Sub1
Powered Bass Module

Service Manual
Reference Number 840918-SM
REV 01

CONTENTS

SAFETY INFORMATION

1. Parts that have special safety characteristics are identified by the ⚠ symbol on schematics or by special notes on the parts list. Use only replacement parts that have critical characteristics recommended by the manufacturer.

2. Make leakage current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the unit to the customer.

Use the following checks to perform these measurements:

A. Leakage Current Hot Check - With the unit completely reassembled, plug the AC line cord directly into a 264V (line-neutral), 60Hz power source. (Do not use an isolation transformer during this test.)

Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) UL 101 “Leakage Current for Appliances” and Underwriters Laboratories (UL) 60065/ IEC 60065 Clause 9.1.1.

With the unit Standby switch either in the ON position or OFF position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the unit (antennas, handle bracket, metal cabinet, screwheads, metallicoverlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis.

Any current measured must not exceed 3.5 mA (or MIU). Reverse the unit power cord plug in the outlet and repeat test.

ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE UNIT TO THE CUSTOMER.

B. Insulation Resistance Test Cold Check - (1) Unplug the power supply and connect a jumper wire between line and neutral blades of the plug.

(2) Measure the resistance with an ohmmeter between the jumpered AC plug and each exposed metallic cabinet part on the unit. The resistance measured to the product enclosure should be between 2 and infinite MOhms. Also, the resistance measured to exposed input/output connectors should be between 4 and infinite MOhms.

If it is not within the limits specified, there is the possibility of a shock hazard, and the unit must be repaired and rechecked before it is returned to the customer.

CAUTION: The Bose Sub1 Powered Bass Module contains no user-serviceable parts. To prevent warranty infractions, refer servicing to warranty service stations or factory service.

Electrostatic Discharge Sensitive (ESDS) Device Handling

This unit contains ESDS devices. We recommend the following precautions when repairing, replacing or transporting ESDS devices:

- Perform work at an electrically grounded work station.
- Wear wrist straps that connect to the station or heel straps that connect to conductive floor mats.
- Avoid touching the leads or contacts of ESDS devices or PC boards even if properly grounded. Handle boards by the edges only.
- Transport or store ESDS devices in ESD protective bags, bins, or totes. Do not insert unprotected devices into materials such as plastic, polystyrene foam, clear plastic bags, bubble wrap or plastic trays.

WARRANTY

The Bose Sub1 Powered Bass Module is covered by a limited 5-year transferable warranty. Units that fail within 90 days of sale should be replaced.

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.

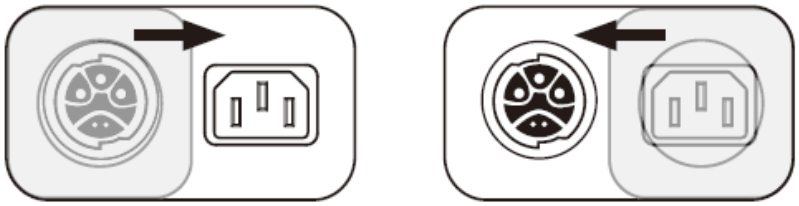
PRODUCT DESCRIPTION

Sub1 is Powered Bass Module which includes one 7” x 13” Racetrack Woofer, built-in 500W Amplifier and 2 input channels with line outputs.

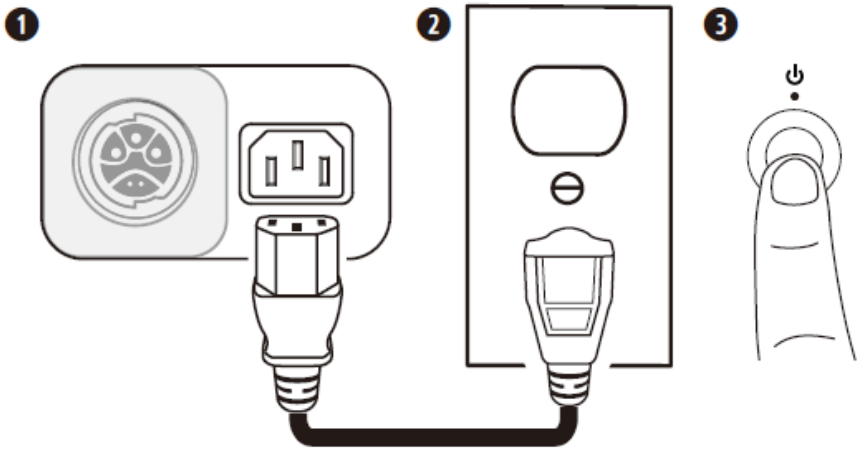
There are two ways to connect a Sub to power: connecting to a power outlet or connecting to an L1 Pro32 with a SubMatch cable. The **Power Input Cover** prevents simultaneous connection of both power inputs. Only one of the two power connections should be used at a time.

If connecting directly to a power outlet, slide the **Power Input Cover** to the left, concealing the SubMatch Input. If connecting to an L1 Pro32 with a SubMatch cable, slide the **Power Input Cover** to the right, concealing the **Power Input**.

WARNING: *Do not alter, modify, or remove the sliding cover over the power input of the Sub1/Sub2. There is uninsulated, dangerous voltage within the product enclosure that may present a risk of electrical shock.*



Connecting Directly to a Power Outlet



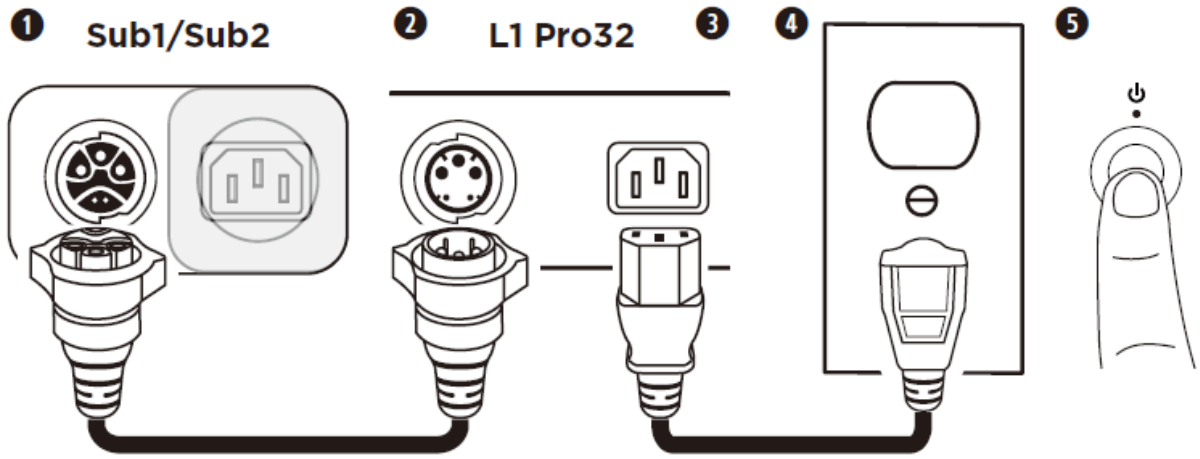
1. Plug the power cord into the **Power Input**.
2. Plug the other end of the power cord into a live electrical outlet.

Note: *Do not power on the Sub until after you've connected your sources.*

3. Press the **Standby Button**. The LED will illuminate white while the Sub is on.

PRODUCT DESCRIPTION

Connecting to an L1 Pro32 with a SubMatch Cable



1. Plug the SubMatch cable into the **SubMatch Input** on a Sub1/Sub2.
2. Plug the other end of the SubMatch cable into the **SubMatch Output** of the L1 Pro32.
3. Plug the power cord into the **Power Input** on the L1 Pro32.
4. Plug the other end of the power cord into a live electrical outlet.

Note: *Do not power on the L1 Pro or the Sub until after you've connected your sources. See the L1 Pro32 owner's guide at* ***PRO.BOSE.COM*** *for more information about connecting sources to an L1 Pro32.*

5. Press the **Standby Button** on the L1 Pro32 then press the **Standby Button** on the Sub. The LEDs will illuminate white while the L1 Pro and Sub are on.

Note: *Press and hold the* ***Standby Button*** *for 10 seconds to reset the Sub to factory settings.*

When using two Subs via SubMatch cable connection, first turn on the Sub connected directly to the L1 Pro32, then turn on the second Sub.

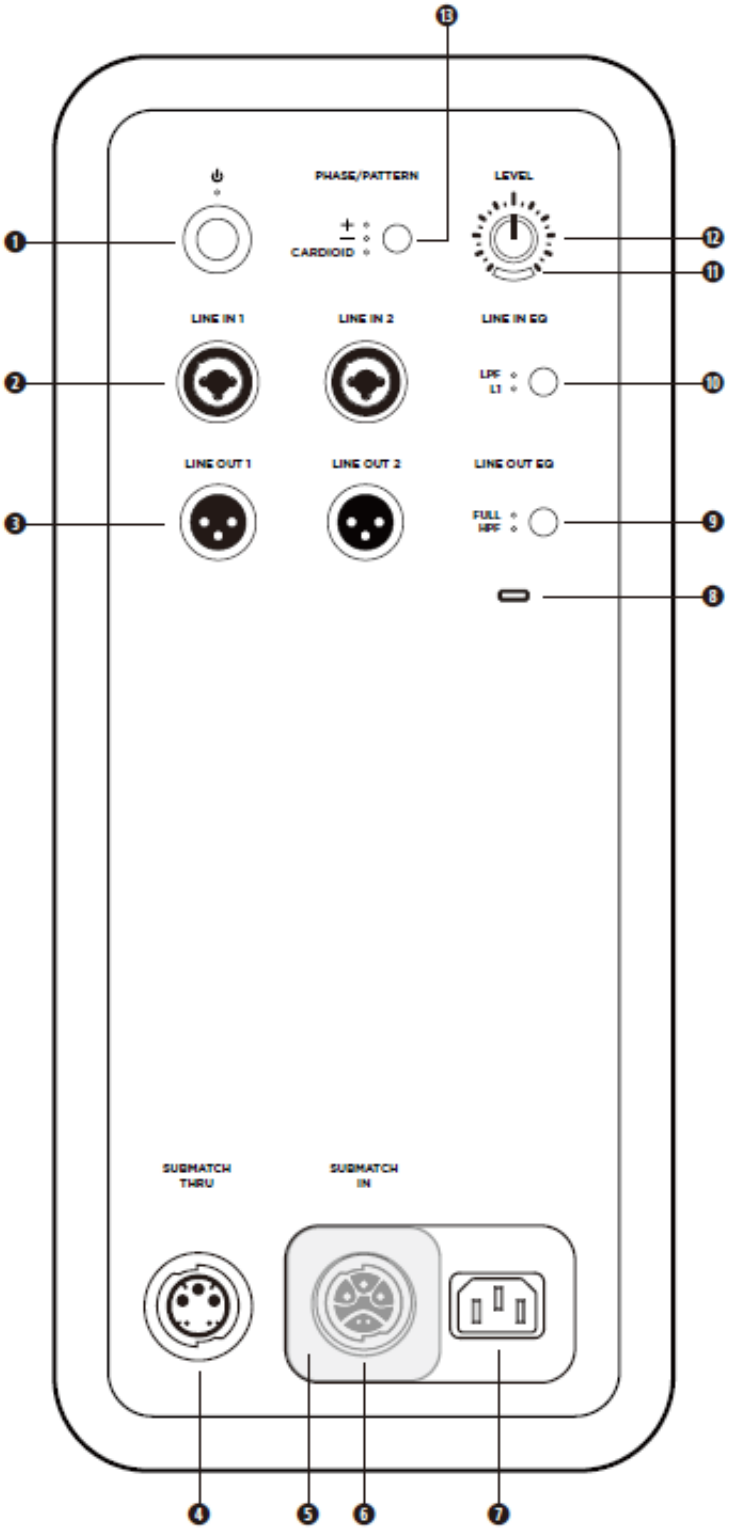
AutoOff/Low-power Standby

After four hours of no use, the Sub will enter AutoOff/Low-power Standby mode to save power. To wake the Sub from AutoOff/Low-power Standby mode, press the **Standby Button**.

Note: *Disable AutoOff/Low-power Standby mode by pressing and holding the* ***Phase/Pattern Button*** *and* ***Line Output EQ*** *button simultaneously for 10 seconds. Enable AutoOff/Low-power Standby mode by repeating this step. Disabling AutoOff/Low-power Standby mode will result in higher energy usage when the Sub is not in use.*

PRODUCT DESCRIPTION

Connections and Controls



❶ **Standby Button:** Press the button to power on the Sub. The LED will illuminate white while the Sub is on.

❷ **Line Inputs:** Analog input for connecting an L1 Pro or other line-level audio source. Compatible with XLR, TRS balanced, and TS unbalanced cables.

❸ **Line Outputs:** Use an XLR cable to connect the line-level output to a loudspeaker.

❹ **SubMatch Thruput:** Connect an additional Sub bass module with a SubMatch cable. Up to two Sub1 or Sub2 powered bass modules can be powered by a single L1 Pro32 via SubMatch connection.

❺ **Power Input Cover:** Prevents simultaneous use of the **SubMatch Input** and **Power Input**. Slide the cover to reveal the power input that is needed for setup.

❻ **SubMatch Input:** Connect the Sub to an L1 Pro32 with a SubMatch cable.

❼ **Power Input:** IEC power cord connection.

❽ **USB Port:** USB-C connector for Bose service use and firmware updates.
Note: *This port is not compatible with Thunderbolt 3 cables.*

❾ **Line Output EQ:** Select between **FULL** bandwidth or a multi-purpose HPF when using **Line Outputs**. Press the button to switch EQ settings. The corresponding LED will illuminate white while selected.

❿ **Line Input EQ:** Select between an optimized EQ for an L1 Pro or a multi-purpose LPF when using **Line Inputs**. Press the button to switch EQ settings. The corresponding LED will illuminate white while selected.

⓫ **Signal/Clip Indicator:** The LED will illuminate green when a signal is present and will illuminate red when the signal is clipping or the Sub is entering limiting. Reduce the level or signal volume to prevent signal clipping or limiting.

⓬ **Level Control:** Adjust the level of audio output. The **Level Control** does not affect the **Line Outputs**. The 12 o'clock position is recommended when in use with an L1 Pro32.

⓭ **Phase/Pattern Button:** Adjust the polarity of the Sub. Press the button to switch polarity. The corresponding LED will illuminate white while selected. Also allows access to Cardioid mode when using two identical Sub modules.

Packaging Part List

Sub1 Powered Bass Module (see Figure 1)

Item Number	Description	Part Number	Notes
1	GUIDE, SAFETY	853577-0010	
2	GUIDE, QUICK START	853576-0010	
3	CABLE, LINE CORD, IEC C13, NA	350745-0010	3 ⚠
	CABLE, LINE CORD, IEC C13, EU	350747-0010	
	CABLE, LINE CORD, IEC C13, JP	350749-0020	
	CABLE, LINE CORD, IEC C13, UK	350748-0010	
	CABLE, LINE CORD, IEC C13, AU	350746-0010	
4	CARTON	856612-0010	
5	SLIP COVER	856610-0110	
6	EPE FOAM, BACK	856614-0010	
7	EPE FOAM, FRONT	856613-0010	
NA	GUIDE,SLIP SHEET, FIRMWARE UPDATE	865083-0010	

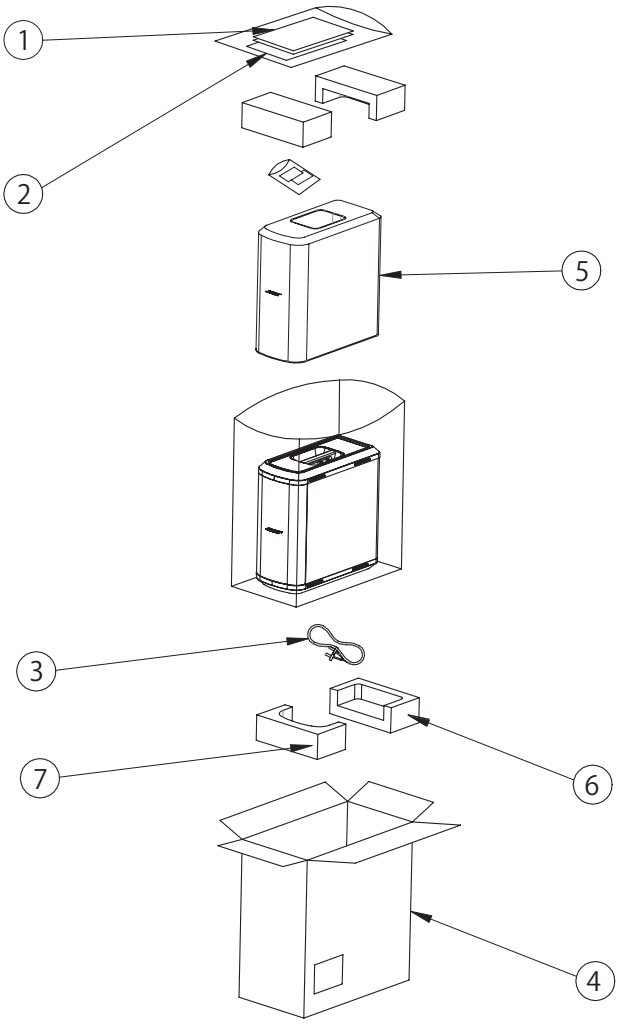


Figure 1. Sub1 Packaging Exploded View

Main Part List

Sub1 (see Figure 2)

Item Number	Description	Material Number	Notes
1	LOGO, ASSY, GRILLE	842805-011S	
2	SILICON SHEET BLACK ADHESIVE 3M9448A	-	
3	GRILLE SUBASSY, SVCE	864858-011S	
4	EVA 38°ADHESIVEL297XW17XT1.0MM	-	
5	NON WOVEN SHEET_BLACK_ADHESIVE 3M 9 K	-	
6	DETENT POM 94HB BLACK K	-	
7	BACKER POM 94HB BLACK K	-	
8	SPRING OD9.3XID5.2XL12.9XD0.8 BLACK PL K	-	
9	WASHER_SPCC_ZN-NI ALLAY PLATING K	-	
10	SCREW T3XL12 1.3P_ZINC+NI K	-	
11	SCREW M4XL19 0.7P_NYLOK_CED COA K	-	
12	WOOFER	839711-0110	
13	GASKET_EVA_BLACK_ADHSIVE DS11 K	-	
14	POLE MOUNT ADC12 BLACK POWDER L	-	
15	SCREW M5XL25 0.8P_NYLOK_CED COA K	-	
16	PC SHEET_ADHESIVE 3M 9448AB TAPE L	-	
17	HANDLE PP 94HB BLACK L	-	
18	NUT M8X1.25P STEEL CED COATING K	-	
19	EVA B_BLACK_ADHESIVE DS K	-	
20	EVA A_BLACK_ADHESIVE DS K	-	
21	END CAP TOP PP KINGFA 94HB BLACK L	-	
22	FOOT BOTTOM BLACK R	840876-0110	
23	WASHER OD16XID8.1XT1.1 CED COATING K	-	
24	WASHER OD12.7XID8.5XT2.0 SUS304 K	-	
25	SCREW M8XL30 1.25P ZINC+CED COA K	-	
26	GASKET_PE FOAM_BLACK_ADHSIVE DS11 K	-	
27	GASKET_EVA+0.15T PET_38 DEGREE_BLAC K	-	
28	SCREW T4.0XL32 1.3P_ZINC+CED COAT K	-	
29	CABLE 4P 3.96+1P 250TERMINAL+1P 205TER K	-	
30	AMP ASSY	-	
31	SCREW T4.0XL25 2.7P_ZINC+NI K	-	
32	CABINET_PLYWOOD K	-	
33	GASKET_PE FOAM_BLACK_ADHESIVE DS11 K	-	
34	GASKET_EVA_38 DEGREE_BLACK_ADHSIVE K	-	
35	END CAP BOTTO PP KINGFA 94HB BLACK L	-	
36	FOOT BOTTOM BLACK L	840826-0010	
37	SCREW M4XL16 0.7P_NYLOK_CED COA K	-	
38	INLAY, BTM ENDCAP, REAR	840819-0110	

Main Part List

Sub1 (see Figure 2)

Item Number	Description	Material Number	Notes
39	INLAY, BTM ENDCAP, SIDE	841678-0110	
40	INLAY, BTM ENDCAP, FRONT	840820-0110	
41	PRODUCT LABEL_PC SHEET_TRANSPARENT L	-	

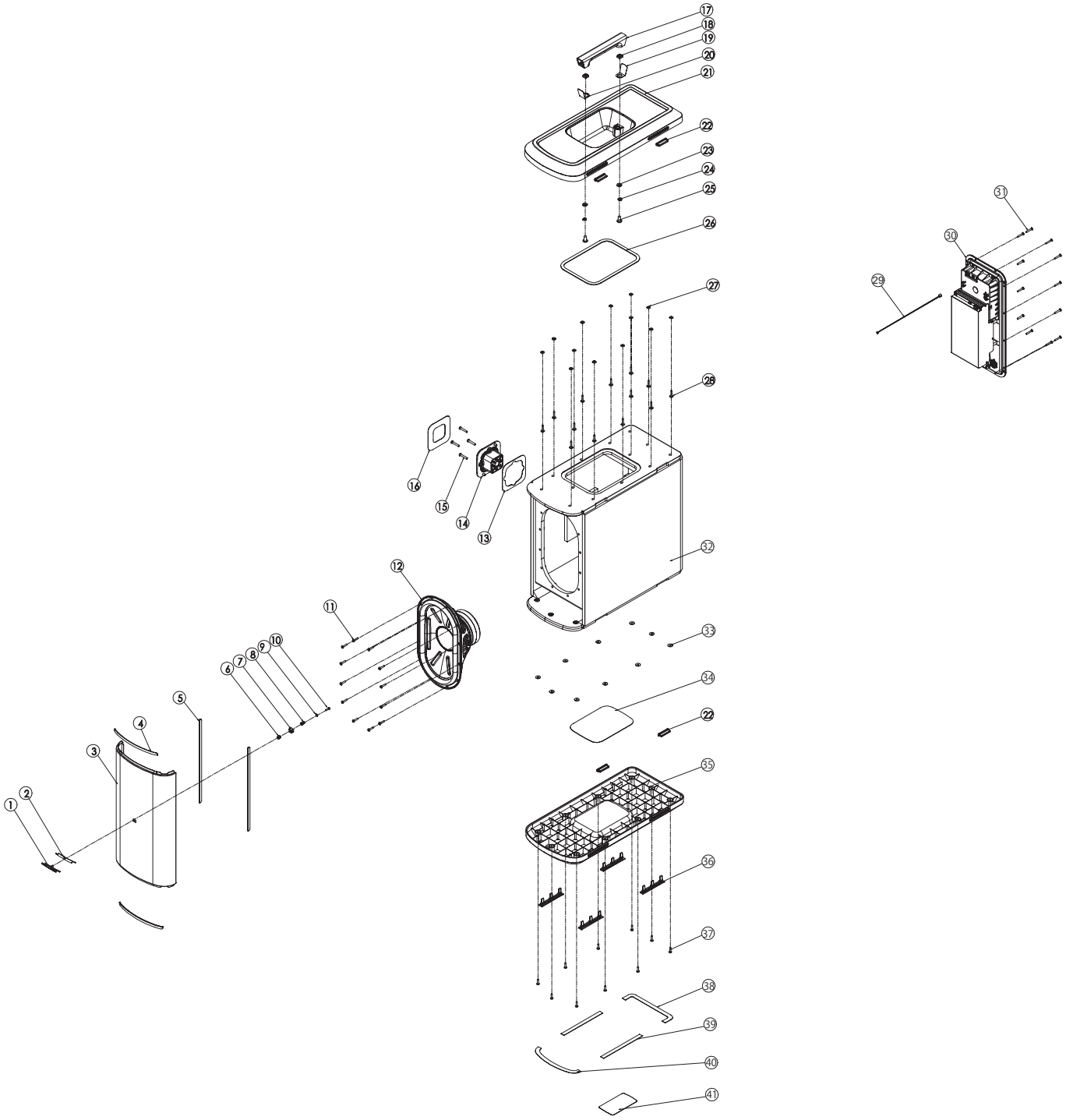


Figure 2. Sub1 Exploded View

Main Part List

Sub1 I/O Panel Assy (see Figure 3)

Item Number	Description	Material Number	Notes
1	SCREW M3.0XL9 0.5P BLUE ZINC+NYL K	-	
2	SCREW T3XL6 1.3P_NICKEL PLATIN K	-	
3	SHIELD COVER SECC NATUR COLOR K	-	
4	SOLDER LUG OD8.0*ID4.1*L56 K		
5	EVA_38 DEGREE_BLACK_ADHESIVE DS11	-	
6	SCREW T3.0XL15 1.27P ZINC+CED COA K	-	
7	WASHER OD5.0XID3.1XT2.0 STEEL NICKEL L	-	
8	PLATE HEATSINK P AL1050 NATUR COLOR K	-	
9	THERMAL PAD	-	
10	THERMAL PAD 2	-	
11	U CLIP	-	
12	POWER-AMP PCBA SVCE	864948-001S	
13	TANDOFF PLASTIC	-	
14	THERMAL GREASE TG3500 K	-	
15	THERMAL PAD 3	-	
16	SCREW T3XL12 0.5P BZN+CED+HT K	-	
17	HEATSINK BRIDGE AL6063 NATUR COLOR K	-	
18	SPONGE_YU356A FOAM_ADHSIVE 3212 K	-	
19	NUT M4XOD8.0XH4.1 0.7P STEEL NI ELECTR K	-	
20	FIRE BOX PC+ABS 94V0 BLACK K	-	
21	GASKET_PE FOAM_BLACK_ADHSIVE DS11 K	-	
22	GASKET FOAM_BLACK_ADHSIVE DS11 K	-	
23	GASKET FOAM_BLACK_ADHSIVE DS11 K	-	
24	MAIN-I/O PCBA SVCE	864960-001S	
25	EVA 38°+PET L19.5XW9.4XT0.5MM K	-	
26	VOLUME LIGHT GUI KINGFA JH 94V2 MILK K	-	
27	EVA 38°+PET L15.3XW6.8XH0.5MM K	-	
28	EVA_38 DEGREE_BLACK_ADHESIVE DS11 K	-	
29	POWER LIGHT GUID KINGFA JH 94V2 MILK K	-	
30	POWER BUTTON PC+ABS 94V0 BLACK K	-	
31	PE FOAM_BLACK_ADHSIVE DS11 K	-	
32	POWER BUTTON RIN PC+ABS 94V0 BLACK K	-	
33	GASKET_EVA_38 DEGREE_BLACK_ADHSIVE	-	
34	EQ LIGHT GUIDE KINGFA JH 94V2 MILK K	-	
35	EQ BUTTON PC+ABS 94V0 BLACK K	-	
36	E-4308_BLACK K	-	
37	LINT GARSKET_BLACK_ADHESIVE DS11 K	-	
38	GASKET_EVA_38 DEGREE_BLACK_ADHSIVE	-	
39	POLARITY LIGHT G KINGFA JH 94V2 MILK K	-	

Main Part List

Sub1 I/O Panel Assy (see Figure 3)

Item Number	Description	Material Number	Notes
40	POLARITY BUTTON PC+ABS 94V0 BLACK K	-	
41	EVA_38 DEGREE_BLACK_ADHESIVE DS11 K	-	
42	TUBE PVC 30 38 - K 1000 EA 1	-	
43	HOT MELT GLUE XH150 10MMX300MM K	-	
44	704 BLACK SILICON GLUE	-	
45	NUT M3.0X0.5PXOD5.5XL2.3 NICKEL PLATE K	-	
46	PLUG 250VA 10A NA JINJIA K	-	
47	HOLDER A\C INLET PC+ABS 94V0 BLACK	-	
48	SCREW M3XL10 0.5P_NYLOK_ZINC+NI K	-	
49	SLIDE DOOR PC+ABS 94V0 BLACK	-	
50	SILICON SHEET_60 DEGREE_BLACK_ADHES	-	
51	GREEN GLUE HAOZHENG:HD-200G L	-	
52	1P YELLOW\GREEN 16AWG 100MM X-P K	-	
53	SILICON GREASE SLD-746 K	-	
54	GASKET_EVA_38 DEGREE_BLACK_ADHSIVE		
55	GASKET_EVA_38 DEGREE_BLACK_ADHSIVE		
56	IO PANEL AL1050 NATUR COLOR K	-	
57	VOLUME KNOB ABS 94V2 BLACK K	840887-0110	
58	SCREW T3XL12 1.3P_ZINC+NI K	-	
59	SCREW M3XL10 0.5P_NYLOK ZINC+NI K	-	
60	SCREW T3XL12 P1.3 ZINC+NI K	-	
61	CABLE BASS MATCH MALE+2+2+2+2+1PIN K	-	
62	TUBE PVC 12 35MM N\A K	-	
63	CABLE BASS MATCH FEMALE+1P+2P 2.0 K	-	

I/O Panel Assy Exploded View

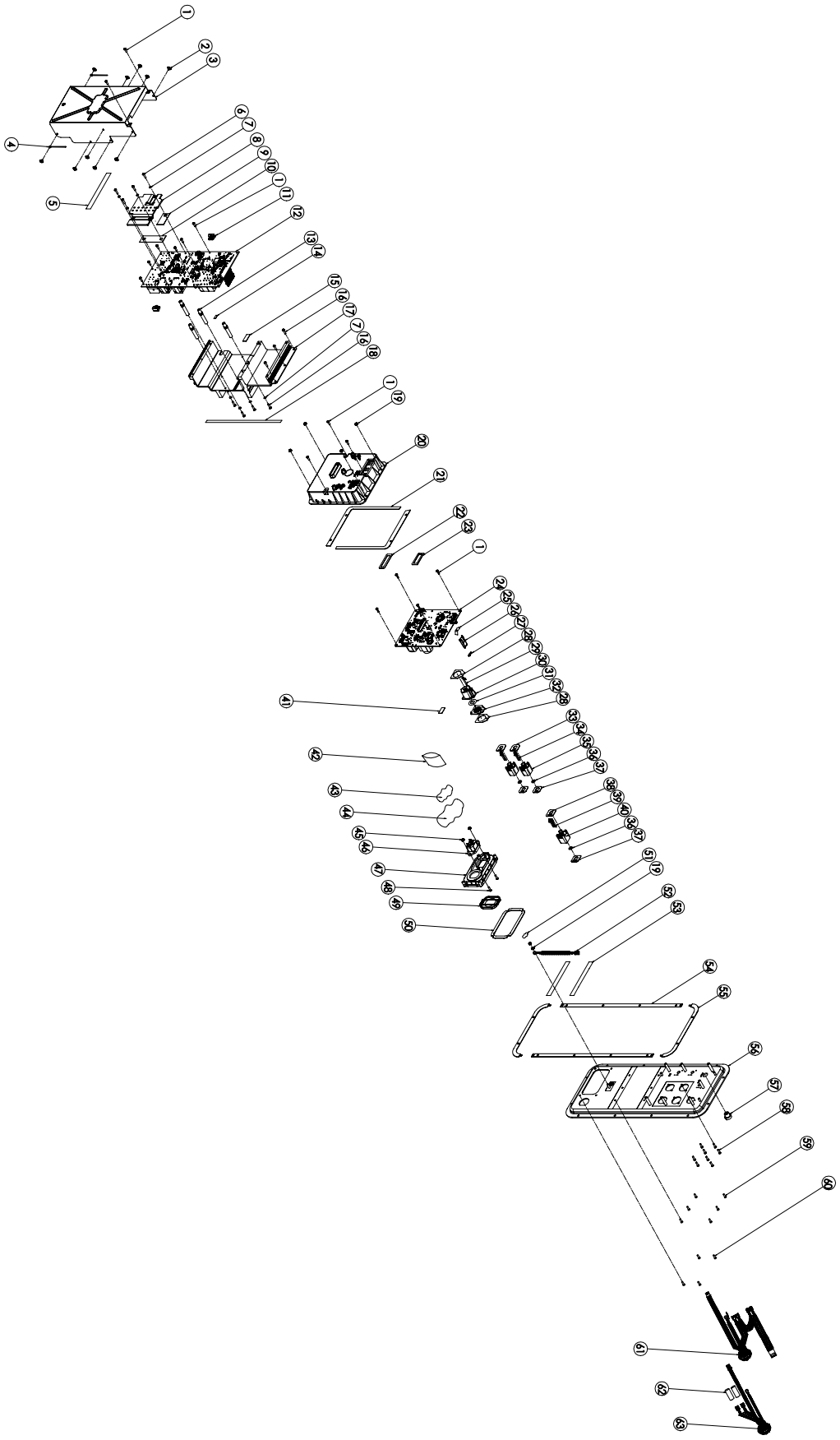


Figure 3. Sub1 I/O Panel Assy Exploded View

MAIN-I/O PCB PARTS LIST

Resistors

Reference Designator	Description	Material Number	Note
R100	RES, THICK FILM, 0603, 0.1W, 1%, 10 OH	857326-0181	
R103, R239, R244, R253, R259, R261	RES, THICK FILM, 0603, 0.1W, 1%, 100K	857326-0094	
R133-R135, R146-R147, R150-R151	RES, THICK FILM, 0402, 0.063W, 1%, 390 OHM	857326-0063	
R143	RES, THICK FILM, 0402, 0.063W, 1%, 200 OHM	857326-0037	
R164	RES, THICK FILM, 0603, 0.1W, 1%, 1K	857326-0092	
R17-R19, R25-R27, R31-R32, R34-R39, R42-R43, R45, R155-R156, R158-R159, R165-R168, R170, R173-R174, R180-R182, R184, R188, R199-R201, R204, R213, R229, R231-R232, R254, R267-R271	RES, THICK FILM, 0402, 0.063W, 1%, 33 OHM	857326-0058	
R192, R195	RES, THICK FILM, 0402, 0.063W, 1%, 22K	857326-0045	
R197	RES, THICK FILM, 0402, 0.063W, 1%, 120 OHM	857326-0026	
R1-R2, R28-R29, R33, R85, R97, R104, R123, R172, R273	JUMPER, CHIP, 0603	857326-0218	
R20-R23, R96, R98, R101, R136-R141, R144, R148-R149, R152-R153, R157, R194, R198, R207-R209	RES, THICK FILM, 0402, 0.063W, 1%, 10K	857326-0021	
R210	RES, THICK FILM, 0603, 0.1W, 1%, 68.1 OHM	857326-0173	
R211	RES, THICK FILM, 0603, 0.1W, 1%, 75 OHM	857326-0177	
R220	RES, THICK FILM, 0402, 0.063W, 1%, 180K	857326-0036	
R221	RES, THICK FILM, 0603, 0.1W, 1%, 240 OHM	857326-0131	
R223, R230, R233-R236, R245-R251	JUMPER, CHIP, 0805	857326-0219	
R224	RES, THICK FILM, 0402, 0.063W, 1%, 36K	857326-0060	
R225, R227	RES, THICK FILM, 0402, 0.063W, 1%, 43.2K	857326-0067	
R226	RES, THICK FILM, 0603, 0.1W, 1%, 68K	857326-0172	
R228	RES, THICK FILM, 0603, 0.1W, 1%, 3.01K	857326-0141	

MAIN-I/O PCB PARTS LIST

Resistors (continued)

Reference Designator	Description	Material Number	Note
R237, R240, R243, R256, R260	RES, THICK FILM, 0603, 0.1W, 1%, 10K	857326-0093	
R238, R252	RES, THICK FILM, 0402, 0.063W, 1%, 220K	857326-0046	
R24	RES, THICK FILM, 0402, 0.063W, 1%, 1.2K	857326-0027	
R241, R258	RES, THICK FILM, 0402, 0.063W, 1%, 47K	857326-0071	
R255	RES, THICK FILM, 0402, 0.063W, 1%, 453K	857326-0068	
R3, R9-R10, R16, R145, R183, R205-R206	RES, THICK FILM, 0603, 0.1W, 1%, 6.2K	857326-0170	
R30, R169, R214-R215, R265-R266	JUMPER, CHIP, 0402	857326-0217	
R4, R6, R12, R14	RES, THICK FILM, 0603, 0.1W, 1%, 3.3K	857326-0144	
R40	RES, THICK FILM, 0402, 0.063W, 1%, 4.32K	857326-0066	
R41, R202-R203	RES, THICK FILM, 0402, 0.063W, 1%, 2.2K	857326-0044	
R44, R132, R193	RES, THICK FILM, 0402, 0.063W, 1%, 100 OHM	857326-0019	
R46, R51, R57, R62	RES, THICK FILM, 0603, 0.1W, 1%, 1.8K	857326-0115	
R47, R54, R58, R65, R71, R88, R109, R126, R222	RES, THICK FILM, 0603, 0.1W, 1%, 100 OHM	857326-0091	
R48, R55, R59, R66	RES, THICK FILM, 0805, 0.125W, 1%, 100 OHM	857326-0186	
R49, R52, R60, R63	RES, THICK FILM, 0603, 0.1W, 1%, 56K	857326-0167	
R5, R7, R13, R15, R70, R74, R87, R91, R108, R112, R125, R129	RES, THICK FILM, 0603, 0.1W, 1%, 180 OHM	857326-0114	
R50, R53, R61, R64, R160-R163	RES, THICK FILM, 0603, 0.1W, 1%, 12K	857326-0101	
R56, R142, R154, R171, R212	RES, THICK FILM, 0402, 0.063W, 1%, 1K	857326-0020	
R67, R79-R80, R93, R105, R117-R118, R131, R242	RES, THICK FILM, 0603, 0.1W, 1%, 13.7K	857326-0105	
R69, R73, R86, R90, R107, R111, R124, R128, R178-R179, R185-R187, R189-R190, R216	RES, THICK FILM, 0603, 0.1W, 1%, 6.8K	857326-0171	
R72, R89, R110, R127	RES, THICK FILM, 0603, 0.1W, 1%, 47 OHM	857326-0159	

MAIN-I/O PCB PARTS LIST

Resistors (continued)

Reference Designator	Description	Material Number	Note
R77-R78, R81-R82, R115-R116, R119-R120	RES, THICK FILM, 0603, 0.1W, 1%, 470 OHM	857326-0154	
R8, R11, R75, R84, R113, R121	RES, THICK FILM, 0603, 0.1W, 1%, 47K	857326-0156	
R99	RES, THICK FILM, 0603, 0.1W, 1%, 5.6K	857326-0166	

Capacitors

Reference Designator	Description	Material Number	Note
C1	CAP, EL, SMT, 105C, 16V, 20%, 220uF, COMM	856752-221M1CCC	
C14, C20-C21, C25	CAP, C0G, 0402, 50V, 5%, 680pF, COMM	766718-681J1H	
C15, C23	CAP, X7R, 0603, 50V, 10%, 1800pF, COMM	718875-182K1H	
C151, C178, C182	CAP, C0G, 0603, 50V, 5%, 100pF, COMM	780788-101J1H	
C17, C27-C28, C30, C33, C35, C38, C40, C42, C46-C50, C66, C72-C76, C106, C109, C128-C129, C135, C138, C141, C149-C150, C158-C159, C163, C170-C171, C177, C188, C193-C194, C200, C204-C206, C220	CAP, X7R, 0402, 25V, 10%, 0.1uF, COMM	718866-104K1E	
C174	CAP, C0G, 0402, 50V, 5%, 47pF, COMM	766718-470J1H	
C189, C207	CAP, X7R, 0603, 50V, 10%, 0.22uF, COMM	718875-224K1H	
C19, C22, C65, C68, C82, C85, C95, C99, C117, C121	CAP, C0G, 0402, 50V, 5%, 470pF, COMM	766718-471J1H	
C190	CAP, C0G, 0603, 50V, 5%, 82pF, COMM	780788-820J1H	
C26, C164, C191-C192, C195, C202-C203, C214	CAP, EL, SMT, 105C, 25V, 20%, 100uF, COMM	856752-101M1ECC	
C2-C3, C8-C9, C16, C29, C32, C36-C37, C44-C45, C52-C53, C55-C56, C130-C131, C136, C140, C144, C210-C213, C217-C218	CAP, X7R, 0603, 6.3V, 10%, 4.7uF, COMM	718875-475K0J	
C31, C139	CAP, C0G, 0402, 50V, 5%, 1000pF, COMM	766718-102J1H	
C34	CAP, X7R, 0402, 16V, 10%, 0.022uF, COMM	718866-223K1C	
C4-C5, C10-C11, C39, C41, C43, C51, C132-C133, C154-C157, C160, C173, C183	CAP, X7R, 0402, 50V, 10%, 10000pF, COMM	718866-103K1H	

MAIN-I/O PCB PARTS LIST

Capacitors (continued)

Reference Designator	Description	Material Number	Note
C54	CAP, X7R, 0603, 50V, 10%, 150pF, COMM	718875-151K1H	
C57	CAP, X7R, 0402, 16V, 10%, 5600pF, COMM	718866-562K1C	
C58, C169, C208	CAP, C0G, 0402, 50V, 5%, 22pF, COMM	766718-220J1H	
C59-C60	CAP, C0G, 0402, 50V, 5%, 15pF, COMM	766718-150J1H	
C61, C67, C78, C84, C92-C93, C100-C101, C114-C115, C122-C123	CAP, C0G, 0402, 50V, 5%, 220pF, COMM	766718-221J1H	
C62, C70, C79, C87, C89, C102, C107, C111, C124	CAP, EL, SMT, 105C, 16V, 20%, 22uF, COMM	856752-220M1CBB	
C64, C81	CAP, C0G, 0603, 50V, 5%, 2700pF, COMM	780788-272J1H	
C6-C7, C12-C13	CAP, X5R, 0603, 10V, 10%, 4.7uF, COMM	718835-475K1A	
C83, C142, C175-C176, C179-C180, C196-C199, C215-C216	CAP, X5R, 0603, 25V, 10%, 4.7uF, COMM	718835-475K1E	
C88, C94, C97, C105, C110, C116, C119, C127	CAP, C0G, 0402, 50V, 5%, 100pF, COMM	766718-101J1H	
C90, C103, C112, C125	CAP, C0G, 0603, 50V, 5%, 1200pF, COMM	780788-122J1H	

Diodes

Reference Designator	Description	Material Number	Note
D19	DIODE, SCHOTTKY, 2A, 60V, SOD123F	852398-0010	
D1-D4, D6-D7, D11-D12, D14-D16, D23-D24	VARISTOR, MULTILAYER, 0402, 130pF, 12V	855757-120M131	
D20-D21	DIODE, SCHOTTKY, 40V, 1A, SS14L, FLSMA	855980-0040	
D30-D31	DIODE, SWITCHING, 100V, 0.15A, SOD323F	856395-0010	
D5, D8, D10, D13, D22, D26-D29	DIODE, SW, 75V, 0.3A, SOT-23, BAV99	747976-0010	
LED16-LED21, LED24	DIODE, LED, 0603, WHITE, VERT	851300-0010	
LED22	DIODE, LED, 0603, RED, GREEN, VERT	851301-0010	
LED23	DIODE, LED, 0606, WHITE, RED, VERT	851297-0010	

MAIN-I/O PCB PARTS LIST

Inductors

Reference Designator	Description	Material Number	Note
L13	FERRITE, BEAD, 0805, 2A, 220 OHM	739338-221	
L14	INDUCTOR, PWR, WW, SMT, 1.3A, 3.3uH , COMM	855985-3R3M	
L16, L22	INDUCTOR, WW, CM, 1206, 0.2A, 2200 OHM, COMM	855607-222	
L18-L20	INDUCTOR, POWER, SMT, 2.5A, 20%, 22uH, COMM	853388-220M	
L1-L12, L15	BEAD, FERRITE, 0402, 0.25A, 1.1 OHM, Z=1K	371767-0010	
L23	BEAD, FERRITE, PWR, 0603, 1.3A, 600 OHM, COMM	852198-601	

Transistors

Reference Designator	Description	Material Number	Note
Q12, Q16-Q18	TRANSISTOR, DUAL, COMP, 40V, 0.6A, 200mW, SOT-363	850060-0100	
Q13, Q15	TRANSISTOR, MFET, P-CH, -3.8A, -30V, SOT23	852237-0010	
Q19-Q23, Q25	TRANSISTOR, MFET, N-CH, 0.23A, 60V, SOT363	852240-0010	
Q1-Q4, Q8-Q11	TRANSISTOR, NPN, 20V, 0.3A, 2SC3326-B, SC-59	856177-0020	
Q5	XSISTOR, BPLR, P, 40V, 200mA, SOT23	148596	
Q7, Q14, Q24	TRANSISTOR, NPN, 40V, 0.2A, MMBT3904, SOT323	195357	

MAIN-I/O PCB PARTS LIST

Integrated Circuit

Reference Designator	Description	Material Number	Note
U1, U4-U8	IC, OP AMP, DUAL, NJM4580E-TE2, SOP8, 90DEG	855786-01A2	
U10	IC, uC, ARM CORTEX-M0, 128KB, 32F072, 64LQFP	786831-RBT6	
U11	IC, V-DETECT, 2.93V, APX809S-29, SOT-23	856551-0010	
U13	IC, VREG, SW, BUCK, 2AD, ADJ, 62084, WSON8	791774-0020	
U14	IC, DCDC CONV, BUCK, PWM, 1A, TSOT, LV2843	842705-0010	
U15, U18	IC, DCDC CONV, STEP DOWN, 2A, 28V, TPS54202H	842669-0010	
U16	IC, VREG, LIN, POS, 0.5A, 15V, 78M15C, DPAK	856494-0010	
U17	IC, VREG, LIN, NEG, 0.5A, 15V, 79M15C, DPAK	856495-0010	
U2	IC, CODEC, 6CH, 24bit, S/PDIF, CS42526, 64LQFP	855574-0010	
U20	IC, RCVR, RS485/RS422, MAX3283E, SOT23-6	855915-0083	
U3	IC, DSP, 32B, ADAU1452WBCPZ, 72LFC-SP	843933-0010	
U9	IC, SCHMITT TRIGGER, BUFR, SINGLE INPT, 5.5V	727321-0010	

MAIN-I/O PCB PARTS LIST

Miscellaneous

Reference Designator	Description	Material Number	Note
CN1	CONN, RECP, 2.54mm C, 28P, 2R, R, SMT, ST, BL, Au	847748-0028	
J1	CONN, HDR, 2.54mm C, 10P, 2R, P, TH, RA, BLACK	847828-0010	
J5	CONN, HDR, 1.5mm C, 8P, 1R, P, SMT, ST, BEIGE	847746-0080	
J8	CONN, RECP, 2mm C, 2P, 1R, R, SMT, ST	847824-0002	
J9	CONN, HDR, 2.5mm C, 2P, 1R, P, SMT, ST	853441-0002	
P1-P2	CONN, IO, XLR, 3POLE, ST, R, PCB Mount	850870-0010	
P3-P4	CONN, IO, 3POLE XLR, P, Sel Gold	763327-0120	
USB1	CONN, IO, TYPE C, 24P, R, SMT, RA, TMOUNT, CH2.2	853416-0010	
VR1	POTENTIOMETER, VR CA 10K B L=16.5MM	852544-0010	
Y1	CRYSTAL, FUND, 3225, 10pF, 40PPM, 12.288MHz	628938-0010	
SW2-SW3, SW5	SWITCH, TACT, 12V, 50mA, 250gf	850862-0010	
SW4	SWITCH, TACT, 15V, 20mA, 320GF	854394-0010	
T1-T2	TRANSFORMER, AUDIO, DIGITAL, DIL, 1mH	856463-0010	

POWER-AMP PCB PARTS LIST

Resistors

Reference Designator	Description	Material Number	Note
R1, R41, R154-R155	JUMPER, CHIP, 0805	857326-0219	
R100	RES, THICK FILM, 0603, 0.1W, 1%, 200K	857326-0121	
R101	RES, THICK FILM, 0603, 0.1W, 1%, 18.2K	857326-0117	
R102-R103	RES, THICK FILM, 0603, 0.1W, 1%, 2.4K	857326-0132	
R104-R105	RES, THICK FILM, 1206, 0.25W, 1%, 100K	857326-0197	
R109, R126, R215, R220, R224, R256-R258, R263	JUMPER, CHIP, 0603	857326-0218	
R111	RES, THICK FILM, 0603, 0.1W, 1%, 75 OHM	857326-0177	
R116	RES, THICK FILM, 0603, 0.1W, 1%, 15 OHM	857326-0111	
R124, R129	RES, THICK FILM, 0603, 0.1W, 1%, 6.8K	857326-0171	
R127	RES, THICK FILM, 0603, 0.1W, 1%, 56K	857326-0167	
R128, R138, R143	RES, THICK FILM, 0603, 0.1W, 1%, 75K	857326-0176	
R132	RES, THICK FILM, 0603, 0.1W, 1%, 2K	857326-0119	
R134	RES, THICK FILM, 0603, 0.1W, 1%, 15K	857326-0109	
R136	RES, THICK FILM, 0603, 0.1W, 1%, 9.1K	857326-0180	
R14, R32, R42-R43, R66, R78, R81, R99, R106, R114, R130-R131, R137	RES, THICK FILM, 0603, 0.1W, 1%, 10K	857326-0093	
R15, R17	RES, METAL FOIL, 1206, 1W, 1%, 0.01 OHM	755170-R010F	
R156, R162, R254-R255	RES, THICK FILM, 0402, 0.063W, 1%, 10K	857326-0021	
R157	RES, THICK FILM, 0402, 0.063W, 1%, 470K	857326-0072	
R158, R163, R247, R277	RES, THICK FILM, 0402, 0.063W, 1%, 100K	857326-0022	
R159, R252	RES, THICK FILM, 0402, 0.063W, 1%, 30K	857326-0055	
R16, R36	RES, THICK FILM, 0603, 0.1W, 1%, 4.7 OHM	857326-0185	
R160, R274, R276	RES, THICK FILM, 0402, 0.063W, 1%, 47K	857326-0071	
R161	RES, THICK FILM, 0402, 0.063W, 1%, 5.23K	857326-0078	
R18, R21, R24, R26, R29, R31	RES, THICK FILM, 1206, 0.25W, 1%, 2 M	857326-0201	
R19-R20, R22-R23, R25, R117-R120	RES, THICK FILM, 1206, 0.25W, 1%, 2.2M	857326-0204	
R211, R213, R217, R227	RES, THICK FILM, 0402, 0.063W, 1%, 2.2K	857326-0044	
R212, R222, R230, R237-R238, R243, R278	JUMPER, CHIP, 0402	857326-0217	

POWER-AMP PCB PARTS LIST

Resistors (continued)

Reference Designator	Description	Material Number	Note
R214	RES, METAL FOIL, 1206, 1W, 1%, 0.005 OHM	755170-R005F	
R216, R221	RES, THICK FILM, 0805, 0.125W, 1%, 3.3 OHM	857326-0193	
R223, R231, R246, R250, R253	RES, THICK FILM, 0402, 0.063W, 1%, 100 OHM	857326-0019	
R225-R226, R267-R268	JUMPER, CHIP, 1206	857326-0220	
R242	RES, THICK FILM, 0402, 0.063W, 1%, 22K	857326-0045	
R266	RES, THICK FILM, 1206, 0.25W, 1%, 1.3 OHM	857326-0213	
R30, R259-R261	RES, THICK FILM, 1206, 0.25W, 1%, 3.3M	857326-0206	
R34-R35, R275	RES, THICK FILM, 0603, 0.1W, 1%, 22K	857326-0128	
R40	RES, THICK FILM, 0603, 0.1W, 1%, 220 OHM	857326-0126	
R44	RES, THICK FILM, 0603, 0.1W, 1%, 110K	857326-0099	
R45, R64, R89	RES, THICK FILM, 0603, 0.1W, 1%, 47K	857326-0156	
R46	RES, THICK FILM, 0603, 0.1W, 1%, 133K	857326-0104	
R47, R72, R79, R87	RES, THICK FILM, 0603, 0.1W, 1%, 100K	857326-0094	
R48	RES, THICK FILM, 0603, 0.1W, 1%, 130K	857326-0103	
R49-R51	RES, THICK FILM, 1206, 0.25W, 1%, 240K	857326-0205	
R4-R6, R10-R12	RES, THICK FILM, 1206, 0.25W, 1%, 1M	857326-0198	
R56, R69-R71	RES, THICK FILM, 1206, 0.25W, 1%, 2.2 OHM	857326-0214	
R58-R59, R121, R125	RES, THICK FILM, 0603, 0.1W, 1%, 1.5K	857326-0108	
R60	RES, THICK FILM, 0603, 0.1W, 1%, 470 OHM	857326-0154	
R62, R113	RES, THICK FILM, 0805, 0.125W, 1%, 100 OHM	857326-0186	
R63, R86, R265	RES, THICK FILM, 0603, 0.1W, 1%, 4.7K	857326-0155	
R7, R28, R90, R92, R96, R107	RES, THICK FILM, 0805, 0.125W, 5%, 4.7 OHM	857326-0194	
R73	RES, THICK FILM, 0603, 0.1W, 1%, 7.5K	857326-0175	
R74	RES, THICK FILM, 1206, 0.25W, 1%, 680 OHM	857326-0210	
R76-R77	RES, THICK FILM, 0603, 0.1W, 1%, 2.2K	857326-0127	
R8, R27, R52	RES, THICK FILM, 0805, 0.125W, 1%, 22 OHM	857326-0189	
R80, R82	RES, THICK FILM, 0603, 0.1W, 1%, 100 OHM	857326-0091	
R84-R85, R88	RES, THICK FILM, 1206, 0.25W, 1%, 20K	857326-0200	
R91, R139, R264	RES, THICK FILM, 0603, 0.1W, 1%, 3.3K	857326-0144	

POWER-AMP PCB PARTS LIST

Resistors (continued)

Reference Designator	Description	Material Number	Note
R93, R112	RES, THICK FILM, 0603, 0.1W, 1%, 1M	857326-0095	
R94, R98, R110, R115	RES, THICK FILM, 1206, 0.25W, 1%, 220 OHM	857326-0203	
R95, R135, R140-R142	RES, THICK FILM, 0603, 0.1W, 1%, 1K	857326-0092	
R97, R108	RES, THICK FILM, 0805, 0.125W, 1%, 33 OHM	857326-0190	

Capacitors

Reference Designator	Description	Material Number	Note
C101	CAP, C0G, 0603, 50V, 5%, 220pF, COMM	780788-221J1H	
C132, C141, C225, C229, C235, C258	CAP, X7R, 0402, 50V, 10%, 0.1uF, COMM	718866-104K1H	
C213-C215, C222-C223, C227	CAP, X7R, 0402, 100V, 10%, 2200pF, COMM	718866-222K2A	
C216, C232	CAP, FILM, LS 5mm, AMMO, 5%, 100V, 1uF	329288-1004BJA	
C217, C219, C231, C233	CAP, X7R, 0805, 100V, 20%, 0.01uF, COMM	763872-103M2A	
C218, C230	CAP, C0G, 0805, 100V, 5%, 1000pF, COMM	763940-102J2A	
C224, C226, C247, C249	CAP, X7R, 0402, 50V, 10%, 0.033uF, COMM	718866-333K1H	
C228, C239	CAP, EL, SMT, 105C, 16V, 20%, 10uF, COMM	856752-100M1CAB	
C234, C238	CAP, C0G, 0402, 50V, 5%, 100pF, COMM	766718-101J1H	
C236-C237	CAP, X5R, 0402, 16V, 10%, 1uF, COMM	716994-105K1C	
C26	CAP, FILM, PFC, 15mm, BULK 6mm, 630V, 10%, 1uF	856507-105K2JBB	
C261	CAP, X7R, 0402, 25V, 10%, 0.047uF, COMM	718866-473K1E	
C275-C276, C278-C279	CAP, X7R, 0805, 100V, 10%, 0.1uF, COMM	763872-104K2A	
C283	CAP, X5R, 0603, 6.3V, 20%, 10uF, COMM	718835-106M0J	
C29-C30	CAP, X7R, HI VOLT, 0805, 630V, 10%, 4700pF, COM	852020-472K2J	
C31	CAP, EL, SNAP-IN, 450V, 20%, 330uF	853707-331M2WCC	
C35-C36	CAP, C0G, 0603, 50V, 5%, 47pF, COMM	780788-470J1H	
C37-C38, C66-C67, C81-C82, C98, C135-C140	CAP, X5R, 0603, 25V, 10%, 4.7uF, COMM	718835-475K1E	

POWER-AMP PCB PARTS LIST

Capacitors (continued)

Reference Designator	Description	Material Number	Note
C40, C42-C43, C58-C59, C61, C68, C91-C93, C95, C108-C109	CAP, C0G, 0603, 50V, 5%, 1000pF, COMM	780788-102J1H	
C41, C85	CAP, C0G, 0603, 50V, 5%, 330pF, COMM	780788-331J1H	
C45, C48-C51, C80	CAP, X7R, 0805, 25V, 10%, 1uF, COMM	763872-105K1E	
C46	CAP, X7R, 0603, 100V, 10%, 220pF, COMM	718875-221K2A	
C47, C69-C70, C75	CAP, X7R, HI V, 1206, 1000V, 10%, 4700pF, COMM	852057-472K3A	
C52-C53	CAP, EL, LOW Z, SMT, 35V, 20%, 470uF, COMM	856727-471M1VEF	
C55	CAP, EL, POLYMER, SMT, 25V, 20%, 47uF, COMM	857020-470M1EAA	
C60	CAP, X7R, 0603, 50V, 10%, 0.047uF, COMM	718875-473K1H	
C62, C64-C65, C110-C111, C113-C116, C284-C285	CAP, X7R, 0603, 100V, 10%, 0.1uF, COMM	718875-104K2A	
C73	CAP, X7R, 0603, 50V, 10%, 1uF, COMM	718875-105K1H	
C76-C77	CAP, X7R, HI V, FT, 1210, 500V, 10%, 0.1uF, COMM	852058-104K2H	
C78	CAP, X7R, 0603, 50V, 10%, 0.47uF, COMM	718875-474K1H	
C8, C17, C39, C97	CAP, X7R, 0603, 50V, 5%, 10000pF, COMM	718875-103J1H	
C83, C100	CAP, C0G, 0805, 250V, 5%, 100pF, COMM	763940-101J2E	
C84, C86	CAP, X7R, HI VOLT, 0805, 500V, 10%, 470pF, COMM	852020-471K2H	
C87-C88, C265-C266	CAP, EL, LOW Z, 18x25mm, 80V, 20%, 820uF	853760-821M1KGG	
C89-C90, C267-C274	CAP, X7R, 0805, 100V, 10%, 0.47uF, COMM	763872-474K2A	
C94	CAP, C0G, HI VOLT, 1206, 500V, 5%, 15pF, COMM	777098-150J2H	
C96	CAP, FILM, HI V, 15mm, BULK, 1000V, 5%, 0.68uF	856510-683J3ABB	
C99, C134	CAP, X7R, 0603, 50V, 10%, 0.22uF, COMM	718875-224K1H	
CX1-CX2	CAP, FILM, X2, LS 15mm, 305VAC, 20%, 0.47uF	310415-474MG	3 ⚠
CY1-CY5	CAP, CER, X1/Y1, Bulk 25mm, 10%, 470pF	855444-471KG	3 ⚠
CY6	CAP, CER, X1/Y1, Bulk 5mm, 20%, 1000pF	855444-102MN	3 ⚠

POWER-AMP PCB PARTS LIST

Diodes

Reference Designator	Description	Material Number	Note
BD1	DIODE, BRIDGE RECTIFIER, 15A, 600V	311087-0600	
D11, D18-D22	DIODE, RECT, FAST, 1000V, 0.8A, RS1ML, FLSMA	856386-1000	
D23, D26, D28, D34-D35	DIODE, SWITCHING, 100V, 0.15A, SOD323F	856395-0010	
D6-D7	DIODE, SINGLE, 600V, 5A, RFNL58M6S, TO-252	849891-0010	
D8, D25, D27	DIODE, RECT, ULTRAFAST, 200V, 6A, TPUH6D, SMPC	855862-0200	
D9, D48	DIODE, RECT, FAST, 1000V, 1A	317066-1000	
LED1-LED2	DIODE, LED, 0603, WHITE, VERT	851300-0010	
ZD2-ZD4	DIODE, ZENER, 0.2W, 5.1V, 5%, SOD-323F	856094-05V1	
ZD7-ZD10	DIODE, ZENER, 0.2W, 15V, 5%, SOD-323F	856094-15V0	

Inductors

Reference Designator	Description	Material Number	Note
L1, L4	TRANSFORMER, CUSTOM, HTS-PQ26F	856524-0010	3 ⚠
L12-L13	INDUCTOR, CLASS D, POWER, 26A, 20%, 10uH	856095-100M	
L2-L3	INDUCTOR, CUSTOM, COMMON MODE, RADIAL, 12mH	852647-0010	
L9	INDUCTOR, POWER, SMT, 4.2A, 20%, 10uH, COMM	852883-100M	

Transistors

Reference Designator	Description	Material Number	Note
Q1, Q3, Q11-Q12	TRANSISTOR, MFET, N-CH, 600V, 18A, DPAK	849830-0020	
Q10, Q15, Q19, Q21	TRANSISTOR, NPN, 40V, 0.2A, MMBT3904, SOT323	195357	
Q14	TRANSISTOR, MFET, P-CH, -3.8A, -30V, SOT23	852237-0010	
Q2, Q4	TRANSISTOR, PNP, 600mA, 60V, SOT23	852391-0010	
Q20, Q22	XSISTOR, BPLR, P, 40V, 200mA, SOT23	148596	
Q8	TRANSISTOR, NPN, 3A, 50V, SOT89	852881-0010	
Q9	TRANSISTOR, MFET, N-CH, 0.3A, 60V, SOT-23	356154-0010	

POWER-AMP PCB PARTS LIST

Integrated Circuit

Reference Designator	Description	Material Number	Note
U1	IC, PFC CONTROLLER, TRANS MODE, UCC28063	730085-0030	
U12	IC, DCDC CONV, STEP DOWN, 2A, 28V, TPS54202H	842669-0010	
U2, U5-U6, U8	IC, OPTOCOUPLER, EL817, 4SO	326344-0020	3 ⚠
U20	IC, PWR AMP, CLASS D, TPA3255, 44HTSSOP	792785-0010	
U3	IC, VREG, SW, FLYBACK CNTRLR, HF500-30, 7PDIP	855588-0010	
U4, U10	IC, LIN REG, ADJ, SHUNT, TL431, 1%, SOT23-3	330361-1030	
U7	IC, SW, CNTRLR, HALF-BRIDGE, HR1001A, 16SOIC	855754-0010	
U9	IC, OP AMP, DUAL, LM358, 8SOIC	856447-0010	

Miscellaneous

Reference Designator	Description	Material Number	Note
CN1	CONN, HDR, 3.96mm C, 2P, 1R, P, TH, ST, WHITE	847743-0020	
F1	FUSE, 8A, 250V, SLO-BLO, 5x20mm, AXIAL	317834-083B	3 ⚠
J1	CONN, HDR, 2.54mm C, 28P, 2R, P, TH, ST, 45.8H	847836-0028	
J6	CONN, HDR, 3.96mm C, 2P, 1R, P, TH, RA, WHITE	847740-0020	
RT1	THERMISTOR, NTC, ICL, BULK, 20%, 10 ohm	856032-100MB	3 ⚠
RT2	VARISTOR, METAL OXIDE, DIA 14mm, 300Vrms	856832-3000D	3 ⚠
RT3-RT4	THERMISTOR, NTC, 0603, 3380K, 1%, 10K	855644-103F	
T1	TRANSFORMER, CUSTOM, HTS-EEL25A	852657-0010	3 ⚠
T2	TRANSFORMER, SWITCH, CUSTOM, HTS-ER40F	852655-0010	3 ⚠

DISASSEMBLY PROCEDURE

Sub1 Power Stand Procedures

CAUTION: The SMD integrated circuits used on the Main-I/O Board are extremely sensitive to ESD damage. Be sure to use an approved and tested ESD strap that is properly grounded to your work bench before attempting disassembly or repair of the Sub1 Powered Bass Module.

1. I/O Panel Assy Removal

1.1 Remove the 12 screws securing the I/O Panel Assy as indicated in Figure 4.

Note: Be careful to not cause cosmetic damage to the unit.

1.2 Incline the Power stand to let the I/O panel assy go downwards.

1.3 Remove the green adhesive with IPA (Isopropyl alcohol) from the 1 cable's connections as red arrow indicated in Figure 5.

1.4 Disconnect the cable 1 that are attaching the Woofer. Figure 5.

2. Power-Amp Board Removal

2.1 Perform procedure 1**.**

2.2 On the front of the I/O panel assy, remove the 6 screws as indicated in Figure 6 (left) and turn it over to remove the 3 screws securing the Power-Amp board. Figure 6 (right).

2.3 Detach 2 cables' connections as red arrow indicated in Figure 6 (right).

Re-assembly Note: The old Heat Sink thermal grease must be removed with isopropyl alcohol and the new thermal grease, GAP FILLER, THERMAL, part number 749859-0020 MUST be used during board replacement. Failure to use the correct thermal grease WILL cause thermal failures. Figure 7.

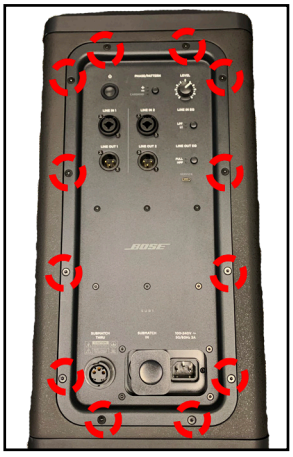


Figure 4. I/O Panel Screws Removal

Figure 5. Green Adhesive & Cable Removal

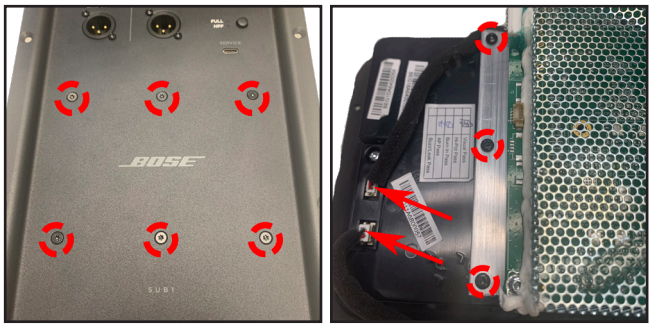


Figure 6. Power-Amp Board Screws Removal

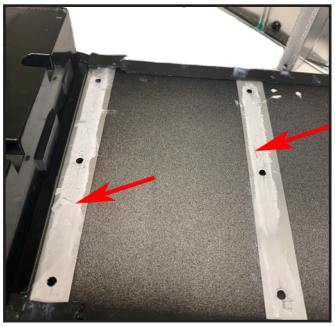


Figure 7. Heat Sink Thermal Grease

DISASSEMBLY PROCEDURE

2.4 Remove the 12 screws that secure the Shield cover of Power-Amp board as indicated in Figure 8 & Figure 9.

Note: When installing the Shield cover, RTV need to be used to prevent buzz and vibration.

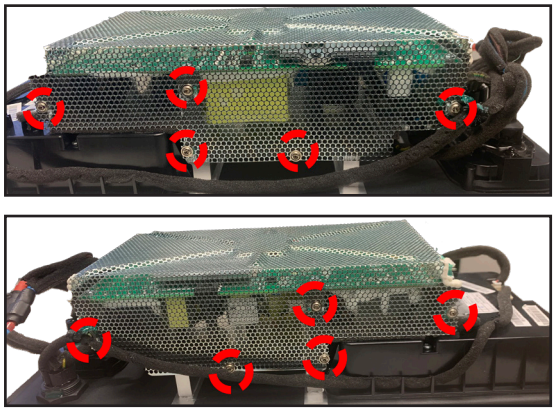


Figure 8. Shield Cover Screws Removal 1

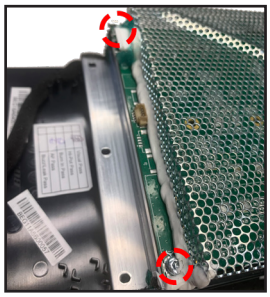


Figure 9. Shield Cover Screws Removal 2

2.5 Use a spudger to separate the white glue from the edge of PCB as indicated in Figure 10.

Note: Be careful when regluing the RTV to fix the shield cover.

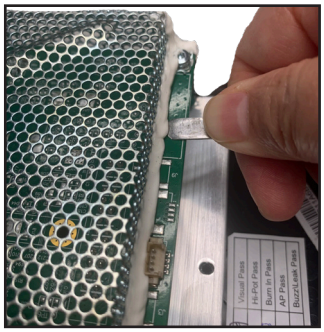


Figure 10. White Glue Removal

2.6 Disconnect the cable 2 that are attaching the AC Plug as indicated in Figure 11.

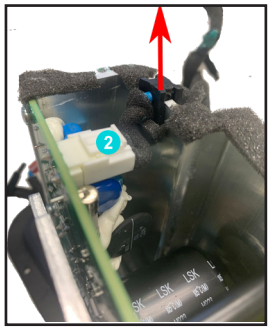


Figure 11. Disconnect Cable 2

2.7 Remove the 10 screws that secure the Power-Amp board as indicated in Figure 12.

2.8 Remove the Heatsink from the PCBA.

Re-assembly Note:

The old power amp IC thermal grease must be removed with isopropyl alcohol and the new thermal grease, GAP FILLER, THERMAL, part number 749859-0020 MUST be used during board replacement.

The old Heatsink must be reused with the new PCBA.

3. Main-I/O Board Removal

3.1 Perform step 2.

3.2 On the Fire box, remove the 7 screws that secure the Main-I/O board as indicated in Figure 13.

3.3 On the front of I/O panel assy, remove the 8 screws securing the 4 Jacks and Level Knob as red arrow indicated in Figure 14.

3.4 Lift the Fire box up and remove the 4 screws securing the Main-I/O board. Figure15.

Re-assembly Note:

There are no Device ID concerns when replacing the main board. The Device ID is assigned at the factory. Service replacement Main-I/O PCBA's use the PCBA serial number instead of the system serial number. As a result, the system serial number will not show up in the L1 Mix app.

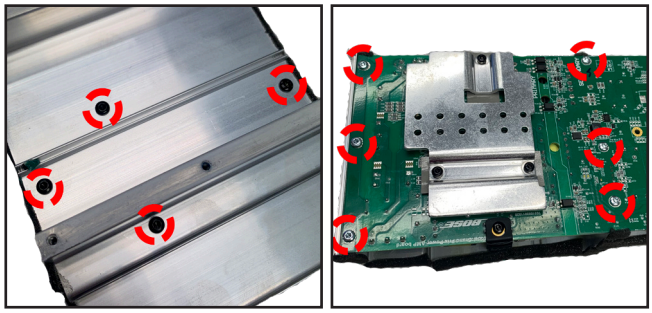


Figure 12. Power-Amp Board Screws Removal

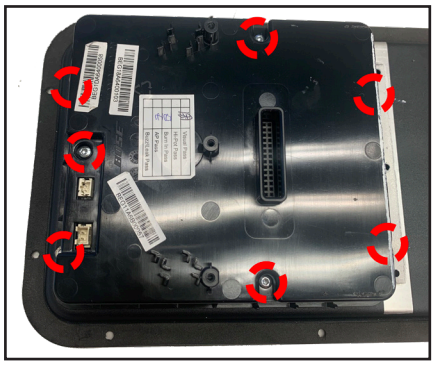


Figure 13. Fire Box Screws Removal

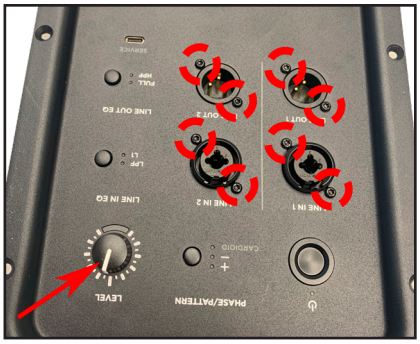


Figure 14. 4 Jacks Screws & Level Knob Removal

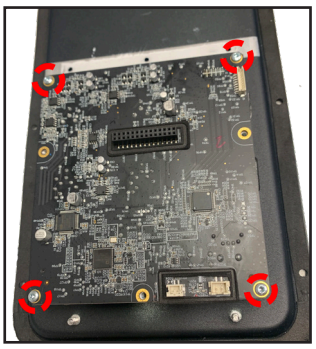


Figure 15. Main-I/O Board Screws Removal

DISASSEMBLY PROCEDURE

4. Woofer Removal

4.1 The PC sheets 1 2 3 4 are secured with Pressure Sensitive Adhesive - use a spudger, lift the PC sheets up and grasp and pull them off. Figure 16 (left).

Re-assembly Note: Be careful to not cause cosmetic damage to the unit.

Use the new PC sheets to ensure proper adhesion during reassembly.

4.2 Remove the 10 screws securing the Bottom Endcap as indicated in Figure 16 (right).

4.3 Pull the Grille out gently. Figure 17.

Note: When installing the Grille, make sure the Grille inserted into the Grille guides.

.

4.4 Remove the 12 screws securing the Woofer as indicated in Figure 18.

4.5 Detach the 2 Cable harnesses from the Woofer by pressing the white fastener.

Note: Be careful the Woofer is very heavy.

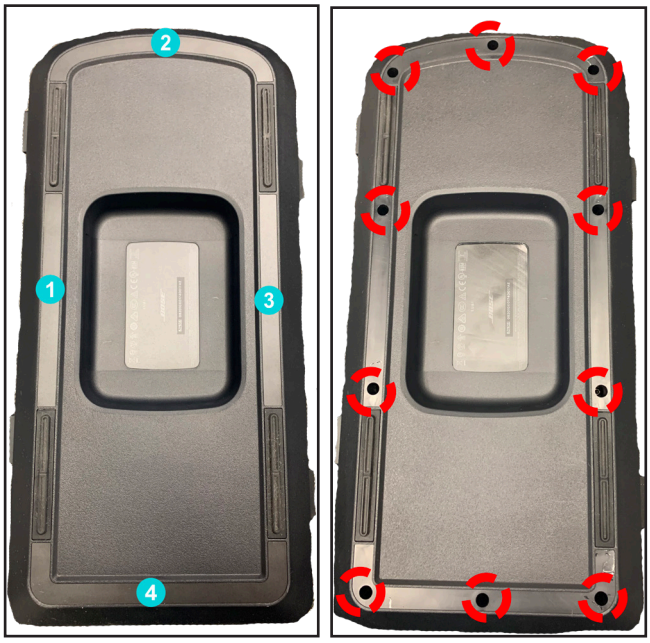


Figure 16. PC Sheets & Screws Removal

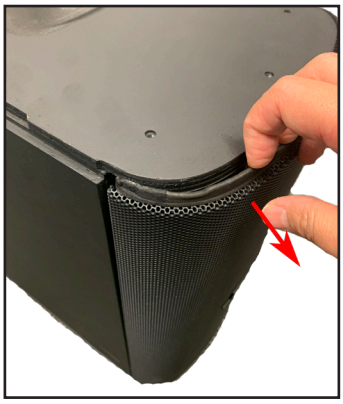


Figure 17. Grille Removal

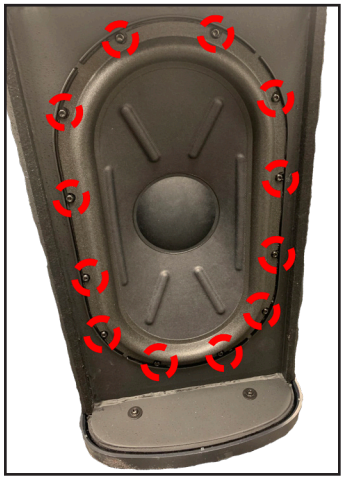


Figure 18. Woofer Screws Removal

TEST PROCEDURE

Required Equipment:
1. Bose L1 Pro32 Power Stand, Line Array and Sub1/Sub2 bass module (UUT)
2. Audio Signal Generator, Audio Precision ATS-1 or equivalent
3. Multimeter
4. Cables listed below:
- XLR audio cable
- 1/4 inch TRS audio cable
- Bose SubMatch cable (bass module connection)
- AC Line cords - per region - refer to packaging part list

Set-up & Connections:
- Connect the Sub1/Sub2 bass module to the power stand using the SubMatch cable
- Connect the Power Stand AC line cord to AC Mains.
- Assemble the Line Array to the Power Stand

Functional Tests:
1. Button and Knob Functionality Test
Refer to the Figure at right for this test

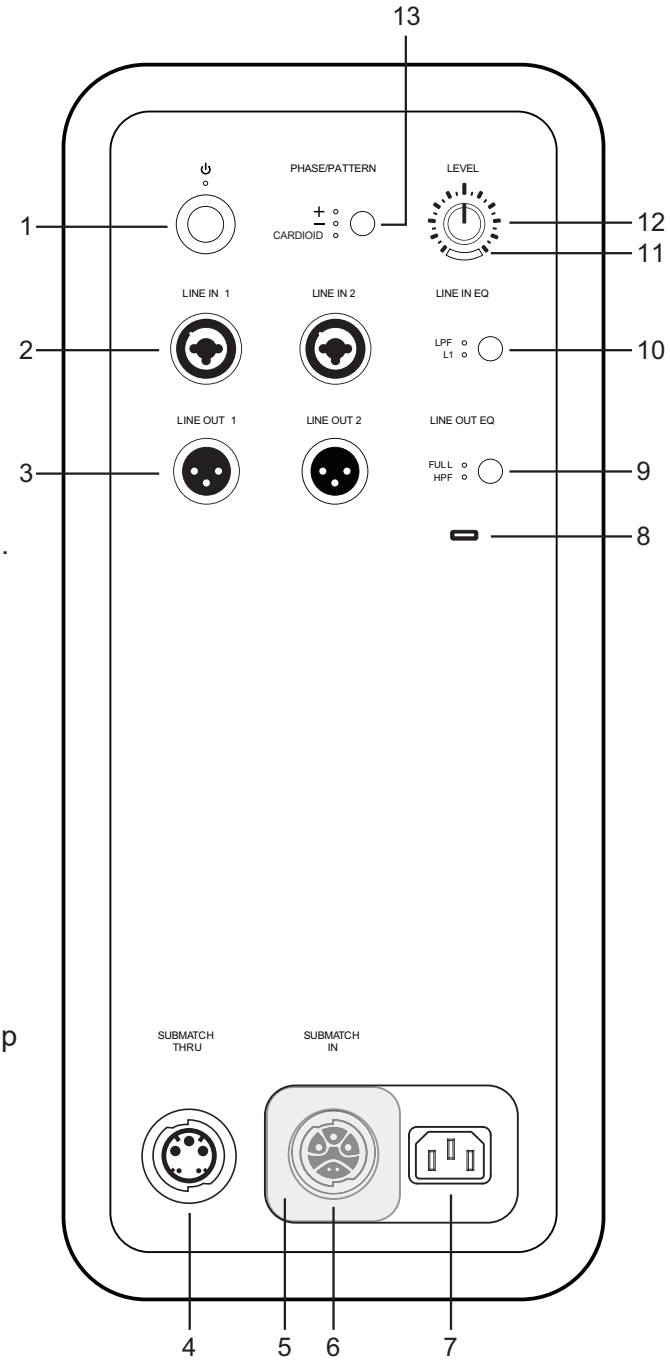
1.1 Press the STANDBY button (1) on the Power Stand to turn on the power stand. Verify that the LED lights.

1.2 Rotate the Level Control knob (12).
Note: The Signal/Clip LED (11) will be tested during the signal input tests later in this procedure.

1.3 Press the Phase/Pattern button (13) to step through each of the selections. Verify that the associated +, - and Cardioid LEDs light correctly.
Note: You must press and HOLD the Phase/Pattern button for 4 seconds in order for the Cardioid LED to light.

1.4 Press the Line Input EQ button (10). Verify that the LPF/L1 LEDs light correctly as you step through the selections.

1.5 Press the Line Output EQ button (9). Verify that the FULL/HPF LEDs light correctly as you step through the selections.



TEST PROCEDURE

2. Line Input / Output Verification Tests

Refer to the Connections and Controls diagram on the previous page for the following tests.

2.1 Connect the G1/G2 bass module to the power stand using the SubMatch cable. Connect the AC power cord to the power stand and to AC Mains. Press the STANDBY button to turn on the power stand. The button should illuminate white. Press the Standby button to power on the bass module. It should illuminate white.

2.2 On the power stand, set the channel 1 volume control (1) to 50%. Set the Channel ToneMatch button (4) and the Mute button (3) to OFF.

2.3 Apply a balanced, 115mV, 40 Hz audio signal to the Channel 1 1/4" TRS audio input (5). Verify that the Signal/Clip LED is lit green.

2.4 Sweep the input frequency between 40 Hz and 2 kHz. Sweep the input frequency three times. Listen for any buzzes, air leaks or other extraneous sounds from the bass module.

2.5 Turn off the bass module and the power stand by pressing the STANDBY button. Verify that the button's LED is not lit. Disconnect the SubMatch cable from the bass module and slide the G1/G2 AC slide door to the left. Connect an AC Mains cable to the IEC connector and press the STANDBY button to power on G1/G2.

2.6 Apply a balanced, 100mV (Sub1) or 160mV (Sub2), 40 Hz audio signal to the Line In 1 1/4" TRS audio input (2). Sweep the input frequency between 40 Hz and 250 Hz, turning volume knob between minimum to mid-position. Sweep for 3 cycles, 3 seconds per cycle. Listen for any buzzes, air leaks or other extraneous sounds from the bass module. Repeat this test for the Line In 2 input.

3. Line Output Tests

3.1 Apply a balanced 150mV, 100 Hz audio signal to the Line In 1 input. Measure the output level at the Line Out 1 connector. It should be -16.5dBV +/- 2dB.

3.2 Change the input frequency to 40 Hz. Measure the output level. It should be -16.5dBV +/-3dB.

3.3 Change the input frequency to 250 Hz. Measure the output level. It should be -16.5dBV +/-3dB.

3.4 Repeat steps 3.1 to 3.3 for the Line In 2 input. Measure the output at the Line Out 2 connector.

4. Output Polarity and Cardioid Test
Note: These tests simply verify that the LED's light correctly when the Phase/Pattern button is pressed sequentially. You will not be able to hear a difference in phase/pattern in a repair environment.

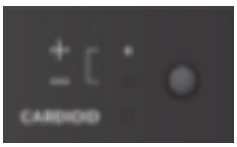
4.2 Press the Phase/Pattern button to change output polarity to minus (-). Verify that the minus (-) LED lights.

4.3 Press and hold the Phase/Pattern button for 4 seconds to activate Cardioid output mode. Verify that the Cardioid LED lights.

TEST PROCEDURE

5. Button Extended Functions Test

5.1 Perform the button tests below to verify extended functionality of the buttons/controls.

Product I/O	User Control	Trigger	User Action
	Power ①	Press “Off/On”>”On/Off”	Power on/off
		Press and hold 10 seconds	All LED flash 1 time. DUT reboot and reset all settings to default value
	Line IN EQ 1-2 ②	1st press, LED to position1	Enable EQ for L32
		2nd press, LED to position2	Enable LPF EQ to accommodate other systems.
	Line OUT EQ 1-2 ③	1st press, LED to position1	Selects Full Range bandwidth for line out.
		2nd press, LED to position2	Selects HPF bandwidth for line out.
	Polarity+/ Polarity-/ Cardioid ④	1st press, LED to position1	Selects polarity “+”
		2nd press, LED to position2	Selects polarity “-”
		Press and hold 4 seconds	Activates Cardioid mode (delay + EQ)
	Sub Volume ⑤	Rotate knob clockwise and counter-clockwise. Center detent is default level.	Adjust sub volume level.
NA	LPS mode	Press polarity and line in EQ buttons and hold 15 sec	Enable LPS mode (default). Power LED flash 3 times
		Press polarity and linein EQ buttons and hold 15 sec again	Disable LPS mode. Power LED color 6 times
	Line Input 1/2 ⑥⑦	Plug in 1/4” TRS into Line Input 1/2 channel	Channel 1/2 receive audio signal
	Line Output 1/2 ⑧⑨	Plug in 1/4” TRS into Line Output 1/2 channel	Channel 1/2 output audio signal
	USB type-C ⑩	Plug USB cable	Enable to drive by STM32 microcontroller for the purpose of updating firmware

TEST PROCEDURE

Button Extended Functions Test (continued):

Product I/O	User Control	Trigger	User Action
	SubMatch THRU ⑪	Use SubMatch cable connect SubMatch THRU port and another product's SubMatch In port	Enable another product to power on and output audio signal. G1/G2
	SubMatch In ⑫	Use SubMatch cable connect SubMatch In port and another product's SubMatch THRU port	Enable G1/G2 to power on and output audio signal
	IEC connector ⑬	Plug in power cable	Enable the product to power on

5.2 Before returning the system to the customer, Factory Default the system by pressing and holding the Power Button for 10 seconds. Verify that all of the LED's flash 1 time. The DUT reboot and reset all settings to default value.

HI-POT TEST

1. Hi-Pot Test

THIS IS A MANDATORY TEST

CAUTION - All units that are disassembled as part of a repair MUST be Hi-Pot tested before being returned to the customer.

This test applies a high voltage to the AC line cord and measures the current leakage to the chassis and/or other metal parts on the outside of the unit to check for potential shock hazards.

If the unit fails Hi-Pot test, it must be returned to the technician for troubleshooting and repair of the problem, after which it must be Hi-Pot tested again.

Hi-Pot Tester Settings:

Type of product: 100-240 VAC 2-wire Class II
Test Voltage: 1591 VAC
Trip Current Limits: 0.5mA min, 10mA max
Ramp: 1 second
Dwell: 4 seconds

Procedure

1.1 Connect the positive side (hot) of the Hi-Pot tester to both terminals of the AC mains input.

1.2 Connect the return of the Hi-Pot tester to pin 1 (GND) on the channel 1 and 2 XLR Line In or Line Out combo jacks and the shell of the Service USB-C jack.

This test must be performed only after the system has been completely assembled. Failure of this test indicates a faulty transformer, defective or incorrectly dressed primary wiring, improperly attached leads, surface contamination of either the power supply board or the I/O connector board, or incorrectly adjusted trip point on tester.

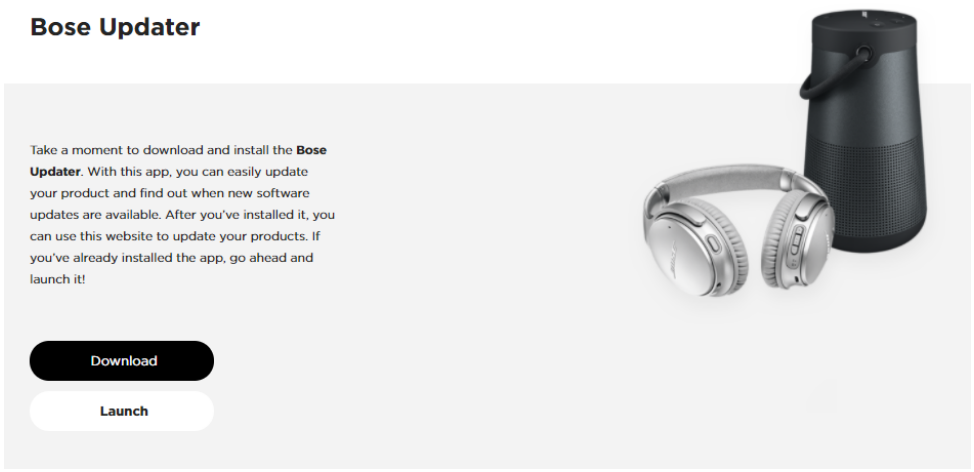
SOFTWARE UPDATE

These instructions explain how to update the firmware of your L1 Pro8, L1 Pro16, L1 Pro32, Sub1, or Sub2.

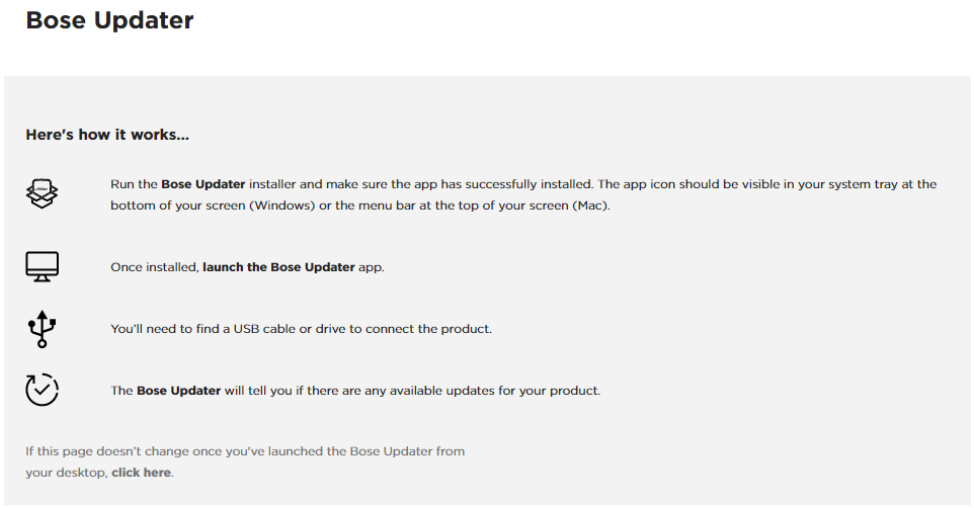
Note: *A USB-C cable is required (not included with your product). The L1 Pro family of products is not compatible with Thunderbolt 3 cables.*

Compatible Web Browsers	
Windows	Google Chrome, Mozilla Firefox, Microsoft Edge
Mac	Google Chrome, Mozilla Firefox

1. On a computer, open a web browser and go to **btu.bose.com**.
   Note: *Not compatible with Internet Explorer or Safari.*
2. Click **Download** to download the **Bose Updater.**



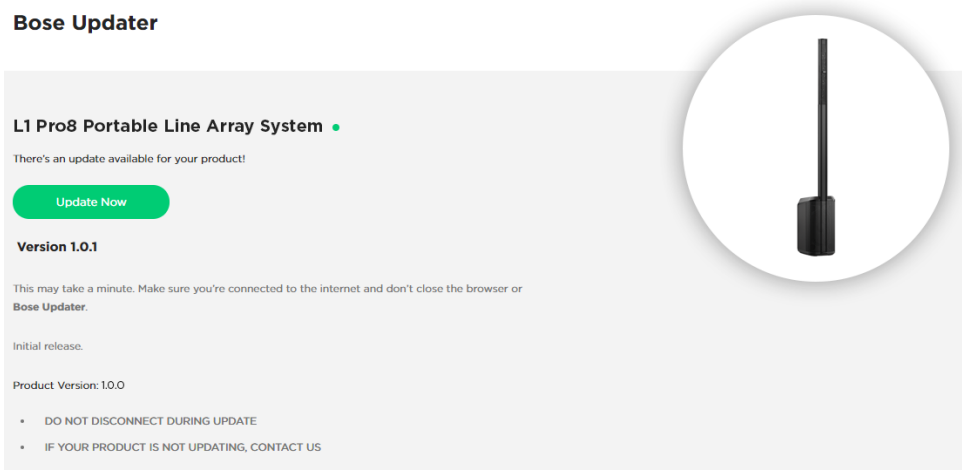
3. View the End-User License Agreement, then click **I Agree**.
4. Install the **Updater**.



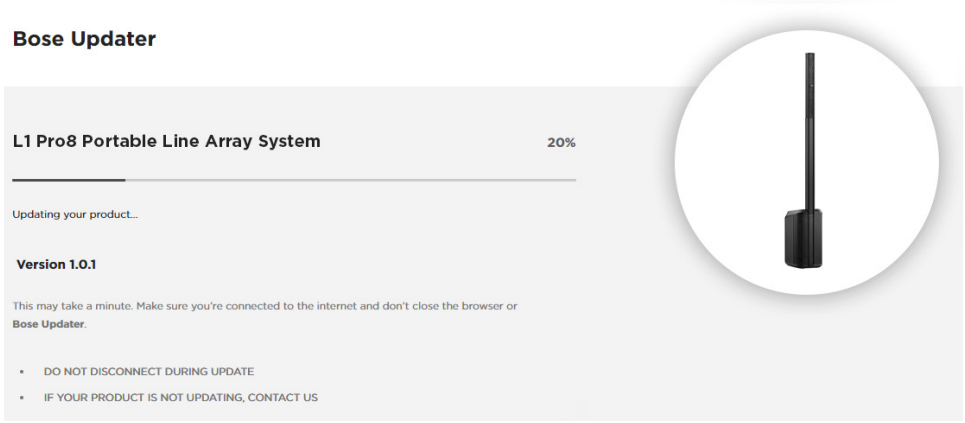
5. Once installed, open the **Updater**.
6. Plug your product into a power source.
7. Connect your product to your computer using a USB-C cable. The **Updater** will identify your product automatically.

SOFTWARE UPDATE

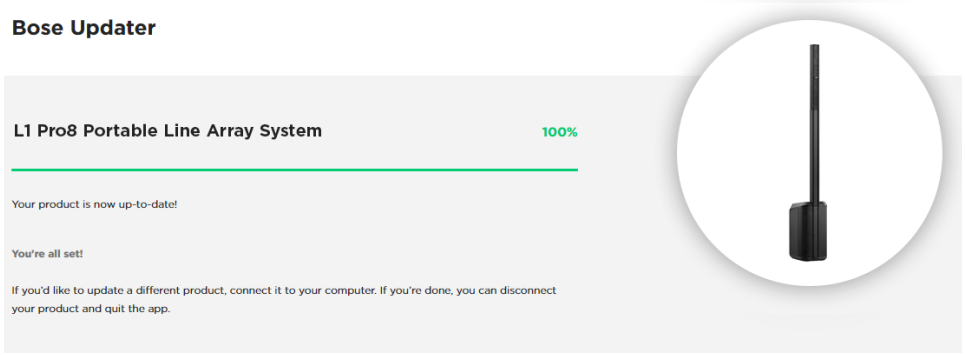
8. If your product needs a software update, your screen will read, **There's an update available for your product!**



9. Click **Update Now**.
Note: *Do not unplug or power off your product while the update is in progress.*



10. Once the update is complete, your screen will read, **Your product is now up-to-date!**.



SERVICE MANUAL REVISION HISTORY

Date	Revision Level	Description of Changes	Changes Driven By	Pages (s) Affected
1/18/2021	00	Document released at revision 00	Initial Release	ALL
1/17/2022	01	Add item 6, item 7		Page 8

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Reference Number 840918-SM REV 01, 2/2022
http://serviceops.bose.com