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601™ II DIRECT/REFLECTING® SPEAKER SYSTEM

Service Manual
P/N 118915

Contents

TECHNICAL DESCRIPTION

SPATIAL CHARACTERISTICS

The Bose® 601™ Series II system is a high performance floor-standing speaker designed to achieve the highest level of spatial realism and spectral accuracy in a non-equalized Direct/Reflecting® speaker system. The new 601 Series II speaker incorporates two new concepts in speaker technology: The Free Space® array, which allows the drivers to radiate freely in any direction, providing exceptionally realistic and natural-sounding energy distributing in almost any listening room. The second new concept is the Sub-port Enclosure System, figure 1. Each woofer has its own enclosure that has damping material and a sub-port. The sub-ports are tuned to operate in the frequency range of 200-300Hz, providing principal sound radiation in these frequencies through the sub-port rather than the cone. The sub-ports are coupled to the main port of the speaker, and with the new extended range woofers, tweeters and crossover network, the 601 II speaker takes maximum advantage of this new technology.

SPEAKER CONFIGURATION

WOOFER: Two new high-efficiency 8" woofers designed for the sub-port enclosure. Each woofer has a long excursion voice coil and suspension, plus a 14 Oz. magnet, providing high output capability. Uniform response of the woofer is over 2.5KHz with use of the Dual Frequency™ crossover network. One woofer is directed forward while the second woofer is directed upward, which helps create a balance of reflected and direct energy in the listening room.

TWEETER: Four 3" wide-range high sensitivity tweeters per enclosure provide flat power radiation beyond 15KHz. The response extends down to 1.5KHz for use with the Dual Frequency crossover network. Two tweeters in each speaker enclosure are directed outward so that most of the sound energy is reflected off the back and side walls. One tweeter is positioned so that the sound energy is directed towards the center of the room and the final tweeter is positioned to reflect sound off the back wall between the speakers and into the room, providing a strong center stereo image by filling the "hole in the middle".

DUAL FREQUENCY CROSSOVER NETWORK: Located in the top woofer cup, the crossover network consists of two capacitors, two resistors, and two tweeter protection lamps. The Dual Frequency crossover network is designed to offer performance advantages by deliberately operating both the woofers and tweeters simultaneously over a significant part of the frequency range. We have designed the crossover network to have separate transition frequencies for the woofers and tweeters. By using separate frequencies, an overlap in response of almost one octave is achieved, providing smoother frequency response in the crossover region. Careful design of all components in the crossover network matches woofer and tweeter response, eliminating phase cancellation and assuring accurate frequency and transient response.

Enclosure: A sub-port enclosure system for maximum efficiency, minimum cone motion and placement versatility. Cabinet is constructed of walnut grain vinyl laminated to particle board.

Note: The early version of the 601 II speaker has three input terminals. Later versions had two input terminals. Refer to the schematics and crossover part lists in this manual for differences.

SPECIFICATIONS

Speaker Compliment	Two 8" Woofers per cabinet Four 3" Tweeters per cabinet
Nominal Impedance	8Ω
Power Requirements	20 watts minimum 150 watts maximum
Major Port Frequency	35HZ
Subport Frequency	Broad band tuning centered at 240HZ
Dual Frequency™ Crossover	Woofer transition frequency: 2.5kHZ Tweeter transition frequency: 1.5kHZ
Shipping Weight	46 LB per speaker
Speaker Weight	36 LB per speaker
Speaker Dimensions	29.5" H X 14" W X 13" D

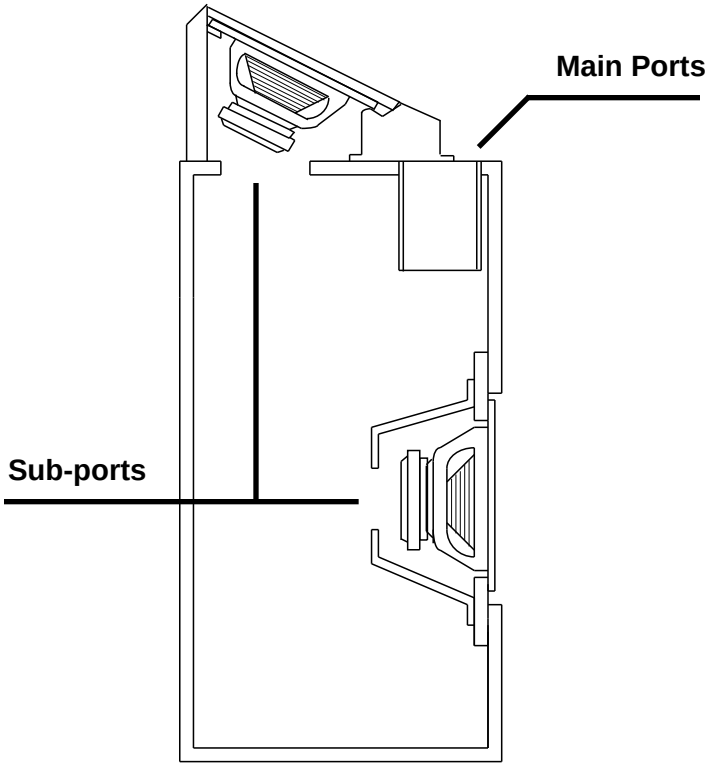

Figure 1. 601 II Ports

601™ II TEST PROCEDURES

1. Sweep Test

1.1 Apply a **10Vrms, 15HZ** signal to the input terminals of the speaker.

1.2 Sweep the oscillator from **15HZ** to **2.5kHZ**. There should not be any loud extraneous noises coming from the woofer. **Note:** The woofers are wired in series. If one woofer is open the other one will not work.

1.3 Sweep the oscillator from **1.5kHZ** to **15kHZ**. Replace any tweeter that is inoperative or buzzing.

2. Rub and Tick Test

2.1 Apply a **10Vrms, 25HZ** signal to the input terminals of the speaker.

2.2 No extraneous noises such as rubbing, scraping or ticking should be heard. **Note:** To distinguish between normal suspension noise and rubs or ticks, displace the cone of the driver slightly with your fingers. If the noise can be made to go away or get worse, it is a rub or tick and the driver should be replaced. If the noise stays the same, it is normal suspension noise and it will not be heard with program material.

3. Air Leak Test

3.1 Apply a **10Vrms, 40HZ** signal to the input terminals of the speaker.

3.2 Listen for any whooshing sound coming from the cabinet or around the woofer. Repair any air leaks.

4. Phase Test

4.1 Momentarily apply **10VDC** to the input terminal of the speaker. Observe the polarity when connecting the DC supply.

4.2 The woofer should move outwards with the momentarily applied DC voltage.

4.3 Visually check the tweeters wiring to ensure proper phasing.

DISASSEMBLY/ASSEMBLY PROCEDURES

1. Grille Removal

1.1 Reach behind the top part of the grille and gently lift up on the grille.

1.2 Once the grille has been pulled off of the four top clips, gently pull the grille away from the front of the speaker, removing it from the two clips on the lower part of the cabinet.

2. Grille Replacement

2.1 Place the top of the grille on the top of the cabinet so that the four clips on the grille are aligned with the four grommets on the cabinet. Press the clips into the grommets so that they snap into place.

2.2 Place the lower part of the grille onto the front of the cabinet so that the clips on the grille align with the grommets on the cabinet. Press the clips into the grommets so that they snap into place.

3. Woofer Removal

3.1 Perform procedure 1.

3.2 Remove the four screws that secure the woofer and the dress ring to the cabinet. Lift the woofer out from the cabinet.
Note: Reuse the dress ring.

3.3 Cut the wires as close to the woofer terminals as possible.
Note: Make a note of the wiring configuration.

4. Woofer Replacement

4.1 Strip the wires and connect them to the woofer. Use the schematic diagrams on page 7and 8 to ensure proper wiring.

4.2 Replace the four screws that secure the woofer and the dress ring to the cabinet.
Note: The replacement woofer will come with a dress ring that is not glued to the woofer. Remove the dress ring from the replacement woofer and discard it.

5. Tweeter Removal

5.1 Perform procedure 1.

5.2 Perform Procedure 3. It is necessary to remove the woofer to gain access to the tweeter's service loop. Removing the woofer will also prevent accidental damage to the woofer.

5.3 Remove the screw that secures the tweeter to the tweeter bracket.

5.4 Cut the wires as close to the tweeter as possible.
Note: Make a note of the wiring configuration.

6. Tweeter Replacement

6.1 Strip the wires and connect them to the replacement tweeter. Use the schematic on page 7 and 8 to ensure proper wiring.

6.2 Replace the screw that secures the tweeter to the tweeter bracket. Pull the excess wires back into the cabinet and twist them so that they do not cause a buzz.

7. Crossover Access

7.1 Perform procedure 1.

7.2 Remove the top woofer.

7.3 The crossover is located under and in front of the top woofer.

601 II PART LIST

Item Number	Description	Part Number	Item Number	Description	Part Number
1	Grille, Side Plastic	116927	11	Screw, F Tweeter	119095-22
1A	Screw, Hex Head	118065-12	12	Screw, R Tweeter	119094-14
2	Grille Assembly	115143-1	13	Port Trim Ring	117529-1
3	Nameplate	110009	14	Top Woofer Cup	122101
4	Screw, #8 x 30mm	129027-16	15	Gasket, Woofer Cup	117717
5	Tinnerman Clip	117718	16	Screw #8-32 x .872	114986-15
6	Gasket, Woofer	120715	17	Rubber Foot	112992
7	Woofer Trim Ring	117530	18	Screw, foot	123284-20
8	Woofer 8 Inch	181870-001	19	Gasket, Woofer, Top	118930
9	Rubber Insert, Grille	117995	-	Grille Fastener	117788
10	Tweeter, 3 Inch	130714			

CROSSOVER COMPONENTS

Two Terminal

Description	Part Number
Capacitor, 3.4uF, 5%	106825
Capacitor, 4.0uF, 5%	108980
Capacitor, 3.0uF, 5%	104130
Resistor, 3.9Ω, 15W	119094-3R9
Resistor, 3.0Ω, 15W	119094-3R0
Resistor, 5.1Ω, 15W	119094-5R1

Three Terminals

Description	Part Number
Tweeter protection Lamp	114462
Capacitor, 6.8uF, 5%	115136
Capacitor, 8.0uF, 5%	115137
Capacitor, 6.0uF, 5%	109430
Resistor, 1Ω, 15W, 5%	102778-1R0

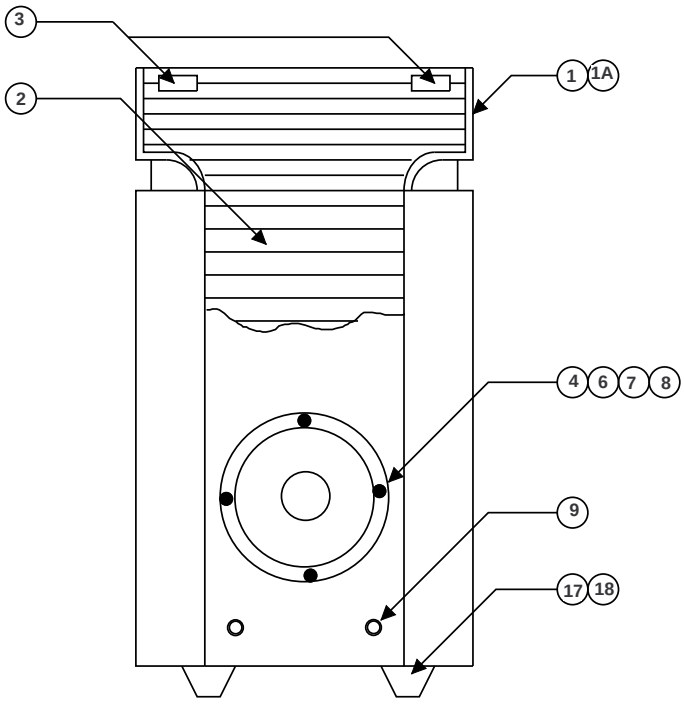

Figure 2. Front View

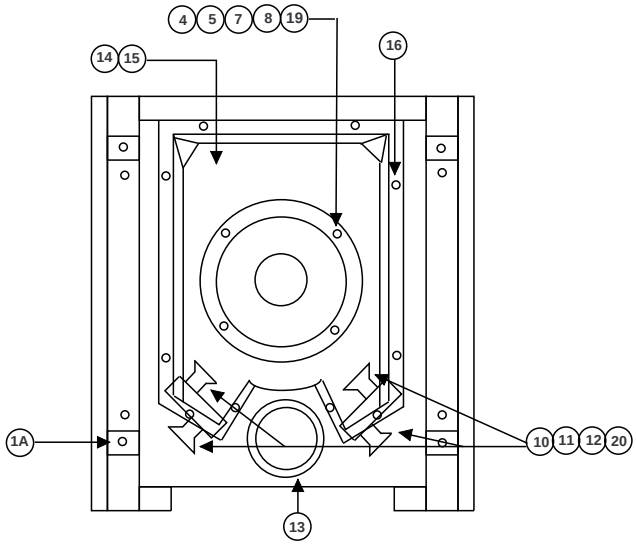

Figure 3. Top View

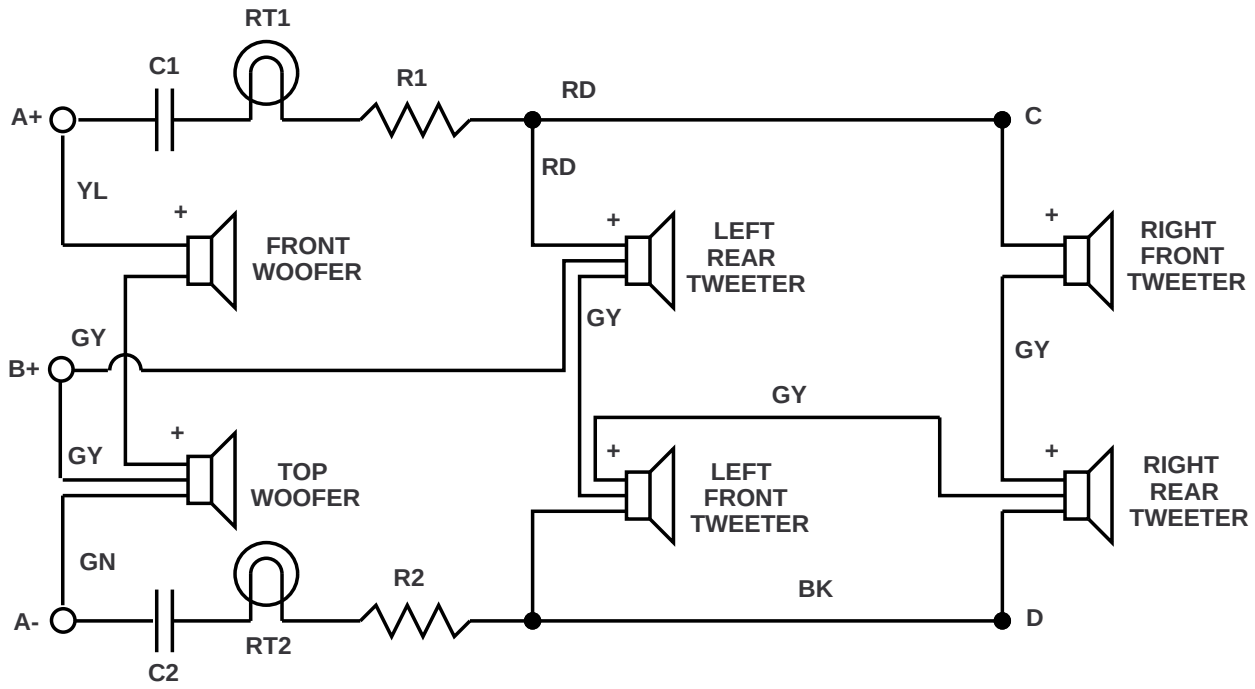

Figure 4. Part 1 (Left) Three terminal Schematic

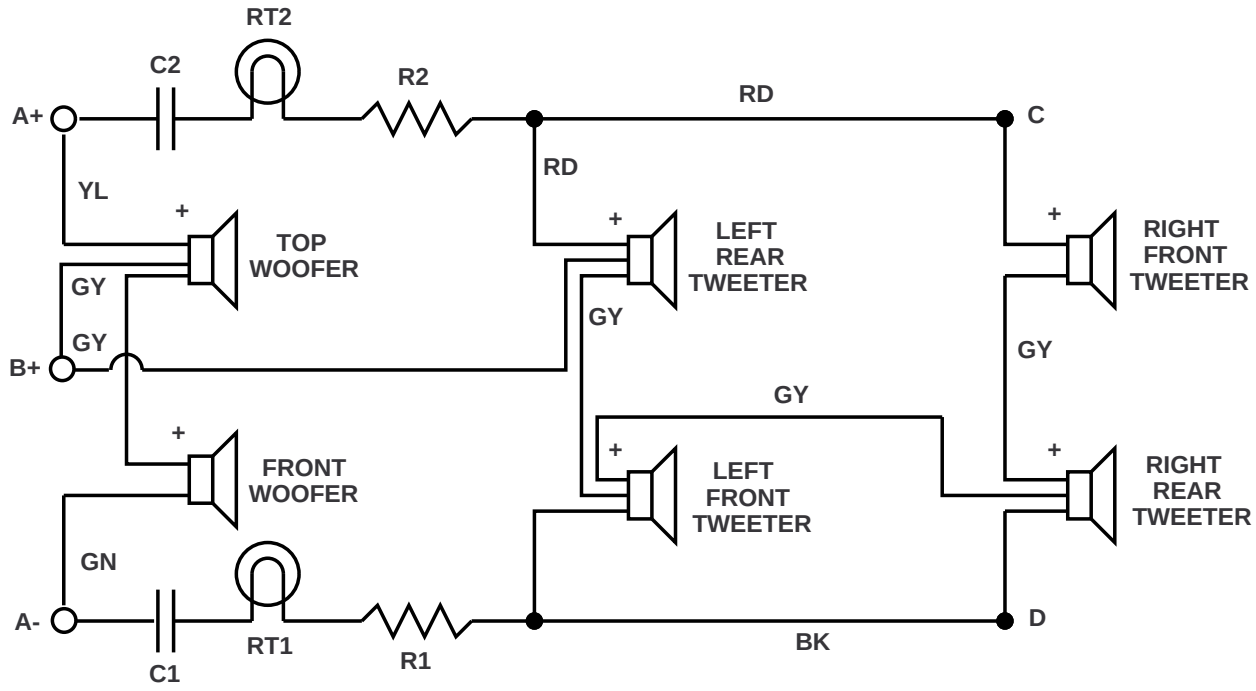

Figure 5. Part 2 (Right) Three Terminal Schematic

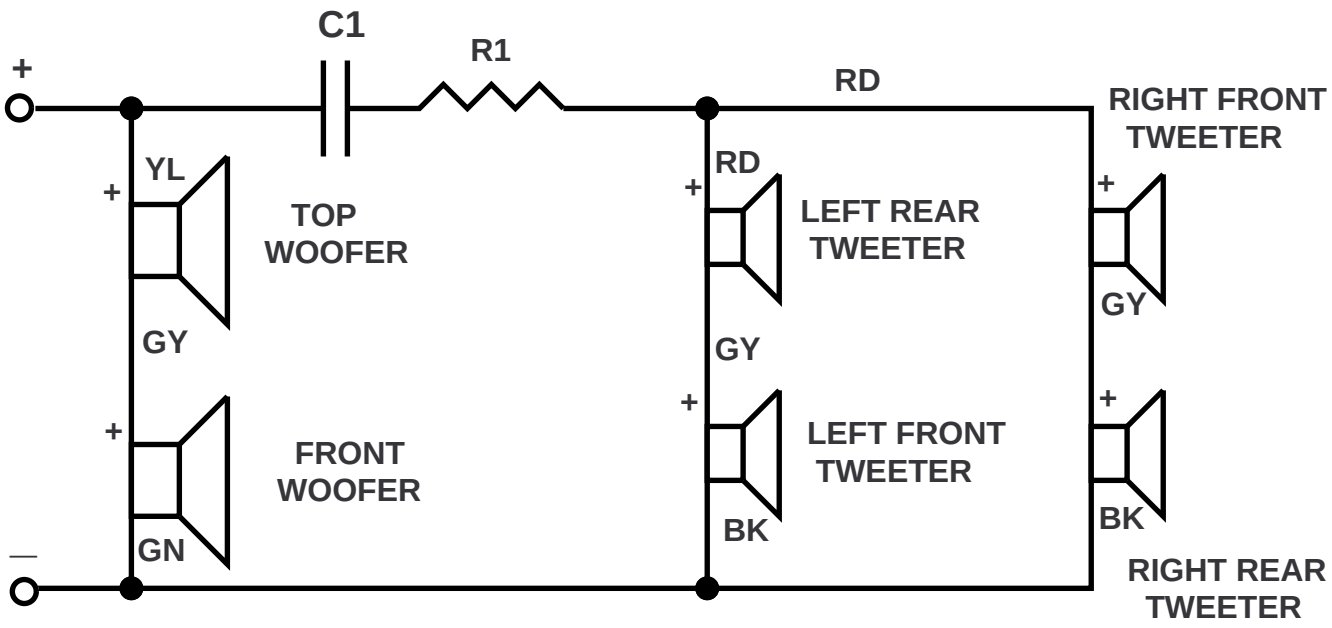

Figure 6. Two Terminal Schematic

SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

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