

Service
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Service Manual

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PHILIPS

SPECIFICATIONS

系统

电源供给	~220V/50Hz
额定工作功率消耗(1/8额定输出功率)	≤80W
AUX输入灵敏度	≤800mV
声道分离	≥40db
失真	0.7%

DVD

频率响应	100Hz-20kHz(±1dB)
视频输出	1V _{p-p}
水平清晰度	≥500(TV)
尺寸	430(宽)x58(高)x323(深)mm
重量	1.85kg

放大器

额定输出功率(THD=10%)	4x50W(8Ω)+2x100W(4Ω)
频率响应	100Hz-20kHz(±1dB)
信噪比	≥70dB
载入阻抗	8Ω

扬声器

前置扬声器

系统	两路屏蔽
阻抗	8Ω
扬声器驱动器	1x3"低音, 1x2"高音
尺寸(宽 x 高 x 深)	100mm x 400mm x 56mm

中置扬声器

系统	两路屏蔽
阻抗	4Ω
扬声器驱动器	1x3"低音, 1x2"高音
尺寸(宽 x 高 x 深)	400mm x 100mm x 56mm

环绕扬声器

系统	两路屏蔽
阻抗	8Ω
扬声器驱动器	1x3"低音, 1x2"高音
尺寸(宽 x 高 x 深)	100mm x 400mm x 56mm

重低音扬声器

重低音扬声器(非磁屏蔽设计)	6.0"
阻抗	4Ω
尺寸(宽 x 高 x 深)	230mm x 285mm x 360mm

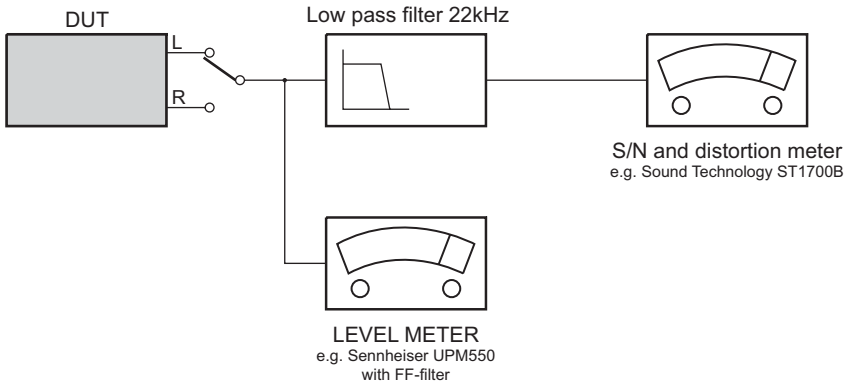
遥控器

距离	6m
角度	±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

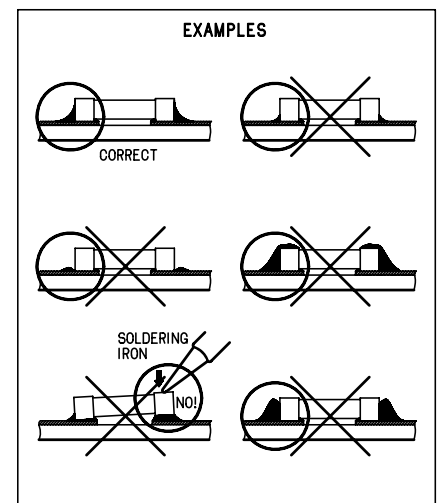
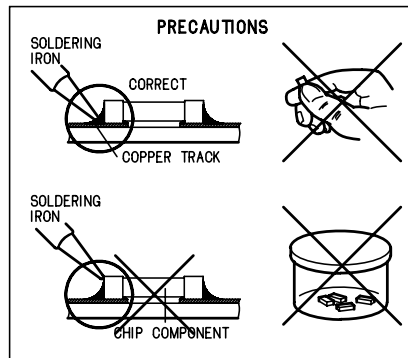
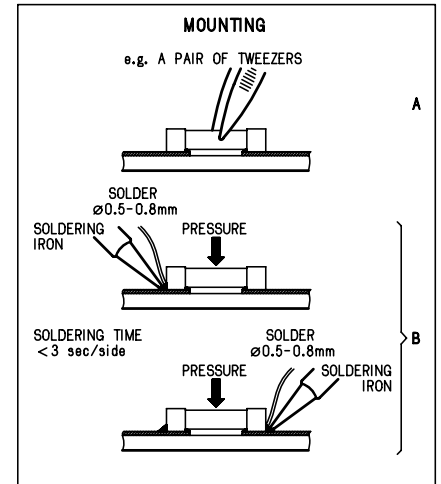
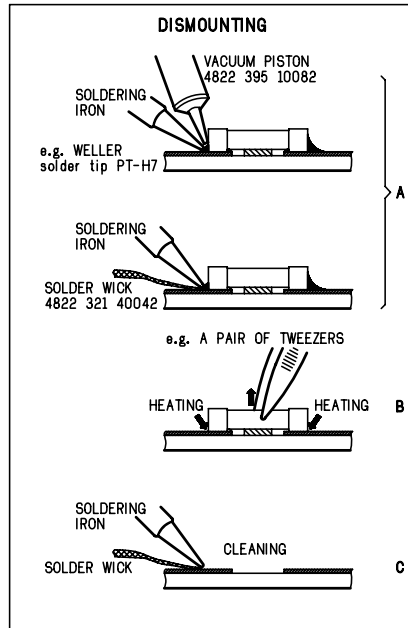
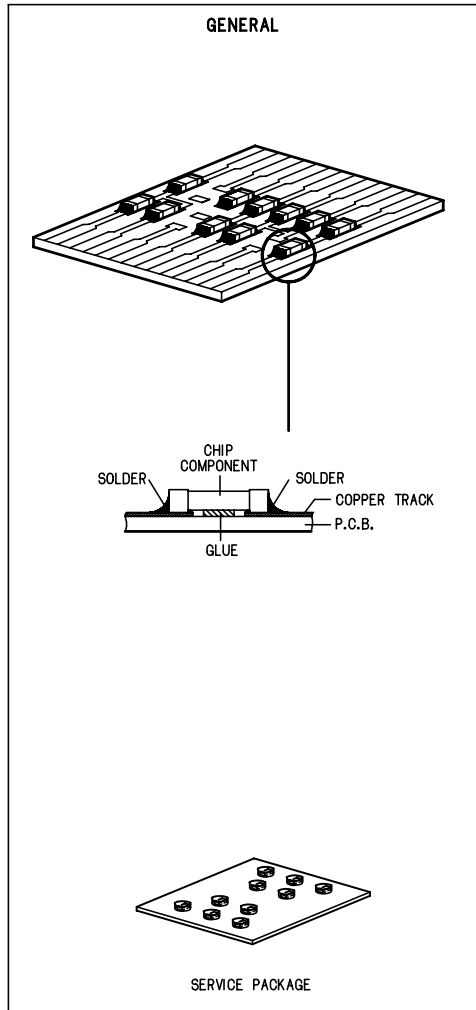
Compact Disc:

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.

(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 enfilez 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.

(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.

(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.

ESD**(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 \triangle .

(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 \triangle .

(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 \triangle

(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 \triangle 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 \triangle

(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 spårren är urkopplad. Betrakta ej strålen.

(SF) Varoitus !

Avatussa laitteessa ja suoalukituksen ohitettaessa olet alltiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

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

(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

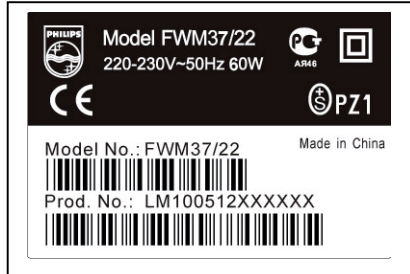
Philips CE is producing lead-free sets from 1.1.2005 onwards.

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 (leaded/ 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

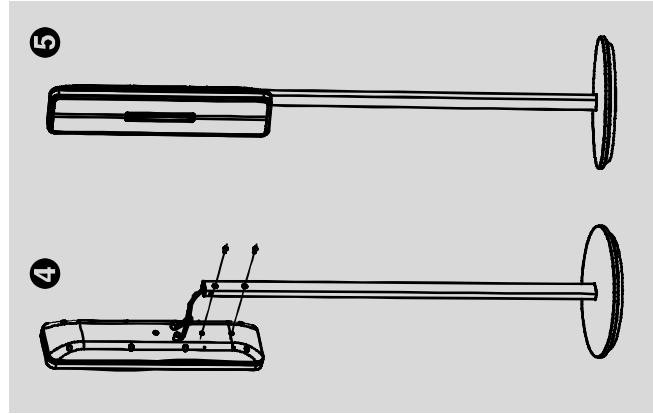
You will find this and more technical information within the "magazine", chapter "workshop news".

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:

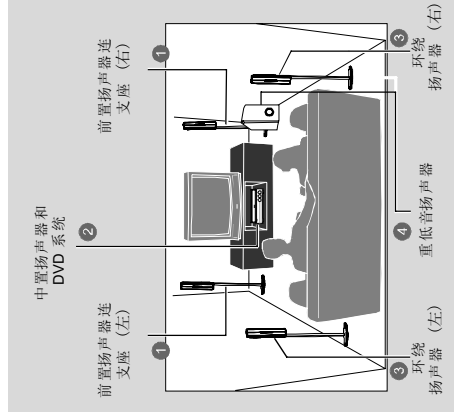
- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power Plug and the secondary side (only 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.



- 1 把音箱线从胶塞背面穿过, 音箱线插头方向在胶塞背面。
- 2 把音箱线穿过其余的零件。
- 3 扣入胶塞, 用平尾的带介螺丝固定铁支架; 用尖尾的带介螺丝固定塑胶盖。
- 4 将整个落地支架固定到箱体上, 再把音箱线接到接线柱。
- 5 完成安装。

- 您应该请一位专业人员将扬声器托架固定在墙上。切勿自己动手做此项工作, 以免对设备造成意想不到的损坏或人身伤害。

步骤三: 放置扬声器和重低音扬声器



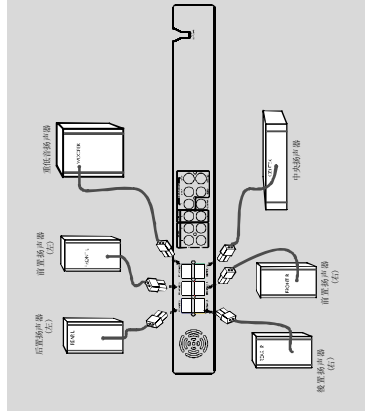
为了获得尽可能最佳的环境声效果, 所有扬声器 (重低音扬声器除外) 都应摆放在与聆听者距离相等的位置上。

- 1 把左前置和右前置扬声器摆放在在与电视机距离相等并与聆听者成大约45度角的位置。
- 2 把中置扬声器摆放在在电视机或本DVD系统的上方, 这样可将中置声道的声音本地化。
- 3 把环绕扬声器摆放在在正常听音下聆听者耳朵所处的高度, 两个环绕扬声器应彼此相对或挂在墙上。
- 4 把重低音扬声器靠近电视机摆放在在地板上。

注释:

- 为避免磁力干扰视听, 不要把前置扬声器太靠近电视机摆放。
- 必须确保DVD系统四周通风良好。

步骤四: 连接扬声器和重低音扬声器



- 使用固定的扬声器电缆连接随附的扬声器系统, 各插口的颜色必须与扬声器电缆插头的颜色相匹配。

注意:

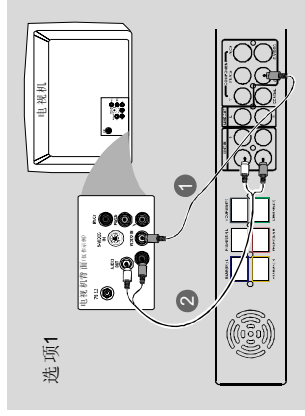
- 确保扬声器连接导线正确连接。错误的连接可能会引起短路从而造成设备损坏。

步骤五: 连接电视机

重要事项!

- 本系统与电视机相连的方式有多种。您只需根据电视机的类型选择一个最佳的连接方式。
- 将本DVD系统直接连至电视机。

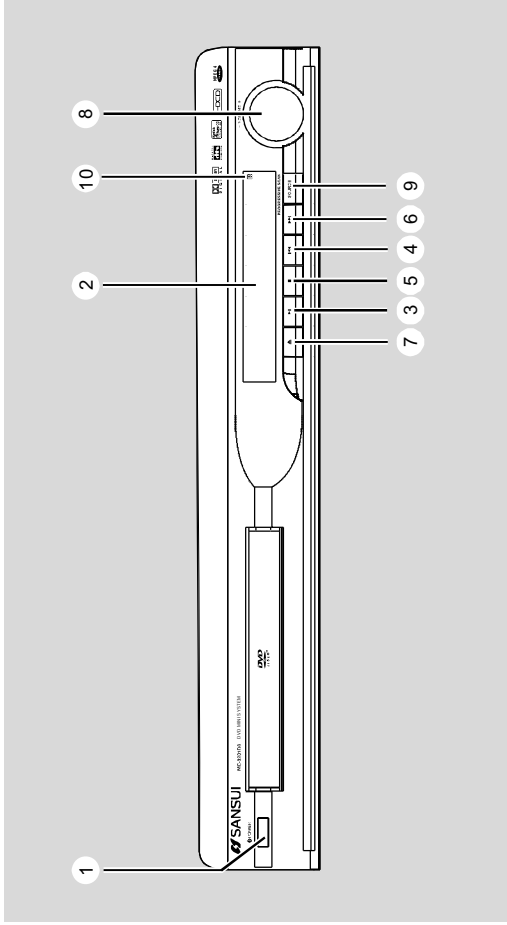
使用复合视频插口



- 1 使用随机所附的2合1音频和复合视频线中的复合视频插头将DVD系统的VIDEO OUT插口连接到电视机上的视频输入插口。
- 2 要通过本DVD系统聆听电视视频道的声音, 使用随机所附的2合1音频和复合视频线中的音频插头将 LINE IN 插口连接到电视机上对应的AUDIO OUT插口即可。

CONNECTIONS

Functional Overview



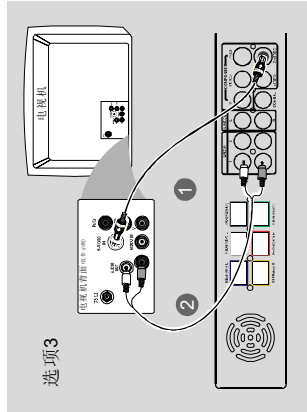
- ⑦ ▲ 打开或关闭光碟托盘门。
- ⑧ VOLUME +/- 调高或调低音量。
- ⑨ SOURCE 选择一个声源。
- ⑩ IR红外线信号接收器 遥控器须对此接收器操作。

DVD 播放机及功率放大器

- ① ⏻ POWER 开启系统或切换至待机状态。
- ② 显示屏 显示 DVD 播放机当前的状态。
- ③ ⏸ 开始或暂停光碟播放。
- ④ ⏪ 播放 DVD 碟片时,按上一曲选择键可跳到上一章节或标题开始播放。
播放普通碟片时,按上一曲选择键可跳到上一曲目开始播放。
- ⑤ ■ 停止光碟播放或清除编程。
- ⑥ ⏩ 播放 DVD 碟片时,按下一曲选择键可跳到下一章节或标题开始播放。
播放普通碟片时,按下一曲选择键可跳到下一曲目开始播放。

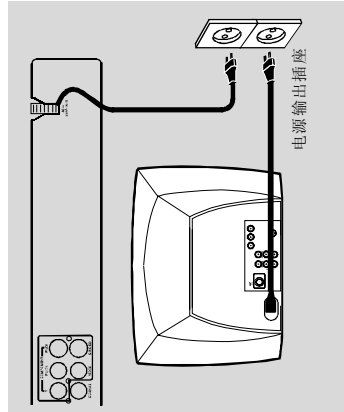
使用S-Video (S-视频) 插口

重要说明！
- 如果使用S-Video插口进行播放连接,系统的VIDEO OUT设定将需要作相应改变。



- ① 使用S-Video电缆将本DVD系统的S-VIDEO插口连接到电视机上的S-Video输入插口。
- ② 要通过本DVD系统聆听电视频道的声音,使用音频电缆将LINE IN插口连接到电视机上对应的AUDIO OUT插口即可。

步骤六: 连接电源线

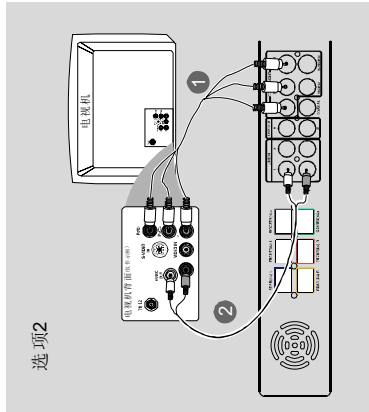


正确完成所有连接之后,将本机的交流电源线插入墙上的交流电源插座。
开启电源后,切勿插入、拔出连接。

Connections

使用ComponentVideo分量视频插口 (YPbPr)

重要说明！
- 只有使用YPbPr分量视频插口连接才能获得逐行扫描的高画质,而且需要一台逐行扫描电视机。





- ① 使用分量视频电缆将本DVD系统的YPbPr插口连接到电视机上对应的Component video input 分量视频输入插口(或标示为YPb/Cb Pr/C或YUV的插口)。
- ② 要通过本DVD系统聆听电视频道的声音,使用音频电缆把LINE IN插口连接到电视机上的AUDIO OUT插口即可。
- ③ 如果您正在使用逐行扫描电视机(电视机必须指示具有Progressive Scan或ProScan能力),要激活电视机的逐行扫描功能。

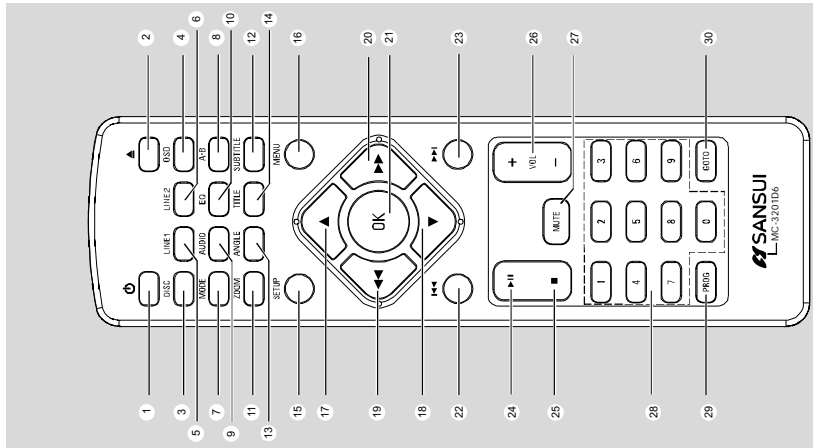
注释：
- 如果您的电视机不支持逐行扫描,您将无法观看画面。

CONNECTIONS AND FUNCTIONAL OVERVIEW









Functional Overview

遥控器

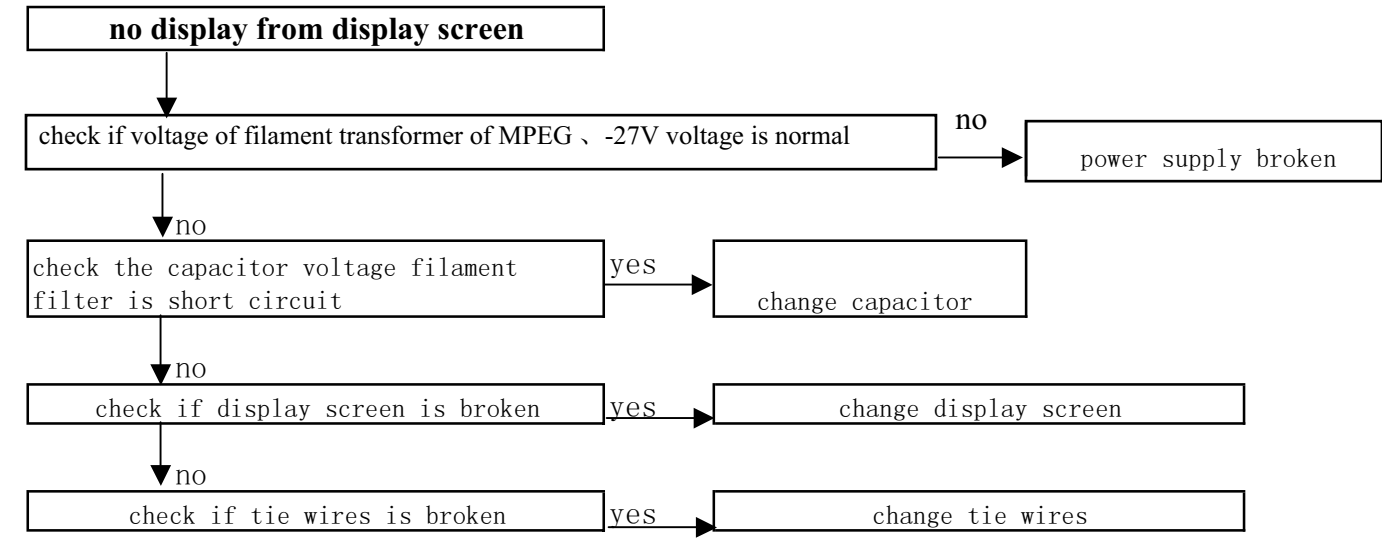
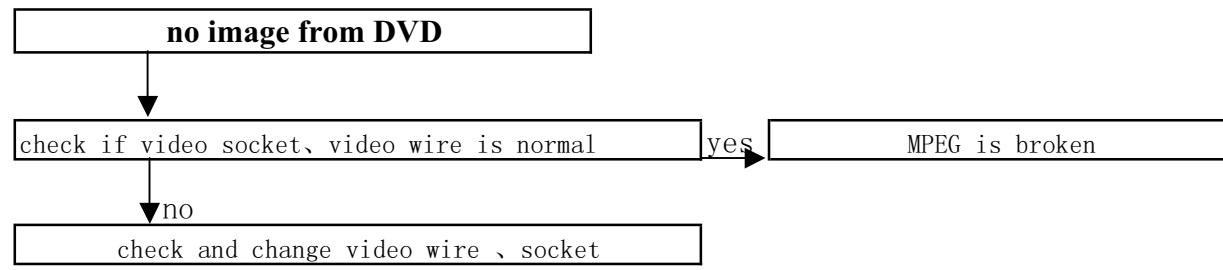
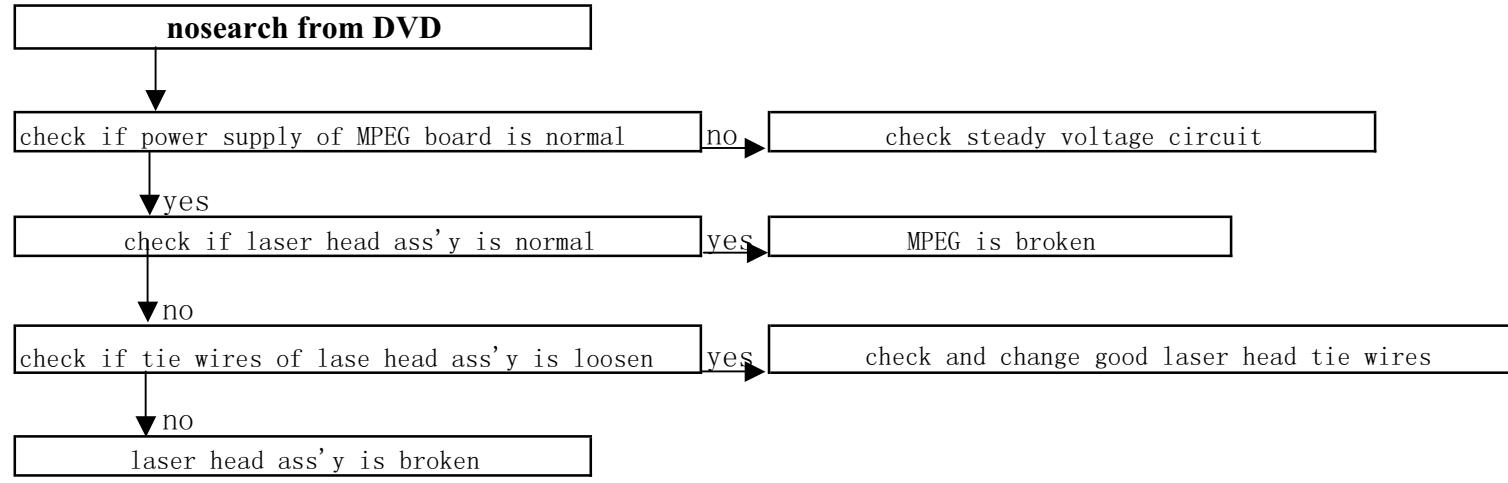
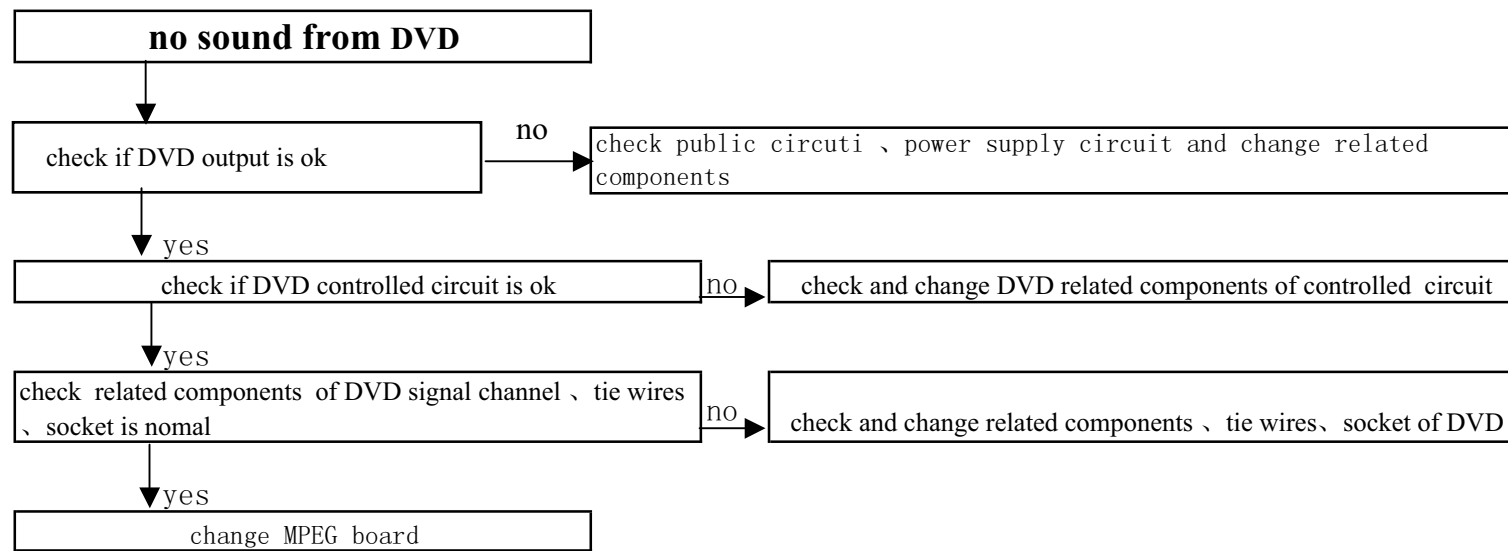
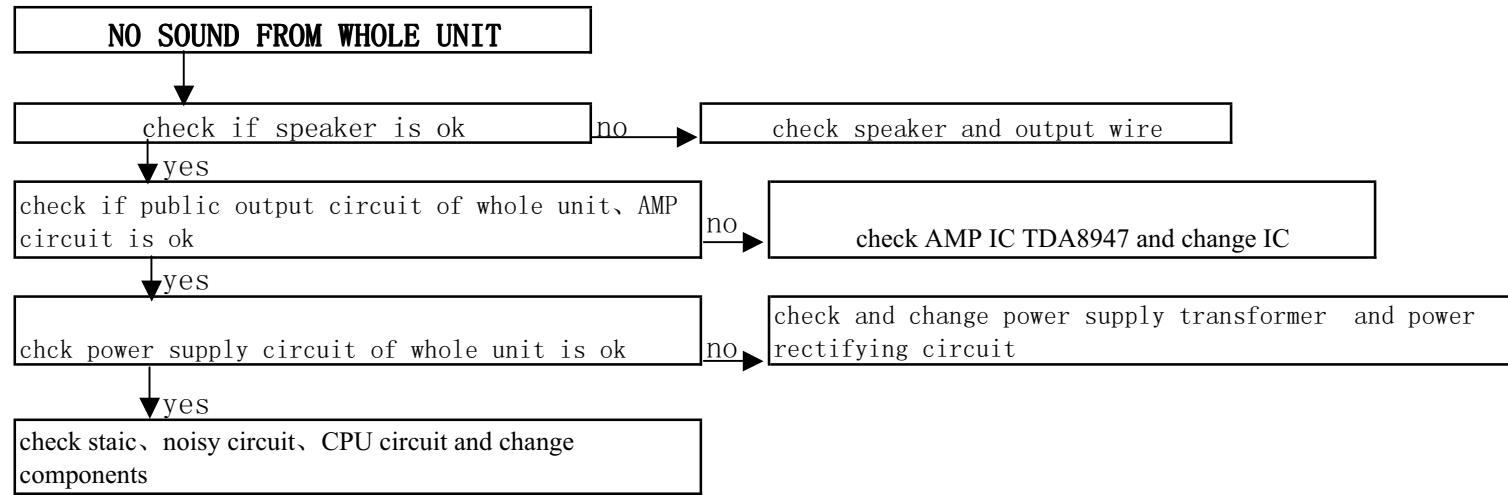
- ①  - 打开或关闭此系统。
- ②  - 打开或关闭光碟舱。
- ③ **DISC**
- 选择DVD的声源。
- ④ **OSD**
- 播放信息键,碟片的相关信息提示字符显示在电视屏幕上。
- ⑤ **LINE 1**
- 选择 LINE 1 声源。
- ⑥ **LINE 2**
- 选择 LINE 2 声源。
- ⑦ **MODE**
- 选择不同的光碟重复播放模式或选择随机播放模式。
- ⑧ **A-B**
- 重复播放光碟上的特定段落。
- ⑨ **AUDIO**
用于 **MPEG4/CD**
- 设定立体声、左声道或右声道模式。
用于 **DVD**
- 选择音频语言。
- ⑩ **EQ**
- 按预设均衡键可循环选择不同的均衡效果方式来改变音效。
- ⑪ **ZOOM**
- **DVD/图片CD**: 在电视机屏幕上放大或缩小一张图片或者活动图像。



Functional Overview

- ⑫ **SUBTITLE**
- 选择字幕语言。
- ⑬ **ANGLE**
- 选择 DVD 的摄像机角度。
- ⑭ **TITLE**
- 在DVD碟片的正常播放状态下按标题菜单键,本机立即停止当前的播放而进入到第一层标题菜单。
- ⑮ **SETUP**
- 按此键进入或退出菜单设置。
- ⑯ **MENU**
- 若您播放的是内含菜单功能的普通碟片,则您可PBC功能设置在“开”的状态,此时,碟内的菜单会显示在屏幕上,你可直接按数字键选取想要播放的曲目。
- 当播放 DVD 时,按一次根菜单键返回上一层子菜单。
- ⑰  - 向上选择。
- ⑱  - 向下选择。
- ⑲  - 按此键可以快速向后播放。
- 向左选择。
- ⑳  - 按此键可以快速向前播放。
- 向右选择。
- ㉑ **OK**
- 确认选项。
- ㉒  - 播放 DVD 碟片时,按上一曲选择键可跳到上一个章节或标题开始播放。
- 播放普通碟片时,按上一曲选择键可跳到上一曲目开始播放。
- ㉓  - 播放 DVD 碟片时,按下一曲选择键可跳到下一个章节或标题开始播放。
- 播放普通碟片时,按下一曲选择键可跳到下一曲目开始播放。
- ㉔  - 开始或暂停光碟播放。
- ㉕  - 停止光碟播放或清除编程。
- ㉖ **VOLUME +/-**
- 调高或调低音量。
- ㉗ **MUTE**
- 关闭或开启声音输出。
- ㉘ **数字键(0-9)**
- 输入光碟的曲目、章节或标题编号。
- ㉙ **PROG**
- DVD/CD: 进入程序菜单
- MP3/WMA-CD: 在程序列表中添加一个曲目或从中删除一个已编程曲目。
- 图片 CD: 播放过程中,选择一个幻灯片播放模式。
- ㉚ **GOTO**
- 通过输入一个时间或标题、章节、曲目号,在一张光碟中进行快速搜索。

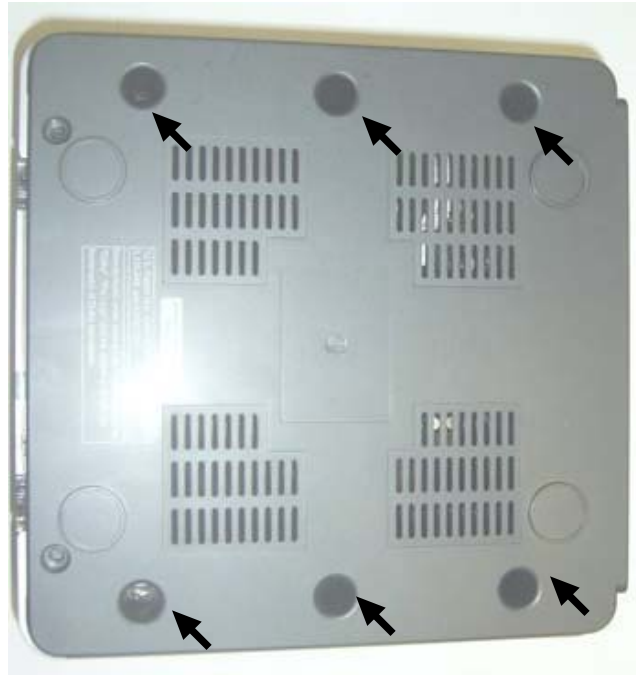
REPAIR INSTRUCTION



DISASSEMBLY INSTRUCTIONS

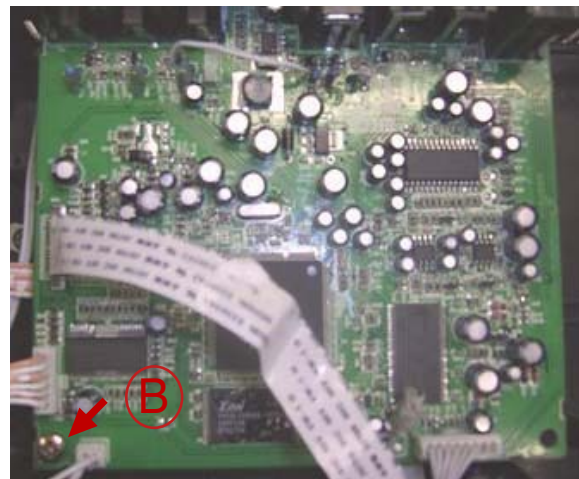
Dismantling of the bottom cabinet

- 1) Loosen 6 screws on the bottom cover as shown below



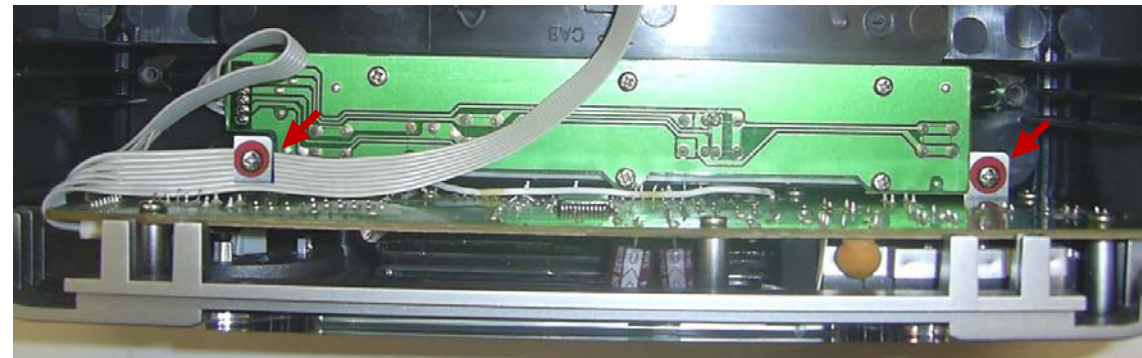
Dismantling of the Power & Amplifier Board

- 1) Loosen 5 screws " A " on the rear cabinet as shown below.
- 2) Loosen 1 screws " B " on the main board as shown below.



Dismantling of the front assembly

- 1) Loosen 2 screws as shown below

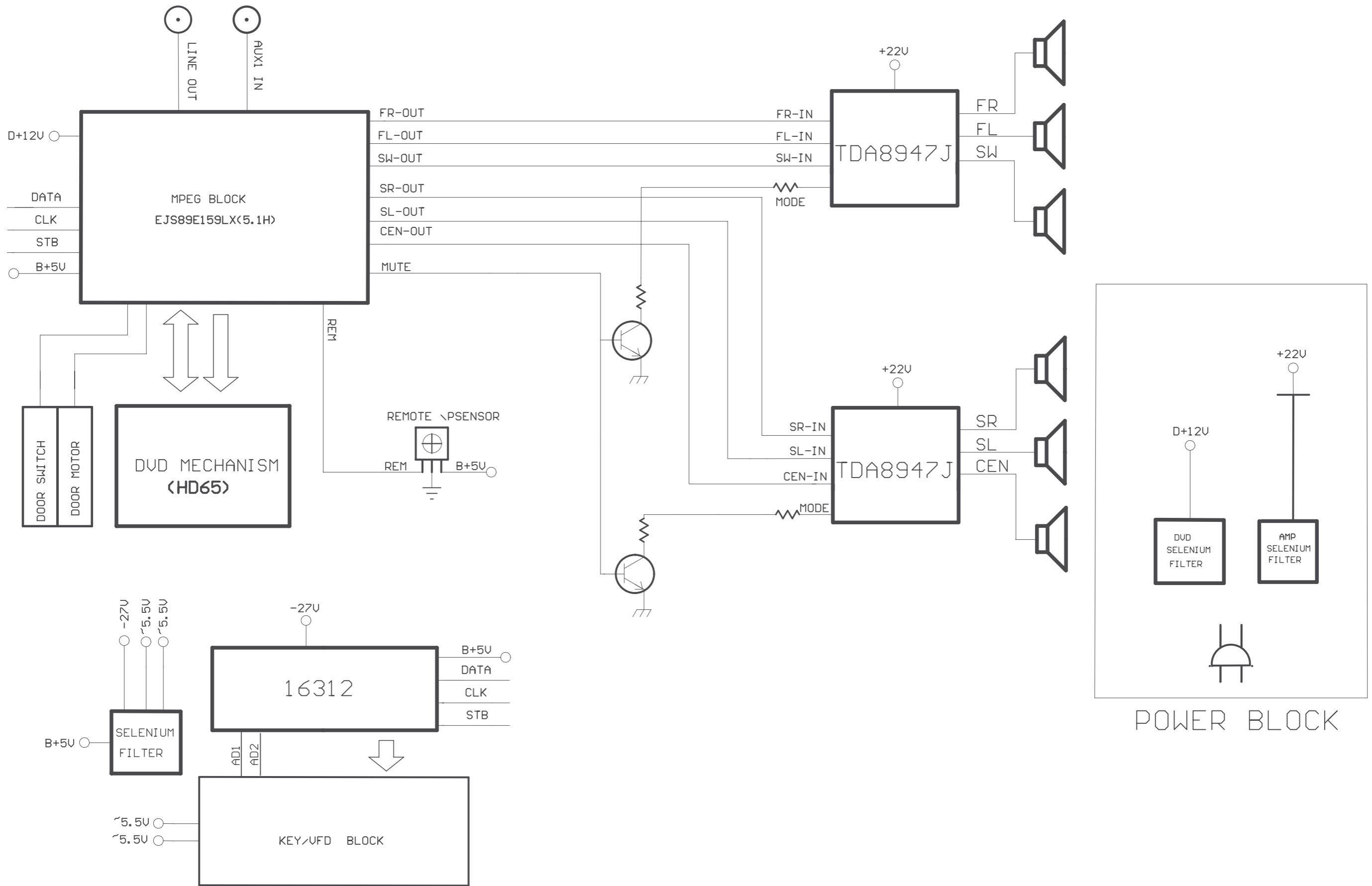


Dismantling of the Power & Amplifier Board

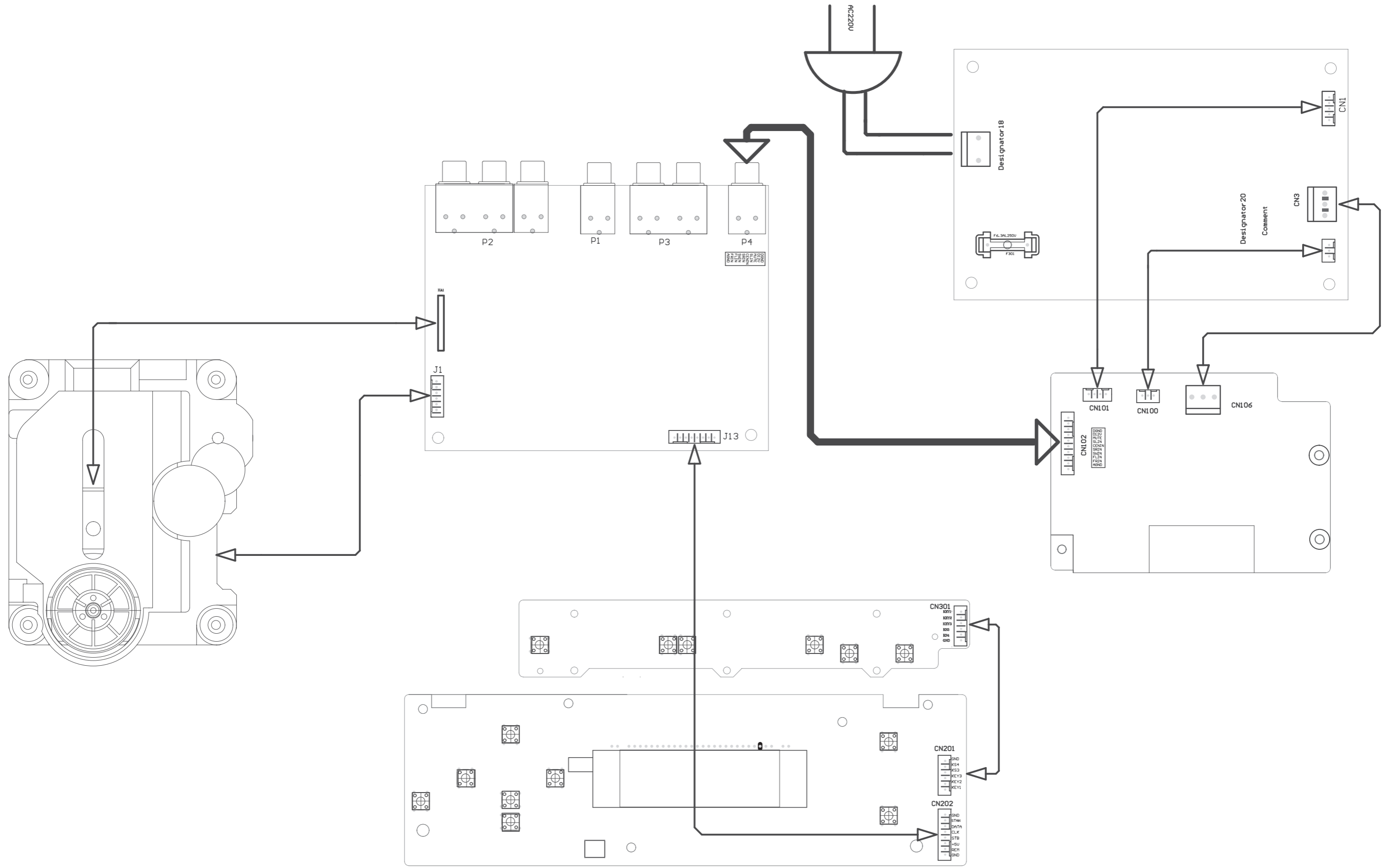
- 1) Loosen 8 screws " C " on the rear plate of speaker set as shown below.
- 2) Loosen 3 screws " D " on the rear plate to dismantling the Amplifier board as shown below.
- 3) Loosen 4 screws " E " on the top of power board to dismantling the power board as shown below.



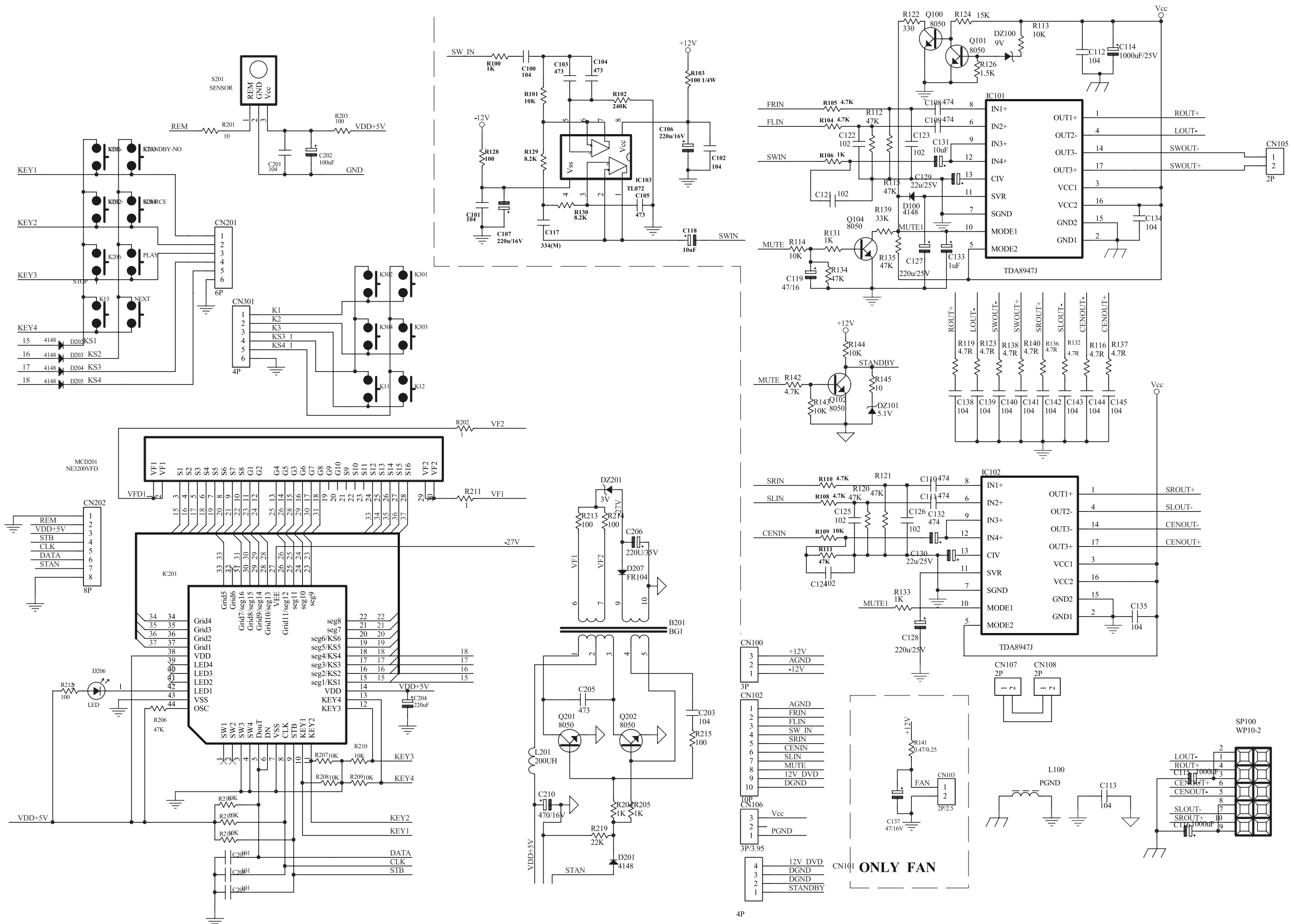
BLOCK DIAGRAM



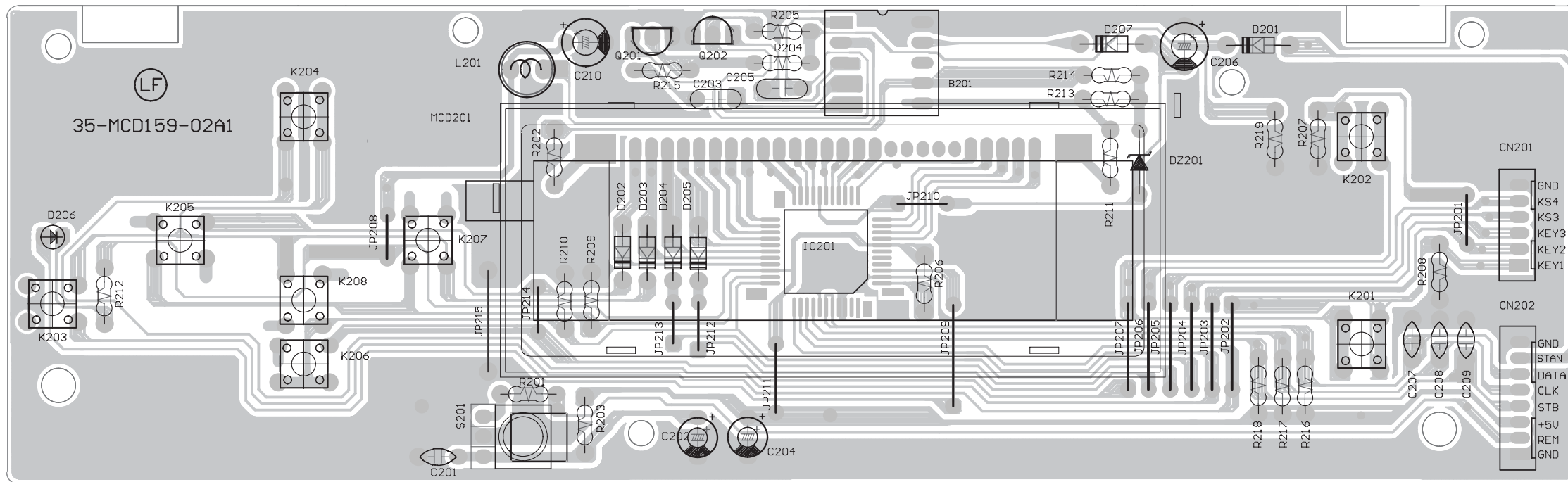
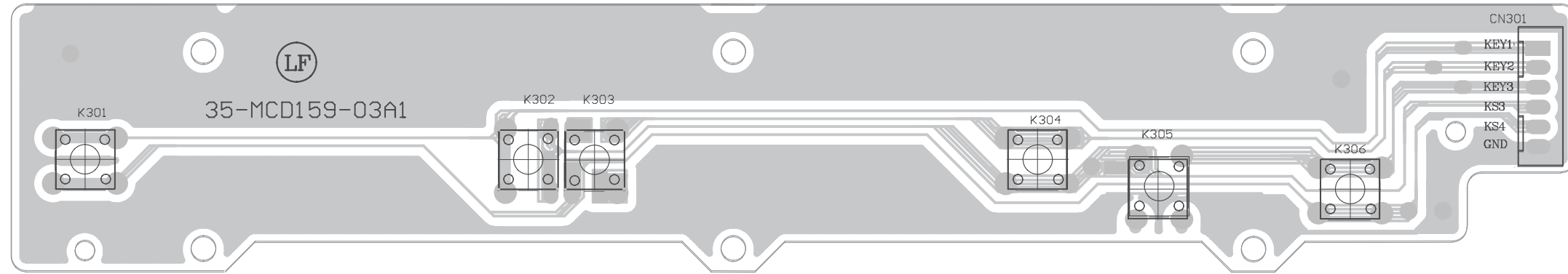
WIRING DIAGRAM



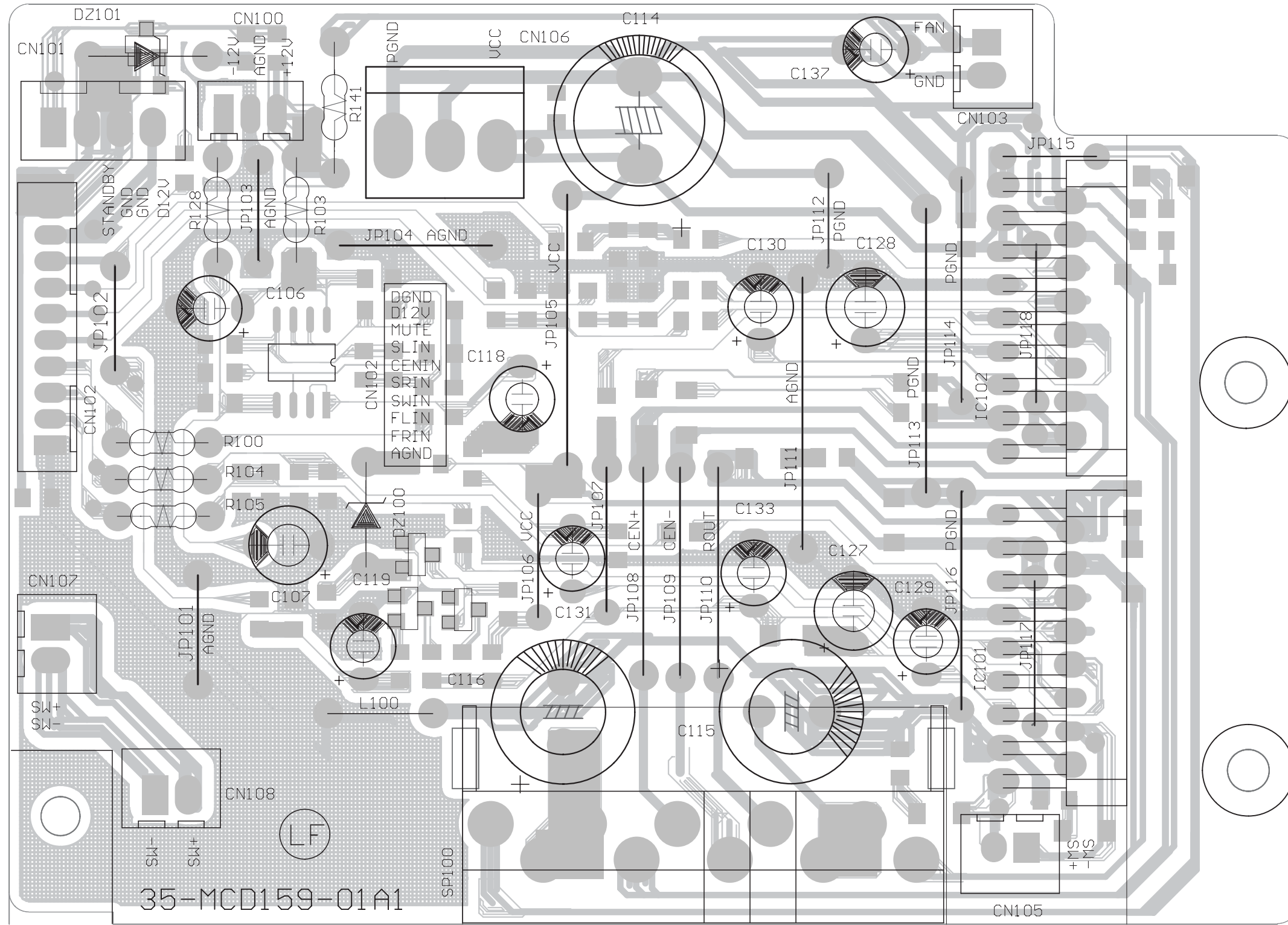
CIRCUIT DIAGRAM



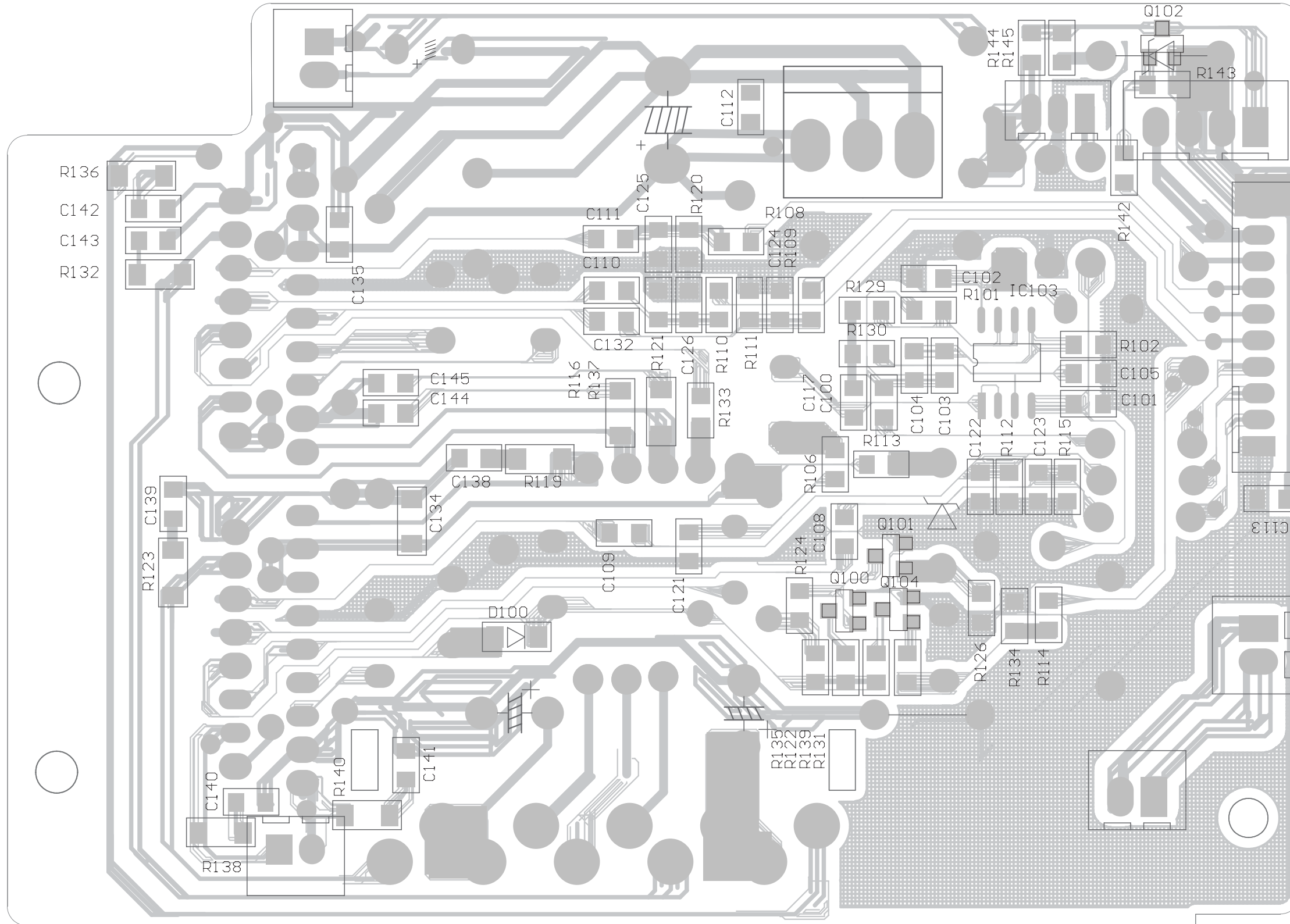
PCB LAYOUT - KEY & VFD BOARD



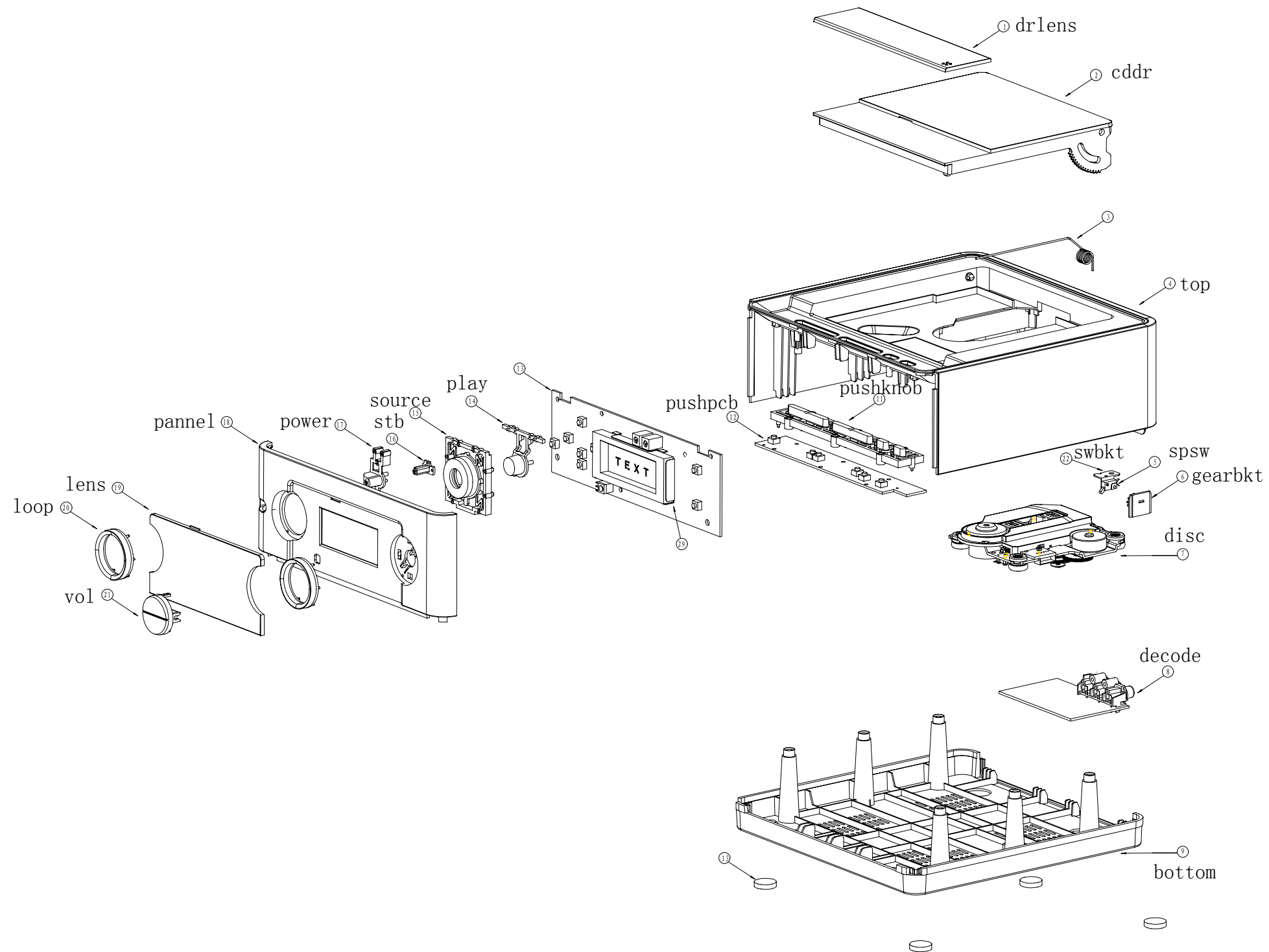
PCB LAYOUT - AMP.BOARD - TOP VIEW



PCB LAYOUT - AMP.BOARD - BOTTOM VIEW



SET MECHANICAL EXPLODED VIEW



ACCESSORY PARTS ASS'Y MCD159/93

videocbl	9965 100 00218	VIDEO CABLE 1.5m 3P RD WHI YEL
remote	9965 100 04181	REMOTE CONTROL ASS'Y
centrspk	9965 100 04206	CENTER SPEAKER BOX ASS'Y
enspkl	9965 100 04207	ENCIRCIE SPEAKER BOX(L) ASS'Y
enspkr	9965 100 04208	ENCIRCIE SPEAKER BOX(R) ASS'Y
frspkl	9965 100 04209	FRONT SPEAKER BOX ASS'Y(L)
frspkr	9965 100 04210	FRONT SPEAKER BOX ASS'Y
wfspkr	9965 100 04211	WOOFER SPEAKER BOX ASS'Y

DISPLAY PCB ASS'Y MCD159

B201	9965 100 04185	TRANSFORMER EPC13 5V
D206	9965 100 04186	LED DIODE RED
DZ201	9965 100 02926	ZENER DIODE 3V 1/2W-52
IC201	9965 100 04187	IC 16312
MCD201	9965 100 04188	VFD DISPLAY HL-D125G 20.5X75
S201	9965 100 15840	IR SENSOR 1MA81P36D1TD001
sw8	9940 000 04963	LIGHT TOUCH SW. TC103 H5

DVD CASING PARTS ASS'Y

bottom	9965 100 04192	MCD159 CABINET BOTTOM
cbl1	9965 100 04205	FLAT FLEX CBL 24PX250X0.5XA
cddr	9965 100 04194	MCD159 CD DOOR
drlens	9965 100 04197	MCD159 DVD DOOR LENS SAN
drsw	9965 100 04189	DOOR LATCH SWITCH DL-700F
gear	9965 100 00068	DAMPER GEAR(MC150-ARTS)
gearbkt	9965 100 00046	MCM190 DAMPER GEAR BRACKET
lens	9965 100 04193	MCD159 DISPLAY LENS
loop	9965 100 04196	MCD159 TWEETER DECORATIVE LOOP
pannel	9965 100 04195	MCD159 PANEL
play	9965 100 04201	MCD159 PLAY PUSH KNOB
power	9965 100 04202	MCD159 POWER PUSH KNOB
pushknob	9965 100 04198	MCD159 PUSH KNOB
source	9965 100 04199	MCD159 SOURCE PUSH KNOB
spsw	9965 100 04190	SPECIAL SWITCH DS-209
stb	9965 100 04203	MCD159 STANDBY LENS
swbkt	9965 100 04204	MCD159 SWITCH BRACKET
top	9965 100 04191	MCD159 CABINET TOP
vol	9965 100 04200	MCD159 VOL PUSH KNOB
pushpcb	9965 100 04182	PUSH KEY PCB ASS'Y MCD159
decode	9965 100 04183	DECODER CARD ASS'Y MCD159
disc	9965 100 04184	DVD DISC ASS'Y MCD735/12

AMP PCB ASS'Y MCD159

DZ100	9965 100 04212	CHIP ZENER DIODE 12V (LL-34)
IC101IC102	9965 100 04213	IC TDA8947J
IC103	9965 100 02941	IC TL072 SOP
SP100	9965 100 04214	SPEAKER TERMINA 10P WP10-2
fan	9965 0004100 3	MINI FAN RDM4010S DC12V/0.07A
pwpcb	9965 100 04216	POWER PCB ASS'Y DVD AMP 140W
spt	9965 100 04215	SPEAKER TERMINA 10P WP10-2

WOOFER SPK BOX CASING ASS'Y

SWITCH	9965 100 04222	SWITCH KCD1 6A/250V
acline	9965 100 04219	AC LINE CORD 1.95m
jack1	9965 100 04221	JACK VH3.96/3P
pwwire	9965 100 04218	POWER WIRE 130 2P
wire1	9965 100 04220	WIRE 2M 2.0/10
wofbox	9965 100 04217	WOOFER SPEAKER BOX MCD159

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