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ACOUSTIC WAVE® MUSIC SYSTEM SERIES II



MODEL CD2000/FE2000

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**CAUTION: THE ACOUSTIC WAVE® MUSIC SYSTEM SERIES II
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
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BOSE PRODUCT, AND SHALL NOT BE REPRODUCED OR USED
FOR ANY OTHER PURPOSE.

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) 1492 (71). 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 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.

SPECIFICATIONS

Size	18"W x 10 1/2" H x 7 1/2" D
Weight	15 pounds
Driver Complement	1-4 1/2" Driver 2-3" Tweeters Crossover at 500 Hz
CD Player	3 Beam Laser, Error Correction (CIRC)
Frequency Display	Back-lit crystal type-includes FM Stereo, Memory, AM and FM indicators. Back lighting is operational only when AC powered
CD Function Display	Back-lit crystal type-includes track number and time indicators. Back lighting is operational only when AC powered

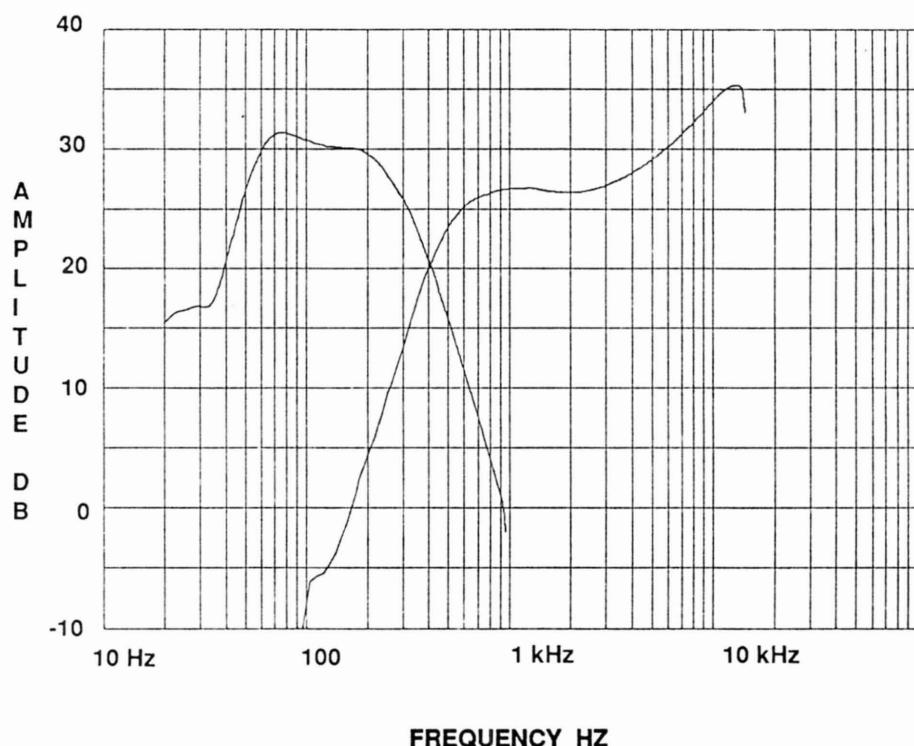
PERFORMANCE SPECIFICATIONS

Amplifier Power	Woofer (single): Tweeters (each):	20 watts into 0.6Ω resistive load, ≤ 1 % THD 4.2 watts/channel into 4Ω resistive load, ≤ 1 % THD
System Quiescent Current	Radio Operation: CD Play:	≤ 350mA ≤ 350mA
Line Output Level	275 ± 30mV	Test CD: Sony YEDS7-Type 3 or equivalent test CD
Line Output Impedance	1000Ω	
Hum and Noise	Woofer Hum: Tweeter Noise: (A-WTD)	1 mV max. .330 mV max.
Minimum Voltage for Operation	FM, Aux. CD,AM	7.7V 8.5V

SPECIFICATIONS (Continued)

DC Current	1 mA
Drain,Power	
Switch Off,@12	
VDC	
Minimum Volume	1 kHz (A-WTD)
Loudness(Ref -	-70 dB
erence 0 dB at	-45 dB
Full Volume)	

EQUALIZATION CURVE



FREQUENCY HZ

FM ELECTRICAL PERFORMANCE SPECIFICATIONS

FM (at 300 Ω antenna terminals)

Mono Sensitivity	(10 dBμ typical)	(IHF Usable)	S/N
88.1 MHz	14 dB μ input	≥30 dB	
98.1 MHz	14 dB μ input	≥30 dB	
107.9 MHz	14 dB μ input	≥30 dB	
Mono 50 dB Quieting Sensitivity		S/N	
88.1 MHz (25 dB μ)	≥50 dB		
98.1 MHz (25 dB μ)	≥50 dB		
107.9 MHz (25 dB μ)	≥50 dB		
Spurious Signal Rejection (IHF)	40 dB		
AM Rejection (IHF) (34 dB μ input)	>40 dB		
Frequency Response at Line Output	35-15000 Hz Ref 1 kHz (60 dB μ input) 50 Hz (60 dB μ input) 15 kHz (60 dB μ input) (75 μ sec. de-emphasis)	-3 dB 0 dB +0.87 ± 1 dB -16.2 ± 2 dB	
THD at Line Output	1 kHz, 75 kHz dev, 60 dB μ input	≤1%	
Selectivity (IHF)	± 400 kHz (40 dB μ input)	>40 dB	
Capture Ratio (IHF)	(60 dB μ input)	2.5 dB	
Stereo Separation	(60 dB μ input, 1 kHz, 75 kHz dev (100 % Modulation))	30 dB	
Output Level	(60 dB μ input, 1 kHz, 75 kHz dev)	220 ± 50 mV	
Stereo/Mono Switching Threshold	27 ± 2 dB μ		
Seek Signal Strength Threshold	27 ± 2 dB μ		

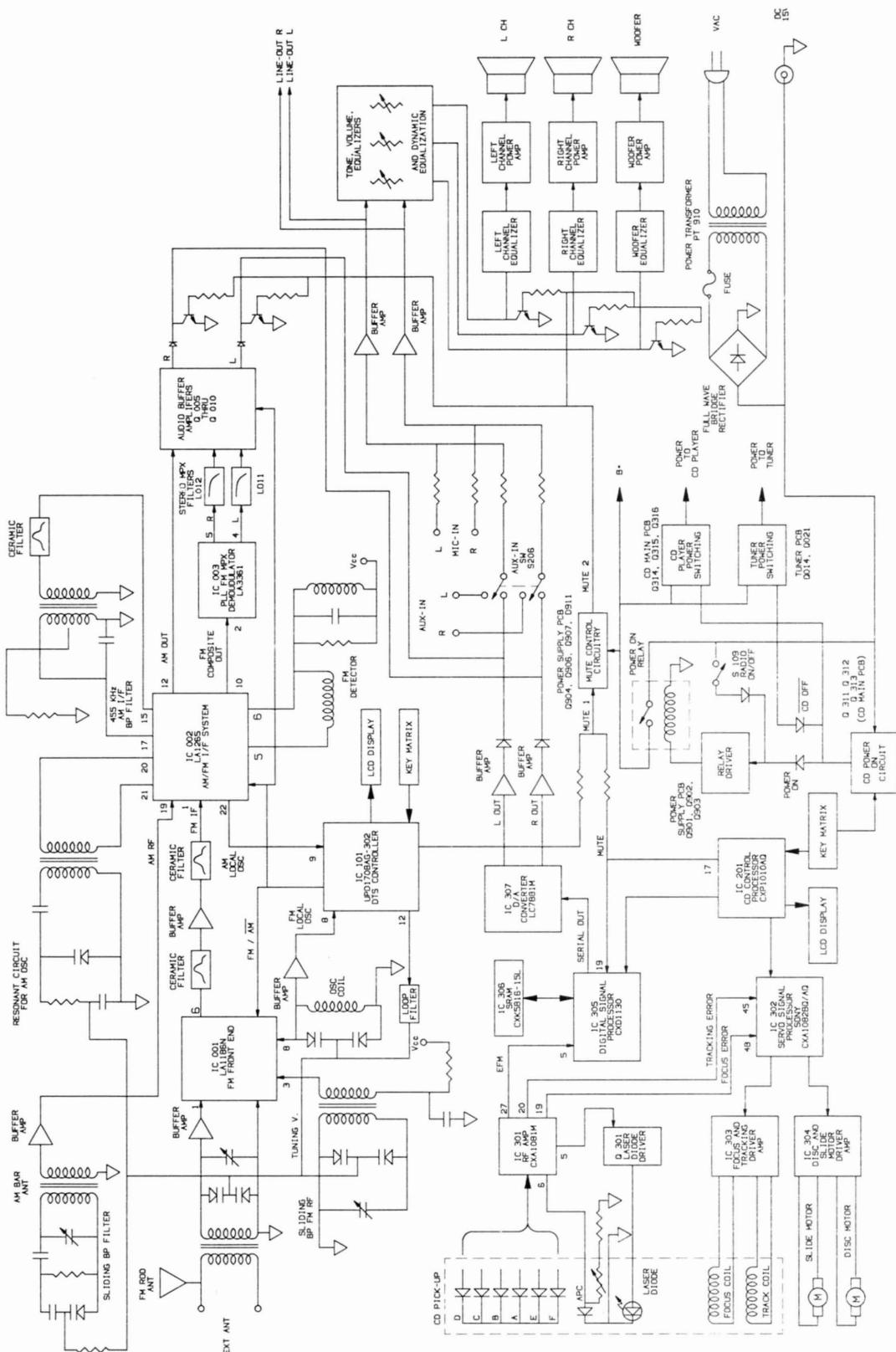
AM ELECTRICAL PERFORMANCE SPECIFICATIONS

Sensitivity	(20 dB usable)		S/N
600 kHz	850 μ V/m		\geq 20 dB
1000 kHz	850 μ V/m		\geq 20 dB
1400 kHz	850 μ V/m		\geq 20 dB
Image Rejection	40 dB		
Adjacent Channel Selectivity (\pm10kHz)	25 dB		
Frequency Response at Line Output	35-4500 Hz	(0 dB =response @ 1kHz	-6 dB
	50 Hz		\pm 1 dB
	4.5 kHz		+0,-3 dB
AM Volume Sensitivity	5000 μ V/M		
THD at Line Output	\leq 1 %		
Ultimate S/N Ratio	40 dB		
AGC Figure of Merit	44 dB		

COMPACT DISC PERFORMANCE SPECIFICATIONS

Frequency Response	20-20,000 Hz	\pm 1 dB typical \pm 2 dB maximum
Dynamic Range	90 dB typical, 84 dB minimum	
S/N Ratio	90 dB typical, 84 dB minimum	
Channel Separation	@ 1 kHz	\geq 55 dB
THD	@ 1 kHz	\leq 0.1 %

BLOCK DIAGRAM



ACOUSTIC WAVE® MUSIC SYSTEM SERIES II

DISASSEMBLY/ASSEMBLY PROCEDURES

The following procedures contain identification photographs and detailed procedures for removal and replacement of all assemblies within the unit.

ASSEMBLY IDENTIFICATION LIST

- CD Main PCB Assembly
- Bar Antenna PCB Assembly
- CD Control PCB Assembly
- EQ/Tone Control PCB Assembly
- PLL PCB Assembly
- Tweeter Amp PCB Assembly
- Tuner PCB Assembly
- Woofer Amp PCB Assembly
- Power Supply PCB Assembly
- Power Socket PCB Assembly
- CD Mechanism
- Woofer Assembly
- Right and Left Tweeter Assembly

NOTE: An asterisk* is used in the text to indicate screws with built-in washers
This will help the user to avoid mixups when replacing assemblies.

DISASSEMBLY PROCEDURES

1. Top Cover Removal (Figure 1)

A. Remove the 4 screws from the back of the unit as indicated. Do NOT remove the screw located to the left of the antenna terminals. (This screw holds the antenna in place).

B. Remove 2 screws * from the sides of the unit.

C. Lift the back of the top cover up until the locking tabs that secure the cover in place are released.

NOTE: Do NOT attempt removal of the front or back panels of the unit. Removing them could damage the unit.

2. Top Cover Replacement (Figure 1)

A. From behind the unit, lower the top cover at an angle so that the locking tabs engage, and then lower cover into place.

B. Make sure that the **ON-OFF** and **INPUT** buttons are aligned with their respective cutouts in the top cover.

C. Align the screw holes on the top cover with those on the unit.

D. Replace 6 screws, 4 on the back and 2* on the sides of the unit.

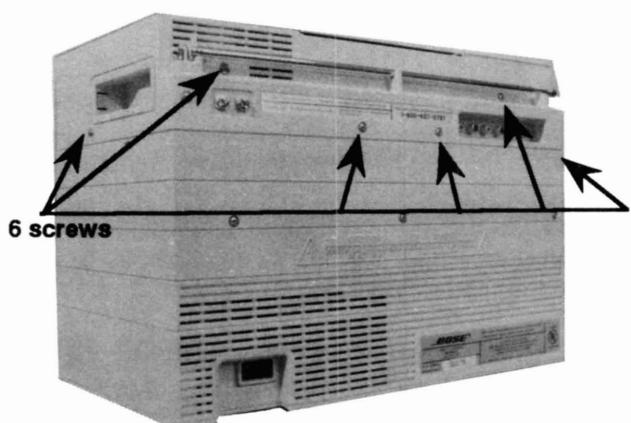


Figure 1

BOTTOM PROCEDURES

3. Woofer Cover Removal (Figure 2)

A. Remove the 3 outer screws*.

B. Remove the 6 inner screws*.

C. The woofer cover cannot be directly lifted away from the unit. It is held in place by a small locking tab oriented towards the front of the unit. Lift up the cover from the back of the unit and pull away from the tab for removal.

4. Woofer Cover Replacement (Figure 2)

A. Re-seat the woofer cover at a slight angle to ensure that the cover engages with the unit's chassis. Align 9 screw holes with those on the unit.

NOTE: The 6 inner screws are longer than the 3 outer screws.

B. Install 9* screws.

5. Power Supply Cover Removal (Figure 2)

A. Remove 5 screws*.

B. Lift the cover out and away from unit.

6. Power Supply Cover Replacement (Figure 2)

A. Replace 5 screws* that secure the cover to the unit.

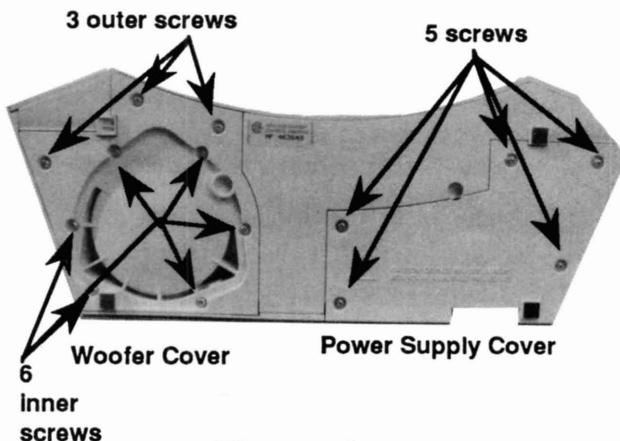


Figure 2

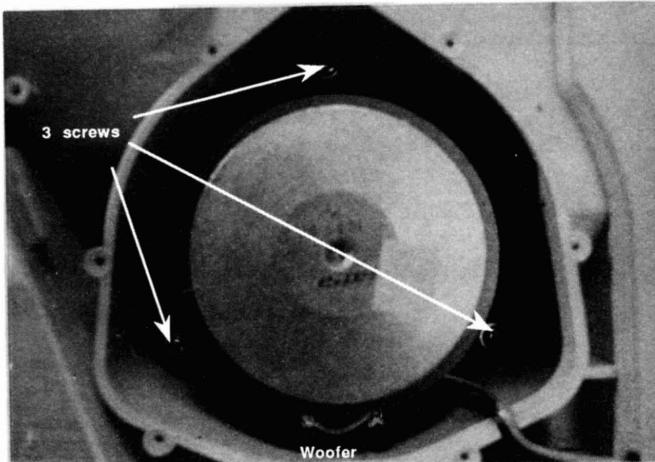


Figure 3

7. Woofer Removal (Figure 3)

- Remove the orange and black wires from the woofer terminals.
- Remove the 3 screws holding the woofer in place, and lift the woofer straight up and out.

8. Woofer Replacement (Figure 3)

NOTE: When installing a new woofer, it is also necessary to replace the driver gasket (M80). The gasket comes in two pieces. Put aside the unneeded piece (woofer cover gasket M83) unless it also needs replacement. Secure the adhesive-backed gasket along the inside groove of the driver.

- Insert the new woofer and secure with three screws.
- Reconnect the **black** wire to the **positive** (+) terminal and the **orange** wire to the **negative** (-) terminal. The polarity of each terminal is imprinted on the woofer.

9. Power Supply Module (Power Supply/ Woofer Amp PCBs) Removal (Figure 4)

- Remove four screws (deeply recessed into unit).

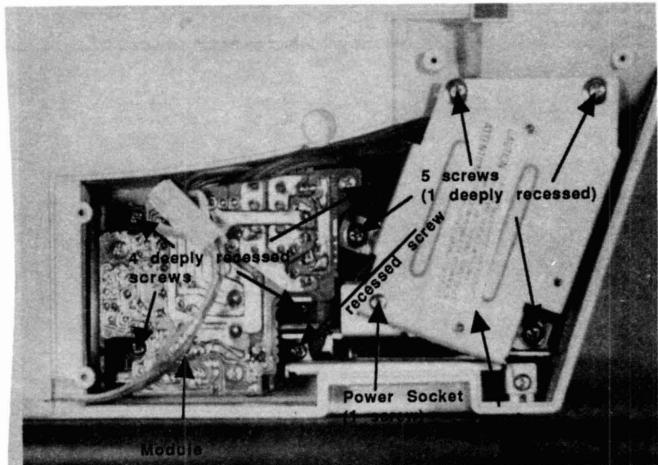


Figure 4

NOTE: When removing the **Power Supply Module**, the **Power Supply PCB** is on top and the **Woofer Amp PCB** is on the **bottom**. The module cannot be completely removed until all the connectors are unhooked. See Procedures 10 and 11 for further instructions.

10. Woofer Amp PCB Removal (Figure 5)

NOTE: The transformer should be removed before the **Woofer Amp PCB** to provide easier access. Refer to **Transformer/ Power Socket PCB Module Removal, Procedure 15**.

- Partially remove PCB module to access connectors.
- Disconnect 2 connectors from Woofer Amp PCB.
- Remove 1 machine screw that attaches PCB to black chassis.
- Loosen 2 screws which attach the heatsink to one side of the black chassis. These screws brace the heatsink against the woofer outputs.
- NOTE:** Exercise care when removing the **Woofer Amp PCB**. The large capacitor is glued to the top of the relay.
- Remove the PCB from the module.

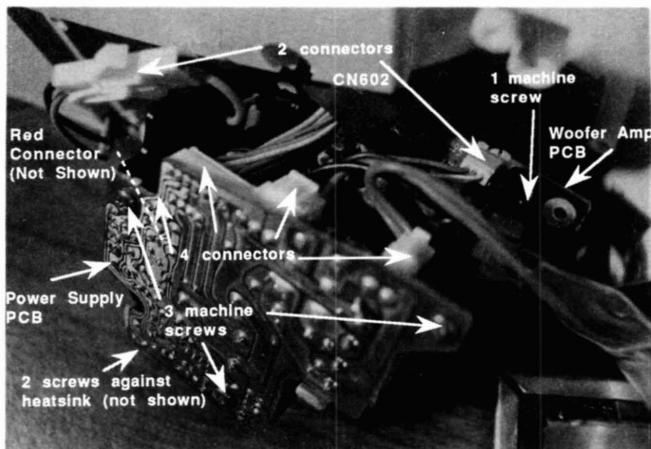


Figure 5

11. Power Supply PCB Removal (Figure 5).

- A.** Remove the 3 machine screws which attach the PCB to the black chassis.
- B.** Remove 4 connectors.
- C.** Remove the PCB from the module.

12. Woofer Amp PCB Replacement (Figure 5)

- A.** Screw down PCB to black chassis with 1 machine screw.
- B.** Replace the bracket which braces the heatsink against the woofer outputs by screwing down 2 long screws (not illustrated).

13. Power Supply PCB Replacement (Figure 5)

- A.** Reinstall PCB by screwing down 3 screws which secure PCB to black chassis.

14. Power Supply PCB Module Replacement (Figures 4 and 5)

- A.** Partially insert module into unit.
- NOTE:** Connector jumper wires are very short. Those on the **woofer amp PCB** should be re-connected first (especially connector **CN602**).
- B.** Re-connect 2 connectors on Woofer Amp PCB.
- C.** Re-connect 4 connectors on the Power Supply PCB.

- D.** Replace 4 deeply recessed screws that secure the module to the unit.

15. Transformer Module Removal (Figure 4)

- A.** Remove 4 screws* and 1 deeply recessed screw.
- B.** Lift transformer module up and out.

16. Power Socket PCB Removal (Figure 4)

- A.** To access PCB, remove 1 screw which secures PCB chassis to the transformer module chassis.

17. Transformer/Power Socket PCB Module Replacement (Figure 4)

- A.** Re-install 1 screw which secures PCB chassis to module chassis.
- B.** Align screw holes of module with those of unit.
- C.** Secure module with 4 screws* and 1 deeply recessed screw.

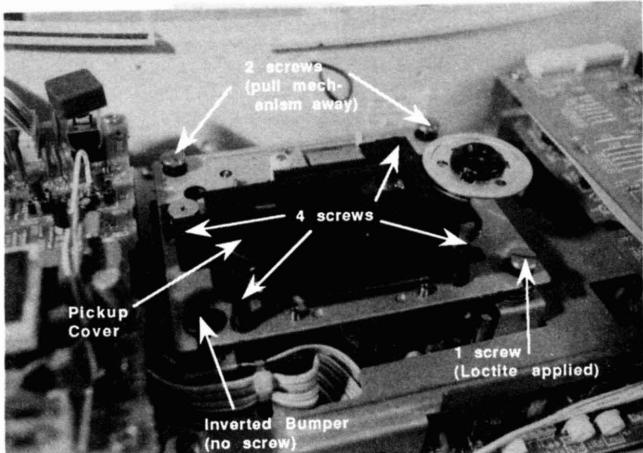


Figure 6

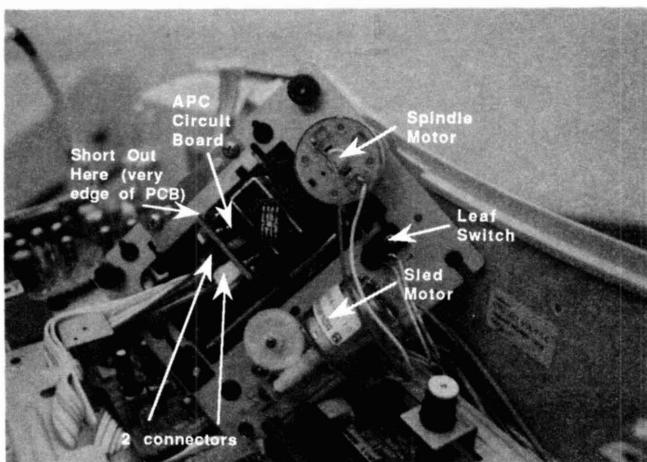


Figure 7

TOP PROCEDURES

NOTE: All of the following procedures were written with the back of the unit facing the user.

18. CD Mechanism Removal (Figures 6 and 7)

NOTES: All FE2000 units and later versions of the CD2000 contain a different CD mechanism. Refer to the appendix at the back of this manual for further information.

Loctite 290 was applied to the screws which secure the CD mechanism to the chassis. **MEK Solvent** must be added to these screws before attempting removal.

A. Remove 1 screw. Refer to note above. (Figure 6).

B. Pull the mechanism slowly away from 2 screws. Exercise care when sliding the mechanism out. These screws are delicate. (Figure 6).

C. To prevent electrostatic damage to the mechanism, solder and short out the two points on the APC circuit (very corner of PCB, see Figure 7).

D. Flip PCB up and disconnect the 2 connectors from the APC circuit (Figure 7).

NOTE: If the mechanism must be completely replaced, skip **step 18E.** and go to **procedure 19.**

E. Disconnect the spindle motor, sled motor and leaf switch connections from connector CN303 (located on CD Main PCB).

NOTE: When re-installing mechanism, refer to **Procedure 20**, omitting steps **A.** through **C.**

19. CD Mechanism Replacement (Figures 6 and 7)

NOTES: Skip **Step E.** in procedure **18** if the mechanism must be replaced with a new one. **Procedure 19** should be followed if the mechanism needs to be completely replaced.

In steps **A.** and **B.**, the colored wires are connected to specific motor terminals. Make sure to note wire locations before removing wires.

A. Desolder the **red** and **white** wires from the **spindle motor** (Figure 7).

B. Desolder the **orange** and **brown** wires from the **sled motor** (Figure 7).

C. Desolder the **yellow** wires from the **leaf switch** (Figure 7).

D. Remove the 4 screws which secure the black pickup cover. Re-install the cover on the new CD mechanism (Figure 6).

E. Remove the 2 rubber bumpers from the old mechanism and re-install on the new mechanism. One bumper is **inverted** (Figure 6).

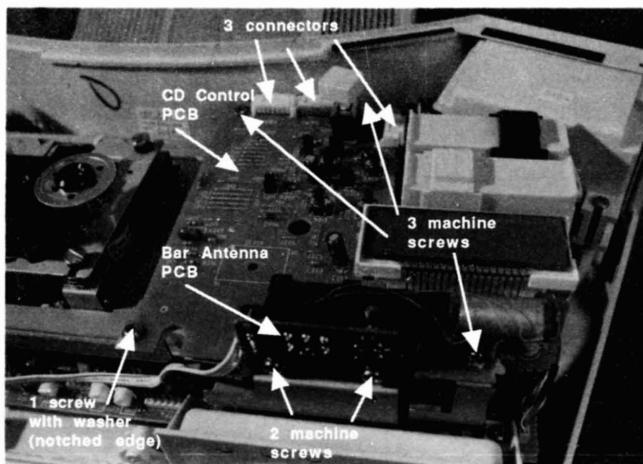


Figure 8

20. CD Mechanism Installation (Figure 6)

NOTE: If the mechanism was removed to access components on the **CD Main PCB**, refer to steps **D. through F. only**. Be sure to re-connect wires to connector **CN303**.

- A. Solder the yellow wires to the leaf switch terminals (Figure 7).**
- B. Solder the orange and brown wires to the sled motor terminals (Figure 7).**
- C. Solder the red and white wires to the spindle motor terminals (Figure 7).**
- D. Reconnect 2 connectors to the APC circuit. (Figure 7).**
- E. Desolder the shorted point on the APC circuit (Figure 7).**
- F. The wires attached to the motors and leaf switch should be tie wrapped to the CD mechanism chassis.**
- G. Slide the mechanism into place under the 2 intact screws (Figure 6).**
- H. Apply Loctite 290 to the threads of the 1 remaining screw. After waiting an appropriate period (see Loctite application instructions for duration), re-install the screw (Figure 6).**

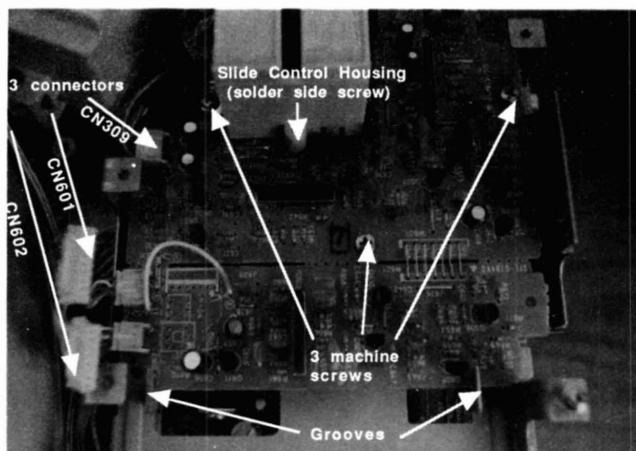


Figure 9

21. Bar Antenna PCB Removal (Figure 8)

- A. Remove 2 indicated machine screws.**

B. Pull PCB away from unit and undress wires attached to PCB.

NOTE: There is a connector hardwired to the **Tuner PCB**. Use standard shop procedures to disconnect these wires, otherwise tuck Bar Antenna away on side of unit.

22. Bar Antenna PCB Replacement (Figure 8)

- A. Redress wires attached to PCB. Replace hardwired connection if necessary.**
- B. Secure PCB with 2 machine screws.**

23. CD Control PCB Removal (Figure 8)

- A. Remove 3 machine screws and 1 screw * (notched edge).**
- B. Unplug 3 connectors-CN306, CN307 and CN310. These connectors are not interchangeable and must be re-mated with the proper socket.**

24. CD Control PCB Installation (Figure 8)

NOTE: There is an **RF shield** underneath the PCB. Be sure this is in place before re-installing the PCB.

- A. Align the RF shield with the screw holes on the PCB.**

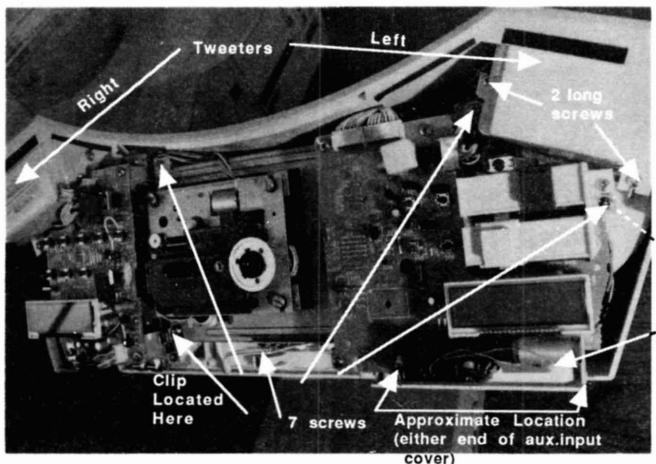


Figure 10

<p>B. Re-connect the wires to connectors CN306,307 and 310. These connectors are not interchangeable.</p> <p>C. Line up the PCB and shield with screw holes on the chassis. Make sure that the notched edge of the PCB is oriented correctly as illustrated.</p> <p>D. Secure PCB with 3 machine screws and 1 screw* (located at notched edge).</p> <p>25. EQ/Tone Control PCB Removal (Figure 9)</p> <p>A. Remove 3 machine screws which secure the PCB to metal chassis.</p> <p>NOTE: There is no need to remove the screw which secures the slide control housing to the metal bracket (not illustrated). However, the screw which secures the metal bracket to the unit must be removed (see Figure 10).</p> <p>B. Glue is applied to PCB in the area of the grooves. Trim away the glue with a sharp object.</p> <p>C. Slide the PCB out from under the grooves and away from the lip of the metal chassis.</p> <p>D. Disconnect the wires from 3 connectors.</p>	<p>E. The slide control housing must be removed to access the slide potentiometers. Remove the screw located on the solder side of the PCB. Squeeze the two catches and remove the housing (with attached metal bracket).</p> <p>26. EQ/Tone Control PCB Replacement (Figure 9)</p> <p>A. If the slide control housing was removed, replace as follows:</p> <p>I. Squeeze catches on each side of the housing and insert through the holes in the PCB. Make sure that the holes underneath the housing are aligned with the potentiometer shafts.</p> <p>II. Re-install the screw which attaches the housing to the solder side of the PCB.</p> <p>III. Re-install the screw which secures the metal bracket to the unit. (see Figure 10).</p> <p>B. Re-connect 3 connectors.</p> <p>NOTE: CN309 and CN601 are both 4 pin connectors. Make sure that the orange wire is re-installed on connector CN309.</p> <p>C. Slide the PCB under the grooves in the metal chassis.</p> <p>D. Re-apply glue to the area where the grooves secure the PCB.</p> <p>E. Re-install the 3 machine screws which secure the PCB.</p>
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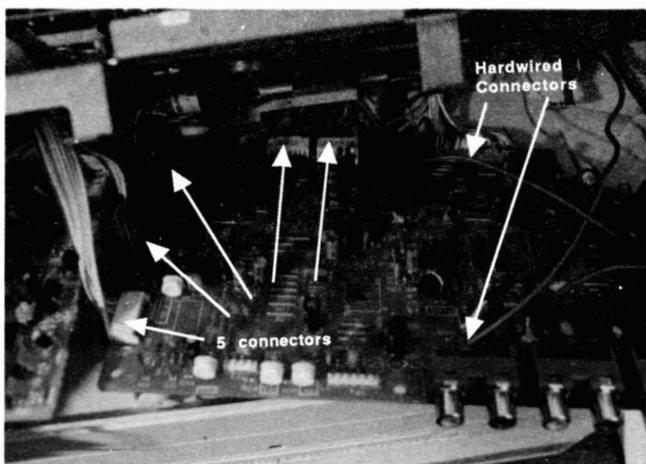


Figure 11

27.CD Main PCB Removal (Figures 10 and 11)

- A. Remove 7 screws which attach PCB to unit. One screw has a metal clip attached to it. See Figure 10 for location.
- B. Remove the auxiliary input cover by sliding out and away from the jacks (Figure 10).
- C. Flip PCB vertically and remove 2 screws from the solder side of board (Not shown).
- D. Disconnect wires from 5 connectors. (Figure 11).

NOTE: There are connectors **hardwired** to the **CD Main PCB**, three of which are attached to the **CD Control PCB**. Use standard shop procedures to disconnect wires and remove PCB if required.

28. CD Main PCB Replacement (Figures 10 and 11)

- A. Re-connect 5 connectors and any hardwired connections (Figure 11).
- B. Flip the board vertically and re-install 2 screws (solder side) which secure board to metal chassis (Not shown).

NOTE: If no **further** repair work is required, complete the procedures below. Otherwise, **keep the main PCB unattached** for further activity.

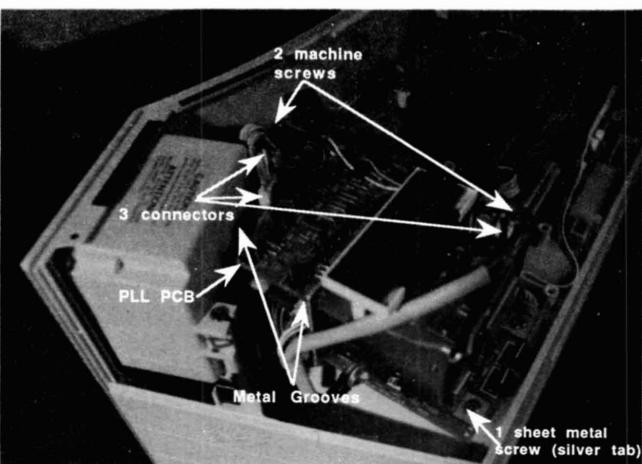


Figure 12

C. Align the screw holes of the chassis, CD Main PCB and "screw posts" in the bed of the unit.

D. Slide the auxiliary input cover over the jacks.

E. Re-install 7 screws which attach PCB and metal chassis to unit (Figure 10).

29. PLL PCB Removal (Figure12)

A. Remove 2 machine screws and 1 sheet metal screw (silver tab on PCB).

B. Slide PCB away from metal grooves slightly. Trim away glue with a sharp object.

C. Remove 3 connectors.

30. PLL PCB Replacement (Figure12)

A. Slide PCB into 2 grooves on metal chassis. Apply glue to intersection of PCB and grooves.

B. Install 2 machine screws and 1 sheet metal screw (silver tab).

C. Re-install 3 connectors.

NOTE: Connector **CN008** does not have anything attached to it.

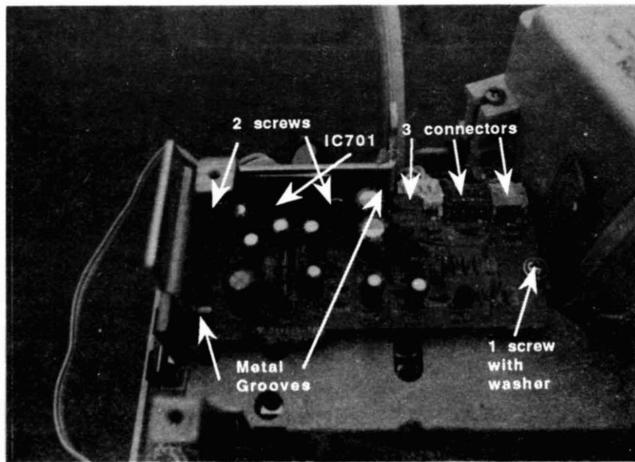


Figure 13

31. Tweeter Amp PCB Removal (Figure 13)

NOTE: PLL PCB must be removed before attempting this procedure.

- A. Remove 2 screws which connect IC701 to the heatsink.
- B. Remove 3 connectors.
- C. Remove 1 screw *

NOTE: There is a black wire hardwired to the PCB. Use standard shop procedures to disconnect wire.

- D. Slide PCB out from under grooves and away from metal chassis.

32. Tweeter Amp PCB Installation (Figure 13)

- A. Slide PCB into metal groove on (module) chassis.
- B. Install 1 screw*.
- C. Align screw holes of IC701 and heatsink. Tighten and install 2 machine screws, while holding down board to avoid unnecessary stress on solder joints.
- D. Re-install 3 connectors to PCB and hardwired black wire.

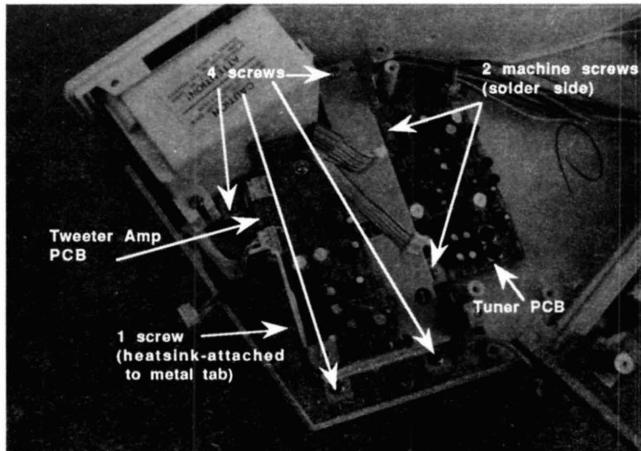


Figure 14

33. Tuner PCB Removal (Figure 14)

NOTE: Before attempting PCB removal, move main PCB module and chassis out of the way. Refer to CD Main PCB Removal, Procedure 27, step A. for instructions. The Tuner PCB cannot be removed without this step. It is not necessary to remove the PLL or Tweeter Amp PCBs to access this PCB.

- A. Remove 4 screws which partially secure metal housing to PCB and unit.
- B. Remove 1 screw attaching PCB to side of heatsink. This screw is attached to a metal tab.
- C. Flip board vertically and remove 2 screws on solder side of PCB.
- D. Slide housing away from groove on PCB and remove PCB (not shown).

NOTE: All connectors on this board are hardwired. Do not attempt removal by usual means.

34. Tuner PCB Installation (Figure 14)

- A. Slide metal bracket (housing) back into the groove on the side of PCB.
- B. Flip PCB vertically and re-install 2 machine screws to solder side of PCB.
- C. Replace 1 screw which attaches PCB to heatsink. Make sure screw engages metal tab.

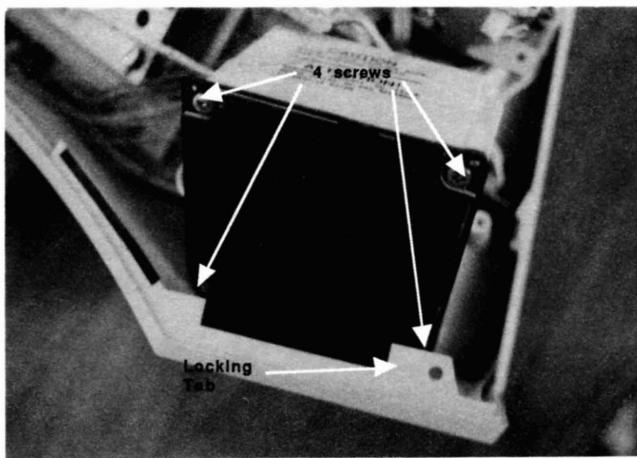


Figure 15

NOTE: Replace any hardwired connections using standard shop procedures.

D. Re-install 4 screws which secure **PLL/Tweeter Amp/Tuner PCB module** in place.

35. Right Tweeter Removal (Figures 10, 14 and 15)

NOTE: In order to access this tweeter, the **PLL/Tweeter Amp/Tuner PCB module** must first be removed. Refer to **Tuner PCB Removal, Procedure 33, NOTE** and **Step A.** for instructions.

A. Remove 2 long screws that hold the tweeter enclosure in place (Figure 10).

B. Tilt tweeter slightly back and out (from bottom of tweeter enclosure) to pull it away from the tab which secures it (Figure 15).

NOTE: The plastic case of the unit has some give, so if necessary, the plastic can be flexed gently to remove the enclosure.

C. Remove the 4 screws which secure the tweeter to the box (Figure 15).

D. Lift the tweeter out of the enclosure and remove wires from the tweeter terminals (not shown).

36. Right Tweeter Replacement (Figures 10, 14 and 15)

A. Connect wires to tweeter terminals as follows: **Red** wire is connected to the **positive** (+) terminal (**marked with a red dot**) and **white** wire is connected to the **negative** (-) terminal (not shown).

B. Lower tweeter into its enclosure and align screw holes (not shown).

C. Secure the tweeter with 4 screws (Figure 15).

D. Replace the tweeter enclosure by tilting it slightly forward and under the tab on the plastic chassis (Figure 15).

E. Align the screw holes of the unit and chassis and secure the tweeter enclosure with 2 long screws (Figure 10).

F. Secure the PCB module by re-installing 4 screws (Figure 15).

37. Left Tweeter Removal (Figures 10 and 15)

A. To access the left tweeter, remove the 7 screws which attach the CD Main PCB module to the unit (Figure 10).

B. Remove 2 long screws which attach the tweeter enclosure to the unit (Figure 10).

C. Tilt tweeter enclosure slightly back and out (from bottom) to pull it away from tab which secures it (Figure 15).

NOTE: The plastic case of the unit has some give, so if necessary, the plastic can be flexed gently to remove the enclosure.

D. Remove the 4 screws which secure the tweeter speaker to its enclosure (Figure 15).

E. Lift the tweeter out of its enclosure and remove the wires from the speaker terminals (not shown).

38. Left Tweeter Replacement (Figures 10 and 15)

- A.** Connect wires to tweeter terminals as follows: **White** wire is connected to the **positive (+)** terminal (**marked with red dot**) and **brown** wire is connected to the **negative (-)** terminal (not shown).
- B.** Lower tweeter speaker into its enclosure and align screw holes (not shown).
- C.** Secure the tweeter with 4 screws (Figure 15).
- D.** Replace the tweeter enclosure by tilting it slightly forward and under the tab on the unit (Figure 15).
- E.** Align the screw holes of the enclosure and unit and secure with 2 long screws (Figure 10).
- F.** Replace the CD Main PCB by installing 7 screws. Make sure auxiliary input cover is in place before securing (Figure 10).

FINAL INSTALLATION NOTES

- Make sure all PCB modules are secured into place before replacing the top cover. The Bar Antenna PCB should be secured before the CD Main PCB is screwed down so that its wires can be tucked into place properly.

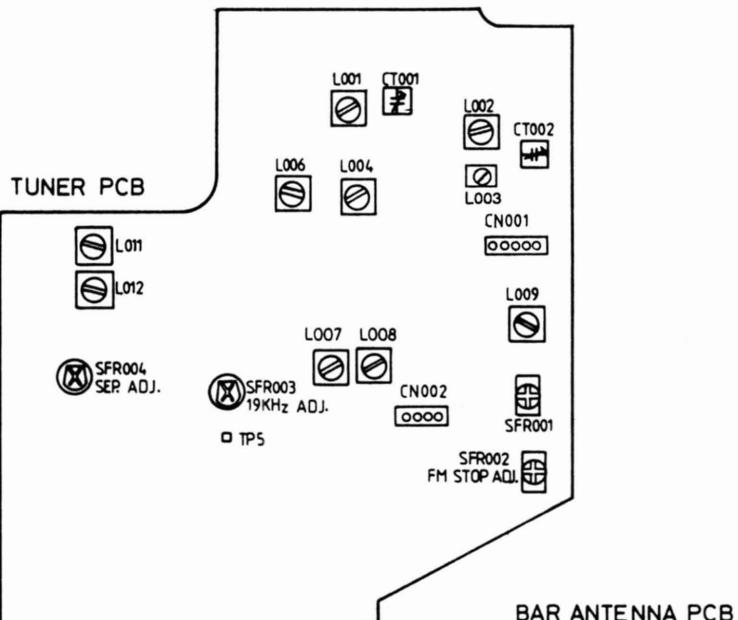
TEST PROCEDURES

Tuner Adjustment Procedures	
<p>NOTE: For instructions on accessing the Tuner PCB, refer to Disassembly Procedure # 33, Tuner PCB Removal.</p> <p>AM Alignment Procedures</p> <p>1. AM RF Alignment</p> <p>A. Connect an AM signal generator to a standard radiating loop.</p> <p>B. Set the signal generator frequency to 530 kHz.</p> <p>C. Adjust the frequency setting on the unit to 530 kHz.</p> <p>D. Connect a DC meter across CN001 (Tuner PCB, Figure 16), pin 1 and pin 2.</p> <p>E. Adjust L006 (Tuner PCB, Figure 16) until the meter indicates 1V ± 0.05V.</p> <p>F. Set the signal generator frequency to 1620 kHz.</p> <p>G. Adjust the frequency setting on the unit to 1620 kHz.</p> <p>H. Adjust L006 until the meter indicates 7V ± 0.05V.</p> <p>I. Repeat these adjustments until the closest possible number to the desired setting is achieved.</p> <p>2. AM Sensitivity Alignment</p> <p>A. Connect an AM signal generator to a standard radiating loop. (Signal generator input settings: Modulation: 400 Hz, 30%, with a field strength of 850 μV/m at the unit's antenna).</p>	<p>B. Set the signal generator frequency to 600 kHz.</p> <p>C. Adjust the frequency setting on the unit to 600 kHz.</p> <p>D. Connect a voltmeter across the line level outputs on the back of the unit.</p> <p>E. Adjust Bar Antenna L005 (Bar Antenna PCB, Figure 16) for maximum output.</p> <p>NOTE: The bar antenna's coil is glued with paraffin. It needs no readjustment unless replaced with a new one.</p> <p>F. Set the signal generator frequency to 1400 kHz.</p> <p>G. Adjust the frequency setting on the unit to 1400 kHz.</p> <p>H. Adjust CT003 (Bar Antenna PCB, Figure 16) for maximum output.</p> <p>I. Repeat these adjustments until the optimal result is achieved.</p> <p>3. AM Auto Tuning Adjustment</p> <p>A. Connect an AM signal generator to a standard radiating loop. (Signal generator input settings: Modulation: 400 Hz, 30%, with a field strength of 850 μV/m at the unit's antenna).</p> <p>B. Set the signal generator frequency to 1000 kHz.</p> <p>C. Adjust the frequency setting on the unit to 1000 kHz.</p> <p>D. Connect a DC meter across TP1 (PLL PCB, Figure 16) and ground.</p>

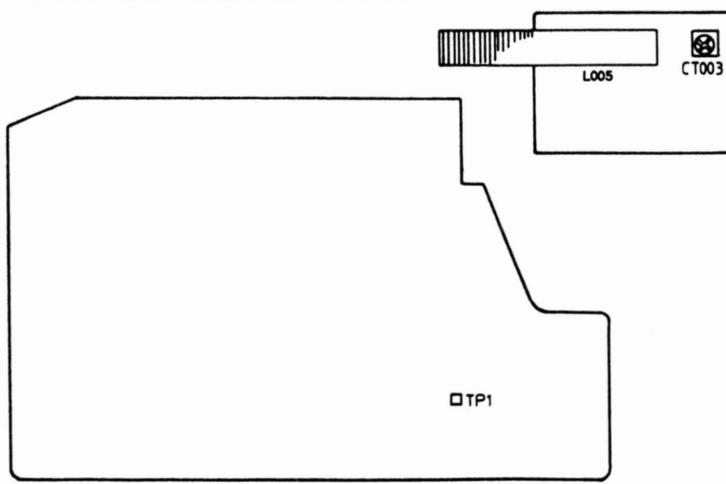
<p>E. Adjust SFR001 (Tuner PCB, Figure 16) so that the meter indicates a range of approximately 5V and 0V by following these steps:</p> <ol style="list-style-type: none"> 1. Adjust SFR001 so that the meter reads 0V. 2. Turn SFR001 to the right until approximately 5V is indicated on the meter. 3. Turn SFR001 to the left until a big drop (edge) in voltage (towards 0V) is indicated. The meter may not indicate exactly 0 volts. When this “edge” is reached, the adjustment is complete. 4. To check adjustments, press the “Tune/Seek” button until it beeps. Release the button. The unit will scan in Auto-Tune and should stop at 1000 kHz if properly adjusted. <p>FM Alignment Procedures</p> <p>1. FM RF Alignment</p> <p>A. Connect an FM signal generator to the external antenna terminals on the unit.</p> <p>B. Set the signal generator frequency to 88.1 MHz.</p> <p>C. Adjust the frequency setting on the unit to 88.1 MHz.</p> <p>D. Connect a DC meter across CN001 (Tuner PCB, Figure 16) pin 1 and pin 2.</p> <p>E. Adjust L003 (Tuner PCB, Figure 16) until the meter indicates 1.0V ± 0.05V.</p> <p>F. Set the signal generator frequency to 107.9 MHz.</p> <p>G. Adjust L003 until the meter indicates 7.0 ± 0.05V.</p> <p>H. Repeat these adjustments until the closest possible number to the desired setting is achieved.</p>	<p>2. FM 0V Adjustment</p> <p>A. Connect an FM signal generator to the external antenna terminals on the unit. (Signal generator input settings: 98.1 MHz, 60dBμ, Modulation: 1 kHz, 100% {75 kHz dev.}).</p> <p>B. Set the signal generator frequency to 98.1 MHz.</p> <p>C. Adjust the frequency setting on the unit to 98.1 MHz.</p> <p>D. Connect a DC meter across CN002 (Tuner PCB, Figure 16), pin 2 and pin 4.</p> <p>E. Adjust L007 (Tuner PCB, Figure 16) until the meter indicates 0V.</p> <p>3. FM Sensitivity Alignment</p> <p>A. Connect an FM signal generator to the external antenna terminals on the unit. (Signal generator input settings: 88.1 MHz, 20 dBμ, Modulation: 1 kHz, 100%).</p> <p>B. Set the signal generator frequency to 88.1 MHz.</p> <p>C. Adjust the frequency setting on the unit to 88.1 MHz.</p> <p>D. Connect a voltmeter across the line level outputs of the unit.</p> <p>E. Adjust L001 and L002 (Tuner PCB, Figure 16) until the maximum amplitude is achieved.</p> <p>F. Set the signal generator frequency to 107.9 MHz.</p> <p>G. Adjust the frequency setting on the unit to 107.9 MHz.</p> <p>H. Adjust CT001 and CT002 (Tuner PCB, Figure 16) until a maximum amplitude is achieved.</p> <p>I. Repeat these adjustments until an optimal result is achieved.</p>
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<p>4. FM T.H.D. Adjustment</p> <p>A. Connect an FM signal generator to the external antenna terminals on the unit.</p> <p>B. Set the signal generator frequency to 98.1 MHz.</p> <p>C. Adjust the frequency setting on the unit to 98.1 MHz.</p> <p>D. Connect a DC meter across CN002 (Tuner PCB, Figure 16) pin 2 and pin 4.</p> <p>E. Connect a distortion meter across the line level outputs of the unit.</p> <p>F. Adjust L004, L007 and L008 (Tuner PCB, Figure 16) until the meter indicates 0 ± 20mV and as low a T.H.D. as possible.</p> <p>G. Repeat these adjustments for minimum T.H.D. with a meter reading of 0V.</p> <p>5. FM Auto Tuning Adjustment</p> <p>A. Connect an FM signal generator to the external antenna terminals on the unit (Signal generator Input settings: 98.1 MHz, 26 dBμ, Modulation : 1 kHz, 100 %).</p> <p>B. Set the signal generator frequency to 98.1 MHz.</p> <p>C. Adjust the frequency setting on the unit to 98.1 MHz.</p> <p>D. Connect a DC meter across TP1 (PLL PCB, Figure 16) and ground.</p> <p>E. Adjust SFR003 (Tuner PCB, Figure 16) so that the meter indicates a range of approximately 5V and 0V by following these steps:</p> <ol style="list-style-type: none"> 1. Adjust SFR003 so that the meter indicates 0V. 2. Turn SFR003 to the right until approximately 5V is indicated on the meter. 	<p>3. Turn SFR003 to the left until a big drop (edge) in voltage (towards 0V) is indicated. The meter may not indicate exactly 0V. When this “edge” is reached, this adjustment is complete.</p> <p>4. To check adjustments, press the “Tune/Seek” button until it beeps. Release the button. The unit will scan in Auto-Tune and should stop at 98.1 MHz if properly adjusted.</p> <p>6. 19 kHz Adjustment</p> <p>A. Connect an FM signal generator to the external antenna terminals (Signal generator Input settings: 98.1 MHz, 26 dBμ, Modulation: 1 kHz, 100 %).</p> <p>B. Set the signal generator frequency to 98.1 MHz.</p> <p>C. Adjust the frequency setting on the unit to 98.1 MHz.</p> <p>D. Connect a frequency counter from TP5 (Tuner PCB, Figure 16) to ground.</p> <p>E. Adjust SFR003 (Tuner PCB, Figure 16) until the frequency counter indicates 19 kHz.</p> <p>7. FM Separation Adjustment</p> <p>A. Connect an FM signal generator to the external antenna terminals on the unit.</p> <p>B. Set the signal generator frequency to 98.1 MHz.</p> <p>C. Adjust the frequency setting on the unit to 98.1 MHz.</p> <p>D. Connect a voltmeter across the unit's line level outputs.</p> <p>E. Adjust SFR004 (Tuner PCB, Figure 16) until the optimum R/L channel separation is attained.</p>
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Adjustment Locations



BAR ANTENNA PCB



PLL PCB

CD Main PCB

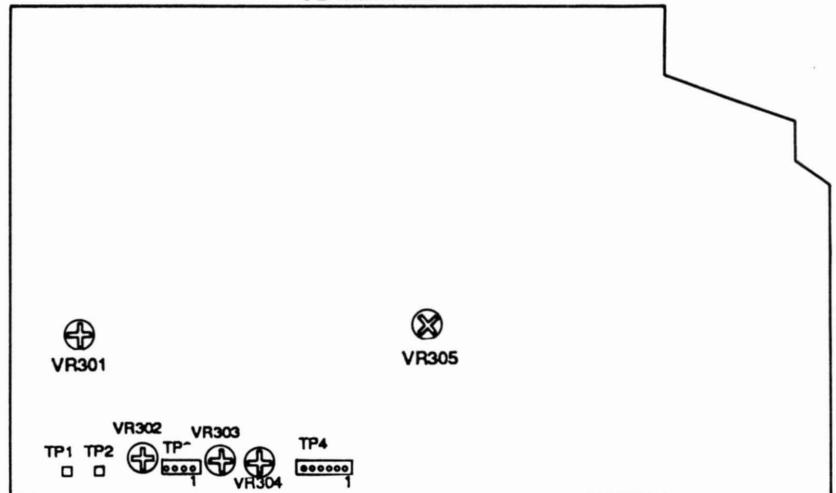


Figure 16

CD Alignment Procedures

Setup Equipment Needed:

- Oscilloscope (two channel)
- Frequency Counter (measure to 5 MHz)
- Audio Oscillator
- Pierre Verany Digital Test Disc or other precision test disc
- 3-to-2 prong power cord isolation plug
- Annular magnet or tape to secure CD to hub
- Tape to hold down door switch

Remove the unit's cover and tape down **S201** (door switch) on the **CD Control PCB**. This PCB contains the CD player display and is the top right PCB if the back of the unit faces the user. Execute the following procedures in the order given.

1. PLL VCO Adjustment

- Connect a jumper from **TP4, pin 1** to **TP4, pin 5**. Refer to Figures 16 and 17.
- Connect the frequency counter to **TP4 pin 2**. Use **TP2** as **ground**.
- Depress the "PLAY" button on the unit continuously. There should not be a disc on the CD mechanism. Adjust **VR305** until the frequency counter reads **4.2336 MHz**.
- Disconnect the jumper from **TP4**.

2. Focus Bias Adjustment

- On the oscilloscope, view **TP1** using **TP2** as **ground**.
- Secure **Pierre Verany Disc #1** to the CD player's hub and start playing **Track # 1**. Adjust **VR302** so that the signal envelope at **TP2** shows the clearest diamond pattern. (See Figure 18). This pattern will not necessarily occur at the maximum amplitude.

CD Main PCB Adjustment Locations

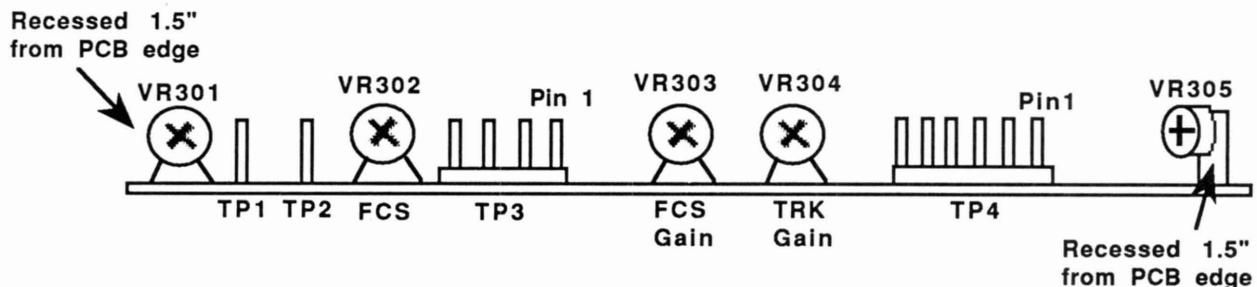


Figure 17

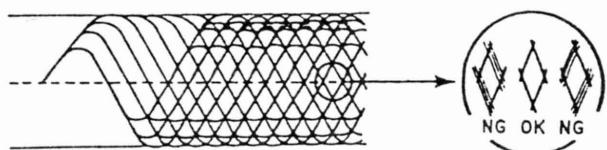


Figure 18

F. Rapidly press the **Forward-Skip** button and adjust the oscilloscope's time-base to obtain a long seek display as shown in Figure 20. Verify that the **positive** and **negative** going peaks are of **equal magnitude**. If not, return to step C.

3. EF Balance Adjustment

A. Disconnect the oscilloscope ground from earth ground using the isolation plug.

B. Connect the scope ground (at probe) to TP4, pin 3 and view TP4, pin 4.

C. Start playing Verany Disc #1 on Track #1 and then put the CD player in pause mode.

D. Trigger the oscilloscope to obtain the display shown in Figure 19.

E. Adjust VR301 until the amplitudes of the first **negative-going** peak and the following **positive-going** peak are **equal**.

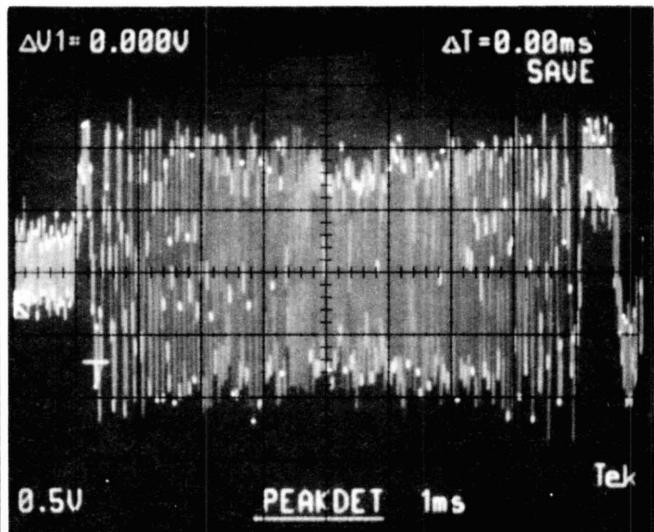


Figure 20

4. Focus Servo Gain Adjustment

NOTE: The circuit shown in Figure 21 must be constructed in order to perform the next two procedures. Use of the switch is optional. The test points shown for **Focus** and **Tracking** can be connected **manually** instead. The procedures which follow assume that the **switch** will be used.

A. Flip the switch to the "FOCUS" position.

B. Adjust the oscillator to attain a 1.0 kHz, 1.0 volt **peak-to-peak** sine wave at the oscilloscope's Y channel input.

C. Play Verany Disc 1 on Track 1 with the oscilloscope in the XY mode. Adjust the scope and VR303 to obtain the perfectly vertical ellipse shown in Figure 22.

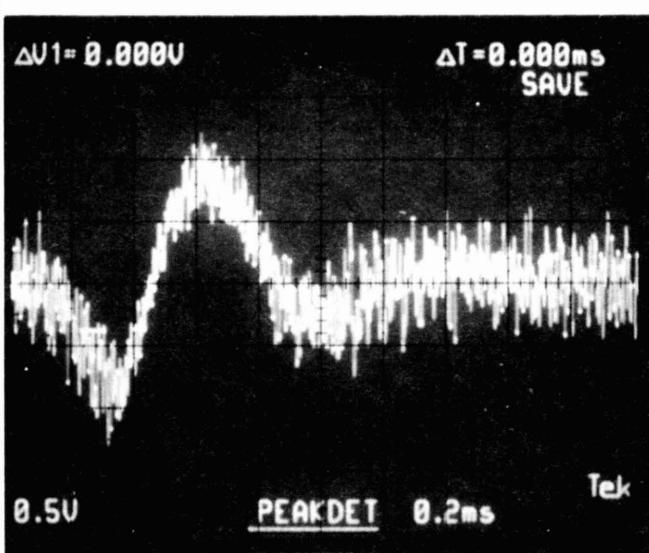


Figure 19

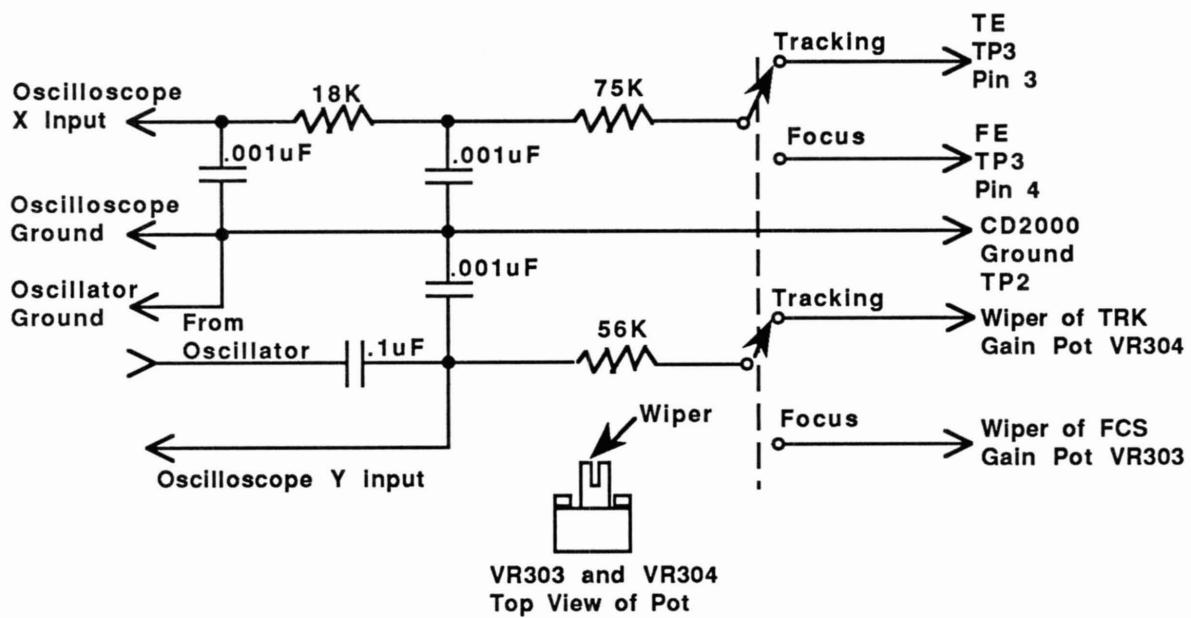


Figure 21

D. Play **Track 56** of the Verany Disc and observe the display. If there is an error-i.e.- the ellipse leans either to the **left** or to the **right**, average it between **Track 1** and **56**. For example, if the ellipse leans 4° to the **left** at **track 56** when it's perfectly vertical at **track 1**, re-adjust VR303 so that it leans 2° to the **left** at **track 56** and 2° to the **right** at **Track 1**.



Figure 22

5. Tracking Servo Gain Adjustment

A. Flip the switch to the "TRACKING" position.

B. Play Verany Disc 1 on Track 1 and adjust VR304 to obtain the display shown in Figure 22.

C. Advance the player to **track 56** and observe the display. If there is an error (as in step 4.D), average it between **track 1** and **56**.

D. Disconnect the test circuit.

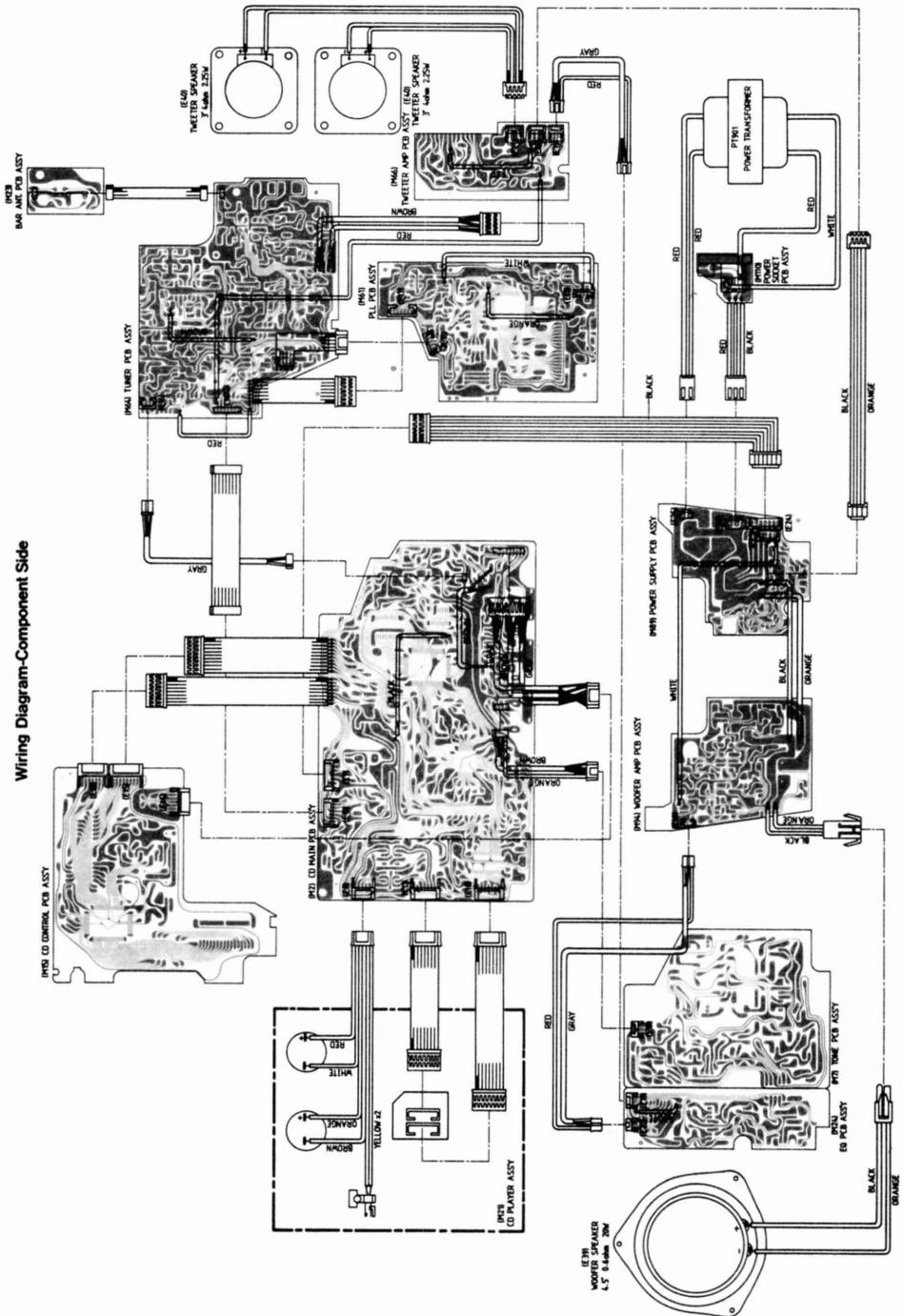
6. Final CD Alignment Verification

A. Play **Verany Disc 1, Track 33** (zero digital level). Turn the volume control to its maximum position and listen for any extrinsic noise.

B. Remove **Disk 1** and start playing **Verany Disc 2, track 25**. This is a **drop-out test** described in the accompanying Verany booklet. The CD player should be able to play **without audible defects** during a **500 micrometer Interruption** in the disc's information layer.

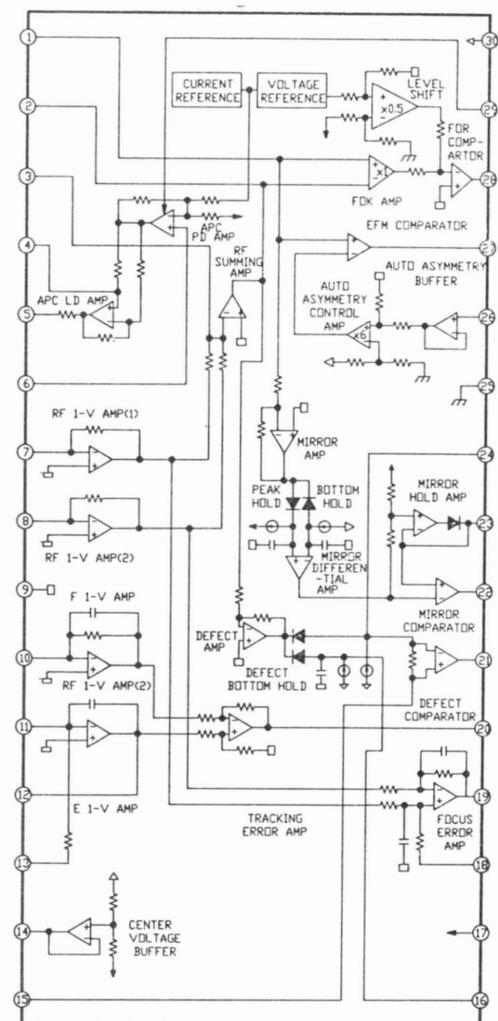
C. If the unit fails **either** of these tests in **part 6**, re-check the alignment.

WIRING DIAGRAM

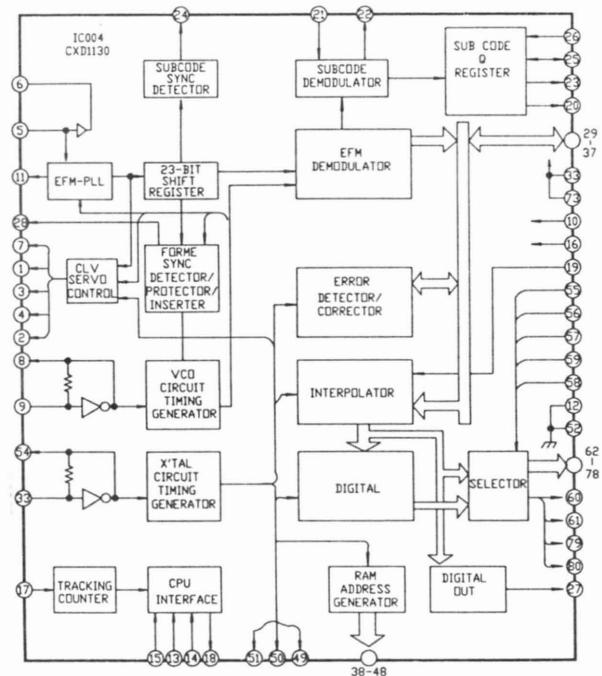


IC PINOUT AND BLOCK DIAGRAMS

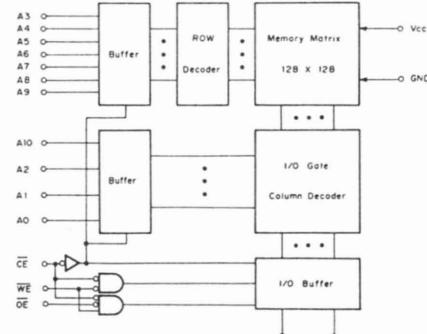
CXA1081M



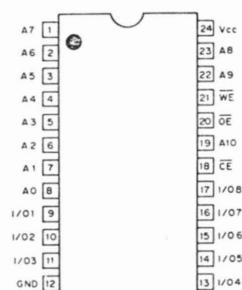
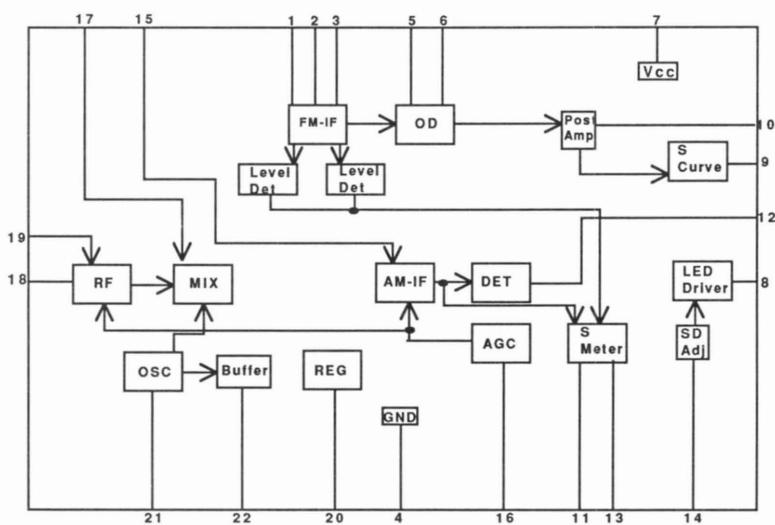
CXD1130



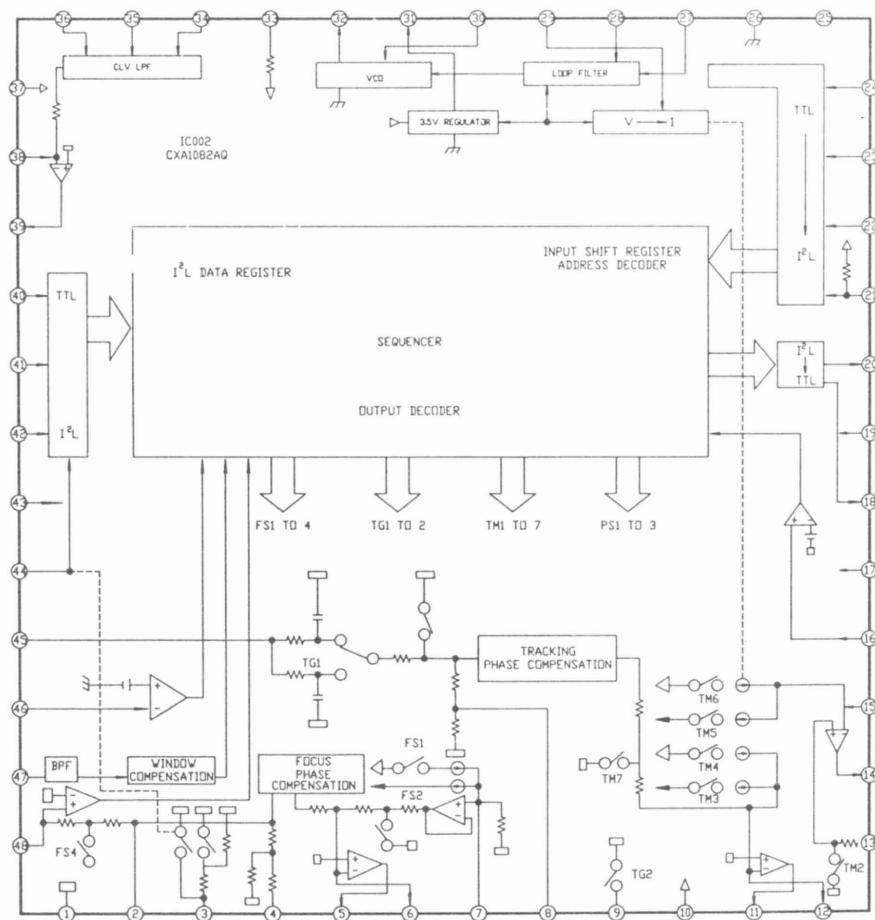
CXK5816MS



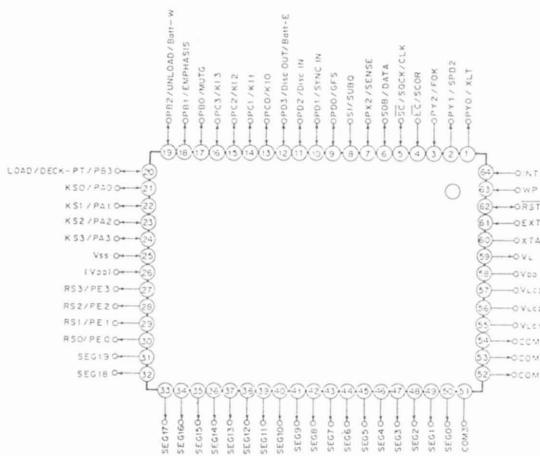
LA1265



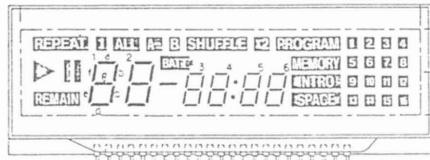
CXA1082AQ



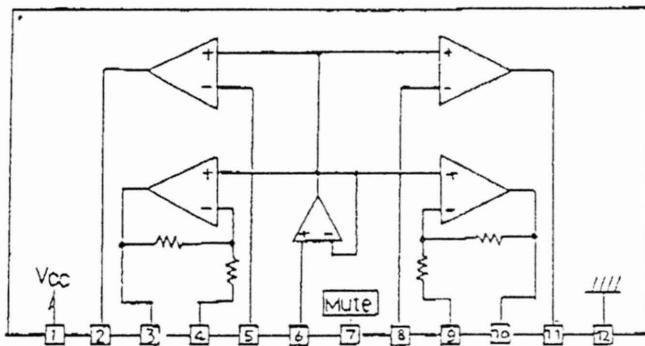
CXP1010Q



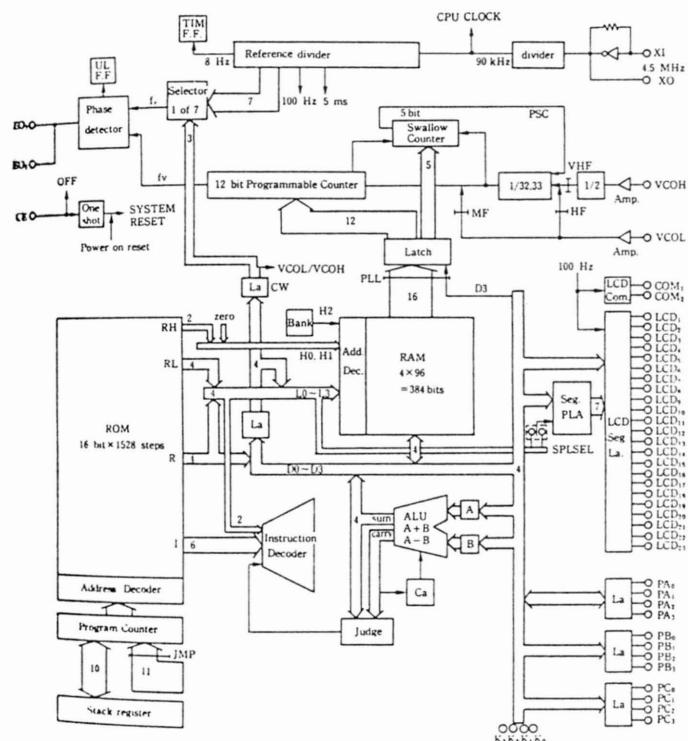
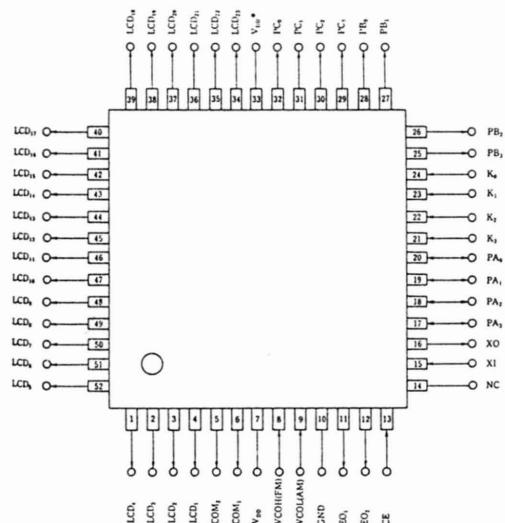
No.	COM. 3	COM. 2	COM. 1	COM. 0	機械名前
1				COM0	COM0
2			COM. 1		COM1
3		COM. 2			COM2
4	COM. 3				COM3
5	[REMAIN]	■	▶	[REPEAT]	SEGO
6	1d	1e	1f	[1](左)	SEG1
7	1c	1g	1b	1a	SEG2
8	2d	2e	2f	[ALL]	SEG3
9	2c	2g	2b	2a	SEG4
10		[B]	[A↔]		SEG5
11	3d	3e	3f	[BATT]	SEG6
12	3c	3g	3b	3a	SEG7
13	4d	4e	4f	[SHUFFLE]	SEG8
14	4c	4g	4b	4a	SEG9
15	5d	5e	5f	:	SEG10
16	5c	5g	5b	5a	SEG11
17	6d	6e	6f	[×2]	SEG12
18	6c	6g	6b	6a	SEG13
19	[SPACE]	[INTRO]	[MEMORY]	[PROGRAM]	SEG14
20	[13]	[9]	[5]	[1](右)	SEG15
21	[14]	[10]	[6]	[2]	SEG16
22	[15]	[11]	[7]	[3]	SEG17
23	[16]	[12]	[8]	[4]	SEG18



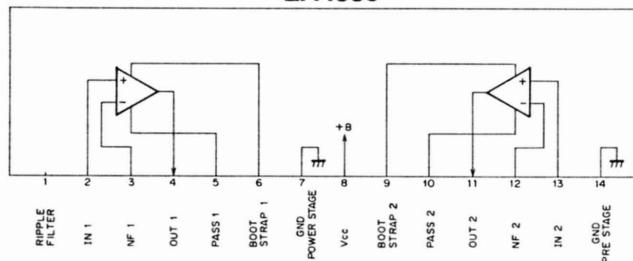
BA6290A



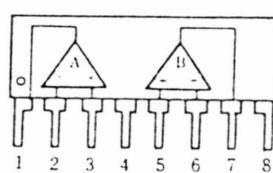
UPD1708AG



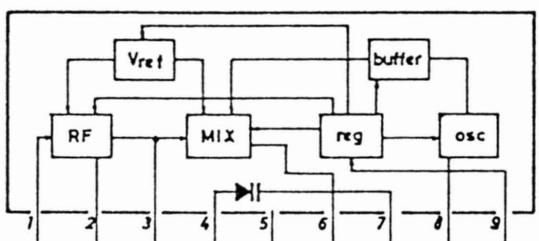
LA4508



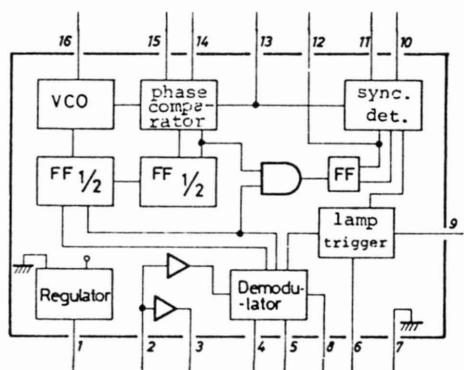
NJM4558



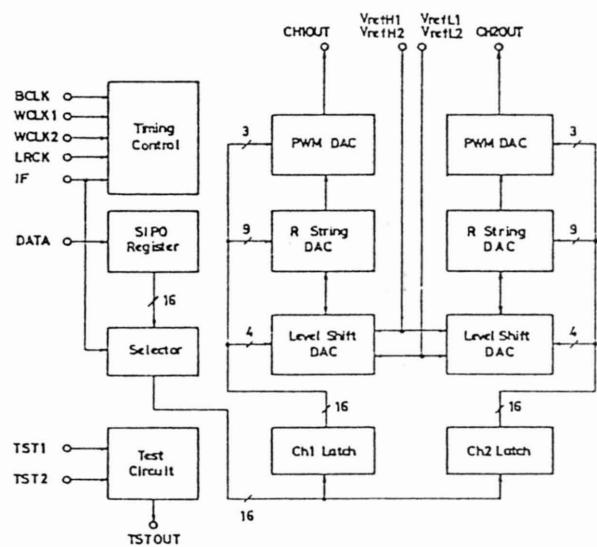
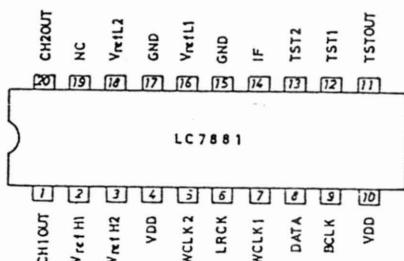
LA1186



LA3361



LC7881



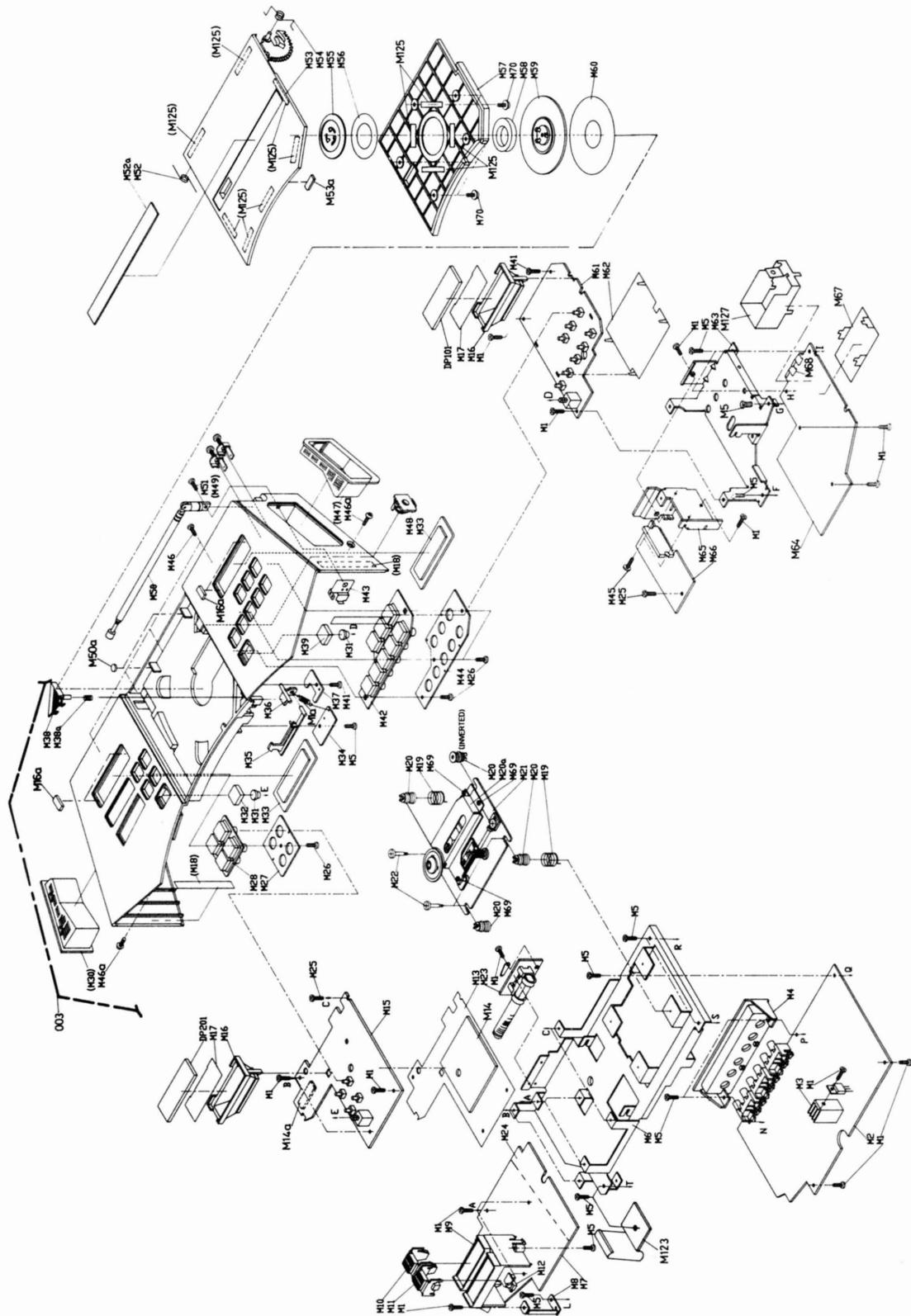
SCHEMATICS AND PCB LAYOUTS

Four schematics are enclosed backed by their respective PCB layouts. These schematics are ordered as follows:

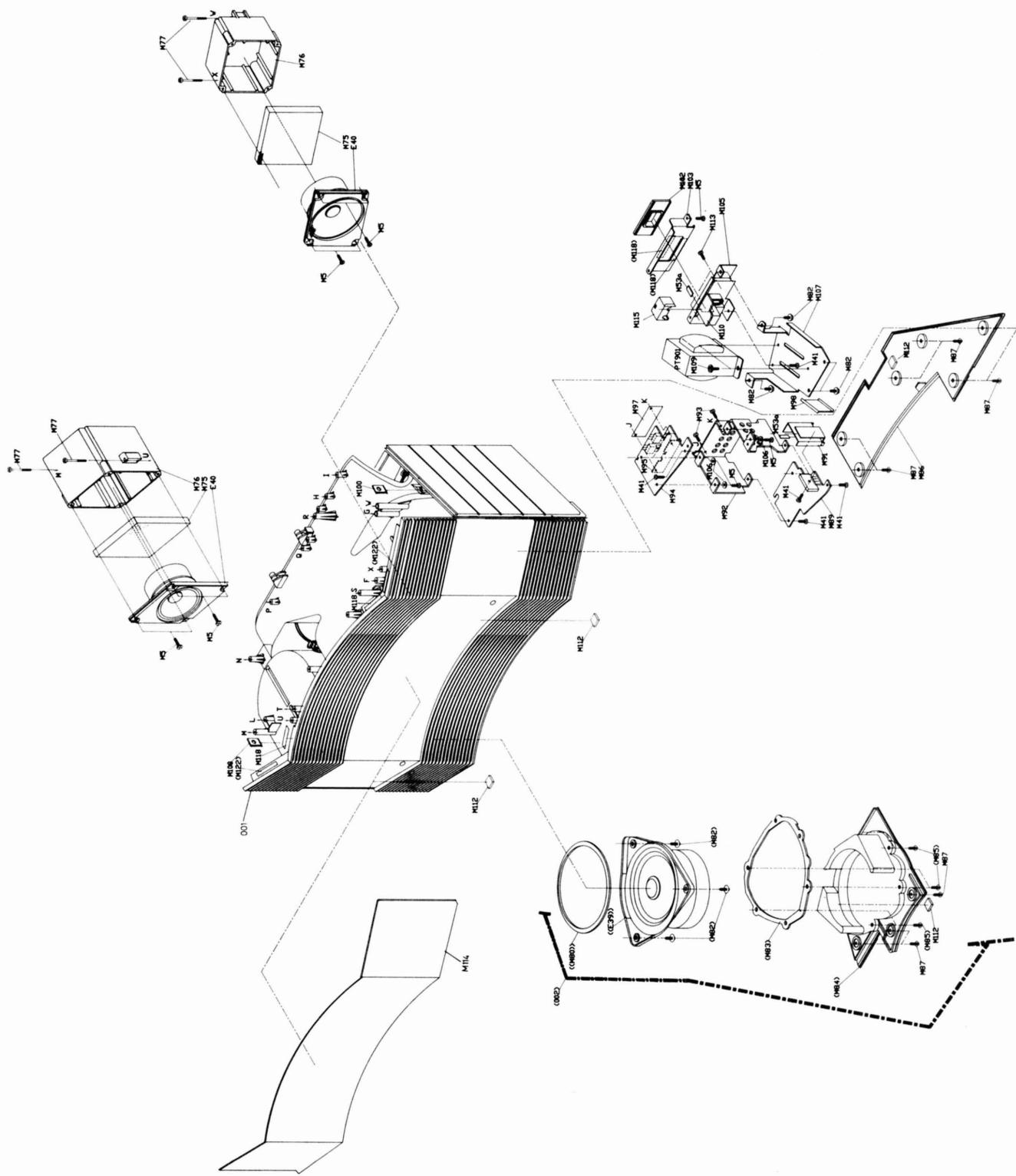
- PLL PCB schematic backed by PCB solder side layout
- Tone, EQ, Woofer Amp, Tweeter Amp, Power Supply and Power Socket PCBs Schematic backed by PCB solder side layouts
- Tuner and Bar Antenna PCBs Schematic backed by PCB solder side layouts
- CD Main and CD Control PCB Schematic backed by PCB solder side layouts

NOTES FOR FUTURE REFERENCE

EXPLODED VIEW A



EXPLODED VIEW B



ACOUSTIC WAVE® SERIES II PARTS LIST
ELECTRICAL

RESISTORS

Component Designator	Description	Part No.	Note No.
R001,006,007,070 114,120,202,206-210 217,305,318,329, 339,353,354,365, 367,386,387,392, 393,398,3102,711, 712, 906	100kΩ,5%,1/6W,Carbon	144869	
R002, 023, 057, 374, 3106	330Ω,5%,1/6W,Carbon	144851	
R003, 608, 823	1.5kΩ,5%,1/6W,Carbon	144974	
R004, 804, 805, 842	180kΩ,5%,1/6W,Carbon	144980	
R005, 013, 105*	120Ω,5%,1/6W,Carbon	144968	1
R008, 010, 3104, 3105, 809	56kΩ,5%,1/6W,Carbon	144868	
R009, 201	470kΩ,5%,1/6W,Carbon	144922	
R011, 605, 606	470Ω,5%,1/6W,Carbon	144970	
R012	560Ω,5%,1/6W,Carbon	144972	
R014,045,046,081,118	68kΩ,5%,1/6W,Carbon	144979	
R015,036,108-110,307, 331,347,348,361,380,381, 396,397,601,602,636,637, 674,707,708,803,822,908, 909	1kΩ,5%,1/6W,Carbon	144853	
R016, 308	22Ω,5%,1/6W,Carbon	144849	
R017	390Ω,5%,1/4W,Carbon	144981	
R018,024*,829	47Ω,5%,1/6W,Carbon	144966	1
R019, 111, 902	18kΩ,5%,1/6W,Carbon	144965	
R020, 031, 047-050,627, 630, 675	2.7kΩ,5%,1/6W,Carbon	144976	
R022,394, 395	390Ω,5%,1/6W,Carbon	144852	
R025, 055, 056, 058, 061, 073, 670	5.6kΩ,5%,1/6W,Carbon	144977	
R026, 028, 029, 034, 068, 076, 082, 121, 303,304, 306,311, 334,364, 369, 371, 378, 3101, 607, 673, 904	10kΩ,5%,1/6W,Carbon	144859	
R027	82Ω,5%,1/6W,Carbon	144967	
R030,323,342,806, 825	15kΩ,5%,1/6W,Carbon	144861	
R030*	27kΩ,5%,1/6W,Carbon	149055	2

RESISTORS (Continued)

Component Designator	Description	Part No.	Note No.
R032, 033, 051, 052, 336	3.9kΩ,5%,1/6W,Carbon	144858	
R035, 106, 302, 325	8.2kΩ,5%,1/6W,Carbon	144856	
R037, 038, 826, 831	270Ω,5%,1/6W,Carbon	144969	
R039-042, 065, 085, 359 360, 824	3.3kΩ, 5%,1/6W,Carbon	144857	
R043, 044, 083, 215, 333, 345, 346, 355, 356, 373, 816, 817	2.2kΩ,5%,1/6W,Carbon	144854	
R053, 054	1.2kΩ,5%,1/6W,Carbon	144973	
R059, 060, 107	1.8kΩ,5%,1/6W,Carbon	144975	
R062, 078, 084, 314, 315, 317, 320, 322, 327, 341, 357, 358, 370, 613, 631, 812, 837, 907	33kΩ,5%,1/6W,Carbon	144864	
R063, 709, 710, 802, 810	6.8kΩ,5%,1/6W,Carbon	144978	
R064	8.2kΩ,5%,1/4W,Carbon	144982	
R066, 075, 310, 351, 352, 372, 832, 903	4.7kΩ,5%,1/6W,Carbon	144855	
R067, 379, 388, 389	12kΩ,5%,1/6W,Carbon	144860	
R069	820Ω,5%,1/6W,Carbon	144971	
R071, 074, 212-214,313, 316,321, 326, 328, 332, 338, 340, 349, 350, 363	22kΩ,5%,1/6W,Carbon	144862	
R072*	10Ω,1/4W,Fuse	144963	1
R077, 828	27Ω,5%,1/6W,Carbon	144964	
R079, 343, 368, 702	220kΩ,5%,1/6W,Carbon	144873	
R080	47kΩ,5%,1/4W,Carbon	144983	
R086	4.7Ω,5%,1/6W,Carbon	149058	
R087, 115, 309, 344, 836, 3103	100Ω,5%,1/6W,Carbon	144850	
R103	10Ω,5%, 1/4W,Carbon	145131	
R104	1.8kΩ,5%,1/4W,Carbon	145133	
R112, 211, 390,391, 399, 3100, 626, 807, 833, 840, 841, 843	47kΩ,5%,1/6W,Carbon	144866	
R113, 628, 629	27kΩ,5%,1/6W,Carbon	145130	
R116	100kΩ,5%,1/4W,Carbon	145135	
R119	10kΩ,5%,1/4W,Carbon	145134	
R122, 377	100Ω,5%,1/4W,Carbon	145132	
R216, 362	1MΩ,5%,1/6W,Carbon	144875	

RESISTORS (Continued)

Component Designator	Description	Part No.	Note No.
R220	150 Ω ,5%,1/4W,Carbon	144923	
R301	24k Ω ,5%,1/6W,Carbon	144863	
R312, 384, 385	39k Ω ,5%,1/6W,Carbon	144865	
R319	270k Ω ,5%,1/6W,Carbon	144870	
R324, 905	82k Ω ,5%,1/6W,Carbon	144867	
R330	510k Ω ,5%,1/6W,Carbon	144871	
R335	120k Ω ,5%,1/6W,Carbon	144874	
R337	22k Ω ,5%,1/4W,Carbon	144876	
R366, 618, 827, 830	10 Ω ,5%,1/6W,Carbon	144848	
R375*	330 Ω ,5%,1/4W,Carbon	144906	1
R376*	1 Ω ,1/2W,Fuse	144847	1
R382	75k Ω ,5%,1/6W,Carbon	149059	
R383	75k Ω ,5%,1/4W,Carbon	149060	
R603, 604	20k Ω ,5%,1/6W,Carbon	145167	
R609, 622, 623, 634, 635, 662, 663, 668, 669	100k Ω ,1%,1/6W,Carbon	145175	
R610	20 Ω ,1%,1/6W,Carbon	145172	
R611	24k,1%,1/6W,Carbon	145171	
R612	22k Ω ,1%,1/6W,Carbon	145170	
R614	3.9k Ω ,1%,1/6W,Carbon	145183	
R615	2.2k Ω ,1%,1/6W,Carbon	145179	
R616	130k Ω ,1%,1/6W,Carbon	145180	
R617	120k Ω ,1%,1/6W,Carbon	145177	
R619, 625, 632, 633, 715, 716	3.3k Ω ,1%,1/6W,Carbon	145182	
R620, 621, 650-653,658, 659, 664-667	10k Ω ,1%,1/6W,Carbon	144859	
R624	1k Ω ,1%,1/6W,Carbon	145174	
R638, 639	18k Ω ,1%,1/6W,Carbon	145169	
R640, 641	13k Ω ,1%,1/6W,Carbon	145168	
R642, 643	1.8k Ω ,1%,1/6W,Carbon	145178	
R644, 645	2.7k Ω ,1%,1/6W,Carbon	145181	
R646, 647	27k Ω ,1%,1/6W,Carbon	145173	
R648, 649	51k Ω ,1%,1/6W,Carbon	145202	
R654-657	4.7k Ω ,1%,1/6W,Carbon	145200	
R660, 661	2k Ω ,1%,1/6W,Carbon	145199	
R671, 672	180k Ω ,1%,1/6W,Carbon	145204	
R703, 704, 811	5.6k Ω ,1%,1/6W,Carbon	145267	
R713, 714	56 Ω ,1%,1/6W,Carbon	145217	
R717, 718	2.2 Ω ,5%,1/6W,Carbon	145215	

RESISTORS (Continued)

Component Designator	Description	Part No.	Note No.
R813	47kΩ,1%,1/6W,Carbon	145270	
R814	8.2kΩ,1%,1/6W,Carbon	145268	
R815	9.1kΩ,1%,1/6W,Carbon	145269	
R818-821	220Ω,5%,1/6W,Carbon	145263	
R834*	47Ω,1/4W,Fuse	145262	1
R835*	33Ω,1/4W,Fuse	145261	1
R838	820kΩ,5%,1/6W,Carbon	145266	
R839	300kΩ,5%,1/6W,Carbon	145265	
R900*	3.3MΩ,5%,1/2W,Solid"K"	145157	1,3,4
R901	12Ω,5%,1/6W,Carbon	145241	

CAPACITORS

Component Designator	Description	Part No.	Note No.
C001, 009	2pF,50V,Ceramic	144984	
C002, 003, 071, 122, 128, 371, 380, 801	.001μF,50V,Ceramic	144882	
C004, 039, 108, 118, 119	.01μF,50V,Ceramic	144995	
C005	5pF,50V,Ceramic	144986	
C006	3pF,50V,Ceramic	144985	
C007	56pF,50V,Ceramic	144988	
C008, 010-013,022, 028-032, 038, 066-068, 111, 116, 381, 382, 660	.022μF,50V,Ceramic	144996	
C014, 018, 021, 023-025, 051	.047μF,16V,Ceramic	144997	
C015	430pF,100V,Polypropyl.	145116	
C016	22pF,50V,Ceramic	144990	
C017	12pF,50V,Ceramic	144989	
C019	560pF,50V,Ceramic	144993	
C020, 059, 060,113, 355, 815	47μF, 10V,Ceramic	144889	
C026, 034, 053, 054, 319, 328, 347, 348, 361, 362, 367, 368, 807	4.7μF,50V,Electrolytic	144886	
C027	3.3μF,50V, Electrolytic	144999	
C033, 046, 062, 202, 303, 315, 329, 342-344, 351, 356, 358, 818	100μF, 100V, Electrolytic	144891	
C035, 040, 043, 045, 703, 704, 804	1μF,50V,Electrolytic	144998	

CAPACITORS (Continued)

Component Designator	Description	Part No.	Note No.
C036	180pF,50V,Ceramic	144991	
C037,069, 365, 366, 709, 710, 715, 716, 906	10 μ F,25V,Electrolytic	144887	
C041,630,631	.0082 μ F,50V,Mylar	145114	
C042,057, 058	2.2 μ F,50V,Electrolytic "MINI"	145111	
C047	1000pF,100V,Polypropyl.	145117	
C048-050,604,624, 625	1 μ F,50V,Electrolytic "MINI"	145112	
C052	680pF, 50V, Ceramic	144994	
C055,056,606,609	.018 μ F,50V,Mylar	145115	
C055*,056*	.013 μ F MC 133J-T	149057	2
C061	470 μ F,10V,Electrolytic	145110	
C063, 803	100 μ F,16V,Electrolytic	145109	
C064	470pF,50V,Ceramic	144972	
C065	20pF,50V,Ceramic	149061	
C070, 323	.0039 μ F,50V,Mylar	145113	
C105, 112, 117, 124-127	.1 μ F,16V,Ceramic	145138	
C106, 110, 349, 360, 812, 905	220 μ F, 10V,Electrolytic	144892	
C107	2.2 μ F,50V,Electrolytic "LN"	145141	
C109	.1 μ F,50V,Electrolytic"LN"	145140	
C115	.1 μ F,5.5V,Gold	145139	
C120, C121	22pF, 50V,Ceramic	145136	
C123, 205, 601-603, 618, 657	10 μ F,25V,Electrolytic "MINI"	145142	
C203, 206, 312, 326, 332, 341, 350, 372, 373	.022 μ F,25V,Multi-layer ceramic	144883	
C204, 605	4.7 μ F,50V,Electrolytic "MINI"	144924	
C301, 306, 324	.0022 μ F,50V, Mylar	144897	
C302,313,314,321, 322, 333, 339, 353	33 μ F,16V,Electrolytic	144888	
C304, 307, 331	.033 μ F,50V,Mylar	144901	
C305	.0047 μ F,50V,Mylar	144898	
C308, 310, 325, 615, 621, 642, 643, 701, 702, 711, 712	.01 μ F,50V,Mylar	144899	
C309, 340, 374	.47 μ F,50V,Electrolytic	144884	

CAPACITORS (Continued)

Component Designator	Description	Part No.	Note No.
C311	150pF,50V,Ceramic	144880	
C316, 327, 330	.001μF,50V,Mylar	144896	
C317,634, 635, 648, 649	.068μF,50V,Mylar	144903	
C318, 334, 654, 655, 809	.047μF,50V,Mylar	144902	
C320	.22μF,63V,Metalized polyester	144904	
C335	.0022μF,50V,Ceramic	149063	
C336	470μF,16V,Electrolytic	144894	
C337, 338	33pF,50V,Ceramic	144878	
C345, 346, 622, 623	.015μF,50V,Mylar	144900	
C352, 721, 819	47μF,25V,Electrolytic	144890	
C354	1000μF,16V,Electrolytic, H,17mm	144895	
C357, 359, 717, 718	220μF,16V, Electrolytic	144893	
C375	.22μF,50V,Electrolytic	149064	
C383	120pF,15V,Multi-layer ceramic	149065	
C607, 608	.18μF,63V,Metalized polyester	145191	
C610	470μF,6.3V,Electrolytic "MINI",8mm	145194	
C611	.47μF,63V,Metalized polyester	145193	
C612	.1μF,63V,Metalized polyester	149066	
C613, 658, 722	.1μF,50V, Mylar	145190	
C614, 617, 626-629, 640, 641, 646, 647	470pF,50V,Multi-layer ceramic	145184	
C616, 636-639, 652, 653	.0033μF,50V,Mylar	145186	
C619, 620	.0068μF,50V,Mylar	145187	
C632, 633	.027μF,50V,Mylar	145189	
C644, 645	470pF,100V, Polypropyl.	145206	
C650, 651	.0012μF,50V,Mylar	145205	
C656	47μF, 25V,Electrolytic "MINI"	149067	
C705, 706	.001μF,50V,Multi-layer ceramic	145221	
C707, 708	100pF,50V,Multi-layer ceramic	145219	

CAPACITORS (Continued)

Component Designator	Description	Part No.	Note No.
C713, 714	220pF,50V,Multi-layer ceramic	145220	
C719, 720	.15μF,50V,Mylar	145224	
C723	220μF,25V,Electrolytic, H,12mm	145223	
C802	.0047μF,50V,Ceramic	145274	
C805, 810, 811	100pF,50V,Ceramic	145271	
C806	.0015μF,50V,Ceramic	145273	
C808	680pF,50V,Ceramic	145272	
C813	.27μF,63V,Metalized polyester	145192	
C814	470μF,25V,Electrolytic	145277	
C816	220μF,25V,Electrolytic	145276	
C817	15000μF,16V,Electrolytic "TSW"	145278	
C901	.01μF,500V,Ceramic	145242	
C902	100μF,25V,Electrolytic	145245	
C903	15000μF,25V,Electrolytic "TSW"	145246	
C904, 907	22μF,25V,Electrolytic	145243	
CT001, 002	Trimmer capacitor, CTC-6H-010	144960	
CT003	Trimmer Capacitor,10pF	145150	

INTEGRATED CIRCUITS

Component Designator	Description	Part No.	Note No.
IC001	LA1186N	144929	
IC002	LA1265	144930	
IC003	LA3361	144931	
IC101	UPD1708AG-302	145120	
IC201	CXP1010AQ	144910	
or	MC78L05CT		
IC203	PST520D	144911	
IC301	CXA1081M	144817	
IC302	CXA1082BQ/AQ	144818	
IC303, 304	BA6290A	144819	
IC305	CXD1130	144820	
IC306	CXK5816MS-15L	144821	
IC307	LC7881M	144822	

INTEGRATED CIRCUITS (CONTINUED)

Component Designator	Description	Part No.	Note No.
IC308, 309, 601-603	NJM4558S	144823	
IC701*	LA4508	145209	1

TRANSISTORS

Component Designator	Description	Part No.	Note No.
Q001, 003	2SK161GR, FET	144942	
Q002	2SC1674L	144933	
Q004	2SC1675L	144934	
Q005-010, 013, 016, 018-020, 102, 104, 106, 201, 202, 302-309, 312, 314, 601, 604-606, 611*, 803-805, 807, 809, 816, 905*, 906	2SC945P, Q	144828	1
Q011, 012	2SA952K, L	144824	
Q014, 017, 105, 203, 310, 311, 313, 612, 806, 808, 815, 817, 902	2SA733P, Q	144827	
Q015	2SC2001L	144935	
Q021	2SD882P, Q	144936	
Q103	2SK117GR, FET	145121	
Q301	2SA952L	144824	
Q315	2SD313E	144825	
Q316	2SD1406-O	144826	
Q602, 603, 607-610	2SC2062B,C-T	145163	
or	2SD1111-T		
Q701, 702, 801	2SC2878A	145210	
Q802	2SJ103GR, FET	145255	
Q810	2SD882P	145253	
Q811	2SD471L	145252	
Q812	2SB564L	145250	
Q813	2SB826R	145251	
Q814	2SD1062R	145254	
Q901	2SA952L	144824	
Q903	DTC124XS	145228	
Q904	DTC143ES	145227	
Q907	DTA114YS-T	145229	

CRYSTALS AND RESONATORS

Component Designator	Description	Part No.	Note No.
X101	Crystal, 4.5 MHz	145124	
X201	Ceramic Resonator, SCT4.23MGW	144917	
X301	Crystal, 8.4672 MHz	144829	

DIODES

Component Designator	Description	Part No.	Note No.
D001-003	1SV55	144938	
D004, 005	KV1236Z1, White Varicap	144939	
D006-010, 012, 014-016, 103-105, 107-113, 202-205, 302, 306, 308, 601, 602, 801, 802, 804, 805, 905, 907, 908, 910-913	1SS176	144831	
D011	RD10JS-T1B12, Zener	144941	
D013	RD5.6JS-T1B23, Zener	144940	
D102	RD9.1JS-T1B23, Zener	145123	
D106, 906	RD6.2JS-T1B23, Zener	145122	
D114-116, 207-209	LTL-2234GT, LED (Grn.)	144919	
D117*	1SS176T	149056	2
D201, 206, 307	1N4148	116997	
D301, 309	RD5.1EB23, Zener	144832	
D303*, 305	RD10EB23, Zener	144834	1
D304*, 603*	RD5.6EB23, Zener	144833	1
D701, 902-904	1N4002L	145211	
D803	RD7.5JS-T1B23, Zener	145256	
D901*	RBV-401	145230	1
D909*	RD8.2JS-T1B23, Zener or MTZ8.2BT-77, Zener	145232	1

COILS

Component Designator	Description	Part No.	Note No.
L001	FM Antenna Coil	144946	
L002	FM RF Coil	144947	
L003	FM Oscillator Coil	144951	
L004	FM IFT TWS-358-412	144948	
L005	AM Bar Antenna	145149	
L006	AM Oscillator Coil	144952	

COILS (Continued)

Component Designator	Description	Part No.	Note No.
L007	FM Detector (A), TWS-358-636	144949	
L008	FM Detector (B), TWS-358-637	144950	
L009	AM IFT TWS-358-656	144953	
L010	Peaking Coil 100 μ H "K"	144955	
L011, 012	MPX Filter, TWS-358-688	144954	
L101	Peaking Coil 6.8 μ H, "K"	145127	

FILTERS

Component Designator	Description	Part No.	Note No.
CF001, 002	Ceramic Filter, SFE10.7MA5 (Red)	144943	
CF003	Ceramic Filter, SFP450F	144944	
CF004	Ceramic Filter, BFU450C4N	144945	

TRANSFORMERS

Component Designator	Description	Part No.	Note No.
PT901*	Power Transformer , EI-66B, 4209661179	144778	1
PT901*	Power Transformer, EI-66B, 420A664188	149052	1, 2

SWITCHES AND VARIABLE RESISTORS

Component Designator	Description	Part No.	Note No.
S101-108, 202-205	Tact Switch, SKHHPP2920-CP	144915	
S109	Push Switch, SPEC12LC13-CP	145126	
S201	Push Switch, SPPB51	144914	
S206	Push Switch, SPEC12LC14-CP	144916	
SFR001 or	Semi-Fixed Resistor, 10KV (VZ067TH1) 10KV (TB069A-OC)	144956	
SFR002, VR301-304 or	Semi-Fixed Resistor, 20KV (VZ067TH1) 20KV (TB069A-OC)	144838	

SWITCHES AND VARIABLE RESISTORS (Continued)

Component Designator	Description	Part No.	Note No.
SFR003	Semi-Fixed Resistor, 5KX (VZ067TL1)	144958	
SFR004	Semi-Fixed Resistor, 0.5KX (VZ067TL1)	144959	
VR305	Semi-Fixed Resistor, 1KV (VG-067TH)	144837	
VR601, 602	Variable Resistor, EWA-TA2C95-679, 10KMNx2	145160	
VR603	Variable Resistor, EWA-TF2-C95- 24U20KZx2	145161	

MISCELLANEOUS COMPONENTS

Component Designator	Description	Part No.	Note No.
DP101	LCD (Radio) Display, HLC9880-01-2210	145125	
DP201	LCD (CD) Display, HLC9881-01-2410	144918	
FS901*, 902*	Fuse, UL/CSA, T5A/125V	144782	1
RL901*	Relay, VS-12MB-VD3	145235	1
E1*	Cord Set, UL/CSA, 6F BLK	144777	1
E1*	Cord Set, VDE, 6F BLK2	149054	1,2
E2	Fuse Holder	145234	
E3*	Power Socket , HJC-025A-01	145154	1
or	JY-0468-210		
E3*	Power Socket, JT-0468-210	149053	1,2
E4	2P Jack YKC21-5194	144835	
E5	2P Jack YKC21-5303	144836	
E40	Tweeter Speaker, 3", 4Ω, 2.25W	130697	
E41	Test Pin 1PS-1136	145144	
E42	Earth Plate C707	145145	
E44	Egg Terminal 3Q	145166	
E46	Fuse Label 5A/125V	144812	
E47	Patch Cord BLK-1M	144779	
E48	Patch Cord BLK-150 mm	144780	
E49	FM Indoor Antenna	144781	

MISCELLANEOUS COMPONENTS (Continued)

Component Designator	Description	Part No.	Note No.
CN001,006	PH 5P Connector-Top Base	145128	
CN002	4P Wafer RE-H042TD-1190	144840	
CN003,301, 306	PH 8P Connector-Side Base	144926	
CN004	PH 3P Connector-Top Base	144961	
CN005	3P Connector Assembly	149329	
CN007	PH 7P Conn.-Top Base	145129	
CN008	EH 2P Conn.-Top Base	145143	
CN302	PH 8P Connector-Side Base	144843	
CN303	PH 6P Connector-Side Base	144841	
CN307	PH 9P Connector-Side Base	144921	
CN309, 601	PH 4P Connector-Side Base	145162	
CN310	PH 7P Connector-Side Base	144920	
CN602	PH 3P Connector-Side Base	145198	
CN602	PH 3P Connector-Top Base	144961	
CN701	EH 4P Connector-Side Base	145212	
W801	Terminal Pin Assembly-BLK-100	149326	
W801	Terminal Pin Assembly-ORG-100	149327	
CN801	2P Connector Assembly	149328	
CN901	VH 2P Connector-Top Base	145238	
CN902	VH 3P Connector-Top Base	145239	
CN903	EH 7P Connector-Side Base	144842	
CN903	EH 7P Connector-Top Base	145237	

MISCELLANEOUS COMPONENTS (Continued)

Component Designator	Description	Part No.	Note No.
CN904	EH 4P Connector-Side Base	145213	
CN904	EH 4P Connector-Top Base	145236	

MECHANICAL PARTS

Component Designator	Description	Part No.	Note No.
M1	2-Machine ISO-BID3006 ZN3A	149062	
M1a	Hook Spring	139883	
M2*	CD Main PCB Assembly	144815	5
M3	CD Heat Sink	144760	
M4	Jack Plate	139821	
M5	7-Taptite P-BID3010 ZN3A	144784	
M6	CD Chassis	139827	
M7*,M24*	Tone/Equalizer PCB Assembly	145158	5
M8	Volume Holder	139866	
M9	Slide Knob Holder	139863	
M10	Slide Knob A	139810	
M11	Slide Knob B	139820	
M12	Slide VR Holder	139811	
M13	Insulator Sheet	139867	
M14	Insulator-S Foam	139847	
M14a	Insulator-P Foam	139848	
M15*	CD Control PCB Assembly	144908	5
M16	LCD Holder	139836	
M16a	Rubber Sponge	149068	
M17	LCD Sheet	139843	
M18	Top Cabinet Sheet	139872	
M19	CD Cushion Spring	144773	
M20	CD Cushion	139831	
M20a	Pickup Cover	139823	
M21	CD Player Assembly DM-17-LM3	144813	
M22	CD Screw	139833	
M23*	Bar Antenna PCB Assembly	145146	5
M25	2-Machine ISO-CUP3006 ZN3A	144787	

MECHANICAL PARTS (Continued)

Component Designator	Description	Part No.	Note No.
M26	7-Taptite P- BID2606 ZN3A	144796	
M27	CD Knob Holder	139851	
M28	CD Control Knob	139812	
M30	Handle,Left	139818	
M31	Input Knob Holder	139869	
M32	Input Knob A	139814	
M33	LCD Window	139822	
M34	Lever Plate	139864	
M35	Hook Lever	139859	
M36	Door Hook	139860	
M37	Hook Plate	139862	
M38	CD Knob	139825	
M38a	Knob Spring	139865	
M39	Input Knob B	139815	
M41	9-Taptite B- BID3006 ZN3A	144792	
M42	Tuner Control Knob	139813	
M43	Antenna Terminal	139857	
M44	Tuner Knob Holder	139852	
M45	9-Taptite B BID3008 ZN3A	144788	
M46	9-Taptite B BID3010 NI3E	144790	
M46a	9-Taptite B- CUP3010NI3E	144789	
M47	Handle,Right	139817	
M48	Gear Damper	144761	
M49	Screw Terminal	139856	
M50	Rod Antenna	144788	
M50a	Spacer Foam-D	149069	
M51	2-Machine ISO- BID3008 NI3E	144794	
M52	CD Door Spring B	139853	
M52a	CD Window	139826	
M53	CD Door	139804	
M53a	Spacer Foam-C	139879	
M54	CD Door Spring B	139850	
M55	Pad Holder	139835	
M56	Pad Holder Sheet	139873	
M57	Pad Cover	139816	
M58*	Magnet 30x18x5	144336	8

MECHANICAL PARTS (Continued)

Component Designator	Description	Part No.	Note No.
M59*	CD Pad	139834	8
M60*	Disk Sheet	139855	8
M61*	PLL PCB Assembly	145118	5
M62	PLL Shield	139868	
M63	Tuner Chassis	139828	
M64*	Tuner PCB Assembly	144927	5
M65	Heat Sink T	139861	
M66*	Tweeter Amplifier PCB Assembly	145207	5
M67	Tuner Shield-D	139874	
M68	Antenna Spring	139858	
M69	7-Taptite P- BID2006 ZN3K	144791	
M70	7-Taptite P- BID2605 NI3E	144795	
M75	Tweeter Sponge	139870	
M76	Tweeter Box	139830	
M77	7-Taptite P- BID3030 ZN3A	144785	
M80*,M83*	Woofer Gasket Assembly	139845-1	7
M82	7-Taptite P- CUP4016 ZN3A	144786	
M84	Woofer Cover	139808	
M85	9-Taptite B- CUP3014 ZN3A	144770	
M86	Power Cover	139809	
M87	9-Taptite B- CUP3010 NI3E	144789	
M89*	Power Supply PCB Assembly	145225	5
M91	Heat Sink B	139842	
M92	Heat Sink A	139829	
M93	2-Machine ISO- BID3012 ZN3A	145259	
M94*	Woofer Amplifier PCB Assembly	145247	5
M95	Transistor Holder	139840	
M97	Transistor Insulator	139871	
M98	Transformer Insulator	139875	
M100	Escutcheon Holder	144772	

MECHANICAL PARTS (Continued)

Component Designator	Description	Part No.	Note No.
M102	AC Slide Door	139819	
M103	Slide Door Holder	139839	
M105	AC Jack Bracket	139838	
M106	Fiber Washer	145258	
M107	Transformer Bracket	139887	
M109	6-Taptite S-CUP3505 ZN3A	144793	
M110*	Power Socket PCB Assembly	145152	5
M112	Foot	139844	
M113	9-Taptite B-CUP3008 ZN3K	145156	
M114	Front Panel	139824	
M115*	Back Cover HJCC-024	144814	4
M118	Spacer Sheet-B 3x53x0.35	139881	
M122	Spacer Sheet-C 6.5x50	144775	
M123	Connector Plate	139884	
M125	Spacer Sheet-A	139880	
M127	Tuner Shield-U	139876	
OO1	Matrix Center Assembly	144765	
OO2	Woofer Speaker Sub-Assembly (W/Cushion)	144766	
OO3	Top Cabinet Sub-Assembly	144771	
E39*	Woofer Speaker, 4.5", 0.6Ω, 20W	130698	7

MISCELLANEOUS PARTS (Not Illustrated)

Component Designator	Description	Part No.	Note No.
A1	Instruction Book	144797	
A2	Filler Insert	138619	
A3	Inner Carton	143281	
A4	Folder	144798	
A5	Outer Carton	143280	
A6	Warranty Card	144799	
A7	Polybag 62x55 (SET)	144801	
A8	Envelope	144800	
A14	Polybag 26x40 (I/B)	144810	
A15	Top Sheet	144807	

MISCELLANEOUS COMPONENTS (Continued)

Component Designator	Description	Part No.	Note No.
A16	Polybag 30x11	144809	
A17	Packing Spacer	144811	
A18	Fiber Washer	144776	
A19	Spacer Foam-C	139879	

NOTES

1. 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.
2. This part is used only in the 220V export version, Model FE2000.
3. When replacing resistor R900, be sure to re-use the existing component sleeving. This sleeving is critical for safety.
4. This part is not used in the 220V export version, Model FE2000.
5. This part is not normally available from Customer Service. Approval from the Field Service Manager is required before ordering.
6. All electrolytic capacitors (vented type) with a diameter >10 mm. are critical components. Refer to Note 1 for further information.
7. Each woofer speaker has an adhesive-backed gasket lining its inner groove. If the woofer is being replaced with a new one, be sure to order the Woofer Gasket Assembly (M80, M83).
8. When ordering the CD Pad (M59), be sure to order the disk sheet (M60) and the magnet (M58). These two items should be included as part of the CD pad assembly.

APPENDIX

IMPORTANT NOTE

All FE2000 units and later versions of the CD2000 (serial numbers whose last 6 digits are 012784 and higher) contain a different (Sony) CD mechanism. The original CD mechanism has wires hardwired directly to the sled and spindle motors. The new mechanism has wires connected to the motors via a circuit board attached to the bottom of the motors.

If your unit contains this new CD mechanism, refer to the following section for a parts list, schematic and special disassembly procedures.

This section also contains important information on how to change from an earlier version of the CD mechanism to a later version.

Part I

1. Parts List: The following parts correspond to units containing the new CD mechanism:

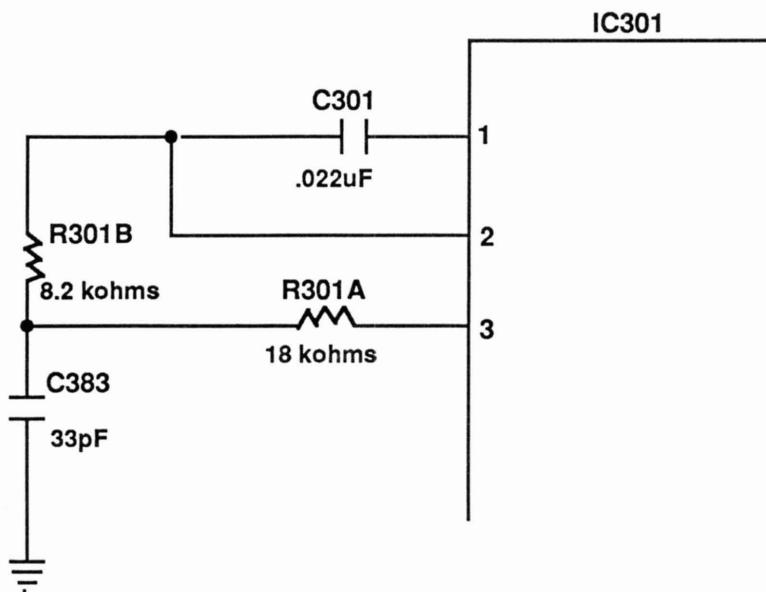
Table 1 Parts List for Sony Mechanism

Component Designator	Description	Part Number	See Note
M21	CD Player Assembly KSM-2101BAM	149527	
M6	CD Chassis	149528	
	CD Pad Subassembly <i>which consists of:</i>	149627	
M59	CD Pad	149528	1
M60	Disk Sheet	149529	1
M58	Magnet 30x18x5	144336	1
R301A	18 kΩ,5%,1/6W,Carbon	149532	
R301B	8.2 kΩ,5%,1/6W,Carbon	149533	
R312	82 kΩ,5%,1/6W,Carbon	149534	
C383	33 pF,50V,Multi-layer ceramic	149535	
C317,C320	0.1 µF,50V, Mylar	149536	
CN303	6P Connector with cable	149537	

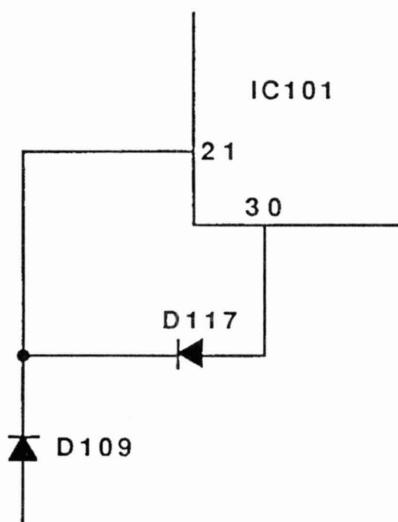
Note: Although these parts can be ordered separately, it is strongly recommended that the CD Pad Subassembly be ordered instead to avoid potential assembly problems.

2. Schematics:

A. These units contain two resistors, R301A and R301B, instead of R301. C383 has also been relocated slightly. The following schematic shows the location of these components. Refer to Schematic D for all other component locations (they stay the same).



B. The FE2000 also contains a diode D117 which is not used in the CD2000. The following schematic shows the location of this component. Refer to Schematic A for all other component locations (they stay the same).



3. Disassembly Information: All disassembly procedures for the original CD mechanism, Procedures 18 through 20 (pages 12 and 13), will apply for the new mechanism **except** as follows:

- A. In Procedure 19, steps **A-C** are replaced by: Disconnect cable from connector **CN303** (located on **CD Main PCB**).
- B. In Procedure 19, step **D** is replaced by: Remove the **3** screws which secure the black pickup cover. Re-install the cover on the new CD mechanism (**Figure 6**).
- C. In Procedure 20, steps **A-C** are replaced by: Re-connect connector **CN303**.

PART II

This section provides instructions for replacing the original (**A-T**) CD mechanism with a new (**Sony**) mechanism.

1. Parts: The parts required to install the new mechanism can be obtained in a **CD Player Kit**, part number **149628**. This kit contains the same components listed in **Part I, Section 1**, of this **Appendix**.

2. Disassembly Instructions: The following disassembly instructions are required to change the mechanism. In order to complete these procedures, it is necessary to replace the CD chassis:

A. Remove the top cover using **Procedure 1** on page **9**.

B. Remove the original CD mechanism using **Procedure 18** and **Procedure 19, steps D-E**, on page **12** of this manual.

NOTES : Be sure to keep the black pickup cover, screws, rubber bumpers and springs for use on the new mechanism. These parts are **not** supplied as part of the kit mentioned above.

It is not necessary to disconnect any wires when removing screws from PCBs in the procedures mentioned below.

C. Remove 2 screws from the **Bar Antenna PCB**. Refer to **Procedure 21** and **Figure 8** on page **13**.

D. Remove 7 screws which secure the metal chassis to the **CD Main PCB** and the unit. Remove the auxiliary input cover. Refer to **Procedure 27, steps A-B** (page **15**) and **Figure 10** (page **14**).

E. Remove 4 screws from the **CD Control PCB**. Refer to **Procedure 23, step A.** and **Figure 8** on page **13**.

F. Remove 3 screws from the **EQ/Tone Control PCB**. Refer to **Procedure 25 steps A-C** (page **14**) and **Figure 9** (page **13**).

G. Remove 2 screws from the solder side of the **CD Main PCB**. Refer to **Procedure 27, step C.** on page **15**.

H. Slide the CD chassis out from the unit. There may be connector wires tiewrapped to the chassis frame. Remove these for use with the new mechanism. These wires may possibly connect with **CN301, 302 or 303**.

I. There are 2 screws attached to the chassis frame. These screws have **Loctite 290** applied to them. Add **MEK solvent** to the screws before removing them. Also, remove 2 rubber bumpers and re-use them with the new mechanism.

J. Apply Loctite 290 to the threads of these 2 screws mentioned in step I. Before replacing the screws, install 2 rubber bumpers (mentioned in step I) on the new CD chassis in the same location as before. After waiting an appropriate period (see Loctite application instructions for duration), install the 2 screws on the new CD chassis in the same locations used on the original chassis.

K. Remove components **R301**, **R312**, **C383**, **C317** and **C320**. Refer to **Schematic Diagram D** for locations.

NOTE: Certain versions of the unit may not contain capacitor **C383**.

L. Install new components **R312**, **C317** and **C320** in their original locations. Refer to **Schematic Diagram D**.

M. Install new components **R301A**, **R301B** and **C383**. Refer to the schematic shown in **Part I** of this appendix.

N. Slide new CD chassis into place.

O. Replace 2 screws on the solder side of the **CD Main PCB**. Refer to **Procedure 28, step B** on **page 15**.

P. Replace 3 screws on the **EQ/Tone Control PCB**. Refer to **Procedure 26, steps C-E** (page 14) and **Figure 9** (page 13).

Q. Replace 4 screws on **CD Control PCB**. Refer to **Procedure 24, steps A, C and D** (pages 13 and 14) and **Figure 8** (page 13).

R. **CAREFULLY** bend down components **IC303** and **IC304** located on the **CD Main PCB**. They must lie flat to avoid interference with the CD mechanism.

S. Place 2 springs (**M19**) in their original locations on the CD chassis. See **Exploded View A** on **page 33**.

T. Re-install new CD mechanism as follows:

(1). Disregard **Procedure 19, steps A-D**, page 12.

(2). Replace the black pickup cover using only 3 screws. Refer to **Figure 6 on page 12**. **DO not** place a screw in the **front left** location on the pickup cover. This screw hole will not line up with the pickup cover.

(3) Replace 2 rubber bumpers. Refer to **Procedure 19, step E**. and **Figure 6** (page 12).

(4) Re-connect connector **CN303**. Disregard **Procedure 20, steps A-C**, on page 13.

(5). Complete installation of the new CD mechanism by using **Procedure 20, steps D-H** (page 13) and **Figures 6 and 7** (page 12).

U. Replace 7 screws and the auxiliary input cover. Refer to **Procedure 28, steps C-E** (page 15) and **Figure 10** (page 14).

V. Perform CD alignment procedures on **pages 23-25**.

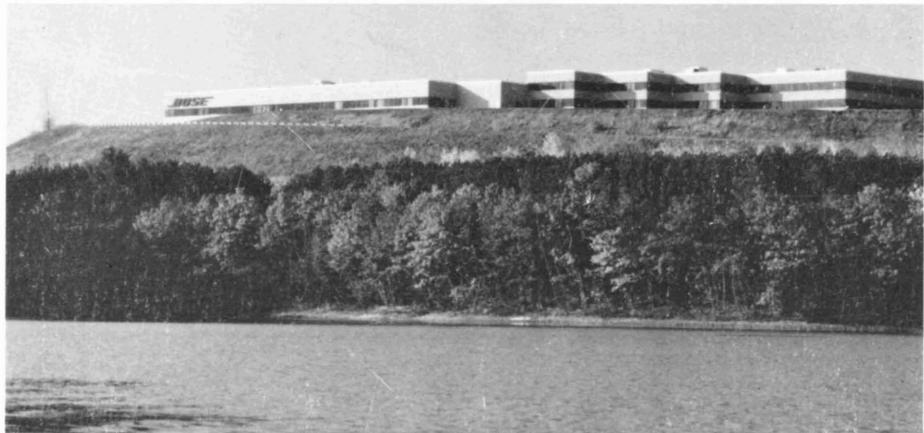
W. The CD subassembly located in the top cover assembly must be removed and replaced using the following procedures. Refer to **Exploded View A** on page 33. With the front of the cover facing the user, proceed as follows:

- (1). Depress the CD knob (M38) to flip open the CD door (M53).
- (2). There is a hinge on the left side of the door. Gently flex the plastic and slide the door out of the left side.

NOTE: Note the location and placement of the springs (M52, M54) to avoid later confusion in re-assembling the door.

- (3). Remove spring (M52) on left side of door.
- (4). Remove spring (M54) on right side of door.
- (5). Slide right-side hinge out of its location and remove door.
- (6). Remove 5 screws (M70) from pad cover (M57) and pull pad cover away from door.
- (7). Rotate pad holder (M55) until it disengages from the magnet (M58). Trim away any residual glue (from the magnet or pad holder) with a sharp object.
- (8). Remove the magnet, CD pad (M59) and disk sheet (M60).
- (9). Replace with new CD pad subassembly (pre-assembled magnet, CD pad and disk sheet). Push subassembly (magnet on top) through the hole in the pad cover. Re-apply an appropriate adhesive to the magnet, and fasten to the pad holder by rotating the pad holder until it is secured.
- (10). Secure the pad cover to the CD door with 5 screws.
- (11). Slide right hinge in first.
- (12). Replace left side spring in its groove.
- (13). Depress left hinge slightly and slide into place.
- (14). Replace right-side spring in its groove.

X. Replace the top cover assembly on the unit. Refer to **Procedure 2 and Figure 1** on page 9.



SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

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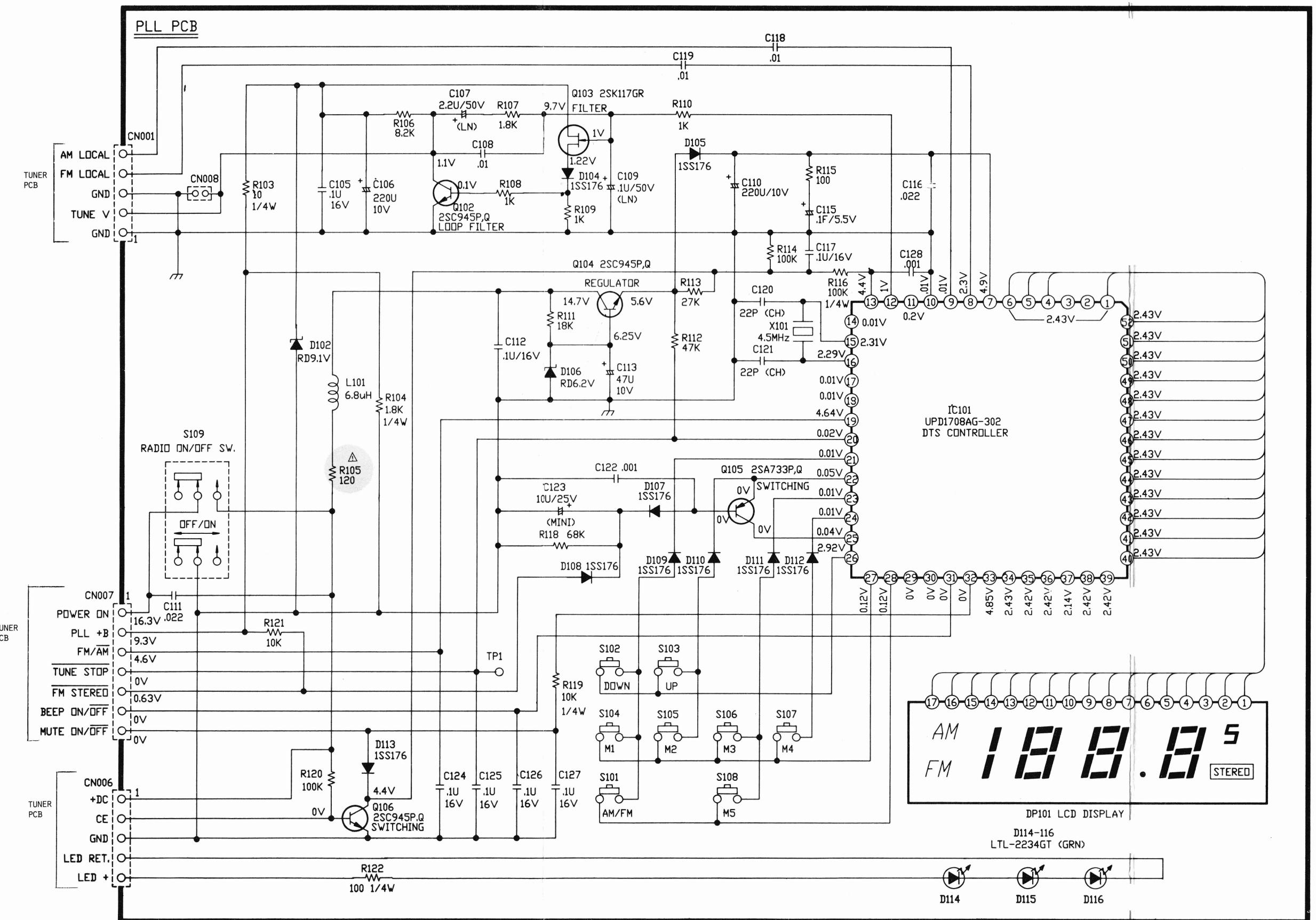
8/92:REV.0

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P/N 149299

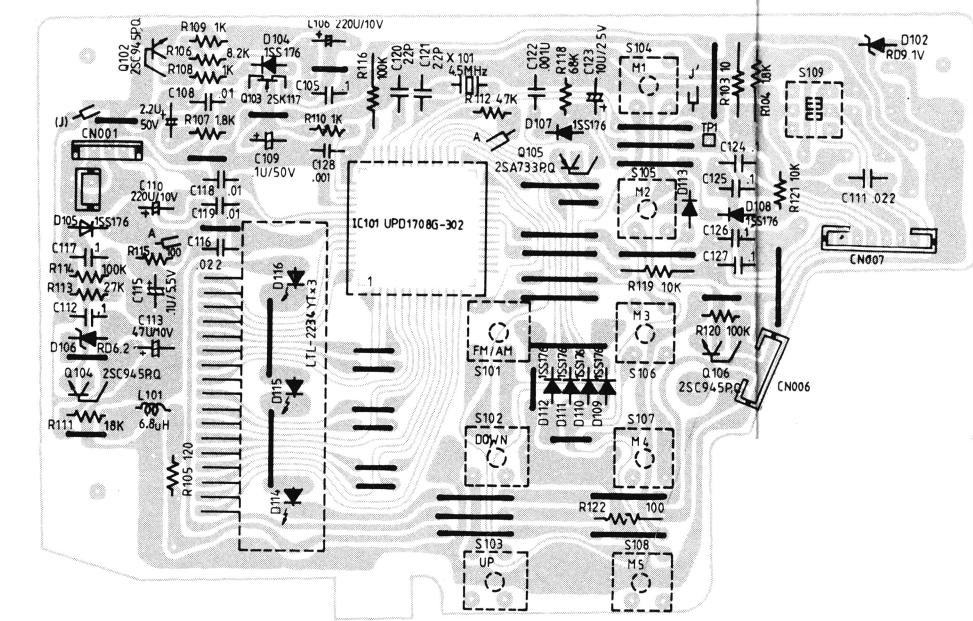
FOR TECHNICAL ASSISTANCE OR PARTS ORDERING, CALL 800-367-4008

Schematic Diagram (A)

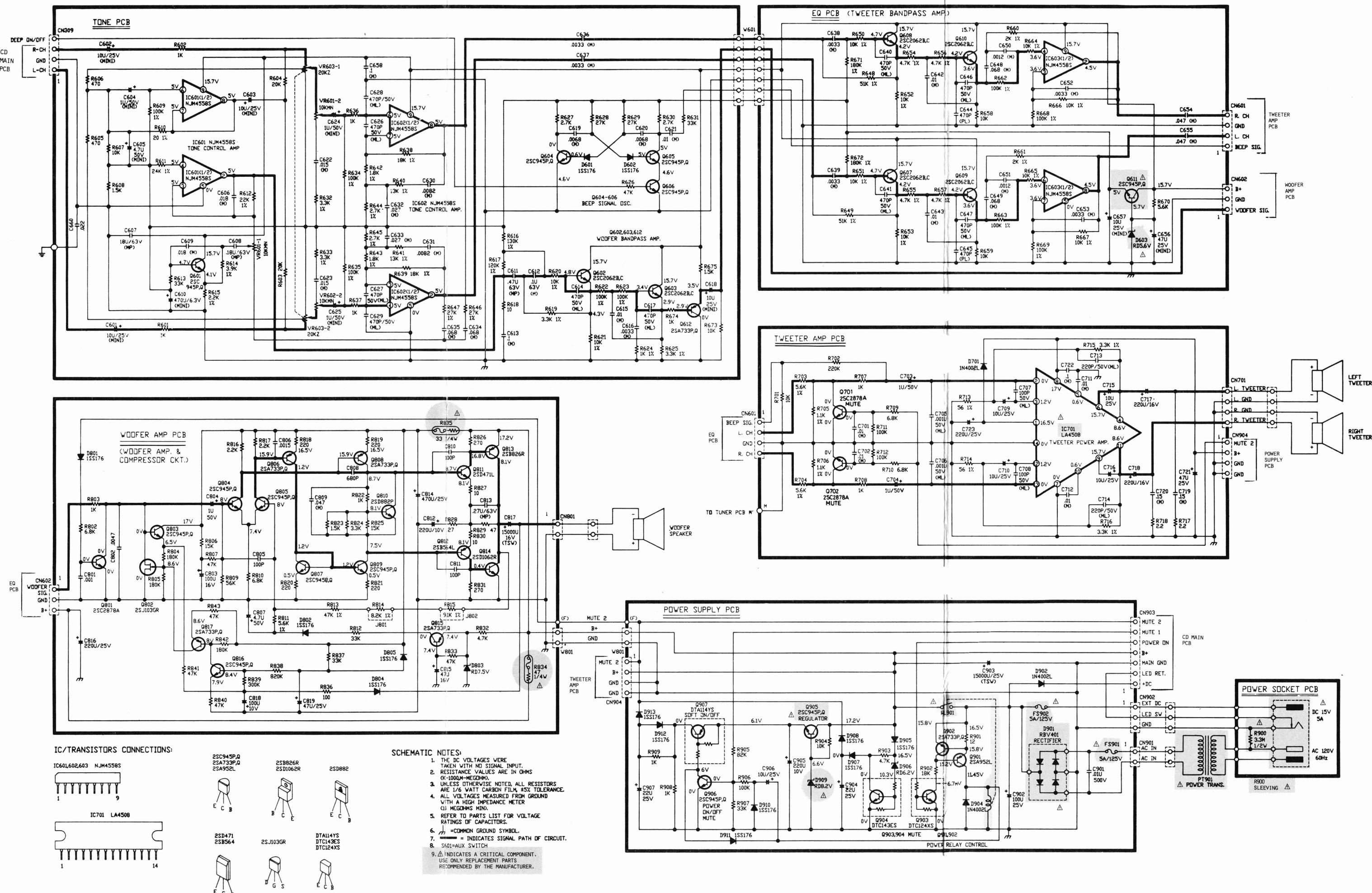
**SCHEMATIC NOTES:**

1. THE DC VOLTAGES WERE TAKEN WITH NO SIGNAL INPUT.
2. RESISTANCE VALUES ARE IN OHMS (K=1000, M=MEGOHMS).
3. UNLESS OTHERWISE NOTED, ALL RESISTORS ARE 1/6 WATT CARBON FILM, $\pm 5\%$ TOLERANCE.
4. ALL VOLTAGES MEASURED FROM GROUND WITH A HIGH IMPEDANCE METER (10 MEGOHMS MIN).
5. REFER TO PARTS LIST FOR VOLTAGE RATINGS OF CAPACITORS.
6. --- =COMMON GROUND SYMBOL.
7. S101=AM/FM BAND SWITCH
S102=TUNING DOWN SWITCH
S103=TUNING UP SWITCH
S104=MEMORY PRESET STATION SWITCH
S109=RADIO ON/OFF SWITCH
8. \triangle INDICATES A CRITICAL COMPONENT. USE ONLY REPLACEMENT PARTS RECOMMENDED BY THE MANUFACTURER.

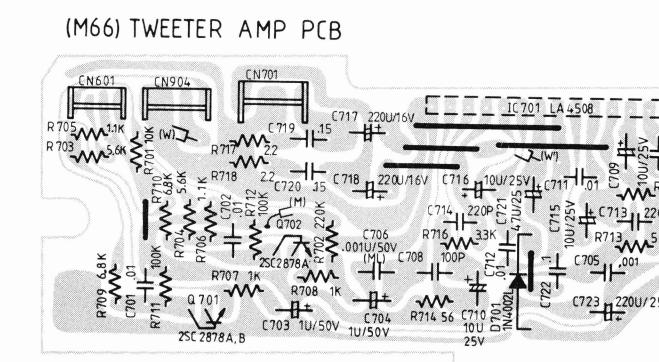
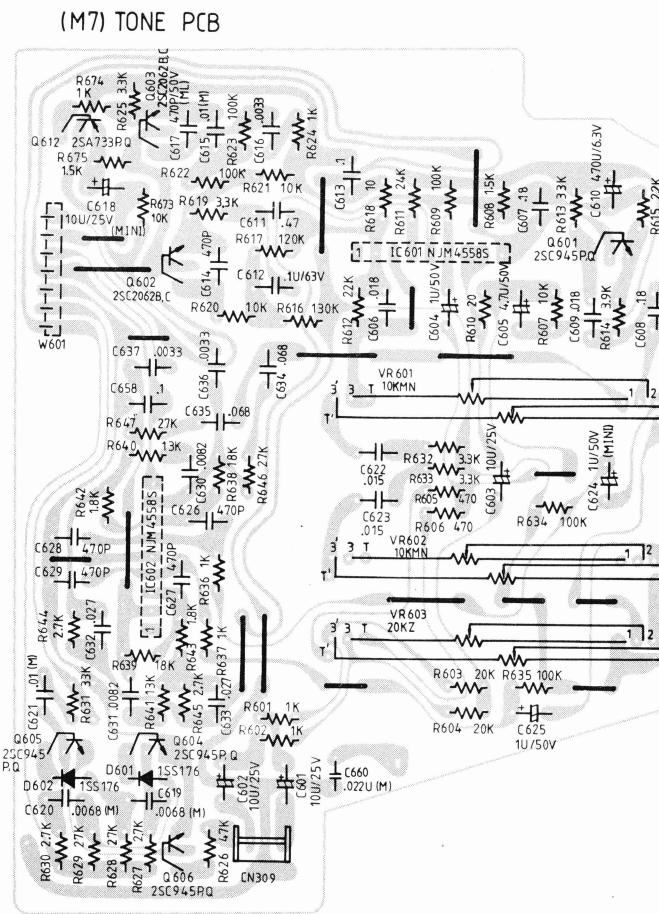
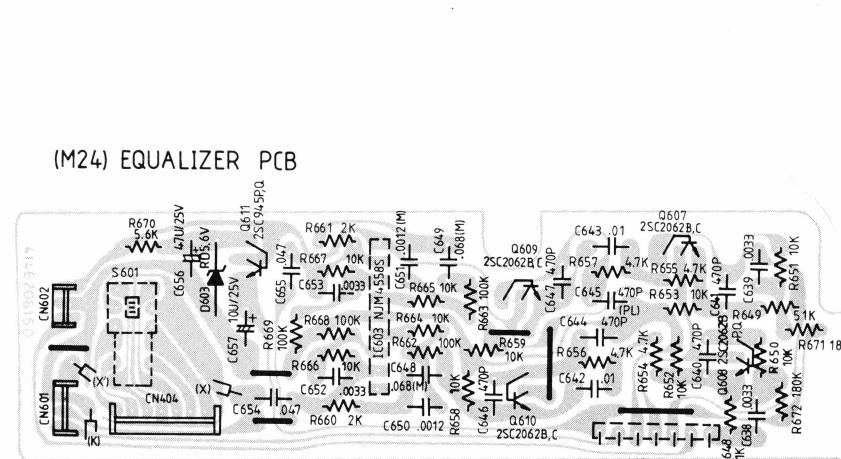
(M61) PLL PCB **P C Board-Solder Side**



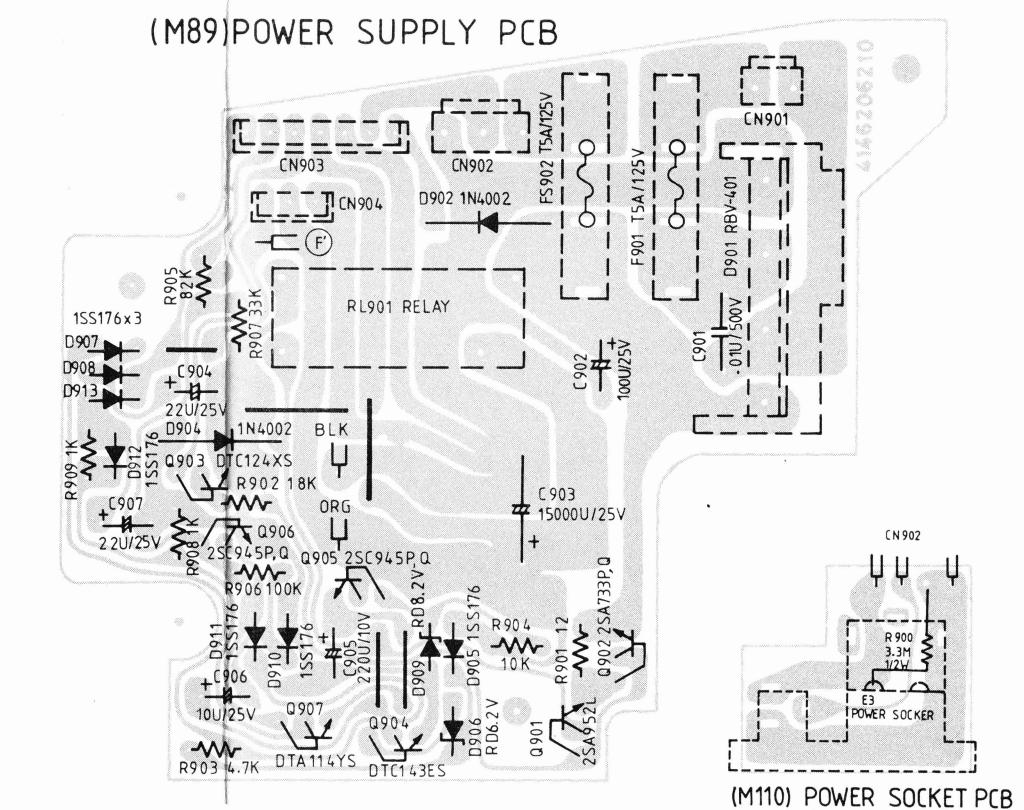
Schematic Diagram (B)



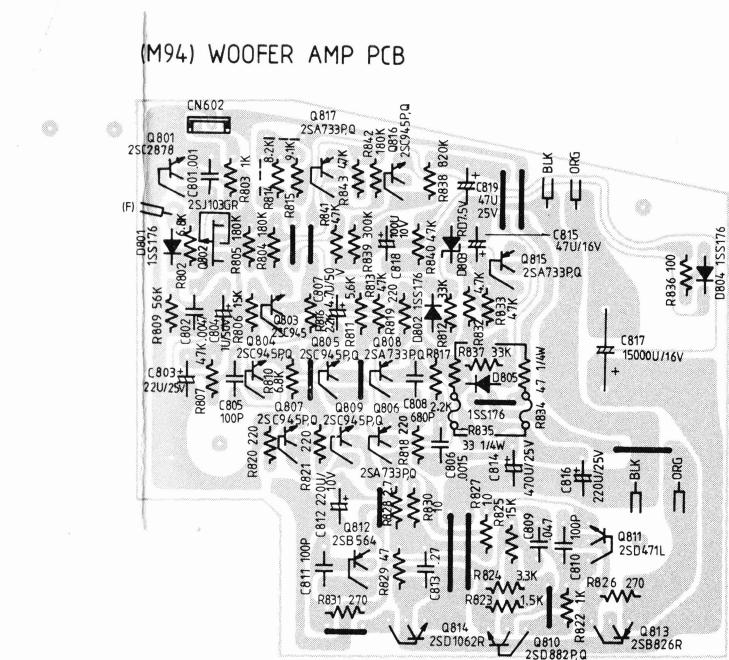
P C Board-Solder Side



(M89) POWER SUPPLY PCB

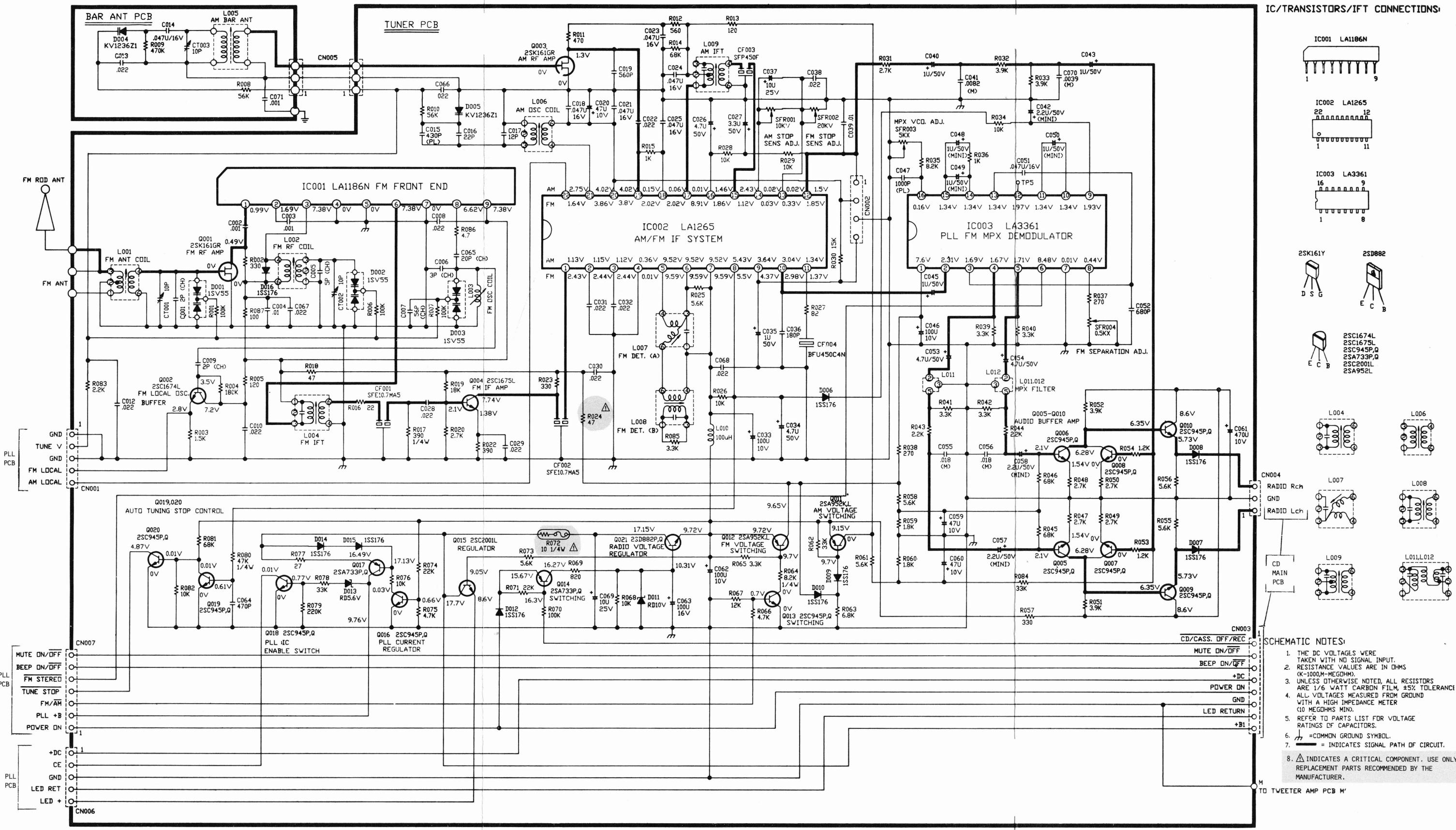


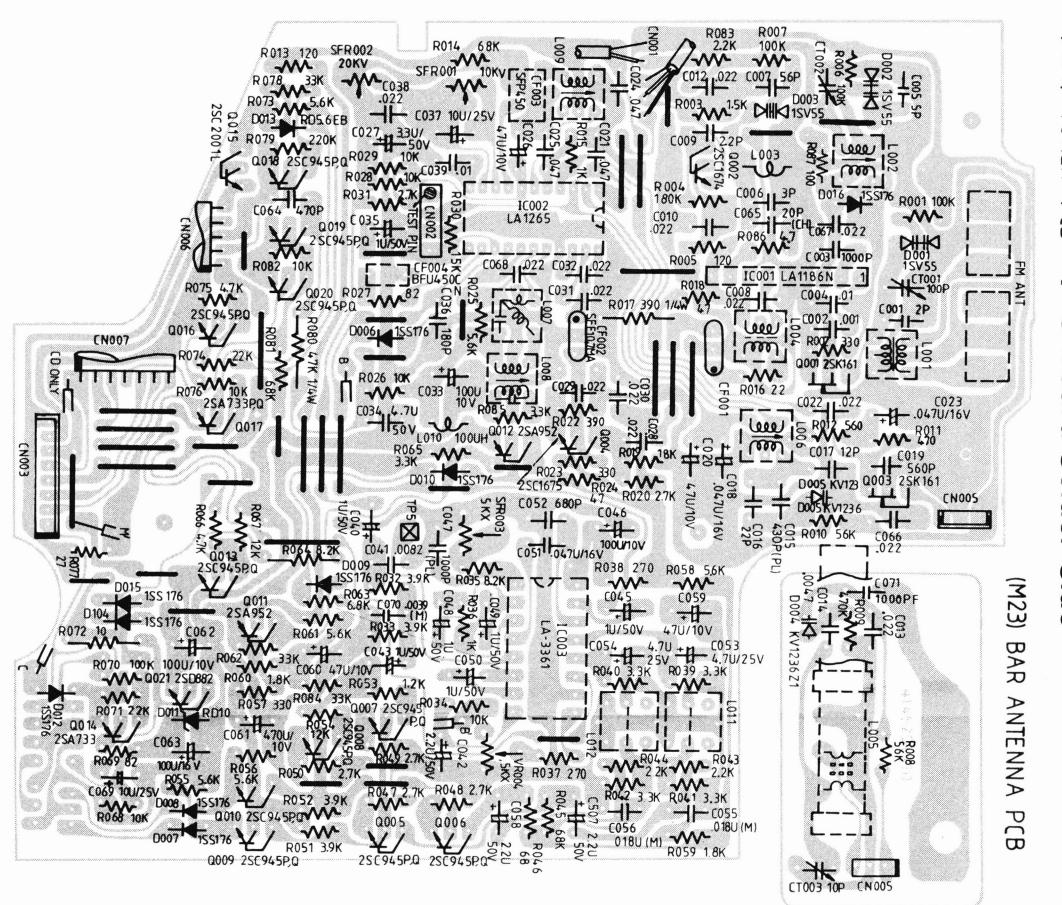
(M110) POWER SOCKET PCB



(M94) WOOFER AMP PCB

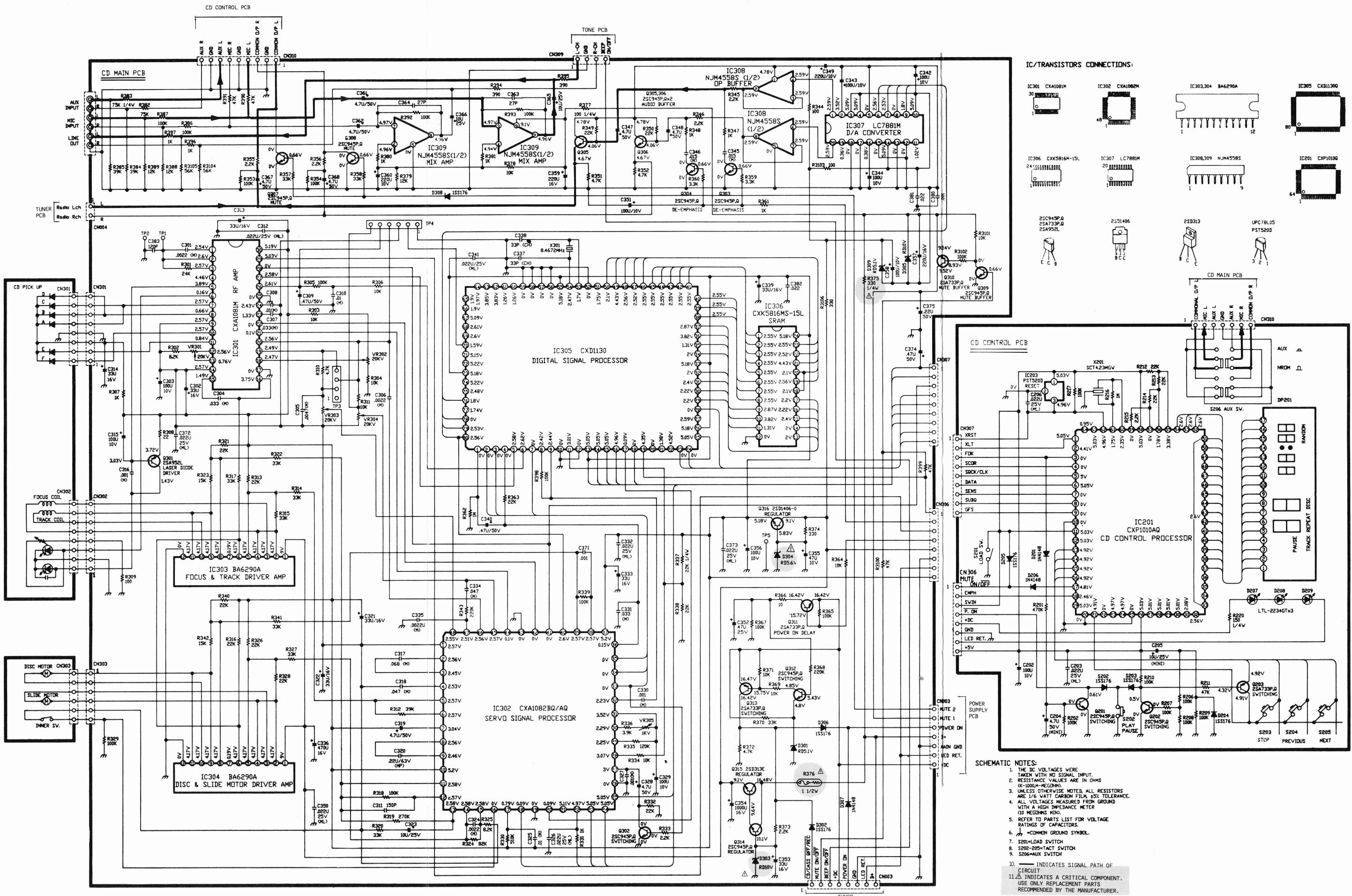
Schematic Diagram (C)



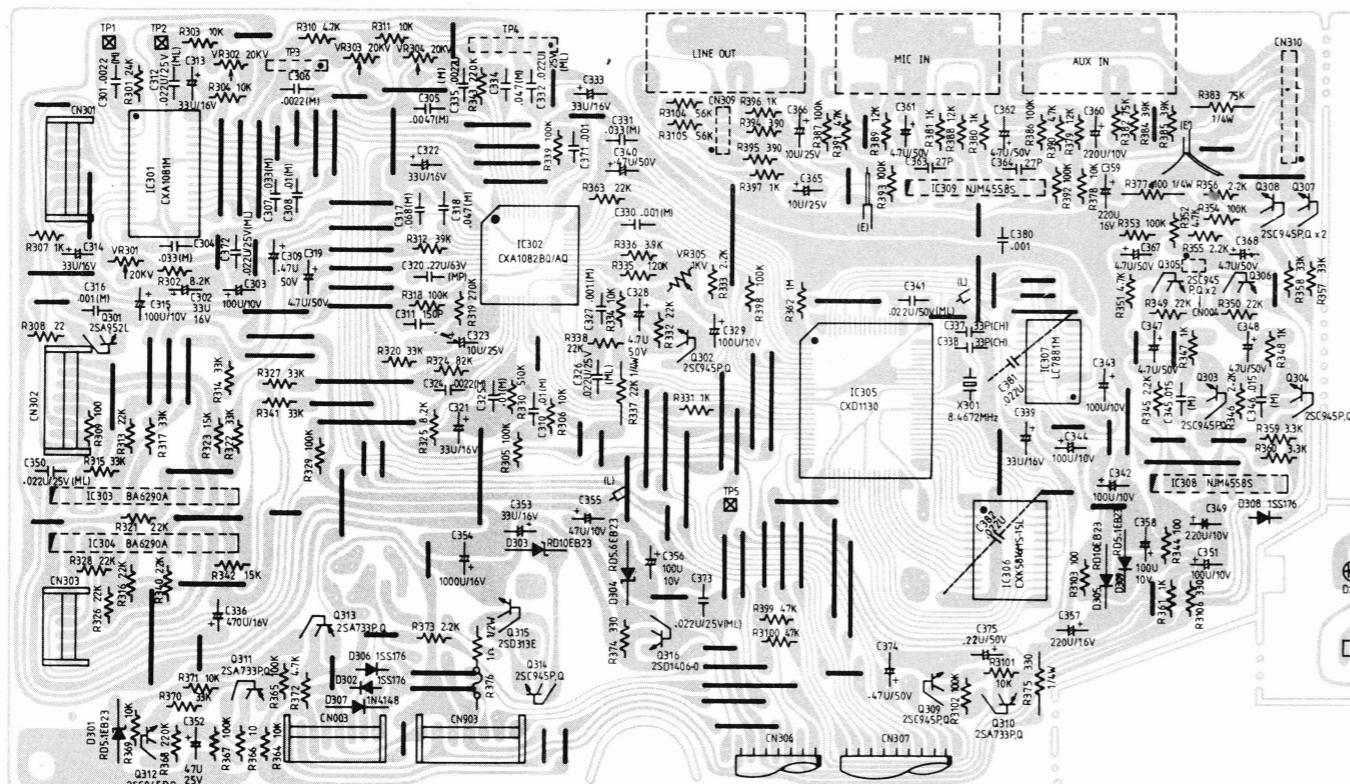


en2000

Schematic Diagram (D)

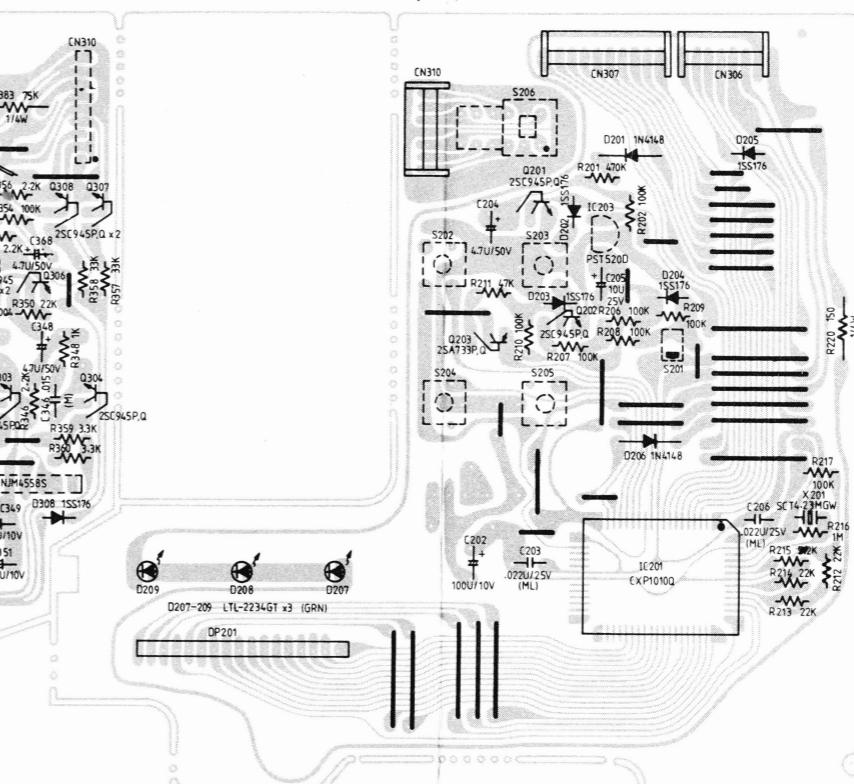


(M2) CD MAIN PCB



P C Board-Solder Side

(M15) CD CONTROL PCB





SERVICE BULLETIN

Product CD2000 (AW II) # 149299-B1
Subject CD Mechanism Variants
Effective Date S/N

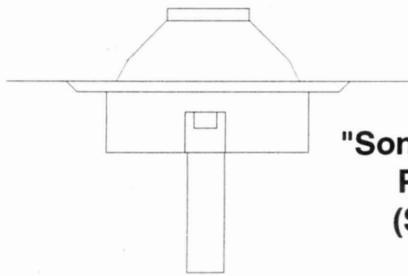
Situation: A service station needs to order a CD mechanism.

Reason: A CD mechanism has failed in the CD2000.

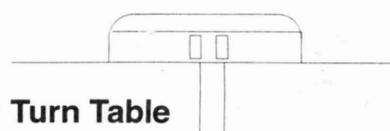
Results: Order the correct CD mechanism for that version.

There are two versions of the CD mechanism used in the CD2000. Order the correct version of the CD mechanism that you are replacing. It is possible to use the second version of the CD mechanism in units that used the first version. When replacing the first version CD mechanism with the second version, follow the procedures on page 52-56 of the CD2000 service manual, part number 149299. The CD pad assembly listed on page 52 of the CD2000 service manual implies that the pad comes assembled. This is incorrect. It is necessary to assemble the pad but all the components come in one package. Refer to the table below as a quick reference when ordering a CD mechanism for the CD 2000.

Version	Description	Part Number
Last six digits are less than 012784	AT CD Mechanism	144813
Last six digits are greater than 012784	Sony CD Mechanism	149527



"Sony" Turn Table
PN 149527
(Side View)



"AT" Turn Table
PN 144813
(Side View)

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SERVICE BULLETIN

Product CD2000 / AWMS™ Series II

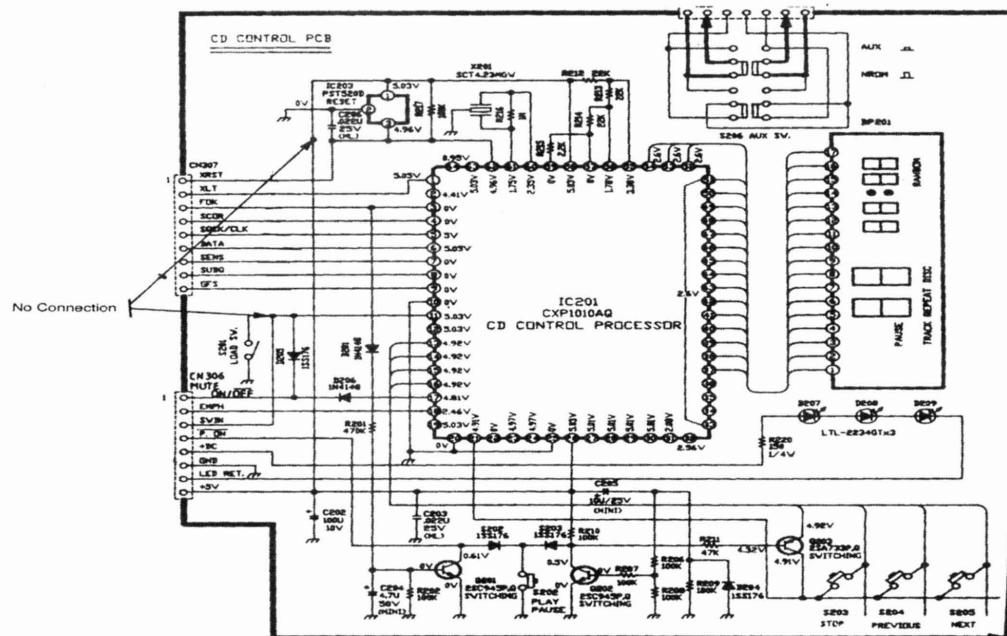
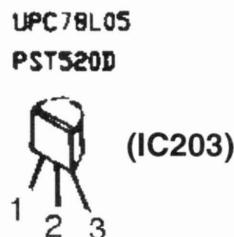
180586

Subject Correction To Schematic (CD Control PCB)

Effective Date **S/N**

The CD control PCB schematic shows a connection between pin (1) IC203 and the anode of D205, load switch S201, and pin (11) IC201. This is incorrect.

Also the diagram for the pin-out of IC203 is incorrect. See schematic and diagram below for corrections.

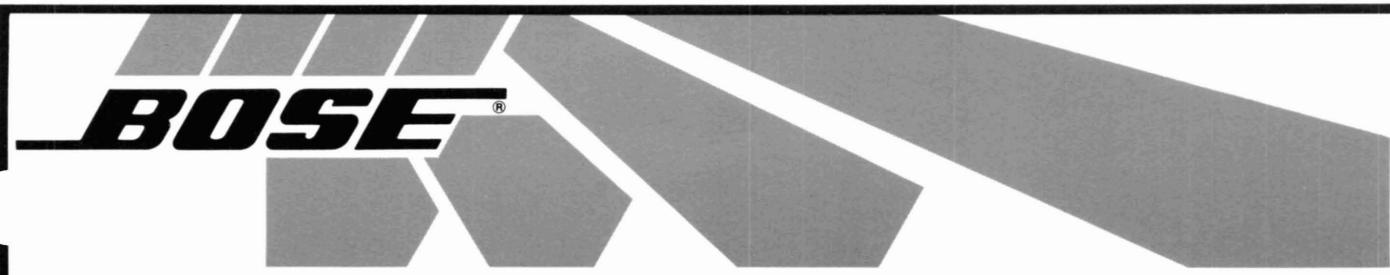


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SERVICE BULLETIN

Product CD 2000 / AWMS™ Series II # 183885
Subject CD Skipping / Muting At High Volume
Effective Date 12/94 **S/N** > 412050616

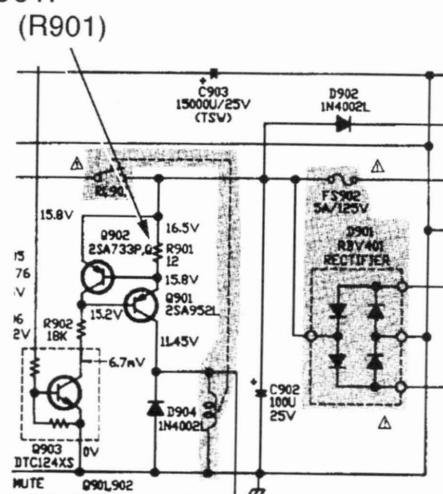
Symptom: Customer may complain about CD skipping or cutting out at high volumes

Reason: Incorrect value resistor used for R901.

Solution: Replace R901 with correct value.

A small amount of units have been manufactured with an incorrect resistor value for R901 (12 Ohms). Units with a Matsushita relay (RL901) should have a 15 Ohm resistor for R901.

Note: The RL901 relay (145235) in the CD2000 can be from two different vendors. The relay used originally was made by Takamizawa and the latter by Matsushita (the vendor's name is printed on the relay). When replacing the Takamizawa with a Matsushita relay, R901 must be changed to 15 Ohms. Units with the Takamizawa relay use a 12 Ohm resistor for R901.

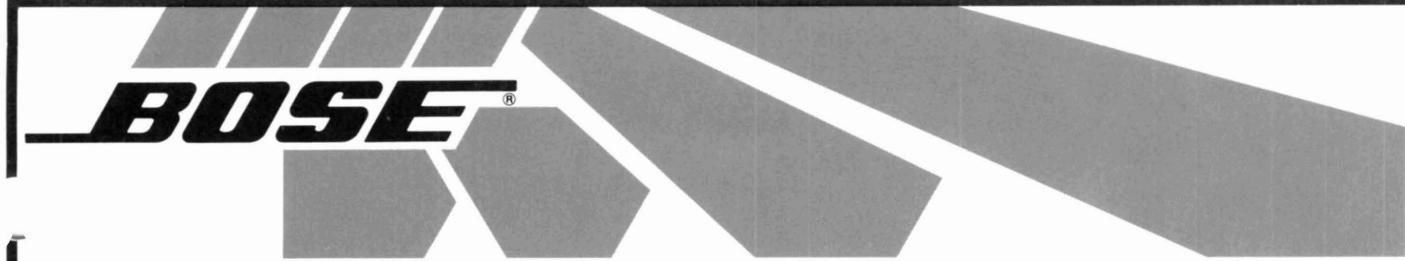


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SERVICE BULLETIN

Product CD2000 / AWMS™ SERIES II # 183918

183918

Subject Intermittent CD operation

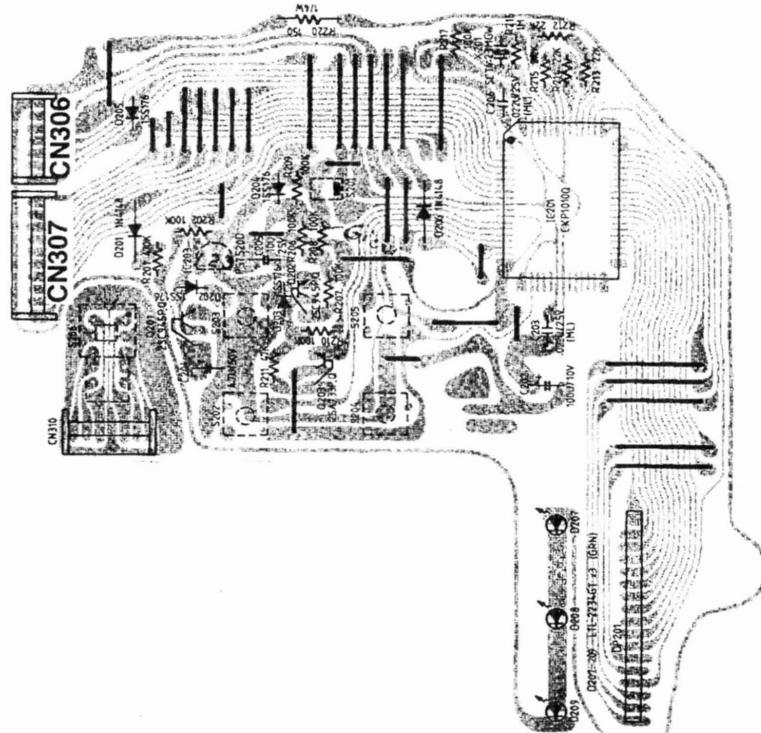
Effective Date **S/N**

Symptom: CD intermittent, display not working.

Reason: Fractured solder joints on CN306 and CN307.

Solution: Resolder connectors CN306 and CN307.

Some units might have fractured solder joints on CN306 and CN307 causing intermittent CD operation. This might become apparent when a service center replaces the top cover and finds the unit no longer works. This is because the top cover puts pressure on these connectors. To correct this problem simply resolder the two connectors. See layout below for the locations of CN306 and CN307.



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