

# Panaray<sup>®</sup> LT Weather Resistant Loudspeakers

Models 3202<sup>®</sup> WR, 4402<sup>®</sup> WR, 9402<sup>™</sup> WR,  
9702<sup>®</sup> WR, MB24 WR and MB12 WR



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**CAUTION: The Bose® Panaray LT Weather Resistant (WR) Loudspeakers contain no user-serviceable parts. To prevent warranty infractions, refer servicing to warranty service stations or factory service.**

## WARRANTY INFORMATION

The Bose Panaray LT Model 3202, 4402, 9402, 9702, MB24 and MB12 Weather Resistant Loudspeakers are covered by a 5-year transferable limited warranty.

### PROPRIETARY INFORMATION

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF BOSE CORPORATION WHICH IS BEING FURNISHED ONLY FOR THE PURPOSE OF SERVICING THE IDENTIFIED BOSE PRODUCT BY AN AUTHORIZED BOSE SERVICE CENTER OR OWNER OF THE BOSE PRODUCT, AND SHALL NOT BE REPRODUCED OR USED FOR ANY OTHER PURPOSE.

# SPECIFICATIONS

## MECHANICAL

### External dimensions, single speaker

9702® WR:	42.2" H x 22.5" W x 18.0" D (1072 x 572 x 368 mm)
9402™ WR:	34.6" H x 22.5" W x 23.7" D (879 x 572 x 604 mm)
4402® WR:	34.0" H x 18.5" W x 24.0" D (884 x 471 x 610 mm)
3202® WR:	42.2" H x 22.5" W x 35.9" D (1072 x 573 x 913 mm)
MB24 WR:	28.1" H x 20.0" W x 25.5" D (712 x 508 x 647 mm)
MB12 WR:	14.5" H x 20.0" W x 25.5" D (368x 508 x 647 mm)

### System weight, unpackaged single speaker

9702 WR:	95.5 lbs (43 kg)
9402 WR:	113.0 lbs (51 kg)
4402 WR:	111.1 lbs (50 kg)
3202 WR:	194.0 lbs (88 kg)
MB24 WR:	129.0 lbs (59 kg)
MB12 WR:	65.0 lbs (29.5 kg)

### System weight, packaged single speaker

9702 WR:	123.5 lbs (56 kg)
9402 WR:	145.5 lbs (66 kg)
4402 WR:	141.1 lbs (64 kg)
3202 WR:	240.7 lbs (109 kg)
MB24 WR:	147.0 lbs (67 kg)
MB12 WR:	74 lbs (34 kg)

## ELECTRICAL

### Driver Complement

9702 WR:	Mid Freq: two V2 drivers High Freq: one 1.4" compression driver
9402 WR:	Mid Freq: two V2 drivers High Freq: one 1.4" compression driver
4402 WR:	Mid Freq: two V2 drivers High Freq: one 1.4" compression driver
3202 WR:	Mid Freq: four V2 drivers High Freq: one 1.4" compression driver
MB24 WR:	Two 12" low frequency drivers
MB12 WR:	One 12" low frequency driver

### Sensitivity (dB SPL, 1Watt at 1 meter)

9702 WR:	Mid 105, High 104, Passive 104
9402 WR:	Mid 106, High 106, Passive 106
4402 WR:	Mid 106, High 107, Passive 108
3202 WR:	Mid 111, High 107, Passive 110
MB24 WR:	Parallel Mode 94, Discrete Mode 91 (per driver)
MB12 WR:	Discrete Mode 91

# SPECIFICATIONS

## ELECTRICAL (Continued)

### Maximum sound pressure level (dB SPL) - pink noise per IEC 268-5

9702 <sup>®</sup> WR:	Mid 127, High 123, Passive 126
9402 <sup>™</sup> WR:	Mid 128, High 125, Passive 128
4402 <sup>®</sup> WR:	Mid 126, High 128, Passive 130
3202 <sup>®</sup> WR:	Mid 132, High 130, Passive 135
MB24 WR:	Parallel Mode 123, Discrete Mode 123
MB12 WR:	Discrete Mode 117

### Frequency Range

9702 WR:	180Hz - 16kHz ( $\pm$ 3dB)
9402 WR:	180Hz - 16kHz ( $\pm$ 3dB)
4402 WR:	180Hz - 16kHz ( $\pm$ 3dB)
3202 WR:	200Hz - 16kHz ( $\pm$ 3dB)
MB24 WR:	40Hz - 250Hz ( $\pm$ 3dB)
MB12 WR:	40Hz - 250Hz ( $\pm$ 3dB)

### Loudspeaker Impedance

Compression Driver:	8 Ohms
Vee-Two:	2 Vee-Two's are wired in series for 8 Ohms
MB24 WR Bass Drivers:	8 Ohms each
MB12 WR Bass Driver:	8 Ohms

### Maximum Power Handling, Watts

9702 WR:	Bi-amped: Mid 140, High 75	Passive: 140
9402 WR:	Bi-amped: Mid 140, High 75	Passive: 140
4402 WR:	Bi-amped: Mid 140, High 75	Passive: 140
3202 WR:	Bi-amped: Mid 280, High 75	Passive: 280
	Bi-amped / Dual Midrange: Mid1 140; Mid2 140; High 75	
MB24 WR:	Parallel Mode 800, Discrete Mode 400 each driver	
MB12 WR:	Discrete Mode 400	

# PRODUCT DESCRIPTION


The Bose® Panaray® LT Weather Resistant (WR) Loudspeakers are designed to provide quality sound in venues where speaker-to-listener distance, room reverberation time, ambient noise and high SPL requirements are key factors. Typical installations include performing arts facilities, theaters, auditoriums, houses of worship, stadiums and arenas.

The Panaray LT WR loudspeakers are a direct replacement for the Panaray LT Series III loudspeaker. They are designed to be used in both indoor and under cover or outdoor environments. The Panaray LT WR loudspeaker does not meet the requirements for permanent outdoor installation.

The Panaray LT WR loudspeakers utilize a high frequency compression driver and two or more V2 assemblies for midrange. The MB24 bass module contains two 12 inch bass drivers. The MB12 bass module contains one 12 bass driver.

The Panaray LT WR loudspeakers come standard with a perforated metal grille and are available in both black and white versions.

## PART LIST NOTES

1. This part is not normally available from Customer Service. Approval from the Field Service Manager is required before ordering.
2. The individual parts located on the PCBs are listed in the Electrical Part List.
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.
4. 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.

# PACKING LIST

Panaray® LT 3202® WR Loudspeaker

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty	Note
1	PALLET (SINGLE USE)	-	B-TP-05	1	4
2	CARTON, LT3202-WR	322846-001S	B-ZXW-5MG49	1	4
3	PAPER COVER	322842-001S	B-ZZMW-5MG28	2	4
4	PP FOAM	-	B-ZZ-03	2	4
5	TRIANGLE PAPER	322843-001S	B-ZBW-5MG06	2	4
6	PP FOAM, MIDDLE	322844-001S	B-ZZM-04	1	4
7	SPEAKER CABINET	REF	-	1	4
8	PE BAG, 1850x1430x0.04mm	323115-001S	B-BZD-11	1	4
9	TRIANGLE PAPER	322845-001S	B-ZBW-5MG07	2	4
10	PE BAG, 310x220x0.04MM	-	1-BZD-12	1	4
11	OWNER'S GUIDE	323176-001S	-	1	4

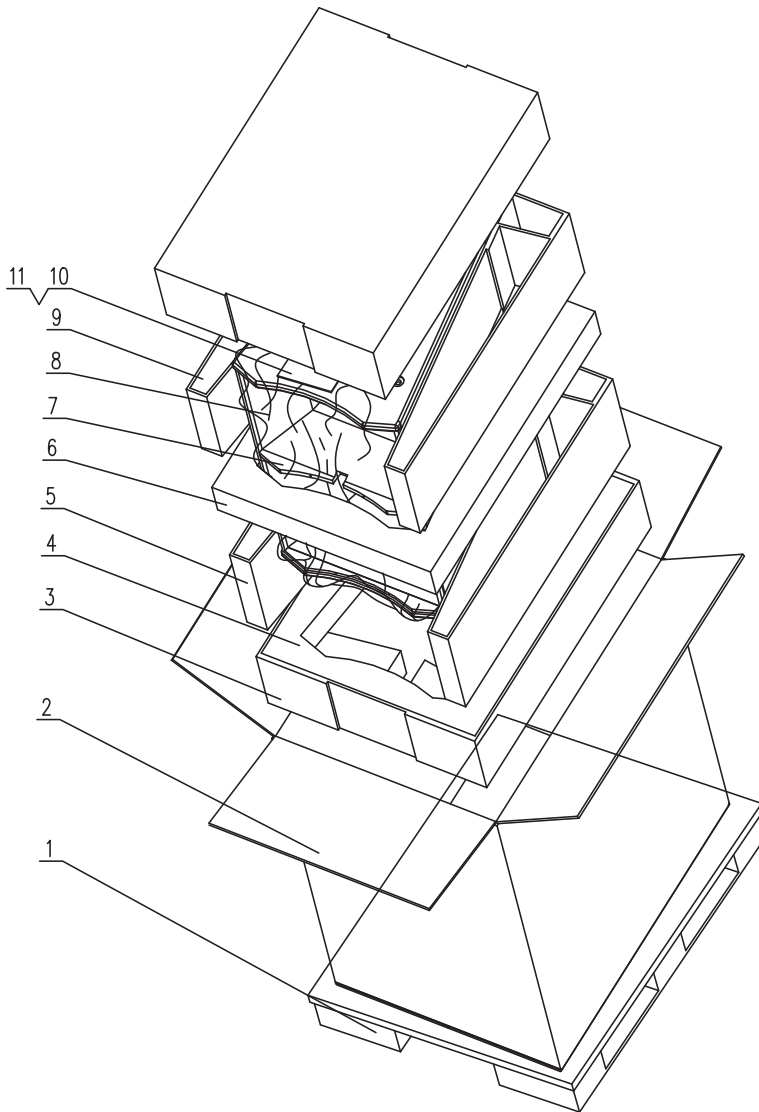


Figure 1. Panaray LT 3202 WR Loudspeaker Packaging View

# PACKING LIST

Panaray® LT 4402® WR Loudspeaker

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty	Note
1	PALLET (SINGLE USE)	-	B-TP-04	1	4
2	CARTON, LT4402-WR	322852-001S	B-ZXW-5MG53	1	4
3	PAPER COVER, LT4402	322847-001S	B2-ZZMW-5MG26	2	4
4	PP FOAM	-	B2-ZZMW-5MG23	2	4
5	TRIANGLE PAPER, LT4402	322851-001S	B-ZBW-5MG25	2	4
6	PP FOAM, MIDDLE	322850-001S	B-ZZM-08	1	4
7	SPEAKER CABINET	REF	-	1	4
8	PE BAG, 1600x1130x0.04mm	323116-001S	B-BZD-08	1	4
9	TRIANGLE PAPER	322848-001S	B-ZBW-5MG26	2	4
10	PE BAG, 310x220x0.04MM	-	1-BZD-12	1	4
11	OWNER'S GUIDE	323176-001S	-	1	4

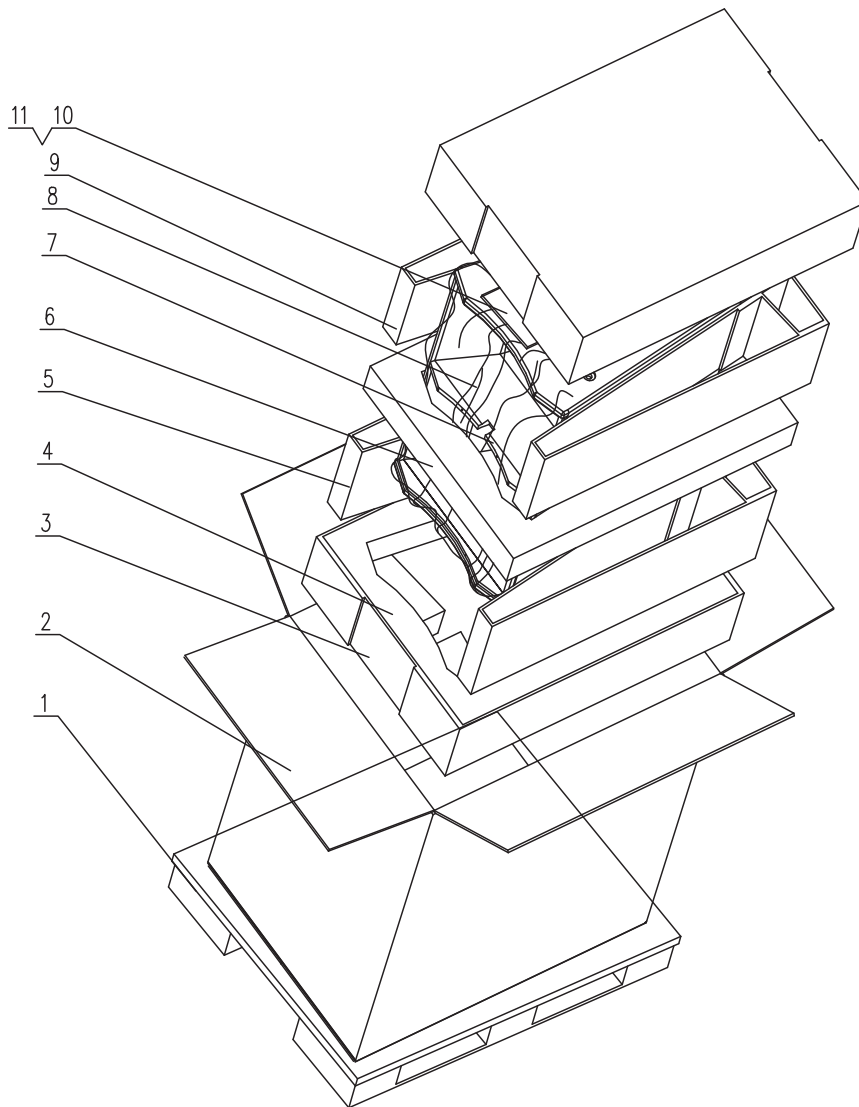


Figure 2. Panaray LT 4402 WR Loudspeaker Packaging View

# PACKING LIST

Panaray® LT 9402™ WR Loudspeaker

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty	Note
1	PALLET (SINGLE USE)	-	B-TP-03	1	4
2	CARTON, LT9402-WR	322856-001S	B-ZXW-5MG54	1	4
3	PAPER COVER, LT9402	322853-001S	B2-ZZMW-5MG27	2	4
4	PP FOAM	-	B2-ZZMW-5MG24	2	4
5	TRIANGLE PAPER, LT9402	322854-001S	B-ZBW-5MG02	2	4
6	PP FOAM, MIDDLE	322855-001S	B-ZZM-10	1	4
7	SPEAKER CABINET	REF	-	1	4
8	PE BAG, 1600x1130x0.04mm	323117-001S	B-BZD-03	1	4
9	TRIANGLE PAPER	322854-001S	B-ZBW-5MG02	2	4
10	PE BAG, 310x220x0.04MM	-	1-BZD-12	1	4
11	OWNER'S GUIDE	323176-001S	-	1	4

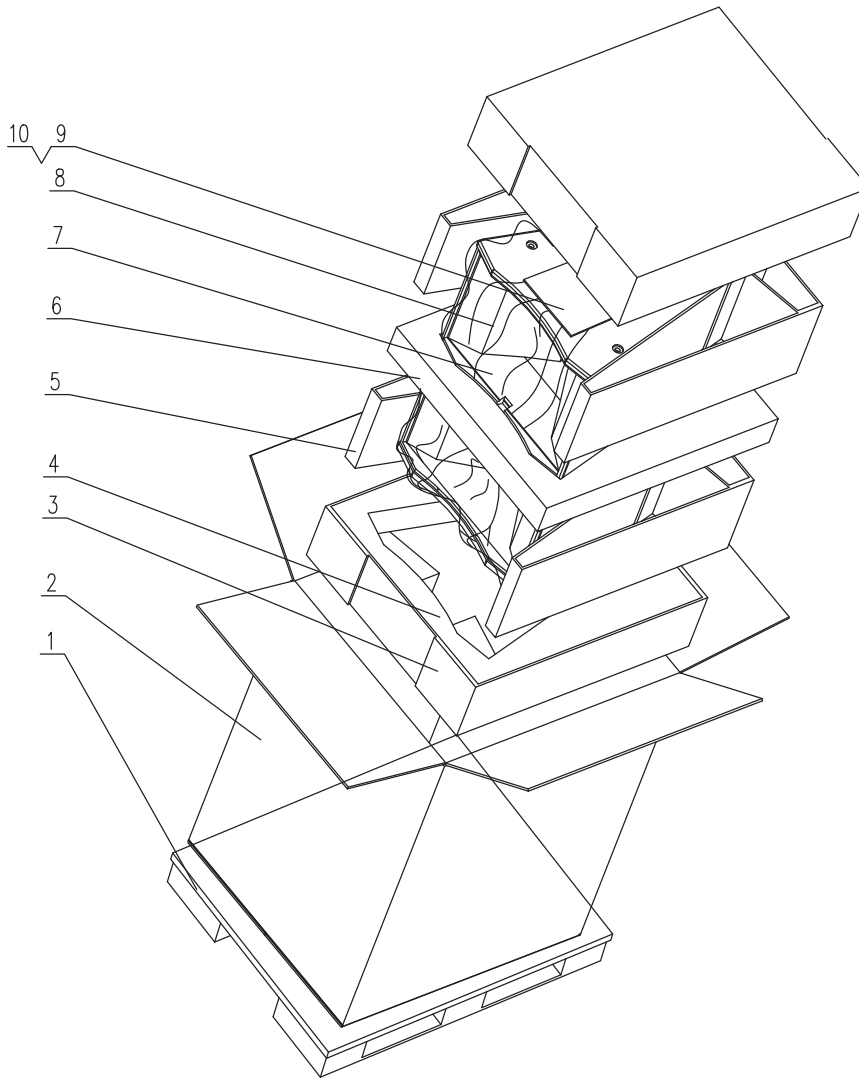


Figure 3. Panaray LT 9402 WR Loudspeaker Packaging View



# PACKING LIST

Panaray® LT 9702® WR Loudspeaker

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty	Note
1	PALLET (SINGLE USE)	-	B-TP-09	1	4
2	CARTON, LT9702-WR	323089-001S	B-ZXW-5MG46	1	4
3	PAPER COVER, LT9702	322857-001S	B2-ZZMW-5MG29	2	4
4	PP FOAM	-	B2-ZZMW-5MG21	2	4
5	TRIANGLE PAPER, LT9702	322858-001S	B-ZBW-5MG22	4	4
6	PP FOAM, MIDDLE	323088-001S	B2-ZZMW-5MG22	1	4
7	SPEAKER CABINET	REF	-	1	4
8	PE BAG, 1500x900x0.04mm	323118-001S	B-BZD-12	1	4
9	PE BAG, 310x220x0.04MM	-	1-BZD-12	1	4
10	OWNER'S GUIDE	323176-001S	-	1	4

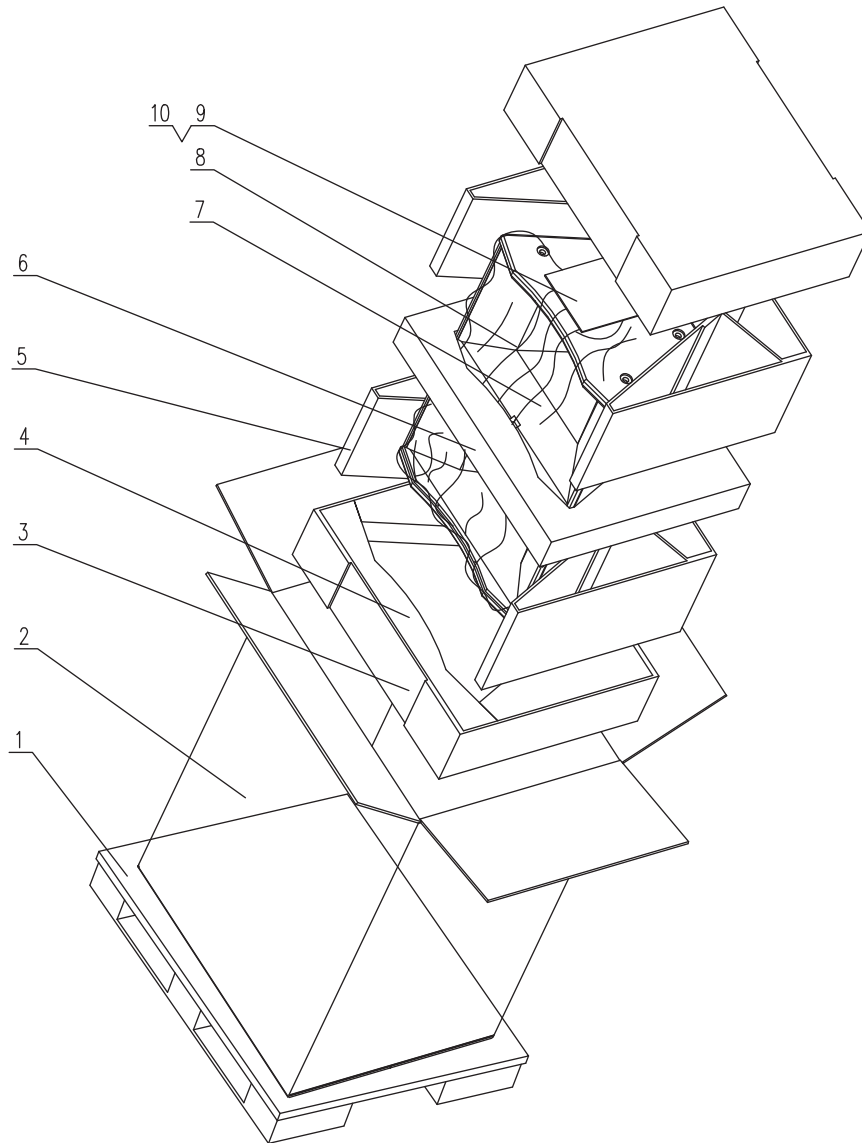


Figure 4. Panaray LT 9702 WR Loudspeaker Packaging View

# PACKING LIST

Panaray® LT MB24 WR Bass Loudspeaker

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty	Note
1	PALLET (SINGLE USE)	-	B-TP-01	1	4
2	CARTON, MB24-WR	323095-001S	B-ZXW-5MG50	1	4
3	PAPER COVER, MB24	323093-001S	B2-ZZMW-5MG31	2	4
4	PP FOAM	323090-001S	B-ZZM-01	2	4
5	TRIANGLE PAPER, MB24	323094-001S	B-ZBW-5MG01	4	4
6	SPEAKER CABINET	REF	-	1	4
7	PP FOAM, MIDDLE	323092-001S	B-ZZM-02	1	4
8	PE BAG, 1600x1160x0.01MM	323119-001S	B-BZD-05	1	4
9	PE BAG, 310x220x0.04MM	-	1-BZD-12	1	4
10	OWNER'S GUIDE	323177-001S	-	1	4

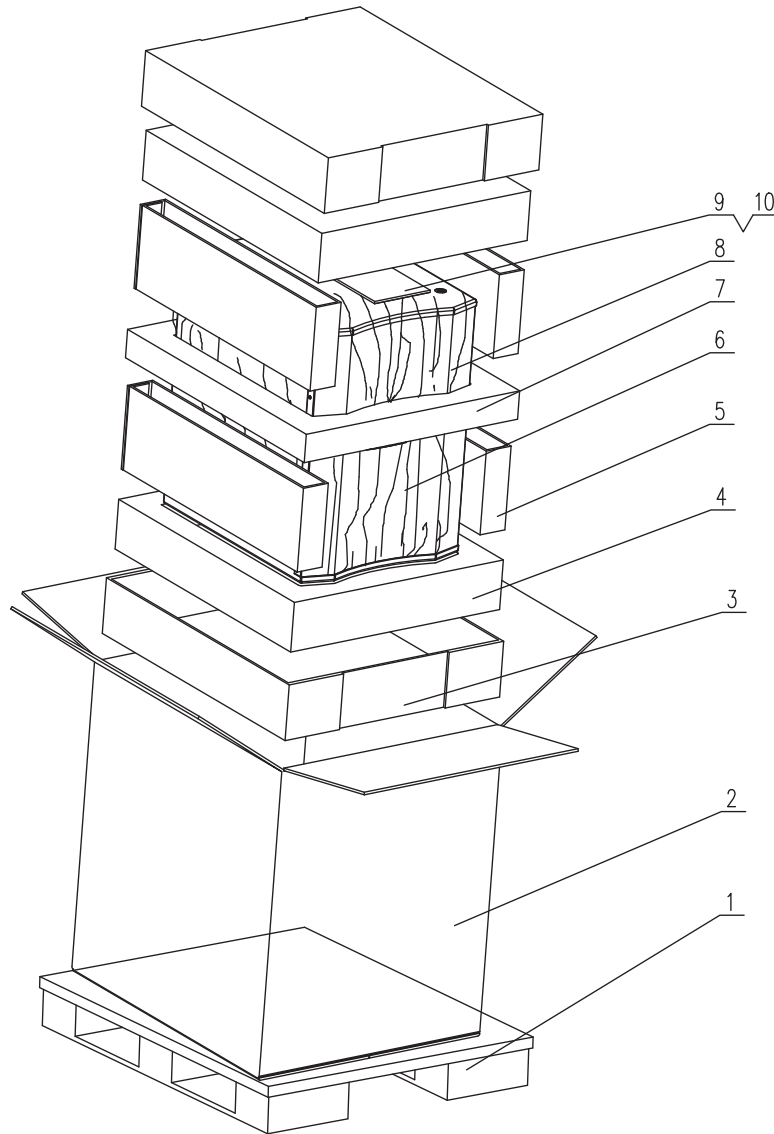


Figure 5. Panaray LT MB24 WR Bass Loudspeaker Packaging View

# PACKING LIST

Panaray® LT MB12 WR Bass Loudspeaker

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty	Note
1	PALLET (SINGLE USE)	-	B-TP-07	1	4
2	CARTON, MB12-WR	323098-001S	B-ZXW-5MG51	1	4
3	PAPER COVER, MB12	323096-001S	B2-ZZMW-5MG30	2	4
4	PP FOAM	323097-001S	B-ZZM-17	2	4
5	SPEAKER CABINET	REF	-	1	4
6	PE BAG, 1260x1200x0.04MM	323120-001S	4-BZD-45	1	4
7	PE BAG, 310x220x0.04MM	-	1-BZD-12	1	4
8	OWNER'S GUIDE	323177-001S	-	1	4

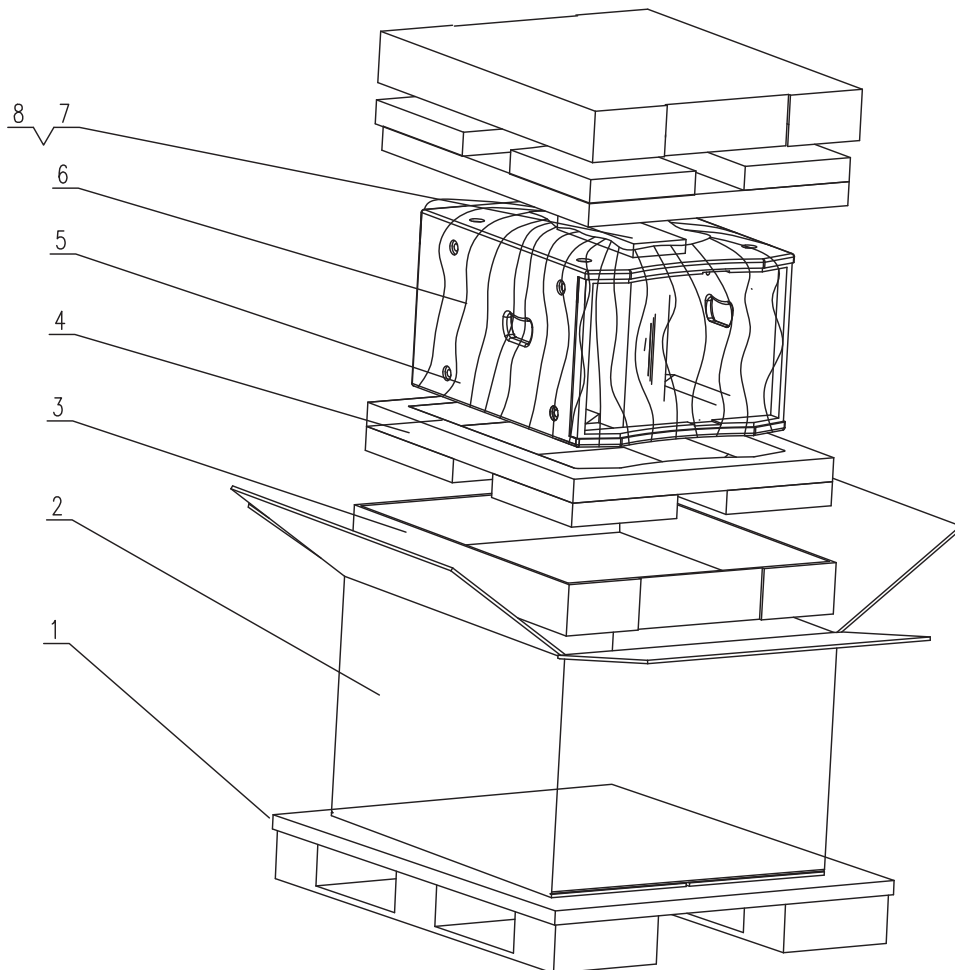


Figure 6. Panaray LT MB12 WR Bass Loudspeaker Packaging View

# MAIN PART LIST

Panaray® LT 3202® WR Loudspeaker (see Figure 7)

Item Number	Description	Vendor Part Number	Qty	Note
1	Kit, Grille Screw, TA4x15 (14 screws per kit) Black White	297502 297503	1	
2	Washer, Flat, 4x9x0.8mm	-	10	4
3	Grille Assy (with screws & logo assy.) Black White	322818-010S 298556	1	
4	Gasket, Grille, consists of 3 sections	274622	1	
5	Gasket, EVA, V2 Cover, 594.3x290x1mm, Blk	-	2	4
6	V2 Cover, Blk	322823-010S	1	
7	Screw, V2 Cover, Blk	-	2	4
8	Gasket, Rubber, 525x19x1mm, Blk	-	2	4
9	VEE-Two Assembly (includes drivers), Blk	298172	4	
10	Screw, VEE-Two Assy.	-	16	4
11	Washer, Nylon, 12x6.6x1mm, Blk	-	16	4
12	Screw, Input Panel, TM4x15	-	12	4
13	Input Panel with Crossover PCB, Black	322698-010S	1	
14	Gasket, Input Panel	298558	1	
15	Crossover PCB Assembly	-	1	4
16	Gasket, EVA, 138x68x2mm	-	1	4
17	Screw, 6x30mm, Stainless, Blk	-	4	4
18	Compression Driver Assy, 1.4"	276860	1	
19	Disk, Alignment, Compression Driver	263912	1	
20	Gasket, Compression Driver	263911	1	
21	- Insert, Rigging, 3/8x16 thread - Screw, 9.5x20mm, Stainless, Blk - Washer, PVC, 15.5x9.6x0.4mm	- - -	16 16 32	4
22	Logo Kit with tape, fastener and spring Black White	297504 297505	1	
-	Compression Driver Replacement Diaphragm	276861	1	
-	Screw, Hang Point, 3/8" x 16	298591	16	

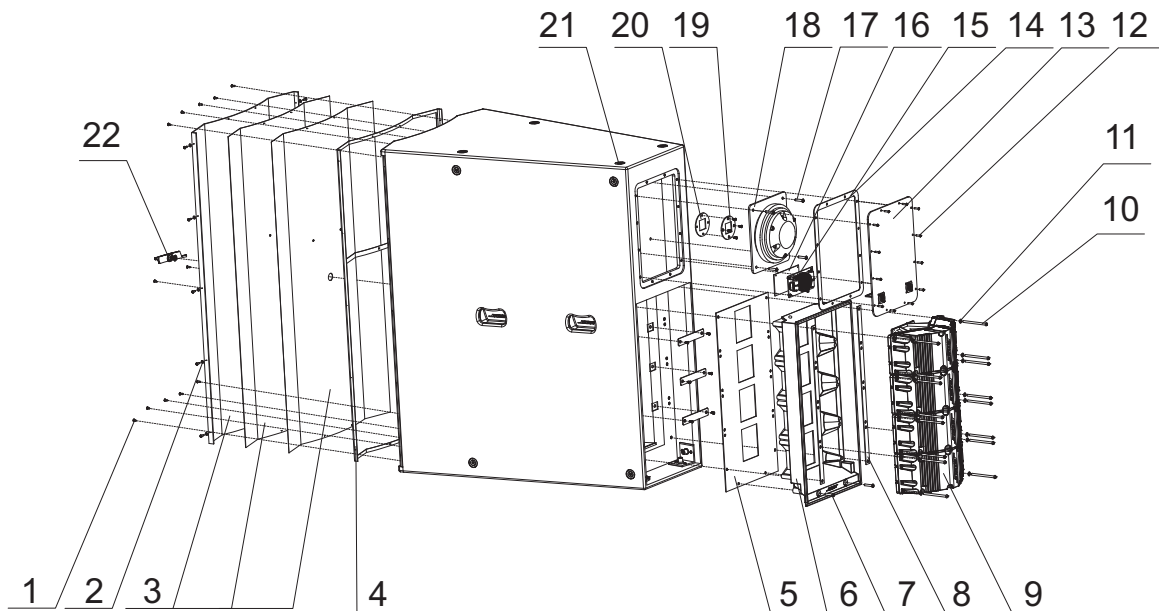
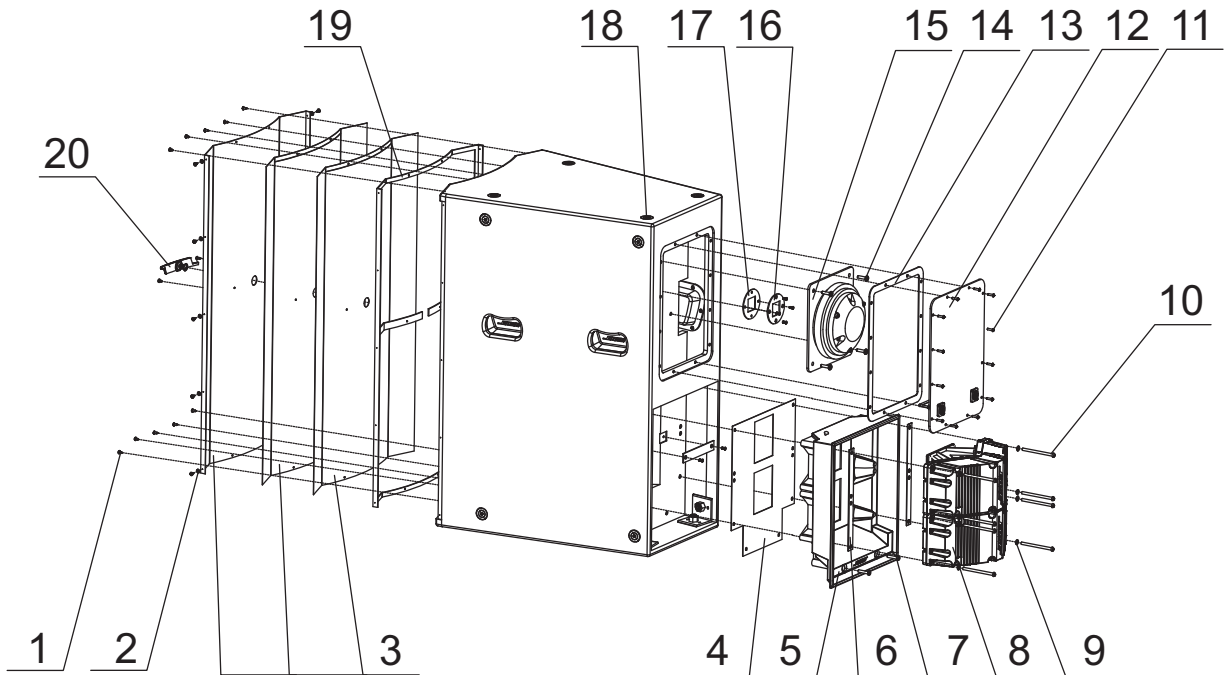


Figure 7. Panaray LT 3202 WR Loudspeaker Exploded View

# MAIN PART LIST

Panaray® LT 4402® WR Loudspeaker (see Figure 8)

Item Number	Description	Bose® Part Number	Qty	Note
1	Kit, Grille Screw, TA4x15 (14 screws per kit) Black White	297502 297503	1	
2	Washer, Flat, 4x9x0.8mm	-	10	4
3	Grille Assembly with screws, tape, logo Black White	322819-010S 298580	1	
4	Gasket, EVA, V2 Cover, 351x290x1mm, Black	-	1	4
5	V2 Cover	322820-010S	1	
6	Gasket, Rubber, 262x19x1, Black	-	2	4
7	Screw, V2 Cover, H/H6x30mm, D=10, Black	-	2	4
8	V2 Assembly (includes drivers), Black	298172	2	
9	Washer, V2 Assy, Nylon, 12x6.6x1mm, Black	-	8	4
10	Screw, V2 Assy, 13x6x90mm, Black	-	8	4
11	Screw, Input Panel	-	12	4
12	Input Panel Assembly (with crossover PCB)	322821-010S	1	
13	Gasket, EVA, Input Panel	298558	1	
14	Screw, Compression Driver, TM6x30	-	4	4
15	Compression Driver	276860	1	
16	Disk, Alignment, Compression Driver	263912	1	
17	Gasket, EVA, Compression Driver	263911	1	
18	- Insert, Rigging, 3/8x16 thread - Screw, 9.5x20mm, Stainless, Blk - Washer, PVC, 15.5x9.6x0.4mm	- - -	16 16 32	4
19	Gasket, Grille, consists of 3 sections	274622	1	
20	Logo Kit with tape, fastener and spring Black White	297504 297505	1	
-	Compression Driver Replacement Diaphragm	276861	1	
-	Screw, Hang Point, 3/8" x 16	298591	16	

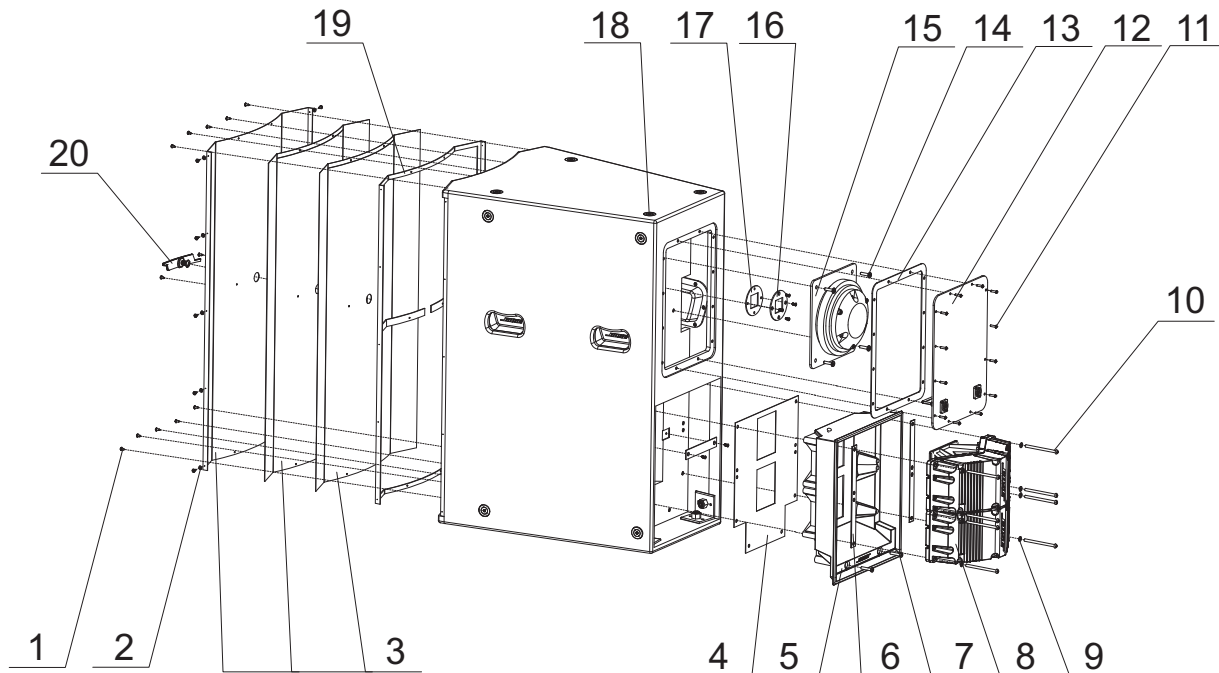


**Figure 8. Panaray LT 4402 WR Loudspeaker Exploded View**

# MAIN PART LIST

Panaray® LT 9402™ WR Loudspeaker (see Figure 9)

Item Number	Description	Bose® Part Number	Qty	Note
1	Kit, Grille Screw, TA4x15 (14 screws per kit) Black White	297502 297503	1	
2	Washer, Flat, 4x9x0.8mm	-	10	4
3	Grille Assy (with screws & logo assy.) Black White	322822-010S 298584	1	
4	EVA Gasket, V2 Cover	-	1	
5	V2 Cover	322820-010S	1	
6	Gasket, Rubber, 262x19x1, Blk	-	2	
7	Screw, V2 Cover, 6x30M, D=10, Stainless, Blk	-	2	
8	V2 Assembly	298172	2	
9	Washer, Nylon, 12x6.6x1mm, Blk	-	8	
10	Screw, VEE-Two Assy.	-	8	
11	Screw, Input Panel, TM4x15	-	12	
12	Input Panel with Crossover PCB, Black	322824-010S	1	
13	Gasket, Input Panel	-	1	
14	Screw, Compression Driver, 6x30mm, SS, Blk	-	4	
15	Compression Driver Assy	276860	1	
16	Disk, Alignment, Compression Driver	263912	1	
17	Gasket, Compression Driver	263911	1	
18	- Insert, Rigging, 3/8x16 thread - Screw, 9.5x20mm, Stainless, Blk - Washer, PVC, 15.5x9.6x0.4mm	- - -	16 16 32	4
19	Gasket, grille			
20	Logo Kit with tape, fastener and spring Black White	297504 297505	1	
-	Compression Driver Replacement Diaphragm	276861	1	
-	Screw, Hang Point, 3/8" x 16	298591	16	

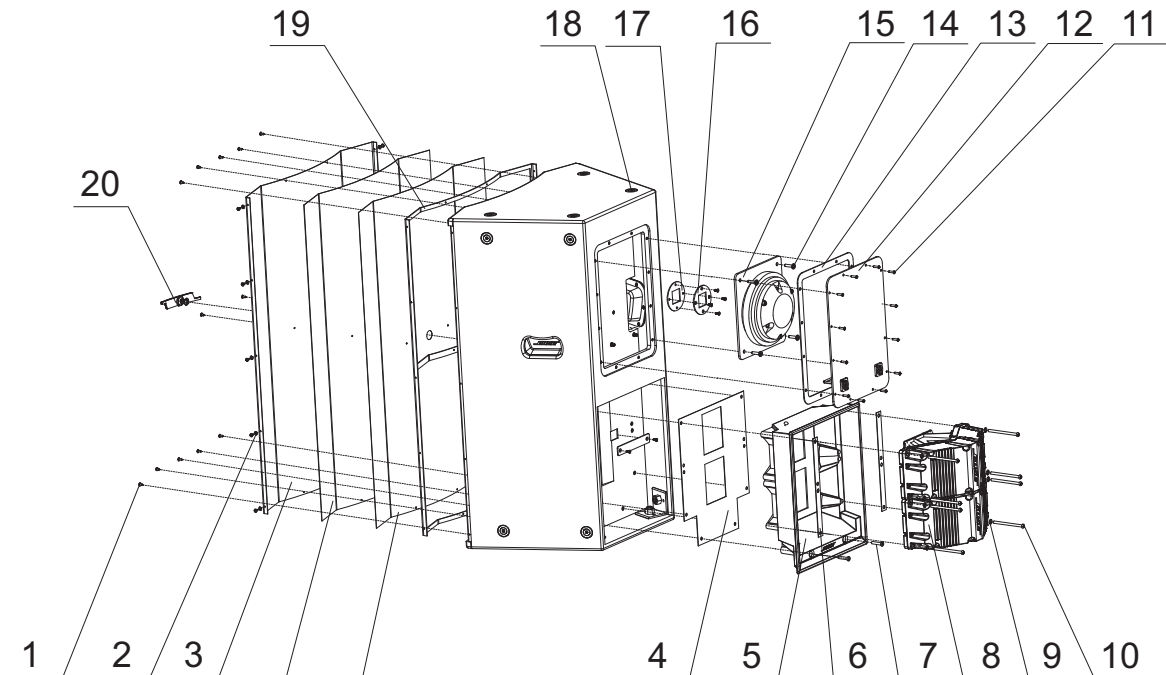


**Figure 9. Panaray LT 9402 WR Loudspeaker Exploded View**

# MAIN PART LIST

Panaray® LT 9702® WR Loudspeaker (see Figure 10)

Item Number	Description	Bose® Part Number	Qty	Note
1	Kit, Grille Screw, TA4x15 (14 screws per kit) Black White	297502 297503	1	
2	Washer, Flat, 4x9x0.8mm	-	10	4
3	Grille Assy (with screws & logo assy.) Black White	322825-010S 298586	1	
4	EVA Gasket, V2 Cover	-	1	
5	V2 Cover	322820-010S	1	
6	Gasket, Rubber, 262x19x1, Blk	-	2	
7	Screw, V2 Cover, 6x30M, D=10, Stainless, Blk	-	2	
8	V2 Assembly	298172	2	
9	Washer, Nylon, 12x6.6x1mm, Blk	-	8	
10	Screw, VEE-Two Assy.	-	8	
11	Screw, Input Panel, TM4x15	-	12	
12	Input Panel with Crossover PCB, Black	322827-010S	1	
13	Gasket, Input Panel	-	1	
14	Screw, Compression Driver, 6x30mm, SS, Blk	-	4	
15	Compression Driver Assy	276860	1	
16	Disk, Alignment, Compression Driver	263912	1	
17	Gasket, Compression Driver	263911	1	
18	- Insert, Rigging, 3/8x16 thread - Screw, 9.5x20mm, Stainless, Blk - Washer, PVC, 15.5x9.6x0.4mm	- - -	16 16 32	4
19	Gasket, grille			
20	Logo Kit with tape, fastener and spring Black White	297504 297505	1	
-	Compression Driver Replacement Diaphragm	276861	1	
-	Screw, Hang Point, 3/8" x 16	298591	16	



**Figure 10. Panaray LT 9702 WR Loudspeaker Exploded View**



# MAIN PART LIST

Panaray® LT MB24 WR Bass Loudspeaker

Item Number	Description	Bose® Part Number	Qty	Note
1	Grille Screw Kit (14 screws) Black White	297502 291904		
2	Washer, Flat, Grille, 4x9x0.8mm	-	10	
3	Grille Assembly, includes screws, logo, tape, fastener and spring Black White	322828-010S 298561	1	
4	Gasket, EVA, Grille	-		4
5	Screw, Woofer	-	16	4
6	Woofer Assy, 12 inch, TBX	353074-001S	2	
7	Gasket, EVA, Woofer	-	2	
8	Screw, Input Panel	-	8	4
9	Input Panel Assy with Crossover PCB, Blk	322829-010S	1	
10	Gasket, EVA, Input Panel	-	1	4
11	- Insert, Rigging, 3/8x16 thread - Screw, 9.5x20mm, Stainless, Blk - Washer, PVC, 15.5x9.6x0.4mm	- - -	16 16 32	4
12	Logo Kit, includes tape, fastener and spring Black White	276848 297505	1	
-	Screw, Hang Point, 3/8" x 16	298591	16	

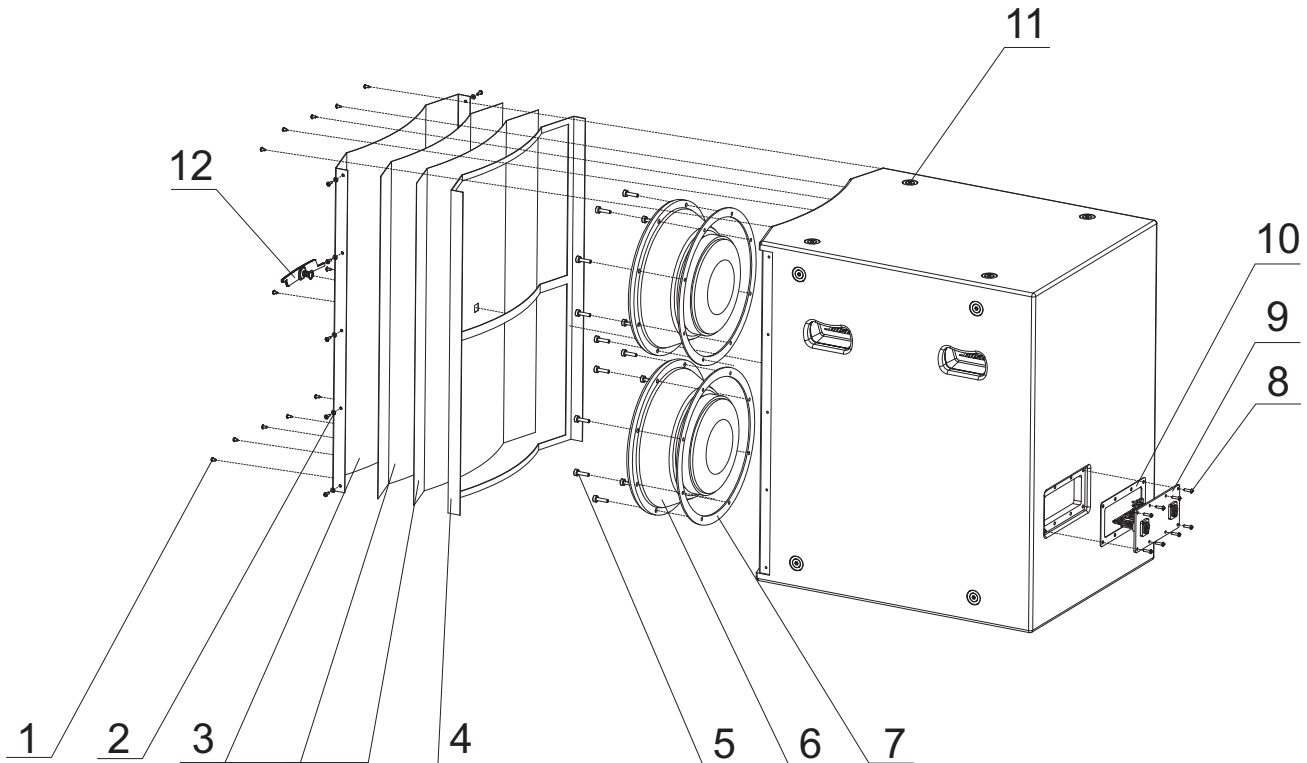


Figure 11. Panaray LT MB24 WR Bass Loudspeaker Exploded View



# MAIN PART LIST

Panaray® LT MB12 WR Bass Loudspeaker

Item Number	Description	Bose® Part Number	Qty	Note
1	Grille Screw Kit (14 screws) Black White	297502 297503		
2	Washer, Flat, Grille, 4x9x0.8mm	-	10	
3	Grille Assembly, includes screws, logo, tape, fastener and spring Black White	323099-010S 298588	1	
4	Gasket, EVA, Grille	-		4
5	Screw, Woofer	-	8	4
6	Woofer Assy, 12 inch, TBX	353074-001S	1	
7	Gasket, EVA, Woofer	-	1	
8	Screw, Input Panel	-	8	4
9	Input Panel Assy with Crossover PCB, Blk	323100-010S	1	
10	Gasket, EVA, Input Panel	-	1	4
11	- Insert, Rigging, 3/8x16 thread - Screw, 9.5x20mm, Stainless, Blk - Washer, PVC, 15.5x9.6x0.4mm	- - -	16 16 32	4
12	Logo Kit, includes tape, fastener and spring Black White	297504 297505	1	
-	Screw, Hang Point, 3/8" x 16	298591	16	

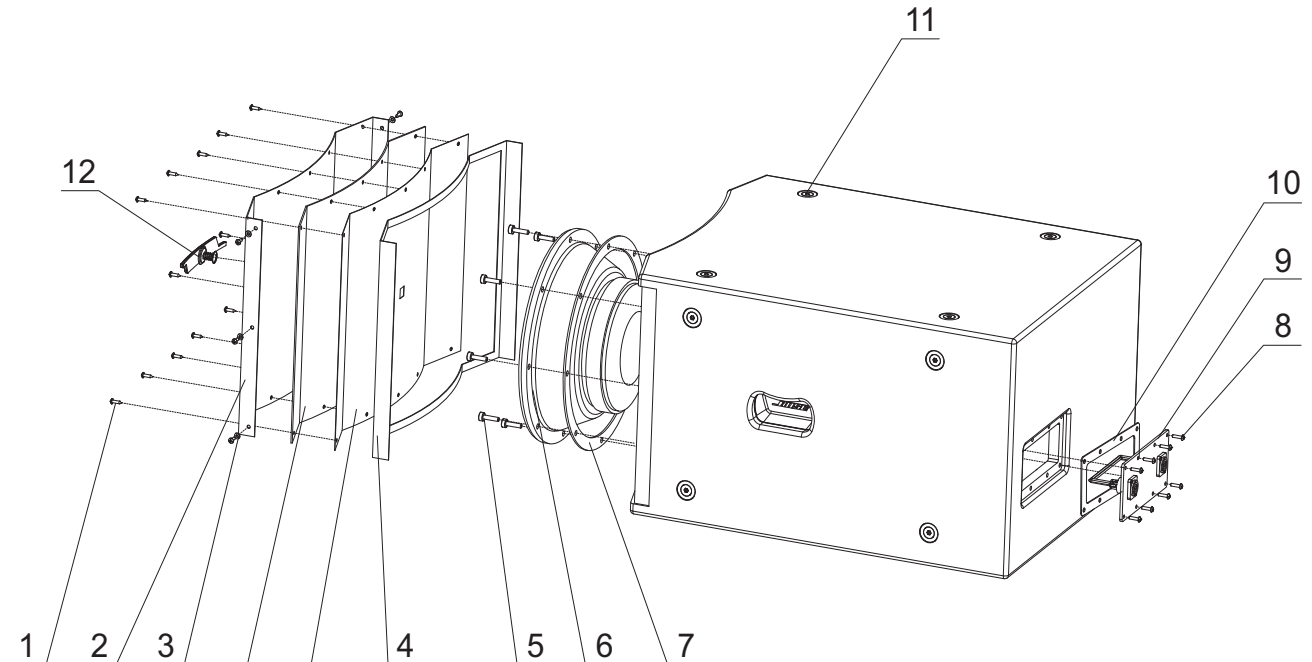


Figure 12. Panaray LT MB12 WR Bass Loudspeaker Exploded View

# DISASSEMBLY PROCEDURES

**CAUTION:** The rear of the Panaray® LT loudspeakers can become extremely hot during normal use. Do not attempt to service the loudspeakers until they have cooled to room temperature.

## Model 3202® WR Loudspeaker

**Note:** Refer to Figure 7 for the following procedures.

### 1. Grille Removal

**1.1** Remove the fourteen screws (1) that secure the grille assembly (3) to the cabinet.

**1.2** Lift the grille assembly off of the cabinet. The gasket should remain adhered to the cabinet.

### 2. Logo Removal

**2.1** Remove the grille using procedure 1 above.

**2.2** On the back of the grille, carefully remove the slotted washer that retains the spring and spacer against the back of the grille. Note the direction the spacer faces. Slide the spring and spacer off of the logo post.

### 3. Input Panel Assembly Removal

**3.1** Remove the twelve screws (12) that secure the input panel assembly (13) to the cabinet. Disconnect the cables that plug into the PCB. Lift out the assembly.

### 4. Compression Driver Removal

**4.1** Remove the twelve screws (12) that secure the input panel (13) to the cabinet. Lift off the input panel. Retain the gasket (14) for re-use.

**4.2** Remove the four screws (17) that secure the Compression Driver (18) to the cabinet. Lift the compression driver out of the cabinet.

Make a note of the wiring configuration, and disconnect the wires from the compression driver.

**4.3** Remove the four screws that secure the compression driver to the mounting plate. Lift off the driver.

## 5. V2 Two Assembly Removal

**5.1** Remove the four screws (10) that secure the V2 assembly (9) to the cabinet. These screws are located at the four corners of the assembly. Do not remove the other screws around the casting. Carefully lift the assembly out of the cabinet. Make a note of the wiring configuration, and disconnect the two wires from the connector.

## Model 4402® WR Loudspeaker

**Note:** Refer to Figure 8 for the following procedures.

### 1. Grille Removal

**1.1** Remove the fourteen screws (1) that secure the sides of the grille assembly (3) to the cabinet.

**1.2** Lift the grille assembly off of the cabinet. The gasket should remain adhered to the cabinet.

### 2. Logo Removal

**2.1** Remove the grille using procedure 1 above.

**2.2** On the back of the grille, carefully remove the slotted washer that retains the spring and spacer against the back of the grille. Note the direction the spacer faces. Slide the spring and spacer off of the logo post.

**2.3** Lift the logo off of the grille.

# DISASSEMBLY PROCEDURES

## 3. Input Panel Assembly Removal

**3.1** Remove the twelve screws (11) that secure the input panel assembly (12) to the cabinet. Lift the assembly away from the cabinet. Disconnect the cables that plug into the PCB. Lift out the assembly.

## 4. Compression Driver Removal

**4.1** Remove the twelve screws (11) that secure the input panel (12) to the cabinet. Lift off the rear panel. The gasket should remain adhered to the cabinet.

**4.2** Make a note of the wiring configuration, and disconnect the wires from the compression driver. Remove the four screws (14) that secure the Compression Driver (15) to the cabinet. Lift the compression driver out of the cabinet.

## 5. V2 Two Assembly Removal

**5.1** Remove the four screws (10) that secure the V2 assembly (8) to the cabinet. These screws are located at the four corners of the assembly. Do not remove the other screws around the casting. Carefully lift the assembly out of the cabinet. Make a note of the wiring configuration, and disconnect the two wires from the connector.

## Model 9402™ WR Loudspeaker

**Note:** Refer to Figure 9 for the following procedures.

## 1. Grille Removal

**1.1** Remove the fourteen screws (1) that secure the grille assembly (3) to the cabinet.

**1.2** Lift the grille assembly off of the cabinet. The gasket should remain adhered to the cabinet.

## 2. Logo Removal

**2.1** Remove the grille using procedure 1 above.

**2.2** On the back of the grille, carefully remove the slotted washer that retains the spring and spacer against the back of the grille. Note the direction the spacer faces. Slide the spring and spacer off of the logo post.

**2.3** Lift the logo off of the grille.

## 3. Input Panel Assembly Removal

**3.1** Remove the twelve screws (11) that secure the input panel assembly to the cabinet. Lift the assembly away from the cabinet. Disconnect the cables that plug into the PCB. Lift out the assembly.

## 4. Compression Driver Removal

**4.1** Remove the twelve screws (11) that secure the input panel (12) to the cabinet. Lift off the rear panel. The gasket should remain adhered to the cabinet.

**4.2** Make a note of the wiring configuration, and disconnect the wires from the compression driver. Remove the four screws (14) that secure the Compression Driver (15) to the cabinet. Lift the compression driver out of the cabinet.

## 5. V2 Two Assembly Removal

**5.1** Remove the four screws (10) that secure the V2 assembly (8) to the cabinet. These screws are located at the four corners of the assembly. Do not remove the other screws around the casting. Carefully lift the assembly out of the cabinet. Make a note of the wiring configuration, and disconnect the two wires from the connector.

# DISASSEMBLY PROCEDURES

## Model 9702® WR Loudspeaker

**Note:** Refer to Figure 10 for the following procedures.

### 1. Grille Removal

**1.1** Remove the fourteen screws (1) that secure the grille assembly (3) to the cabinet.

**1.2** Lift the grille assembly off of the cabinet. The gasket should remain adhered to the cabinet.

### 2. Logo Removal

**2.1** Remove the grille using procedure 1 above.

**2.2** On the back of the grille, carefully remove the slotted washer that retains the spring and spacer against the back of the grille. Note the direction the spacer faces. Slide the spring and spacer off of the logo post.

**2.3** Lift the logo off of the grille.

### 3. Input Panel Assembly Removal

**3.1** Remove the twelve screws (11) that secure the input panel assembly (12) to the cabinet. Disconnect the cables that plug into the PCB. Lift out the assembly.

### 4. Compression Driver Removal

**4.1** Remove the twelve screws (11) that secure the input panel (12) to the cabinet. Lift off the rear panel. The gasket should remain adhered to the cabinet.

**4.2** Make a note of the wiring configuration, and disconnect the wires from the compression driver. Remove the four screws (14) that secure the Compression Driver (15) to the cabinet. Lift the compression driver out of the cabinet.

## 5. V2 Two Assembly Removal

**5.1** Remove the four screws (10) that secure the V2 assembly (8) to the cabinet. These screws are located at the four corners of the assembly. Do not remove the other screws around the casting. Carefully lift the assembly out of the cabinet. Make a note of the wiring configuration, and disconnect the two wires from the connector.

### V2 Two Driver Removal Procedure

**1.** Remove the V2 Two assembly using the appropriate disassembly procedures for the speaker under repair.

**2.** Place the VEE Two assembly on a flat surface so that the aluminum casting with the Bose logo is facing upward.

**3.** Using a Phillips-head screwdriver, remove all of the screws around the perimeter of the casting. Carefully lift off the casting. The drivers will be exposed.

**4.** Make a note of the wiring configuration, and cut the wires as close to the terminals as possible.

**5.** Remove the three screws that secure the driver into the housing. Lift it out of the housing.

**Re-assembly note:** When installing the new driver, ensure that the gasket for the driver and the gasket for the aluminum casting are correctly positioned to provide an airtight seal after re-assembly.

## Model MB24 and MB12 WR Bass Loudspeakers

Refer to Figure 11 or 12, as appropriate, for the following procedures.

### 1. Grille Removal

**1.1** Using a Phillips-head screwdriver, remove the screws (1) that secure the grille (3) to the enclosure. Lift off the grille.

# DISASSEMBLY / TEST PROCEDURES

## 2. Driver Removal

- 2.1 Perform procedure 1 above.
- 2.2 Using a Phillips-head screwdriver, remove the 8 screws (5) that secure the driver (6) to the enclosure.
- 2.3 Lift the driver out of the enclosure. Make a note of the wiring configuration and cut the wires as close to the terminals as possible.

**2.3** Lift the driver out of the enclosure. Make a note of the wiring configuration and cut the wires as close to the terminals as possible.

**Re-assembly Note:** Be sure that the driver gasket is properly aligned to provide an airtight seal. If the gasket is damaged, use a new one.

## 3. Input Panel Removal

- 3.1 Using a Phillips-head screwdriver, remove the 8 screws that secure the input panel to the enclosure. Lift the input panel out of the enclosure.

### Test Cables for Model 3202®, 4402®, 9402™, 9702® and MB24 WR Loudspeakers

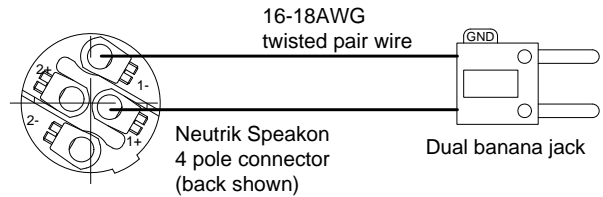
You will need to make up a test cable in order to be able to perform the tests below.

#### Parts Needed:

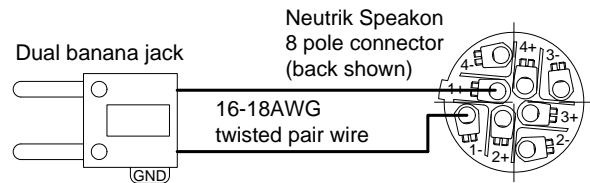
- 1 - Neutrik Speakon NL4FX 4-pole connector (4402, 9402 and 9702 speakers)
- 1 - Neutrik Speakon NL8 8-pole connector (3202 speaker)
- 1 - Dual banana jack
- 6 feet of 16-18 AWG twisted pair wire

Connect one lead of the twisted pair wire to the positive tab of the dual banana jack. Connect the other lead to the GND tab of the dual banana jack.

Connect the positive lead of the wire to the 1+ position of the Neutrik connector. Connect the negative lead of the wire to the 1- position of the Neutrik connector. Refer to the appropriate drawing for the speaker you are testing. See above right.



### Model 4402, 9402, 9702, MB24 and MB12 Series WR Speaker Test Cable



### Model 3202 WR Speaker Test Cable

### Panaray® LT Model 3202, 4402, 9402 and 9702 Series WR Loudspeakers

**Note:** Ensure that the speaker under test is in PASSIVE mode for the following tests. To check the mode the speaker is set up to operate in, you will need to remove the four screws that secure the input panel assembly in place and verify that the jumpered connector plugged into the crossover PCB is in the PASSIVE jack. Refer to the disassembly procedures in this service manual for instructions on how to remove the input panel.

## 1. Rub and Tick Test

**1.1** Apply an 8 Vrms, 10 Hz signal to the input terminals of the speaker.

**1.2** No extraneous noise such as rubbing, scraping or ticking should be heard.

## 2. Phase Test

**2.1** Disconnect the connectors at the V2 terminals. Momentarily apply 8 Vdc  $\pm$  1 Vdc to the terminals, observing polarity when connecting the DC power supply. Both of the drivers should move outward when the DC level is applied.

# TEST PROCEDURES

## 3. Frequency Power Sweep Test

- 3.1 Apply an 8 Vrms, 10 Hz signal to the speaker input terminals.
- 3.2 Sweep the input frequency from 10 Hz to 2 kHz.
- 3.3 Lower the applied input to 4 Vrms, and sweep the input frequency from 2 kHz to 5 kHz.
- 3.4 Listen for any buzzes, rattles or other extraneous noises from the loudspeaker.

### Model MB24 and MB12 Series WR Bass Loudspeakers

**Note:** For the MB24, ensure that the speaker under test is in PARALLEL mode for the following tests. To check the mode the speaker is set up to operate in, you will need to remove the eight screws that secure the input panel assembly in place and verify that the jumpered connector plugged into the crossover PCB is in the PARALLEL jack. Refer to the disassembly procedures in this service manual for instructions on how to remove the input panel. This does not apply to the MB12, as it has only one woofer.

## 1. Rub and Tick Test

- 1.1 Apply a 10 Vrms, 10 Hz signal to the input terminals of the speaker.
- 1.2 No extraneous noise such as rubbing, scraping or ticking should be heard.

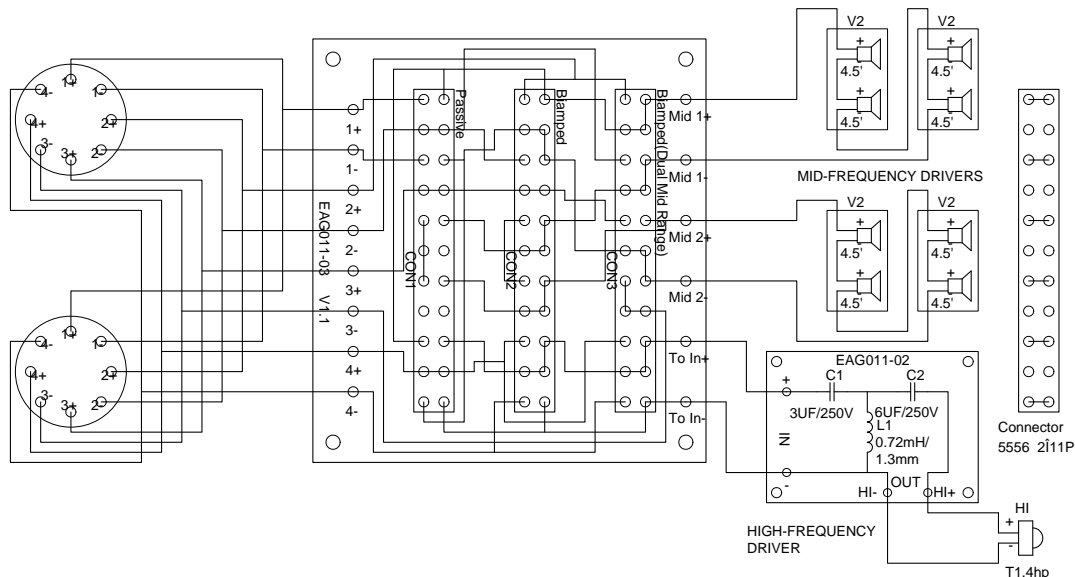
## 2. Phase Test

- 2.1 Disconnect the connectors at the driver terminals. Momentarily apply 10 Vdc  $\pm$  1 Vdc to the terminals, observing polarity when connecting the DC power supply. Both of the drivers should move outward when the DC level is applied.

## 3. Frequency Power Sweep Test

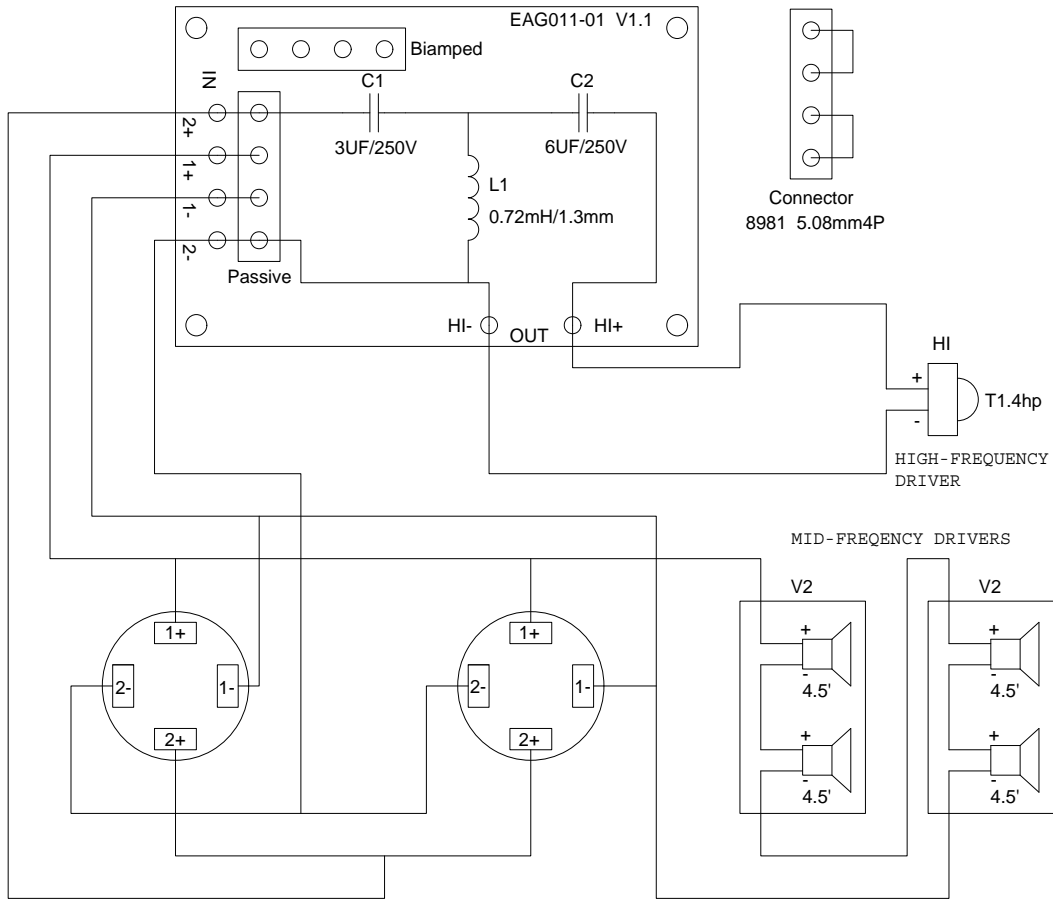
- 3.1 Apply a 10 Vrms, 10 Hz signal to the speaker input terminals.
- 3.2 Sweep the input frequency from 10 Hz to 250 Hz.
- 3.3 Listen for any buzzes, rattles or other extraneous noises from the loudspeaker.

## Loudspeaker Wiring Diagrams

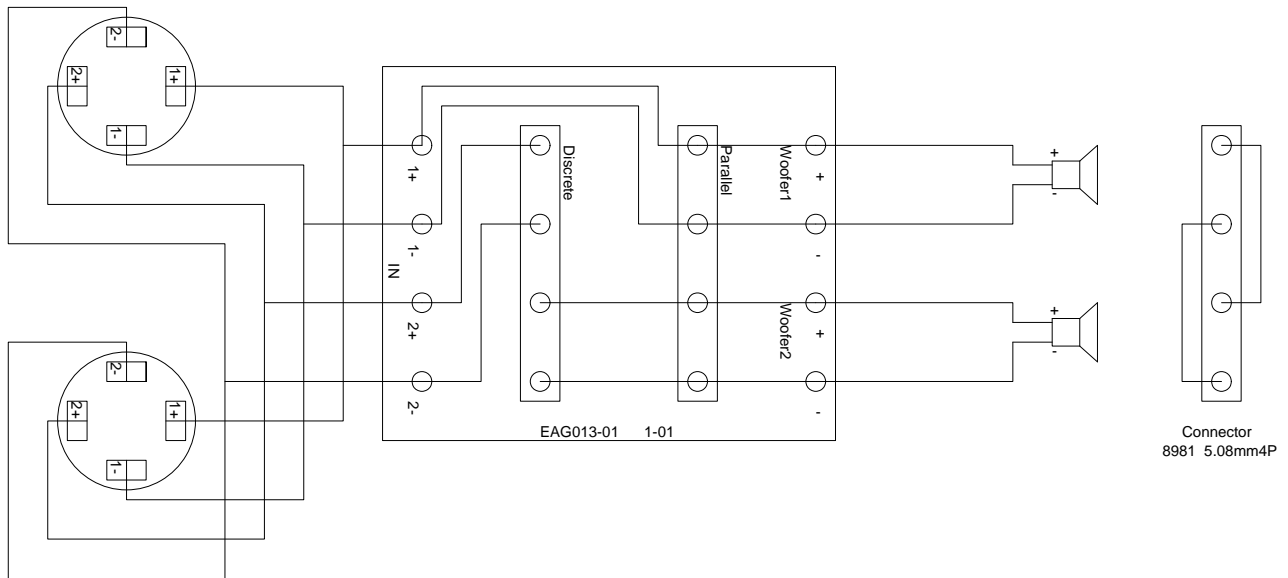


Model 3202® Series WR Wiring Diagram

# Loudspeaker Wiring Diagrams



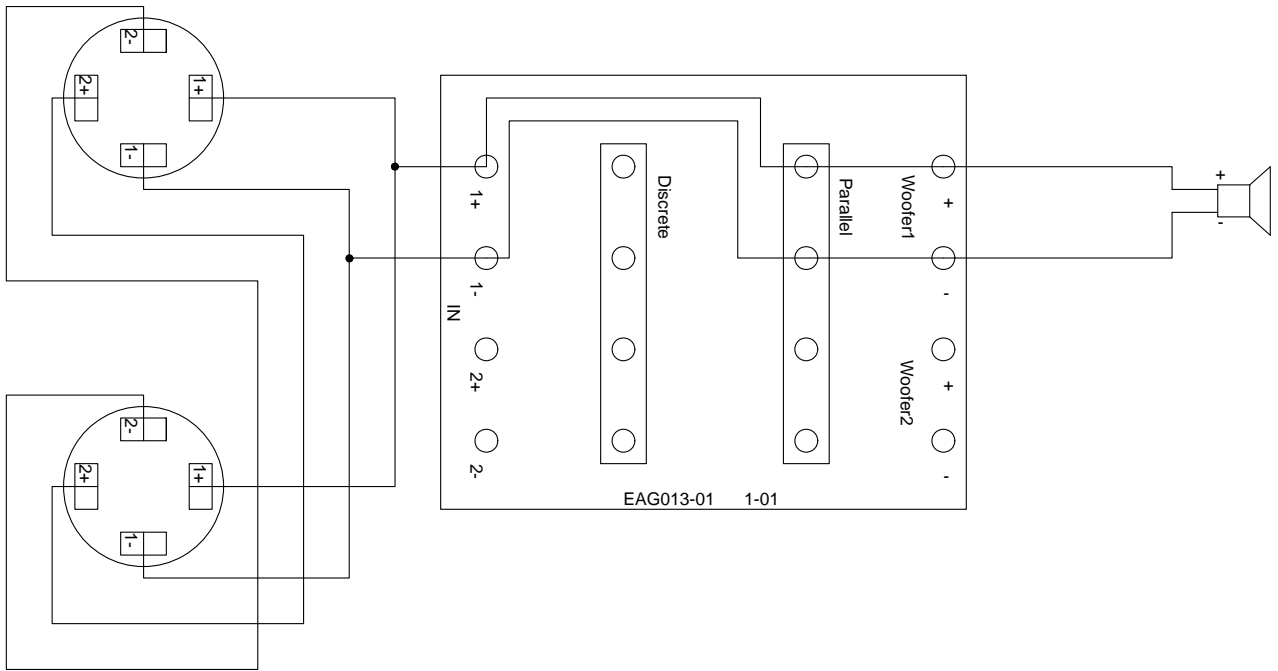
**Model 4402<sup>®</sup>, 9402<sup>™</sup> and 9702<sup>®</sup> Series WR Wiring Diagram**



**Model MB24 Series WR Bass Loudspeaker Wiring Diagram**



## Loudspeaker Wiring Diagrams



**Model MB12 Series WR Bass Loudspeaker Wiring Diagram**

## Accessories Used With the Panaray® LT Series WR Loudspeakers

### Panaray Digital Controller

The Panaray System Digital Controller Series II has a universal power supply for worldwide use. Variants of the product refer to the AC cord included with the product. There are five variations.

Region Variation	Product Code
120V - US	040500
230V - Europe	040502
100V – Japan	040501
230V – UK	040503
240V – Australia	040504

### Panaray EQ Cards

Active equalization for the Panaray LT loudspeakers can be provided by using the active EQ card for that loudspeaker as listed in the table below, or the Panaray system digital controller with presets for each Panaray speaker and combination of speakers.

Speaker	Product Code
Panaray LT 3202® WR EQ Card	011502
Panaray LT 4402® WR EQ Card	011504
Panaray LT 9402™ WR EQ Card	035325
Panaray LT 9702® WR EQ Card	017929
LT Mid-frequency EQ Card	018485
Panaray LT MB24 / MB4	028666
Panaray LT MB24 / MB4 02	027058



## High Frequency Compression Driver Diaphragm Replacement Procedure

The compression driver diaphragm is replaceable using a kit, part number 276861. Perform the steps below.

- 1.** Remove the compression driver using the disassembly procedures for the Panaray® speaker you are repairing.
- 2.** Place the driver on a flat surface. Using an allen head wrench, remove the three cap screws that secure the driver cover in place. Lift it off.
- 3.** Note the alignment of the diaphragm assembly and lift it straight off of the magnet assembly.
- 4.** Ensure that there is no dirt or debris in the magnet gap. Insert a small piece of clean paper into the gap and work it around the perimeter of the gap to ensure that it is clean. Blow any debris out of the gap with dry compressed air, if available.
- 5.** Align the replacement diaphragm with the magnet assembly. Carefully slide the voice coil into the gap of the magnet assembly. Take care not to damage the voice coil.
- 6.** Ensure that the rubber gasket on the compression driver cover is properly aligned to provide an airtight seal. Align the cover with the diaphragm and slide it into place.
- 7.** Secure the compression driver cover in place using the three allen head cap screws removed in step 2. Torque them in the following sequence; clockwise to 5 inch lbs, counter-clockwise to 15 inch lbs and clockwise to 25 inch lbs.
- 8.** Re-install the compression driver into the cabinet. Observing polarity, connect the driver wires from the input panel.
- 9.** Replace the rear panel.
- 10.** Perform the test procedures in this service manual to ensure proper operation before returning the unit to the customer.

# SERVICE MANUAL REVISION HISTORY

Date	Revision Level	Description of Change	Change Driven By	Pages Affected
4/10	00	Document released at revision 00.	Service manual initial release	All

SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

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Bose Corporation

The Mountain

Framingham Massachusetts USA 01701

Reference Number 323102-SM Rev. 00; 4/26/2010 (P)

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