Bose® SoundTouch® 20 Series III

Wi-Fi® music system

Reference Number 738063-SM Rev. 01
Service Manual

Table of Contents

PRODUCT DESCRIPTION

The Bose® SoundTouch® 20 Wi-Fi® music system connects to a customer's WI-Fi network. Audio content is streamed from Internet radio, music services, and music stored on a computer connected to the same network. There are 6 presets that are programmed by pressing and holding until a beep is emitted.

A computer application is used to connect the SoundTouch device to a customer's network and also to control the device. The SoundTouch device can also be controlled by a smart phone application. Download the Bose SoundTouch computer application at: http://www.bose.com/soundtouch_app Download the Bose SoundTouch smart phone app at the App Store for iOS devices and at Google Play™ Store for AndroidTM devices.

To connect a SoundTouch device to a Wi-Fi network, follow the directions on the computer Soundtouch application. The computer needs to be connected to the network you are connecting the SoundTouch device to. Multiple SoundTouch products can be connected to the same network.

Software is updated over the Wi-Fi connection.

The AUX input is for connecting an analog audio source.

Bluetooth source devices can be connected by pressing and holding the Bluetooth button on the system or remote and selecting the SoundTouch 20 from the source device Bluetooth menu.

USB connections are used for connecting the product to a computer for setting up the product and also for software updates loaded on a thumb drive.

The ethernet connection provides a wired connection when a Wi-Fi network is not available.

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.

CAUTION: The Bose® SoundTouch® 20 Wi-Fi® music system 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® SoundTouch® 20 Wi-Fi music system is covered by a limited 1-year transferable warranty. 2 years in Europe.

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.

4. The Variant, country code, region code and serial number must be set after replacing the WI-FI module. Refer to the procedures on page 42.

5. The OLED display is ESD sensitive. To reduce the chance of latent failures, take proper ESD precautions when handling.

6. Units built after 12/12/2015 used a new connector from HIROSE which is not compatible with earlier production units. Use the part with the connector type that matches the connector type used in the unit you are repairing.

PACKAGING LIST

Item Number	Description	Material Number	QTY	Variant	Note
1	QSG, ST, 20, SIII, WIRELESS, MS, AST+EUR1	747445-0010	1	US, EU	
	QSG, ST, 20, SIII, WIRELESS, MS, ENG, TCH	747451-0010		TW	
	QSG, ST, 20, SIII, WIRELESS, MS, EUR2	747447-0010		EU	
	QSG, ST, 20, SIII, WIRELESS, MS, EUR3	747448-0010		EU	
	QSG, ST, 20, SIII, WIRELESS, MS, APAC2 (JP)	747450-0010		JP, AP	
	QSG, ST, 20, SIII, WIRELESS, MS, APAC1	747449-0010		AP	
2	SAFETY, SOUNDTOUCH, 30, 20, SERIES, III	740969-0010	1		
3	REMOTE, IR, STCH20-30 III, BLACK	355239-0040	1		
	REMOTE, IR, STCH20-30 III, WHITE	355239-0030			
4	PACKING TRAY, TOP, PULP, SPTY	355620-0010	1		
5	CABLE, SIGNAL, USB, TYPE A TO MICRO B, 1.5M	629190-1500	1		
6	BAG, FOAM, LDPE, 16.50X11.50X0.08IN	372176-0010	1		
7	PACKING, INSERT, D/C, 12.5X7.06IN	363847-0010	2		
8	PACKING TRAY, BTTM, PULP, SPTY	355619-0010	1		
9	CARTON, RSC, ST20, BLK, WW	369889-0030	1		
	CARTON, RSC, ST20, WHT, WW	369889-0050			
10	LINE CORD, 120V, NON-POL, DET, BLK, 1500	279101-1310	1	US	3
	LINE CORD, 110V, TAIWAN, BSMI, DET, 1525mm	329792-1310	1	TW	
	LINE CORD, 220V, EUR, DET, BLK, 1500	280135-1310	1	EU, AP	⚠
	LINE CORD, 230V, UKS, DET, BLK, 1500	280138-1310	1	EU, AP	
	LINE CORD, 100V, JPN, DET, BLK, 1500	280136-1310	1	JP	
	LINE CORD, 240V, AUS, DET, BLK, 1500	284243-1310	1	AP	
	LINE CORD, 230V, KOREA, BLK, 1500mm	311668-1310	1	AP	

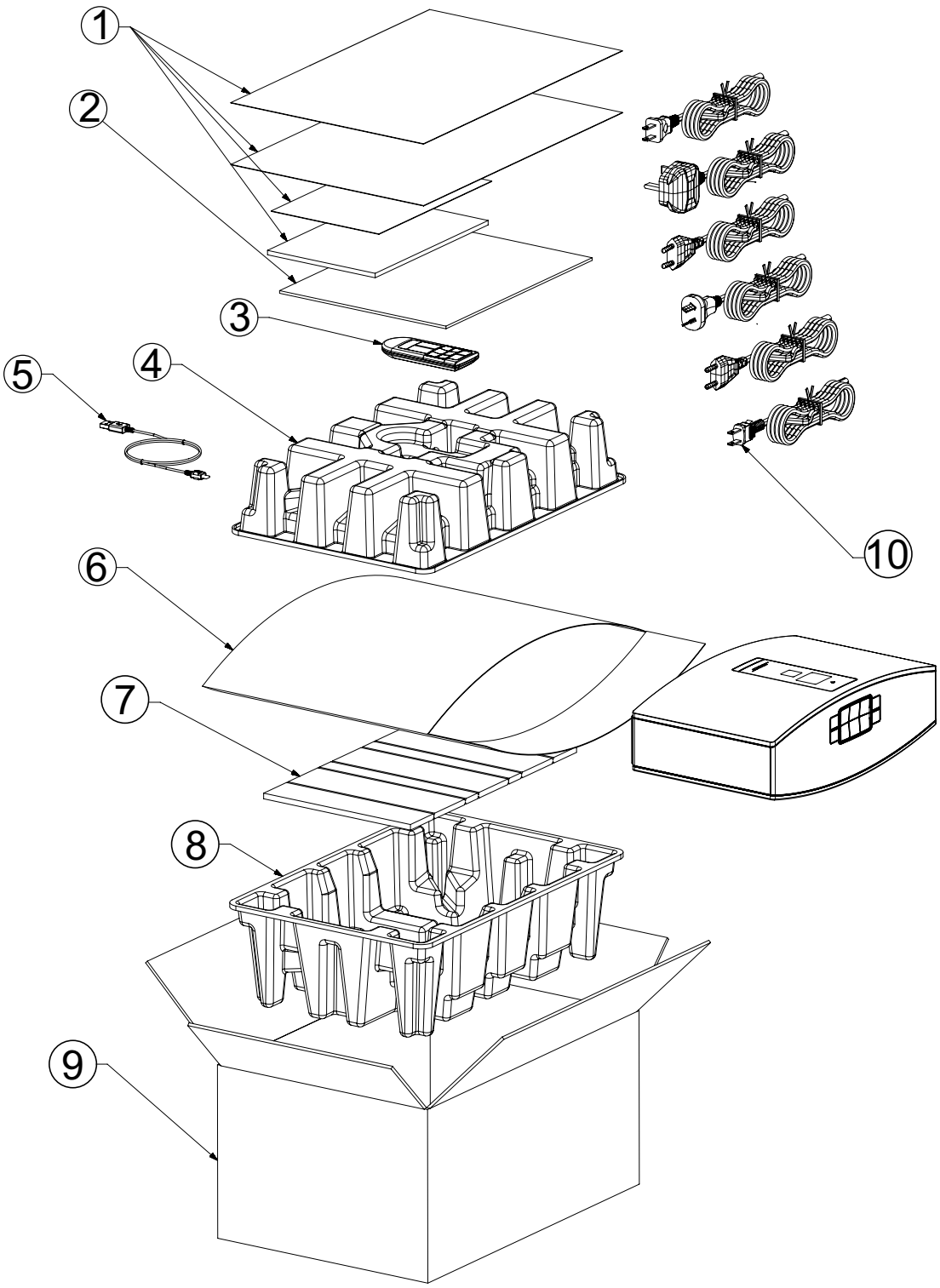


Figure 1. Packaging View

Main Assembly Part List

Item Number	Description	Material Number	QTY	Note
1	TOP CAP, ST20, BLK	354207-0030	1	
	TOP CAP, ST20, WHT	354207-0040		
2	FLOCK, TOP CAP	372784-0010	1	
3	SCREW, 6-13x, 5, PAN, XREC/SQ	288374-008	34	
4	KEYPAD ASSY, BLK	354213-0040	1	
	KEYPAD ASSY, GRY	354213-0030		
5	PCB ASSY, STCH 20/30, BUTTON, SVCE	359563-001S	1	
6	TAPE, FOAM, PCB	739677-0010	1	
7	SCREW, SELF TAPPING, M2, 5X7mm, WASHER, TORX	357328-0070	10	
8	CABLE, FFC, LED/DISPLAY, 12COND, 170mm	355896-0020	1	
9	SCREW, TAPP, 4-16X, 38, PAN, XREC	288372-006	2	
10	PCB, SOUNDTOUCH II, WIFI PCB, SOUNDTOUCH II, WIFI, NEW HIROSE CONNECTOR	720048-024S 720048-034S	1	4, 6
11	CABLE, FFC, BUTTON, 10COND, 125mm	354679-0020	1	
12	TAPE, FOAM, 15X10X4, 78mm (current drawing shows 4)	369747-0010	1	
13	ENCLOSURE, ST20 I-III, SRVC SUBASSY BLACK	738041-110S	1	
	ENCLOSURE, ST20 II, SRVC SUBASSY WHITE	738041-120S		
14	HARNESS, STCH 20, I/O-PWR SUPPLY	354690-0010	1	
15	END CAP, ST20 BLACK	354205-0030	2	
	END CAP, ST20, WHITE	354205-0040		
16	BASE, ST20, BLK	354212-0020	1	
17	FOOT, RUBBER	301750-001	4	
18	PCB ASSY, STCH 20, I/O, SVCE PCB ASSY, STCH 20, I/O, SVCE, NEW HIROSE CONNECTOR	354662-011S 750772-001S	1	6
19	CABLE, FFC, PA-I/O, 20POS, 66mm	354680-0010	1	
20	FOAM, ACOUSTIC, 2, 5X2, 5X0, 5	273518-012	2	
21	SCREW, 6-32X5/8, THREAD ROLLING	289391-010	8	
22	SHIELD, POWER AMP, TOP	354247-0020	1	
23	PCB ASSY, SPOTTY, AMP/POWER SUPPLY	354659-0110	1	
24	INSULATOR, STCH 20, PWR SUPPLY, BOTTOM	355631-0010	1	
25	SHIELD, POWER AMP, BOTTOM	354248-0010	1	
26	BRACKET, SPOTTY, SPACER, AMP PCB	359515-0010	1	
27	BAFFLE ASSY, STCH 20, SRVC	363467-001S	1	
28	FOAM, GRILLE, ARRAY	272036-004	6	
29	SPEAKER, FULL RANGE, 71/19, 4OHM, Fe, LBL/PKG	369885-0010	2	
30	CABLE, FFC, FOLDED, 31POS, IMPED MATCH CABLE, FFC, 31POS SHIELDED, NEW HIROSE CONNECTOR	354681-0010 749213-0010	1	6
31	CABLE, FFC, SPOTTY, SHELBY-I/O, 40POS, 226mm	354683-0010	1	
32	GRILLE ASSY, FRONT BLK	354165-0010	1	
	GRILLE ASSY, FRONT GRAY	354165-0040		
33	GASKET, STRIP, BACKER	625447-0010	2	
34	DIFFUSER, LED	354687-0010	1	
35	LENS, ST20, FRONT GRILLE	354200-0020	1	
36	GASKET, MULTI-LAYER	626396-0010	1	
37	LENS/DISPLAY ASSY, ST 20, PIONEER, SVCE	627493-001S	1	5

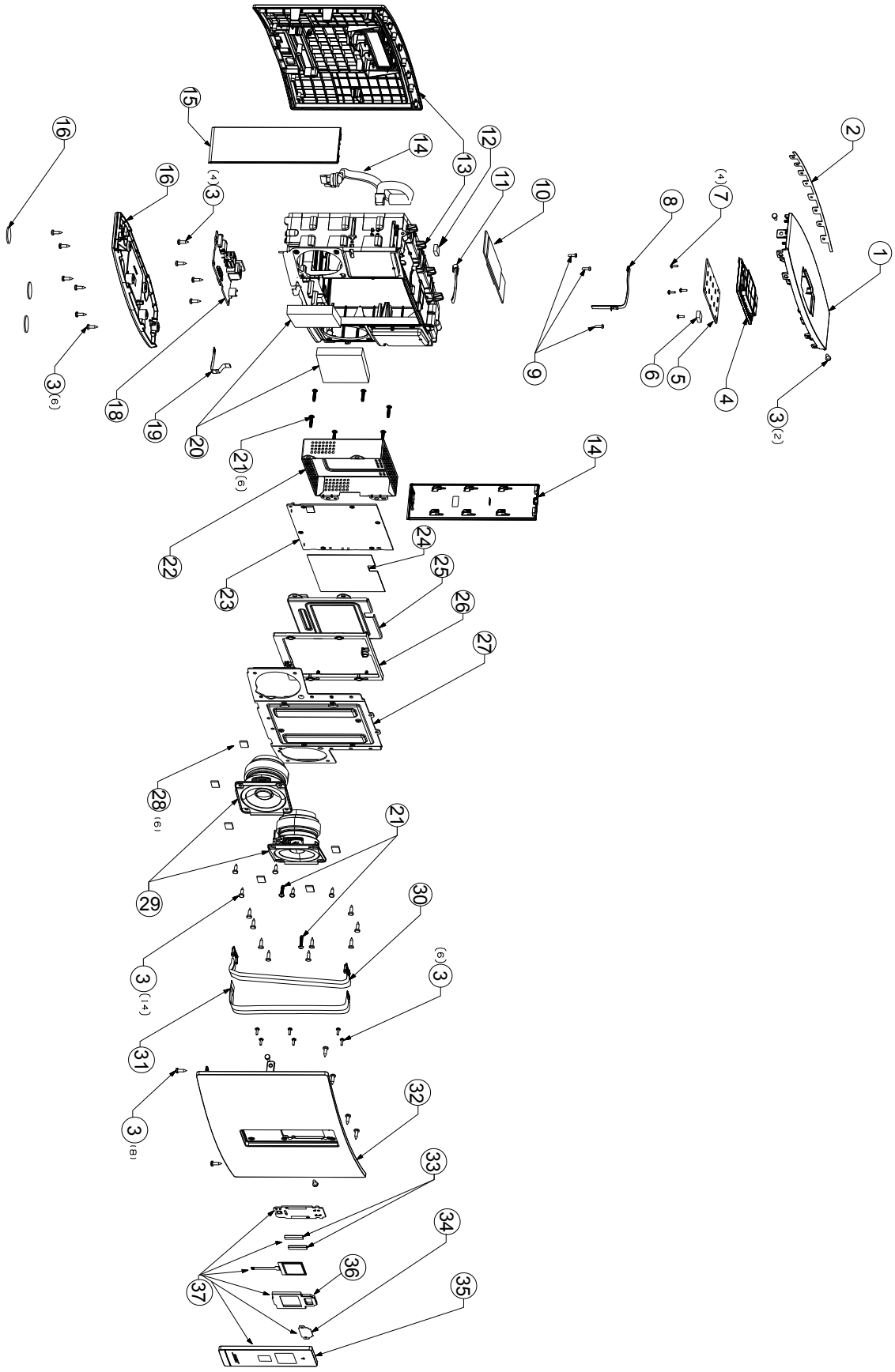


Figure 2. Main Assembly

AMP PCB Part List

Resistors

Reference Designator	Description	Material Number	Note
R201	34K, 0603, .1W, 1%	191465-3402	
R202	14K, 0603, .1W, 1%	191465-1402	
R203	25.5K OHM, 0603, .1W, 1%	191465-2552	
R204	71.5K, 0402, 63MW, 1%	268361-7152	
R205	2 MEG, 1206, 1/4W, 5%	124895-2055	
R206	340K, 1206, 1/4W, 1%	124894-3403	3 
R207	340K, 1206, 1/4W, 1%	124894-3403	3 
R208	340K, 1206, 1/4W, 1%	124894-3403	3 
R209	340K, 1206, 1/4W, 1%	124894-3403	3 
R210	10 OHM, 0603, .1W, 5%	199403-100	
R211	2 MEG, 1206, 1/4W, 5%	124895-2055	
R212	2 MEG, 1206, 1/4W, 5%	124895-2055	
R213	100K, 0402, 63MW, 1%	268361-1003	
R214	20.0K, 0402, 63MW, 1%	268361-2002	
R216	2.49K, 0603, .1W, 1%	191465-2491	
R217	249K, 0603, .1W, 1%	191465-2493	
R218	4.22K, 0603, .1W, 1%	191465-4221	
R221	750 OHM, 1206, 1/4W, 5%	124895-7515	
R223	102K, 0603, .1W, 1%	191465-1023	
R225	11.8K, 0603, .1W, 1%	191465-1182	
R229	JUMPER, CHIP, 0603	196042	
R230	0.10 OHM, 1210, 500mW, 5%	318356-101J	
R233	0.10 OHM, 1210, 500mW, 5%	318356-101J	
R234	1.0 OHM, 0603, .1W, 1%	191465-01R0	
R301	150K, 0402, 63MW, 1%	268361-1503	
R302	10K, 0603, .1W, 5%	199403-103	
R303	THERMISTOR, 0603, 3K, 5%, B4500	316463-3001	
R304	100K, 0402, 63MW, 1%	268361-1003	
R305	100K, 0402, 63MW, 1%	268361-1003	
R306	3.01K, 0402, 63MW, 1%	268361-3011	
R307	3.01K, 0402, 63MW, 1%	268361-3011	
R308	3.01K, 0402, 63MW, 1%	268361-3011	
R309	3.01K, 0402, 63MW, 1%	268361-3011	
R310	100K, 0402, 63MW, 1%	268361-1003	
R311	100K, 0402, 63MW, 1%	268361-1003	

AMP PCB Part List

Resistors (continued)

Reference Designator	Description	Material Number	Note
R312	1K, 0603, .1W, 5%	199403-102	
R313	100K, 0402, 63MW, 1%	268361-1003	
R407	10K, 0603, .1W, 5%	199403-103	
R408	1.00K, 0402, 63MW, 1%	268361-1001	
R409	1.00K, 0402, 63MW, 1%	268361-1001	
R410	10K, 0603, .1W, 5%	199403-103	
R412	10K, 0603, .1W, 5%	199403-103	
R414	10.0 OHM, 0402, 63MW, 1%	268361-10R0	
R415	10.0 OHM, 0402, 63MW, 1%	268361-10R0	
R416	49.9, 0805, .125W, 1%	133625-49R9	
R417	49.9, 0805, .125W, 1%	133625-49R9	
R418	49.9, 0805, .125W, 1%	133625-49R9	
R419	49.9, 0805, .125W, 1%	133625-49R9	
R420	10K, ARRAY, SMT, 4 POS, 5%	186433-1034	
R421	10K, ARRAY, SMT, 4 POS, 5%	186433-1034	
R422	34K, 0603, .1W, 1%	191465-3302	
R423	34K, 0603, .1W, 1%	191465-3302	
R424	3.3k, ARRAY, SMT, 4 POS, 5%	186433-3324	

Capacitors

Reference Designator	Description	Material Number	Note
C201	0.33uF, FILM, X2, 305VAC, 15MM	310415-334ME	3 ⚠
C202	100uF, CAP., EL., SMD, 105, 35V, 20%	306245-101EE	
C204	100pF, COG, 0402, 5%, 50V	268364-101	
C205	0.1uF, X7R, 0603, 10%, 50V	304991-104	3 ⚠
C207	0.022uF, X7R, 1210, 500V, 10%	359772-223K	
C208	0.33uF, FILM, X2, 305VAC, 15MM	310415-334ME	3 ⚠
C212	FILTER ASSY, EMI, LC, 60MHz	625126-0010	3 ⚠
C213	0.1uF, FILM, X2, 275VAC, 10MM	268166-104A	3 ⚠
C214	1.0nF, X7R, 0402, 50V, 5%	268366-102	
C218	1000uF, EL, 105C, 35V, 20%, 12.5 x 25mm	196991-102VP50	
C219	100uF, EL, 105C, 20%, 450V	310510-101WBB	

AMP PCB Part List

Capacitors (continued)

Reference Designator	Description	Material Number	Note
C220	10pF, C0G, 0402, 50V, +/-0.25pF	317398-100CH	
C221	1000uF, EL, 105C, 35V, 20%, 12.5 x 25mm	196991-102VP50	
C222	0.15uF, X7R, 1210, 500V, 10%	359772-154K	
C223	0.1uF, X7R, 0603, 10%, 50V	191470-104	
C224	0.1uF, X7R, 0603, 10%, 50V	191470-104	
C225	0.15uF, X7R, 1210, 500V, 10%	359772-154K	
C226	0.022uF, X7R, 1210, 500V, 10%	359772-223K	
C227	0.1uF, X7R, 0603, 10%, 50V	191470-104	
C229	FILTER ASSY, EMI, LC, 60MHz	625126-0010	3 
C235	4.7uF, X7R, 1210, FLEX TERM, 50V, 10%	315052-475E	3 
C237	0.1uF, X7R, 0603, 10%, 50V	304991-104	3 
C238	68pF, X1/Y1, 10mm LS, 250VAC, 10%	354061-680KB	3 
C239	68p, X1/Y1, 10mm LS, 250VAC, 10%	354061-680KB	3 
C301	220uF, EL, SMD, 105, 35V, 20%	306169-221VH	
C304	1.0nF, X7R, 0402, 50V, 5%	268366-102	
C305	1.0nF, X7R, 0402, 50V, 5%	268366-102	
C306	.22 uF, 0805, X7R, 10%, 25V	181264-224	
C307	1.0nF, X7R, 0402, 50V, 5%	268366-102	
C308	1.0nF, X7R, 0402, 50V, 5%	268366-102	
C309	3300pF, 0805, X7R, 50V, 10%	286499-332	3 
C401	0.33uF, X7R, 0603, 16V, 10%	257154-334K16	
C402	0.33uF, X7R, 0603, 16V, 10%	257154-334K16	
C403	0.33uF, X7R, 0603, 16V, 10%	257154-334K16	
C404	0.33uF, X7R, 0603, 16V, 10%	257154-334K16	
C405	1.0uF, 10V, X5R, 0603	278992-105	
C406	1.0uF, 10V, X5R, 0603	278992-105	
C407	1uF, X7R, 1206, 10%, 16V, OPEN	283163-105	
C408	1uF, X7R, 1206, 10%, 16V, OPEN	283163-105	
C409	1000pF, COG, 0402, 5%, 50V	268364-102	
C410	1000pF, COG, 0402, 5%, 50V	268364-102	
C411	0.1uF, X7R, 0603, 10%, 50V	304991-104	3 

AMP PCB Part List

Capacitors (continued)

Reference Designator	Description	Material Number	Note
C412	0.1uF, X7R, 0603, 10%, 50V	304991-104	3
C413	0.1uF, X7R, 0603, 10%, 50V	304991-104	3
C414	0.1uF, X7R, 0603, 10%, 50V	304991-104	
C415	0.1uF, X7R, 0603, 10%, 50V	304991-104	3
C416	0.1uF, X7R, 0603, 10%, 50V	304991-104	3
C417	0.47uF, 0805, X7R, 50V	133623-474	
C418	0.47uF, 0805, X7R, 50V	133623-474	
C419	0.47uF, 0805, X7R, 50V	133623-474	
C420	0.47uF, 0805, X7R, 50V	133623-474	
C429	1000pF, COG, 0402, 5%, 50V	268364-102	
C430	2.2 nF, X7R, 0402, 50V, 5%	268366-222	
C431	2.2 nF, X7R, 0402, 50V, 5%	268366-222	
C432	2.2 nF, X7R, 0402, 50V, 5%	268366-222	
C433	0.1uF, X7R, 0603, 10%, 50V	304991-104	3
C434	2.2 nF, X7R, 0402, 50V, 5%	268366-222	
C435	1000pF, COG, 0402, 5%, 50V	268364-102	
C436	0.1uF, X7R, 0603, 10%, 50V	304991-104	3
C437	330uF, EL, SMT, 105, 35V, 20%	306245-331EG	
C438	0.1uF, 0805, X7R, 50V, 10%	286499-104	3
C439	330uF, EL, SMT, 105, 35V, 20%	306245-331EG	
C440	0.1uF, 0805, X7R, 50V, 10%	286499-104	3
C441	0.1uF, 0805, X7R, 50V, 10%	286499-104	3
C442	0.1uF, 0805, X7R, 50V, 10%	286499-104	3
C443	0.1uF, 0805, X7R, 50V, 10%	286499-104	3

AMP PCB Part List

Capacitors (continued)

Reference Designator	Description	Material Number	Note
C444	0.1uF, 0805, X7R, 50V, 10%	286499-104	3 ⚠
C445	0.1uF, 0805, X7R, 50V, 10%	286499-104	3 ⚠
C446	0.1uF, 0805, X7R, 50V, 10%	286499-104	3 ⚠
C447	1000pF, 0603, X7R, 50V	191470-102	
C448	1000pF, 0603, X7R, 50V	191470-102	
C449	22uF, X5R, 0805, 6.3V, 20%	273592-226JM	
C450	22uF, X5R, 0805, 6.3V, 20%	273592-226JM	

Diodes

Reference Designator	Description	Material Number	Note
BR201	BRIDGE RECT, 3A, 600V, 4SIP, TRIMMED	350784-0010	3 ⚠
D201	SCHOTTKY, 1A, 30V, SOD123	317122-001	
D202	SWITCHING, SOD123, 1N4148W	257662	
D203	SCHOTTKY RECT., 5A, 170V, COMMON CATH	329305-0010	
D204	SWITCHING, SOD123, 1N4148W	257662	
ZR201	ZENER, 0.2W, 20V, SOD323	310491-20A	
ZR202	RECT, FAST, 600V, 1A	317066-600	
ZR203	ZENER, 1.5W, 150V, SMA	357194-0150	

Transistors

Reference Designator	Description	Material Number	Note
Q201	MFET, N-CH, 600V	310519-001	
Q301	BPLR, N, 40V, 200mA, SOT23	146819	
Q302	BPLR, P, 40V, 200mA, SOT23	148596	
Q303	BPLR, P, 40V, 200mA, SOT23	148596	
Q304	MOSFET, P-CH, 30V	298094-001	

AMP PCB Part List

Integrated Circuits

Reference Designator	Description	Material Number	Note
U201	SMPS, FLYBCK CNTLR, ADJ, 5A, UCC28610, 8SO	348216-0010	
U202	OPTO ISOLATOR, CNY17F-1X007	254120-002	3
U401	PWR AMP, 15W, CLASS D, 26V	327287-0010	3
U402	PWR AMP, 15W, CLASS D, 26V	327287-0010	3

Inductors

Reference Designator	Description	Material Number	Note
L201	TOROID, 1.5A, 30%, 4mH	359021-040N	3
L202	82uH, FIXED, RADIAL, 5mm LS, 670mA	309310-820K	3
L203	82uH, FIXED, RADIAL, 5mm LS, 670mA	309310-820K	3
L204	COMMON MODE, 3A, 30%, 30uH	357804-300N	3
L206	2.2uH, Inductor, Fixed	309310-2R2M	
L207	2.2uH, Inductor, Fixed	309310-2R2M	
L210	TOROID, 1.5A, 30%, 4mH	359021-040N	3
L401	22uH, FIXED, 3.9A	300618-220M	
L402	22uH, Fixed, 3.9A	300618-220M	
L403	22uH, Fixed, 3.9A	300618-220M	
L404	22uH, Fixed, 3.9A	300618-220M	

AMP PCB Part List

Miscellaneous

Reference Designator	Description	Material Number	Note
FB201	120 OHM, FERRITE BEAD, CHIP, 0603	259925-121	
J200	CONN, HEADER, LOCKING, TOP ENTRY	193369-002	3 ⚠
J301	CONN, FFC, 0.5mm, S ENTRY, 20POS, IVRY	349234-0020	
J302	CONN, LOCKING, 2.5MM, 2-P, LOC PIN, IVORY	283142-010002	
J303	CONN, LOCKING, 2.5MM, 2-P, LOC PIN, IVORY	283142-010002	
T201	TRANSFORMER, FLYBACK, 85-265VAC, 2.5A, 24V	370743-0010	3 ⚠
VR201	VARISTOR, MET OX, RADIAL, 320V, 80J, CRIMP	273545-005	3 ⚠
VR202	LIN REG, ADJ, SHUNT, TL431, 1%, SOT23-3	330361-1030	
W202	JUMPER, CHIP, 1206	124896	
W203	JUMPER, CHIP, 1206	124896	
W204	JUMPER, CHIP, 1206	124896	
W301	JUMPER, 0402, 0OHM	280043	
W403	JUMPER, CHIP, 0805	133627	
W404	JUMPER, CHIP, 0805	133627	

I/O PCB Part List

Resistors

Reference Designator	Description	Material Number	Note
R501	2.7 OHM, 1206, 1/4W, 5%	124895-2R75	
R502	2.7 OHM, 1206, 1/4W, 5%	124895-2R75	
R505	10K, 0603, .1W, 1%	191465-1002	
R507	10.0K, 0402, 63MW, 1%	268361-1002	
R509	332 K, 0603, .1W, 1%	191465-3323	
R510	30.1K, 0603, .1W, 1%	191465-3012	
R511	100K, 0402, 63MW, 1%	268361-1003	
R512	30.1K, 0603, .1W, 1%	191465-3012	
R515	698k, 0603, 0.1W, 1%	191465-6983	
R516	237K, 0603, 0.1W, 1%	191465-2373	
R518	51.1 OHM, 0603, .1W, 1%	191465-51R1	
R519	10K, 0603, .1W, 1%	191465-1002	
R520	3.9K, 0603, .1W, 1%	191465-3901	
R522	34.8K, 0603, 1/10W, 0.1%	282986-3482	
R525	6.49K, 0603, 1/10W, 0.1%	282986-6491	
R526	200K, 0603, .1W, 1%	191465-2003	
R528	100K, 0402, 63MW, 1%	268361-1003	
R601	120 OHMS, 0603, .1W, 5%	199403-121	
R602	100K, 0603, .1W, 1%	191465-1003	
R603	100 OHM, 0603, .1W, 1%	191465-1000	
R607	5.49K, 0402, 63MW, 1%	268361-5491	
R608	5.49K, 0402, 63MW, 1%	268361-5491	
R609	10.0K, 0402, 63MW, 1%	268361-1002	
R610	100K, 0603, .1W, 1%	191465-1003	
R613	10K, 0603, .1W, 1%	191465-1002	
R614	3.9K, 0603, .1W, 1%	191465-3901	
R615	3.9K, 0603, .1W, 1%	191465-3901	
R616	100K, 0603, .1W, 1%	191465-1003	
R619	6.65K, 0603, .1W, 1%,	191465-6651	
R620	6.65K, 0603, .1W, 1%,	191465-6651	
R621	10K, 0603, .1W, 1%	191465-1002	
R622	75 OHM, 0402, 63MW, 1%	268361-75R0	
R623	332 K, 0603, .1W, 1%	191465-3323	
R625	75 OHM, 0402, 63MW, 1%	268361-75R0	
R626	10.0K, 0402, 63MW, 1%	268361-1002	
R627	20.0K, 0402, 63MW, 1%	268361-2002	
R628	20.0K, 0402, 63MW, 1%	268361-2002	

I/O PCB Part List

Capacitors

Reference Designator	Description	Material Number	Note
C501	1uF, X5R, 0402, 10%, 10V	313771-105A	
C502	1000pF, 0603, X7R, 50V	191470-102	
C503	1uF, X5R, 0402, 10%, 10V	313771-105A	
C504	4.7uF, X7R, 1210, FLEX TERM, 50V, 10%	315052-475E	3 
C505	1uF, X5R, 0402, 10%, 10V	313771-105A	
C507	1uF, X5R, 0402, 10%, 10V	313771-105A	
C508	220uF, EL, SMT, 105, 16V, 20%	306169-221CG	
C509	1000pF, 0603, X7R, 50V	304991-102	3 
C510	10uF, X5R, 0805, 25V, 10%	273592-106E	
C511	100uF, EL, SMD, 105, 16V, 20%	306169-101CF	
C512	.01uF, 0603, X7R, 50V	191470-103	
C513	0.1uF, CAP, X7R, 0603, 10%, 50V	191470-104	
C514	100pF, C0G, 0603, 50V, 5%	188454-101	
C515	C10pF, C0G, 0603, 50V, 5%	188454-100	
C518	10uF, X5R, 0805, 25V, 10%	273592-106E	
C528	0.01uF, 0805, X7R, 50V, 10%	286499-103	
C602	0.1uF, CAP, X7R, 0603, 10%, 50V	191470-104	
C603	0.1uF, X7R, 0603, 10%, 50V	191470-104	
C605	1000pF, X7R, 1206, 2000V, 20%	359294-102M	
C608	10pF, C0G, 0402, 50V, +/-0.25pF	317398-100CH	
C609	10pF, C0G, 0402, 50V, +/-0.25pF	317398-100CH	
C610	10pF, C0G, 0402, 50V, +/-0.25pF	317398-100CH	
C611	10pF, C0G, 0402, 50V, +/-0.25pF	317398-100CH	
C615	0.1uF, X7R, 0603, 10%, 50V	191470-104	
C616	0.1uF, X7R, 0603, 10%, 50V	191470-104	
C617	0.1uF, X7R, 0603, 10%, 50V	191470-104	
C618	0.1uF, CAP, X7R, 0603, 10%, 50V	191470-104	

Diodes

Reference Designator	Description	Material Number	Note
D502	SCHOTTKY, 40V, 3A, SMB	193847-001	
VR601	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR602	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR603	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR604	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR605	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR606	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	

I/O PCB Part List

Diodes (continued)

Reference Designator	Description	Material Number	Note
VR607	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR608	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR609	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR610	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR611	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR617	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	
VR618	DIODE, TVS, ESD, 24VDC, 0603	352782-0010	

Transistors

Reference Designator	Description	Material Number	Note
Q501	MOSFET, P-CH, 30V	298094-001	
Q502	BPLR, P, 40V, 200mA, SOT23	148596	
Q503	MFET, N-CH, 0.3A, 60V, SOT-23	356154-0010	
Q601	MFET, N-CH, 0.3A, 60V, SOT-23	356154-0010	
Q602	MFET, N-CH, 0.3A, 60V, SOT-23	356154-0010	
Q603	MFET, N-CH, 0.3A, 60V, SOT-23	356154-0010	
Q604	BPLR, P, 40V, 200mA, SOT23	148596	
Q605	BPLR, P, 40V, 200mA, SOT23	148596	

Integrated Circuits

Reference Designator	Description	Material Number	Note
U501	O/V PROTECT, 6.85V, NCP367, 8DFN	355357-0030	
U502	O/V PROTECT, 7.20V, NCP367, 8DFN	355357-0040	
U601	CONN, RJ45, 2.54mm, S ENT, SHLD, TAB-UP, 8 POS	361231-0010	
VR502	IC,VREG, SW, BUCK, 581kHz, 1.5A, 42V, 10MSOP	328718-0020	

Inductors

L602	18nH, 0402, 0.9A, 2%	328669-18NXGLW	
L603	18nH, 0402, 0.9A, 2%	328669-18NXGLW	
L604	18nH, 0402, 0.9A, 2%	328669-18NXGLW	
L605	18nH, 0402, 0.9A, 2%	328669-18NXGLW	
L606	90 OHMS, 0504, , 150mA, C- MODE	324381-090D	
L607	90 OHMS, 0504, , 150mA, C- MODE	324381-090D	
L502	22uH, PWR, SMT, 4.71A	348801-220M	

I/O PCB Part List

Miscellaneous

Reference Designator	Description	Material Number	Note
F501	FUSE, TIME LAG, RADIAL, 3.15A, 250V	310538-3150B	3 ⚠
FB501	330 OHM, BEAD, FERRITE BLM18P, 0603	302257-331	
FB601	120 OHM, FERRITE BEAD, CHIP, 0603	259925-121	
FB602	120 OHM, FERRITE BEAD, CHIP, 0603	259925-121	
FB603	120 OHM, FERRITE BEAD, CHIP, 0603	259925-121	
J601	CONN, USB, MICRO-B, 5POS, FEMALE	330458-0010	
J602	CONN, USB, TYPE A, SMT	306363-001	
J603	CONN, PHONE, 3.5MM, FEMALE, 7POS, BLK	330462-0010	
J605	CONN, FFC, 0.5mm, S ENTRY, 31POS, W/SHIELD	310623-031	
J606	CONN, FFC, 0.5mm, S ENTRY, 40POS	310573-040	
J607	CONN, FFC, 0.5mm, S ENTRY, 20POS, IVRY	349234-0020	
J609	AC CONN, SINGLE PIECE LEADS	301125-001	3 ⚠
J610	CONN, HEADER, LOCKING, TOP ENTRY	193369-002	3 ⚠
S601	MUX/DEMUX, 2X2:1, USB, TS3USB221, 10QFN	353620-0010	
W601	JUMPER, CHIP, 0603	196042	
W602	JUMPER, CHIP, 0603	196042	
W603	JUMPER, CHIP, 0603	196042	
W604	JUMPER, CHIP, 0603	196042	
	SCREW, TAPP, 4-16X.38, PAN, XREC	288372-006	

WI-FI Module PCB Part List

Resistors

Reference Designator	Description	Material Number	Note
R202	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R203	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R204	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R205	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R207	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R208	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R209	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R210	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R211	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R212	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R213	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R214	RES, 0402, 63MW, 1%, 49.9 OHM	268361-49R9	
R215	RES, 0402, 63MW, 1%, 49.9 OHM	268361-49R9	
R216	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R218	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R219	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R220	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R222	RES, 0402, 63MW, 1%, 49.9 OHM	268361-49R9	
R223	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R224	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R225	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R226	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R301	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R302	RES, 0402, 0.063W, 1%, 4.53k OHMS	268361-4531	
R303	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R304	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R306	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R307	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R310	RES, 0402, 63MW, 1%, 56.2K	268361-5622	
R311	RES, 0402, 63MW, 1%, 56.2K	268361-5622	
R312	RES, 0402, 63MW, 1%, 56.2K	268361-5622	
R313	RES, 0402, 63MW, 1%, 56.2K	268361-5622	
R314	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R315	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R316	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R318	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R319	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R320	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R321	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R322	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	

WI-FI Module PCB Part List

Resistors (continued)

Reference Designator	Description	Material Number	Note
R323	RES, 0402, 63MW, 1%, 90.9K	268361-9092	
R404	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R405	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R406	RES, 0402, 0.063W, 1%, 4.7 OHMS	268361-4R70	
R407	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R408	RES, 0402, 63MW, 1%, 301 OHM	268361-3010	
R409	RES, 0402, 63MW, 1%, 301 OHM	268361-3010	
R410	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R411	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R412	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R413	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R414	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R501	RES, 0402, 63MW, 1%, 1.0M	268361-1004	
R502	RES, 0402, 63MW, 1%, 1.0M	268361-1004	
R503	RES, 0402, 63MW, 1%, 1.0M	268361-1004	
R504	RES, 0402, 63MW, 1%, 3.32K OHM	268361-3321	
R505	RES, 0402, 63MW, 1%, 3.32K OHM	268361-3321	
R506	RES, 0402, 63MW, 1%, 3.32K OHM	268361-3321	
R507	RES, 0402, 63MW, 1%, 3.32K OHM	268361-3321	
R508	RES, 0402, 0.063W, 1%, 4.7OHMS	268361-4R70	
R509	RES, 0402, 63MW, 1%, 100K	268361-1003	
R510	RES, 0402, 63MW, 1%, 100K	268361-1003	
R511	RES, 0402, 63MW, 1%, 100K	268361-1003	
R512	RES, 0402, 63MW, 1%, 100K	268361-1003	
R513	RES, 0402, 0.063W, 1%, 4.7 OHMS	268361-4R70	
R514	RES, 0402, 63MW, 1%, 49.9 OHM	268361-49R9	
R515	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R601	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R602	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R603	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R604	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R605	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R606	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R607	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R608	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R609	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R610	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R611	RES, 0402, 0.063W, 1%, 4.53k OHMS	268361-4531	
R612	RES, 0402, 0.063W, 1%, 4.53k OHMS	268361-4531	
R613	RES, 0402, 0.063W, 1%, 4.53k OHMS	268361-4531	

WI-FI Module PCB Part List

Resistors (continued)

Reference Designator	Description	Material Number	Note
R614	RES, 0402, 0.063W, 1%, 4.53k OHMS	268361-4531	
R615	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R617	RES, 0402, 63MW, 1%, 12.1K	268361-1212	
R618	RES, 0805, .125W, 1%, 52.3	133625-52R3	
R619	RES, 0805, .125W, 1%, 52.3	133625-52R3	
R620	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R621	RES, 0805, .125W, 1%, 52.3	133625-52R3	
R622	RES, 0805, .125W, 1%, 52.3	133625-52R3	
R623	RES, 0805, .125W, 1%, 274	133625-2740	
R624	RES, 0805, .125W, 1%, 274	133625-2740	
R901	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R902	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R903	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R904	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R905	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R906	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R907	RES, 0402, 63MW, 1%, 44.2K	268361-4422	
R908	RES, 0402, 0.063W, 1%, 4.53kOHMS	268361-4531	
R909	RES, 0402, 63MW, 1%, 56.2K	268361-5622	
R910	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R911	RES, 0402, 63MW, 1%, 10.0K	268361-1002	
R912	RES, 0402, 63MW, 1%, 12.1K	268361-1212	
R913	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R914	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R915	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R1001	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R1002	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R1003	RES, 1206, 1/4W, 5%, 10 OHM	124895-1005	
R1005	RES, 1206, 1/4W, 5%, 4.7 OHM	124895-4R75	
R1006	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R1007	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R1009	RES, 0402, 63MW, 1%, 44.2K	268361-4422	
R1201	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R1202	RES, 0402, 63MW, 1%, 100K	268361-1003	
R1203	RES, 0402, 63MW, 1%, 100 OHM	268361-1000	
R1204	RES, 0402, 63MW, 1%, 499 OHM	268361-4990	
R1205	RES, 0402, 63MW, 1%, 1.50K	268361-1501	
R1602	RES, 0402, 63MW, 1%, 100K	268361-1003	
R1603	RES, 0402, 0.063W, 1%, 7.87kOHMS	268361-7871	
R1701	RES, 0402, 63MW, 1%, 1.50K	268361-1501	

WI-FI Module PCB Part List

Resistors (continued)

Reference Designator	Description	Material Number	Note
R1702	RES, 0402, 63MW, 1%, 221K	268361-2213	
R1703	RES, 0402, 63MW, 1%, 44.2K	268361-4422	

Capacitors

Reference Designator	Description	Material Number	Note
C1001	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1002	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C1003	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1004	CAP, X5R, 0805, 25V, 10%, 10uF	273592-106E	
C1005	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C1006	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C1007	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C1201	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1202	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C1204	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C1205	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C1601	CAP, X5R, 0805, 4.7uf, 16V, 10%	273592-475C	
C1605	CAP, X5R, 0603, 25V, 10%, 4.7uF, COMM	718835-475K1E	
C1606	CAP, X5R, 0603, 25V, 10%, 4.7uF, COMM	718835-475K1E	
C1701	CAP, X5R, 0805, 25V, 10%, 10uF	273592-106E	
C1702	CAP, X5R, 0805, 25V, 10%, 10uF	273592-106E	
C1703	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1704	CAP, COG, 0402, 50V, 33PF	268364-330	
C1705	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1706	CAP, X5R, 0603, 25V, 20%, 10uF, COMM	718835-106M1E	
C1801	CAP, X5R, 0402, 10V, 10%, 1uF, COMM	716994-105K1A	
C1802	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1803	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1804	CAP, X5R, 0402, 10V, 10%, 1uF, COMM	716994-105K1A	
C1901	CAP, X5R, 0402, 10V, 10%, 1uF, COMM	716994-105K1A	
C1902	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1903	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C1904	CAP, X5R, 0402, 10V, 10%, 1uF, COMM	716994-105K1A	
C201	CAP, COG, 0402, 5%, 220pF, 50V	268364-221	
C202	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C203	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C204	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C205	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C206	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	

WI-FI Module PCB Part List

Capacitors (continued)

Reference Designator	Description	Material Number	Note
C207	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C208	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C209	CAP, COG, 0402, 5%, 220pF, 50V	268364-221	
C210	CAP, COG, 0402, 5%, 220pF, 50V	268364-221	
C301	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C302	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C306	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C307	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C308	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C309	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C310	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C311	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C404	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C405	CAP, X7R, 0402, 16V, 10%, 10000pF, COMM	718866-103K1C	
C406	CAP, X7R, 0402, 16V, 10%, 10000pF, COMM	718866-103K1C	
C407	CAP, X5R, 0603, 6.3V, 20%, 10uF, COMM	718835-106M0J	
C408	CAP, X5R, 0805, 25V, 10%, 10uF	273592-106E	
C409	CAP, X7R, 0402, 16V, 10%, 150pF	293702-151	
C410	CAP, X5R, 0603, 6.3V, 20%, 10uF, COMM	718835-106M0J	
C411	CAP, X7R, 0402, 16V, 10%, 150pF	293702-151	
C412	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C413	CAP, X7R, 0402, 16V, 10%, 10000pF, COMM	718866-103K1C	
C414	CAP, X7R, 0603, 16V, 10%, 1uF, COMM	718875-105K1C	
C415	CAP, X7R, 0402, 16V, 10%, 1000pF, COMM	718866-102K1C	
C416	CAP, X7R, 0402, 16V, 5%, 15nF	296732-153	
C417	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C418	CAP, X7R, 0402, 16V, 10%, 1000pF, COMM	718866-102K1C	
C419	CAP, X7R, 0402, 16V, 10%, 1000pF, COMM	718866-102K1C	
C420	CAP, X7R, 0402, 16V, 10%, 1000pF, COMM	718866-102K1C	
C421	CAP, X7R, 0402, 16V, 5%, 15nF	296732-153	
C422	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C501	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C502	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C503	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C504	CAP, X5R, 0603, 20%, 6.3V, 3.3uF	313766-335J	
C505	CAP, X5R, 0603, 20%, 6.3V, 3.3uF	313766-335J	
C506	CAP, X5R, 0603, 20%, 6.3V, 3.3uF	313766-335J	
C507	CAP, X5R, 0603, 20%, 6.3V, 3.3uF	313766-335J	
C508	CAP, X7R, 0402, 50V, 5%, 470pF	268366-471	
C509	CAP, X7R, 0402, 50V, 5%, 470pF	268366-471	

WI-FI Module PCB Part List

Capacitors (continued)

Reference Designator	Description	Material Number	Note
C510	CAP, X5R, 0805, 25V, 10%, 10uF	273592-106E	
C511	CAP, X7R, 0402, 16V, 10%, 150pF	293702-151	
C512	CAP, X5R, 0603, 6.3V, 20%, 10uF, COMM	718835-106M0J	
C513	CAP, X7R, 0402, 16V, 10%, 150pF	293702-151	
C514	CAP, COG, 0402, 50V, 5%, 22PF	268364-220	
C515	CAP, X7R, 0402, 16V, 10%, 10000pF, COMM	718866-103K1C	
C516	CAP, X7R, 0402, 16V, 10%, 150pF	293702-151	
C517	CAP, X5R, 0603, 6.3V, 20%, 10uF, COMM	718835-106M0J	
C518	CAP, X7R, 0402, 16V, 10%, 150pF	293702-151	
C519	CAP, X7R, 0402, 16V, 10%, 10000pF, COMM	718866-103K1C	
C520	CAP, X5R, 0603, 6.3V, 20%, 10uF, COMM	718835-106M0J	
C601	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C602,	CAP, C0G, 0402, 50V, 5%, 11pF	268364-110	
C603	CAP, X7R, 0402, 50V, 5%, 470pF	268366-471	
C604	CAP, X7R, 0402, 16V, 10%, 10000pF, COMM	718866-103K1C	
C605	CAP, C0G, 0402, 50V, 5%, 11pF	268364-110	
C606	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C607	CAP, X5R, 0603, 4.7uF, 10V, 20%	313766-475A	
C608	CAP, X5R, 0603, 6.3V, 20%, 10uF, COMM	718835-106M0J	
C609	CAP, X5R, 0402, 10V, 10%, 1uF, COMM	716994-105K1A	
C610	CAP, X7R, 0402, 16V, 10%, 10000pF, COMM	718866-103K1C	
C611	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C612	CAP, X7R, 0402, 50V, 10%, 1000pF, COMM	718866-102K1H	
C613	CAP, X7R, 0402, 16V, 10%, 1000pF, COMM	718866-102K1C	
C614	CAP, X7R, 0402, 16V, 10%, 1000pF, COMM	718866-102K1C	
C615	CAP, X7R, 0402, 16V, 10%, 10000pF, COMM	718866-103K1C	
C616	CAP, X7R, 1206, 2000V, 20%, 1000pF	359294-102M	
C801	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C902	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C903	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C904	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C905	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C906	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C907	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C908	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C909	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C910	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C911	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C912	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C913	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	
C914	CAP, C0G, 0402, 5%, 100pF, 50V	268364-101	

WI-FI Module PCB Part List

Diodes

Reference Designator	Description	Material Number	Note
D302	DIODE, SWITCHING, 100V, BAV99, SOT363	319113-001	
D601	DIODE, SWITCHING, 100V, BAV99, SOT363	319113-001	
D602	DIODE, TVS, ARRAY, 6AMPS, DT1042-04TS-7	739075-0010	
D1201	DIODE, SWITCHING, 100V, BAV99, SOT363	319113-001	
D1601	DIODE, SCHTKY, SC70, 30V, SINGLE	268381-001	

Transistors

Reference Designator	Description	Material Number	Note
Q901	XSISTOR, NFET, SMALL SIG, , SOT-23, FDV301N	329013-0010	
Q902	XSISTOR, NFET, SMALL SIG, , SOT-23, FDV301N	329013-0010	
Q904	XSISTOR, NFET, SMALL SIG, , SOT-23, FDV301N	329013-0010	

Integrated Circuits

Reference Designator	Description	Material Number	Note
U301	IC, LOGIC, BUFFER, SNGL, 5V, 74LVC1G07, SC70	626946-0010	
U401	IC, DAC, 192kHz, 24Bit, 2ch, AK4384	299344-001	
U402	IC, CODEC, AUDIO, W/DSP, 32b, 192kHz, 40WQFN	353341-0010	
U501	IC, Stereo ADC, 24-Bit, 192kHz	307160-001	
U601	IC, ETHERNET, PHYSICAL, LAN, TxRx, 24-QFN	353306-0010	
U901	IC, LIN REG, ADJ, SHUNT, TL431, 1%, SOT23-3	330361-1030	
U1201	IC, Inverter, Dual, 50mA, 5V	280293-001	
U1601	IC, VOLT REG, SW, BOOST, 0.4A, ADJ, SOT-23	355416-0010	
U1701	IC, VREG, SW, 2A, ADJ, WSON	638548-0010	
U1801	IC, VREG, LIN, POS, LDO, 0.2A, 1.8V, 4DFN	716194-0010	
U1901	IC, VREG, LIN, POS, LDO, 0.2A, 3.3V, 4DFN	716194-0020	

Inductors

Reference Designator	Description	Material Number	Note
L1001	INDUCTOR, POWER, 2520, 125C, 20%, 1uH	348739-1R0M	
L1601	Inductor, 0.86A, 22uH, +/-20%, SMT	290997-220T	
L1701	INDUCTOR, POWER, 2520, 125C, 20%, 0.47uH	348739-R47M	
L301	INDUCTOR, 0504, 90 OHMS, 150mA, C- MODE	324381-090D	

WI-FI Module PCB Part List

Inductors

Reference Designator	Description	Material Number	Note
L301	INDUCTOR, 0504, 90 OHMS, 150mA, C- MODE	324381-090D	
L1001	INDUCTOR, POWER, 2520, 125C, 20%, 1uH	348739-1R0M	
L1601	Inductor, 0.86A, 22uH, +/-20%, SMT	290997-220T	
L1701	INDUCTOR, POWER, 2520, 125C, 20%, 0.47uH	348739-R47M	

Ferrite Beads

Reference Designator	Description	Material Number	Note
FB401	BEAD, FERRITE, 0402, 0.9A, 600 OHM	716195-601	
FB402	FERRITE, BEAD, 0805, 1.5A, 330 OHMS	739338-331	
FB403	BEAD, FERRITE, 0402, 0.9A, 600 OHM	716195-601	
FB501	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB502	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB503	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB504	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB505	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB506	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB507	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB601	FERRITE, BEAD, 0805, 1.5A, 330 OHMS	739338-331	
FB602	BEAD, FERRITE, 0402, 0.9A, 600 OHM	716195-601	
FB901	FERRITE, BEAD, 0603, 120 OHMS	351171-121	
FB1001	BEAD, FERRITE, 0402, 120 OHM, 0.3A	324216-121B	
FB1002	FERRITE BEAD, 1206, 120OHM	326348-121	

Connectors

Reference Designator	Description	Material Number	Note
J801	CONN, FFC, 0.5mm, S ENTRY, 31POS, W/SHIELD	310623-031	
J802	CONN, FFC, 0.5mm, S ENTRY, 40POS	310573-040	
J901	CONN, FFC, 0.5mm, S ENTRY, 10POS, IVRY	349234-0010	
J902	CONN, FFC, 0.5mm, SMT, S ENTRY, 12POS, IVRY	349234-0012	

WI-FI Module PCB Part List

Miscellaneous

Reference Designator	Description	Material Number	Note
M1301	SLAB ASSY, SOUNDTOUCH MODULE	NA	
W603	JUMPER, 0402, 0 OHM	280043	
W704	JUMPER, 0402, 0 OHM	280043	
W705	JUMPER, 0402, 0 OHM	280043	
X601	CRYSTAL, FUND, 15PPM, 8pF, 3225, 25MHz	291429-034	
XFMR601	TRANSFORMER, CHOKE, 10/100BASE-T, SMT	356073-0010	
SHLD 7164 TOP	COVER, SM2, MODULE	717920-0010	

DISASSEMBLY PROCEDURE

1. Bottom Cover Removal

1.1 Remove the 6 screws indicated in Figure 3.

1.2 Lift off the bottom cover.

2. I/O PCB Removal

2.1 Perform procedure 1 first.

2.2 Remove the FFC from connector J606. Figure 4.

2.3 Remove the four screws securing the I/O PCB. Figure 4.

2.4 Lift up the I/O PCB and disconnect the cable harness from J610. Figure 5

2.5 Disconnect the FFC from J607. Figure 5

2.6 Press on J605's two connector release tabs and carefully pull out the FFC. Figure 5.

3. Side Panel Removal

3.1 Perform procedure 1 first.

3.2 Grasp the side panel and slide it upward to remove the side panel from the enclosure. Figure 6.

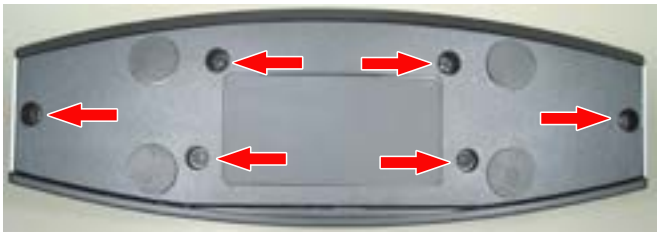


Figure 3. Bottom Cover

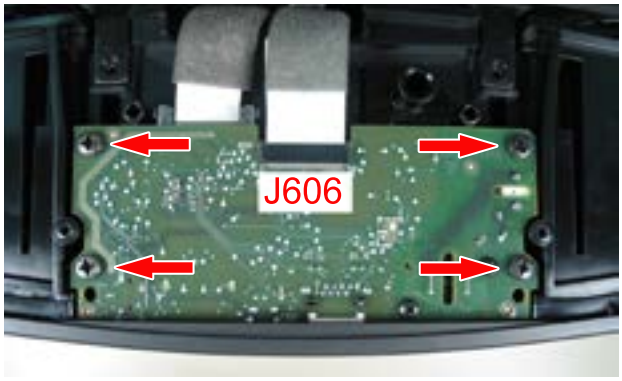


Figure 4. I/O PCB

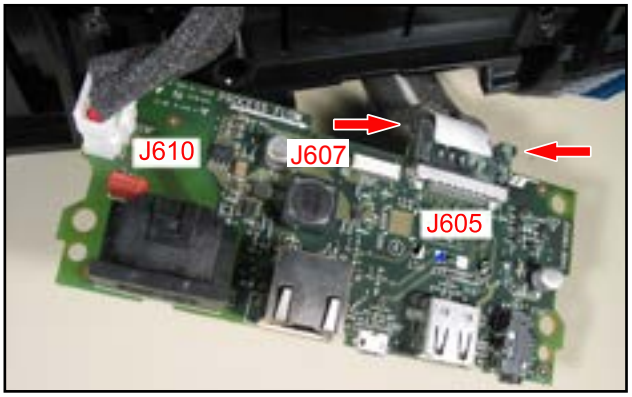


Figure 5. I/O PCB - Cables

Figure 6. Side Panel

DISASSEMBLY PROCEDURE

4. Grille and Top Cover Removal

4.1 Perform procedures 1 and 3 first.

4.2 Remove the two screws securing the grille assembly to the bottom of the matrix. Figure 7.

4.3 Remove the two screws, on either side, securing the grille assembly to the side of the matrix. Figure 8.

4.4 With the unit on its back, lift up on the lower part of the grille and rotate it backward until grille and top cover are disengaged. Figure 9.

4.5 Remove the FFC from the button and display PCB. Figure 10.

! Important Note: Take ESD precautions when disconnecting the OLED display. Refer to page 4 for ESD precautions.

Figure 7. Grill and Top Cover Removal, Bottom Screws

Figure 8. Grill and Top Cover Removal, Side Screws.

Figure 9. Grill and Top Cover Removal

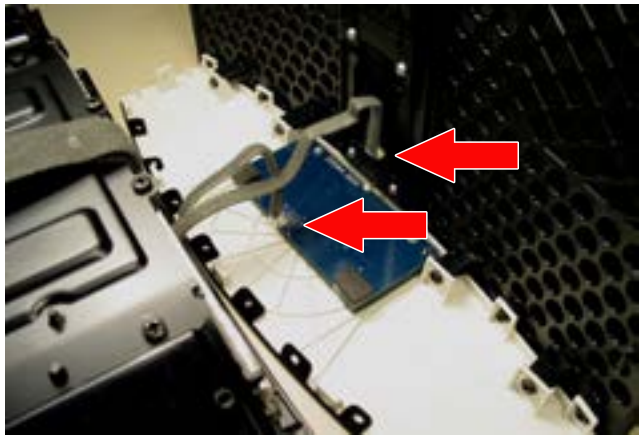


Figure 10. Button and Display PCB FFC

DISASSEMBLY PROCEDURE

5. Button PCB Removal

5.1 Perform procedure 4 first.

5.2 Remove the four screws securing the button PCB to the top cap. Slightly lift up the foam to expose to the two screws furthest from the grille. Figure 11.

6. Display Assembly Removal

6.1 Perform procedure 4 first.

6.2 Remove the six screws securing the display assembly to the grille. Lift out the display assembly. Figure 12.

! Important Note: Take ESD precautions when connecting or disconnecting the OLED display. Refer to page 4 for ESD precautions.

! Important Note: The display assembly must be replaced with the display assembly listed in the main part list. There are different OLEDs that need to match the display PCB. The display assembly listed in the main part list uses a matched OLED and display PCB.

7. Wi-Fi Module Removal

7.1 Perform procedure 4 first.

7.2 Remove the FFC from J902 and J802. Figure 13.

7.3 Remove the two screws securing the Wi-Fi Module to the matrix and lift out the Wi-Fi Module. Figure 14.

7.4 Remove the FFC from J901. Press on J801's two connector release tabs and carefully pull out the FFC. Figure 14.

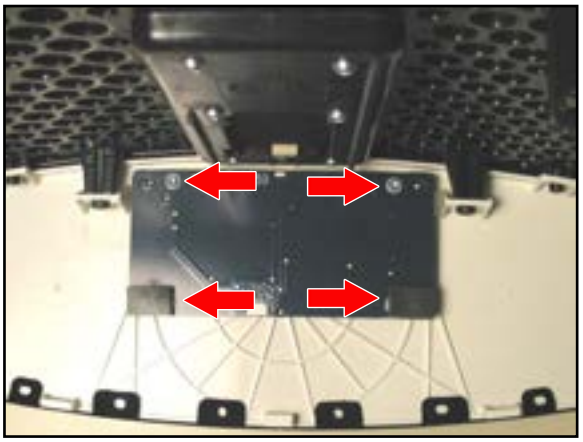


Figure 11. Button PCB Removal

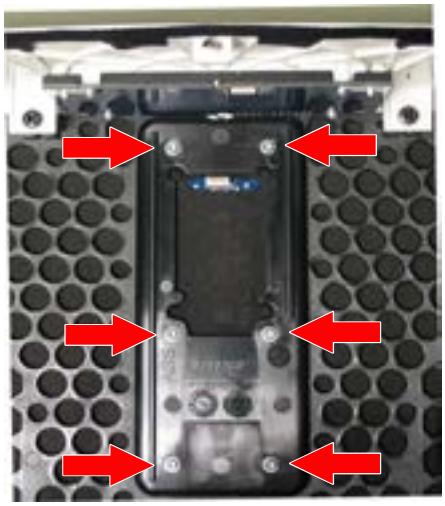


Figure 12. Display Assembly Removal

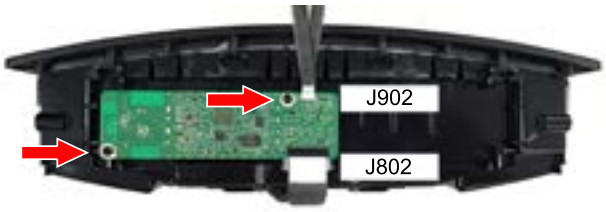


Figure 13. Wi-Fi Module Removal

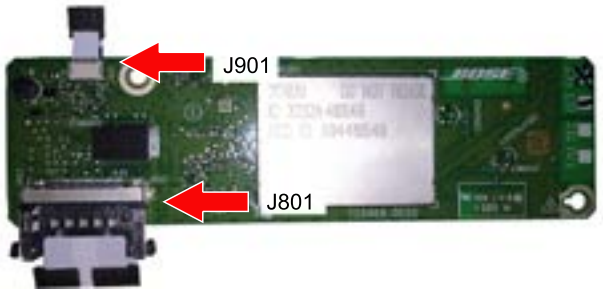


Figure 14. Wi-Fi Module, Cables

DISASSEMBLY PROCEDURE

8. Baffle and Driver Removal

8.1 Perform procedure 4 first.

8.2 Perform procedure 2 (remove I/O PCB) in order to remove the two FFC cables running in front of the baffle.

8.3 Remove the 16 screws securing the baffle to the matrix. Figure 15.

8.4 The baffle gasket might cause it to stick to the matrix. Using a flat tool, slightly pry up on the top edges. Lift up the top edge of the baffle. Figure 15 and 16.
Note: If the baffle gasket peels away from the baffle, a new baffle with gasket should be used to prevent air leaks. Item 26 in the main part list.

8.5 Disconnect the amp/power supply harness J200. Disconnect the driver harness connectors J302 and J303. Figure 16.

8.6 Remove the drivers from the enclosure. Lift out the baffle with amp/power supply PCB connected.

9. Amp/Power Supply PCB Removal

9.1 Perform procedure 8 first.

9.2 Remove the four screws securing the amp/power supply shield. Figure 17.

9.3 Remove the two screws securing the amp/power supply to the baffle. Lift out the amp/power supply PCB. Figure 18.

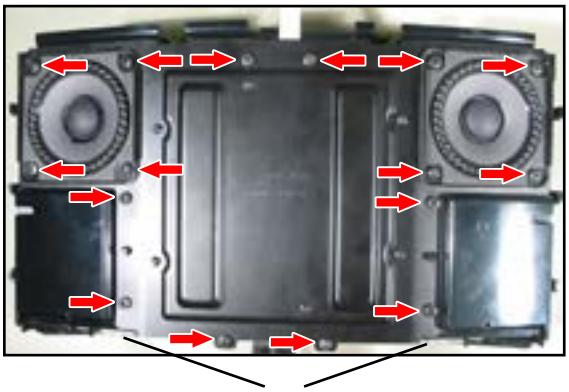


Figure 15. Baffle Removal

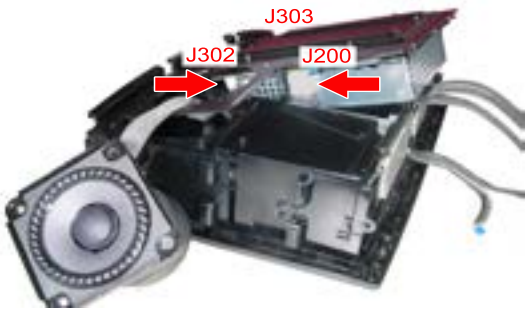


Figure 16. Baffle Lifted

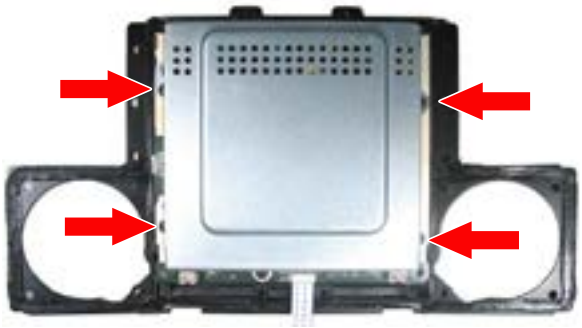


Figure 17. Amp/Power Supply Shield

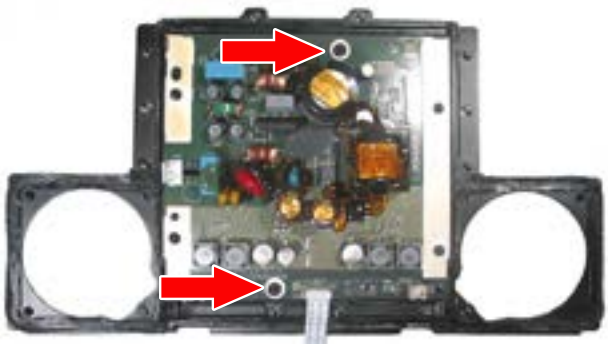


Figure 18. Amp/Power Supply PCB

ASSEMBLY KEY POINTS

1. Replacing Drivers

1.1 Loop the driver harness through the baffle and the enclosure as shown in Figure 19.

1.2 Connect the driver harnesses to the amp/ power supply PCB.

1.3 Secure the drivers and baffle with the screws removed in disassembly procedure 4. The driver's lower inner screws drives into the metal baffle and are different than the other 14 screws that drive into the plastic enclosure. These two screws have a machine thread - item 20 in the Main Part list. Figure 20.

Note: If the baffle gasket peeled away from the baffle, replace with a new baffle to prevent air leaks. Item 26 in the main part list.

2. FFC Dressing

2.1 Before securing the I/O PCB or Wi-Fi module, connect the FFCs to ensure they are fully inserted. It is difficult to connect the FFCs when the PCB is secured in place.

2.2 The FFC connecting the top connector on the I/O PCB (J606) to the top connector on the Wi-Fi module (J1203) should lay on top of the other FFC running between the two PCBs and over the baffle.

2.3 When properly dressed, the two cables should have a crossing pattern as shown in Figure 21. Failure to properly dress these cables will cause stress on the connections resulting in a intermittent connection.

3. Button Replacement

3.1 Align the replacement button pad to the alignment features in the top cover.

3.2 Remove the adhesive backing and align the button PCB over the button pad and the top cover alignment features. The button PCB connector will be opposite the grille. Figure 22.

3.3 Secure the button PCB with the screws removed in disassembly procedure 5.

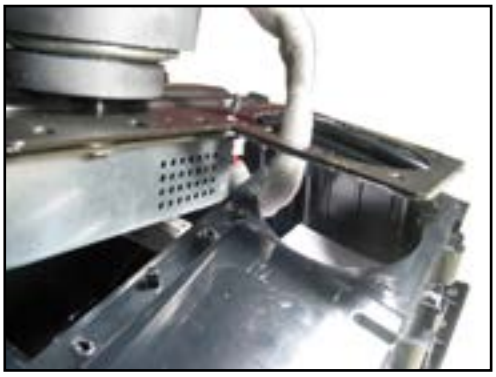


Figure 19. Driver Harness Dressing

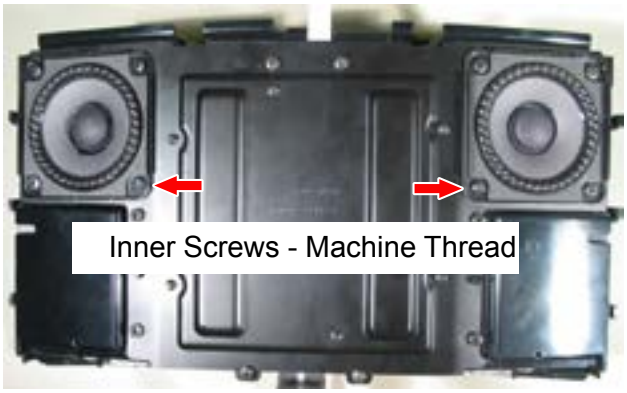


Figure 20. Driver Lower Inner Screws Location

Figure 21. FFC Dressing

Figure 22. Button Pad

ASSEMBLY KEY POINTS

4. Top Cap Replacement

4.1 Install the buttons on the replacement top cap using Assembly Key Points procedure 3.

4.2 Align the top cap to the grille's alignment features. Secure the top cap to the grille with four screws shown in Figure 23.

4.3 To avoid buzzes, install the top cap flock on the edge of the top cap opposite the grille. Make sure the flock does not extend above the edge of the top cap. The flock should not be visible when the top cap and grille are installed on the enclosure. Top cap flock is item 2 in the Main Assembly part list. Figure 23.

5. Grille and Top Cap Replacement

5.1 Connect the FFCs from the Wi-Fi module to the button and display PCB. Figure 24.

! Important Note: Take ESD precautions when connecting the OLED display. Refer to page 4 for ESD precautions.

5.2 Align the top cap to the alignment features on the enclosure.

5.3 Set the unit on a flat surface with the top cap down.

5.4 Apply pressure to the grille and rear cover, as shown in Figure 25, as you tighten the screws securing the top cap to the enclosure on each side. Figure 25.

5.5 Install the two screws securing the grille to the bottom of the enclosure. Figure 26.

Notes:
1. The gap between the grille and side panels should be .50 +0.67mm, - 0.50mm
2. The side panels should sit subflush to the top cap, 0.12 + 0.47mm. When sliding your finger upward along the side panel, where the side panel meets the top cap, there should be no sharp edge felt.
3. Reman locations should use the square-up fixture to install the top cap and grille. See procedure 5A on the next page for instructions.

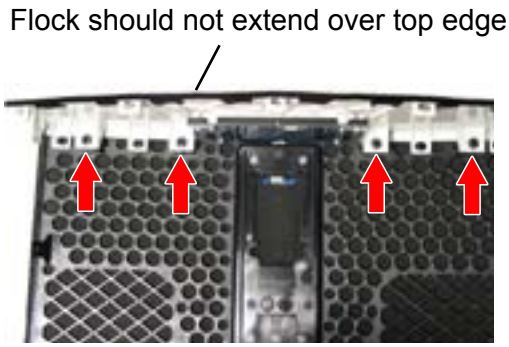


Figure 23. Top Cap

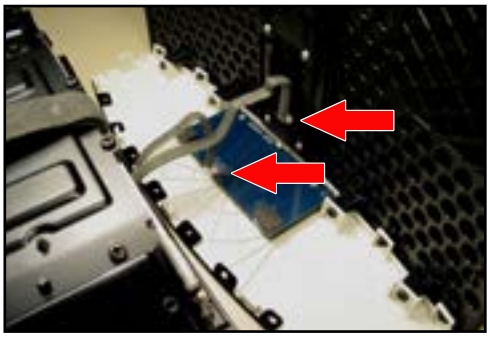


Figure 24. FFC Connection

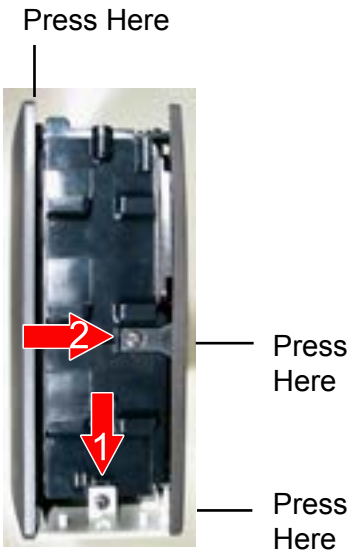


Figure 25. Grille, Side Screws

Figure 26. Grille, Bottom Screws

ASSEMBLY KEY POINTS

5A. Reman Grille and Top Cap Replacement Using Square-up Fixture

5A.1 Connect the FFCs from the Wi-Fi module to the button and display PCB. Figure 24 on previous page.

5A.2 Align the top cap to the alignment features on the enclosure.

5A.3 Set the unit in the fixture with the top cap down. Figure 27.

5A.4 Fully insert the alignment side panels into the unit.

5A.5 Secure the fixture clamp to hold the unit.

5A.6 Install the two screws, through the alignment side panels, to secure the grille to the enclosure. Do this on the other side.
Note: The alignment side panel has three holes enabling it to be used on either side of the unit.

5A.7 Install the two screws securing the grille to the bottom of the enclosure. Figure 26 on previous page.

5A.8 Remove the alignment side panels.

Notes:
1. The gap between the grille and side panels should be .50 +0.67mm, - 0.50mm.
2. The side panels should sit subflush to the top cap, 0.12 + 0.47mm. When sliding your finger upward along the side panel, where the side panel meets the top cap, there should be no sharp edge felt. Refer to cosmetic spec CS355588.

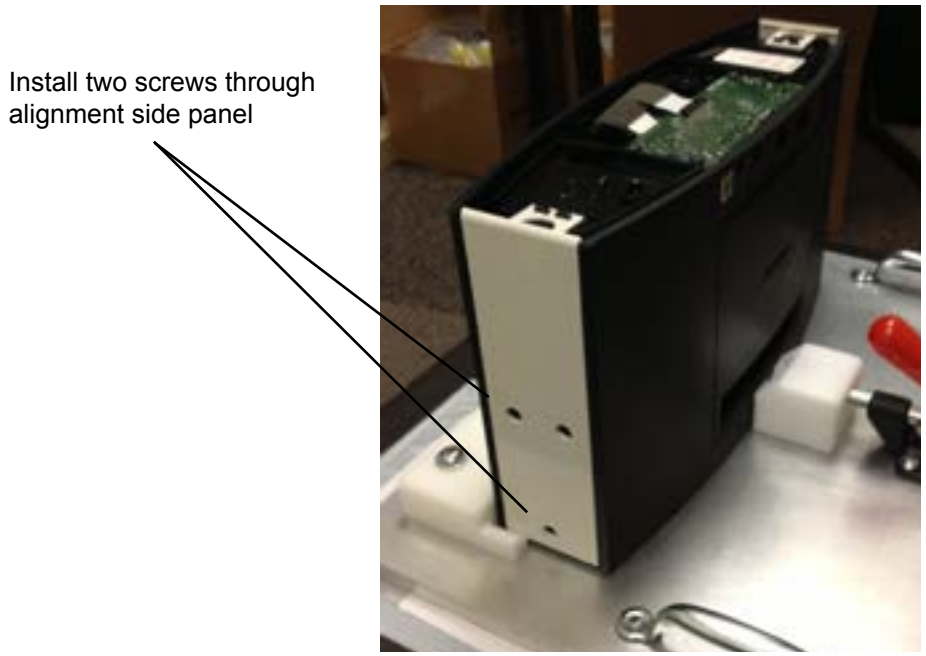


Figure 27. Reman SoundTouch® 20 Top Cap and Grille Alignment Fixture.

AUDIO TEST PROCEDURES

Equipment Required: Audio Signal Generator

1. Air Leak Test

1.1 Apply a 125 mVrms, 80 Hz signal generator to the AUX input.

1.2 Select AUX and set the volume to MAX.

1.3 Listen for air leaks around all the cabinet seams, joints, and wire harness through-holes.

PASS if no audible air leaks can be heard at a distance of less than 1ft (0.3M) from any exterior surface of the enclosure.

FAIL if any air leaks can be heard at a distance less than 1ft (0.3M) from any exterior surface of the enclosure.

2. Frequency Sweep Test

2.1 Apply a 85 mVrms, 40 Hz signal to the AUX input.

2.2 Select AUX and set the volume to MAX.

2.3 Sweep the signal generator from 40 Hz - 100 Hz. 5 second sweep up and 5 second sweep down.

2.4 Apply a 20 mVrms 100 Hz signal to the AUX input.

2.5 Sweep the signal generator from 100 Hz - 5 kHz. 5 second sweep up and 5 second sweep down.

2.6 Listen for any extraneous noises such as buzzes, rattles, ticks, and distortion.

PASS if no noise can be heard at a distance of less than 1ft (0.3M).

FAIL if any noise can be heard at a distance less than 1ft (0.3M).

3. Left / Right Channel Test

3.1 Apply a 60 mVrms, 300 Hz signal generator to the LEFT AUX input.

3.2 Listen for audio from the left channel.

3.3 Apply a 60 mVrms, 500 Hz signal generator to the RIGHT AUX input

3.4 Listen for audio from the right channel reconnect the right channel.

4. Bluetooth® Function Test

Equipment Required:
Bluetooth device with A2DP, such as an Iphone® (Advanced Audio Distribution Profile)

4.1 Press the Bluetooth button on the unit until “Ready to pair” is displayed.

4.3 Set your Bluetooth device to discoverable so it can discover the Bose SoundTouch® Speaker.

4.4 From the Bluetooth device list, select the device named “Bose SoundTouch”.
Note: If you are prompted for a passcode, enter 0000.

4.5 Play a familiar audio track from the Bluetooth device.

4.6 Listen for a clean undistorted sound with no audio drop outs.

FUNCTIONAL TEST PROCEDURES

1. IR Remote Test

1.1 Press each button on the remote control confirming the display reacts to each button press.

2. Keypad Button Test

2.1 Press each button the SoundTouch® 20 keypad confirming the display reacts to each button press.

3. USB Port Functional Test

3.1 Connect the SoundTouch 20 to a computer as shown in the TAP command set up documented on pages 38 - 39.

3.2 Type the command “local_services on” and <enter>. Then press CTRL-C on the keyboard. Then type “e” and <enter>. The command line spotty login: should be displayed on the computer.

3.3 Type the command “root” and <enter>. The command line should be root@spotty:root#.

3.4 Connect a USB thumb drive to the USB port located on the back of the product.

3.5 Type the command “lsusb”.

3.6 Verify the unit responds with the name of the USB thumb drive.

3.7 Send the command “rm /mnt/nv/local_ services” and <enter>.

3.8 Send the command “sync” to expedite the change to the file system

3.9 Send the command “exit” and <enter>. This will return to the TAP interface (CLI) and a TAP command line “->” should be shown.

4. Micro USB Port Functional Test

4.1 Using a micro USB to standard USB cable, insert the micro USB end of the cable into the SoundTouch connector labeled SETUP A (micro USB). Plug the other end of the cable into a USB port on a computer. Ensure that cable is properly seated.

4.2 Open your device manger and look under Network Adapters. You should see the SoundTouch 20 as an adapter.
Directions: On your computer, click on Start and navigate to Run. In the window that opens, enter “mmc devmgmt.msc”. The device manager will open. In the device manager, expand the network adapters, you should see the SoundTouch 20 as an adapter.

5. Ethernet Connector Functional Test

5.1 Insert an Ethernet cable into the Ethernet connector on the SoundTouch system. Connect the other end of the cable to the router.

5.2 The LED lights on the product’s Ethernet connector should light up yellow and green after a few seconds indicating that the connector is functioning.

TAP COMMAND SETUP

SoundTouch® 20 Wi-Fi Music System TAP command set up

Equipment Required

Hardware
Computer w/serial port
RS232 to TTL converter
Lifestyle® ETAP Cable, P/N 264565
Soundlink® ETAP adapter P/N 347062-0005

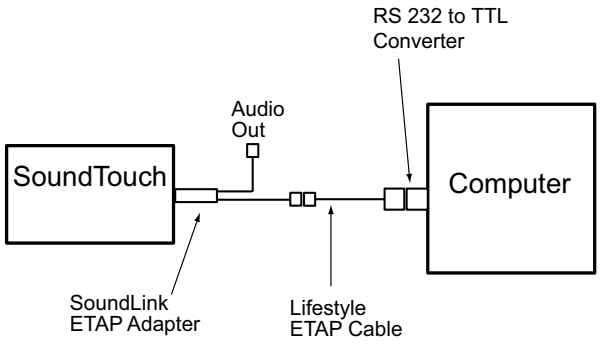
Software
TeraTerm terminal emulator
(Download at http://sourceforge.jp/projects/ttssh2/)

TAP commands are sent to the SoundTouch 20 system by connecting to the AUX IN connector. Refer to the ETAP connections diagram.

An ETAP cable, ETAP Cable adapter and RS232 to TTL Converter are required for this communication. Both ETAP cables are available from Bose® (see part numbers above). The RS232 to TTL Converter is made by B+B electronics, model number . It can be purchased online at http://www.bb-elec.com.

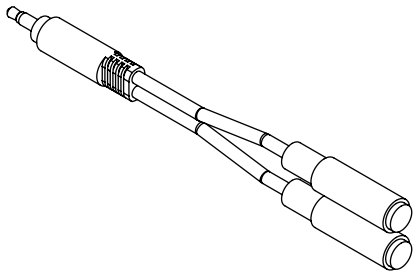
TAP commands are needed for the following procedures:

A. Wi-Fi Test
B. Setting Wi-FI Country Variant
C. Setting Region Variant
D. Setting Product Variant
E. Serial Number Programing

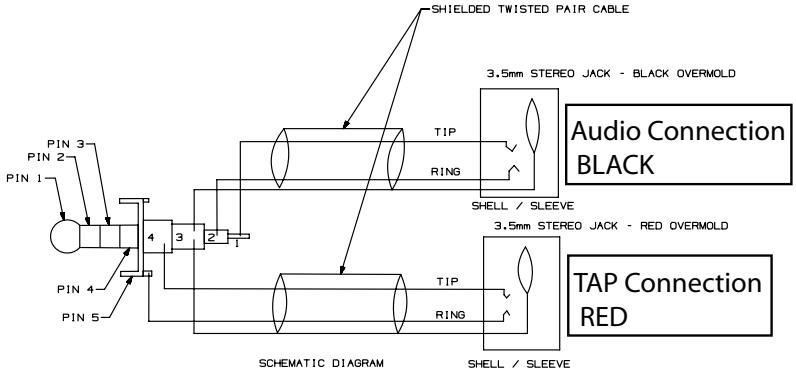


ETAP Block Diagram

B+B Electronics model 232LPTTL RS232 to TTL converter



Drawing of Soundlink ETAP Cable Adapter



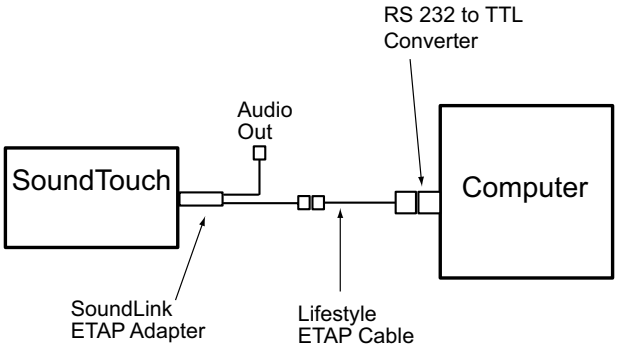
Schematic Drawing of Soundlink ETAP Cable

TAP COMMAND SETUP CONTINUED

1. Tera Term Terminal USB set up

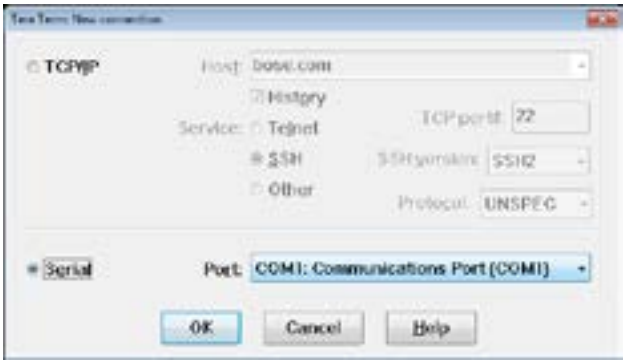
Tera Term is a terminal emulator and can be downloaded at http://sourceforge.jp/projects/ttssh2/. It is the interface used to send TAP commands to the SoundTouch® 20 product.

1.1 Connect the SoundTouch as shown in the diagram below.

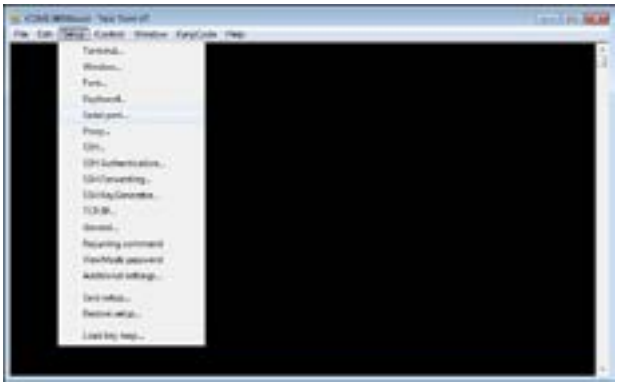


2. Teraterm set up

2.1 Launch a Tera Term terminal window and select serial communication and port as shown below.



2.2 Select setup, then serial port to set the baud rate to 115,200 data to 8 bit, parity to none, stop to 1 bit and flow control to none.



3. Test TAP Communication

Enter TAP command “sys ver”. The system will respond with the software version.

Example respinse: BoseApp version: 2.1.11.12551.365510 epdbuild. rel_2.x.hepdswbld04.2013-09-11T20:50:07

Wi-Fi Test Procedure

1. Wi-Fi Functional Test Set Up

This test uses TAP commands to connect the product to a Wi-Fi network and stream audio from a Bose® URL. Refer to pages 38-39, TAP Command Setup. The Bose® SoundTouch® application can be used in place of this test.
Note: Do not download the audio file from the test URL.

Note: A Tera-Term macro that includes the TAP commands below is available for download on the product's repair information page. Place the macro file in the same folder as your Tera-Term program. Open Tera-Term, select Control, Macro, wifi_test.ttl. Once the macro runs, follow the prompts.

2. Connecting to a Wi-Fi Router

2.1 Turn on asynchronous response
->async_responses on

2.2 Add router name and password
->network Wi-Fi profiles add ROUTERNAME wpa_or_wpa2 PASSWORD

2.3 Wait for the Wi-Fi indicator on the product's display to turn solid white. This may take up to a minute. If the indicator does not turn white, enter the TAP command again.

3. Testing the Wi-Fi Module.

3.1 View Current system configuration
"getpdo CurrentSystemConfiguration" will print out the current values

3.2 Enter location of demo URL
"sys configuration DemoAudioURL http://worldwide.bose.com/downloads/assets/audio/take5.mp3"

3.3 Enable Demo
"sys configuration DemoNetworkEnabled true"

3.4 Enter Demo mode
"demo enter"

3.5 Exit Demo Mode
"demo exit" or "sys reboot"

4. Factory Default Unit

4.1 Enter the TAP command
sys factorydefault

4.2 Provide the customer instructions for re-connecting their system to their Wi-Fi network. Download instructional sheet on the repair information page.

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 to ensure that it now passes the test.

Hi-Pot Tester Settings:

Type of product: 100-240 VAC 2-wire Class II
Test Voltage: 3000 VAC
Trip Current Limits: 2mA min, 6mA max
Ramp: 1 sec
Dwell: 2 sec

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 all connections on the 3.5mm audio jack, ground shell on either USB connector and all points on the Ethernet connector.

1.3 Connect the continuity check terminal of the Hi-Pot tester to the shell of the USB.
(all grounds are connected to the same point internal to the product, so only a single connection point is required).

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.

Wi-Fi PCB REPLACEMENT SETTINGS

Important! The replacement Wi-Fi PCB needs to have various settings performed and end user software loaded. Below are the steps that need to be performed when a replacement Wi-Fi PCB is used.

Refer to TAP command setup on page 38-39.

Note: A Tera-Term macro that includes the TAP commands below is available for download on the product's repair information page. Place the macro file in the same folder as your Tera-Term program. Open Tera-Term, select Control, Macro, WIFI_module_settings.ttl. Once the macro runs, follow the prompts.

1. Set Country Code

The country code determines the allowable Wi-Fi frequencies for where the product is sold.

1.1 Type
/opt/Bose/mfgdatatool –w countrycode XX

Where XX equals: **(UPPERCASE)**

- CN - Australia, Hong Kong, China, UAE, India
- GB - Germany, Austria, Switzerland, Italy, France, Belgium, Netherlands, Denmark, Sweden, Norway, Finland, UK, Hungary, Poland
- US - USA, Canada, Latin America
- TW - Taiwan
- JP - Japan

2. Set Region Code

The region code determines the allowable power levels for where the product is sold.

2.1 Type
/opt/Bose/mfgdatatool -w regioncode XX
(UPPERCASE)

- GB - Australia, Hong Kong, China, UAE, India, Germany, Austria, Switzerland, Italy, France, Belgium, Netherlands, Denmark, Sweden, Norway, Finland, UK, Hungary, Poland
- US - USA, Canada, Latin America, Taiwan
- JP - Japan

3. Set Variant.

3.1 Type **(lowercase)**
/opt/Bose/mfgdatatool –w variant spotty

(spotty = SoundTouch 20)

3. Set Serial Number

3.1 Type
/opt/Bose/mfgdatatool –w sn 1 serial number

Where serial number equals the 17 digit serial number located on the product's label.

4. Set Variant Mode

4.1 Type **(lowercase)**
/opt/Bose/mfgdatatool –w variantmode normal

5. Verify settings

5.1 Type
/opt/Bose/mfgdatatool -p

The system settings will be displayed.

6. Load End User Software Image

6.1 Download the latest software from the site below and load it onto a USB thumb drive.

http://worldwide.bose.com/downloads/en/web/soundtouch_updates_usb/page.html

6.2 Insert the thumb drive into the units Setup B USB port.

6.3 Reboot the unit. While the unit is booting, press and hold the shift key while repeatedly pressing "U" until you see the Uboot prompt.
U-Boot#

6.4 Type "sweup uboot".

6.5 When the update is complete, remove and reapply power. The unit's display will show the picture of the owners guide. This indicates it now has the end user software image.
Note: Units with the manufacturing software image will have a screw driver and wrench on the display and the words Test Mode.

TAP COMMANDS

1. Connect to Router

1.1 Turn on asynchronous response

->async_responses on

1.2 Add router name and password

->network wifi profiles add ROUTERNAME wpa_or_wpa2 PASSWORD

2. Play Song from Demo URL

2.1 Connect to Router - procedure 1

2.2 View Current system configuration
“getpdo CurrentSystemConfiguration” will print out the current values

2.3 Enter location of demo URL
“sys configuration DemoAudioURL http://worldwide.bose.com/downloads/assets/audio/take5.mp3”

2.4 Enable Demo
“sys configuration DemoNetworkEnabled true”

2.5 Enter Demo mode
“demo enter”

2.6 Exit Demo Mode
“demo exit” or “sys reboot”

3. Enter Manufacturing mode

3.1 Type “local_services on”

3.2 Press “Ctrl C”

3.3 Type “e”

3.4 At the login prompt, Type “root”

Note: To exit manufacturing mode:

type: “rm /mnt/nv/local_services”

type: “sync” to update file system

type: “exit”

press return

4. Set Country Code

4.1 Enter Manufacturing Mode - procedure 3.

4.2 Type
/opt/Bose/mfgdatatool –w countrycode XX

Where XX equals:

- CN - Australia, Hong Kong, China, UAE, India
- GB - Germany, Austria, Switzerland, Italy, France, Belgium, Netherlands, Denmark, Sweden, Norway, Finland, UK, Hungary, Poland
- US - USA, Canada, Latin America
- TW - Taiwan
- JP - Japan

5. Set Region Code

5.1 Enter Manufacturing Mode - procedure 3.

5.2 Type
/opt/Bose/mfgdatatool -w variant XX

- GB - Australia, Hong Kong, China, UAE, India, Germany, Austria, Switzerland, Italy, France, Belgium, Netherlands, Denmark, Sweden, Norway, Finland, UK, Hungary, Poland
- US - USA, Canada, Latin America, Taiwan
- JP - Japan

6. Set Variant.

6.1 Enter Manufacturing Mode - procedure 3.

6.2 Type
/opt/Bose/mfgdatatool –w variant spotty

(spotty= SoundTouch 20)

TAP COMMANDS

7. Set Serial Number

7.1 Enter Manufacturing Mode (Procedure 3)

7.2 Type
/opt/Bose/mfgdatatool –w sn 1 serial number

Where serial number equals the 17 digit serial number located on the product's label.

8. Software Version

8.1 "sys ver"
The unit will reply with something similar to the following, significant digits are bold:

BoseApp version: **9.0.20**.21985.1290890 epdbuild.Release2_2015.hepdswbld05.2015-06-16T11:50:25

9. Display Test (OLED)

9.1 Enter TAP command 'local_services on'

9.2 Press Control C and then type 'e' and then enter.

9.3 At the Spotty login, enter TAP command 'root'.

9.4 Enter TAP command 'cd /opt/Bose'

9.5 At the root@spotty:Bose prompt, enter the following TAP commands to display different sections of the display.

cat oled_pattern_left_bar.raw > /dev/fb

cat oled_pattern_center_bar.raw > /dev/fb

cat oled_pattern_right_bar.raw > /dev/fb

cat oled_pattern_cols.raw > /dev/fb

cat oled_pattern_rows.raw > /dev/fb

cat oled_pattern_outline.raw > /dev/fb

9.6 To return unit to normal mode,

Enter CD ../..

TAP command 'rm /mnt/nv/local_services'

TAP command 'sync'

TAP command 'exit'

10. Factory Default

10.1 Enter TAP command 'sys factorydefault'

BACK DOOR KEY PRESSES

1. System Information

1.1 Press and hold the Volume minus and Preset 5 buttons to bring up System Information. Use the Volume minus and plus button to toggle through the items.

1. MAC address information
- **1.1** Wi-Fi MAC address 1
- **1.2** Wi-Fi MAC address 2
- **1.3** Ethernet MAC address

2. Network Information
- **2.1** Connected?
- **2.2** Connection Type
- **2.3** IP Address
- **2.4** SSID
- **2.5** RSSI (Received Signal Strength), rates Wi-Fi signal received strength
- **2.6** Channel

3. System Information
- **3.1** Component ID
- **3.2** System Serial number

4. SoundTouch Information
- **4.1** Serial Number
- **4.2** Software Version

5. SoundTouch® Controller Information
- **5.1** Connected?
- **5.2** Serial Number

2. Factory Default

2. Press and hold the Volume minus and Preset 1 button. The system will return to factory default settings and reboot.

3. Software Update

3.1 Press and hold the Volume minus and Preset 4 button to initiate a software update.

3.1.1 The unit will download software from an update over Wi-Fi.

3.1.2 While applying power and holding the Volume minus and Preset 4 button, the unit will load software from a thumb-drive inserted in its USB port.

4. Alternate Setup (connect unit to Wi-Fi network)

4.1 Press and hold the Volume minus and Preset 2 button to initiate setup mode.

4.2 Open the SoundTouch app on your smart phone.

4.3 From the EXPLORE panel, select settings > Systems. Select your system and select connect to a WI-FI NETWORK. Follow the instructions on the app.

5. Disable/Enable Networking

5.1 Press and hold the Volume minus and Preset 3 to enable or disable networking.

SERVICE MANUAL REVISION HISTORY

DATE	REV	ECN	DESCRIPTION
09/2015	00		Intial Release
01/2016	01		ADDED WIFI PCB, I/O PCB, AND FFC PART NUMBERS FOR NEW HIROSE CONNECTER

Bose Corporation
The Mountain
Framingham Massachusetts USA 01701

P/N: 738063-SM REV 00, 01/2016 (H)
http://serviceops.bose.com