Model 151SE® Environmental Speaker

Service Manual
Reference Number 273701-SM
Rev. 01

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WARRANTY INFORMATION

The Bose 151SE® Environmental Speaker is covered by a five year transferable warranty.

PRODUCT DESCRIPTION

The Bose 151SE Environmental Speaker offers an advanced design with quality construction. Each loudspeaker contains three 1.4 ohm environmentally resistant Twiddler® speakers in a horizontal arc-shaped 2.2 liter ported enclosure. A protection and equalization circuit is located on the pcb attached to the rear half of the speaker. The speaker has an aluminum grille with a logo which rotates in 90 degree increments. The 151SE is available in black and white.

SPECIFICATIONS

Transducers:	Three 2.5” environmental Twiddler® speakers per enclosure	
Impedance:	6 Ohms nominal (4.8 Ohms minimum) 20-20kHz	
Power Handling:	50 W (17.3Vrms) continuous per IEC-268-5 Recommended amp/receiver power 10-100W per channel	
System Protection:	PTC in parallel with a capacitor	
Sensitivity:	89.5dB SPL at 2.83V, 1meter, 2kHz-octave band	
Flux Leakage:	N/A, not shielded; not for use near a video monitor	
External Dimensions:	12.3” x 4.5” x 6.2” (31.2cm x 11.4cm x 15.8cm)	
Weight:	Single Speaker:	4.6lb. (2.1 kg)
	Packed Pair:	11.7 lb. (5.3 kg)

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.

PACKAGING PART LIST

Item Number	Description	Part Number	Qty.	
1	CARTON, RSC, 17.00X14.19X7.25, C	294090	1	
2	PACKING, EPS, TOP/BOTTOM, 151 II	273823-01	2	
3	BRACKET, SINGLE, KIT, BLK, UV BRACKET, SINGLE, KIT, WHT, UV	315948-004 315948-005	2	
4	GUIDE, OWNERS, 151 II	273809	1	
5	CARD, REGIST. AND WARRANTY	262933	1	
6	BAG, POLY, 14.38x9.87x2 mil	103351	1	
7	COMMITMENT LETTER	251001	1	
8	HARDWARE KIT, 151 SE	292523-002	1	
9	BAG, POLY, 16X18	253804	2	4

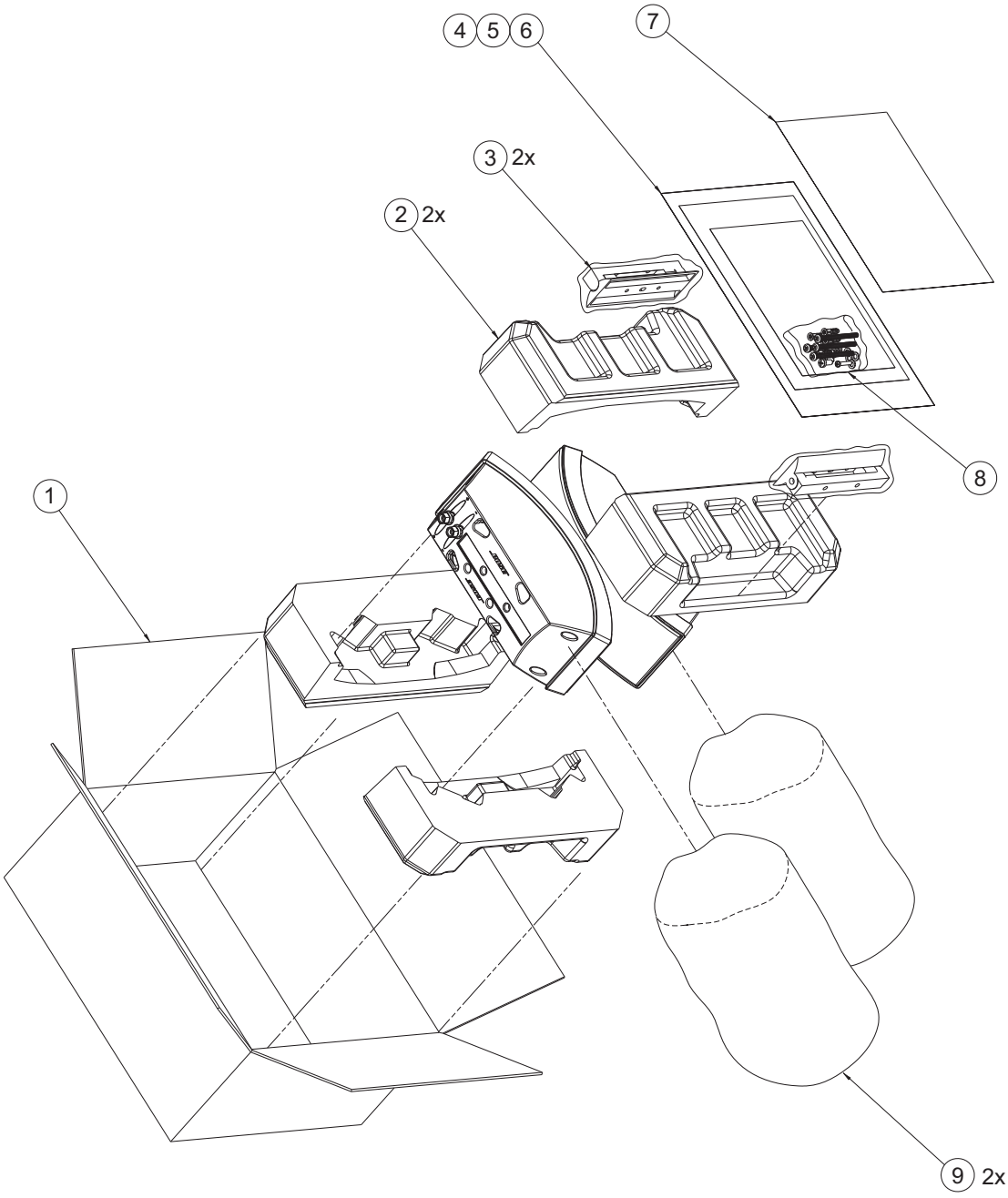


Figure 1. Packaging Exploded View

MAIN PART LIST

Item Number	Description	Part Number	Qty.	Note
1	LOGO, BLACK LOGO, WHITE	273812-01 273812-02	1	
2	TAPE, FOAM, .06 THK	277053-001	2	4
3	GRILLE, ALUM, BLACK GRILLE, ALUM, WHITE	273810-01 273810-02	1	
4	FOAM, LOGO	275803-001	1	
5	RING, RETAINER, LOGO	275804-001	1	
6	ENCLOSURE, BAFFLE, BLACK ENCLOSURE, BAFFLE, WHITE	274260-001 274260-002	1	4
7	TWIDDLER, 60MM, ENVIR., 1.4 OHM	273543-002	3	
8	CONNECTOR, ENVIR, BLK	250815-01	1	
9	CONNECTOR, ENVIR, RED	250815-02	1	
10	ENCLOSURE, BACK, BLACK ENCLOSURE, BACK, WHITE	274261-001 274261-002	1	4
11	SCREW, TAPP, 8-11X.75, PAN, ASY, SQ	296495-012	8	
12	SCREW, TAPP, 6-13X.500, PAN, AS, SQ	296443-008	2	
13	CROSSOVER PCB ASSY, ROHS	289945-001	1	
14	INSERT, NUT, DECORATIVE CAP	123991	2	

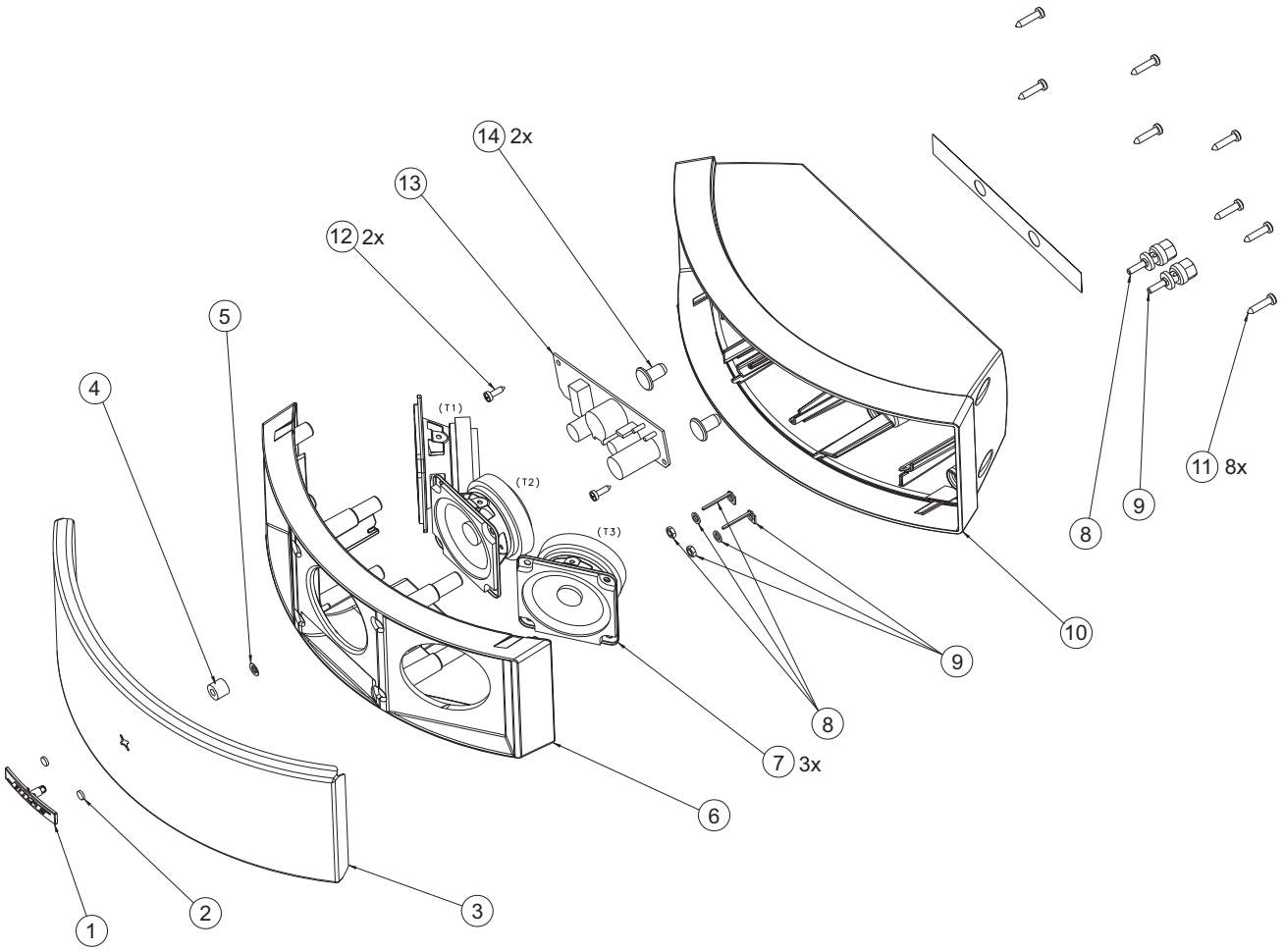


Figure 2. Part Exploded View

CROSSOVER PART LIST

Reference Designator	Description	Part Number	Note
R1	RES, WW, 5W, 10%, 2.7 OHM	132105-2R7	4
R2	JUMPER, 22AWG, INSUL, 1.25”	108435-1R25	4
C1	47uF, EL, BP, 63V, 20%	283940-470A	4
C2	470uF, EL, BP, 85C, 20%	268841-471H	4
C3	100uF, EL, BP, 85C, 20%	268841-Z101H	4
L1	INDUCTOR ASSY, 200uH, ROHS	291571-001	4
J1	PIN, GROOVED, .52x.34x.045	291521-5234	
J2	PIN, GROOVED, .52x.34x.045	291521-5234	
PTC1	POLYSWITCH, 60V, RXE065	275782	
PTC2	JUMPER, 22AWG, INSUL	-	4
-	PC BOARD, MODEL 191	267563-002	4
-	TAPE, FOIL	140551	4
-	RIVET, ANCHOR, PLASTIC, 2-PIECE	250072-001	4

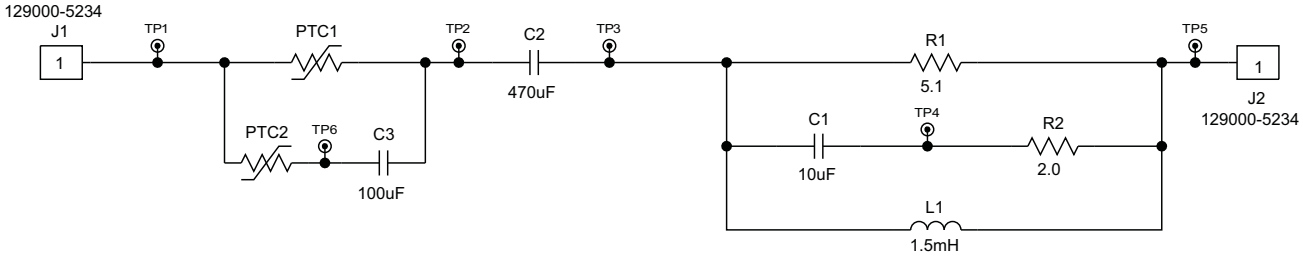


Figure 3. Crossover PCB Schematic

DISASSEMBLY PROCEDURES

1. Grille Removal

1.1 Remove the grille by pulling on the ends with your fingers, or pry carefully with a non-metallic object.

Note: The grille is made entirely of metal. Do not try to remove the grille by pulling on the plastic (polypropylene) speaker enclosure.

2. Enclosure Dissassembly

2.1 To disassemble the enclosure, place the unit on a flat soft surface grille side down. Remove the 8 screws identified below.

Note: The unit is press-fit together. All parts of the unit must be in place prior to replacing the 8 screws.

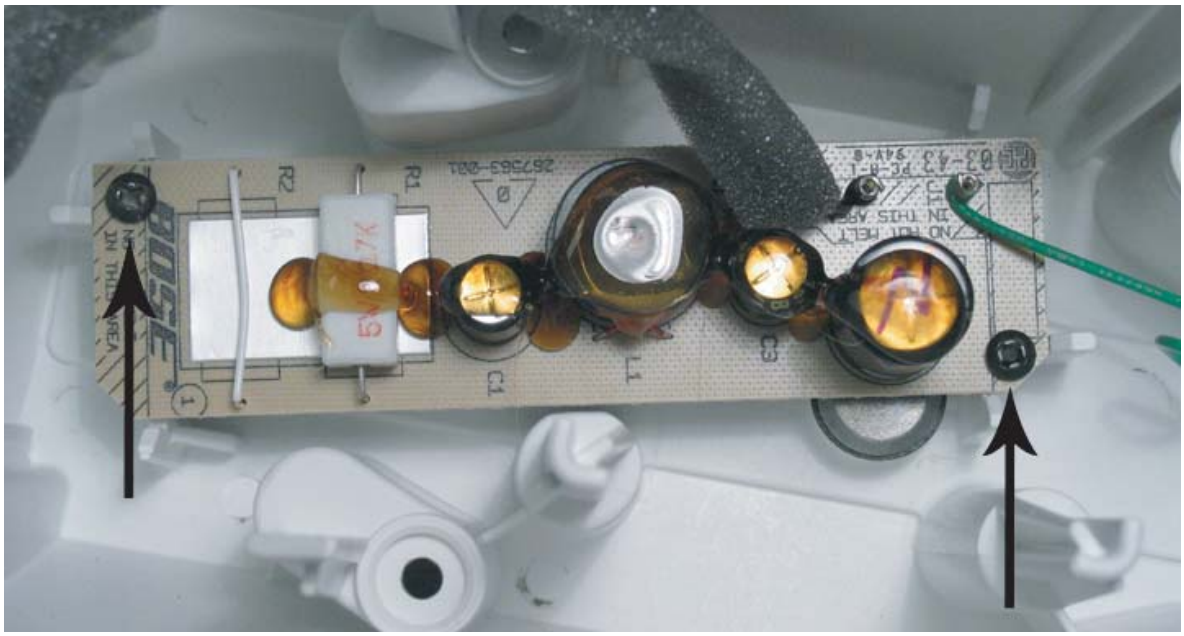
2.2 With the unit face down, gently pull up on the rear enclosure. Be careful not to lift the unit too high, as the Twiddler® speakers are wired to the rear enclosure. Lay the rear enclosure on its side to expose the inside of the unit and the Twiddler speakers as seen below.

DISASSEMBLY PROCEDURES

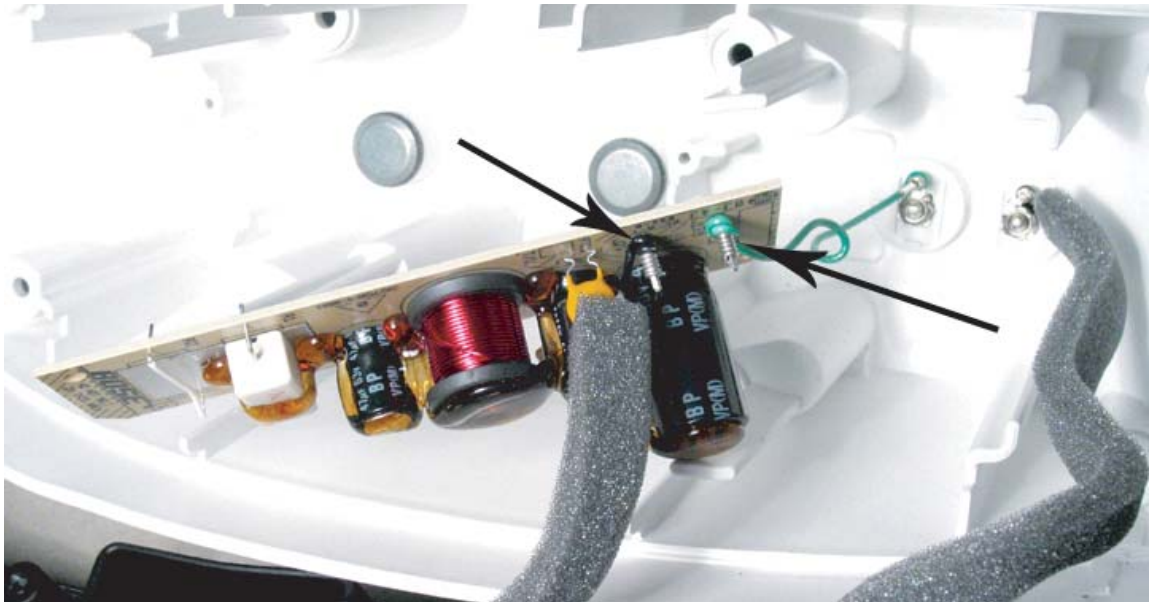
Note: There are no screws in the Twiddler® speakers, they are held in place by the press fit between the rear enclosure and the baffle.

3. Crossover PCB Removal

3.1 Perform Procedure 1.
3.2 Remove the 2 screws identified below that secure the crossover assembly to the cabinet.



3.3 Make a note of the wiring configuration. Lift out the crossover PCB and cut the wires as close to the terminals as possible.



DISASSEMBLY PROCEDURES

4. Twiddler® Removal

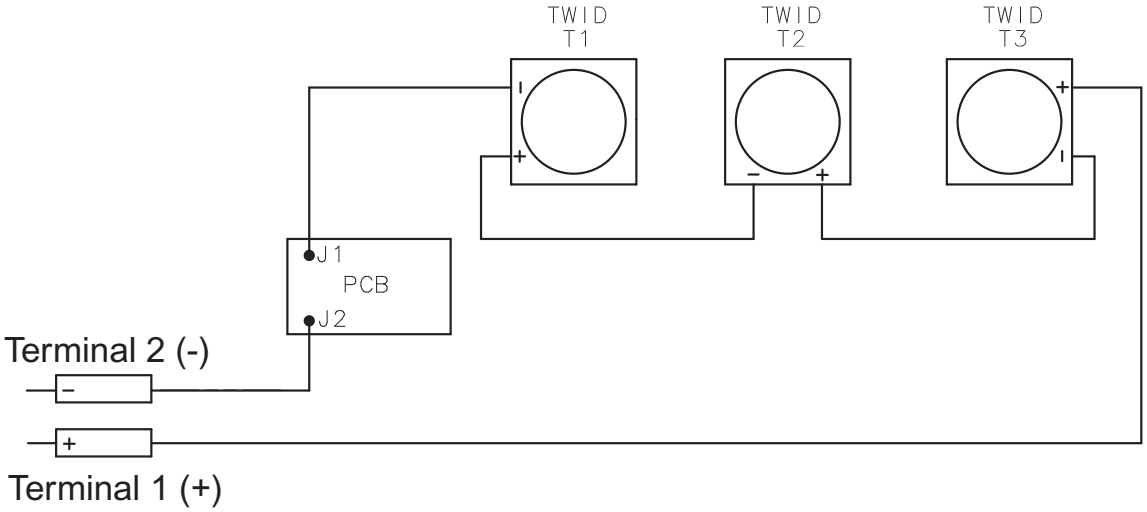
4.1 Perform procedure 1.

4.2 Make a note of the wiring configuration. Lift the Twiddler speakers out and cut the wires as close to the wire terminals as possible.

5. Twiddler Replacement

5.1 Set the center Twiddler speaker in place first, then the two outer Twiddler speakers. Take care to lower the outer Twiddler speakers straight down when setting them in place, this will ensure that the gasket seats in the correct location.

5.2 Wire the Twiddler speakers as shown below.



Wiring Diagram

DISASSEMBLY PROCEDURES

6. Enclosure Re-assembly

6.1 Re-install the Crossover PCB. Connect the PCB as shown in the wiring diagram and the schematic diagram.

6.2 With the baffle face down, lower the enclosure over the baffle. Dress the foamed wires toward the center of the loudspeaker enclosure.
Note: Ensure there are no wires visible through the speaker port once assembled.

6.3 Reinsert the 8 screws that secure the enclosure to the baffle assembly.

6.4 Perform the test procedures in this manual to ensure that there are no air leaks or wire buzzes before returning the speaker to the customer.

7. Grille Replacement

7.1 Align the grille to the speaker enclosure and push in lightly.

TEST PROCEDURES

1. Air Leak Test

1.1 Apply an 8Vrms,105Hz signal to the speaker input terminals.

1.2 Listen to the front of the speaker carefully for air leaks from around the cabinet seams, and Twiddler® speakers. Turn the speaker over and listen for air leaks from the enclosure securing screws and drivers.

2. Sweep Test

2.1 Apply a 6Vrms Vrms, 10Hz signal to the speaker input terminals.

2.2 Sweep the signal generator from 10Hz to 3kHz and then back to 10Hz.

2.3 Listen carefully for buzzes, ticks, rattles or other noises. Replace the Twiddler speakers if they are found to be defective.

Note: To distinguish between normal suspension noise and rubs or ticks, slightly displace the cone of the twiddler with your fingers. If the noise can be made to go away or get worse, it is a rub or tick and the twiddler should be replaced. If the noise stays the same, it is normal suspension noise and the twiddler is okay. Suspension noise will not be heard with program material.

SERVICE MANUAL REVISION HISTORY

Date	Revision Level	Description of Change	Change Driven By	Pages Affected
1/04	00	Document released at revision 00.	Service manual release	All
7/08	01	Various part number changes. Service manual format updated.	Part changes	Various

Specifications and Features Subject to Change Without Notice

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http://serviceops.bose.com