ShowMatch™ DeltaQ™ Array Loudspeakers

Models SM5, SM10, SM20 and SMS118 Subwoofer

Service Manual

Reference Number 730999-SM Rev. 00

CONTENTS

CAUTION: The Bose® ShowMatch Array Module Loudspeakers and SMS118 Subwoofer contain no user-serviceable parts. To prevent warranty infractions, refer servicing to warranty service stations or factory service.

WARRANTY

The Bose ShowMatch Loudspeakers are covered by a 5-year warranty.

Product Description

ShowMatch™ DeltaQ™ Array Loudspeakers

Bose® ShowMatch DeltaQ array loudspeakers maximize versatility with field-changeable waveguides in compact, lightweight enclosures featuring removable side caps that optimize both installation and portable applications. Available in 5°, 10°, and 20°vertical coverage, ShowMatch modules can form DeltaQ arrays, constant curvature, or traditional J-array configurations to maximize versatility for a wide range of audience areas and budgets. Matching subwoofer and rigging accessories available.

Key Features

• **DeltaQ technology** is the next-generation line-array design that allows “Q” (directivity) to vary with each module in the array for more consistent coverage over wide frequency range, reduced array weight and cost, and outstanding vocal clarity

• **Changeable waveguides** – includes both 70°and 100°waveguides to adjust horizontal coverage. Largest-in-class size provides superior coverage control and vocal clarity. Change single panel for asymmetrical patterns. Optional 55°waveguides for SM5.

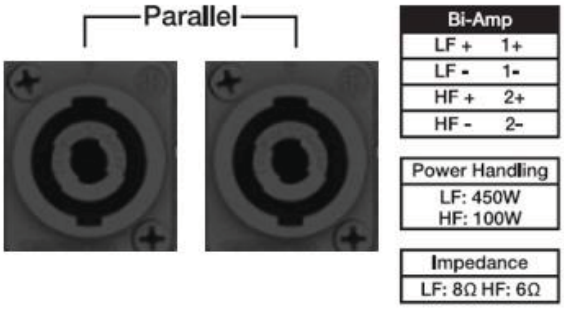
• **Compact, portable enclosure** – Versatile design allows both fixed install and portable applications, from small clubs and houses of worship to the largest performing arts centers and AV productions.

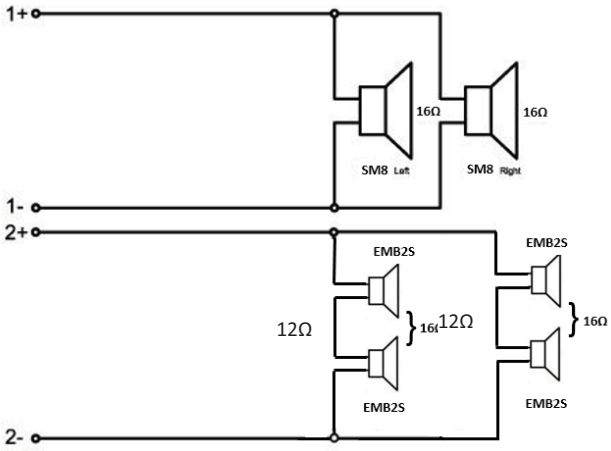
• **Tour-sound output level** – 4x Bose EMB2S compression drivers, improved with more HF output, and 2x 8-inch neodymium high-power woofers allow array output up to 145 dB SPL.

• **3-point “quick pin” rigging** - Fast, easy setup with up to 24 full-range modules and 10:1 safety factor.

• **Removable side rigging-guard/handles** – provides rigging guard and hand holds for portable applications. Easily removed for permanent installs for reduced width and cleaner visual appearance.

• **Rigging overlap angle adjustment** - only on SM5 modules, coverage overlap or “splay” can be adjusted from 0 to 5°, in 1°increments, to provide long throw distance and high SPL.





Product Description

ShowMatch™ SMS118 DeltaQ™ Array Subwoofer

Bose® ShowMatch SMS118 subwoofer is designed primarily to integrate with DeltaQ array loudspeakers and extend low-frequency response down to 29 Hz. The SMS118 enclosure width and integrated rigging allows fast integration in arrays with ShowMatch full-range modules using optional array frames and accessories. The portable-rated Baltic birch enclosure may also be used for ground-stack applications and includes an integrated mounting-pole adapter for use with other mid/high loudspeakers.

Key Features

• **DeltaQ technology** is the next-generation line-array design that allows “Q” (directivity) to vary with each module in the array for more consistent coverage over wide frequency range, reduced array weight and cost, and outstanding vocal clarity

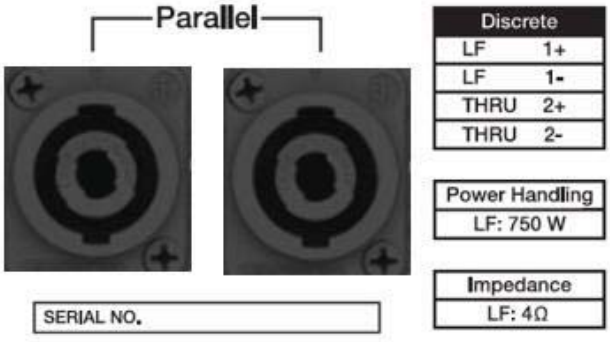
• **ShowMatch DeltaQ companion 1x 18” subwoofer** for low-frequency extension down to 29 Hz with mixed mid/high and subwoofer ShowMatch arrays

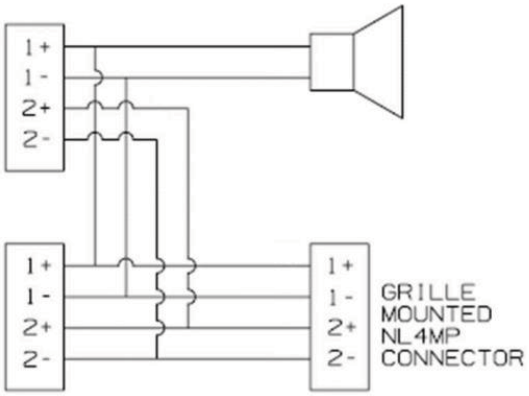
• **Bose LF18 neodymium 18-inch**, high-excursion, 4.5-inch voice coil, transducer provides maximum performance (same transducer as in Bose RMS218)

• **Integrated 4-point “quick pin” rigging** allows arrays of up to 12 subwoofers with 10:1 safety factor

• **Front-grill mounted NL4 input,** plus rear NL4 inputs, allow easy setup for “reversed box” cardioid arrays

• **Integrated pole-cup adapter** allows use with other mid/high loudspeakers and accessory mounting poles.





Specifications

ShowMatch™ SM5 Array Loudspeaker

Single Module Performance				
Frequency Response (+ / -3 dB) (1)	70 – 16,000 Hz			
Frequency Range (-10 dB)	60 – 16,000 Hz			
Recommended High-Pass Protection Filter	70 Hz with minimum 12-dB / octave filter			
Nominal Coverage Pattern	70° H x 5° V (includes waveguides for 100° H x 5° V)			
Recommended Crossover	800 Hz (acoustic; requires active, 2-way crossover in DSP)			
	Bose extended-lifecycle test (4)		AES transducer test (5)	
	Low Frequency	High Frequency	Low Frequency	High Frequency
Power Handling, long-term continuous	450 W	100 W	600 W	125 W
Power Handling, peak	1800 W	400 W	2400 W	500 W
Sensitivity (SPL/ 1W @ 1 m) (2)	94 dB	106 dB	94 dB	106 dB
Calculated Maximum SPL @ 1 m (3)	121 dB	126 dB	122 dB	127 dB
Calculated Maximum SPL @ 1 m, peak	127 dB	132 dB	128 dB	133 dB
Transducers				
Low Frequency	2 x Bose SM8 neodymium 8-inch woofers (3-inch voice coil)			
High Frequency	4 x Bose EMB2S extended-HF neodymium compression driver (2-inch voice coil)			
Nominal Impedance	8 ohms + 6 ohms (LF/HF)			
Physical				
Enclosure Material	Baltic birch plywood			
Finish	Two-part spray polyurethane coating, black			
Grill	16-gauge (1.5 mm) perforated steel, powder-coated finish, black			
Environmental	IPx4			
Connectors	2 x Neutrik® NL4 wired parallel			
Suspension / Mounting	integrated 3-point quick-pin rigging			
Dimensions (H x W x D)	10.6" x31.2" x18.4" (270 x 793 x 467 mm) / W: 29.8" (757 mm) side guards removed			
Net Weight	67.5 lbs (30.6 kg)			
Shipping Weight	75 lbs (34.0 kg)			
Accessories	rigging frames, pullback bar, waveguides, ground stack bracket, short quick pins			

ShowMatch SM10 Array Loudspeaker

Single Module Performance				
Frequency Response (+ / -3 dB) (1)	70 – 16,000 Hz			
Frequency Range (-10 dB)	60 – 16,000 Hz			
Recommended High-Pass Protection Filter	70 Hz with minimum 12-dB / octave filter			
Nominal Coverage Pattern	100° H x 10° V (includes waveguides for 70° H x 10° V)			
Recommended Crossover	800 Hz (acoustic; requires active, 2-way crossover in DSP)			
	Bose extended-lifecycle test (4)		AES transducer test (5)	
	Low Frequency	High Frequency	Low Frequency	High Frequency
Power Handling, long-term continuous	450 W	100 W	600 W	125 W
Power Handling, peak	1800 W	400 W	2400 W	500 W
Sensitivity (SPL/ 1W @ 1 m) (2)	94 dB	105 dB	94 dB	105 dB
Calculated Maximum SPL @ 1 m (3)	121 dB	125 dB	122 dB	126 dB
Calculated Maximum SPL @ 1 m, peak	127 dB	131 dB	128 dB	132 dB
Transducers				
Low Frequency	2 x Bose SM8 neodymium 8-inch woofers (3-inch voice coil)			
High Frequency	4 x Bose EMB2S extended-HF neodymium compression driver (2-inch voice coil)			
Nominal Impedance	8 ohms + 6 ohms (LF/HF)			
Physical				
Enclosure Material	Baltic birch plywood			
Finish	Two-part spray polyurethane coating, black			
Grill	16-gauge (1.5 mm) perforated steel, powder-coated finish, black			
Environmental	IPx4			
Connectors	2 x Neutrik® NL4 wired parallel			
Suspension / Mounting	integrated 3-point "quick pin" rigging			
Dimensions (H x W x D)	11.1" x31.2" x18.3" (282 x 793 x 465 mm) / W: 29.8" (757 mm) side guards removed			
Net Weight	65.5 lbs (29.7 kg)			
Shipping Weight	75 lbs (34.0 kg)			
Accessories	rigging frames, pullback bar, waveguides, ground stack bracket, short quick pins			

Specifications (continued)

ShowMatch™ SM20 Array Loudspeaker

Single Module Performance				
Frequency Response (+ / -3 dB) [1]	70 – 16,000 Hz			
Frequency Range (-10 dB)	60 – 16,000 Hz			
Recommended High-Pass Protection Filter	70 Hz with minimum 12-dB / octave filter			
Nominal Coverage Pattern	100° H x 20° V (includes waveguides for 70° H x 20° V)			
Recommended Crossover	800 Hz (acoustic; requires active, 2-way crossover in DSP)			
	Bose extended-lifecycle test (4)		AES transducer test (5)	
	Low Frequency	High Frequency	Low Frequency	High Frequency
Power Handling, long-term continuous	450 W	100 W	600 W	125 W
Power Handling, peak	1800 W	400 W	2400 W	500 W
Sensitivity (SPL/ 1W @ 1 m) [2]	94 dB	104 dB	94 dB	104 dB
Calculated Maximum SPL @ 1 m [3]	121 dB	124 dB	122 dB	125 dB
Calculated Maximum SPL @ 1 m, peak	127 dB	130 dB	128 dB	131 dB
Transducers				
Low Frequency	2 x Bose SM8 neodymium 8-inch woofers (3-inch voice coil)			
High Frequency	4 x Bose EMB2S extended-HF neodymium compression driver (2-inch voice coil)			
Nominal Impedance	8 ohms + 6 ohms (LF/HF)			
Physical				
Enclosure Material	Baltic birch plywood			
Finish	Two-part spray polyurethane coating, black			
Grill	16-gauge (1.5 mm) perforated steel, powder-coated finish, black			
Environmental	IPx4			
Connectors	2 x Neutrik® NL4 wired parallel			
Suspension / Mounting	integrated 3-point "quick pin" rigging			
Dimensions (H x W x D)	11.9" x31.2" x18.1" (303 x 793 x 461 mm) / W: 29.8" (757 mm) side guards removed			
Net Weight	64.0 lbs (29.0 kg)			
Shipping Weight	75 lbs (34.0 kg)			
Accessories	rigging frames, pullback bar, waveguides, ground stack bracket, short quick pins			

ShowMatch SMS 118 Subwoofer

Single Module Performance				
Frequency Response (+ / -3 dB) [1]	32 – 250 Hz			
Frequency Range (-10 dB)	29 – 300 Hz			
Recommended High-Pass Protection Filter	30 Hz with minimum 12-dB / octave filter			
Nominal Coverage Pattern	omni with cardioid array configuations			
Recommended Crossover	60-100 Hz (requires active crossover in DSP)			
	Bose extended-lifecycle test [4]		AES transducer test [5]	
	Array (free field)	Ground Stack	Array (free field)	Ground Stack
Power Handling, long-term continuous	750 W	750 W	1250 W	1250 W
Power Handling, peak	3000 W	3000 W	5000 W	5000 W
Sensitivity (SPL/ 1W @ 1 m) [2]	94 dB	100 dB	94 dB	100 dB
Calculated Maximum SPL @ 1 m [3]	123 dB	129 dB	125 dB	131 dB
Calculated Maximum SPL @ 1 m, peak	129 dB	135 dB	131 dB	137 dB
Transducers				
Low Frequency	1 x Bose LF18 neodymium 18-inch, high-excursion woofer (4.5-inch voice coil)			
Nominal Impedance	4 ohms			
Physical				
Enclosure Material	Baltic birch plywood			
Finish	Two-part spray polyurethane coating, black			
Grill	16-gauge (1.5 mm) perforated steel, powder-coated finish, black			
Environmental	IPx4			
Connectors	2 x Neutrik® NL4 on rear, 1x NL4 front-grill mounted; all wired parallel			
Suspension / Mounting	4-point "quick pin" rigging; 4x M10 top and 4x M10 bottom inserts; 35mm pole cup			
Dimensions (H x W x D)	21.2" x30.1" x30.5" (540 x 765 x 775 mm) / W: XX side guards removed			
Net Weight	136.5 lbs (61.9 kg)			
Shipping Weight	145 lbs (65.8 kg)			
Accessories	rigging frames, ground stack bracket, short quick pins			

PART LIST NOTES

1. The individual parts located on the PCBs are listed in the Electrical Part List.

2. This part is referenced for informational purposes only. It is not stocked as a repair part. Refer to the next higher assembly for a replacement part.

3. ⚠ This part is critical for safety purposes. Failure to use a substitute replacement with the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards.

PACKAGING PART LIST

ShowMatch™ DeltaQ™ Array Loudspeakers (refer to Figure 1)

Item Number	Description	Part Number	Qty.	Note
1	INSERT, PE FOAM, 5 DEG, SVCE	770357-051S	2	
	INSERT, PE FOAM, 10 DEG, SVCE	770357-101S		
	INSERT, PE FOAM, 20 DEG, SVCE	770357-201S		
2	ASSY, HORN PANEL, 70X5, SVCE	762707-541S	2	
	ASSY, HORN PANEL, 70X10, SVCE	762707-551S		
	ASSY, HORN PANEL, 70X20, SVCE	762707-561S		
3	ASSY, HORN PANEL, 100X5, SVCE	762706-841S	2	
	ASSY, HORN PANEL, 100X10, SVCE	762706-851S		
	ASSY, HORN PANEL, 100X20, SVCE	762706-861S		
4	CARTON, MID-HIGH, SVCE	770356-001S	1	
5	BUBBLE BAG, 260X350X.1MM, SVCE	770358-001S	2	
6	GUIDE, INSTALL, SHOWMATCH MH LDSPKR	773791-0010	1	
7	LABEL, HORN PANEL IDENTIFIER, 70 DEG	-	2	
8	LABEL, HORN PANEL IDENTIFIER, 100 DEG	-	2	
-	POLYBAG, PE, 900X1500X0.04mm, SVCE	770513-001S	1	

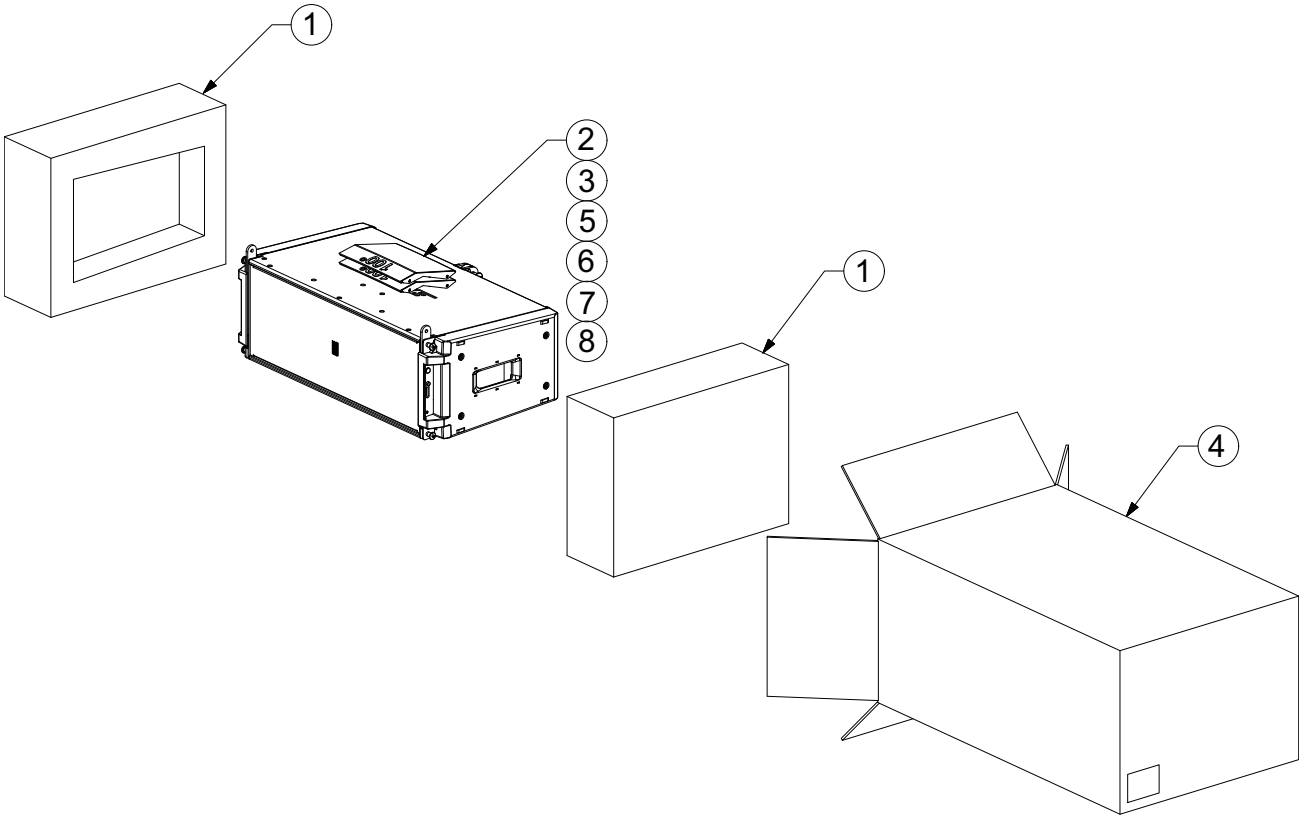


Figure 1. ShowMatch DeltaQ Array Packaging View

PACKAGING PART LIST

ShowMatch™ SMS118 Subwoofer (refer to Figure 2)

Item Number	Description	Part Number	Qty.	Note
1	PACKING, CORNER PAD, SVCE	748849-001S	4	
2	GUIDE, INSTALL, SHOWMATCH SUB LDSPKR	773792-0010	1	
3	PACKING, TOP / BOTTOM PAD, SVCE	748850-001S	2	
4	PACKING, FOAM INSERT, SVCE	769292-001S	2	
5	CARTON, SUBWOOFER, SVCE	748843-001S	1	
-	PACKING, POLYBAG, SVCE	748848-001S	1	

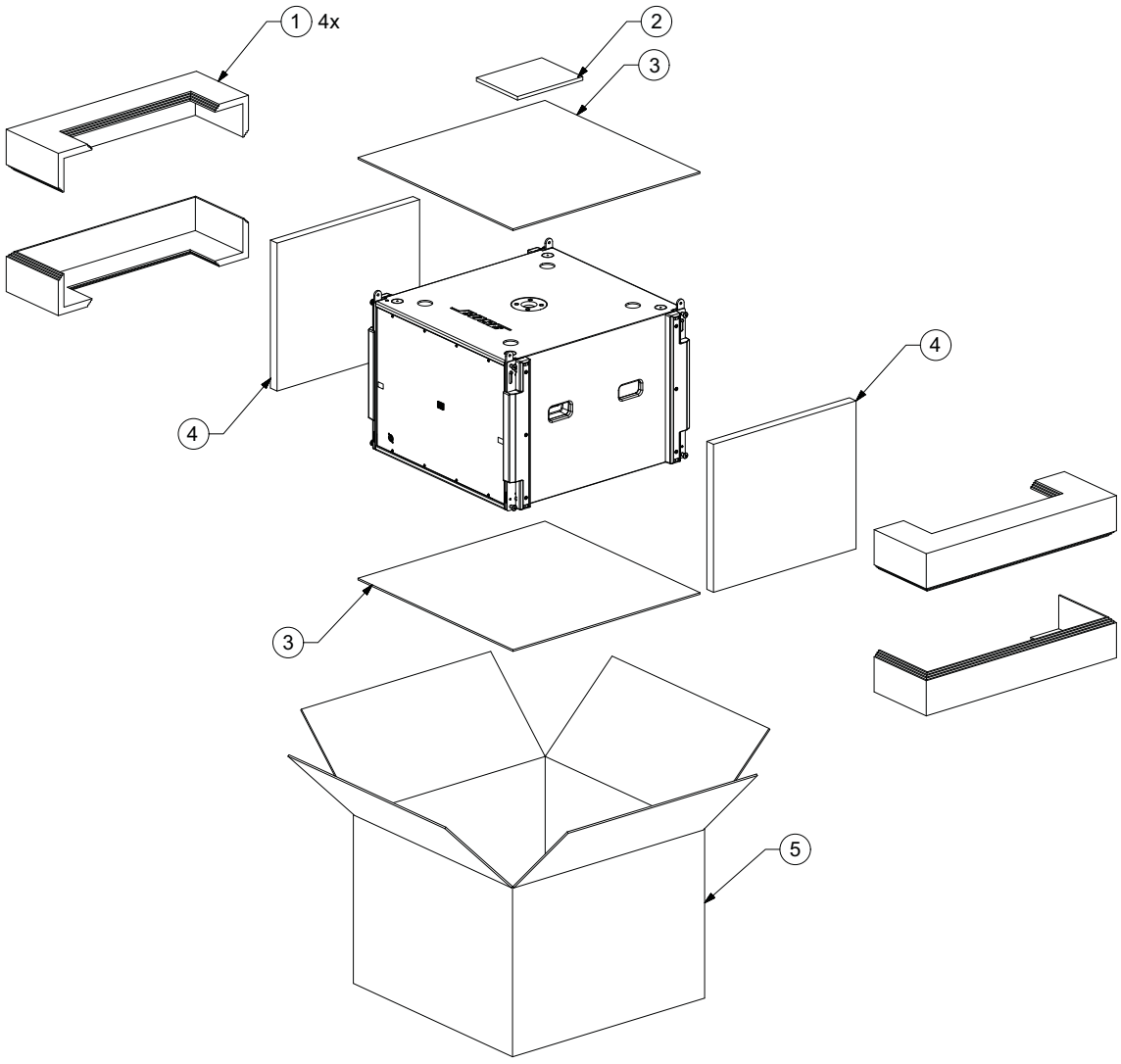


Figure 2. ShowMatch SMS118 Subwoofer Packaging View

MAIN PART LIST

ShowMatch™ Array Module Loudspeakers (refer to Figure 3)

Item Number	Description	Part Number	Qty.	Note
1	ASSY, GRILLE, 5 DEG, SVCE	751195-051S	1	
	ASSY, GRILLE, 10 DEG, SVCE	751195-101S		
	ASSY, GRILLE, 20 DEG, SVCE	751195-201S		
2	ASSY, HORN PANEL, 70X5, SVCE	762707-541S	2	
	ASSY, HORN PANEL, 70X10, SVCE	762707-551S		
	ASSY, HORN PANEL, 70X20, SVCE	762707-561S		
3	ASSY, HORN PANEL, 100X5, SVCE	762706-841S	2	
	ASSY, HORN PANEL, 100X10, SVCE	762706-851S		
	ASSY, HORN PANEL, 100X20, SVCE	762706-861S		
4	LENS, WOOFER	-	2	
5	SCREW, M5X20, PAN HEAD, CROSS RECESSED DRV	-	48	
6	GASKET, WOOFER LENS, END	-	2	
7	SCREW, M4X15, WOOD, SS, BLK, DACROMET	-	8	
8	GASKET, OUTER, PANEL ADAPTER MOUNT	-	2	
9	PANEL, ADAPTER MOUNT	-	1	
10	GASKET, PANEL ADAPTER MOUNT	-	1	
11	WOOFER, 8 IN. 18 SOUND, SVCE	756151-001S	2	
12	COMPRESSION DRIVER	770438-011S	4	
13	GASKET, ADAPTER, THROAT	-	4	
14	BRACKET, SUPPORT, RIGGING	-	4	
15	SCREW, M4X10, WOOD, SS, BLK, DACROMET	-	4	
16	SCREW, M5X25, FLAT HEAD, HEX DRIVE	-	8	
17	SCREW, M5X10, PAN HEAD, CROSS RECESSED DRV	-	4	
18	ASSY, REAR RIGGING PLATE, RIGHT	-	1	
19	ASSY, LINK W/HNDL, REAR RIG	-	1	
20	HANDLE, LIFTING	-	2	
21	SCREW, BTTN HEAD CAP, M8–1.25X35MM, HEX DRV	-	4	
22	WASHER, LOCK, SPLIT, HIGH COLLAR	-	4	
23	PIN, QUICK RELEASE, 12MM DIA, 38MM, SVCE	754285-001S	2	
24	PIN, CATCH, RIGGING, REAR	-	5	
25	ASSY, REAR RIGGING PLATE, LEFT	-	1	
26	BRACKET, REAR RIGGING, EXT	-	1	
27	ASSY, INPUT/OUTPUT PANEL, 5 DEG, SVCE	752363-011S	1	
	ASSY, INPUT/OUTPUT PANEL, 10 DEG, SVCE	752363-012S	1	
	ASSY, INPUT/OUTPUT PANEL, 20 DEG, SVCE	752363-013S	1	
28	ASSY, RIGGING, FRONT LEFT	-	1	
29	ASSY, RIGGING, FRONT RIGHT	-	1	
30	PIN, QUICK RELEASE, 8MM DIA.,16MM, SVCE	757313-001S	4	
31	ASSY, END CAP, 5 DEG	768863-051S	2	
	ASSY, END CAP, 10 DEG	768863-101S		
	ASSY, END CAP, 20 DEG	768863-201S		
-	GASKET, WOOFER, LENS END	-	2	

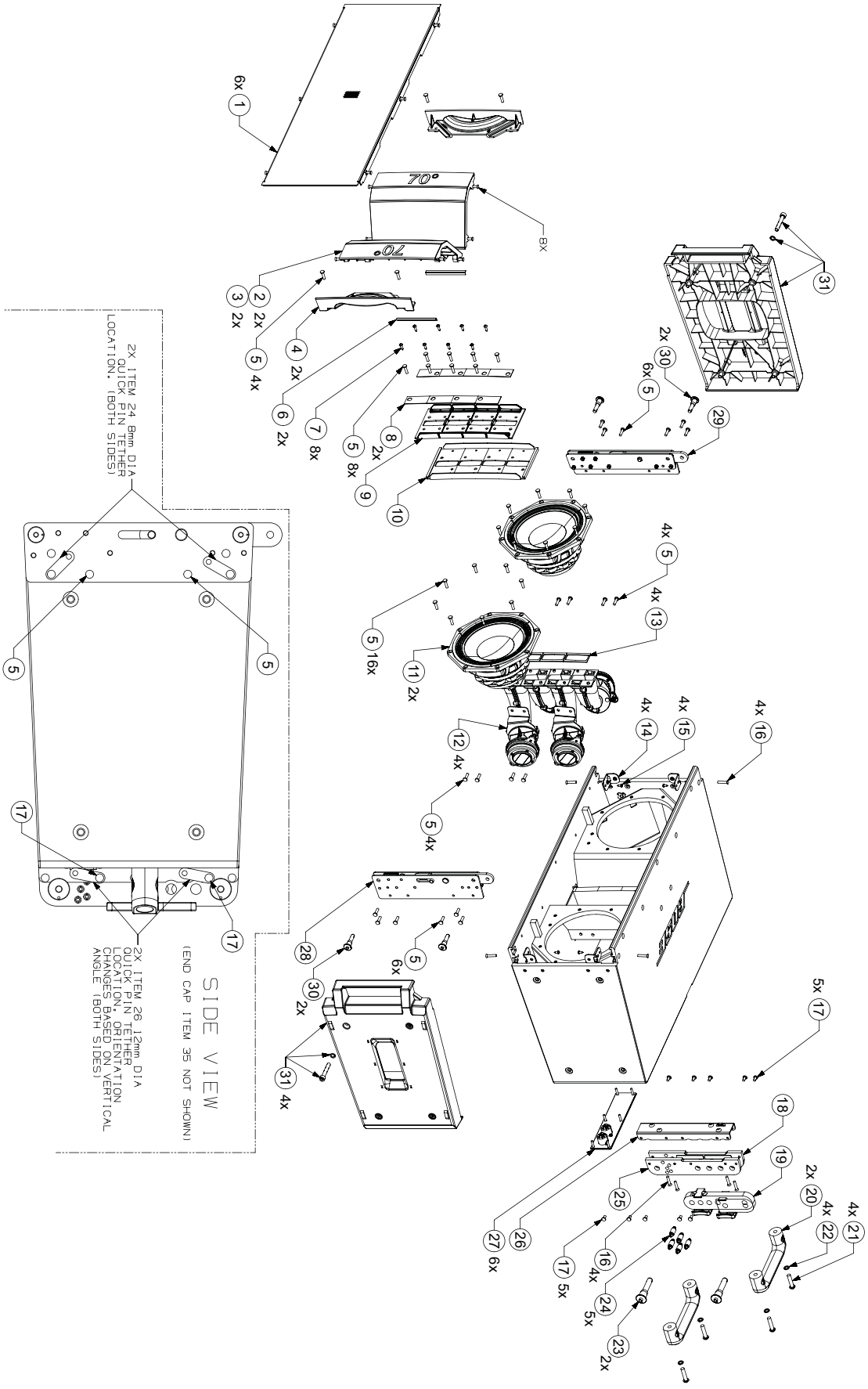


Figure 3. ShowMatch™ Array Module Loudspeakers Exploded View

MAIN PART LIST

ShowMatch™ SMS118 Subwoofer (refer to Figure 4)

Item Number	Description	Part Number	Qty.	Note
1	CONN, SPEAKON, 4 POS, MALE, 240V, 30A, BLK, SVCE	298548	1	
2	GASKET, CONNECTOR, NL4MP, SVCE	751086-011S	1	
3	ASSY, GRILLE, SVCE	757729-011S	1	
4	GASKET, GRILLE	-	2	
5	SCREW, WOOFER, SOCKET HEAD CAP, M6 – 1.0 X 25	-	8	
6	WOOFER, 18 INCH, B&C SPKRS, 18SW115, SVCE	344052-001S	1	
7	SCREW, INSERT, RIGGING, BLK	367239-0110	8	
8	SCREW, M5 X 25, PAN HEAD	-	4	
9	GASKET, GRILLE, PORT WALL	-	2	
10	FOOT, NESTING, SVCE	740899-011S	4	
11	SCREW, FOOT, M6 X 20, PAN HEAD	-	4	
12	SCREW, M5 X 20, PAN HEAD	-	4	
13	SCREW, M5 X 30, PAN HEAD	-	4	
14	ASSY, END CAP, SVCE	768875-012S	2	
15	PIN, QUICK RELEASE, 8MM DIA, 16MM LGTH, SVCE	757313-001S	8	
16	ASSY, RIGGING, LEFT	-	2	
17	ASSY, PANEL, I/O, SUB, SVCE	748626-011S	1	
18	ASSY, RIGGING, RIGHT	-	2	
19	SCREW, M5 X 40, PAN HEAD	-	8	
20	SCREW, M6 X 40, FLAT HEAD	-	4	
21	PLATE, POLE MOUNT, M1551	-	1	
22	GASKET, POLE MOUNT PLATE	-	1	

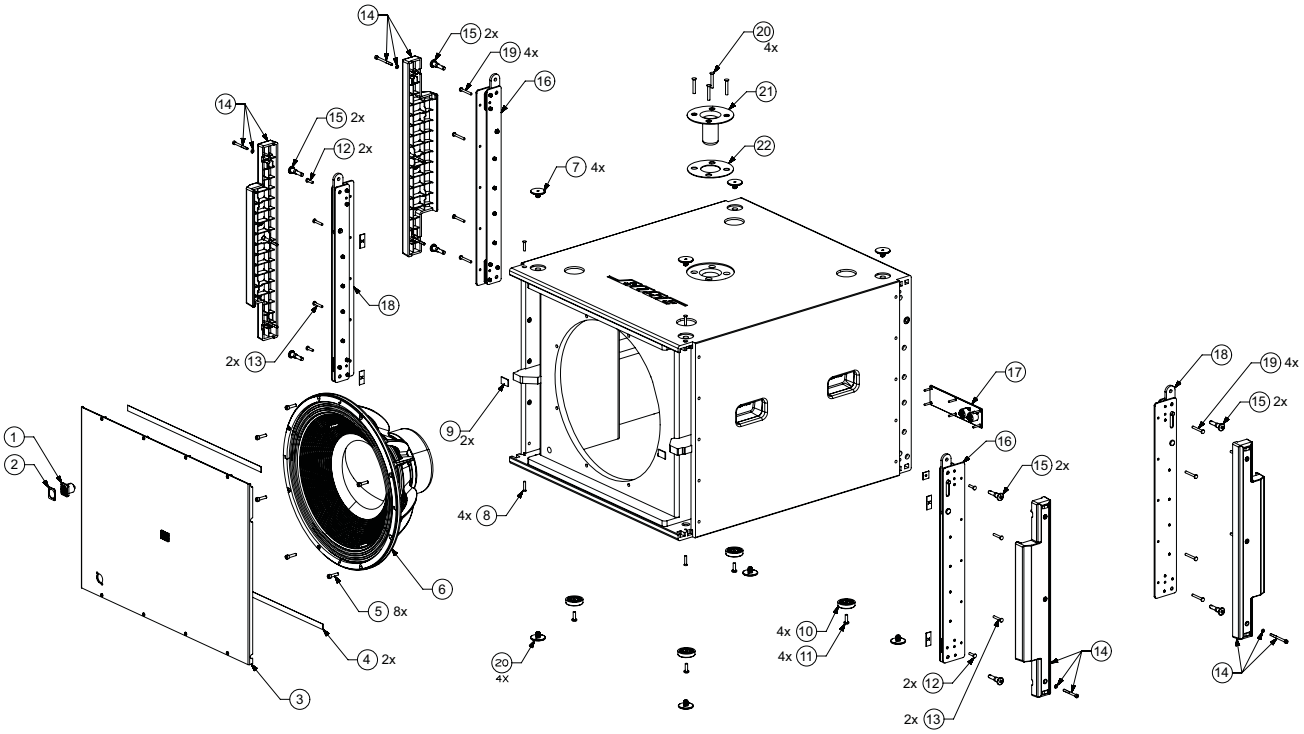


Figure 4. ShowMatch™ SMS118 Subwoofer Exploded View

DISASSEMBLY PROCEDURES

DeltaQ™ Array Loudspeaker

Refer to Figure 3 and the photos at right for these procedures.

CAUTION: During re-assembly, be sure to use blue Loctite on all fasteners. Failure to do so could cause a safety issue or buzz.

1. Grille Removal

1.1 Remove the six screws located on the top and bottom of the enclosure that secure the grille to the enclosure. These screws are located near the front edge of the enclosure. Lift off the grille.

Grille Front View

Grille Screw Locations

2. Horn Panel Removal

2.1 Perform procedure 1.

2.2 Remove the four screws on the outside of the enclosure that secure the horn panel. See photos at right. Lift out the horn panel. **Note:** There are 2 screws on the top and 2 on the bottom of the enclosure.

Horn Panel Location

Horn Panel Screw Locations

DISASSEMBLY PROCEDURES

3. Woofer Lens Removal

3.1 Perform procedure 2.

3.2 Remove the two screws (5) that secure the woofer lens (4) to the enclosure. Lift off the woofer lens.

Woofer Lens Screws

4. Woofer Removal

4.1 Perform procedures 2 and 3 to allow access to the woofer screws.

4.2 Remove the eight screws (5) that secure the woofer to the enclosure.

4.3 Lift out the woofer (11). Make a note of the wiring configuration and disconnect the two Faston connections to the woofer.

Woofer Screw Locations

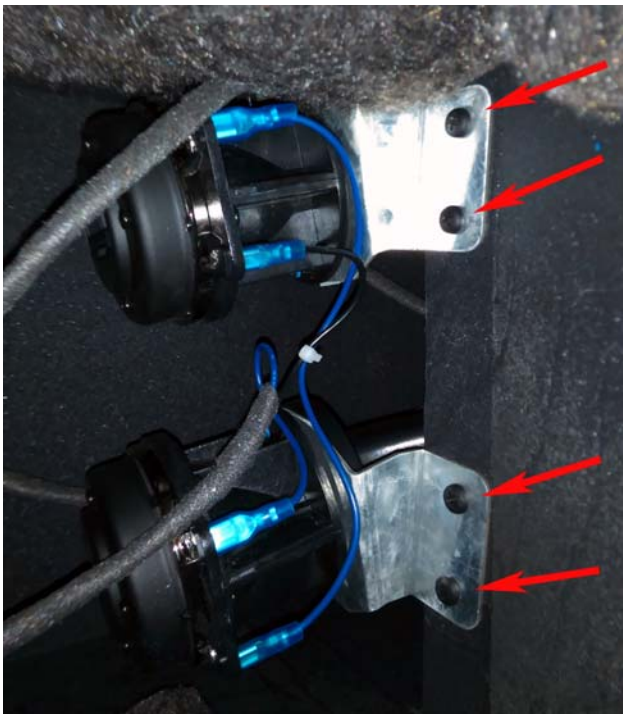
DISASSEMBLY PROCEDURES

5. Compression Driver Removal

5.1 Perform procedure 4 to remove the woofers.

Notes:
• It is necessary to remove at least one of the woofers in order to gain access to the compression driver/waveguide subassemblies.
• Each compression driver is mounted to its own waveguide. The waveguide/compression driver subassemblies are each removable separately.

5.2 Remove the two screws that secure the compression driver/waveguide subassembly you wish to remove to the inner wall of the enclosure. See photo at right.



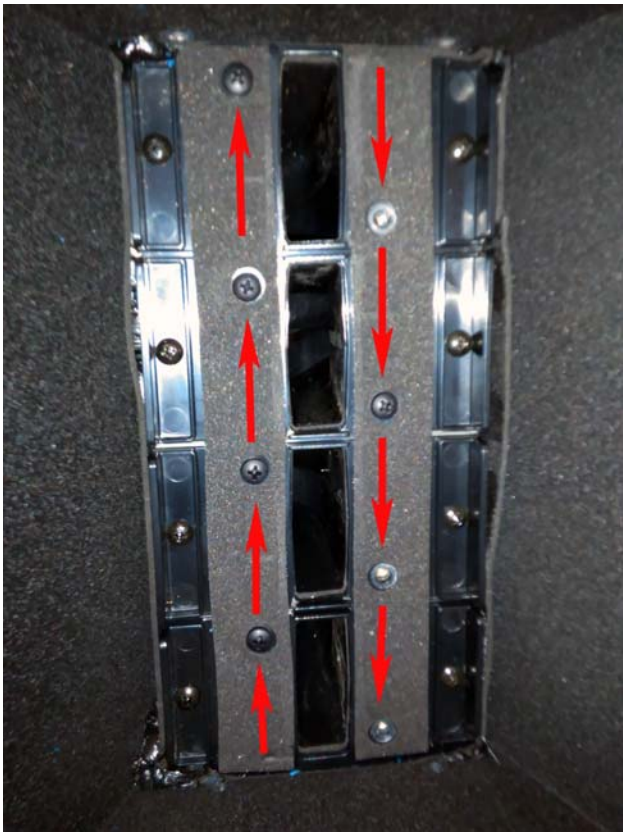
Compression Driver Screw Locations

5.3 Remove the two screws on the front of the enclosure that secure the waveguide for the compression driver that you wish to remove. These screws will be diagonally across from each other. Be sure to support the weight of the subassembly when removing the final screw.

5.4 Once the screws are removed, rotate the compression driver/waveguide subassembly out of the enclosure through the woofer opening.

5.5 Disconnect the two Faston connections from the compression driver.

5.6 Remove the two screws that secure the compression driver to the waveguide. Lift off the compression driver. Be sure to retain the screws and other hardware for re-use.



Waveguide Screw Locations

DISASSEMBLY PROCEDURES

6. Input/Output Panel Removal

6.1 Remove the six screws that secure the I/O panel to the enclosure. Lift off the I/O panel.

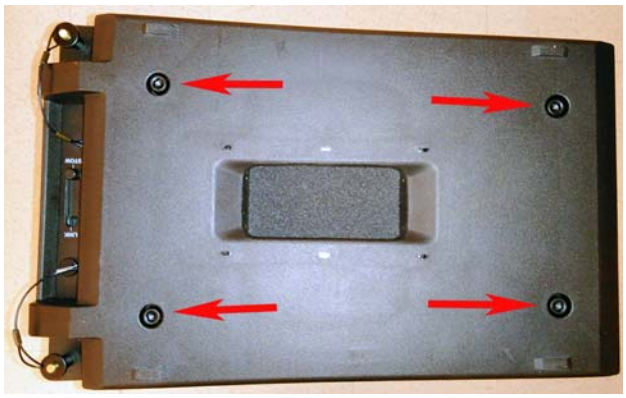
6.2 Make a note of the wiring configuration and disconnect the wiring harness from the I/O panel.

Input/Output Panel Screw Locations

7. End Cap Removal

7.1 Remove the four hex head cap screws that secure the end cap (31) to the enclosure. Lift off the end cap.
Re-assembly Note: When re-installing end caps, torque screws to 5.0 +/- 0.25N-m (43 +/- 2 in-lbs).

CAUTION: The Front Rigging Assemblies (28, 29) and Rear Rigging Sub-assemblies are not removable due to safety concerns. Do not attempt to remove them from the enclosure.



Endcap Screw Locations

DISASSEMBLY PROCEDURES

SMS118 Subwoofer

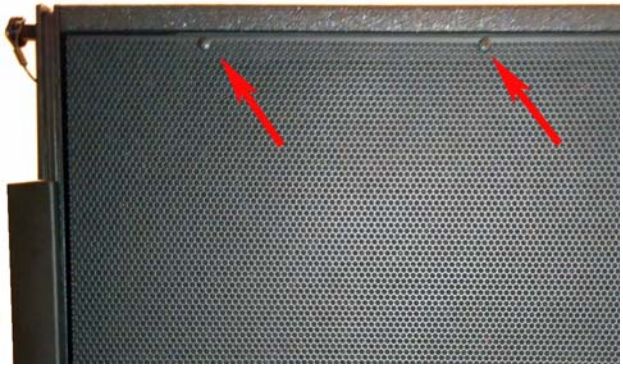
Refer to Figure 4 for the following procedures.

CAUTION: During re-assembly, be sure to use blue Loctite on all fasteners. Failure to do so could cause a safety issue or buzz.

The screws used to secure the grille are wood screws and do not require Loctite.

1. Grille Removal

1.1 Remove the eight screws that secure the grille to the enclosure. Lift off the grille.
Note: Take care to not damage the front Neutrik® connector or wiring harness during removal.

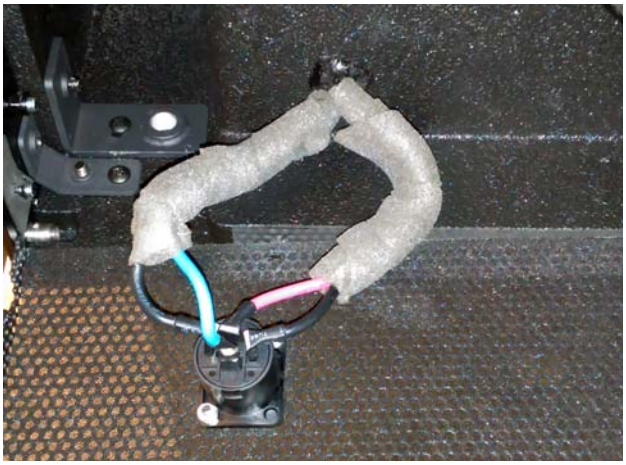


Waveguide Screw Locations

2. Front Neutrik Connector Removal

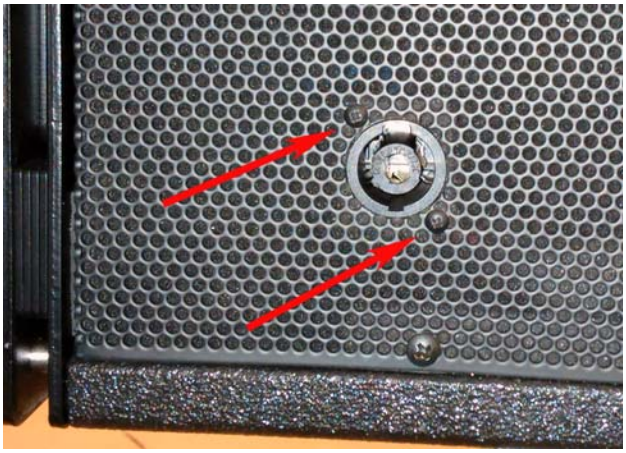
2.1 Perform procedure 1 to remove the grille. Take care to not damage the wiring for the front Neutrik connector.

2.2 Make a note of the wiring configuration and disconnect the Faston connectors from the Neutrik connector.



Front Neutrik Jack Screw Locations

2.3 Remove the two screws that secure the connector to the grille. Lift off the connector. Retain the gasket for re-use.



Front Neutrik Jack Screw Locations

DISASSEMBLY PROCEDURES

3. Woofer Removal

3.1 Perform procedure 1, grille removal.

3.2 Remove the eight screws that secure the woofer to the enclosure. carefully lift out the woofer.

3.3 Disconnect the two Faston connectors from the woofer.

Woofer Screw Locations

4. Input / Output Panel Removal

4.1 Remove the six screws that secure the input panel to the enclosure. Lift off the I/O panel.

4.2 Make a note of the wiring configuration and disconnect the woofer wiring harness from the input panel.

I/O Panel Screw Locations

5. Pole Mount Removal

5.1 Remove the four screws that secure the pole mount to the enclosure. Lift out the pole mount.

Pole Mount Screw Locations

6. End Cap Removal

6.1 Remove the three hex head cap screws that secure the end cap to the rigging assembly. Lift off the end cap.

CAUTION: The rigging assemblies are not removable due to safety concerns. Do not attempt to remove them from the enclosure.

End Cap Screw Locations

7. Foot Removal

7.1 Remove the one screw that secures the foot to the enclosure. Lift off the foot.

TEST PROCEDURES

DeltaQ™ Array Loudspeaker

Note: You may use either jack for the following tests. They are wired in parallel.

1. Low Frequency Rub and Tick Test

1.1 Apply a 30Vrms, 10Hz sine wave to pins 1+ and 1- of the Neutrik® NL4 input jack.

1.2 Listen for any rub, tick, rattle, buzz, thump or any other extraneous noise or any buzzing from the grille.

PASS any speaker that has no rubbing or ticking noise and no grille buzzing.

2. Low Frequency Sweep Test

2.1 Apply a 30Vrms, 10Hz sine wave to pins 1+ and 1- of the Neutrik NL4 input jack.

2.2 Sweep the input frequency from 10 Hz to 2.0 kHz.

PASS any speaker that has no buzz, rattle or any other extraneous sound and where all sound comes out of the low frequency section.

FAIL any speaker with a buzz or any other extraneous noise.

3. Air Leak Test

3.1 Apply a 30Vrms, 70Hz sine wave to pins 1+ and 1- of the Neutrik NL4 input jack.

Listen for air leaks around the input panel and plastic inserts.

PASS any speaker that has no air leaks.

FAIL any speaker that has air leaks.

4. High Frequency Sweep Test

4.1 Apply a 3 Vrms, 1 kHz sine wave to pins 2+ and 2- of the Neutrik NL4 input jack.

4.2 Sweep the input frequency from 1 kHz to 5 kHz.

PASS any speaker that has no buzz, rattle or any other extraneous sound and where all sound comes out of the mid/high-frequency section.

FAIL any speaker with a buzz or any other extraneous noise.

SMS118 Subwoofer

Note: You may use either jack for the following tests. They are wired in parallel.

1. Phase Test

1.1 Observing polarity, apply a DC voltage level of 10V +/- 1 VDC to the 1+ and 1- pins of the Neutrik connector.

1.2 Observe that the woofer cone moves outward when the DC voltage is applied.

2. Rub and Tick Test

2.1 Apply a 20 Vrms, 20 Hz sine wave to the 1+ and 1- pins of the Neutrik input connector.

2.2 Listen carefully for any buzzes, rubs, ticks or other extraneous noises. Fail any speaker with any of these.

3. Sweep Test

3.1 Apply a 20 Vrms, 20 Hz sine wave to the 1+ and 1- pins of the Neutrik input connector.

2.2 Sweep the input frequency from 20 Hz to 300 Hz.

2.3 Listen carefully for any buzzes, rubs, ticks or other extraneous noises.

Service Manual Revision History

Date	Revision Level	Description of Change	Change Driven By	Pages Affected
9/16	00	Document released at revision 00.	Service manual release	All

SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

Bose Corporation
The Mountain
Framingham Massachusetts USA 01701

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http://serviceops.bose.com