

Service  
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# Service Manual



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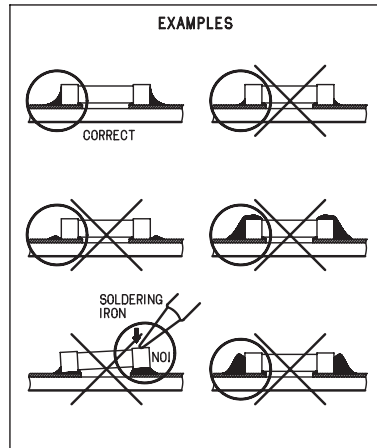
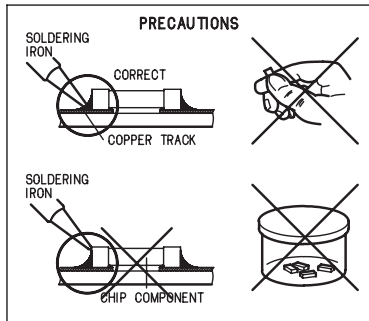
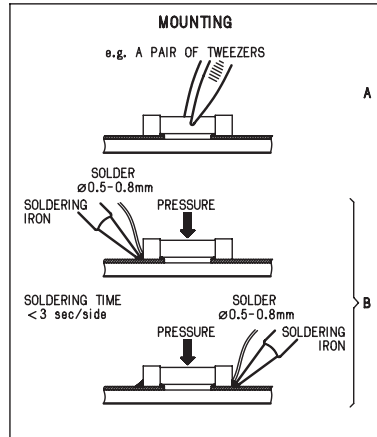
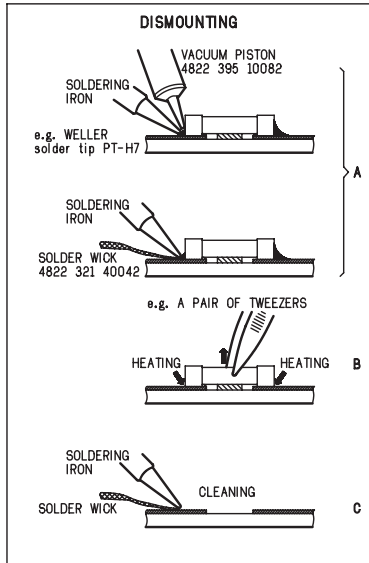
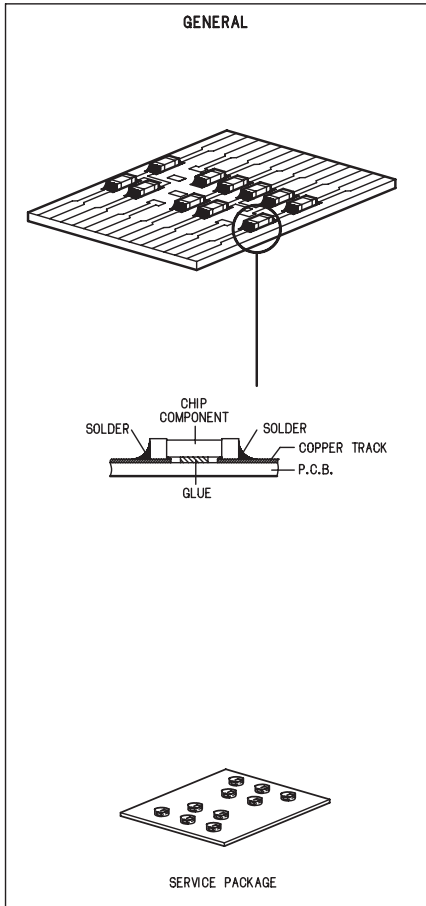
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# HANDLING CHIP COMPONENTS



**(GB) WARNING**

All ICs and many other semiconductors 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 wristband with resistance. Keep components and tools 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 ditzelfde 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 enfilez le bracelet seré 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. Sorgen Sie dafür, daß Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

**(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 cautela alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un bracciale a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

**(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

**SAFETY**



**(F)**

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

**(D)**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden. Sicherheitsbauteile sind durch das Symbol markiert.

**(NL)**

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast. De Veiligheidsonderdelen zijn aangeduid met het symbool

**(I)**

Le norme di sicurezza estigono 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) DANGER:** Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.



**(S) Varning!** Osynlig laserstråling när apparaten är öppnad och spårren är urkopplad. Betrakta ej strålen.

**(DK) Advarsel!** Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

**(FIN) Varoitus!** Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkyvämmälle laserisäteilylle. Älä katso säteeseen!

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

**(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

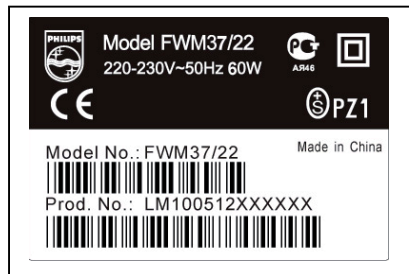
Philips CE is producing lead-free sets from 1.1.2005 onwards.

### 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](http://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.

## TECHNICAL SPECIFICATIONS

### AMPLIFIER

Output power .....	2 x 5 W RMS
Signal-to-noise ratio .....	≥ 60 dBA
Frequency response .....	63 – 16000 Hz, ± 3 dB
Input sensitivity AUX .....	0.5 V (max. 2 V)
Impedance loudspeakers .....	4 Ω
Impedance headphones .....	32 Ω -1000 Ω

### DVD PLAYER

Laser Type .....	Semiconductor
Disc Diameter .....	12cm / 8cm
Video Decoding .....	MPEG-2 / MPEG-1
Video DAC .....	10 Bits
Signal System .....	PAL / NTSC
Video Format .....	4:3 / 16:9
Video S/N .....	56 dB (minimum)
Composite Video Output .....	1.0 Vp-p, 75 Ω
S-Video Output .....	Y - 1.0 Vp-p, 75 Ω
.....	C - 0.286 Vp-p, 75 Ω
Audio DAC .....	24 Bits / 96 kHz
Frequency Response ....	4 Hz - 20 kHz (44.1kHz)
.....	4 Hz - 22 kHz (48kHz)
.....	4 Hz - 44 kHz (96kHz)
Digital Output .....	.....
.....	SPDIF (Sony Philips digital interface) Coaxial
Number of programmable tracks .....	16
Signal-to-noise ratio .....	≥ 65 dBA
Channel separation .....	≥ 40 dB (1 kHz)
Total harmonic distortion .....	< 0.1% (1 kHz)

### TUNER

FM wave range .....	87.5 – 108 MHz
MW wave range (9kHz) .....	531 – 1602 kHz
(10kHz).....	530 – 1700 kHz
Tuning grid.....	9110kHz
Sensitivity at 75 Ω	
– mono, 26 dB signal-to-noise ratio .....	2.8 μV
– stereo, 46 dB signal-to-noise ratio .....	61.4 μV
Selectivity .....	≥ 28 dB
Total harmonic distortion .....	≤ 5%
Frequency response .....	63 – 5500 Hz (-6 dB)
Signal-to-noise-ratio .....	≥ 50 dBA

### TAPE DECK

Frequency response	
Normal tape (type I) .....	125 – 6300 Hz (8 dB)
Signal-to-noise ratio	
Normal tape (type I) .....	40 dBA
Wow and flutter .....	≤ 0.4% DIN

### SPEAKERS

2-way bass reflex system	
Dimensions (w x h x d) .....	.....
.....	146 x 228 x 160 (mm)

### GENERAL INFORMATION

AC Power .....	110-127V
/220-240V, 50Hz/60Hz, switchable	
Dimensions (w x h x d) ..	146 x 228 x 216 (mm)
Weight (with/without speakers) .....	4.57 / 2.3 kg
Standby power consumption .....	≤ 7W

**Specifications and external appearance are subject to change without notice.**

## SERVICE TOOLS

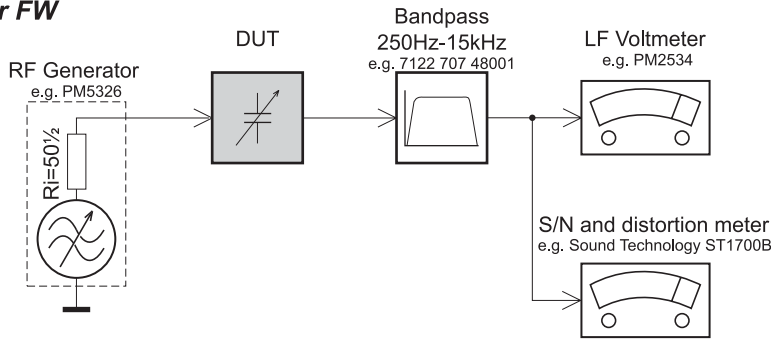
<b>TORX T10</b> screwdriver with shaftlength 150mm.....	4822 395 50423
<b>TORX screwdriver set</b> SBC 163.....	4822 295 50145
<b>Audio signal disc</b> SBC 429.....	4822 397 30184
<b>Playability test disc</b> SBC 444.....	4822 397 30245
<b>Test disc 5</b> (disc without errors) +	
<b>Test disc 5A</b> (disc with dropout errors, black spots and fingerprints)	
SBC 426/426A.....	4822 397 30096
<b>Burn in test disc</b> (65 min. 1kHz signal at -30 dB level without "pause").....	4822 397 30155
<b>Universal test cassette</b> Fe SBC 420.....	4822 397 30071

## AVAILABLE ESD PROTECTION EQUIPMENT

<b>anti-static table mat</b> large 1200x650x1.25mm	4822 466 10953
small 600x650x1.25mm	4822 466 10958
<b>anti-static wristband</b>	4822 395 10223
<b>connection box</b> (3 press stud connections, 1MΩ)	4822 320 11307
<b>extendible cable</b> (2m, 2MΩ, to connect wristband to connection box)	4822 320 11305
<b>connecting cable</b> (3m, 2MΩ, to connect table mat to connection box)	4822 320 11306
<b>earth cable</b> (1MΩ, to connect any product to mat or to connection box)	4822 320 11308
<b>KIT ESD3</b> (combining all 6 prior products - small table mat)	4822 310 10671
<b>wristband tester</b>	4822 344 13999

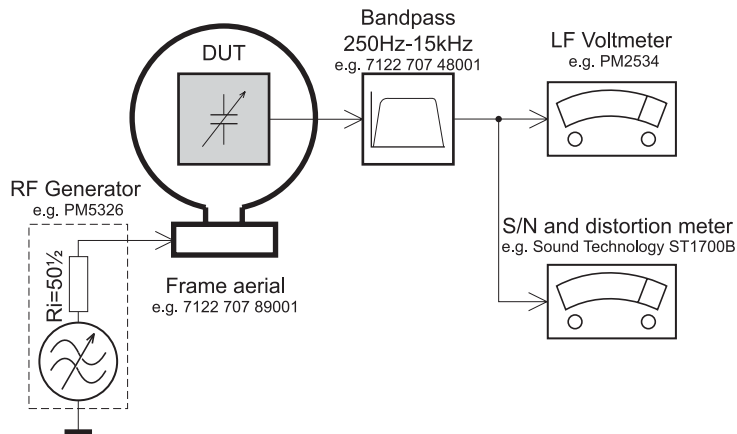
## SERVICE MEASUREMENT

### Tuner FW



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilotone (19kHz, 38kHz).

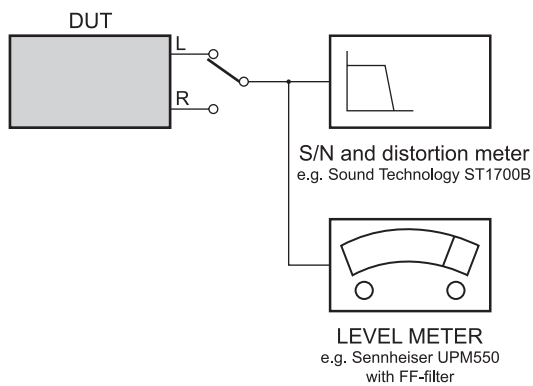
### Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday«s cage. Use a bandpass filter (or at least a high pass filter with 250kHz) to eliminate hum (50Hz, 100Hz).

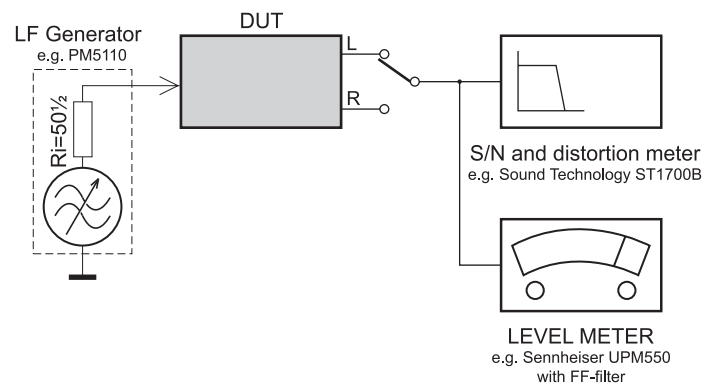
### CD

Use Audio Signal Disc SBC429 4822 397 30184  
(replaces test disc 3)

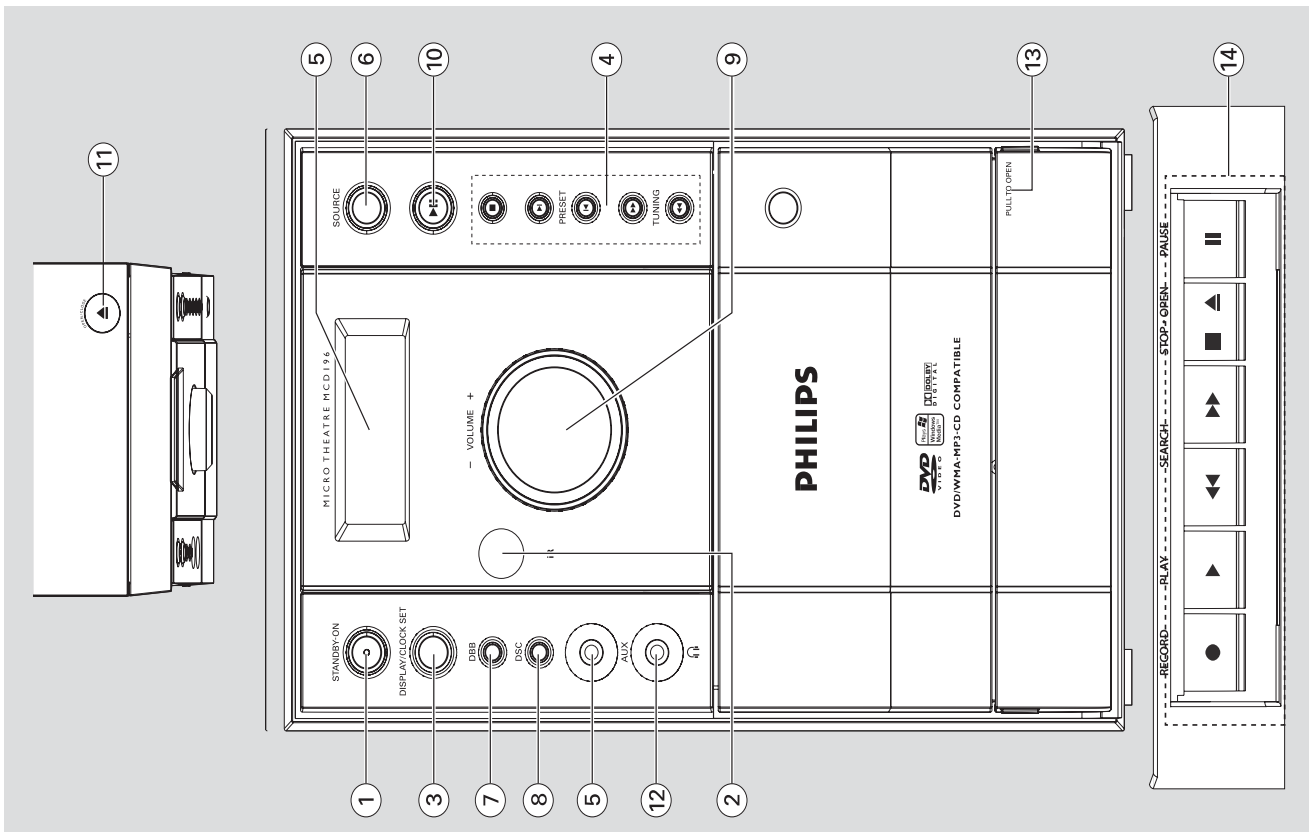
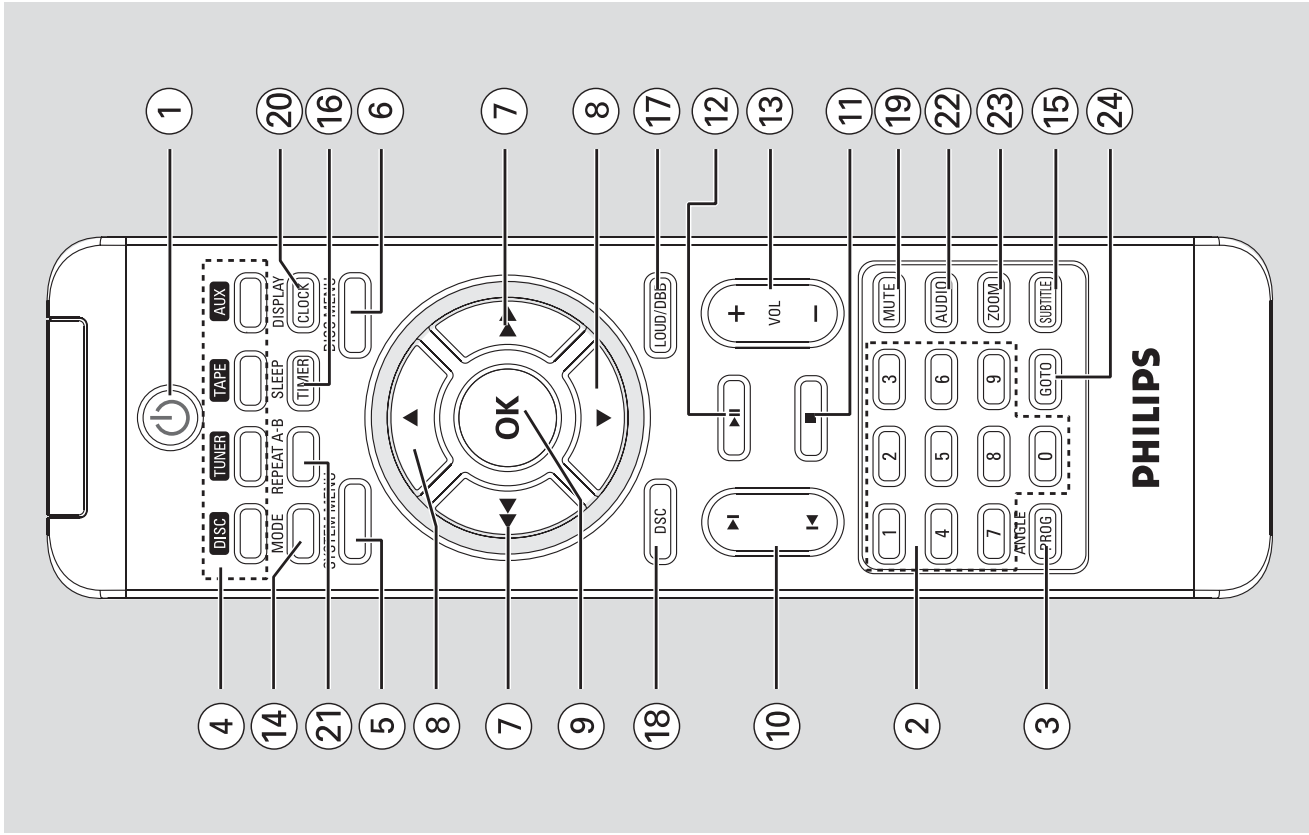


### RECORDER

Use Universal Test Cassette Fe SBC420 4822 397 30071



CONNECTION AND CONTROLS



# CONNECTION AND CONTROLS

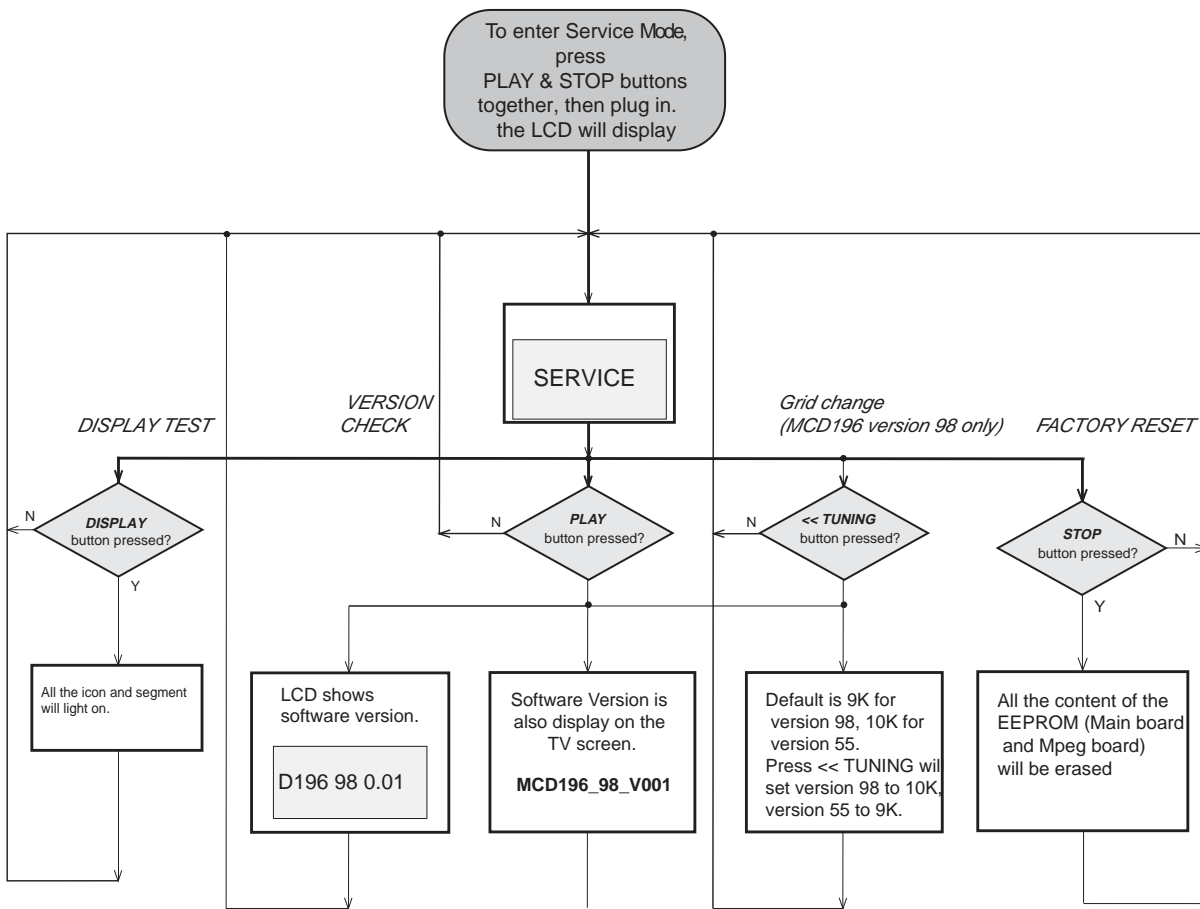
## Controls

- Controls on the system**
- ① **STANDBY-ON**
    - switches the system on or to standby mode.
  - ② **iR sensor**
    - infrared sensor for remote control.
  - ③ **DISPLAY/CLOCK SET**
    - Standby mode
    - \*\_ sets the system clock.
    - Playback mode
    - displays the system clock.
    - During disc playback
    - selects a disc information display mode.
  - ④ **Mode Selection**
    - ..... In DISC mode, to stop playback or clear a program.
    - ▶| ..... In DISC mode, to start or interrupt playback.
    - PRESET** ◀/▶| ..... Disc skips to the previous/next chapter/title/track.
    - ..... Tuner: selects a preset radio station.
    - ..... Clock: adjusts the hours and minutes in clock/timer setting mode.
  - TUNING** ◀◀/▶▶
    - Tuner
    - press to tune to a lower/higher radio frequency gradually.
    - press and hold, then release the key to start automatic search for a radio frequency downward/upward.
    - Disc
    - searches fast backward/forward in a disc.
  - ⑤ **Display screen**
    - to view the current status of the system.
  - ⑥ **SOURCE**
    - to select the respective sound source : DISC, TUNER, TAPE or AUX.
  - ⑦ **DBB**
    - enables or disables bass enhancement.
  - ⑧ **DSC**
    - selects different types of preset sound equalizer settings (CLASSIC, JAZZ, POP or ROCK).
  - ⑨ **MUTE**
    - to interrupt or resume sound reproduction.
  - ⑩ **DISPLAY / CLOCK**
    - for disc
    - selects a disc information display mode.
    - \*\_ sets the system clock.
  - ⑪ **REPEAT A-B**
    - for VCD/CD: to repeat a specific section within the same track.
    - for DVD: to repeat a specific section in a disc.
  - ⑫ **AUDIO**
    - for VCD
    - sets Stereo, Mono-Left or Mono-Right sound mode.
    - for DVD
    - selects an audio language.
  - ⑬ **ZOOM**
    - DVD/CD/Picture CD: enlarges or reduces a picture or active image on the TV screen.
  - ⑭ **GOTO**
    - In DISC mode, to fast search in a disc by entering a time, title, chapter or track.
- Notes for remote control:**
- First, select the source you wish to control by pressing one of the source select keys on the remote control (DISC or TUNER, for example).
  - Then select the desired function (▶|, ◀, ▶| for example).
- Controls on the remote control**
- ① **⏻**
    - switches the system to standby mode.
  - ② **Numeric Keypad (0-9)**
    - inputs a track/title/chapter number of the disc.
  - ③ **PROG/ANGLE**
    - VCD/CD/MP3-CD/WMMA/JPEG/PICTURE CD: enters the program menu.
    - Tuner: programs preset radio stations.
    - DVD: selects a DVD camera angle.
  - ④ **SOURCE**
    - to select the respective sound source : DISC, TUNER, TAPE or AUX.
  - ⑤ **SYSTEM MENU** (disc mode only)
    - to enter or exit the system menu bar.
  - ⑥ **DSC**
    - selects different types of preset sound equalizer settings (CLASSIC, JAZZ, POP or ROCK).
  - ⑦ **MUTE**
    - to interrupt or resume sound reproduction.
  - ⑧ **DISPLAY / CLOCK**
    - for disc
    - selects a disc information display mode.
    - \*\_ sets the system clock.
  - ⑨ **REPEAT A-B**
    - for VCD/CD: to repeat a specific section within the same track.
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    - selects an audio language.
  - ⑪ **ZOOM**
    - DVD/CD/Picture CD: enlarges or reduces a picture or active image on the TV screen.
  - ⑫ **GOTO**
    - In DISC mode, to fast search in a disc by entering a time, title, chapter or track.

## Controls

- ⑧ **DSC**
    - selects different types of preset sound equalizer settings (CLASSIC, JAZZ, POP or ROCK).
  - ⑨ **VOLUME +/-**
    - adjusts the volume upward/downward.
  - ⑩ **📶**
    - to connect a headphone.
  - ⑪ **OPEN-CLOSE** ▲
    - to open or close the disc door.
  - ⑫ **AUX** jack
    - to connect an auxiliary device.
  - ⑬ **PULL TO OPEN**
    - to access tape keys.
  - ⑭ **Tape Deck Operation**
    - RECORD** ● ..... starts recording.
    - PLAY** ▶ ..... starts playback.
    - REW/F.FWD** ◀◀ / ▶▶ ..... fast rewinds/winds the tape.
    - STOP-OPEN** ■ ▲ ..... stops tape playback/recording; opens the tape compartment.
    - PAUSE** || ..... interrupts recording or playback.
- Controls on the remote control**
- ① **⏻**
    - switches the system to standby mode.
  - ② **Numeric Keypad (0-9)**
    - inputs a track/title/chapter number of the disc.
  - ③ **PROG/ANGLE**
    - VCD/CD/MP3-CD/WMMA/JPEG/PICTURE CD: enters the program menu.
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    - DVD/CD/Picture CD: enlarges or reduces a picture or active image on the TV screen.
  - ⑫ **GOTO**
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# SERVICE TEST PROGRAM



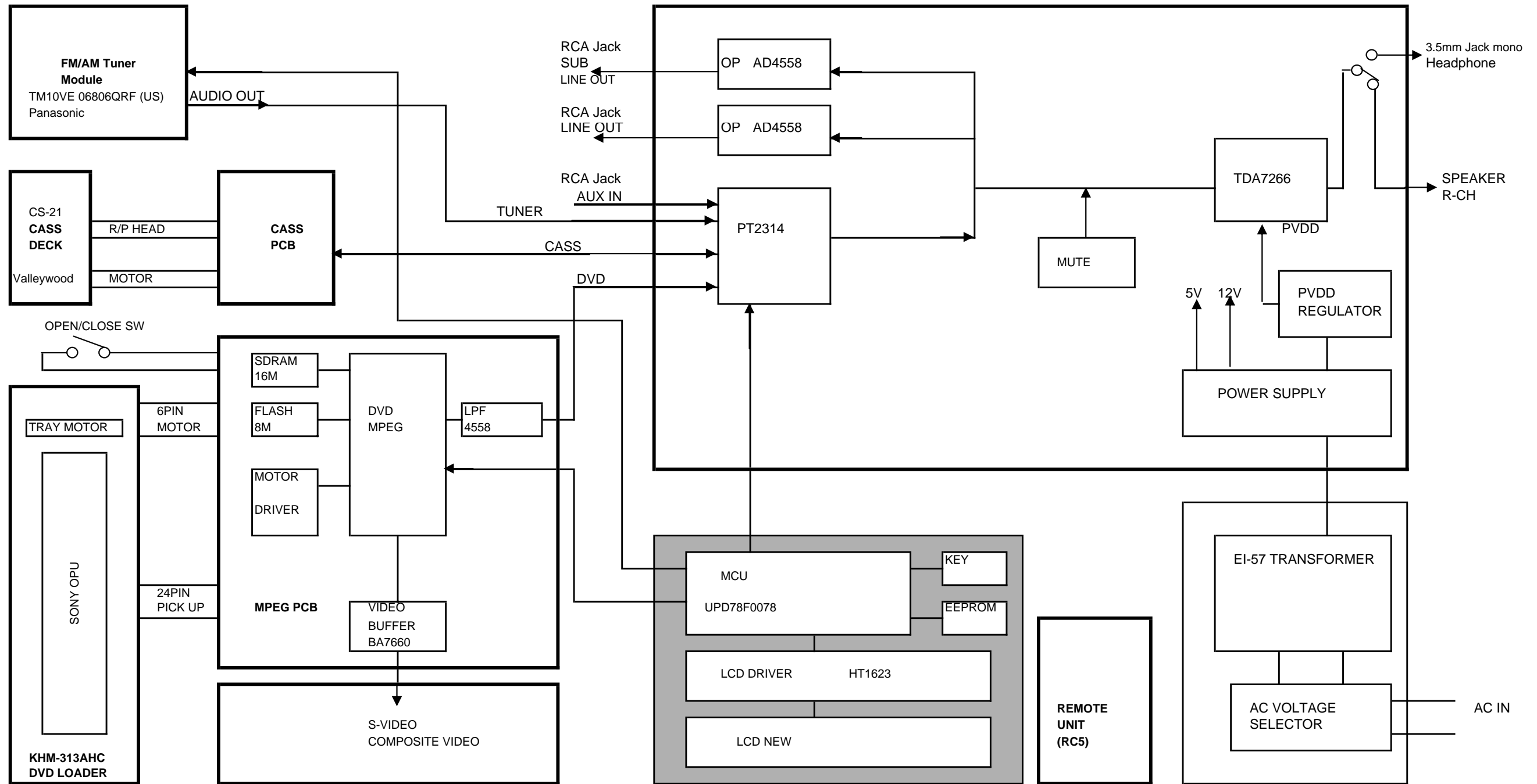
**MCD196\_98\_V001** :  
 The model number is MCD196.  
 Software version is V0.01.  
 Sale region is 98

All settings will be restored to the factory default. Ex: region code.  
 Password will also restore to factory default and the password will be unlocked.

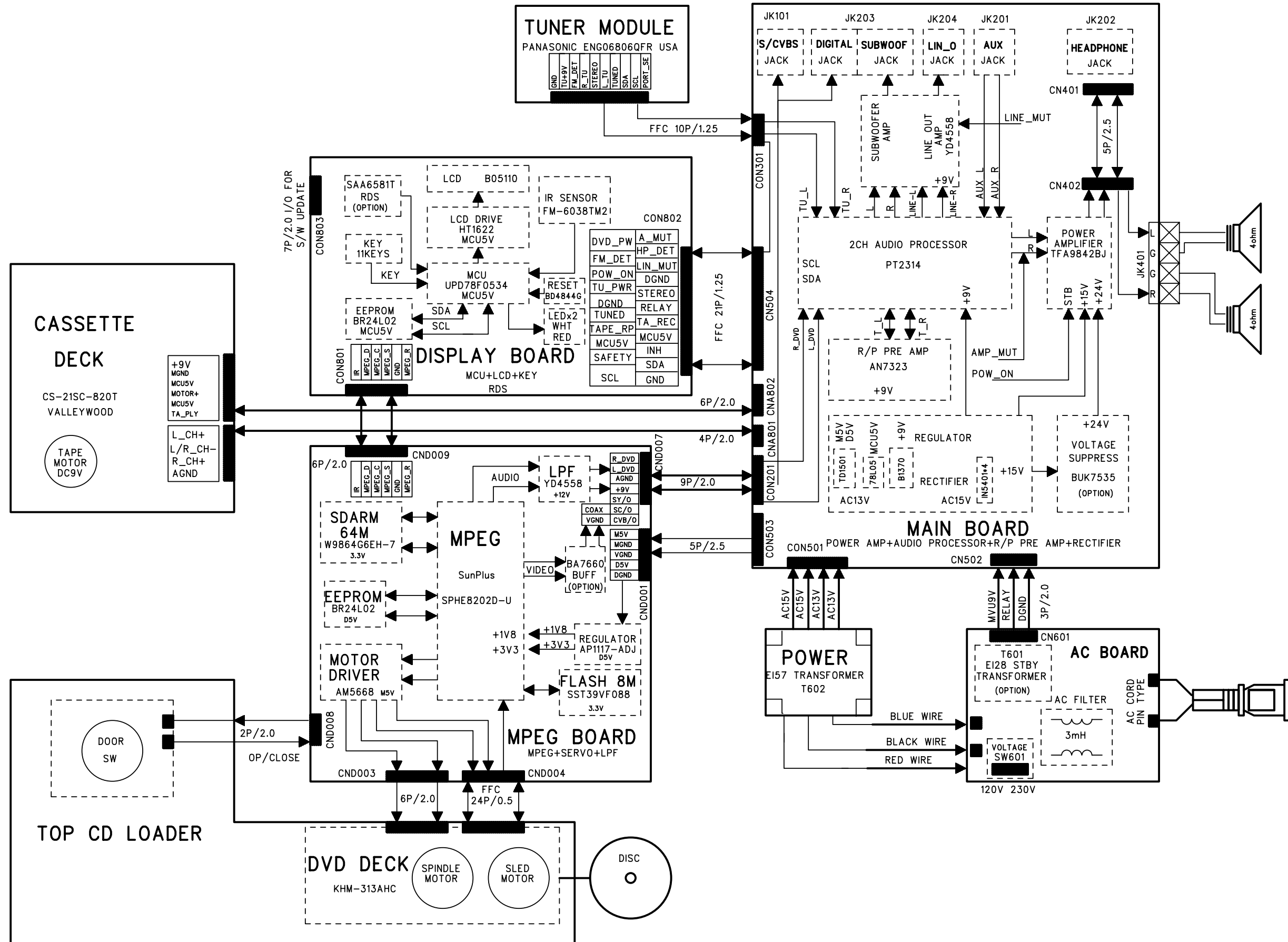
Servo code version  
 E.g. "SO3SO3-SLM-854B"



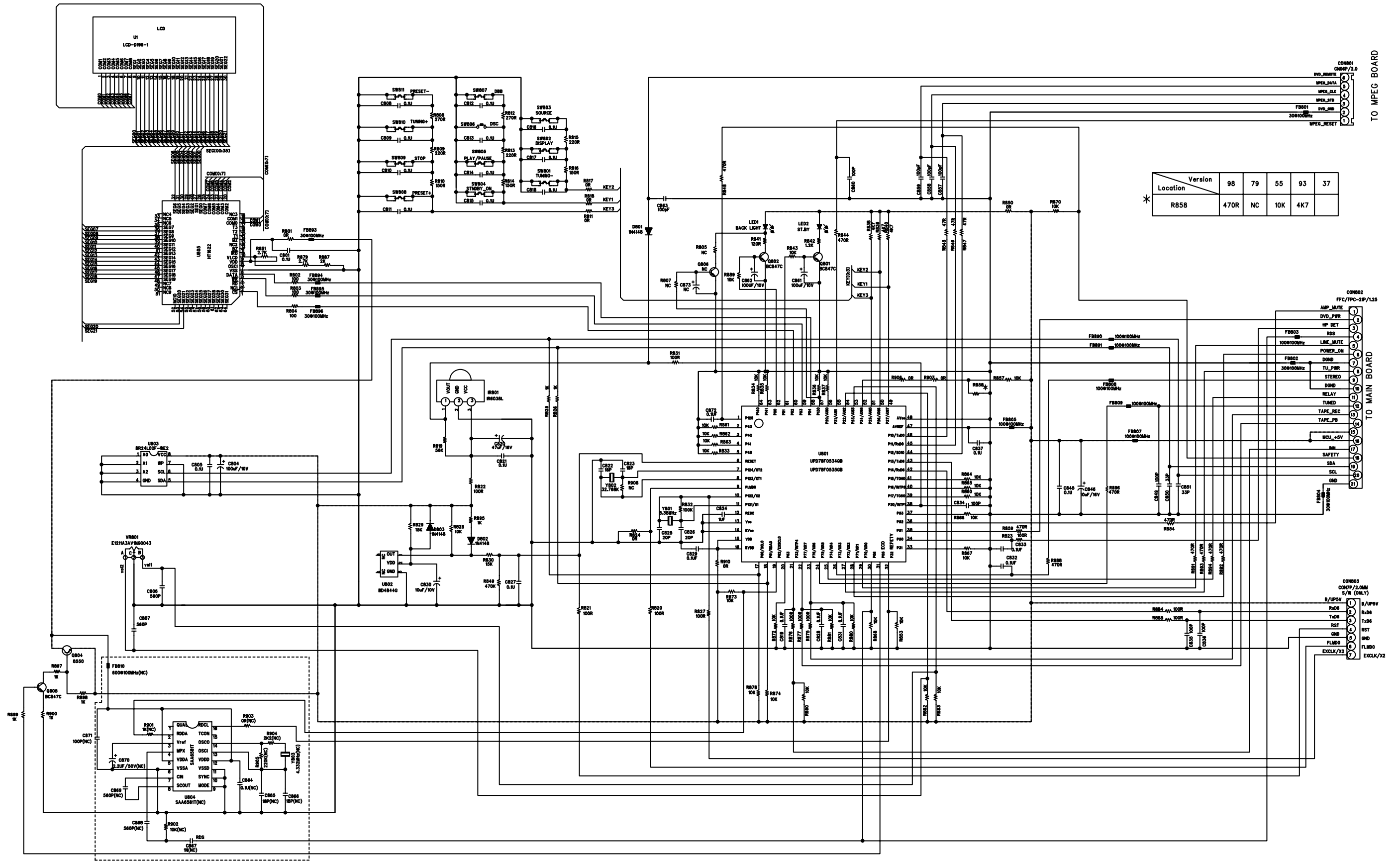
# SET BLOCK DIAGRAM



# SET WIRING DIAGRAM



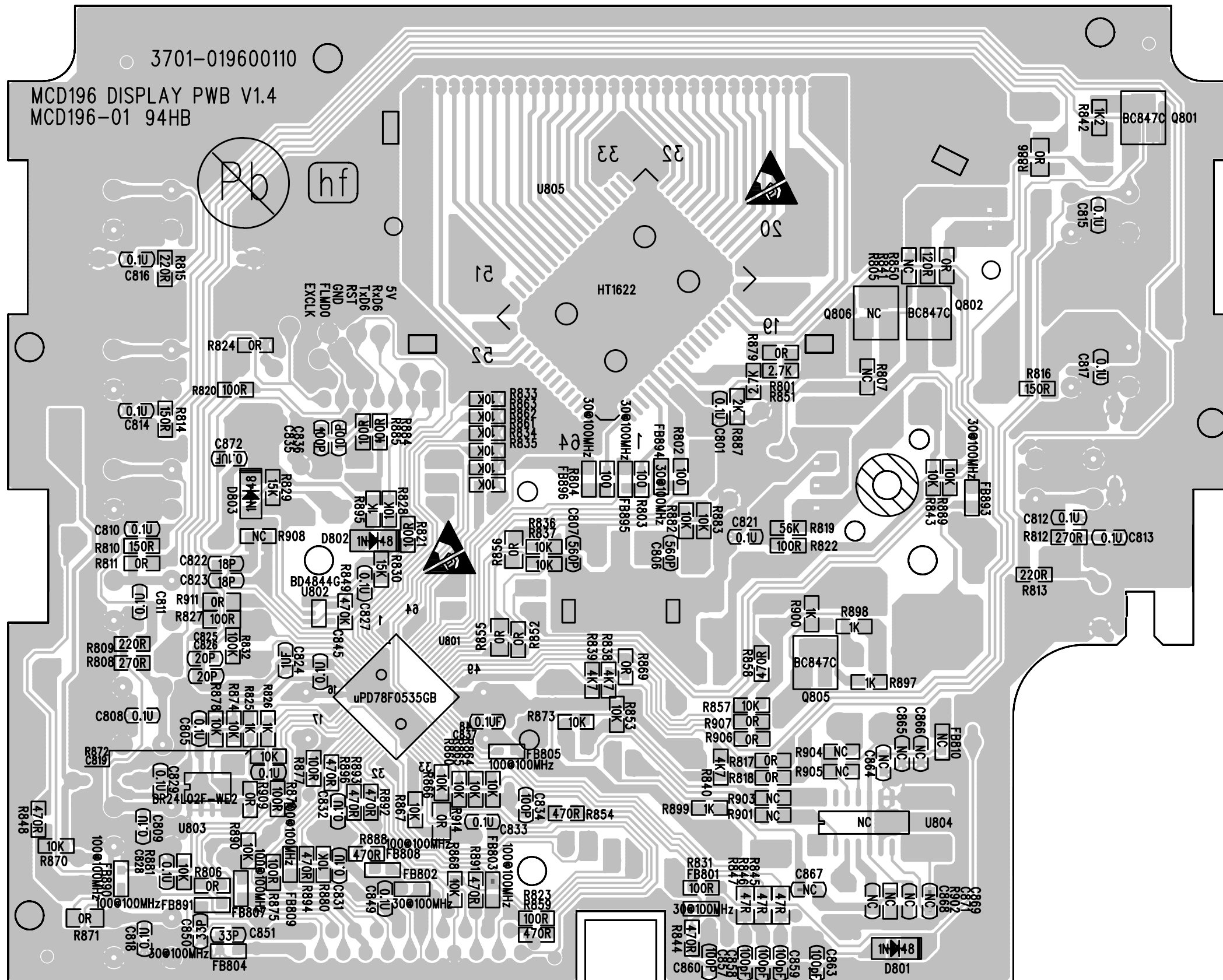
# CIRCUIT DIAGRAM - DISPLAYBOARD



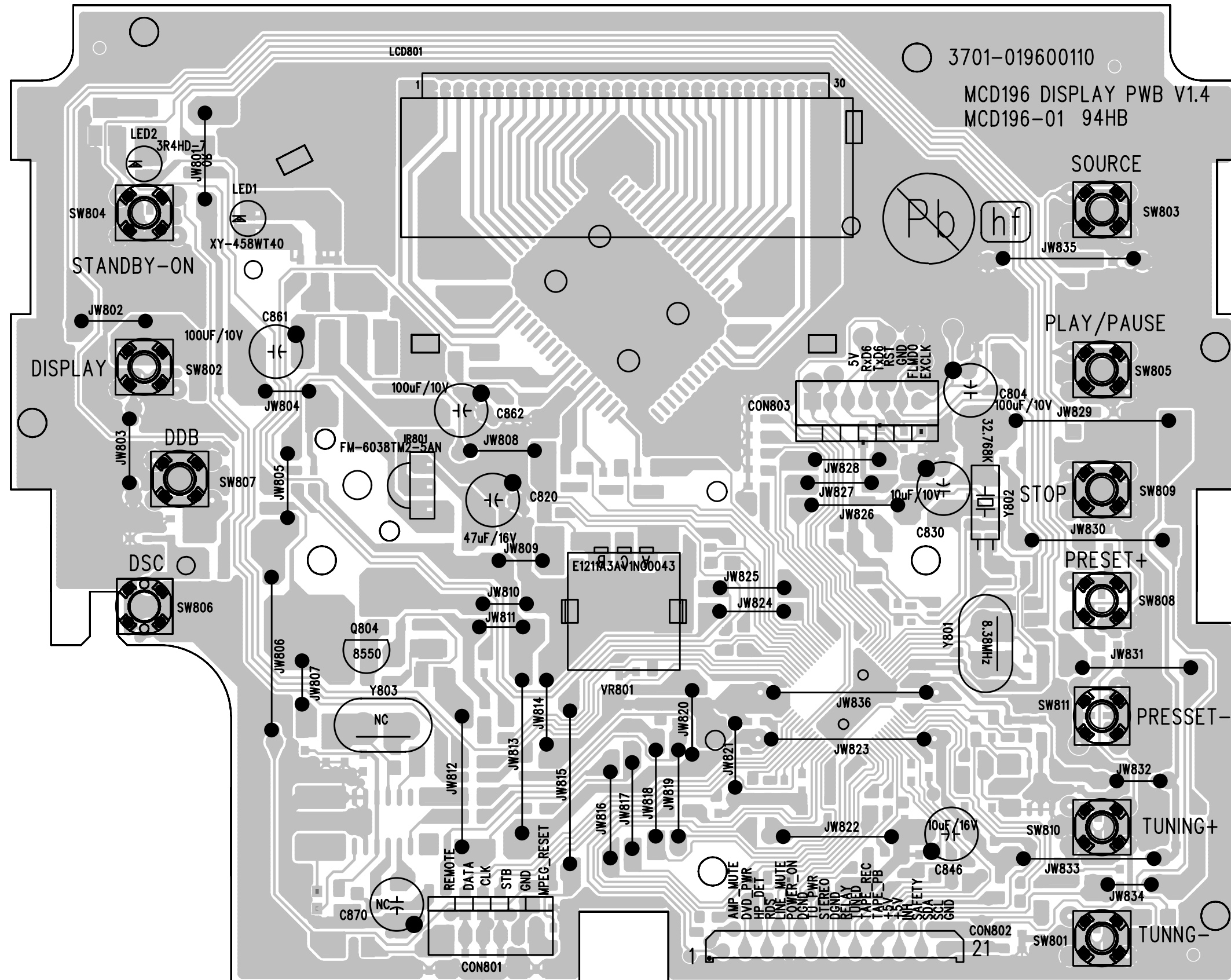
Location	Version	98	79	55	93	37
R858		470R	NC	10K	4K7	

RDS

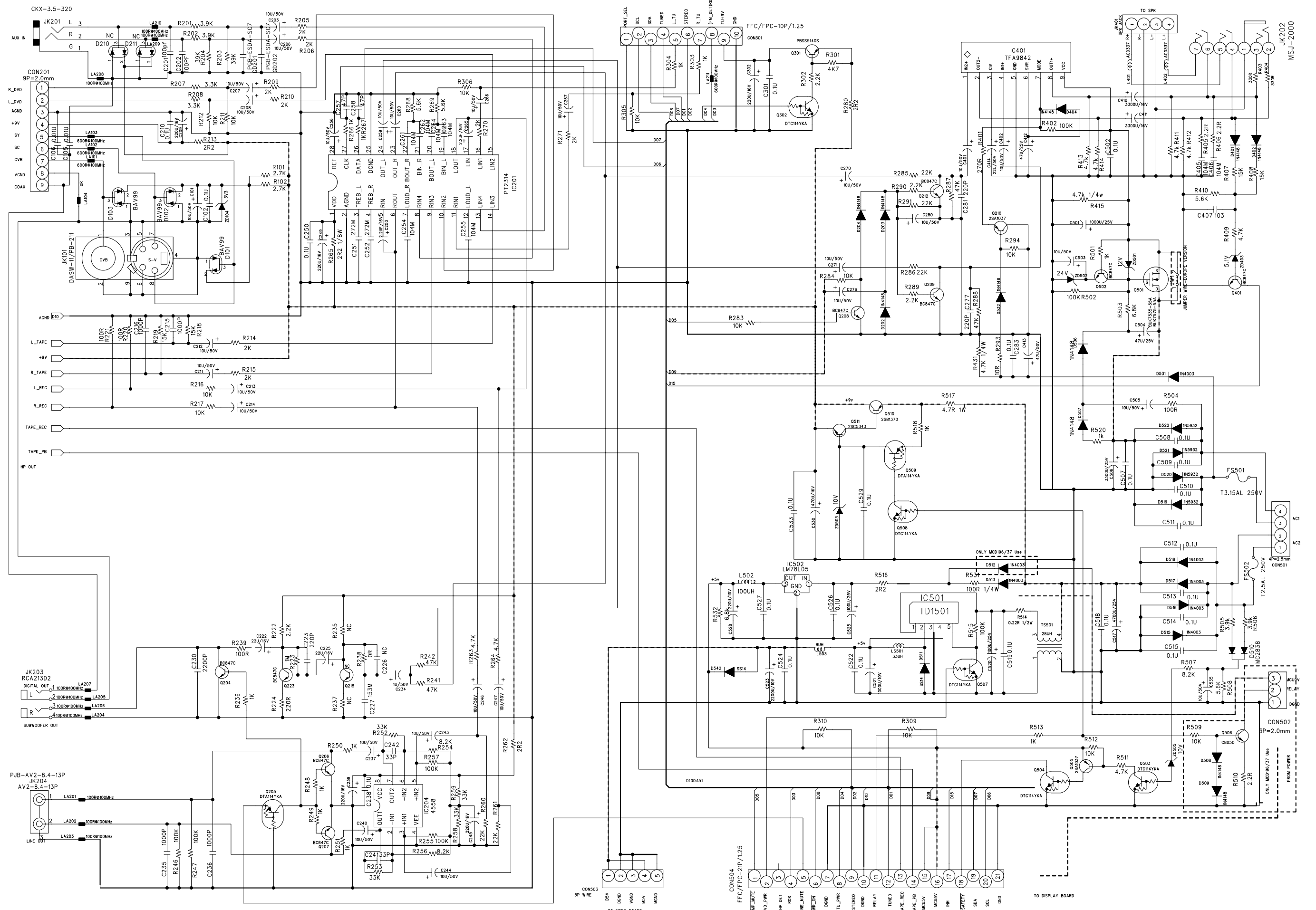
LAYOUT DIAGRAM - DISPLAY BOARD



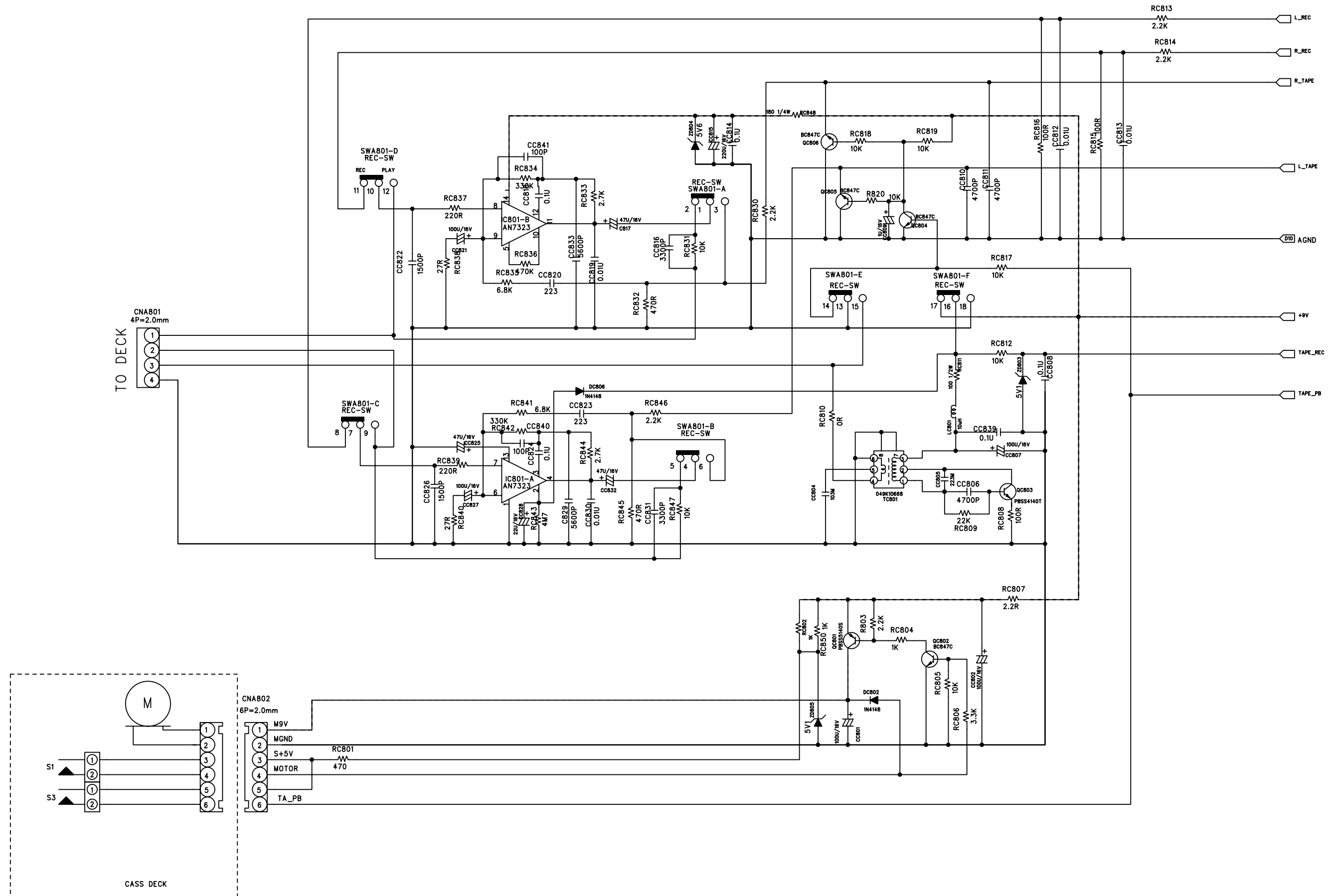
LAYOUT DIAGRAM - DISPLAY BOARD



# CIRCUIT DIAGRAM - MAIN BOARD

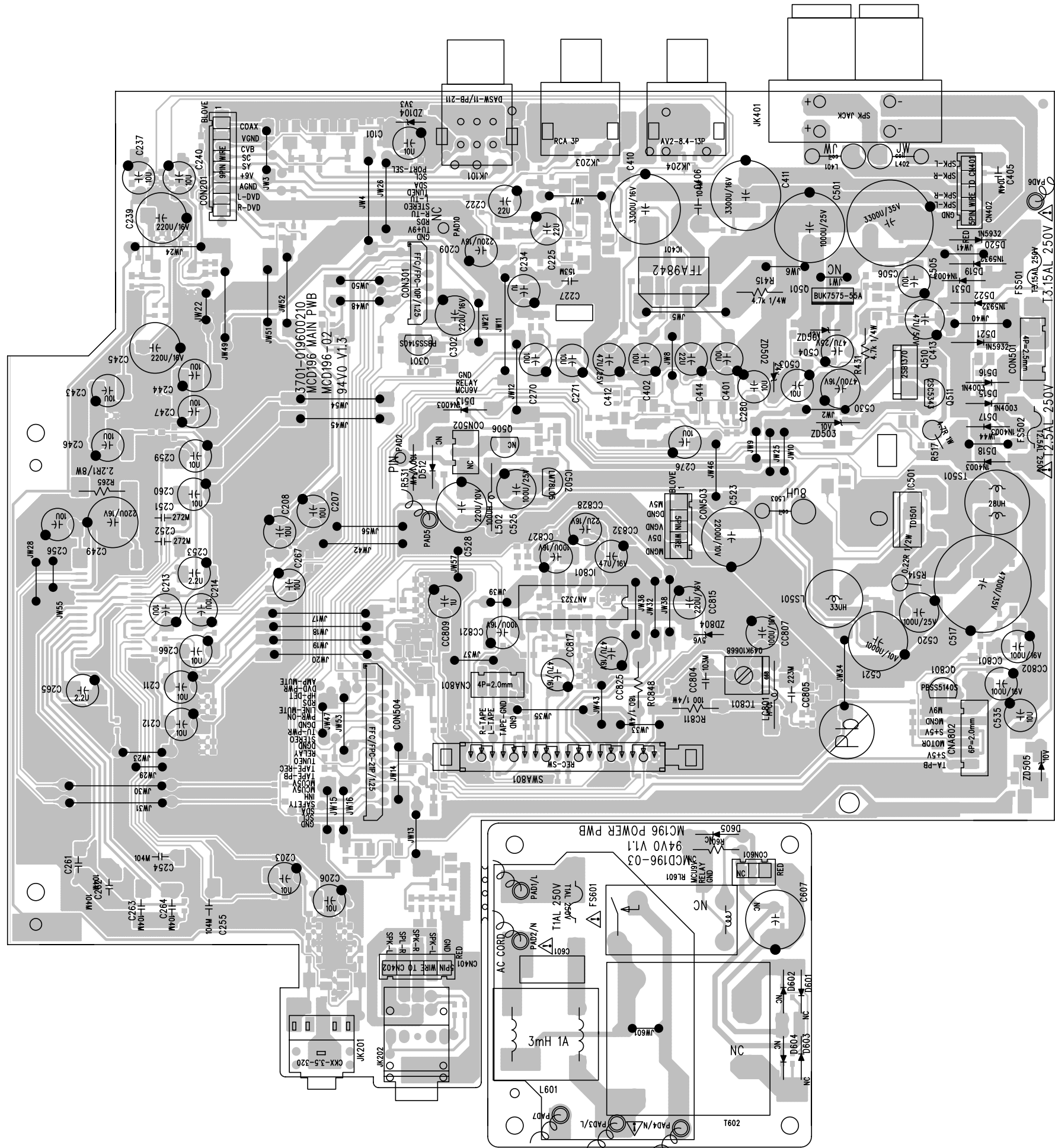


# CIRCUIT DIAGRAM - MAIN BOARD TAPE PART



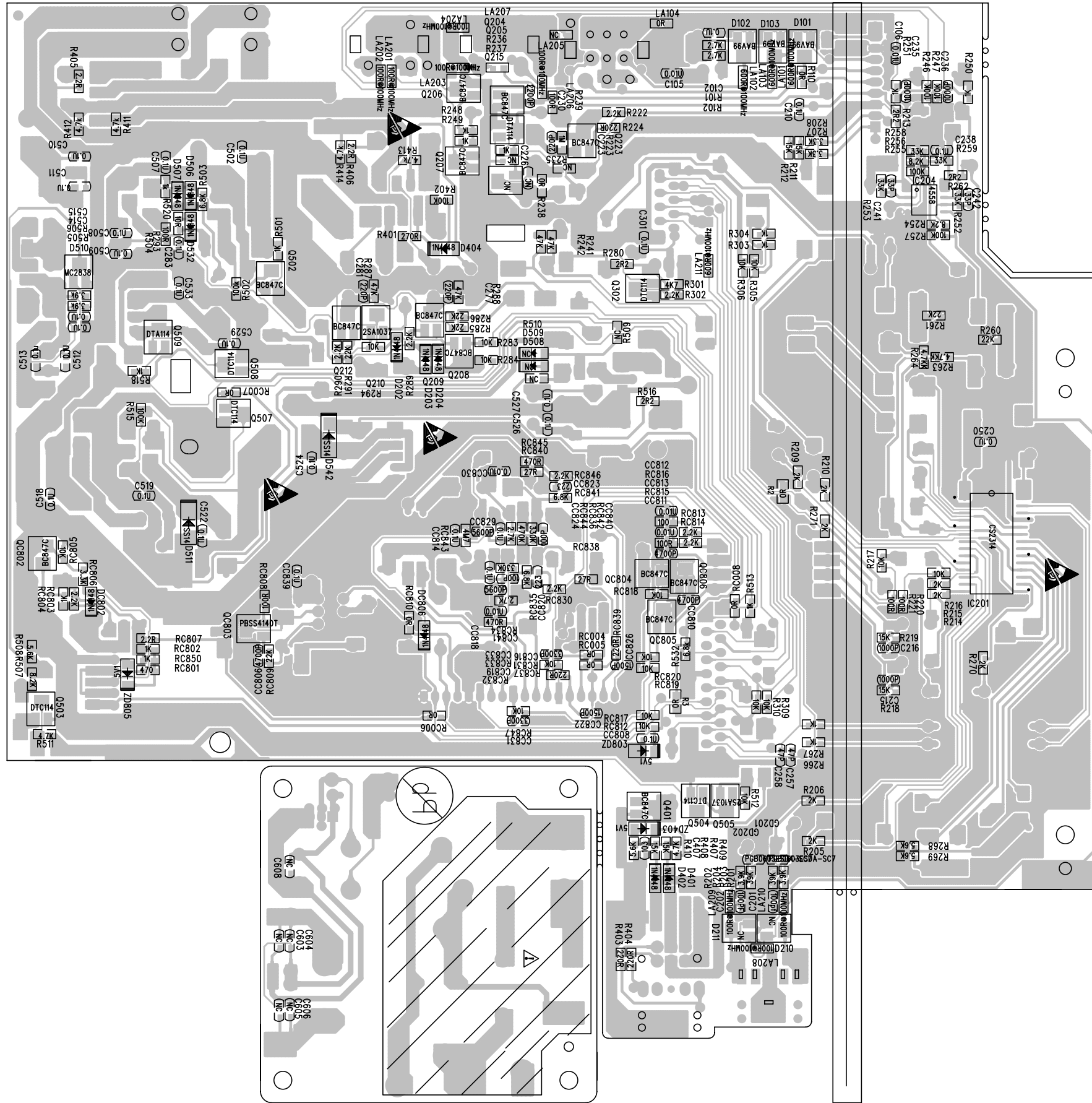
TO MAIN SECTION

# LAYOUT DIAGRAM - MAIN BOARD

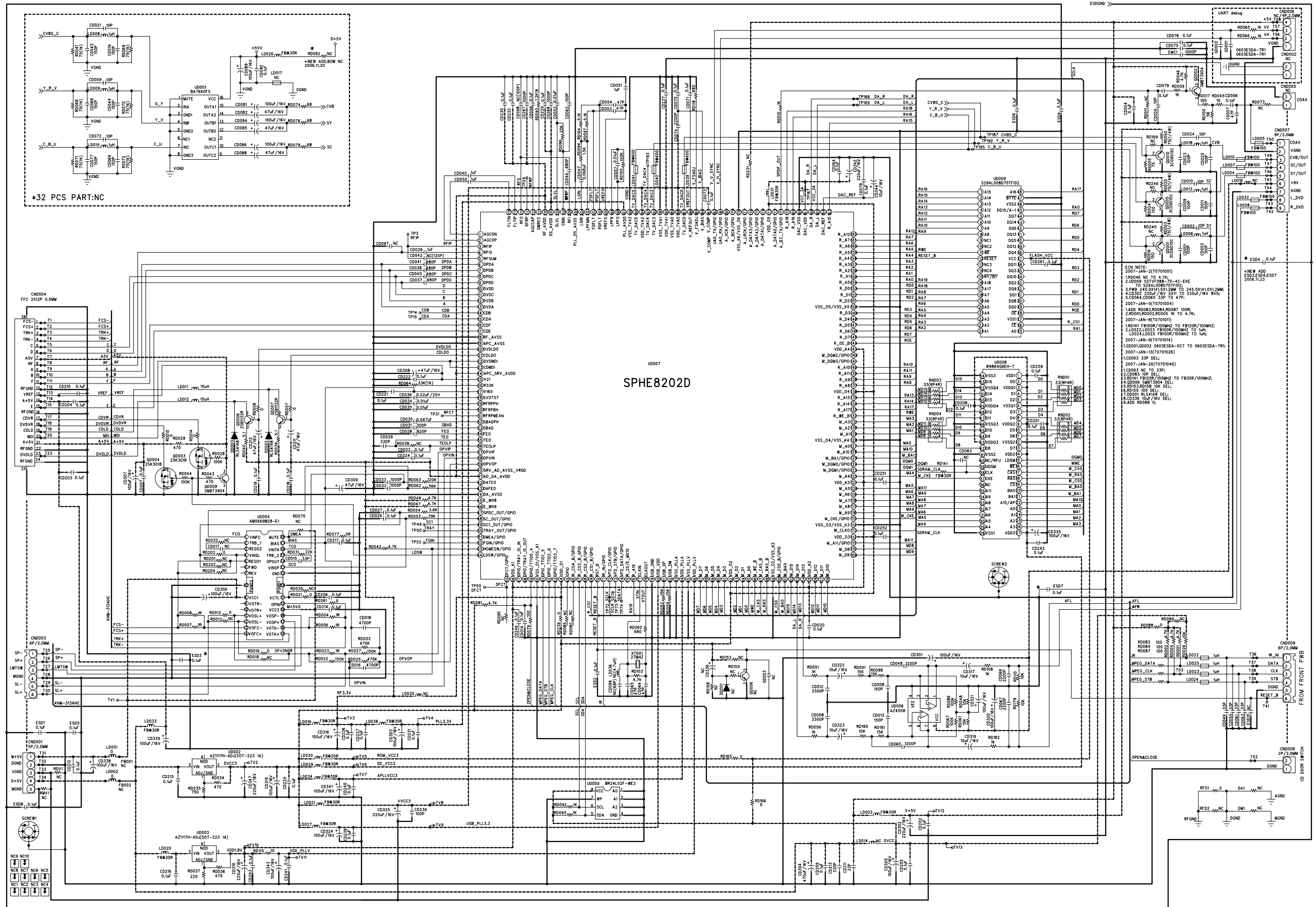




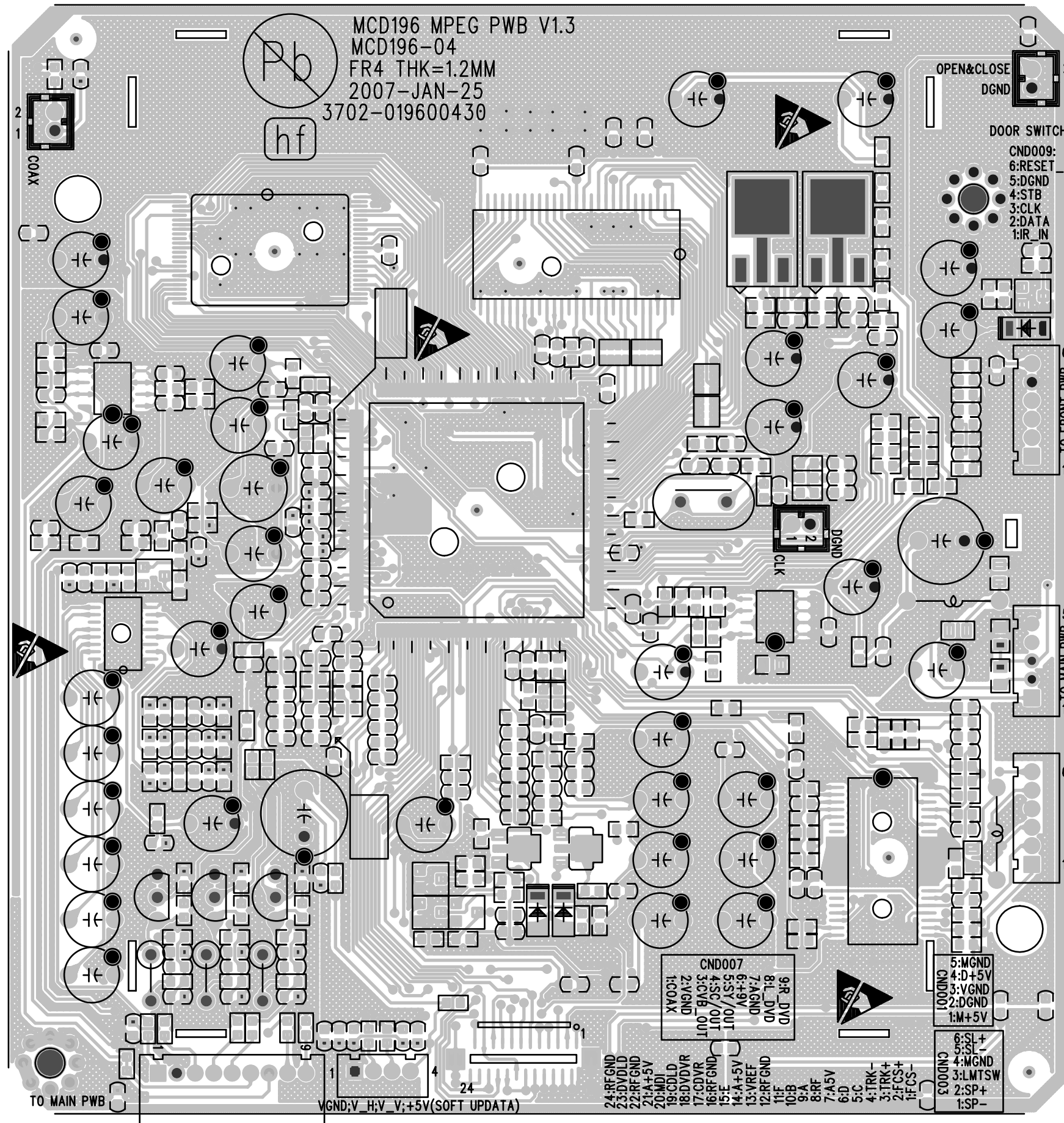
# LAYOUT DIAGRAM - MAIN BOARD



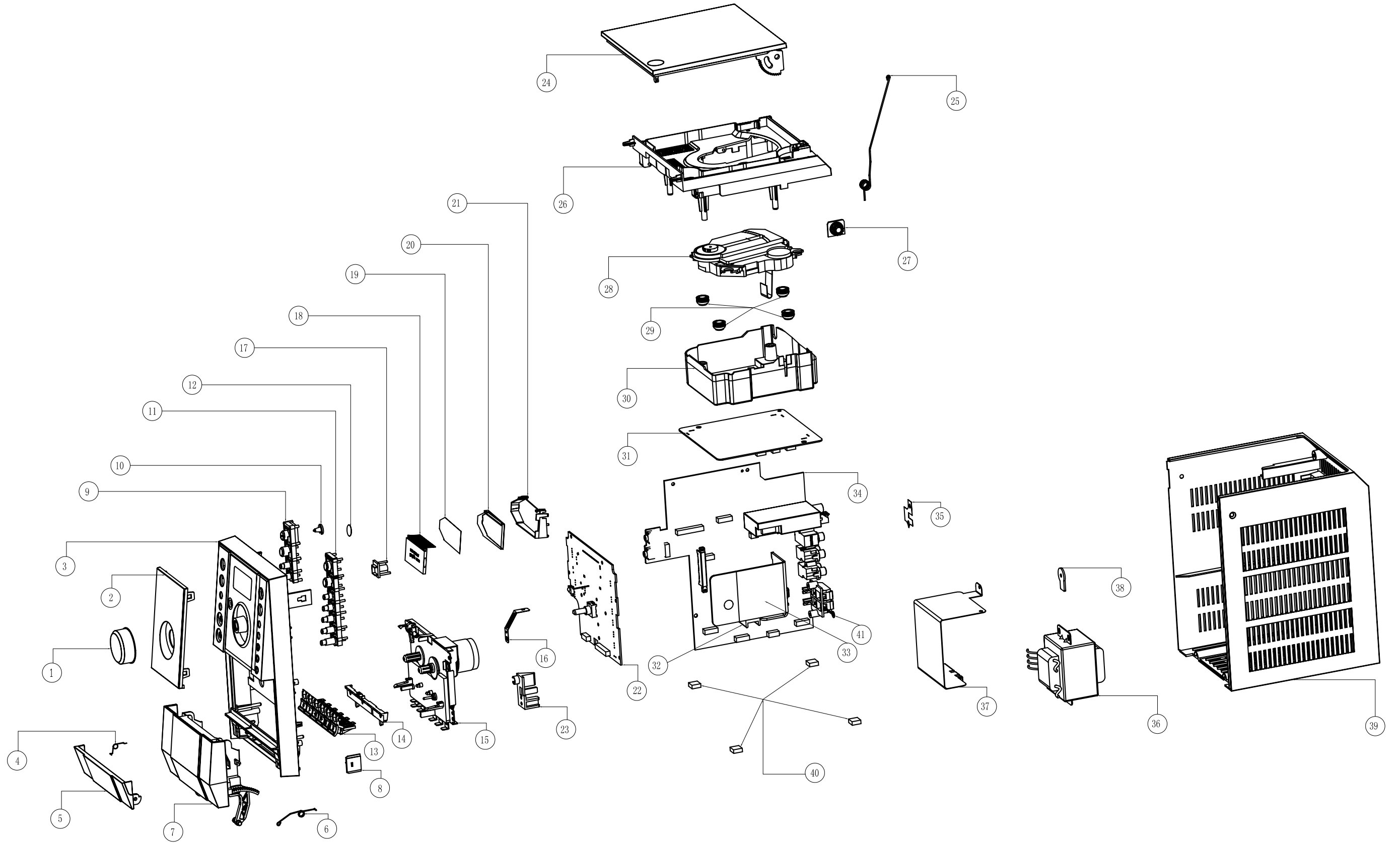
**CIRCUIT DIAGRAM - DVD MPEG BOARD**  
 MPEG is not repaired, diagram for reference only.



**LAYOUT DIAGRAM - DVD MPEG BOARD**  
 MPEG is not repaired, diagram for reference only.



EXPLODED VIEW DIAGRAM



**MECHANICAL PARTSLIST**

1	996510001386	VOL KNOB
2	996510001385	DISPLAY LENS
3	996510001372	FRONT CABINET
4	996510001395	SPRING CASSETTE KEY DOOR
5	996510001384	CASS KEY DOOR
6	996510001394	SPRING CASSETTE DOOR
7	996510001376	CASSETTE DOOR
9	996510001388	POWER KEY(4KEY)
10	996510001391	POWER LIGHT GUIDE
11	996510001387	CONTROL KEYS(7KEY)
13	996510001377	CASS PAUSE KEY
13	996510001378	CASS STOP/OPEN KEY
13	996510001379	CASS SEARCH BACK KEY
13	996510001380	CASS SEARCH FRONT KEY
13	996510001381	CASS PLAY KEY
13	996510001382	CASS RECORD KEY
14	996510001383	BRACKET CASS KEY
15	996510001398	CASSETTE DECK CS-21SC-820T.
20	996510001390	LCD LIGHT GUIDE
21	996510001389	LCD BRACKET
24	996510001374	CD DOOR
25	996510001393	SPRING DOOR CD
26	996510001375	CD TRAY -/98/79
27	994000001664	DAMPER GEAR ASSEMBLY
28	996510018012	DVD MECHANISM KHM-313AHD
29	994000002737	CD DAMPER 1278 IIR BLK 38DEG
30	996510001392	COVER DUST FOR DVD DECK
31	996510001362	SERVO AND MPEG PWB ASSEMBLY
39	996510001373	REAR CABINET -/79/93/58
39	996510001461	REAR CABINET -/98
40	996510001396	RUBBER FOOT (10X10X4MM)
T601(36)	△ 996510001399	POWER TRANSFORMER AC120/240V
	994000001599	CD DOOR SW DLS-02-W-1 1P1T
	△ 996510001400	POWER CORD SAA H03VVH2-F 7.5A -/79
	△ 996510001462	POWER CORD H03VVH2-F VDE 2.5A -/98
	996510001987	POWER CORD LINE CCC 6A 250V -/93
26	996510001983	CD TRAY -/93/58

**ACCESSORIES**


S3	996510001401	REMOTE CONTROL "PHILIPS"
S4	996510001402	SPEAKER BOX (LEFT)5W -/79
S4	996510001463	SPEAKER BOX (LEFT)5W -/98
S4	996510001988	SPEAKER BOX (LEFT)5W -/93
S5	994000002597	RCA CABLE VIDEO (YELLOW)
S6	994000002598	RCA CABLE AUDIO (RED/WHITE)
S7	996510000306	AM LOOP ANT 18.1uH 8T
S8	996510000308	FM ANT WIRE 75R L1.0M

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

**ELECTRICAL PARTSLIST****MAIN PWB ASSEMBLY**

	996510001358	FFC CABLE 21PIN L=150MM D TYPE
	996510001359	FFC CABLE 10P L=200MM C TYPE
	994000003329	FFC CABLE 24PIN PH=0.5MM L=134
	996510001360	TUNER MODULE ENG06835QF.
FS501	 996510001351	FUSE PTU 3.15A 250V "VDE"
FS502	 994000003326	FUSE 2.5A 250V
IC201	996510001347	IC ET2314 SOUND SO28
IC204	996500041702	IC, AZ4558 OPERATIONALL
IC401	996510001348	IC POWER AMPLIFIER TFA9842BJ.
IC501	996500041730	IC TD1501 TO220B-5L 5V 3A 150K
IC502	996510001350	IC LM78L05 3-TERMINAL TO-92
IC801	996510001349	IC,AN7323 PREAMPLIFIERSETTE
JK101	996510001356	JACK S-VIDEO MDJ-202-9-4
JK201	996510001352	JACK 3.5MM STEREO
JK202	996510001353	3.5MM JACKS STEREO
JK203	996510001355	RCA JACK RCA-213P-15
JK204	996510001354	RCA JACK RCA-213/PB-081
JK401	994000001619	SP TERMINAL MSP-134V-05
Q205	996500041699	CH-TRANS. DTA114YKA SMT3
Q210	996500041727	TRANS. 2SA1037AK PNP SMT3
Q301	994000005652	TRANSISTOR PBSS5140S
Q505	996500041727	TRANS. 2SA1037AK PNP SMT3
Q509	996500041699	CH-TRANS. DTA114YKA SMT3
Q510	996500041725	TRANS. 2SB1370PNP TO-220FP
Q511	996500041726	TRANS. 2SC5343 NPN TO-92
QC801	994000005652	TRANSISTOR PBSS5140S
QC803	994000005653	CH-TRANSISTOR PBSS4140T
SWA801	996510001357	REC SWITCH 18PIN 6P2T 50MM
TC801	996500041709	IFT 049K10668 TYPE 7CDA BLACK
	996510001346	MAIN PWB ASSEMBLY -/79/93/58
	996510001458	MAIN PWB ASSEMBLY -/98

**AC POWER PWB ASSEMBLY**

	994000004243	FUSE PTU 1A 250V 3.9X10.5MM
	996510001361	AC POWER PWB ASSEMBLY -/79/93/58
	996510001459	AC POWER PWB ASSEMBLY -/98

**ELECTRICAL PARTSLIST****DISPLAY ASSEMBLY MCD196**

IR801	996510001366	IR SENSOR (OPTO)
	996510001371	REMOTE SENSOR BRACKET
LCD801	996510001367	LCD B05720 30PIN VBEST
LED1	996510001364	LED BRIGHT ELLIPSE WHITE
LED2	996510000292	LED 3MM 3R4HD-7(REL) TAPING
Q804	994000004223	TRANSISTOR 3CA8550 HFE=120-220
SW801	996510001369	SWITCH-TACT TSA-064301-250
SW802	996510001369	SWITCH-TACT TSA-064301-250
SW803	996510001369	SWITCH-TACT TSA-064301-250
SW804	996510001369	SWITCH-TACT TSA-064301-250
SW805	996510001369	SWITCH-TACT TSA-064301-250
SW806	996510001370	SWITCH-TACT TSJ-064301-250
SW807	996510001369	SWITCH-TACT TSA-064301-250
SW808	996510001369	SWITCH-TACT TSA-064301-250
SW809	996510001369	SWITCH-TACT TSA-064301-250
SW810	996510001369	SWITCH-TACT TSA-064301-250
SW811	996510001369	SWITCH-TACT TSA-064301-250
U801	996510001365	IC,MCU UPD78F0535 NEC
U802	996500041716	IC, CMOS RESET BD4844G SSOP5
U803	994000005674	IC BR24L02F-WE2
U805	994000004256	IC HT1622 LCD DRIVER
VR801	996510001368	ENCODER E1211A3AV1NG0043
Y801	996510000295	XTAL 8.38MHZ +/-20PPM CAP=20PF
Y802	994000005671	XTAL 32.768KHZ +/-20PPM 12PF
	996510001363	DISPLAY ASSEMBLY MCD196/79
	996510001460	DISPLAY ASSEMBLY MCD196/98
	996510001982	DISPLAY ASSEMBLY MCD196/93
	996510004982	DISPLAY ASSEMBLY MCD196/58

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

## **ELECTRICAL PARTSLIST**

### **SERVO AND MPEG PWB ASSEMBLY**

UD004      996510000290      IC AM5669M28-E1 MOTOR DRIVER

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