BOSE®
Better sound through research®

3•2•1, 3•2•1GS and 3•2•1GSX Series II Home Entertainment Systems

(US and non-US Standard and Premium Versions)

3•2•1 Series II System

3•2•1GS Series II System

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Service Manual
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SAFETY INFORMATION

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

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

A. Leakage Current Hot Check-With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 "Leakage Current for Appliances" and Underwriters Laboratories (UL) UL6500 / UL60065 / IEC 60065 paragraph 9.1.1. With the unit AC switch first in the ON position and then in OFF position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the unit (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliamp. Reverse the unit power cord plug in the outlet and repeat test. ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE UNIT TO THE CUSTOMER.

B. Insulation Resistance Test Cold Check-(1) Unplug the power supply and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the unit. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and each exposed metallic cabinet part on the unit. When testing 3 wire products, the resistance measured to the product enclosure should be between 2 and infinite MOhms. Also, the resistance measured to exposed input/output connectors should be between 4 and infinite MOhms. When testing 2 wire products, the resistance measured to exposed input/output connectors should be between 4 and infinite MOhms. If it is not within the limits specified, there is the possibility of a shock hazard, and the unit must be repaired and rechecked before it is returned to the customer.

CAUTION: The Bose® 3•2•1 Series II Home Entertainment System contains no user-serviceable parts. To prevent warranty infractions, refer servicing to warranty service stations or factory service.

PROPRIETARY INFORMATION

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF BOSE CORPORATION WHICH IS BEING FURNISHED ONLY FOR THE PURPOSE OF SERVICING THE IDENTIFIED BOSE PRODUCT BY AN AUTHORIZED BOSE SERVICE CENTER OR OWNER OF THE BOSE PRODUCT, AND SHALL NOT BE REPRODUCED OR USED FOR ANY OTHER PURPOSE.

WARRANTY

The Bose® 3•2•1 and 3•2•1GS Series II Home Entertainment Systems are covered by a limited 1-year transferable warranty.

PRODUCT DESCRIPTION

Overview:

The 3•2•1 Series II Home Entertainment Systems are the replacements for the 3•2•1 and 3•2•1GS Series I Home Entertainment Systems. They use the same system concept of a console with a dedicated bass module with TrueSpace™ signal processed surround sound from 2 satellite arrays.

The 3•2•1 Series II product line consists of three total systems, the 3•2•1 Series II and 3•2•1GS Series II systems, and the 3•2•1GSX system. There are a few differences between these systems. The 3•2•1 Series II and the 3•2•1GS Series II system consoles do not contain a hard disc drive. The 3•2•1GSX console contains a hard disc drive with uMusic functionality. Refer to the system components listing below.

The 3•2•1 Series II system uses the standard, non-hard drive version of the console with graphite cloth covered full size array speakers. The 3•2•1GS Series II systems use the standard non-hard drive console with either graphite or silver metal grille array speakers with a silver or graphite array cable. These arrays are smaller than the non-GS arrays.

Both the standard and premium consoles will play video DVDs, DVD-R and DVD+R discs, audio CDs, Video CDs, CD-R and CD-RWs, and MP3 CDs. MP3 disc tracks must be burned in a single closed session. The MP3 disc format must be ISO9660 and each file must have an ".mp3" extension and have no other periods in the filename. The 3•2•1GSX system premium console will also play stored music in the form of MP3 files stored on the hard disc drive.

There is only one version of the bass module. The bass module electronics house some signal processing, power supplies and amplification for the console. The console and bass module are not compatible with the 3•2•1 Series I console and bass module. They cannot be used to replace the other Series components. The speaker arrays are the same as currently used on the 3•2•1 and 3•2•1GS systems. The systems includes an enhanced universal type IR remote control similar to that used on the 3•2•1GS Series I system. The uMusic remote used with the 321GSX has buttons to control the uMusic funtionality of the hard disc drive in the premium console. These remotes are non-repairable.

System Components:

321 Series II	Standard Console
	Standard Graphite (cloth grilled) Arrays
	Bass Module
	Standard Remote Control
321GS Series II	Standard Console
	GS Arrays, silver or graphite, and color matching array cable
	Bass Module
	Standard Remote Control
321GSX	Premium Console with HDD
	GS Arrays, silver or graphite, and color matching array cable
	Bass Module
	uMusic Remote Control

ACCESSORIES

The Bose 3•2•1 and 3•2•1GS Series II Home Entertainment Systems shelf speakers are compatible with Bose mounting accessories, including the UB-20 wall brackets, UFS-20 floor stands and UTS-20 table stands.

SPECIFICATIONS

System Specifications:

Power Rating:	
US/Canada:	120VAC, 60 Hz, 300W
Europe/UK/Aus:	220-240VAC, 50/60 Hz, 300W
Japan:	100VAC, 50/60 Hz, 300W
Dual Voltage:	115/230VAC, 50/60 Hz, 300W
Console Inputs:	VIDEO, CAB/SAT, AUX
Video Outputs:	Composite Video, S-Video, Component Video
External Antennas:	FM, 75 Ohm F-Connector (PAL, Europe) AM Loop, 2.5 mm mono connector
Maximum Ambient Temperature:	45 degrees C
Low Frequency Cut-off (typical):	
Arrays:	3•2•1 Array Cube: 180 Hz 3•2•1GS Array Cube: 212 Hz
Bass Module:	45 Hz
Woofer Impedance:	1.5 Ohms nominal DC resistance single woofer
Weights:	
3•2•1 Series II Packed System:	47.9 lb (21.7 kg)
3•2•1GS Series II Packed System:	44.1 lb (20.0 kg)
Console:	6.8 lb (3.08 kg)
Bass Module:	24.9 lb (11.77 kg)
3•2•1 Arrays, each:	3.0 lb (1.40 kg)
3•2•1GS Arrays, each:	1.1 lb (0.50 kg)
IR Remote Control (batteries installed):	0.44 lb (0.20 kg)
Dimensions:	
Console:	13.8 x 10.0 x 3.2 inches (34.9 x 25.3 x 8.2 cm)
Bass Module:	14 x 7.5 x 20.1 inches (35.6 x 18.4 x 51.1 cm)
Bass Module internal volume:	1205 cubic inches (19.7 liters)
3•2•1 Arrays:	7.9 x 5.3 x 3.4 inches (200 x 134 x 86 mm)
3•2•1GS Arrays:	5.6 x 2.6 x 4.2 inches (142 x 65 x 106 mm)
IR Remote:	9.0 x 2.6 x 1.2 inches (229.6 x 64.8 x 31.2 mm)
Distortion and Noise:	-78 dB THD+N, unweighted, 22-22 kHz for a 1 kHz signal at -1 dB -90 dB THD+N, unweighted, 22-22 kHz for a 1 kHz signal at -10 dB
Dynamic Range:	-90 dB THD+N, unweighted, 22-22 kHz for a 1 kHz signal at -60 dB
Distortion:	< 0.1% @ 0.5 W
Output Noise:	< 400 mVrms, A-weighted

SPECIFICATIONS

System Specifications (continued):

Noise when Muted:	< 400 uVrms, A-weighted
DC Offset:	< 50 mVdc, all channels
Channel Balance:	+/- 1.5 dB for all volume settings
Channel Separation:	> 40 dB @ 1 kHz, > 30 dB @ 10 kHz, stereo mode

Console Specifications:

Compression Formats Supported for discs inserted into the DVD/CD drive:	AC-3, MP3, DTS, MPEG-1 (VCD), MPEG-2
Compression Formats NOT Supported for discs inserted into the DVD/CD drive:	SACD Format (Sony), MLP
Digital Formats Supported for sources connected to the digital inputs:	AC-3, DTS, AAC (Japan only), PCM
Hard Disc Drive (GSX Console only)	Toshiba 40 gb, model HDD2190TZE, stores about 200 hours of MP3 music files
Analog Input Characteristics:	
Maximum source signal for ADC full scale:	2 Vrms
Minimum source signal for ADC full scale:	200 mVrms
Input Impedance:	100k Ohms nominal +/- 10%
Input Coupling:	AC coupled to remove source DC offset
Output level from FM (mono, 75 kHz dev):	0.3 Vrms nominal
Output level from AM (30% mod, 100 dBuV):	0.2 Vrms nominal
Source Impedance at 1 kHz:	1560 Ohms nominal, +/- 10%
Output Coupling:	AC
S/PDIF Coaxial Input Characteristics:	
Sampling Rates Accommodated:	38 kHz, 44.1 kHz, 48 kHz
Number of bits recognized:	16, 20 and 24
Input Impedance:	75 Ohms +/- 10%
Error Checking and Handling:	Implements full error checking and handling, considering CRC, validity bit, loss of lock, parity error, and bi-phase error.
Input Coupling:	AC

SPECIFICATIONS

Console Specifications (continued):

Optical S/PDIF Input Characteristics:

Sampling Rates Accommodated:	38 kHz, 44.1 kHz and 48 kHz
Number of bits recognized:	16, 20 and 24
Error Checking and Handling:	Implements full error checking and handling, considering CRC, validity bit, loss of lock, parity error, and bi-phase error.
Input Connector:	TOSLINK

Volume Control: 0 dB to full attenuation in 100 steps (100 - 0 indicated). 0 volume causes the amplifiers to mute.

Film EQ: Selectable on or off

Tone Controls:

Treble Control:	Range of -12 to +12 dB in 11 steps
Bass Control:	Range of -12 to +12 dB in 18 steps

FM Tuner Performance (per IHF-T-200):

Channel Spacing:	US/Can/Dual Voltage: 200 kHz
Euro/UK/Aus:	50 kHz
Japan:	100 kHz

Band Limits:

US/Can/Dual Voltage:	87.7 MHz - 107.9 MHz
Euro/UK/Aus:	87.50 MHz - 108.00 MHz
Japan:	76.00 MHz - 90.00 MHz

De-emphasis:

US/Can/Dual Voltage:	75 usec
Euro/UK/Aus/Japan:	50 usec

Mono Sensitivity (30dB (S+N+D)/(N+D):

US/Can/Dual Voltage:	(98 MHz) 15dBf nom/17.5 dBf limit 20 dBf nom / 25 dBf limit
Euro/UK/Aus:	(98 MHz) 16.0 dBf nom / 18.5 dBf limit
Japan:	(83 MHz) 15.0 dBf nom / 17.5 dBf limit

50 dB Stereo Quieting Sensitivity:

US/Can/Dual Voltage (98 MHz):	38 dBf nom / 41.5 dBf limit
Euro/UK/Aus (98 MHz):	39.0 dBf nom / 42.5 dBf limit
Japan (83 MHz):	38 dBf nom / 41.5 dBf limit

Signal to Noise Ratio @ 65 dBf: 74 nom / limit 69 dB mono, 70 nom / limit 65 dB stereo

Harmonic Distortion @ 65 dBf: Mono 0.3% / limit 0.6%, stereo 0.4% / limit 0.8%

Capture Ratio @ 45 dBf: 2.0 dB nominal / limit 3.0 dB

AM Rejection @ 45 dBf: 60 dB nominal / 50 dB limit

SPECIFICATIONS

Console Specifications (continued):

Adjacent Chan Selectivity (200 kHz):	13 dB nominal / 10 dB limit @ 45 dBf
Alternate Chan Selectivity (400 kHz):	
US/Can/Dual/Japan:	70 dB nom/65 dB limit @ 45 dBf
Euro/UK/Aus:	75 dB nom/70 dB limit @ 45 dBf
Image Rejection:	
US/Can/Dual/Japan:	45 dB nominal / 40 dB limit
Euro/UK/Aus:	Meets FTZ (Fernmelde Technischer Zentralamt) requirement
RF Intermodulation:	65 dB nominal / 55 dB limit
Sub-carrier Product Rejection (at speaker):	55 dB nominal / 45 dB limit
Frequency Response relative to ideal deemphasis:	30 Hz to 15 kHz +/- 1.0 dB nominal, +/- 2.0 dB limit
Stereo Channel Separation @ 1 kHz:	35 dB nominal / 25 dB limit
Auto Stop Level (seek):	30 dBf +/-5
Mono/Stereo Threshold:	40 dBf +/-5
AM Tuner Performance (per IHF-T-100):	
Channel Spacing:	
US/Can/Dual:	10 kHz
Euro/UK/Aus/Japan:	9 kHz
Band Limits:	
US/Can/Dual:	530 kHz - 1710 kHz
Euro/UK/Aus:	522 kHz - 1611 kHz
Japan:	531 kHz - 1629 kHz
Usable Sensitivity (mono, 1080 kHz):	48 dB nominal / 54 dB limit
Adjacent Channel Selectivity:	23 dB nominal / 18 dB limit
Alternate Channel Selectivity:	30 dB nominal / 25 dB limit
Image Rejection:	40 dB nominal / 35 dB limit
Auto Stop Level:	58 dBuV/m +/- 5 dB
Signal to Noise Ratio:	50 dB nominal / 45 dB limit
Distortion (30% modulation):	1.0% nominal / 1.4% limit
Frequency Response:	220 Hz: -3 dB nominal / -6 dB limit 2.0 kHz: -3 dB nominal / -6 dB limit

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

3•2•1 Series II Home Entertainment System (see Figure 1)

Item Number	Description	Part Number	Qty	Note
1	COMMITMENT LETTER	251001	1	
2	SHEET, QUICKSTART, 321II, GS, GLOBAL	298312-001	1	4
	SHEET, QUICKSTART, GSX, GLOBAL	298288-001		
3	ACCESSORY KIT, 321 II	-	1	4
4	LINE CORD, 120V, DET, BLK (US/CAN)	260082-101	1	3
	LINE CORD, 230V, DET, 96" (EURO)	280135-1310		
	LINE CORD, 230V, DET, 72" (UK)	347330-0010		
	LINE CORD, 240V, DET, BLK (AUS)	284243-101		⚠
	LINE CORD, 100V, DET, BLK (JAPAN)	280136-1310		
5	BAG, POLY, 13.5 x 35 x9.5 x 2.5 mil	114522	1	
6	PACKING, TOP, EPS, CONSOLE	276335	1	
7	CONSOLE ASSY, DVD (STD) GRPH		1	
	REGION 1 (US/CAN, DUAL VOLT RG1)	291433-1111F		
	REGION 4 (DUAL VOLT RG4)	291433-1141F		
	REGION 2 (EURO, UK, DUAL VOLT RG2)	291433-2121F		
	REGION 4 (AUS)	291433-2141F		
	REGION 2 (JAPAN)	270900-3121F		
	CONSOLE ASSY, DVD + HDD (GSX) GRPH		1	
	REGION 1 (US/CAN, DUAL VOLT RG1)	291433-1112F		
	REGION 4 (DUAL VOLT RG4)	291433-1142F		
	REGION 2 (EURO, UK, DUAL VOLT RG2)	291433-2122F		
	REGION 4 (AUS)	291433-2142F		
	REGION 2 (JAPAN)	270900-3122F		
8	PACKING, TOP-BTM, EPS, BASS MODULE	276334	2	
9	PACKING, TOP-BTM, EPS, SAT	276336	1	
10	ARRAY ASSY, 321 II, GRAPHITE	255198-101	2	
	ARRAY ASSY, 321 II GS, GRAPHITE	269990-001	2	
	ARRAY ASSY, 321 II GS, SILVER	269990-003	2	
11	ASSY, BASS MODULE, 120V, GRAPH	273031-111S9	1	US/CAN/JAP
	ASSY, BASS MODULE, 230V, GRAPH	273031-211S9		EU/UK/AUS
	ASSY, BASS MODULE, 115/230V, GRAPH	273031-611S9		DUAL VOLT
12	CARTON, RSC, 321 II	276333	1	
	CARTON, RSC, 321 IIGS	277060		
	CARTON, RSC, 321 IIGSX	282425		
13	GUIDE, OWNERS, 3-LANG 321 II and GS	274559	1	
	GUIDE, OWNERS, 5-LANG 321 II and GS	274560		
	GUIDE, OWNERS, 3-LANG 321GSX	298288-001		
14	CARD, REGISTRATION (US/CANADA)	278529-001	1	
15	SHEET, SLIP, COMPONENT AUDIO	255805	1	
16	ADDRESS PAGE, BOSE	259434	1	
17	BAG, POLY, 14.38 x 9.87 x 2 mil	103351	1	
18	CARD, 3.2.1 UPDATE	268158	1	
19	DVD, SETUP AND DEMO, 321 II, NTSC	277723	1	
	DVD, SETUP AND DEMO, 321 II, PAL	277724		
-	ADAPTOR, 120/230V, POLARIZED (DUAL VOLTAGE)	147013	1	⚠ 3
-	SHEET, INSTRUCTION, ADAPTOR (DUAL)	147751	1	
-	LETTER, EULA (GSX SYSTEMS)	279581-001	1	
-	WARRANTY CARD, 1 YEAR, GLOBAL	324486-0010		

PACKAGING PART LIST

3•2•1 Series II Home Entertainment System, continued (see Figure 1)

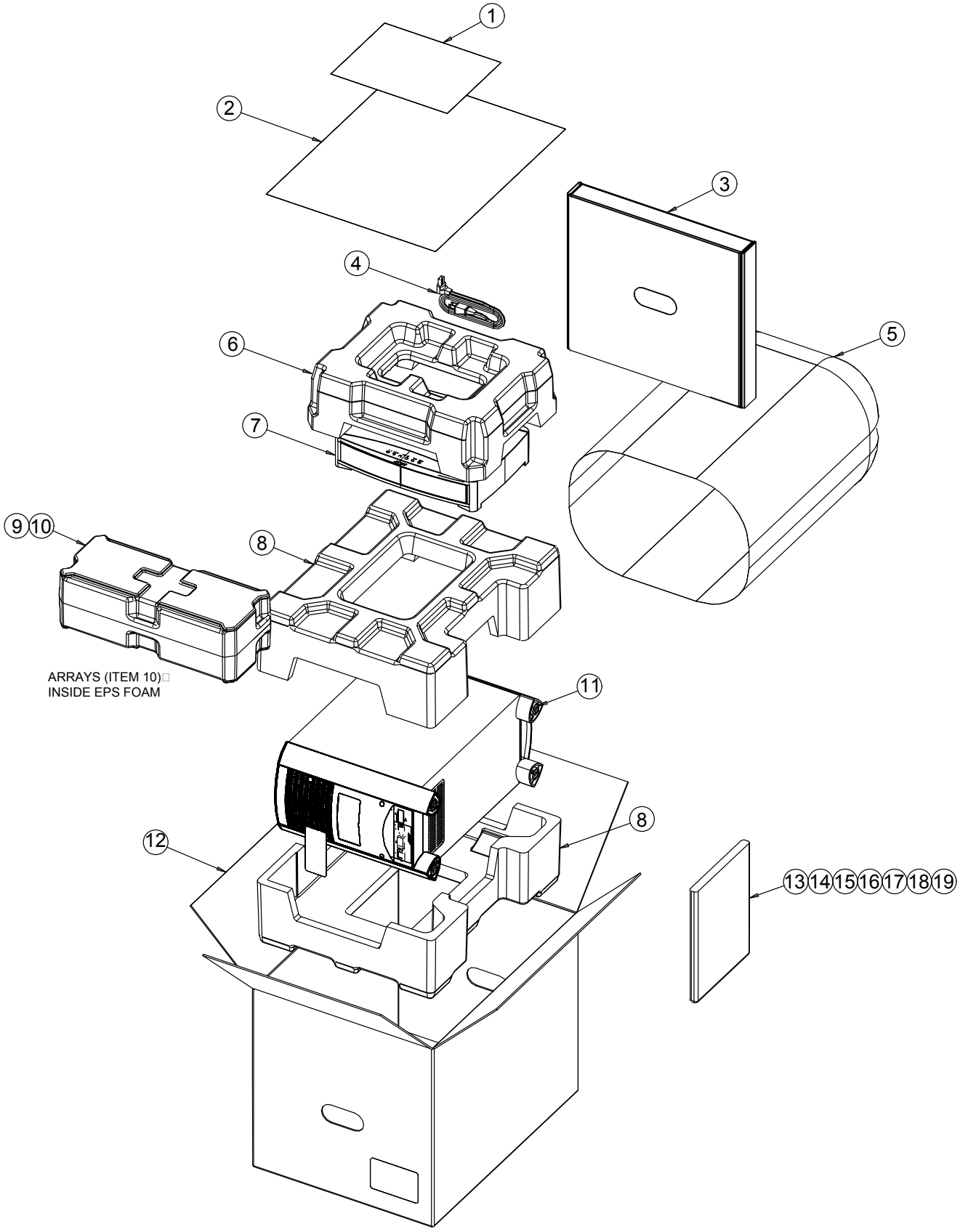


Figure 1. 3•2•1 Series II Home Entertainment System Packaging View

PACKAGING PART LIST

3•2•1 Series II Home Entertainment System Accessory Kit (see Figure 2)

Item Number	Description	Part Number	Note
1	CARTON, DIE CUT, ACCESSORY KIT, 321 II	276337	
2	CABLE, AUDIO, DUAL RCA	185931-101	
3	ANTENNA, FM DIPOLE, 75 OHM, F CONN (US/CAN, JAPAN, DUAL RG1)	347426-0010	
	ANTENNA, FM, DIPOLE, PAL CONN (EURO, UK, AUS, DUAL RG2 & RG4)	347423-0010	
4	CABLE, VIDEO, 6', YL	347428-0010	
5	REMOTE, IR, ADVANCED, 321 II / 321GS II (PREPACKAGED REMOTE, BOSE P/N: 327236-0010)	288579-201	US/CAN
	REMOTE, IR, ADVANCED, 321 II / 321GS II	288579-202	EURO/UK/AUS
	REMOTE, IR, 321 II AND 321GS II	288579-203	JAPAN
	REMOTE, IR, ADVANCED, 321GSX II (PREPACKAGED REMOTE, BOSE P/N: 327236-1010)	288579-211	US/CAN
	REMOTE, IR, ADVANCED, 321GSX II	288579-222	EURO/UK/AUS
	REMOTE, IR, 321GSX II	288579-233	JAPAN
6	ANTENNA, ASSY, AM, CD 20	199824-002	
7	BAG, POLY, 4 x 6 x 2 mil	143393	4
8	BATTERY, CARBON, AA SIZE	147538	
9	CABLE, 15 FT, STANDARD ARRAY, 9 PIN, GRPH	255123-101	
	CABLE, 15 FT, GEMSTONE™ ARRAY, 9 PIN, GRPH	269984-101	
	CABLE, 15 FT, GEMSTONE ARRAY, 9 PIN, SILVER	269984-103	
10	BUMPER, RECESSED, FOOT, .88"	142839	
11	FOOT, CLEAR, .312 X 0.85	178321-04	
12	CABLE, BASS MODULE, 13 PIN, GRAPHITE, 10 FT	281528-1011	
13	PACKING, INSERT, ACCESSORY KIT, 321 II	276338	
	CABLE, BASS MODULE, 13 PIN, GRAPHITE, 25 FT	281528-1001	SERVICE PART
-	CABLE, 40 FT, STANDARD ARRAY, 9 PIN, GRAPH CABLE, 40 FT, GEMSTONE ARRAY, 9 PIN, GRAPH CABLE, 40 FT, GEMSTONE ARRAY, 9 PIN, SILVER	262070-101 282301-101 282301-103	SERVICE PART
-	CABLE, SWITCHED, SCART TO S-VIDEO	275356-101	EURO/UK/ AUS/DUAL

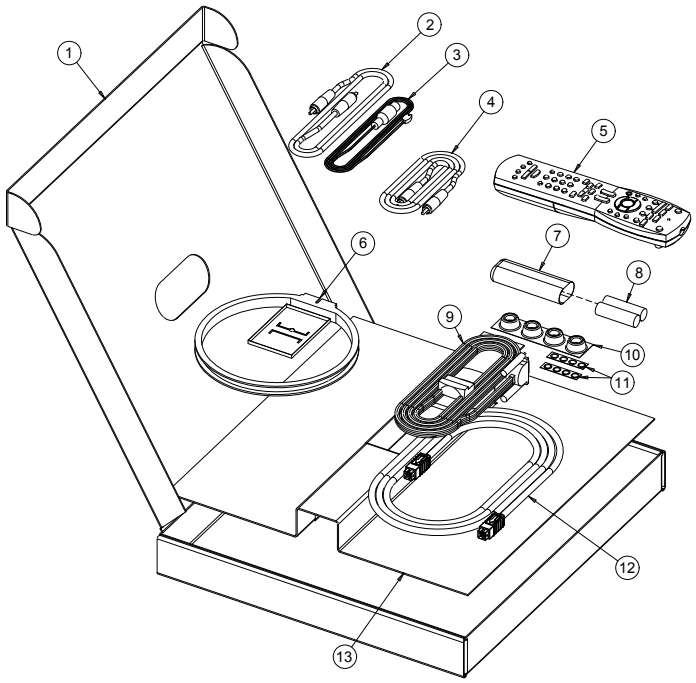


Figure 2. Accessory Kit Exploded View

MAIN PART LIST

3•2•1 II and 3•2•1GS II Console Assembly (see Figure 3)

Item Number	Description	Part Number	Qty.	Note
1	COVER, GATE (USED TO COVER RECESSS IN THE TOP COVER, ITEM 3 BELOW)	270910-001	1	
2	PRESSURE SENSITIVE ADHESIVE, DIE-CUT (USED TO SECURE ITEM 1 TO ITEM 3)	276995-001	1	
3	COVER, CONSOLE, DVD, GRAPHITE	312578-001	1	
4	SHIELD, UPPER, COVER	270911-001	1	
5	GASKET, EMI (FM ANTENNA CONNECTOR)	276947-001	1	
6	PCB ASSY, TUNER (US/CAN, DUAL RG4)	317631-001 or 286177-501	1	2
	PCB ASSY, TUNER (EU/UK/AUS/DUAL RG2)	286177-402		
	PCB ASSY, TUNER, PROG (JAPAN)	286177-503		
7	DRIVE, DVD-ROM, TOHEI	301728-006	1	
8	CABLE, RIBBON, ATAPI, 40 POS, 260 MM	270918-0280	1	
9	CABLE, POWER, DVD, 265 MM	304996-1265	1	
10	BRACKET, DVD, GRAPHITE	270904-001	1	
11	SCREW, M3-0.5 x 8, DOME WASHER	271671-001	4	
12	HEATSINK, DSP	270920-001	1	
13	CABLE, TUNER, 13 COND, FFC	271573-120	1	
14	CABLE, BUTTON, 135 MM	270914-135	1	
15	CABLE, DISPLAY, FFC, SHLD, 5 POS, 110 MM	270601-05110	1	
16	GASKET, EMI (BOSE LINK CONNECTOR)	279058-001	1	
17	PCB ASSY, MAIN, PROGRAMMED, STANDARD (US/CANADA, EURO, UK, AUS)	286173-107 or 299701-207	1	2
	PCB ASSY, MAIN, PROGRAMMED, STANDARD (JAPAN)	286173-003S		
18	TAPE, SHIELDING (N/A IN LATER UNITS)	279013-001	1	
19	SHIELD, LOWER, BASE	270902-001	1	
20	LABEL, INPUT/OUTPUT, CONSOLE	272176-001	1	
21	BASE, CONSOLE, DVD, GRAPHITE	270901-001	1	
22	FOOT, RUBBER, 12.7 DIA. x 2.38 THICK	260465	4	
23	SCREW, # 8-11, COMBO DRIVE	271670-036	6	
24	DISPLAY, VACUUM FLUORESCENT (VFD)	275866-001	1	
25	CABLE, IR, 32 MM	270915-032	1	
26	PAD, SWITCH	270916-001	1	
27	BUTTON PCB (PART OF MAIN PCB ASSY)	-	1	
28	IR RECEIVER PCB (P/O MAIN PCB ASSY)	-	1	
29	SCREW, TAPP, 8-11 x .625, PAN, X SQ. EN	250817-10	3	
30	BEZEL, INNER	312577-001	1	
31	PIN, EJECTOR, DVD	271619-001	1	
32	OUTER BEZEL ASSY, CONSOLE	277514-001	1	
33	NAMEPLATE, 29 MM, DIAMOND CUT	279015-001	1	
34	DVD BEZEL SUB-ASSEMBLY, CONSISTS OF: BEZEL, DVD SPRING, TORSION LENS, DVD	282440-001 270912-001 319838-0001 312575-001	1	 4 4 4
-	FOAM, BEZEL, CONSOLE	280134-001	4	

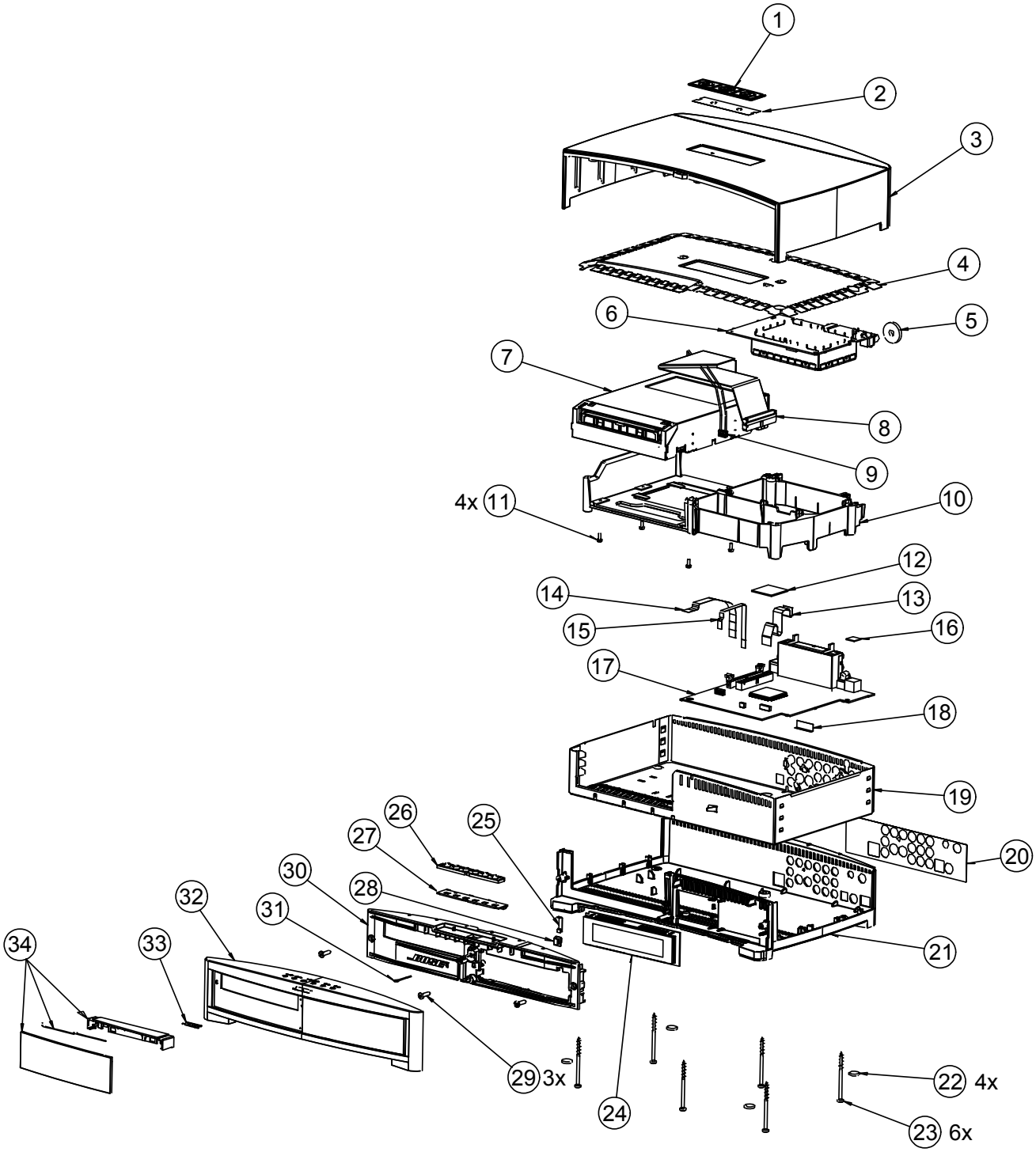


Figure 3. 3•2•1 Series II Standard Console Exploded View

MAIN PART LIST

3•2•1GSX Console Assembly (see Figure 4)

Item Number	Description	Part Number	Qty.	Note
1	COVER, GATE, PREMIUM	282417-002	1	
2	PRESSURE SENSITIVE ADHESIVE, DIE-CUT	276995-001	1	
3	COVER, CONSOLE, DVD, GRAPHITE	312578-001	1	
4	SHIELD, UPPER, COVER	270911-001	1	
5	GASKET, EMI (FM ANTENNA CONNECTOR)	276947-001	1	
6	PCB ASSY, TUNER (US/CAN, DUAL RG4)	317631-001 or 286177-501	1	2
	PCB ASSY, TUNER (EU/UK/AUS/DUAL RG2)	286177-402		
	PCB ASSY, TUNER, PROG (JAPAN)	286177-503		
7	DRIVE, DVD-ROM, TOHEI	301728-006	1	
8	CABLE, RIBBON, ATAPI, 40 POS, 260MM	270918-0280	1	
9	CABLE, POWER, DVD, 265 MM	304996-1265	1	
10	BRACKET, DVD, GRAPHITE	270904-001	1	
11	SCREW, M3-0.5 x 8, DOME WASHER SCREW, M3-0.5 x 8, DOME WASHER (RoHS)	271671-001 282505-001	4 4	
12	CABLE, BUTTON, 135 MM	270914-135	1	
13	CABLE, DISPLAY, FFC, SHLD, 5 POS, 110 MM	270601-05110	1	
14	CABLE, TUNER, 13 COND, FFC	271573-120	1	
15	CABLE, RIBBON, HDD, 150MM	270919-0150		
16	HDD ASSEMBLY, PROG, INCLUDES: HARD DRIVE, PROGRAMMED; PAD, THERMAL; PLATE, HEATSINK; AND 2 SCREWS	284481-017S	1	
17	PCB ASSY, MAIN, PROG (US/CAN, EU, UK, AUS) PCB ASSY, MAIN, PROG (JAPAN)	303186-013 286173-053 or 286173-073S	1	2
18	HEATSINK, DSP	270920-001	1	
19	SHIELD, LOWER, BASE, PREMIUM VERSION	270902-002	1	
20	LABEL, INPUT/OUTPUT, PREMIUM VERSION	272176-001	1	
21	BASE, CONSOLE, DVD, GRAPHITE	270901-001	1	
22	FOOT, RUBBER, 12.7 DIA. x 2.38 THICK	260465	4	
23	SCREW, #8-11, COMBO DRIVE, BLUNT SCREW, #8-11, COMBO DRIVE, BLUNT (RoHS)	283113-036 289508-036	6 6	
24	DISPLAY, VACUUM FLUORESCENT (VFD)	275866-001	1	
25	CABLE, IR, 32 MM	270915-032	1	
26	PAD, SWITCH	270916-001	1	
27	BUTTON PCB (PART OF MAIN PCB ASSY)	-	1	
28	IR RCVR PCB (PART OF MAIN PCB ASSY)	-	1	
29	FOAM, BEZEL, CONSOLE	280134-001	4	
30	BEZEL, INNER	312577-001	1	
31	PIN, EJECTOR, DVD	271619-001	1	
32	SCREW, TAPP, 8-11 x .625, PAN, X SQ. EN SCREW, TAPP, 8-11 x .625, PAN, X SQ. (RoHS)	250817-10 288376-010	3 3	
33	OUTER BEZEL ASSY, PREMIUM 321	277514-002	1	
34	NAMEPLATE, 29 MM, DIAMOND CUT	279015-001	1	
35	DVD BEZEL SUB-ASSEMBLY, CONSISTS OF: BEZEL, DVD SPRING, TORSION LENS, DVD	282440-001 270912-001 319838-0001 312575-001	1 	 4 4 4

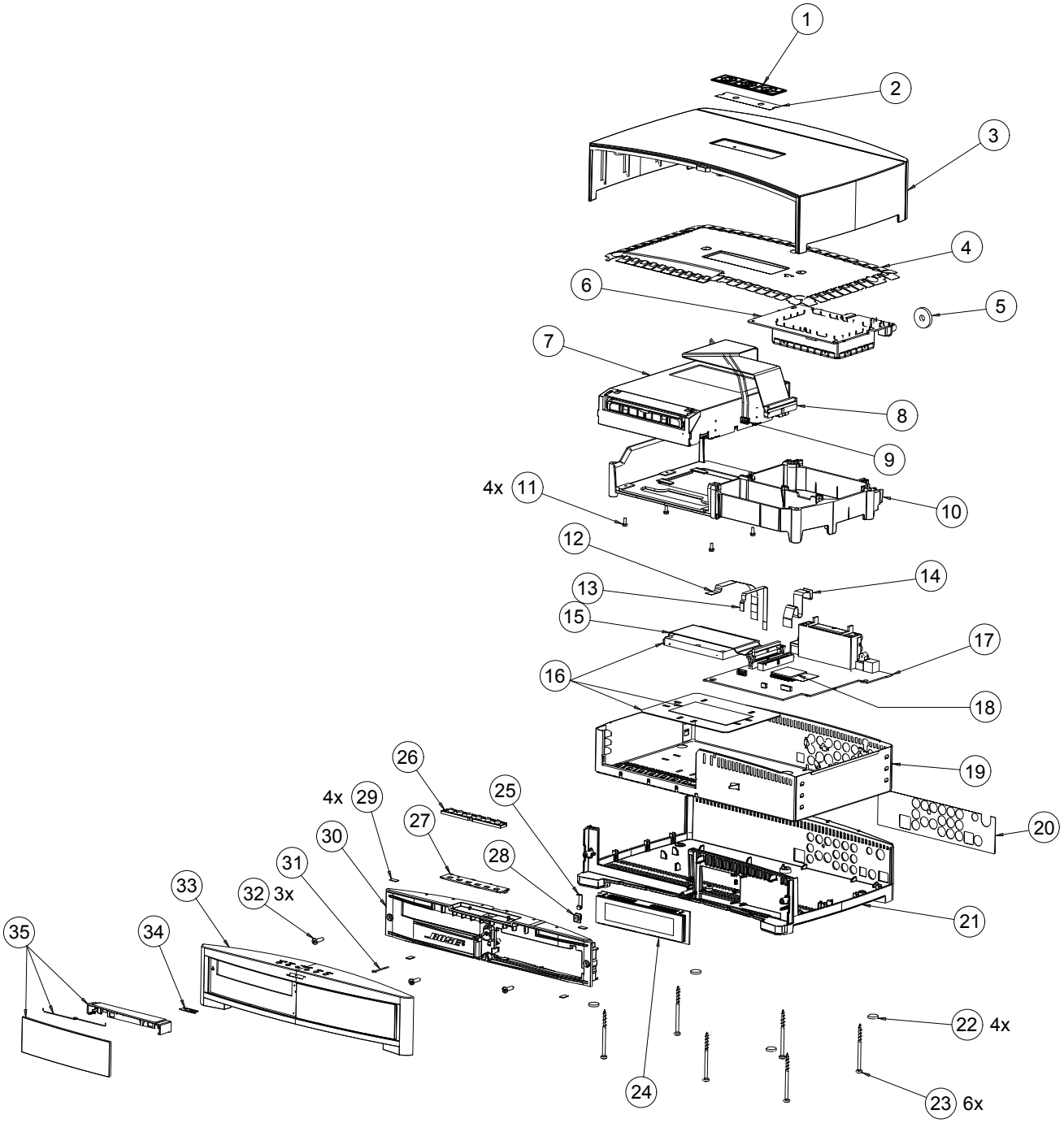


Figure 4. 3•2•1GSX Series II Premium Console Exploded View

MAIN PART LIST

Bass Modules built before 4/27/09 (see Figure 5a)

Item Number	Description	Part Number	Qty.	Note
1	FOAM TAPE, .32" W	255202	2 ft.	
2	SCREW, TAPP, 8-11 x .5, PAN, ASY, SQ	250817-08	6	
3	BRACKET, COVER, AMP	255179	1	
4	SCREW, MACH, SEMS, WSHR, 10-32 x 0.5	264824-08	4	
5	XFMR, EI, 100V, 50/60HZ (US/CAN, JAPAN)	261278-102	1	3
	XFMR, EI, 230V, 50/60HZ (EURO, UK, AUS)	261276-102		⚠
	XFMR, EI, 115/230V, 50/60HZ (DUAL VOLT)	261277-102		
6	ENCLOSURE, REAR, GRPH (US/CAN, JAPAN)	278055-301	1	
	ENCLOSURE, REAR, GRPH (EURO, UK, AUS)	278055-311		
	ENCLOSURE, REAR, GRPH (DUAL VOLT)	278055-321		
7	SCREW, 6-32 x 1/2 THREAD ROLLING	258492-08	4	
8	CABLE, INPUT / OUTPUT, DIGITAL	275179-0190	1	
9	SCREW, TT, 8-32 x 0.5, PAN, XREC/SQ	255191-08	4	
10	PAD, FOAM, .25" x .75" x .06"	278144-001	3	
11	PCB ASSY, INPUT/OUTPUT (US/CAN, JAPAN)	286180-001	1	2
	PCB ASSY, INPUT/OUTPUT (EURO, UK, AUS)	299723-002		
	PCB ASSY, INPUT/OUTPUT (DUAL VOLT)	316686-006S		
12	CABLE, ARRAY, 10 CONDUCTOR	271561-0190	1	
13	BRACKET, INPUT / OUTPUT PCB	267182-001	1	
14	SCREW, TAPP, 6-13 x .5, PANN	172783-08	2	
15	BRACKET, HEATSINK	267183-001	1	
16	PCB ASSY, DSP, PROG, ROHS	299702-112S	1	
17	PAD, THERMAL, DIODE	267968-075	1	

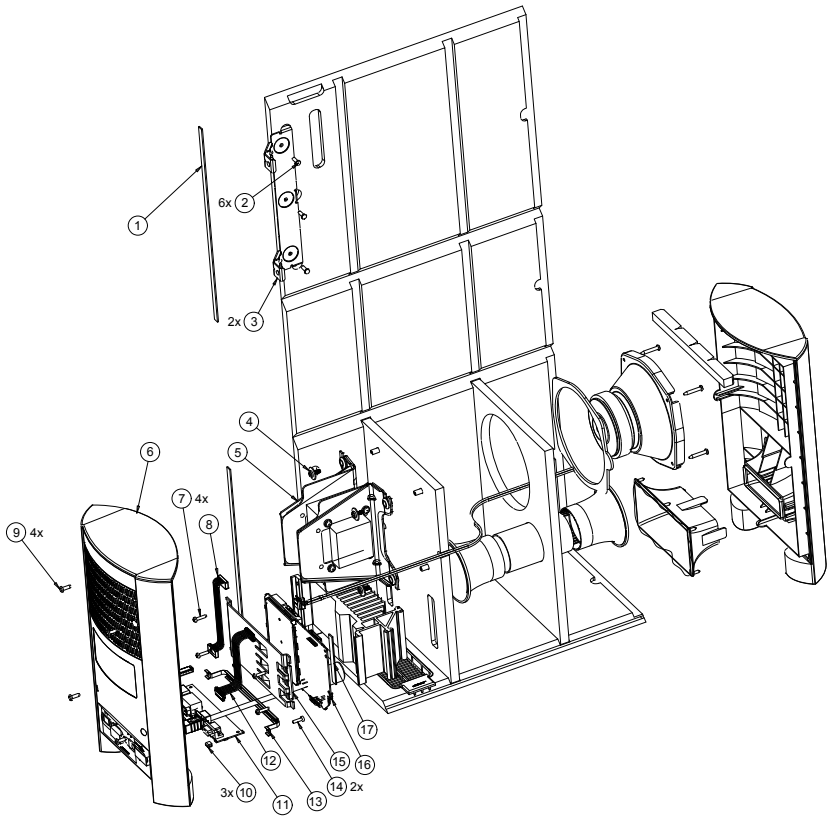


Figure 5a. Bass Module Exploded View

MAIN PART LIST

Bass Modules built after 4/27/09 (see Figure 5b)

Item Number	Description	Part Number	Qty.	Note
1	GASKET, FOAM, .32X12.0X.125	255202	2 ft.	
2	SCREW, TAPP, 8-11 x .437, PAN, XRC/S	289388-007	6	
3	BRACKET, COVER, BASS MODULE	255179	2	
4	SCREW, TT, 8-32X0.5, PAN, XREC/SQ	289394-008	4	
5	XFMR, EI, 100V, 50/60HZ, US/CAN/JAPAN XFMR, EI, 230V, 50/60HZ, EU/UK/AP/LAT MKT XFMR, EI, 115/230V, 50/60HZ, AP/LAT MKT/MIL	261278-102 261276-102 261277-102	1	3 ⚠
6	BRACKET, HEATSINK, SNAP-ON	267183-001	1	
7	CABLE, I/O, DIGITAL	275179-0190	1	
8	ENCLOSURE, REAR, US/JAPAN ENCLOSURE, REAR, EU/UK/AP/LAT MKT ENCLOSURE, REAR, AP/LAT MKT/MIL	278055-301 278055-311 278055-321	1	
9	SCREW, TT, 8-32X0.5, PAN, XREC/SQ	289393-008	4	
10	PAD, FOAM, .25X.75X.06	278144-001	3	
11	PCB ASSY, I/O, US/JAPAN PCB ASSY, I/O, EU/UK/AP/LAT MKT PCB ASSY, I/O, DUAL VOLT, AP/LAT MKT/MIL	286180-001 299723-002 316686-006S	1	2
12	CABLE, ARRAY, 10 CONDUCTOR	271561-0190	1	
13	BRACKET, INPUT/OUTPUT PCB	267182-001	1	
14	SCREW, 6-13X0.5, PAN, XREC/SQ	288374-008	2	
15	TAPE, MYLAR, DIE-CUT	317599	1	
16	PCB ASSY, DSP/AMP, PROGRAMMED	299702-112S	1	2
17	PAD, THERMAL, DIODE	307566-017	1	
18	THERMAL GREASE	144087	.032	4

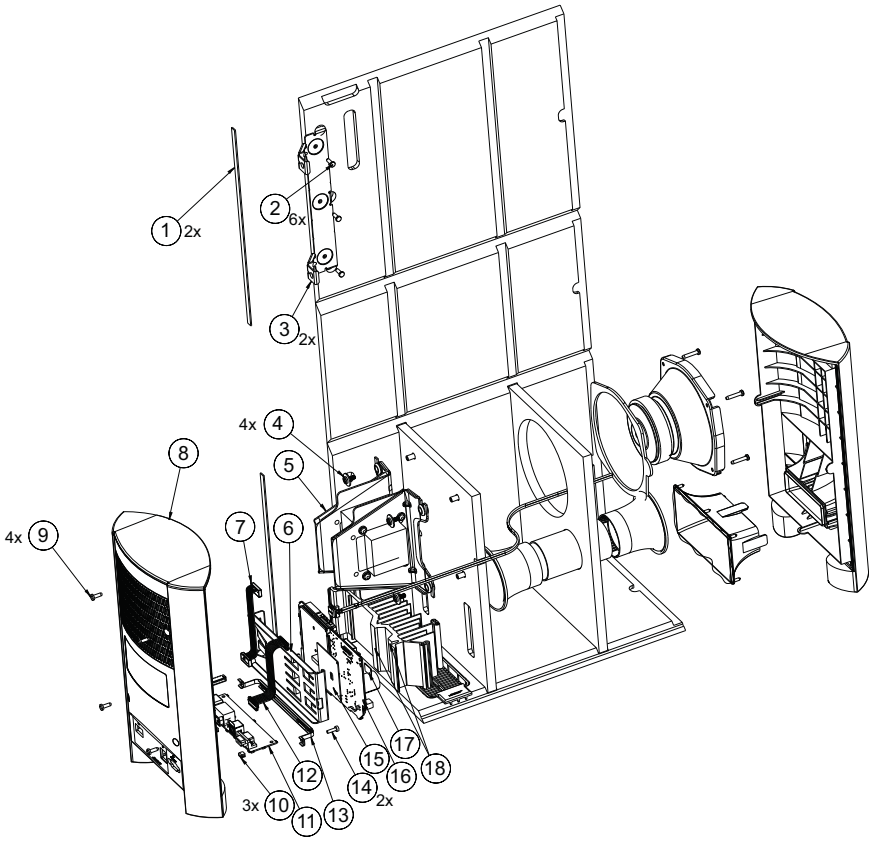


Figure 5b. Bass Module Exploded View

MAIN PART LIST

Standard 3•2•1 Array Assembly (see Figure 6)

Item Number	Description	Part Number	Qty per Array	Note
1	GRILLE, ARRAY, GRAPHITE	255196-001	1	
2	NAMEPLATE, BOSE® LOGO	255177-001	1	

Note: Only the parts listed above are replaceable.

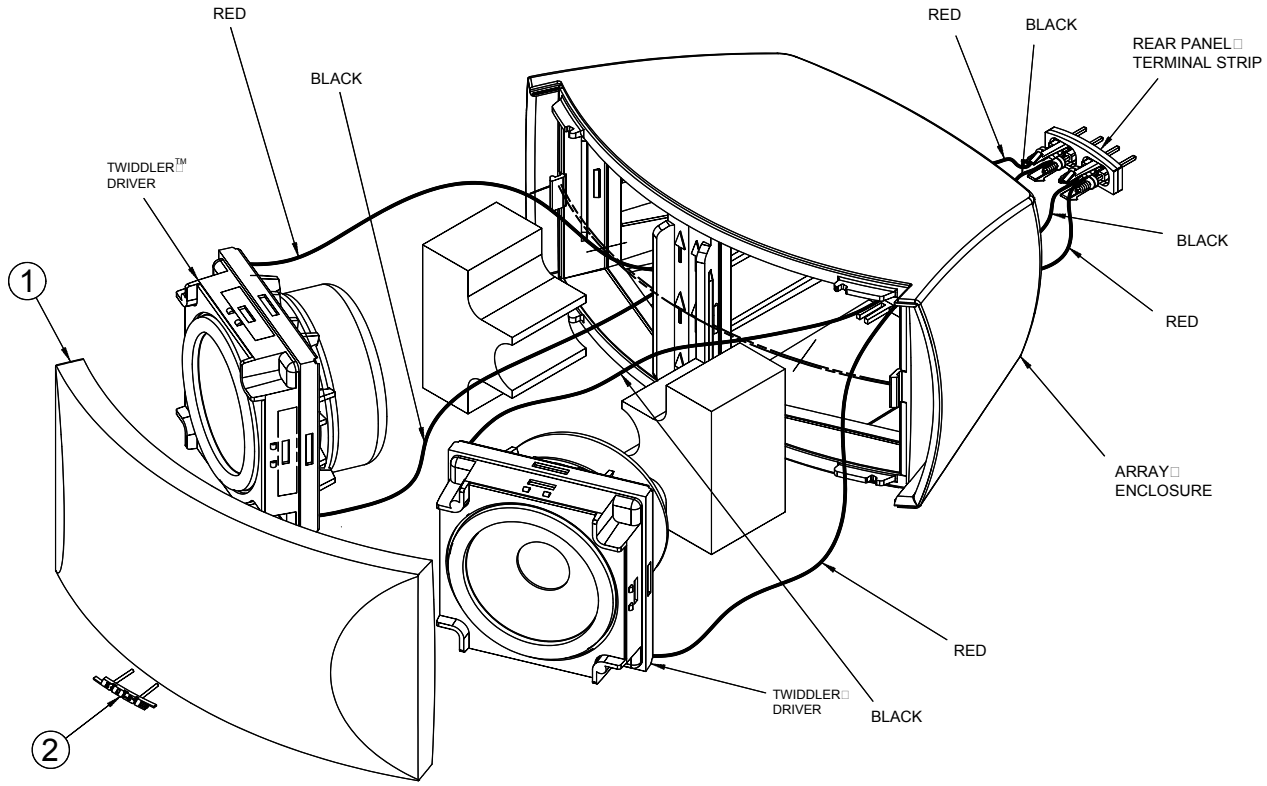


Figure 6. Standard 3•2•1 Array Assembly Exploded View

MAIN PART LIST

3•2•1 GS Array Assembly (see Figure 7)

Item Number	Description	Part Number	Qty.	Note
1	TWIDDLER™ DRIVER ASSY, 50MM	359302-0010	2	
2	GRILLE, METAL, ARRAY, GRAPHITE GRILLE, METAL, ARRAY, SILVER	302256-001 302256-003	1	
3	NAMEPLATE, BOSE, ARRAY	269981-001	1	
4	FOAM, GRILLE, ARRAY	272036-001	4	
5	SCREW, HILO, 4-16 x .375, PAN, XREC	181621-06	8	

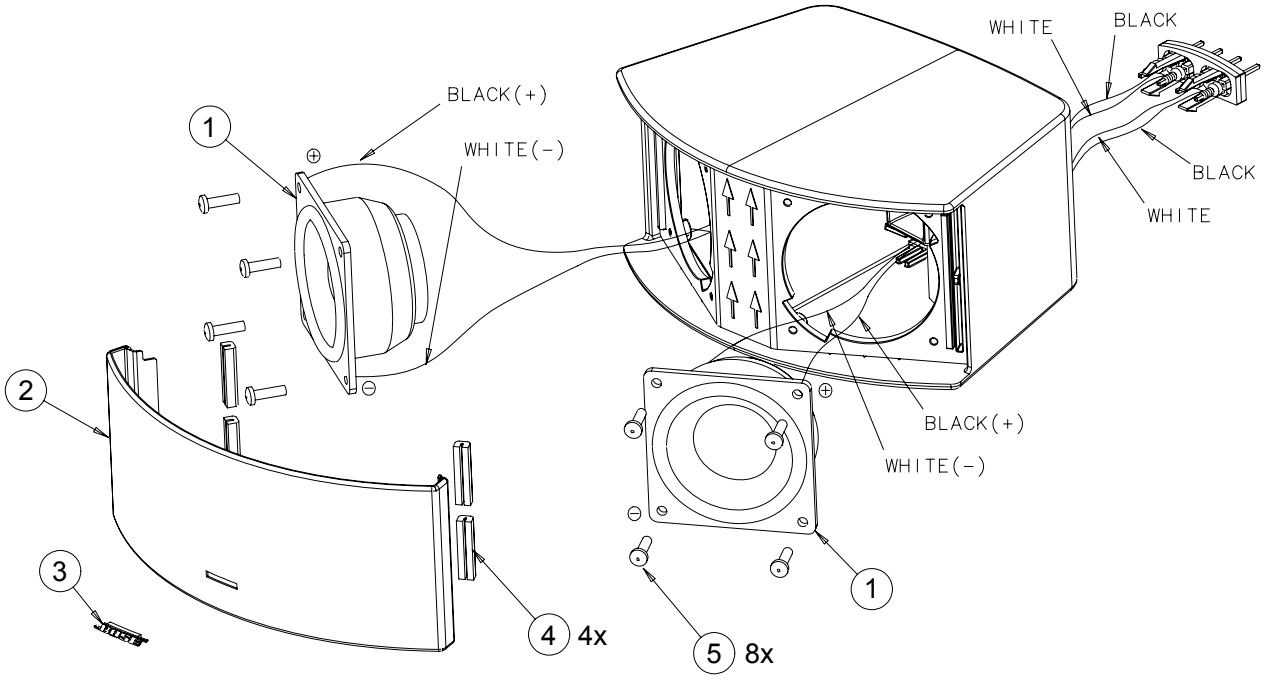


Figure 7. 3•2•1 GS Array Assembly Exploded View

ELECTRICAL PART LIST

Console Main PCB Assembly
Resistors

Reference Designator	Description	Part Number	Note
JP1	JUMPER, CHIP, 0603 (USED ON UNITS BUILT BEFORE 5/4/07)	196042	
R4	33.2K, 0603, 1/10W, 1%	191465-3322	
R8	1K, 0603, 1/10W, 1%	191465-1001	
R10	9.09K, 0603, 1/10W, 1%	191465-9091	
R11	39.2K, 0603, 1/10W, 1%	191465-3922	
R13	9.09K, 0603, 1/10W, 1%	191465-9091	
R14	18.2K, 0603, 1/10W, 1%	191465-1822	
R15	1K, 0603, 1/10W, 1%	191465-1001	
R17	33.2K, 0603, 1/10W, 1%	191465-3322	
R19	1K, 0603, 1/10W, 5%	199403-102	
R20	499 OHM, 0603, 1/10W, 1%	191465-4990	
R21	499 OHM, 0603, 1/10W, 1%	191465-4990	
R22	499 OHM, 0603, 1/10W, 1%	191465-4990	
R30	10K, 0603, 1/10W, 1%	191465-1002	
R33	1K, 0603, 1/10W, 5%	199403-102	
R35	10K, 0603, 1/10W, 1%	191465-1002	
R36	13K, 0603, 1/10W, 1%	191465-1302	
R37	3.74K, 0603, 1/10W, 1%	191465-3741	
R40	39.2K, 0603, 1/10W, 1%	191465-3922	
R42	4.7K, 0603, 1/10W, 5%	199403-472	
R43	4.7K, 0603, 1/10W, 5%	199403-472	
R44	22 OHM, 0603, 1/10W, 5%	199403-220	
R3200	5.6K, 0603, 1/10W, 5%	199403-562	
R3202	5.6K, 0603, 1/10W, 5%	199403-562	
R3203	10K, 0603, 1/10W, 1%	191465-1002	
R3204	10K, 0603, 1/10W, 5%	199403-103	
R3206	5.6K, 0603, 1/10W, 5%	199403-562	
R3207	10K, 0603, 1/10W, 5%	199403-103	
R3215	5.6K, 0603, 1/10W, 5%	199403-562	
R3216	5.6K, 0603, 1/10W, 5%	199403-562	
R3217	5.6K, 0603, 1/10W, 5%	199403-562	
R4000	1.00K, 0805, 1/10W, 1%	133625-1001	
R4001	1.00K, 0805, 1/10W, 1%	133625-1001	
R4003	1.00K, 0805, 1/10W, 1%	133625-1001	
R4005	1.00K, 0805, 1/10W, 1%	133625-1001	
R4006	1.00K, 0805, 1/10W, 1%	133625-1001	
R4008	1.00K, 0805, 1/10W, 1%	133625-1001	
R4009	100K, 0603, 1/10W, 1%	191465-1003	
R4010	100K, 0603, 1/10W, 1%	191465-1003	
R4013	100K, 0603, 1/10W, 1%	191465-1003	
R4014	100K, 0603, 1/10W, 1%	191465-1003	
R4016	100K, 0603, 1/10W, 1%	191465-1003	
R4024	100K, 0805, 1/10W, 5%	133626-1045	
R4025	100K, 0805, 1/10W, 5%	133626-1045	
R4038	22 OHM, 0805, 1/10W, 5%	133626-2205	

ELECTRICAL PART LIST

Console Main PCB Assembly

Resistors (continued)

Reference Designator	Description	Part Number	Note
R4090	1.00K, 0805, 1/10W, 1%	133625-1001	
R4091	1.00K, 0805, 1/10W, 1%	133625-1001	
R4099	10K, 0603, 1/10W, 1%	191465-1002	
R4100	1.00K, 0805, 1/10W, 1%	133625-1001	
R4101	1.00K, 0805, 1/10W, 1%	133625-1001	
R4102	1.00K, 0805, 1/10W, 1%	133625-1001	
R4103	1.00K, 0805, 1/10W, 1%	133625-1001	
R4104	100K, 0603, 1/10W, 1%	191465-1003	
R4105	100K, 0603, 1/10W, 1%	191465-1003	
R4106	100K, 0603, 1/10W, 1%	191465-1003	
R4107	100K, 0603, 1/10W, 1%	191465-1003	
R4108	100K, 0603, 1/10W, 1%	191465-1003	
R4109	100K, 0603, 1/10W, 1%	191465-1003	
R4110	100K, 0603, 1/10W, 1%	191465-1003	
R4111	100K, 0603, 1/10W, 1%	191465-1003	
R4112	100K, 0603, 1/10W, 1%	191465-1003	
R4113	100K, 0603, 1/10W, 1%	191465-1003	
R4114	100K, 0603, 1/10W, 1%	191465-1003	
R4115	100K, 0603, 1/10W, 1%	191465-1003	
R4116	100K, 0603, 1/10W, 1%	191465-1003	
R4117	100K, 0603, 1/10W, 1%	191465-1003	
R4118	100K, 0603, 1/10W, 1%	191465-1003	
R4119	1.00K, 0805, 1/10W, 1%	133625-1001	
R4120	100K, 0603, 1/10W, 1%	191465-1003	
R4121	150 OHM, 0805, 1/10W, 5%	133626-1515	
R4122	150 OHM, 0805, 1/10W, 5%	133626-1515	
R4200	2.21K, 0603, 1/10W, 1%	191465-2211	
R4201	10K, 0603, 1/10W, 5%	199403-103	
R4202	1K, 0603, 1/10W, 1%	191465-1001	
R4217	10K, 0603, 1/10W, 1%	191465-1002	
R4218	30K, 0603, 1/10W, 5%	199403-303	
R5000	75 OHM, 0603, 1/10W, 5%	199403-750	
R5001	75 OHM, 0603, 1/10W, 5%	199403-750	
R5002	75 OHM, 0603, 1/10W, 5%	199403-750	
R5003	10K, 0603, 1/10W, 5%	199403-103	
R5004	4.75K, 0603, 1/10W, 1%	191465-4751	
R6200	10K, 0603, 1/10W, 5%	199403-103	
R6201	1K, 0603, 1/10W, 5%	199403-102	
R6210	1K, 0603, 1/10W, 5%	199403-102	
R6212	1K, 0603, 1/10W, 5%	199403-102	
R6213	1K, 0603, 1/10W, 5%	199403-102	
R6214	10K, 0603, 1/10W, 1%	191465-1002	
R6215	1K, 0603, 1/10W, 5%	199403-102	
R6314	10K, 0603, 1/10W, 5%	199403-103	
R6315	499 OHM, 0603, 1/10W, 1%	191465-4990	

ELECTRICAL PART LIST

Console Main PCB Assembly

Resistors (continued)

Reference Designator	Description	Part Number	Note
R6317	499 OHM, 0603, 1/10W, 1%	191465-4990	
R6319	499 OHM, 0603, 1/10W, 1%	191465-4990	
R6500	100 OHM, 0603, 1/10W, 5%	199403-101	
R6501	100 OHM, 0603, 1/10W, 5%	199403-101	
R6502	10K, 0603, 1/10W, 5%	199403-103	
R6503	100 OHM, 0603, 1/10W, 5%	199403-101	
R6504	2.21K, 0603, 1/10W, 1%	191465-2211	
R6505	10K, 0603, 1/10W, 1%	191465-1002	
R6506	1.00K, 0805, 1/10W, 5%	133626-1025	
R6510	2.21K, 0603, 1/10W, 1%	191465-2211	
R6511	100 OHM, 0603, 1/10W, 5%	199403-101	
R6512	100 OHM, 0603, 1/10W, 5%	199403-101	
R6513	100 OHM, 0603, 1/10W, 5%	199403-101	
R6514	100 OHM, 0603, 1/10W, 5%	199403-101	
R6521	100 OHM, 0603, 1/10W, 5%	199403-101	
R6522	100 OHM, 0603, 1/10W, 5%	199403-101	
R6523	100 OHM, 0603, 1/10W, 5%	199403-101	
R6524	100 OHM, 0603, 1/10W, 5%	199403-101	
R6700	330 OHM, 2ES, 0805, 1/10W, 5%	133626-3315	
R6701	330 OHM, 2ES, 0805, 1/10W, 5%	133626-3315	
R6704	1K, 0603, 1/10W, 5%	199403-102	
R6705	330 OHM, 2ES, 0805, 1/10W, 5%	133626-3315	
R6706	330 OHM, 2ES, 0805, 1/10W, 5%	133626-3315	
R6707	330 OHM, 2ES, 0805, 1/10W, 5%	133626-3315	
R6718	20.0K, 0805, 1/10W, 5%	133626-2035	
R6719	20.0K, 0805, 1/10W, 5%	133626-2035	
R6809	30K, 0603, 1/10W, 5%	199403-303	
R6810	4.7K, 0603, 1/10W, 5%	199403-472	
R6811	2.21K, 0603, 1/10W, 1%	191465-2211	
R6812	2.21K, 0603, 1/10W, 1%	191465-2211	
R6813	100 OHM, 0603, 1/10W, 5%	199403-101	
R6815	10K, 0603, 1/10W, 1%	191465-1002	
R6816	30K, 0603, 1/10W, 5%	199403-303	
R6818	10K, 0603, 1/10W, 1%	191465-1002	
R6819	22 OHM, 0805, 1/10W, 5%	133626-2205	
R7000	10K, 0603, 1/10W, 5%	199403-103	
R7001	100 OHM, 0603, 1/10W, 5%	199403-101	
R7002	100 OHM, 0603, 1/10W, 5%	199403-101	
R7003	1.5K, 0603, SMD, 1/10W, 5%	199403-152	
R7004	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R7005	1.5K, 0603, 1/10W, 5%	199403-152	
R7007	15K, 0603, 1/10W, 5%	199403-153	
R7008	1K, 0603, 1/10W, 5%	199403-102	
R7009	100 OHM, 0603, 1/10W, 5%	199403-101	
R7010	100 OHM, 0603, 1/10W, 5%	199403-101	

ELECTRICAL PART LIST

Console Main PCB Assembly

Resistors (continued)

Reference Designator	Description	Part Number	Note
R7013	1K, 0603, 1/10W, 5%	199403-102	
R7014	1K, 0603, 1/10W, 5%	199403-102	
R7015	4.7K, 0603, 1/10W, 5%	199403-472	
R7019	1K, 0603, 1/10W, 5%	199403-102	
R7020	2.21K, 0603, 1/10W, 1%	191465-2211	
R7021	13K, 0603, 1/10W, 5%	199403-133	
R7022	13K, 0603, 1/10W, 5%	199403-133	
R7258	100 OHM, 0603, 1/10W, 5%	199403-101	
R7259	187 OHM, 0603, 1/10W, 1%	191465-1870	
R7260	187 OHM, 0603, 1/10W, 1%	191465-1870	
R7261	100 OHM, 0603, 1/10W, 5%	199403-101	
R7501	33 OHMS, 0603, .1W, 5% (USED ON UNITS BUILT AFTER 5/4/07)	199403-330	
R7753	100 OHM, 0603, 1/10W, 5%	199403-101	
R7754	100 OHM, 0603, 1/10W, 5%	199403-101	
R7758	10K, 0603, 1/10W, 5%	199403-103	
R7759	100 OHM, 0603, 1/10W, 5%	199403-101	
R7760	330 OHM, 2ES, 0805, 1/10W, 5%	133626-3315	
R8000	75 OHM, 0603, 1/10W, 5%	199403-750	
R8001	75 OHM, 0603, 1/10W, 5%	199403-750	
R8002	75 OHM, 0603, 1/10W, 5%	199403-750	
R8004	75 OHM, 0805, 1/10W, 5%	133626-7505	
R8005	75 OHM, 0805, 1/10W, 5%	133626-7505	
R8006	75 OHM, 0805, 1/10W, 5%	133626-7505	
R8007	470 OHM, 0603, 1/10W, 5%	199403-471	
R8008	470 OHM, 0603, 1/10W, 5%	199403-471	
R8012	100 OHM, 0603, 1/10W, 5%	199403-101	
R8013	39.2K, 0603, 1/10W, 1%	191465-3922	
R8014	33.2K, 0603, 1/10W, 1%	191465-3322	
R8015	100 OHM, 0603, 1/10W, 5%	199403-101	
R8016	100 OHM, 0603, 1/10W, 5%	199403-101	
R8017	100 OHM, 0603, 1/10W, 5%	199403-101	
R8018	22 OHM, 0603, 1/10W, 5%	199403-220	
R8625	110 OHM, 0603, 1W, 5%	199403-111	
R8626	100 OHM, 0603, 1/10W, 5%	199403-101	
R8627	1 OHM, 0805, 1/10W, 5%	133626-1R05	
R9104	10K, 0603, 1/10W, 1%	191465-1002	
R9105	4.99K, 0603, 1/10W, 1%	191465-4991	
R9106	10K, 0603, 1/10W, 1%	191465-1002	
R9107	10K, 0603, 1/10W, 1%	191465-1002	
R9108	4.99K, 0603, 1/10W, 1%	191465-4991	
R9109	10K, 0603, 1/10W, 1%	191465-1002	
R9110	2.21K, 0603, 1/10W, 1%	191465-2211	
R9111	1K, 0603, 1/10W, 1%	191465-1001	
R9112	4.99K, 0603, 1/10W, 1%	191465-4991	
R9113	4.99K, 0603, 1/10W, 1%	191465-4991	
R9200	4.70 OHM, 0603, 1/10W, 1%	191465-4R70	

ELECTRICAL PART LIST

Console Main PCB Assembly

Resistors (continued)

Reference Designator	Description	Part Number	Note
R9201	14K, 0603, 1/10W, 1%	191465-1402	
R9202	3.24K, 0603, 1/10W, 1%	191465-3241	
R9203	14K, 0603, 1/10W, 1%	191465-1402	
R9204	14K, 0603, 1/10W, 1%	191465-1402	
R9205	3.24K, 0603, 1/10W, 1%	191465-3241	
R9206	14K, 0603, 1/10W, 1%	191465-1402	
R9207	14K, 0603, 1/10W, 1%	191465-1402	
R9208	3.24K, 0603, 1/10W, 1%	191465-3241	
R9209	14K, 0603, 1/10W, 1%	191465-1402	
R9210	14K, 0603, 1/10W, 1%	191465-1402	
R9211	3.24K, 0603, 1/10W, 1%	191465-3241	
R9212	14K, 0603, 1/10W, 1%	191465-1402	
R9213	150 OHM, 0805, 1/10W, 5%	133626-1515	
R9214	150 OHM, 0805, 1/10W, 5%	133626-1515	
R9321	5.6K, 0603, 1/10W, 5%	199403-562	GSX
R9322	5.6K, 0603, 1/10W, 5%	199403-562	GSX
R9323	10K, 0603, 1/10W, 1%	191465-1002	GSX
R9324	5.6K, 0603, 1/10W, 5%	199403-562	GSX
R9325	10K, 0603, 1/10W, 1%	191465-1002	GSX
R9640	1K, 0603, 1/10W, 5%	199403-102	GSX
R9641	10K, 0603, 1/10W, 1%	191465-1002	GSX
R9642	10K, 0603, 1/10W, 5%	199403-103	GSX
R9643	10K, 0603, 1/10W, 5%	199403-103	GSX
R9644	10K, 0603, 1/10W, 5%	199403-103	GSX
R9645	1K, 0603, 1/10W, 5%	199403-102	GSX
R9646	1K, 0603, 1/10W, 5%	199403-102	GSX
R9647	4.99K, 0603, 1/10W, 1%	191465-4991	GSX
R9648	8.25 OHM, 0603, 1/10W, 1%, SMD	191465-8R25	GSX
R9649	8.25 OHM, 0603, 1/10W, 1%, SMD	191465-8R25	GSX
R9650	49.9 OHM, 0603, 1/10W, 1%	191465-49R9	GSX
R9651	49.9 OHM, 0603, 1/10W, 1%	191465-49R9	GSX
R9652	10K, 0603, 1/10W, 5%	199403-103	GSX
R9653	3.3K, 0603, 1/10W, 5%	199403-332	GSX
R9656	1K, 0603, 1/10W, 5%	199403-102	GSX
R9657	1K, 0603, 1/10W, 5%	199403-102	GSX
R9752	100 OHM, 0603, 1/10W, 5%	199403-101	
R9756	100 OHM, 0603, 1/10W, 5%	199403-101	
R9757	22 OHM, 0603, 1/10W, 5%	199403-220	

ELECTRICAL PART LIST

Console Main PCB Assembly

Capacitors

Reference Designator	Description	Part Number	Note
C2	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C4	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C5	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C7	330uF, EL, 105C, 50V, 20%	258490-331B24H	
C10	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C12	2200pF, 0603, X7R, 50V, 10%	191470-222	
C15	0.10uF, 0603, 16V, 5%	258498-104	
C16	0.1uF, 0805, X7R, 50V	133624	
C17	680pF, 0603, X7R, 50V, 10%	191470-681	
C18	330uF, EL, 105C, 50V, 20%	258490-331B24H	
C19	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C20	0.47uF, 1812, X7R, 50V, 20%	258418-4743	
C21	0.47uF, 1812, X7R, 50V, 20%	258418-4743	
C22	0.10uF, 0603, 16V, 5%	258498-104	
C23	0.10uF, 0603, 16V, 5%	258498-104	
C24	470pF, 0603, COG, 50V, 5%	188454-471	
C25	0.47uF, 1812, X7R, 50V, 20%	258418-4743	
C26	1000uF, EL, 105C, 25V, 20%	258490-102B25E	
C27	0.047uF, 0603, X7R, 25V, 5%	196999-473	
C28	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C29	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C30	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C31	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C32	330uF, EL, SMD, 105C, 10V, 20%	256772-331A	
C33	1800pF, 0603, X7R, 50V, 10%	191470-182	
C45	0.10uF, 0603, 16V, 5%	258498-104	
C46	330uF, EL, SMD, 105C, 10V, 20%	256772-331A	
C47	0.10uF, 0603, 16V, 5%	286499-104	
C50	2200pF, 0603, X7R, 50V, 10%	191470-222	
C51	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C52	680pF, 0603, X7R, 50V, 10%	191470-681	
C53	1000uF, EL, 105C, 25V, 20%	258490-102B25E	
C55	0.10uF, 0603, 16V, 5%	258498-104	
C56	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C57	0.10uF, 0603, 16V, 5%	286499-104	
C58	0.47uF, 1812, X7R, 50V, 20%	258418-4743	
C59	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C74	330pF, 0805, COG, 50V, 5%	133622-331	
C75	330pF, 0805, COG, 50V, 5%	133622-331	
C76	330pF, 0805, COG, 50V, 5%	133622-331	
C77	330pF, 0805, COG, 50V, 5%	133622-331	
C78	330pF, 0805, COG, 50V, 5%	133622-331	
C101	0.047uF, 0603, X7R, 25V, 5%	196999-473	
C107	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C108	0.047uF, 0805, X7R, 50V, 10%	286499-473	

ELECTRICAL PART LIST

Console Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C3200	0.047uF, 0603, X7R, 25V, 5%	196999-473	
C4000	180pF, 0805, COG, 50V, 5%	133622-181	
C4001	180pF, 0805, COG, 50V, 5%	133622-181	
C4002	180pF, 0805, COG, 50V, 5%	133622-181	
C4003	180pF, 0805, COG, 50V, 5%	133622-181	
C4004	180pF, 0805, COG, 50V, 5%	133622-181	
C4005	180pF, 0805, COG, 50V, 5%	133622-181	
C4007	180pF, 0805, COG, 50V, 5%	133622-181	
C4008	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4009	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4010	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4011	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4012	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4013	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4014	180pF, 0805, COG, 50V, 5%	133622-181	
C4015	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4016	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4017	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4018	0.10uF, 0603, 16V, 5%	258498-104	
C4019	330uF, EL, SMD, 105C, 10V, 20%	256772-331A	
C4020	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4021	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4022	180pF, 0805, COG, 50V, 5%	133622-181	
C4023	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4024	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	
C4025	180pF, 0805, COG, 50V, 5%	133622-181	
C4026	180pF, 0805, COG, 50V, 5%	133622-181	
C4028	22uF, EL, 85C, 20%, 16V	177902-220C	
C4029	22uF, EL, 85C, 20%, 16V	177902-220C	
C4034	2200pF, 0805, X7R, 50V, 10%	133623-222	
C4035	2200pF, 0805, X7R, 50V, 10%	133623-222	
C4036	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C4037	0.047uF, 0805, X7R, 50V, 10%	286499-473	
C4039	100pF, 0805, COG, 50V, 5%	133622-101	
C4040	100pF, 0805, COG, 50V, 5%	133622-101	
C4041	100pF, 0805, COG, 50V, 5%	133622-101	
C4042	100pF, 0805, COG, 50V, 5%	133622-101	
C4043	100pF, 0805, COG, 50V, 5%	133622-101	
C4044	100pF, 0805, COG, 50V, 5%	133622-101	
C4045	220pF, 0805, COG, 50V, 5%	133622-221	
C4046	220pF, 0805, COG, 50V, 5%	133622-221	
C4047	220pF, 0805, COG, 50V, 5%	133622-221	
C4048	220pF, 0805, COG, 50V, 5%	133622-221	
C4049	220pF, 0805, COG, 50V, 5%	133622-221	
C4050	100pF, 0603, COG, 50V, 5%	188454-101	

ELECTRICAL PART LIST

Console Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C4051	220pF, 0805, COG, 50V, 5%	133622-221	
C4199	0.10uF, 0603, 16V, 5%	258498-104	
C5000	150pF, 0603, COG, 50V, 5%	188454-151	
C5002	270pF, 0603, COG, 50V, 5%	188454-271	
C5004	150pF, 0603, COG, 50V, 5%	188454-151	
C5006	270pF, 0603, COG, 50V, 5%	188454-271	
C5008	150pF, 0603, COG, 50V, 5%	188454-151	
C5010	270pF, 0603, COG, 50V, 5%	188454-271	
C5012	100pF, 0805, COG, 50V, 5%	133622-101	
C5013	100pF, 0805, COG, 50V, 5%	133622-101	
C5014	100pF, 0805, COG, 50V, 5%	133622-101	
C5015	150pF, 0805, COG, 50V, 5%	133622-151	
C5016	150pF, 0805, COG, 50V, 5%	133622-151	
C5017	150pF, 0805, COG, 50V, 5%	133622-151	
C5018	150pF, 0805, COG, 50V, 5%	133622-151	
C5019	150pF, 0805, COG, 50V, 5%	133622-151	
C5020	150pF, 0805, COG, 50V, 5%	133622-151	
C6200	.047uF, 0805, X7R, 50V, 10%,	133623-473	
C6201	1000pF, 0805, X7R, 50V, 10%	133623-102	
C6202	.047uF, 0805, X7R, 50V, 10%,	133623-473	
C6203	1000pF, 0805, X7R, 50V, 10%	133623-102	
C6204	.047uF, 0805, X7R, 50V, 10%,	133623-473	
C6206	.047uF, 0805, X7R, 50V, 10%,	133623-473	
C6207	1000pF, 0805, X7R, 50V, 10%	133623-102	
C6208	.047uF, 0805, X7R, 50V, 10%,	133623-473	
C6209	1000pF, 0805, X7R, 50V, 10%	133623-102	
C6210	.047uF, 0805, X7R, 50V, 10%,	133623-473	
C6211	1000pF, 0805, X7R, 50V, 10%	133623-102	
C6212	0.10uF, 0603, 16V, 5%	258498-104	
C6213	0.10uF, 0603, 16V, 5%	258498-104	
C6215	0.10uF, 0603, 16V, 5%	258498-104	
C6216	0.10uF, 0603, 16V, 5%	258498-104	
C6219	0.01uF, 0603, X7R, 50V, 10%	191470-103	
C6221	0.10uF, 0603, 16V, 5%	258498-104	
C6225	22uF, 1411, TANT, 6.3V, 20%	188588-226	
C6226	22uF, 1411, TANT, 6.3V, 20%	188588-226	
C6300	100pF, 0805, COG, 50V, 5%	133622-101	
C6504	180pF, 0603, COG, 50V	188454-181	
C6505	0.10uF, 0603, 16V, 5%	286499-104	
C6700	330pF, 0805, COG, 50V, 5%	133622-331	
C6701	330pF, 0805, COG, 50V, 5%	133622-331	
C6702	330pF, 0805, COG, 50V, 5%	133622-331	
C6703	330pF, 0805, COG, 50V, 5%	133622-331	
C6705	330pF, 0805, COG, 50V, 5%	133622-331	
C6706	330pF, 0805, COG, 50V, 5%	133622-331	

ELECTRICAL PART LIST

Console Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C6708	0.10uF, 0603, 16V, 5%	258498-104	
C6710	1000pF, 0603, X7R, 50V, 10%	191470-102	
C6807	100pF, 0603, COG, 50V, 5%	188454-101	
C6808	100pF, 0603, COG, 50V, 5%	188454-101	
C6809	22uF, EL, 85C, 20%, 16V	177902-220C	
C6810	100pF, 0603, COG, 50V, 5%	188454-101	
C7000	0.10uF, 0603, 16V, 5%	258498-104	
C7001	27pF, 0603, COG, 50V, 5%	188454-270	
C7002	27pF, 0603, COG, 50V, 5%	188454-270	
C7003	0.10uF, 0603, 16V, 5%	258498-104	
C7004	0.10uF, 0603, 16V, 5%	258498-104	
C7005	0.10uF, 0603, 16V, 5%	258498-104	
C7006	0.10uF, 0603, 16V, 5%	258498-104	
C7007	0.10uF, 0603, 16V, 5%	258498-104	
C7008	0.10uF, 0603, 16V, 5%	258498-104	
C7009	0.10uF, 0603, 16V, 5%	258498-104	
C7010	0.10uF, 0603, 16V, 5%	258498-104	
C7011	0.10uF, 0603, 16V, 5%	258498-104	
C7012	0.10uF, 0603, 16V, 5%	258498-104	
C7013	0.10uF, 0603, 16V, 5%	258498-104	
C7014	0.10uF, 0603, 16V, 5%	258498-104	
C7015	0.10uF, 0603, 16V, 5%	258498-104	
C7016	0.10uF, 0603, 16V, 5%	258498-104	
C7017	0.10uF, 0603, 16V, 5%	258498-104	
C7018	0.10uF, 0603, 16V, 5%	258498-104	
C7019	0.10uF, 0603, 16V, 5%	258498-104	
C7020	0.10uF, 0603, 16V, 5%	258498-104	
C7021	0.10uF, 0603, 16V, 5%	258498-104	
C7022	0.10uF, 0603, 16V, 5%	258498-104	
C7023	0.10uF, 0603, 16V, 5%	258498-104	
C7024	0.10uF, 0603, 16V, 5%	258498-104	
C7026	22uF, 1411, TANT, 6.3V, 20%	188588-226	
C7250	0.10uF, 0603, 16V, 5%	258498-104	
C7251	0.10uF, 0603, 16V, 5%	258498-104	
C7252	0.10uF, 0603, 16V, 5%	258498-104	
C7254	0.10uF, 0603, 16V, 5%	258498-104	
C7255	0.10uF, 0603, 16V, 5%	258498-104	
C7256	0.10uF, 0603, 16V, 5%	258498-104	
C7257	0.10uF, 0603, 16V, 5%	258498-104	
C7258	0.10uF, 0603, 16V, 5%	258498-104	
C7259	47uF, EL, 85C, 16V, 20%	177902-470C	
C7260	0.10uF, 0603, 16V, 5%	258498-104	
C7261	0.10uF, 0603, 16V, 5%	258498-104	
C7262	0.10uF, 0603, 16V, 5%	258498-104	
C7263	0.10uF, 0603, 16V, 5%	258498-104	

ELECTRICAL PART LIST

Console Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C7264	0.10uF, 0603, 16V, 5%	258498-104	
C7265	0.10uF, 0603, 16V, 5%	258498-104	
C7266	0.10uF, 0603, 16V, 5%	258498-104	
C7267	0.10uF, 0603, 16V, 5%	258498-104	
C7268	0.10uF, 0603, 16V, 5%	258498-104	
C7269	0.10uF, 0603, 16V, 5%	258498-104	
C7270	0.10uF, 0603, 16V, 5%	258498-104	
C7271	0.10uF, 0603, 16V, 5%	258498-104	
C7272	0.10uF, 0603, 16V, 5%	258498-104	
C8001	0.047uF, 0603, X7R, 25V, 5%	196999-473	
C8002	0.01uF, 0603, X7R, 50V, 10%	191470-103	
C8003	0.01uF, 0603, X7R, 50V, 10%	191470-103	
C8004	0.01uF, 0603, X7R, 50V, 10%	191470-103	
C8005	33pF, 0603, COG, 50V, 5%	188454-330	
C8006	0.01uF, 0603, X7R, 50V, 10%	191470-103	
C8013	0.10uF, 0603, 16V, 5%	258498-104	
C8014	10uF, EL, 85C, 16V, 20%	177902-100C	
C8016	0.10uF, 0603, 16V, 5%	258498-104	
C8017	0.10uF, 0603, 16V, 5%	258498-104	
C8018	33pF, 0603, COG, 50V, 5%	188454-330	
C8019	100pF, 0805, COG, 50V, 5%	133622-101	
C8020	100pF, 0805, COG, 50V, 5%	133622-101	
C8021	100pF, 0805, COG, 50V, 5%	133622-101	
C8436	0.10uF, 0603, 16V, 5%	258498-104	
C8437	1000pF, 0603, X7R, 50V, 10%	191470-102	
C8621	100pF, 0805, COG, 50V, 5%	133622-101	
C8622	100pF, 0805, COG, 50V, 5%	133622-101	
C8625	0.01uF, 0603, X7R, 50V, 10%	191470-103	
C9102	0.10uF, 0603, 16V, 5%	258498-104	
C9200	0.10uF, 0603, 16V, 5%	258498-104	
C9201	10uF, EL, 85C, 16V, 20%	177902-100C	
C9202	0.10uF, 0603, 16V, 5%	258498-104	
C9203	220pF 0603, COG, 50V, 5%	188454-221	
C9204	220pF, 0603, COG, 50V, 5%	188454-221	
C9205	470pF, 0603, X7R, 50V, 10%	191470-471	
C9206	220pF, 0603, COG, 50V, 5%	188454-221	
C9207	220pF, 0603, COG, 50V, 5%	188454-221	
C9208	470pF, 0603, X7R, 50V, 10%	191470-471	
C9321	.047uF, 0603, X7R, 25V, 5%	196999-473	GSX
C9322	.047uF, 0603, X7R, 25V, 5%	196999-473	GSX
C9323	.047uF, 0603, X7R, 25V, 5%	196999-473	GSX
C9324	4.7uF, EL, 85C, 35V, 20%	177902-4R7V	GSX
C9640	.047uF, 0603, X7R, 25V, 5%	196999-473	GSX
C9641	0.10uF, 0603, 16V, 5%	258498-104	GSX
C9642	0.10uF, 0603, 16V, 5%	258498-104	GSX

ELECTRICAL PART LIST

Console Main PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C9643	0.10uF, 0603, 16V, 5%	258498-104	GSX
C9644	0.10uF, 0603, 16V, 5%	258498-104	GSX
C9645	22uF, EL, 85C, 16V, 20%	177902-220C	GSX
C9646	0.10uF, 0603, 16V, 5%	258498-104	GSX
C9647	0.10uF, 0603, 16V, 5%	258498-104	GSX
C9648	0.10uF, 0603, 16V, 5%	258498-104	GSX
C9649	0.10uF, 0603, 16V, 5%	258498-104	GSX
C9650	470pF, 0603, X7R, 50V	191470-471	GSX
C9651	180pF, 0603, COG, 50V	188454-181	GSX
C9652	2.2pF, 0603,COG,50V,	188454-2R2	GSX
C9653	2.2pF, 0603, COG, 50V	188454-2R2	GSX

Inductors

Reference Designator	Description	Part Number	Note
L1	INDUCTOR, 300uH	180504	
L17	INDUCTOR, 300uH	180504	
L5000	CERAMIC, 1812, 5%, 1.0uH	263452-1R0J	
L5001	CERAMIC, 1812, 5%, 1.0uH	263452-1R0J	
L5002	CERAMIC, 1812, 5%, 1.0uH	263452-1R0J	
L5003	CERAMIC, 1812, 5%, 1.0uH	263452-1R0J	
L5004	CERAMIC, 1812, 5%, 1.0uH	263452-1R0J	
L5005	CERAMIC, 1812, 5%, 1.0uH	263452-1R0J	

Ferrite Beads

Reference Designator	Description	Part Number	Note
FB6200	BEAD, FERRITE, 0805, 1.5A, 330 OHM	267539-331	
FB7000	BEAD, FERRITE, 0805, 1.5A, 330 OHM	267539-331	
FB7001	BEAD, FERRITE, 0805, 1.5A, 330 OHM	267539-331	
FB7002	BEAD, FERRITE, 0805, 1.5A, 330 OHM	267539-331	
FB7250	BEAD, FERRITE, 0805, 1.5A, 330 OHM	267539-331	
FB7251	BEAD, FERRITE, 0805, 1.5A, 330 OHM	267539-331	
FB7252	BEAD, FERRITE, 0805, 1.5A, 330 OHM	267539-331	
FB7253	BEAD, FERRITE, 0805, 1.5A, 330 OHM	267539-331	

ELECTRICAL PART LIST

Console Main PCB Assembly

Diodes

Reference Designator	Description	Part Number	Note
D1	SCHOTTKY, 40V, 3A, SMB	193847-001	
D17	SCHOTTKY, 40V, 3A, SMB	193847-001	
D4000	DUAL, SOT-23, BAV99	147239	
D4202	DUAL, SOT-23, BAV99	147239	
D5000	DUAL, SOT-23, BAV99	147239	
D5001	DUAL, SOT-23, BAV99	147239	
D5002	DUAL, SOT-23, BAV99	147239	
D5003	DUAL, SOT-23, BAV99	147239	
D6302	DUAL, SOT-23, BAV99	147239	
D6500	DUAL, SOT-23, BAV99	147239	
D6701	DUAL, SOT-23, BAV99	147239	
D6702	DUAL, SOT-23, BAV99	147239	
D6703	DUAL, SOT-23, BAV99	147239	
D6704	DUAL, SOT-23, BAV99	147239	
D6705	DUAL, SOT-23, BAV99	147239	
D6800	DUAL, SOT-23, BAV99	147239	
D6801	DUAL, SOT-23, BAV99	147239	
D7000	DUAL, SOT-23, BAV99	147239	
D7001	DUAL, SOT-23, BAV99	147239	
D8000	DUAL, SOT-23, BAV99	147239	
D8001	DUAL, SOT-23, BAV99	147239	
D8002	DUAL, SOT-23, BAV99	147239	
D8600	DUAL, SOT-23, BAV99	147239	

Transistors

Reference Designator	Description	Part Number	Note
Q1	SENSOR, IR, SMT	270841-001	
Q2	BPLR, P, 40V, 200mA, SOT23	148596	
Q3	BPLR, N, 50V, 100mA, SOT23	146817	
Q4	BPLR, P, 40V, 200mA, SOT23	148596	
Q5	BPLR, N, 40V, 200mA, SOT23	146819	
Q3200	BPLR, N, 50V, 100mA, SOT23	146817	
Q4000	BPLR, P, 40V, 200mA, SOT23	148596	
Q4201	P, 50V, 2SA1341	146818	
Q4202	BPLR, N, 4.7K, SOT23	192603	
Q4208	BPLR, P, 40V, 200mA, SOT23	148596	
Q4209	BPLR, P, 40V, 200mA, SOT23	148596	
Q5000	BPLR, N, 40V, 200mA, SOT23	146819	
Q6300	BPLR, N, 50V, 100mA, SOT23	146817	
Q6301	BPLR, N, 50V, 100mA, SOT23	146817	
Q6302	P, 50V, 2SA1341	146818	
Q6503	N, SOT-23, MMBT4403	260354-001	
Q6504	BPLR, N, 4.7K, SOT23	192603	
Q6802	BPLR, P, 40V, 200mA, SOT23	148596	

ELECTRICAL PART LIST

Console Main PCB Assembly

Transistors (continued)

Reference Designator	Description	Part Number	Note
Q6803	BPLR, N, 40V, 200mA, SOT23	146819	
Q6804	BPLR, N, 40V, 200mA, SOT23	146819	
Q6805	BPLR, P, 40V, 200mA, SOT23	148596	
Q9100	BPLR, N, 40V, 200mA, SOT23	146819	
Q9101	BPLR, N, 40V, 200mA, SOT23	146819	
Q9102	BPLR, N, 40V, 200mA, SOT23	146819	

Integrated Circuits

Reference Designator	Description	Part Number	Note
VR1	VREG, POS, D2 PAK, LD1086, 3.3V	260638-33	
VR2	VREG, POS, D2 PAK, LD1086, 1.8V	260638-18	
U2	VOLT REG, 3.3V, 3.5A, SMPS	193846-001	
U3	COUNTER, BINARY, 8-BIT, TSSOP	256115-002	
U17	VOLT REG, 3.3V, 3.5A, SMPS	193846-001	
U19	9V VOLTAGE REGULATOR	258167-09	
U4000	AUDIO MATRIX, SO28	177984-2	
U6200	SDRAM, 128 MBIT, 166 MHZ	267336-001	STD/GS
U6200	SDRAM, 256 MBIT, 166 MHZ, TSSOP	274511-001	GSX
U6203	FLASH, PROGRAMMED, 4 MBYTE, TSSOP	307633	STD/GS
U6203	FLASH, PROGRAMMED, 4 MBYTE, TSSOP	307634	GSX
U6204	16 BIT BUS BUFFER, 74LCX16245	267613-001	
U6205	16 BIT BUS BUFFER, 74LCX16245	267613-001	
U6802	HEX BUFFER, CMOS	267619-001	
U7002	RESET, SC70	267095-001	
U7003	CS98200	266925-001	
U8001	S/PDIF RCVR, AK4112B	270223	
U8002	QUAD, SOIC	193858-004	
U8405	OP AMP, DUAL, HI CURRENT	256741-001	
U8406	QUAD OP AMP, TLO74D, SOIC	186112	
U9100	OP AMP, DUAL, HI CURRENT	256741-001	
U9200	DAC, 192 KHZ, 24 BIT, AK4382	267548-001	
U9201	OP AMP, DUAL, HI CURRENT	256741-001	
U9641	ETHERNET CONTROLLER	268867-001	GSX

ELECTRICAL PART LIST

Console Main PCB Assembly

Miscellaneous

Reference Designator	Description	Part Number	Note
J1	CONN, SMT, LIF, 4 POS, SIDE	255130-004	
J2	CONN, SMT, LIF, 4 POS, SIDE	255130-004	
J3	CONN, SMT, LIF, 9 POS, SIDE	255130-009	
J100	CONN, 13-PIN SOCKET, R-ANGLE	270581-001	
J201	CONN, RCA BLOCK, W/GRND FLANGE	279923-002	
J202	CONN, DIN, 9 POS, SINGLE	269854-001	
J3200	CONN, HEADER, 40 PIN	256105-001	
J3202	CONN, HEADER, 4 POS	148591-04	
J6000	CONN, HEADER, 13 POS, TOP-ENTRY, SMT	253356-T13	
J6500	CONN, HEADER, 5 POS, TOP ENTRY, SMD	253356-T05	
J6700	CONN, HEADER, 9 POS, TOP ENTRY, SMD	253356-T09	
J8000	CONN, OPTICAL, JFJ2001	258421-001	
J9341	CONNECTOR, EJECTOR, EHT, HDD	256109-44	GSX
J9640	CONN, ETHERNET, W/XFMR & LED	272162-002	GSX
K5000	RELAY, FLAT, POLARIZED	267094-001	
K5001	RELAY, FLAT, POLARIZED	267094-001	
T8600	TRANSFORMER, PULSE	254185-001	
XJ1	SHIELD, SUPPORT, 13P, SQR, CONN	278839-001	
Y7000	CRYSTAL, 27 MHZ, 30 PPM, HC-49/U/S	256102-005	
Y8000	CRYSTAL, 11.2896 MHZ, HC49S, SMD	197225	
Y9640	CRYSTAL, 20.0 MHZ, 18pF, HC49S, SMD	268873-005	GSX
-	TAPE, SHIELDING, ALUMINUM	279013-001	
-	GASKET, EMI, BOSELINK	279058-001	
-	HEATSINK, DSP	270920-001	

ELECTRICAL PART LIST

Console Tuner PCB Assembly

Resistors

Reference Designator	Description	Part Number	Note
R2000	1K, 0603, .1W, 5%	199403-102	4
R2001	120 OHM, 0603, .1W, 5%	199403-121	4
R2002	150 OHM, 0603, .1W, 5%	199403-151	4
R2003	100K, 0603, .1W, 5%	199403-104	4
R2004	47K, 0603, .1W, 5%	199403-473	4
R2005	2.32K, 0603, .1W, 1%	191465-2321	4
R2006	499 OHM, 0603, .1W, 1%	191465-4990	4
R2007	2.32K, 0603, .1W, 1%	191465-2321	4
R2008	330 OHM, 0603, .1W, 1%	191465-3300	4
R2009	1.18K, 0603, 100MW, 1%	191465-1181	4
R2010	22 OHM, 0603, .1W, 5%	199403-220	4
R2011	4.75K, 0603, .1W, 1%	191465-4751	4
R2012	100 OHM, 0603, .1W, 5%	199403-101	4
R2013	17.8K, 0603, 0.1W, 1%	191465-1782	4
R2014	51 OHM, 0603, 100MW, 5%	199403-510	4
R2015	2.32K, 0603, .1W, 1%	191465-2321	4
R2016	3.01K, 0603, .1W, 1%	191465-3011	4
R2017	5.1K, 0603, .1W, 5%	199403-512	4
R2018	5.1K, 0603, .1W, 5%	199403-512	4
R2019	51 OHM, 0603, 100MW, 5%	199403-510	4
R2020	13K, 0603, .1W, 1%	191465-1302	4
R2021	17.8K, 0603, 0.1W, 1%	191465-1782	4
R2022	3.32K, 0603, .1W, 1%	191465-3321	4
R2023	3.32K, 0603, .1W, 1%	191465-3321	4
R2024	2.21K, 0603, .1W, 1%	191465-2211	4
R2025	2.21K, 0603, .1W, 1%	191465-2211	4
R2026	4.75K, 0603, .1W, 1%	191465-4751	4
R2027	5.62K, 0603, 100MW, 1%	191465-5621	4
R2028	5.62K, 0603, 100MW, 1%	191465-5621	4
R2030	68.1K, 0603, .1W, 1%	191465-6812	4
R2031	4.75K, 0603, .1W, 1%	191465-4751	4
R2032	3.01K, 0603, .1W, 1%	191465-3011	4
R2033	33.2K, 0603, .1W, 1%	191465-3322	4
R2034	3.32K, 0603, .1W, 1% (EURO)	191465-3321	4
R2034	3.32K, 0603, .1W, 1% (JAPAN)	191465-3321	4
R2073	1K, 0603, .1W, 5%	199403-102	4
R2074	1K, 0603, .1W, 5%	199403-102	4
R2075	100 OHM, 0603, .1W, 5%	199403-101	4
R2076	2.2K, 0603, .1W, 5%	199403-222	4
R2077	6.81K, 0603, .1W, 1%	191465-6811	4
R2078	3.01K, 0603, .1W, 1%	191465-3011	4
R2079	2.0K, 0603, .1W, 5%	199403-202	4
R2080	3.32K, 0603, .1W, 1%	191465-3321	4
R2081	1K, 0603, .1W, 1%	191465-1001	4
R2082	1K, 0603, .1W, 5%	199403-102	4
R2083	51 OHM, 0603, 100MW, 5%	199403-510	4
R2084	1K, 0603, .1W, 1%	191465-1001	4

ELECTRICAL PART LIST

Console Tuner PCB Assembly

Resistors (continued)

Reference Designator	Description	Part Number	Note
R2085	3.32K, 0603, .1W, 1%	191465-3321	4
R2090	100K, 0603, .1W, 5%	199403-104	4
R2200	2.0K, 0603, .1W, 5%	199403-202	4
R2201	2.0K, 0603, .1W, 5%	199403-202	4
R2202	2.0K, 0603, .1W, 5%	199403-202	4
R2203	2.0K, 0603, .1W, 5%	199403-202	4
R2204	20 OHM, 0603, .1W, 5% (EURO)	199403-200	4
R2205	20 OHM, 0603, .1W, 5% (EURO)	199403-200	4
R7000	1.5K, 0603, SMD, 100MW, 5%	199403-152	4
R7001	1K, 0603, .1W, 5%	199403-102	4
R7003	100 OHM, 0603, .1W, 5%	199403-101	4
R7004	100 OHM, 0603, .1W, 5%	199403-101	4
R7006	100 OHM, 0603, .1W, 5%	199403-101	4
R7007	100 OHM, 0603, .1W, 5%	199403-101	4
R7008	17.8K, 0603, 0.1W, 1%	191465-1782	4
R7009	10K, 0603, .1W, 5%	199403-103	4
R7011	2.21K, 0603, .1W, 1%	191465-2211	4
R7012	2.21K, 0603, .1W, 1%	191465-2211	4
R7013	100 OHM, 0603, .1W, 5%	199403-101	4
R7014	100 OHM, 0603, .1W, 5%	199403-101	4
R7015	100 OHM, 0603, .1W, 5%	199403-101	4
R7016	100 OHM, 0603, .1W, 5%	199403-101	4
R7017	100 OHM, 0603, .1W, 5%	199403-101	4
R7018	51 OHM, 0603, 100MW, 5%	199403-510	4

Capacitors

Reference Designator	Description	Part Number	Note
C17	10uF, EL, 85C, 16V, 20%	177902-100C	4
C28	10uF, EL, 85C, 16V, 20%	177902-100C	4
C29	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C30	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C2000	12pF, 0805, COG, 50V, 5%	133622-120	4
C2001	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C2002	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C2003	9.1pF, 0603, COG, 50V	188454-9R1	4
C2004	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C2005	2.2uF, EL, 85C, 35V, 20%	177902-2R2V	4
C2006	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C2007	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C2008	47uF, EL, 85C, 16V, 20%	177902-470C	4
C2009	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C2010	.47uF, 1206, X7R, 16V	181998-474	4
C2011	47uF, EL, 85C, 16V, 20%	177902-470C	4
C2012	1uF, EL, 85C, 50V, 20%	177902-010H	4
C2013	180pF, 0603, COG, 50V	188454-181	4
C2014	1uF, EL, 85C, 50V, 20%	177902-010H	4

ELECTRICAL PART LIST

Console Tuner PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C2015	1uF, EL, 85C, 50V, 20%	177902-010H	4
C2016	.47uF, EL, 85C, 50V, 20%	177902-R47H	4
C2017	22uF, EL, 85C, 20%, 16V	177902-220C	4
C2018	560pF, 0603, X7R, 50V	191470-561	4
C2019	47uF, EL, 85C, 16V, 20%	177902-470C	4
C2020	.01uF, 0603, X7R, 50V	191470-103	4
C2021	10uF, EL, 85C, 16V, 20%	177902-100C	4
C2022	10uF, EL, 85C, 16V, 20%	177902-100C	4
C2023	10uF, EL, 85C, 16V, 20%	177902-100C	4
C2024	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C2025	3.3uF, EL, 85C, 35V, 20%	177902-3R3V	4
C2026	.047uF, 0603, X7R, 5%, 25V (US)	196999-473	4
C2026	.033uF, 0603, X7R, 25V (EURO/JAPAN)	196999-333	4
C2027	.047uF, 0603, X7R, 5%, 25V (US)	196999-473	4
C2027	.033uF, 0603, X7R, 25V (EURO/JAPAN)	196999-333	4
C2073	.047uF, 0603, X7R, 5%, 25V	196999-473	4
C2094	100uF, EL, 85C, 16V, 20%	177902-101C	4
C2095	.047uF, 0603, X7R, 5%, 25V	196999-473	4
C2096	2.2uF, EL, BP, 85C, 50V, 20%	147522-2R2	4
C2097	.01uF, 0603, X7R, 50V	191470-103	4
C2098	1000pF, 0603, X7R, 50V	191470-102	4
C2099	1000pF, 0603, X7R, 50V	191470-102	4
C2100	.047uF, 0603, X7R, 5%, 25V	196999-473	4
C2200	100pF, 0603, COG, 50V, 5%	188454-101	4
C2201	.047uF, 0805, X7R, 50V, 10% (EURO)	133623-473	4
C2202	560pF, 0603, COG, 50V, 5% (EURO)	188454-561	4
C2203	330pF, 0603, COG, 50V, 5% (EURO)	188454-331	4
C2204	10uF, EL, 85C, 16V, 20% (EURO)	177902-100C	4
C2205	22pF, 0603, COG, 50V, 5% (EURO)	188454-220	4
C2206	22pF, 0603, COG, 50V, 5% (EURO)	188454-220	4
C2207	0.1uF, 0805, X7R, 50V (EURO)	133624	4
C7000	.047uF, 0805, X7R, 50V, 10%	133623-473	4
C7001	1000pF, 0603, X7R, 50V	191470-102	4
C7002	47pF, 0603, COG, 50V, 5%	188454-470	4
C7003	.047uF, 0603, X7R, 5%, 25V	196999-473	4
C7004	47pF, 0603, COG, 50V, 5%	188454-470	4
C7006	.047uF, 0603, X7R, 5%, 25V	196999-473	4
C7007	10uF, EL, 85C, 16V, 20%	177902-100C	4

Inductors

Reference Designator	Description	Part Number	Note
L2000	AX ON ALR, 1000uH, 40A	260363-102	4
L7000	INDUCTOR, 0805, 5%, 470nH	291122-471J	4

ELECTRICAL PART LIST

Console Tuner PCB Assembly

Diodes

Reference Designator	Description	Part Number	Note
D2075	SOT-23, BAV 99	147239	4

Transistors

Reference Designator	Description	Part Number	Note
Q2000	P, 50V, 2SA1341	146818	4
Q2001	BPLR, N, 25V, 30MA, SOT-23	187601-001	4
Q2002	JFET, N, 20V, 20mA, TO-92	148590-E	4
Q2003	BPLR, N, 40V, 200mA, SOT23 (EURO)	146819	4
Q2073	BPLR, N, 40V, 200mA, SOT23	146819	4
Q7000	P, 50V, 2SA1341	146818	4
Q7001	BPLR, N, 50V, 100mA, SOT23	146817	4

Integrated Circuits

Reference Designator	Description	Part Number	Note
U18	VOLT REG, SMD, POS, SOT89, +10V	258167-10	
U19	VOLT REG, SMD, POS, SOT89, +5V	258167-05	
U2000	AM/FM TUNER, MFP-30S	254561-001	
U2074	PLL FREQ SYNTH, MFP-24	199693	
U2200	RDS, SIGNAL PROCESSOR	254562-001	EURO
U7000	EEPROM, SO-8, 24C01A	184044	

Miscellaneous

Reference Designator	Description	Part Number	Note
CF2000	FILTER, CER, BANDPASS, FGD, 280KHZ	253037-002	
CF2001	FILTER, CER, BANDPASS, FGD, 220KHZ	253037-001	
FM-TNR2000	TUNER, FM, US	258513-001	US
FM-TNR2000	TUNER, FM, 7V, EURO	258513-003	EURO
FM-TNR2000	TUNER, FM, JAPAN	258513-002	JAPAN
J1	CONN, HEADER, 13P, TOP-ENTRY, SMT	253356-T13	
J2000	CONN, AM ANTENNA	289460-001	
J2001	CONN, FM, SHIELDED, US	258434-001	
SHLD-TNR2000	SHIELD, FENCE, TUNER	256743	4
T2000	TUNER, AM, FRONT END	310458-001	
T2001	FILTER, AM-IF, QUINTIPLE TUNED	254114-001	
T2002	DETECTOR, FM, SINGLE TUNED	254564-001	
Y2200	CRYSTAL, QUARTZ, 4.332MHZ, 50PPM	254563-001	EURO
Y7000	XTAL, 14.4MHZ, 30pF, HC49S, SMD	267620-005	
-	SHIELD, COVER, TUNER	256744	4

ELECTRICAL PART LIST

Bass Module DSP/Amplifier PCB Assembly

Resistors

Reference Designator	Description	Part Number	Note
R8	1.00K, 0805, 1/10W, 5%	133626-1025	
R9	3.30K, 0805, 1/10W, 5%	133626-3325	
R10	10.0K, 0805, 1/10W, 5%	133626-1035	
R12	1.00K, 0805, 1/10W, 5%	133626-1025	
R13	20.0K, 0805, 1/10W, 5%	133626-2035	
R14	1.69K, 0603, 1/10W, 1%	191465-1691	
R15	3.32K, 0603, 1/10W, 1%	191465-3321	
R16	49.9K, 0603, 1/10W, 1%	191465-4992	
R17	10K, 0603, 1/10W, 1%	191465-1002	
R18	100K, 0603, 1/10W, 5%	199403-104	
R19	56K, 0603, 1/10W, 5%	199403-563	
R20	10.0K, 0805, 1/10W, 5%	133626-1035	
R21	240K, 0603, 1/10W, 5%	199403-244	
R22	33.0K, 0805, 1/10W, 5%	133626-3335	
R23	10 OHM, 2512, 1W, 5%	181895-10R0	
R24	1 MEG, 1206, 1/4W, 5%	124895-1055	
R25	1 MEG, 1206, 1/4W, 5%	124895-1055	
R26	1 MEG, 1206, 1/4W, 5%	124895-1055	
R150	3.9K, ARRAY, SMT, 4 POS, 5%	186433-3924	
R151	7.87K, 0603, 1/10W, 1%	191465-7871	
R152	7.87K, 0603, 1/10W, 1%	191465-7871	
R162	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R163	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R164	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R165	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R250	3.9K, ARRAY, SMT, 4 POS, 5%	186433-3924	
R251	7.87K, 0603, 1/10W, 1%	191465-7871	
R252	7.87K, 0603, 1/10W, 1%	191465-7871	
R262	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R263	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R264	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R265	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R350	3.9K, ARRAY, SMT, 4 POS, 5%	186433-3924	
R351	7.87K, 0603, 1/10W, 1%	191465-7871	
R362	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R363	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R364	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R365	3.32 OHM, 0603, 1/10W, 1%	191465-3R32	
R450	15K, 0603, 1/10W, 5%	199403-153	
R451	47K, 0603, 1/10W, 5%	199403-473	
R452	4.7K, 0603, 1/10W, 5%	199403-472	
R453	1.69K, 0603, 1/10W, 1%	191465-1691	
R454	4.7K, 0603, 1/10W, 5%	199403-472	
R455	1.21K, 0603, 1/10W, 1% (US/CANADA UNITS BUILT BEFORE 3/1/05)	191465-1211	
R456	240K, 0603, 1/10W, 5%	199403-244	
R457	240K, 0603, 1/10W, 5%	199403-244	

ELECTRICAL PART LIST

Bass Module DSP/Amplifier PCB Assembly

Resistors (continued)

Reference Designator	Description	Part Number	Note
R1001	510 OHM, ARRAY, SMT, 4 POS, 5%	186433-5114	
R1005	510 OHM, ARRAY, SMT, 4 POS, 5%	186433-5114	
R4200	4.7K, 0603, 1/10W, 5%	199403-472	
R4201	75 OHM, 0603, 1/10W, 5%	199403-750	
R4202	75 OHM, 0603, 1/10W, 5%	199403-750	
R4203	75 OHM, 0603, 1/10W, 5%	199403-750	
R4204	10K, 0603, 1/10W, 5%	199403-103	
R4300	1.8K, ARRAY, SMT, 4 POS, 5%	186433-1824	
R4301	1.8K, ARRAY, SMT, 4 POS, 5%	186433-1824	
R4302	1.8K, ARRAY, SMT, 4 POS, 5%	186433-1824	
R4500	100 OHM, 0603, 1/10W, 5%	199403-101	
R4501	100 OHM, 0603, 1/10W, 5%	199403-101	
R4503	100 OHM, 0603, 1/10W, 5%	199403-101	
R4505	100 OHM, 0603, 1/10W, 5%	199403-101	
R4600	1.21K, 0603, 1/10W, 1%	191465-1211	
R4602	47K, 0603, 1/10W, 5%	199403-473	
R4603	47K, 0603, 1/10W, 5%	199403-473	
R4604	47K, 0603, 1/10W, 5%	199403-473	
R4700	4.7K, 0603, 1/10W, 5%	199403-472	
R4701	75 OHM, 0603, 1/10W, 5%	199403-750	
R6000	3.3K, 0603, 1/10W, 5%	199403-332	
R6001	1.00K, 0805, 1/10W, 5%	133626-1025	
R6100	2.0K, 0603, 1/10W, 5%	199403-202	
R6101	10K, 0603, 1/10W, 5%	199403-103	
R6102	2.7K, 0603, 1/10W, 5%	199403-272	
R6103	300 OHM, 0603, 1/10W, 5%	199403-301	
R6104	75 OHM, 0603, 1/10W, 5%	199403-750	
R6105	75 OHM, 0603, 1/10W, 5%	199403-750	
R6500	330 OHM, 0603, 1/10W, 5%	199403-331	
R6502	1K, 0603, 1/10W, 5%	199403-102	
R7000	470 OHM, 0603, 1/10W, 5%	199403-471	
R7001	22 OHM, 0603, 1/10W, 5%	199403-220	
R7100	75 OHM, 0603, 1/10W,,5%	199403-750	
R7102	4.7K, 0603, 1/10W, 5%	199403-472	
R7103	4.7K, 0603, 1/10W, 5%	199403-472	
R7104	75 OHM, 0603, 1/10W, 5%	199403-750	
R7105	75 OHM, 0603, 1/10W, 5%	199403-750	
R7106	75 OHM, 0603, 1/10W, 5%	199403-750	
R7107	2.0K, 0603, 1/10W, 5%	199403-202	
R7108	75 OHM, 0603, 1/10W, 5%	199403-750	
R7109	75 OHM, 0603, 1/10W, 5%	199403-750	
R7110	75 OHM, 0603, 1/10W, 5%	199403-750	
R7111	75 OHM, 0603, 1/10W, 5%	199403-750	
R7112	75 OHM, 0603, 1/10W, 5%	199403-750	
R7113	75 OHM, 0603, 1/10W, 5%	199403-750	
R7114	75 OHM, 0603, 1/10W, 5%	199403-750	
R7200	100K, 0603, 1/10W, 5%	199403-104	

ELECTRICAL PART LIST

Bass Module DSP/Amplifier PCB Assembly

Resistors (continued)

Reference Designator	Description	Part Number	Note
R7201	10K, 0603, 1/10W, 5%	199403-103	
R7202	4.7K, 0603, 1/10W, 5%	199403-472	
R7203	4.7K, 0603, 1/10W, 5%	199403-472	
R7204	47 OHM, 0603, 1/10W, 5%	199403-470	
R7205	1M, 0603, 1/10W, 5%	199403-105	
R7206	10K, 0603, 1/10W, 5%	199403-103	
R7207	4.7K, 0603, 1/10W, 5%	199403-472	

Capacitors

Reference Designator	Description	Part Number	Note
--	22uF, EL, 85C, 50V, 20% [atJ150 pins 9 & 10] (ALL UNITS BUILT AFTER 3/1/05)	149948-220H	
C21	4700pF, 0603, X7R, 50V, 10%	191470-472	
C22	15000uF, EL, 105C, 25V, 20%	261614-153EB3	
C24	.022uF, 0603, X7R, 50V, 10%	191470-223	
C26	.047uF, 0805, X7R, 50V, 10%	286499-473	
C27	.047uF, 0805, X7R, 50V, 10%	286499-473	
C28	.047uF, 0805, X7R, 50V, 10%	286499-473	
C29	.047uF, 0805, X7R, 50V, 10%	286499-473	
C30	220uF, EL, SMD, 105C, 10V, 20%	256772-221A	
C31	220uF, EL, SMD, 105C, 10V, 20%	256772-221A	
C32	47uF, EL, SMD, 105C, 35V, 20%	255071-470V	
C33	1000pF, 0603, X7R, 50V, 10%	191470-102	
C34	.015uF, 0603, X7R, 50V, 10%	191470-153	
C35	.22uF, TANT, 35V, 20%, ASIZE	262073-V224A	
C36	.1uF, 1206, X7R, 25V, 5%	131754-104	
C37	.01uF, 0603, X7R, 50V, 10%	191470-103	
C38	.047uF, 0603, X7R, 50V, 10%	191470-473	
C39	.047uF, 0603, X7R, 50V, 10%	191470-473	
C40	150pF, 0603, COG, 50V, 5%	188454-151	
C41	.047uF, 0603, X7R, 50V, 10%	191470-473	
C42	2.2uF, TANT, 10V, 20%, ASIZE	196981-A225A2	
C43	4700pF, 0603, X7R, 50V, 10%	191470-472	
C44	.047uF, 0603, X7R, 50V, 10%	191470-473	
C46	4700pF, 0603, X7R, 50V, 10%	191470-472	
C47	3300pF, 0805, X7R, 50V, 10%	133623-332	
C48	1.0uF, 1206, X7R, 25V, 15%	262063-105	
C49	1.0uF, 1206, X7R, 25V, 15%	262063-105	
C52	1.0uF, 1206, X7R, 25V, 15%	262063-105	
C53	1000pF, 0603, X7R, 50V, 10%	191470-102	
C56	47pF, 0603, COG, 50V, 5%	188454-470	
C57	47pF, 0603, COG, 50V, 5%	188454-470	
C58	470pF, 0603, X7R, 50V, 10%	191470-471	
C59	470pF, 0603, X7R, 50V, 10%	191470-471	
C60	470pF, 0603, X7R, 50V, 10%	191470-471	

ELECTRICAL PART LIST

Bass Module DSP/Amplifier PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C61	470pF, 0603, X7R, 50V, 10%	191470-471	
C62	2.2uF, FILM, 100V, 10%	260333-225A	
C63	47uF, EL, SMD, 105C, 50V, 20% (USED ON UNITS BUILT AFTER 4/1/05)	255071-470H	
C150	100uF, EL, 85C, 25V, 20%	177902-101E	
C151	.047uF, 0805, X7R, 50V, 10%	286499-473	
C152	.01uF, 0603, X7R, 50V, 10%	191470-103	
C153	.01uF, 0603, X7R, 50V, 10%	191470-103	
C154	.01uF, 0603, X7R, 50V, 10%	191470-103	
C155	.01uF, 0603, X7R, 50V, 10%	191470-103	
C156	1uF, EL, 85C, 50V, 20%	177902-010H	
C157	1uF, EL, 85C, 50V, 20%	177902-010H	
C158	1000pF, 0805, COG, 50V, 5%	286499-102	
C159	1uF, EL, 85C, 50V, 20%	177902-010H	
C160	1uF, EL, 85C, 50V, 20%	177902-010H	
C161	1000pF, 0805, COG, 50V, 5%	286499-102	
C250	100uF, EL, 85C, 25V, 20%	177902-101E	
C251	.047uF, 0805, X7R, 50V, 10%	286499-473	
C252	.01uF, 0603, X7R, 50V, 10%	191470-103	
C253	.01uF, 0603, X7R, 50V, 10%	191470-103	
C254	.01uF, 0603, X7R, 50V, 10%	191470-103	
C255	.01uF, 0603, X7R, 50V, 10%	191470-103	
C256	1uF, EL, 85C, 50V, 20%	177902-010H	
C257	1uF, EL, 85C, 50V, 20%	177902-010H	
C258	1000pF, 0805, COG, 50V, 5%	286499-102	
C259	1uF, EL, 85C, 50V, 20%	177902-010H	
C260	1uF, EL, 85C, 50V, 20%	177902-010H	
C261	1000pF, 0805, COG, 50V, 5%	286499-102	
C350	100uF, EL, 85C, 25V, 20%	177902-101E	
C351	.047uF, 0805, X7R, 50V, 10%	286499-473	
C352	.01uF, 0603, X7R, 50V, 10%	191470-103	
C353	.01uF, 0603, X7R, 50V, 10%	191470-103	
C354	.01uF, 0603, X7R, 50V, 10%	191470-103	
C355	.01uF, 0603, X7R, 50V, 10%	191470-103	
C356	1uF, EL, 85C, 50V, 20%	177902-010H	
C357	1uF, EL, 85C, 50V, 20%	177902-010H	
C358	1000pF, 0805, COG, 50V, 5%	286499-102	
C359	4700pF, 0603, X7R, 50V, 10%	191470-472	
C360	470pF, 0603, COG, 50V, 5%	188454-471	
C361	470pF, 0603, COG, 50V, 5%	188454-471	
C362	470pF, 0603, COG, 50V, 5%	188454-471	
C363	470pF, 0603, COG, 50V, 5%	188454-471	
C364	1000pF, 0805, COG, 50V, 5%	286499-102	
C365	.047uF, 0603, X7R, 50V, 10%	191470-473	
C1000	1000pF, 0603, X7R, 50V, 10%	191470-102	
C1001	1000pF, 0603, X7R, 50V, 10%	191470-102	

ELECTRICAL PART LIST

Bass Module DSP/Amplifier PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C1002	1000pF, 0603, X7R, 50V, 10%	191470-102	
C1003	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4000	22uF, EL, 85C, 16V, 20%	177902-220C	
C4001	.047uF, 0603, X7R, 50V, 10%	191470-473	
C4002	.047uF, 0603, X7R, 50V, 10%	191470-473	
C4003	.047uF, 0603, X7R, 50V, 10%	191470-473	
C4104	2200pF, 0603, X7R, 50V, 10%	191470-222	
C4105	2200pF, 0603, X7R, 50V, 10%	191470-222	
C4200	10uF, EL, 85C, 16V, 20%	177902-100C	
C4300	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4301	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4302	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4303	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4304	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4306	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4307	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4308	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4308	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4309	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4309	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4310	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4310	1000pF, 0603, X7R, 50V, 10%	191470-102	
C4400	.047uF, 0603, X7R, 50V, 10%	191470-473	
C4401	.047uF, 0603, X7R, 50V, 10%	191470-473	
C4500	68pF, 0603, COG, 50V, 5%	188454-680	
C4501	68pF, 0603, COG, 50V, 5%	188454-680	
C4600	.047uF, 0603, X7R, 25V, 5%	196999-473	
C4601	4700pF, 0603, X7R, 50V, 10%	191470-472	
C4602	.047uF, 0603, X7R, 25V, 5%	196999-473	
C6000	.047uF, 0603, X7R, 50V, 10%	191470-473	
C6100	.047uF, 0603, X7R, 50V, 10%	191470-473	
C6101	4700pF, 0603, X7R, 50V, 10% (US/CANADA UNITS BUILT BEFORE 3/1/05)	191470-472	
C6101	.022uF, 0603, X7R, 50V, 10% (ALL UNITS BUILT AFTER 3/1/05)	191470-223	
C6102	1000pF, 0603, X7R, 50V, 10%	191470-102	
C6105	820pF, 0603, X7R, 50V, 10%	191470-821	
C6500	4700pF, 0603, X7R, 50V, 10%	191470-472	
C7000	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7001	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7002	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7003	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7004	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7005	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7006	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7007	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7008	22pF, 0603, COG, 50V, 5%	188454-220	

ELECTRICAL PART LIST

Bass Module DSP/Amplifier PCB Assembly

Capacitors (continued)

Reference Designator	Description	Part Number	Note
C7009	22pF, 0603, COG, 50V, 5%	188454-220	
C7011	150pF, 0603, COG, 50V, 5%	188454-151	
C7012	150pF, 0603, COG, 50V, 5%	188454-151	
C7108	4700pF, 0603, X7R, 50V, 10%	191470-472	
C7109	4700pF, 0603, X7R, 50V, 10%	191470-472	
C7110	4700pF, 0603, X7R, 50V, 10%	191470-472	
C7111	47pF, 0603, COG, 50V, 5%	188454-470	
C7114	4700pF, 0603, X7R, 50V, 10%	191470-472	
C7115	.01uF, 0603, X7R, 50V, 10%	191470-103	
C7116	.01uF, 0603, X7R, 50V, 10%	191470-103	
C7200	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7300	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7301	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7302	.047uF, 0603, X7R, 50V, 10%	191470-473	
C7303	.047uF, 0603, X7R, 50V, 10%	191470-473	

Inductors / Ferrite Beads

Reference Designator	Description	Part Number	Note
L70	INDUCTOR, SMD, 20%, 100uH	256773-101	
FB50	INDUCTOR, CHIP, 0805, 400 OHM	188587-401	
FB70	BEAD, FERRITE, CHIP, 1806	256116-181	
FB4000	INDUCTOR, CHIP, 0805, 400 OHM	188587-401	

Diodes

Reference Designator	Description	Part Number	Note
D7	SMD, 10A, 200V, S10D	256405-200	
D8	SMD, 10A, 200V, S10D	256405-200	
D9	SMD, 10A, 200V, S10D	256405-200	
D10	SMD, 10A, 200V, S10D	256405-200	
D11	SCHOTTKY, 40V, 3A, SMB	193847-001	
D13	DUAL, SOT-23, BAV99	147239	
D14	SMD, 10A, 200V, S10D	256405-200	
D15	DUAL, SOT-23, BAW56	180738	
D450	ZEN, 5.1V, 225 MW, 5%, SOT-23	135247-5231	
D4502	DUAL, SOT-23, BAV99	147239	
D4503	DUAL, SOT-23, BAV99	147239	
DS6500	LED, SMD, GREEN	256781-002	
ZR1	ZENER, SOD-123, .5W, 5%, 13V	174265-5243	

ELECTRICAL PART LIST

Bass Module DSP/Amplifier PCB Assembly

Transistors

Reference Designator	Description	Part Number	Note
Q2	BPLR, N, 40V, 200mA, SOT23	146819	
Q3	BPLR, N, 40V, 200mA, SOT23	146819	
Q4	MOSFET, P, 60V, 17A, TO-220	271765-002	
Q5	BPLR, N, 40V, 200mA, SOT23	146819	
Q450	BPLR, N, 50V, 100mA, SOT23	146817	
Q451	BPLR, N, 50V, 100mA, SOT23	146817	
Q452	BPLR, PNP, 500MA, SOT23	189290-001	
Q6100	BPLR, N, 40V, 200mA, SOT23	146819	
Q6101	BPLR, N, 50V, 100mA, SOT23	146817	
Q7200	BPLR, N, 50V, 100mA, SOT23	146817	

Integrated Circuits

Reference Designator	Description	Part Number	Note
U100	VOLT REG, 3.3V, 1.5A	254196-001	
U101	VOLTAGE, REGULATOR, 3.3V	256094-03R3	
U150	POWER AMP, PSO-20, TDA8566TH	257975	
U250	POWER AMP, PSO-20, TDA8566TH	257975	
U350	POWER AMP, PSO-20, TDA8566TH	257975	
U4000	CODEC, 24-BIT, CS4228A-KS-TS	254192-003	
U4000	PAD, THERMAL, COMPLIANT	266954-001	
U4400	RCVR, DIG AUD, CS8415A, TSSOP	267616-002	
U6000	RESET, 3.3V, SOT23, 5-PIN	256123-001	
U6100	INVERTER, 5V, 74VCHU04	258464-004	
U7000	DSP, QFP 208, ADSP21065LKS_264	254191-003	
U7200	PROM, FLASH, 4 MBIT	311792	
U7300	SDRAM, 64 MBIT,2Mx32, 3.3V	254182-010	

Miscellaneous

Reference Designator	Description	Part Number	Note
F1	FUSE, 125V, 4A, SLO-BLO	273504-004000	⚠ 3
RT1	PTC, TEMP SENSE, 16V, 125C, 20%	258497-125	⚠ 3
T1	CHOKE, COMMON MODE, SMDH	276389-001	
Y7000	CRYSTAL, 33.333 MHZ, FUND, HC-49, SMD	266953-001	
J5	CONN, HEADER, INLINE, PCB MNT, 2P	133220-02	
J150	CONN, HEADER, RTANG, 2.5 MM, 10 POS	145402-10	
J350	CONN, THRU BOARD, TH, 4 POS	266952-04	
J7100	CONN, HEADER, 2.5 MM, THRU, 16 POS	270584-016	
SHLD1	SHIELD, FENCE	268777-001	
-	SHIELD, TOP, 0.3 THICK, W/O DIMPLE	268778-002	
-	SHIELD, BTM, 0.3 THICK	268781-001	

ELECTRICAL PART LIST

Bass Module Input/Output PCB Assembly

Capacitors

Reference Designator	Description	Part Number	Note
C1	2.2uF, EL, 85C, 50V, 20%	149947-2R2H	
C3	2.2uF, EL, 85C, 50V, 20%	149947-2R2H	
C4	2.2uF, EL, 85C, 50V, 20%	149947-2R2H	
C5	2.2uF, EL, 85C, 50V, 20%	149947-2R2H	
C6	4700uF, EL, 105C, 50V, SNAP	261614-472HB3	
C8	.01uF, 0805, X7R, 50V, 10%	133623-103	
C9	.01uF, 0805, X7R, 50V, 10%	133623-103	
C10	2.2uF, EL, 85C, 50V, 20%	149947-2R2H	

Miscellaneous

Reference Designator	Description	Part Number	Note
S1	SWITCH, DPDT, SLIDE, 250VAC, 5A (DUAL VOLTAGE)	273602-001	3
	SWITCH, POWER, PC MOUNT (EURO, UK, AUS)	266092-001	⚠
F1	FUSE, 2.50 AMPS, AXIAL (US/CAN, JAPAN)	269855-02500	3
	FUSE, 1.60 AMPS, AXIAL (EURO, UK, AUS)	269855-01600	⚠
	FUSE, 2.00 AMPS, AXIAL (DUAL VOLTAGE)	269855-02000	
J1	AC CONNECTOR	273692-001	⚠ 3
J2	CONN, HEADER, LOCKING, TOP, KEYED (EURO, UK, AUS)	271897-002	⚠ 3
J2	CONN, HEADER, 5 POS, 8mm (DUAL VOLTAGE)	178742-5	⚠ 3
J3	CONN, 13-PIN SOCKET, R-ANGLE	270581-001	⚠ 3
J4	CONN, D-SUB, R/A, 9 PIN, SOCKET	260917-09	⚠ 3
J5	CONN, HEADER, LOCKING, TOP, KEYED (US/CAN, JAPAN)	271897-002	⚠ 3
J6	CONN, HEADER, 2.5 MM, THRU,16 POS	270584-016	⚠ 3
J7	CONN, HEADER, PC MNT, KEYED	271899-010	⚠ 3
XJ3	BRACKET, SUPPORT, 13P, SQR, CONN	271639-001	
-	LABEL, FUSE, 1.6A, 250V (EURO, UK, AUS)	279918-01600	
-	SCREW, HILO, 4-16 x .375, PAN, XREC	181621-06	

DISASSEMBLY PROCEDURES

Console Procedures

1. Outer Bezel Removal

1.1 Remove the DVD drawer bezel. To do this, you will need to either apply power to the console and press the EJECT button, or use the manual DVD drawer eject function. This is done by placing a small screwdriver into the front of the slot located in the bottom of the bezel sub-assembly and rapidly moving the screwdriver toward the rear of the console. This will press in the built-in eject pin and cause the DVD drawer to open.

1.2 Gently unclip the DVD drawer bezel from the front of the DVD drawer and lift it off.

1.3 Close the DVD drawer.
IMPORTANT NOTE: If you close the drawer manually with no power applied, it will not latch properly. Once you have repaired the unit, make sure to apply power to the console and cycle the drawer open and closed to properly latch it in place before returning it to the customer. Failure to do this will cause the drive to be damaged in shipment.

1.4 On the bottom edge of the outer bezel assembly, lift the bezel edge away from the console slightly. Lift the top edge of the outer bezel assembly away from the console slightly. It should lift off and away from the console, revealing the button PCB, the IR PCB (located below the center of the button PCB) and the display PCB assembly.

2. Top Cover Removal
Re-assembly Note: When replacing the top cover, torque the top cover screws to no more than 5 inch/lbs. If you over-torque these screws, you will strip out the screw boss in the top cover.

2.1 Perform procedure 1.

2.2 Place the console onto a soft surface with the bottom facing upward. Using a Phillips-head screwdriver, remove the six screws that secure the top cover to the base.

DISASSEMBLY PROCEDURES

2.3 Grasp the console between the top and bottom of the unit, ensuring that you have a good grip on the unit, and carefully flip the console over onto its feet. Lift the top cover straight off.

3. Inner Bezel Sub-assembly Removal (includes Button PCB, IR Receiver PCB and Display PCB)

3.1 Perform procedure 2.

3.2 Unplug the inner bezel sub-assembly ribbon cables from J6500 and J6700 on the main PCB.

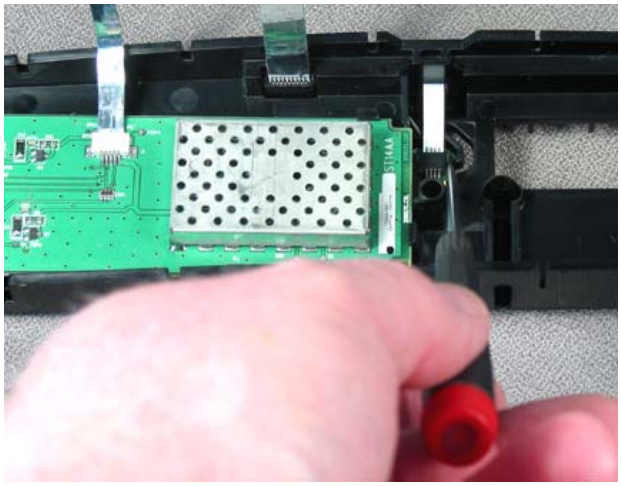
3.3 Using a Phillips-head screwdriver, remove the three screws that secure the bezel to the console. There is one screw at each end of the bezel and one in the center below the IR receiver.

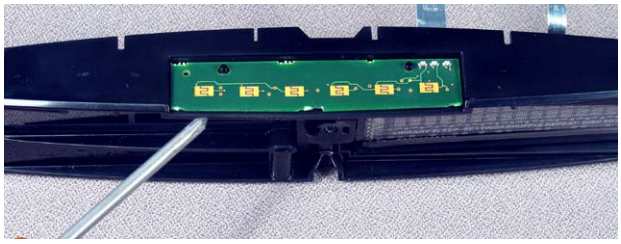
3.4 Lift off the bezel. The button PCB, IR receiver PCB and display PCB will come off with the bezel.

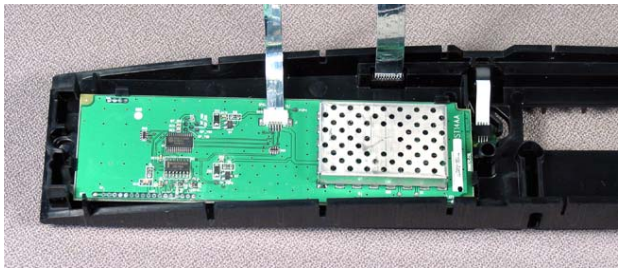
3.5 The IR receiver PCB is connected to the button PCB by a ribbon cable. To remove it, unplug the ribbon cable at the button PCB end, and use a small flat-tip screwdriver to push back the small plastic arm that retains the PCB in the bezel. Lift out the PCB.

3.6 The button PCB is retained in the top of the bezel. To remove it, unplug the IR receiver PCB ribbon cable and the button PCB ribbon cable. Once the ribbon cable is unplugged, press upward on the ribbon cable connector on the underside of the bezel top edge. The button PCB should slide off of the bezel posts.

3.7 The display PCB assembly is located in the right side of the bezel. To remove it, lay the bezel face-down. Use a small flat-tip screwdriver to release the display PCB from the four retaining clips. Lift out the display PCB assembly. **Note:** The display PCB assembly is not repairable. You must replace it as an assembly if it is defective.







DISASSEMBLY PROCEDURES

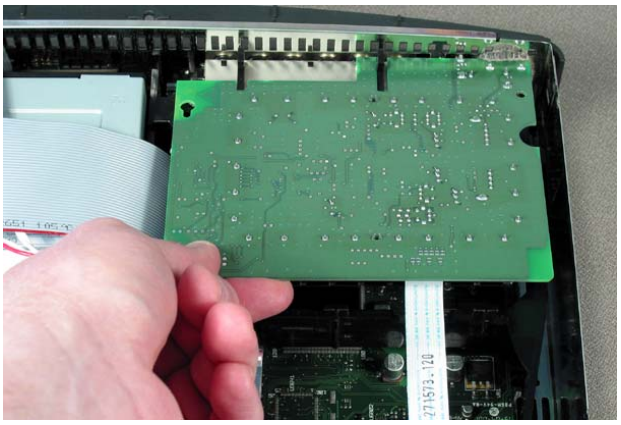
4. Tuner PCB Removal

4.1 Perform procedure 2.

4.2 Lift up on the forward edge of the and slide it toward the front of the console until the PCB jacks clear the rear panel. Lift the PCB straight up.

4.3 Unplug the tuner PCB ribbon cable from J6000 on the main PCB.

Re-assembly Notes:
- Make sure that the RF gasket is in place on the FM antenna connector when re-installing the PCB assembly.
- Make sure that the FM RF connector is centered in the opening in the rear panel before tightening the top cover screws.

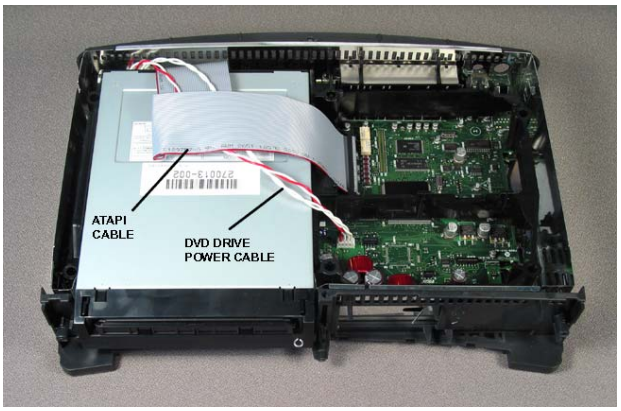


5. DVD/CD Drive Removal

5.1 Perform procedure 3.

5.2 Unplug the drive power cable from J3202 on the main PCB.

5.3 Unplug the ATAPI cable from J3200 on the main PCB.



5.4 Lift the drive and the drive mounting bracket out of the console.
Note: The drive mounting bracket is the plastic bracket that the drive is mounted to that also goes over the main PCB to support the tuner PCB.

5.5 Make a note of the distance the front of the drive overhangs the front edge of the bracket. You will need to align the new drive in the same way, within about 1/16” (2mm). Failure to do this will cause the DVD drive drawer bezel to not line up properly with the LCD display bezel on the front of the console when re-assembled.

5.6 Remove the four screws that secure the drive to the drive mounting bracket. Remove the DVD drawer eject pin from the manual eject hole in the front of the drive. Retain this pin for the new drive.

DISASSEMBLY PROCEDURES

Re-assembly Note: Be sure to install the DVD drawer eject pin into the manual eject hole in the front of the drive before re-installing the bezel assembly.

6. Hard Disc Drive Assembly Removal (GSX consoles only)

6.1 Perform disassembly steps 5.1 to 5.4.

6.2 Unplug the hard disc drive ribbon cable from the hard drive assembly. Make a note of the pin 1 location as denoted by the red stripe on the ribbon cable.

6.3 Lift the hard disc drive assembly out of the console base. The hard disc drive assembly includes the hard disc drive, the thermal pad and the heat spreader plate.

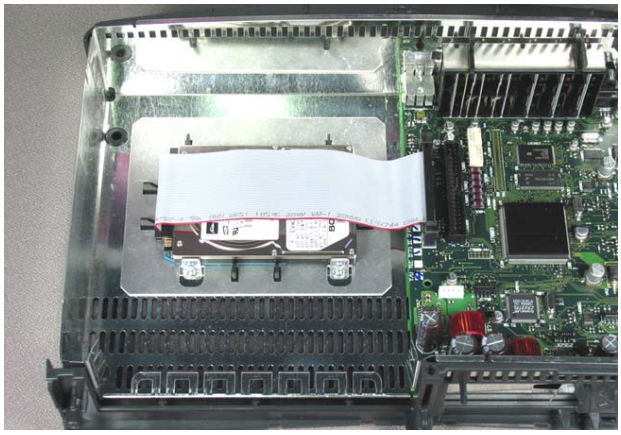
6.4 Remove the ribbon cable from the hard disc drive for re-use on the replacement drive.
Re-assembly Note: When connecting the ribbon cable to the new hard drive assembly, take care that the red stripe aligns with pin 1 of the connector.
CAUTION: Handle the replacement hard drive with care. Do not physically shock the replacement hard drive assembly. Damage to the drive could occur. Handle the new hard disc drive by the sides of the frame only. Do not put any pressure on the label or drive boards or you will damage the drive.

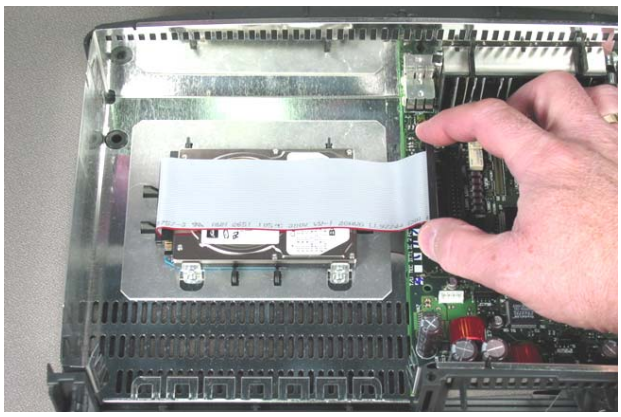
7. Main PCB Assembly Removal

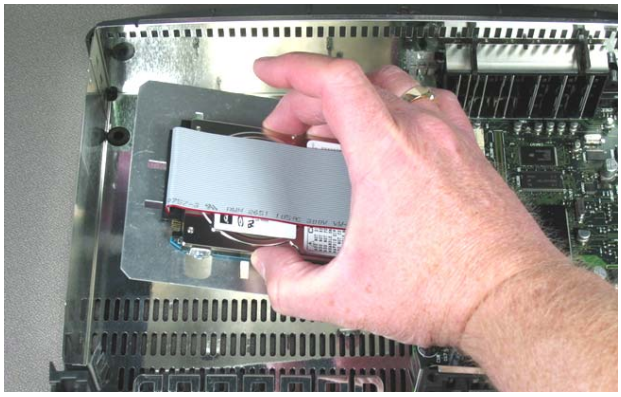
7.1 Perform procedure 5.

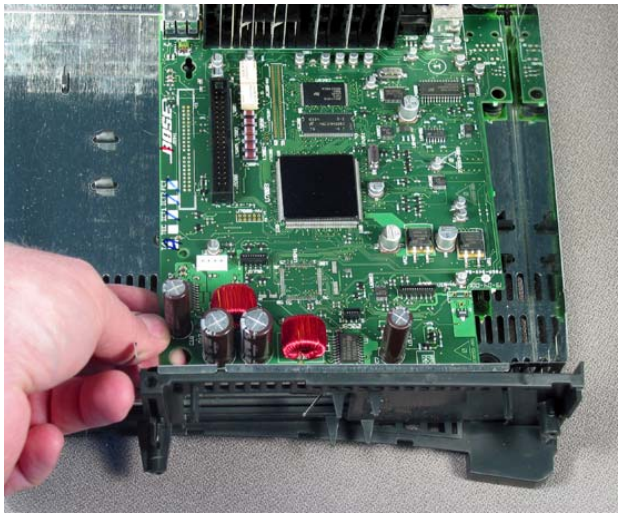
7.2 Lift up the front edge of the main PCB assembly. Slide the PCB forward until the jacks clear the back panel. Lift out the PCB assembly.

Re-assembly Notes:
1. Make sure that the RF gasket is in place on top of the Bose Link connector when re-installing the PCB assembly.
2. When installing the main PCB, make sure it is over the locating pin at the front of the console.









DISASSEMBLY PROCEDURES

Bass Module Procedures

1. Rear Enclosure Removal

1.1 Place the bass module on its side. Using a phillips-head screwdriver, remove the four screws that secure the rear enclosure to the bass module cabinet.

1.2 Lift the rear enclosure partially off of the bass module.

1.3 Unplug the transformer primary cable at J5 on the input/output PCB located on the back of the rear enclosure.

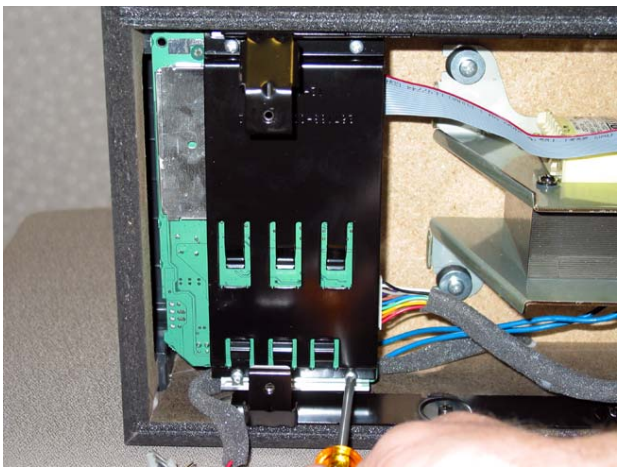
1.4 Unplug the two ribbon cables at J6 and J7 that run from the input/output PCB to the main PCB. Lift the rear enclosure away from the bass module cabinet.

2. Main PCB Removal

2.1 Perform procedure 1.

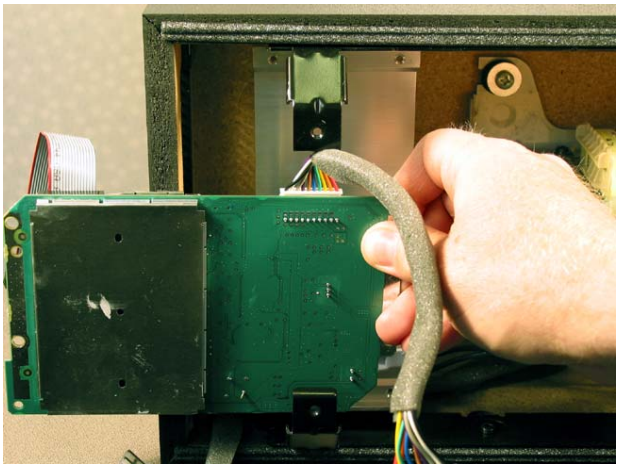
2.2 Unplug the woofer harness from the main PCB at J350. This harness plugs into the connector through the holes in the bottom of the main PCB.

2.3 Using a phillips-head screwdriver, remove the four screws that secure the heatsink bracket to the heatsink. Lift off the heatsink bracket.



DISASSEMBLY PROCEDURES

2.4 Carefully lift the main PCB away from the heatsink. Unplug the power transformer secondary harness from the main PCB at J5. Rotate the main PCB clear of the cabinet until it is at about 90 degrees from the heatsink. At this point, you should be able to lift the PCB clear of the rear enclosure mounting brackets.



3. Power Transformer Removal

3.1 Perform procedure 2 to remove the amplifier/DSP PCB.

3.2 Using a soldering iron, apply heat to the head of one of the screws that secure the tranformer to the bass module cabinet.

Apply heat for about 20 seconds. Immediately after removing heat from the screw head, use a phillips-head screwdriver to remove the screw. Repeat this for the other three screws.

Heating the screw head releases the threadlock adhesive that is used on these screws in manufacturing.

3.3 Lift the power transformer out of the cabinet.

4. Input/Output Board Removal

4.1 Perform procedure 1 to remove the rear enclosure.

4.2 Using a phillips-head screwdriver, remove the two screws that secure the input/output board bracket to the rear enclosure. Lift off the bracket. Slide the input/output board out of the rear enclosure.

DISASSEMBLY PROCEDURES

Standard Satellite Array Procedures

Notes:

• The standard satellite arrays are non-repairable. These are the arrays that have the cloth grilles, and are physically larger than the Gemstone™ array.

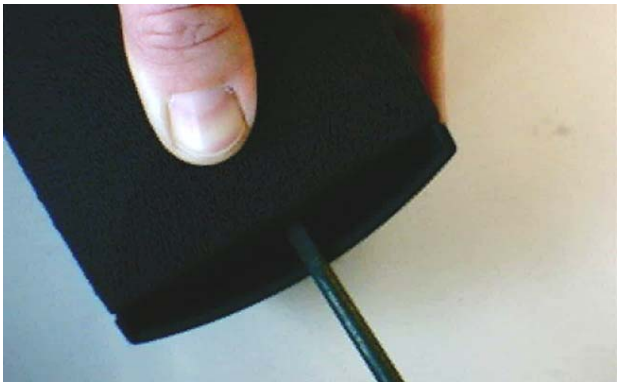
• The only parts that can be replaced on the standard arrays are the grille and the name-plate. Refer to the photos at right for the following procedures.

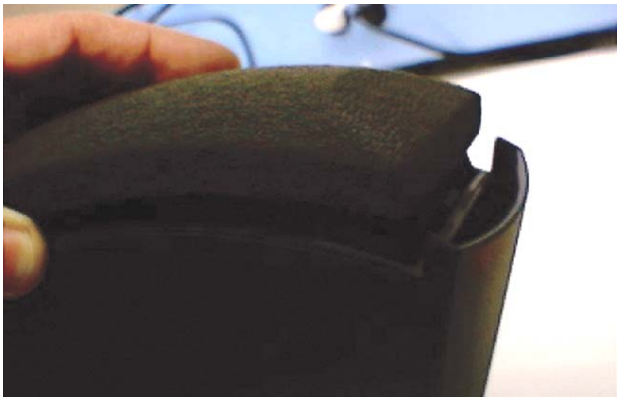
1. Grille Removal

1.1 Wrap some masking tape around the shaft of a flat-tip screwdriver approximately 1/2" back from the end. This is needed to protect the plastic enclosure of the array.

1.2 Place the satellite array on its back on a bench. Use your thumb to press down on the array grille at the center of the curve near the side. At the same time, use the screwdriver to pry the end of the grille off of the array enclosure. Repeat this at the other end of the grille.

Re-Assembly Note: Align the grille so that the Bose® logo is facing the same direction as the arrows on the front of the array enclosure. Press the grille in place. It should latch to the enclosure at each end.





Gemstone Satellite Array Procedures

1. Grille Removal

1.1 Using a scribe or small flat-tip screw-driver, grasp the edge of the grille. Gently pull the grille away from the enclosure.

2. Driver Removal

2.1 Perform procedure 1.

2.2 Using a Phillips-head screwdriver, remove the four screws that secure the driver to the enclosure. Lift the driver out of the enclosure and cut the wires as close to the driver as possible.

TEST PROCEDURES

Console Procedures

CAUTION: The DVD drive mechanism should not be closed by pushing it shut with no power applied to the console. Doing so could damage the drive. It must be closed with power applied so that the locking mechanism inside the drive will engage properly when the drawer is closed.

Equipment required:

- Console test cable with DC power supply or bass module w/system cable
- Audio signal generator
- Digital multimeter
- Analog to S/PDIF converter
- S/PDIF to optical converter
- AM/FM signal generator
- Video signal generator or DVD player
- Abex test DVD (TDV-540A)
- Video monitor
- Composite Video cable
- S-Video cable
- Optical cable
- Oscilloscope
- Model 3•2•1 Series II remote control

Test Setup

Set up the unit under test as shown in Figure 1 for the following tests.

1. Analog Audio Test

1.1 Apply a 1 Vrms, 1 kHz signal to the left and right AUX audio analog inputs.

1.2 On the console, select the AUX input. Press the volume up (+) button on the console for 10 seconds to put it at full volume.

1.3 Measure the output level at the left and right audio outputs on the console test cable. It should be 470 mVrms $\pm$ 10%.

1.4 Repeat steps 1.1 to 1.3 for the CBL-SAT and TV audio analog inputs.

2. Coaxial Digital Audio Test

2.1 Connect the audio signal generator to the input of the analog to S/PDIF converter.

2.2 Connect the output of the S/PDIF converter to the AUX coaxial digital input.

2.3 Apply a 500 mV, 1 kHz signal to the analog input of the S/PDIF converter. Reference a dB meter to the signal generator output signal.

2.4 On the console, select the AUX source. Press the volume up (+) button on the console for 10 seconds to put it at full volume.

2.5 Measure the output signal level at the analog outputs of the console test cable. The output should be 0 dB, +0.5/-1.5 dBr.

2.6 Measure the distortion level of the analog output signal at the left and right analog outputs of the test cable. The distortion level should be 0.07% maximum.

2.7 Repeat steps 2.1 to 2.6 for the CBL-SAT digital coaxial input.

2.8 Repeat steps 2.1 to 2.6 for the TV digital coaxial input.

3. Optical Digital Audio Test

3.1 Connect the audio signal generator to the input of the analog to S/PDIF converter.

3.2 Connect the output of the S/PDIF converter to the input of the S/PDIF to optical converter.

3.3 Connect the output of the optical converter to the VIDEO 1 optical input.

3.4 Apply a 250 mV, 1 kHz signal to the analog input of the S/PDIF converter. Reference a dB meter to the signal generator output signal.

TEST PROCEDURES

3.5 On the console, select the VIDEO 1 source. Press the volume up (+) button on the console for 10 seconds to put it at full volume.

3.6 Measure the output signal level at the analog outputs of the console test cable. The output should be 0 dB, +0.5/-1.5 dBr.

4. Video Tests

4.1 Connect the video generator or DVD player to the COMPOSITE VIDEO INPUT only.

4.2 Connect the video monitor to the COMPOSITE VIDEO OUTPUT.

4.3 Set the video generator to display a test pattern. If using a DVD player, load a DVD disc into the tray and start playback.

4.4 On the console, select the VIDEO 1 source.

4.5 Confirm that the test pattern or DVD video appears on the video monitor and that there are no obvious video problems.

4.6 Connect the video generator or DVD player to the S-VIDEO input only.

4.7 Connect the video monitor to the S-VIDEO output.

4.8 Set the video generator to display a test pattern. If using a DVD player, load a DVD disc into the tray and start playback.

4.9 On the console, select the VIDEO 1 source.

4.10 Confirm that the test pattern or DVD video appears on the video monitor and that there are no obvious video problems.

5. Internal DVD Video Test

5.1 Load the test DVD into the console.

5.2 Connect the video monitor to the S-VIDEO output of the console.

5.3 On the 3•2•1 Series II system remote control, press the CD-DVD button to start playback of the DVD disc.

5.4 Confirm that the test pattern or DVD video appears on the video monitor and that there are no obvious video problems.

6. DVD Audio Test

6.1 Load the test DVD into the console.

6.2 If necessary, connect the satellite arrays to the 9-pin D-sub connector.

6.3 On the 3•2•1 Series II system remote control, press the CD-DVD button to start playback of the DVD disc.

6.4 Verify that the audio plays.

7. CD Playability Tests

Test discs required:
ABEX TCD-714R
ABEX TCD-721R
ABEX TCD-725R
ABEX TCD-732R
Philips TS4

7.1 Insert the ABEX TCD-725R test disc into the console CD/DVD tray.

- Play the defect tracking (interruption) track. Verify that the track plays properly. The nominal is a 1.0 mm defect, 0.8 mm limit.
- Play the defect tracking (black dot) track. Verify that the track plays properly. The nominal is a 1.0 mm defect, 0.8 mm limit.
- Play the defect tracking (fingerprint) track. Verfiy that the track plays properly. The nominal is a 75 um defect, 65 um limit.

7.2 Insert the ABEX TCD-721R test disc into the console CD/DVD tray. Play the defect tracking (scratch) track. Verify that the disc plays properly. The nominal is a 1.6 mm defect, 1.0 mm limit.

7.3 Insert the ABEX TCD-714R test disc into the console CD/DVD tray. Play the defect tracking (eccentric disc) track. Verify that the disc plays properly. The nominal is a 280 um defect, 210 um limit.

7.4 Insert the ABEX TCD-732R test disc into the console CD/DVD tray. Play the defect tracking (warped disc) track. Verify that the disc plays properly. The nominal is a 1.0 mm defect, 0.7 mm limit.

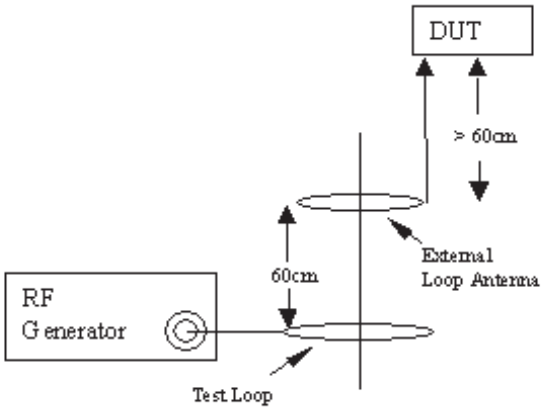
7.5 Insert the Philips TS4 test disc into the console CD/DVD tray. Play tracks 1 through 15, verifying that each track cues up within the test limits. Nominal is 2 seconds or less, limit 3 seconds.

3•2•1 Series II Console Tuner Adjustments / Measurements

The following tests can be performed without the use of an IBM compatible PC.

AM Adjustments

For all AM alignments and tests plug the AM antenna into the console and position it 2 feet away from the unit. Configure the AM antenna, a standard test loop and RF generator as shown below to create the specified field strength for each test. The equivalent field intensity in dBuV/m is 20 dB less than the generator output level in dBuV emf at the receiving antenna. The signal levels given do not include this factor.



AM Loop Antenna Test Setup

8. AM RF Tracking

Note: In order to perform this test, you will need to partially disassemble the console. Refer to the console disassembly procedures in the 3•2•1 Series II service manual, part number 273029-SM. Perform the following to gain access to the tuner adjustments.

- Eject the DVD/CD drawer and remove the drawer bezel.
- Remove the console front bezel.
- Remove the top cover.
- Lift out the tuner PCB. Disconnect the ribbon cable. Remove the metal cover. Reconnect the ribbon cable and place the board so that you can adjust the tuner slugs on T2000.

8.1 Connect an AC meter to the left or right analog output jack on the console test cable.

8.2 Inject a 1500 kHz (US, Dual Voltage) or 1503 kHz (Euro, UK, AUS and Japan) RF signal at a level of 90 dBuV emf, 30% modulation, 1 kHz modulation frequency.

8.3 Tune the console to 1500 kHz or 1503 kHz (as appropriate) and adjust the red slug (T2000) for maximum audio level at the left or right audio output. Verify that the level is greater than 40 mVrms.

8.4 Change the RF frequency to 600 kHz (US, Dual) or 603 kHz (Euro, UK, AUS and Japan) and re-tune the console to 600 kHz or 603 kHz (as appropriate).

8.5 Adjust the black slug (T2000) for maximum level. Verify that the level is greater than 40 mVrms.

8.6 Repeat steps 8.2 to 8.5 until maximum audio output is obtained without the need for further adjustment.

8.7 Replace the metal top cover over the RF circuitry. Re-install the tuner PCB into the console before continuing testing.

9. AM Sensitivity

9.1 Inject a 1080 kHz RF signal at a level of 55 dBuV emf, 30% modulation, 1 kHz modulation frequency.

9.2 Tune the console to 1080 kHz.

9.3 Measure the output level at the the console test cable audio output jacks. It should be between 70 and 320 mVrms.

9.4 Measure the distortion level of the output at the console test cable analog audio output jacks. It should be 10.0% max.

FM Adjustments

Note: Unless otherwise noted, set the RF generator for 1 kHz, mono modulation, pilot off and 75 kHz deviation. Power levels for FM testing are given in dBf at the antenna input to the unit.

Typically a test setup will consist of an RF generator with a 50 Ohm output impedance and a 50 Ohm to 75 Ohm impedance matching element. The two most commonly used impedance matching element are a resistive network which has a 5.7 dB insertion loss or a “lossless” transformer which has a 0.5 dB insertion loss.

To find the required setting in dBuV emf from a given dBf value for an RF generator with a 50 Ohm output impedance use the conversions in the following table.

Using a “lossless” transformer	Subtract 1.3 dB. eg: 65dBf => set generator to 66.8 dBuV emf
Using a resistive network (5.7dB loss)	Subtract 6.5 dB eg: 65dBf => set generator to 71.5 dBuV emf

Note: For generators with RF level resolutions of only 1 dB, round up.

10. FM Distortion Measurement / Adjustment

10.1 Inject a 98.1 MHz, 1 kHz mono, 75 kHz deviation, pilot off (83.0 MHz Japan units), RF signal at a level of 58 dBuV emf into J2001.

10.2 Tune the console to 98.1 MHz (83.0 MHz Japan units).

10.3 Measure the distortion plus noise (THD+N) at the audio output jacks. If it is less than or equal to 0.60%, verify that the audio level is between 520 and 1050 mVrms. If these are not the measurements you have, proceed to step 12.4.

10.4 If the THD+N is greater than 0.65%, or the audio level is less than 520 mV, adjust T2002 for minimum distortion. Verify that the level is greater than 520 mV and the distortion is less than 0.65%.

12. FM Sensitivity

12.1 Inject a 98.1 MHz (83 MHz for Japan units) RF signal at a level of 13 dBuV emf into J2001.

12.2 Measure the THD+N at the console test cable audio output jacks. It should be less than or equal to 3.0%.

TEST PROCEDURES

13. FM Stereo Separation

13.1 Inject a 98.1 MHz (83.0 MHz Japan units) RF signal set to 1 kHz left only modulation with 10% pilot modulation and 75 kHz total deviation at a level 58 dBuV emf into J2001.

13.2 Reference a dB meter to the level at the console test cable left audio output jack.

13.3 Switch the RF signal modulation to the right channel only.

13.4 Measure the level at the left audio output jack. It should read -25 dB or less.

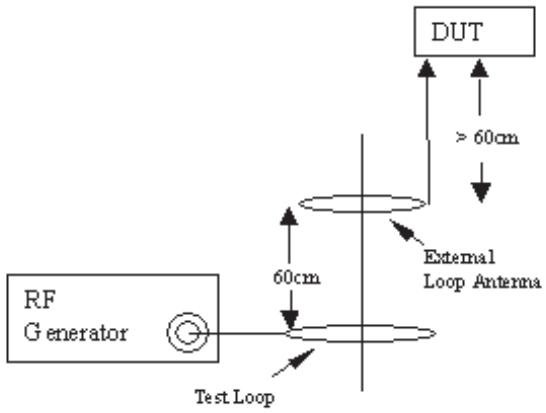
Computer Assisted Tuner Test Procedures

Additional Equipment Required:

- IBM Compatible PC
- Console test cable with DC power supply or bass module w/system cable
- ETAP test cable
- B+B Electronics RS-232 to TTL level shifter, model 232LPTTL

Note: Refer to the computer set up instructions in the appendix for proper connection to an IBM compatible computer.

Refer to the figure below, AM loop antenna test setup diagram, to achieve the proper field strength for the given RF generator setting.



AM Loop Antenna Test Setup

Some of the commands in the following tests will automatically set the calibration, requiring only an external RF signal at the input of the tuner. Other commands require the technician to make measurements and adjustments.

AM Adjustments

Set up the unit under test as shown in Figure 1. Place the console into TAP mode. Using the remote control or the console front panel buttons, select the AM source.

14. AM Alignment

14.1 Inject an 1500 kHz RF signal at a level of 90 dBuV emf, 30% modulation at 1 kHz.

14.2 Enter the command T1 into the computer. This will tune the unit to 1500 kHz.

14.3 You should receive the response “OK” on the computer screen. Verify that the console display shows that it is tuned to 1500 kHz.

14.4 Using a non-metallic tuning tool, adjust the red slug of T2004 for maximum output at the console test cable audio output jacks. Verify that the level is greater than 40 mVrms.

14.5 Inject a 600 kHz RF signal at a level of 90 dBuV emf, 30% modulation at 1 kHz.

14.6 Enter the command T2 into the computer. This will tune the unit to 600 kHz.

14.7 You should receive an “OK” response on the computer screen.

14.8 Using a non-metallic tuning tool, adjust the black slug of T2004 for maximum output at the console test cable audio output jacks. Verify that the level is greater than 40 mVrms.

14.9 Repeat steps 14.1 through 14.8 until the audio level is at a maximum without adjustment.

15. AM Stop Level

15.1 Inject a 1080 kHz RF signal at a level of 57 dBuV emf, 30% modulation at 1 kHz.

15.2 Enter the command T2 into the computer. This will tune the unit to 1080 kHz, then measures, reports, and stores to EEPROM the S-meter level. You should receive an “Smeter xx” response (where xx is the S-meter level) on the computer screen after inputting this command.

15.3 Apply a 1080 kHz RF signal at a level of 61 dBuV emf, 30 % modulation, 1 kHz.

15.4 Tune the console to 1000 kHz. Press the seek up >> button on the IR remote control. Verify that the console stops at 1080 kHz.

15.5 Apply a 1080 kHz RF signal at a level of 51 dBuV emf, 30 % modulation, 1 kHz.

15.6 Tune the console to 1000 kHz. Press the seek up >> button on the IR remote control. Verify that the console does not stop at 1080 kHz.

FM Tuner Tests

Note: For all FM measurements and adjustments, the RF signal is to be connected from the signal generator to J2001 via a 50 to 75 Ohm impedance matching network. Ensure the signal generator is configured a 50 Ohm output impedance, if necessary. The input levels stated below are to be as read at the input of J2001.

FM Adjustments

On the console front panel, switch the source to FM.

16. FM IF Centering Adjustment

16.1 Inject a 98.1 MHz, 1 kHz mono modulation, pilot OFF, 75 kHz deviation RF signal at a level of 43 dBuV emf into J2001.

16.4 Enter the command “T7” into the computer. The tuner micro will tune the radio, perform the IF Offset processing, and write the proper offset to EEPROM. You will receive a response of “IF Offset: x”, where x is (-1, 0, 1) representing an IF offset of (-25, 0, 25) kHz.

17. FM Distortion Measurement/ Adjustment

17.1 Inject a 98.1 MHz, 1 kHz mono modulation, pilot OFF, 75 kHz deviation RF signal at a level of 58 dBuV emf into J2001.

17.2 Enter the command TS1A8,0 into the computer. This will tune the unit to the appropriate frequency. You will get an “OK” response from the console.7

17.3 Measure the distortion plus noise (THD+N) at the console test cable audio output jacks. If it is less than or equal to 0.60%, verify that the audio level is between 520 to 1050 mVrms. If these are not the measurements you have, proceed to step 18.4.

17.4 If the THD+N is greater than 0.65%, or the audio level is not between 520 to 1050 mVrms, adjust T2001 for minimum distortion. Verify that the distortion level is now less than or equal to 0.60% and that the audio level is between 520 to 1050 mVrms.

18. FM Sensitivity

18.1 Inject a 98.1 MHz, 1 kHz mono modulation, pilot OFF, 75 kHz deviation RF signal at a level of 13 dBuV emf into J2001.

18.2 Measure the THD+N at the audio output jacks. It should be less than or equal to 3.0%.

19. FM Stereo Separation

19.1 Inject a 98.1 MHz RF signal set to 1 kHz left only modulation with 10% pilot modulation and 75 kHz total deviation at a level 58 dBuV emf into J2001.

19.2 Enter the command TS1A8,0 into the computer. You will receive an “OK” response from the console, and the unit will tune to the appropriate frequency.

19.3 Reference a dB meter to the left audio output jack on the console test cable.

19.4 Switch the RF signal modulation to the right only channel.

19.5 Measure the left audio output jack. It should read -25 dB or less.

20. FM Stop Level

20.1 Inject a 98.1 MHz, 1 kHz mono modulation, pilot OFF, 75 kHz deviation RF signal at a level of 23 dBuV emf into J2001.

20.2 Enter the command T3. The tuner micro tunes the radio, then measures, reports, and stores to EEPROM the s-meter level. You should get a response of “Smeter: xx” from the console, where xx is the reading.

20.3 Set the RF generator for 98.9 MHz, 1 kHz mono modulation, pilot OFF, 75 kHz deviation RF signal at a level of 28 dBuV emf into J2001.

20.4 Enter the command TC5. This is the seek up command. Verify that the unit stops at 98.9 MHz.

20.5 Set the console for 98.1 MHz.

20.6 Set the RF generator for 98.9 MHz, 1 kHz mono modulation, pilot OFF, 75 kHz deviation RF signal at a level of 18 dBuV emf into J2001.

20.7 Enter the command TC5. This is the seek up command. Verify that the unit does not stop at 98.9 MHz.

21. FM Stereo & Force Mono Threshold

21.1 Inject a 98.1MHz RF signal set to 1kHz stereo L = -R modulation with 10% pilot modulation and 75 kHz total deviation at a level of 33 dBuV emf into J2001.

21.2 Enter the command T5 into the computer. The tuner micro tunes the radio, then measures, reports, and stores to EEPROM the s-meter level.

21.3 Inject a 98.1MHz RF signal set to 1kHz stereo L = -R modulation with 10% pilot modulation and 75 kHz total deviation at a level of 38 dBuV emf into J2001.

21.4 Re-tune the radio via ETAP by entering the TS1A8,0 command. You should receive an “OK” reply from the console.

21.5 Verify that the left channel audio output level at the console test cable analog outputs is > 100 mVrms. On the console display, verify that the STEREO LED is lit.

21.6 Decrease the RF generator level to a level of 28 dBuV emf into J2001.

21.7 Verify that the left channel audio output level at the console test cable analog output is < 100 mVrms. On the console display, verify that the STEREO LED is not lit, and that the console is in mono mode.

22. FM Signal to Noise Ratio

22.1 Set the RF signal generator to 98.1 MHz, 1 kHz modulation, pilot off, 75 kHz deviation and at the level that corresponds to 58 dBuV emf into J2001.

22.2 Measure the output level at the left or right console test cable analog audio output jack. Reference a dB meter to this level.

22.3 Turn off the RF modulation and verify that the level drops by > 60 dB.

23. Hard Drive Self Test (GSX consoles only)

23.1 Issue the TAP command HS (hard disk self test). You will receive an “OK” response. The test will run for two minutes.

23.2 To retrieve the test results, issue the TAP command QHC (query hard drive self test results). Refer to the table below for a list of responses. The 2nd character will count down to “0”. When the second character is a “0”, the test is complete.

XX	Result
00	Test passes.
10	Test failed. Did not complete: aborted by the host.
20	Test failed. Did not complete: interrupted by reset.
30	Test failed. Did not complete: fatal error.
40	Test failed. Test completed with unknown failure.
50	Test failed. Test completed with electrical or write element failure.
60	Test failed. Test completed with servo/seek element failure.
70	Test failed. Test completed with read element failure.
X0	Test failed. Invalid response. (X: not 0-7)

24. User Interface Tests

24.1 Press each button on the console control panel and ensure its operation.

24.1.1 With the media center off, connect an external video source to the UUT’s external video inputs. Verify that the video appears on the video monitor. Do this for both the composite and S-Video outputs on the media center.

24.1.2 Press the POWER button on the console control panel. Ensure that the unit turns on.

24.1.3 To ensure remote operation, select at least one function (i.e. FM/AM) and ensure the unit responds appropriately to the remote control.

24.1.4 Press the VOLUME UP (+) and then the VOLUME DOWN (-) button on the console control panel. Ensure that the unit responds appropriately.

24.1.5 With the radio tuned to a station, press and hold the ENTER button on the console control panel. The display shows PRESET # SET. Continue holding the ENTER button to save the preset.

24.1.6 On the GXS console only, the ENTER button is replaced by the STORE button. Insert a CD into the CD/DVD drawer and press the STORE button. Verify that the disc stores to the console. Once completed, be sure to delete the disc from the console.

24.1.7 Press either SOURCE button. Ensure, with each press, that the display cycles through the various sources.

24.1.8 Press the STOP/EJECT button. Ensure the DVD/CD drawer opens, and then press it once more to shut the drawer.

24.1.9 Press the POWER button. Ensure that the unit shuts off.

TEST PROCEDURES

Bass Module Procedures

Equipment required:

- Audio signal generator
- dB Meter
- Distortion meter
- Digital multimeter
- 2 Ohm, 50 Watt load resistor
- Bass module test cable (see instructions in the appendix)

Test Setup

Refer to Figure 2 for the following tests.

1. Unpowered Transformer Impedance Test

1.1 On the bass module, set the AC mains switch to the ON position (if applicable). For the International variation, set the voltage select switch to 115V.

1.2 Using a DMM, measure the transformer input impedance through the AC connector. For the dual-voltage variant, set the voltage select switch to 115V. Change the voltage select switch to 230V, and re-measure the AC input resistance. The resistance should be within the ranges specified below.

Part Number	Region	Ohms
273031-1xxxx, 273031-xxxxx	U.S./JAPAN, Taiwan	3.5 ± 15%
273031-2xxxx	International	9.8 ± 15%
273031-6xxxx	Dual-voltage (115V) (230V)	 3.7 ± 15% 9.8 ± 15%

2. Woofer DC Resistance Test

2.1 Remove the bass module rear enclosure using bass module disassembly/assembly procedure 1.

2.2 Remove the woofer harness from Jx on the bass module PCB. Measure the DC resistance of the woofer voice coil by measuring across the two pins of the woofer harness. It should be 1.55 Ohms ± 15%.

3. Power Up Test

3.1 Set up the computer to communicate smartspeaker commands with the system using the procedures in the appendix of this service manual.

3.2 Set up the bass module under test as shown in Figure 2. Apply AC mains voltage to the bass module.

3.3 Transmit two consecutive smartspeaker commands to turn on the system and remain muted. The commands should have at least 100msec spacing between them. The first command will wake the system. The second command tells the system to remain muted. The command bytes are represented in hexadecimal format: 0x01 0x00 0x00 0x01 space 0x01 0x00 0x00 0x01

The speaker should respond “0x00”.

3.4 Select the analog inputs by transmitting the following “SOURCE TYPE” message: 0x0D 0x00 0x02 0x0F

The speaker should respond “0x00”.

3.5 Set the stream type by transmitting the following :STREAM METADATA” message: 0x0E 0x00 0x00 0x00 0x0E

The speaker should respond “0x00”.

3.6 Transmit the smartspeaker SET MAIN ATTENUATION message to set the attenuation to 12 counts (0-100): 0x02 0x00 0x0C 0x0E

The speaker should respond “0x00”.

TEST PROCEDURES

4. Air Leak Test

4.1 Apply a 45Hz, 2.0 Vrms sine wave to the Left analog input on the system test cable.

4.2 Listen for air leaks around all cabinet seams, joints and wire harness thru-holes. Air leaks will be heard as a hissing or sputtering noise. Test duration should be 5 seconds minimum. Repair any air leaks. All repairs must be hidden.

5. Frequency Sweep Test

5.1 Apply a 2.0 Vrms, 10 Hz signal into the right analog input on the system test cable.

5.2 Sweep the input frequency from 10 Hz to 500 Hz. Listen for any extraneous noises such as buzzes, rattles, ticks, port noise or distortion.

6. Array Amplifier and Control Signal Tests

6.1 Transmit the smartspeaker SET MAIN ATTENUATION message to set the attenuation to 36 counts (0-100): 0x02 0x00 0x24 0x26

PASS: Speaker responds 0x00.

6.2 Apply a 2Vrms,1000 Hz ±1% sine wave in both left and right analog input positive terminals, J3.9 and J3.12. Ground the left and right analog input negative terminals, J3.8 and J3.10.

PASS: The voltage across the array amplifier loads lie within the following ranges:

LC, RC: 2.0 to 2.9 Vrms
LS, RS: 1.2 to 1.8 Vrms

6.3 Short the SPKR-SENSE input (J4.3) to the Shell of J4.

PASS: The voltage across the center array amplifier loads exceed the following values:

LC, RC > 3.0 Vrms

6.4 Select the S/PDIF input by transmitting the following “SOURCE TYPE” message: 0x0D 0x00 0x03 0x0E

PASS: Speaker responds 0x00.
(There is no need to repeat the “STREAM METADATA” message.)

6.5 Apply a -6dB peak value,1 kHz ± 1% PCM stream in both left and right samples of a S/PDIF signal connected differentially to the system test cable SPDIF input.

PASS: The voltage across the center array amplifier loads exceed the following values:

LC, RC: > 3.0 Vrms

6.6 Apply 3.3 vdc to CONSOLE-MUTE and wait 500msec.

PASS: The voltage across the array amplifier loads are < 10 mVrms.

6.7 Open CONSOLE-MUTE.

PASS: The voltage across the array amplifier loads are > 3.0Vrms.

Satellite Array Procedures

Notes:
• The standard 3•2•1 Series II satellite arrays are non-repairable. The grilles can be replaced using the disassembly/assembly procedures.
The 3•2•1GS Series II satellite arrays are repairable. Refer to the disassembly procedures in the service manual.
• Each satellite array contains two identical drivers that are wired independently. You must test each of them separately unless otherwise specified.

1. DC Resistance Test

1.1 Using a DMM, measure the DC resistance of each of the array drivers. Each should measure 3.2 Ohms ± 10%.

TEST PROCEDURES

2. Phase Test

2.1 Remove the array grille using array disassembly procedure 1.

2.2 Observing polarity, apply a +6 Vdc level to one driver on the array input connector.

2.3 Observe the Twiddler™ under test. When the DC level is applied, the driver should move outward. If it does, the Twiddler is wired correctly. If not, it is wired incorrectly. Repeat steps 2.2 and 2.3 for the other driver in the array.

3. Air Leak Test

3.1 Apply a 180 Hz, 3 Vrms signal to one of the Twiddler drivers in the satellite array for 5 seconds minimum.

3.2 Listen for air leaks around all enclosure seams, joints and the input connector. Air leaks will be heard as a hissing or sputtering noise. Repair any air leaks. All repairs must be hidden.

3.3 Listen for any rubbing or ticking noise from the Twiddler. Replace any driver that is defective.

Note: There is a normal suspension noise. To distinguish between a rub or tick and suspension noise, displace the cone slightly with your finger. If the rubbing can be made to go away or get worse, then it is a rub or tick. If the noise stays the same, it is suspension noise.

3.4 Repeat steps 3.1 to 3.3 for the other driver in the array.

4. Frequency Sweep Test

4.1 Jumper both of the drivers in a single array together. Both center pins of the array connector are negative (-). The two outer pins are the positive (+) pins.

4.2 Apply a 100 Hz, 3.0 Vrms signal to both of the array drivers.

4.3 Slowly sweep the signal generator from 100 Hz to 2.0 kHz. Listen for any extraneous noises such as buzzes, rattles, ticks, port noise or distortion. Replace any array with an extraneous noise that can be heard at a distance greater than 1 foot (0.3m).

Figure 8. 3•2•1 Series II Console Test Setup Diagram

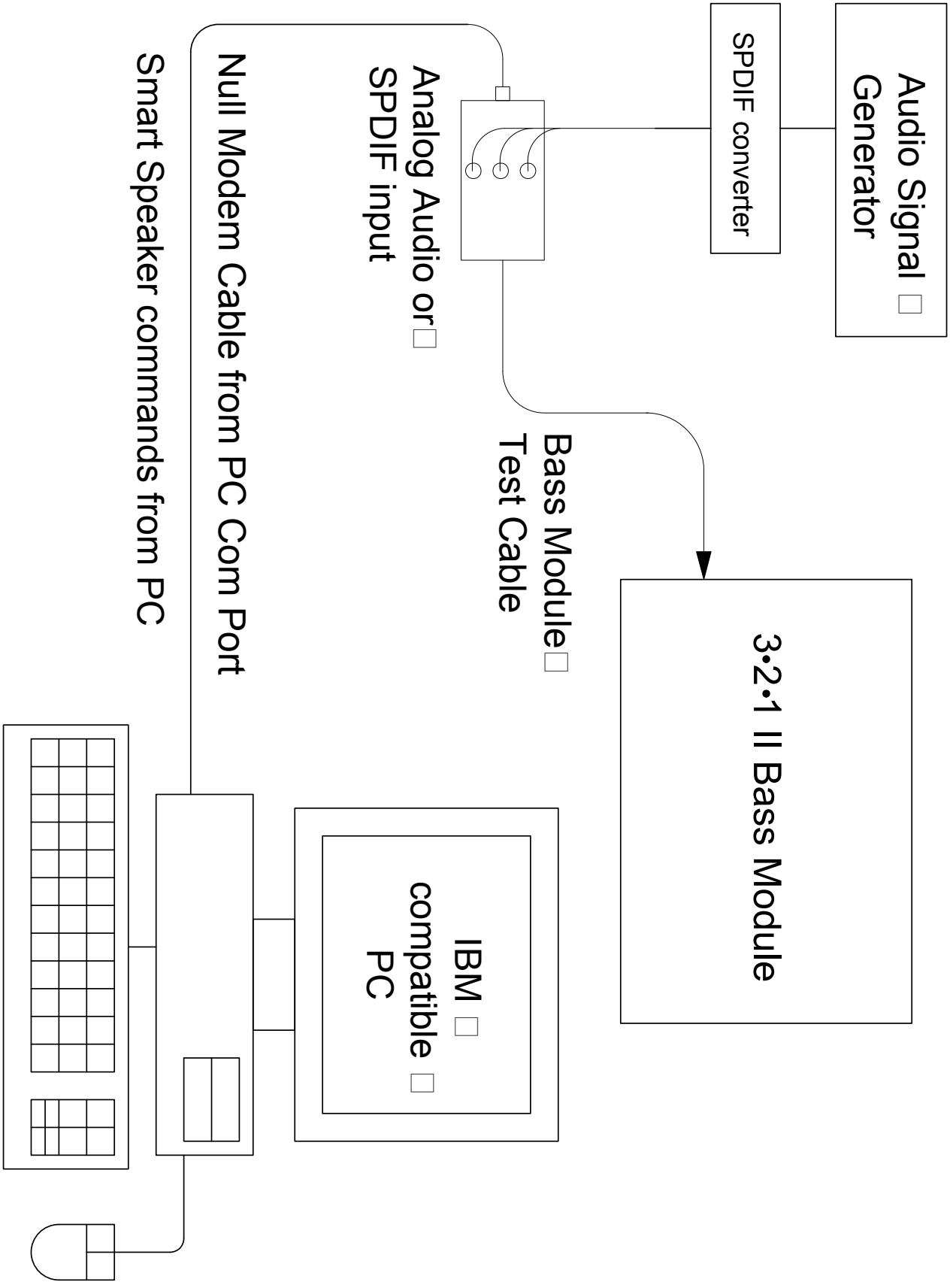
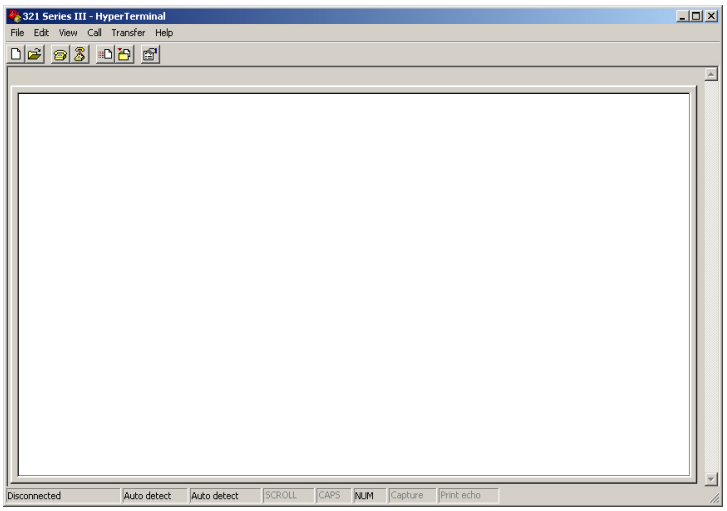


Figure 9. 3•2•1 Series II Bass Module Test Setup Diagram

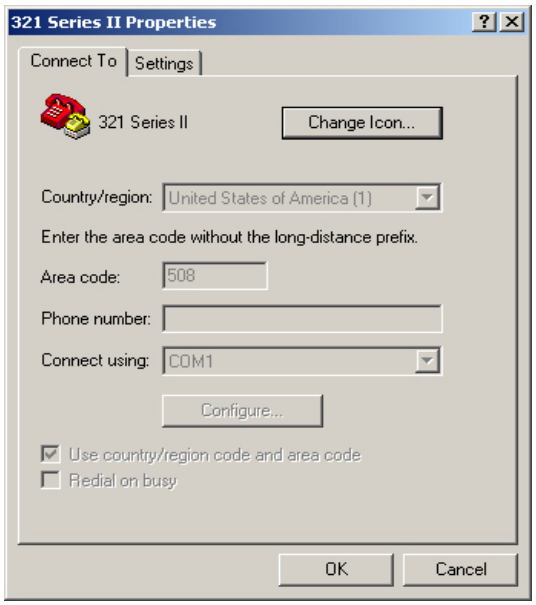
Computer Setup Procedure

Use this procedure to set up your IBM compatible PC for communication with the 3•2•1 system console.



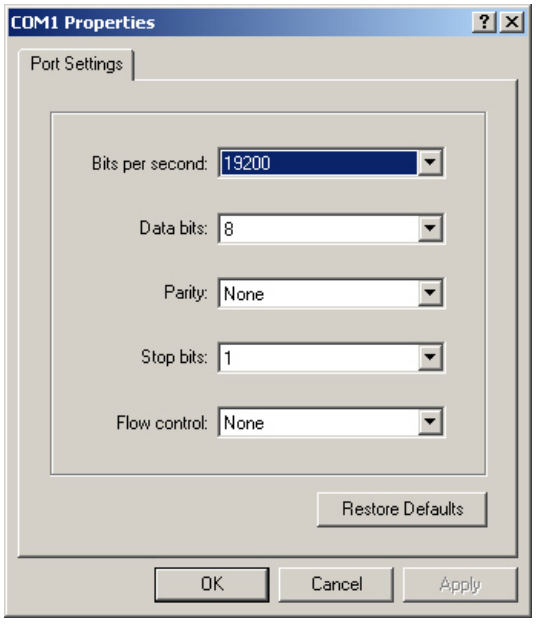
1. Open a terminal window, as shown at right, in either Terminal or Hyperterm, as applicable for the version of Microsoft® Windows® you are using on your PC.

2. In the terminal window, click on FILE, then PROPERTIES. Set the properties in the dialog box as shown at right.



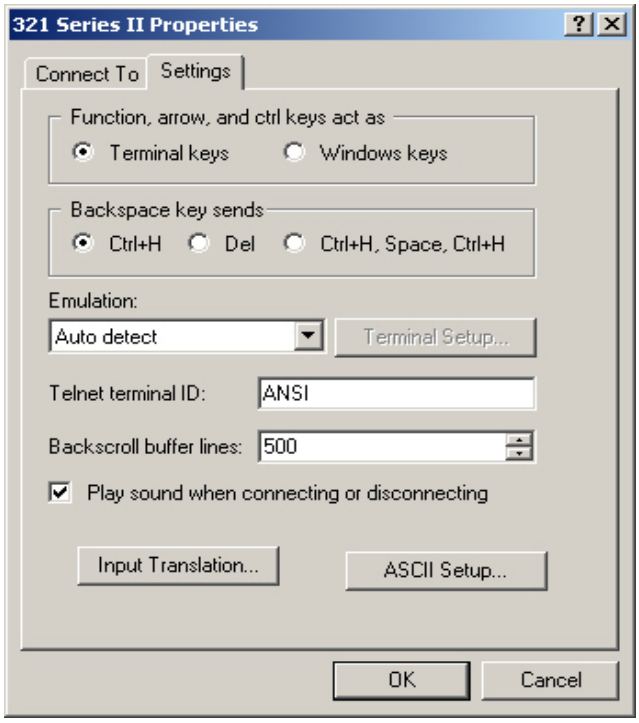
3. In the properties dialog box shown in step 2, click on CONFIGURE to set the COM1 Properties as shown at right. Click OK to return to the properties dialog box.

See the next page for the conclusion of this setup procedure.

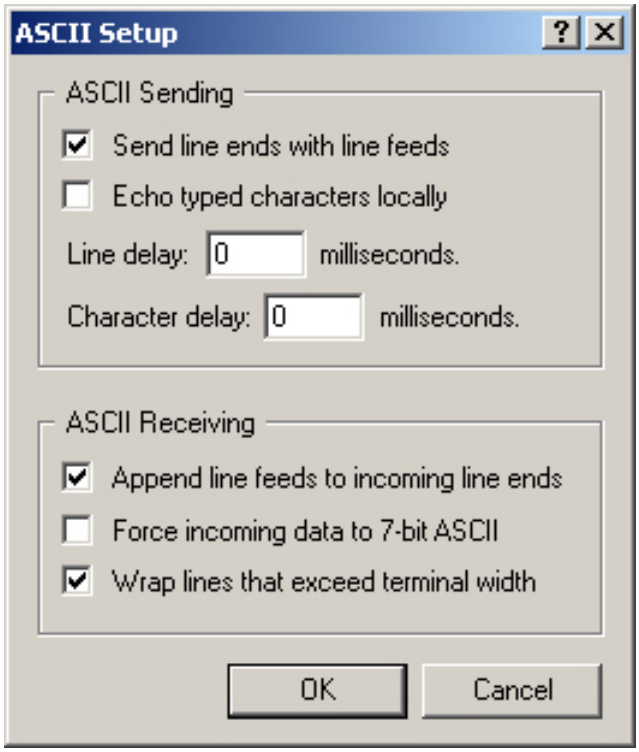


Computer Setup Procedure (continued)

4. In the properties dialog box, click on the SETTINGS tab and set the controls as shown in the example at right.
Notes:
1. Be sure to check "Play sound when connecting or disconnecting".
2. The examples shown on the following pages are for Hyperterminal as used with Windows® 2000 Professional. Your dialog box views may vary slightly depending on the version of Windows and Hyperterminal you have.



5. In the properties dialog box under the SETTINGS tab, click on the ASCII Setup button and set the controls to look like the example at right. **Note:** Be sure to click the "Send line ends with line feeds" box as shown. If you fail to check this box, the 321 II console will not communicate with the computer. Click OK to return to the properties dialog box.



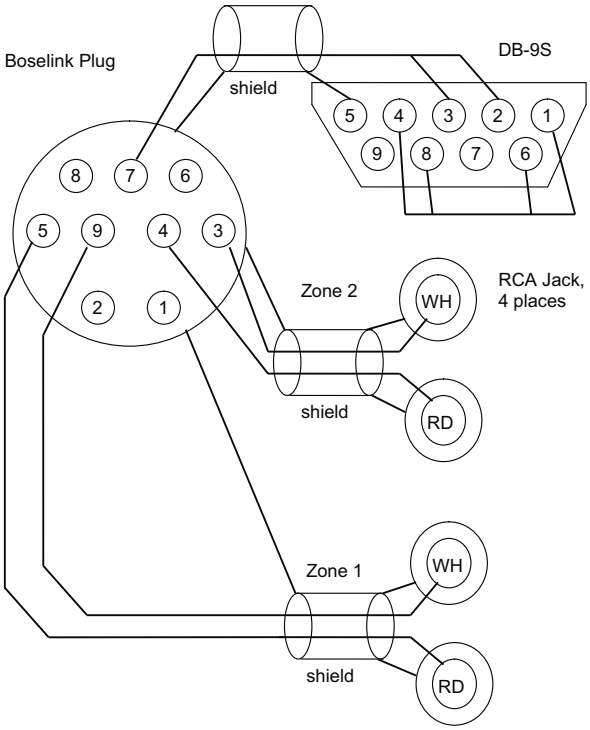
6. Once you have made all of the settings in the properties dialog box, click FILE/SAVE to save your setting. Click OK to close the window. You have now configured your PC to communicate with the 3•2•1 Series II system console. To connect to the console under test, in the terminal window, click on CALL, then CALL and listen for the sound. This will tell you that the PC is connected to communicate with the console. When you have completed your session, click on CALL, then DISCONNECT to end communication with the console.

TAP Cable Construction

ETAP Cable Construction and Setup

You will need to make up an ETAP cable using the diagram below. You can build this cable from a Boselink A or B cable and a DB9 connector. You don't need the RCA connectors if you don't want them. They are the Zone 1 and Zone 2 audio inputs for the console. You will also need to use the same level shifter you use for the 321 Series I for TAP. This level shifter made by B+B Electronics, model number 232LPTTL, and can be purchased online at http://www.bb-elec.com. Refer to the photo at right for an image of the converter.

B+B Electronics model 232LPTTL RS232 to TTL converter



Boselink ETAP Cable Wiring Diagram

ETAP Connection and Handling

ETAP Overview

A serial RS-232 interface is provided on the console for communicating with the test system. This interface, called ETAP (Extended Test Access Port), and it uses strings of standard ASCII characters as commands. The ETAP is accessed via the expansion port (BoseLink) interface. Some of the commands will be brokered by the Main Board through to the Tuner Board for implementation, and the subsequent replies will be generated by the Tuner Board and passed via the Main Board out to the test system

Terminal Parameters

Using an IBM compatible PC with Microsoft Windows, Open a hyperterminal window. Set up the session to communicate with the console using 19200 baud, 8 data bits, no parity, one stop bit.

Setting up console for ETAP mode

Immediately after system bootup (within 5 seconds) an ETAP command must be issued to put the console into ETAP mode. Any ETAP command can be used to set this. **Note:** The system must have power removed, and then re-applied in order for it to boot. Pressing the ON-OFF button on the console does not completely remove power. The Boselink input and ETAP port share the same hardware UART on the CS98200 and it must know which format to speak via the Boselink connector. If no ETAP command is issued in this time, then the console assumes that the unit is operating in a “customer environment” and switches to Smart Speaker.

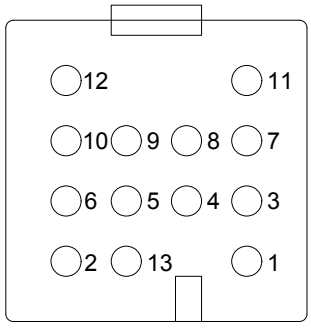
Bass Module Test Cable Construction

Parts Required:

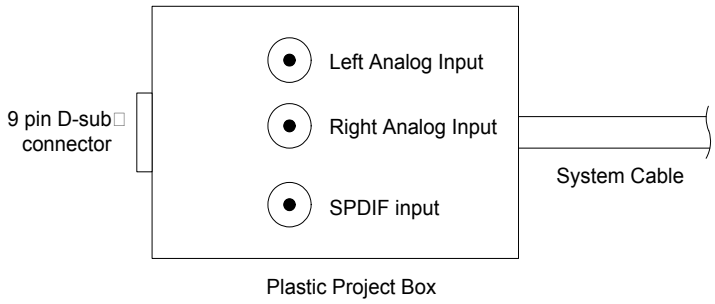
1 - 321 Series II system cable, Bose® part number 269997-001
1 - Female RCA jack, red center, Radio Shack part number 274-337
1 - Female RCA jack, white center, included in Radio Shack part number 274-337
1 - Female RCA jack, yellow center
1 - Female 9 pin DB-9 D-sub connector, Radio Shack part number 276-1538
1 - Plastic project box, Radio Shack part number 270-1803
1 - DB-9 male to DB-9 female cable (null modem cable), Radio Shack part number 26-117

Procedure:

1. Cut the system cable so that you have one section about 4 feet long and another about 6 feet long. Retain both pieces. You will build the console test cable from the 4 foot section later.
2. Drill holes in the plastic project box to mount your RCA and DB-9 connectors. Refer to the drawing below.
3. Using a DMM to verify proper wiring, connect the 6 foot section of the system cable's wires to the left and right analog audio input jacks, the digital SPDIF audio jack and the DB-9 D-sub connector. Refer to the cable connector pinout diagram and the bass module test cable wiring table below.
Note: You will use the DB-9 male to DB-9 female cable (null modem cable) to connect this test cable to your PC. This will allow you to control the bass module by sending Smart Speaker commands from your PC. Refer to the test procedures for the tests and associated commands.
Note: Be sure to label the connectors on your test cable box so that there is no chance of using the wrong connector for a test.



FACE OF CONNECTOR



Plastic Project Box

System Cable Pin Number	Signal Name	Termination
3	SPDIF+	Ring, RCA Jack, Yellow
7	DGND/SHIELD	Ring, RCA Jack, Yellow (connected to SPDIF+)
8	LEFT MINUS (-)	Ring, RCA Jack, White
9	LEFT PLUS(+)	Pin, RCA Jack, White
10	RIGHT MINUS (-)	Ring, RCA Jack, Red
11	SPDIF MINUS (-)	Pin, RCA Jack, Yellow
12	RIGHT PLUS(+)	Pin, RCA Jack, Red
13	SMART SPEAKER	DB-9 connector pins 2, 3
		DP-9 connector pins 1, 4, 6, and 8 tied together

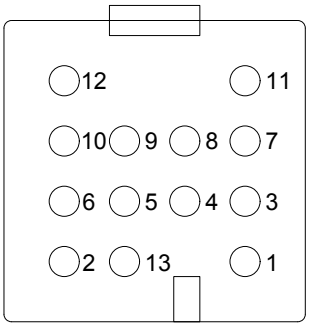
Bass Module Test Cable Wiring Information

Console Test Cable Construction

Overview:
This test cable will allow you to power up and test the 321 Series II console without the system bass module. It provides an input jack to allow connection of a Lifestyle DC power supply and also provides left and right analog output jacks for use during testing and troubleshooting.

Parts Required:
1 - 321 Series II system cable, Bose® part number 269997-001
1 - Female RCA jack, red center, Radio Shack part number 274-337
1 - Female RCA jack, white center, included in Radio Shack part number 274-337
1 - Female RCA jack, yellow center
1 - Female 5.5 x 2.1 mm DC Power jack, Radio Shack part number 274-1582
1 - Lifestyle DC power supply, Model DCS91, Bose part number 256764-001
1 - AC line cord, detachable, Bose part number 258491-001. For use with 256764-001.

Procedure:
1. Cut the system cable so that you have one section about 4 feet long and another about 6 feet long. Retain both pieces. You will use the 6 foot section to build your bass module test cable.
2. Strip back the outer cable plastic covering about 4 inches (100mm) to gain access to the internal wires.
3. Using a DMM to verify proper wiring, connect the 6 foot section of the system cable's wires to the left and right analog audio input jacks, the digital SPDIF audio jack and the 2.1mm power jack. Use heat shrink tubing to cover any exposed conductors. Refer to the cable connector pinout diagram and the console test cable wiring table below.
Note: Be sure to label the connectors on your test cable so that there is no chance of using the wrong connector for a test.
Note: You will use the Lifestyle power supply to connect to the 2.1mm power jack on the console test cable. This will allow you to power up the console without the system bass module.



FACE OF CONNECTOR

System Cable Pin Number	Signal Name	Termination
1	VRAW	Center, Power Jack, 2.1mm
2	PGND	Ring, Power Jack, 2.1mm
3	SPDIF+	Ring, RCA Jack, Yellow
7	DGND/SHIELD	Ring, RCA Jack, Yellow (connected to SPDIF+)
8	LEFT MINUS (-)	Ring, RCA Jack, White
9	LEFT PLUS(+)	Pin, RCA Jack, White
10	RIGHT MINUS (-)	Ring, RCA Jack, Red
11	SPDIF MINUS (-)	Pin, RCA Jack, Yellow
12	RIGHT PLUS(+)	Pin, RCA Jack, Red

Console Test Cable Wiring Information

Putting the Console into TAP mode

Perform the following steps:

1. Set up your computer's hyperterminal window as shown in the previous pages.

2. Connect the ETAP cable and RS232 to TTL level shifter to the serial data port on your computer. Connect the other end of the ETAP cable to the Boselink connector on the back of the 321 II console.

3. Open the hyperterminal window and connect to the console by selecting CALL. Once hyperterminal is showing "connected" in the bottom left of the window, you can go to step 4.

4. Apply power to the console.

Note: In order to get the console into TAP mode, you will need to have power removed from the console. Turning the console OFF using the ON-OFF button on the console does not completely remove power as required. After about 10 seconds from when power is applied, you should see the boot prompt ">" in the hyperterminal window to let you know that the console has booted.

5. Issue a TAP Command. Once you see this prompt, you have about 10 seconds to issue a TAP command to put the console into TAP mode. Any TAP command will do, but be sure to use a safe one that does not change any parameters you may not want changed. A good command to use is "FT" listed below. If you do not issue a TAP command within this window, the console will revert to Smart Speaker mode and will not respond to TAP commands.

Console TAP Commands

Test Name	Command	Reply
Query Functional Test Results (FT)	**'FT'**	**'RRRR'** where RRRR must be PASS to proceed. Console will return any 4 characters stored in FLASH.
Query Main Board Serial Number (SNM)	**'SNM'**	**'pDDDDSSSSNNPPPPPPRRVVVV'** where p is the plant code, DDDD is the date of manufacture, SSSS is the serial number, NN is the PCB identifier, PPPPPP is the product code, RR is the revision number, and VVVV is the variation number. Console will return any 23 ASCII characters stored in FLASH.
Query Main Board Software Version (SVM)	**'SVM'**	**'nnnnnn:xx.yy.zz'**, where nnnnnn = 'KN_CON'for Standard Code 'KP_CON' for Premium Code 'KNJCON' for Standard Japanese Code 'KPJCON' for Premium Japanese Code.
Query Tuner Alignment Results (QA)	**'QA'**	**'X'**, where 'X' is: 0 for unknown (info unprogrammed) 1 for PASS tuner alignment. 2 for FAIL tuner alignment.
Query Tuner Board Serial Number (SNT)	**'SNT'**	**'pDDDDSSSSNNPPPPPPRRVVVV'**, where p is the plant code, DDDD is the date of manufacture, SSSS is the serial number, NN is the PCB identifier, PPPPPP is the product code, RR is the revision number, and VVVV is the variation number.
Query Tuner Board Software Version (SVT)	**'SVT'**	**'xx.yy.zz'** **Note:** Units with inoperable Tuner Boards may reply 'NOT FOUND.'
Light All VFD Segments (PT25)	**'PT25'**	**'OK'**
Return VFD to Normal Operation (PT26)	**'PT26'**	**'OK'**

Console TAP Commands (continued)

Test Name	Command	Reply
AM/FM Seek Test (PT27)	**'PT27,xxx,y'** where xxx,y represents the frequency and band of the seek test starting channel. **38,1** = US AM 1080 kHz **3F,3** = Europe AM 1080 kHz **3E,5** = Japan AM 1080 kHz **1A8,0** = US FM 98.1 MHz **1AA,2** = Europe FM 98.10 MHz **11C,4** = Japan FM 83.0 MHz	**'Tuner Stopped: xxxx kHz AM' or** **'Tuner Stopped: xx.x MHz FM'** where xxx represents the station where the tuner stopped.
Query DVD ROM Drive (QD)	**'QD'**	**'rrrrrrrr, nnnnnnnnnnnnnnnnnnnnnn'** Where rrrrrrrr = the drive's 8-character ASCII firmware rev string returned from RISC0, but with ASCII spaces removed (RISC0 returns a 256-word, 512-byte block of drive sector data. Numbering words 0-255, the firmware string is words 23-26). Example: '1B10'. And where nn = the drive's 40-character ASCII model number string, also with ASCII spaces removed (words 27-46). Example: 'TOSHIBADVD-ROMSD-M1712'. **Note:** Units with inoperable/missing drives may reply 'NOT FOUND.'
Digital Audio Loopback Test (OPTSRCOWN)	**'OPTSRCOWN n'** where n is the source to assign the optical input 1=none, 2=AUX, 3=CBL/SAT, 5=TV.	**'Changed Optical Source Owner (Source ID n)'**
Restore/Set Console Volume Level (PT29)	**'PT29,nnn'** where nnn = ASCII string representing the desired Cobalt2 volume level, from 0-100.	**'PT29 READY'** CS98200 Response to TAP Command: 1. Restores the audio path to the normal operating state for console "OFF" mode (clearing the effects of the previous commands). 2. Prepares the console to play the speaker (presently OFF) at the indicated volume level (nnn).
Restore Factory Setting User Parameters (UP)	**'UP'**	**'OK'**, Indicates that all proper defaults have been restored.

Console TAP Commands (continued)

<table>
<tr><th>Test Name</th><th>Command</th><th>Reply</th></tr>
<tr><td>Setting Console Variant (CV)

Note: This is the preferred command for changing region code.</td><td>‘CV xxx’
where xx is a sequence of ASCII characters representing the proper console software variant.</td><td>‘OK’ See table below for variants.
<table>
<tr><th>Console Variant</th><th>Region Code</th></tr>
<tr><td>129</td><td>1</td></tr>
<tr><td>130</td><td>4</td></tr>
<tr><td>131</td><td>2</td></tr>
<tr><td>132</td><td>4</td></tr>
<tr><td>133</td><td>2</td></tr>
<tr><td>134</td><td>1</td></tr>
<tr><td>135</td><td>4</td></tr>
<tr><td>136</td><td>2</td></tr>
<tr><td>137</td><td>4</td></tr>
<tr><td>138</td><td>2</td></tr>
</table></td></tr>
<tr><td>Query Region Code (RC)</td><td>‘RC’
where x is a single ASCII character representing the desired region code.</td><td>‘Type Code = v
Vendor Resets = w
User Change = x
Region Mask = y
Playback Control Scheme = z’
where:
v = 0: no drive region set;
v = 1: drive region set;
v = 2: drive region set /w additional restrictions (last chance);
v = 3: drive region has been set permanently
w = count down the number of times available for manufacturer reset of region.
x = count down the number of times available for user / manufacturer reset of region.
y = specifies the drive region in which the drive is located. Each bit represents one of eight regions. If a bit is cleared in this field, the disc can be played in the corresponding region.
z = 0: does not enforce Region Playback Controls
z = 1: adheres to this specification and all requirements of the CSS license agreement for RPC.</td></tr>
<tr><td>Setting Region Code (RC x)</td><td>‘RC x’
where x is a single ASCII character representing the desired region code.
Note: Sending ‘RC v’ will match the region code to the selected console variant.</td><td>‘OK’
Note: The factory sets the region code for a console by asserting a console variant (CV) ETAP command, which is the recommended method of changing region code. It is possible, however, to change the region code of a console by sending a separate "RC x" ETAP command as shown here.
Note: Be aware that changing region code by using “RC x” may cause the region code mismatching between the DVD drive and the Main board software, and may cause the unit to not work. Sending ‘RC’ with no argument will query the region code.</td></tr>
</table>

Console TAP Commands (continued)

Test Name	Command	Reply
Turn Product Off (KP)	**'KP 2E,3,1'**	**'GENERATING KEY PRESS'** **Note:** This is a derivative of the "keypress" command: 2E is the key code, 3 is the producer, and 1 is the hold time in ms. The unit must be off to successfully update the FLASH in later test steps. Turn the UUT off via ETAP:
FLASH Update (FU)	**'FU'**	**'Done writing to FLASH.'** **Note:** This command must be given to make any changes to the console, such as changing region code, permanent. If you do not perform a flash update, the console will revert to the previous settings when power is removed.

Changing the Region Code

Load DVD

Insert the DVD disc for the region you are changing to into the tray using the EJECT button on the front of the Console. For example, to change a console to region 2, you will need to load a region 2 encoded disc into the tray.

Setting Console Variant (CV)

Consoles sharing the same Main Board software have different features and capabilities depending on the product variant. Using the hyperterminal program, send a Console Variant command via ETAP to change the console to the region code you want to activate its required features. The console should come back with an "OK", and the disc should now play. Refer to the console variant table information below for more information.

Once you have issued the CV xxx command (where xxx is the variant you wish to change to) and you have confirmed that the region code change has taken place by playing the disc, issue an FU command to perform a flash update on the console. This will write the change to the flash memory to make it a permanent change. The region code can be changed an additional three (3) times after this before the setting becomes permanent in the drive and no more changes are permitted.

Setting Console Variant (CV)	
ETAP ASCII COMMAND STRING:	'CV xxx' where xx is a sequence of ASCII characters representing the proper console software variant.
ETAP ASCII REPLY:	'OK'

Note: The console immediately changes the product's personality when it receives this command. The CV command, if sent without an argument, can also be used as a query to identify a console's currently selected feature set (command would return the 'xxx' characters, above). This table relates the UUT's product code to its proper Console Variant characters:

Product Code	Console BOM	Console Variant
035666	270900-1111x	129
035667	270900-1141x	130
035670	270900-2121x	131
035669	270900-2141x	132
036618	270900-3121x	133
036620	270900-1112x	134
037053	270900-1142x	135
037054	270900-2122x	136
037055	270900-2142x	137
036619	270900-3122x	138

APPENDIX

Obtaining System Information from the Media Center Display

You can obtain system information directly from the media center display by pressing a few buttons. Follow the steps below.

- Connect the media center and bass module as instructed in the owner's guide.
- Connect the system to AC mains.
- With the media center turned off, press and hold the ENTER button on the media center.
- When holding down the ENTER button, pressing the ON/OFF button will bring up the console system information on the console display. For each additional press of the ON/OFF button, you will get additional information. See the list below.
- Once you are done viewing the information, press the POWER button to clear the display.

Video Format: Press the ON/OFF button. You should see the video format information, similar to VIDEO: NTSC COMPOSITE + S. This indicates the video format the console is set to. You can change the video format that the console is set to by releasing the ON/OFF and ENTER buttons and pressing the VOLUME + button to step through the formats. They are as follows:

VIDEO: NTSC COMPOSITE + S
NTSC COMPONENT
NTSC PROGRESSIVE
PAL COMPONENT
PAL COMPOSITE + S

Console Software Revision: Press the ON/OFF button again. If you have console software version 01.01.05 through 01.03.00 installed, you will see information similar to CON: 01.03.00 now, which indicates that you have that version of software installed. If you have software revision 01.04.00 or later, you will see the hotel control information as described below.

Hotel Control: Press the ON/OFF button again. If you have console software version 01.04.00, known as hospitality code, installed when you press the ON/OFF button for the second time, you will see HOTEL CONTROL: OFF or ON on the display. You can toggle the setting by releasing the POWER and ON/OFF buttons and pressing the VOLUME + button. Setting the console to HOTEL CONTROL: ON will prevent users from accessing the settings menu, and from exceeding a maximum volume level that you set in this mode.

Console Variant Information: Press the ON/OFF button again. You should see the console variant information, similar to the following. CONSOLE VARIANT: 129.

Bass Module Software Revision: Press the ON/OFF button again. You should see the bass module software revision level, similar to BASS BOX SOFTWARE: 010100.

Tuner PCB Sofware Revision: Press the ON/OFF button again. You should see the tuner software revision level, similar to TUNER SOFTWARE: 01.00.00.

Console Serial Number: Press the ON/OFF button again. You should see the console serial number level, similar to CONSOLE SERIAL #: 035666941400018AZ.

Console Main PCB Serial Number: Press the ON/OFF button again. You should see the main PCB serial number, similar to MAIN BOARD SERIAL #: xxxxxxxxxxx274256xx0001.

Console Tuner PCB Serial Number: Press the ON/OFF button again. You should see the tuner PCB serial number, similar to TUNER BOARD SERIAL #: xxxxxxxxxxx274257xx0001.

APPENDIX

Obtaining System Information from the Media Center Display (continued)

Console Region Code Setting: Press the ON/OFF button again. You should see the console region code setting, similar to DVD REGION CODE: 1.

Console DVD Drive Software Revision and Hardware Information: Press the ON/OFF button again. You should see the DVD drive software level and drive information, similar to DVD DRIVE: 1B10 IBA DVD-ROM SD-M1712.

Console Main PCB Test Information: Press the ON/OFF button again. You should see the test information for the console main PCB, similar to MAIN BD FUNCTIONAL: PASSED.

Console Tuner PCB Alignment Information: Press the ON/OFF button again. You should see the tuner PCB alignment information, similar to TUNER BD ALIGNMENT: FF.

Console Serial Port (BoseLink Port) Information: Press the ON/OFF button again. You should see the serial port information, similar to SERIAL PORT: SMART SPEAKER. You can toggle the serial port setting by releasing the ON/OFF and ENTER buttons, and pressing the VOLUME + button. It will change to ETAP. Pressing the VOLUME - button will toggle the setting back to SMART SPEAKER.

Premium (GSX) Console System Information

Note: The following information will only be displayed on the GSX console. The standard console will not show this information as it does not have the hard disc drive or the ethernet port.

Hard Disc Drive Information: Press the ON/OFF button again. You should see the hard disc drive information, similar to HARD DRIVE: KA100A TOSHIBA MK4025GAS.

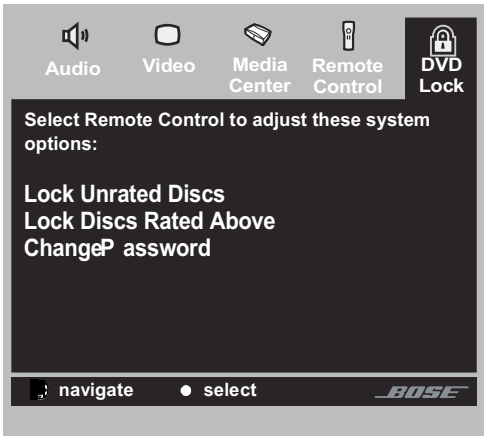
Hard Disc Drive Self Test: Press the ON/OFF button again. You should see the hard disc drive self test results, similar to HARD DRIVE SELF TEST: 00 00 00 10e5 0033r.

Gracenote Database Information: Press the ON/OFF button again. You should see the currently installed version of the Gracenotes database, similar to GRACENOTE DATABASE: HDD...DB: 01.01.03.

Ethernet Address Information: Press the ON/OFF button again. You should see the current ethernet address information, similar to ETHERNET ADDRESS: 000C8A008BCE.

DVD Lock options

The DVD Lock options allow you to restrict viewing of DVD videos with certain ratings. To activate this feature, you need to set a level of restriction and establish a password in the DVD Lock section of the System menu.



System Option	Settings	Description
Lock Unrated Discs	Off On	No restriction applies to unrated DVD movies. Restricts viewing access to unrated titles when password is set.
Lock Discs Rated Above	1 to 8	Helps prevent viewing discs above the selected number when a password is created.
Change Password	- - - -	Establishes a new four number code to restrict access to movies with certain ratings.

Setting a password and restriction level

Your password will help prevent unauthorized viewing of DVD videos that have a higher rating than your restriction level. There are 8 levels to choose from, matched to movie ratings set by the Motion Picture Association of America (MPAA).

1. Turn on your TV and select the correct TV input to view your 3•2•1 system.
2. Press the System button on your 3•2•1 remote control.
3. Using the right > and left < arrow buttons, hightlight the DVD Lock option.
4. Press Enter or the down arrow key V.

Note: If you are using the DVD Lock option for the first time, enter a four-digit password. Then enter it again to confirm.

5. Enter your four-digit password.
6. Using the down V button, scroll down to Lock Discs Rated Above.
7. Press the right arrow > button to see the available settings.
8. Press the up arrow /\ or down arrow V button to find the rating you want.
9. Press Enter or the left arrow < button to save the setting.
10. Press Exit to dismiss the Settings menu.

Parental Control Setting	MPAA Rating	Audience Restriction
8		None
7	NC-17	Adult audiences
6	R	Mature audiences
5		Mature teenage audiences
4	PG-13	Teenage audiences
3	PG	Mature young audiences
2		Most audiences
1	G	General

Example: Choosing a Parental Control Setting of 4, restricts access to videos rated above

DVD Lock options (continued):

DVD Lock Bypass

If a customer forgets his DVD Lock password, or if you have a system in for repair that is locked and will not let you play a DVD without a password, you can bypass the DVD Lock feature by following the steps below.

1. Select a non-DVD source and press the SYSTEM button on the remote.
2. Navigate to the “DVD Lock” icon on the far right of the TV screen and press ENTER.
3. The system will then request the user to enter a password. On the remote control, punch in the bypass code, which is 2673. This is a backdoor password for entering this menu only, not for allowing discs to play.
4. After the bypass password is entered, you will be able to change settings in the “DVD Lock” menu.
5. If you want to be able to play discs of all ratings, select OFF for “Lock Unrated Discs” and “8” for “Lock Discs Rated Above.” This will allow for all discs to play.
6. If you wish to have the parental control engaged, refer to the table on the previous page for ratings restriction definitions and options.

3•2•1 Series II System Date of Manufacture Information

Console - The product label for the console is located on the bottom of the unit.
The date of manufacture is embedded in the serial number on the label. The following is an example:

Serial No. 035666941400014AZ

You will notice that there are four numbers underlined. This is the date of manufacture (DOM).

The way it is read is that the first digit underlined represents the year of manufacture. The 4 indicates 2004.

The next three digits are the Julian date for the day of the year. In this example, that would be the 140th day of the year.

Bass Module - The date of manufacture information is embedded into the product serial number in the same format as is used for the console. The product label for the bass module is located on the rear of the cabinet.

The date of manufacture is embedded in the serial number on the label. The following is an example:

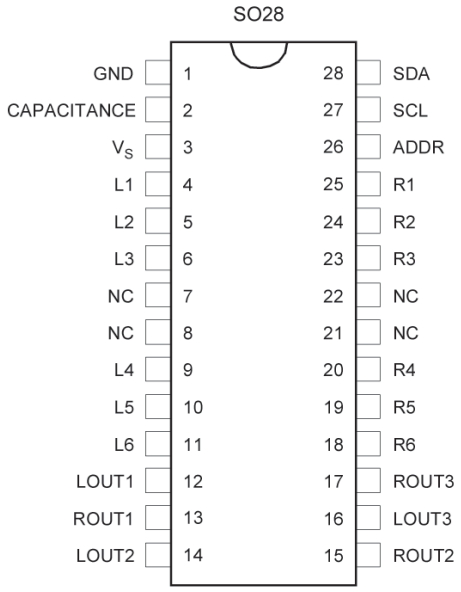
Serial No. 034125941420677AS

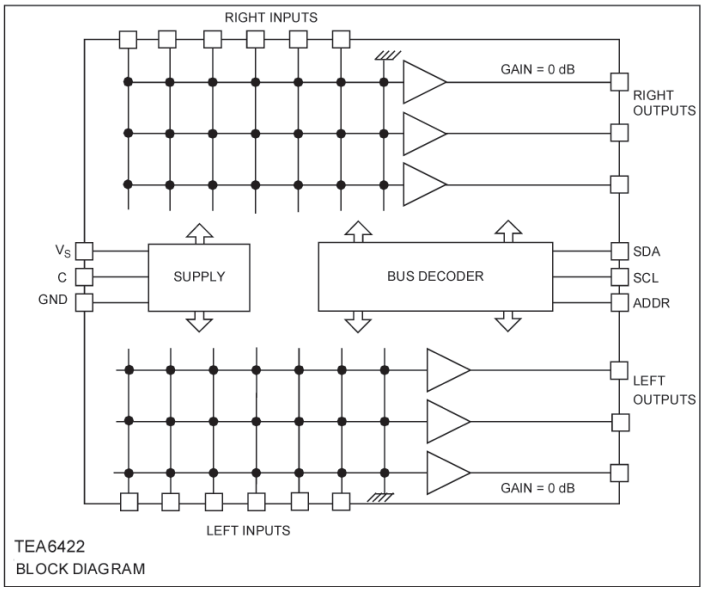
You will notice that there are four numbers underlined. This is the date of manufacture (DOM).

The way it is read is that the first digit underlined represents the year of manufacture. The 4 indicates 2004.

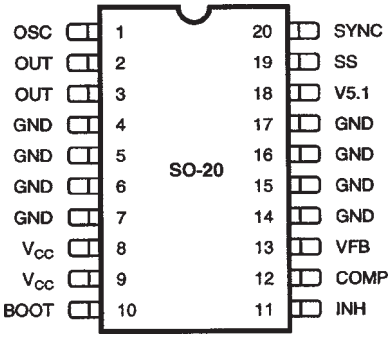
The next three digits are the Julian date for the day of the year. In this example, that would be the 142nd day of the year.

IC Diagrams

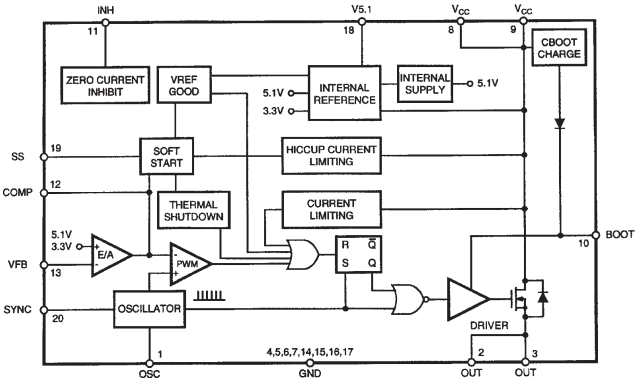




177984-2, TEA6422 Audio Matrix



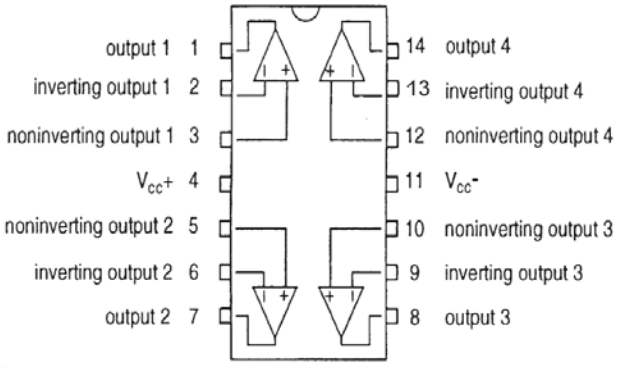
193846-001, 3.3V Regulator Pinout Diagram



193846-001, 3.3V Regulator Block Diagram

193846-001	Name	Description
12	COMP	E/A output to be used for frequency compensation
11	INH	A logic signal (active high) disables the device (sleep mode operation) if not used it must be connected to GND; if floating the device will be disabled
10	BOOT	A capacitor connected between this pin and the output will permit direct drive of the internal D-MOS.
20	SYNC	Input/Output synchronization
8,9	Vcc	Unregulated DC input voltage
2,3	OUT	Stepdown regulator output
13	VFB	Stepdown feedback input. A voltage divider is required when greater than 5.1V output levels is needed. For voltages below 3.3V the maximum power dissipation of the package must be observed.
18	V5.1	Reference voltage externally available
4,5,6,7,14,15,16, 17	GND	Signal ground
1	OSC	An external resistor connected between the unregulated input voltage and pin1 and a capacitor connected from pin1 to GND will set the switching frequency (line feed forward is automatically obtained)
19	SS	Soft start time constant. A capacitor connected between this terminal and ground determines the soft start time.

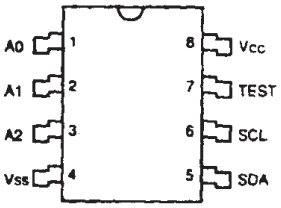
193846-001, 3.3V Regulator Pin Assignments



186112, Quad Op-Amp

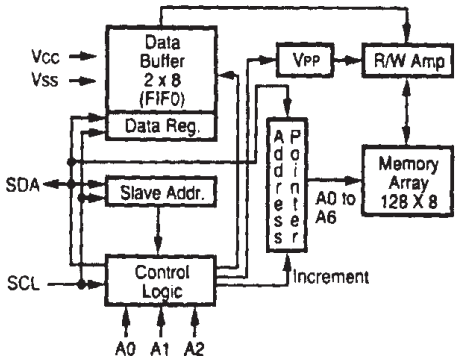
IC Diagrams

SOIC Package

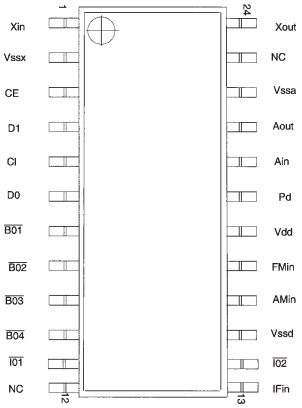


PIN FUNCTION TABLE	
Name	**Function**
A0, A1, A2	Chip Address Inputs
V_{ss}	Ground
SDA	Serial Address/Data I/O
SCL	Serial Clock
V_{cc}	+5 V Power Supply
Test	Tie to V_{cc} or V_{ss}

BLOCK DIAGRAM

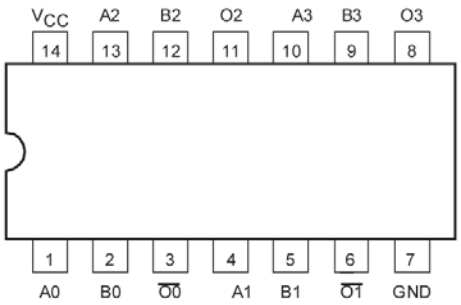


184044, 24C01A EEPROM



199693, PLL Frequency Synthesizer Pinout

Pinout Diagram (Top View)



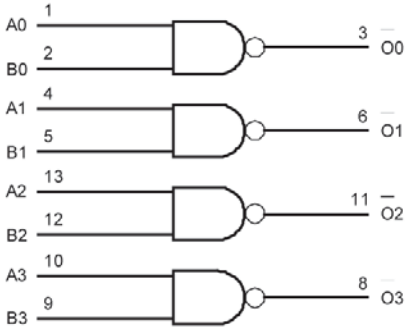
PIN NAMES

Pins	Function
An, Bn On	Data Inputs Outputs

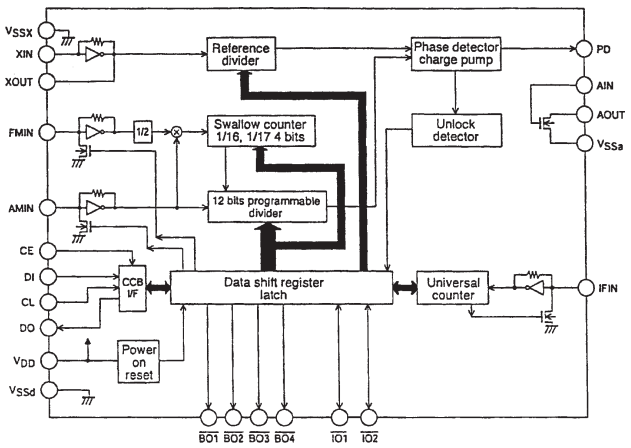
FUNCTION TABLE

Inputs		Outputs
An	Bn	$\overline{On}$
L	L	H
L	H	H
H	L	H
H	H	L

LOGIC DIAGRAM



193858-004, Quad Nand IC



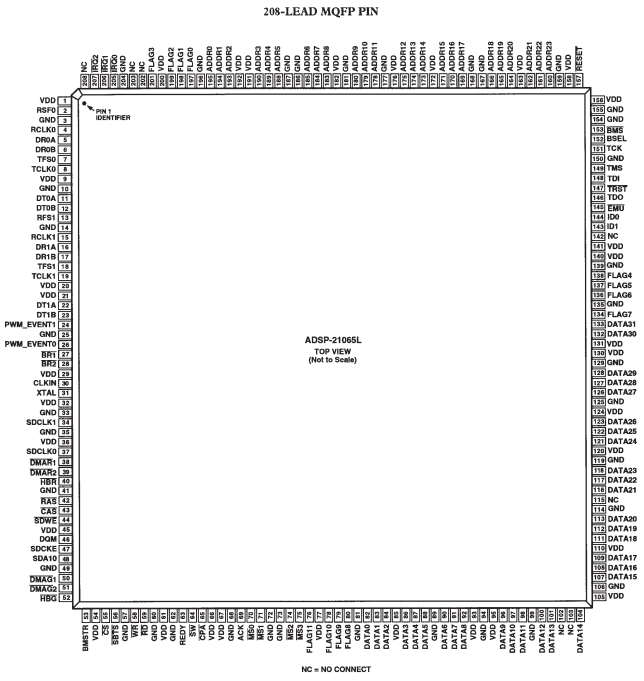
199693, PLL Frequency Synthesizer Block

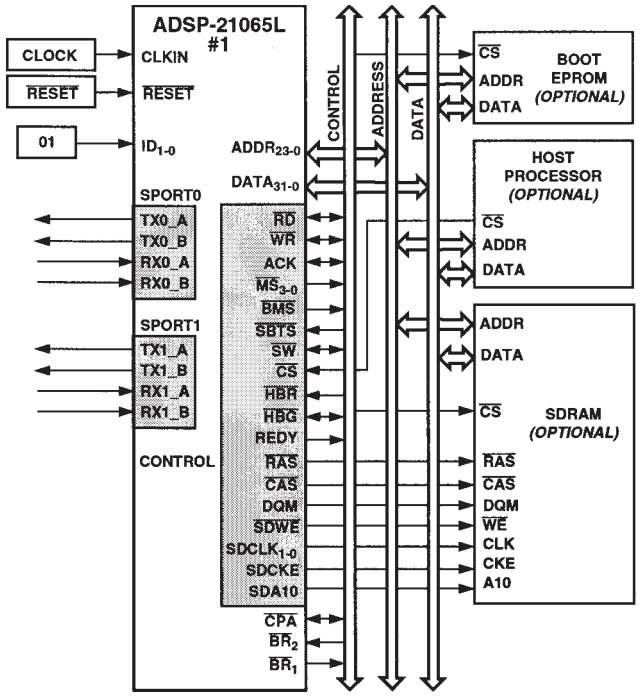
Pin name	Pin No. LC72121M	Type	Function
XIN XOUT	1 24	Xtal	• Crystal oscillator element connections (4.5 or 7.2 MHz)
FMIN	17	Local oscillator signal input	• FMIN is selected when DVS in the serial data is set to 1. • Input frequency: 10 to 160 MHz • The signal is passed through an internal divide-by-two prescaler and then input to the swallow counter. • The divisor can be set to a value in the range 272 to 65536. Since the internal divide-by-two prescaler is used, the actual divisor will be twice the set value.
AMIN	16	Local oscillator signal input	• AMIN is selected when DVS in the serial data is set to 0. • When SNS in the serial data is set to 1: • Input frequency: 2 to 40 MHz • The signal is input to the swallow counter directly. • The divisor can be set to a value in the range 272 to 65535. The set value becomes the actual divisor. • When SNS in the serial data is set to 0: • Input frequency: 0.5 to 10 MHz • The signal is input to a 12-bit programmable divider directly. • The divisor can be set to a value in the range 4 to 4095. The set value becomes the actual divisor.
CE	3	Chip enable	• This pin must be set high to enable serial data input (DI) or serial data output (DO).
DI	4	Input data	• Input for serial data transferred from the controller
CL	5	Clock	• Clock used for data synchronization for serial data input (DI) and serial data output (DO).
DO	6	Output data	• Output for serial data transmitted to the controller. The content of the data transmitted is determined by DOC0 through DOC2.
V_{DD}	18	Power supply	• LC72121 power supply (V_{DD} 2.7 to 3.6 V) • The power on reset circuit operates when power is first applied.
V_{SSX}	2	Ground	• Ground for the crystal oscillator circuit
V_{SSA}	22	Ground	• Ground for the low-pass filter MOS transistor
V_{SSd}	15	Ground	• Ground for the LC72121 digital systems other than those that use V_{SSA} or V_{SSX}.

Pin name	Pin No. LC72121M	Type	Function
$\overline{IO1}$ $\overline{IO2}$	11 14	I/O port	• Shared function I/O ports • The pin function is determined by IOC1 and IOC2 in the serial data. When the data value 0: Input port When the data value 1: Output port • When specified to function as an input port: The input pin state is reported to the controller through the DO pin. When the input state is low: The data will be 0: When the input state is high: The data will be 1; • When specified to function as an output port: The output state is determined by IO1 and IO2 in the serial data. When the data value is 0: The output state will be the open circuit state. When the data value is 1: The output state will be a low level. • These pins are set to input mode after a power on reset.
$\overline{BO1}$ $\overline{BO2}$ $\overline{BO3}$ $\overline{BO4}$	7 8 9 10	Output port	• Output-only ports • The output state is determined by BO1 through BO4 in the serial data. When the data value is 0: The output state will be the open circuit state. When the data value is 1: The output state will be a low level. • A time base signal (8 Hz) is output from BO1 when TBC in the serial data is set to 1.
PD	19	Charge pump output	• PLL charge pump output A high level is output when the frequency of the local oscillator signal divided by N is higher than the reference frequency, and a low level is output when that frequency is lower. This pin goes to the high-impedance state when the frequencies match.
AIN AOUT	20 21	Low-pass filter amplifier transistor	• Connections for the MOS transistor used for the PLL active low-pass filter.
IFIN	13	IF counter	• The input frequency range is 0.4 to 12 MHz. • The signal is passed directly to the IF counter. • The result is output, MSB first, through the DO pin. • Four measurement periods are supported: 4, 8, 32, and 64 ms.
NC	12 23	NC pin	• No connection

199693, PLL Frequency Synthesizer Table

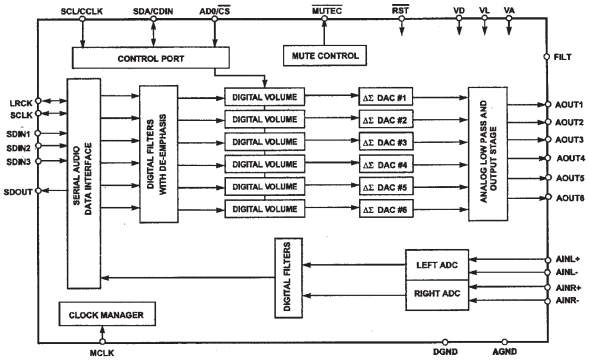
IC Diagrams





Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	VDD	43	$\overline{CAS}$	85	VDD	127	DATA28	169	ADDR17
2	RFS0	44	$\overline{SDWE}$	86	DATA3	128	DATA29	170	ADDR16
3	GND	45	VDD	87	DATA4	129	GND	171	ADDR15
4	RCLK0	46	DQM	88	DATA5	130	VDD	172	VDD
5	DR0A	47	SDCKE	89	GND	131	VDD	173	ADDR14
6	DR0B	48	SDA10	90	DATA6	132	DATA30	174	ADDR13
7	TFS0	49	GND	91	DATA7	133	DATA31	175	ADDR12
8	TCLK0	50	$\overline{DMAG1}$	92	DATA8	134	FLAG7	176	VDD
9	VDD	51	$\overline{DMAG2}$	93	VDD	135	GND	177	GND
10	GND	52	$\overline{HBG}$	94	GND	136	FLAG6	178	ADDR11
11	DT0A	53	BMSTR	95	VDD	137	FLAG5	179	ADDR10
12	DT0B	54	VDD	96	DATA9	138	FLAG4	180	ADDR9
13	RFS1	55	$\overline{CS}$	97	DATA10	139	GND	181	GND
14	GND	56	$\overline{SBTS}$	98	DATA11	140	VDD	182	VDD
15	RCLK1	57	GND	99	GND	141	VDD	183	ADDR8
16	DR1A	58	$\overline{WR}$	100	DATA12	142	NC	184	ADDR7
17	DR1B	59	$\overline{RD}$	101	DATA13	143	ID1	185	ADDR6
18	TFS1	60	GND	102	NC	144	ID0	186	GND
19	TCLK1	61	VDD	103	NC	145	$\overline{EMU}$	187	GND
20	VDD	62	GND	104	DATA14	146	TDO	188	ADDR5
21	VDD	63	REDY	105	VDD	147	$\overline{TRST}$	189	ADDR4
22	DT1A	64	$\overline{SW}$	106	GND	148	TDI	190	ADDR3
23	DT1B	65	$\overline{CPA}$	107	DATA15	149	TMS	191	VDD
24	PWM_EVENT1	66	VDD	108	DATA16	150	GND	192	VDD
25	GND	67	VDD	109	DATA17	151	TCK	193	ADDR2
26	PWM_EVENT0	68	GND	110	VDD	152	BSEL	194	ADDR1
27	$\overline{BR1}$	69	ACK	111	DATA18	153	$\overline{BMS}$	195	ADDR0
28	$\overline{BR2}$	70	$\overline{MS0}$	112	DATA19	154	GND	196	GND
29	VDD	71	$\overline{MS1}$	113	DATA20	155	GND	197	FLAG0
30	CLKIN	72	GND	114	GND	156	VDD	198	FLAG1
31	XTAL	73	GND	115	NC	157	$\overline{RESET}$	199	FLAG2
32	VDD	74	$\overline{MS2}$	116	DATA21	158	VDD	200	VDD
33	GND	75	$\overline{MS3}$	117	DATA22	159	GND	201	FLAG3
34	SDCLK1	76	FLAG11	118	DATA23	160	ADDR23	202	NC
35	GND	77	VDD	119	GND	161	ADDR22	203	NC
36	VDD	78	FLAG10	120	VDD	162	ADDR21	204	GND
37	SDCLK0	79	FLAG9	121	DATA24	163	VDD	205	$\overline{IRQ0}$
38	$\overline{DMAR1}$	80	FLAG8	122	DATA25	164	ADDR20	206	$\overline{IRQ1}$
39	$\overline{DMAR2}$	81	GND	123	DATA26	165	ADDR19	207	$\overline{IRQ2}$
40	$\overline{HBR}$	82	DATA0	124	VDD	166	ADDR18	208	NC
41	GND	83	DATA1	125	GND	167	GND		
42	$\overline{RAS}$	84	DATA2	126	DATA27	168	GND		

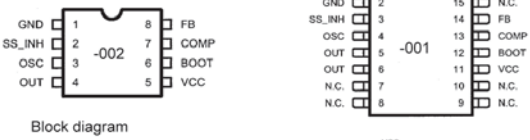
IC Diagrams



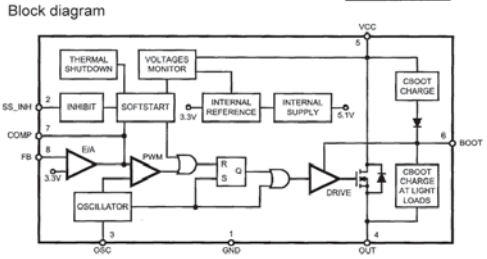
Serial Audio Data In 3	SDIN3	1	28	SUB	Analog Out #6,Subwoofer
Serial Audio Data In 2	SDIN2	2	27	CENTER	Analog Out #5, Center
Serial Audio Data In 1	SDIN1	3	26	SR	Analog Out #4, Surround Right
Serial Audio Data Out	SDOUT	4	25	SL	Analog Out #3, Surround Left
Serial Clock	SCLK	5	24	FR	Analog Out #2, Front Right
Left/Right Clock	LRCK	6	23	FL	Analog Out #1, Front Left
Digital Ground	DGND	7	22	AGND	Analog Ground
Digital Power	VD	8	21	VA	Analog Power
Digital Interface Power	VL	9	20	AINL+	Left Channel Analog Input+
Master Clock	MCLK	10	19	AINL-	Left Channel Analog Input-
SCL/CCLK	SCL/CCLK	11	18	FILT	Internal Voltage Filter
SDA/CDIN	SDA/CDIN	12	17	AINR-	Right Channel Analog Input-
AD0/CS	AD0/CS	13	16	AINR+	Right Channel Analog Input+
Reset	RST	14	15	MUTEC	Mute Control

254192-003, CODEC

Pin Assignments



Block diagram

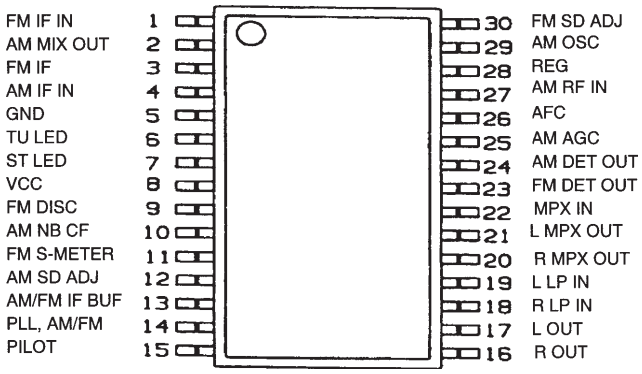


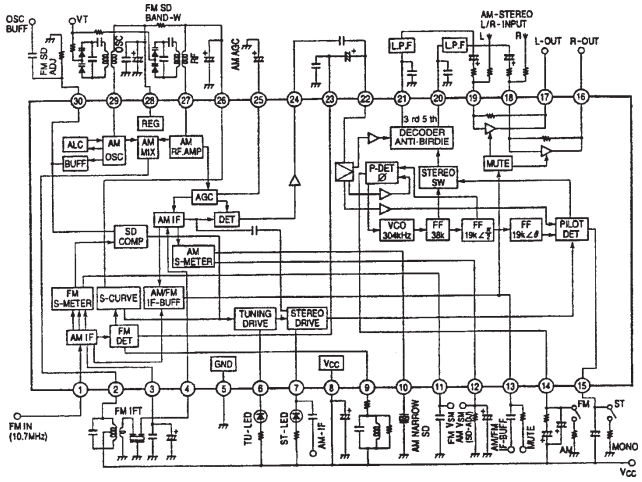
Pin Functions

-002	-001 *	Pin Name	Function
1	2	GND	Ground
2	3	SS_INH	A logic signal (An active low) disables the device (Sleep mode operation) A capacitor connected between this pin and ground determines the soft start time. When this pin is grounded it disables the device (driven by open collector/drain)
3	4	OSC	An external resistor connected between the unregulated input, this pin and a capacitor connected from this pin to ground will set the switching frequency. (Line feed forward is automatically obtained)
4	5,6	OUT	Step down regulator output
5	11	Vcc	Unregulated DC input voltage
6	12	BOOT	A capacitor connected between this pin and OUT is the drive for the internal DMOS transistor
7	13	COMP	E/A output to be used for frequency compensation
8	14	FB	Step down feedback input. Connect directly to this pin will result in an output voltage of 3.3V. When higher output voltages are required use an external resistor divider.

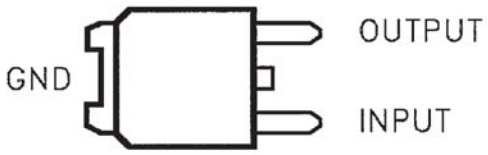
* Pins 1,7, 8, 9, 10, 15 and 16 are not electrically connected to the die internally.

254196-001, 3.3V Regulator





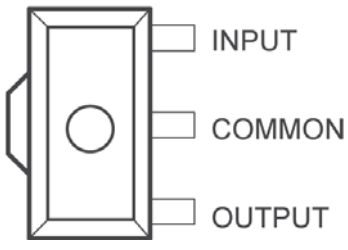
254561-001, AM/FM Tuner



DPAK

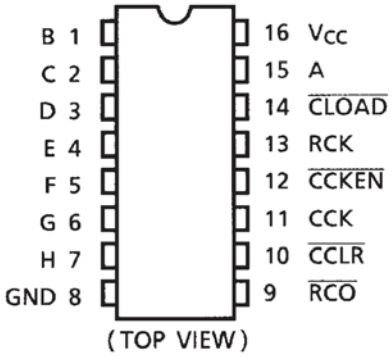
256094-03R3, 3.3V Regulator

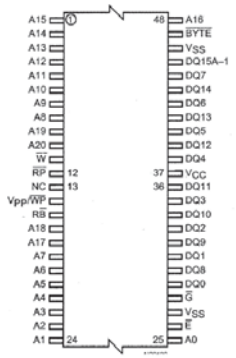
PK PACKAGE
(TOP VIEW)



258167-09, 9V Regulator

IC Diagrams





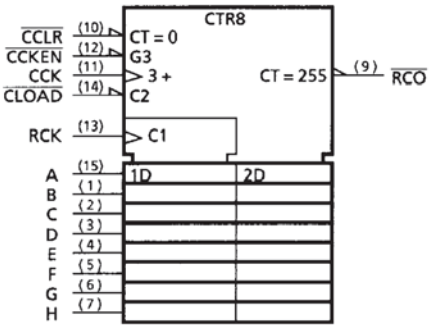
Connection Diagram

A0 ~ A20	Address Inputs
DQ0 ~ DQ14	Data Inputs/Outputs
DQ15A-1	Data Input/Output or Address Input
$\overline{E}$	Chip Enable
$\overline{G}$	Output Enable
$\overline{W}$	Write Enable Input
$\overline{RP}$	Reset/Block Temporary Unprotect
$\overline{RB}$	Ready/Busy Output
$\overline{BYTE}$	Word/Byte Select Input
VCC	Power Supply
VPP/$\overline{WP}$	Write Protect/Program Acceleration Input
VSS	Ground
NC	Not Connected internally

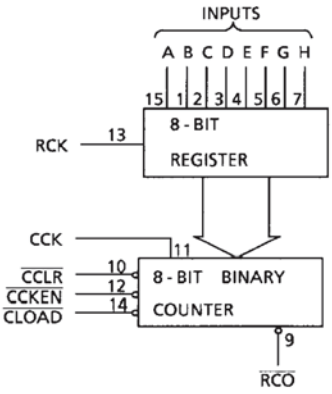
Signal Names

268889-001, 4M-bit Flash Memory

IEC LOGIC CHART



BLOCK DIAGRAM



TRUTH TABLE

INPUT					FUNCTION
RCK	$\overline{CLOAD}$	$\overline{CCLR}$	$\overline{CCKEN}$	CCK	
X	L	H	X	X	REGISTER DATA IS LOADED INTO COUNTER
X	H	L	X	X	COUNTER CLEAR
↑	H	H	X	X	THE DATA OF A THRU H INPUTS IS STORED INTO REGISTER
↓	H	H	X	X	REGISTER STATE IS NOT CHANGED
X	H	H	L	↑	COUNTER ADVANCES THE COUNT
X	H	H	L	↓	NO COUNT
X	H	H	H	X	NO COUNT

X : Don't care

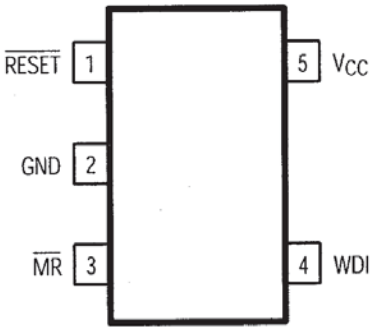
$\overline{RCO} = \overline{QA' \cdot QB' \cdot QC' \cdot QD' \cdot QE' \cdot QF' \cdot QG' \cdot QH'}$

(QA'~QH' : Internal outputs of the counter)

256115-002, 8-bit Binary Counter

IC Diagrams

Pin-out Diagram

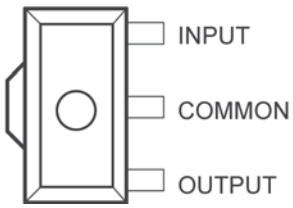


Pin Description

PIN	NAME	FUNCTION
1	$\overline{\text{RESET}}$	Active - low reset output. Pulse goes low for 200ms when triggered and remains low whenever Vcc is below the reset threshold or when $\overline{\text{MR}}$ is a logic low. $\overline{\text{RESET}}$ remains low for 200ms after any of the following occurs: ¥ Vcc rises above the threshold ¥ The watchdog triggers a reset ¥ $\overline{\text{MR}}$ transition from low to high
2	GND	Ground: 0V reference for all signals
3	$\overline{\text{MR}}$	Manual- reset input. When a logic low is applied to $\overline{\text{MR}}$ it will assert a reset. The reset will remain low as long as $\overline{\text{MR}}$ is held low and for 200ms after $\overline{\text{MR}}$ returns high. The active - low input has an internal 52kWpull-up resistor, that can be driven from a CMOS - logic line or shorted to ground with a switch. Leave $\overline{\text{MR}}$ open or connected to V_{CC} when unused.
-	RESET	Active - high Reset Output. Inverse of $\overline{\text{RESET}}$
4	WDI	Watchdog Input. If the watch dog input (WDI) remains either high or low for longer than the watch dog time out period, the internal watch dog timer will run out and reset will be triggered. The internal watch dog timer will clear whenever reset is asserted, or whenever WDI sees a rising or falling edge. If WDI is left unconnected or is connected to a three- state buffer output, the watch dog feature is disabled.
5	VCC	Supply voltage

256123-001, 3.3V Regulator

PK PACKAGE
(TOP VIEW)



258167-09, 9V Regulator

PINNING

SYMBOL	PIN	DESCRIPTION
DIAG	1	short-circuit and temperature pre-warning diagnostic output
IN2+	2	channel 2 input positive
IN2–	3	channel 2 input negative
n.c.	4	not connected
n.c.	5	not connected
n.c.	6	not connected
n.c.	7	not connected
IN1+	8	channel 1 input positive
IN1–	9	channel 1 input negative
SGND	10	signal ground
CLIP	11	clip detection output
V_{P1}	12	supply voltage 1
OUT1+	13	channel 1 output positive
PGND1	14	power ground 1
OUT1–	15	channel 1 output negative
OUT2+	16	channel 2 output positive
PGND2	17	power ground 2
OUT2–	18	channel 2 output negative
V_{P2}	19	supply voltage 2
MODE	20	mode select switch input (standby/mute/operating)

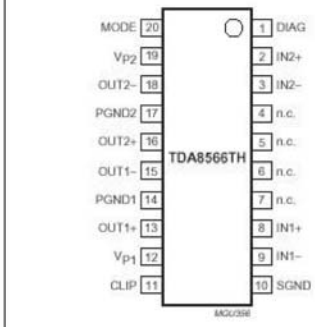
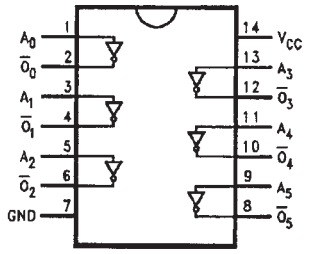


Fig.2 Pin configuration.

257975, TDA8566TH Power Amplifier



Pin Descriptions

Pin Names	Description
A_n	Inputs
$\overline{O}_n$	Outputs

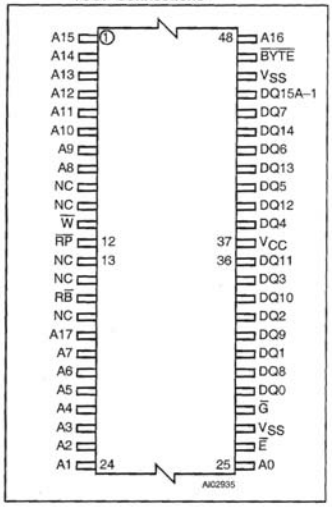
Truth Table

A	$\overline{O}$
L	H
H	L

258464-004, 74CHU04 Inverter

Pin-out Diagram

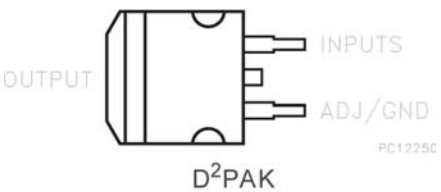
TSOP Connections



Signal Names /Assignment

Signal Name	Description
A0 ~ A17	Address Inputs
DQ0 ~ DQ7	Data Inputs/Outputs
DQ8 ~ DQ14	Data Inputs/Outputs
DQ15A -1	Data Input/Outputs or address Input
$\overline{E}$	Chip Enable
$\overline{G}$	Output Enable
$\overline{W}$	Write Enable
$\overline{RP}$	Reset/Block Temporary Unprotected
$\overline{RB}$	Read/ Busy Output
$\overline{BYTE}$	Byte/Word Organization Select
V_{CC}	Supply Voltage
V_{ss}	Ground
NC	Not connected internally

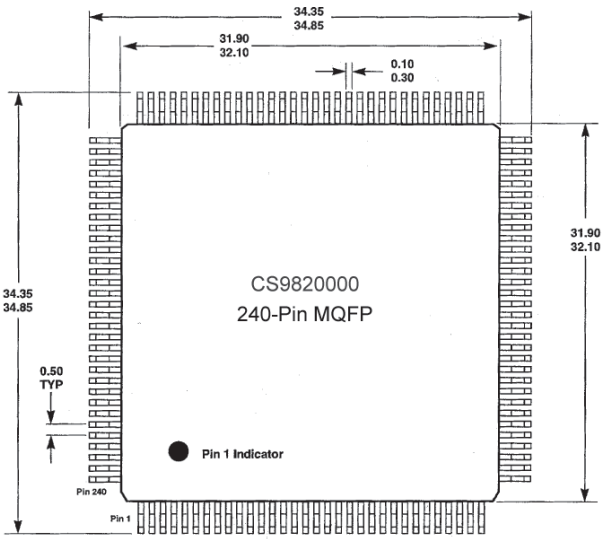
260332-001, 4Mbit Flash Memory



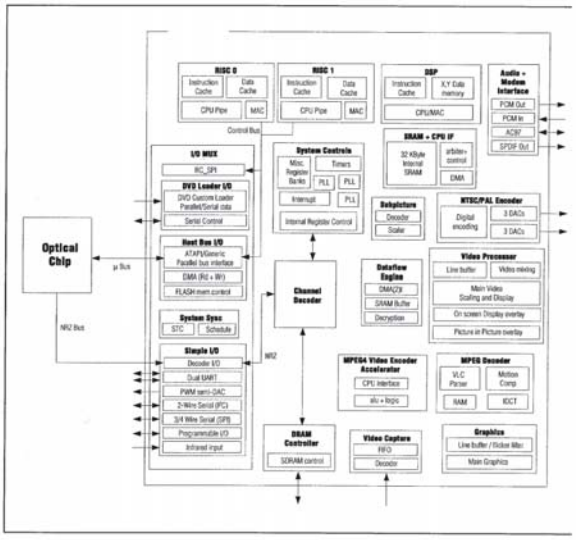
260638-18, -33, LD1086 D2PAK Regulator

IC Diagrams

Pinout Diagram



Block diagram



SDRAM Interface Pins

Pin	Signal Name	Type	Description
11,12,13,15,16,17,18,20,21,23,26,27,28,29,30,32,6,1, 66, 65, 63, 61, 60, 49, 48, 47, 45, 42, 40, 39, 38, 37, 36.	M_D[31:0]	B	Memory Data Bus. DS581PP2 uses all 32 bits.
90, 89, 88, 87, 85, 82, 80, 79, 78, 77, 76.	M_A[10:0]	O	Memory Address Bus. Connect in order starting with M_A[0] to all RAM address pins not already connected to M_BS[1:0]_N or M_AP.
64	M_CKO	O	Memory Clock.
66	M_CKE	O	Memory Clock Enable.
69	M_BS0_N	O	Bank Selection. Always connect to RAM BS or BS0 pin.
68	M_BS1_N	O	Bank Selection. Always connect to RAM BS or BS0 pin.
67	M_AP	O	Memory Auto Pre-charge. Always connect to RAM AP pin.
70	M_RAS_N	O	Memory Row Address Strobe.
71	M_CAS_N	O	Memory Column Address Strobe.
73	M_WE_N	O	Memory Write Enable.
62, 35, 33, 10	M_DQM[3:0]	O	IO Mask of Data Bus M_DQM[3] -> M_D[31:24]

ROM/NVRAM Interface pins

Pin	Signal Name	Type	Description
91,92,93,94,95,96,99,101	NV_D[7:0]	B	Memory Data Bus.
90, 89, 88, 87, 85, 82, 80, 79, 78, 77, 76	M_A[10:0]	O	Memory Address Bus[10:0]
32, 30, 29, 28, 27, 26, 23, 21, 20, 18, 17, 16	M_D[31:16]	O	Memory Address Bus[23:11]
67	M_AP	O	Output Enable.
73	M_WE_N	O	Write Enable.
74	NV_CE_N	O	ROM/NVRAM Chip Enable.

Video Output Interface Pins

Pin	Signal Name	Type	Description
131s	VOUT_CLK	O	27 MHz Clock Output.
129s	VOUT_HS	O	Horizontal Sync. Output when the DS581PP2 is the video master, input when the video encoder is master.
128s	VOUT_VS	O	Vertical Sync. Output when the DS581PP2 is the video master, input when the video encoder is master.
57s, 58s, 59s, 60s, 102s, 103s, 104s, 106s	VOUT_D[7:0]	O	Video Data Output[7:0] in Cb, Y, Cr, Y format.

Video Input Interface Pins

Pin	Signal Name	Type	Description
131	VIN_CLK	I	Video Input Clock.
128	VIN_VS	I	Video Input Vertical Sync.
129	VIN_HS	I	Video Input Horizontal Sync.
57, 58, 59, 60, 102, 103, 104, 105	VIN_D [7:0]	I	Video Data Input[7:0] in Cb, Y, Cr, Y format.

Audio PCM Interface Pins

Pin	Signal Name	Type	Description
226	AUD_XCLK	B	Audio 256x/384x Clock input or output to Serial DAC. When output, is generated from DS581PP2 internal PLL.
224	AUDO_BCK	O	Audio Bit Clock output to serial DAC.
222	AUDO_LR	O	Audio Out Left/Right Clock to serial DAC.
234	AUDO_D_0	O	Audio Serial Data Out[0].
227	AUDO_D_1	O	Audio Serial Data Out[1]
228	AUDO_D_2	O	Audio Serial Data Out[2].
229	AUDO_D_3	O	Audio Serial Data Out[3].
235	SPDIF_O	O	S/PDIF Output
201	AUDI_BCK	I	Audio Input Bit Clock. The DS581PP2 can be programmed to use the Audio Output function@internally generated bit clock, in which case this pin is not required.
200	AUDI_LR	I	Audio Input Left/Right Clock. The DS581PP2 can be programmed to use the Audio Output function@internally generated LR clock, in which case this pin is not required.
199	AUDI_D	I	Audio Input Data from Serial ADC.

UART Interface pins

266925 Pin	Signal Name	Type	Description
111	TXD_1	O	UART1 Tx Data
112	RXD_1	I	UART1 Rx Data
113	TXD_2	O	UART2 Tx Data
114	RXD_2	I	UART2 Rx Data

Debug Interface

266925 Pin	Signal Name	Type	Description
107	SCL1	B	Debug Slave
108	SDA1	B	Debug Slave
109	SCL2	B	Master/Simple Slave
110	SDA2	B	Master/Simple Slave

Miscellaneous Interface Pins

266925 Pin	Signal Name	Type	Description
4	IR_IN	I	Infrared Input, from IR receiver.
231	XTLCLK_I	I	27 MHz Clock Input.
232	XTLCLK_O	O	27 MHz Clock Output.
2	RST_N	I	Reset Input, active low.
3	TEST	I	Manufacturing test pin, should always connect to ground.

AC97/CODEC Interface

	Signal Name	Type	Description
8	CDC_SDI	I	Serial Data Input from Modem CODEC
7	CDC_SDO	O	Serial Data Output to Modem CODEC
5	CDC_CLK	I	Serial Bit Clock input from Modem CODEC
6	CDC_SYNC	O	Frame Sync, output when DS581PP2 is master, input when CODEC is master.

Host Master/ATAPI Interface

Pin	Signal Name	Type	Description
186, 187, 189, 191	H_CS[3:0]	O	Host Chip Select[3:0]. The host master can be programmed to use a different protocol for each of the 4 chip selects
177	H_ALE	O	Host address latch enable. Used for modes which multiplex upper address information onto the data lines
192	H_RD	O	Host Read Request.
193	H_WR	O	Host Write Request.
194	H_RDY	I	Host Ready. Connect to pull-up or pull-down if host is not used.
170, 172, 173, 176	H_A[3:0]	O	Host Address[3:0].
123, 124, 125, 126, 127, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143	H_D[15:0]	B	Host Data Bus[15:0]. These pins can also output Host Address during the address phase for multiplexed address/data mode. Tie together to pull-up or pull-down if host is not used.

DVD Loader Interface

266925 Pin	Signal Name	Type	Description
174, 175, 178, 179, 182, 183, 184, 185	DVD_D[7:0]	I	Primary DVD Data
168	DVDL_RDY	I	Primary DVD Control Ready
236	DVD_STB	I	Primary DVD Data Strobe
237	DVD_ENA	I	Primary DVD Data Enable
238	DVD_SOS	I	Primary DVD Start Sector
239	DVD_ERR	I	Primary DVD Error
116	DVD_RDY	O	Primary DVD Data Request
117	DVDL_DI	I	Primary DVD Control Data In
118	DVDL_DO	O	Primary DVD Control Data Out
119	DVDL_CK	O	Primary DVD Control Clock
144	CD_BCLK	I	Primary CD Bit Clock
145	CD_LRCK	I	Primary CD L/R Clock
146	CD_DATA	I	Primary CD Data
147	CD_C2PO	I	Primary CD C2PO

DVD Serial Data Interface

Pin	Signal Name	Type	Description
144s /141s	DVDS_CLK	I	DVD Clock Input
146s/143s	DVDS_DATA	I	DVD serial data input (data can be input MSB or LSB first)
147s/140s	DVDS_VLD	I	DVD valid (a bit of data is clocked in when this pin is high)
145s/142s	DVDS_SOS	I	DVD start of sector input

SPI interface

Pin	Signal Name	Type	Description
195	SPI_CLK	B	SPI Clock
196	SPI_DO	B	SPI Data In/Out
197	SPI_DI	I	SPI Data In
198	SPI_RDY	B	SPI Ready / Chip Select

General Purpose Input/Output (GPIO)

Pin	Signal Name	Type	Description
174s, 175s, 178s, 179s, 182s, 183s, 184s, 185s, 236s, 237s, 238s, 239s, 116s, 117s, 118s, 119s, 168s, 144s, 145s, 146s, 147s, 123s, 124s, 125s, 126s, 127s, 133s, 134s, 135s, 136s, 137s, 138s, 139s, 140s, 141s, 142s, 143s, 170s, 172s, 173s, 176s, 177s, 186s, 187s, 189s, 191s, 192s, 193s, 194s	GPIO_DVD[20:0]	B	21 General purpose I/Os
57s, 58s, 59s, 60s, 102s, 103s, 104s, 106s, 128s, 129s, 131s,	GPIO_HST[0:27]	B	28 General purpose I/Os
109s, 110s, 125s, 126s, 127s, 198s, 111s, 112s, 113s, 114s, 115s, 224s, 227s, 228s, 229s, 199s, 200s, 201s, 5s, 6s, 7s, 8s	GPIO_MIS[0:21]	B	22 General purpose I/Os

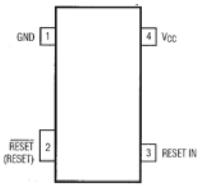
Power and Ground

Pin	Signal Name	Type	Description
1, 120, 180,	PLL_1V8		1.8 V for internal PLLs
149, 203	VDWELL		Digital Power 1.8 V
152, 155, 158, 164, 166, 167, 206, 209, 212, 216, 220, 221	AVD33		Analog Power 3.3 V
9, 19, 31, 41, 54, 65, 75,88, 105, 130, 188, 230	IO_3V3		3.3 V for I/Os
22,46, 61, 100, 169, 223	DIG_1V8		Digital Power
150, 204	VSSUB		Digital Ground
148,153, 156, 159, 163, 165, 202, 207, 210, 213, 217, 219	RAIL_VSS		Analog Ground
121, 181, 240	PLL_GND		Ground for internal PLLs
14, 25, 34, 43, 52, 63, 72, 84, 97, 122, 132, 190, 233	IO_GND		Ground for I/Os
24, 44, 83, 98, 171, 225	DIG_GND		Digital Ground

266925-001, CS98200 Digital Signal Processor (DSP)

IC Diagrams

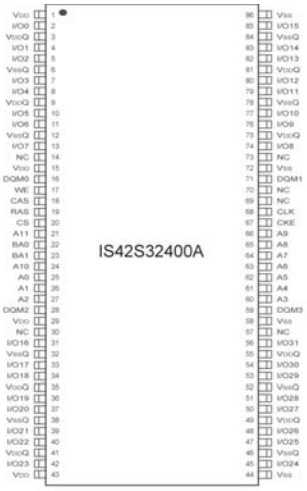
Pin-out Diagram



Pin Description

PIN	NAME	FUNCTION
1	GND	Ground:
2	$\overline{\text{RESET}}$	Active-low open-Drain/Push-Pull Reset Output. $\overline{\text{RESET}}$ changes from high to low when any monitored voltage (V_{CC} or $V_{RESETIN}$) drops below the reset threshold or $\overline{\text{MR}}$ is pulled low. $\overline{\text{RESET}}$ remains low for the reset time-out period after monitored voltages exceed the reset threshold or $\overline{\text{MR}}$ is released. Open-drain requires an external pullup resistor.
3	RESET IN	Auxiliary Reset Input. High impedance input to the auxiliary reset comparator. Connect RESET IN to the center point of an external resistor voltage divider network to set the reset threshold voltage. Reset asserts when either V_{CC} or RESET IN falls below its threshold voltage
4	V_{CC}	Supply voltage for the device and input for fixed V_{CC} reset threshold monitor.

267095-001, SC70 Reset



PIN CONFIGURATIONS
86 pin TSOP - Type II for x32

PIN DESCRIPTIONS

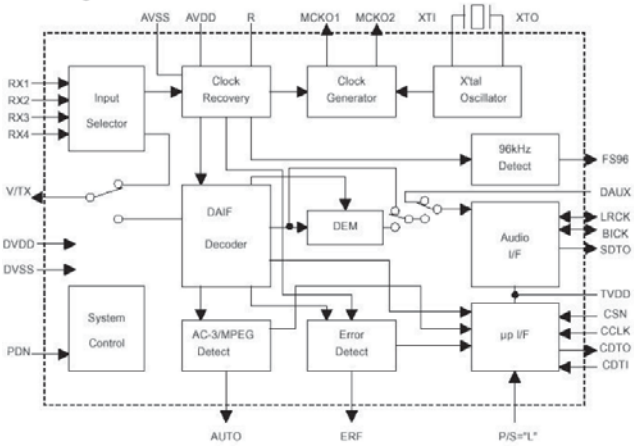
A0-A11	Row Address Input
A0-A7	Column Address Input
BA0, BA1	Bank Select Address
I/O0 to I/O31	Data I/O
CLK	System Clock Input
CKE	Clock Enable
CS	Chip Select
RAS	Row Address Strobe Command
CAS	Column Address Strobe Command

WE	Write Enable
DQM0-DQM3	x32 Input/Output Mask
V_{DD}	Power
Vss	Ground
V_{DDQ}	Power Supply for I/O Pin
V_{SSQ}	Ground for I/O Pin
NC	No Connection

267336-001, SDRAM, 128Mbit, 166MHz

Pinout Diagram

Block Diagram

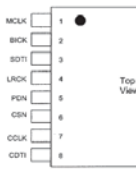


No.	Pin Name	I/O	Function
1	DVDD	-	Digital Power Supply Pin, 3.3V
2	DVSS	-	Digital Ground Pin
3	TVDD	-	Input Buffer Power Supply Pin, 3.3V or 5V
4	V	O	Validity Flag Output Pin in Parallel Mode
	TX	O	Transmit channel (through data) Output Pin in Serial Mode
5	XTI	I	X'tal Input Pin
6	XTO	O	X'tal Output Pin
7	PDN	I	Power-Down Mode Pin When "L", the AK4112B is powered-down and reset.
8	R	-	External Resistor Pin 18kΩ +/-1% resistor to AVSS externally.
9	AVDD	-	Analog Power Supply Pin
10	AVSS	-	Analog Ground Pin
11	RX1	I	Receiver Channel 1 This channel is selected in Parallel Mode or default of Serial Mode.
12	DIF0	I	Audio Data Interface Format 0 Pin in Parallel Mode
	RX2	I	Receiver Channel 2 in Serial Mode
13	DIF1	I	Audio Data Interface Format 1 Pin in Parallel Mode
	RX3	I	Receiver Channel 3 in Serial Mode
14	DIF2	I	Audio Data Interface Format 2 Pin in Parallel Mode
	RX4	I	Receiver Channel 4 in Serial Mode
15	AUTO	O	Non-PCM Detect Pin "L": No detect, "H" : Detect
16	P/S	I	Parallel/Serial Select Pin "L": Serial Mode, "H": Parallel Mode
17	FS96	O	96kHz Sampling Detect Pin (RX Mode) "H" : fs=88.2kHz or more, "L" fs=54kHz or less. (X'tal Mode) "H" : XFS96=1, "L" : XFS96=0.
18	ERF	O	Unlock & Parity Error Output Pin "L": No Error, "H": Error
19	LRCK	I/O	Output Channel Clock Pin
20	SDTO	O	Audio Serial Data Output Pin
21	BICK	I/O	Audio Serial Data Clock Pin
22	DAUX	I	Auxiliary Audio Data Input Pin
23	MCK02	O	Master Clock #2 Output Pin
24	MCK01	O	Master Clock #1 Output Pin
25	OCKS0	I	Output Clock Select 0 Pin in Parallel Mode
	CSN	I	Chip Select Pin in Serial Mode
26	OCKS1	I	Output Clock Select 1 Pin in Parallel Mode
	CCLK	I	Control Data Clock Pin in Serial Mode
27	CM1	I	Master Clock Operation Mode Pin0 in Parallel Mode
	CDTI	I	Control Data Input Pin in Serial Mode
28	CM0	I	Master Clock Operation Mode Pin1 in Parallel Mode
	CDTO	O	Control Data Output Pin in Serial Mode

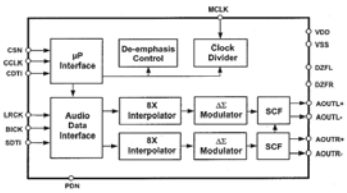
Note 1: All input pins except internal pull-down pins should not be left floating.

270223, AK4112B SPDIF Receiver

IC Diagrams



PACKAGE PINOUTS



FUNCTIONAL BLOCK DIAGRAM

No.	Pin Name	I/O	Function
1	MCLK	I	Master Clock Input Pin An external TTL clock should be input on this pin.
2	BICK	I	Audio Serial Data Clock Pin
3	SDTI	I	Audio Serial Data Input Pin
4	LRCK	I	L/R Clock Pin
5	PDN	I	Power-Down Mode Pin When at "L", the AK4382A is in the power-down mode and is held in reset. The AK4382A should always be reset upon power-up.
6	CSN	I	Chip Select Pin
7	CCLK	I	Control Data Input Pin
8	CDTI	I	Control Data Input Pin in serial mode
9	AOUTR-	O	Rch Negative Analog Output Pin
10	AOUTR+	O	Rch Positive Analog Output Pin
11	AOUTL-	O	Lch Negative Analog Output Pin
12	AOUTL+	O	Lch Positive Analog Output Pin
13	VSS	-	Ground Pin
14	VDD	-	Power Supply Pin
15	DZFR	O	Rch Data Zero Input Detect Pin
16	DZFL	O	Lch Data Zero Input Detect Pin

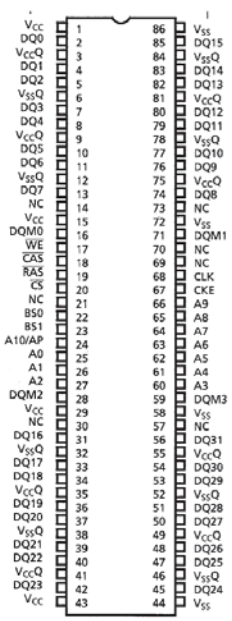
Note: All input pins should not be left floating.

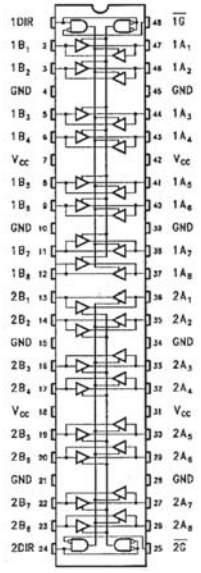
267548-001, AK4382A Digital to Analog Converter (DAC)

PIN NAMES

A0~A10	Address
BS0, BS1	Bank Select
DQ0~DQ31	Data Input / Output
$\overline{CS}$	Chip Select
$\overline{RAS}$	Row Address Strobe
$\overline{CAS}$	Column Address Strobe
$\overline{WE}$	Write Enable
DQM0~3	Output disable / Write Mask
CLK	Clock inputs
CKE	Clock enable
V_{CC}	Power (+3.3V)
V_{SS}	Ground
$V_{CC}Q$	Power (+3.3V) (for I/O buffer)
$V_{SS}Q$	Ground (for I/O buffer)
NC	No Connection

PIN ASSIGNMENT (TOP VIEW)





PIN No	SYMBOL	NAME AND FUNCTION
1	1DIR	Directional Control
2, 3, 5, 6, 8, 9, 11, 12	1B1 to 1B8	Data Inputs/Outputs
13, 14, 16, 17, 19, 20, 22, 23	2B1 to 2B8	Data Inputs/Outputs
24	2DIR	Directional Control
25	$2\overline{G}$	Output Enable Input
36, 35, 33, 32, 30, 29, 27, 26	2A1 to 2A8	Data Inputs/Outputs
47, 46, 44, 43, 41, 40, 38, 37	1A1 to 1A8	Data Inputs/Outputs
48	$1\overline{G}$	Output Enable Input
4, 10, 15, 21, 28, 34, 39, 45	GND	Ground (0V)
7, 18, 31, 42	V_{CC}	Positive Supply Voltage

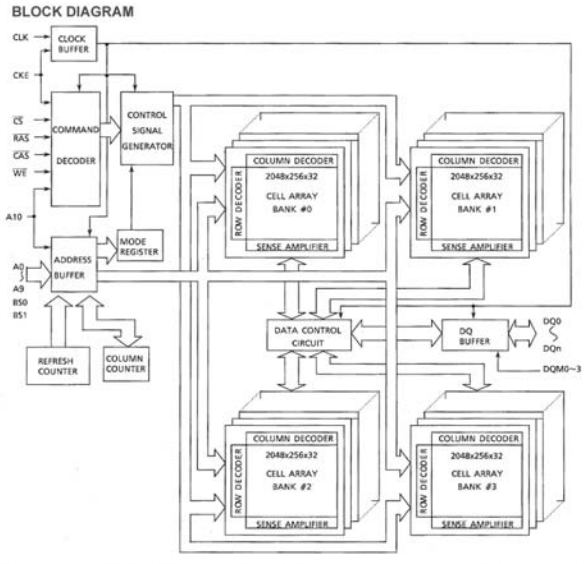
Pin Description

267613-001, 74LCX16245 16-bit Buffer

Definitions/Terminology

Parameter	Abbreviation	Usage/Description
Clock Input	CLK	The CLK input is used as the reference for S-DRAM operations
Clock Enable	CKE	The CKE input is used to suspend the internal CLK.
Bank Select	BSO, BS1	The device is organized as four bank memory cell array.
Address Inputs	A0 - A10	The A0 - A10 inputs are addresses to access the memory cell array. They are also used to set the data in the Mode register in a mode register cycle.
Chip Select	$\overline{CS}$	The $\overline{CS}$ input controls the latching of commands on the positive edges of CLK when $\overline{CS}$ is asserted Ôlw Õ.
Row Address Strobe	$\overline{RAS}$	The $\overline{RAS}$ input deÞnes the operation command in conjunction with $\overline{CAS}$ and $\overline{WE}$ inputs and is latched at the positive edges of the CLK.
Write Enable	$\overline{WE}$	The $\overline{WE}$ input deÞnes the operation in conjunction with $\overline{RAS}$ and $\overline{CAS}$ inputs and is latched at positive edges of CLK.
Data Input/output Mask	DQMO ~DQM3	The DMQ0 ~ DMQ3 input enables the output in a read cycle and functions as the input data mask in a write cycle.
Data Input/output	DQ0 ~ DQ31	The DQ0 ~ DQ31 input and output are synchronized with the positive edges of CLK.

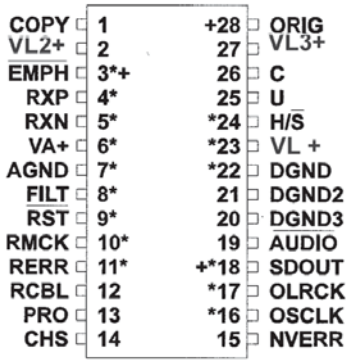
BLOCK DIAGRAM



254182-010, 64 Mbit SDRAM 3.3V

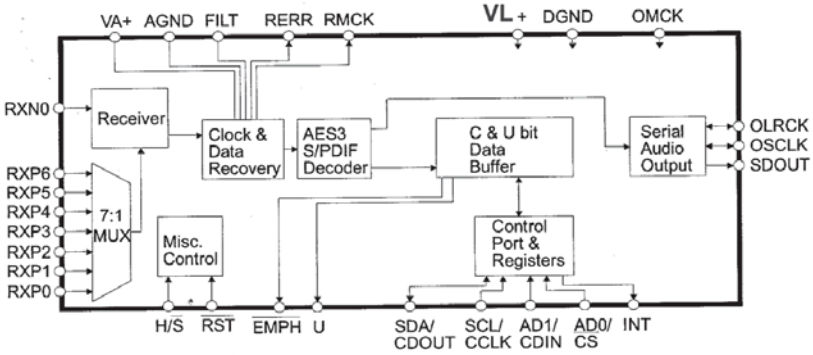
IC Diagrams

PIN DESCRIPTION

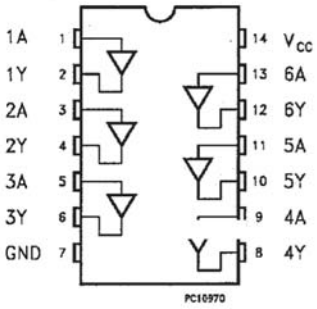


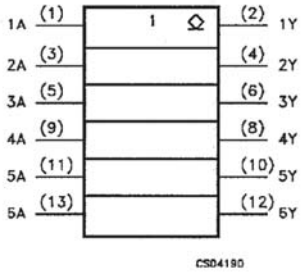
* Pins which remain the same function in all modes.
\+ Pins which require a pull up or pull down resistor to select the desired startup option.

FUNCTIONAL BLOCK DIAGRAM



267616-002, CS8415A Digital Audio Receiver



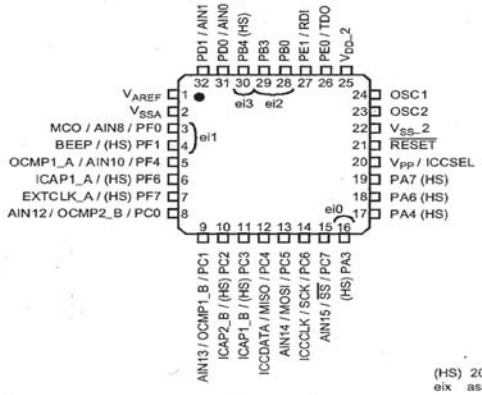


Pin Description

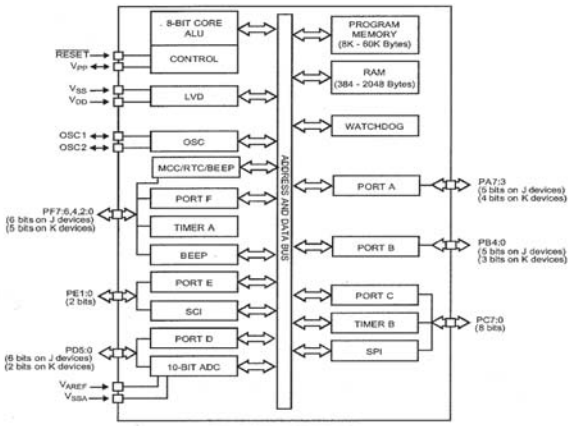
PIN No	SYMBOL	NAME AND FUNCTION
1, 3, 5, 9, 11, 13	1A to 6A	Data Inputs
2, 4, 6, 8, 10, 12	1Y to 6Y	Data Outputs
7	GND	Ground (0V)
14	V_{CC}	Positive Supply Voltage

267619-001, Hex Buffer

Pinout Diagram



(HS) 20mA high sink capability
eix associated external interrupt vector



BLOCK DIAGRAM

268457-001, ST72324 TQFP Microprocessor

Console Troubleshooting Tips

Symptom	Check for…
No power	- Check input line cord and/or system cable connected properly. - Check U2 and U17.
Console does not initialize properly	- Check that the DVD eject pin is properly aligned with the inner bezel plastics. The DVD eject pin loop should fit into the recess in the inner bezel plastics. If this pin is installed with the loop vertical instead of horizontal, it will not fit into the recess and will cause the DVD drawer to not close properly, putting the DVD drive and console electronics into a confused state. - Ensure that the DVD drive ATAPI cable and power cable are properly seated.
VFD does not display	- Check that the ribbon cable from the VFD to J6500 is properly seated. - Check transistor Q6503. Replace if defective.
No remote response	- Check transistor Q1 (270841-001) on the IR board. Replace if defective. - Check that the IR board ribbon cable is properly seated. - Check that the ribbon cable from the button board to the main PCB at J6700 is properly seated.
Analog audio input or AM/FM audio garbled or fades away after playing for a while	- Check the software revision level. Update with the most recent software version. - Check the DAC IC U9200 DC offset level at the left and right analog outputs.
Console keys won't function	- Check that the ribbon cable from the button board to the main PCB at J6700 is properly seated.
No optical audio	- Check the optical SPDIF input connector J8000 for bent legs on the bottom of the PCB.
Audio drop out at high volume	- Check resistors R455 and R450 on the bass module Amplifier/DSP PCB. - Ensure that there is no hot-melt or other debris on the thermal tab of the power amplifier ICs U150, U250 and U350 located on the bass module Amplifier/DSP PCB.
Reduced AM tuner performance	- Check the 20.00 MHz crystal Y9640. - Ensure that the barrel of the AM connector is not touching the enclosure's base, which is conductive near the AM connector.
Channel coupling at the Zone input	- Ensure that there is a good ground connection between the cable and J202.
Cannot read the bass module's software version	- Check R4201.
Video has incorrect color balance (chrominance)	- Check 27.00 MHz crystal Y7000 and ensure that is within 37ppm.
Analog signal coupling during DVD/CD playback	- Check Q9100, Q9101 and Q9102.
Distorted video/audio	- Check and replace digital video processor IC U7003.
No analog or AM/FM audio, but digital audio is normal.	- Check U4000.

Bass Module Troubleshooting Tips

Symptom	Check for…
Any time you remove the Amplifier / DSP PCB from the heatsink and re-install it	- Clean off all remnants of the old thermal pad (on heatsink, rectifiers, and FET) and replace thermal pad (267968-075) on heatsink. - Be sure thermal compound (144087) for amplifiers (U150, U250, U350) is clean and properly applied. - Install cable connectors in J5 & J7100 before screwing down the amplifier/DSP board & mounting bracket (267183-001). - Be sure all cables are properly installed.
No power to the system	- Check transformer primary & secondary connectors. - Check line fuse on I/O board; replace if necessary. - Check power switch or dual voltage switch (if present). - Check resistance of transformer primary. If open, thermal fuse has opened; replace the transformer.
No power to console	- Check seating of cable 271561-190 between DSP & I/O board. - Check F1 on Input/Output PCB. - Check console cable (269997-001).
F1 on the Input/Output PCB blows	- If F1 blows when the console is not attached, check integrity of console cable, look for damage causing shorts. - If F1 blows when the console is plugged in, check the console for shorts.
Unusually loud hum from transformer, mains fuse may blow (dual voltage unit in a 230VAC environment)	- Check that voltage select switch is set properly.
Console powers up, unit plays only at low volume (dual voltage unit in a 115VAC environment)	- Check that voltage select switch is set properly.
Audio crackles/ breaks up on program peaks at high volume	- Check all cables/connectors in ground path to the console (J150 on DSP; 271561-190; J3 & J7 on I/O). Contacts may be corroded; replace as necessary. - Check PCB soldering to J150 on DSP. Re-solder if necessary.
No audio, any channel	- Check Vraw. If it is above 18 VDC (probably 25~30V), replace Q4 FET (274550-002).
Audio regularly drops out at medium to high volume (may affect bass, left array or right array independently)	- Check seating of amplifiers (U150, U250, U350) for proper thermal coupling to heatsink.

GLOSSARY OF TERMS

Aspect Ratio - The shape of the rectangular picture in a TV set. It is the width of the picture relative to the height. Our standard TV picture, is 4 units wide by 3 units high, or 4:3 in aspect ratio. There are currently two standard TV aspect ratios in the U.S., 4:3 and 16:9.

Chapter - In DVD-Video, a division of a title. Technically called part of a title (PTT).

Component Video - A video signal split into three parts, luminance and two color signals (marked as YPbPr). It provides the highest resolution video, but cannot be processed by all television sets.

Composite Video - A single video signal that contains luminance, color and synchronization information. NTSC and PAL are examples of composite video systems.

Dolby Digital® - Also known as AC-3, a type of multi-channel surround sound format used on discs. Dolby Digital is a perceptual coding system for audio, developed by Dolby Laboratories and is accepted as an international standard. Dolby Digital is the most common means of encoding audio for DVD-Video and is the mandatory audio compression system for 525/60 (NTSC) discs.

DTS - A type of multi-channel surround sound format used on some CDs and DVDs.

DVD - An acronym that is most commonly known to mean Digital Video Disc or Digital Versatile Disc. The audio/video/data storage system based on 12 and 8 cm optical discs.

DVD Video - A standard for storing and reproducing audio and video on DVD-ROM discs, based on MPEG video, Dolby Digital and MPEG audio, and other proprietary data formats.

Letterbox - The projected aspect ratio of feature films is often 16:9 rather than the 4:3 aspect ratio of most TVs. Therefore, it is becoming common practice to transfer films to video with black borders at the top and bottom of the picture. The film becomes a “letterbox” within the video.

MPEG - A type of data compression used for audio or video storage on disc.

MP3 - MPEG Layer 3 audio. This is a compressed audio format that allows you to record many hours of music on a single CD.

NTSC - An acronym for National Television System Committe; the organization that developed both the American Black & White and Color television systems.

PAL - An acronym for Phase Alternate Line. This is one of several composite video systems. The PAL format is used extensively in Western Europe.

PCM - An uncompressed, digitally coded representation of an analog signal. This is the form of the digital audio signal used for both CD and laserdisc. It is a serial data stream that is coded for transmission or recording. PCM is also used for many other types of serial data communications.

S-Video - A video interface standard that carries separate luminance and chrominance signals, usually on a four-pin mini-DIN connector. Also called Y/C. The quality of S-video is significantly better than composite video since it does not require a comb filter to separate the signals. Most high-end televisions have S-video inputs.

Title - Numbered elements of the DVD contents, which may include more than one movie alone.

Track - Individual selections recorded on an audio tape or disc.

SERVICE MANUAL REVISION HISTORY