FreeSpace® DXA 2120 Digital Mixer/Amplifier

(US and non-US units)

Service Manual

Reference Number 294962-SM Rev. 02

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. Refer to the Hi-Pot and Ground Bond test information located on page 71 of this service manual.

The Hi-Pot test MUST be performed on any unit where the repair required removal of the amplifier's top cover.

The ground bond test MUST be performed on any unit where the repair affects the ground wire connection inside the chassis.

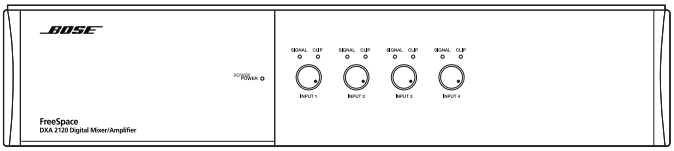
These tests MUST be performed to ensure that the product is safe to return to the customer after a repair.

CAUTION: The Bose® FreeSpace® DXA 2120 Digital Mixer/Amplifier contains no user-serviceable parts. To prevent warranty infractions, refer servicing to warranty service stations or factory service.

WARRANTY

The Bose FreeSpace DXA 2120 Digital Mixer/Amplifier is covered by a limited 2-year transferable limited warranty.

Product Description



The Bose® FreeSpace® DXA 2120 Digital Mixer/Amplifier integrates digital signal processing with two 120-watt output channels. Designed as a mixer/router for business music applications, it features an LCD panel and control buttons behind the front cover for ready access and easy configuration.

The mixer/amplifier provides six inputs, including 4 Mic/Line inputs, 1 Page input, and 1 Direct input. The Direct input can override all sources playing on the output channels. Each Mic/Line input provides both RCA and Euroblock jacks. The Euroblock connectors will accept either a Mic or Line level input. The RCA jacks accept Line level inputs only.

Two output channels are wired for 120 watts at 4 ohms each. For 70/100 volt applications, a jumper is required for proper configuration. In 70/100V applications, the two outputs will operate at 100 watts per channel. A third output is available for an auxiliary line out.

Additional features include:

- **Signal Mixing:** In Mixer Mode, simultaneously combines up to four inputs for any of the three outputs.
- **Signal Routing:** In Dual Mono Select Mode, one or two inputs go to each of two outputs in different zones and can be remotely selected. Or in Stereo Select Mode, two stereo sources go to one output zone and can be remotely selected.
- **Opti-voice® Paging:** Provides a smooth transition between music and page signals.
- **Dynamic Equalization:** Maintains tonal balance at all listening levels.
- **Room Equalization:** Allows easy adjustment of tonal balance in each zone.
- **Communications Port:** Includes an RS-232 serial port in reserve for system updates.
- **Back-up Power:** Provides an input terminal for a +24V DC back-up power source.

Supplied with the product

Included Connectors:

- 3-terminal input connectors (4) for wiring source equipment to 1 - 4 Line/Mic input Euroblock jacks.
- 4-terminal input connectors (2) for wiring to the single Page and single Direct input jacks.
- 6-terminal input connector (1) for wiring to interface wall controls to the wall panel input jack.
- 3-terminal output connector (1) for wiring to the AUX-out jack.

Included placement aids:

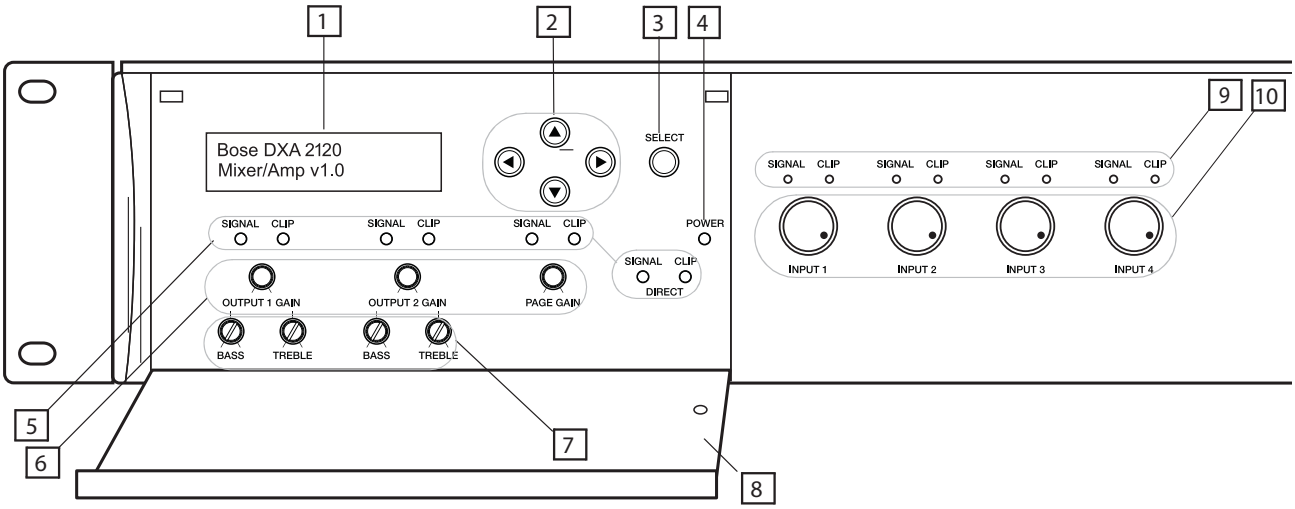
- Non-skid rubber feet (4) for stable placement on a solid, level surface.
- Rack ears (2) with mounting hardware for installation in a rack.

Mixer/Amplifier Accessories

- FreeSpace DXA volume control - A wall-mountable plate with volume control knob that fits into a standard U.S. double-gang junction.box.
- FreeSpace DXA volume control with A/B select - A wall-mountable plate that fits into a standard U.S. double-gang junction box. It features volume control and A/B select knobs for remote source selection.

Hardware Description

Front panel with open compartment



System Controls

1 - LCD panel - Displays menu selection for configuring and viewing system settings.

2 - Directional buttons - Navigate system menus and setting options as shown on the LCD.

3 - Select button - Confirms selections and settings in the system menus.

4 - Power LED - Blue light indicates the system is on. No light when it is off.

5 - Signal and Clip LEDs - Show signal states for OUPUT 1, OUTPUT 2, PAGE and DIRECT.

Signal Unlit = No signal
Clip Unlit = No clipping
Signal Green = Signal present
Clip Red = Clipping

6 - Gain knobs - Adjust gain for OUTPUT 1, OUTPUT 2 and PAGE.

7 - Bass and Treble knobs - Adjust tonal balance for OUTPUT 1 and OUTPUT 2.

Control Compartment

8 - Enclosure Door - Conceals system controls.

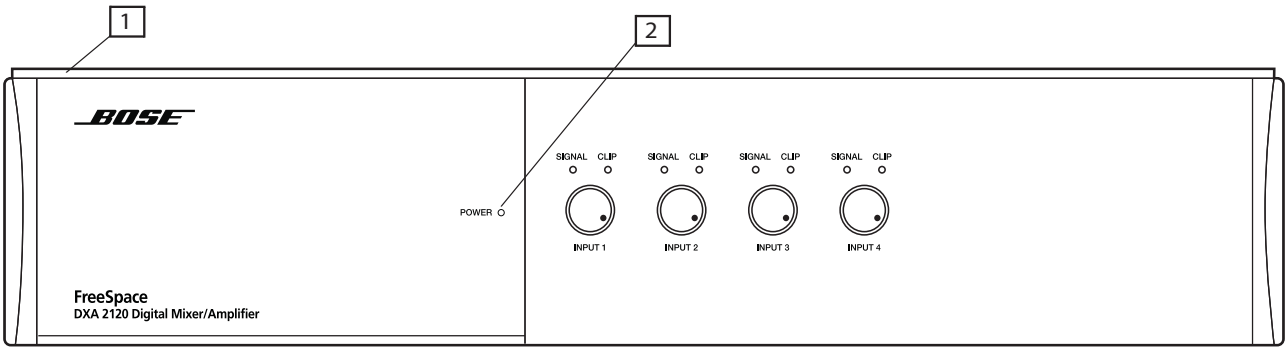
Input Controls

9 - SIGNAL and CLIP LEDs - Show signal states for Inputs 1 - 4.

Signal Unlit = No signal
Clip Unlit = No clipping
Signal Green = Signal present
Clip Red = Clipping

10 - Gain knobs - Adjust gain for INPUT 1 - INPUT 4.

Front panel with compartment closed

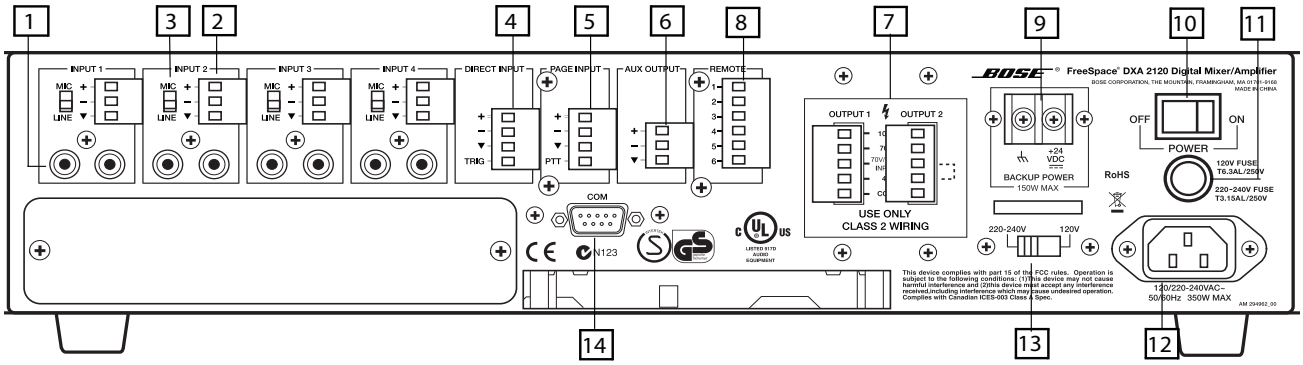


1 Latch location – Provides access to system controls.

2 Power status window – Reveals Power LED.

Hardware Description

Rear Panel



Audio source inputs

1 - INPUT 1 of 4 - Unbalanced RCA audio input jack.

2 - MIC/LINE switch - To adjust for the type if signal input. (Mic connections require using Euroblock input jacks.)

3 - INPUT 2 of 4 - Balanced Euroblock audio input jack.

4 - DIRECT INPUT - Balanced override input jack.

5 - PAGE INPUT - Balanced audio input jack.

Outputs

6 - AUX OUTPUT - Line-level signal output for other amplified equipment.

7 - OUTPUT 1 of 2 - Speaker connections for two powered outputs of 70V, 100V or 4 ohms.

Control Input

8 - REMOTE - Input jack for Volume control and Volume control with A/B select wallplate user interfaces.

Power

9 - BACKUP POWER - For connection to backup power source.

10 - POWER ON/OFF - AC power switch

11 - FUSE - 120V T6.3A/250V L or 240V T3.15A/250 L.

12 - AC mains line cord jack - AC line voltage input.

13 - 120V/220-240V switch - Switches between 120V and 220-240V AC input voltage. This switch is not provided on 100V AC input voltage models.

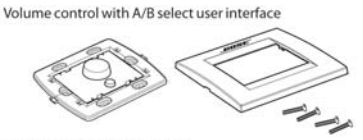
Communication

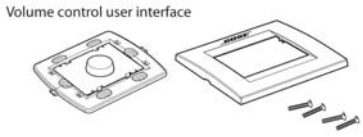
14 - COM - RS-232 serial port for system updates.

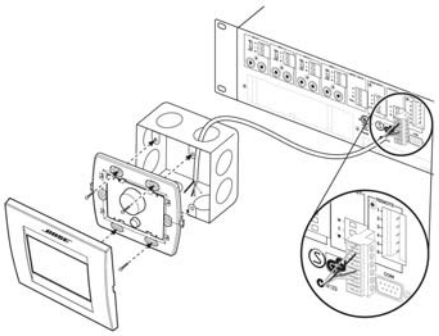
Wall Plates

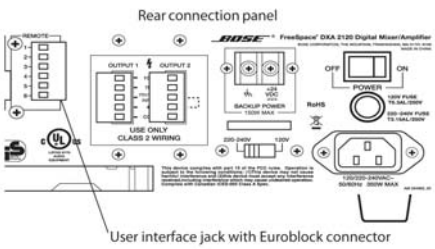
The FreeSpace® DXA 2120 is designed to be compatible with the following Bose user interfaces:

- Bose Volume Control User Interface (PC 041966)
- Bose Volume Control with A/B Select User Interface (PC 041967)





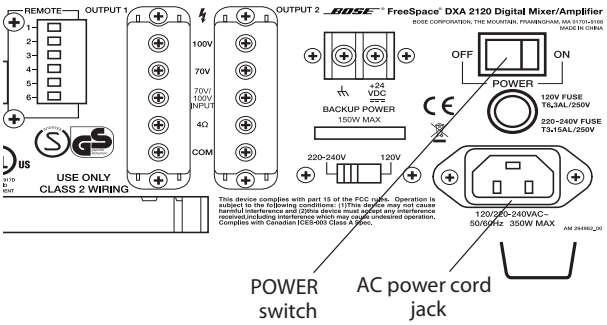




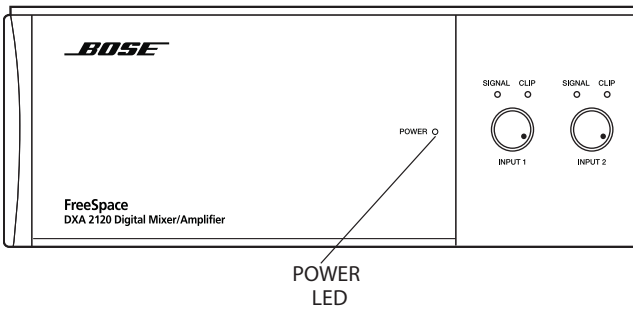
System Setup

This section provides instructions on setting the system for preferred operation. To make these settings, the system must be connected to power and the AC POWER switch set to ON.

Rear connection panel



Front control compartment

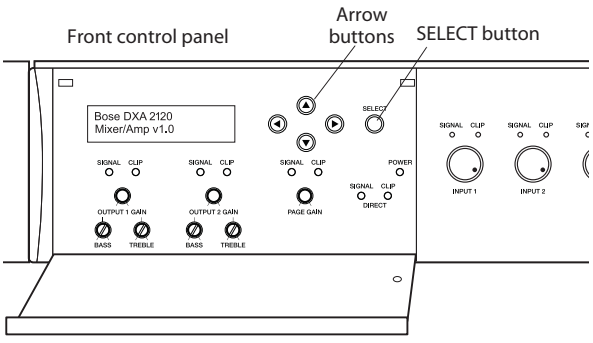


Note: When the system is unplugged, or if a power loss occurs, these system settings are retained in flash memory. However, continuous system operation during a power loss requires the use of an optional backup power source.

System Setup Procedure

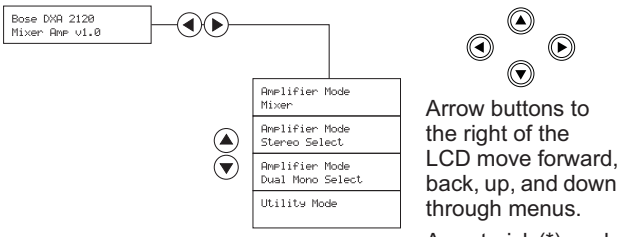
When first turned on, pressing any button next to the LCD activates the display.

Front control panel



- If the system is locked, simultaneously press the left and right arrow buttons and hold for five seconds. Lockout Off appears.
- When the system is unlocked, you can navigate to system setup options.
- Use the arrow and SELECT buttons to move through the menus and change settings for the equipment used and the type of connections made in your installation.
- Notice the type of setting in each field:
  - Level changes (designated by Lvl) are made using the GAIN knobs only. These levels appear in the menu field, but cannot be changed in the menu.
  - Adjustments (designated by Adj) are made in the menu. To do so:
    1. Activate the field by pressing SELECT.
    2. Using the up or down arrow, adjust the value.
    3. Press SELECT to confirm the setting and move on.

Selecting an operation mode



Arrow buttons to the right of the LCD move forward, back, up, and down through menus.

An asterisk (*) marks the selection made.

Some of the setting menus available for selections depend on the mode of operation you choose.

Pressing the right arrow button brings up the initial selection menu so you can chose the mode you need:

- **Mixer mode:** The system can mix up to four mic/line inputs to each of the two output channels for use in one or two zones.
- **Stereo Select mode:** With up to two stereo sources connected and using both output channels, the system provides stereo sound to a single output zone.
- **Dual Mono Select mode:** With two input souces connected to each of the two output channnels, the system provides audio in two zones.
- **Utility** - Includes system lockout and an option to restore all settings to the factory defaults.

Specifications

Audio Inputs

Mic Inputs (4 - Balanced):	Connectors:	3-pin Euroblock
	Input Range:	20 - 20kHz
	Input Impedance:	2k ohms (Mic) 25k ohms (Line)
	Equivalent Input Noise:	-122dB
Line Inputs (4 - Unbalanced):	Connectors:	Dual RCA (summed to mono)
	Input Range:	20 20kHz
	Input Impedance:	10k ohms
	Maximum Input Level:	+10dBu
Page Input (1 - Balanced):	Connector:	4-pin Euroblock
	Input Range:	20 - 20kHz
	Input Impedance:	400 ohms
	Equivalent Noise Input:	-122dB
Direct Input (1 - Balanced):	Connector:	3-pin Euroblock
	Input Range:	20 - 20kHz
	Input Impedance:	18k ohms
	Maximum Input Level:	+8dBu

Audio Outputs

Amplifier Outputs (2):	Connectors:	5 Terminal Reverse Euroblock
	Minimum Load:	49 ohms @ 70V 98 ohms @ 100V
	Output Impedance:	4 ohms
Aux Output (1):	Connector:	3-pin Euroblock
	Output Impedance:	400 ohms
	Maximum Output Level:	2.2 dBV

Performance

Amplifier Power:	120W @ 4 ohms, 100W @ 70/100V
THD (at full rated power):	$\leq$ 0.5%
Crosstalk (below rated power, 1 kHz):	< -60 dBV
Signal-to-Noise ratio:	75dB (below rated power, A-weighted)
Frequency Response:	40Hz - 16kHz (+0/-3dB)
Dynamic Range:	83dB
Sampling Rate:	44.1kHz

Specifications (continued)

A/D and D/A Converters:	24-bit
Communication Port:	RS-232 serial port
LED Status Indicators:	Power - blue; Signal present - green; Clip - red

Power

Mains Voltage:	100 to 240VAC; 50 to 60Hz
AC Power Consumption:	Idle: 39W Active: 350W
Fuse Type:	120V T6.3A/250 or 240V T3.15A/250 L
DC Backup Power:	+24V (+/- 1%)
Connector:	2-terminal barrier strip
Input Voltage Level:	+24V
Minimum Input Power:	50W
Maximum Output Power:	150W

Mechanical

Dimensions:	3.5” H x 16.63” W x 13.5” D (8.9 x 42.2 x 34.3 cm)
Weight:	Unpackaged: 31.8 lbs Shipping weight: 39.9 lbs

Environmental

Operating Temperature:	0 - 40 degrees C
Storage Temperature:	-40 - 70 degrees C
Humidity:	40 - 90%

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.

PART LIST NOTES

1. This part is not normally available from Customer Service. Approval from the Field Service Manager is required before ordering.

2. The individual parts located on the PCBs are listed in the Electrical Part List.

3. ⚠ This part is critical for safety purposes. Failure to use a substitute replacement with the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards.

4. This part is referenced for informational purposes only. It is not stocked as a repair part. Refer to the next higher assembly for a replacement part.

PACKAGING PART LIST

FreeSpace® DXA 2120 Amplifier/Mixer (see Figure 1)

Item Number	Description	Bose® Part Number	Vendor Part Number	Qty.	Note
	CARTON KIT, INCLUDES ITEMS 1, 2 AND 13	298709	SVC-MIXER14+PKG	1	
1	CARTON	298708	1437-8501+0-3	1	
2	PE FOAM	-	1493-1761+0	2	
3	WHITE BOX	-	1480-9401+0	1	4
4	RACK EAR	298706	4135-6291+0	2	
5	POLYBAG, .04x5x9	-	1497-1932-0	2	4
6	POLYBAG, .04x5x6	-	1497-2042-0	2	4
7	SCREW, MACHINE, FLAT-CS (USED WITH RACK EARS)	-	2901-4012+3000	6	4
8	RUBBER FOOT	298707	4157-1121+0	4	
9	AC POWER CORD, US/CAN AC POWER CORD, EURO AC POWER CORD, JAPAN AC POWER CORD, UK AC POWER CORD, AUS	298165 298166 298167 298168 298169	7012-7340+0 7012-6601+0 7012-5530+0 7012-6603+0 7012-5430+0	1	3 ⚠
10	POLYBAG, 10'x14'	-	1497-4122-0	1	4
11	OWNERS MANUAL	298710	4301-7240+0	1	
12	POLYBAG FOR MANUAL	-	1497-1062+0	1	4
13	POLYBAG FOR UNIT	-	1497-8012+0	1	4
14	MATING CONN KIT, REAR I/O; INCLUDES: – MIC/LINE CONN, 3 POS – DIRECT/PAGE CONN, 4 POS – RMT INPUT CONN, 6 POS – AUX OUTPUT CONN, 3 POS – SPKR OUTPUT CONN, 5 POS	298704 - - - - -	- 2113-3143+0 2113-3147+0 2113-3149+0 2113-3143+0 2113-3272+0	1 4 2 1 1 2	

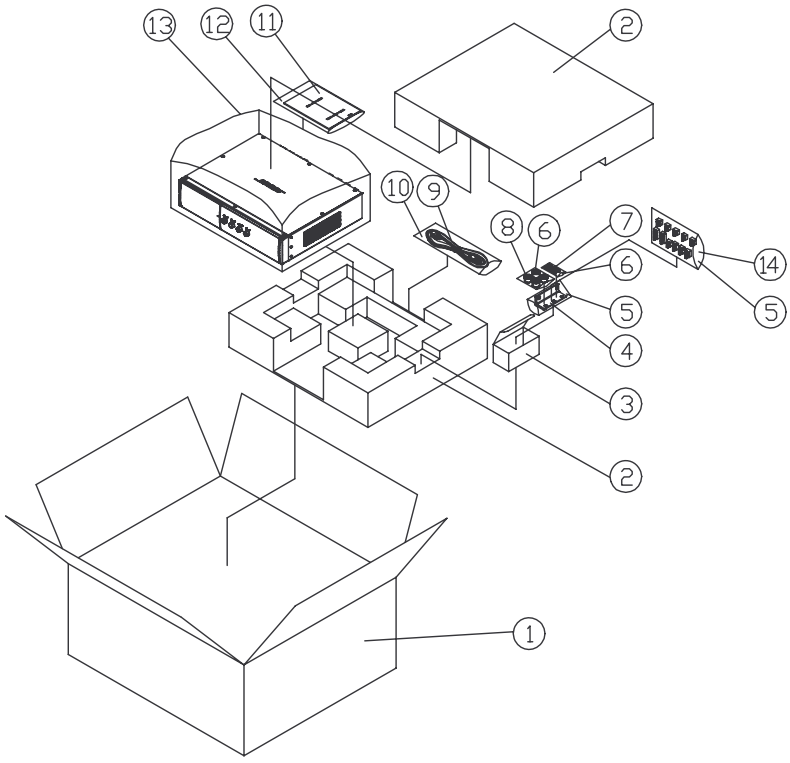


Figure 1. FreeSpace DXA 2120 Packaging View

MAIN PART LIST

FreeSpace® DXA 2120 Amplifier/Mixer (see Figure 2)

Item Number	Description	Vendor Part Number	Bose® Part Number	Qty.	Note
1	TOP COVER, CHASSIS	1405-8601+0	298705	1	
2	DSP/MCU PCB ASSEMBLY	SVC-MIXER14+DSP	298689	1	2
3	BRACKET FOR DSP PCB	4135-6371+0	-	1	4
4	POWER SUPPLY PCB ASSY	SVC-MIXER14+PSU	298690	1	2
5	FUSE HOLDER	4153-1100+0	-	1	3,4 ⚠
6	AC JACK, IEC POWER	2113-3050+0	-	1	3,4 ⚠
7	SHIELD PLATE, RCA JACK	1454-2530+0	-	1	4
8	I/O PCB ASSEMBLY	SVC-MIXER14+I/O	298701	1	2
9	RCA IN/A-D BUFF PCB ASSY	SVC-MIXER14+RCIN	322579-000S	1	2
10	CHASSIS	1405-8704+0	-	1	4
11	RS-232 PCB ASSEMBLY	SVC-MIXER14+232	298702	1	2
12	RACK EAR	4135-6291+0	298706	2	
13	SPEAKER PCB ASSEMBLY	SVC-MIXER14+SPK	298700	1	2
14	AC VOLT SELECT PCB ASSY	SVC-MIXER14+VOLT	298699	1	2
15	FRONT PANEL CONTROL AND DISPLAY PCB ASSY	SVC-MIXER14+CTRL	298685	1	2
16	FRONT PANEL, CHASSIS	1405-9502+0	-	1	
17	LIGHT PIPE	4155-1861+0	298517	9	
18	FRONT PANEL, FIXED SIDE WITH END CAP	SVC-MIXER14+CAP	298683	1	
19	FRONT PANEL, ALUM, RT	1405-8901+0	-	1	
20	KNOB, INPUT VOLUME (INCLUDES ALL 4 KNOBS)	SVC-MIXER14+KNOB	328113-001S	4	
21	DOOR ASSEMBLY	SVC-MIXER14+DOOR	298682	1	
22	MAGNET, DOOR ASSY	4110-0001+0		2	4
23	END CAP, FRONT PANEL, LEFT SIDE	1467-6401+0	298681	1	
24	FRONT PANEL, LEFT	1467-6301+0	-	1	
25	SPRING PLATE	4135-6381+0	-	2	
26	COVER FOR SPRING	4155-1911+0	-	2	
27	KNOB, PUSH	2447-3201+0	-	1	
28	AC INPUT XFMR (120/240V)	1806-3927+0	298698	1	3 ⚠
28	AC INPUT XFMR (100V)	1806-3928+0	301561	1	3 ⚠
29	24V BACKUP P/S PCB ASSY	SVC-MIXER14+DC24	298693	1	2
30	HEATSINK FOR DC-DC PCB	5400-9761+0	-	1	4
31	BRACKET, FAN GUIDE	4135-6281+0	-	1	4
32	OUTPUT XFMR, CV, 70/100V	1806-3943+0	298697	2	3 ⚠

MAIN PART LIST

FreeSpace® DXA 2120 Amplifier/Mixer (see Figure 2)

Item Number	Description	Vendor Part Number	Bose® Part Number	Qty.	Note
33	BRACKET C FOR HEAT SINK	4135-6361+0	-	1	4
34	HEATSINK	5400-9721+0	-	1	4
35	AMPLIFIER PCB ASSEMBLY	SVC-MIXER14+AMP	298695	1	2
36	BRACKET B FOR HEAT SINK	4135-6261+0	-	1	4
37	BRACKET A FOR HEAT SINK	4135-6251+0	-	1	4
38	FAN, DC, 24V, 2400 RPM	8913-0005+0	298703	1	3 ⚠
39	AC POWER SWITCH	5200-4942+0	-	1	3,4 ⚠
-	RIBBON CABLE	7012-7870+0	298688	3	
-	LCD DISPLAY	8902-0005+0	298686	1	
-	FUSE T6.3A 250V 5X20 UL (120V UNITS) FUSE T3.15A 250V 5X20MM UR & SEMKO (220-240V)	5120-0040+0 5120-0079+0	177311-06300 177311-03150	1	3,4 ⚠

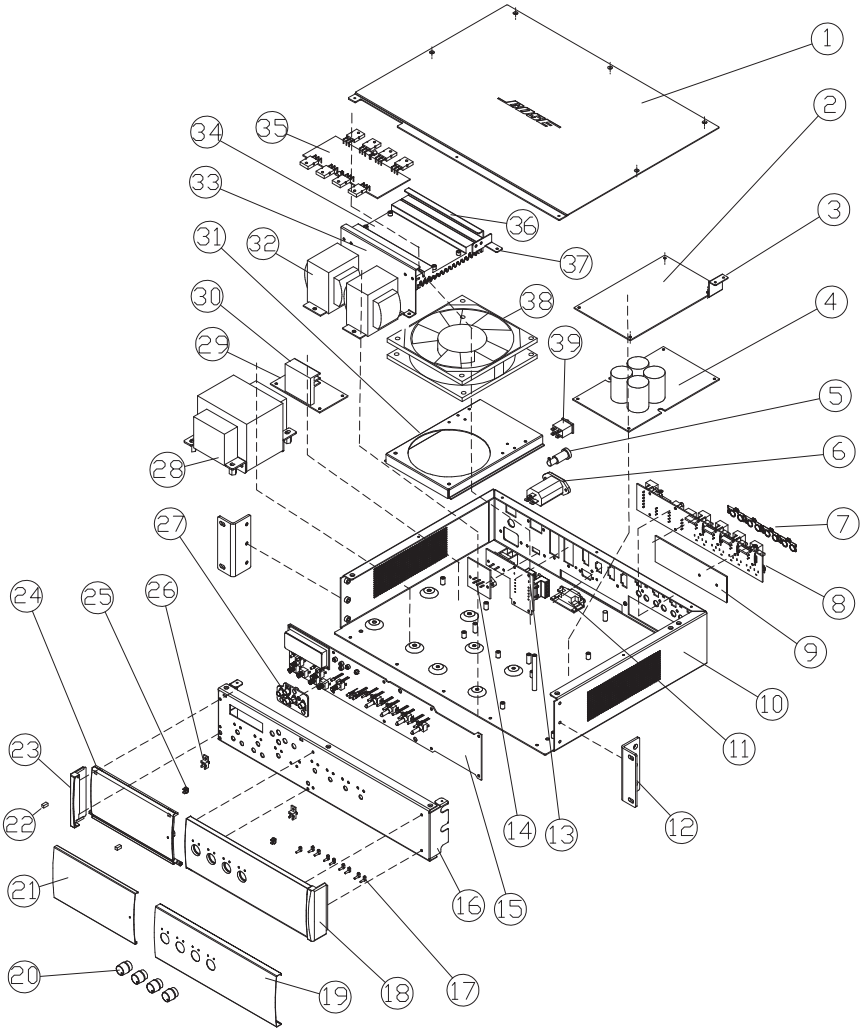


Figure 2. FreeSpace DXA 2120 Amplifier/Mixer Exploded View

ELECTRICAL PART LIST

Control PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R401	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	4
R402	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	4
R403	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	4
R404	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	4
R405	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	4
R406	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	4
R407	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	4
R408	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	4
R409	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4
R410	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4
R411	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4
R412	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4
R413	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4
R414	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4
R415	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4
R416	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4
R421	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R422	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R423	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R424	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R425	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R430	300 OHM, RCF, 1/4W, 5%, ATS	4705-301J+C	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C401	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C402	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C403	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C404	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C405	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C406	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C407	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C408	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C409	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C410	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C411	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C421	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C422	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C423	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C424	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C425	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C431	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C432	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C433	10uF, CE, 16V, 20%, RLT, 4X5, SSK, SHOEI	157D-106M+K-GII	4
C434	10uF, CE, 16V, 20%, RLT, 4X5, SSK, SHOEI	157D-106M+K-GII	4

ELECTRICAL PART LIST

Control PCB Assembly

LEDs

Reference Designator	Description	Vendor Part Number	Note
LED401	LED, SLR342-MG3F, GN (ROHM)	3700-2570+G	4
LED402	LED, SLR342-MG3F, GN (ROHM)	3700-2570+G	4
LED403	LED, SLR342-MG3F, GN (ROHM)	3700-2570+G	4
LED404	LED, SLR342-MG3F, GN (ROHM)	3700-2570+G	4
LED405	LED, CY, D3X8, GN	3700-3616+G	4
LED406	LED, CY, D3X8, GN	3700-3616+G	4
LED407	LED, CY, D3X8, GN	3700-3616+G	4
LED408	LED, CY, D3X8, GN	3700-3616+G	4
LED409	LED, SC, 3.1X3.8, L0.4, RD	3700-1530+R	4
LED410	LED, SC, 3.1X3.8, L0.4, RD	3700-1530+R	4
LED411	LED, SC, 3.1X3.8, L0.4, RD	3700-1530+R	4
LED412	LED, SC, 3.1X3.8, L0.4, RD	3700-1530+R	4
LED413	LED, CY, D3X8, RD	3700-3617+R	4
LED414	LED, CY, D3X8, RD	3700-3617+R	4
LED415	LED, CY, D3X8, RD	3700-3617+R	4
LED416	LED, CY, D3X8, RD	3700-3617+R	4
LED421	LED, CY, D3X8, BL	3700-3615+B	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
VR408	VR, 20KBX2, RV09ACF-40-15B, SCREW ADJ	4751-1250+0	4
VR409	VR, 20KBX2, RV09ACF-40-15B, SCREW ADJ	4751-1250+0	4
VR410	VR, 20KBX2, RV09ACF-40-15B, SCREW ADJ	4751-1250+0	4
VR411	VR, 20KBX2, RV09ACF-40-15B, SCREW ADJ	4751-1250+0	4
VR405	VR, ROTARY, 20KB, L20 SHAFT, 40 TEETH, RV09ACF-40-20K	4751-1260+0	4
VR406	VR, ROTARY, 20KB, L20 SHAFT, 40 TEETH, RV09ACF-40-20K	4751-1260+0	4
VR407	VR, ROTARY, 20KB, L20 SHAFT, 40 TEETH, RV09ACF-40-20K	4751-1260+0	4
VR401	VR, ROTARY, 20KB, L25, SHAFT, FLAT, RV09ACF-40-25F	4751-1270+0	4
VR402	VR, ROTARY, 20KB, L25, SHAFT, FLAT, RV09ACF-40-25F	4751-1270+0	4
VR403	VR, ROTARY, 20KB, L25, SHAFT, FLAT, RV09ACF-40-25F	4751-1270+0	4
VR404	VR, ROTARY, 20KB, L25, SHAFT, FLAT, RV09ACF-40-25F	4751-1270+0	4
K401	SW, TACT, SPST, SKQNAED010, H=5, ALPS	5200-4847+0-01	4
K402	SW, TACT, SPST, SKQNAED010, H=5, ALPS	5200-4847+0-01	4
K403	SW, TACT, SPST, SKQNAED010, H=5, ALPS	5200-4847+0-01	4
K404	SW, TACT, SPST, SKQNAED010, H=5, ALPS	5200-4847+0-01	4
K405	SW, TACT, SPST, SKQNAED010, H=5, ALPS	5200-4847+0-01	4
CN07A	CONN, FFC, 20 PIN, P=1.0MM (HORIZONTAL)	2101-3051+0	4
CN08A	CONN, FFC, 20 PIN, P=1.0MM (HORIZONTAL)	2101-3051+0	4
CN09A	CONN, FFC, 20 PIN, P=1.0MM (HORIZONTAL)	2101-3051+0	4

ELECTRICAL PART LIST

Control PCB Assembly

Miscellaneous (continued)

Reference Designator	Description	Vendor Part Number	Note
LCD401	HEADER, 16P, P2.54, ST, MALE	2101-3141+0	4
\LED401	LED SPACER, H=12.0MM	4171-0081+0	4
\LED402	LED SPACER, H=12.0MM	4171-0081+0	4
\LED403	LED SPACER, H=12.0MM	4171-0081+0	4
\LED404	LED SPACER, H=12.0MM	4171-0081+0	4
\LED405	LED SPACER, H=8.5MM	4157-0331+0	4
\LED406	LED SPACER, H=8.5MM	4157-0331+0	4
\LED407	LED SPACER, H=8.5MM	4157-0331+0	4
\LED408	LED SPACER, H=8.5MM	4157-0331+0	4
\LED409	LED SPACER, H=12.0MM	4171-0081+0	4
\LED410	LED SPACER, H=12.0MM	4171-0081+0	4
\LED411	LED SPACER, H=12.0MM	4171-0081+0	4
\LED412	LED SPACER, H=12.0MM	4171-0081+0	4
\LED413	LED SPACER, H=8.5MM	4157-0331+0	4
\LED414	LED SPACER, H=8.5MM	4157-0331+0	4
\LED415	LED SPACER, H=8.5MM	4157-0331+0	4
\LED416	LED SPACER, H=8.5MM	4157-0331+0	4
\LED421	LED SPACER, H=8.5MM	4157-0331+0	4

ELECTRICAL PART LIST

DC24 PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Qty.	Note
R701	100 OHM, RCF, 1/4W, 5%, ATS	4705-101J+C	1	4
R702	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	1	4
R703	15K, RCF, 1/4W, 5%, ATS	4705-153J+C	1	4
R704	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	1	4
R705	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	1	4
R706	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	1	4
R708	15K, RCF, 1/4W, 5%, ATS	4705-153J+C	1	4
R710	150K, RCF, 1/4W, 5%, ATS	4705-154J+C	1	4
R711	24K, RCF, 1/4W, 5%, ATS	4705-243J+C	1	4
R712	3.3K, RCF, 1/4W, 5%, ATS	4705-332J+C	1	4
R713	3.3K, RCF, 1/4W, 5%, ATS	4705-332J+C	1	4
R714	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	1	4
R715	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	1	4
R716	47 OHM, RCF, 1/4W, 5%, ATS	4705-470J+C	1	4
R717	47 OHM, RCF, 1/4W, 5%, ATS	4705-470J+C	1	4
R718	22 OHM, RCF, 1/2W, 5%, ATS	4707-220J+C	1	4
R719	22 OHM, RCF, 1/2W, 5%, ATS	4707-220J+C	1	4
R720	22 OHM, RCF, 1/2W, 5%, ATS	4707-220J+C	1	4

Capacitors

Reference Designator	Description	Vendor Part Number	Qty.	Note
C701	220uF, CE, 6.3V, 20%, RLT, 5X11, SHOEI	157B-227M+K-IUI	1	4
C702	1000pF, CC, 50V, T-10%, 5X5, RLT, 335321025T	150F-102K+K-II	1	4
C703	47uF, CE, 35V, 20%, RLT, P5.0, 5X11, YK, RUBYCON	157Q-476M+K-IUY	1	4
C704	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	1	4
C705	0.0047uF, CC, 50V, 10%, AT, 3.8x2.5, MONO	150F-472K+2-GD	1	4
C706	0.0047uF, CC, 50V, 10%, AT, 3.8x2.5, MONO	150F-472K+2-GD	1	4
C707	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	1	4
C708	2200uF, CE, 35V, 20%, RL, 16x31.5	157Q-228M+5-5$	1	4
C709	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	1	4
C710	1000pF, CC, 50V, T-10%, 5X5, RLT, 335321025T	150F-102K+K-II	1	4
C711	100uF, CE, 50V, 20%, RLT, 8X12	157F-107M+K-OW	1	4
C712	100uF, CE, 50V, 20%, RLT, 8X12	157F-107M+K-OW	1	4
C713	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	1	4
C714	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	1	4
C715	100uF, CE, 50V, 20%, RLT, 8X12	157F-107M+K-OW	1	4
C716	100uF, CE, 50V, 20%, RLT, 8X12	157F-107M+K-OW	1	4
C717	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	1	4
C718	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	1	4

ELECTRICAL PART LIST

DC24 PCB Assembly

Diodes

Reference Designator	Description	Vendor Part Number	Qty.	Note
D702	SB580, DO-201AD, RL	480B-5800+5	1	4
D703	SB580, DO-201AD, RL	480B-5800+5	1	4
D704	SB580, DO-201AD, RL	480B-5800+5	1	4
D705	SB580, DO-201AD, RL	480B-5800+5	1	4
D706	SB540-F54, PANJIT	4840-8560+5	1	4
D707	SB540-F54, PANJIT	4840-8560+5	1	4
D708	SB540-F54, PANJIT	4840-8560+5	1	4
D709	SB540-F54, PANJIT	4840-8560+5	1	4

Transistors

Reference Designator	Description	Vendor Part Number	Qty.	Note
Q701	2SC1845, FE, RLT	4860-0190+K	1	4
Q702	2SA992, HFE, 300-600, RLT	4850-992F+K	1	4
Q703	2SA992, HFE, 300-600, RLT	4850-992F+K	1	4
Q704	2SC1845, FE, RLT	4860-0190+K	1	4
Q705	FET, IRFZ44NPBF, TO-220, 60V, 50A	490F-Z440+5	1	4
Q706	FET, IRFZ44NPBF, TO-220, 60V, 50A	490F-Z440+5	1	4
Q707	2SA992, HFE, 300-600, RLT	4850-992F+K	1	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Qty.	Note
U701	PWM CONTROLLER, TL494CN	3131-6180+0	1	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Qty.	Note
T701	TRANSFORMER, DC-DC, 24V, 150W, 24VX2, 15VX2	1806-3933+0	1	4
F701	FUSE, T10AH, 250V (BOSE® PART NUMBER 325634-0010)	5120-0110+0	1	3 ⚠
F701A	FUSE HOLDER	4132-1011+0	1	4
F701B	FUSE HOLDER	4132-1011+0	1	4
B-	WIRE-CONN, 1P, #18, UL1015, L=300, BLK, 250-TERMINAL	7012-7832+0	1	4
B+	WIRE-CONN, 1P, #18, UL1015, L=250, RED, 250-TERMINAL	7012-7831+0	1	4
FET	SCREW, B-TITE, BIND HEAD, M3X8, CROSS-RECESS, BZ	2954-3008+3000	2	4
FET	MICA, T0-220	3100-8000+0	2	4
FET	INSULATION BUSHING, 115DEG.C	4154-0841+0	2	4
FET	HEATSINK, DC, 56X46	5400-9761+0	1	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R201	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R202	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R203	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R204	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R205	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R206	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R207	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R208	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R209	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R210	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R211	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R229	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R230	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R231	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R232	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R233	1.58K, RMG, 1/16W, 1%, 0603	4723-1581+P	4
R234	1.58K, RMG, 1/16W, 1%, 0603	4723-1581+P	4
R235	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R236	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R237	560 OHM, RMG, 1/16W, 5%, 0603/1608	4723-561J+P	4
R238	47K, RMG, 1/16W, 5%, 0603/1608	4723-473J+P	4
R239	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R240	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R241	1.58K, RMG, 1/16W, 1%, 0603	4723-1581+P	4
R242	1.58K, RMG, 1/16W, 1%, 0603	4723-1581+P	4
R243	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R244	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R245	560 OHM, RMG, 1/16W, 5%, 0603/1608	4723-561J+P	4
R246	47K, RMG, 1/16W, 5%, 0603/1608	4723-473J+P	4
R247	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R248	1.58K, RMG, 1/16W, 1%, 0603	4723-1581+P	4
R249	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R250	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R251	560 OHM, RMG, 1/16W, 5%, 0603/1608	4723-561J+P	4
R252	47K, RMG, 1/16W, 5%, 0603/1608	4723-473J+P	4
R253	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R254	1.58K, RMG, 1/16W, 1%, 0603	4723-1581+P	4
R255	12.1K, RMG, 1/10W, 1%, 0805	4720-1212+J	4
R256	560 OHM, RMG, 1/16W, 5%, 0603/1608	4723-561J+P	4
R257	47K, RMG, 1/16W, 5%, 0603/1608	4723-473J+P	4
R258	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R260	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R261	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R262	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R263	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R264	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R265	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R266	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R267	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R268	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R269	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R270	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R271	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R272	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R273	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R274	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R275	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R276	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R277	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R278	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R279	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R280	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R281	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R282	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R283	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R284	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R287	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R289	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R290	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R291	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R292	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R293	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R296	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R297	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R298	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R299	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R300	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R301	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R302	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R303	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R304	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R305	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R306	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R307	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R308	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R310	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R311	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R312	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R313	33RX4, RCFA, 1/16W, 5%, 0603	4703-330J+P-04	4
R314	33 OHM, RMG, 1/16W, 5%, 0603/1608	4723-330J+P	4
R316	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R317	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R318	10 OHM, RMG, 1/16W, 5%, 0603/1608	4723-100J+P	4
R320	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R321	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R322	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R323	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R324	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R325	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R326	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R327	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R328	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R336	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R337	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R338	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R339	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R340	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R341	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R342	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R343	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R344	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R345	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R346	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R347	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R348	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R367	560 OHM, RMG, 1/16W, 5%, 0603/1608	4723-561J+P	4
R369	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R370	2.2K, RMG, 1/16W, 5%, 0603/1608	4723-222J+P	4
R371	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R372	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R373	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R374	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R377	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R378	330 OHM, RMG, 1/16W, 5%, 0603/1608	4723-331J+P	4
R379	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R380	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R381	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R382	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R383	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R384	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R651	10 OHM, RMF, 1W, 5%, ATS, METAL OXIDE	4718-100J+C-X	4
R652	100 OHM, RMG, 1/10W, 5%, 0805	4720-101J+J	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C201	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C202	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C203	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C204	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C205	47uF, CE, 16V, 20%, RLT, 5X7, ELNA	157D-476M+K-IME	4
C206	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C207	47uF, CE, 16V, 20%, RLT, 5X7, ELNA	157D-476M+K-IME	4
C208	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C209	22uF, CE, 16V, 20%, RLT, 4X7	157D-226M+K-GM	4
C210	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C211	2200pF, CC, 50V, 10%, 0603, 0.8x1.6	150F-222K+P-AC	4
C212	2200pF, CC, 50V, 10%, 0603, 0.8x1.6	150F-222K+P-AC	4
C213	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C214	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C215	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C216	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C217	47uF, CE, 16V, 20%, RLT, 5X7, ELNA	157D-476M+K-IME	4
C218	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C219	47uF, CE, 16V, 20%, RLT, 5X7, ELNA	157D-476M+K-IME	4
C220	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C221	22uF, CE, 16V, 20%, RLT, 4X7	157D-226M+K-GM	4
C222	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C223	2200pF, CC, 50V, 10%, 0603, 0.8x1.6	150F-222K+P-AC	4
C224	2200pF, CC, 50V, 10%, 0603, 0.8x1.6	150F-222K+P-AC	4
C225	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C226	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C227	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C228	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C229	47uF, CE, 16V, 20%, RLT, 5X7, ELNA	157D-476M+K-IME	4
C230	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C231	47uF, CE, 16V, 20%, RLT, 5X7, ELNA	157D-476M+K-IME	4
C232	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C233	22uF, CE, 16V, 20%, RLT, 4X7	157D-226M+K-GM	4
C234	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C235	2200pF, CC, 50V, 10%, 0603, 0.8x1.6	150F-222K+P-AC	4
C236	2200pF, CC, 50V, 10%, 0603, 0.8x1.6	150F-222K+P-AC	4
C237	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C238	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C239	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C240	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C241	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C242	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C243	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C244	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C245	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C246	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C247	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C248	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C249	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C250	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C251	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C252	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C253	2700pF, CC, 50V, 10%, 0603/1608	150F-272K+P-AC	4
C254	2700pF, CC, 50V, 10%, 0603/1608	150F-272K+P-AC	4
C255	470pF, CC, 50V, 10%, 0805, 1.2X2.0	150F-471K+J-BD	4
C256	470pF, CC, 50V, 10%, 0805, 1.2X2.0	150F-471K+J-BD	4
C257	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C258	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C259	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C260	2700pF, CC, 50V, 10%, 0603/1608	150F-272K+P-AC	4
C261	2700pF, CC, 50V, 10%, 0603/1608	150F-272K+P-AC	4
C262	470pF, CC, 50V, 10%, 0805, 1.2X2.0	150F-471K+J-BD	4
C263	470pF, CC, 50V, 10%, 0805, 1.2X2.0	150F-471K+J-BD	4
C264	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C265	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C266	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C267	680pF, CC, 50V, 10%, 0805, 1.2x2.0	150F-681K+J-BD	4
C268	100pF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C269	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C270	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C271	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C272	680pF, CC, 50V, 10%, 0805, 1.2x2.0	150F-681K+J-BD	4
C273	100pF, CC, 50V, 5%, 0603/1608, 1X2	150F-101J+P-AC	4
C274	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C275	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C276	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C281	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C282	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C287	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C288	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C289	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C290	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C291	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C292	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C293	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C294	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C295	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C296	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C297	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C298	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C299	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C300	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C301	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C302	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C303	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C304	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C305	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C306	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C307	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C308	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C309	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C310	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C311	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C312	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C313	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C316	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C317	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C318	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C319	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C320	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C321	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C322	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C323	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C324	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C325	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C326	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C327	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C328	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C329	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C330	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C331	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C332	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C333	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C337	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C338	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C340	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C341	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C342	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C343	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C350	470uF, CE, 10V, 20%, RLT, 8X11.5, ELNA	157C-477M+K-OVK	4
C351	330pF, CC, 50V, 10%, 0603/1608, 1X2	150F-331K+P-AC	4
C352	1000pF, CC, 50V, 10%, 0603/1608, 1X2	150F-102K+P-AC	4
C353	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C354	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C355	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C356	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C357	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C358	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C359	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C360	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C361	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C362	2200pF, CC, 50V, 10%, 0603, 0.8x1.6	150F-222K+P-AC	4
C363	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C364	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C365	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C366	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C367	0.1uF, CE, 50V, 20%, RLT, 4X7	157F-104M+K-GMK	4
C368	0.1uF, CE, 50V, 20%, RLT, 4X7	157F-104M+K-GMK	4
C369	0.1uF, CE, 50V, 20%, RLT, 4X7	157F-104M+K-GMK	4
C370	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C371	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C372	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C373	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C374	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C375	100uF, CE, 16V, 20%, RLT, 6.5x7, ELNA	157D-107M+K-LMK	4
C376	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C377	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C378	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C379	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C380	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C381	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C382	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C383	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C384	0.1uF, CE, 50V, 20%, RLT, 4X7	157F-104M+K-GMK	4
C385	2200pF, CC, 50V, 10%, 0603, 0.8x1.6	150F-222K+P-AC	4
C393	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C394	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C395	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C396	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C397	22pF, CTC, 0/60, 5%, 0603, 0.8X1.6	15CH-220J+P-AC	4
C398	22pF, CTC, 0/60, 5%, 0603, 0.8X1.6	15CH-220J+P-AC	4
C653	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C655	100uF, CE, 16V, 20%, RLT, 6.5x7, ELNA	157D-107M+K-LMK	4
C656	100uF, CE, 16V, 20%, RLT, 6.5x7, ELNA	157D-107M+K-LMK	4
C657	100uF, CE, 16V, 20%, RLT, 6.5x7, ELNA	157D-107M+K-LMK	4
C658	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C659	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C660	470uF, CE, 10V, 20%, RLT, 8X11.5, ELNA	157C-477M+K-OVK	4
C661	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C662	470uF, CE, 10V, 20%, RLT, 8X11.5, ELNA	157C-477M+K-OVK	4
C663	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C664	470uF, CE, 10V, 20%, RLT, 8X11.5, ELNA	157C-477M+K-OVK	4
C665	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C666	470uF, CE, 10V, 20%, RLT, 8X11.5, ELNA	157C-477M+K-OVK	4
C667	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C668	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C669	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C670	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C671	100uF, CE, 16V, 20%, RLT, 6.5x7, ELNA	157D-107M+K-LMK	4
C672	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C673	10uF, CE, 16V, 20%, RLT, 4x7, NICHICON	157D-106M+K-GMK	4
C674	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C675	100uF, CE, 16V, 20%, RLT, 6.5x7, ELNA	157D-107M+K-LMK	4
C676	470uF, CE, 10V, 20%, RLT, 8X11.5, ELNA	157C-477M+K-OVK	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L206	EMI FILTER, FERRITE CHIP, EXCCET103U, SMD, PANASONIC	2705-0020+0	4
L651	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L652	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L653	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L654	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L655	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L656	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L657	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L658	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L659	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L660	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L661	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4
L662	FERRITE BEAD, SMD, ACB453215, 125 OHM	1802-0630+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D201	LL4148, SMD	4804-1480+3	4
D202	LL4148, SMD	4804-1480+3	4
D203	LL4148, SMD	4804-1480+3	4
D651	SMD, 1SR154-400TE25	4840-1150+0	4
D652	SMD, 1SR154-400TE25	4840-1150+0	4
D653	SMD, 1SR154-400TE25	4840-1150+0	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

LEDs

Reference Designator	Description	Vendor Part Number	Note
LED201	LED, SQ, GREEN, SML-210MT	3700-4808+G	4
LED202	LED, SQ, GREEN, SML-210MT	3700-4808+G	4
LED203	LED, SQ, GREEN, SML-210MT	3700-4808+G	4
LED204	LED, SQ, GREEN, SML-210MT	3700-4808+G	4
LED205	LED, SQ, GREEN, SML-210MT	3700-4808+G	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q201	FET, J174,_NL, P-CHANNEL, IDSS-20~-100MA	490J-1740+K	4
Q202	2SC1845, FE, RLT	4860-0190+K	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U204	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U205	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U207	SN74LV245ADWR, OCTAL B TRANSCEIVER, SOT163-1/SO	3132-0680+0	4
U208	24BIT DAC W/VOL CTRL, 20P, CS4392-KZZ, TSSOP	3132-0730+0	4
U209	24BIT DAC W/VOL CTRL, 20P, CS4392-KZZ, TSSOP	3132-0730+0	4
U210	CS5361-KSZ, 192KHZ A/D, SM, S01C24L	3132-0240+0	4
U211	CS5361-KSZ, 192KHZ A/D, SM, S01C24L	3132-0240+0	4
U212	DSP, TMS320D707RFP/S, PQFP144, TI	3132-3381+0	4
U213	CS5361-KSZ, 192KHZ A/D, SM, S01C24L	3132-0240+0	4
U215	SUPERVISOR, SO8, TPS3307-33DGNR, TEXAS	3132-3016+0	4
U216	4M FLASH, S29AL004D-90TFI02, STANDARD, TSOP48	3132-3571+0	4
U217	SN74LV245ADWR, OCTAL B TRANSCEIVER, SOT163-1/SO	3132-0680+0	4
U218	16-CH DEMULTIPLEXER, 74HC4067M96, SO24, TEXAS	3132-3021+0	4
U219	MAX232D, SO16	3131-9470+0	4
U220	74LCX125M, S01C	3132-0770+0	4
U221	OPTOCOUPLER, 6N137, TTL, DIP8	3132-3291+0	4
U222	MCU, ATMEGA16L, TQFP44	3132-7340+1	4
U225	8-BIT SHIFT REGISTER, 74HC166, SO-16	3132-3281+0	4
U226	8-BIT SHIFT REGISTER, 74HC166, SO-16	3132-3281+0	4
U229	BUS REGISTER, HCF4094, SO16, ST	3132-3191+0	4
U230	BUS REGISTER, HCF4094, SO16, ST	3132-3191+0	4
U231	BUS REGISTER, HCF4094, SO16, ST	3132-3191+0	4
U232	AT24C04N-10SU-2.7, SOIC-8, EEPROM	3132-1441+1	4
U651	REG, NJM78M05DL1A-#ZZZB	3132-2101+0	4
U652	REG, NCP1117ST33T3G, 3.3V, SOT-223	3132-1481+0	4
U653	LT1587CM, DDPAK, 3-LEAD, M PACKAGE	3132-3023+0	4

ELECTRICAL PART LIST

Digital Signal Processor (DSP) PCB Assembly

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
C06B	WAFER, 4P, P2.0, STRAIGHT	2102-040S+003	4
CN01B	8P, ST, WAFER, P=2.0, COULOMB	2102-080S+003	4
CN02B	8P, ST, WAFER, P=2.0, COULOMB	2102-080S+003	4
CN03B	8P, ST, WAFER, P=2.0, COULOMB	2102-080S+003	4
CN04B	3P, ST, WAFER, P=2.0, COULOMB	2102-030S+003	4
CN05B	3P, ST, WAFER, P=2.0, COULOMB	2102-030S+003	4
CN06B	3P, ST, WAFER, P=2.0, COULOMB	2102-030S+003	4
CN07B	CONNECTOR, FFC, 20PIN, P=1.0MM	2101-3041+0	4
CN08B	CONNECTOR, FFC, 20PIN, P=1.0MM	2101-3041+0	4
CN09B	CONNECTOR, FFC, 20PIN, P=1.0MM	2101-3041+0	4
CN10B	3P, ST, WAFER, P=2.0, COULOMB	2102-030S+003	4
CN11B	6 PIN, WF	2102-060S+003	4
CN12B	11P, ST, WAFER, P=2.0	2102-110S+003	4
CN13B	3P, ST, WAFER, P=2.0, COULOMB	2102-030S+003	4
J201	SHUNT, 2P, P=2.54	2101-0661+0	4
J201	WAFER, 2PIN, P=2.54, ST, 6MM	2101-1494+0	4
K201	SW, TACT, SPST, SKQNAED010, H=5, ALPS	5200-4847+0-01	4
X201	CRYSTAL OSC, 11.2896M, 3.3V, SMD	2300-3282+0	4
X203	CRYSTAL OSC, 8MHZ, HC-49/U-S	2300-2990+0	4

ELECTRICAL PART LIST

Input/Output PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R101	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R102	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R103	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R104	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R105	13K, RMG, 1/16W, 1%, 0603	4723-133A+P-R	4
R106	13K, RMG, 1/16W, 1%, 0603	4723-133A+P-R	4
R107	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R108	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R109	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R110	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R111	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R112	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R113	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R114	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R115	13K, RMG, 1/16W, 1%, 0603	4723-133A+P-R	4
R116	13K, RMG, 1/16W, 1%, 0603	4723-133A+P-R	4
R117	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R118	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R119	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R120	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R121	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R122	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R123	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R124	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R125	13K, RMG, 1/16W, 1%, 0603	4723-133A+P-R	4
R126	13K, RMG, 1/16W, 1%, 0603	4723-133A+P-R	4
R127	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R128	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R129	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R130	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R131	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R132	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R133	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R134	1K, RMG, 1/16W, 1%, 0603/1608	4723-102A+P	4
R135	13K, RMG, 1/16W, 1%, 0603	4723-133A+P-R	4
R136	13K, RMG, 1/16W, 1%, 0603	4723-133A+P-R	4
R137	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R138	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R139	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R140	68K, RMG, 1/16W, 1%, 0603/1608	4723-683A+P	4
R141	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R142	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R143	1M, RMG, 1/16W, 1%, 0603	4723-105A+P	4
R144	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R145	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R146	200K, RMG, 1/16W, 5%, 0603/1608	4723-204J+P	4

ELECTRICAL PART LIST

Input/Output PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R151	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R152	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R153	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R154	2K, RMG, 1/16W, 1%, 0603/1608	4723-202A+P	4
R155	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R156	20K, RMG, 1/16W, 1%, 0603/1608	4723-203A+P	4
R160	100K, RMG, 1/16W, 1%, 0603	4723-104A+P	4
R161	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R162	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R163	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R164	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R165	200 OHM, RMG, 1/16W, 5%, 0603/1608	4723-201J+P	4
R166	200 OHM, RMG, 1/16W, 5%, 0603/1608	4723-201J+P	4
R167	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R168	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R171	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R172	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R173	0 OHM, RMG, 1/16W, 5%, 0603	4723-000J+P	4
R181	22 OHM, RCF, 1/2W, 5%, ATS	4707-220J+C	4
R182	22 OHM, RCF, 1/2W, 5%, ATS	4707-220J+C	4
R183	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R184	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R185	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R186	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1101	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R1102	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R1103	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1104	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1105	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1106	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1107	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1108	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1109	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1110	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1111	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R1112	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R1113	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1114	47 OHM, RMG, 1/16W, 5%, 0603/1608	4723-470J+P	4
R1115	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R1116	10K, RMG, 1/16W, 5%, 0603/1608	4723-103J+P	4
R1121	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R1122	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R1131	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4
R1132	1M, RMG, 1/16W, 5%, 0603/1608	4723-105J+P	4

ELECTRICAL PART LIST

Input/Output PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C101	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C102	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C103	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C104	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C105	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C106	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C107	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C109	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C110	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C111	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C112	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C113	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C114	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C115	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C116	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C117	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C118	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C119	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C120	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C121	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C122	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C123	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C124	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C125	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C126	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C129	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C130	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C131	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C132	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C133	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C134	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C135	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C136	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C137	EMI FILTER, NFM21CC102R1H3D	2705-0040+0	4
C138	EMI FILTER, NFM21CC102R1H3D	2705-0040+0	4
C139	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C140	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C141	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C142	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C143	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C144	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C145	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C146	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C147	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C148	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C149	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4

ELECTRICAL PART LIST

Input/Output PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C150	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C151	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C152	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C153	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C154	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C155	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C156	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C157	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C158	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C159	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C160	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C161	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C162	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C163	47pF, CC, 50V, 5%, 0603, 1x2	150F-470J+P-AC	4
C164	47pF, CC, 50V, 5%, 0603, 1x2	150F-470J+P-AC	4
C165	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C166	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C167	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C168	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C169	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C170	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C171	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C172	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C173	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C174	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C175	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C176	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C177	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C178	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C179	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C181	100uF, CE, 16V, 20%, SM, 6.6X5.5, NICH	157D-107M+3-MJC	4
C182	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C183	100uF, CE, 16V, 20%, SM, 6.6X5.5, NICH	157D-107M+3-MJC	4
C184	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C185	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C186	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C187	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C188	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C189	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C190	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C191	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C192	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C193	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C194	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C195	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C196	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4

ELECTRICAL PART LIST

Input/Output PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C197	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C198	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C199	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C200	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1101	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1102	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1103	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1104	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1105	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1106	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1107	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1108	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1109	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C1110	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C1111	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1112	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1113	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1114	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1115	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1116	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1119	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C1120	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C1121	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1122	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1123	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1124	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1125	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1126	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1127	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1129	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C1130	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C1131	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1132	1000pF, CC, 50V, 5%, 0603, X7R	150F-102J+P-AC	4
C1133	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1134	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1139	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C1140	10pF, CC, 50V, 5%, 0603	150F-100J+P-AC	4
C1141	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1142	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1143	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1144	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1145	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1146	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1147	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1148	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1149	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4

ELECTRICAL PART LIST

Input/Output PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C1150	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1151	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1152	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1153	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1154	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1155	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1156	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1157	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1158	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1159	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1160	47pF +/-20%, EMI FIL, DSN6NC51H470Q55B	8910-0487+0	4
C1161	1000pF, CC, 50V, T-10%, 5X5, RLT	150F-102K+K-II	4
C1162	1000pF, CC, 50V, T-10%, 5X5, RLT	150F-102K+K-II	4
C1163	1000pF, CC, 50V, T-10%, 5X5, RLT	150F-102K+K-II	4
C1164	1000pF, CC, 50V, T-10%, 5X5, RLT	150F-102K+K-II	4
C1165	1000uF, CE, 16V, 20%, RL, 10x16	157D-108M+5-S5	4
C1166	1000uF, CE, 16V, 20%, RL, 10x16	157D-108M+5-S5	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L803	FERRITE BEAD, 125 OHM, SMD, ACB453215	1802-0630+0	4
L804	FERRITE BEAD, 125 OHM, SMD, ACB453215	1802-0630+0	4
L805	FERRITE BEAD, 125 OHM, SMD, ACB453215	1802-0630+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D101	BAV99, SOT23, PHILIPS	4840-8970+3	4
D102	BAV99, SOT23, PHILIPS	4840-8970+3	4
D103	BAV99, SOT23, PHILIPS	4840-8970+3	4
D104	BAV99, SOT23, PHILIPS	4840-8970+3	4
D111	BAV99, SOT23, PHILIPS	4840-8970+3	4
D112	BAV99, SOT23, PHILIPS	4840-8970+3	4
D113	BAV99, SOT23, PHILIPS	4840-8970+3	4
D114	BAV99, SOT23, PHILIPS	4840-8970+3	4
D121	BAV99, SOT23, PHILIPS	4840-8970+3	4
D122	BAV99, SOT23, PHILIPS	4840-8970+3	4
D123	BAV99, SOT23, PHILIPS	4840-8970+3	4
D124	BAV99, SOT23, PHILIPS	4840-8970+3	4
D131	BAV99, SOT23, PHILIPS	4840-8970+3	4
D132	BAV99, SOT23, PHILIPS	4840-8970+3	4
D133	BAV99, SOT23, PHILIPS	4840-8970+3	4
D134	BAV99, SOT23, PHILIPS	4840-8970+3	4
D141	BAV99, SOT23, PHILIPS	4840-8970+3	4
D142	BAV99, SOT23, PHILIPS	4840-8970+3	4
D151	BAV99, SOT23, PHILIPS	4840-8970+3	4
D152	BAV99, SOT23, PHILIPS	4840-8970+3	4

ELECTRICAL PART LIST

Input/Output PCB Assembly

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U101	AUDIO OP-AMP, OPA1632D, SO-8, TI	3132-3321+0	4
U102	AUDIO OP-AMP, OPA1632D, SO-8, TI	3132-3321+0	4
U103	AUDIO OP-AMP, OPA1632D, SO-8, TI	3132-3321+0	4
U104	AUDIO OP-AMP, OPA1632D, SO-8, TI	3132-3321+0	4
U105	DUAL OP-AMP, NJM2068M-#ZZZB	3130-6890+0	4
U106	DUAL OP-AMP, NJM2068M-#ZZZB	3130-6890+0	4
U107	AUDIO OP-AMP, OPA1632D, SO-8, TI	3132-3321+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CHASSIS	WIRE-CONN, 1P, #18, UL1015, L=200, YL/GN, 5MM, RING-TERM	7012-7850+0	4
CN04A	WIRE-CONN, 3P, P2.0, #24, UL1007, L=160, WHT/BLU, F/M	7012-7771+0	4
CN05A	WIRE-SHIELD, 3P/2C, P2.0, #26, UL2547, L=320, BLK, F/M	7012-7750+0	4
CN11A	WIRE-CONN, 6P, P2.0, #24, UL1007, L=270, F/M	7012-7760+0	4
CN20A	WIRE-CONN, 3P, P2.0, #24, UL1007, L=160, WHT/BLU, F/M	7012-7771+0	4
J101	JACK, 2 RCA, P15, H=10+9.5	2113-3153+0	4
J102	JACK, 2 RCA, P15, H=10+9.5	2113-3153+0	4
J103	JACK, 2 RCA, P15, H=10+9.5	2113-3153+0	4
J104	JACK, 2 RCA, P15, H=10+9.5	2113-3153+0	4
J111	SOCKET, EURO BLOCK, 3P, P5, ST, GREEN	2113-3144+0	4
J112	SOCKET, EURO BLOCK, 3P, P5, ST, GREEN	2113-3144+0	4
J113	SOCKET, EURO BLOCK, 3P, P5, ST, GREEN	2113-3144+0	4
J114	SOCKET, EURO BLOCK, 3P, P5, ST, GREEN	2113-3144+0	4
J115	SOCKET, EURO BLOCK, 4P, P5, ST, GREEN	2113-3148+0	4
J116	SOCKET, EURO BLOCK, 4P, P5, ST, GREEN	2113-3148+0	4
J118	SOCKET, EURO BLOCK, 3P, P5, ST, GREEN	2113-3144+0	4
J119	SOCKET, EURO BLOCK, 6P, P5, ST, GREEN	2113-3150+0	4
JP101A	HEADER, 7P, P2.54, STRAIGHT, FEMALE	2101-3168+0	4
JP102A	HEADER, 7P, P2.54, STRAIGHT, FEMALE	2101-3168+0	4
JP103A	HEADER, 7P, P2.54, STRAIGHT, FEMALE	2101-3168+0	4
JP104A	HEADER, 7P, P2.54, STRAIGHT, FEMALE	2101-3168+0	4
JP105A	HEADER, 7P, P2.54, STRAIGHT, FEMALE	2101-3168+0	4
JP106A	WIRE-CONN, 8P, P2.0, #24, UL01007, L=90, F/M	7012-8770+0	4
SW101	SW, SLIDE, 4P2T, SSSF040800, ALPS/ALPHA	5200-4900+0-09	4
SW102	SW, SLIDE, 4P2T, SSSF040800, ALPS/ALPHA	5200-4900+0-09	4
SW103	SW, SLIDE, 4P2T, SSSF040800, ALPS/ALPHA	5200-4900+0-09	4
SW104	SW, SLIDE, 4P2T, SSSF040800, ALPS/ALPHA	5200-4900+0-09	4

ELECTRICAL PART LIST

Amplifier PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R501	27K, RCF, 1/4W, 5%, ATS	4705-273J+C	4
R502	27K, RCF, 1/4W, 5%, ATS	4705-273J+C	4
R503	4.7K, RCF, 1/4W, 5%, AT	4705-472J+C	4
R504	4.7K, RCF, 1/4W, 5%, AT	4705-472J+C	4
R505	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R506	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R507	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R508	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R509	43K, RCF, 1/4W, 5%, ATS	4705-433J+C	4
R510	43K, RCF, 1/4W, 5%, ATS	4705-433J+C	4
R511	330 OHM, RCF, 1/4W, 5%, AT	4705-331J+C	4
R512	330 OHM, RCF, 1/4W, 5%, AT	4705-331J+C	4
R513	680 OHM, RCF, 1/4W, 5%, AT	4705-681J+C	4
R514	680 OHM, RCF, 1/4W, 5%, AT	4705-681J+C	4
R515	330 OHM, RCF, 1/4W, 5%, AT	4705-331J+C	4
R516	330 OHM, RCF, 1/4W, 5%, AT	4705-331J+C	4
R517	680 OHM, RCF, 1/4W, 5%, AT	4705-681J+C	4
R518	680 OHM, RCF, 1/4W, 5%, AT	4705-681J+C	4
R519	360 OHM, RCF, 1/4W, 5%, AT	4705-361J+C	4
R520	360 OHM, RCF, 1/4W, 5%, AT	4705-361J+C	4
R521	43K, RCF, 1/4W, 5%, ATS	4705-433J+C	4
R522	43K, RCF, 1/4W, 5%, ATS	4705-433J+C	4
R523	22K, RCF, 1/4W, 5%, ATS	4705-223J+C	4
R524	22K, RCF, 1/4W, 5%, ATS	4705-223J+C	4
R525	100 OHM, RCF, 1/4W, 5%, AT	4705-101J+C	4
R526	100 OHM, RCF, 1/4W, 5%, AT	4705-101J+C	4
R527	560 OHM, RCF, 1/4W, 5%, AT	4705-561J+C	4
R528	560 OHM, RCF, 1/4W, 5%, AT	4705-561J+C	4
R529	680 OHM, RCF, 1/4W, 5%, AT	4705-681J+C	4
R530	680 OHM, RCF, 1/4W, 5%, AT	4705-681J+C	4
R531	180 OHM, RCF, 1/4W, 5%, AT	4705-181J+C	4
R532	180 OHM, RCF, 1/4W, 5%, AT	4705-181J+C	4
R533	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R534	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R535	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R536	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R537	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R538	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R539	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R540	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R541	220 OHM, RCF, 1/4W, 5%, AT	4705-221J+C	4
R542	220 OHM, RCF, 1/4W, 5%, AT	4705-221J+C	4
R543	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R544	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R545	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R546	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4

ELECTRICAL PART LIST

Amplifier PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R547	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R548	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R549	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R550	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R551	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R552	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R553	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R554	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R555	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R556	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R557	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R558	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R559	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R560	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R561	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R562	0.22 OHM, RMF, 2W, 5%, AF, METAL OX	4719-R22J+L-X	4
R563	56K, RCF, 1/4W, 5%, ATS	4705-563J+C	4
R564	56K, RCF, 1/4W, 5%, ATS	4705-563J+C	4
R565	56K, RCF, 1/4W, 5%, ATS	4705-563J+C	4
R566	56K, RCF, 1/4W, 5%, ATS	4705-563J+C	4
R567	560K, RCF, 1/4W, 5%, AT	4705-564J+C	4
R568	560K, RCF, 1/4W, 5%, AT	4705-564J+C	4
R569	47K, RCF, 1/4W, 5%, ATS	4705-473J+C	4
R570	47K, RCF, 1/4W, 5%, ATS	4705-473J+C	4
R571	10 OHM, RCF, 1/2W, 5%, ATS	4707-100J+C	4
R572	10 OHM, RCF, 1/2W, 5%, ATS	4707-100J+C	4
R573	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R574	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R575	56K, RCF, 1/4W, 5%, ATS	4705-563J+C	4
R576	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R577	220 OHM, RCF, 1/4W, 5%, AT	4705-221J+C	4
R578	2.2K, RCF, 1/4W, 5%, AT	4705-222J+C	4
R579	4.7K, RCF, 1/4W, 5%, AT	4705-472J+C	4
R580	5.6K, RCF, 1/4W, 5%, AT	4705-562J+C	4
R581	4.7K, RCF, 1/4W, 5%, AT	4705-472J+C	4
R582	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R583	100K, RCF, 1/4W, 5%, AT	4705-104J+C	4
R584	10 OHM, RCF, 1/4W, 5%, ATS	4705-100J+C	4
R585	330 OHM, RCF, 1/4W, 5%, AT	4705-331J+C	4

ELECTRICAL PART LIST

Amplifier PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C501	10uF, CE, 16V, 20%, RLT, ELNA	157D-106M+K-GMK	4
C502	10uF, CE, 16V, 20%, RLT, ELNA	157D-106M+K-GMK	4
C503	68pF, CC, 50V, 5%, RLT	150F-680J+K-IF	4
C504	68pF, CC, 50V, 5%, RLT	150F-680J+K-IF	4
C505	470pF, CC, 50V, 10%, AT	150F-471K+2-FC	4
C506	470pF, CC, 50V, 10%, AT	150F-471K+2-FC	4
C507	220uF, CE, 10V, 20%, RL, ELNA	157C-227M+5-OME	4
C508	220uF, CE, 10V, 20%, RL, ELNA	157C-227M+5-OME	4
C509	15pF, CC, 50V, 5%, AT 3	150F-150J+2-FC	4
C510	15pF, CC, 50V, 5%, AT 3	150F-150J+2-FC	4
C511	33pF, CC, 50V, 10%, RLT	150F-330K+K-GG	4
C512	33pF, CC, 50V, 10%, RLT	150F-330K+K-GG	4
C513	0.022uF, CM, 50V, 5%, RLT, 6.5x9	153F-223J+K-LQ	4
C514	0.022uF, CM, 50V, 5%, RLT, 6.5x9	153F-223J+K-LQ	4
C515	10pF, CC, 50V, 5%, RLT, 5x5	150F-100J+K-II	4
C516	10pF, CC, 50V, 5%, RLT, 5x5	150F-100J+K-II	4
C517	10pF, CC, 50V, 5%, RLT, 5x5	150F-100J+K-II	4
C518	10pF, CC, 50V, 5%, RLT, 5x5	150F-100J+K-II	4
C519	0.033uF, CM, 50V, 5%, RLT, METALZD	153F-333J+K-NLM	4
C520	0.033uF, CM, 50V, 5%, RLT, METALZD	153F-333J+K-NLM	4
C523	100uF, CE, 50V, 20%, RL	157F-107M+5-OW	4
C524	100uF, CE, 50V, 20%, RL	157F-107M+5-OW	4
C525	0.01uF, CC, 100V, 20%, RLT, 5x5	150H-103M+K-II	4
C526	0.01uF, CC, 100V, 20%, RLT, 5x5	150H-103M+K-II	4
C527	100uF, CE, 50V, 20%, RL	157F-107M+5-OW	4
C528	100uF, CE, 50V, 20%, RL	157F-107M+5-OW	4
C529	2.2uF, CE, 50V, 20%, RLT	157F-225M+K-GMK	4
C530	220uF, CE, 10V, 20%, RL, NON-POLAR	157C-227M+5-OUN	4
C531	0.01uF, CC, 50V, 10%	150F-103K+2-FC	4
C532	0.01uF, CC, 50V, 10%	150F-103K+2-FC	4
C533	0.01uF, CC, 50V, 10%	150F-103K+2-FC	4
C534	0.01uF, CC, 50V, 10%	150F-103K+2-FC	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L501	FERRITE BEAD, INDUCT, BL01RN1A1F1J	1808-0680+0	4
L502	FERRITE BEAD, INDUCT, BL01RN1A1F1J	1808-0680+0	4
L503	FERRITE BEAD, INDUCT, BL01RN1A1F1J	1808-0680+0	4
L504	FERRITE BEAD, INDUCT, BL01RN1A1F1J	1808-0680+0	4
L505	FERRITE BEAD, INDUCT, BL01RN1A1F1J	1808-0680+0	4
L506	FERRITE BEAD, INDUCT, BL01RN1A1F1J	1808-0680+0	4

ELECTRICAL PART LIST

Amplifier PCB Assembly

Diodes

Reference Designator	Description	Vendor Part Number	Note
D501	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D502	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D503	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D504	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D505	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D506	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D507	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D508	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D509	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D510	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D512	1SS133, 223163T, AT, ROHM	4840-0990+2	4
D513	1SS133, 223163T, AT, ROHM	4840-0990+2	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q501	2SC2458-GR, RLT, HFF200~400	4852-458G+K	4
Q502	2SC2458-GR, RLT, HFF200~400	4852-458G+K	4
Q503	2SA992, HFE 300-600, RLT	4850-992F+K	4
Q504	2SA992, HFE 300-600, RLT	4850-992F+K	4
Q505	2SA992, HFE 300-600, RLT	4850-992F+K	4
Q506	2SA992, HFE 300-600, RLT	4850-992F+K	4
Q507	2SC5168F, HFE 250~800, RL	4855-168F+5	4
Q508	2SC5168F, HFE 250~800, RL	4855-168F+5	4
Q509	2SC1845, RLT	4860-0190+K	4
Q510	2SC1845, RLT	4860-0190+K	4
Q511	2SA992, HFE 300-600, RLT	4850-992F+K	4
Q512	2SA992, HFE 300-600, RLT	4850-992F+K	4
Q513	2SC1845, RLT	4860-0190+K	4
Q514	2SC1845, RLT	4860-0190+K	4
Q515	2SC1845, FE, RL	4860-0190+K	4
Q516	2SC1845, FE, RL	4860-0190+K	4
Q517	2SA1358-O(Q), RL	4860-1220+5	4
Q518	2SA1358-O(Q), RL	4860-1220+5	4
Q519	2SA1358-O(Q), RL	4860-1210+5	4
Q520	2SA1358-O(Q), RL	4860-1210+5	4
Q521	2SC5198-O(Q), HFE 80-160, 70W, TOSH	4860-5210+5	4
Q522	2SC5198-O(Q), HFE 80-160, 70W, TOSH	4860-5210+5	4
Q523	2SC5198-O(Q), HFE 80-160, 70W, TOSH	4860-5210+5	4
Q524	2SC5198-O(Q), HFE 80-160, 70W, TOSH	4860-5210+5	4
Q525	2SC5198-O(Q), HFE 80-160, 70W, TOSH	4860-5220+5	4
Q526	2SC5198-O(Q), HFE 80-160, 70W, TOSH	4860-5220+5	4
Q527	2SC5198-O(Q), HFE 80-160, 70W, TOSH	4860-5220+5	4
Q528	2SC5198-O(Q), HFE 80-160, 70W, TOSH	4860-5220+5	4
Q529	2SD1768(QR), RLT	4860-3310+K	4
Q530	2SD1768(QR), RLT	4860-3310+K	4
Q531	2SA992, HFE, 300-600, RLT	4850-992F+K	4

ELECTRICAL PART LIST

Amplifier PCB Assembly

Transistors (continued)

Reference Designator	Description	Vendor Part Number	Note
Q532	2SC2458-GR, RLT, HFF200~400	4852-458G+K	4
Q533	2SC2458-GR, RLT, HFF200~400	4852-458G+K	4
Q534	2SC2458-GR, RLT, HFF200~400	4852-458G+K	4
Q535	2SA1048-Y, TE4/F/T, RLT	4860-3340+K	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
TH611	THERMAL, MTC, 10K, RED WIRE	5202-0003+1	4
CN06A	WIRE-CONN, 4P, P2.0, #26/24, UL2547/UL1007, L=100, F/M	7012-7790+0	4
CN501	2P, ST, WAFER, P=2.0, COULOMB	2102-020S+003	4
J604B	PLATE, TERMINAL, RT	4134-2421+0	4
J605B	PLATE, TERMINAL, RT	4134-2421+0	4
J606B	PLATE, TERMINAL, RT	4134-2421+0	4
LOUT	WIRE-CONN, 1P, #18, UL 1015, L=160, BLU, 250-TERMINAL	7012-7835+0	4
ROUT	WIRE-CONN, 1P, #18, UL 1015, L=120, RED, 250-TERMINAL	7012-7834+0	4
PAMP	SHRINKAGE TUBE, ID=1MM, UL	1660-0890+0	4

ELECTRICAL PART LIST

PSU PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R601	1 OHM, RCF, 1W, 5%, AL	4708-1R0J+1	4
R602	1 OHM, RCF, 1W, 5%, AL	4708-1R0J+1	4
R603	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R604	22K, RCF, 1/4W, 5%, ATS	4705-223J+C	4
R605	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R611	10 OHM, RCF, 2W, 5%, AL	4709-100J+1	4
R612	1K, RCF, 1/4W, 5%, ATS	4705-102J+C	4
R613	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R614	510K, RCF, 1/8W, 5%, AT	4701-514J+2	4
R615	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R616	470K, RCF, 1/4W, 5%, ATS	4705-474J+C	4
R617	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R618	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	4
R619	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	4
R620	150K, RCF, 1/4W, 5%, ATS	4705-154J+C	4
R621	1K, RCF, 1/4W, 5%, ATS	4705-102J+C	4
R622	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R623	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R624	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R631	5.1K, RMF, 1/4W, 1%, ATS	4715-512A+C	4
R632	2K, RMF, 1/8W, 1%, AT	4711-202A+2	4
R633	3.3K, RMF, 1/4W, 1%, ATS	4715-332A+C	4
R634	10K, RMF, 1/4W, 1%, ATS	4715-103A+C	4
R635	3.3K, RCF, 1/4W, 5%, ATS	4705-332J+C	4
R636	20K, RCF, 1/4W, 5%, ATS	4705-203J+C	4
R637	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	4
R638	2K, RMF, 1/8W, 1%, AT	4711-202A+2	4
R639	10K, RMF, 1/4W, 1%, ATS	4715-103A+C	4
R640	10K, RMF, 1/4W, 1%, ATS	4715-103A+C	4
R641	3.3K, RCF, 1/4W, 5%, ATS	4705-332J+C	4
R642	20K, RCF, 1/4W, 5%, ATS	4705-203J+C	4
R643	560 OHM, RCF, 1/4W, 5%, ATS	4705-561J+C	4
R644	1K, RCF, 1/4W, 5%, ATS	4705-102J+C	4
R645	1 OHM, RCF, 1W, 5%, AL	4708-1R0J+1	4
R646	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	4
R647	10K, RCF, 1/4W, 5%, ATS	4705-103J+C	4
R648	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	4
R649	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	4
R650	56 OHM, RCF, 2W, 5%, AL	4709-560J+1	4
R651	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	4
R652	4.7K, RCF, 1/4W, 5%, ATS	4705-472J+C	4
R653	51K, RCF, 1/4W, 5%, ATS	4705-513J+C	4

ELECTRICAL PART LIST

PSU PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C601	0.01uF, CC, 100V, 20%, RLT, 5X5	150H-103M+K-II	4
C602	0.01uF, CC, 100V, 20%, RLT, 5X5	150H-103M+K-II	4
C603	0.01uF, CC, 100V, 20%, RLT, 5X5	150H-103M+K-II	4
C604	0.01uF, CC, 100V, 20%, RLT, 5X5	150H-103M+K-II	4
C605	8200uF, CE, 50V, 20%, 85C, RL, 30X42	157F-828M+5-$^	4
C606	8200uF, CE, 50V, 20%, 85C, RL, 30X42	157F-828M+5-$^	4
C607	8200uF, CE, 50V, 20%, 85C, RL, 30X42	157F-828M+5-$^	4
C608	8200uF, CE, 50V, 20%, 85C, RL, 30X42	157F-828M+5-$^	4
C609	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C610	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C611	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C612	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C613	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C614	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C615	2200uF, CE, 25V, 20%, RLT, 12.5X25	157E-228M+K-X&I	4
C616	2200uF, CE, 25V, 20%, RLT, 12.5X25	157E-228M+K-X&I	4
C617	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C618	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C619	470uF, CE, 25V, 20%, RLT, 10X12.5, ELNA	157E-477M+K-SXE	4
C620	470uF, CE, 25V, 20%, RLT, 10X12.5, ELNA	157E-477M+K-SXE	4
C621	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C622	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C623	1000uF, CE, 16V, RLT, 10X16, RE3, ELNA	157D-108M+K-S5E	4
C624	0.1uF, CC, 50V, 10%, RLT, 5x5	150F-104K+K-II	4
C625	22uF, CE, 50V, 20%, RLT, 5X11	157F-226M+K-IU	4
C626	22uF, CE, 50V, 20%, RLT, 5X11	157F-226M+K-IU	4
C627	0.01uF, CC, 100V, 20%, RLT, 5X5	150H-103M+K-II	4
C631	22uF, CE, 50V, 20%, RLT, 5X11	157F-226M+K-IU	4
C632	2.2uF, CE, 50V, 20%, RLT, 5X11	157F-225M+K-IU	4
C633	100uF, CE, 35V, 20%, RLT, 6.3X11, SHOEI	157Q-107M+K-LUI	4
C634	100uF, CE, 35V, 20%, RLT, 6.3X11, SHOEI	157Q-107M+K-LUI	4
C635	2.2uF, CE, 50V, 20%, RLT, 5X11	157F-225M+K-IU	4
C636	2.2uF, CE, 50V, 20%, RLT, 5X11	157F-225M+K-IU	4
C637	4.7uF, CE, 50V, 20%, RLT, 5X11, ELNA	157F-475M+K-IUE	4
C638	22uF, CE, 50V, 20%, RLT, 5X11	157F-226M+K-IU	4

ELECTRICAL PART LIST

PSU PCB Assembly

Diodes

Reference Designator	Description	Vendor Part Number	Note
BG601	BRIDGE, RECTIFIER, 15A, 200V, GBJ1503	4840-9120+0	4
BG602	BRIDGE, DIODE, RS203L-B (RECTRON)	4840-1120+0	4
D601	IN4004-F, AT	4804-0040+2	4
D602	IN4004-F, AT	4804-0040+2	4
D603	IN4004-F, AT	4804-0040+2	4
D604	IN4004-F, AT	4804-0040+2	4
D605	ZENER, 1/2W, 24V, TEMIC, AT	4837-24V6+2	4
D606	1N4148T, AT	4804-1480+2	4
D607	1N4148T, AT	4804-1480+2	4
D608	ZENER, 1/2W, 5.1V, ROHM, AT	4837-5V11+2	4
D609	IN4004-F, AT	4804-0040+2	4
D610	IN4004-F, AT	4804-0040+2	4
D611	1N4148T, AT	4804-1480+2	4
D612	1N4148T, AT	4804-1480+2	4
D614	1N4148T, AT	4804-1480+2	4
D615	1N4148T, AT	4804-1480+2	4
D616	1N4148T, AT	4804-1480+2	4
D617	1N4148T, AT	4804-1480+2	4
D618	ZENER, 1/2W, +/-5%, 3.3V, TEMIC, AT	4837-3V36+2	4
D619	1N4148T, AT	4804-1480+2	4
D620	1N4148T, AT	4804-1480+2	4
D621	ZENER, 1/2W, 12V, 5%, TEMIC, AT	4837-12V6+2	4
D622	IN4004-F, AT	4804-0040+2	4
D623	IN4004-F, AT	4804-0040+2	4
D624	IN4004-F, AT	4804-0040+2	4
D625	ZENER, 1/2W, 12V, 5%, TEMIC, AT	4837-12V6+2	4
D626	IN4004-F, AT	4804-0040+2	4
D627	ZENER, 1/2W, +/-5%, 3.3V, TEMIC, AT	4837-3V36+2	4

Transistors

Reference Designator	Description	Vendor Part Number	Note
Q601	TIP41C, SGS, TO-220	4860-8470+0	4
Q602	2SC1845 (F.E) RLT	4860-0190+K	4
Q603	2SC1845 (F.E) RLT	4860-0190+K	4
Q604	TIP41C, SGS, TO-220	4860-8470+0	4
Q605	TIP41C, SGS, TO-220	4860-8470+0	4
Q606	2SC1845 (F.E) RLT	4860-0190+K	4
Q607	2SC1845 (F.E) RLT	4860-0190+K	4
Q608	FET, N-CHAN, 2N7000RLRAG/BSN10/BSN10A, C-MOS, RLT	490S-N100+K	4
Q609	2SC1845 (F.E) RLT	4860-0190+K	4
Q610	2SC1845 (F.E) RLT	4860-0190+K	4
Q611	2SC1845 (F.E) RLT	4860-0190+K	4

ELECTRICAL PART LIST

PSU PCB Assembly
Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U601	LM2940T-9, NS	3131-8230+0	4
U602	REGULATOR, KIA7909PI-U/P, -9V, 1A	3131-7410+0	4
U603	REGULATOR, NJM7805FA-#ZZZB	3130-2020+2	4
U604	DUAL VOLTAGE COMPARATOR, LM393, DIP8	3131-5160+0	4
U605	DUAL VOLTAGE COMPARATOR, LM393, DIP8	3131-5160+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
BG601	SCREW, 3X12MM, B-TITE, BLK, ZN	2954-3012+3000	4
BG601	HEATSINK, AMP, 50X46	5400-9771+0	4
CN12A	11P, ST, WAFER, P=2.0	2102-110S+003	4
CN15A	2P, ST, WAFER, P=2.0, COULOMB	2102-020S+003	4
CN16B	WAFER, 3 PIN, P=3.96	2101-3065+0	4
CN17B	WAFER, 4P, P3.96, STRAIGHT, MALE	2101-3053+0	4
CN601	WAFER, 3 PIN, P=3.96	2101-3065+0	4
F611	FUSE, T10AH, 250V (BOSE® PART NUMBER 325634-0010)	5120-0110+0	3 ⚠
F611A	FUSE HOLDER	4132-1011+0	4
F611B	FUSE HOLDER	4132-1011+0	4
F612	FUSE, T10AH, 250V (BOSE PART NUMBER 325634-0010)	5120-0110+0	3 ⚠
F612A	FUSE HOLDER	4132-1011+0	4
F612B	FUSE HOLDER	4132-1011+0	4
FAN	2P, ST, WAFER, P=2.0, COULOMB	2102-020S+003	4
GND	WIRE-CONN, 1P, #18, UL1015, L=370, BLK, 250-TERMINAL	7012-7833+0	4
GND	WIRE-CONN, 1P, #18, UL1015, L=430, YL/GN, 4MM, RING-TERM	7012-7851+0	4
JP601	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
JP602	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
JP603	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
JP604	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
JP605	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
JP606	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
Q601	SCREW, MACHINE, BIND HEAD, M3X8, CROSS-RECESS, BZ	2904-3008+3000	4
Q601	HEATSINK, SMALL	5400-3741+1	4
TH611	WIRE-CONN, 2P, P2.0, #24, UL1007, L=120, WH/BU, F/M	7012-7781+0	4
U601	SCREW, MACHINE, BIND HEAD, M3X8, CROSS-RECESS, BZ	2904-3008+3000	4
U601	SCREW, B-TITE, BIND, M2.6X6, CROSS-RECESS, BZ	2954-2606+3000	4
U601	HEATSINK, 23.5X17X25	5400-9141+0	4
U603	SCREW, MACHINE, BIND HEAD, M3X8, CROSS-RECESS, BZ	2904-3008+3000	4
U603	HEATSINK, SMALL	5400-3741+1	4

ELECTRICAL PART LIST

RCA Input PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R1133	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1134	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1135	10K, RMG, 1/16W, 1%, 0603/1608	4723-103J+P	4
R1136	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1137	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1138	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1139	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1140	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1141	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1142	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1143	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1144	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1145	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1146	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1147	10K, RMG, 1/16W, 1%, 0603/1608	4723-103J+P	4
R1148	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1149	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1150	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1151	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1152	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1153	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1154	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1155	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1156	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1157	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1158	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1159	10K, RMG, 1/16W, 1%, 0603/1608	4723-103J+P	4
R1160	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1161	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1162	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1163	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1164	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1165	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1166	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1167	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1168	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1169	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1170	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1171	10K, RMG, 1/16W, 1%, 0603/1608	4723-103J+P	4
R1172	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1173	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1174	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1175	31.6K, RMG, 1/10W, 1%, 0805	4720-3162+J	4
R1176	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1177	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1178	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4

ELECTRICAL PART LIST

RCA Input PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R1179	10K, RMG, 1/16W, 1%, 0603/1608	4723-103A+P	4
R1180	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R1181	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R1182	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R1183	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R1184	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R1185	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R1186	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R1187	1K, RMG, 1/16W, 5%, 0603/1608	4723-102J+P	4
R1188	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1189	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1190	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1191	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1192	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1193	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1194	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1195	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1196	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1197	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1198	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1199	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1200	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1201	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1202	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1203	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1204	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1205	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1206	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1207	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1208	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1209	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1210	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1211	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1212	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1213	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1214	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1215	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1216	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1217	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1218	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1219	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1220	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1221	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1222	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1223	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1224	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4

ELECTRICAL PART LIST

RCA Input PCB Assembly

Resistors (continued)

Reference Designator	Description	Vendor Part Number	Note
R1225	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1226	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1227	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1228	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1229	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1230	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1231	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4
R1232	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1233	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1234	91 OHM, RMG, 1/16W, 5%, 0603/1608	4723-910J+P	4
R1235	634 OHM, RMG, 1/10W, 1%, 0805	4720-6340+J	4
R1236	100K, RMG, 1/16W, 5%, 0603/1608	4723-104J+P	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C1165	22pF, CC, 50V, 10%, 0603/1608, 1x2	150F-220K+P-AC	4
C1166	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1167	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1168	22pF, CC, 50V, 10%, 0603/1608, 1x2	150F-220K+P-AC	4
C1169	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1170	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1171	22pF, CC, 50V, 10%, 0603/1608, 1x2	150F-220K+P-AC	4
C1172	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1173	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1174	22pF, CC, 50V, 10%, 0603/1608, 1x2	150F-220K+P-AC	4
C1175	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1176	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1177	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1178	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1179	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1180	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1181	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1182	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1183	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1184	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1185	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1186	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1187	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1188	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1189	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1190	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1191	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1192	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1193	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1194	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1195	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4

ELECTRICAL PART LIST

RCA Input PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C1196	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1197	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1198	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1199	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1200	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1201	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1202	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1203	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1204	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1205	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1206	470pF, CC, 50V, 5%, 0603	150F-471J+P-AC	4
C1207	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1208	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1209	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1210	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1211	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1212	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1213	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1214	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1215	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1216	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1217	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1218	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1219	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1220	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1221	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1222	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1223	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1224	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1225	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1226	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1227	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1228	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1229	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1230	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1231	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1232	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1233	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1234	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1235	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1236	0.1uF, CC, 50V, 10%, 0603/1608, 1x2	150F-104K+P-AC	4
C1237	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1238	10uF, CE, 16V, 20%, SMD, 4X5.4	157D-106M+3-GJ	4
C1239	1000uF, CE, 16V, 20%, RL, 10x16	157D-108M+5-S5	4

ELECTRICAL PART LIST

RCA Input PCB Assembly

Capacitors (continued)

Reference Designator	Description	Vendor Part Number	Note
C1240	1000uF, CE, 16V, 20%, RL, 10x16	157D-108M+5-S5	4
C1241	22pF, CC, 50V, 10%, 0603/1608, 1x2	150F-220K+P-AC	4
C1242	22pF, CC, 50V, 10%, 0603/1608, 1x2	150F-220K+P-AC	4
C1243	22pF, CC, 50V, 10%, 0603/1608, 1x2	150F-220K+P-AC	4
C1244	22pF, CC, 50V, 10%, 0603/1608, 1x2	150F-220K+P-AC	4

Integrated Circuits

Reference Designator	Description	Vendor Part Number	Note
U108	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U109	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U110	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U111	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U112	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U113	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U114	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U115	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U116	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4
U117	NJM2068M-#ZZZB, DUAL OP-AMP	3130-6890+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CN01A	WIRE-CONN, 8P, P2.0, #24, UL01007, L=90, F/M	7012-8770+0	4
CN02A	WIRE-CONN, 8P, P2.0, #24, UL01007, L=90, F/M	7012-8770+0	4
CN03A	WIRE-CONN, 8P, P2.0, #24, UL01007, L=90, F/M	7012-8770+0	4
JP101B	HEADER, 7P, P2.54, STRAIGHT, MALE	2101-3167+0	4
JP102B	HEADER, 7P, P2.54, STRAIGHT, MALE	2101-3167+0	4
JP103B	HEADER, 7P, P2.54, STRAIGHT, MALE	2101-3167+0	4
JP104B	HEADER, 7P, P2.54, STRAIGHT, MALE	2101-3167+0	4
JP105B	HEADER, 7P, P2.54, STRAIGHT, MALE	2101-3167+0	4
JP106B	8P, ST, WAFER, P=2.0, COULOMB	2102-080S+003	4

ELECTRICAL PART LIST

RS-232 PCB Assembly

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
J301	SOCKET, DB9, D-SUB, RA, FEMALE	2113-1749+0	4
CN10A	WIRE-CONN, 3P, P2.0, #24, UL1007, L=300, WHT/BLU, F/M	7012-7770+0	4

Speaker PCB Assembly

Resistors

Reference Designator	Description	Vendor Part Number	Note
R801	10 OHM, RCF, 1W, 5%, AL	4708-100J+1	4
R802	10 OHM, RCF, 1W, 5%, AL	4708-100J+1	4
R803	3.3K, RMG, 1/10W, 5%, 0805	4720-332J+J	4
R804	3.3K, RMG, 1/10W, 5%, 0805	4720-332J+J	4

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C521	0.01uF, CC, 100V, 20%, 0805	150H-103M+J-BD	4
C522	0.01uF, CC, 100V, 20%, 0805	150H-103M+J-BD	4
C801	10uF, CT, 16V, 20%, SMD, 1.6X3.2	154D-106M+3-CF	4
C802	10uF, CT, 16V, 20%, SMD, 1.6X3.2	154D-106M+3-CF	4
C803	100pF, CC, 100V, 10%, 0805, 1.2X2, NPO	150H-101K+J-BD	4
C804	100pF, CC, 100V, 10%, 0805, 1.2X2, NPO	150H-101K+J-BD	4
C805	0.01uF, CC, 100V, 20%, 0805	150H-103M+J-BD	4
C806	0.01uF, CC, 100V, 20%, 0805	150H-103M+J-BD	4
C807	0.01uF, CC, 100V, 20%, 0805	150H-103M+J-BD	4
C808	0.01uF, CC, 100V, 20%, 0805	150H-103M+J-BD	4
C811	0.1uF, CC, 250V, 10%, X7R, 1206, 1.6X3.2	150R-104K+6-CF	4
C812	0.1uF, CC, 250V, 10%, X7R, 1206, 1.6X3.2	150R-104K+6-CF	4

Inductors

Reference Designator	Description	Vendor Part Number	Note
L801	TT-9904, LE 1012A, 1X12TX6MM, SPRING COIL	1806-2393+0	4
L802	TT-9904, LE 1012A, 1X12TX6MM, SPRING COIL	1806-2393+0	4

Diodes

Reference Designator	Description	Vendor Part Number	Note
D801	LL4148, SM	4804-1480+3	4
D802	LL4148, SM	4804-1480+3	4
D803	ZENER, 1/2W, 3.3V, SMD, ROHM, UDZSTE-173.3B (UDZS3.3B)	4837-3V31+3	4
D804	ZENER, 1/2W, 3.3V, SMD, ROHM, UDZSTE-173.3B (UDZS3.3B)	4837-3V31+3	4

ELECTRICAL PART LIST

Speaker PCB Assembly

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
CN15B	WIRE-CONN, 2P, P2.0, #24, UL1007, L=300, WH/BU, F/M	7012-7780+0	4
CN801B	WIRE-CONN, 3P, P2.0, #24, UL1007, L=300, WHT/BLU, F/M	7012-7770+0	4
J501	5 POLE SPEAKER TERMINAL	2113-1335+0	4
J502	5 POLE SPEAKER TERMINAL	2113-1335+0	4
J503	TERMINAL-SPEAKER, 2P, P10	2113-3152+0	4
JD801	ANTENNA WASHER	4131-7701+0	4
JD802	ANTENNA WASHER	4131-7701+0	4
JP501	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP502	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP503	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP504	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP505	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP506	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP507	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP508	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP509	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP510	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP511	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP512	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP513	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP514	E641BL-2, TYPE 187 TERMINAL	4133-2380+0	4
JP515	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
JP516	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
RLY501	RELAY, 24V, 8A, 2P2T	4500-0730+0	4

ELECTRICAL PART LIST

Volt PCB Assembly

Capacitors

Reference Designator	Description	Vendor Part Number	Note
C1	4700pF, 400V, DE7150F472MVA1KC	8910-0049+0	4

Miscellaneous

Reference Designator	Description	Vendor Part Number	Note
J1	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
J2	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
J3	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
J4	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
J5	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
J6	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
J7	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
J8	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
J9	SPADE TERMINAL, 6.3X0.8, STRAIGHT	2101-1231+0	4
NTC1	NTC THERMISTER, SCK057	5202-0001+0	4
NTC1	SHRINKAGE TUBE, ID=1MM, UL	1660-0890+0	4
SW2	SW, POWER, DPDT, 250V, 10A, SL14-22AM	5200-4942+0	4

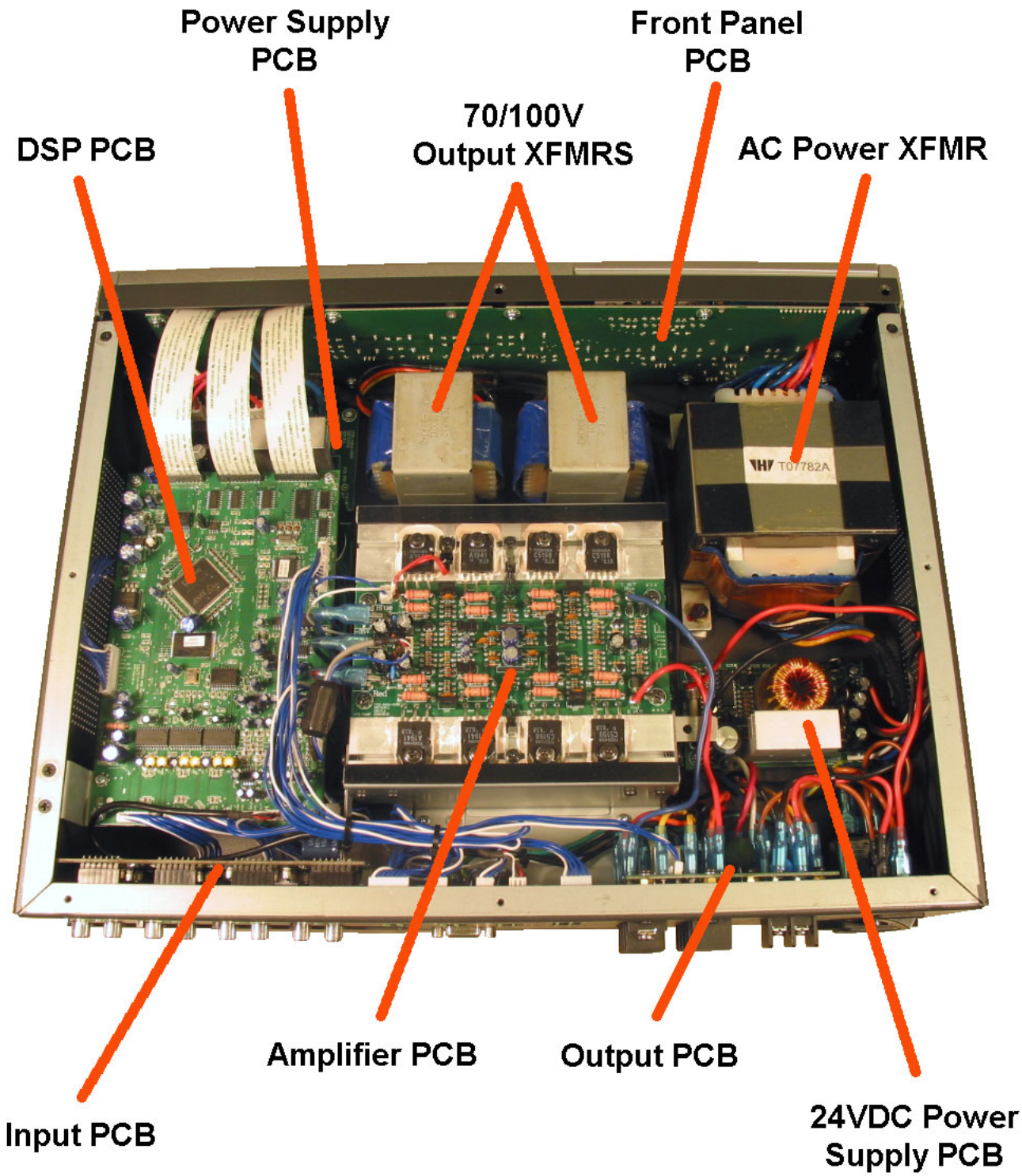


Figure 3. FreeSpace DXA-2120 Amplifier with Top Cover Removed

DISASSEMBLY PROCEDURES

1. Top Cover Removal

1.1 Using a Phillips-head screwdriver, remove the eight screws that secure the top cover to the chassis. Lift off the top cover.

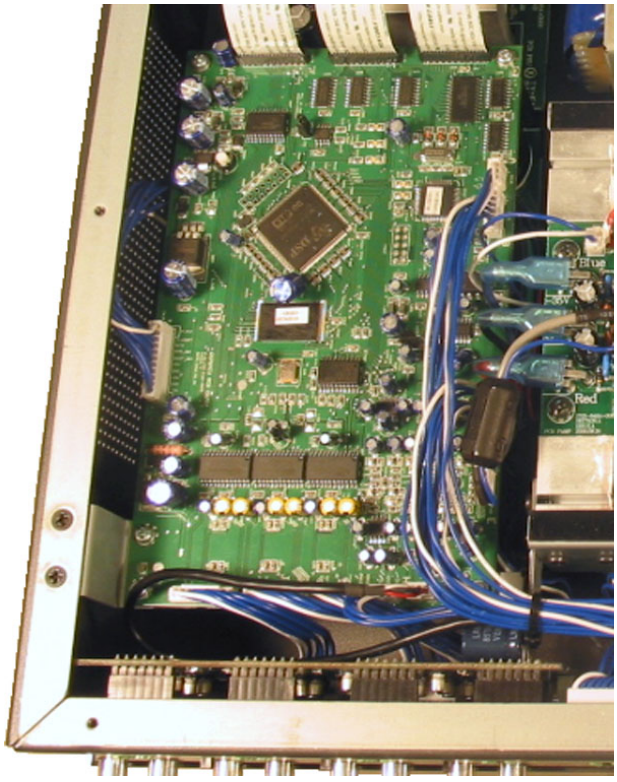
2. Digital Signal Processor (DSP) PCB Removal

2.1 Perform procedure 1.

2.2 Unplug the three ribbon cables from the front of the board at connectors CN08B, CN09B and CN07B.

2.3 Unplug the wiring harnesses at connectors CN13B, CN11B, CN10B, CN14B, CN06B, CN05B, CN04B, CN03B, CN02B, CN01B and CN12B.

2.4 Using a Phillips-head screwdriver, remove the five screws that secure the board to the chassis. Lift out the board.

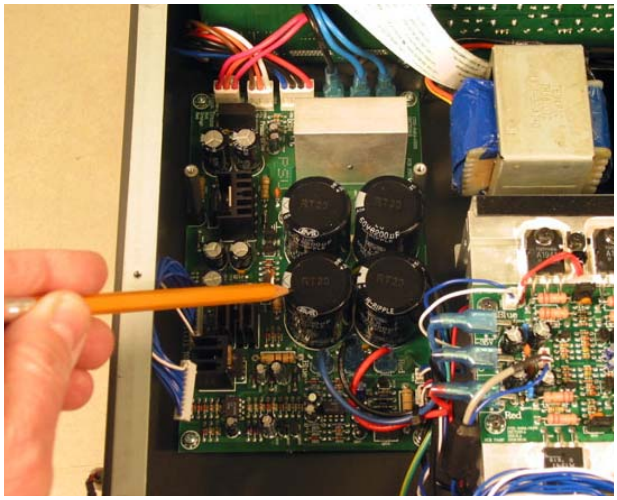


3. Power Supply (PSU) PCB Removal

3.1 Perform procedure 2.

3.2 Unplug the two blue wires from connectors JP601 and JP603. Disconnect the black wire from connector JP602.

3.3 Unplug the wiring harnesses from connectors CN16B, CN17B and CN601.
Re-assembly Note: Be sure to connect the correct wiring harness to the correct connectors at CN16B and CN601. Both connectors are identical and damage to the unit could result if they are plugged into the wrong connector.



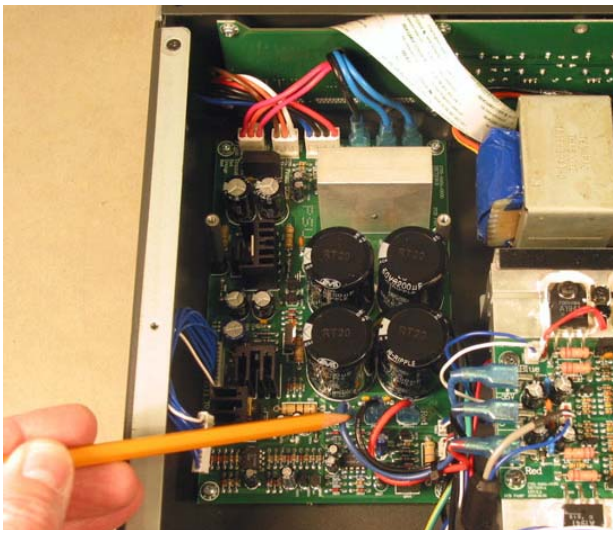
DISASSEMBLY PROCEDURES

3.4 Unplug the wiring harnesses at CN15A, the fan connector and the NTC TH611.

3.5 Unplug the red, black and blue wires from JP604A, JP605A and JP606A.

3.6 Located in the middle of the four large electrolytic capacitors are three wires that are soldered to the board, two black and one green. Follow these wires over to the SPKR PCB. Make a note of where they are connected to the board and unplug them.

3.7 Using a Phillips-head screwdriver, remove the five screws that secure the PSU PCB to the chassis. Lift out the PCB.



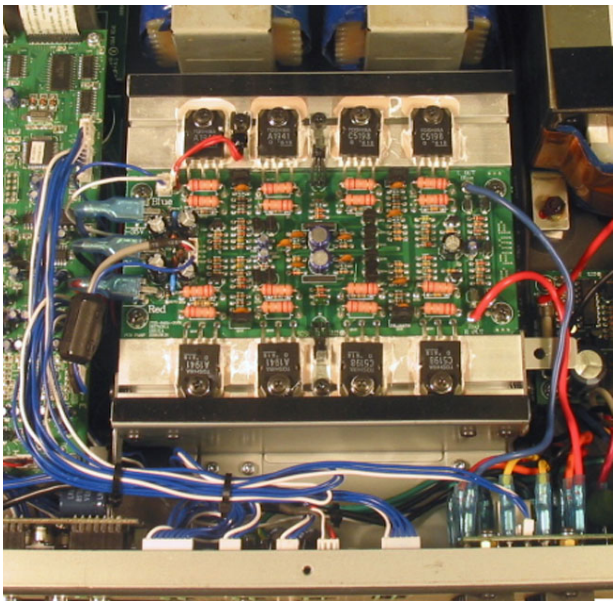
4. Amplifier PCB Removal

4.1 Perform procedure 1.

4.2 Unplug the Red, Blue and Black Faston connectors from the amplifier PCB. These wires run up from the PSU PCB, located under the DSP board.

4.3 Unplug the audio input cable from the DSP PCB at CN06B. Unplug the wiring harness from connector CN501.

4.4 At the other end of the board, follow the red and blue wires to the SPKR PCB. Make a note of where they are connected and unplug these wires from the board.



4.5 Using a Phillips-head screwdriver, remove the eight screws that secure the output transistors to the heatsink.

4.6 Remove the three screws that secure Q515, Q516 and thermistor TH611 to the heatsink.
Reassembly Note: Be sure to retain the transistor and thermistor retaining clips as well as the mica insulators for re-use.

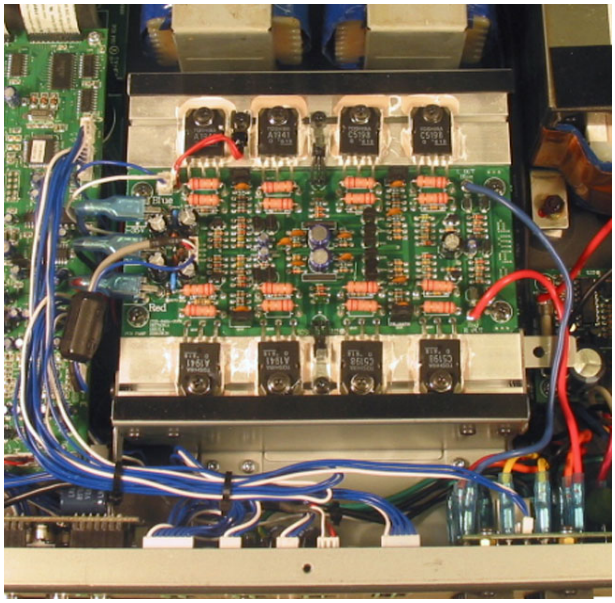
4.7 Remove the four screws that secure the amplifier PCB to the heatsink. Lift off the PCB.

DISASSEMBLY PROCEDURES

5. Fan Removal

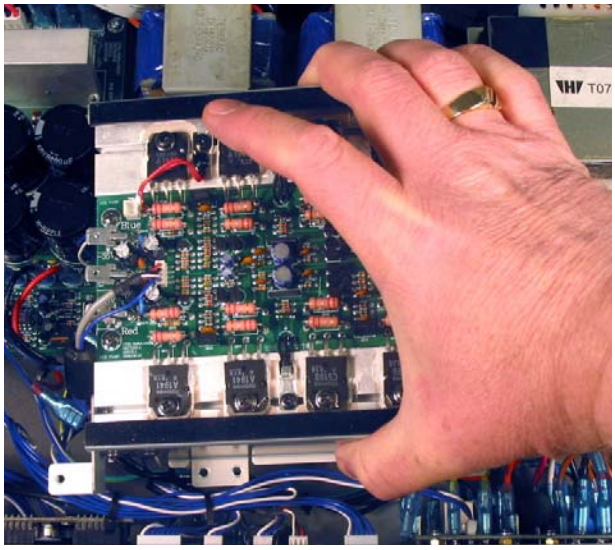
5.1 Perform procedure 1.

5.2 Unplug the Red, Blue and Black Faston connectors from the amplifier PCB. These wires run up from the PSU PCB.



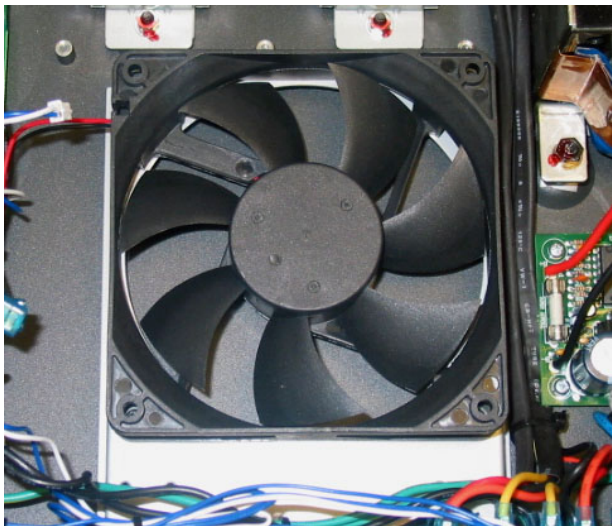
5.3 Unplug the audio input cable from the DSP PCB at CN06B.

5.4 Remove the two screws that retain the DSP board support bracket. Remove the seven screws that secure the heatsink assembly to the chassis. Lift out the heatsink assembly.



5.5 Unplug the fan wiring harness from the PSU PCB.

5.6 Remove the four screws that secure the fan to the chassis. Make a note of which direction the fan is mounted into the chassis and lift it out.
Re-assembly Note: Be sure to re-install the fan facing the correct direction for proper airflow. Air should flow into the sides of the chassis and out the opening in the back.

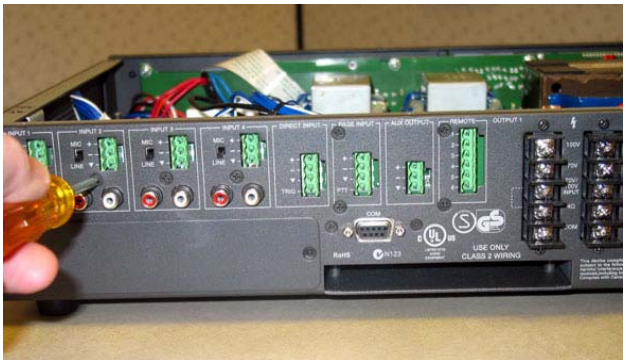


DISASSEMBLY PROCEDURES

6. Input/Output PCB and RCA Input/AD Buffer PCB Removal

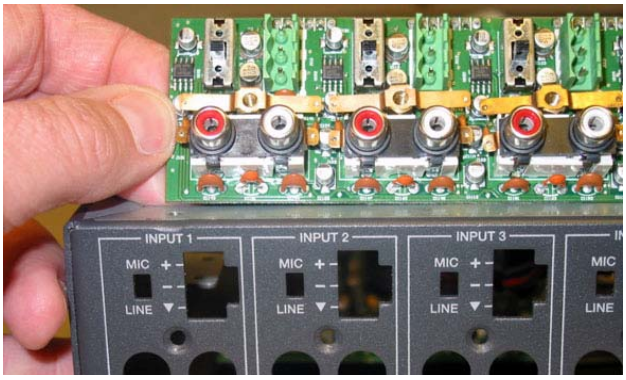
6.1 Perform procedure 2.

6.2 Remove the eight screws that secure the Input/Output-RCA Input/AD Buffer PCB assembly to the back of the chassis. Lift out the PCB assembly.



Take care to not lose the plastic insulators or the copper decoupling capacitor yokes located over the RCA jacks during disassembly.

6.3 Remove the two screws that secure the RCA Input/AD Buffer PCB to the Input/Output PCB. Lift off the RCA Input/AD Buffer PCB.

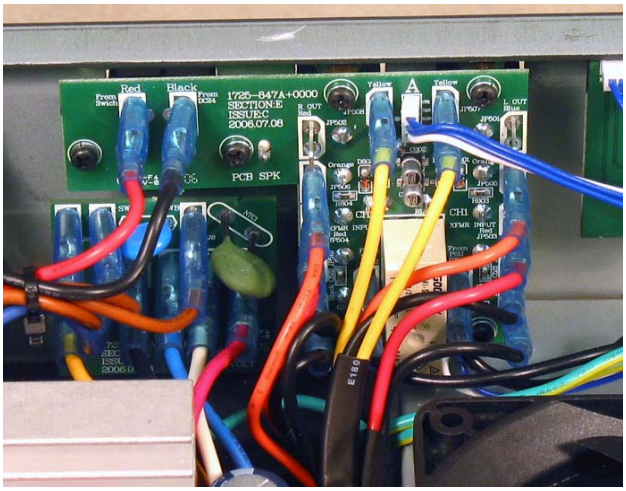


7. SPKR PCB Removal

7.1 Perform procedure 1.

7.2 Unplug the wiring harness from the DSP PCB at CN13B.

7.3 Make a note of the wiring configuration and unplug all of the Faston connectors from the back of the PCB.
Re-assembly Note: Using the note above, be sure that all wires are connected to the correct locations on the SPKR PCB.



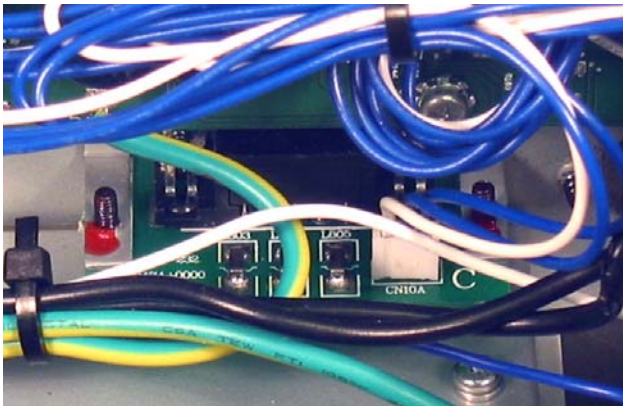
7.4 Remove the six screws that secure the SPKR PCB to the chassis. Lift out the PCB.

8. RS-232 PCB Removal

8.1 Perform procedure 1.

8.2 Unplug the wiring harness from the DSP PCB at connector CN10B.

8.3 Remove the two jackscrews located on either side of the DB-9 connector. Remove the two screws located on either side of the jackscrew locations. Lift out the PCB.



DISASSEMBLY PROCEDURES

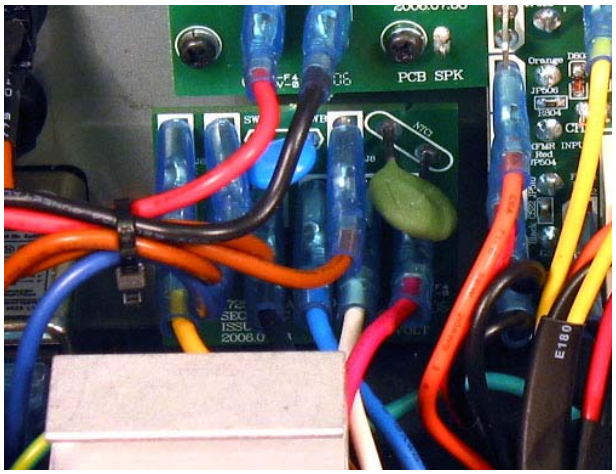
9. Voltage Select Switch PCB Removal

9.1 Perform procedure 1.

9.2 Make a note of the wiring configuration and unplug all of the Faston connectors from the back of the PCB.
Re-assembly Note: Using the note above, be sure that all wires are connected to the correct locations on the PCB.

9.3 Remove the two screws that secure the PCB to the back of the chassis.

9.4 Lift out the PCB.



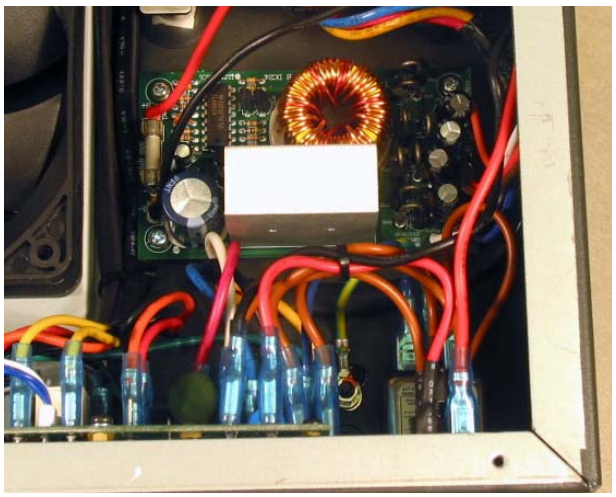
10. DC24 Power Supply PCB Removal

10.1 Perform procedure 1.

10.2 Unplug the red wire from the back of the power switch. Unplug the black wire from the SPKR PCB.

10.3 Unplug the DC24 PCB wiring harness from the PSU PCB at connectors CN16B and CN17B.

10.4 Remove the four screws that secure the DC24 PCB to the chassis. Lift out the PCB.

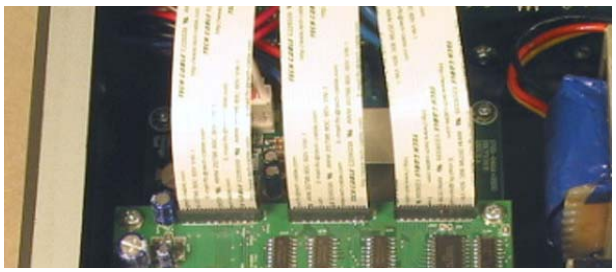


11. CTRL PCB Removal

11.1 Perform procedure 1.

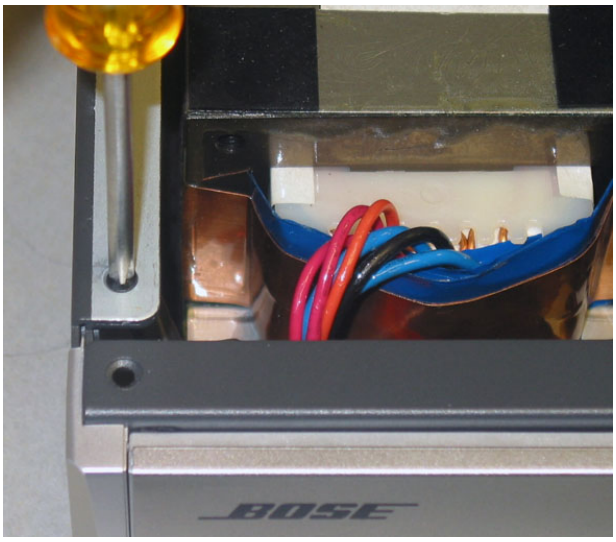
11.2 Unplug the three ribbon cables from the DSP PCB at connectors CN08B, CN09B and CN07B.

11.3 Turn the chassis over top down. Remove the five screws located at the front of the chassis.



DISASSEMBLY PROCEDURES

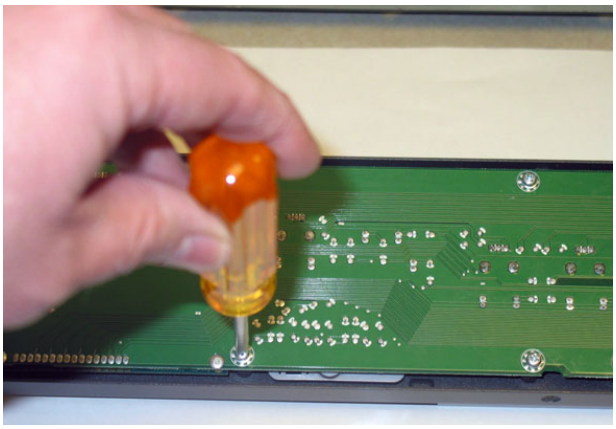
11.4 Turn the chassis back over onto its bottom. Remove the two screws located on either side of the chassis side rails near the front panel.



11.5 Slide off the front panel assembly.

11.6 On the front panel, pull off the four knobs for inputs 1 - 4.

11.7 Remove the ten screws that secure the CTRL PCB to the front panel. Lift off the PCB.



12. Door and Front Panel Removal

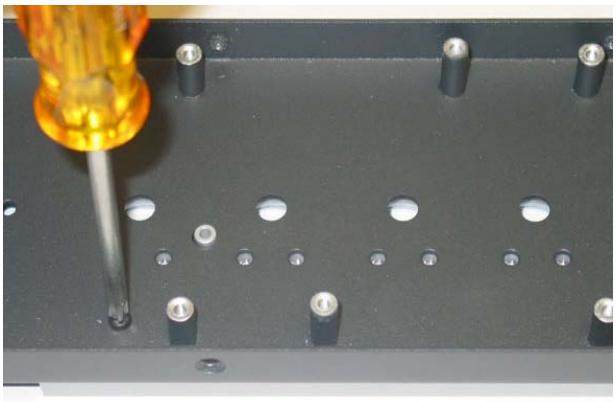
12.1 Perform procedure 11.

12.2 Remove the two screws that secure the left front panel end cap to the front panel chassis section.

DISASSEMBLY PROCEDURES

Slide off the end cap to the left. Slide the door to the left off of the main section of the front panel plastic.

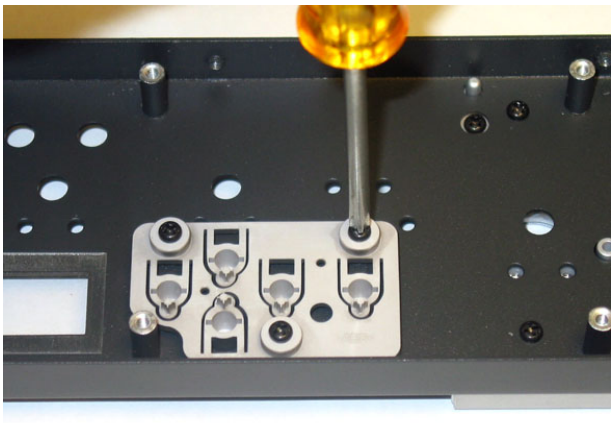
12.3 Remove the four screws that secure the main section of the front panel plastic to the front panel chassis section. Lift off the front panel plastic.



13. Front Panel Button Assembly Removal

13.1 Perform procedure 11.

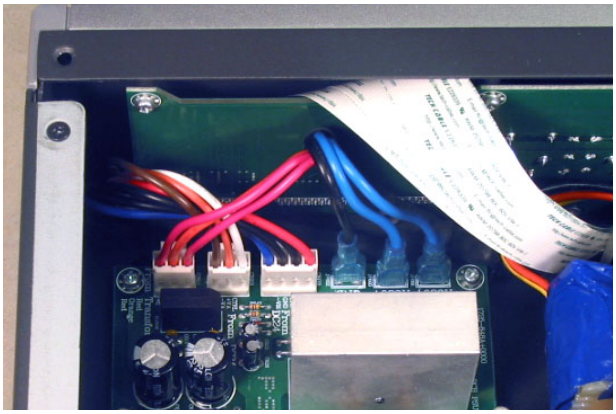
13.2 Remove the three screws that secure the front panel button assembly to the front panel chassis section. Lift off the button assembly.



14. AC Power Transformer Removal

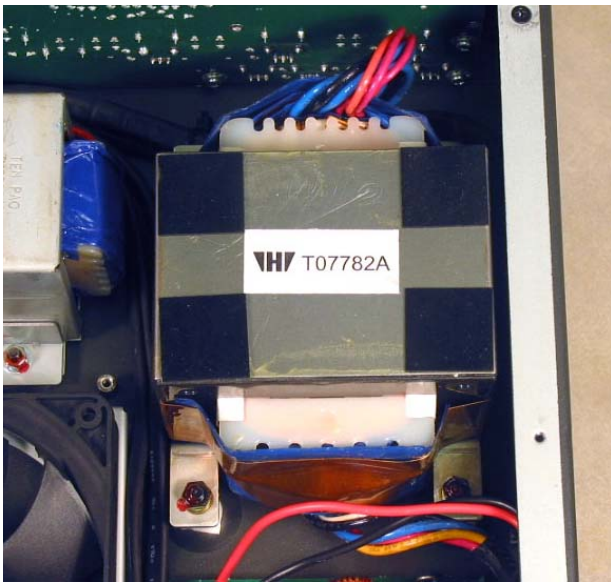
14.1 Perform procedure 1.

14.2 Unplug the transformer seconday wiring harness from the PSU PCB at connectors JP601, JP602, JP603 and CN601.



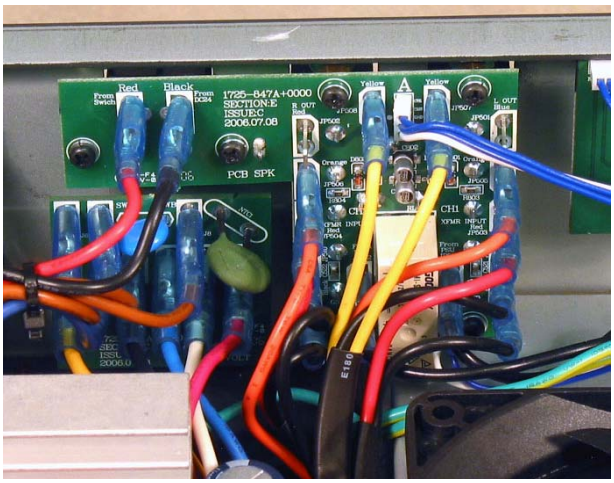
DISASSEMBLY PROCEDURES

14.3 Make a note of the wiring configuration and unplug the transfromer primary connections from the Voltage Select Switch PCB located at the back of the chassis.
Re-assembly Note: You can refer to the VOLT PCB board layout diagram for connection information as well.



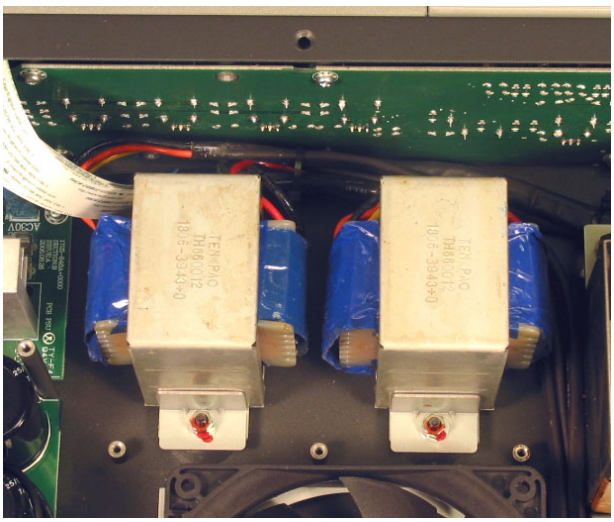
14.4 Remove the four nuts that secure the power transformer to the chassis.
Lift out the transformer.

15. 70/100V Transformer Removal



15.1 Perform procedure 1.

15.2 Make a note of the wiring configuration and unplug the transformer connections from the SPKR PCB, which is located at the back of the chassis.



15.3 Remove the two nuts that secure the power transformer to the chassis. Lift out the transformer.

TEST PROCEDURES

Test Setup

AC power must be applied to the product variants as follows:
- DXA 2120 amplifiers with part number 294962-1, use 120VAC (+10/-1%), 60Hz
- DXA 2120 amplifiers with part numbers 294962-2, -4, and -5, use 240VAC (+10/-1%), 50Hz
- DXA 2120 amplifiers with part number 294962-3, use 100VAC (+10/-1%), 50Hz

Required Test Equipment
- Audio Signal Generator
- Oscilloscope
- Distortion Meter
- DC Power Supply capable of a 30V @ 2A output level
- Qty 2 - DXA-2120 Wallplates, PC: 041967

Test Conditions
- All AC audio measurements must be band limited from 22Hz to 22kHz
- All balanced line inputs must be terminated with 50 ohms
- All balanced mic inputs must be terminated with 150 ohms
- Line level output must be terminated with 400 ohms
- All amplifier outputs must be terminated with appropriate resistor values. See below.

Output Name	Load Required	Note
4 Ohm Output	4 Ohms @ 200W	
70.7 Volt Output	49 Ohms @ 100W	Jumper must be installed between 4 Ohm and Xfmr In
100 Volt Output	98 Ohms @ 100W	Jumper must be installed between 4 Ohm and Xfmr In

Standard test control positions

Set the unit under test controls to the positions listed in the table below.

Control Name	Reference Designator	Default Setting
Input 1 Trim	VR401 Pot	Fully CCW
Input 2 Trim	VR402 Pot	Fully CCW
Input 3 Trim	VR403 Pot	Fully CCW
Input 3 Trim	VR404 Pot	Fully CCW
Output 1 Trim	VR405 Pot	Fully CCW
Output 2 Trim	VR406 Pot	Fully CCW
Output 1 Treb	VR409 Pot	Centered (0dB)
Output 2 Treb	VR411 Pot	Centered (0dB)
Output 1 Bass	VR408 Pot	Centered (0dB)
Output 2 Bass	VR410 Pot	Centered (0dB)
Page Input Trim	VR407 Pot	Fully CCW
Input 1 Mic/Line Switch	SW101 switch	Line
Input 2 Mic/Line Switch	SW102 switch	Line
Input 3 Mic/Line Switch	SW103 switch	Line
Input 4 Mic/Line Switch	SW104 switch	Line
Power Switch		Off

TEST PROCEDURES

Electrical Connections

Main Input Connectors

Name	Connection Description	Connector Type
J101	Unbalanced, summed mono line level only	Dual RCA
J102	Unbalanced, summed mono line level only	Dual RCA
J103	Unbalanced, summed mono line level only	Dual RCA
J104	Unbalanced, summed mono line level only	Dual RCA
J111	Balanced, mono mic/line level	3-pin EuroBlock
J112	Balanced, mono mic/line level	3-pin EuroBlock
J113	Balanced, mono mic/line level	3-pin EuroBlock
J114	Balanced, mono mic/line level	3-pin EuroBlock
J116	Balanced with Contact closure	4-pin EuroBlock
J115	Balanced with Contact closure	4-pin EuroBlock

Wall Plate Input Connectors

Pin #	Name (Function)	Connector
Pin 1	Vol Ctrl_1	6 Pin Euroblock
Pin 2	Pwr	
Pin 3	Vol Ctrl 2	
Pin 4	A/B Sel 1	
Pin 5	GND	
Pin 6	A/B Sel 2	

Speaker Output Connectors

Name	Type	Connector
OUT1	100V, 70V, Xfmr Input, 4ohm, Gnd	5-pin reverse euro-block
OUT2	100V, 70V, Xfmr Input, 4ohm, Gnd	5-pin reverse euro-block
AUXOUT	Balanced, Fixed line level output	3-pin EuroBlock

Serial Data I/O DB-9 Connector

The DXA 2120 contains an RS232 serial I/O port via the DB9F connector located on the rear panel. This connector is not needed for these tests but will be verified during the code loading process. The port will be configured automatically during test with the following settings:

Baud Rate: 56 K
Data Bits: 8 bits
Parity: none
Stop Bits: 2
Note: This port is intended for direct connection to a PC's Com Port

1. Idle Current Test

1.1 Turn on the DXA 2120 amplifier assembly and verify the idle current as follows:

Part Number	Country	AC Input	Max Current
294962-1	US/Canada	120 VAC/60 Hz	500 mA
294962-2, -4, -5	Euro/Aus/UK/Sing	240 VAC/50 Hz	500 mA
294962-3	Japan	100 VAC/50 Hz	500 mA

TEST PROCEDURES

DSP, LCD and LED Tests

The functional tests will be performed by first putting the unit under test into one of two test modes. This puts the unit into a predetermined state so that the outputs can be predicted. The below items will be verified during the following tests:

- 6 Audio Inputs
- 3 Audio Outputs
- Volume Control
- LED On/Off
- LCD Display
- LCD Key Operation
- Knob Control
- I/O Signal Detecting

Test mode

Before powering on the unit, press and hold the LEFT and SELECT keys. Turn on the AC power at the ON/OFF switch located on the rear panel. After about 2.5 seconds, the Pre/Clip LED's and LCD display will blink four times and the output relays will switch on/off four times. At this time the unit will be in test mode. You can now release the LEFT and SELECT keys.

2. LCD Display Tests

2.1 LCD Display Line 1 Tests. Place the unit into Test Mode using the instructions above. Perform the keypresses listed below and verify that you get the correct information on the display. Refer to the table below.

Display on Line 1, LCD (2 lines x16 characters)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	U	D	L	R	S	P	D	1	2	D				1~6, In Gain, Right Key	1~4, Out En , Sel Key	1~6, Input Sel, Up Key
2																

1:	U — Up key pressed	No display — Up key not pressed
2:	D — Down key pressed	No display — Down key not pressed
3:	L — Left key pressed	No display — Left key not pressed
4:	R — Right key pressed	No display — Right key not pressed
5:	S — Select key pressed	No display — Select key not pressed
6:	P — PTT Triggered	No display — PTT not Triggered
7:	D – Direct - In Triggered	No display — Direct - In not Triggered
8:	1 — Xfmr Input1 Triggered	No display — Xfmr Input1 not Triggered
9:	2 — Xfmr Input2 Triggered	No display — Xfmr Input2 not Triggered
10:	D — DC Power Supplied	A — AC Power Supplied
11:	No display	
12:	No display	
13:	No display	

TEST PROCEDURES

2.2 Verify that you can make the following changes to the unit's setup by pressing the RIGHT, SELECT and UP keys respectively: You should be able to set the input gain, enable/mute the outputs, and select the inputs. Repeat pressing the same key to get back to the original state.

2.2.1 Input Gain Setting

1	2	3	4	5	6
-10 dB	-20 dB	-30 dB	-40 dB	-50 dB	Mute

2.2.2 Output Enable/Mute

	1	2	3	4
Out1	On	Mute	Mute	On
Out2	Mute	On	Mute	On
Aux	Mute	Mute	On	On

2.2.3 Input Select

	1	2	3	4	5	6
Out1	Input 1	Input 2	Input 3	Input 4	Page In	Direct In
Out2	Input 1	Input 2	Input 3	Input 4	Page In	Direct In
Aux	Input 1	Input 2	Input 3	Input 4	Page In	Direct In

2.3 LCD Display Line 2 tests
With the unit under test in test mode, rotate the controls listed in the tables below and verify that you get the correct information on line 2 of the display, i.e. that the values on the screen go from 00 to FF for Input Knob 1.

Display on Line 2, LCD (2 lines x16 characters)

Because the knob values (00~FF) and the Version ID for the DSP software cannot be displayed on one line, this information is organized into 4 groups: A, B, C, and D. Only one group at a time can be displayed on line 2 of the LCD display. At the end of the line the letter A, B, C or D indicates which group of information is being displayed. You can switch between groups by pressing the DOWN key on the front panel. See the format for line 2 in the tables below:

Group A

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2	Input 1 Knob (00~FF)			Input 2 Knob (00~FF)			Input 3 Knob (00~FF)			Input 4 Knob (00~FF)			Page In Knob (00~FF)			A

Group B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2	Output 1 Vol Knob (00~FF)			Output 2 Vol Knob (00~FF)			Output 1 Bass Knob (00~FF)			Output 1 Treb Knob (00~FF)			Output 2 Bass Knob (00~FF)			B

TEST PROCEDURES

Connect two wallplates, product code 041967, as listed in the Electrical Connections section of the Test Setup. Rotating the knobs will scan through the values stated in Group C of the LCD panel tests as listed in the table below.

Group C

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2	Output 2 Treb Knob (00~FF)			WP1 Knob (00~FF)			WP2 Knob (00~FF)			Version ID (6 Number, for example: 060728)						C

Group D

	1	2	3	4	5~15	16
1						
2	P -- Amp Protected, No Display -- Amp Not Protected	1--WP1 Ctr On, 0-- WP1 Ctr Off	1--WP2 Ctr On 0--WP2 Ctr Off	P -- Power is Down, No Display -- Power Not Down	(reserved)	D

2.4 LCD and Pre/Clip LED Test

2.4.1 After entering the Test mode, the LCD will display what is shown above. In order to see whether there is a bad pixel on LCD and whether the LED's are working OK, press the LEFT key. The LCD will display black blocks on the full screen and all Pre/Clip LED's will be lit. This state cannot be changed until you perform the following: Press the LEFT key, and the LCD will clear the display and the LED's will turn off. This state also cannot be changed by itself. Press the LEFT key again, and the LCD will come back to the original test screen and the LED's will again start to cycle through, turning on one at a time in a rotating fashion.

3. Signal Tests

Test Mode for Signal Tests**.** Before powering on the unit, press and hold the Right and Select keys. Turn on the AC power at the ON/OFF switch located on the rear panel. After about 2.5 seconds, the Pre/Clip LED's and LCD display will blink four times and the output relays will switch on/off four times. At this time the unit will be in test mode, and you can stop pressing the two keys.

While in test mode, the default conditions will be:

- Input gains will be set to -10 dB
- Input 1 will be routed to all outputs
- All outputs will be on

For each input listed in the following tests, apply the input signal as specified, and verify the corresponding output signal.

Note: Be sure to connect the correct load resistor values for each of the 4 Ohm, 70V and 100V outputs.

TEST PROCEDURES

3.1 Line inputs (J111-J114) with MIC/LINE switch in LINE position

Input signal 0 dBV (1V) @ 1KHz sine wave
Output level

Output Name	Output Level	THD
4 Ohm	14.85 dBV ±0.5dBV	< 0.1 %
70V (49 Ohms)	25 dBV ±0.5 dBV	< 0.1 %
100V (98 Ohms)	28 dBV ±0.5 dBV	< 0.1 %

3.2 Mic inputs (J111-J114) with MIC/LINE switch in MIC position:

Input signal -30 dBV (31,5mV) @ 1KHz sine wave
Output level

	Output Level	THD
4 Ohm	13.55 dBV ±0.5dBV	< 0.1 %
70V (49 Ohms)	23.75 dBV ±0.5 dBV	< 0.1 %
100V (98 Ohms)	26.85 dBV ±0.5 dBV	< 0.1 %

Auxiliary Output -11.60 dBV ±0.5 dBV THD <0.1%

3.3 RCA inputs (J101-J104) with both connectors being driven:

Input signal 0 dBV (1V) @ 1KHz sine wave
Output level

	Output Level	THD
4 Ohm	14.55 dBV ±0.5dBV	< 0.1 %
70V (49 Ohms)	24.75 dBV ±0.5 dBV	< 0.1 %
100V (98 Ohms)	27.85 dBV ±0.5 dBV	< 0.1 %

Auxiliary Output -10.55 dBV ±0.5 dBV THD <0.1%

3.4 Direct input (J115)

Input signal 0 dBV (1V) @ 1KHz sine wave
Output level

	Output Level	THD
4 Ohm	15.55 dBV ±0.5dBV	< 0.1 %
70V (49 Ohms)	25.75 dBV ±0.5 dBV	< 0.1 %
100V (98 Ohms)	28.85 dBV ±0.5 dBV	< 0.1 %

Auxiliary Output -9.55 dBV ±0.5 dBV THD <0.1%

TEST PROCEDURES

3.5 Page input (J116)

Input signal -40 dBV (10mV) @ 1KHz sine wave
Output level

	Output Level	THD
4 Ohm	14.50 dBV ±0.5dBV	< 0.1 %
70V (49 Ohms)	24.50 dBV ±0.5 dBV	< 0.1 %
100V (98 Ohms)	27.75 dBV ± dBV	< 0.1 %

Auxiliary Output -10.70 dBV ±0.5 dBV THD <0.1%

3.6 Front panel LEDs

Verify that the “Power On” LED is illuminated blue. Verify all other LED’s are off.
Veirfy that the signal and clip LED’s illuminate with the following signals applied to the corresponding inputs.

	Signal Present	Clip
Input 1	-49.6 dBV	-12.5 dBV
Input 2	-49.6 dBV	-12.5 dBV
Input 3	-49.6 dBV	-12.5 dBV
Input 4	-49.6 dBV	-12.5 dBV
Output 1	-51.6 dBV	-14.5 dBV
Output 2	-51.6 dBV	-14.5 dBV
Page In	dBV	dBV
Direct In	dBV	dBV

3.7 Front panel PCB

Verify that the LCD display shows the following at start up:

Bose DXA 2120
Mixer Amp v1.0

3.8 Line input to speaker outputs.

Measure the following:
Gain, Frequency Points, THD, and Noise values for both Output channels.

Test Name	Frequency	Vin	Vout	Tolerance
Spkr Gain	1 KHz	-30 dBV	16.5 dBV	+/- 1 dB
Spkr Resp 1KHz	1 KHz	-30 dBV	0 dBr	+/- 0.1 dB
Spkr Resp 60Hz	60 Hz	-30 dBV	0 dBr	+/- 1.0 dB
Spkr Resp 300Hz	300 Hz	-30dBV	0 dBr	+/- 1.0 dB
Spkr Resp 5KHz	5 KHz	-30 dBV	0 dBr	+/- 1.0 dB
Spkr Resp 15KHz	15 KHz	-30 dBV	-2.0 dBr	+/- 1.0 dB
Spkr THD	1 KHz	-30 dBV	0.1%	< .5%

3.10 +24VDC Back-up test

With an appropriate power supply (i.e. 30V @ 2A) connected to the battery back up terminals disconnect the A.C. power cord and insure that the amplifier does not shut down. Also observe that the "A" in space 10 of line 1 on the LCD changes to a "D". Reconnect the A.C. power cord and continue testing the amplifier.

3.11 Output Noise
With all inputs terminated and undriven, measure the following:

Output	Connector	Noise (30 Hz – 20 kHz)
Out1 pin 1	100V barrier	-50 dBV
Out1 pin 2	70V barrier	-50 dBV
Out1 pin 4	4 ohm barrier	-60 dBV
Out2 pin 1	100V barrier	-50 dBV
Out2 pin 2	70V barrier	-50 dBV
Out2 pin 4	4 ohm barrier	-60 dBV
Auxout	3 pin EuroBlock	-80 dBV

3.12 Output Gain and THD

Inject a 1kHz, -20dBV tone sequentially into Input1, Input2, Input3, and Input4. Measure gain and distortion for each channel as listed in the table below.

Inject at	Level (dBV)	Measure	Gain (±1dB)	THD+N (20-30 kHz)
Input 1	-20	Out1	26.5 dB	< 1%
Input 2	-20	Out1	26.5 dB	< 1%
Input 3	-20	Out2	26.5 dB	< 1%
Input 4	-20	Out2	26.5 dB	< 1%

3.13 Direct Input (Override)

Apply a 1 kHz, 0dBV input to the direct input. Hold the Direct In pin 4 open and verify that no signal is present at Out1, Out2, and Auxout. Tie Direct In pin 4 to pin 3, and verify the following:

Measure	Gain (± 1 dB)	THD+N (30 Hz – 20 kHz)
Out1 pin 3	26.5 dBV	< 1%
Out2 pin 3	26.5 dBV	< 1%
AuxOut	0 dBV	< 0.1%

3.14 Page Input

Apply a 1 kHz, -50dBV input to the page input. Hold the Page In pin 4 open and verify that no signal is present at Out1, Out2, and Auxout. Tie Page In pin 4 to pin 3, and verify the following:

Measure	Gain (± 1 dB)	THD+N (30 Hz – 20 kHz)
Out1 pin 3	16.0 dBV	< 1%
Out2 pin 3	16.0 dBV	< 1%
AuxOut	0 dBV	< 0.1%

3.15 Default Settings

The amplifier control knobs and switches should be set to the default positions as stated in the table below. The amplifier's DSP settings should be reset to their default conditions through the utility menu on the front display. If firmware has been reloaded as part of this test procedure then the reset step can be skipped.

Standard test control positions

Control Name	Reference Designator	Default Setting
Input 1 Trim	VR401 Pot	Fully CCW
Input 2 Trim	VR402 Pot	Fully CCW
Input 3 Trim	VR403 Pot	Fully CCW
Input 3 Trim	VR404 Pot	Fully CCW
Output 1 Trim	VR405 Pot	Fully CCW
Output 2 Trim	VR406 Pot	Fully CCW
Output 1 Treb	VR409 Pot	Centered (0dB)
Output 2 Treb	VR411 Pot	Centered (0dB)
Output 1 Bass	VR408 Pot	Centered (0dB)
Output 2 Bass	VR410 Pot	Centered (0dB)
Page Input Trim	VR407 Pot	Fully CCW
Input 1 Mic/Line Switch	SW101 switch	Line
Input 2 Mic/Line Switch	SW102 switch	Line
Input 3 Mic/Line Switch	SW103 switch	Line
Input 4 Mic/Line Switch	SW104 switch	Line
Power Switch		Off

TEST PROCEDURES

4. Hi-Pot Test

THIS IS A MANDATORY TEST

Note: If an amplifier requires removal of the top cover or the AC inlet PCB for repair, it MUST be Hi-Pot tested before being returned to the customer to ensure that there is no potential shock hazard.

This test requires a Hi-Pot tester with a ground bond attachment to perform this test.

Amplifier Connections:

The Hi-Pot tester connects to the amplifier by means of a wiring harness. The AC line cord of the amplifier plugs into the Hi-Pot tester AC adapter box. The return line connects to Input 4 Left RCA jack. Continuity connects to Input 1 Right RCA jack. There are no special cables required for this test. You can use standard RCA test cables.
Note: Not all Hi-Pot testers will have a continuity connection. If yours does not have one, you can just use the AC and Return connections.

Hi-Pot Tester Settings:

100 - 120V units - 2.120 VDC, rise time = 1 sec., dwell = 1 to 4 seconds, current limit = 0.5 mA
220 - 240V units - 3.540 VDC, rise time = 1 sec., dwell = 1 to 4 seconds, current limit = 0.5 mA

4.1 Connect the AC mains cord to the back of the amplifier under test. Plug the other end of the AC cord into the Hi-Pot tester.

4.2 With the tester set to the above parameters, perform the test. If the unit fails, remove the top cover and repair the problem. Once the unit is repaired, repeat the Hi-Pot and the ground bond test to ensure the unit is safe to return to the customer.

5. Ground Bond Test

Note: This test only needs to be performed if the chassis ground wire from the AC IEC connector or AC inlet PCB to the inside of the chassis of the amplifier has been removed or disturbed as part of a repair. If it has not, this test does not need to be performed.
This test measures current handling capability between the ground blade on the AC inlet or mains plug and the earth bond point on the rear of the chassis.

Test Parameters:

10A, $\leq$ 12VAC open circuit, $\leq$ 0.1 Ohms from AC earth terminal on IEC connector in chassis, to earth bond point on rear of chassis.

5.1 Connect the AC mains cord to the back of the amplifier under test. Plug the other end of the AC cord into the ground bond test box.

5.2 With the tester set to the above parameters, perform the test. If the unit fails, remove the top cover and repair the problem. Once the unit is repaired, repeat the Hi-Pot and the ground bond tests to ensure the unit is safe to return to the customer.

FreeSpace® DXA-2120 Firmware Update Procedure

This procedure will update the firmware located on the FreeSpace DXA-2120 DSP PCB to the latest revision.

In order to update the firmware on the chassis, there are two separate files that need to be updated. One is the BMixerDSP firmware file and the other is an MixerSpkrEQPreset file. Both are .bin files.

Initial Setup:

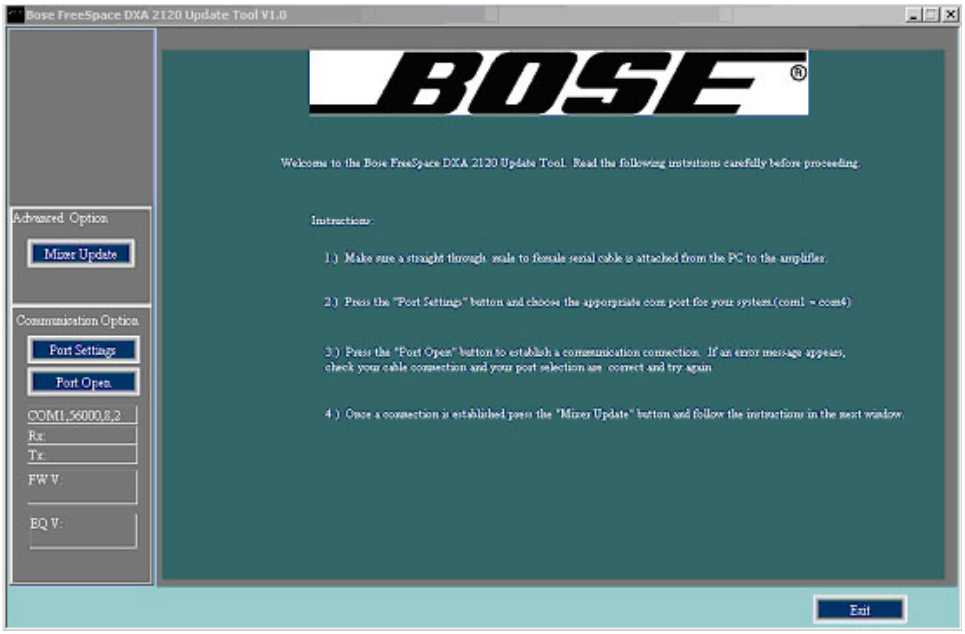
- Download the firmware update tool from the Bose Professional Products web site at http://www.pro.bose.com. After downloading the self extracting .exe update file to your desktop, double-click the file to extract the update tool and the update files. All of the necessary files will be placed in a directory called C:\Program Files\Bose\Bose FreeSpace DXA 2120 Update Tool v1.0. This folder will contain the Update tool, Revision history, EQ list, download instructions, firmware and eq files, and regcon folder.
Note: If the update tool fails to run you may need to register the MSCOMM32.ocx file. Simply open the regcon folder, double click on the RegistControl.exe icon and click the Register button.

- Connect the serial cable to the DB-9 connector located on the rear panel of the amplifier. Connect the other end of the cable to an active COM port on your IBM compatible PC.

Update Procedure:

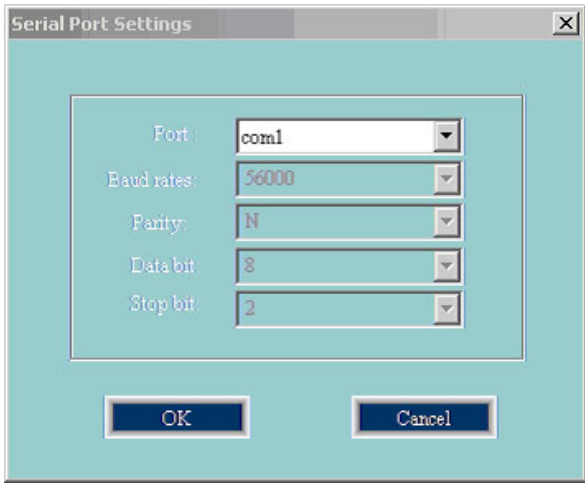
1. Start the Update Tool by double-clicking the icon.

2. Set up and open the Serial port.



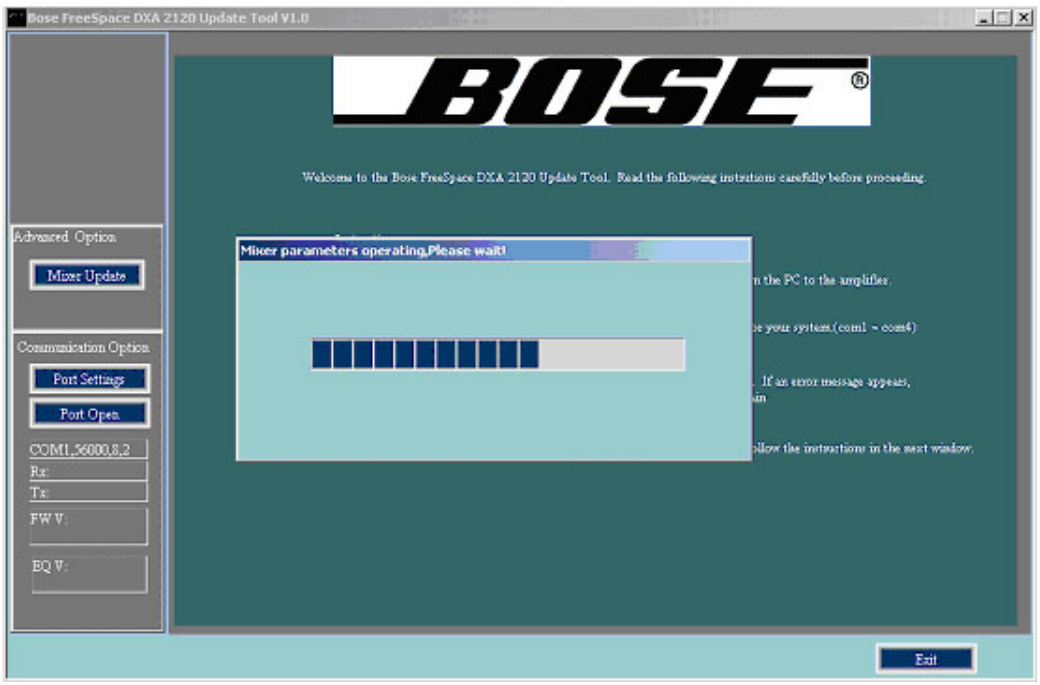
Software Update Installation Procedure (continued)

3. Click on the Port Settings button and choose the correct com port for your system.



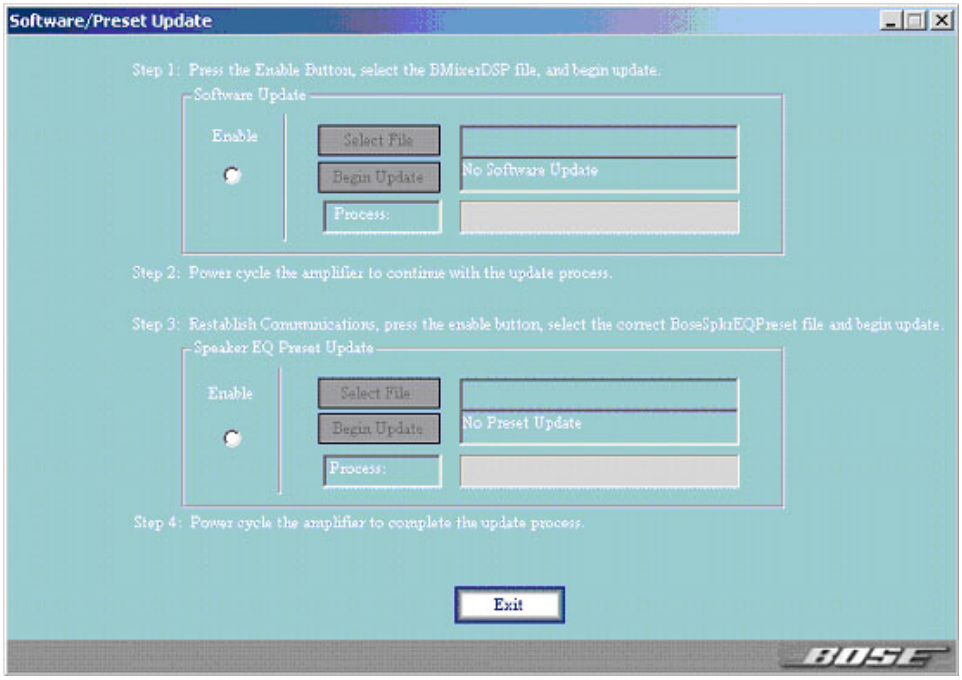
If the connection is not established the following warning appears.

4. If connection is O.K. then “Port open” button will show “OK” and it will read all the data from Mixer to initiate all the settings.

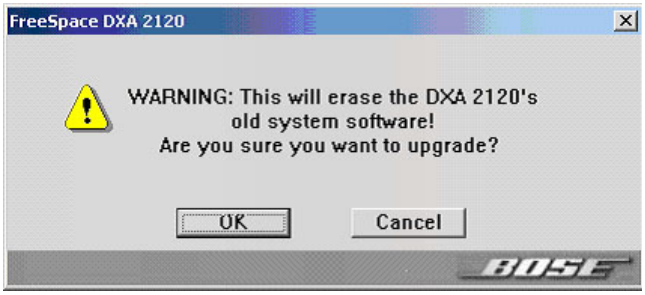


Software Update Installation Procedure (continued)

5. Click “Mixer Update” then you will see the Update dialog.



6. Enable Software Update, select BMixerDSP bin file and click Begin Update button, then the user will see a prompt “Warning:...This will erase…. “. Click OK.



7. The system firmware process will start. First it will erase the memory, then it will write the file to memory, and then it will verify the memory.

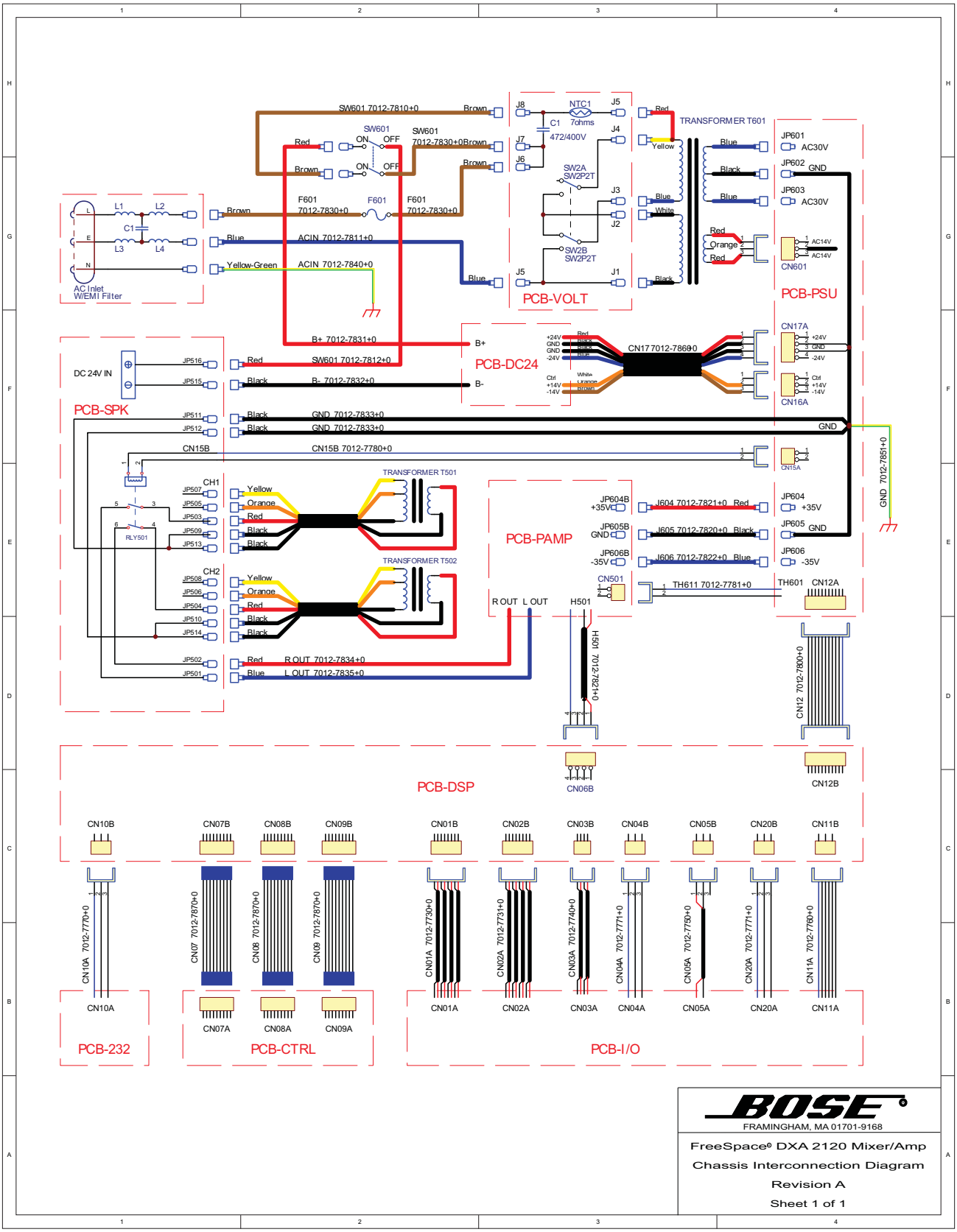
8. Finally the program will prompt user to power cycle the amplifier.

9. You may need to restablish the com port at this point by pressing the “Open Port” button.

10. Using the same procdure as in step 6 enable the EQ preset, select the correct BoseSpkrEQPreset.bin file and begin the EQ update. You will see the same warning prompt as before. Click “OK” to continue.

11. When the update is complete the program will prompt the user to power cycle the amplifier again. At this point the upgrade is complete. Exit update program if no further update is required.

FreeSpace® DXA-2120 Amplifier Wiring Diagram



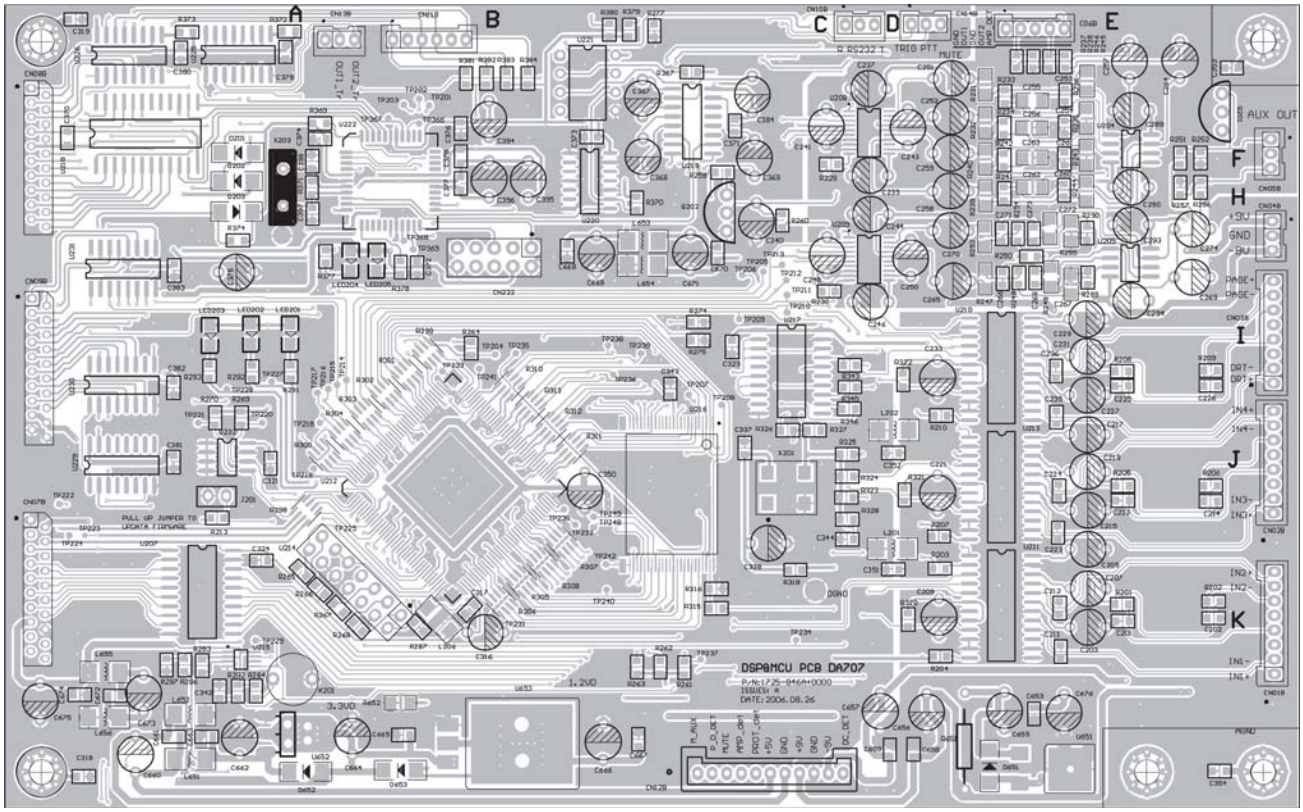


Figure 4. DSP and MCU PCB Topside Etch Layout

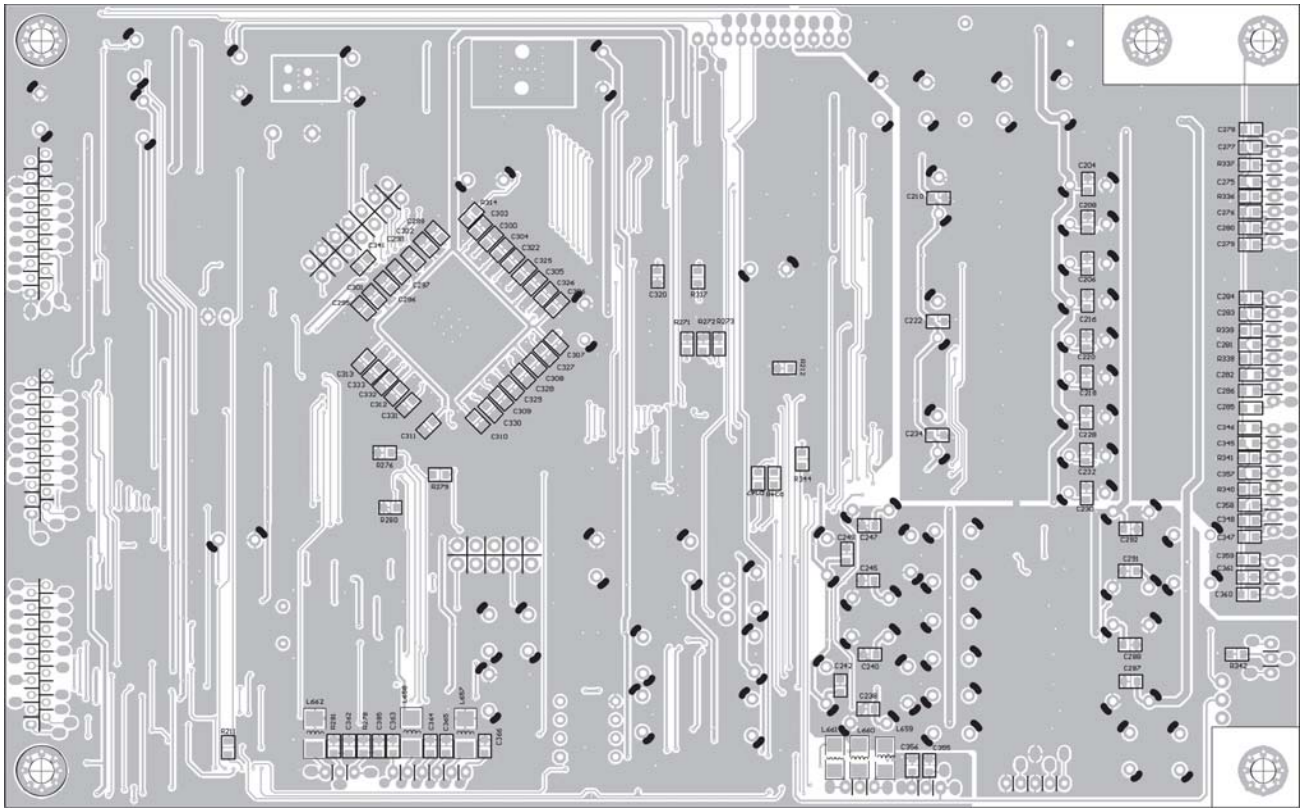


Figure 5. DSP and MCU PCB Bottom Etch Layout

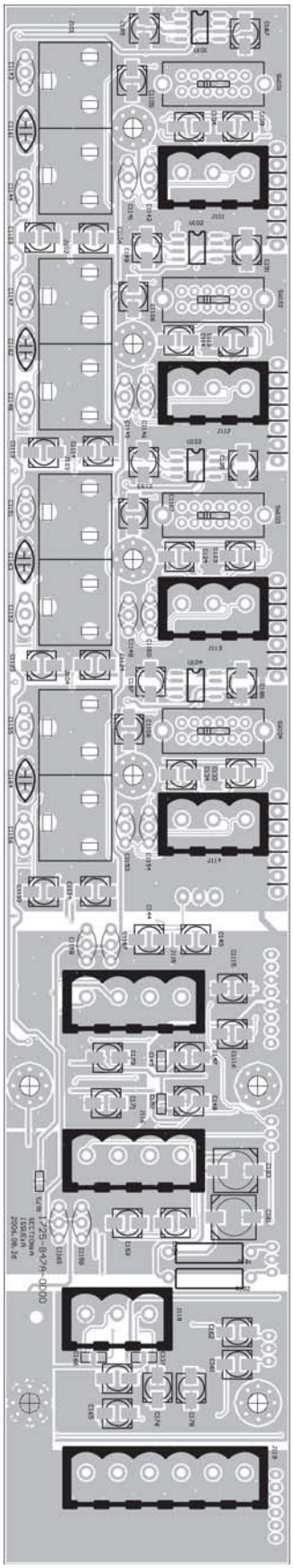


Figure 6. Input/Output PCB Topside Etch Layout

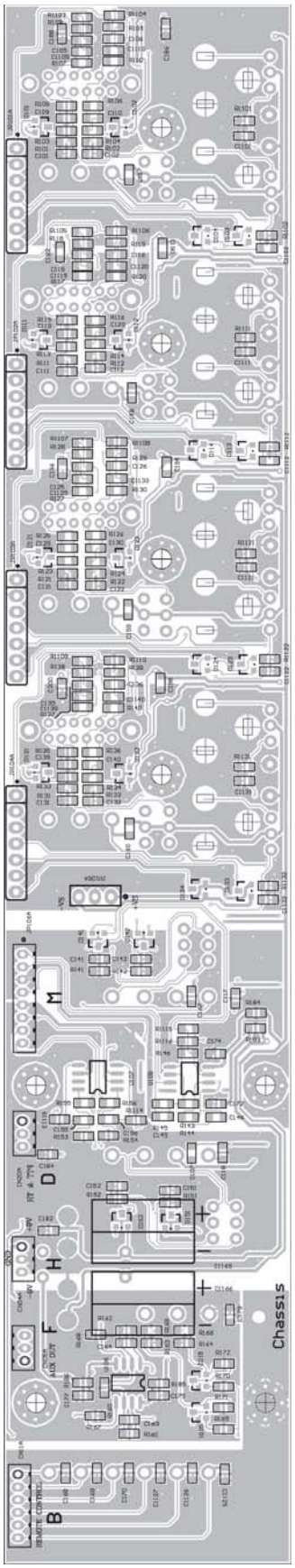


Figure 7. Input/Output PCB Bottom Etch Layout

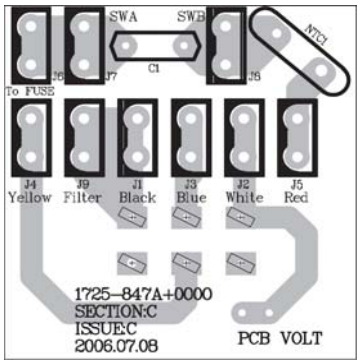


Figure 8. Volt PCB Topside Etch Layout

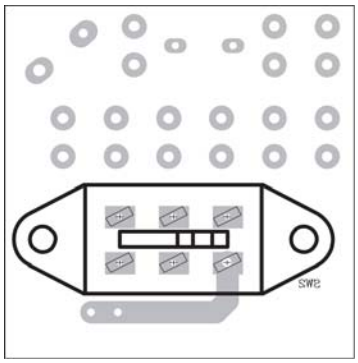


Figure 9. Volt PCB Bottom Etch Layout

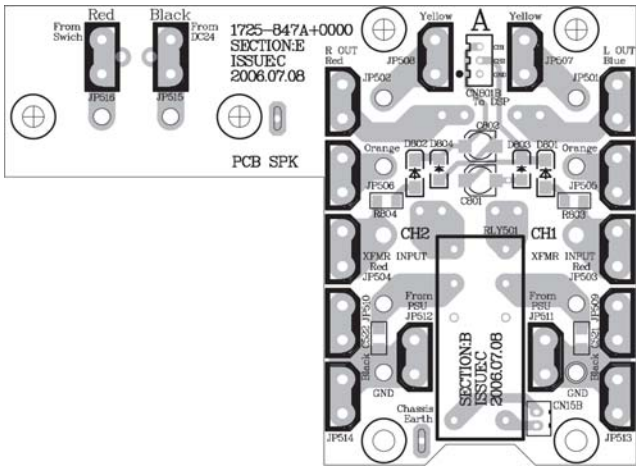


Figure 10. Speaker PCB Topside Etch Layout

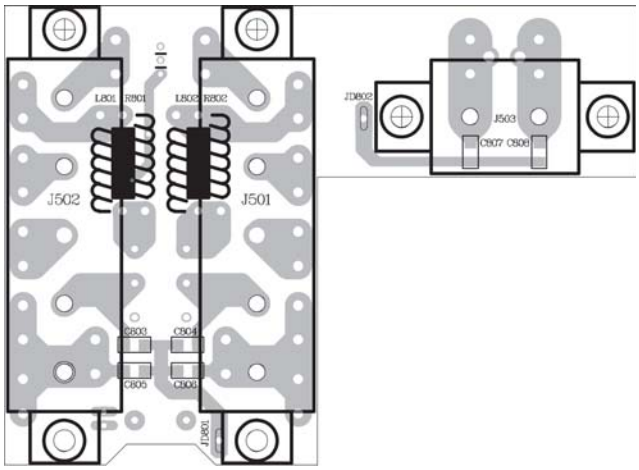


Figure 11. Speaker PCB Bottom Etch Layout

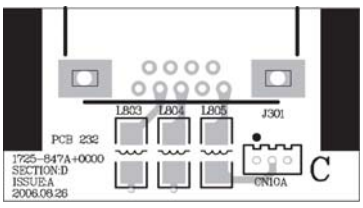


Figure 12. RS232 PCB Topside Etch Layout

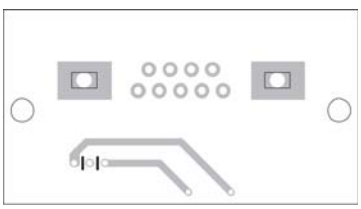


Figure 13. RS232 PCB Bottom Etch Layout

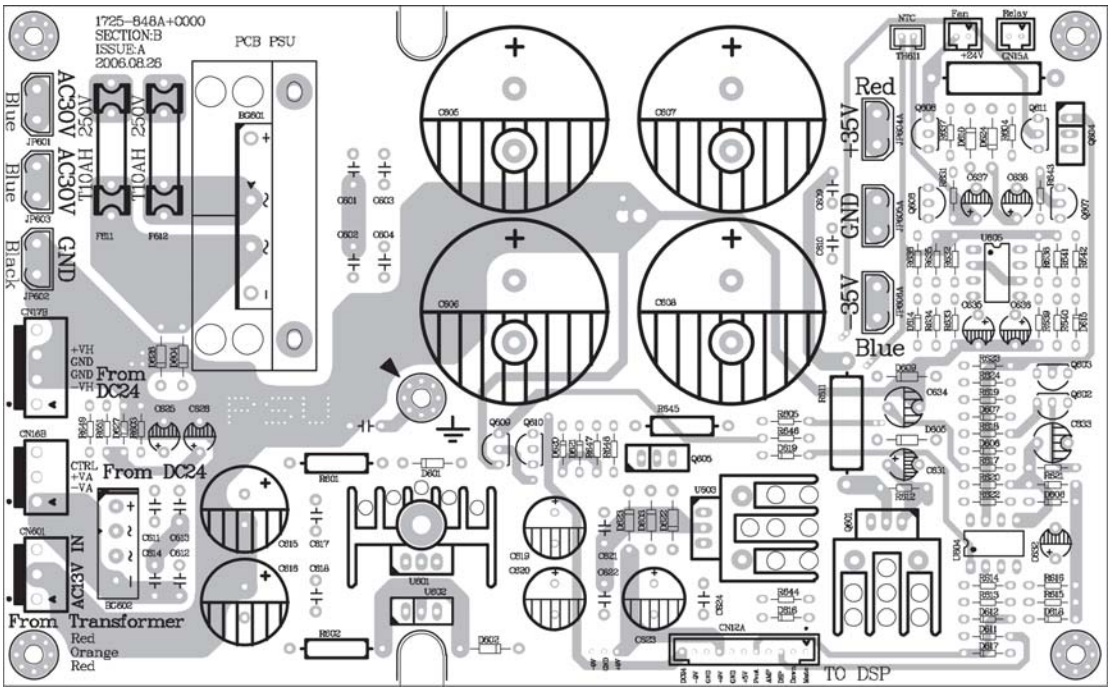


Figure 14. PSU PCB Topside Etch Layout

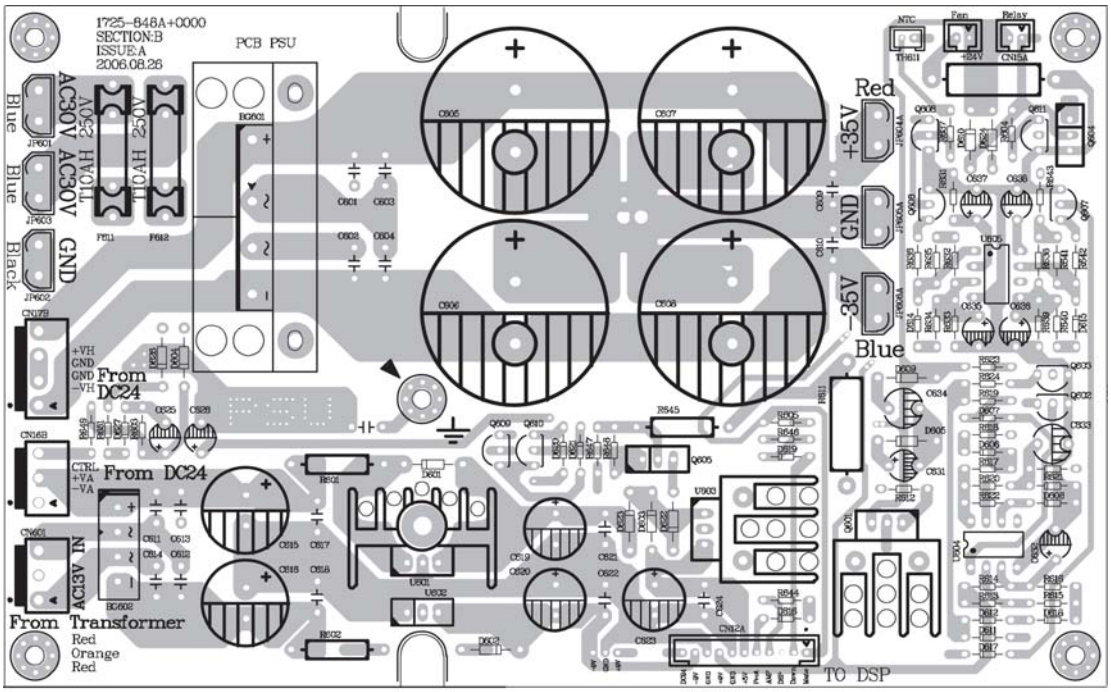


Figure 15. PSU PCB Bottom Etch Layout

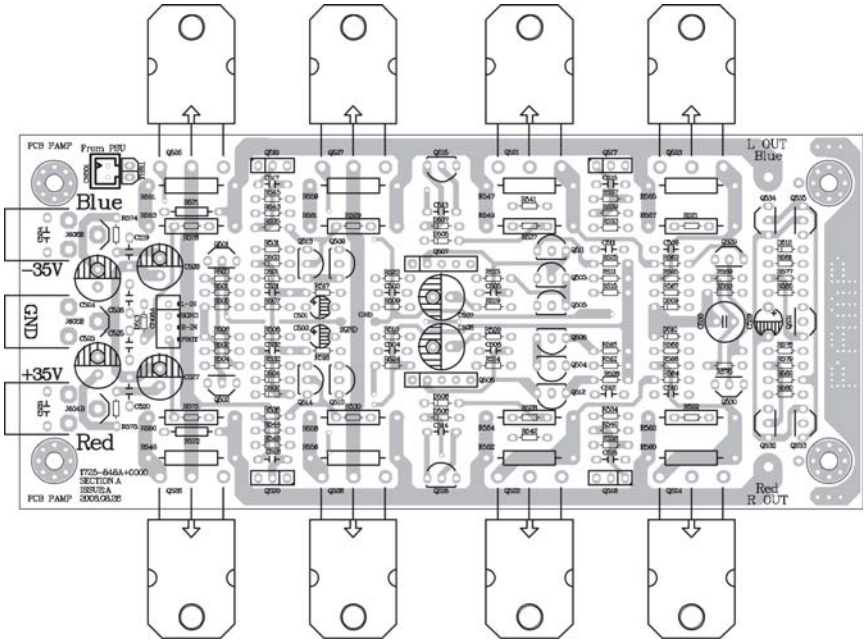


Figure 16. Amplifier PCB Topside Etch Layout

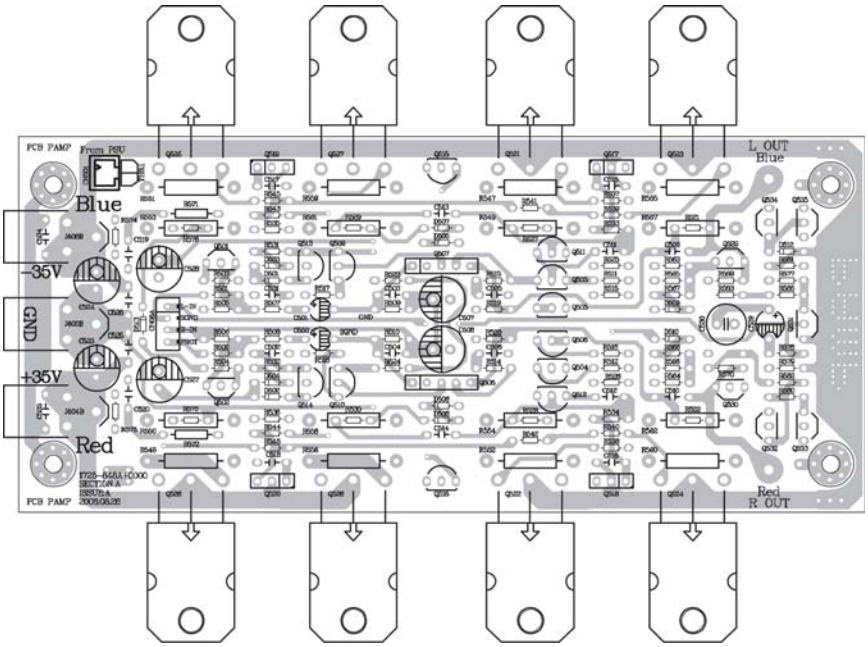


Figure 17. Amplifier PCB Bottom Etch Layout

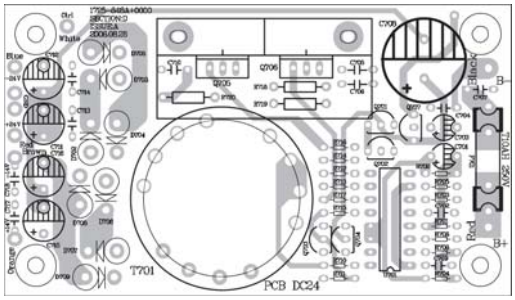


Figure 18. DC24 PCB Topside Etch Layout

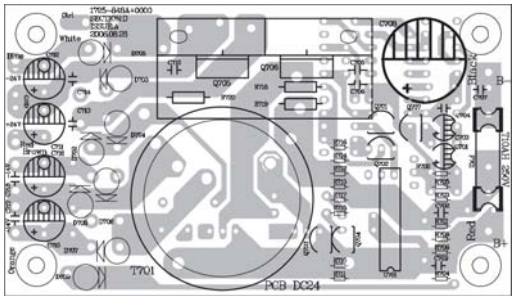


Figure 19. DC24 PCB Bottom Etch Layout

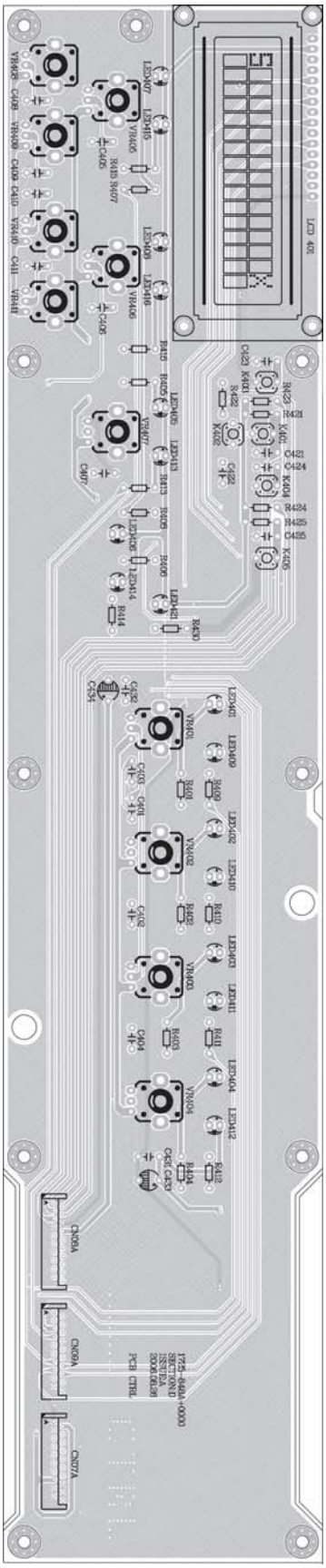


Figure 20. Control and Display PCB Topside Etch Layout

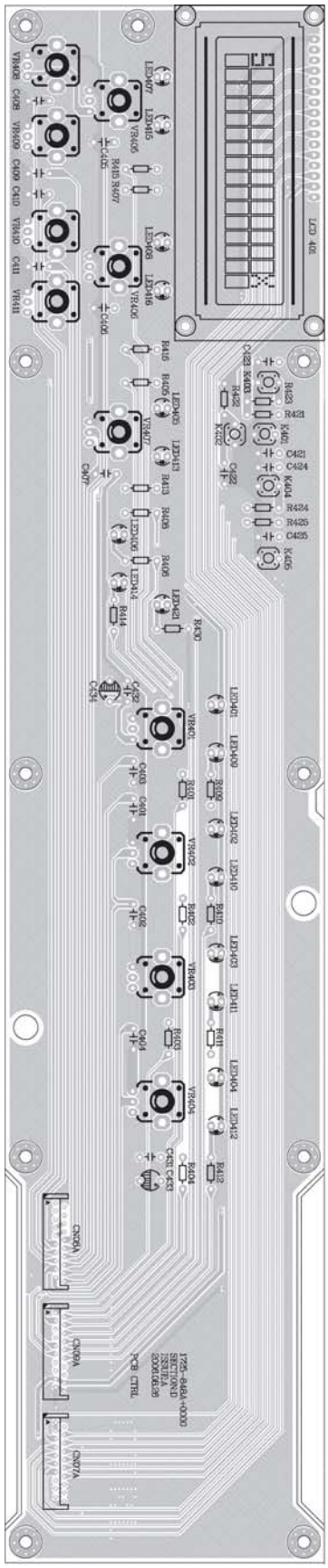


Figure 21. Control and Display PCB Bottom Etch Layout

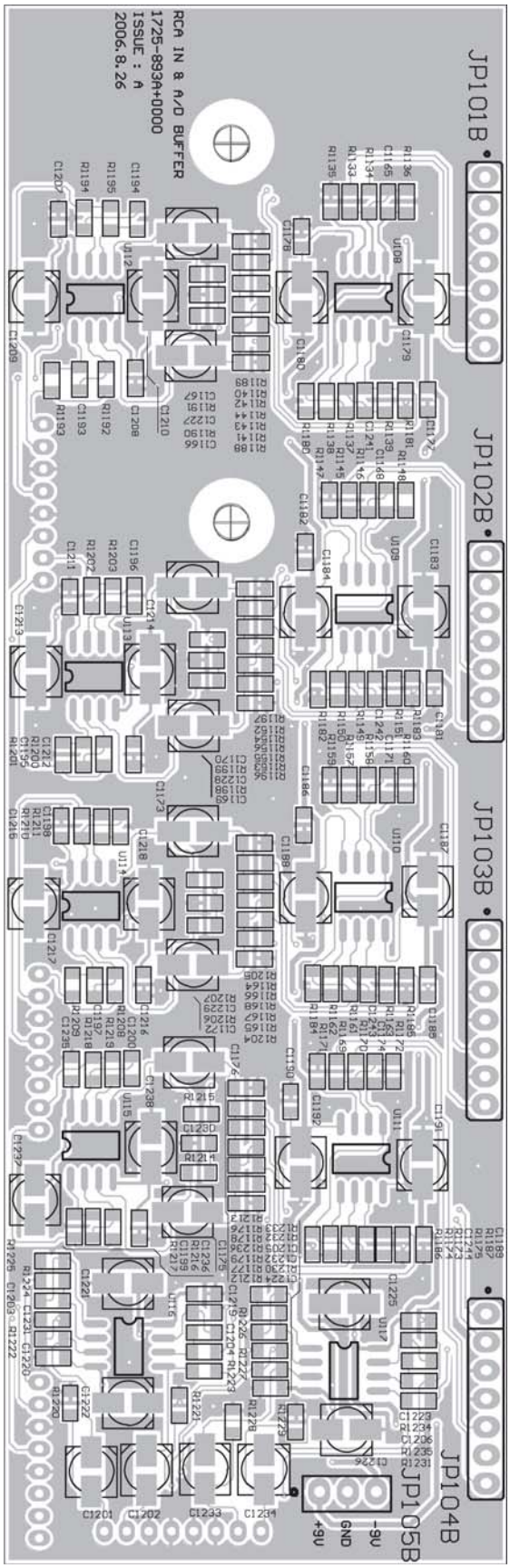


Figure 22. RCA Input and A/D PCB Topside Etch Layout

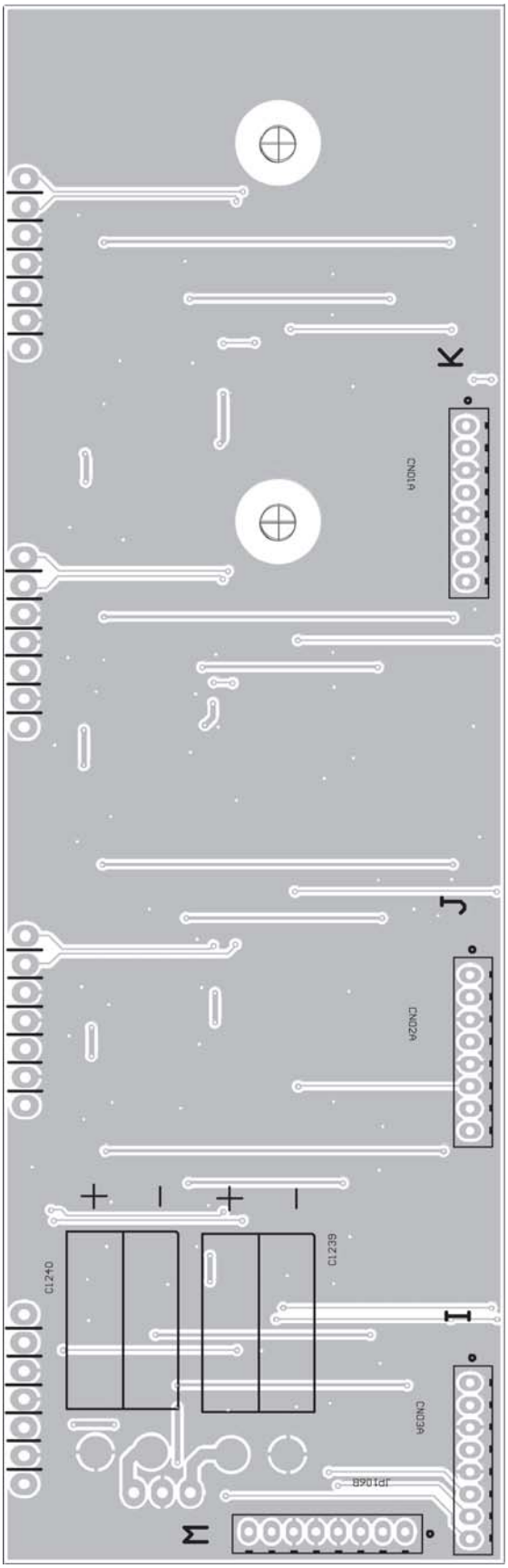


Figure 23. RCA Input and A/D PCB Bottom Etch Layout

Troubleshooting

Symptom	Check…
No power	• Turn on power. • Make sure the power cord is plugged in.
Power is on, but no sound	• Make sure the source is turned on. • Verify that there is an input signal from the source. The audio input signal indicator on the front of the chassis should be green. • Check the output signal indicators on the system controls. If the LED is no lit (green), the output levels may be too low. • Check the source routing. • Check the cable connections from the source to the chassis.
Power is on, but sound is low	• Verify that the audio input indicator is lit (green). If it is not lit, increase the source output or increase the input gain.
Sound is distorted	• Verify that the input clipping indicators are not lit (red). If an LED is red, reduce the source output level or reduce the input gain. • Verify that the output clipping indicators are not lit (red). If one is red, but input clipping LEDs are not, reduce the output gain. • If the input source signal is clean when it enters the chassis and the input and output indicators are green, verify that the loudspeakers are not overdriven or damaged.
Unnatural sound	• Verify that the correct EQ is selected for speakers connected to the output channel. • Verify that the speakers are wired correctly (+ to + and – to -).
User interface controls do not operate properly	• Verify that the interfaces are wired correctly and to the proper zone (if there is more than one zone). • Check the wiring for breaks or shorts in the cable.

Service Manual Revision History

Date	Revision Level	Description of Change	Change Driven By	Pages Affected
7/07	00	Document released at revision 00.	Service manual release	All
4/10	01	Added fuse part numbers for F611, F612 and F701.	New part numbers	18, 44
4/14	02	- Added part number for RCA IN/BUFFER PCB Assembly - Added Hi-Pot and Ground Bond Tests	New part number New safety requirements	12 71

SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

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