

Service Service Service



Service Manual



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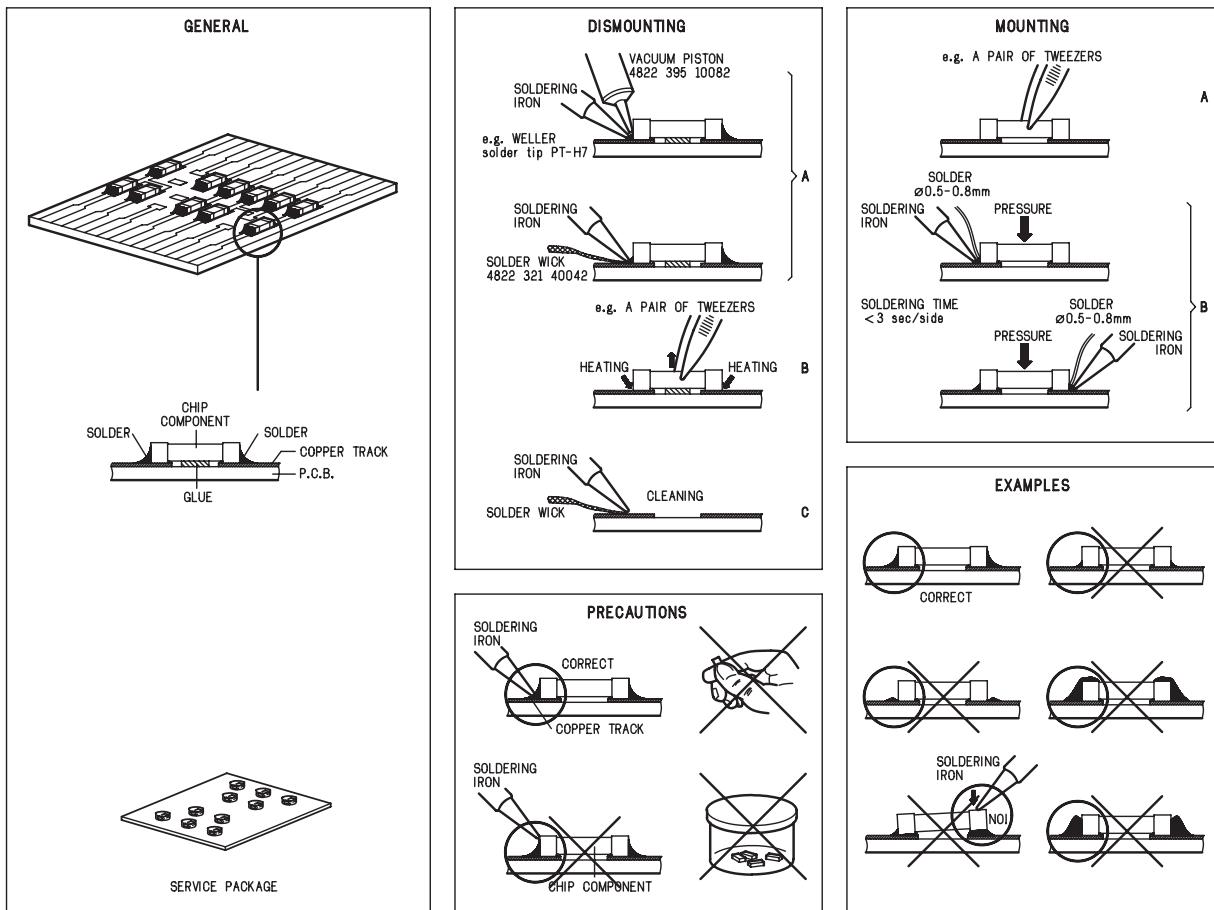
Version 1.2



**CLASS 1
LASER PRODUCT**

PHILIPS

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.

(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.

(NL)

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

(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

(GB) DANGER: Invisible laser radiation when open.
AVOID DIRECT EXPOSURE TO BEAM.

(S) Warning !

Osynlig laserstrålna när apparaten är öppnad och spärren är urkopplad. Beträkta ej strålen.

(DK) Advarsel !

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

ESD



(NL) WAARSCHUWING

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

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

SAFETY



(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

CLASS 1 LASER PRODUCT

(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*.

(FIN) Varoitus !

Avattussa laitteessa ja suojalukituksen ohittaaressa olet alttiina näkymättömälle laserisäteilylle. Älä katso sääteeseen !

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.

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 1.0Vp-p, 75 Ω
 S-Video Output Y - 1.0Vp-p, 75 Ω
 C - 0.286Vp-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

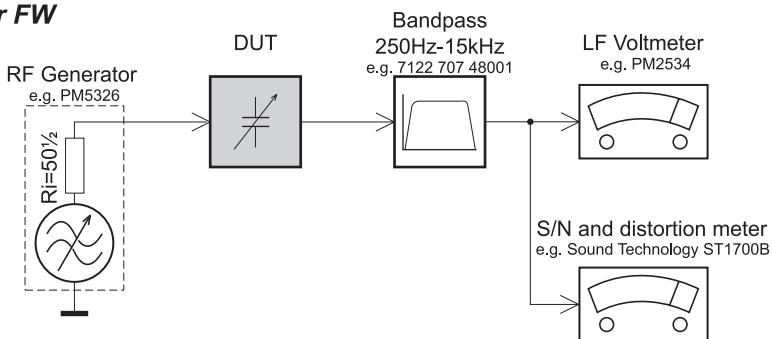
| | |
|---|----------------|
| TORX T10 screwdriver with shaftlength 150mm..... | 4822 395 50423 |
| TORX screwdriver set SBC 163..... | 4822 295 50145 |
| Audio signal disc SBC 429..... | 4822 397 30184 |
| Playability test disc SBC 444..... | 4822 397 30245 |
| Test disc 5 (disc without errors) + |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

AVAILABLE ESD PROTECTION EQUIPMENT

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

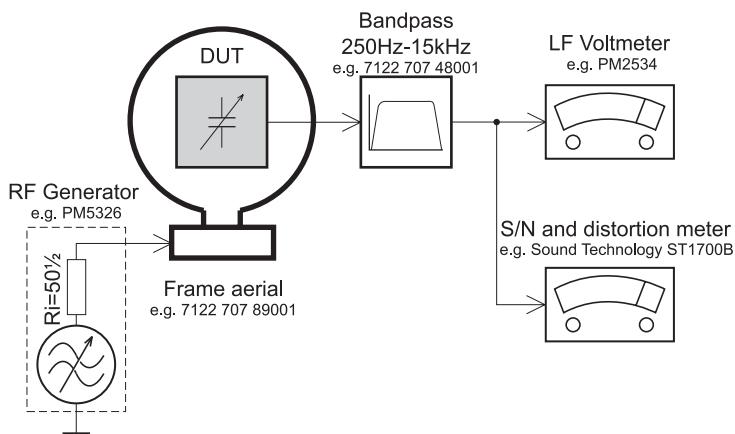
SERVICE MEASUREMENT

Tuner FW



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

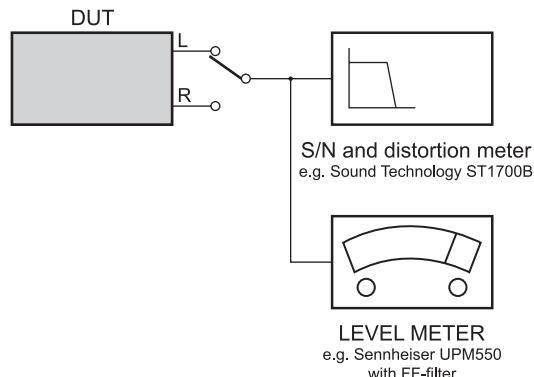
Tuner AM (MW,LW)



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).

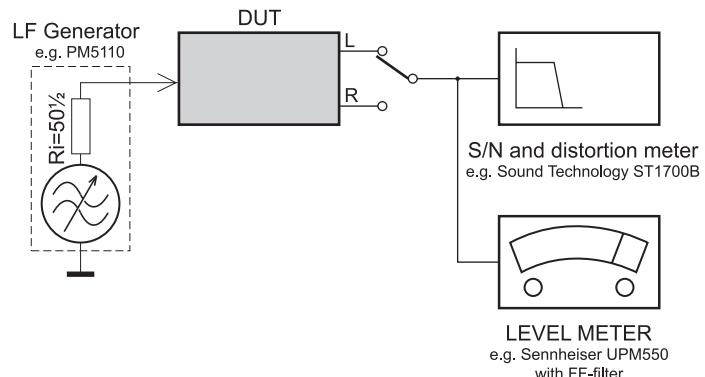
CD

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

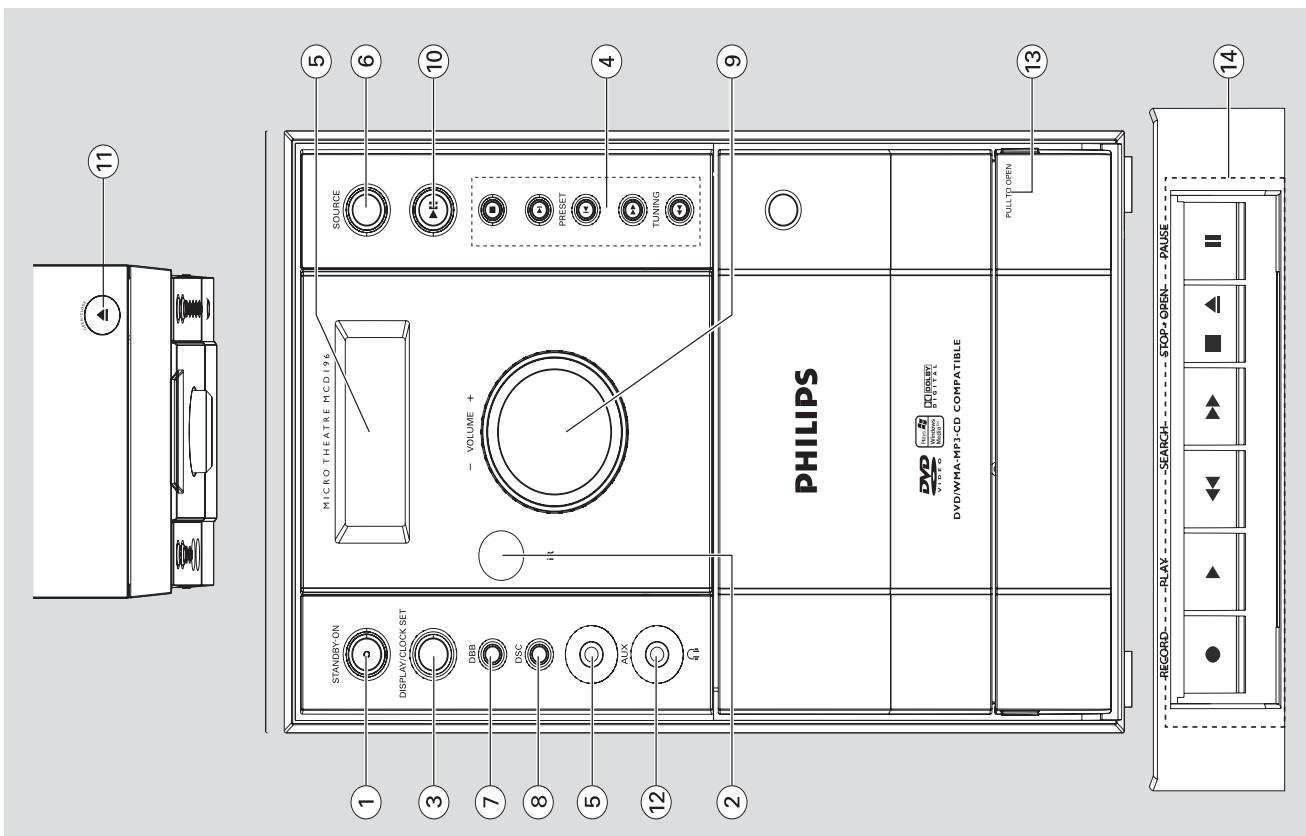
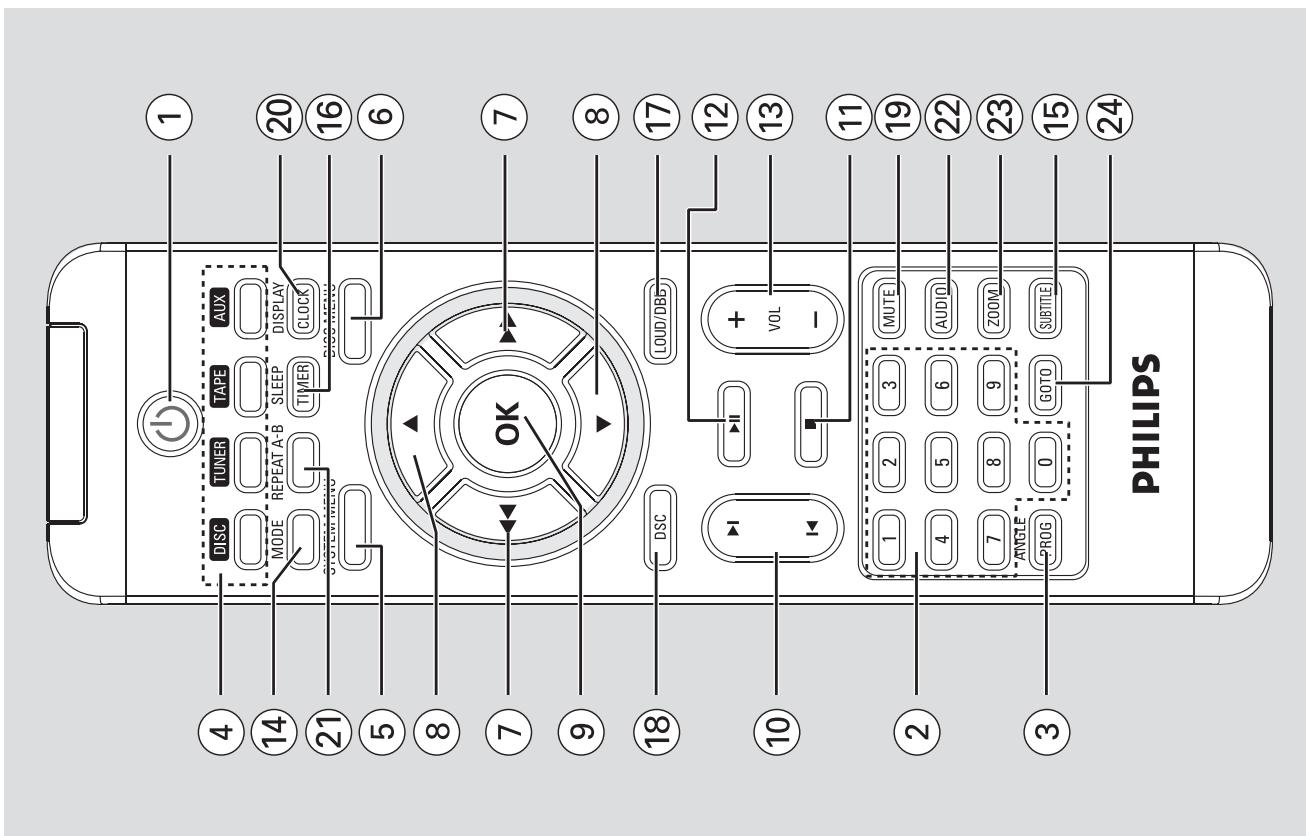


RECORDER

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.
 - 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.

Tape Deck Operation

- RECORD** ●
- PLAY** ▶
- REW/F.FWD** **◀ / ▶**
- STOP OPEN** ■ **▲**
- starts recording.
- starts playback.
- fast rewinds/winds the tape.
- stops tape playback/recording; opens the tape compartment.
- PAUSE** ■ **II**
- interrupts recording or playback.

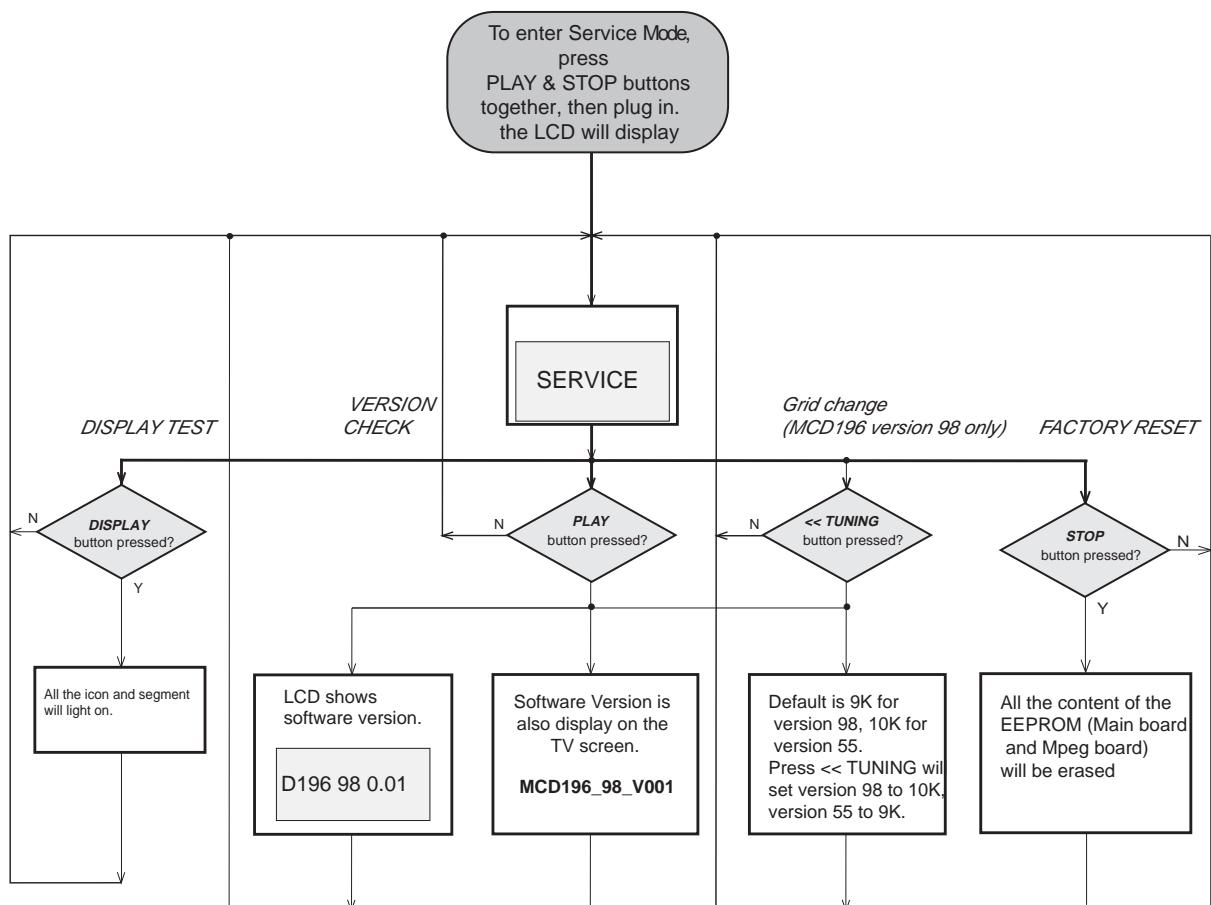
Controls on the remote control

- 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** ●
- PLAY** ▶
- REW/F.FWD** **◀ / ▶**
- STOP OPEN** ■ **▲**
- starts recording.
- starts playback.
- fast rewinds/winds the tape.
- stops tape playback/recording; opens the tape compartment.
- PAUSE** ■ **II**
- interrupts recording or playback.
- ⑮ SOURCE**
- to select the respective sound source : DISC TUNER, TAPE or AUX.
- ⑯ SYSTEM MENU** (disc mode only)
- to enter or exit the system menu bar.
- ⑰ DISC MENU** (disc mode only)
- DVD/VCD: enters or exits the disc contents menu.
 - VCD2.0: in stop position, switches the playback control (PBC) mode on or off.
- ⑱ ▲ / ▼**
- Tuner
- 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
- 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.
- ⑲ DSC**
- selects different types of preset sound equalizer settings (CLASSIC, JAZZ, POP or ROCK).
- ⑳ LOUD/DBB**
- enables or disables automatic loudness adjustment.
- ⑳ MUTE**
- to interrupt or resume sound reproduction.
- ⑳ DISPLAY / CLOCK**
- for disc
 - selects a disc information display mode.
- ⑳ 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.
- ⑳ AUDIO**
- for VCD
 - sets Stereo, Mono-Left or Mono-Right sound mode.
- ⑳ ZOOM**
- for DVD
 - selects an audio language.
- ⑳ GOTO**
- for DVD/CD/Picture CD; enlarges or reduces a picture or active image on the TV screen.
- ⑳ ■**
- In DISC mode, to stop playback or clear a program.
- ⑳ ▶/◀**
- In DISC mode, to start or interrupt playback.
- ⑳ OK**
- to exit or confirm the selection.
- ⑳ ▲/▼**
- Disc: skips to the previous/next chapter/title/track.
- ⑳ ■**
- Tuner: selects a preset radio station.
 - Clock: adjusts the hours and minutes in clock/timer setting mode.
- ⑳ ■**
- In DISC mode, to stop playback or clear a program.
- ⑳ PROG/ANGLE**
- VCD/CD/MP3/CD/WMA/JPEG/PICTURE CD;
 - enters the program menu.
 - Tuner: programs preset radio stations.
 - DVD: selects a DVD camera angle.
- ⑳ VOL +/-**
- adjusts the volume upward/downward.
- ⑳ MODE**
- to select various repeat modes or the shuffle play mode for a disc.
- ⑳ SUBTITLE**
- selects a subtitle language.

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).

SERVICE TEST PROGRAM

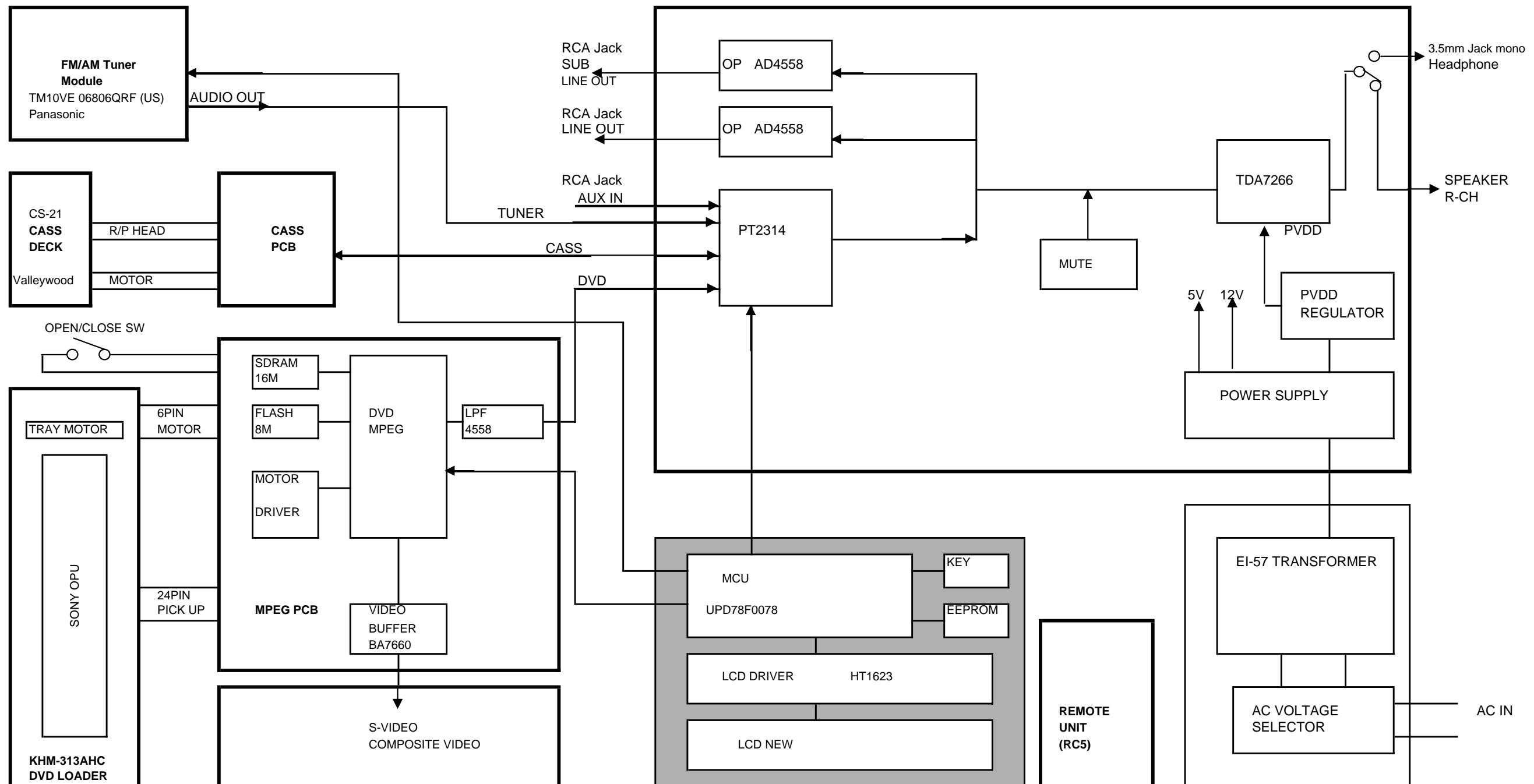


MCD196_98_V001 :
 The model number is MCD196.
 Software version is V0.01.
 Sale region is 98

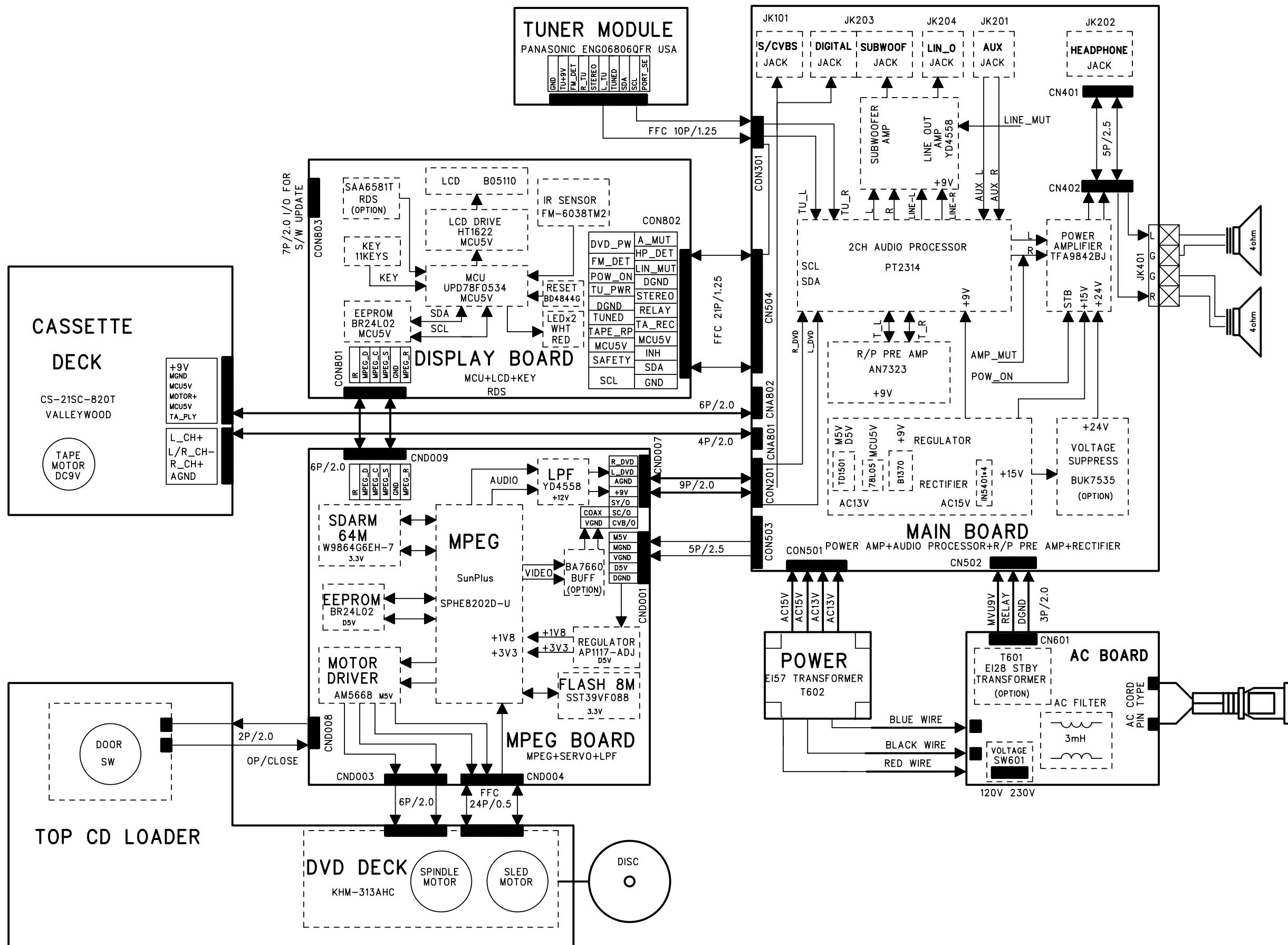
All settings will be restored to the factory default. Ex: region code.
 Password will also restore to factory default and the password will be unlocked.

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

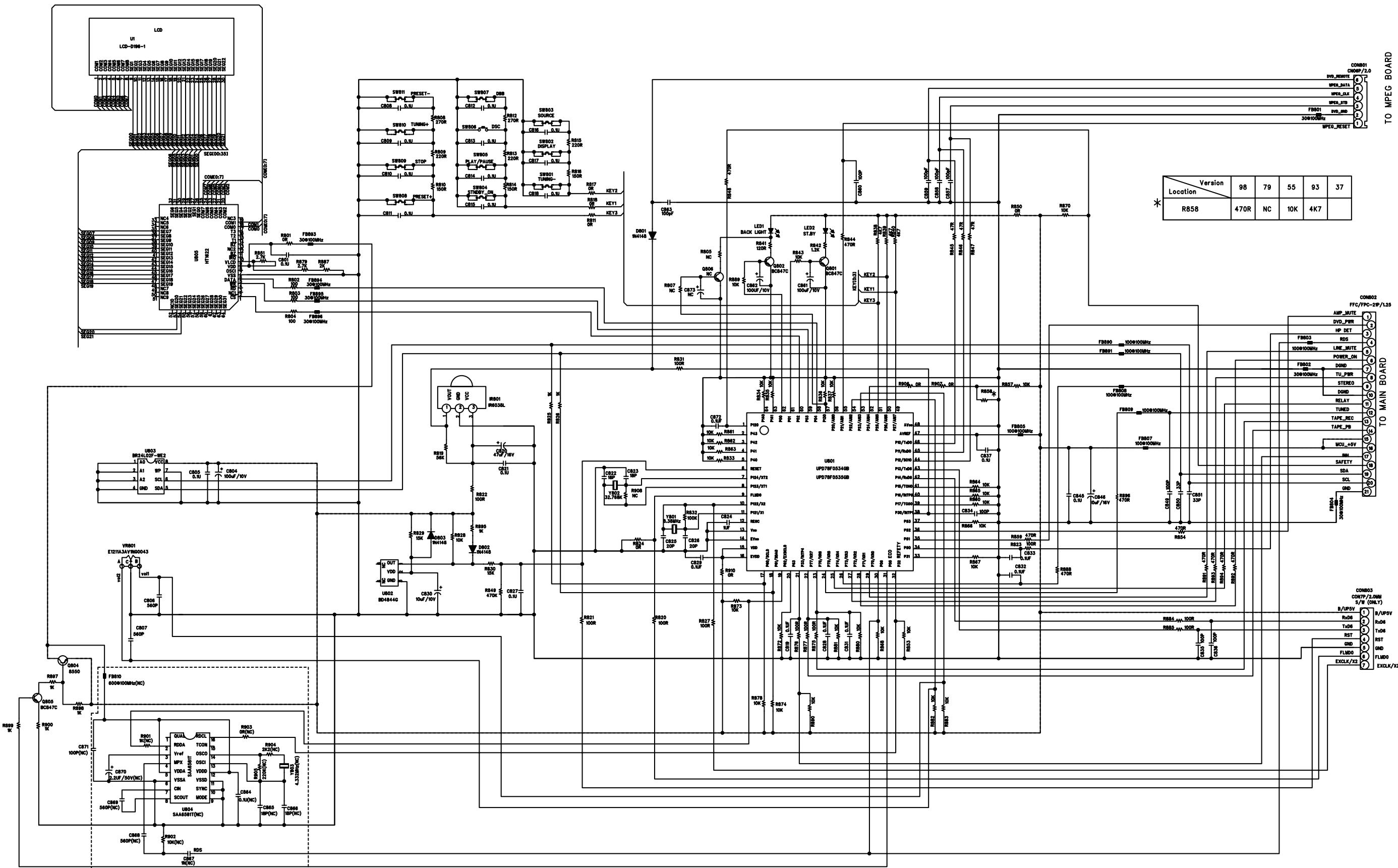
SET BLOCK DIAGRAM



SET WIRING DIAGRAM

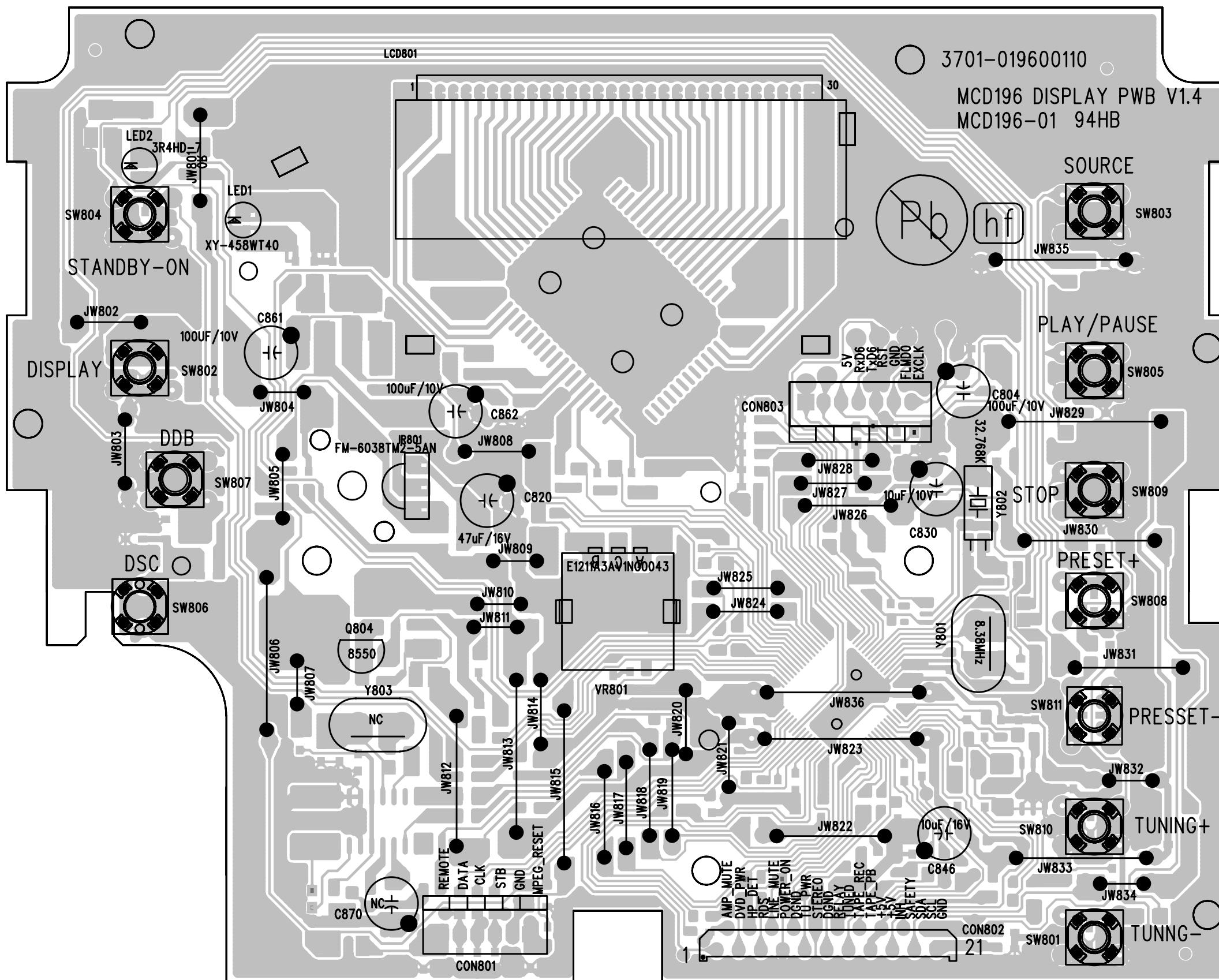


CIRCUIT DIAGRAM - DISPLAYBOARD

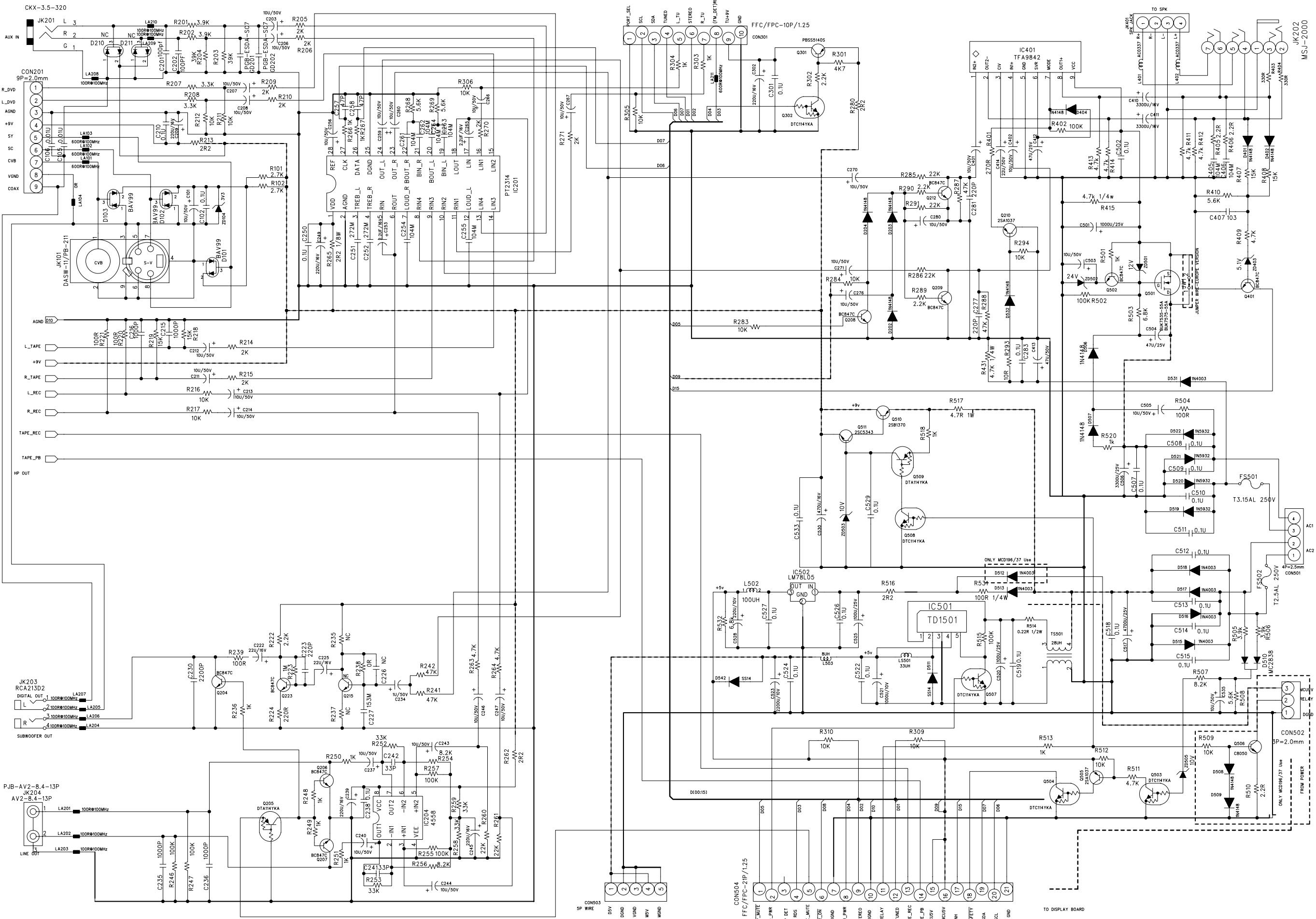


RDS

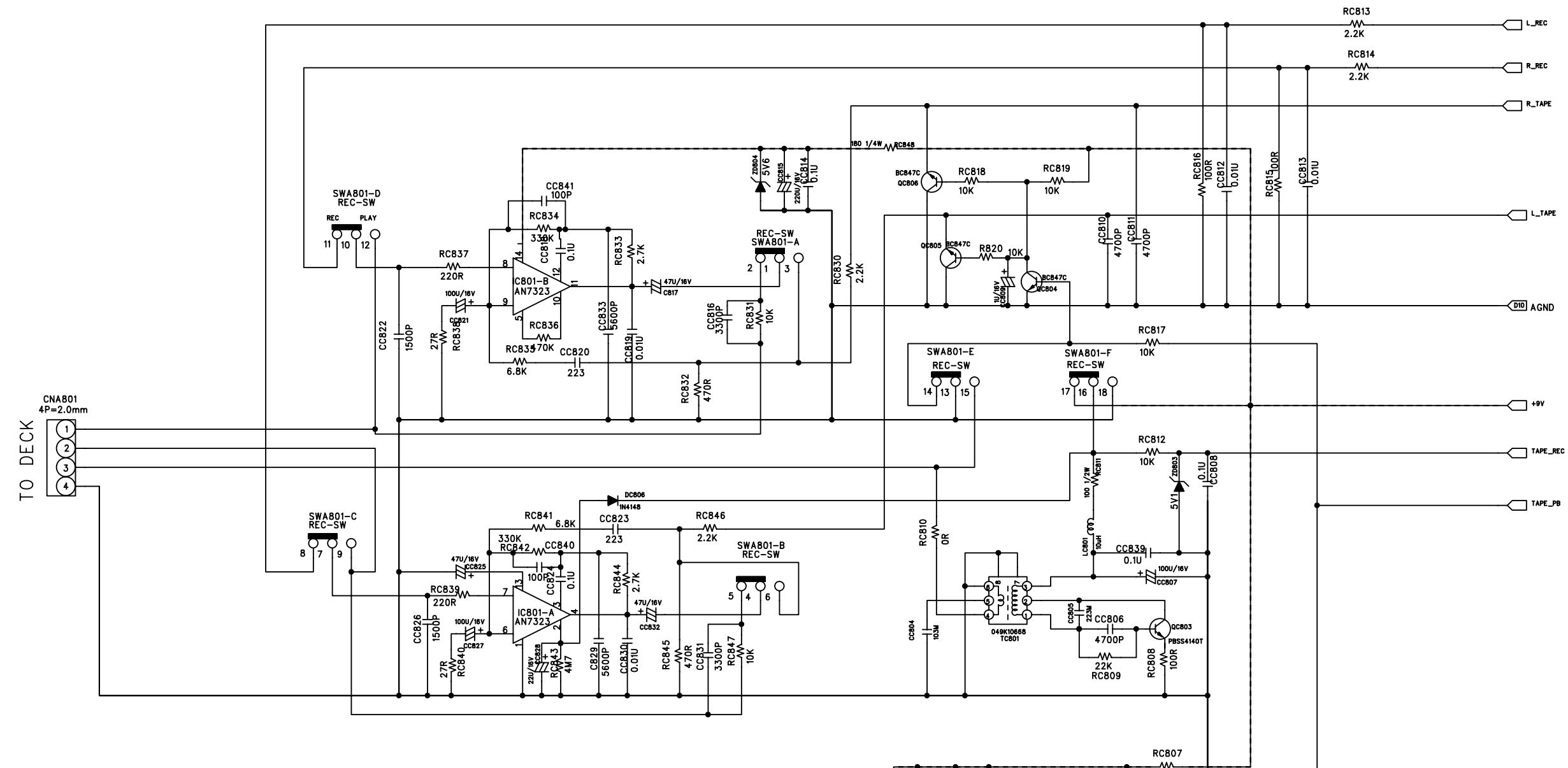
LAYOUT DIAGRAM - DISPLAY BOARD



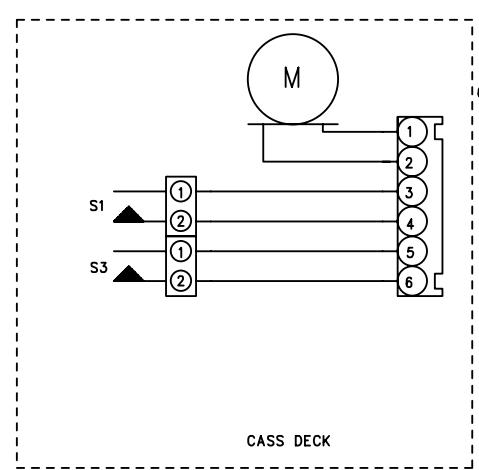
CIRCUIT DIAGRAM - MAIN BOARD



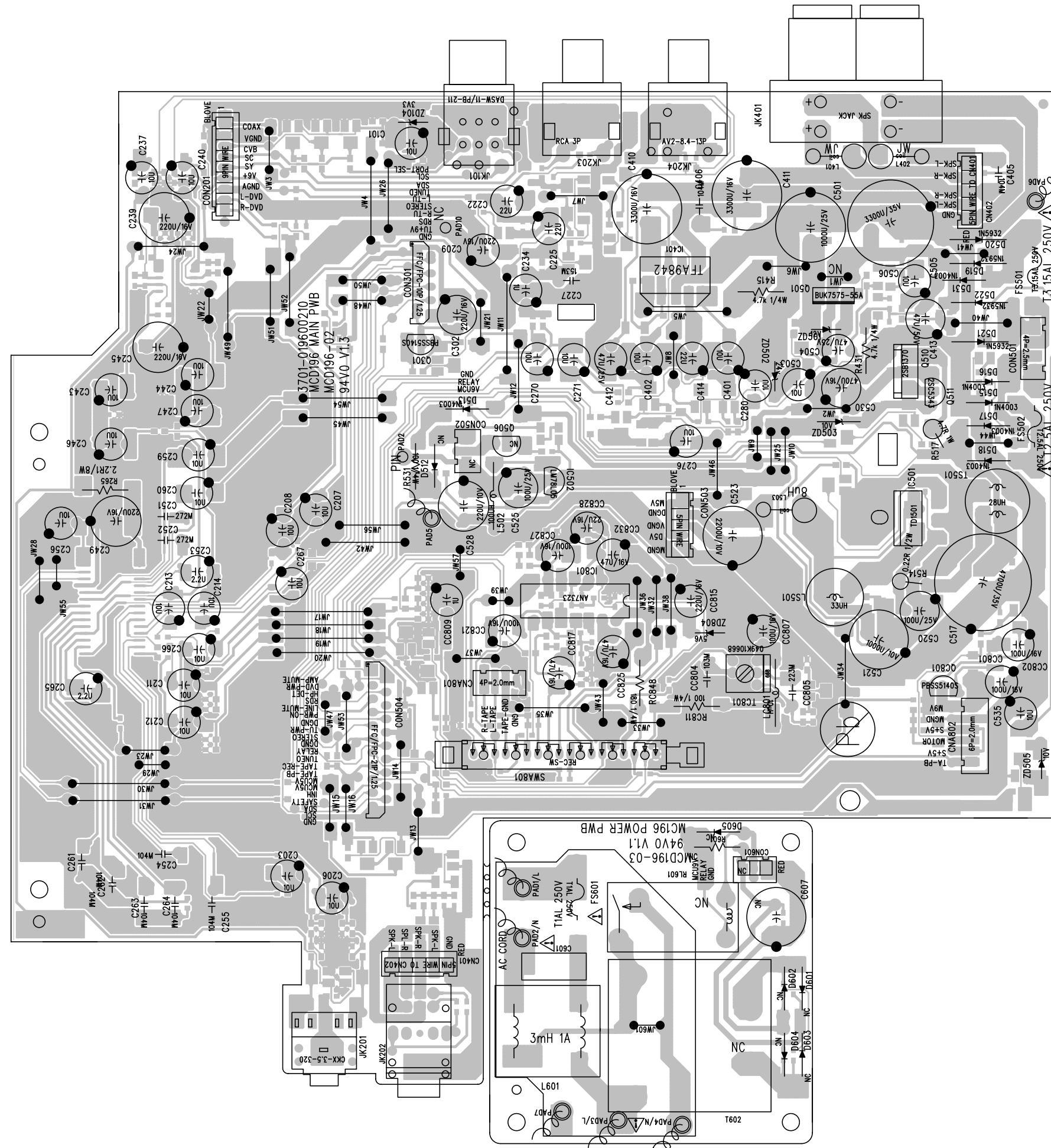
**CIRCUIT DIAGRAM - MAIN BOARD
TAPE PART**



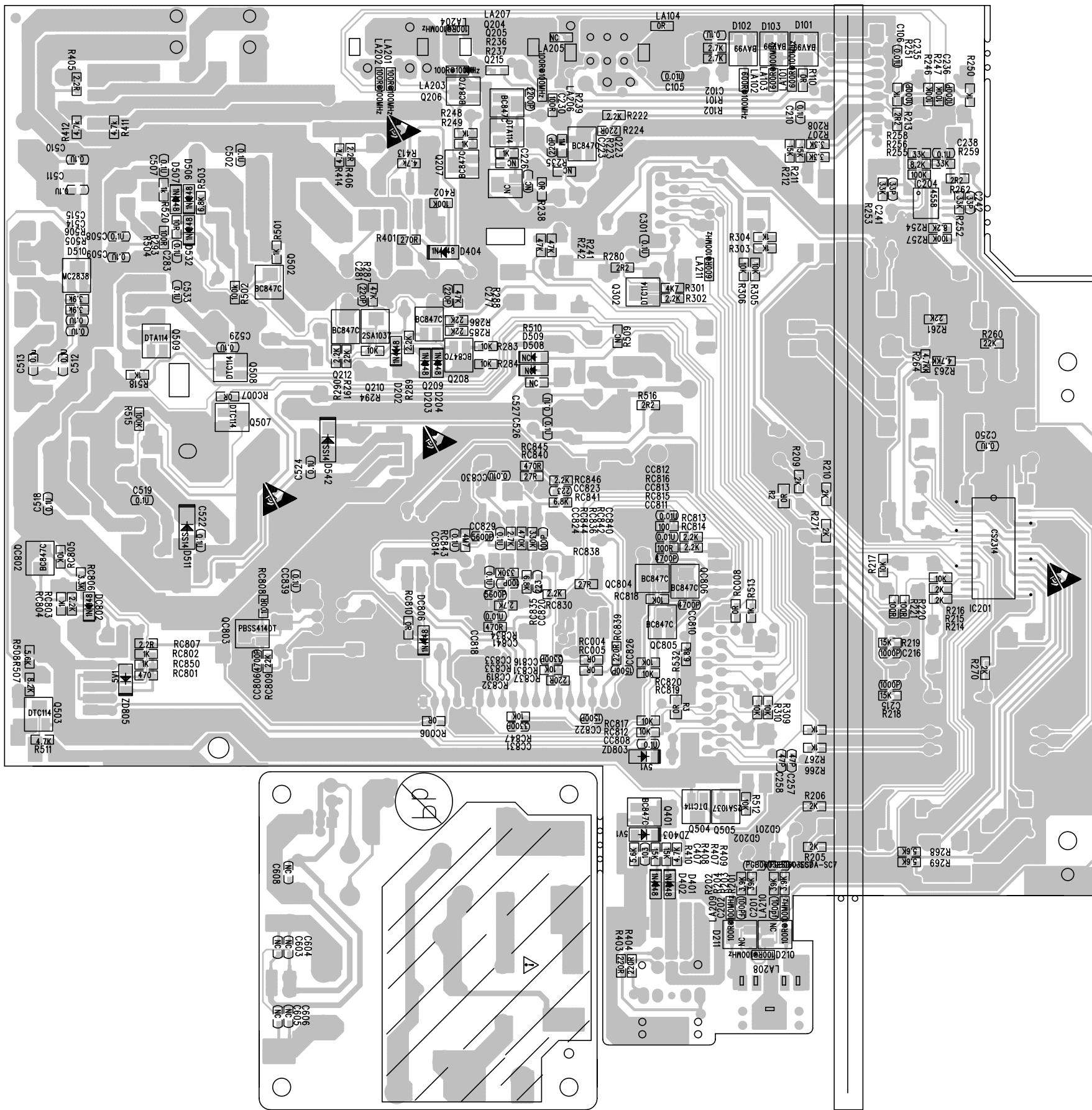
TO MAIN SECTION



LAYOUT DIAGRAM - MAIN BOARD

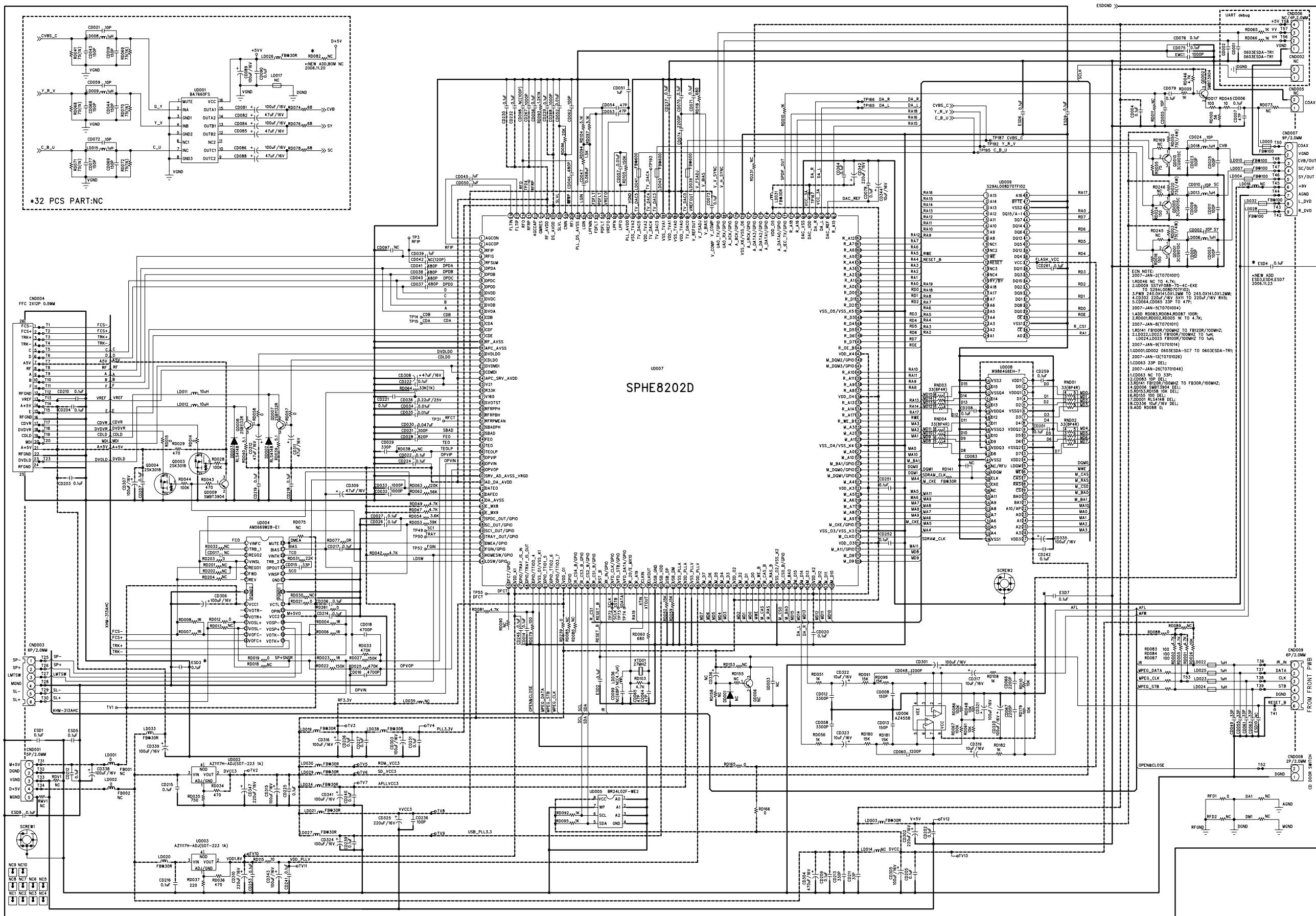


LAYOUT DIAGRAM - MAIN BOARD



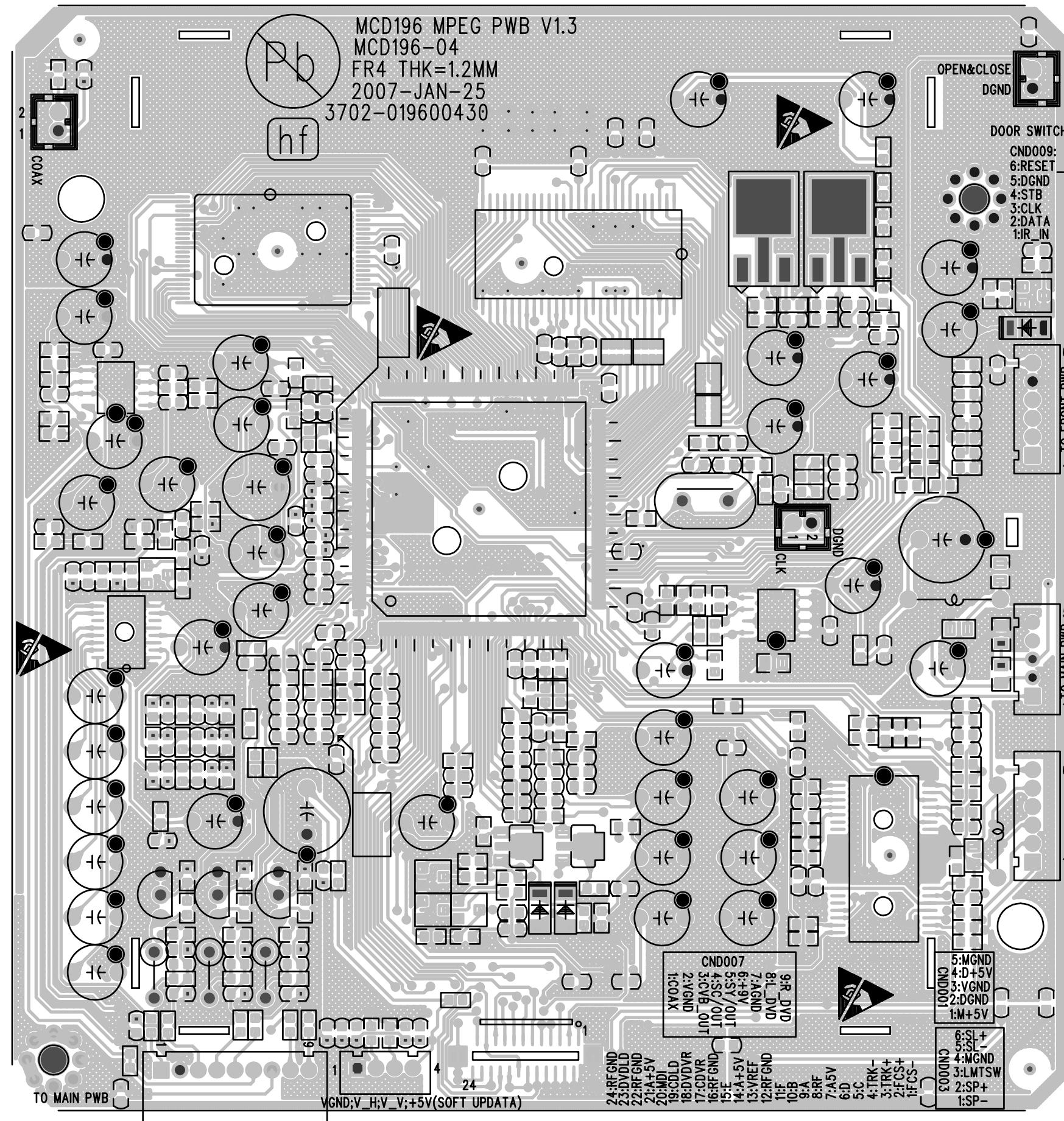
CIRCUIT DIAGRAM - DVD MPEG BOARD

MPEG is not repaired, diagram for reference only.

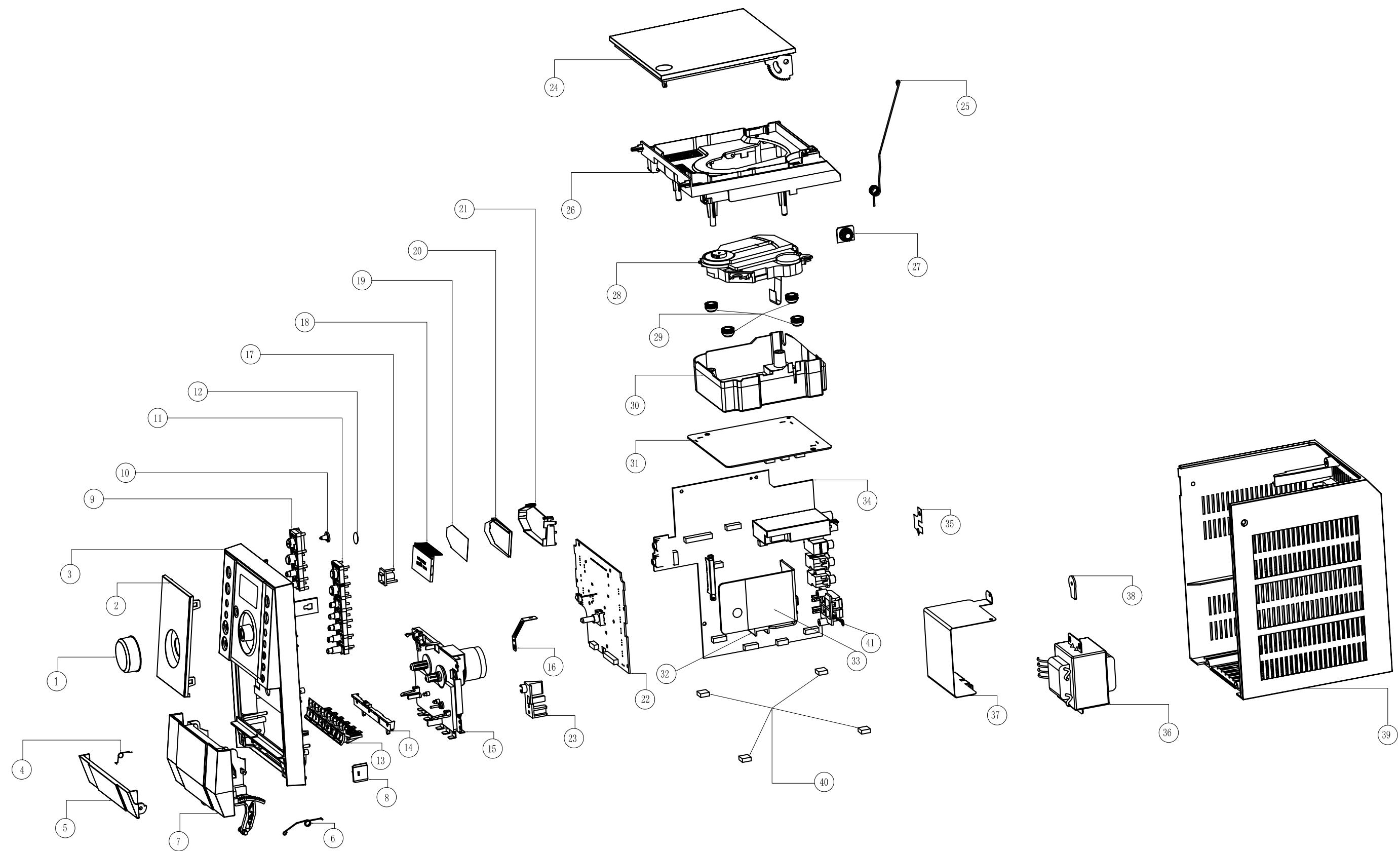


LAYOUT DIAGRAM - DVD MPEG BOARD

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(RED) 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.