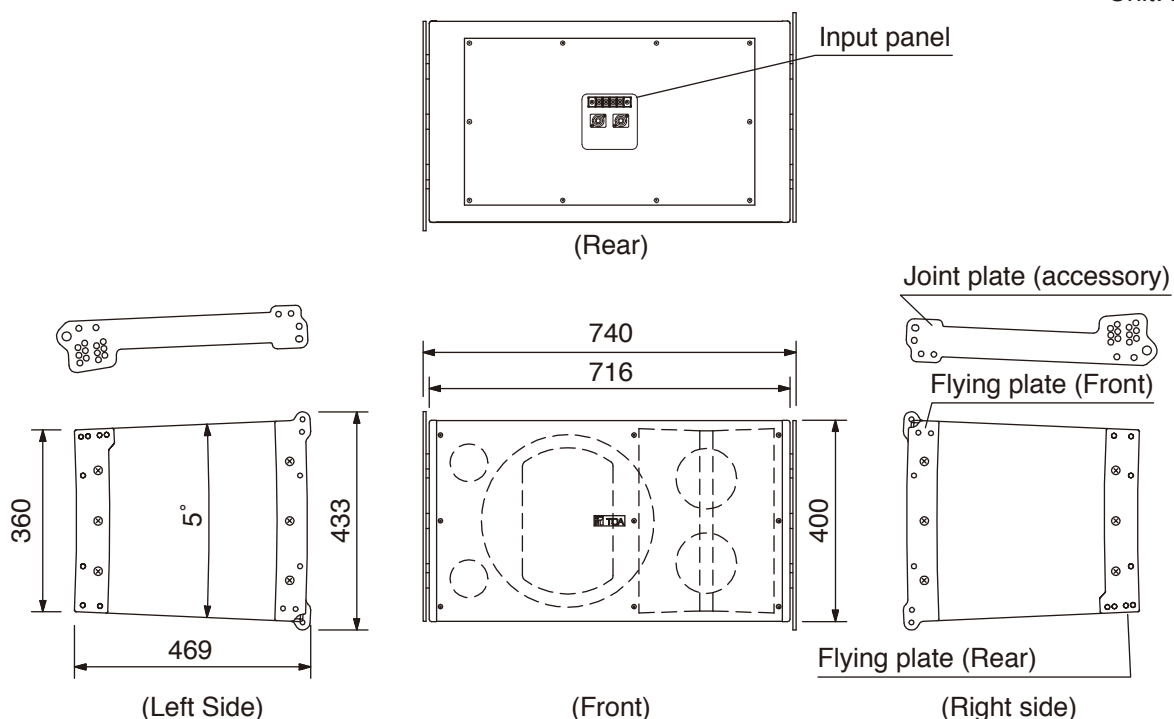
3. FEATURES

- TOA's unique wave front control technology permits the linearly arranged speakers to produce a uniform, interference-free high-frequency sound field offering high sound clarity and excellent long distance sound transmission capability.
- The SR-A12L(WP) Line Array speaker is a 2-way multi-amplifier driven speaker system featuring a 30 cm high power output woofer and 2 compression drivers. It features 5 degrees of vertical directivity and 90 degrees of horizontal directivity, and is best suited to long-distance sound transmission applications.
- The SR-A12S(WP) Line Array speaker is a 2-way multi-amplifier driven speaker system featuring a 30 cm high power output woofer and 2 compression drivers. It features 15 degrees of vertical directivity and 90 degrees of horizontal directivity, and is best suited to short-distance sound transmission applications.
- Combining the long-distance SR-A12L(WP) with the short-distance SR-A12S(WP) permits construction of Line Array speaker systems to meet a wide range of applications.
- The SR-A18B Subwoofer employs a large-diameter 46 cm woofer unit for high power handling capability, and is designed to be used in conjunction with the SR-A12L or SR-A12S Line Array speakers.
- Maintenance can be performed from the rear of the enclosure.
- Line Array speakers and sub-woofers can be joined vertically using the supplied Joint Plates. When joined, directivity can be freely adjusted, with overlapping angles between speakers set to between 0 and 5 degrees, in 1-degree units.
- The SR-RF12 Rigging Frame permits the Line Array speakers to be arranged in flying or stacked configurations. The SR-A12LWP and SR-A12SWP Line Array speakers can also be installed under eaves in flying configurations using the SR-RF12WP frame.
- When stacking Line Array speakers with the Rigging Frame, the downward angle can be increased by up to 10 degrees if the SR-TP12 Tilt Joint Plate is additionally used, allowing more appropriate coverage areas to be set.
- The SR-A12LWP and SR-A12SWP are in full conformity with IPX4 Standards, and can be installed under eaves.

4. DIMENSIONS

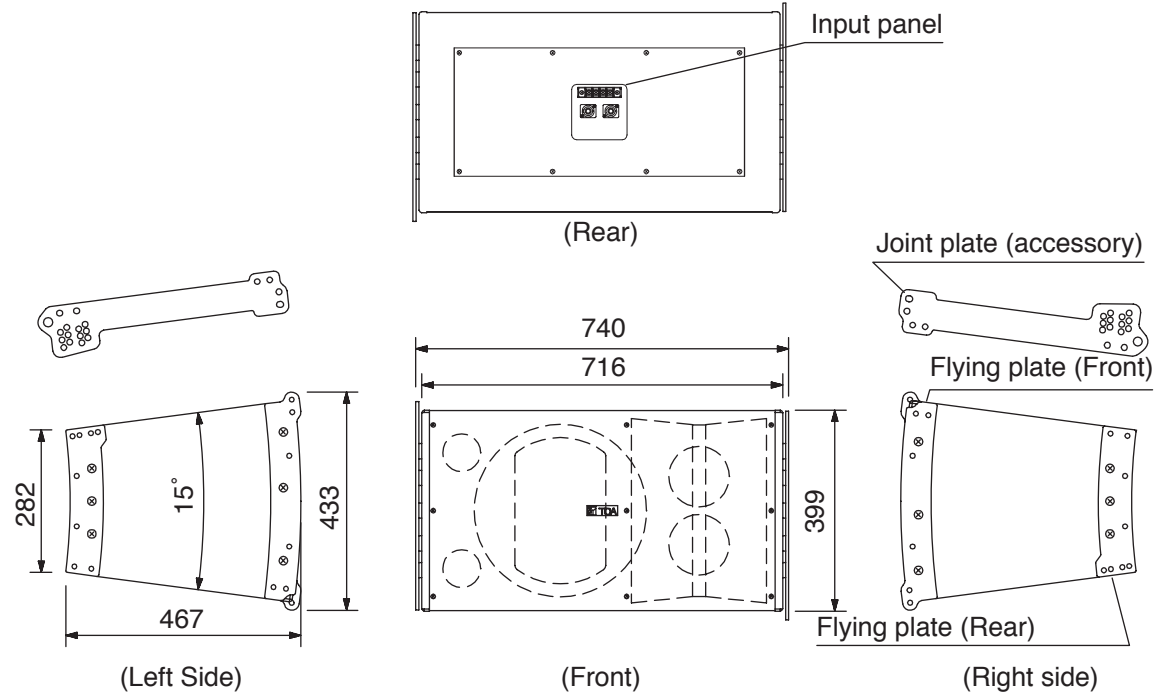
SR-A12L

Unit: mm



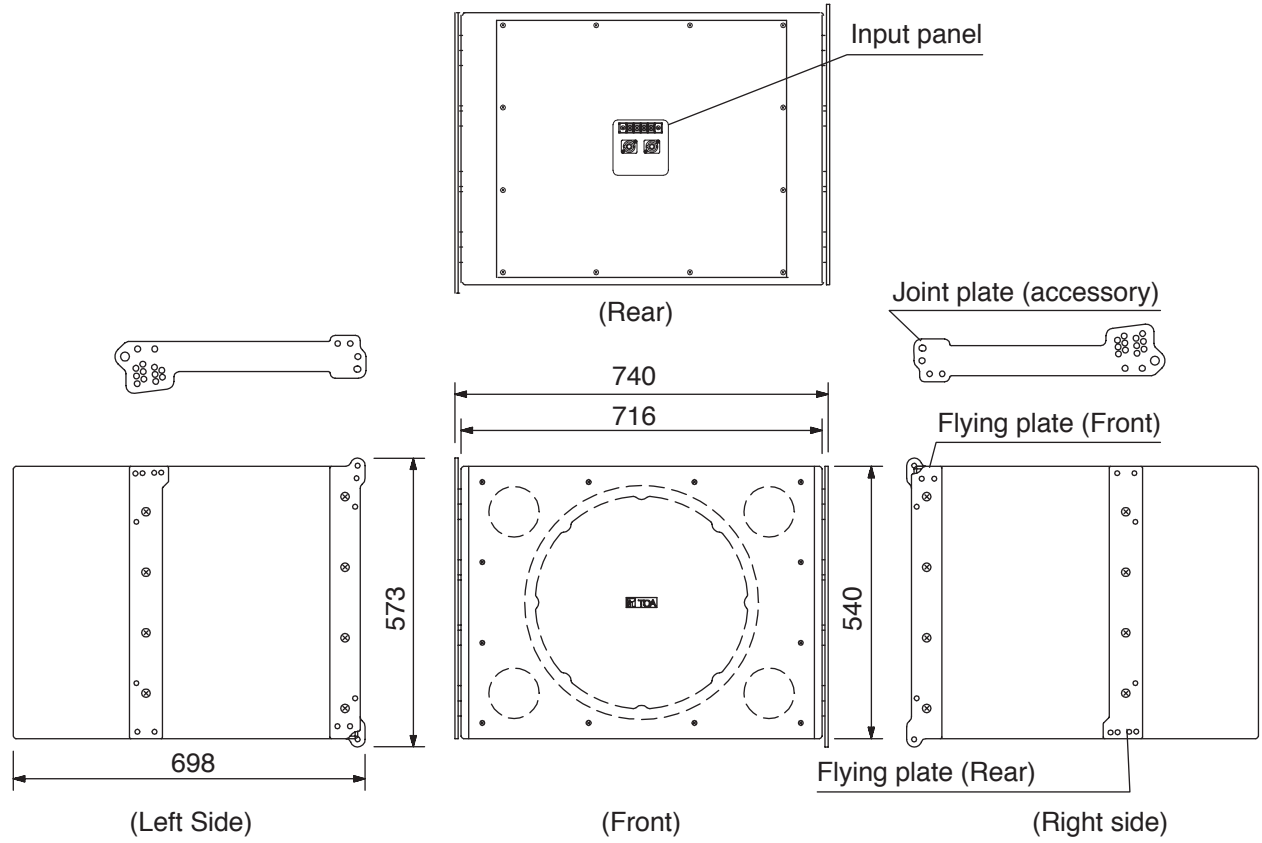
SR-A12S

Unit: mm



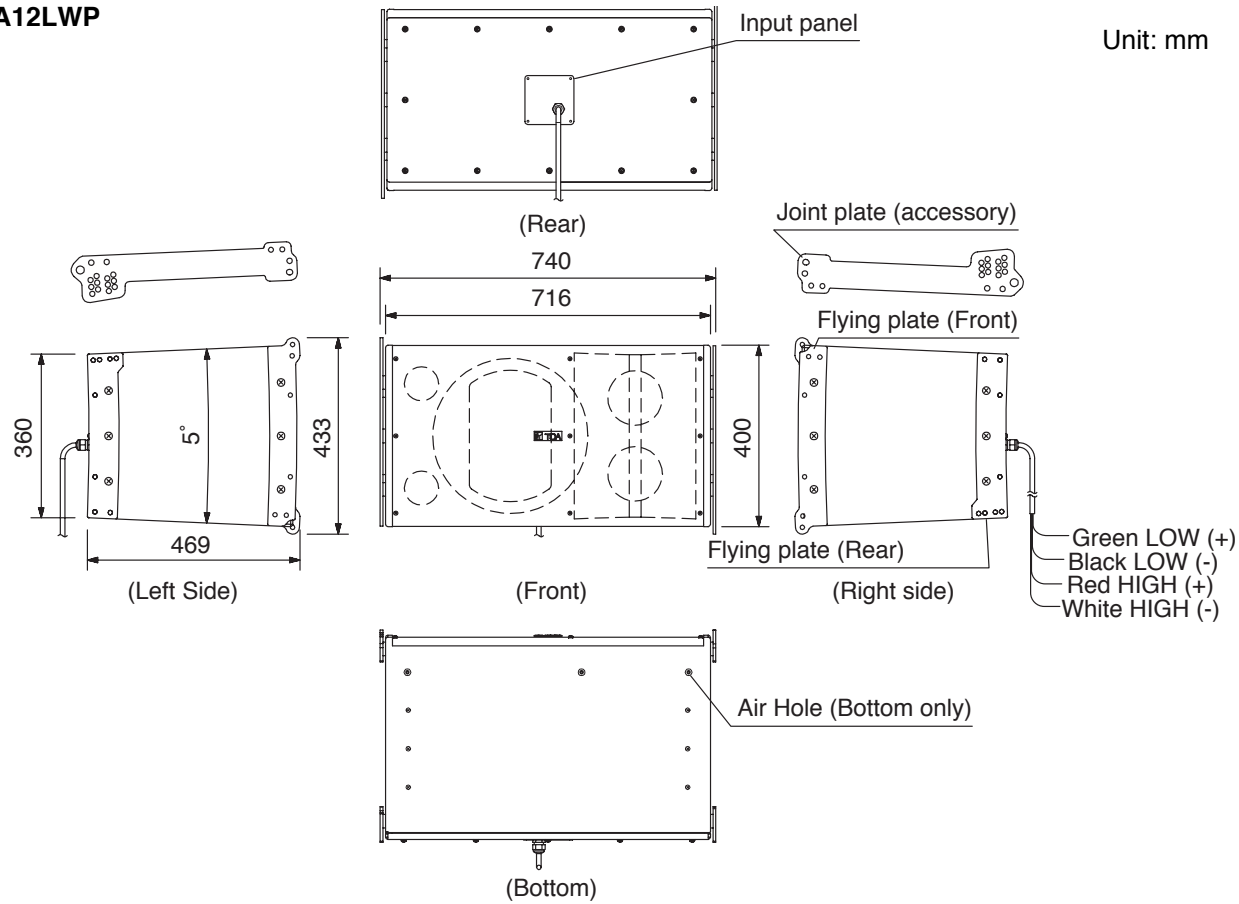
SR-A18B

Unit: mm



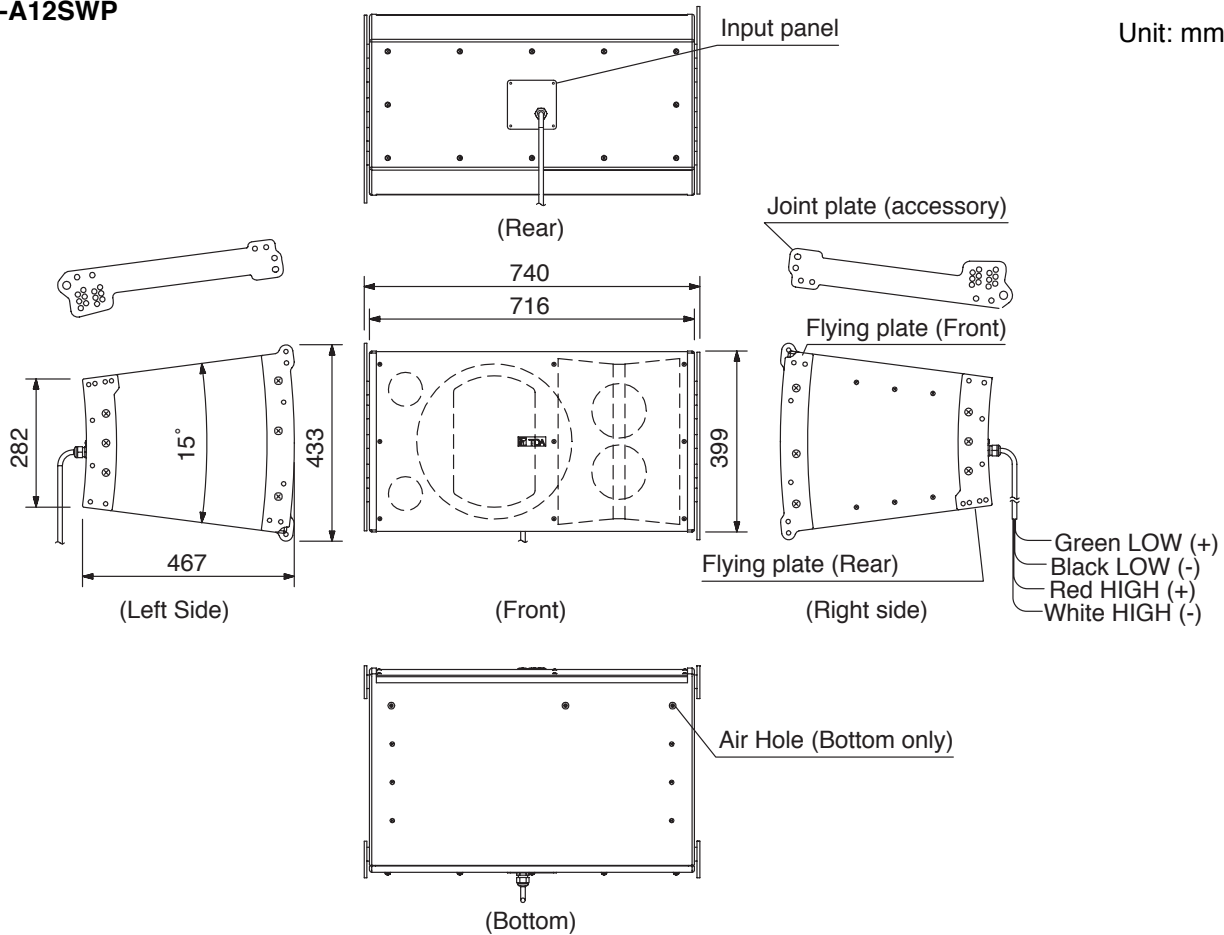
SR-A12LWP

Unit: mm



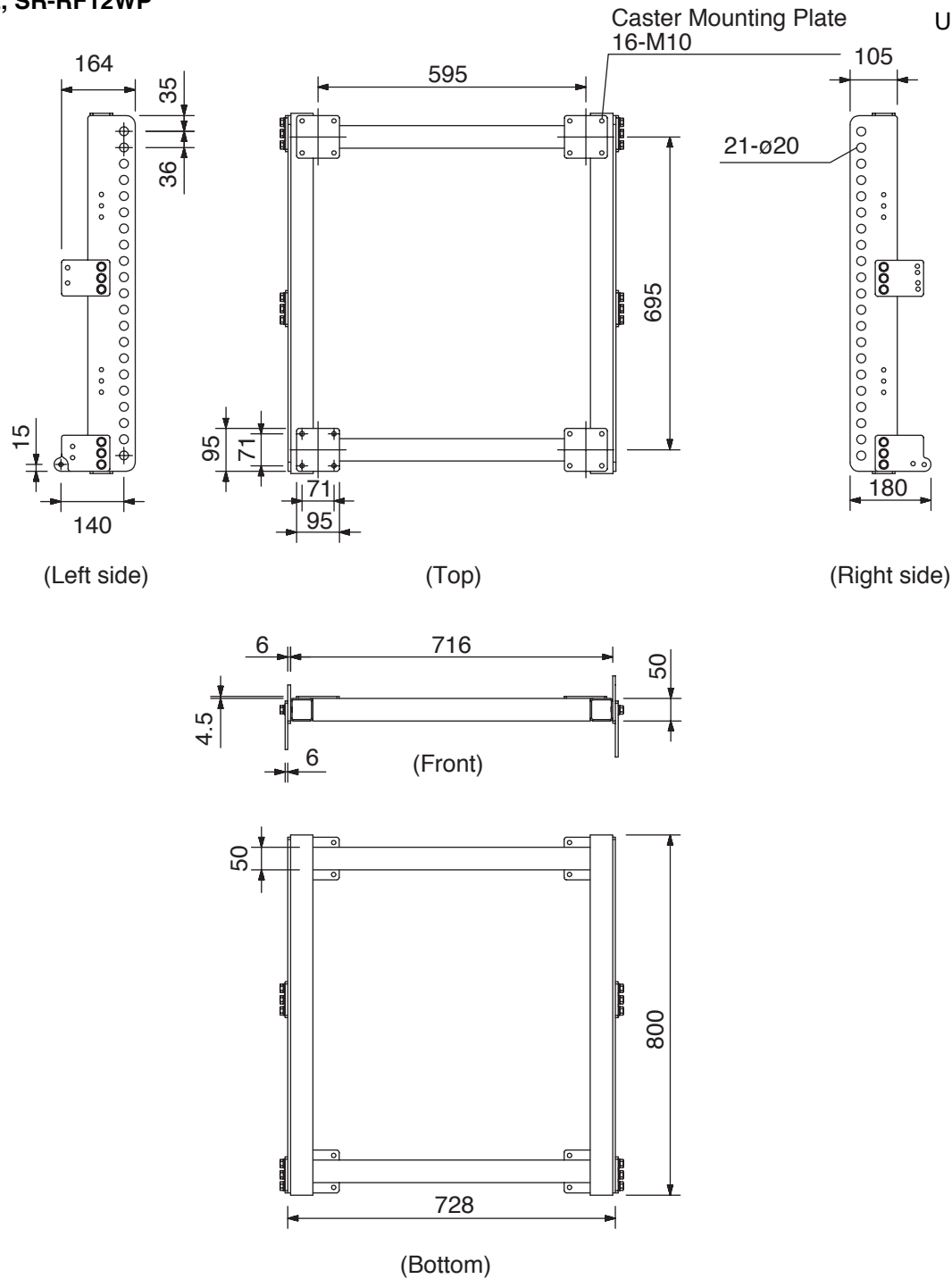
SR-A12SWP

Unit: mm



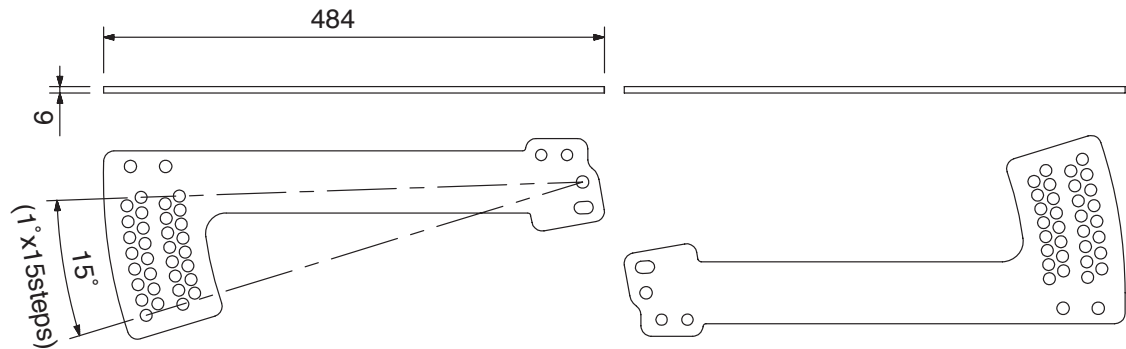
SR-RF12, SR-RF12WP

Unit: mm



SR-TP12

Unit: mm

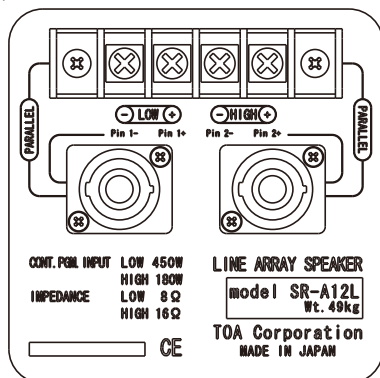


5. INPUT CONNECTORS

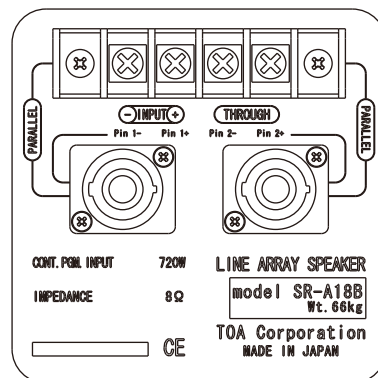
SR-A12L, SR-A12S and SR-A18B

Figures below show the input connector arrangements of each speaker system. Since connector and screw terminal are internally connected in parallel, either connector can be used for connection.

SR-A12L, SR-A12S



SR-A18B



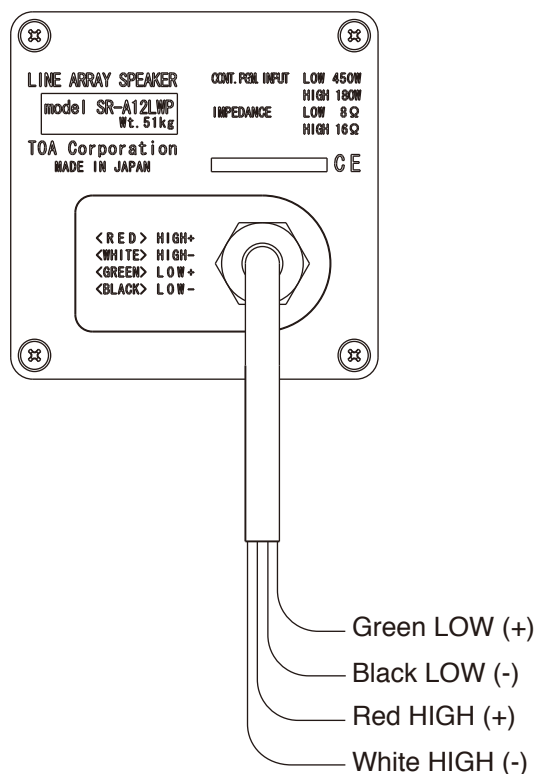
The NEUTRIK NL4MPXX connector's pins are wired as shown below.

Pin No.	SR-A12L, SR-A12S	SR-A18B
1+	LOW +	INPUT +
1-	LOW -	INPUT -
2+	HIGH +	THROUGH
2-	HIGH -	THROUGH

The connector (connection cable side) suited to the NEUTRIK NL4MPXX is the NEUTRIK NL4FC.

SR-A12LWP and SR-A12SWP

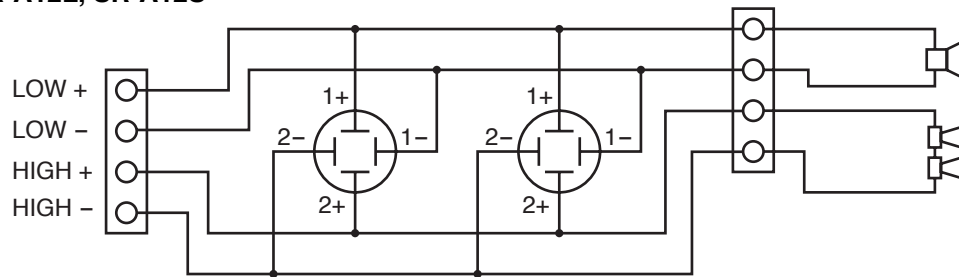
Figure below shows the speaker cable arrangement of each speaker system.



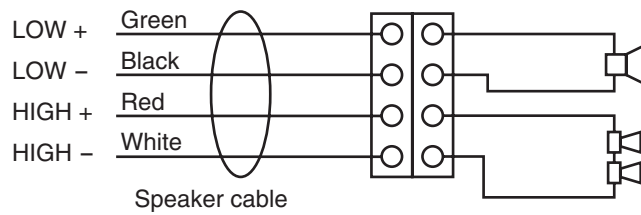
6. INTERNAL WIRING DIAGRAM

Figures below show the internal wirings of each speaker system.

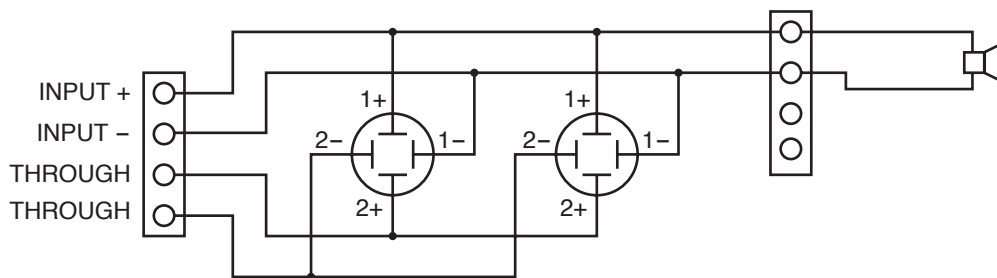
SR-A12L, SR-A12S



SR-A12LWP, SR-A12SWP

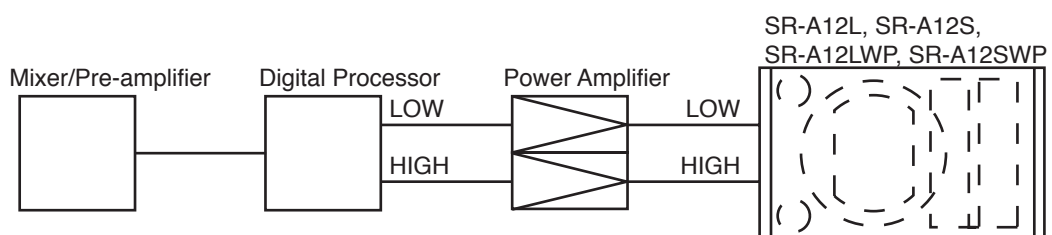


SR-A18B

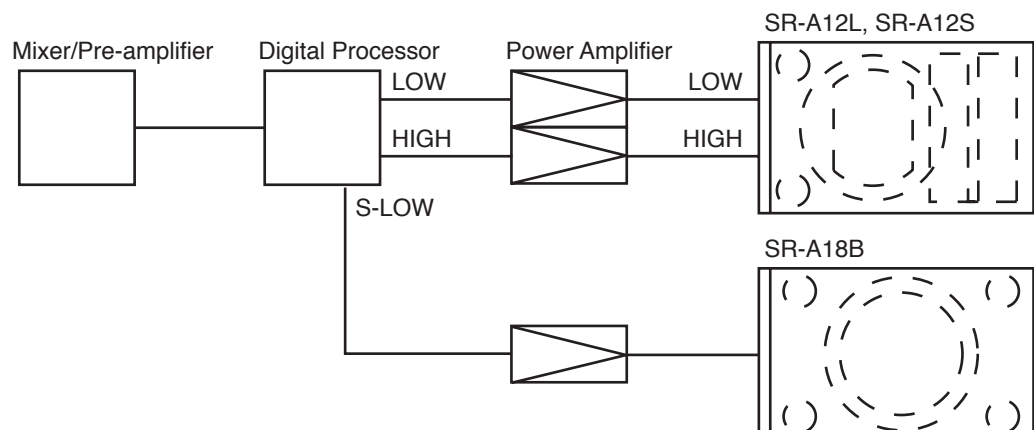


7. CONNECTIONS

System using the SR-A12L, SR-A12S, SR-A12LWP or SR-A12SWP



System which combines the SR-A12L or SR-A12S with the SR-A18B



8. DIGITAL PROCESSOR SETTINGS

Recommended setting parameters are as follows.

System using the SR-A12L, SR-A12S, SR-A12LWP or SR-A12SWP

Channel	Gain (dB)	Polarity	Filter				Delay (msec)
			TYPE	Freq. (Hz)	Gain (dB)	Q	
LOW	0	Normal	HPF (12 dB)	40	—	0.900	0.708
			LPF (12 dB)	1.0k	—	0.707	
			LPF (12 dB)	1.0k	—	0.707	
			PEQ	300	-5.0	2.549	
			PEQ	530	-4.5	2.549	
HIGH	0	Inverse	HPF (12 dB)	1.2k	—	0.707	0
			PEQ	2.5k	-10.0	1.011	
			PEQ	5.0k	-2.0	1.414	
			PEQ	14.0k	9.0	1.160	

System which combines the SR-A12L or SR-A12S with the SR-A18B

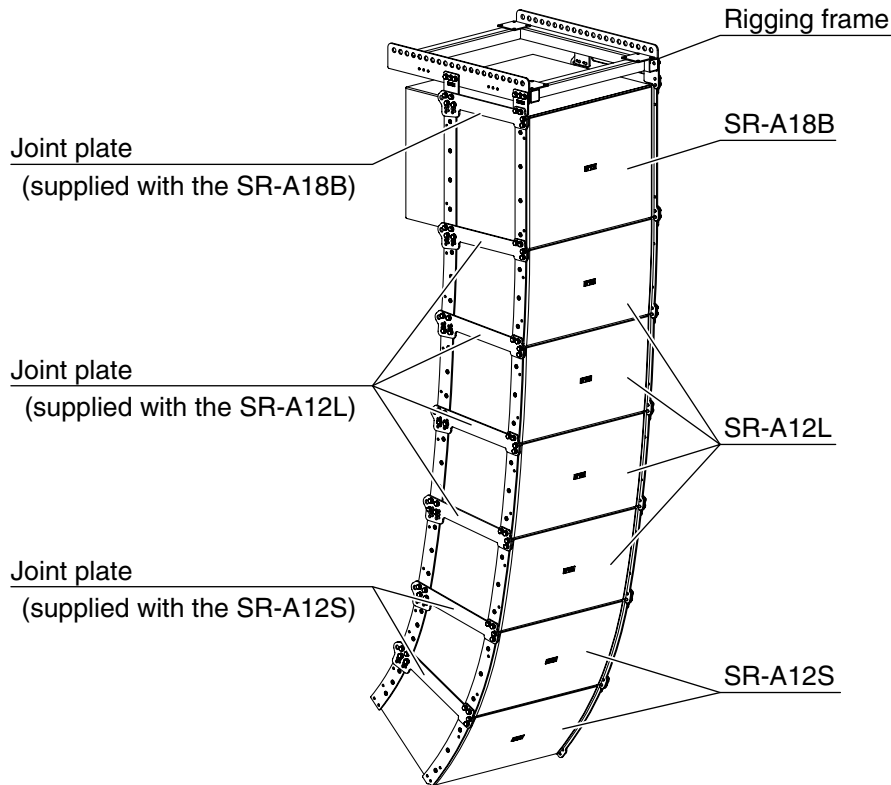
Channel	Gain (dB)	Polarity	Filter				Delay (msec)
			TYPE	Freq. (Hz)	Gain (dB)	Q	
S-LOW	3.0*	Inverse	LPF (12 dB)	90	—	0.707	0.708
			LPF (12 dB)	200	—	1.000	
			HPF (12 dB)	20	—	0.707	
			HPF (12 dB)	35	—	1.505	
			PEQ	34.5	6.0	1.800	
LOW	0	Normal	HPF (12 dB)	77.5	—	0.900	0.708
			LPF (12 dB)	1.0k	—	0.707	
			LPF (12 dB)	1.0k	—	0.707	
			PEQ	300	-5.0	2.549	
			PEQ	530	-4.5	2.549	
HIGH	0	Inverse	HPF (12 dB)	1.2k	—	0.707	0
			PEQ	2.5k	-10.0	1.011	
			PEQ	5.0k	-2.0	1.414	
			PEQ	14.0k	9.0	1.160	

* The Gain on the S-LOW channel needs to be adjusted depending on the system configuration.

9. FLYING

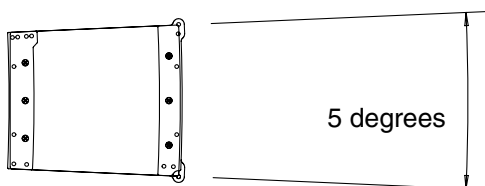
9.1. General Description

Use the SR-RF12(WP) Rigging Frame for flying the Line Array speaker. With the use of the SR-RF12(WP), up to 8 Line Array speakers can be arranged in flying configuration. The SR-A18B Subwoofer system is counted as 1.5 pieces. When joining two or more speakers, or joining the rigging frame and the speaker, use the Joint Plate supplied with the speaker. Basic flying system is shown below.

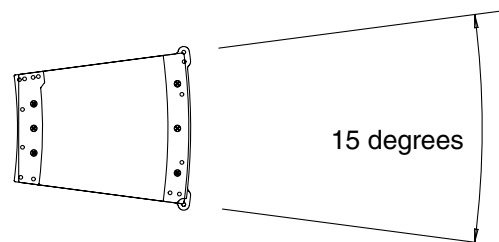


The vertical directivity angle of the Line Array speaker is 5 degrees for the SR-A12L(WP) and 15 degrees for the SR-A12S(WP).

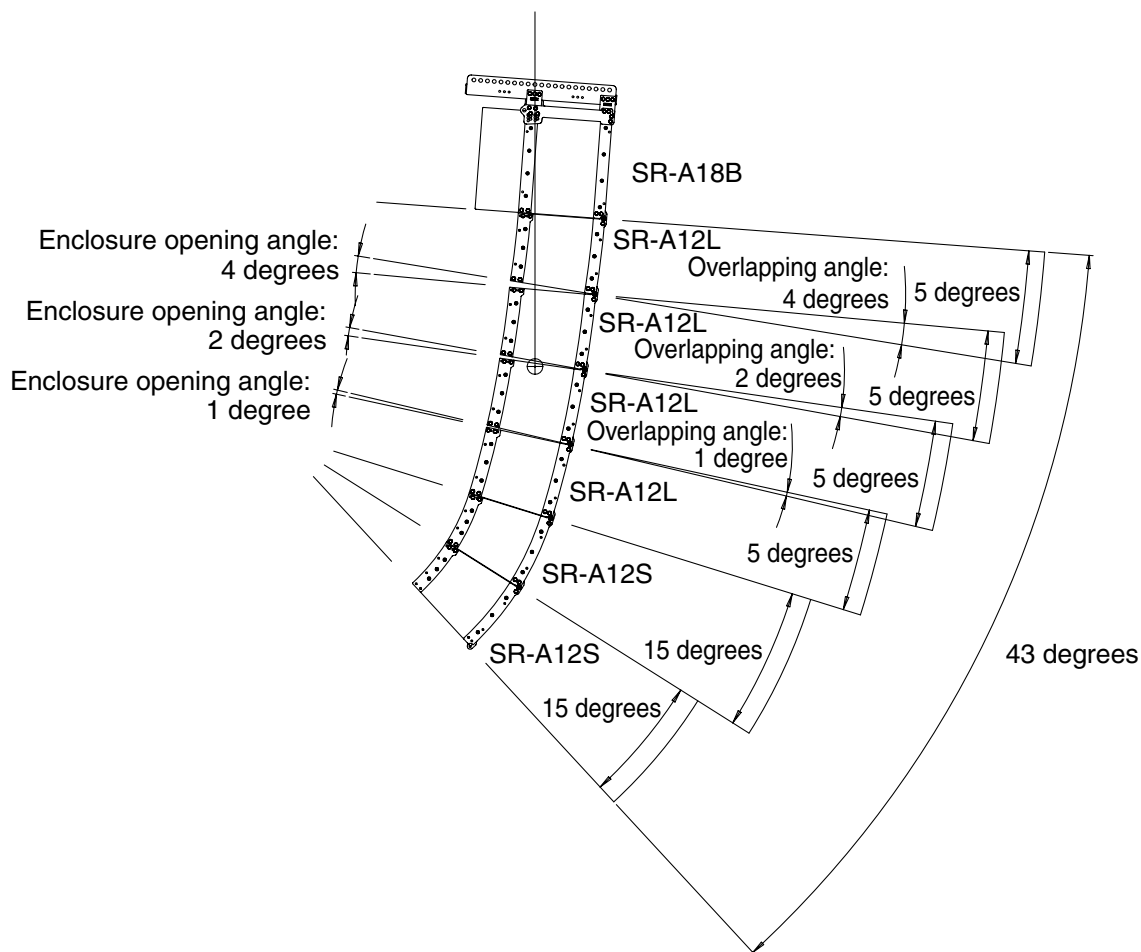
SR-A12L(WP)



SR-A12S(WP)



This flying system is made up of four SR-A12L speakers, two SR-A12S speakers, and one SR-A18B speaker. To transmit sound over long distances, the four SR-A12Ls are given overlapping angles of 4, 2, and 1 degree, resulting in a total vertical directivity angle of 43 degrees. The overlapping angle can be adjusted by means of the Joint Plates used to join the speakers. The horizontal directivity angle is fixed at 90 degrees.



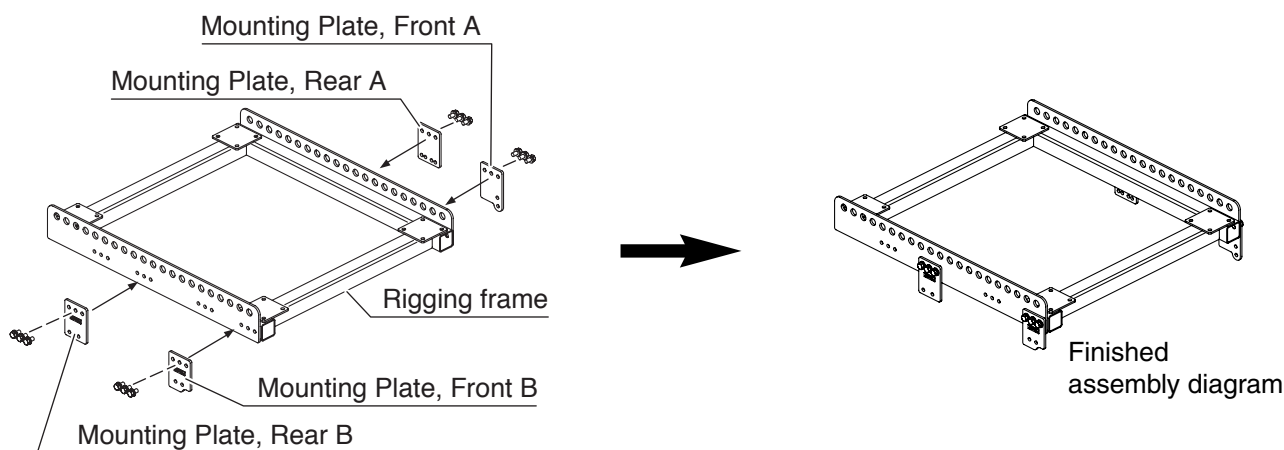
As can be seen in the accompanying figure, the overlapping angle equals the rear-opening angle between enclosures.

[Example] To adjust the sound radiation-overlapping angle to 5 degrees, set the rear-opening angle between enclosures to 5 degrees.

No sound overlapping angle is created if speakers are joined without space provided between enclosures.

9.2. SR-RF12(WP) Rigging Frame assembly

For assembling, refer to the figure below. Tighten 3 supplied bolts with plain washers and spring washers securely to fix each Mounting Plate to the rigging frame.



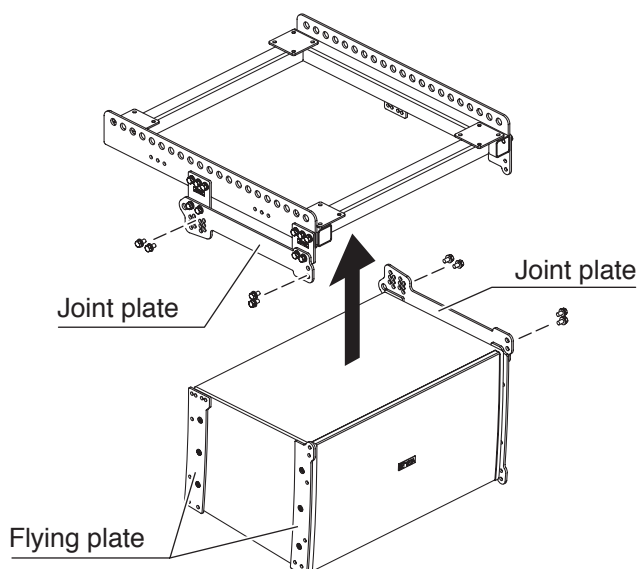
9.3. Joining the Enclosure to the Rigging Frame

Flying Plates are mounted at both the front and rear of the enclosure's sides. Follow the procedure below to mount the enclosure to the Rigging Frame, as shown in the assembly diagrams.

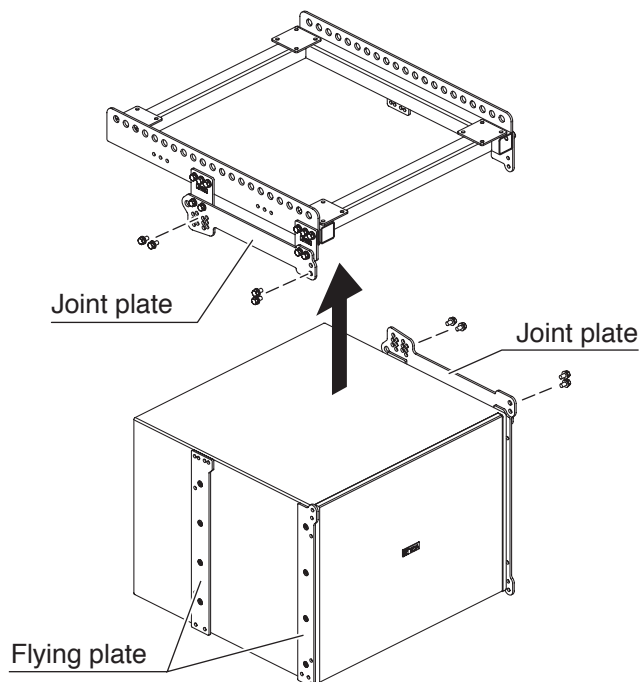
Fix a supplied Joint Plate securely to the left side of the Rigging Frame and another to the right side of the enclosure, each using 4 supplied bolts with plain washers and spring washers.

Before securing the Joint Plate, determine whether the enclosure's horn will face right or left. (This is not required for the SR-A18B Subwoofer.) When suspending the subwoofer, install the system so that the subwoofer is positioned at the top (directly below the Rigging Frame).

High box assembly diagram

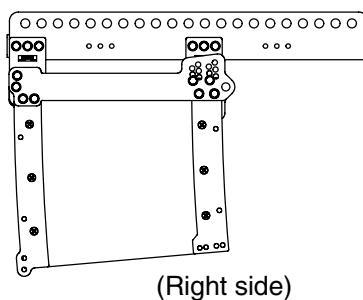
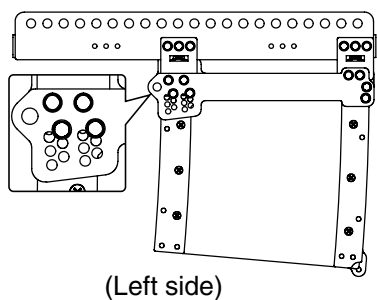


Subwoofer assembly diagram

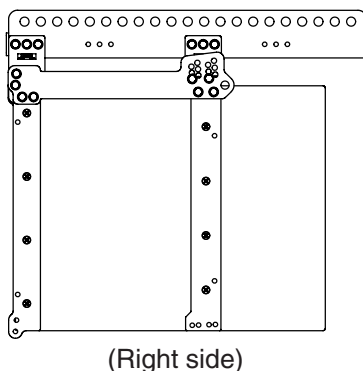
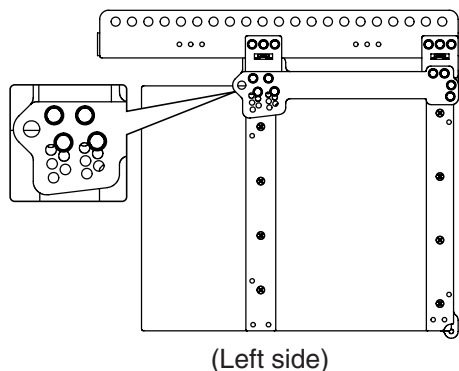


Join the enclosure to the Rigging Frame securely, using 4 supplied bolts with plain washers and spring washers on each side. For Joint Plate mounting holes, use the hole that creates an overlapping angle of 0 degree. Refer to the assembly diagrams below.

High box finished assembly diagram

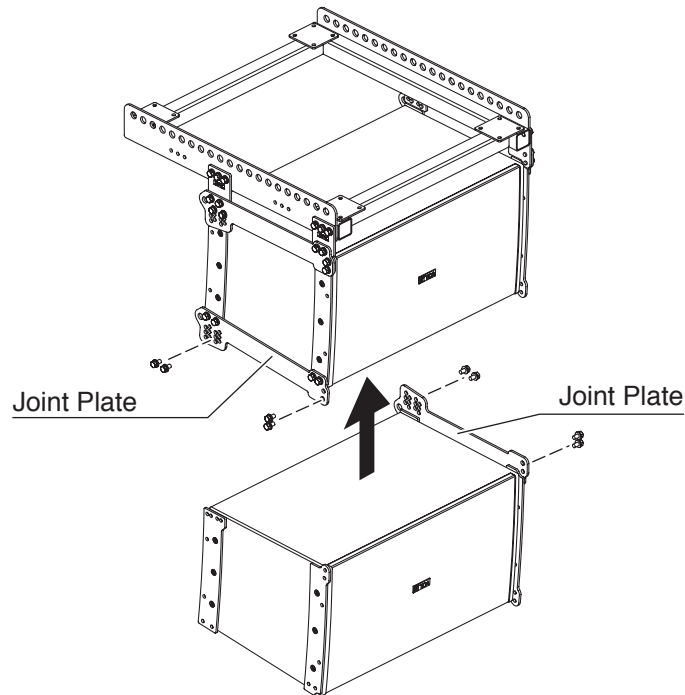


Subwoofer finished assembly diagram

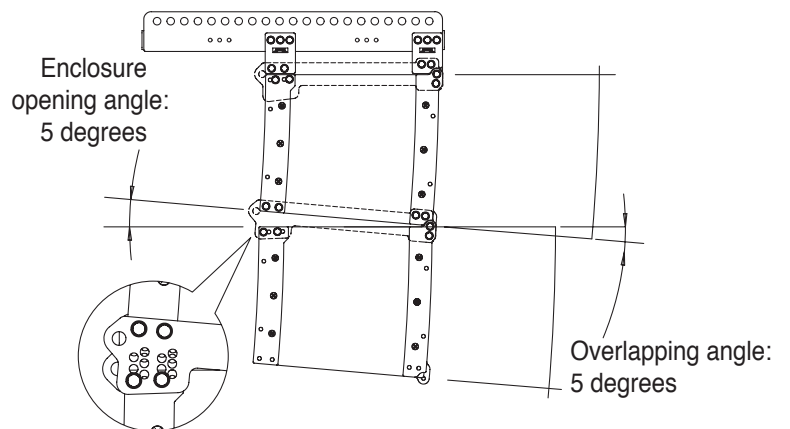
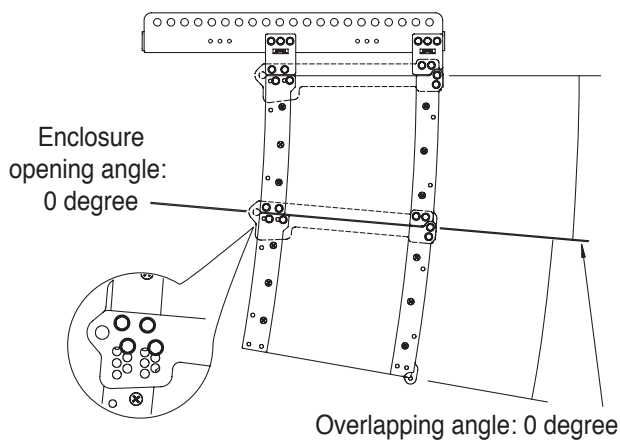
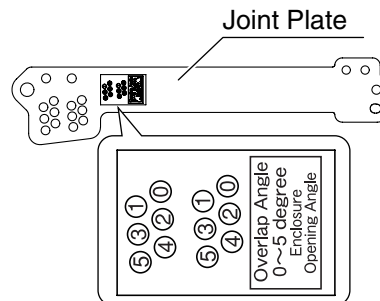


9.4. Joining Enclosures

Use the supplied Joint Plate to join the enclosures by way of the enclosure's flying plate. As shown in the figure, mount a Joint Plate securely to the upper enclosure's lower left side, using 4 supplied bolts with plain washers and spring washers. Similarly, attach another Joint Plate to the lower enclosure's upper right side.



Join the enclosures securely, using 4 supplied bolts with plain washers and spring washers on each side. Because the Joint Plate has holes to be used for setting the overlapping angle, use the holes that provide the desired overlapping angle. The overlapping angle can be set to between 0 and 5 degrees in 1-degree units.

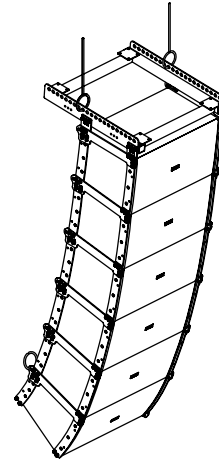


9.5. Notes on Flying

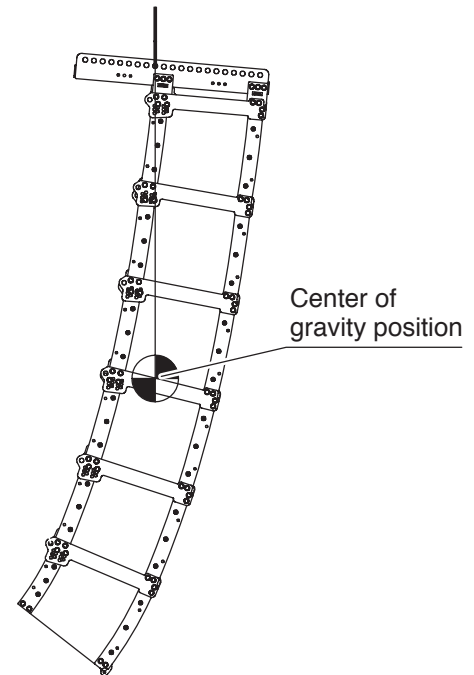
WARNING

- Check to confirm that the suspension wires, belts, construction of the ceiling, etc are strong enough to withstand the speaker load.
- Tighten each joint bolt to 300-350 kg-cm of torque securely. Be sure to use the joint bolts supplied with the speaker and the Rigging Frame.
- Up to 8 Line Array speakers can be arranged in flying configuration per one Rigging Frame. The Subwoofer is counted as 1.5 pieces. No more than 8 speakers can be arranged in flying configuration.

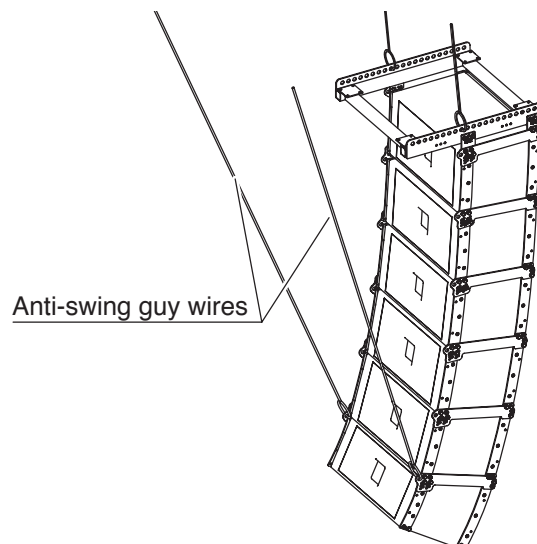
- Fly the assembled system vertically from at least at two points on the left and right sides.



- Use a suspension point that provides the desired downward angle. The downward angle increases as the suspension point is moved backward.



- Add anti-swing guy wires as needed. Take care not to apply the enclosure's weight on the guy wires.



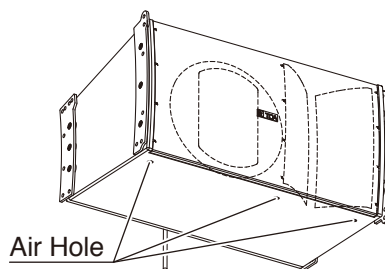
Notes on Under-eave Installation



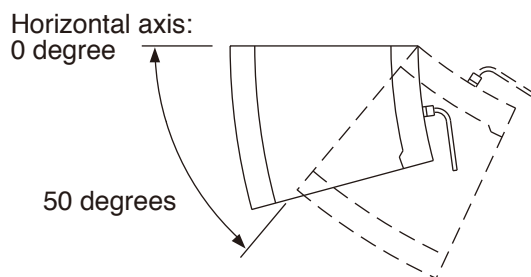
WARNING

• In case of under-eave installation, follow the notes mentioned below.

- Only the SR-A12SWP or SR-A12LWP Line Array speaker can be installed outdoors. There is no Subwoofer available to be installed outdoors.
- When installing the SR-A12SWP or SR-A12LWP outdoors, be sure to mount it under eaves wherever possible to prevent direct exposure to rain and wind. Failure to follow this instruction could cause the speaker to exceed its capabilities as a splash-proof speaker, potentially leading to malfunction.
- Install the speaker so that its air hole is positioned downward, causing the horn face to the right as shown below.



- The installation angle of the speaker's top panel must be between 0 degree from the horizontal axis and up to 50 degrees downward.

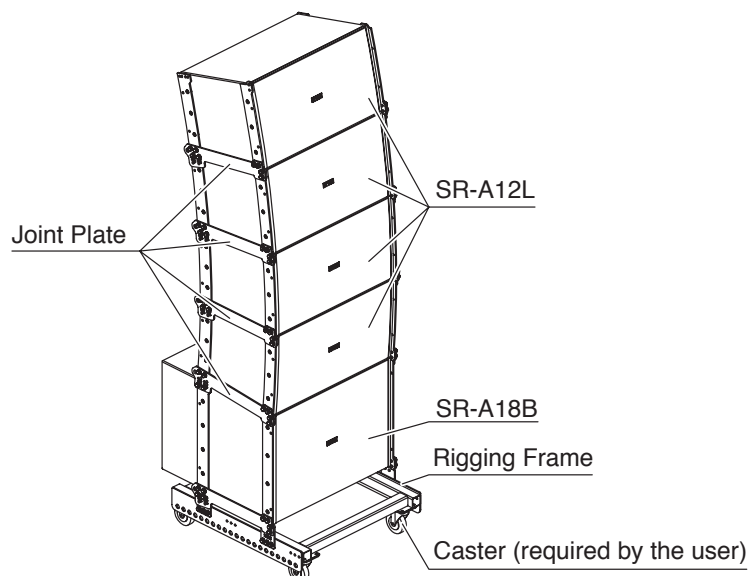


- Use the SR-RF12WP Rigging Frame.
- Never suspend the SR-RF12WP Rigging Frame with wires. Be sure to fix it securely to the constructions with mounting hardware.
- Inspect the speaker periodically.

10. STACKING

10.1. General Description

Line Array speakers can be stacked using the SR-RF12 Rigging Frame. Up to 5.5 speakers can be stacked, counting each Line Array speaker as 1 piece and each SR-A18B Subwoofer as 1.5 pieces. Shown below is a basic stacked system. Note that casters must be prepared separately.

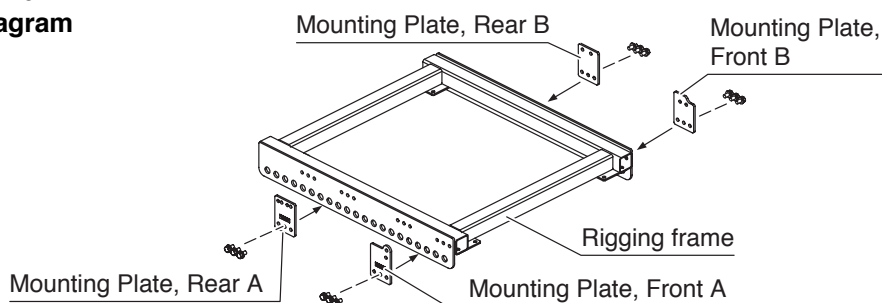


This stacking system is made up of four SR-A12L speakers, and one SR-A18B speaker. The directivity characteristic is 20 degrees vertically and 90 degrees horizontally. The overlapping angles are all set at 0 degree.

10.2. SR-RF12 Rigging Frame assembly

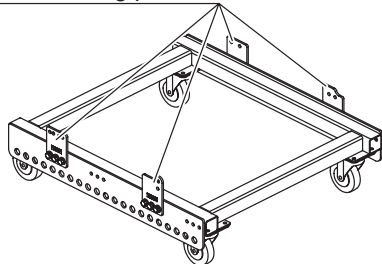
Select the positions of the mounting plates and assemble keeping the stacked system's center of gravity in mind. Tighten 3 supplied bolts with plain washers and spring washers securely to fix each Mounting Plate to the rigging frame.

Assembly diagram



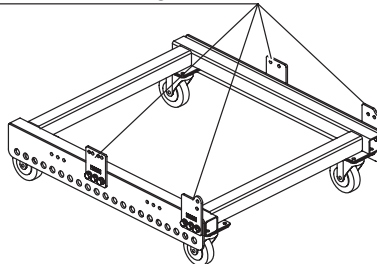
When attaching the Mounting Plates to the center positions

Mounting Plate attaching position



When attaching the Mounting Plates forward positions

Mounting Plate attaching position



Attach the casters, of which specifications are as follows, as the Rigging Frame's leg. Casters and caster mounting bolts are required by users.

Caster Specification

Wheel size: 100 mm or more

Top plate overall size: 95 mm x 95 mm

Loaded mass: Total mass (mass of rigging frame + mass of speaker) x 50% or more per caster

With stopper

Bolt hole spacing: 71 mm x 71 mm

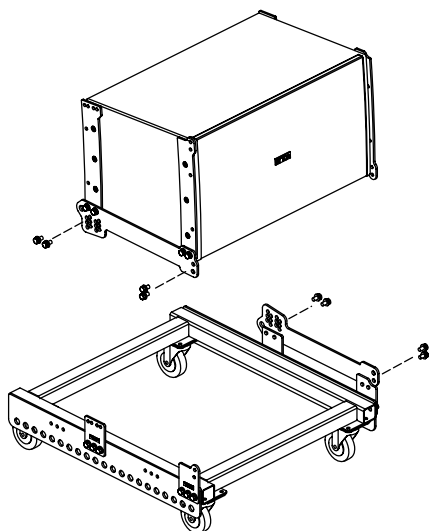
Attaching bolt size: M10

10.3. Mounting the Enclosure to the Rigging Frame

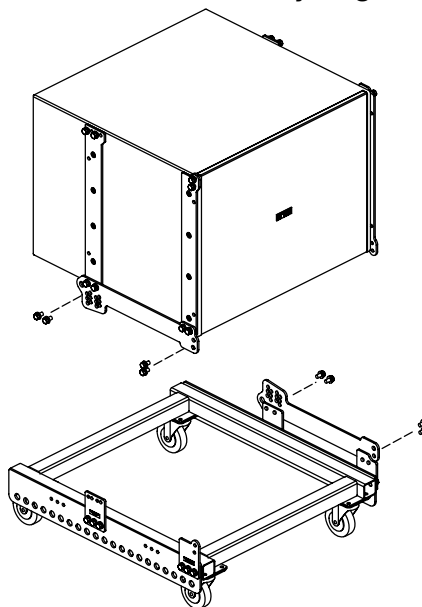
Flying Plates are mounted to the front and rear of the enclosure's sides. Follow the procedures below to mount the enclosure to the Rigging Frame, as shown in the assembly diagrams.

Fix a supplied Joint Plate securely to the right side of the Rigging Frame, and another Joint Plate to the left side of the enclosure, each using 4 supplied bolts with plain washers and spring washers. Before securing the Joint Plate, determine whether the enclosure's horn will face right or left. (This is not required for the SR-A18B Subwoofer). When stacking the subwoofer, install the system so that the subwoofer is positioned at the bottom (directly above the Rigging Frame).

High box assembly diagram

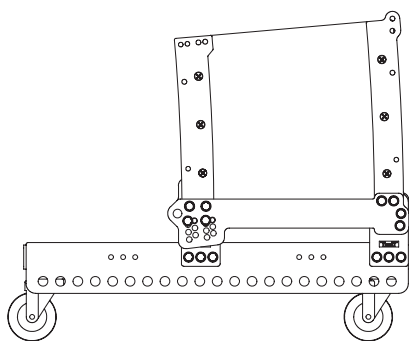


Subwoofer assembly diagram

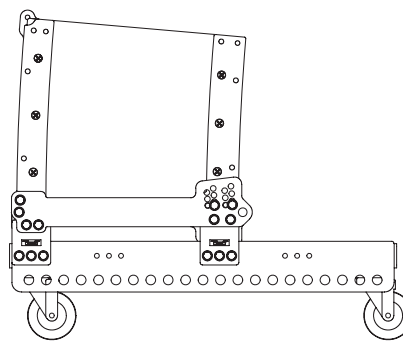


Join the enclosure to the Rigging Frame securely, using 4 supplied bolts with plain washers and spring washers on each side (see the assembly diagrams below). For selecting holes in the Joint Plate to be used, refer to the section "10-6 Tilting the enclosure downward" described later .

High box finished assembly diagram

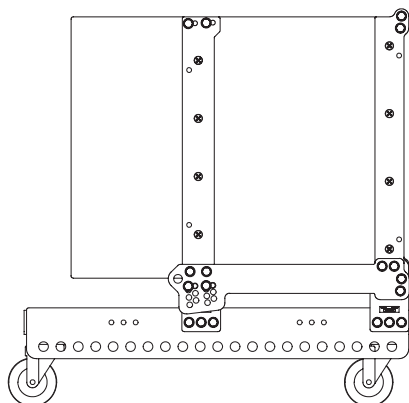


(Left side)

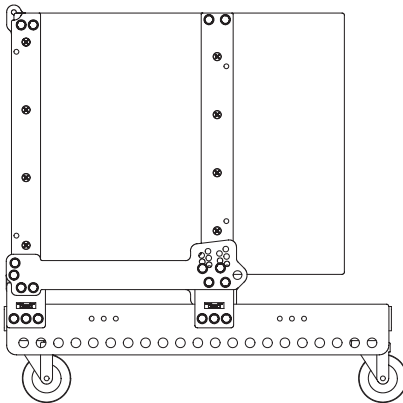


(Right side)

Subwoofer finished assembly diagram



(Left side)



(Right side)

10.4. Joining Enclosures

For joining enclosures, refer to “9 Flying, 9-4. Joining Enclosures”.

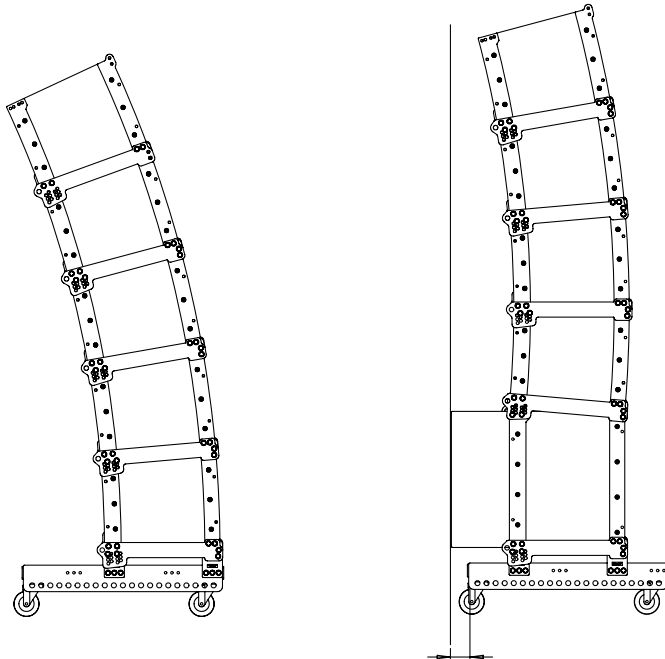
10.5. Notes on Stacking

- Prepare casters and caster mounting bolts separately, as the Rigging Frame's leg.
- When stacked, the Line Array speaker's front or rear deviation from the Rigging Frame must be within 10cm. Also, whenever possible, select mounting plate positions that allow the system's center of gravity to be situated near the center of the Rigging Frame.

WARNING

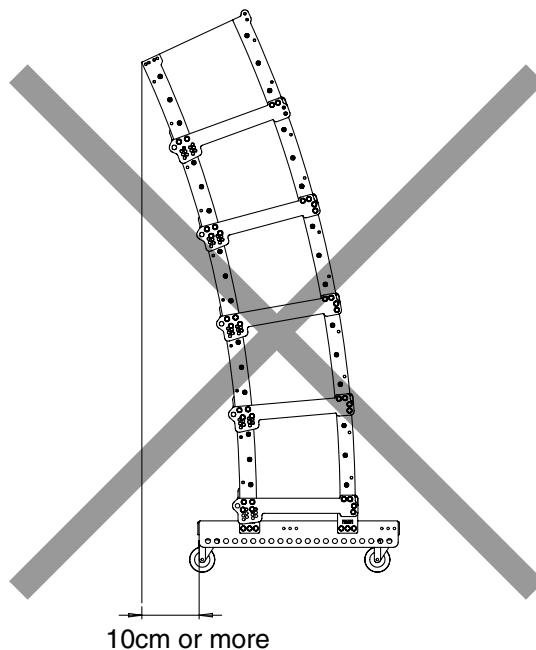
- Tighten each joint bolt to 300-350 kg-cm of torque securely. Be sure to use the bolts supplied with the speaker and the Rigging Frame.
- Up to 5.5 speakers can be stacked, counting each Line Array speaker as 1 piece and each SR-A18B Subwoofer as 1.5 pieces. No more than 5.5 pieces can be stacked.

Typical stacking example



The Line Array speaker's front or rear deviation from the Rigging Frame must be within 10cm.

Forbidden stacking example

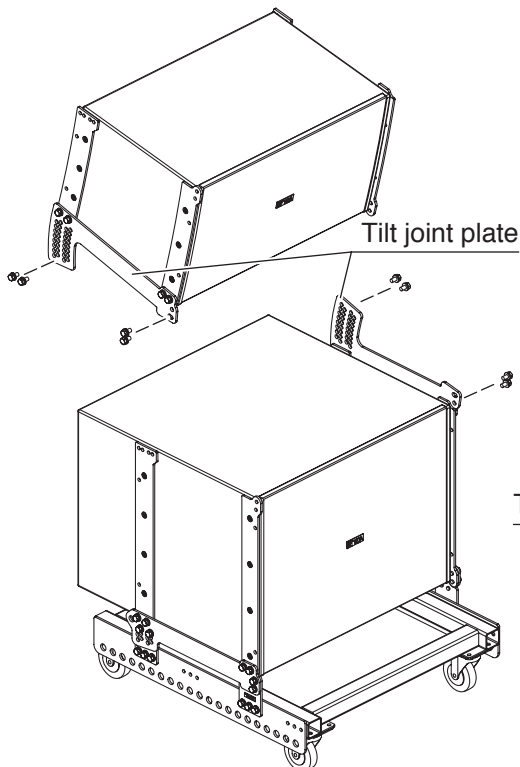


10.6. Tilting the Enclosure Downward

The lower Line Array speaker, excluding the subwoofer, can be tilted downward with the addition of SR-TP12 Tilt Joint Plates. SR-TP12 Tilt Joint Plates make it possible to set wider angles than can be achieved using the supplied Joint Plates. Replace the lowermost Line Array speaker's Joint Plates with the Tilt Joint Plates, then assemble the system.

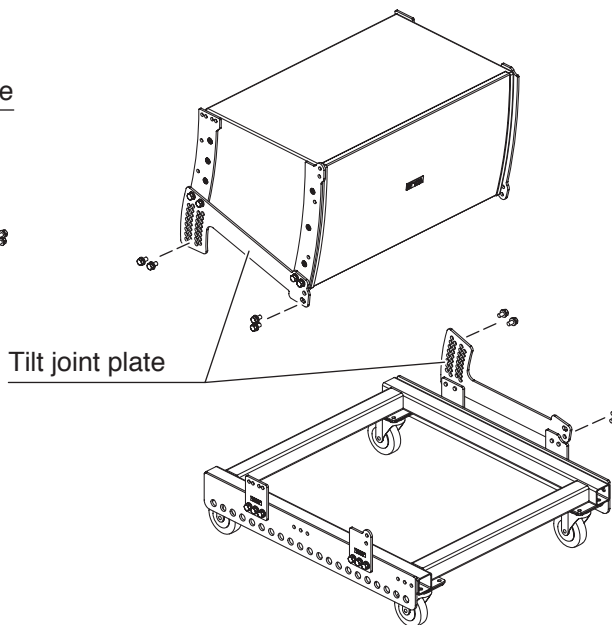
Joined view with sub-woofer

Tilt angle (Vertical facing angle) can be adjusted in the range of 0 degree to 15 degrees.



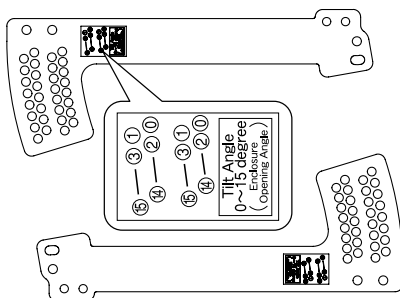
Joined view with rigging frame

Tilt angle (Vertical facing angle) can be adjusted in the range of 10 degrees to 15 degrees.



For assembling, refer to the previous “10-3. Mounting the Enclosure to the Rigging Frame” when joining to the rigging frame, and “9 Flying, 9-4. Joining Enclosures” when joining to the sub-woofer. For precautions when stacking, refer to the previous “10-5, Notes on Stacking”.

SR-TP12 Tilt Joint Plate

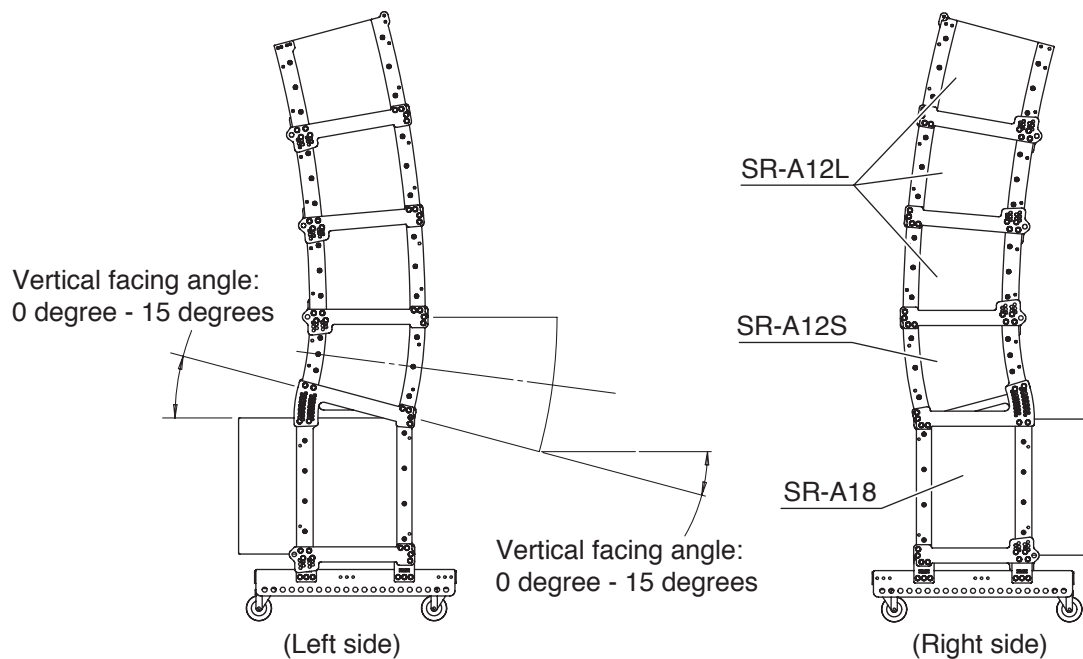


Tilt angle (Vertical facing angle) table

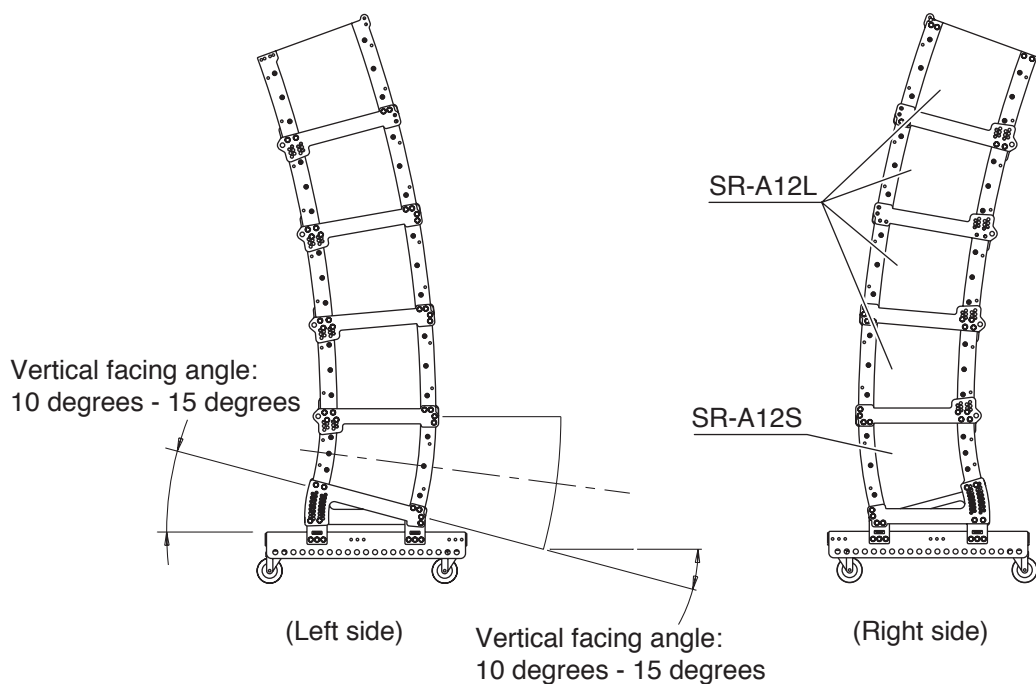
	When using the supplied joint plate	When using the optional tilt joint plate
When joining the joint plate with rigging frame	0 – 5 degrees in 1 degree units	10 degrees – 15 degrees in 1 degree units
When joining the joint plate with sub-woofer	Same as above	0 degree – 15 degrees in 1 degree units

Typical stacking example using the tilt joint plate

SR-A18B x1, SR-A12S x1, SR-A12L x3



SR-A12S x1, SR-A12L x4



WARNING

Do not use the Tilt Joint Plate for joining Line Array speakers (excluding the sub-woofer), for joining the subwoofer to the Rigging Frame, or in flying systems.

11. SPECIFICATIONS

The specifications of products on this instruction manual are available in TOA DATA Library (<https://www.toa-products.com/international/>).

Scan the QR Code at right with your mobile phone camera to access the WEB site and search for this product number.



Note: "QR Code" is a registered trademark of DENSO WAVE INCORPORATED.

Accessories and options

Model number	Accessories	Options
SR-A12L SR-A12S SR-A12LWP SR-A12SWP SR-A18B	Joint plate 2 Joint plate mounting bolt (M10) 16	Digital speaker processor: DP-SP3
SR-RF12 SR-RF12W	Plate mounting bolt (M10) 12	—

Traceability Information for Europe

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