

Service Service Service



MCD109



MCD129

Service Manual

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**CLASS 1
LASER PRODUCT**

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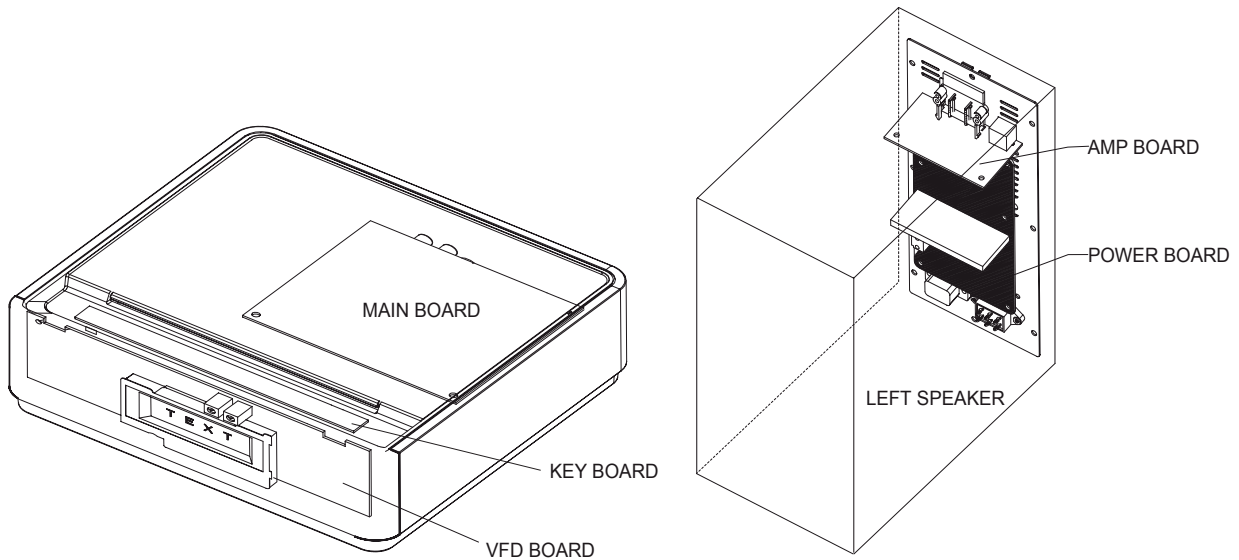
GB 3141 785 31031

Version 1.1



PHILIPS

LOCATION OF PCBS



VERSION VARIATIONS:

Type /Versions				
Features & Board in used:	MCD109/98	MCD129/98		
Karaoke				
Subwoofer Out		X		
Rotary Encoder (volume control)				
Aux In	X	X		
Voltage Selector	X	X		
Coaxial Out	X	X		
Din Out	X	X		
Headphone Socket				
Line Out	X	X		
Standby - No FTD Display	X	X		

SPECIFICATIONS

SYSTEM

Power supply	110-127V 60Hz /220-240V 50Hz
Rated working power consumption (1/8 rated output power)	≤ 40W
AUX input sensitivity	≤ 500mV
Channel Separation	≥ 40dB / MCD129/98 only
Output power	2 x 15W + 30W RMS (L/R speakers + subwoofer) (MCD129/98 only) 2 x 20W (MCD109/98 only)

DVD

Frequency response	20Hz-20kHz (±3dB)
Video output	1 V _{P-P}
Horizontal definition	≥ 500 (TV)
Dimensions	218 (W) x 90 (H) x 221.5(D) mm (MCD129/98 only) 222 (W) x 90 (H) x 219 (D) mm (MCD109/98 only)
Weight.....	1.1 kg

SPEAKER

Front Speakers	
System.....	2-way bass reflex system
Impedance.....	4 Ω
Dimensions (w x h x d).....	125mm x 250mm x 232mm (MCD129/98 only) 125mm x 250mm x 249mm (MCD109/98 only)
Weight.....	2.42 kg (left speaker), 1.95kg (right speaker)

SUBWOOFER (MCD129/98 only)

System.....	bass reflex system
Impedance.....	8 Ω
Dimensions (w x h x d).....	147 mm x 250 mm x 232 mm
Weight.....	2.48 kg

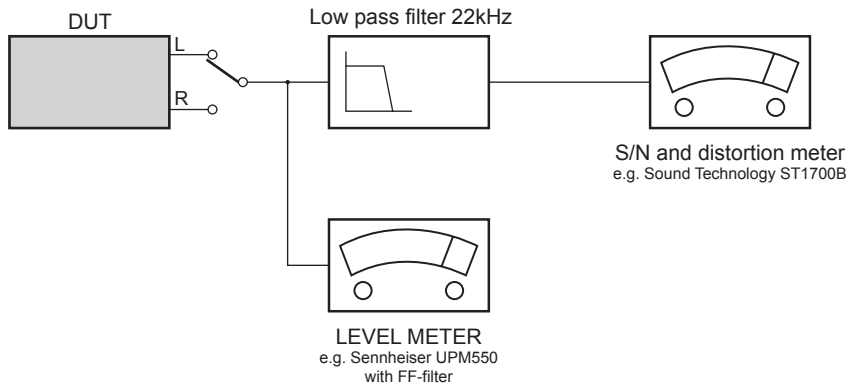
REMOTE

Distance	6m
Angle	± 30°

MEASUREMENT SETUP

CD

Use Audio Signal Disc SBC429 4822 397 30184 (replaces test disc 3)
L.P.F. = 13th order filter 4822 395 30204



SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6-T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

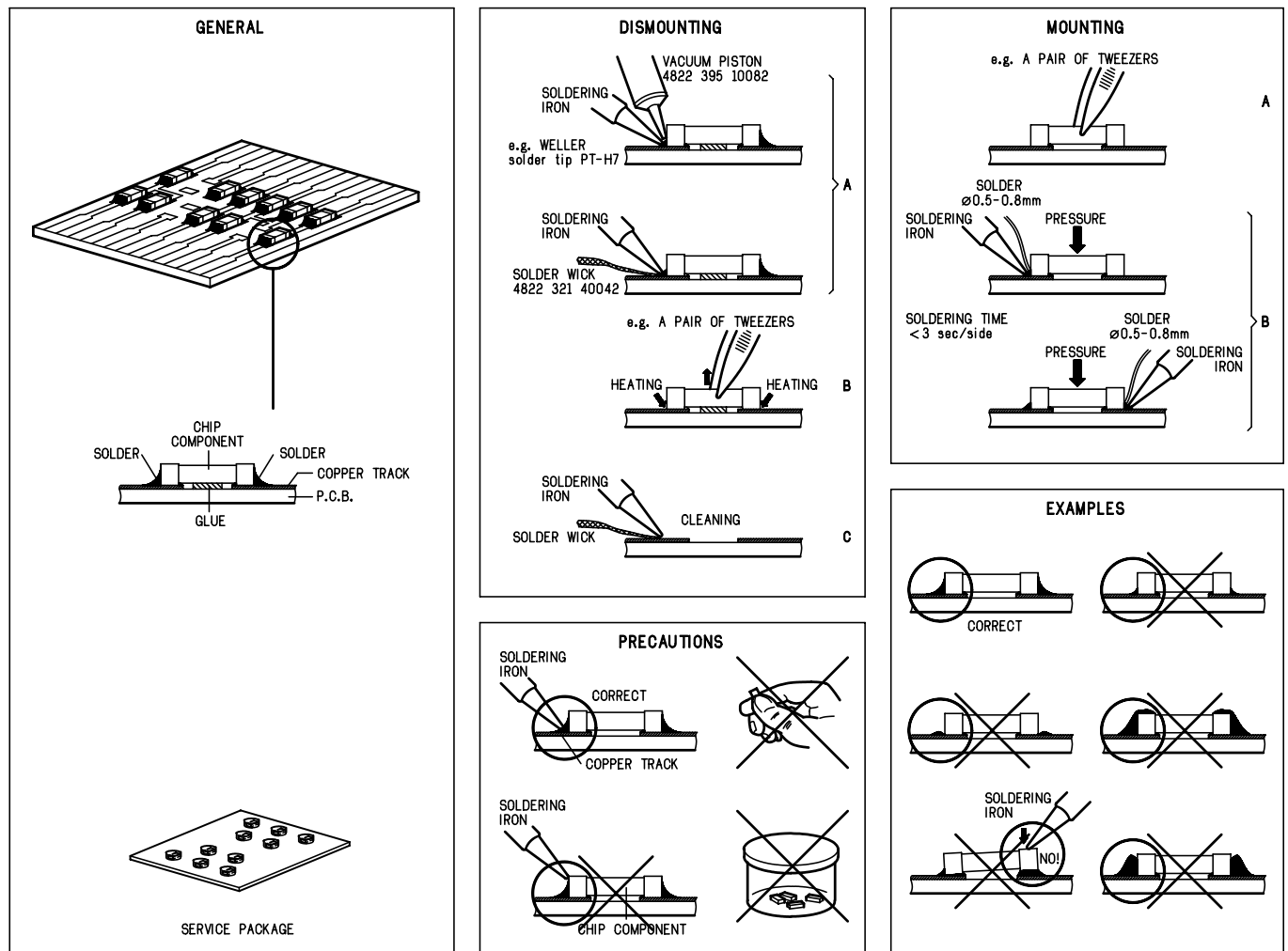
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm ...	4822 466 10953
anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connectorbox (1M Ω)	4822 395 11307
Extension cable (to connect wristband to conn.box)	4822 320 11305
Connecting cable (to connect table mat to conn.box)	4822 320 11306
Earth cable (to Connect product to mat or box) --	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

ESD**NL WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.

Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.

Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione.

Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB ESD PROTECTION EQUIPMENT:

Complete Kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671
Wristband tester 4822 344 13999

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used

Safety components are marked by the symbol .

NL

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

De Veiligheidsonderdelen zijn aangeduid met het symbool .

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisés les pièces de rechange identiques à celles spécifiées.

Less composants de sécurité sont marqués .

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

Sicherheitsbauteile sind durch das Symbol  markiert.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

Componenti di sicurezza sono marcati con .

GB

After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA.

**GB Warning !**

Invisible laser radiation when open.
Avoid direct exposure to beam.

S Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

SF Varoitus !

Avatussa laitteessa ja suojauslaitteiden ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

DK Advarsel !

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

F

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

INFORMATION ABOUT LEAD-FREE SOLDERING

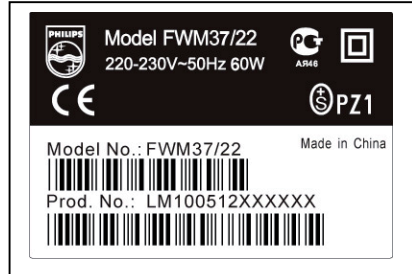
Philips CE is producing lead-free sets from 1.1.2005 onwards.

IDENTIFICATION:

Regardless of special logo (not always indicated) one must treat all sets from 1 Jan 2005 onwards, according next rules:



Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 2005 wk12

So from 0501 onwards = from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
 - To reach at least a solder-temperature of 400°C,
 - To stabilize the adjusted temperature at the solder-tip
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- Special information for BGA-ICs:
 - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
 - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.
 - Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website www.atyourservice.ce.Philips.com you find more information to:
 - * BGA-de-/soldering (+ baking instructions)
 - * Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

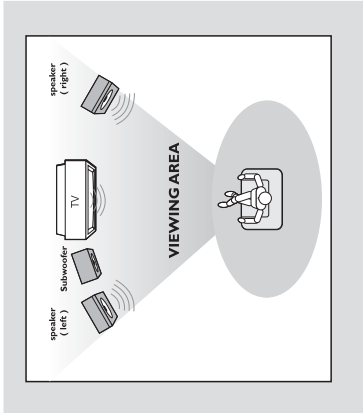
For additional questions please contact your local repair-helpdesk.

SERVICE INSTRUCTION

Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power Plug and the secondary side (only for sets which have a AC Power isolated power supply):
 1. Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
 2. Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
 3. Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be larger than 4.5 Mohm (For U.S. it should be between 4.2 Mohm and 12 Mohm).
 4. Switch "off" the set, and remove the wire between the two pins of the AC Power plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

Step 1: Placing speakers and subwoofer



For best possible surround sound, locate your speakers and subwoofer as follows:

- Place the left and right speakers at equal distances from the TV set and at an angle of approximately 45 degrees from the listening position.
- Place the subwoofer on the floor near the TV set.

Notes:

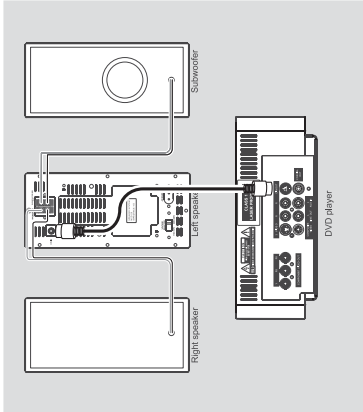
- To avoid magnetic interference, do not position the left and right speakers too close to your TV set.
- Allow adequate ventilation around the DVD System.

IMPORTANT!

The type plate is located on the bottom of the system.

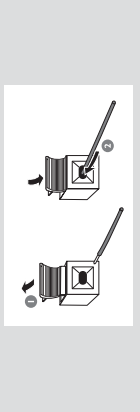
To avoid overheating of the system, a safety circuit has been built in. Therefore, your system may switch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing it.

Step 2: Connecting speakers and subwoofer



- Connect the supplied DIN cable to DVD player's DIN jack and the left speaker's DIN jack.

- Connect the supplied speaker wires of the right speaker to SPEAKER RIGHT on the left speaker; red wire to red jack ("+"), black wire to black jack ("-"). Fully insert the stripped portion of the speaker wire into the terminal as shown.



- Connect the supplied speaker wire of the subwoofer to SUBWOOFER OUT on the left speaker; green wire to green jack ("+"), white wire to white jack ("-").
- Connect the supplied AC power cord to AC MAINS of the left speaker and the wall socket.

Notes:

- For optimal sound performance, use the supplied speakers.
- Do not connect more than one speaker to any one pair of +/- speaker terminals.
- Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

Step 3: Connecting TV set

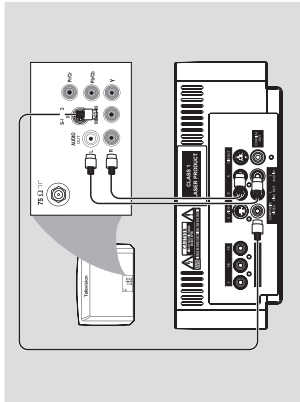
IMPORTANT!

You only need to make one video connection from the following options, according to the capabilities of your TV system.

S-Video or Component Video connection provides higher picture quality. These options must be available on your TV set.

Connect the system directly to the TV set.

Using Video In jack (CVBS)



- Use the supplied composite video cable (yellow) to connect the system's **COMPOSITE VIDEO** jack to the video input jack (or labeled as A/V In, Video In, Composite or Baseband) on the TV set.

- To listen to TV channels through this system, use the audio cables (white/red, not supplied) to connect **AUX IN (L/R)** jacks to the corresponding AUDIO OUT jacks on the TV set.

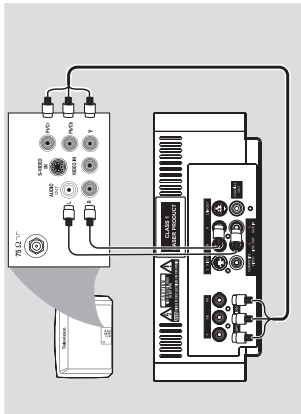
Or; to listen to disc playback of the system through your TV, use the audio cables (white/red, not supplied) to connect **LINE OUT (L/R)** jacks to the corresponding AUDIO IN jacks on the TV set.

Using component Video In jack (Pr-PbY)

- Use the component video cables (red/blue/green, not supplied) to connect the system's **Pr/Pb/Y** jacks to the corresponding Component video input jacks (or labeled as Pr/Cr Pb/Cb Y or YUV) on the TV set.

- To listen to TV channels through this system, use the audio cables (white/red, not supplied) to connect **AUX IN (L/R)** jacks to the corresponding AUDIO OUT jacks on the TV set.

Or; to listen to disc playback of the system through your TV, use the audio cables (white/red, not supplied) to connect **LINE OUT (L/R)** jacks to the corresponding AUDIO IN jacks on the TV set.

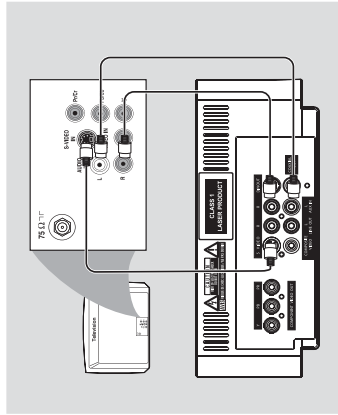


Notes for progressive scan video:

- The progressive scan video quality is only possible when using Y Pb Pr, and a progressive scan TV is required.
- If you are using a Progressive Scan TV (TV must indicate Progressive Scan or ProScan capability), to activate TV Progressive Scan, please refer to your TV user manual. For DVD system's Progressive Scan function, see "Getting Started - Setting up Progressive Scan feature".
- If your TV does not support Progressive Scan, you will not be able to view the picture. Turn off progressive scan in PROGRESSIVE menu of the system setup menu.

Connections

Using S-Video In jack

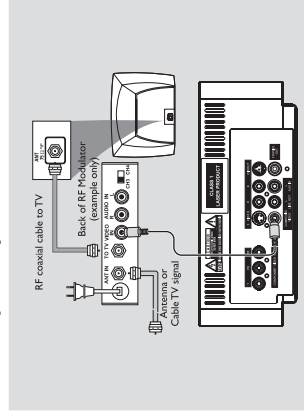


- Use the S-Video cable (not supplied) to connect the system's **S-VIDEO** jack to the S-Video input jack (or labeled as Y/C or S-VHS) on the TV set.
- To listen to TV channels through this system, use the audio cables (white/red, not supplied) to connect **AUX IN (L/R)** jacks to the corresponding AUDIO OUT jacks on the TV set.
- Or, to listen to disc playback of the system through the TV, use the audio cables (white/red, not supplied) to connect **LINE OUT (L/R)** jacks to the corresponding AUDIO IN jacks on the TV set.

Using an accessory RF modulator

IMPORTANT!

If your TV set only has a single Antenna In jack (or labeled as 75 ohm or RF In), you will need a RF modulator in order to view the DVD playback via TV. See your electronics retailer or contact Philips for details on RF modulator availability and operations.

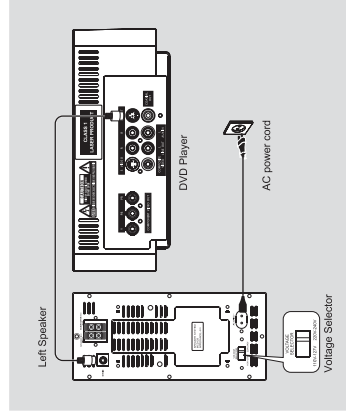


- Use the supplied composite cable (yellow) to connect the system's **COMPOSITE VIDEO** jack to the video input jack on the RF modulator.
- Use the RF coaxial cable (not supplied) to connect the RF modulator to your TV's RF jack.

Step 4: Connecting the power cord

IMPORTANT!

If your system is equipped with a Voltage Selector, set the **VOLTAGE SELECTOR** (located on the back of the left speaker) to match the local power line.



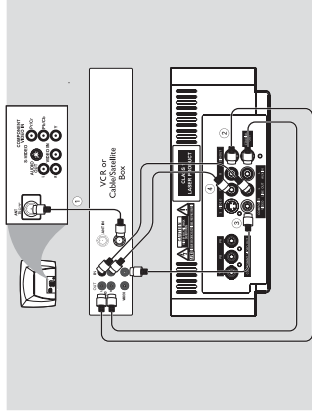
- After everything is connected properly, plug in the AC power cord to the power socket.

Never make or change any connection with the power switched on.

CONNECTIONS

Connections

Step 5: Connecting a VCR or cable/satellite box



Viewing and listening to playback

- 1 Connect the VCR or Cable/Satellite Box to the TV system as shown.
- 2 Using the audio cables (red/white, not supplied) Connect the system's **AUX IN (L/R)** jacks to the AUDIO OUT jacks on the VCR or Cable/Satellite box.

Before starting operation, press **AUX** on the remote control to select "AUX" in order to activate the input source.

Using the VCR for recording DVDs

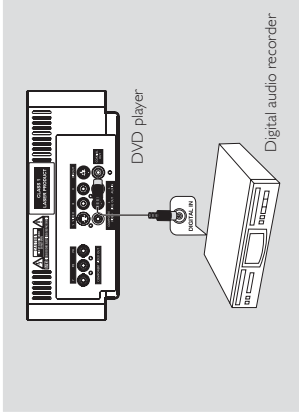
Some DVDs are copyright-protected. You cannot record or dub protected discs using a VCR.

- 3 Connect the system's **COMPOSITE VIDEO** jack to the VIDEO IN jack on the VCR.
- 4 Connect the system's **LINE OUT (R/L)** jacks to the AUDIO IN jacks on the VCR. This will allow you to make analog stereo (two channel, right and left) recording.

To view DVD playback while recording

You must connect the system to your TV system using the **S-VIDEO** (as shown above) or the **COMPONENT VIDEO OUT** (Pr Pb Y) video connection.

Step 6: Connecting digital audio equipment

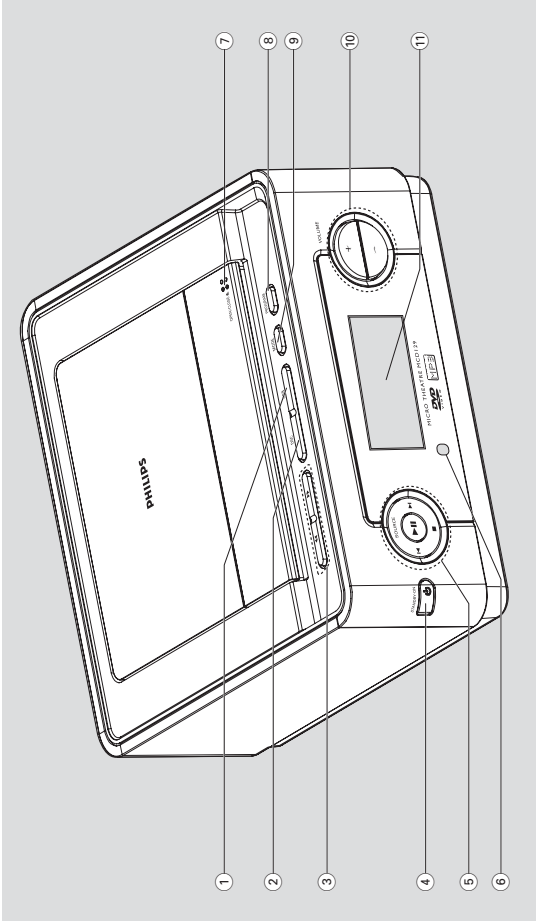


Recording (digital)

Connect the system's COAXIAL OUT (digital out) jack to the DIGITAL IN jack on a digital recording device (DTS-Digital Theater System compatible, with a Dolby Digital decoder, for example).

Before operation, set COAXIAL OUTPUT according to the audio connection.

Functional Overview



Controls on the system

- ① **DBB**
 - enables or disables bass enhancement.
- ② **DSC**
 - selects different types of preset sound equalizer settings (CLASSIC, POP, ROCK or JAZZ).
- ③ **◀◀ / ▶▶**
 - fast searches backward/forward in a disc at different speeds.
- ④ **STANDBY-ON** 
 - switches the system on or to standby mode.
- ⑤ **▶ II**
 - starts or interrupts disc playback
- SOURCE**
 - selects the respective sound source: DVD or AUX.
- ◀ / ▶**
 - press to skip to the previous/next chapter/title/track.
- - stops disc playback or erases a program.
- ⑥ **iR Sensor**
 - point the remote control towards this sensor.

⑦ **OPEN/CLOSE**

- opens or closes the disc door.

⑧ **PROGRAM**

- For VCD/CD only: program the favourite tracks

⑨ **MODE**

- selects various repeat play modes (For VCD with PBC feature, PBC must be turned off.)

⑩ **VOLUME +/-**

- adjusts the volume upward/downward.

⑪ **Display**

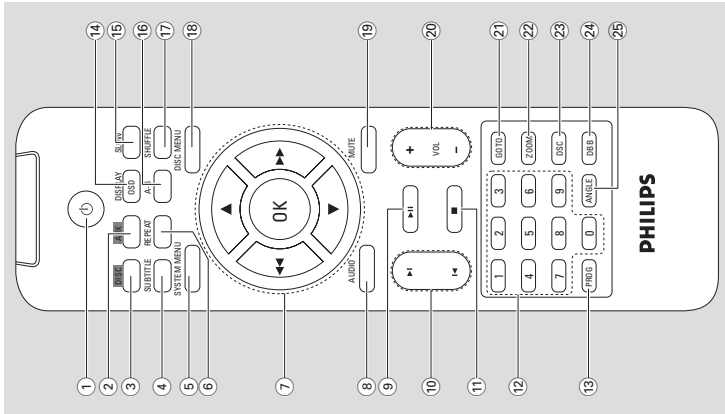
- shows the current status of the DVD player.

Functional Overview

Remote control

- ① **⏻**
 - switches the system on/ off.
- ② **AUX**
 - selects a connected external source
- ③ **DISC**
 - selects disc playing
- ④ **SUBTITLE**
 - selects a subtitle language.
- ⑤ **SYSTEM MENU**
 - enters or exits the system menu.
- ⑥ **REPEAT**
 - selects variations of continuous playback (For VCD with PBC feature, PBC must be turned off.)

- ⑦ **OK**
 - confirms a selection.
 - ▼ / ▲ / ◀ / ▶**
 - selects an item in a menu.
 - moves an enlarged picture up/down/left/right.
- ⑧ **AUDIO**
 - for VCD**
 - sets Left vocal, Right vocal, Mono left, Mono right or Stereo sound mode.
 - for DVD**
 - selects an audio language.
- ⑨ **▶ II**
 - starts or interrupts disc playback.
- ⑩ **◀ / ▶**
 - Disc:** skips to the previous/next chapter/title/ track
 - For MPEG: selects different zooming rates
- ⑪ **■**
 - stops disc playback or erases a program.
- ⑫ **Numeric Keypad (0-9)**
 - inputs a track/title/chapter number of the disc.
- ⑬ **PROG**
 - For VCD/CD only:** program the favourite tracks
- ⑭ **DISPLAY (OSD)**
 - displays disc playback time during playback
- ⑮ **SLOW**
 - selects different slow playback modes for a VCD/ SVCD/DVD.
- ⑯ **A-B**
 - repeats playback of a specific section within a title of DVD or a track.
- ⑰ **SHUFFLE**
 - For VCD/CD only: selects to playback in random order (For VCD with PBC feature, PBC must be turned off.)
- ⑱ **DISC MENU**
 - DVD/VCD: enters or exits the disc contents menu (For VCD with PBC feature, PBC must be turned on.)
 - MP3/WMA/JPEG: switches on or off the album/ picture menu.



Functional Overview

- ⑲ **MUTE**
 - disables or enables sound output.
- ⑳ **VOL +/-**
 - adjusts the volume upward/downward.
- ㉑ **GOTO**
 - fast searches in a disc by entering a time, title or chapter (For VCD with PBC feature, PBC must be turned off.)
- ㉒ **ZOOM**
 - DVD/VCD/JPEG: enlarges a picture or active image on the TV screen.
 - For JPEG: turns on/off the zooming feature
- ㉓ **DSC**
 - selects different types of preset sound equalizer settings (CLASSIC, POP, ROCK or JAZZ).
- ㉔ **DBB**
 - enables or disables bass enhancement.
- ㉕ **ANGLE**
 - selects a DVD camera angle.

TROUBLESHOOTING

Troubleshooting

WARNING

Under no circumstances should you try to repair the system yourself, as this will invalidate the warranty. Do not open the system as there is a risk of electric shock.

If a fault occurs, first check the points listed below before taking the system for repair. If you are unable to remedy a problem by following these hints, consult your dealer or Philips for help.

Problem	Solution
No power:	✓ Check if the AC power cord is properly connected. ✓ Press STANDBY ON  on the DVD System or  on the remote to turn on the power. ✓ Check if the TV is switched on. ✓ Check the video connection. ✓ Press SOURCE on the DVD player repeatedly to select "DVD" or press DISC on the remote. ✓ Set your TV to the correct Video In channel. This channel is usually near channel 00. Or, you may have a button on the TV remote control that selects Auxiliary or A/V IN channel. See your TV owner's manual for details. Or, change channels at the TV until you see DVD screen on the TV. ✓ If the progressive scan feature is activated but the connected TV does not support progressive signals or the cables are not connected accordingly, see page 15-16 for proper progressive scan setup or deactivate the progressive scan feature as below: 1) Turn off your TV progressive scan mode or turn on to interlaced mode. 2) Select "OFF" in PROGRESSIVE menu of system setup menu to turn off progressive, then press SYSTEM MENU to exit the menu.
Distorted or poor picture.	✓ Sometimes a small amount of picture distortion may appear. This is not a malfunction. ✓ Clean the disc. ✓ TV has a colour system standard. If the disc's or DVD system's colour system is different than your TV's colour system, the picture may be distorted or colourless.
Completely distorted picture or black/white picture.	

The aspect ratio of the screen cannot be changed even though you have set the TV shape.

No sound or distorted sound.

The micro DVD player does not start playback.

The DVD micro system does not respond when the buttons are pressed.

Cannot activate some features, such as Angles, Subtitles, or multi-language Audio.

- ✓ The aspect ratio is fixed on the DVD disc.
- ✓ Depending on the TV, it may not be possible to change the aspect ratio.
- ✓ Adjust the volume.
- ✓ Check that the speakers are connected correctly.
- ✓ Replace the speaker cables.
- ✓ Disconnect the headphones.
- ✓ The system is in pause, slow motion or fast forward/reverse mode, press   (or  on the remote) to resume normal play mode.
- ✓ Insert a readable disc with the playback side facing down.
- ✓ Check the disc type, colour system and regional code. Check for any scratches or smudges on the disc.
- ✓ Press SYSTEM MENU to turn off the setup menu screen.
- ✓ Cancel the parental control rating function or change the rating level.
- ✓ Moisture has condensed inside the system. Remove the disc and leave the system turned on for about an hour.
- ✓ Disconnect the power plug from the outlet and insert again.
- ✓ Multi-language sound or subtitle is not recorded on the DVD.
- ✓ Changing the language for the sound or subtitle is prohibited on the DVD.
- ✓ The features may not be available on the disc.

TROUBLESHOOTING

The remote control does not function.

- ✓ Select the correct source (DISC or AUX for example) before pressing the function button.
- ✓ Point the remote control at the remote sensor of the unit.
- ✓ Reduce the distance to the player.
- ✓ Remove any possible obstacles.
- ✓ Replace the battery with new one.
- ✓ Check that the battery is loaded correctly.

Low hum or buzz sound.

- ✓ Place the DVD micro system as far away as possible from electrical devices that may be causing interference.

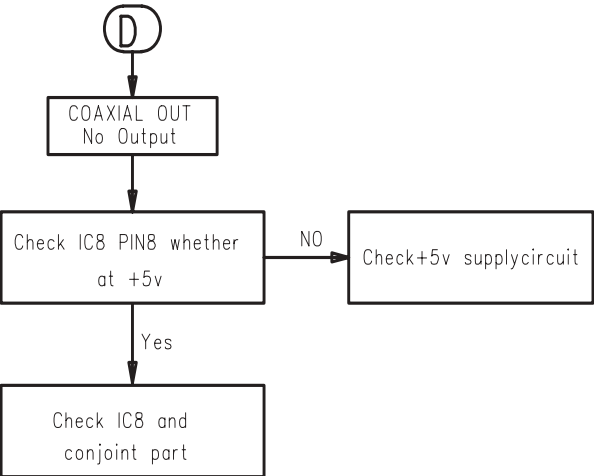
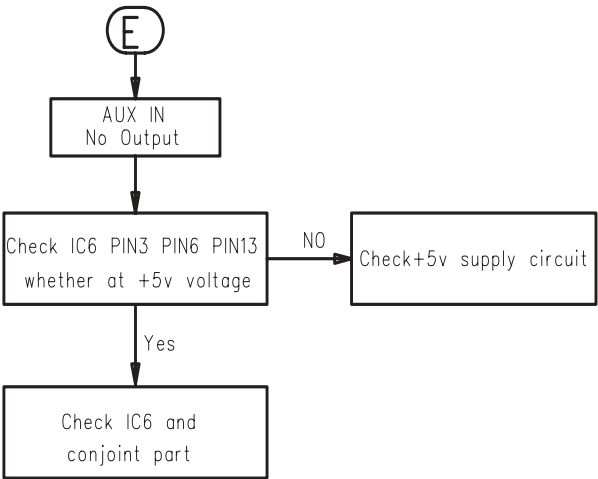
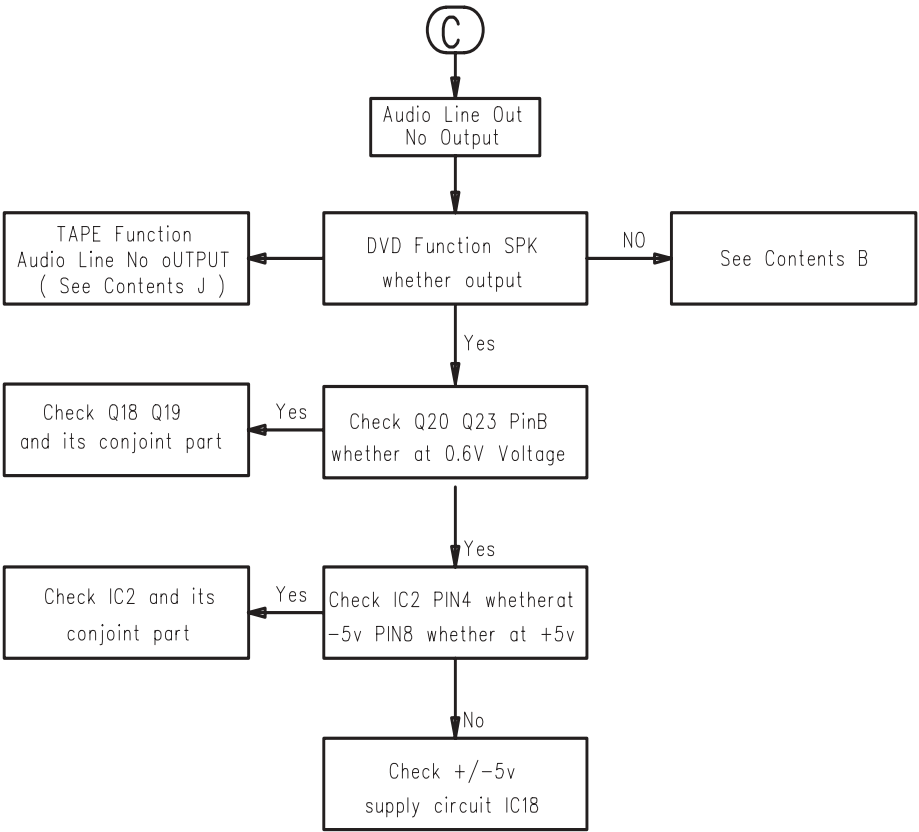
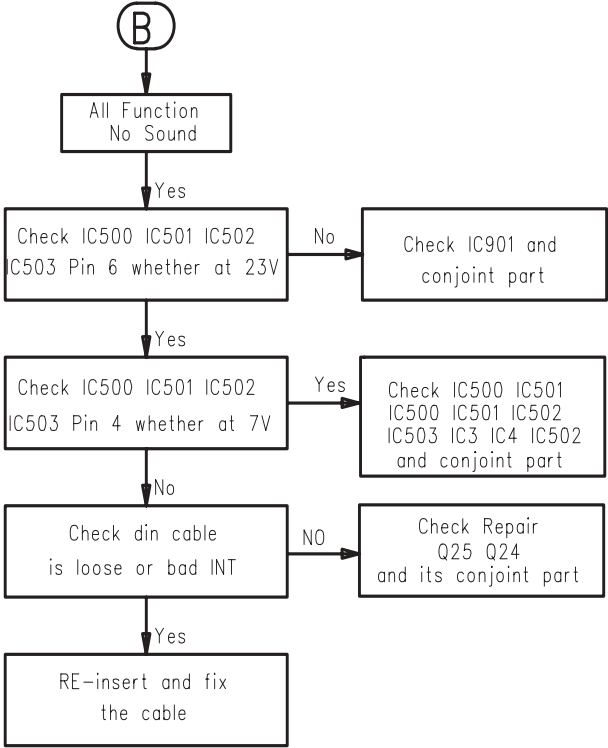
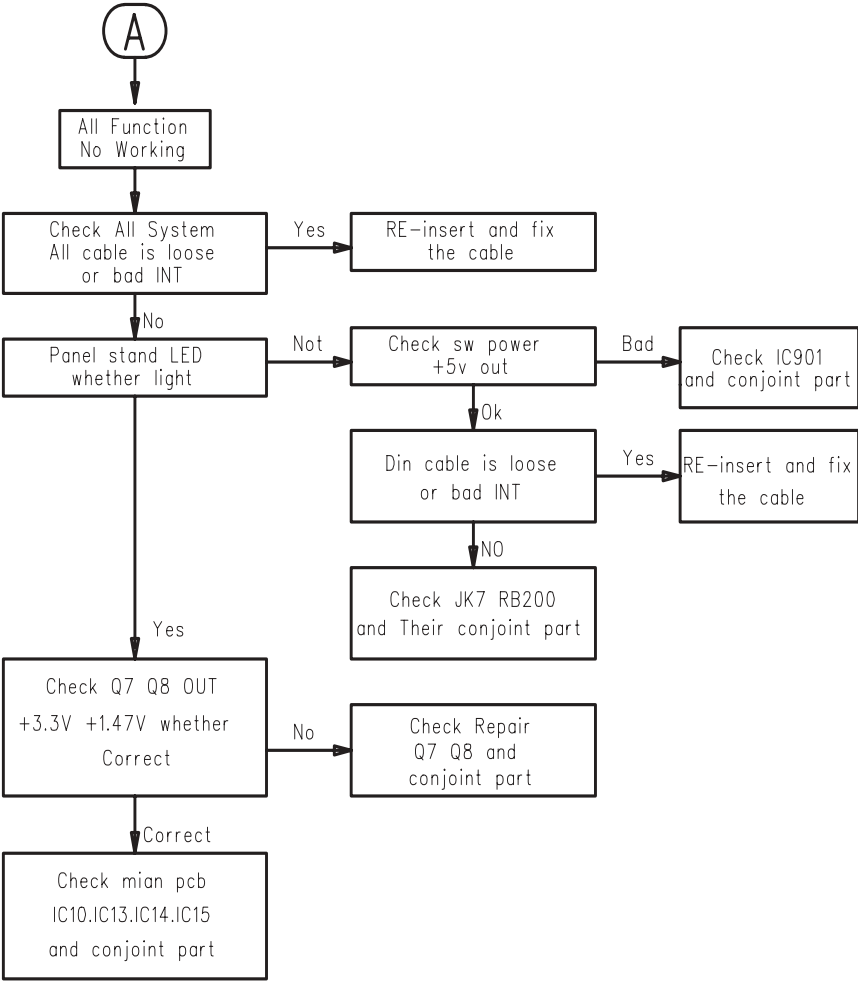
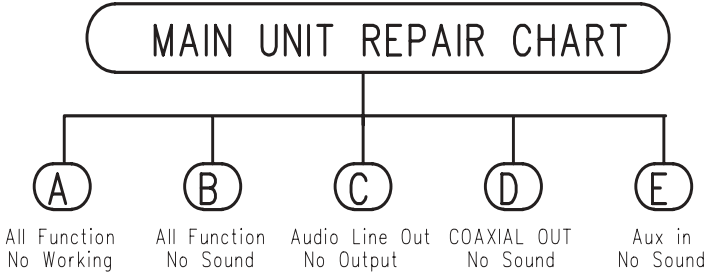
Low bass response.

- ✓ Check all speakers for correct polarity.

Unable to select Progressive Scan

- ✓ Check that the output of the video signal is switched to 'Ypbpr'.

REPAIR INSTRUCTION



DISASSEMBLY INSTRUCTIONS

Dismantling of the Main Board

- 1) Loosen 6 screws "A" on the bottom cover as shown in figure 1.
- 2) Loosen 5 screws "B" on the rear plate as shown in figure 2.
- 2) Loosen 1 screw "C" at the main board as shown in figure 3.

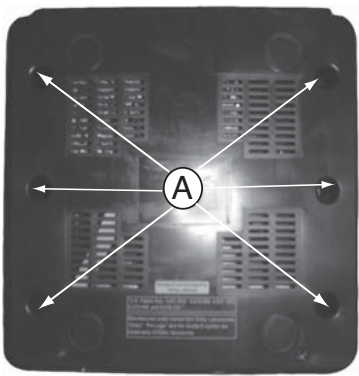


Figure 1

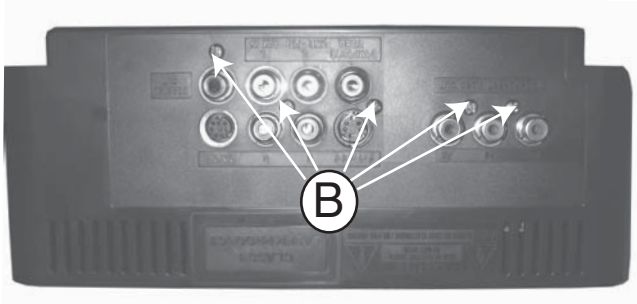


Figure 2

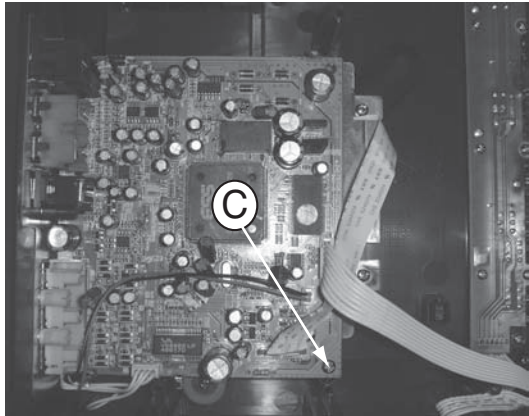


Figure 3

Dismantling of the Key & VFD Board

- 1) Loosen 6 screws "D" on the bottom of Key board as shown in figure 4.
- 2) Loosen 7 screws "E" at the bottom of VFD board as shown in figure 5.

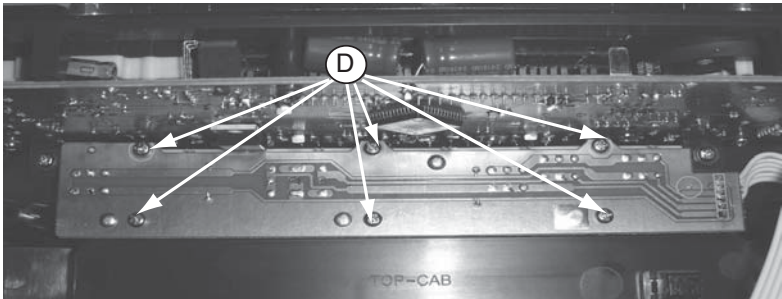


Figure 4

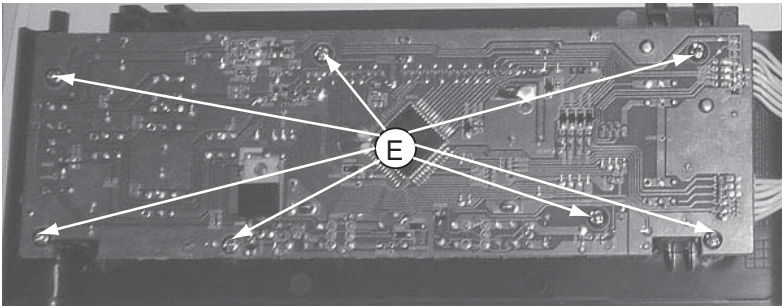


Figure 5

Dismantling of the Power & Amplifier Board

- 1) Loosen 8 screws "F" on the rear plate of speaker set as shown in figure 6.
- 2) Loosen 3 screws "G" on the rear plate to dismantling the Amplifier board as shown in figure 7.
- 3) Loosen 4 screws "H" on the top of power board to dismantling the power board as shown in figure 8.

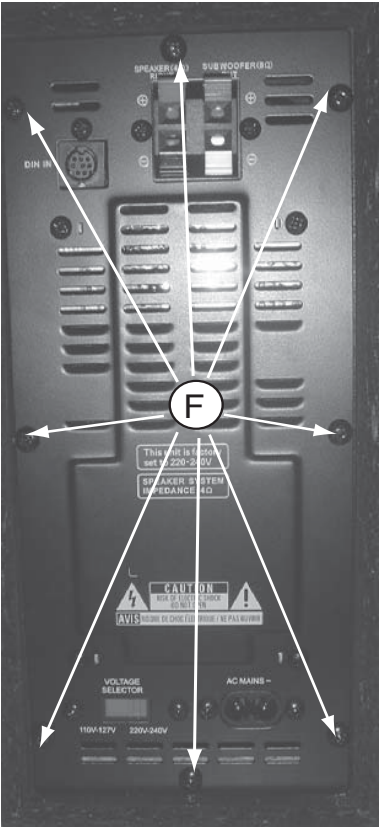


Figure 6

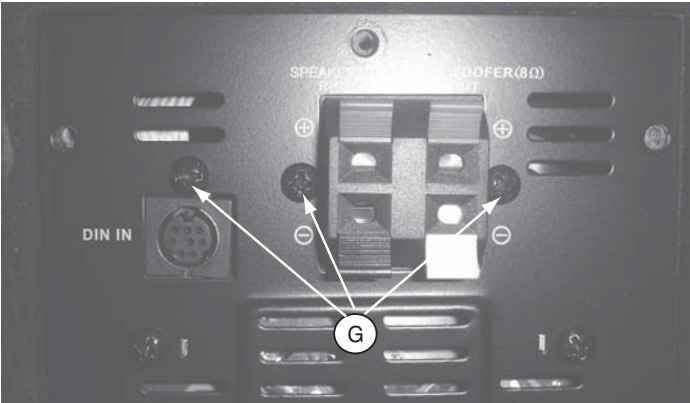


Figure 7

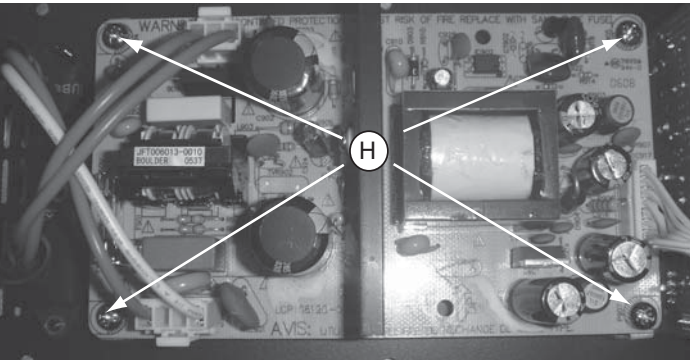


Figure 8

Dismantling of DVD Loader

- 1) Loosen 2 screws "I" on the metal plate as shown in figure 9.
- 2) Loosen 4 screws "J" on the top of DVD loader as shown in figure 10.

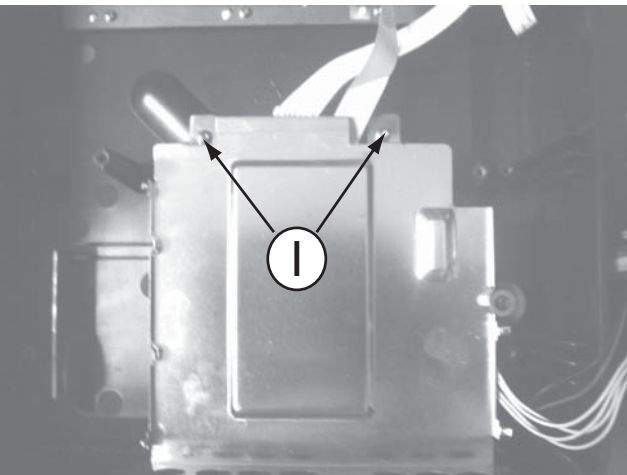


Figure 9

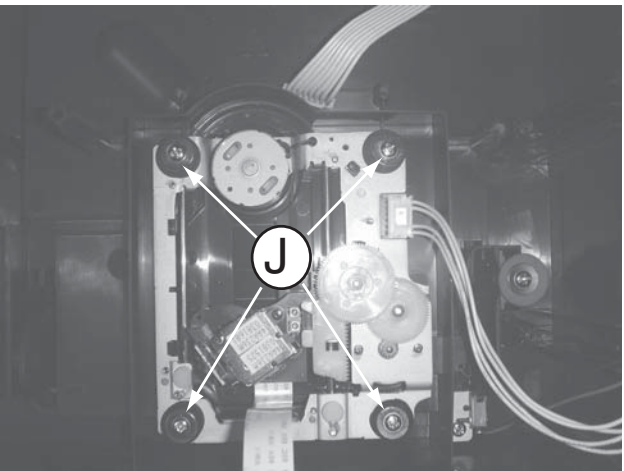
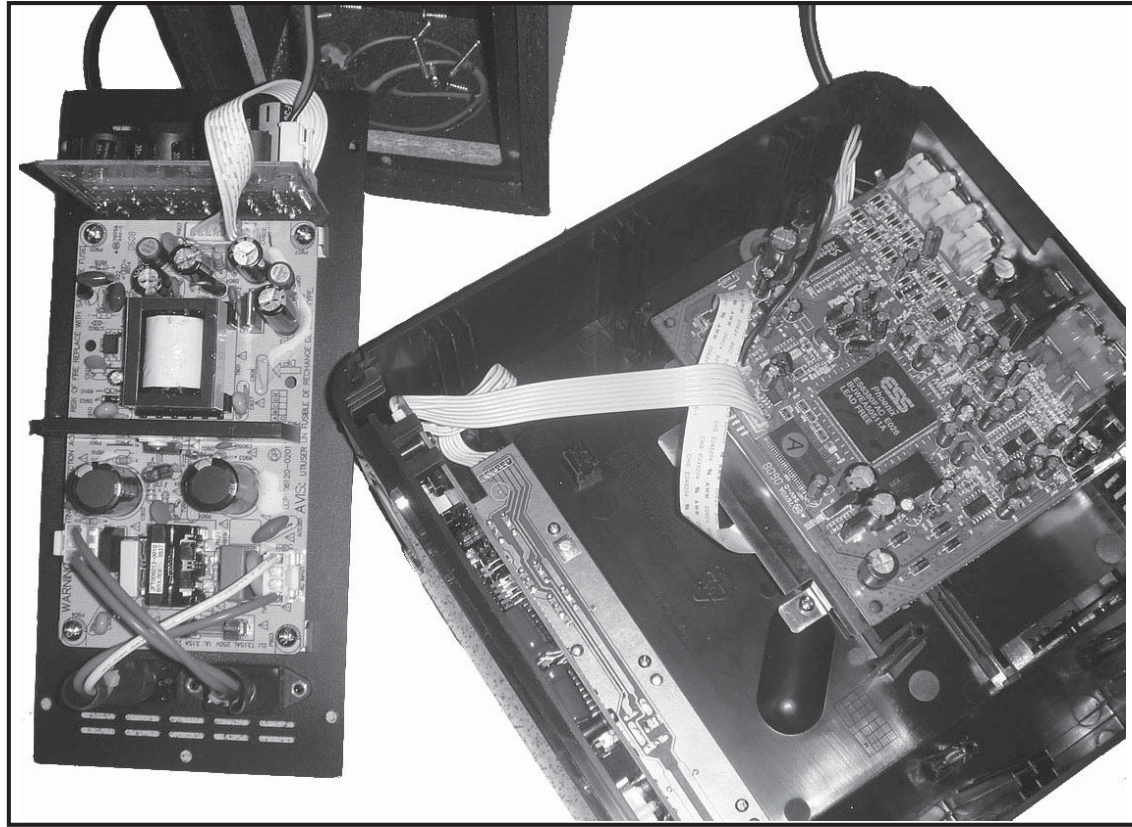


Figure 10

SERVICE POSITIONS

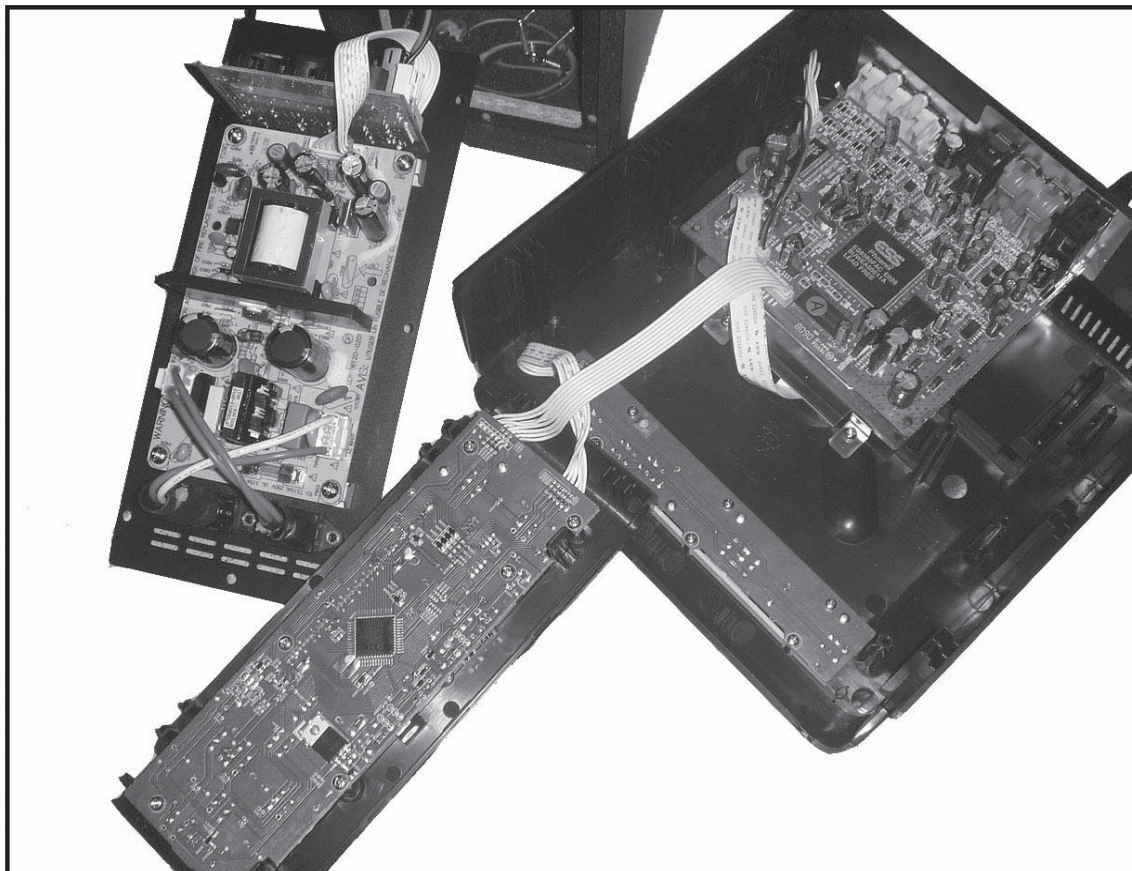
Service position A



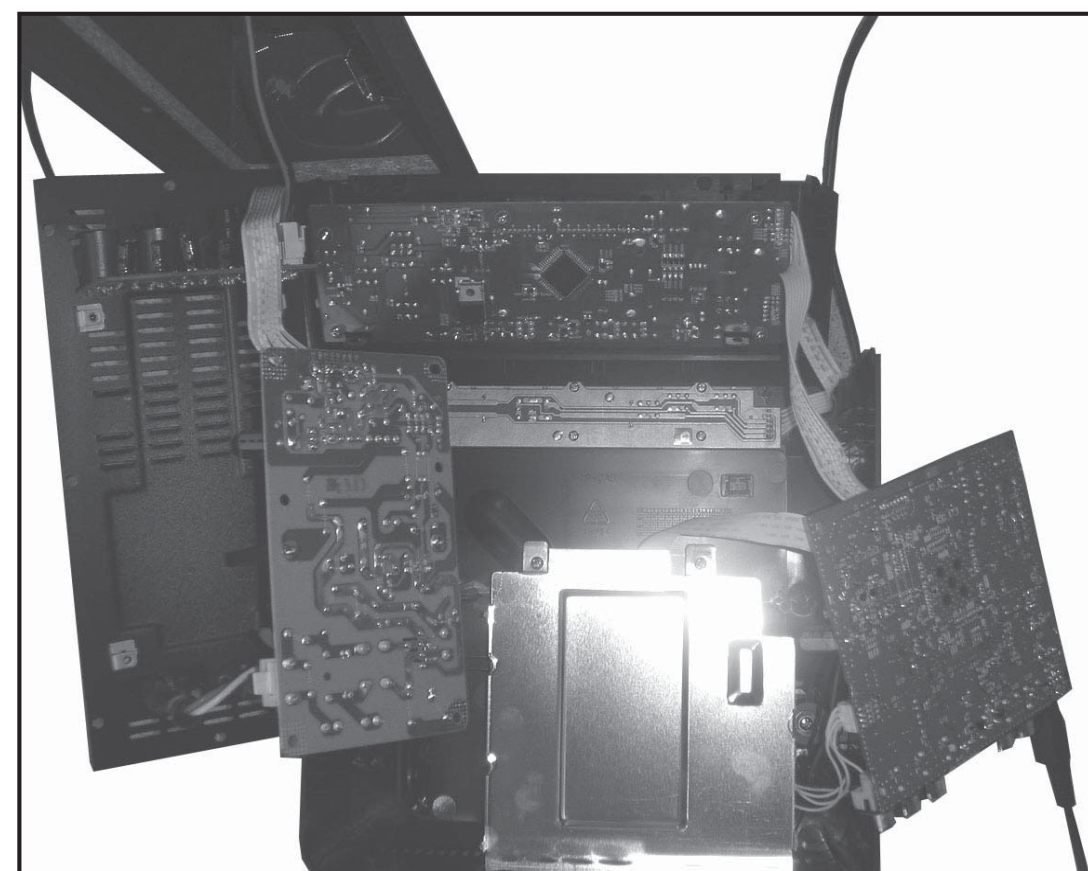
Service position C



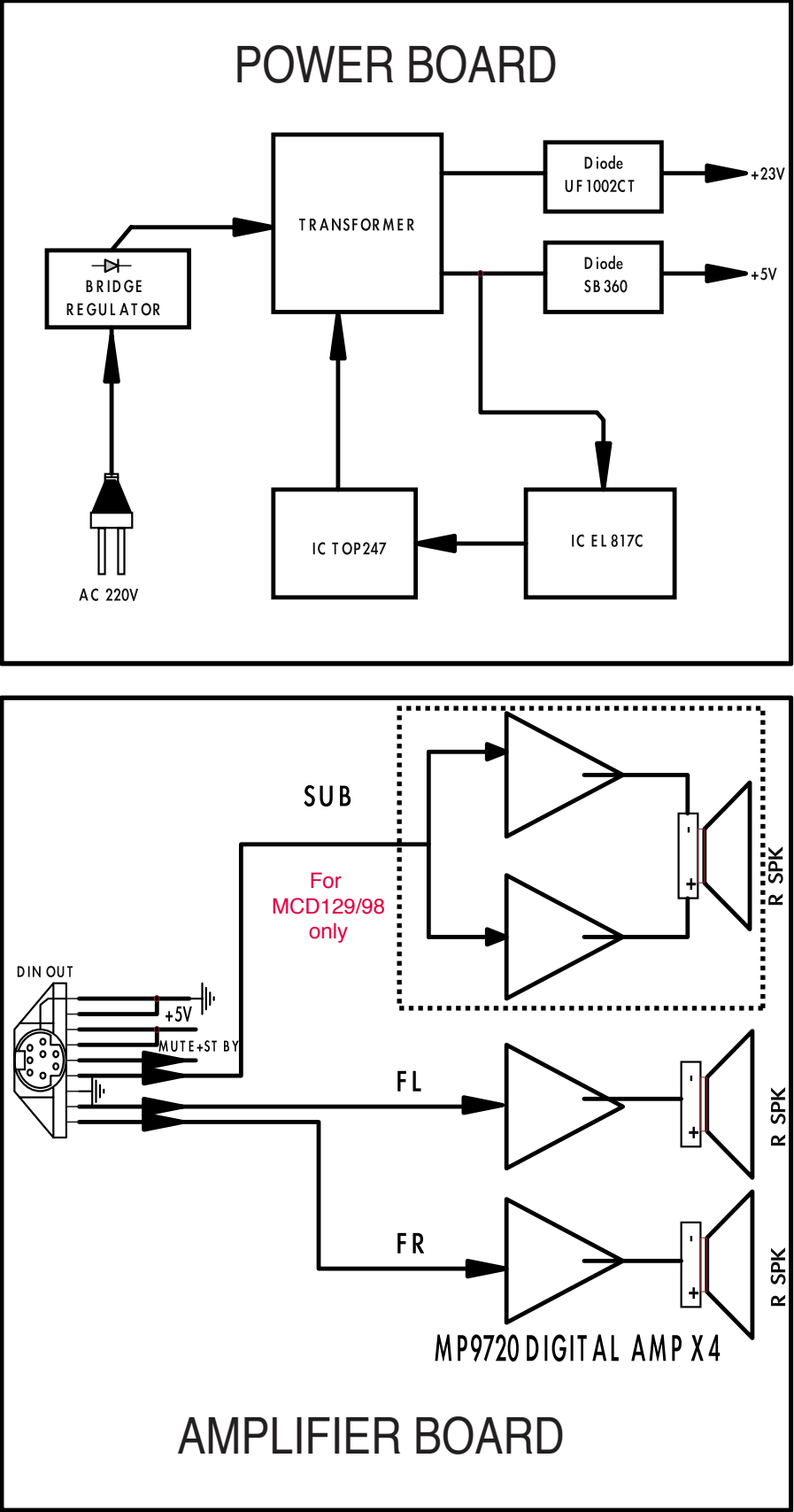
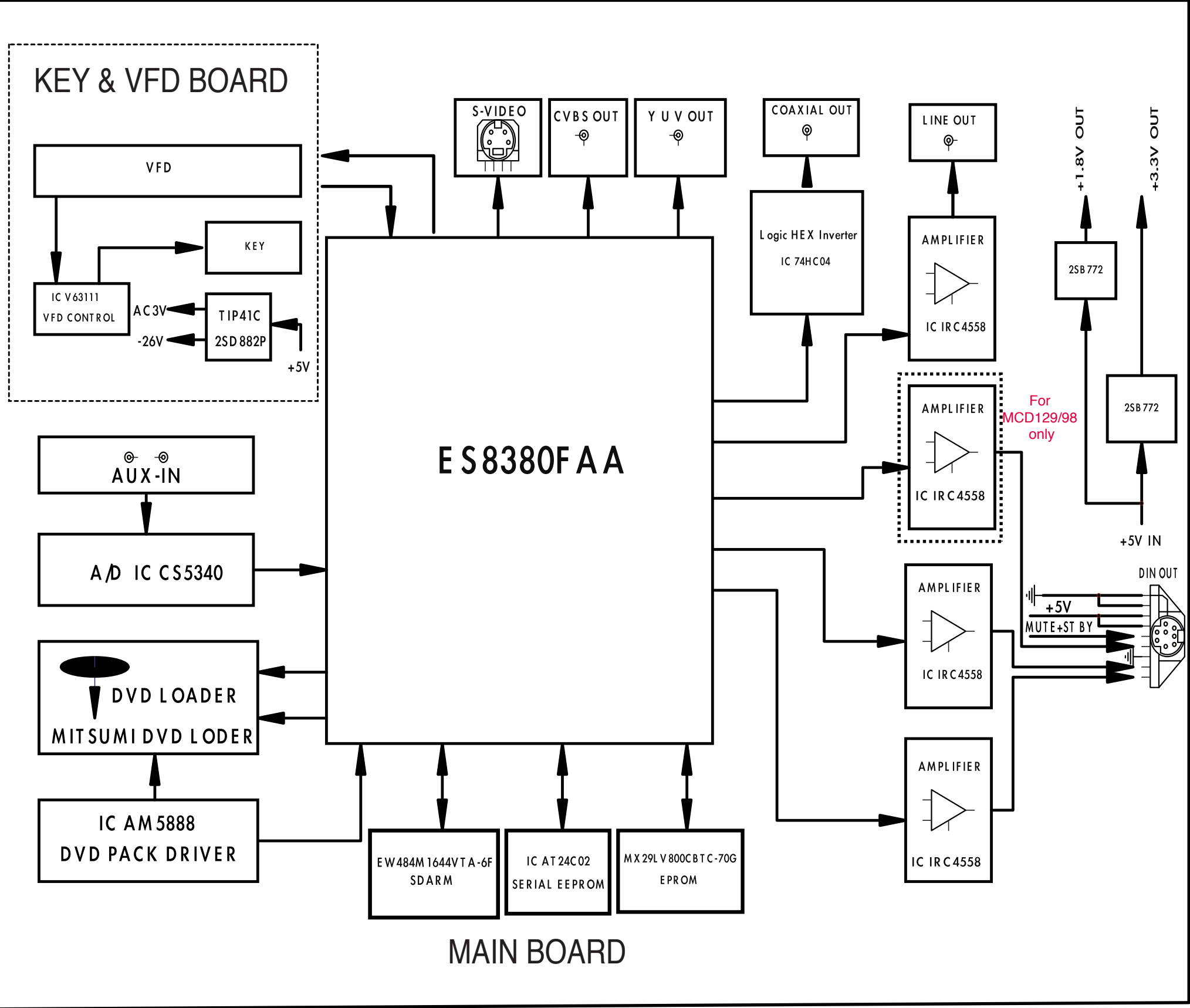
Service position B



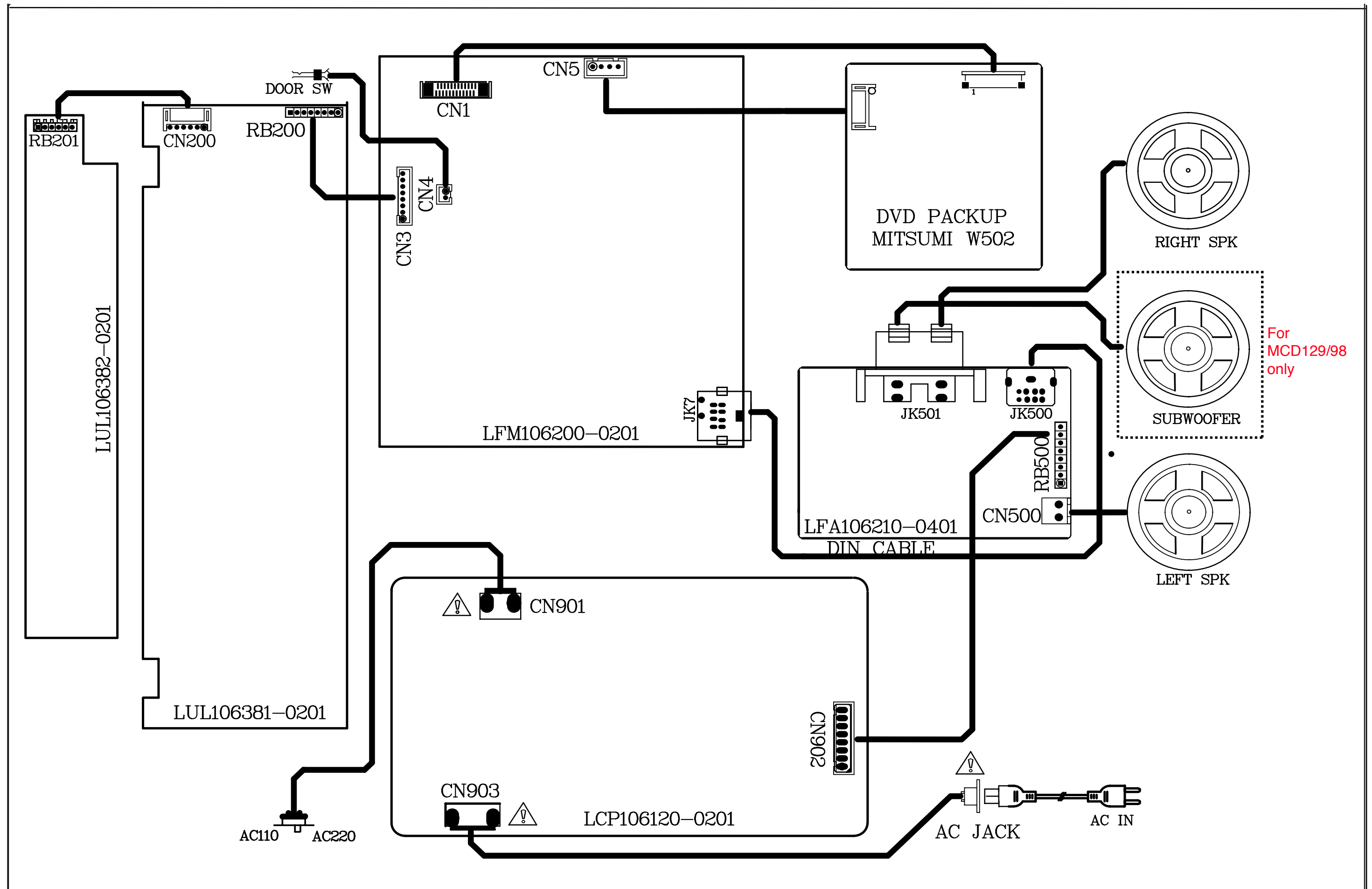
Service position D



BLOCK DIAGRAM



WIRING DIAGRAM



KEY & VFD BOARD

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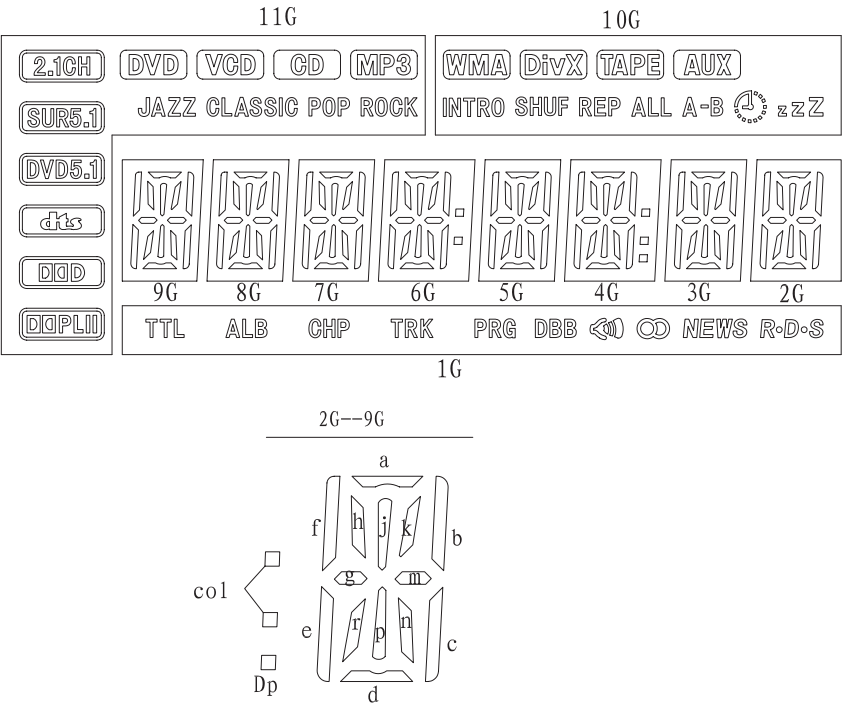
FTD Display Pin Assignment 5-1

Circuit Diagram 5-2

PCB Layout Top & Bottom View 5-3

Electrical Parts List 5-4

FTD DISPLAY PIN ASSIGNMENT



	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1						col		col			
P2	ROCK	INTRO	a	a	a	a	a	a	a	a	R-D-S
P3	POP	SHUF	h	h	h	h	h	h	h	h	NEWS
P4	CLASSIC	REP	j	j	j	j	j	j	j	j	CD
P5	JAZZ	ALL	k	k	k	k	k	k	k	k	CD
P6	MP3	A	b	b	b	b	b	b	b	b	DBB
P7	CD	-B	f	f	f	f	f	f	f	f	PRG
P8	VCD	z z Z	m	m	m	m	m	m	m	m	TRK
P9	DVD	z z Z	g	g	g	g	g	g	g	g	CHP
P10	2.1CH	WMA	c	c	c	c	c	c	c	c	ALB
P11	SUR5.1	DivX	e	e	e	e	e	e	e	e	TTL
P12	DVD5.1	TAPE	r	r	r	r	r	r	r	r	
P13	dts	AUX	p	p	p	p	p	p	p	p	
P14	DDD		n	n	n	n	n	n	n	n	
P15	DOPLII		d	d	d	d	d	d	d	d	
P16								Dp			

PIN CONNECTION

(Pin NO.)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
(Connection)	F1	F1	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14
(Pin NO.)	18	19	20-21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
(Connection)	P15	P16	NX	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	NP	F2	F2

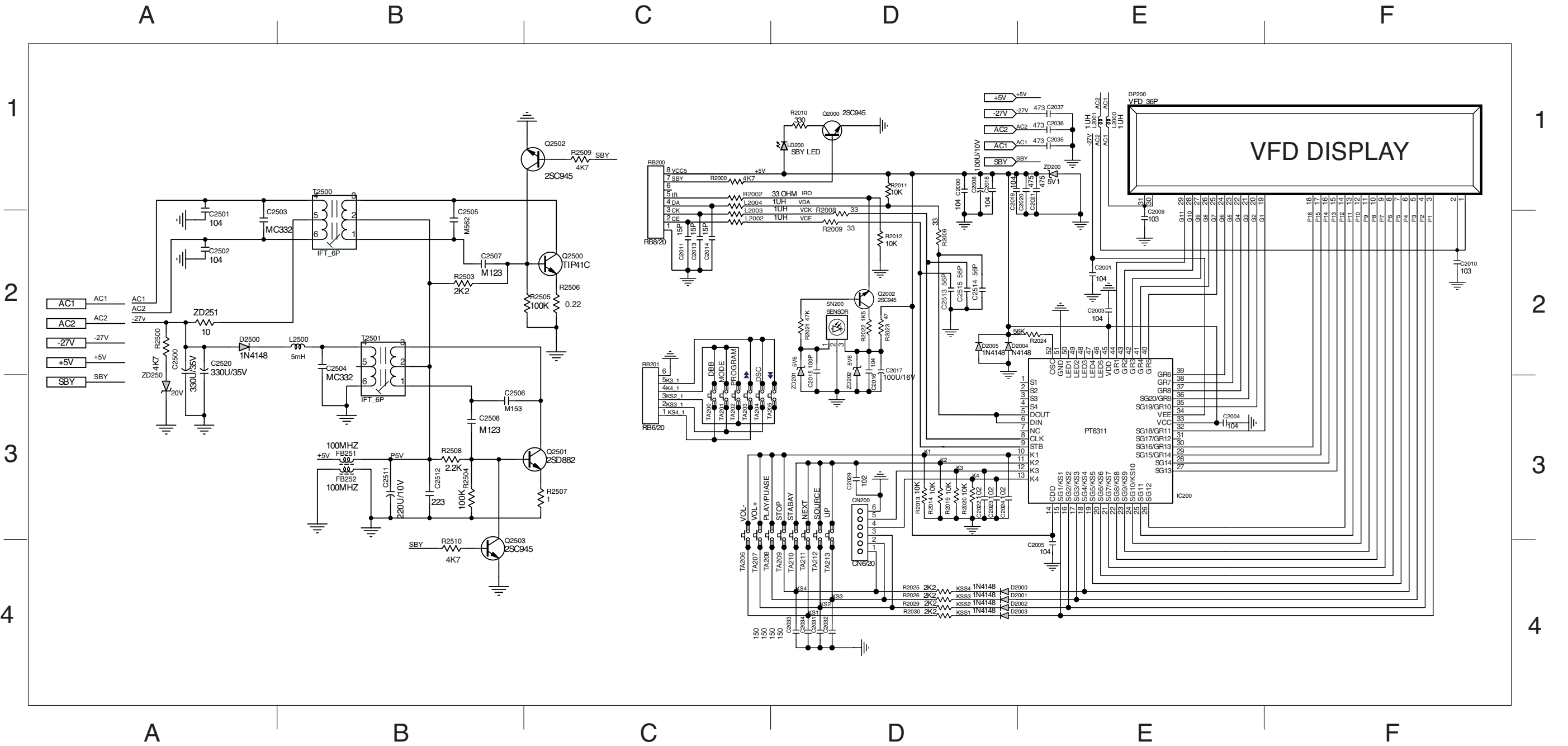
- ## Note ##
- 1. Fn: Filament pin
 - 2. NP : No Pin
 - 3. NX : No Extended Pin
 - 4. nG : Grid Pin
 - 5. PN : Anode Pin

IC Pin Voltage

IC200-PT6311(PTC)																				
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	2.00	2.00	2.00	2.00	3.70	3.70	0.00	3.30	3.30	0.00	0.00	0.00	0.00	4.60	-21.7	-12.9	-20	-18.2	-21.8	-14.7
Pin NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	-12.6	-18.2	-20	-12.8	-12.8	-21.8	-18.5	-20	-13	-22.2	-20.5	-20.2	4.40	-22	-22.1	-20.2	-20.1	-20.1	-20	-20.1
Pin NO	41	42	43	44	45	46	47	48	49	50	51	52								
Voltage	-20.1	-20.2	-20.2	-20.3	4.40	4.40	44.00	4.40	4.40	4.40	0.00	2.30								

CIRCUIT DIAGRAM - KEY & VFD BOARD

C2000	D1	C2010	F2	C2020	E1	C2033	D4	C2501	A2	C2511	B3	D2002	D2	IC200	E3	LD200	D1	R2002	C2	R2014	D3	R2026	D4	R2508	B3	TA200	C3	TA208	C4	ZD202	D3
C2001	E2	C2011	C2	C2021	E1	C2034	D4	C2502	A2	C2512	B3	D2003	D2	IC200	E3	Q2000	D1	R2006	D3	R2019	D3	R2029	D4	R2509	C1	TA201	C3	TA209	D4	ZD250	A3
C2003	E2	C2013	C2	C2022	D3	C2035	E1	C2503	A2	C2513	D2	D2004	D2	L2000	E1	Q2002	D2	R2008	D3	R2020	D3	R2030	D4	R2510	B4	TA202	C3	TA210	D4	ZD251	A2
C2004	E3	C2014	C2	C2023	D3	C2036	E1	C2504	B2	C2514	D2	D2005	D2	L2001	E1	Q2500	C2	R2009	D3	R2021	D2	R2500	A2	RB200	C1	TA203	C3	TA211	D4		
C2005	E4	C2015	D3	C2024	D3	C2037	E1	C2505	B2	C2515	D2	D2500	A2	L2002	C1	Q2501	B3	R2010	D1	R2022	D2	R2503	B2	RB201	C3	TA204	C3	TA212	D4		
C2007	D1	C2016	D3	C2029	D3	C2038	C1	C2506	B3	CN200	D3	DP200	E1	L2003	C1	Q2502	C1	R2011	D1	R2023	D2	R2504	B3	SW200	C4	TA205	C3	TA213	D4		
C2008	D1	C2018	D1	C2031	D4	C2039	C2	C2507	B2	D2000	D2	FB251	B3	L2004	C1	Q2503	B4	R2012	D2	R2024	E2	R2505	C2	T2500	B2	TA206	C4	ZD200	E1		
C2009	E2	C2019	D1	C2032	D4	C2500	A2	C2508	B3	D2001	D2	FB252	B3	L2500	B2	R2000	C1	R2013	D3	R2025	D4	R2506	C2	T2501	B2	TA207	C4	ZD201	D3		



C2008	B2	JMP20	B2
C2017	A2	JMP21	D2
C2500	B2	JMP22	D2
C2503	B1	JMP23	D2
C2504	C1	JMP24	B2
C2505	B1	JMP25	A2
C2506	C1	JMP26	B1
C2507	B1	JMP27	B2
C2508	C1	JMP28	A2
C2511	D1	JMP29	D1
CN200	D1	JMP3	D2
DP200	B2	JMP30	A2
FB251	D1	JMP31	A1
FB252	D1	JMP32	B1
JMP1	D2	JMP33	A2
JMP10	B2	JMP34	A2
JMP11	B2	JMP35	A1
JMP12	B2	JMP36	B1
JMP13	B2	JMP4	D2
JMP14	B2	JMP5	D2
JMP15	B2	JMP6	D2
JMP16	B1	JMP7	B2
JMP17	B2	JMP8	B2
JMP2	D2	JMP9	B2

C2000	B2	C2039	A2	R2006	B2
C2001	C2	C2501	C1	R2008	B2
C2003	C2	C2502	B1	R2009	B2
C2004	A2	C2512	A1	R2010	D2
C2005	B2	C2513	B2	R2011	A2
C2009	C2	C2514	B2	R2012	C2
C2010	C2	C2515	B2	R2013	C2
C2011	A2	D2000	A2	R2014	D2
C2013	A2	D2001	A2	R2019	A1
C2014	A2	D2002	B2	R2020	A1
C2015	C2	D2003	B2	R2021	C2
C2016	C2	D2004	C2	R2022	C2
C2018	C2	D2005	B2	R2023	C2
C2019	D2	D2500	B1	R2024	C2
C2020	C2	IC200	B2	R2025	A2
C2021	B2	L2000	C2	R2026	A2
C2022	A1	L2001	C2	R2029	A2
C2023	A1	L2002	A2	R2030	B2
C2024	A2	L2003	A2	R2500	B1
C2029	D2	L2004	A2	R2503	C1
C2031	D2	L2500	C1	R2504	A1
C2032	D2	Q2000	D2	R2505	C1
C2033	D2	Q2002	C2	R2508	A1
C2034	C2	Q2500	C1	R2509	D1
C2035	C2	Q2501	C1	R2510	D1
C2036	C2	Q2502	C1	ZD200	B2
C2037	C2	Q2503	B1	ZD201	C2
C2038	A2	R2002	A2	ZD202	C2
				ZD251	B1

ELECTRICAL PARTS LIST - KEY & VFD BOARD

D2000	9965 000 19409	DIODE BAV16W/IN4148W
D2001	9965 000 19409	DIODE BAV16W/IN4148W
D2002	9965 000 19409	DIODE BAV16W/IN4148W
D2003	9965 000 19409	DIODE BAV16W/IN4148W
D2004	9940 000 05475	ZENER 5.1V 5% 0.5W(E1)
D2005	9940 000 05475	ZENER 5.1V 5% 0.5W(E1)
D2500	9965 000 19409	DIODE BAV16W/IN4148W
DP200	9940 000 05469	VFD 35P AOTOM:33082-1A01
IC200	9965 000 12550	IC 52P PT6311
L2004	9940 000 05471	CHOKE 1 μ H 5%
LD200	9940 000 05468	LED D2.94 BLUE ROUND 2P
Q2000	9940 000 00915	XISTR NPN 2SC1623
Q2002	9940 000 00915	XISTR NPN 2SC1623
Q2500	9940 000 05335	XISTR NPN TIP41C
Q2501	9965 000 28742	XISTR NPN 2SD882P
Q2502	9940 000 00915	XISTR NPN 2SC1623
Q2503	9940 000 00915	XISTR NPN 2SC1623
R2506 Δ	9940 000 05474	FUSEABLE RES 0.22 Ω 1/4W 5%
SN200	9940 000 05472	IRT RECEIVER IRM-2638AF4
T2500	9940 000 05473	OSC COIL 160 μ H 8% 796KHz
T2501	9965 000 22303	OSC COIL REC OSC 3mH
TA200	4822 276 13648	TACT SW SKHVBE3520
TA201	4822 276 13648	TACT SW SKHVBE3520
TA202	4822 276 13648	TACT SW SKHVBE3520
TA203	4822 276 13648	TACT SW SKHVBE3520
TA204	4822 276 13648	TACT SW SKHVBE3520
TA205	4822 276 13648	TACT SW SKHVBE3520
TA206	4822 276 13648	TACT SW SKHVBE3520
TA207	4822 276 13648	TACT SW SKHVBE3520
TA208	4822 276 13648	TACT SW SKHVBE3520
TA209	4822 276 13648	TACT SW SKHVBE3520
TA210	4822 276 13648	TACT SW SKHVBE3520
TA211	4822 276 13648	TACT SW SKHVBE3520
TA212	4822 276 13648	TACT SW SKHVBE3520
TA213	4822 276 13648	TACT SW SKHVBE3520
ZD200	9940 000 05475	DIODE ZENER 5.1V 5% 0.5W
ZD201	9940 000 05476	DIODE ZENER 5.6V 0.5W 5%
ZD202	9940 000 05476	DIODE ZENER 5.6V 0.5W 5%
ZD250	9940 000 05477	DIODE ZENER 19.5-20.4V 0.5W
ZD251	9940 000 05478	DIODE ZENER 9.1V 5% 0.5W

Note: Only these parts mentioned in the list are normal service parts.

VOLTAGE

IC13 -ES8380FAA																				
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	3.31	1.12	0.00	0.00	1.68	1.10	0.79	0.00	0.00	3.31	0.00	0.00	0.00	0.00	3.62	3.28	1.46	0.00	3.29	3.30
Pin NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	3.31	3.29	0.00	3.31	1.85	0.00	1.24	1.51	1.42	1.54	0.55	0.62	0.65	0.65	0.00	3.31	0.65	0.65	0.62	0.68
Pin NO	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Voltage	1.73	1.58	1.75	1.41	0.00	3.31	0.00	2.17	0.69	2.15	2.35	0.00	3.31	1.36	0.45	1.45	2.70	0.00	3.31	2.70
Pin NO	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Voltage	3.31	0.00	0.00	0.94	0.00	1.47	1.52	1.10	2.66	1.73	3.30	0.00	3.30	0.82	0.00	1.29	3.30	3.30	3.32	1.47
Pin NO	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Voltage	0.00	0.00	0.85	2.20	1.98	2.34	0.36	1.32	0.00	3.30	0.46	0.00	0.00	1.29	0.00	1.69	3.31	0.00	0.00	0.49
Pin NO	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Voltage	0.87	0.87	0.00	3.31	0.00	1.30	3.30	1.30	1.36	1.28	3.29	0.00	1.30	0.90	0.75	1.27	1.50	1.50	1.50	3.01
Pin NO	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
Voltage	0.00	1.50	1.50	1.50	1.50	1.50	1.46	0.00	1.54	3.29	0.00	0.02	3.29	3.24	3.29	0.02	3.29	0.02	3.28	0.00
Pin NO	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Voltage	1.21	0.00	0.91	1.65	1.64	1.57	1.21	1.18	3.30	3.30	1.98	0.00	1.50	3.11	1.32	0.48	3.26	0.01	1.57	1.56
Pin NO	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Voltage	1.92	1.96	1.96	1.96	1.95	1.96	1.84	1.86	1.51	3.26	0.94	1.56	1.27	1.56	0.00	2.35	3.30	0.00	1.46	3.30
Pin NO	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
Voltage	0.00	3.30	0.10	1.80	1.76	3.73	0.00	3.30	3.30	3.30	3.31	3.29	0.02	0.00	0.00	1.46	3.30	3.70	3.29	3.70
Pin NO	201	202	203	204	205	206	207	208												
Voltage	3.31	3.30	3.31	3.30	1.30	1.20	1.20	0.00												

IC10 -MX29LV800CBTC																				
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	0.00	0.00	0.00	2.27	0.00	0.00	3.11	2.06	3.25	3.25	3.31	3.31	3.31	3.31	1.31	0.00	0.00	0.90	1.52	0.91
Pin NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	1.31	1.99	1.93	1.93	1.50	0.00	0.00	0.00	0.00	1.66	0.87	1.66	1.35	1.66	0.46	1.66	3.33	2.30	1.60	2.50
Pin NO	41	42	43	44	45	46	47	48												
Voltage	1.60	2.45	1.66	0.78	0.84	0.00	0.00	0.00												

IC15- EW48M1644CTA																				
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	3.30	0.73	3.30	0.84	1.20	0.00	0.97	0.90	3.30	0.87	0.96	0.00	1.18	3.30	0.00	3.19	3.20	3.06	3.28	0.00
Pin NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	0.00	0.00	0.00	0.65	1.80	1.65	3.30	0.00	0.90	2.00	1.40	0.11	0.00	0.00	0.00	3.30	1.86	0.00	0.00	0.00
Pin NO	41	42	43	44	45	46	47	48	49	50	51	52	53	54						
Voltage	0.00	0.55	3.30	0.50	1.00	0.00	0.80	1.00	3.20	1.00	1.14	0.00	1.20	0.00						

IC9-V5888S																				
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	1.56	3.30	1.25	1.43	1.25	0.00	0.00	4.70	0.00	0.00	2.37	2.18	2.20	2.00	2.06	2.06	0.80	2.94	5.00	2.10
Pin NO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	4.70	0.00	4.13	4.40	1.60	1.54	1.56	2.49												

IC12-TU24C02CS2BF																				
Pin NO	1	2	3	4	5	6	7	8												
Voltage	0.00	0.00	0.00	0.00	3.30	3.30	0.00	3.30												

IC3-CO4558A																				
Pin NO	1	2	3	4	5	6	7	8												
Voltage	0.00	0.00	0.00	-4.4	3.30	3.20	4.50	4.60												

IC4-CO4558A																				
Pin NO	1	2	3	4	5	6	7	8												
Voltage	0.00	0.00	0.00	-4.4	0.00	0.00	0.00	4.57												

IC2-CO4558A																				
Pin NO	1	2	3	4	5	6	7	8												
Voltage	0.00	0.00	0.00	-4.4	0.00	0.00	0.00	4.50												

IC6-CS5340-CZ																				
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
Voltage	0.00	1.50	4.70	3.62	0.00	4.70	3.77	3.30	0.00	2.20	2.35	2.30	4.70	0.00	4.70	0.00				

IC8-74HCU04D																				
Pin NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
Voltage	0.00	4.70	0.00	4.70	0.00	0.00	0.00	4.70	0.00	4.70	0.00	4.70	0.00	4.70						

IC14-ASM809SEURF			
Pin NO	1	2	3
Voltage	0.00	3.20	3.20

Q19-2SA812HFE:200-400			
Pin NO	E	B	C
Voltage	4.71	6.00	-2.8

Q24-2SA812HFE:200-400			
Pin NO	E	B	C
Voltage	4.70	4.50	2.80

Q5-2SB113RT100 ROHM			
Pin NO	E	B	C
Voltage	3.30	3.30	0.00

Q6-2SB113RT100 ROHM			
Pin NO	E	B	C
Voltage	3.30	3.30	0.00

Q2-2SC1623			
Pin NO	E	B	C
Voltage	0.00	0.00	4.60

Q4-2SC1623			
Pin NO	E	B	C
Voltage	0.00	0.65	0.00

Q25-2SC1623			
Pin NO	E	B	C
Voltage	0.00	0.60	0.00

Q1-2SK3018			
Pin NO	S	G	D
Voltage	0.00	0.00	4.60

Q3-2SK3018			
Pin NO	S	G	D
Voltage	0.00	0.00	0.00

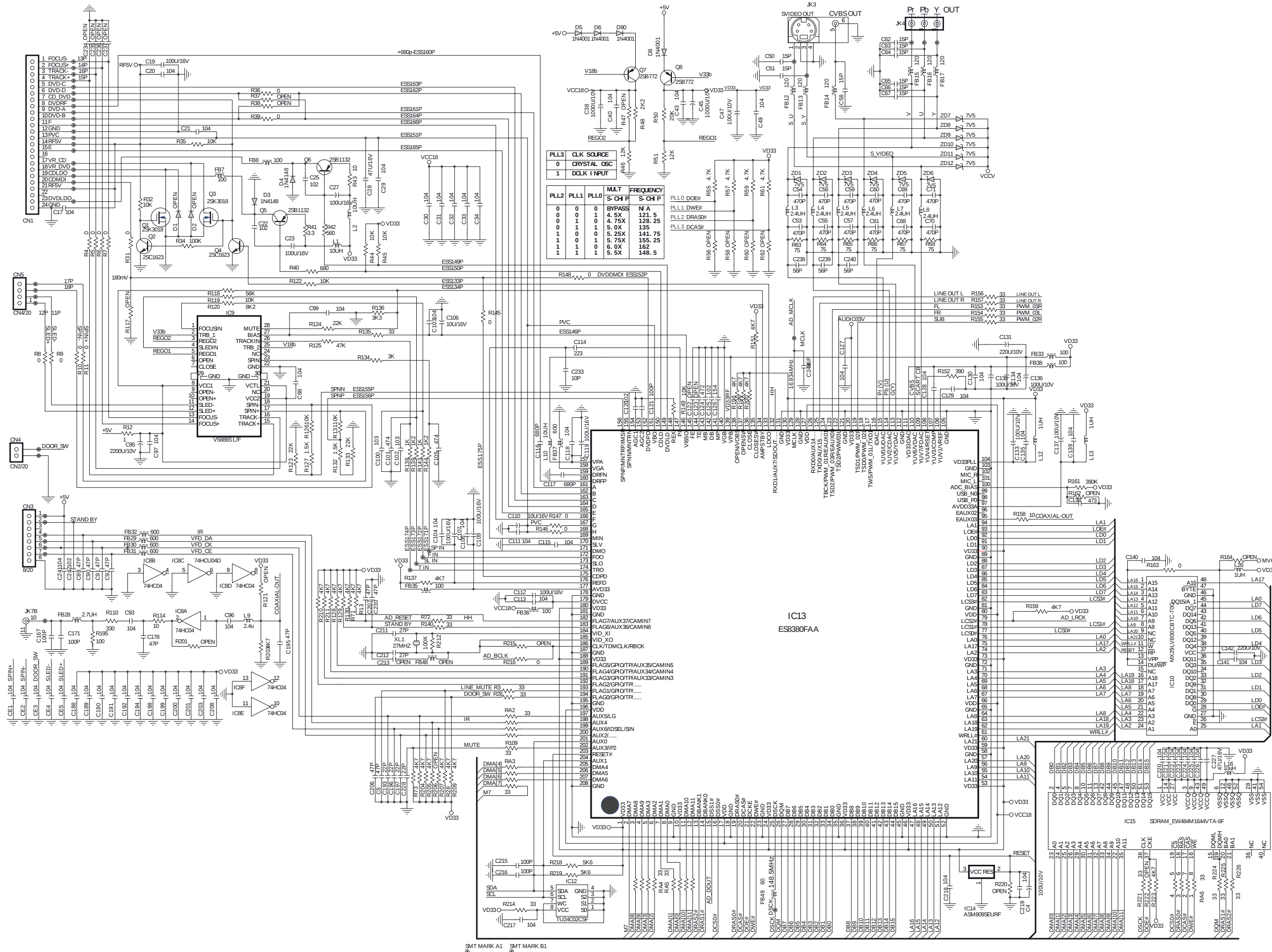
Q7-2SB772P/Q NEC			
Pin NO	E	B	C
Voltage	2.10	1.50	1.50

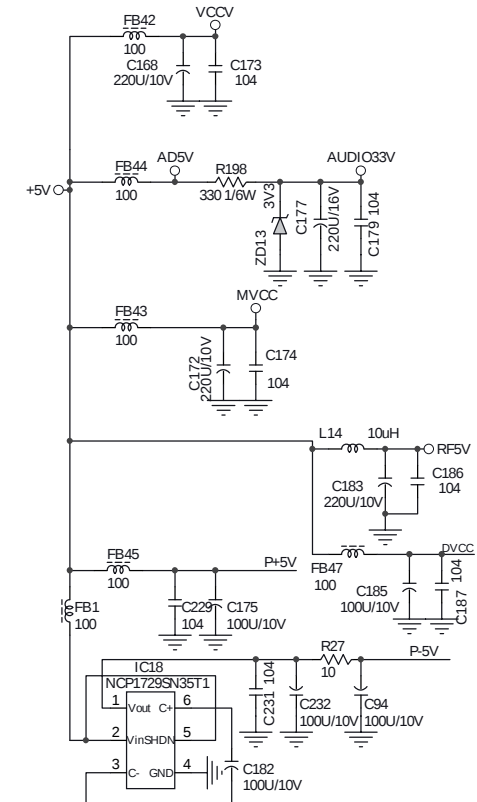
Q8-2SB772P/Q NEC			
Pin NO	E	B	C
Voltage	3.80	3.10	3.30

Q2500-TIP41C			
Pin NO	E	B	C
Voltage	0.00	-0.4	4.40

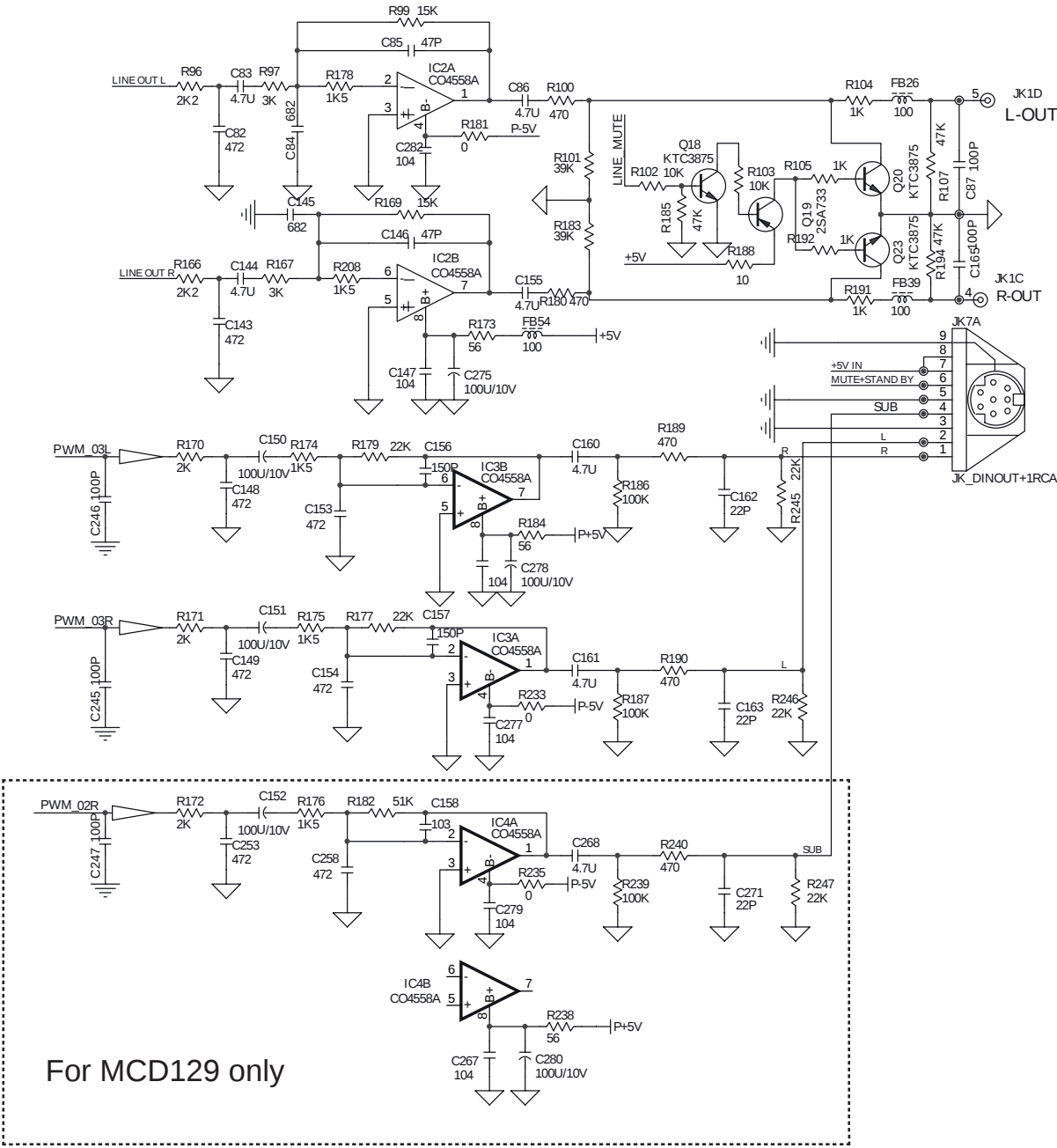
Q2501-2SD882P			
Pin NO	E	B	C
Voltage	0.20	0.40	4.30

CIRCUIT DIAGRAM - MAIN BOARD_PART1

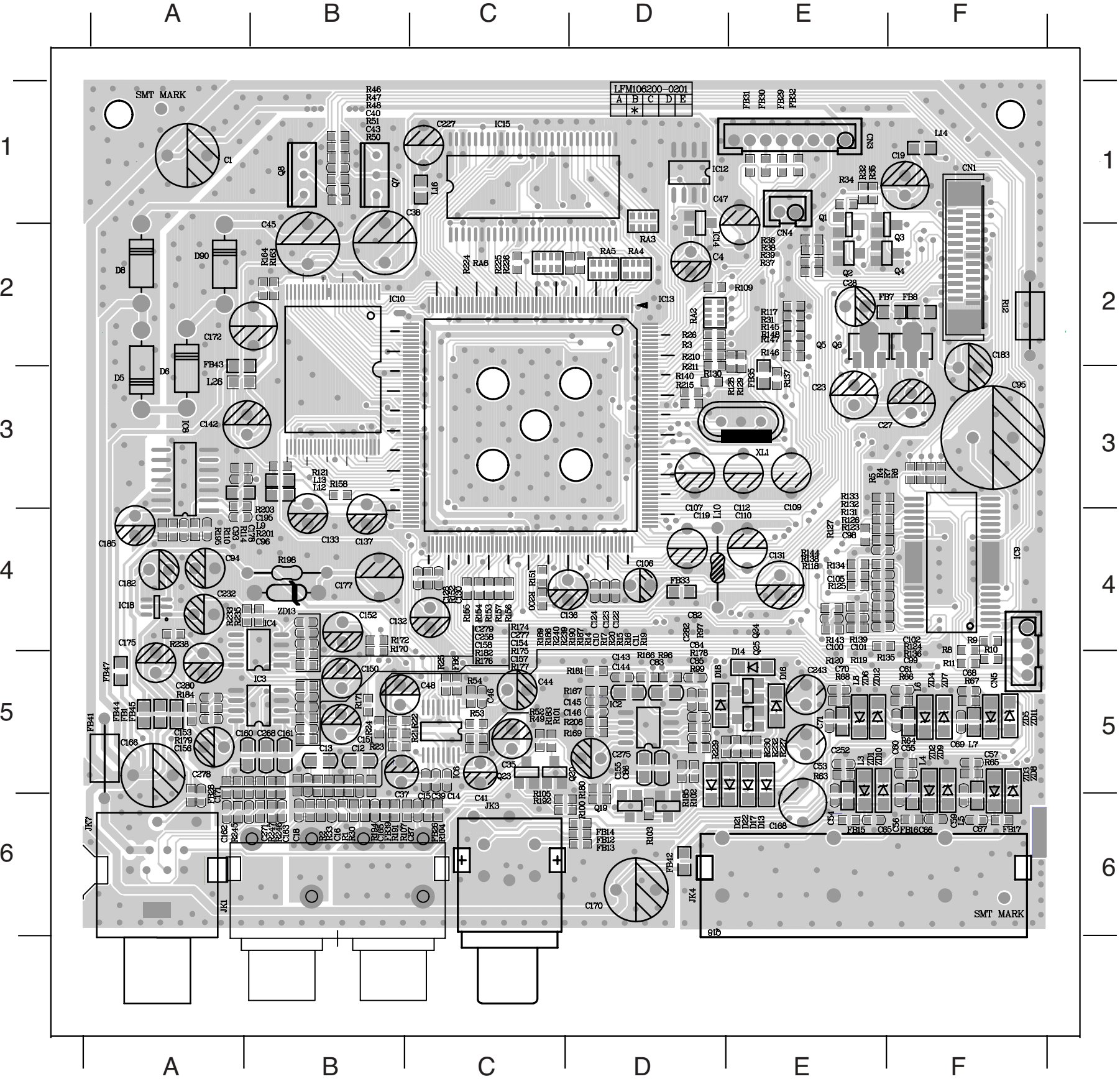




CIRCUIT DIAGRAM - MAIN BOARD_PART3

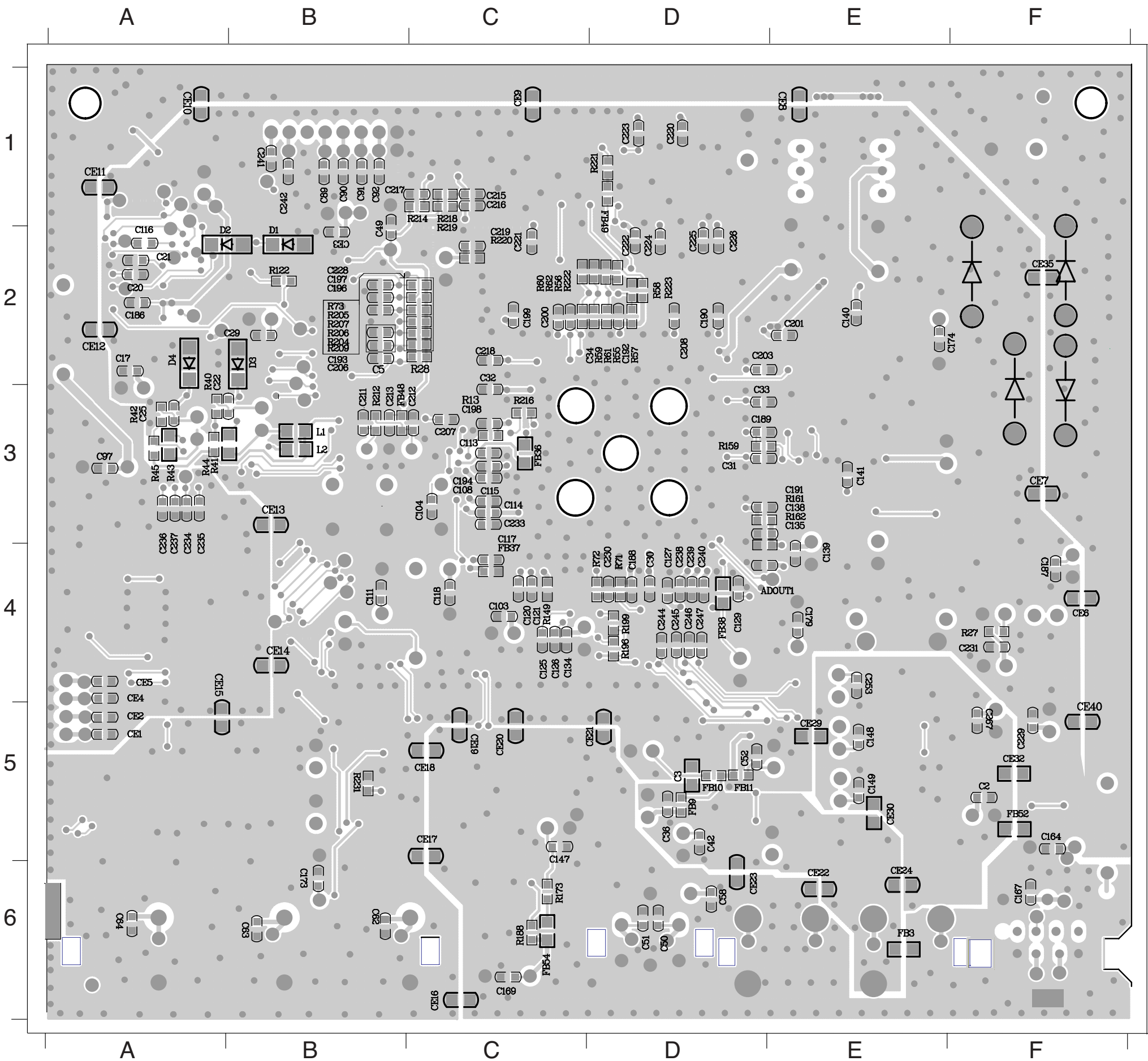


PCB LAYOUT - TOP VIEW



C1	A1	C54	E6	L7	F5	R187	D4
C10	D4	C55	F5	L8	E5	R189	C4
C100	E4	C56	F6	L9	B4	R19	D4
C101	E4	C57	F5	Q1	E1	R190	D4
C102	F4	C59	F6	Q18	D6	R191	B6
C105	E4	C60	F5	Q19	D6	R192	C6
C106	D4	C61	F5	Q2	E2	R194	B6
C107	D4	C65	E6	Q20	D5	R195	A4
C109	E3	C66	F6	Q23	C5	R198	B4
C112	E3	C67	F6	Q24	E5	R2	B6
C119	D4	C68	F5	Q25	E5	R233	A4
C12	B5	C69	F5	Q3	F2	R200	C4
C124	D4	C70	E5	Q4	F2	R11	F5
C128	C4	C71	E5	Q5	E2	R203	B3
C13	B5	C82	D4	Q6	E2	R208	D5
C130	C4	C83	D5	Q7	B1	R235	A4
C131	E4	C84	D4	Q8	B1	R210	D2
C132	C4	C85	D5	R1	B6	R211	D2
C133	B4	C86	D5	R10	F4	R224	C2
C136	C4	C93	A4	R100	D6	R225	C2
C137	B4	C94	A4	R101	C5	R226	C2
C14	C6	C95	F3	R102	D6	R227	E5
C142	A3	C96	B4	R103	D6	R229	D5
C143	D5	C98	E4	R104	C6	R23	B5
C144	D5	C99	F5	R105	C6	R230	E5
C145	D5	CN1	F1	R107	B6	R232	E5
C146	D5	CN3	E1	R109	E2	R238	A4
C15	C6	CN4	E1	R110	A4	R239	C4
C150	B5	CN5	F5	R114	A4	R24	B5
C151	B5	D14	E5	R118	E4	R240	C4
C152	B4	D16	E5	R119	E5	R245	A6
C153	A5	D17	E6	R12	F2	R246	B6
C154	C4	D18	D5	R120	E5	R247	B6
C155	D5	D21	E6	R123	E4	R25	C5
C156	A5	D22	E6	R124	F4	R26	D2
C157	C5	D5	A3	R125	E4	R3	D2
C158	C4	D6	A3	R126	E4	R31	E2
C16	B6	D8	A2	R127	E4	R32	E1
C160	B5	D90	A2	R128	E3	R34	E1
C161	B5	FB1	A5	R129	E3	R35	E1
C162	A6	FB12	D6	R130	D3	R36	E2
C163	B6	FB13	D6	R131	E4	R39	E2
C165	B6	FB14	D6	R132	E3	R4	E3
C166	A5	FB15	E6	R133	E3	R46	B1
C168	E6	FB16	F6	R134	E4	R47	B1
C170	D6	FB17	F6	R135	E4	R48	B1
C171	A6	FB26	C6	R136	F5	R49	C5
C172	A2	FB28	A6	R137	E3	R5	E3
C175	A4	FB29	E1	R138	E4	R50	B1
C177	B4	FB30	E1	R139	E4	R51	B1
C178	B4	FB31	E1	R140	D3	R54	C5
C18	B6	FB32	E1	R143	E4	R6	F3
C182	A4	FB33	D4	R144	E4	R63	E5
C183	F2	FB35	E3	R145	E2	R64	F5
C185	A4	FB39	B6	R146	E2	R65	F5
C19	F1	FB41	A5	R147	E2	R66	F5
C195	B4	FB42	D6	R148	E2	R67	F5
C11	D4	FB43	A3	R15	D4	R68	E5
C110	E4	FB44	A5	R151	C4	R7	F3
C227	C1	FB45	A5	R152	C4	R8	F4
C23	E3	FB47	A5	R153	C4	R9	F4
C232	A4	FB6	C5	R154	C4	R96	D5
C243	E5	FB7	F2	R155	C4	R97	D4
C252	E5	FB8	F2	R156	C4	R99	D5
C258	C4	IC10	B2	R157	C4	RA2	D2
C268	B5	IC12	D1	R158	B3	RA3	D2
C27	F3	IC13	D2	R16	D4	RA4	D2
C271	B6	IC14	D2	R163	B2	RA5	D2
C275	D5	IC15	C1	R14	D4	RA6	C2
C277	C4	IC18	A4	R166	D5	XL1	E3
C278	A5	IC2	D5	R167	D5	ZD1	E5
C279	C4	IC3	B5	R169	D5	ZD10	E5
C28	E2	IC4	B4	R17	D4	ZD11	F5
C280	A5	IC6	C5	R170	B4	ZD12	E5
C282	D4	IC8	A3	R171	B5	ZD13	B4
C35	C5	JK1	A6	R172	B4	ZD2	F5
C37	B5	JK3	C6	R174	C4	ZD3	F5
C38	B2	JK4	D6	R175	C5	ZD4	F5
C39	C6	JK7	A6	R176	C5	ZD5	F5
C4	D2	L10	D4	R177	C5	ZD6	E5
C40	B1	L12	B3	R178	D5	ZD7	F5
C41	C6	L13	B3	R179	A5	ZD8	F5
C43	B1	L14	F1	R180	D5	ZD9	F5
C44	C5	L16	C1	R181	D5		
C45	B2	L26	A3	R182	C5		
C46	C5	L3	E5	R183	C5		
C47	D1	L4	F5	R184	A5		
C48	C5	L5	F6	R185	D6		
C53	E5	L6	F5	R186	C4		

PCB LAYOUT - BOTTOM VIEW



C103	C4	C224	D2	CE332	F5
C104	C3	C225	D2	CE35	F2
C108	C3	C226	D2	CE4	A4
C111	B4	C228	B2	CE40	F5
C113	C3	C229	F5	CE5	A4
C114	C3	C230	D4	CE6	F4
C115	C3	C231	F4	CE7	F3
C116	A2	C233	C3	CE8	E1
C117	C4	C238	D4	CE9	C1
C118	C4	C239	D4	D3	B2
C120	C4	C240	D4	D4	A2
C121	C4	C241	B1	FB10	D5
C125	C4	C242	B1	FB11	D5
C129	D4	C244	D4	FB3	E6
C134	C4	C245	D4	FB36	C3
C135	D3	C246	D4	FB37	C4
C138	D3	C247	D4	FB38	D4
C139	E4	C25	A3	FB49	D1
C140	E2	C253	E4	FB52	F5
C141	E3	C267	F5	FB54	C6
C147	C5	C29	B2	FB9	D5
C148	E5	C3	D5	L1	B3
C149	E5	C30	D4	L2	B3
C164	F5	C31	D3	R122	B2
C167	F6	C32	C3	R13	C3
C169	C6	C33	D3	R149	C4
C17	A2	C34	D2	R159	D3
C173	B6	C36	D5	R161	D3
C174	E2	C42	D5	R173	C6
C179	E4	C49	B1	R188	C6
C186	A2	C5	B2	R196	D4
C187	F4	C50	D6	R199	D4
C188	D4	C51	D6	R204	B2
C189	D3	C52	D5	R205	B2
C190	D2	C58	D6	R206	B2
C191	D3	C62	B6	R207	B2
C192	D2	C63	B6	R209	B2
C193	B2	C64	A6	R212	B3
C194	C3	C89	B1	R214	C1
C196	B2	C90	B1	R216	C3
C197	B2	C91	B1	R218	C1
C198	C3	C92	B1	R219	C1
C199	C2	C97	A3	R221	D1
C20	A2	CE1	A5	R223	D2
C200	C2	CE10	A1	R231	B5
C201	E2	CE11	A1	R27	F4
C203	E2	CE12	A2	R28	C2
C206	B2	CE13	B3	R40	A3
C207	C3	CE14	B4	R41	A3
C208	D2	CE15	A5	R42	A3
C21	A2	CE16	C6	R43	A3
C211	B3	CE17	C5	R44	A3
C212	B3	CE18	C5	R45	A3
C215	C1	CE19	C5	R55	D2
C216	C1	CE2	A5	R57	D2
C217	C1	CE20	C5	R59	D2
C218	C2	CE21	D5	R61	D2
C219	C2	CE22	E6	R71	D4
C22	A3	CE23	D6	R72	D4
C220	D1	CE24	E6	R73	B2
C221	C2	CE29	E5		
C222	D2	CE3	B2		
C223	D1	CE30	E5		

ELECTRICAL PARTS LIST - MAIN BOARD

D14	9965 000 19409	DIODE BAV16W/IN4148W	RA5	9940 000 05231	RES. ARRAY 33Ω 1/16W 5%
D16	9965 000 19409	DIODE BAV16W/IN4148W	RA6	9940 000 05231	RES. ARRAY 33Ω 1/16W 5%
D17	9965 000 19409	DIODE BAV16W/IN4148W	XL1	9965 000 17371	X'TAL 27.0000MHz +/-20ppm
D18	9965 000 19409	DIODE BAV16W/IN4148W	ZD1	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
D21	9965 000 19409	DIODE BAV16W/IN4148W	ZD10	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
D22	9965 000 19409	DIODE BAV16W/IN4148W	ZD11	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
D3	9965 000 19409	DIODE BAV16W/IN4148W	ZD12	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
D4	9965 000 19409	DIODE BAV16W/IN4148W	ZD13	9940 000 05463	DIODE ZENR 3.2-3.4V 0.5W
IC10	9940 000 05464	IC 48P MX29LV800CBTC-70G	ZD2	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
IC12	9940 000 05208	IC 8P TU24C02CS2BF	ZD3	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
IC13	9940 000 05207	IC 208P ES8380FAA PQFP	ZD4	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
IC14	9940 000 00834	IC 3PIN ASM809SEURF	ZD5	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
IC15	9940 000 05465	IC 54P EW484M1644VTA-6F	ZD6	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
IC18	9940 000 05466	IC 6P NCP1729SN35T1	ZD7	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
IC2	9965 000 29611	IC 8P CO4558A	ZD8	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
IC3	9965 000 29611	IC 8P CO4558A	ZD9	9965 000 26931	CHIP ZENER 7.5V 5% 0.5W
IC4	9965 000 29611	IC 8P CO4558A			
IC6	9940 000 05467	IC 16PIN CS5340-CZ TSSOP			
IC8	9965 000 23948	IC 14PIN 74HCU04D			
IC9	9940 000 05214	IC 28P V5888S			
JK1	9940 000 00859	RCA JACK 4P W-W/R-R AUDIO IN			
JK3	9965 000 23599	RCA+DIN JK 1RCA+4P DIN YEL			
JK4	9965 000 12609	RCA JACK 3P R/B/G AXIAL			
JK7	9940 000 00861	RCA+DIN JACK			
L10	9965 000 15871	CHOKE 10μH 10%			
Q1	3141 018 51690	FET 2SK3018 30V 0.1A			
Q18	9965 000 13683	XISTR NPN KTC3875-Y			
Q19	9940 000 00921	XISTR PNP 2SA812 HFE:200-400			
Q2	9940 000 00915	XISTR NPN 2SC1623			
Q20	9965 000 13683	XISTR NPN KTC3875-Y			
Q23	9965 000 13683	XISTR NPN KTC3875-Y			
Q24	9940 000 00921	XISTR PNP 2SA812 HFE:200-400			
Q25	9940 000 00915	XISTR NPN 2SC1623			
Q3	314101851690	FET 2SK3018 30V 0.1A			
Q4	9940 000 00915	XISTR NPN 2SC1623			
Q5	9965 000 26927	XISTR PNP 2SB1132RT100	Note: Only these parts mentioned in the list are normal service parts.		
Q6	9965 000 26927	XISTR PNP 2SB1132RT100			
Q7	9965 000 26946	XISTR PNP 2SB772P/Q			
Q8	9965 000 26946	XISTR PNP 2SB772P/Q			
RA2	9940 000 05231	RES. ARRAY 33Ω 1/16W 5%			
RA3	9940 000 05231	RES. ARRAY 33Ω 1/16W 5%			
RA4	9940 000 05231	RES. ARRAY 33Ω 1/16W 5%			

AMPLIFIER BOARD

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Voltage

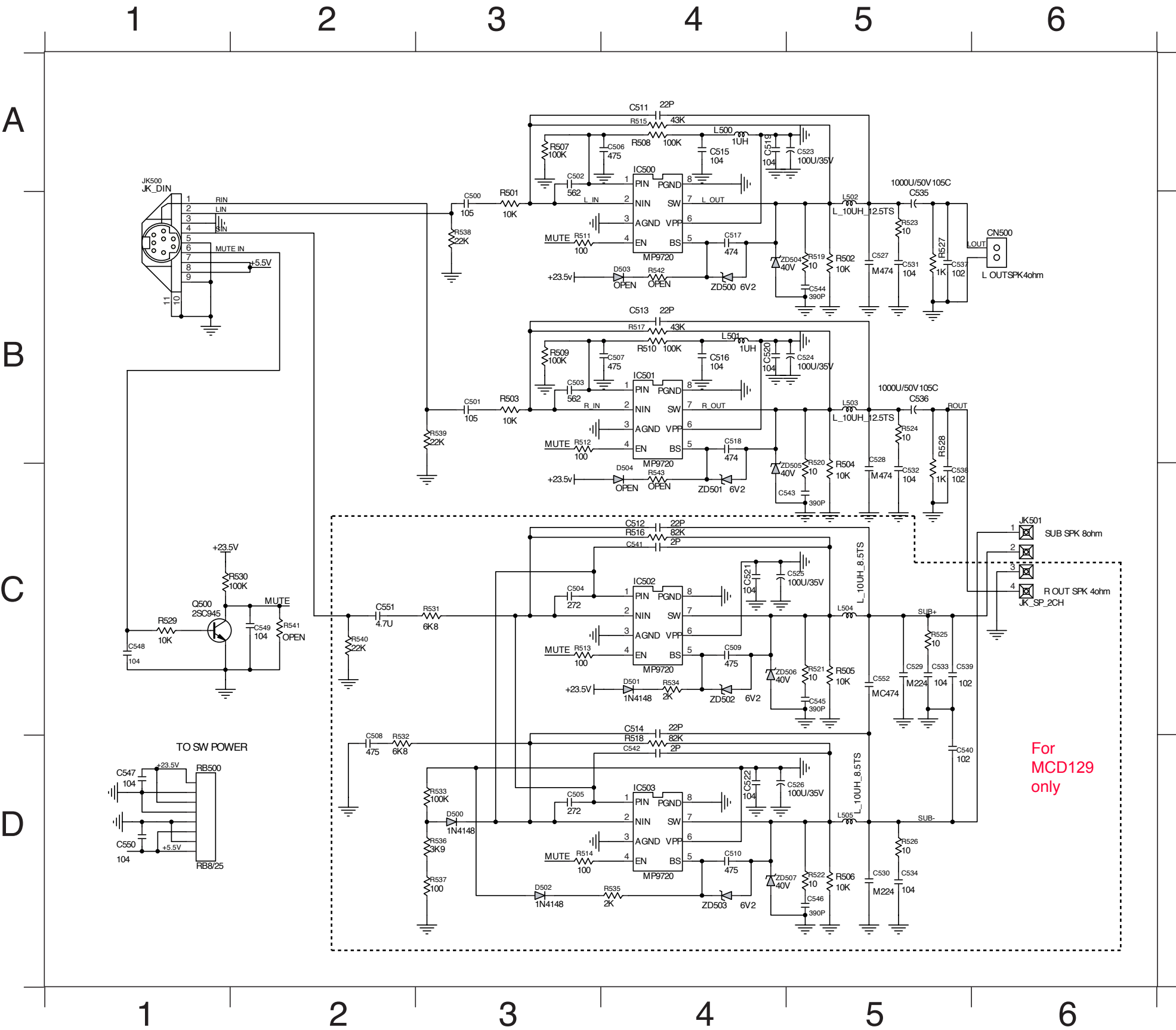
IC500-MP9720DS								
Pin NO	1	2	3	4	5	6	7	8
Voltage	11.00	2.50	-0.1	-0.1	0.30	27.00	0.30	0.00

IC501-MP9720DS								
Pin NO	1	2	3	4	5	6	7	8
Voltage	11.00	2.50	-0.12	-0.1	1.00	27.00	0.40	0.00

IC502-MP9720DS								
Pin NO	1	2	3	4	5	6	7	8
Voltage	16.30	16.30	-0.1	-0.1	22.80	27.00	16.00	0.00

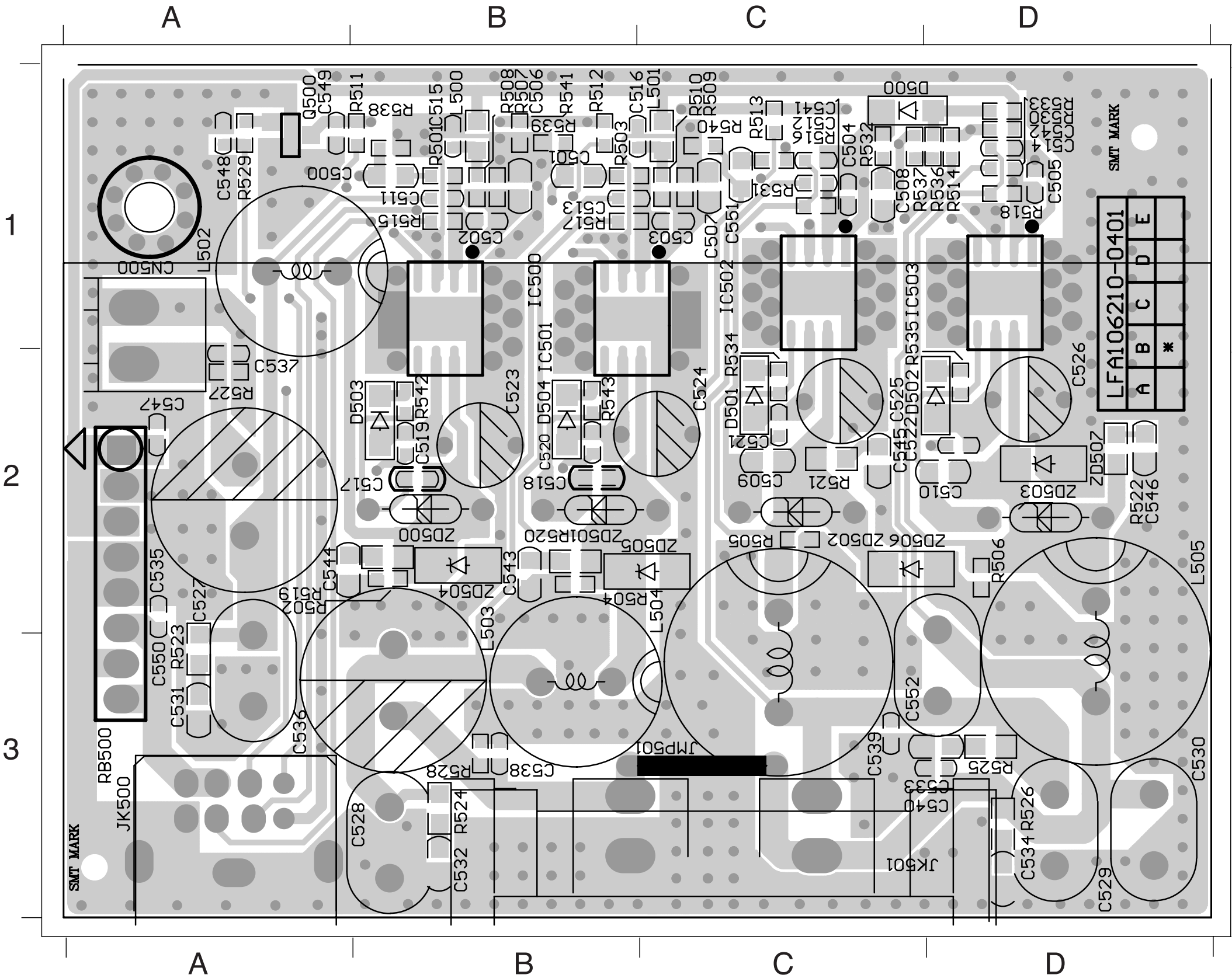
IC503-MP9720DS								
Pin NO	1	2	3	4	5	6	7	8
Voltage	16.30	16.20	-0.1	-0.1	22.00	26.70	16.00	0.00

CIRCUIT DIAGRAM - AMPLIFIER BOARD



C500	B3	C541	C4	R511	B3
C501	B3	C542	D4	R512	B3
C502	A3	C543	C5	R513	C3
C503	B3	C544	B5	R514	D3
C504	C3	C545	C5	R515	A4
C505	D3	C546	D5	R516	C4
C506	A4	C547	D1	R517	B4
C507	B4	C548	C1	R518	D4
C508	D2	C549	C2	R519	B5
C509	C4	C550	D1	R520	C5
C510	D4	C551	C2	R521	C5
C511	A4	C552	C5	R522	D5
C512	C4	CN500	B6	R523	B5
C513	B4	D500	D3	R524	B5
C514	C4	D501	C4	R526	D5
C515	A4	D502	D3	R527	B5
C516	B4	D503	B4	R529	C1
C517	B4	D504	C4	R530	C1
C518	B4	IC500	A4	R531	C3
C519	A4	IC501	B4	R532	D2
C520	B4	IC502	C4	R533	D3
C521	C4	IC503	D4	R534	C4
C522	D4	JK500	A1	R535	D4
C523	A5	JK501	C6	R536	D3
C524	B5	L500	A4	R537	D3
C525	C4	L501	B4	R538	B3
C526	D4	L502	B5	R539	B3
C527	B5	L503	B5	R540	C2
C528	C5	L504	C5	R541	C2
C529	C5	L505	D5	R542	B4
C530	D5	Q500	C1	R543	C4
C531	B5	R501	B3	RB500	D1
C532	C5	R502	B5	ZD500	B4
C533	C5	R503	B3	ZD501	C4
C534	D5	R504	C5	ZD502	C4
C535	B5	R505	C5	ZD503	D4
C536	B5	R506	D5	ZD504	B4
C537	B5	R507	A3	ZD505	C4
C538	C5	R508	A4	ZD506	C4
C539	C5	R509	B3	ZD507	D4
C540	D5	R510	B4		

PCB LAYOUT -AMPLIFIER BOARD



C500	A1	C542	D1	R512	B1
C501	B1	C543	B2	R513	C1
C502	B1	C544	A2	R514	D1
C503	C1	C545	C2	R515	B1
C504	C1	C546	D2	R516	C1
C505	D1	C547	A2	R517	B1
C506	B1	C548	A1	R518	D1
C507	C1	C549	A1	R519	A2
C508	C1	C550	A3	R520	B2
C509	C2	C551	C1	R521	C2
C510	D2	C552	C3	R522	D2
C511	B1	CN500	A1	R523	A3
C512	C1	D500	C1	R524	B3
C513	B1	D501	C2	R525	D3
C514	D1	D502	C2	R526	D3
C515	B1	D503	B2	R527	A2
C516	C1	D504	B2	R528	B3
C517	B2	IC500	B1	R529	A1
C518	B2	IC501	B1	R530	D1
C519	B2	IC502	C1	R531	C1
C520	B2	IC503	C1	R532	C1
C521	C2	JK500	A3	R533	D1
C522	C2	JK501	C3	R534	C2
C523	B2	JMP501	C3	R535	C2
C524	C2	L500	B1	R536	D1
C525	C2	L501	C1	R537	C1
C526	D2	L502	A1	R538	B1
C527	A2	L503	B3	R539	B1
C528	B3	L504	C2	R540	C1
C529	D3	L505	D2	R541	B1
C530	D3	Q500	A1	R542	B2
C531	A3	R501	B1	R543	B2
C532	B3	R502	A2	RB500	A3
C533	D3	R503	B1	ZD500	B2
C534	D3	R504	C2	ZD501	B2
C535	A2	R505	C2	ZD502	C2
C536	A3	R506	D2	ZD503	D2
C537	A2	R507	B1	ZD504	B2
C538	B3	R508	B1	ZD505	C2
C539	C3	R509	C1	ZD506	C2
C540	D3	R510	C1	ZD507	D2
C541	C1	R511	B1		

ELECTRICAL PARTS LIST - AMPLIFIER BOARD

D2000	9965 000 19409	DIODE BAV16W/IN4148W
D2001	9965 000 19409	DIODE BAV16W/IN4148W
D2002	9965 000 19409	DIODE BAV16W/IN4148W
D2003	9965 000 19409	DIODE BAV16W/IN4148W
D2004	9940 000 05475	ZENER 5.1V 5% 0.5W(E1)
D2005	9940 000 05475	ZENER 5.1V 5% 0.5W(E1)
D2500	9965 000 19409	DIODE BAV16W/IN4148W
DP200	9940 000 05469	VFD 35P AOTOM:33082-1A01
IC200	9965 000 12550	IC 52P PT6311
L2004	9940 000 05471	CHOKE 1 μ H 5%
LD200	9940 000 05468	LED D2.94 BLUE ROUND 2P
Q2000	9940 000 00915	XISTR NPN 2SC1623
Q2002	9940 000 00915	XISTR NPN 2SC1623
Q2500	9940 000 05335	XISTR NPN TIP41C
Q2501	9965 000 28742	XISTR NPN 2SD882P
Q2502	9940 000 00915	XISTR NPN 2SC1623
Q2503	9940 000 00915	XISTR NPN 2SC1623
R2506 Δ	9940 000 05474	FUSEABLE RES 0.22 Ω 1/4W 5%
SN200	9940 000 05472	IRT RECEIVER IRM-2638AF4
T2500	9940 000 05473	OSC COIL 160 μ H 8% 796KHz
T2501	9965 000 22303	OSC COIL REC OSC 3mH
TA200	4822 276 13648	TACT SW SKHVBE3520
TA201	4822 276 13648	TACT SW SKHVBE3520
TA202	4822 276 13648	TACT SW SKHVBE3520
TA203	4822 276 13648	TACT SW SKHVBE3520
TA204	4822 276 13648	TACT SW SKHVBE3520
TA205	4822 276 13648	TACT SW SKHVBE3520
TA206	4822 276 13648	TACT SW SKHVBE3520
TA207	4822 276 13648	TACT SW SKHVBE3520
TA208	4822 276 13648	TACT SW SKHVBE3520
TA209	4822 276 13648	TACT SW SKHVBE3520
TA210	4822 276 13648	TACT SW SKHVBE3520
TA211	4822 276 13648	TACT SW SKHVBE3520
TA212	4822 276 13648	TACT SW SKHVBE3520
TA213	4822 276 13648	TACT SW SKHVBE3520
ZD200	9940 000 05475	DIODE ZENER 5.1V 5% 0.5W
ZD201	9940 000 05476	DIODE ZENER 5.6V 0.5W 5%
ZD202	9940 000 05476	DIODE ZENER 5.6V 0.5W 5%
ZD250	9940 000 05477	DIODE ZENER 19.5-20.4V 0.5W
ZD251	9940 000 05478	DIODE ZENER 9.1V 5% 0.5W

Note: Only these parts mentioned in the list are normal service parts.

Voltage

IC902-SENSOR 4P CTR:200-400						
Pin NO	1	2	3	4		
Voltage	4.49	3.40	5.80	11.00		

IC903-TL 431 TO-92						
Pin NO	1	2	3			
Voltage	2.48	0.00	3.40			

IC901-TOP247Y						
Pin NO	1	2	3	4	5	6
Voltage	5.80	2.60	1.30	0.00	0.00	321.00

POWER BOARD

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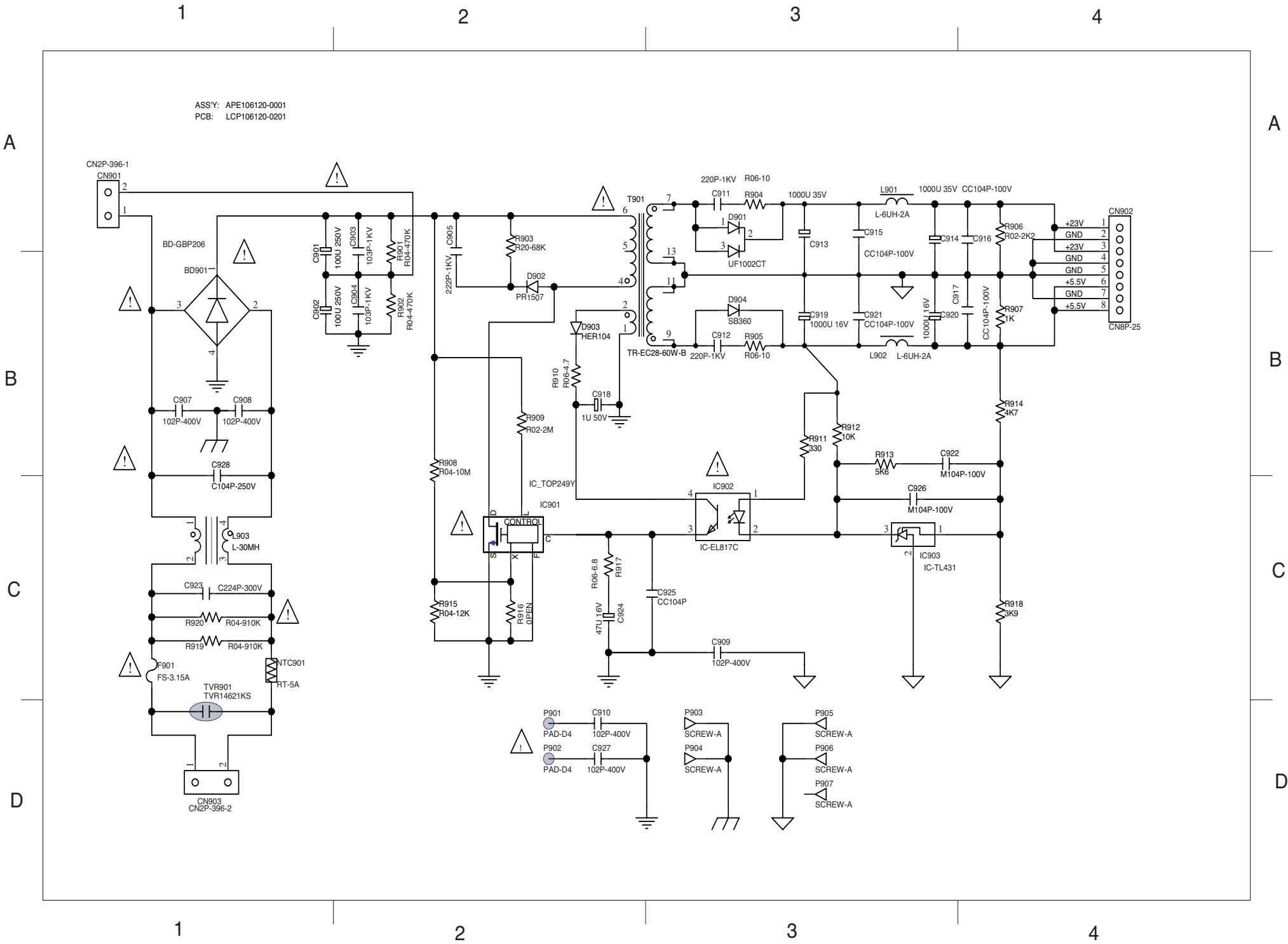
Circuit Diagram8-2

PCB Layout Top & Bottom View8-3

Electrical Parts List8-4

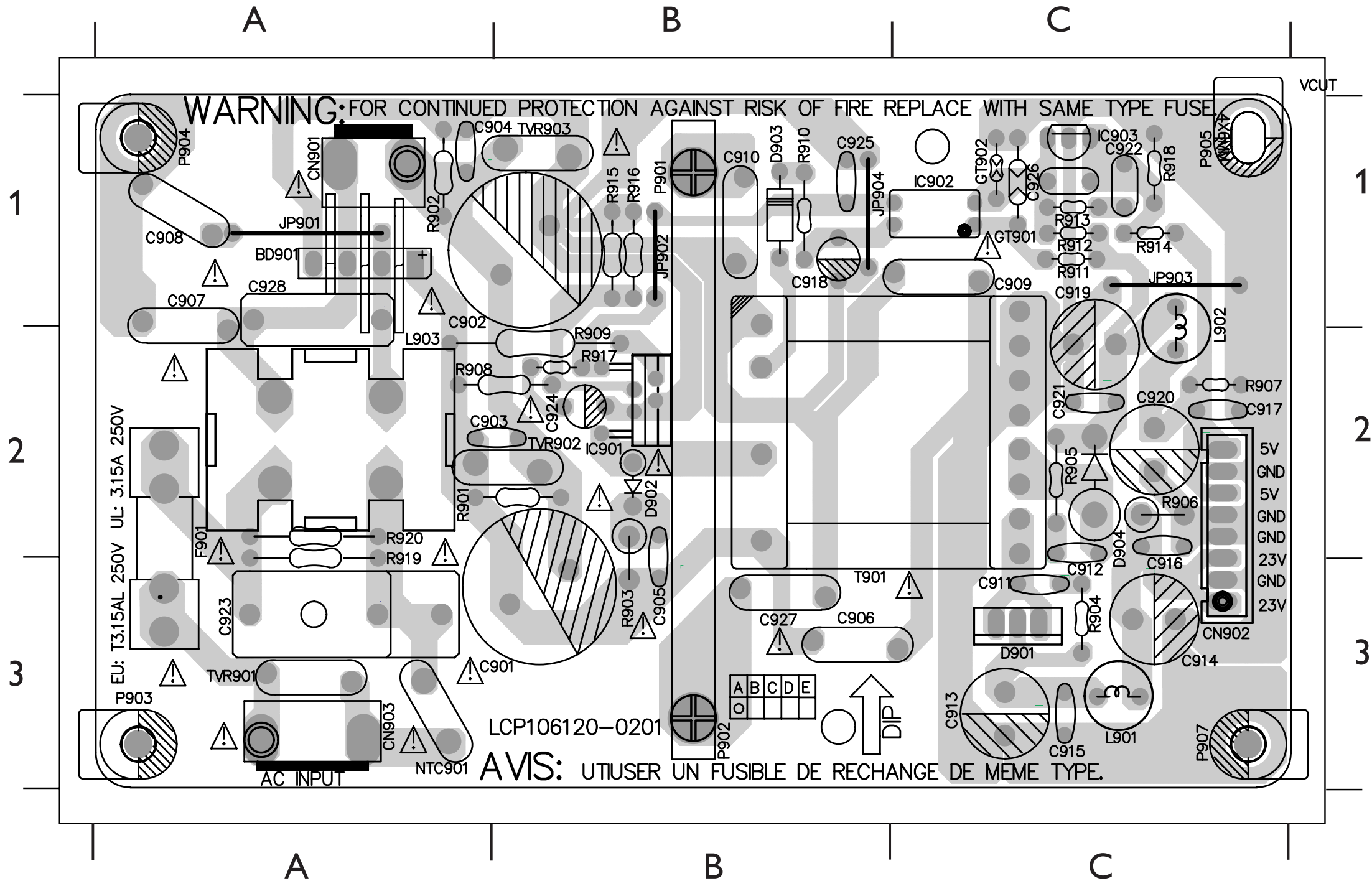
CIRCUIT DIAGRAM - POWER BOARD

BD901	C1	C909	B3	C917	C4	C925	B3	D902	C2	L902	C3	P906	A3	R906	D4	R914	C4	TVR901	A1
C901	D1	C910	A2	C918	C2	C926	B3	D903	C2	L903	B1	P907	A3	R907	C4	R915	B2		
C902	C1	C911	D3	C919	C3	C927	A2	D904	C3	NTC901	B1	P910	A2	R908	C2	R916	B2		
C903	D2	C912	C3	C920	C3	C928	C1	F901	B1	P901	A2	R901	D2	R909	C2	R917	B2		
C904	C2	C913	D3	C921	C3	CN901	D1	IC901	B2	P902	A2	R902	C2	R910	C2	R918	B4		
C905	D2	C914	D3	C922	C3	CN902	D4	IC902	B3	P903	A3	R903	D2	R911	C3	R919	B1		
C907	C1	C915	D3	C923	B1	CN903	A1	IC903	B3	P904	A3	R904	D3	R912	C3	R920	B1		
C908	C1	C916	D4	C924	B2	D901	D3	L901	D3	P905	A3	R905	C3	R913	C3	T901	D2		



PCB LAYOUT - POWER BOARD

BD901	A1	C909	C1	C917	C2	C925	B1	D902	B2	JP902	B1	P902	B3	R904	C3	R912	C1	R920	A2
C901	A3	C910	B1	C918	B1	C926	C1	D903	B1	JP903	C1	P903	A3	R905	C2	R913	C1	T901	B3
C902	A1	C911	C3	C919	C1	C927	B3	D904	C2	JP904	B1	P904	A1	R906	C2	R914	C1	TVR901	A3
C903	A2	C912	C2	C920	C2	C928	A1	F901	A2	L901	C3	P905	C1	R907	C2	R915	B1		
C904	B1	C913	C3	C921	C2	CN901	A1	IC901	B2	L902	C1	P907	C3	R908	A2	R916	B1		
C905	B3	C914	C3	C922	C1	CN902	C3	IC902	C1	L903	A2	R901	A2	R909	B2	R917	B2		
C907	A1	C915	C3	C923	A3	CN903	A3	IC903	C1	NTC903	A3	R902	A1	R910	B1	R918	C1		
C908	A1	C916	C2	C924	B2	D901	C3	JP901	A1	P901	B1	R903	B3	R911	C1	R919	A2		

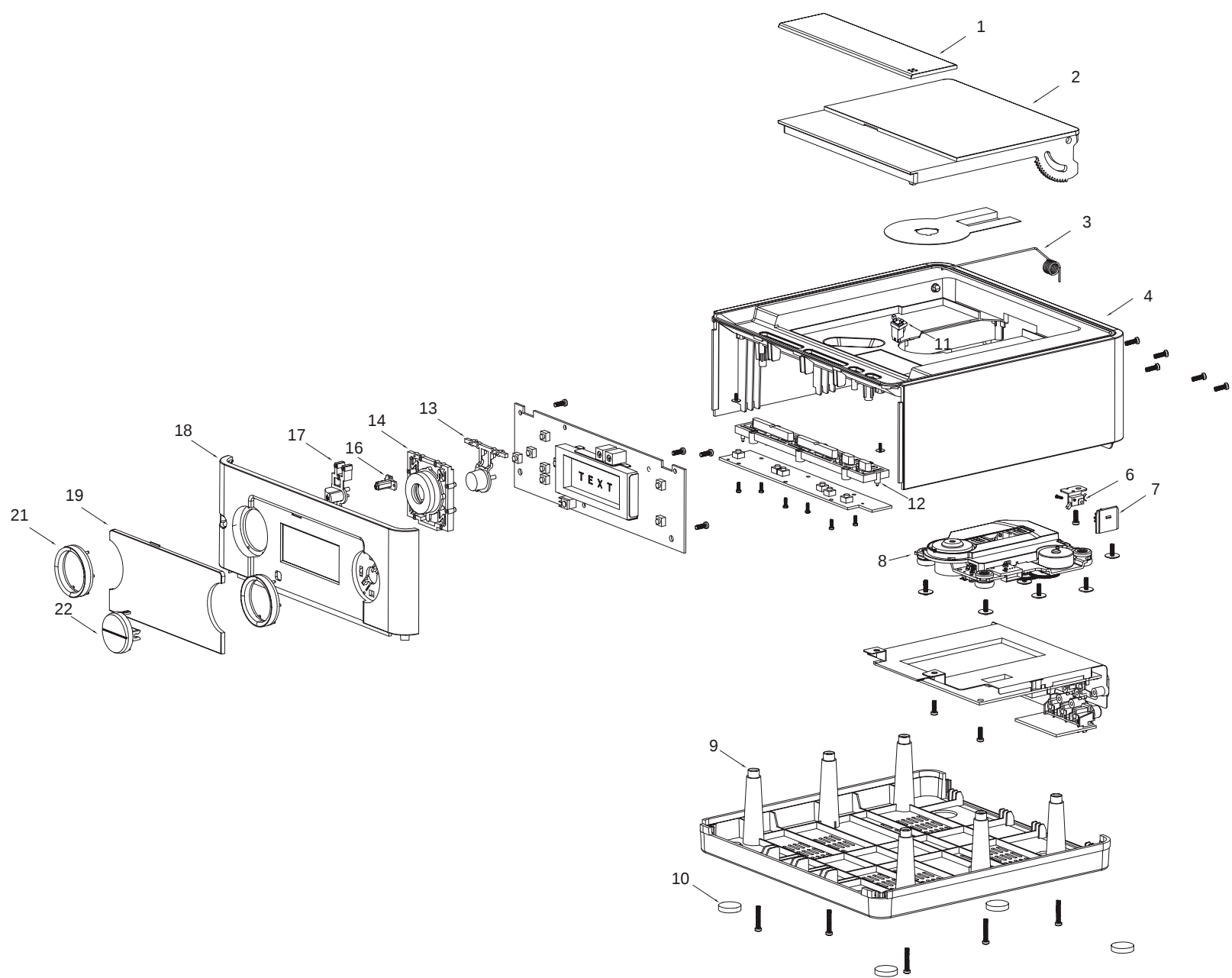


ELECTRICAL PARTS LIST - POWER BOARD

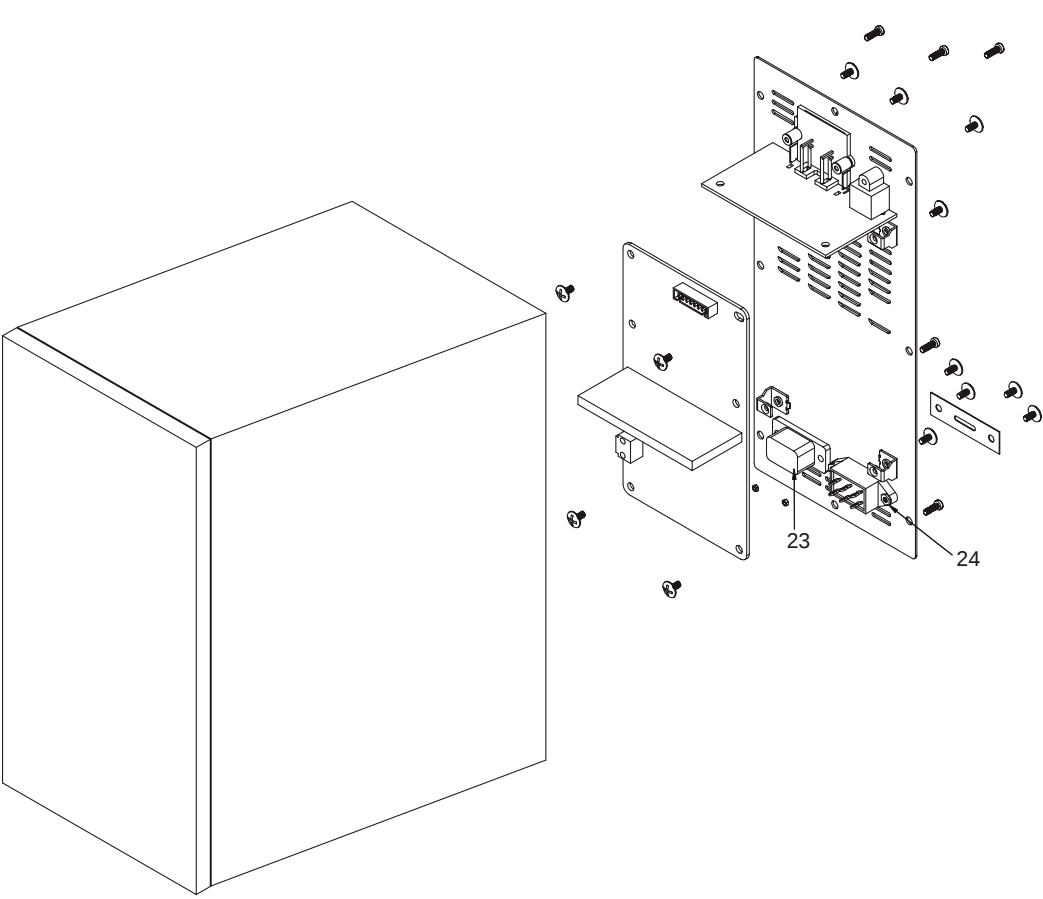
BD901	9940 000 05456	BRIDGE RECT. GBP206 2A
C903	9965 000 18042	COND DISC 0.01μF 1KV 20%
C904	9965 000 18042	COND DISC 0.01μF 1KV 20%
C905	9965 000 27125	COND DISC 0.0022μF 1KV 20%
C907	△ 9965 000 27115	CAP. SAFETY 102PF 250V 20%
C908	△ 9965 000 27115	CAP. SAFETY 102PF 250V 20%
C909	△ 9965 000 27115	CAP. SAFETY 102PF 250V 20%
C910	△ 9965 000 27115	CAP. SAFETY 102PF 250V 20%
C911	9940 000 05458	COND DISC 220pF 1KV 10%
C912	9940 000 05458	COND DISC 220pF 1KV 10%
C923	△ 9940 000 05237	CAP. SAFETY 0.22μF 300V 10%
C927	△ 9965 000 27115	CAP. SAFETY 102PF 250V 20%
C928	△ 9940 000 05707	COND SAFTY 0.1μF 250V 20%
D901	9940 000 05459	DIODE STPR1020CT
D902	9940 000 00938	DIODE PR1507 1.5A 1000V
D903	9940 000 00941	DIODE HER104 1A 300V 50nS
D904	9940 000 05249	DIODE SB360 3A 60V
F901	△ 9965 000 17388	FUSE 3.15A 250V
IC901	9940 000 05462	IC 6P TOP247Y PWM SWITCH
IC902	9940 000 00946	OPT. SENSOR 4P CTR:200~400
IC903	9940 000 01572	IC 3 PIN TL431
L903	9940 000 05457	AC FILTER ET-24 D0.45 30mH
NTC901	9940 000 05232	THERMIST. NTC 5Ω 5A
T901	△ 9940 000 05461	TRASFO ER-28 6+8 PIN
TVR901	9965 000 32754	THERMIST. PTC 50A 561V

Note: Only these parts mentioned in the list are normal service parts.

SET MECHANICAL EXPLODED VIEW



LEFT SPEAKER BOX EXPLODED VIEW



MECHANICAL & ACCESSORIES PARTS LIST

1	9940 000 05434	DOOR LENS	9940 000 05439	SPK ASS'Y 15Wx2+SUB 30W /MCD129
2	9940 000 05484	CD DOOR	9940 000 05441	MAIN SPK-L 4" 15W 4Ω /MCD129
3	9940 000 05438	CD DOOR SPRING LEFT	9940 000 05442	MAIN SPK-R 4" 15W 4Ω /MCD129
4	9940 000 05483	TOP CABINET	9940 000 05443	SUBWOOFER 5.25" 30W 8Ω /MCD129
6	9965 000 19374	SW LEAF KFC-101 AM200	9940 000 05709	MAIN SPK-L 4" 20W 4Ω /MCD109
7	9965 000 22120	DAMPER-ASSY-MODULE-0.8	9940 000 05711	MAIN SPK-R 4" 20W 4Ω /MCD109
8	9940 000 05479	DVD LOADER	9940 000 05712	MAIN SPK 20Wx2 /MCD109
9	9940 000 05423	BOTTOM CABINET	△ 9940 000 05444	LINE CORD 2P 1500mm /98
10	9940 000 05437	RUBBER FOOT D18.5xT2mm	△ 9965 000 40984	LINE CORD 2P 1500MM /93
11	9940 000 05481	DOOR LOCK OP/CL FUNCTION	△ 9965 000 41536	LINE CORD 2P 1500MM /55
12	9940 000 05486	FUNC BUTTON	9940 000 05445	REMOTE CONTROL 38KEYS
13	9940 000 05429	FUNC - PLAY BUTTON	9940 000 05446	DIN CABLE 8PIN 1500mm
14	9940 000 05431	FUNC - STOP BUTTON	9940 000 05482	FFC CABLE 24P 240mm
16	9940 000 05435	STANDBY LENS	9965 000 23580	RCA CABLE 1500mm OD2.6mm
17	9940 000 05428	FUNC - POWER KNOB		
18	9940 000 05485	FRONT PANEL		
19	9940 000 05433	DISPLAY LENS /MCD129		
19	9940 000 05708	DISPLAY LENS /MCD109		
21	9940 000 05436	CHORME RING		
22	9940 000 05432	FUNC - VOL BUTTON		
23	△ 9965 000 12443	AC SOCKET		
24	9940 000 01059	SW SLIDE 6PIN		

Note: Only these parts mentioned in the list are normal service parts.

REVISION LIST

1.0 Manual 3141 785 31030

Initial Service Manual released.

1.1 Manual 3141 785 31031

In this version, MCD109/55 and MCD129/93 have been added, Mechanical & Accessories Parts List updated.