Contents

SAFETY INFORMATION

1. Parts that have special safety characteristics are identified by the ⚠ symbol on schematics or by special notes in the part lists. 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) 1492 (71). With the unit AC switch first in the ON position and then in OFF position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the unit (antennas, handle bracket, metal cabinet, screw-heads, 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 the exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 Megohms. When there is no return path to the chassis, the reading must be "infinite". 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 Acoustic Wave® Music System contains no user-serviceable parts. To prevent warranty infractions, refer servicing to warranty service stations or factory service.

Electrostatic Discharge Sensitive (ESDS) Device Handling

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

• Perform work at an electrically grounded work station.

• Wear wrist straps that connect to the station or heel straps that connect to conductive floor mats.

• Avoid touching the leads or contacts of ESDS devices or PC boards even if properly grounded. Handle boards by the edges only.

• Transport or store ESDS devices in ESD protective bags, bins, or totes. Do not insert unprotected devices into materials such as plastic, polystyrene foam, clear plastic bags, bubble wrap or plastic trays.

SPECIFICATIONS

Size:	18" W x 10 1/2"H x 7 1/2"D
Weight:	22 Lb (10kg)
Antenna:	External FM Antenna (300Ω) FM collapsible whip Internal AM loop stick
Case:	All Plastic
Stereo/ Mono Switching:	Automatic, triggered by FM carrier or pilot
Driver Compliment:	One 4.5" driver Two 3" tweeters
Cross Over:	@ 500Hz
Cassette:	Phillips "Compact Cassette" format, stereo record/ play, ac bias and erase, Dolby B NR, automatic playback equalization selector
Frequency Display:	Liquid Crystal Display
Amplifier Power:	Woofer: 20 W into 0.6Ω, 1% THD, Resistive Load Tweeters: 4.2W into 4Ω per channel, 1% THD, Resistive Load
System Quiescent Current:	Radio operation: < 260ma Tape play back: < 210ma Tape record/ radio: < 400ma
Line output level:	275mV ± 1 dB (MTT-150 Dolby Cal Level)
Line output impedance:	1kΩ
Hum and Noise:	Tweeter Noise: .330mV max (A-WTD) Woofer Hum: 1mV max.
Min. Voltage for Operation: (Undistorted Audio at the Speaker Terminals)	Tape, FM, AUX.: 7.7V AM @ 1400kHz: 8.5V
DC Current Drain, Power SW off, at 12VDC:	1mA

FM SPECIFICATIONS

Mono Sensitivity:	10uV (IHF Usable); 88.1 (dBu input): 30db 98.1 (dBu input): 30db 107.9 (dBu input): 30db
Mono 50dB Quieting:	-25uV Sensitivity (IHF); 88.1 (dBu): 50dB 98.1 (dBu): 50dB 107.9 (dBu): 50dB
Spurious Signal Rejection (IHF):	45dB
AM Rejection (IHF):	55dB

FM SPECIFICATIONS

(Continued)

(40dBu input):	40dB
THD at Line Output at 1kHz, 75kHz dev, Stereo:	.6% (66dBu Input): 1%
Selectivity (IHF):	50dB
±400kHz (46dBu input):	40dB
Capture Ratio (IHF):	2dB (66dBu Input): 3.5dB
Stereo Separation: (1kHz, 75kHz dev): Output Level:	30dB (66dBu Input): 25db (66dBu Input): 220 ±50mV

AM SPECIFICATIONS

Sensitivity (20dB usable):	600kHz: 1000uV/M 1000kHz: 1000uV/M 1400kHz: 1000uV/M
Image Rejection: Adjacent Channel Selectivity (±10kHz): Frequency Response at Line Output:	40dB 20dB 35-2500Hz: -6dB 50Hz: ±1dB 2.5kHz: Better than: -8dB
AM Volume Sensitivity for Full Output:	5000uV/M THD at Line Output, 30% MD fc = 1000kHz, fm = 400Hz, at 5000uV/M Input Level: 1%
Ultimate S/N Ratio: at 10,000uV/M input level: AGC Figure of Merit:	(90dBu/M): 40dB (30,000uV/M): 40dB (100 dBu/M): 44dB

CASSETTE DECK SPECIFICATIONS

Recording/ Playback and playback only response:	40-12, 500Hz +3, -4dB
Record/ PB Response: 63Hz, +2, -4dB 8kHz, +3, -4dB 10kHz, +3, -4dB 12.5kHz, +3, -4dB	Play back Response: 63Hz, +3, -4dB 8kHz, +3, -4dB 10kHz, +3, -4dB 12.5kHz, +3, -4dB
Speed Error:	+3, -2%
Wow and Flutter, JIS WRMS:	.20%
Fast Forward or Rewind Time, C-60 Cassette:	100 Sec
S/N Ratio, Playback (A-weighted, with Dolby):	58 dB

CASSETTE DECK SPECIFICATIONS

(Continued)

Record A.L.C. Range (at 3% THD):	26dB
Record A.L.C. Compression at 0 VU Threshold Rel all AUX in .5V):	300 - 85mV
A.L.C. attack time:	2mSec
A.L.C. release time:	20Secs
Aux input level for Dolby ref output at line output:	350mV
Aux. input REC. level for Dolby ref. output at line output:	350mV
Aux. input impedance:	10kΩ
Record/Playback Distortion:	100mV input, 1000Hz: 2% 100mV input, 1000Hz: 3%

DISASSEMBLY/ ASSEMBLY PROCEDURES

Note: Numbers in parentheses correspond to the item call outs in Figure 8 and 9.

1. Cassette Door Removal

1.1 With the cassette door closed, grasp the cassette door with both hands at the rear of the door. Apply forward pressure parallel to the top cover. This will release the cassette door from the tabs on the cassette holder. See figure 1 below.

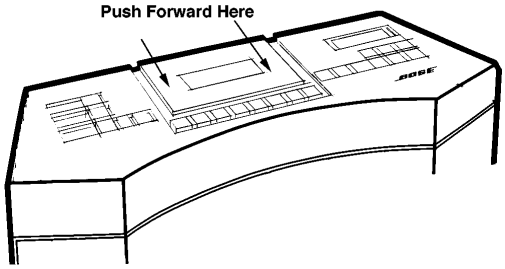

Figure 1. Cassette Door

2. Cassette Door Replacement

2.1 With the cassette holder closed, line up the slots on the cassette door with the tabs on the cassette holder. Using both hands, push on the cassette door toward the rear of the unit until it snaps into place.

3. Top Cover and Antenna Removal

3.1 Perform procedure 1 first.

3.2 Remove the five screws (33) that secure the top cover (4) and the single screw (34) that secures the antenna (11), to the matrix.

3.3 Lift the top cover up from the rear first and then lift it off. This will release the top cover tabs from the tweeter panel (5).

4. Top Cover and Antenna replacement

4.1 Lower the front of the top cover (4) onto the tweeter panel (5) so that the tabs on the top cover lock into the tweeter panel.

4.2 Lower the rear of the top cover until the screw holes in the top cover line up with the screw holes in the matrix.

4.3 Replace the five screws (33) that secure the top cover and the single screw (34) that secures the antenna (11), to the matrix.

5. Digital PCB Removal

5.1 Perform procedure 3 first.

5.2 Remove the three screws (29) that secure the digital PCB to the chassis (10) and the single screw (29) that secures the ground lug to the cassette deck.

5.3 Remove the two wire connectors from the digital PCB.

6. Digital PCB Replacement

6.1 Attach the two wire connectors to the digital PCB.

6.2 Replace the three screws (29) that secure the digital PCB to the chassis (10) and the single screw (29) that secures the ground lug to the cassette deck.

7. Control PCB Removal

7.1 Perform Procedure 3 first.

7.2 Remove the three screws (29) that secure the control cover (26) to the chassis.

7.3 Remove the three screws (29) that secure the control PCB to the chassis. Remove the three wire connectors (two on later version units) from the control PCB. **Note:** If there is a ground lug connected to the cassette deck, cut the wire as close as possible to the cassette deck. This wire is not needed.

7.4 Remove the three (25) spacers from the control PCB and place them on the replacement control PCB.

DISASSEMBLY/ ASSEMBLY PROCEDURES

8. Control PCB Replacement

8.1 Attach the three wire connectors (two on later version units) to the control PCB.

8.2 Replace the three screws (29) that secure the control PCB to the chassis (10).

8.3 Replace the control cover (26) so that the buttons (16 and 12) line up with the spacers (25) on the controls PCB.

8.4 Replace the three screws (29) that secure the control cover (26) to the chassis.

9. Cassette Deck Removal

9.1 Perform procedure 3 first.

9.2 Remove the three screws (29) that secure the digital PCB to the chassis (10) and move the digital PCB off to the side.

9.3 Remove the single screw (29) that is located at the front right of the control cover (26). This screw needs to be removed to access one of the cassette deck wire connectors.

9.4 Remove the five screws (29) that secure the cassette deck to the chassis.

9.5 Remove the three wire connectors that connect the cassette deck to the main PCB and lift the cassette deck up.

10. Cassette Deck Replacement

10.1 Lower the cassette deck into the chassis (10) so that the record lever (27) inserts into the record switch that is located on the main PCB.

10.2 Replace the three wire connectors that connect the cassette deck to the main PCB.

10.3 Replace the five screws (29) that secure the cassette deck to the chassis.

10.4 Replace the single screw (29) that is located in the front right of the control cover (26).

10.5 Move the digital PCB onto the chassis and replace the three screws (29) that secure it to the chassis.

11. Cassette Deck Belt Removal
See Figure 2

11.1 Perform procedure 9 first.

11.2 Remove the three screws (1) that secure the pulley bracket to the cassette deck. Lift the plate off.

11.3 Pull the pulley out and remove the belts.

12. Cassette Deck Belt Replacement
See Figure 2

12.1 Place the smallest belt on the lower part of the metal pulley and the lower plastic pulley. Insert the metal pulley into the capstan bearing housing.

12.2 Place the largest belt on the motor pulley and the middle section of the metal pulley.

12.3 Place the remaining belt on the top of the metal pulley and the remaining plastic pulley.

12.4 Replace the three screws (1) that secure the pulley bracket to the cassette deck.
Note: Make sure the leaf switch, which is located on the pulley bracket, sits behind the mechanical switch tab. If the metal portion of the leaf switch touches the cassette deck, the fuse will blow when pause is depressed.

13. Cassette Deck Motor Removal
See Figure 2

13.1 Perform procedure 9 first.

DISASSEMBLY/ ASSEMBLY PROCEDURES

13.2 Remove the belt attached to the motor.

13.3 Remove the three screws (2) that secure the motor to the cassette deck. Remove the wires attached to the motor.

14. Cassette Motor Replacement
See Figure 2

14.1 Replace the three screws (2) that secure the motor to the cassette deck.

14.2 Replace the motor belt.

14.3 Attach the two wires to the motor.

15. Tweeter Panel Removal

15.1 Perform procedure 3 first.

15.2 Remove the two screws (29) that secure the tweeter panel (5) to the chassis (10).

15.3 Grasp the tweeter panel by both sides and lift it up.

16. Tweeter Panel Replacement

16.1 Slide the tweeter panel (5) onto the chassis (10) so that the slots on the tweeter panel line up with the tabs on the chassis.

16.2 Replace the two screws (29) that secure the tweeter panel to the chassis (10).

17. Tweeter Removal

17.1 Perform procedures 3 and 15 first.

17.2 Remove the four screws (29) that secure the tweeter (2) to the chassis (10).

17.3 Pull the tweeter out and remove the wires from the terminals.

18. Tweeter Replacement

18.1 Attach the wires to the tweeter (2) terminals.

18.2 Place the tweeter into the chassis (10). Replace the four screws (29) that secure the tweeter to the chassis.

19. Main PCB Removal

19.1 Perform procedure 3 first.

19.2 Remove the five screws (30) that secure the chassis (10) to the matrix.

19.3 Remove the single screw (49) that secures the power switch to the chassis (later units do not have this screw). Remove the power switch spacer (24) by pulling straight up on it.

19.4 Remove the two screws (29) that secure the RCA cover (13) to the chassis.

19.5 Remove the Auxiliary switch spacer (28) by pulling straight up on it.

19.6 Remove the three wire connectors that come from the matrix and attach to the main PCB.

19.7 Lift the chassis off of the matrix and flip the chassis over.

19.8 Remove the nine screws (29) located around the perimeter of the main PCB. Lift the PCB out and remove all the wire connectors from the PCB.

20. Main PCB Replacement

20.1 Connect the wire connectors to the main PCB.

20.2 Lower the main PCB onto the chassis so that the record lever (27) inserts into the record switch that is located on the main PCB.

20.3 Replace the nine screws (29) that secure the main PCB to the chassis (10).

20.4 Place the chassis on the matrix and replace the three wire connectors that

DISASSEMBLY/ ASSEMBLY PROCEDURES

come from the matrix.

20.5 Press the auxiliary switch spacer (28) onto the aux switch. Press the power switch spacer (24) onto the power switch. Replace the screw (49) that secures the power switch to the chassis (later units did not have this screw).

20.6 Replace the five screws (30) that secure the chassis to the matrix.

20. Woofer Panel Removal

20.1 Remove the four screws (40) that secure the woofer panel (6) to the matrix.

20.2 Grasp the woofer panel (6) by both sides and pull it off.

21. Woofer Panel Replacement

21.1 Slide the woofer panel (6) onto the matrix.

21.2 Replace the four screws (40) that secure the woofer to the chassis.

22. Amplifier PCB Removal

22.1 Perform procedure 20 first.

22.2 Remove the six screws (40) that secure the bottom cover (9) to the matrix and the two screws (48) that secure the amplifier PCB to the heatsink.

22.3 Lift the bottom cover up and remove the wire connectors from the amplifier PCB. Once the wires have been removed, the bottom cover can be lifted off.

22.4 Remove the six screws (45) that secure the amplifier PCB to the bottom cover (9). Lift the amplifier PCB up and remove all wires attached to it.

23. Amplifier PCB Replacement

23.1 Place the amplifier PCB onto the bottom cover (9) so that the AC jack is located in the AC jack holder. Replace the six screws (45) that secure the amplifier PCB to the bottom cover.

23.2 Place the bottom cover onto the matrix and connect the wire connectors to the amplifier PCB.

23.3 Replace the six screws (40) that secure the bottom cover to the matrix and the two screws (48) that secure the amplifier PCB to the heat sink.

24. Woofer Removal

24.1 Perform procedures 20, 22.2 and 22.3.

24.2 Remove the six screws (41) that secure the woofer cover (8) to the matrix.

24.2 Remove the three screws (30) that secure the woofer (3) to the matrix. Desolder the wires attached to the woofer terminals and lift the woofer out.

25. Woofer Replacement

25.1 Attach the wires to the woofer (3) terminals and place the woofer into the matrix.

25.2 Replace the three screws (30) that secure the woofer to the matrix.

25.3 Place the woofer cover (8) onto the matrix so that the holes in the woofer cover line up with the holes in the matrix. Replace the six screws (41) that secure the woofer cover to the matrix.

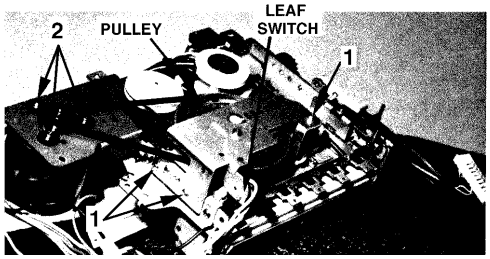

Figure 2. Cassette Deck View

TEST PROCEDURES

AM Alignment

(See Figures 3, 5 and 6)

1. Tuning Bias Alignment

1.1 Connect the positive side of a dc meter to pin 8 of P101/ J101 (tuning bias) and the negative side to pin 2 of P101/ J101.

1.2 Adjust the tuner to 530kHz. Adjust T102 (AM OSC) for a 1.3 ± 0.3Vdc tuning bias.

1.3 Adjust the tuner to 1620kHz. Adjust CV1 (AM OSC) for a 7.6 ± .05Vdc tuning bias.

1.4 Repeat these steps until the best adjustment is made.

2. Tracking Alignment

2.1 Adjust an AM signal generator to 600kHz, 30% modulation, 400Hz, 70dBu field strength at the AM antenna. Adjust the tuner to 600kHz.

2.2 Adjust the AM bar antenna's (TX1) coil for maximum output measured at the auxiliary output. Fix the bar antenna's coil with paraffin.

2.3 Adjust the AM signal generator and the unit to 1400kHz.

2.4 Adjust CV2 (ANT.) and T103 (IFT) for maximum output measured at the auxiliary output.

2.5 Repeat these steps until a maximum output is measured at the auxiliary output.

3. IF Alignment

3.1 Adjust an AM signal generator to 1000kHz, 30% modulation, 400Hz, 70dBu field strength at the AM antenna. Adjust the tuner to 1000kHz.

3.2 Adjust T103 (IFT) for maximum output measured at the auxiliary output.

FM Alignment

(See Figure 5)

4. IF Alignment

4.1 Inject a 98.1MHz, 90% modulation, 1kHz, pilot on with 10% modulation, 72dBu RF signal to the external FM antenna input. Adjust the tuner to 98.1MHz.

4.2 Adjust T101 (IFT) for minimum distortion measured at the auxiliary output.
Note: The FM front end (TV1) needs no adjustment. Replacement front ends are adjusted at the factory.

Cassette Deck Adjustment

(Figures 4, 6, and 7)

5. Playback/ Record head Azimuth Adjustment

5.1 Insert a 10kHz, -10dB test tape (MTT-114) into the cassette deck and press play.

5.2 Adjust the P/R head azimuth screw for left and right maximum output measured at the auxiliary output.
Note: Fix the azimuth screw with adhesive after adjustment is complete.

6. Erase head Azimuth Adjustment

6.1 Insert a mirror test tape into the cassette deck and press play.

6.2 Adjust the erase head azimuth screw so that the tape does not touch the guide rails on the erase head.

7. Tape Speed Adjustment

7.1 Insert a 3kHz, -10dB test tape (MT111) into the cassette deck and press play.

TEST PROCEDURES

7.2 Adjust the cassette deck's motor to 3kHz measured at the auxiliary output.

8. Dolby Level Adjustment

8.1 Insert a 400Hz, 0db 200nWb/m test tape (MTT-150) into the cassette deck and press play.

8.2 Adjust RV503 (left channel) and RV504 (right channel) for 300, +36, -32 mV measured at the auxiliary output.

9. Recording Level Adjustment

9.1 Connect the positive side of a dc meter to pin11 for the right channel measurement and pin3 for the left channel measurement. Connect the negative side of the dc meter to pin7 of P100/ J600.

9.2 Insert a blank tape into the cassette deck and press the record and play buttons simultaneously.

9.3 Apply a 400Hz signal at a level to obtain a 200mV level at the auxiliary output.

9.4 Adjust RV505 (left channel) and RV506 (right channel) for .59mVdc measured at P100/ J600.

10. Bias Level Adjustment

10.1 Connect the positive side of a dc meter to pin11 for the right channel measurement and pin3 for the left channel measurement. Connect the negative side of the dc meter to pin7 of P100/ J600.

10.2 Insert a blank tape (normal bias) into the cassette deck and press the record and play buttons simultaneously.

10.3 Adjust RV501 (right channel) and RV502 (left channel) for 6.5mV measured at P100/ J600.

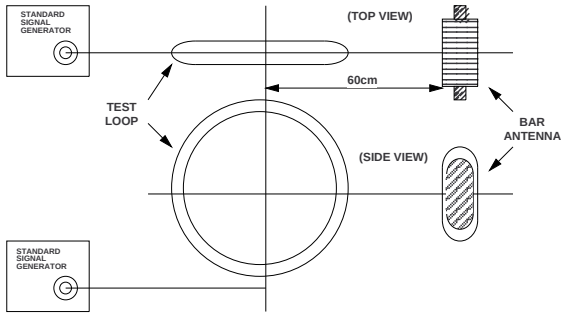

Figure 3. AM Test Setup

The equivalent field intensity is 26dB less than the generator output level or 1/20th of the output voltage.

ADJUSTMENT POINT FIGURES

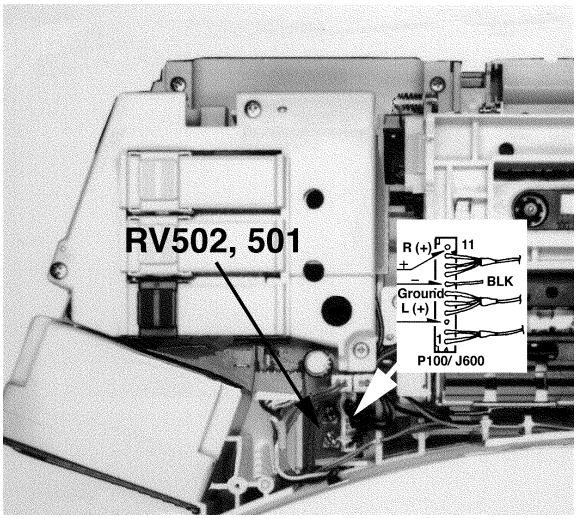

Figure 4. RV502, RV501, P100/ J600

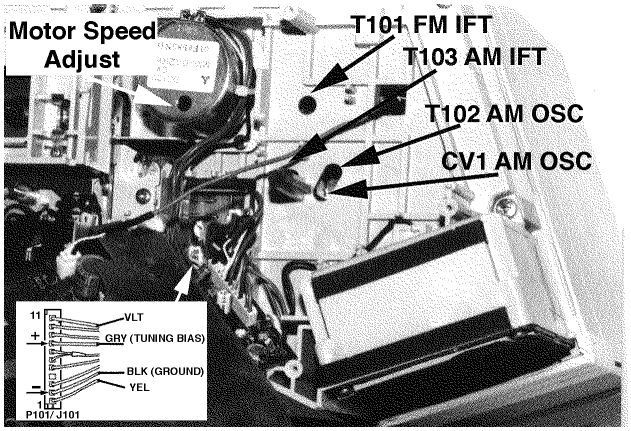

Figure 5. T101, T102, T103, CV1, P101/ J101

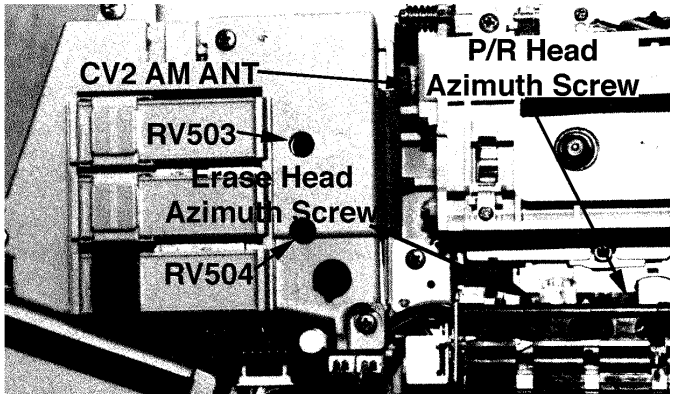

Figure 6. CV2, RV503, RV504, Erase Head and P/R Head Azimuth

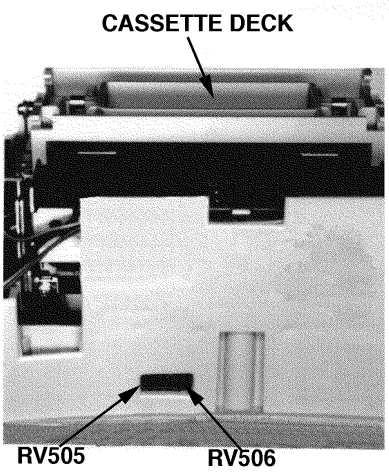

Figure 7. RV505, RV506

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 PCB are listed in the 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 used on AWMS™ series I cassette units manufactured with a serial number beginning with a 4, 5 or 6.

5. This part is used on AWMS™ series I cassette units manufactured with a serial number beginning with a 9, 0, 1, 2 or 3.

MAIN ASSEMBLY PART LIST

Figures 8 and 9

Item Number	Part Number	Descripton	Note
1	136744	Control PCB	2
2	123802	Tweeter	
3	130698	Woofer	
4	126328 140711	Top Cover	4 5
5	126329	Tweeter Panel	
6	126330	Woofer Panel	
7	126331	Front Panel, Aluminum Plate	
8	126340	Cover, Woofer	
9	126332 140715	Cover, Bottom	4 5
10	126333	Chassis, Main	
11	126327	Rod Antenna	
12	126354	Button, Bass, Treble	
13	126364	Cover, RCA Switch	
14	126358 126358-1	Door, Grey Door, White	
15	126492	Spacer, Cassette Door	
16	126355	Button, Volume	
17	126367	Cover, AC/DC	
18	126320	Radio, Rubber Sw	
19	126356	Tape, Rubber Sw	
20	126360	Holder, Radio Button	
21	126359	Holder, Tape Button	
22	126375	LCD Window	
23	126376	Holder, LCD	
24	126361 140721	Spacer, Power	4 5,1
25	126362	Spacer, Volume, Bass, Treble	
26	126363	Holder, Control Cover	
27	126387	Lever, Deck	1
28	126357	Spacer, Aux	
29	126346	3 x 12mm	
30	126347	4 x 20mm	
31	126406	2.6 x 4mm	
32	126391	2.6 x 6mm	
33	126402	3 x 14mm	
34	126403	3 x 12mm	
35	126342	Woofer Gasket	
36	126386	Front Panel Holder	1
37	126388	Spacer	
38	126366 140725	Holder, Transfomer	4,1 5,1
39	126395	3 x 12 mm	1
40	126405	4 x 18 mm	
41	126491	3 x 16 mm	
42	126347	4 x 20 mm	
43	126346	3 x 12 mm	
44	126400	3 x 6 mm	1
45	126498	3 x 8 mm	
47	126398	3 x 8 mm	1
48	126397	3 x 12 mm	
49	126393	3 x 8 mm	
50	126396	4 x 6 mm	

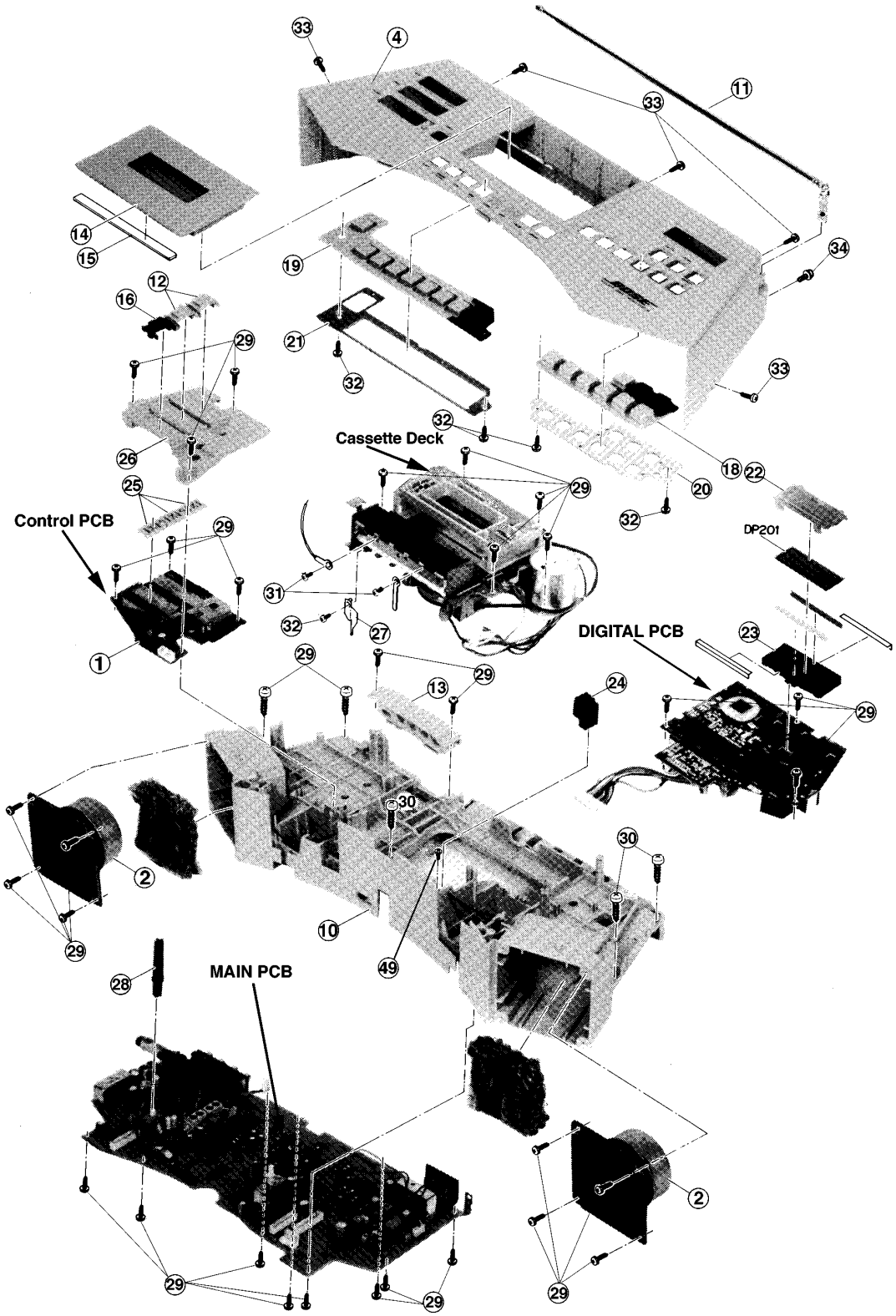

Figure 8. Exploded View

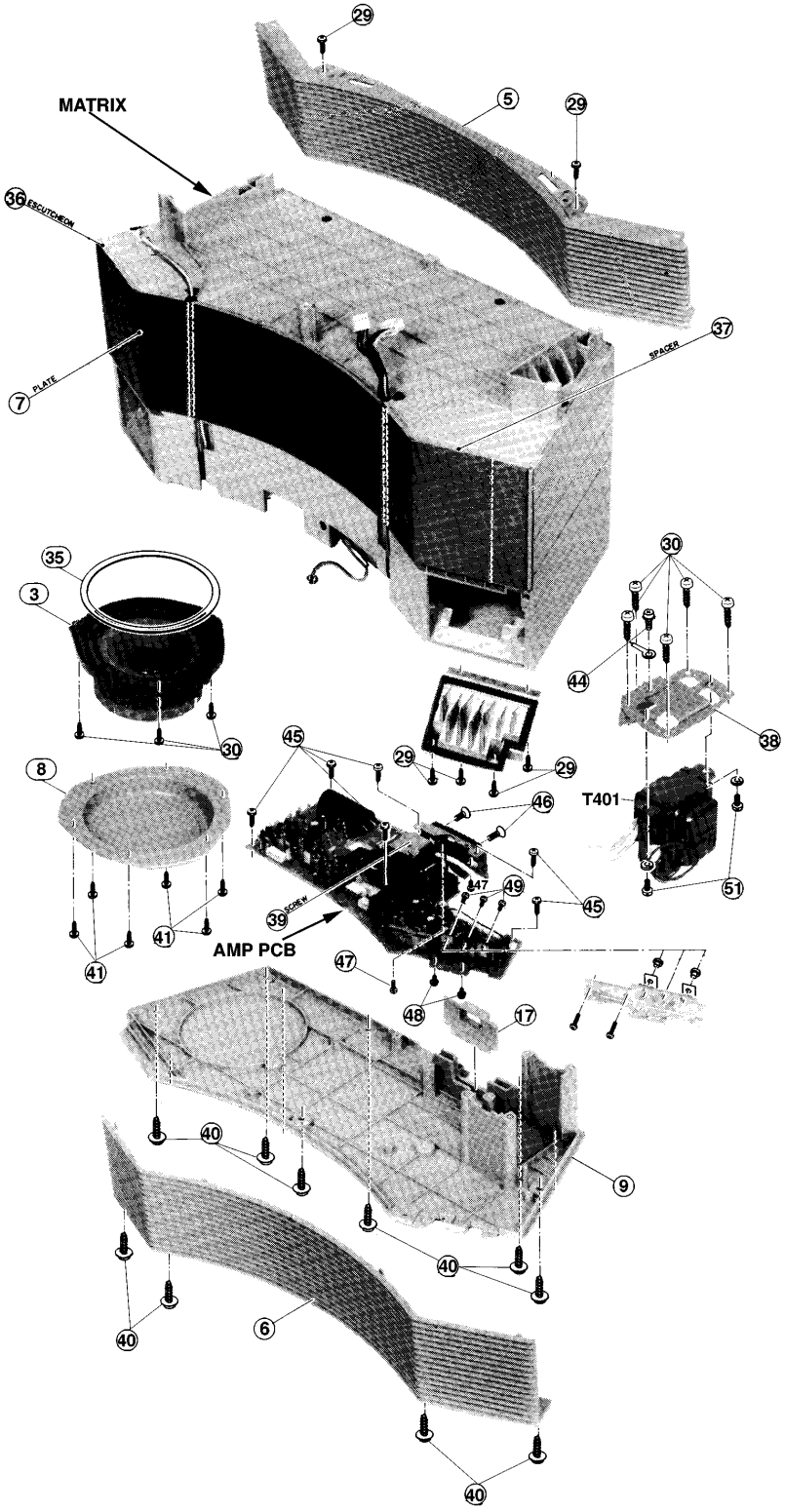

Figure 9. Exploded View

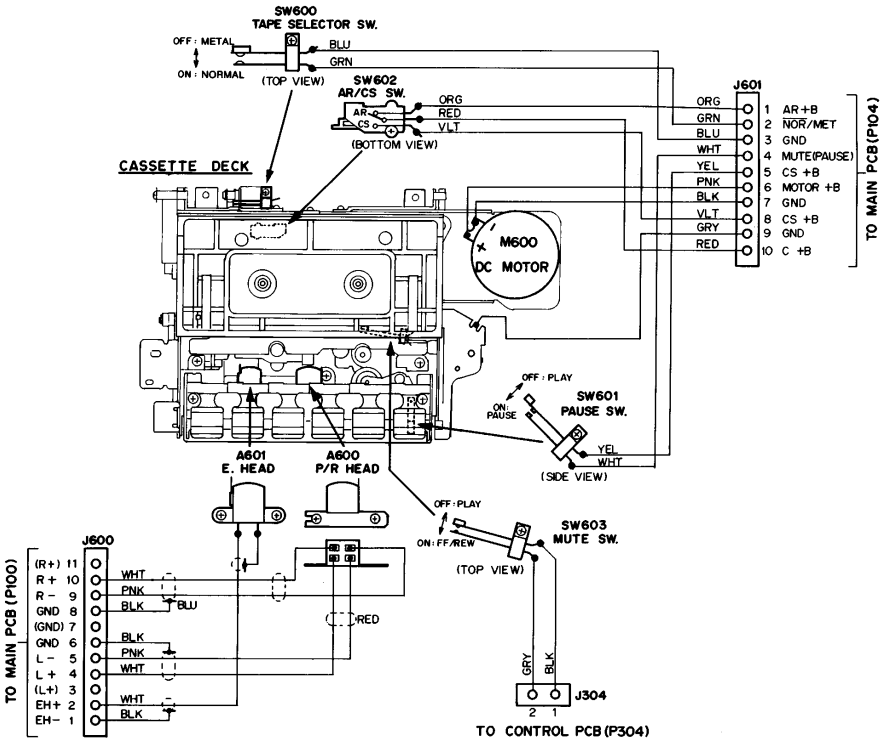

Figure 10. Cassette Deck

CASSETTE DECK PART LIST

Description	Part Number
Cassette Deck, Complete	126390
Record/ Play Head	126474
Erase Head	126475-1
DC Motor	126476
Pinch Roller Assembly	126560
Belt, Lower, Play	126568
Belt, Middle, Motor	126569
Belt, Top, FF/Rew	126570
Idler	126534
Guide Rail, Cassette Holder	126594

ELECTRICAL PART LIST

Resistors

Reference Designator	Description	Part Number	Note
Jumper, Misc	0 Ω	126104	
R103	100k, 10%, 1/2W	126105	
R104, 108, 131, 132, **135**, 146, 147, 201, 205,	1k, 5%, 1/8W, Metallic, Chip	126106	4
R206, 208, 301, 302, 329, 330, 331, 332, 553, 554, 706	1k, 5%, 1/8W, Metallic, Chip	126106	
R107, 116, 123, 127, 203, 211, 212, 519, 520, 533, 534, 539, 540, 567, 568, 574, 575, 582, 583, 588, 589, 590, 591, 614, 619, 626, 633, 634, 702	100k, 5%, 1/8W, Metallic, Chip	126108	
R109, 150, 639	6.8k, 5%, 1/8W, Metallic, Chip	126109	
R110, 112, 113, 114, 115, 312, 601, 703	2.2k, 5%, 1/8W Metallic, Chip	126110	
R111, 126, 133, 140, 218, 502, 506, 521, 522, 578, 579, 597, 599, 600, 603, 604, 605, 606, 615, 625	10k , 5%, 1/8W Metallic, Chip	126111	
R117, 118, 216	68k, 5%, 1/8W Metallic, Chip	126112	
R119, 121	12k, 5%, 1/8W Metallic, Chip	126113	
R124, 306, 314, 555, 556, 571, 572, 594	33k, 5%, 1/8W Metallic, Chip	126114	
R125, 650, 651	220k, 5%, 1/8W Metallic, Chip	126115	
R134, 462	27 Ω, 5%, 1/8W Metallic, Chip	126116	
R†**135**, 210, 215, 325, 326, ‡**327, ‡328,** †**515-**†**518, †545,** †**546,** †**827**	27k, 5%, 1/8W Metallic, Chip	126171	‡4, †5
R136, 543, 544, 563, 564, 573, 618, 621, 622, 628	47k, 5%, 1/8W Metallic, Chip	126117	
R137, 138, 531, 532, 609, 612, 613, 620	22k, 5%,1/8W Metallic, Chip	126118	
R143, 204, 637	100Ω, 5%,1/8W Metallic, Chip	126159	
R144, 636	680Ω, 5%,1/8W Metallic, Chip	126160	
R145, 315, 316, 323, 324, 551, 552, 559, 560, 602	3.3k, 5%, 1/8W Metallic, Chip	126161	
R148, 607, 608, 629, 635	330 5%, 1/8W Metallic, Chip	126162	

ELECTRICAL PART LIST

Resistors

Reference Designator	Description	Part Number	Note
R149	15Ω, 5%, 1/8W Metallic, Chip	126163	
R151, **313**, 654	2.7k, 5%, 1/8W Metallic, Chip	126164	4
R202	560Ω, 5%, 1/8W Metallic, Chip	126166	
R207, 507, 508, 527, 528	1.8k, 5%, 1/8W Metallic, Chip	126169	
R209	8.2k, 5%, 1/8W Metallic, Chip	126170	
R213, 468, 469, 499	10Ω, 5%, 1/4W, Carbon	126172	
RV302	20k, Variable, slide	138166	
RV303	10k, Variable, slide	138185	
R**303, 304, 515, 516, 517, 518, 545, 546**	4.7k, 5%, 1/8W, Metallic, Chip	126176	4
R**303, 304**, **450, 452,** 595, 596	470Ω, 5%, 1/8W, Metallic, Chip	126438	5
R**305**	3.3Ω, 5%, 1/8W, Metallic, Chip	126177	4
R**305**	20Ω, 5%, 1/8W, Metallic, Chip	140615	5
R308, **586, 587**	1.5k, 5%, 1/8W, Metallic, Chip	126179	4
R309, 310	24k, 5%, 1/8W, Metallic, Chip	126180	
R**313**, 627, 707	3.9k, 5%, 1/8W, Metallic, Chip	126451	5
R321, 322, **586**, **587**, 616	390Ω, 5%, 1/8W, Metallic, Chip	126184	5
R333	1.2k, 5%, 1/8W, Metallic, Chip	126186	
R334, 335, 652, 900, 901, 903, 904	1M, 5%, 1/8W, Metallic, Chip	126187	
R**401**	130k, 2%, 1/4W, Carbon	126188	4
R**401**	1300k, 5%, 1/8W, Metallic, chip	140619	5
R403, 404	51k, 2%, 1/4W, Carbon	126189	
R405	120k, 2%, 1/4W, Carbon	126190	
R406, 439, 440	1.1k, 2%, 1/4W, Carbon	126191	
R407, 408	180k, 2%, 1/4W, Carbon	126192	
R409, 410, 411, 418, 419, 421, 477, 480	10k, 5%, 1/4W, Carbon	126193	
R412, 413, 422, 423	100k, 2%, 1/4W, Carbon	126194	
R414, 415, 416, 417	4.7k, 2%, 1/4W, Carbon	126195	
R420	3.3k, 5%, 1/4W, Carbon	126196	

ELECTRICAL PART LIST

Resistors

Reference Designator	Description	Part Number	Note
R424, 457, 481	1k, 5%, 1/4W, Carbon	126197	
R425, 426	2k, 2%, 1/4W, Carbon	126198	
R427, 460, 471	33k, 5%, 1/4W, Carbon	126199	
R428, 430	24k, 2%, 1/4W, Carbon	126200	
R429, 431, 451, 453	100k, 5%, 1/4W, Carbon	126201	
R432	15k, 5%, 1/4W, Carbon	126427	
R433, 474, 496	47k, 5%, 1/4W, Carbon	126428	5
R434	56k, 5%, 1/4W, Carbn	126429	
R435, 447, 479	2.2k, 5%, 1/4W, Carbon	126119	
R436	6.8k, 5%, 1/4W, Carbon	126120	
R437, 438, 448	5.6k, 2%, 1/4W, Carbon	126121	
R441	3.6k, 5%, 1/4W, Carbon	126122	
R442	18k, 5%, 1/4W, Carbon	126123	
R**450, 452**	470, 5%, 1/4W, Carbon	126125	4
R454, 455, 456, 459	220, 5%, 1/4W, Carbon	126126	
R458	1.5k, 5%, 1/4W, Carbon	126127	
R461, 464, 472	47, 5%, 1/4W, Carbon	126128	
R463	5.6k, 5%, 1/4W, Carbon	126130	
R467, 470	270Ω, 5%, 1/4W, Carbon	126131	
R473, 478	4.7k, 5%, 1/4W, Carbon	126133	
R482	3.9M, 10%, 1/2W, Carbon	126134	
R483	12k, 5%, 1/4W,	140633	
R484	12Ω, 5%, 1/4W,	140634	
R490, 491	56Ω, 2%, 1/4W, Carbon	126135	
R492, 493	3.3k, 2%, 1/4W, Carbon	126136	
R494, 495	2.2Ω, 5%, 1/4W, Carbon	126137	
R**496**	43k, 2%, 1/4W, Carbon	126138	4
R**497**	13k, 2%, 1/4W, Carbon	126139	4

ELECTRICAL PART LIST

Resistors

Reference Designator	Description	Part Number	Note
R**497**	8.2K, 2%, 1/4W, Carbon	140636	5
R**498**	16k, 2%, 1/4W, Carbon	126140	4
R**498**	9.1k, 2%, 1/4W, Carbon	140637	5
R501, 505, 511, 512	56k, 5%, 1/8W, Metallic, Chip	126142	
R503, 504, 641, 642, 1000	10Ω, 5%, 1/8W, Metallic, Chip	126144	
R509, 510, 705	47Ω, 5%, 1/8W, Metallic, Chip	126146	
R523, 524, 576, 577	82k, 5%, 1/8W, Metallic, Chip	126148	
R525, 526, 541, 542, 807	18k, 5%, 1/8W, Metallic, Chip	126149	
R529, 530	220Ω, 5%, 1/8W, Metallic, Chip	126150	
R537, 538, 580, 581	560k, 5%, 1/8W, Metallic, Chip	126152	
R547, 548, 610	5.6k, 5%, 1/8W, Metallic, Chip	126154	
R549, 550	150Ω, 5%, 1/8W, Metallic, Chip	126155	
R557, 558, 565, 566	6.2k, 5%, 1/8W, Metallic, Chip	126430	
R584, 585	39k, 5%, 1/8W, Metallic, Chip	126435	
R592, 593	180k, 5%, 1/8W, Metallic, Chip	126437	
R598	100 Ω, 5%, 1/4W, Carbon	140651	
R611	330k, 5%, 1/8W, Metallic, Chip	126445	
R624	2.2Ω, 5%, 1/2W, Carbon	126450	
R630	180Ω, 5%, 1/8W, Metallic, Chip	126452	
R631, 632	820Ω, 5%, 1/8W, Metallic, Chip	126453	
R638, 643, 644	1Ω, 5%, 1/8W, Metallic, Chip	126456	
R653	120Ω, 5%, 1/4W, Carbon	126461	
R701	3.3M, 5%, 1/8W, Metallic, Chip	126463	
R703	2.2k, 5%, 1/8W, Metallic, Chip	126465	
R704	5.6Ω, 5%, 1/2W, Carbon	126466	
R706	1k, 5%, 1/8W, Metallic, Chip	126468	
R839	3k, 5%, 1/8W, Metallic, Chip	140660	

ELECTRICAL PART LIST

Capacitors

Reference Designator	Description	Part Number	Note
C101, 103,104,105, 114, 122, 130	.047mf, 25V, Cer, Chip	126000	
C102, 113, 120, 219, 225, 424, 448, 449, 529, 579, 581	220mf, 16V, El	126001	
C106, 115, 140, 202, 203, 204, 208, 580, 583, 592, **701**	.01mf, 50V, Cer, Chip	126002	4
C107	390pf, 50V, Cer, Chip	126003	
C108	27pf, 50V, Cer, Chip	126004	
C109, 110, 111, 116, 117, 118, 119, 124, 127, 131, 135, 136, 201, 222, 301, 302, 317, 421, 430, 442, 445, 501, 503, 521, 522, 523, 524, 526, 530, 548, 549, 552, 558, 560, 565, 566, 567, 587	10uf, 16V, El	126005	
C112	150pf, 50V, Cer, Chip	126006	
C121, 502, 504, 568, 569	1000pf, 50V, Cer, Chip	126008	
C123, 809	.022mf, 25V, Cer, Chip	126009	
C125, 126, **462**	1000pf, 50V, Mylar	126011	4
C**462**	1500 pf, 50V, Mylar	140591	5
C128	.22 uf, 50V, El	140572	
C**128,** 129, 318, 319, 425, 426, 453, 550, 551, 563, 564	1 uf, 50V, El	126012	4
C132, 413, 422	4.7uf, 25V, El	126013	
C133, 314, 434, 505, 576	470uf, 16V, El	126014	
C134	.01uf, 100V, MP	126015	
C139	470uf, 25V, El	126016	
C141, 590	.033uf, 25V, Cer, Chip	126422	
C154, 574	680pf, 50V, Cer, Chip	126413	
C205	.022uf, 5V, El (Super Cap)	126019	4
C205	.047uf, 5V, El (Super Cap)	140576	5
C206, 213, 215, 216, 218, 591	.1uf, 25V, Cer, Chip	126020	
C207	.1uf, 50V, El	126021	
C209, 510, 511, 519, 520, 586, 587	2.2uf, 50V, El	147522-2R2	
C211, 577, 582, 700	100uf, 16V, El	126023	

ELECTRICAL PART LIST

Capacitors

Reference Designator	Description	Part Number	Note
C220, 221	22pf, 50V, Cer, Chip	126025	
C226	1000pf, 12V, Cer	126027	
C303, 320, 463, 527, 578	22uf, 16V, El	126029	
C304	3.3uf, 16V,Tantalum	126030	
C305, 403	.47uf, 50V, MP/Mylar	126031	
C**306**, 310, 311, 513, 514	.015uf, 50V, Mylar	126032	4
C**307**	.022uf, 50V, Mylar	126033	4
C308	.18uf, 50V, MP/Mylar	126034	
C309, 312, 313, 414, 416, 508, 509	.068uf, 50V, Mylar	126035	
C**315, 316**	.039uf, 50V, Mylar	126037	4
C**315, 316**	.027uf, 50V	140580	5
C401, 402, 456, 457	3300uf, 50V, Mylar	126039	
C404	.27uf, 50V, MP/Mylar	126041	
C405	2200pf, 50V, Mylar	126042	
C406, 407, 408, 443, 444	.01uf, 50V, Mylar	126043	
C409, 410	470pf, 100V, Mylar	126044	
C411, 412	220pf, 50V, Mylar	126045	
C415, 417	1200pf, 50V, Mylar	126048	
C418, 428, 538, 539	4700pf, 50V, Mylar	126049	
C419, 420, 459, 461	.047uf, 50V, Mylar	126050	
C**423, 427**, 458	1000pf, 50V, Cer	126052	4
C**423, 427**, 702, 706-714, 723-728, 731, 906-909, 1001-1011, 1015, 1016, 1017, 1018, 1024, 1025	470pf, 50V, Cer	140585	5
C429	680pf, 50V, Mylar	126055	
C431	3.3uf, 50V, El	126056	
C**432**, **433**	470pf, 50V, Mylar	126057	4
C**432, 433, 701**, 703, 1012, 1014, 1020, 1021, 1030	100pf, Cer	140586	5
C436	.1uf, 50V, MP/Mylar	126060	
C438	220uf, 25V, El	126061	
C439, 506, 507, 512, 584	47uf, 25V, El	149948-470E	
C440	15000uf, 16V, El	126063	
C441	4700uf, 25V, El	126064	
C446, 447	10uf, 50V, El	126066	
C450, 451	.15uf, 50V, Mylar	126068	
C454	10000uf, 25V, El	126069	
C455	.01uf, 125V, MP	126070	
C460, 465	22uf, 35V, El	126072	
C466	.1uf, 12V, Cer	126075	
C467, 468	.022uf, 25V, Cer	126076	

ELECTRICAL PART LIST

Capacitors

Reference Designator	Description	Part Number	Note
C528, 531	560pf, 50V, Cer, Chip	126087	
C534, 535	4.7uf, 16V, Tantalum	126089	
C536, 537	.033uf, 50V, MP/Mylar	126090	
C540, 544	.68uf, 50V, MP/Mylar	126092	
C541, 545	.22uf, 50V, MP/Mylar	126093	
C542, 546	1uf, 35V, Tantalum	126094	
C**306, 307**, 543, 547, 553, 559	.018uf, 50V, Mylar	126095	5
C554, 557	5600pf, 50V, Cer, Chip	126099	
C555, 556	3900pf, 50V, Mylar	126100	
C570, 571, 1034, 1035	220pf, 50V, Cer, Chip	126410	
C572	1500pf, 50V, Cer, Chip	126411	
C573	2700pf, 50V, Cer, Chip	126412	
C575	3900pf, 50V, Mylar	126414	
C589, 594	4700pf, 50V, Cer, Chip	126421	
C593	56pf, 50V, Cer, Chip	126424	
C596	2200uf, 16V, El	140599	
C807, 819	4.7uf, 50V, El	150601	
C900, 901	8200pf, 50V, Mylar	140606	
C1032, 1033	10 pf, 50V, Cer	140608	
CV1	50pf, AM RF	126102	
CV2	20pf, FM OSC	126103	

Integrated Circuits

Reference Designator	Description	Part Number	Note
IC101	LA1260, AM/FM det. LA1266, AM/FM det.	126207 140539	4 5
IC102	LA3410, MPX	126208	
IC201	UPD1708G-527 ,tuner controller	126209	
IC301	NJM4558D, OP amp	126210	
IC302, 401	M5218L, amp	126211	
IC402	LA4508, power amp	126213	
IC501	LA3220, eq amp	126214	
IC502	HA12047, Dolby NR	126215	
IC503, 504	LA6458S, OP amp	126216	
IC505	LA6358S, OP amp	126217	

ELECTRICAL PART LIST

Transistors

Reference Designator	Description	Part Number	Note
Q101, 501, 502, 507, 508, 509, 510, 511, 700	2SD1328, Chip	126218	
Q102, 103, 105, 108, 111, 503, 504, 505, 506, 513, 515, 516, 517, 521, 523	2SD601, Chip	126220	
Q104,109, 205	2SA1235, chip	126221	
Q110	2SK49-H FET	126222	
Q112	2SC710-BC 2SC3053-BCD/TY	126240 140669	4 5
Q113	2SA564-QR	126241	
Q201	2SC1730-LK	126223	
Q202	2SD601-QRS/TY, Chip	126224	
Q203	2SK49-H1 FET	126225	
Q204, Q519 (A,B,C,D)	2SD638-QR	126237	
Q301, 401, 402, 403, 404, 406, 450	2SD1111	126226	
Q407, 419, 420, 423	2SD655	126227	
Q408, 409, 413, 414, 421	JC501-P	126229	
Q410, 411, 422	JA101-P	126230	
Q412	2SC2911-T	126231	
Q415	2SD400-E	126233	
Q416	2SB544-E	126232	
Q417	2SB826-R	126234	
Q418	2SD1062-R	126235	
Q424	2SC1684-PQR	126236	
Q512	2SC2235-OY	126219	
Q514, 520	2SB793-QR	126238	
Q522	2SB709-QR/TZ, Chip	126239	
Q524 (A,B), Q518 (A, B)	2SD973-QRS	126242	
Q525	RN1407/TY	140673	
Q530	FET 2SK192A-Y	126228	
Q804, 805	2SB909M-QR	140538	

Diodes

Reference Designator	Description	Part Number	Note
D101, 105	Varactor, SVC321-CD	126243	
D102, 103, 107, 203, 206, 207, 208, 209, 210, 211, 212, 213, **402, 409, 410, 411**, 503, 504, 508, 513, 514, 515, 519, 520, 523	1S1555	126244	4

ELECTRICAL PART LIST

Diodes

Reference Designator	Description	Part Number	Note
D104, 412	Zener, 5.6V, RD5R6EB3	126245	
D106, 404, 509	10E1	126246	
D108	MA153/TY, chip	126470	
D201	Zener, 6.2V, RD6R2EB3	126247	
D202	1S953	126248	
D204	Zener, 9.1V, R D9R1EB3	126249	
D205	Zener, 6V, (LN) HZ6C-2L	126250	
D214, 525, 526	1S446	126257	
D215, 501	MA151WA/TY MN, Chip	126254	
D**402, 409, 410, 411**	S5566B	140666	5
D405	DBA60	126251	
D406	Zener, 7.5V, RD7R5EB3	126471	
D407	Zener, 6.2V, RD6R2EB2	126472	
D502, 506, 522	MA151WK/TZ NT, Chip	126255	
D505, 510, 511, 524	MA151WK/TY NT, Chip	126256	
D516	Zener, 13V, RD13EB2	126258	
D517	Zener, 10V, RD10EB1	126259	
D521	Zener, 8.2V, RD8R2EB3	126260	
D527	Zener, 6.2V, RD6R2EB	126473	

Inductors

Reference Designator	Description	Part Number	Note
L101, 102, 103, 104, 201	6.8 uH	126261	
L501	390uH	126262	
L502, 503	15mH	126263	
L504	22uH	126264	

ELECTRICAL PART LIST

Transformers and Filters

Reference Designator	Description	Part Number	Note
T101	FM IF	126265	
T102	AM OSC	126266	
T103	AM IF	126267	
T104	FM	126273	
T401	Power transformer	126268 143592	3, 4 3, 5 ⚠
T501	OSC, 100kHz	126269	
T502, 503	Trap, 100kHz	126270	
T504, 505	Trap, 19/l100kHz	126271	
T**801**	FM IF, 1st	140697	5
T**802**	FM IF, 2nd	140698	5
T**803**	Trap Coil	140699	5
TX1	Bar antenna	126272	
TV1	FM Front-end	140700	
CF1, 2	Filter, Cer	126276	
CF3	Filter, Cer	126277	
CF4	Filter, Cer	140675	
XC201	Crystal, 4.5MHz	126282	
XB1	19kHz, Cer	126275	

Miscellaneous

Reference Designator	Description	Part Number	Note
F**401**	Fuse, 5A	126284	3, 4
F**401, 402**	Fuse, 5A	144782	3, 5
DP201	LCD	126283	
SW501	Slide switch, REC	126280	
SW502	Push switch, AUX/INT	126281	
SW503	Slide switch, AM WHISTLE CUT	126279	
SW**504**	Push switch, power	126278	3, 4
SW**504**	Push switch, power	140696	3, 5
SW600, 601, 603	Leaf switch	126477	
SW602	Leaf switch	126478	
F**401**	Terminal, fuse holder	126318	3, 4
F**401**	Terminal, fuse holder	140676	3, 5
J103-J406	Wiring sub assembly (4P-4P)	126298	
J105-J106	Wiring sub assembly (3P-3P)	126299	
J108-J303	Wiring sub assembly (2P-2P)	126300	
J201-J101	Wiring sub assembly (3P-4P)	126301	
J202-J203	Wiring sub assembly (12P-llP)	126302	
J301-J102	Wiring sub assembly (3P-4P)	126303	
J302-J402	Wiring sub assembly (6P-6P)	126304	

ELECTRICAL PART LIST

Miscellaneous

Reference Designator	Description	Part Number	Note
J401-J408	Wiring sub assembly (4P-4P)	126305	
J405	Wiring sub assembly (4P)	126306	
J501, 502	Jack, Aux In, Line Out	126314	
J600	Wiring sub assembly	126307	
J601	Wiring sub assembly (IOP)	126308	
J602	Wiring sub asembly (ground)	126309	
P100, 101	11 P Connector	126285	
P103	4 P Connector	126287	
P104	10 P Connector	126286	
P201	3 P Connector	126288	
P301	3 P Connector	126289	
P302	6 P Connector	126290	
P303, 304	2 P Connector	126322	
P401	4 P Connector	126294	
P402	6 P Connector	126295	
P403-1, 2	4 P Connector, AC/DC	126296	
P404	2 P Connector	126293	
P405	4 P Connector	126292	
P406	4 P Connector	126291	
P407	2 P Connector	126297	
ZR1	Terminal, ANT	126321	
	Jumper, A to A (MAIN PCB)	126488	
	Jumper, B to B, E to E (MAIN PCB)	126324	
	Jumper, C to C (MAIN PCB)	126325	
	Jumper, D to D (MAIN PCB)	126326	
	Jumper, A to A, B to B (AMP PCB)	126310	
	Jumper, C to C (AMP PCB)	126481	
	Jumper, 6P (AMP PCB)	126482	
	Jumper, Vcc (AMP PCB)	126483	
	Jumper, ground (AMP PCB)	126311	
	Jumper, 7P (DIGITAL PCB)	126485	
	Cover, for P403-1	126317	
	Rubber switch	126320	
	Terminal	126319	
	Terminal, LCD	126486	
	Terminal	126487	

ELECTRICAL PART LIST

Miscellaneous

Item Number	Description	Part Number	Note
	Chassis, bass-reflex enclosure	126489	1
	Woofer (SP3)	123804	
	Spacer	126490	
	Radiator heat sink	126343	
	Heat sink gasket	126350	
	Wiring sub assembly (J405)	126306	
	Spacer - bottom cover	126353	
	Spacer, acoustic material	126365	
	Holder	126368	
	Radiator, D405	126369	
	Radiator, powerTr.	126370	
	Radiator, power IC	126371	
	Insulator, Q417, Q418	126372	
	Shield plate	126374	
	Spacer, LCD	126377	
	Shield plate	126378	
	Spacer (Included in Q417, Q418	126373	
	Spacer	126389	
	Clamp	126383	
	Clamp	126384	
	Terminal	126487	
	Terminal	126486	
	Terminal	126319	
	Wiring sub assembly	126309	
	3x6mm	126392	
	3x10mm	126394	
	3x6mm	126399	
	2.6x6mm	126499	

Packaging

Description	Part Number	Qty	Note
Carton Kit	179728	1	6
Line Cord	198603-010 138184	1	⚠ 3, 4 3, 5

Note 6. The carton kit consists of a carton (129069), two fillers (138619) and a cassette door protector (186152).

BOSE®
Better sound through research®

Acoustic Wave® Music System

Service Manual
Part Number 142862

SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

BOSE CORPORATION
THE MOUNTAIN
FRAMINGHAM, MASSACHUSETTS USA 01701

P/N 142862 REV. 01 1/97: FOR TECHNICAL ASSISTANCE OR PART ORDERS, CALL 1-800-367-4008