

Service  
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# Service Manual



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Version 1.0



# PHILIPS

## 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

### **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



### **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 .

**CLASS 1  
LASER PRODUCT**

## 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:



- 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
  - \* Lead free

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

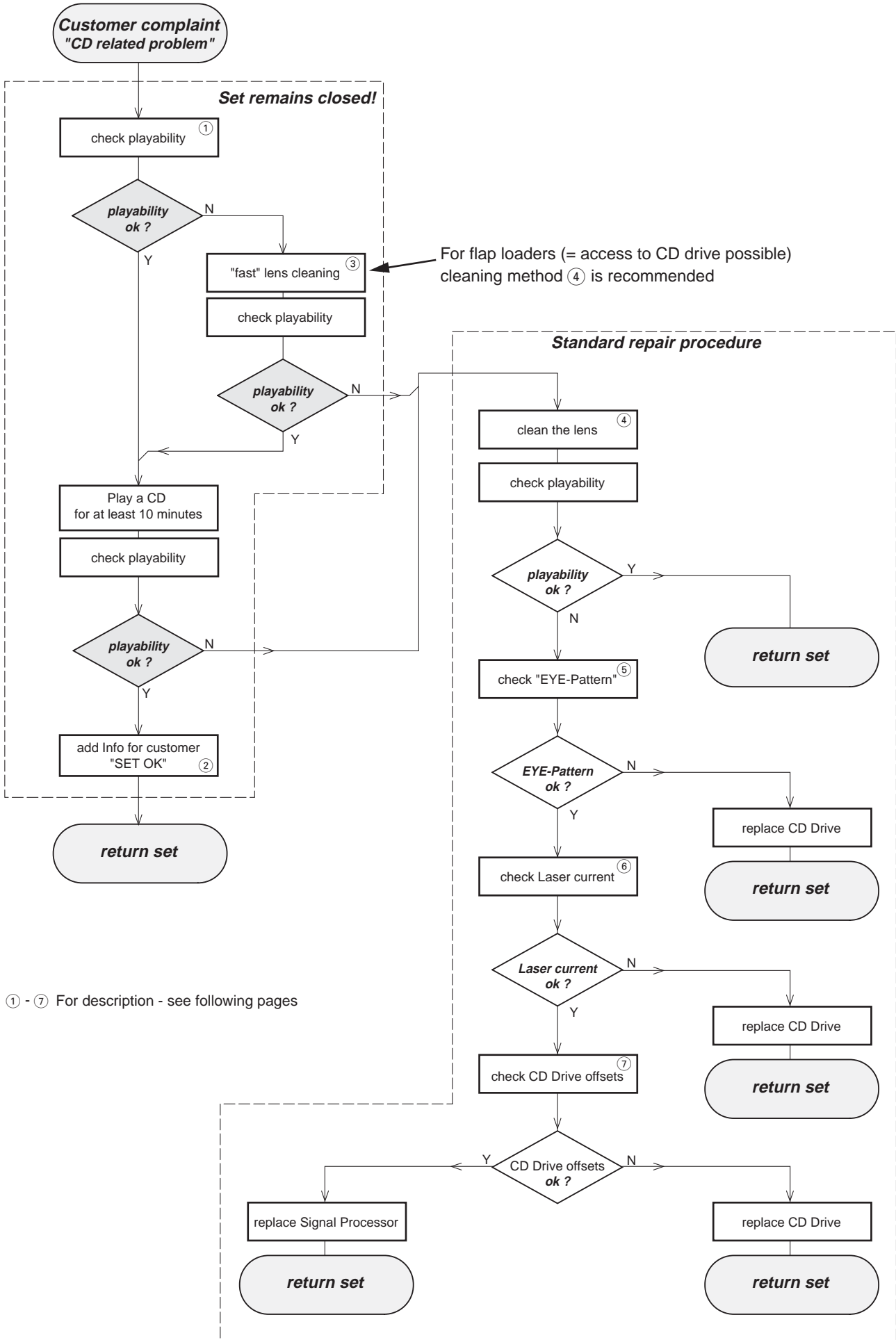
For additional questions please contact your local repair-helpdesk.

## 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.

# CD PLAYABILITY CHECK



For flap loaders (= access to CD drive possible) cleaning method ④ is recommended

① - ⑦ For description - see following pages

## CD PLAYABILITY CHECK

①

### PLAYABILITY CHECK

For sets which are compatible with **CD-RW** discs  
 use CD-RW Printed Audio Disc.....7104 099 96611  
 TR 3 (Fingerprint)  
 TR 8 (600µ Black dot) **maximum at 01:00**

- playback of these two tracks without audible disturbance  
 playing time for: Fingerprint ≥10seconds  
 Black dot from 00:50 to 01:10
- jump forward/backward (search) within a reasonable time

For all other sets  
 use CD-DA SBC 444A.....4822 397 30245  
 TR 14 (600µ Black dot) **maximum at 01:15**  
 TR 19 (Fingerprint)  
 TR 10 (1000µ wedge)

- playback of all these tracks without audible disturbance  
 playing time for: 1000µ wedge ≥10seconds  
 Fingerprint ≥10seconds  
 Black dot from 01:05 to 01:25
- jump forward/backward (search) within a reasonable time

②

### CUSTOMER INFORMATION

It is proposed to add an addendum sheet to the set which informs the customer that the set has been checked carefully - but no fault was found. The problem was obviously caused by a scratched, dirty or copy-protected CD. In case problems remain, the customer is requested to contact the workshop directly. The lens cleaning (method ③) should be mentioned in the addendum sheet.

The final wording in national language as well as the printing is under responsibility of the Regional Service Organizations.

③

### FAST LENS CLEANING (dry brush)

Use lens cleaning CD  
 SBC AC300.....9082 100 00043

Insert the lens cleaning CD, press PLAY and follow the voice guide's instructions on the CD.

④

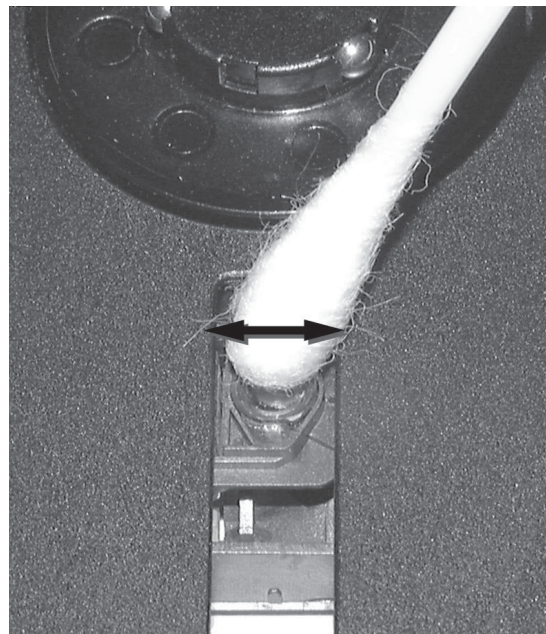
### LIQUID LENS CLEANING

**Before touching the lens it is advised to clean the surface of the lens by blowing clean air over it. This to avoid that little particles make scratches on the lens.**

Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent B4-No2", available with codenumber 4822 389 10026.

The actuator is a very precise mechanical component and may not be damaged in order to guarantee its full function. Clean the lens gently (don't press too hard) with a soft and clean cotton bud moistened with the special lens cleaner.

The direction of cleaning must be in the way as indicated in the picture below.



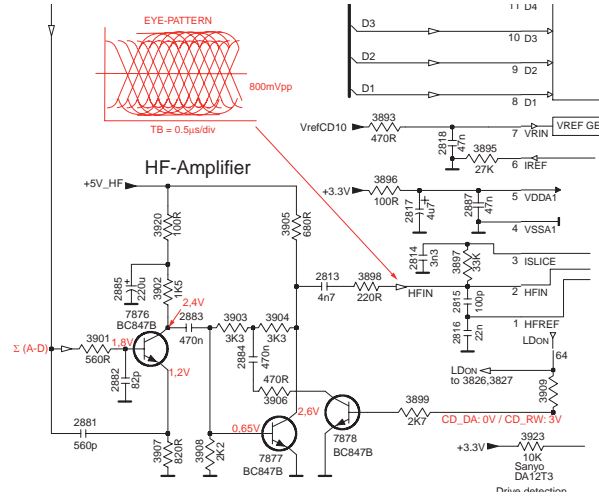


# CD PLAYABILITY CHECK

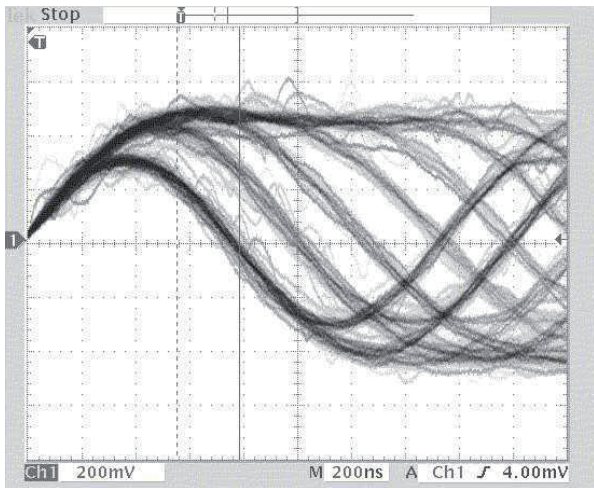
5

## EYE-PATTERN SIGNAL – JITTER MEASUREMENT

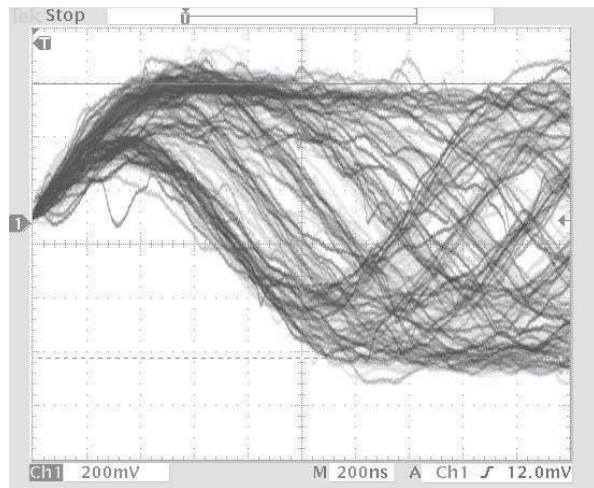
Measure the signal on the input of the Signal processor using an **analog** oscilloscope. Please find the exact measuring point in your Service Manual.



See below examples of the signal. Amplitude should read at least 700mVpp using SBC444A.



good



bad

If the oscilloscope shows a signal like the 'bad' one, and/or the amplitude decreases within 1 minute - the CD drive has to be replaced.

6

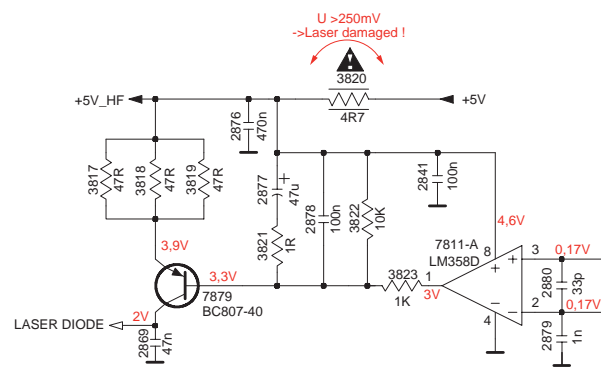
## CD DRIVE – LASER CURRENT MEASUREMENT

The laser current can be measured as a voltage drop on a resistor. The resistor is marked in every Service Manual. The value depends on the type of CD drive.

	typical value	most probably defect
VAMxxxx	: 150-230mV	≥350mV
MCDxx	: 170-230mV	≥300mV
DA1x	: 210-250mV	≥350mV
DA2x	: 175-200mV	≥250mV

Use SBC444A (CD-DA) for measurement.

### Laser power control



7

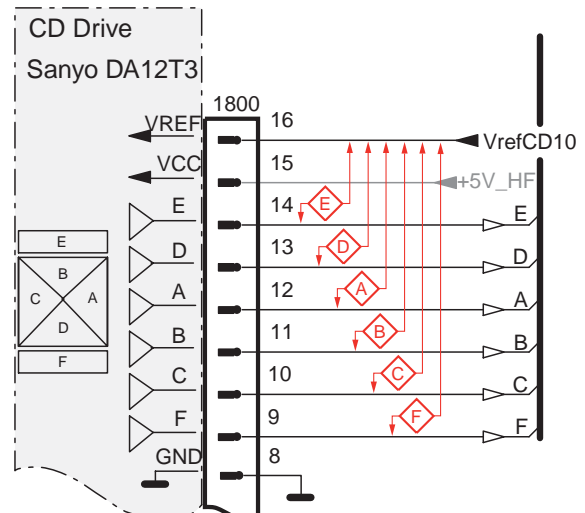
## CD DRIVE – OFFSET MEASUREMENT

The photodiodes of the CD-drive may have an offset. These offsets have to be compensated by the signal processor. High offsets can lead to poor playability of some CDs (skipping tracks).

To measure the offset values, start the **Service Test Program** - section "Focus Test" without a CD.

The offsets can be measured with a DC Millivoltmeter directly on the connector (see drawing below). Pin numbering varies from drive to drive.

The values from diode A-D should read 0±10mV. Diodes E and F are less critical.



If one of the offsets is higher than ±10mV the CD drive has to be replaced. Otherwise replace the Signal Processor.

## TECHNICAL SPECIFICATIONS

### AMPLIFIER

Output power ..... 140 W RMS  
 Signal-to-noise ratio .....  $\geq 60$  dBA  
 Frequency response ..... 150 – 20000 Hz,  $\pm 3$  dB  
 Input sensitivity AUX ..... 0.5 V (max. 2 V)  
 Impedance loudspeakers .....  $6 \Omega$   
 Impedance headphones .....  $32 \Omega$  -1000  $\Omega$

### 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,  $75 \Omega$   
 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 ..... 20  
 Signal-to-noise ratio .....  $\geq 60$  dBA  
 Channel separation .....  $\geq 40$  dB (1 kHz)  
 Total harmonic distortion .....  $< 0.1\%$  (1 kHz)

### USB PLAYER

USB ..... 12Mb/s, V1.1  
 ..... support MP3 and WMA files  
 Number of albums/folders ..... maximum 99  
 Number of tracks/titles ..... maximum 999

### TUNER

FM wave range ..... 87.5 – 108 MHz  
 Sensitivity at  $75 \Omega$   
 – mono, 26 dB signal-to-noise ratio ..... 2.8  $\mu$ V  
 – stereo, 46 dB signal-to-noise ratio ..... 61.4  $\mu$ V  
 Tuning grid ..... 9/10 kHz  
 Selectivity .....  $\geq 15$  dB  
 Total harmonic distortion .....  $\leq 5\%$   
 Frequency response ..... 40 – 5000 Hz (-6 dB)  
 Signal-to-noise-ratio .....  $\geq 58$  dBA

### SPEAKERS

#### Front Speakers

Impedance .....  $6 \Omega$   
 Sensitivity .....  $80 \pm 4$  dB  
 Frequency response ..... 150Hz-20kHz  
 Dimensions .... 171 (W) x 297 (H) x 89 (D) mm  
 Weight ..... 1.265 kg/each

#### Subwoofer

Subwoofer (not magnetically shielded design) ....  
 ..... 8"  
 Impedance .....  $8 \Omega$   
 Output power ..... 80 W  
 Dimensions (w x h x d) .....  
 ..... 220 mm x 350 mm x 357 mm  
 Weight ..... 9.66 kg

### GENERAL INFORMATION

AC Power ..... 110 – 127 / 220 – 240 V;  
 ..... 50/60 Hz Switchable  
 Dimensions (w x h x d) .. 450 x 335 x 115 (mm)  
 Weight (with/without speakers) ..... 5.63 / 3.1 kg  
 Standby power consumption .....  $\leq 4$  W

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

## SERVICE TOOLS

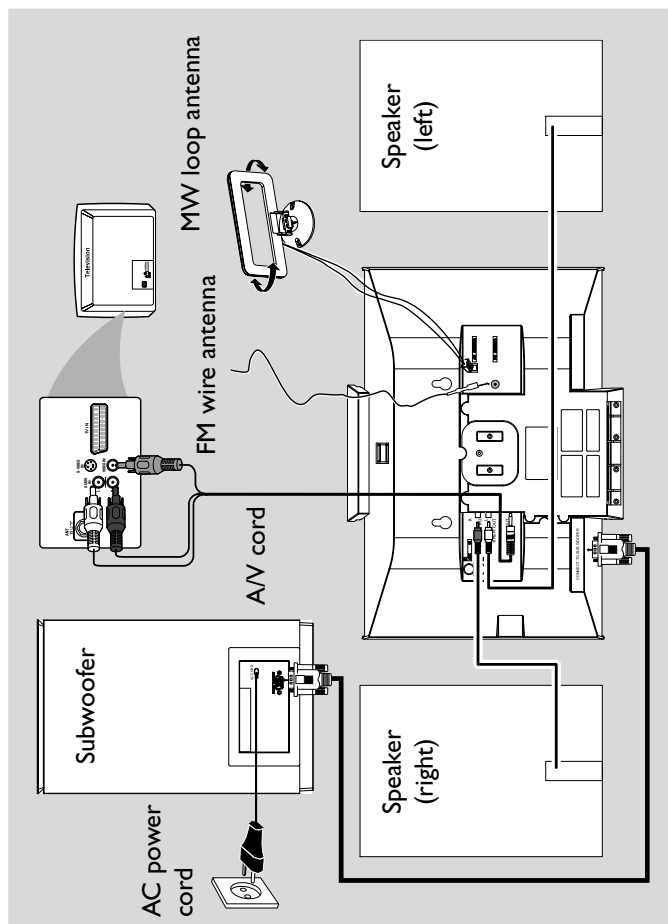
Audio signal disc SBC 429 ..... 4822 397 30184  
 Playability test disc SBC 444 ..... 4822 397 30245  
 Test disc 5 (disc without errors) +  
 Test disc 5A (disc with dropout errors, black spots and fingerprints)  
 SBC 426/426A ..... 4822 397 30096  
 Burn in test disc (65 min. 1kHz signal at -30 dB level without "pause") ..... 4822 397 30155

## AVAILABLE ESD PROTECTION EQUIPMENT

anti-static table mat large 1200x650x1.25mm 4822 466 10953  
 small 600x650x1.25m 4822 466 10958  
 anti-static wristband 4822 395 10223  
 connection box (3 press stud connections,  $1M\Omega$ ) 4822 320 11307  
 extendible cable (2m,  $2M\Omega$ , to connect wristband to connection box) 4822 320 11305  
 connecting cable (3m,  $2M\Omega$ , to connect table mat to connection box) 4822 320 11306  
 earth cable ( $1M\Omega$ , 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

## CONNECTION AND CONTROLS

### Connections



#### IMPORTANT!

- The type plate is located at the rear of the system.
- The voltage selector located at the rear of this system is preset at 220V-240V from the factory. For countries that operate at 110V-127V, please adjust to 110V-127V before you switch on the system.
- Before connecting the AC power cord on the rear of the subwoofer to the wall outlet, ensure that all other connections have been made.
- Never make or change any connections with the power switched on.
- High voltage! Do not open. You run the risk of getting an electric shock.
- The machine does not contain any user-serviceable parts.
- Modification of the product could result in hazardous radiation of EMC or other unsafe operation.

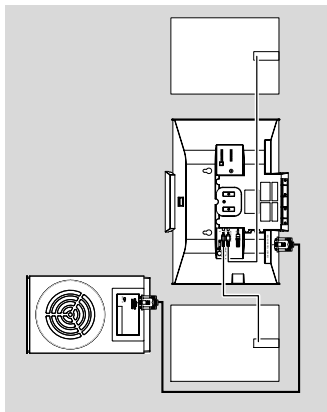
To avoid overheating of the system, a safety circuit has been built in. Therefore, your system may switch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing it (not available for all versions).

#### Note:

- Before installation is finished, it is not recommended to remove the protective plastic film attached to the surface of the front panel to avoid any scratch caused during installation.

### Connections

#### Step 1: Connecting speakers



- 1 Place the main set with the front side facing down on a flat and firm surface.
- 2 Connect the two front speaker cables to the **SPEAKERS (6 Ω)** terminals: right speaker to "R" and left speaker to "L".
- 3 Remove the detachable cover at the left bottom of the main set to expose the **CONNECT TO SUB WOOFER** terminal.
- 4 Connect the **CONNECT TO SUB WOOFER** terminal of the main set to the **CONNECT TO MAIN SET** terminal of the subwoofer with the supplied 15-pin D-Sub cable by matching the pins. Fix the two screws on the connectors to ensure firm connection.
- 5 Mount the detachable cover back until hearing a click.

#### Notes:

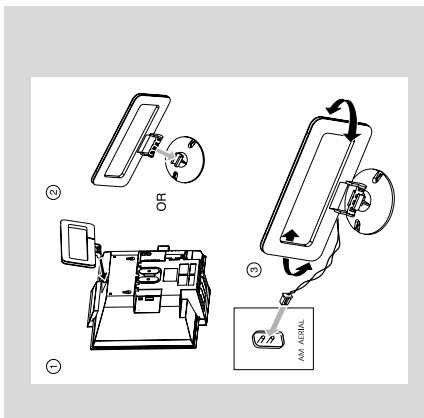
- Ensure that the speaker cables are correctly connected. Improper connections may damage the system due to short-circuit.
- For optimal sound performance, use the supplied speakers.
- Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.
- The delivery-attached 15-pin D-Sub cable is intended for use with this system only. Never try it on any other devices (e.g., do not use it in connection of your PC).

#### Step 2: Antennas Connection

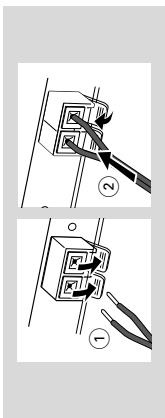
Connect the supplied MW loop antenna and FM antenna to the respective terminals. Adjust the position of the antenna for optimal reception.

##### MW Antenna

- Position the antenna as far as possible from a TV, VCR or other radiation source.



##### FM Antenna



- For better FM stereo reception, connect an outdoor FM antenna to the FM ANTENNA terminal.

# CONNECTION AND CONTROLS

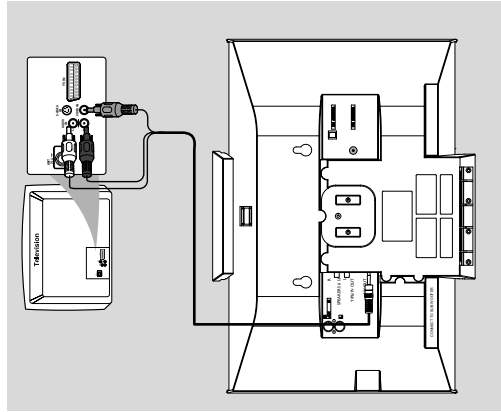
## Connections

### Step 3: Connecting TV

#### IMPORTANT!

- You only need to make one video connection from the following options, depending on the capabilities of your TV.
- Connect the DVD system directly to the TV.

#### Using AV OUT jack



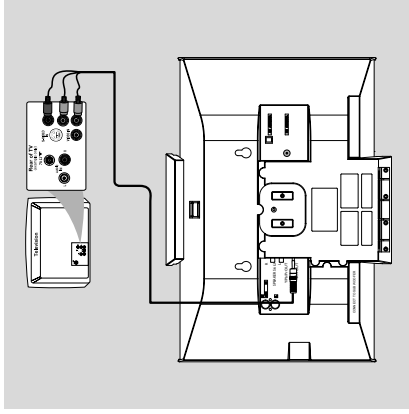
- 1 Connect the end of the supplied AV cord with only one connector to the **AV OUT** jack of the DVD system.

- 2 For the other end, connect the video output connector (yellow) to the video input jack (or labeled as A/V In, CVBS, Composite or Baseband) on the TV. To hear the sound of this DVD system through your TV, connect the audio connectors (white/ red) to the audio input jacks on the TV.

#### Using Y Pb Pr OUT jack

#### IMPORTANT!

- The progressive scan video quality is only possible when using Y Pb Pr, and a progressive scan TV is required.



- 1 Use component video cables (red/blue/green) to connect the **COMPONENT VIDEO OUTPUT (P/Cr Pb/Cb Y)** jack to the corresponding Component video input jacks (or labeled as Y Pb/Cb Pr/Cr or YUV) on the TV. 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 Progressive Scan function, see "Preparations-Setting up Progressive Scan feature".
- 2

#### Note:

- If your TV does not support Progressive Scan, you will not be able to view the picture.

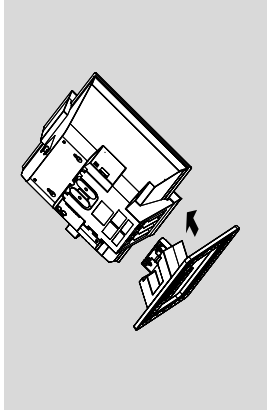
## Connections

### Step 4: Placing the set and speakers

With the supplied detachable stands and wall mounting kit, you can either place the main set and speakers on desktop or mount them onto wall. Desktop installation is taken for example here. For how to mount the system onto wall, please refer to **Appendix** and the attached **Wall Mounting Instructions**.

#### Mounting Instructions:

- 1 Align the side marked **PRESSY** of the larger-size stand with the slots at the bottom of the main set.



- 2 Push the stand down into the slots until you hear a click.

- 3 Attach the two smaller-size stands to the speakers in the same way.

- 4 Place the main set and speakers upright on the desktop with the support of the stands.

#### Note:

- To remove the stand from the main set or either speaker, while pressing down **PRESSY**, pull the stand out from the slots.

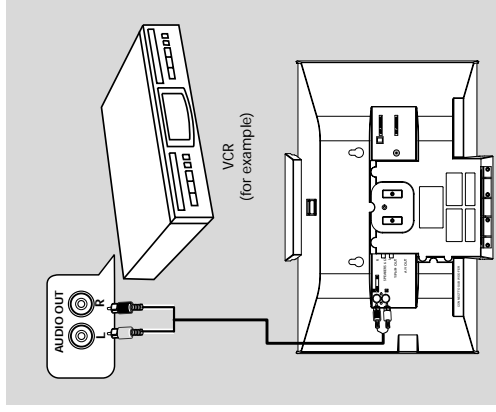
### Step 5: Connecting the power cord

After everything is connected properly, plug in the AC power cord on the rear of the subwoofer to the power outlet.

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

### Optional: Connecting additional equipment

#### Listening to the playback of a non-USB device

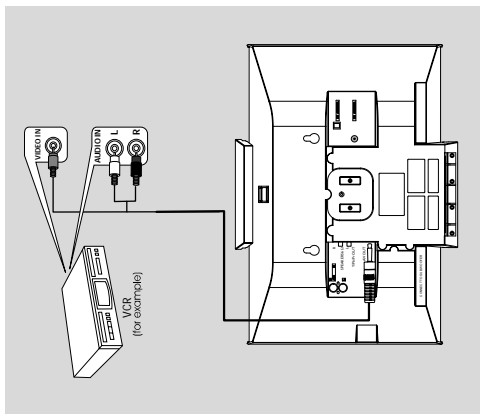


- Connect the system's **AUX IN (R/L)** jacks to the **AUDIO OUT** jacks on the other audio/visual device (such as a VCR, Laser Disc player or cassette deck) (cable not supplied).
- Before starting operation, press **SOURCE** on the front panel to select AUX or press **AUX** on the remote control in order to activate the input source.

# CONNECTION AND CONTROLS

## Connections

### Using the VCR for recording DVDs



- 1 Connect the end of the supplied AV cord with only one connector to the **AV OUT** jack of the DVD system.
- 2 For the other end, connect the video output connector (yellow) to the **VIDEO IN** jack on the VCR and the audio connectors (white/red) to the corresponding audio input jacks on the VCR. This will allow you to make analogue stereo (two channel, right and left) recordings.

### Connecting a USB device or memory card

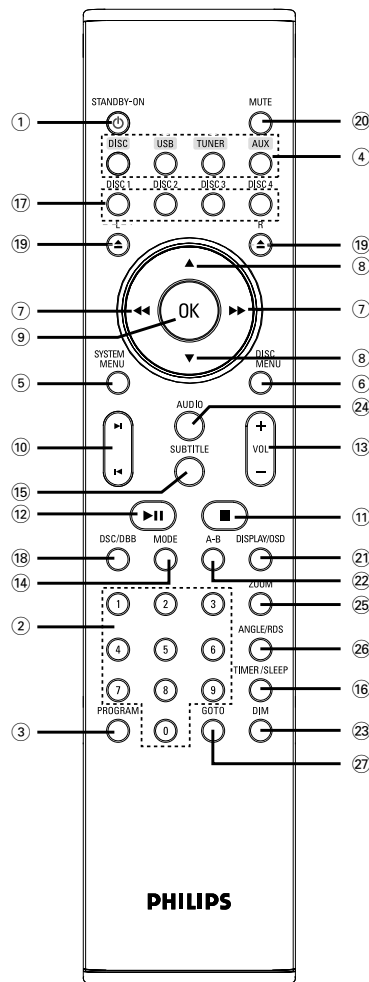
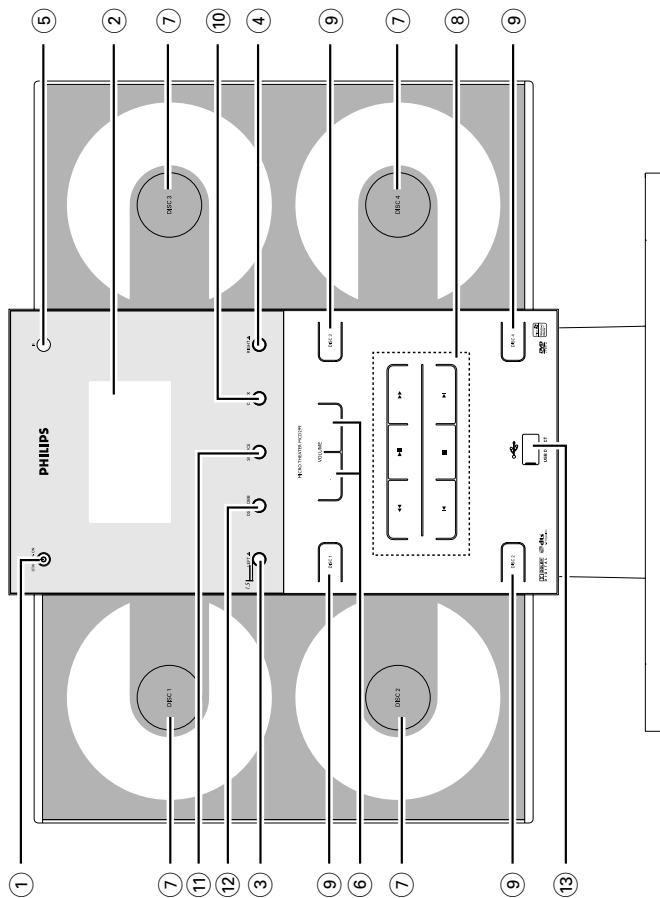
#### IMPORTANT!

- Before connecting the **USB plug**, first slide open the **protective cover on the socket**.

By connecting a USB mass storage device (including USB flash memory, USB flash players or memory cards) to the Hi-Fi system, you can enjoy the device's stored music through the powerful speakers of Hi-Fi system.

- Insert the USB device's USB plug into the socket on the set.
- for the devices with USB cables:**
- 1 Insert one plug of the USB cable (not supplied) to the socket on the set.
  - 2 Insert the other plug of the USB cable to the USB output terminal of the USB device.
- for the memory card:**
- 1 Insert the memory card into a card reader (not supplied).
  - 2 Use a USB cable (not supplied) to connect the card reader into the socket on the set.

## Controls





## Controls on the system

- ① **STANDBY-ON**
  - switches the system on or to standby mode.
- ② **Display screen**
  - shows the status of the system.
- ③ **LEFT**
  - opens/closes the left disc door.
- ④ **RIGHT**
  - opens/closes the right disc door.
- ⑤ **iR SENSOR**
  - remote sensor
- ⑥ **VOLUME**
  - adjusts the volume level.
- ⑦ **Disc trays**
- ⑧ **Mode Selection**
  - for TUNER ..... tunes to a station.
  - \*for DISC/USB ..... fast searches back and forward within a track/disc.
  - for Clock/Timer ..... sets the hour.
  - ..... stops disc playback or erases a disc program.
  - ..... starts or interrupts playback
  - ..... selects a preset radio station.
  - for DISC/USB ..... skips to the previous/next chapter/title/track.
  - for Clock/Timer ..... sets the minute.
- ⑨ **DISC 1/2/3/4**
  - selects a disc tray for playback.
- ⑩ **CLOCK**
  - Standby mode
  - \*\_ sets the system clock.
  - Playback mode
  - displays the system clock.
- ⑪ **SOURCE**
  - to select the respective sound source : DISC, USB, TUNER (FM/MW) or AUX.
- ⑫ **DSC•DBB**
  - \*\_ selects different types of preset sound equalizer settings (FLAT, POP, CLASSIC, ROCK, JAZZ).
  - enables or disables bass enhancement.

## USB DIRECT

- ⑬ - jack for the external USB mass storage device.

## Controls on the remote control

- ① **STANDBY-ON**
  - switches the system on or to standby mode.
- ② **Numeric Keypad (0-9)**
  - inputs a track/title/chapter number of the disc.
- ③ **PROGRAM**
  - DVD/VCD/CD/MP3-CD/USB: enters the program menu.
  - Picture CD: during playback, to select a slide show mode.
  - Tuner: programs preset radio stations.
- ④ **SOURCE**
  - to select the respective sound source: DISC, USB, TUNER (FM/MW) or AUX.
- ⑤ **SYSTEM MENU** (disc mode only)
  - to enter or exit the system menu bar.
- ⑥ **DISC MENU** (disc mode only)
  - DVD/VCD: enters or exits the disc contents menu.
  - VCD2.0: switches the playback control mode on or off.
- ⑦
  - 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/USB
  - searches fast backward/forward.
  - In DISC mode, to select a movement direction in the disc menu or system menu bar.
  - for clock/timer; to set the hour.
- ⑧
  - In DISC mode, to select a movement direction in the disc menu or system menu bar.
  - selects different slow playback modes for a VCD/ SVCD/DVD.

- ⑨ **OK**
  - to exit or confirm the selection.
- ⑩
  - Disc: skips to the previous/next chapter/title/ track.
  - Tuner: selects a preset radio station.
  - for clock/timer; to set the minute.
- ⑪
  - In DISC/USB mode, to stop playback or clear a program.
- ⑫
  - In DISC/USB mode, to start or interrupt playback.
- ⑬ **VOL +/-**
  - adjusts the volume upward/downward.
- ⑭ **MODE**
  - selects various repeat modes or the shuffle play mode for a disc.
- ⑮ **SUBTITLE**
  - selects a subtitle language.
- ⑯ **TIMER/SLEEP**
  - Standby mode
  - sets time for switching on the system automatically.
- Power-on mode
  - sets the sleep timer function (auto off).
- ⑰ **DISC 1/2/3/4**
  - selects a disc tray for playback.
- ⑱ **DSC/DBB**
  - \*\_ selects different types of preset sound equalizer settings (FLAT, POP, CLASSIC, ROCK, JAZZ).
  - enables or disables bass enhancement.
- ⑲ **L** **R**
  - opens/closes the left/right disc door.
- ⑳ **MUTE**
  - to interrupt or resume sound reproduction.
- ㉑ **DISPLAY/OSD**
  - displays information on TV screen during playback.

- ㉒ **A-B**
  - for VCD/CD/USB: to repeat a specific section within the same track.
  - for DVD: to repeat a specific section in a disc.
- ㉓ **DIM**
  - selects different levels of brightness for the display screen.
- ㉔ **AUDIO**
  - sets Stereo, Mono-Left or Mono-Right sound mode.
  - for DVD
  - selects an audio language.
- ㉕ **ZOOM**
  - DVD/VCD/Picture CD: enlarges or reduces a picture or active image on the TV screen.
- ㉖ **ANGLE/RDS (RDS function unavailable for this version)**
  - \*\_ DVD: selects a DVD camera angle.
- ㉗ **GOTO**
  - In DISC mode, to fast search in a disc by entering a time, title, chapter or track.

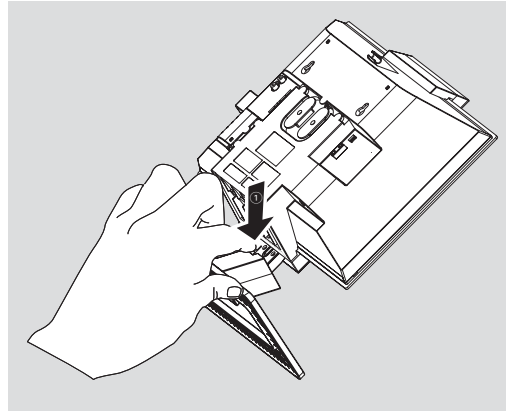
## Notes for remote control:

- **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 (▶II, ◀I, ▶I for example).**

## DISMANTLING INSTRUCTIONS

### *Detaching the Stands from the Speakers and Main Sets*

- 1 To detach the stand from the main unit,
  - a. As shown, hold down **PRESS ▼**
  - b. Move out the stand to detach.



- 2 Detach the speaker stands in the same way as you do the main unit stand.

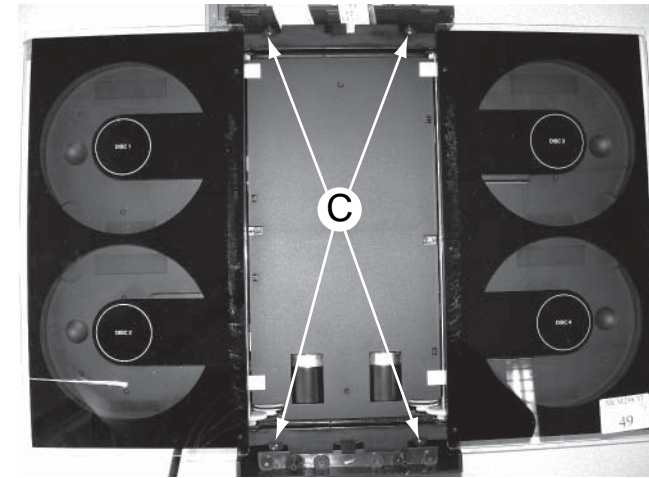
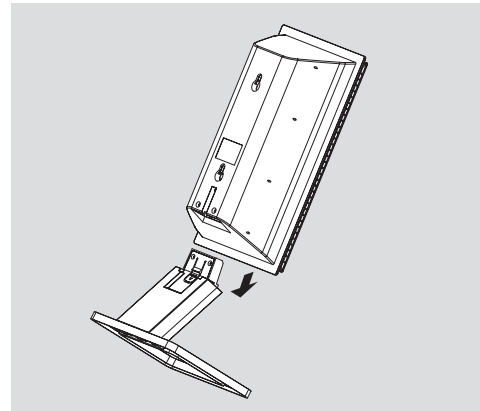


Figure 2

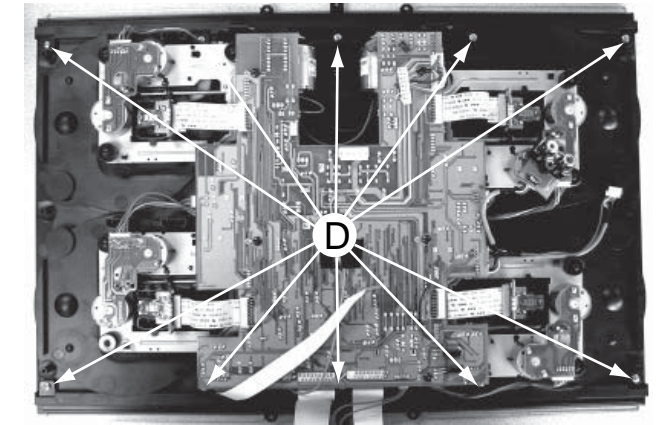


Figure 3

### *Dismantling of the Front and Rear Panel assembly*

- 1) Loosen 4 screws A to remove the Front Panel Ass'y by sliding it out towards the underside before lifting up as shown in Figure 1.
- 2) Loosen 7 screws B and 4 screws C to remove the Rear Panel Ass'y .
  - 7 screws on the rear
  - 2 screws each on the upside & downside as shown in Figure 2.
- 3) Loosen 10 screws D (see Figure 3) to remove the CD Door Track, then remove Left and Right CD Door.
  - 5 screws each on the upper & under side.

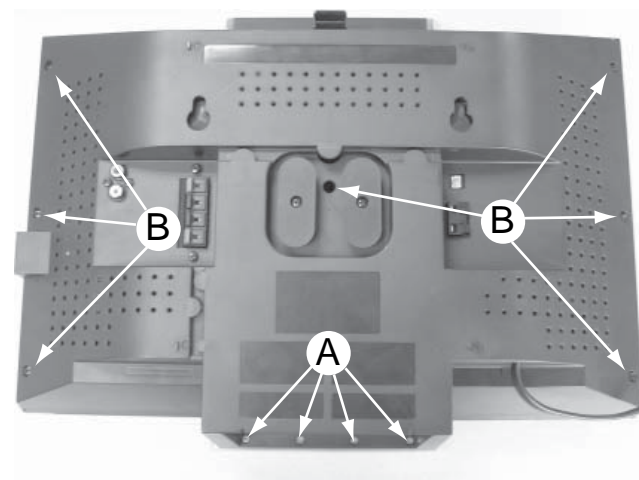


Figure 1

### *Detaching the Control Panel Ass'y from the Front Panel Ass'y*

- 1) Loosen 11 screws E (see Figure 4) to remove the Control Panel Ass'y .

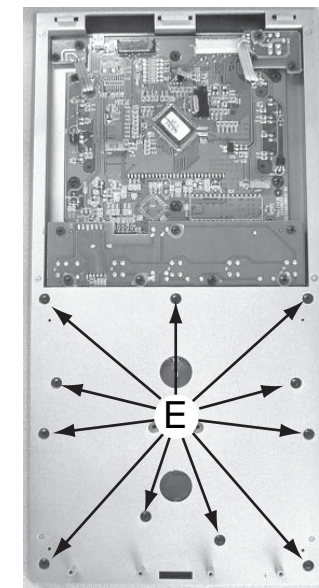


Figure 4



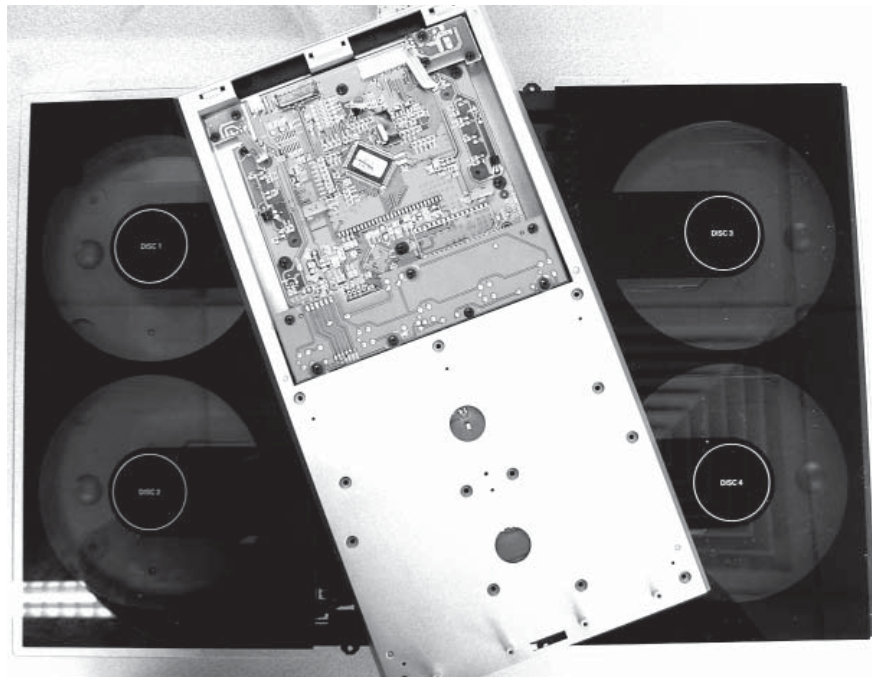
## DISMANTLING INSTRUCTIONS

### *Repair Hints & Service Positions*

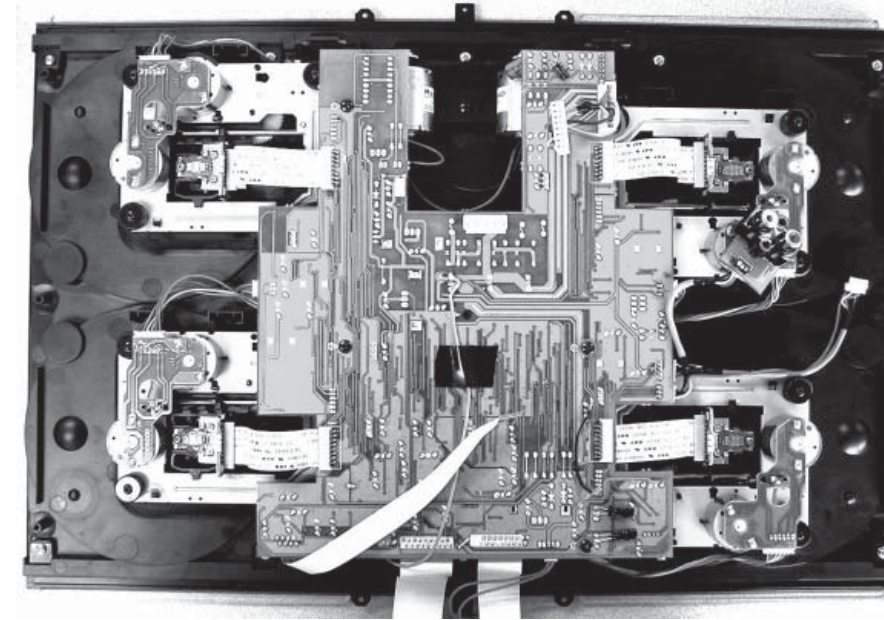
- 1) During repair it is possible to disconnect the Tuner Board and/or CD Module completely unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occur.

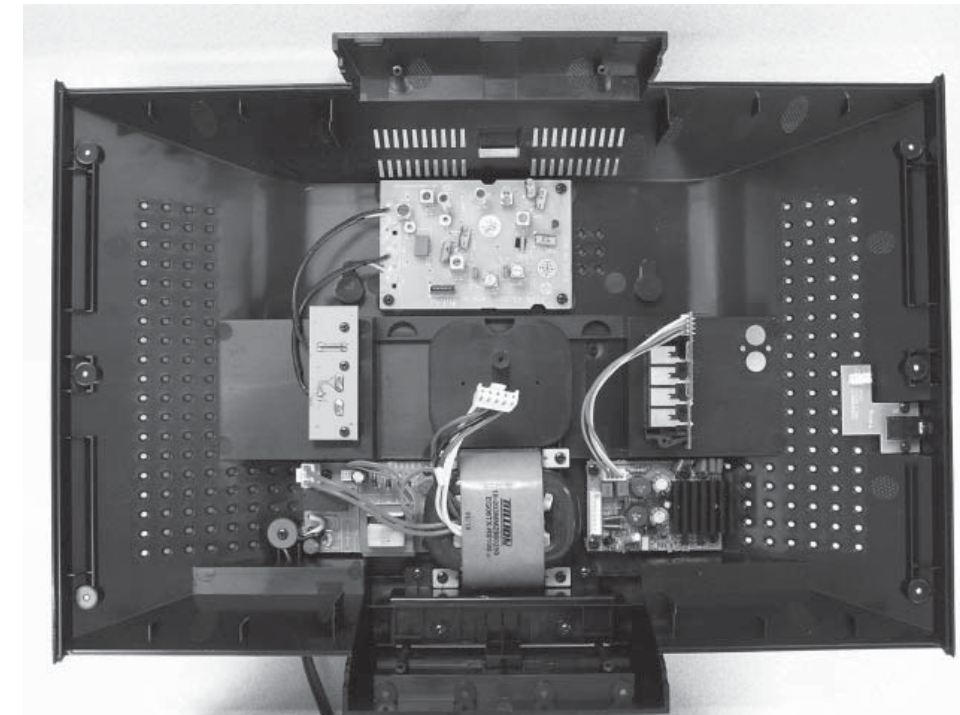
Service position A



Service position B

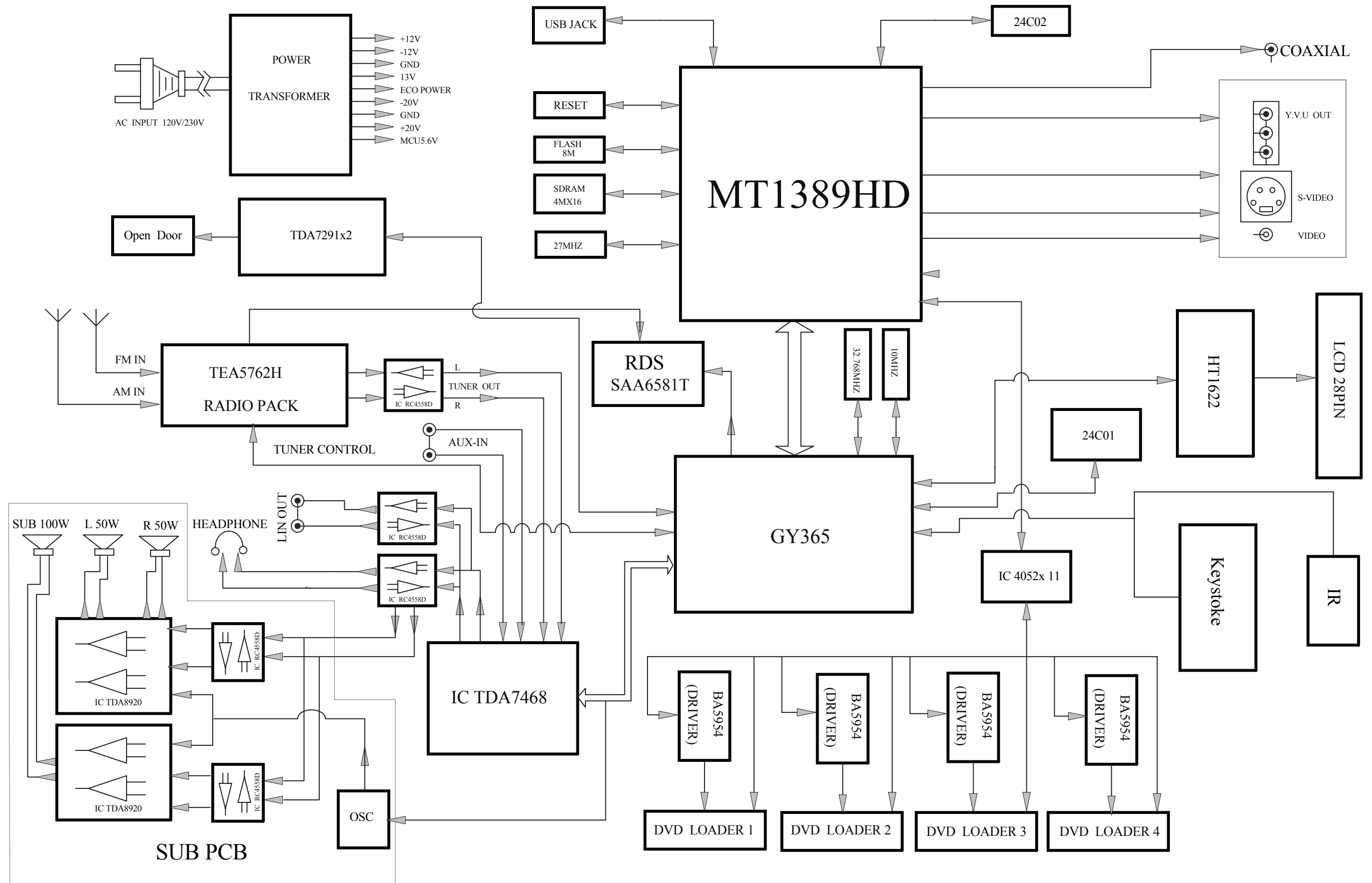


Service position C

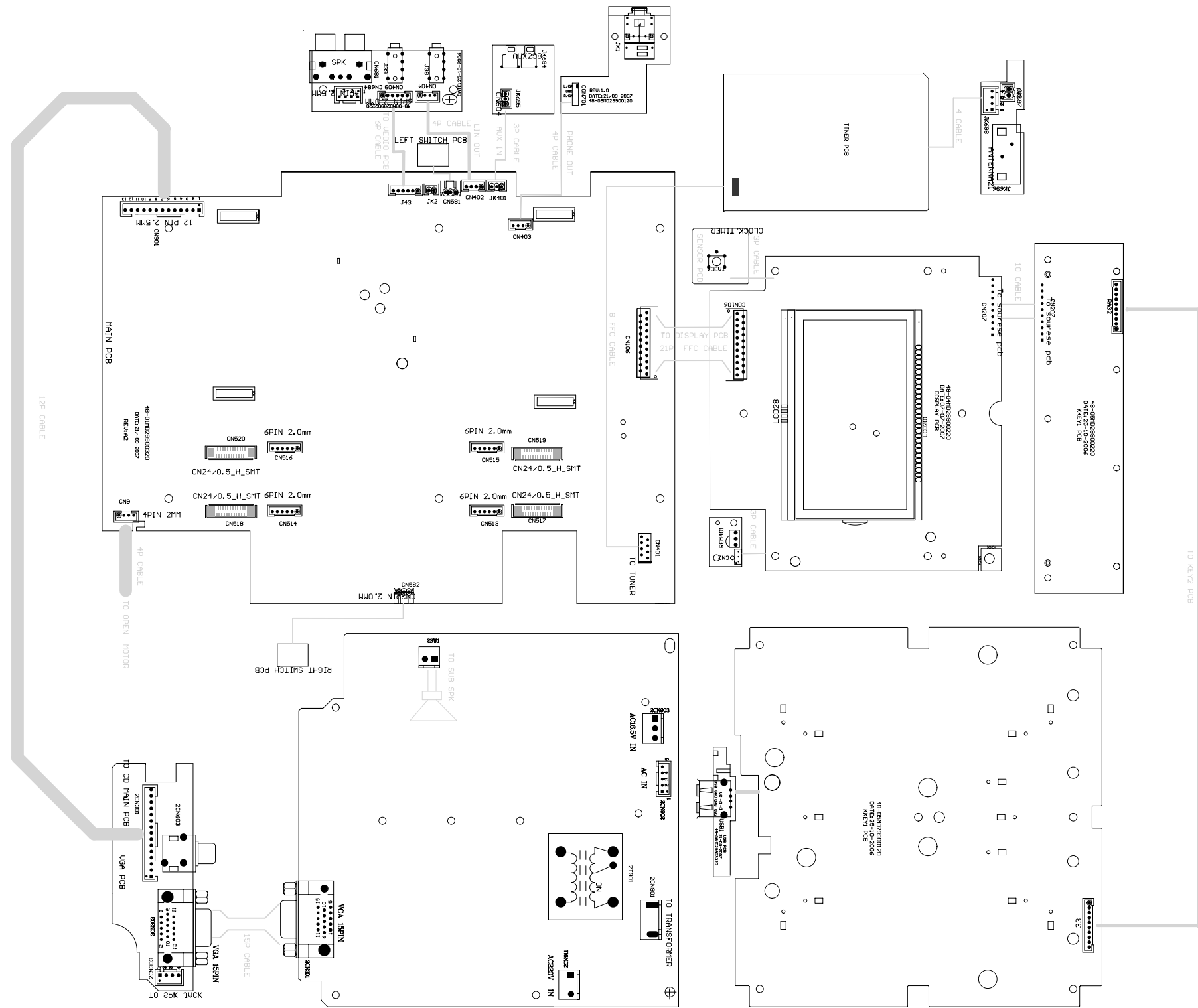




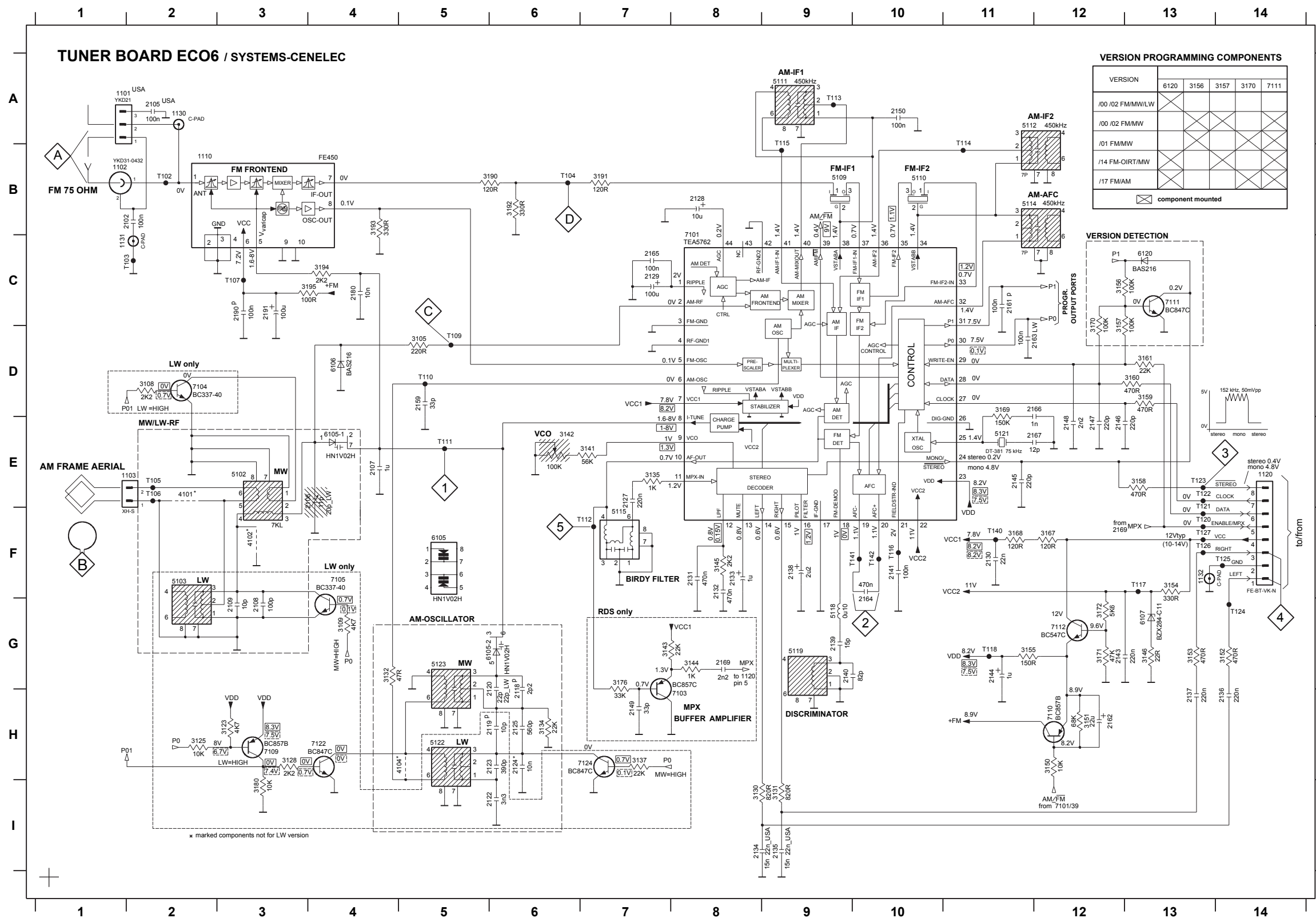
SET BLOCK DIAGRAM



WIRING DIAGRAM

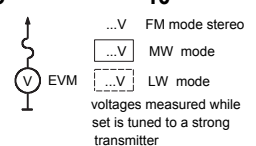


# CIRCUIT DIAGRAM - TUNER BOARD

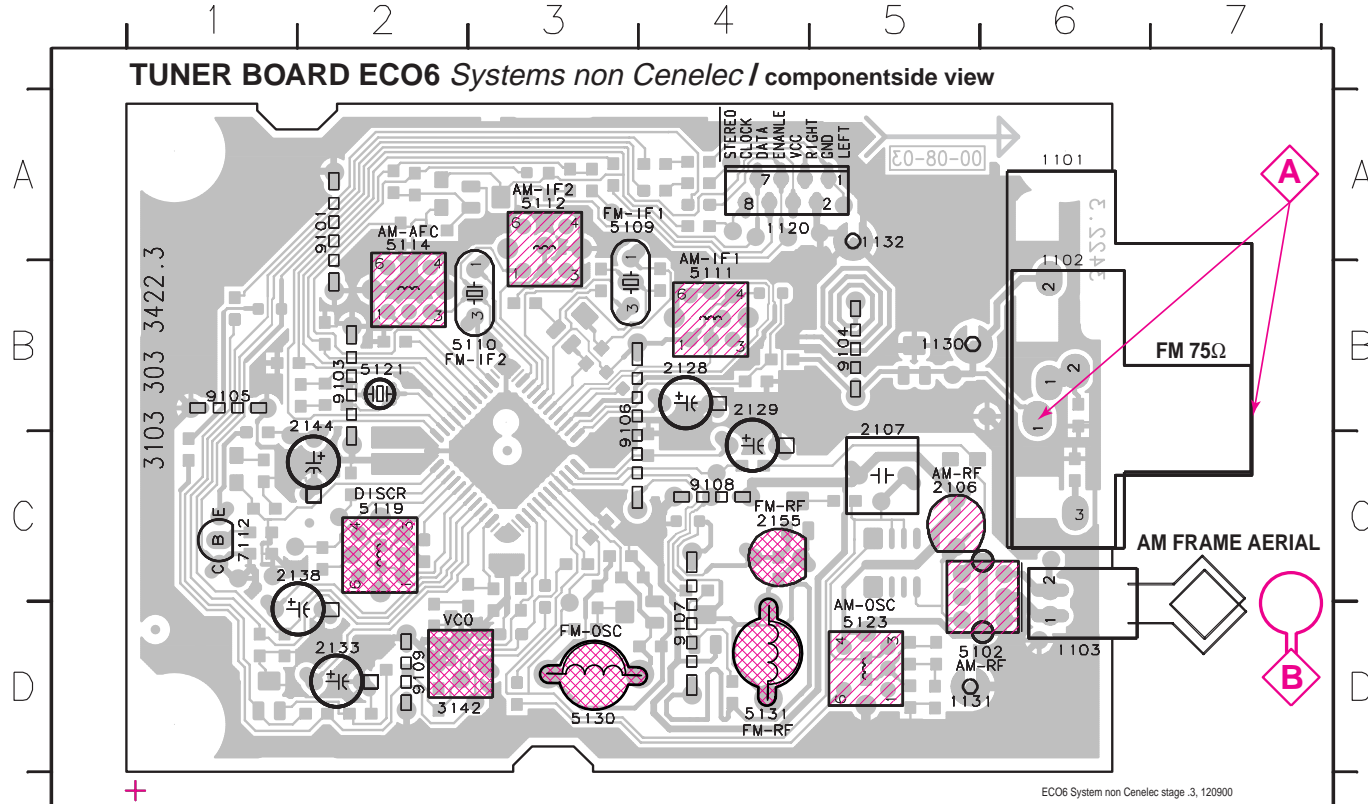


- 1101 A2
- 1102 B1
- 1103 E2
- 1110 B2
- 1120 E4
- 1130 A2
- 1131 C1
- 1132 F13
- 2102 B2
- 2105 A2
- 2106 E3
- 2107 E4
- 2108 G3
- 2109 G3
- 2118 H6
- 2119 H6
- 2120 G6
- 2122 I6
- 2123 H6
- 2124 H6
- 2125 H6
- 2127 E7
- 2128 B8
- 2129 C7
- 2130 F11
- 2131 F8
- 2132 F8
- 2133 F8
- 2134 I8
- 2135 I9
- 2136 H14
- 2137 H13
- 2138 F9
- 2139 F9
- 2140 G9
- 2141 F10
- 2143 G12
- 2144 G11
- 2145 E11
- 2146 E12
- 2147 E12
- 2148 E12
- 2149 H7
- 2150 A10
- 2159 D5
- 2161 C11
- 2162 H12
- 2163 D11
- 2164 F10
- 2165 C7
- 2166 D12
- 2167 E12
- 2169 G8
- 2180 C4
- 2190 C3
- 2191 C3
- 3105 D5
- 3108 D2
- 3109 G4
- 3123 H3
- 3125 H2
- 3128 H3
- 3130 I8
- 3131 I9
- 3132 G4
- 3134 H6
- 3135 E7
- 3137 H7
- 3141 E7
- 3142 E6
- 3143 G7
- 3144 G8
- 3145 F8
- 3146 G3
- 3150 H12
- 3151 H12
- 3152 G14
- 3153 G13
- 3154 F13
- 3155 G11
- 3156 C12
- 3157 C12
- 3158 E13
- 3159 D13
- 3160 D13
- 3161 D13
- 3167 F12
- 3176 G7
- 3180 I3
- 3190 B6
- 3191 B7
- 3192 B6
- 3193 B4
- 3194 C4
- 3195 C4
- 4101 E2
- 4102 F3
- 4104 H5
- 5102 E3
- 5103 F2
- 5109 B9
- 5110 B10
- 5111 A9
- 5112 A11
- 5114 B11
- 5115 F7
- 5118 G9
- 5119 G9
- 5121 E11
- 5122 H5
- 5123 G5
- 6105-1 E4
- 6105-2 G6
- 6106 D4
- 6107 G13
- 6120 C13
- 7101 C8
- 7103 H8
- 7104 D2
- 7105 F4
- 7109 H3
- 7110 H12
- 7111 C13
- 7112 G12
- 7122 H4
- 7124 H7
- 7102 B2
- 7103 H8
- 7104 D2
- 7105 F4
- 7109 H3
- 7110 H12
- 7111 C13
- 7112 G12
- 7122 H4
- 7124 H7
- 7102 B2
- 7103 H8
- 7104 D2
- 7105 F4
- 7109 H3
- 7110 H12
- 7111 C13
- 7112 G12
- 7122 H4
- 7124 H7
- 7102 B2
- 7103 H8
- 7104 D2
- 7105 F4
- 7109 H3
- 7110 H12
- 7111 C13
- 7112 G12
- 7122 H4
- 7124 H7
- 7102 B2
- 7103 H8
- 7104 D2
- 7105 F4
- 7109 H3
- 7110 H12
- 7111 C13
- 7112 G12
- 7122 H4
- 7124 H7
- 7102 B2
- 7103 H8
- 7104 D2
- 7105 F4
- 7109 H3
- 7110 H12
- 7111 C13
- 7112 G12
- 7122 H4
- 7124 H7

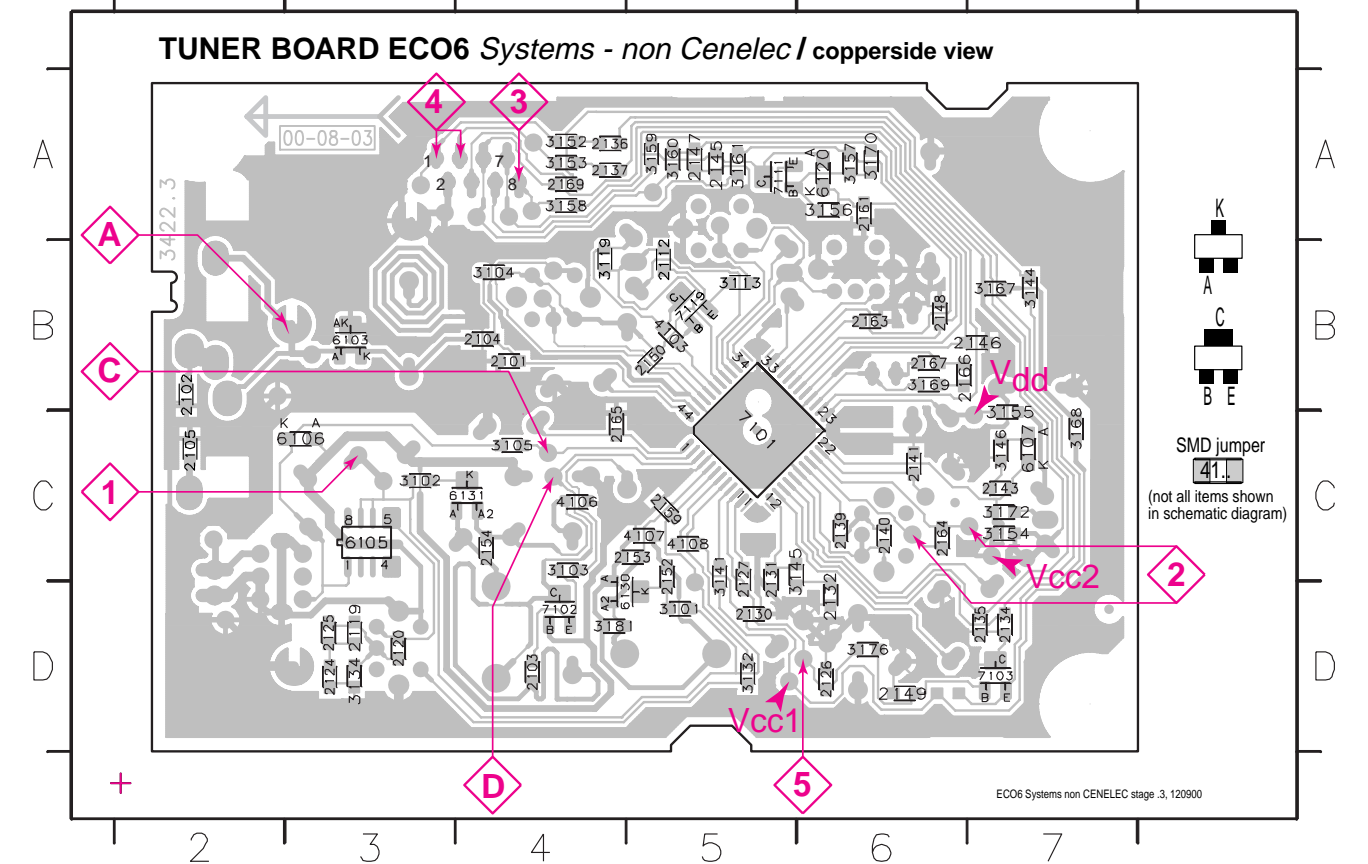
**LEGEND**  
 \* ... only assembled in FM/AM-version  
 p ... for provision only  
 USA ... for USA version only  
 LW ... for LW version only



1101 A6 1120 A4 1132 A5 2128 C4 2138 C2 3142 D2 5110 B3 5114 A2 5123 D5 7112 C1 9104 B5 9107 D4  
 1102 B6 1130 B5 2106 C5 2129 B4 2144 B2 5102 D6 5111 B4 5119 C2 5130 D3 9101 A2 9105 B1 9108 C4  
 1103 D6 1131 D5 2107 B5 2133 D2 2155 C4 5109 A3 5112 A3 5121 B2 5131 D4 9103 B2 9106 B3 9109 D2



2101 B4 2119 D3 2130 D5 2137 A4 2146 B7 2153 C5 2165 C4 3103 C4 3134 D3 3152 A4 3158 A4 3169 B6 4106 C4 6107 C7 7103 D7  
 2102 B1 2120 D3 2131 C5 2139 C6 2147 A5 2154 C4 2166 B6 3104 B4 3141 C5 3153 A4 3159 A5 3170 A6 4107 C5 6120 A6 7111 A5  
 2103 D4 2124 D3 2132 D6 2140 C6 2148 B6 2159 C5 2167 B6 3105 C4 3143 D6 3154 C7 3160 A5 3172 C7 4108 C5 6130 D4 7119 B5  
 2104 B4 2125 D3 2134 D7 2141 C6 2149 D6 2161 A6 2169 A4 3113 B5 3144 B7 3155 C7 3161 A5 3176 D6 6103 B3 6131 C4  
 2105 C1 2126 D6 2135 D7 2143 C7 2150 B5 2163 B6 3101 D5 3119 B5 3145 C5 3156 A6 3167 B7 3181 D4 6105 C3 7101 C5  
 2112 B5 2127 C5 2136 A4 2145 A5 2152 C5 3102 C3 3132 D5 3146 C7 3157 A6 3168 C7 4103 B5 6106 C3 7102 D4



These assembly drawings show a summary of all possible versions.  
 For components used in a specific version see schematic diagram respectively partlist.

TUNER ADJUSTMENT TABLE ( ECO6 FM/MW- and FM/MW/LW - versions with AM-frame aerial )

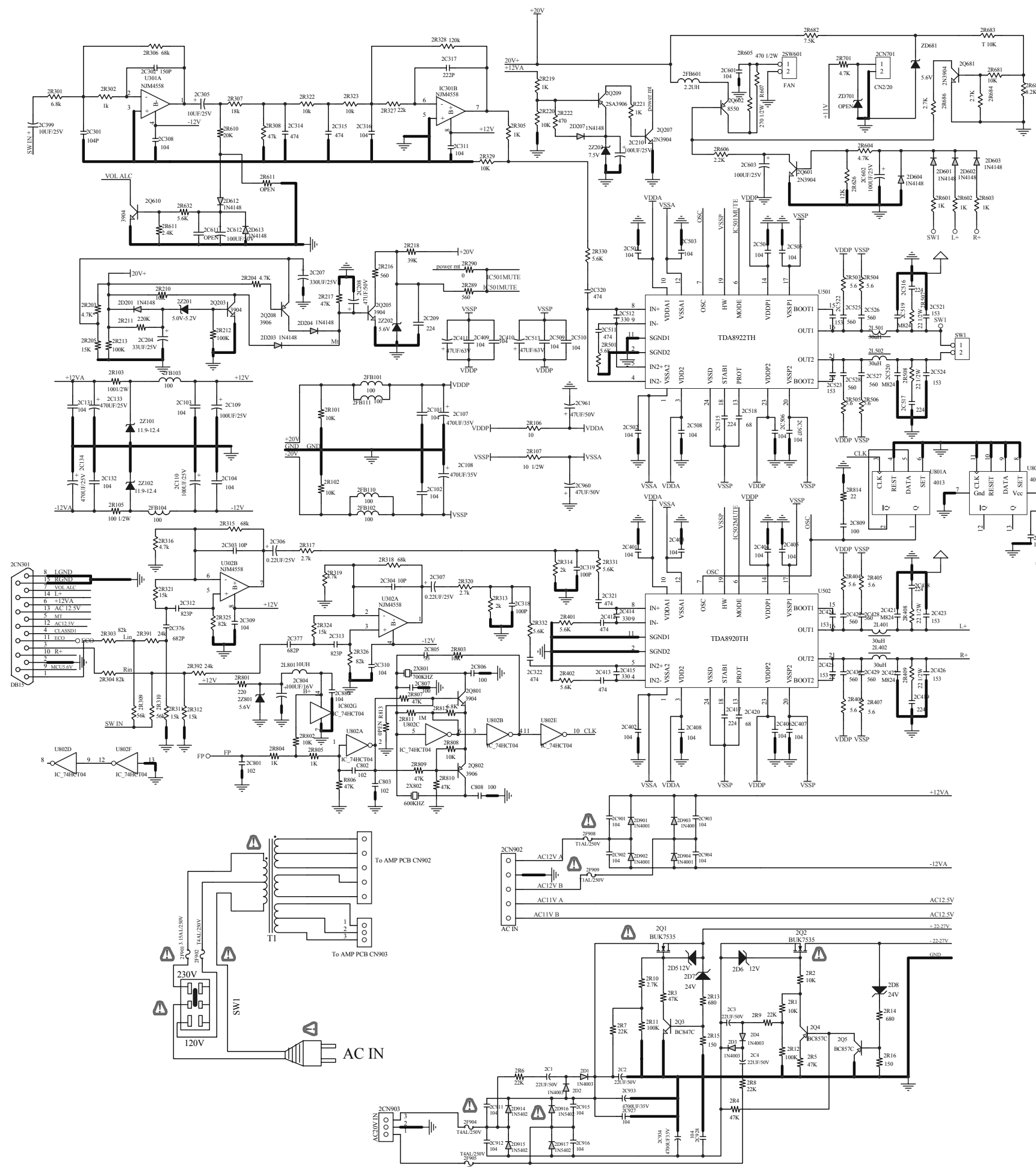
Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
<b>VARICAP ALIGNMENT</b>						
<b>FM</b> 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130		8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
<b>MW</b> FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123	1	6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
<b>LW</b> 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
<b>MW</b> FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
<b>FM IF</b>						
<b>FM</b>	10.7MHz, 45mV continuous wave	D		5119	2	0 ± 3 mV DC
<b>FM RF</b>						
<b>FM</b> 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz	87.5MHz (65.81MHz)	5131		
<b>VCO</b>						
<b>FM</b>	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz <sup>1)</sup>
<b>AM IF</b>						
<b>MW</b>	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C		5111	5	
		C		5112		
<b>AM AFC</b> <b>MW</b>		C	continuous wave V <sub>RF</sub> = 2mV	5114	2	0 ± 2 mV DC
<b>AM RF<sup>3)</sup></b>						
<b>MW<sup>4)</sup></b> FM/MW/LW- and FM/MW-version (9kHz grid)	1494kHz	B	1494kHz	2106	5	
	531 - 1602kHz		558kHz	5102		
<b>LW</b>	198kHz		198kHz	5103		
<b>MW</b> FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	B	1500kHz	2106	5	
	560kHz		560kHz	5102		

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

- 1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)
- 2) RC network serves for damping the IF-filter while adjusting the other one.
- 3) For AM RF adjustments the original frame antenna has to be used!
- 4) MW has to be aligned before LW.

↑ Repeat

# CIRCUIT DIAGRAM - AMP BOARD







CIRCUIT DIAGRAM - MAIN BOARD - INDEX PART

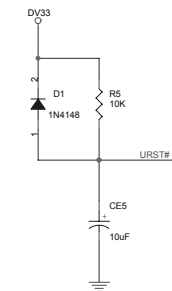
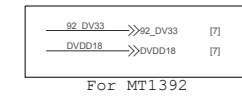
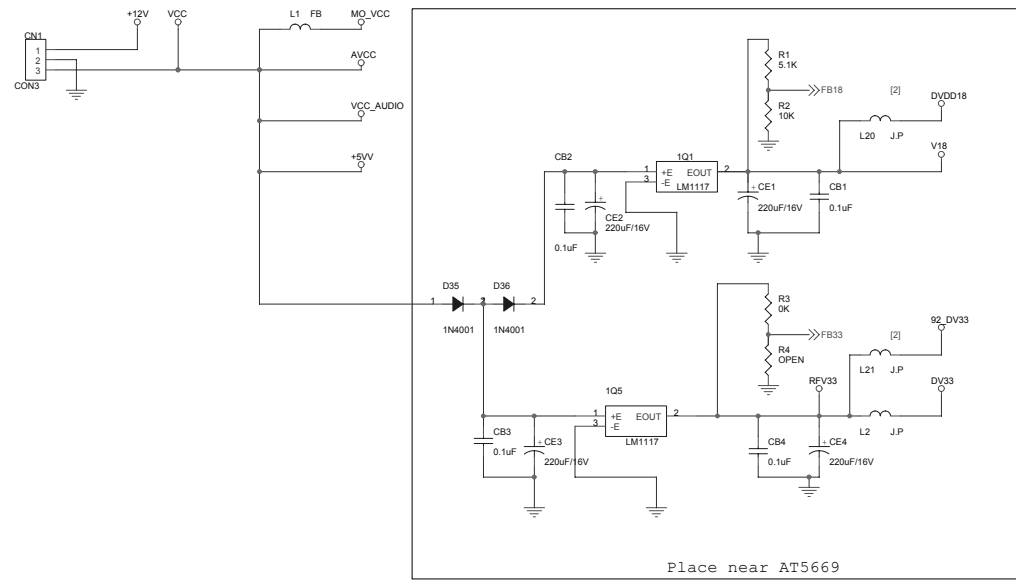
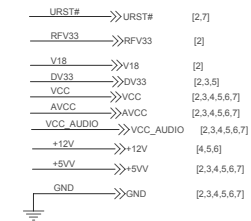
MT1389HD\_KHM310\_E5T2A

**MT1389/HD (LQFP256) DVD for Sony KHM310 PUH**

- 1 INDEX & POWER, RESET
- 2 RF, SERVO & MPEG - MT1389E
- 3 MEMORY - SDRAM, FLASH/EEPROM
- 4 VIDEO OUT
- 5 AUDIO DAC PCM1742 AND AUDIO OUT
- 6 HDMI MT1392

Rev	History	P#	Date
V1	The original released.		
V2	HDMI + Card Reader Integrated Design		

NAME	TYPE	DEVICE
VCC	Digital 5V	SUPPLY
DV33	Digital 3.3v	MT1389E
+5VV	Video 5V	
AVCC	RF 5V	PICKUP HEADER
V18	Digital 1.8V	MT1389E
SD33	Digital 3.3v	SDRAM
+12V	Audio +12V	OP AMP.
VCC_AUDIO	Audio 5V	Audio DAC

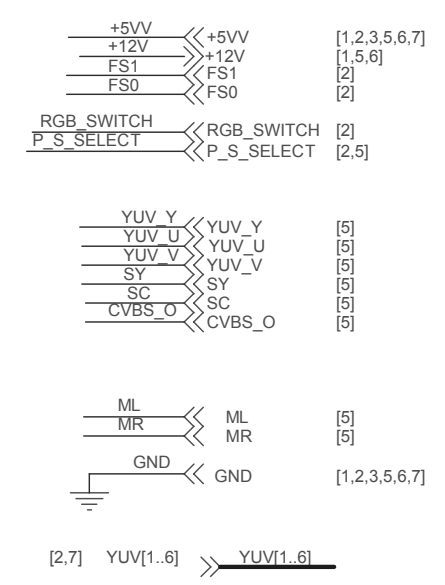
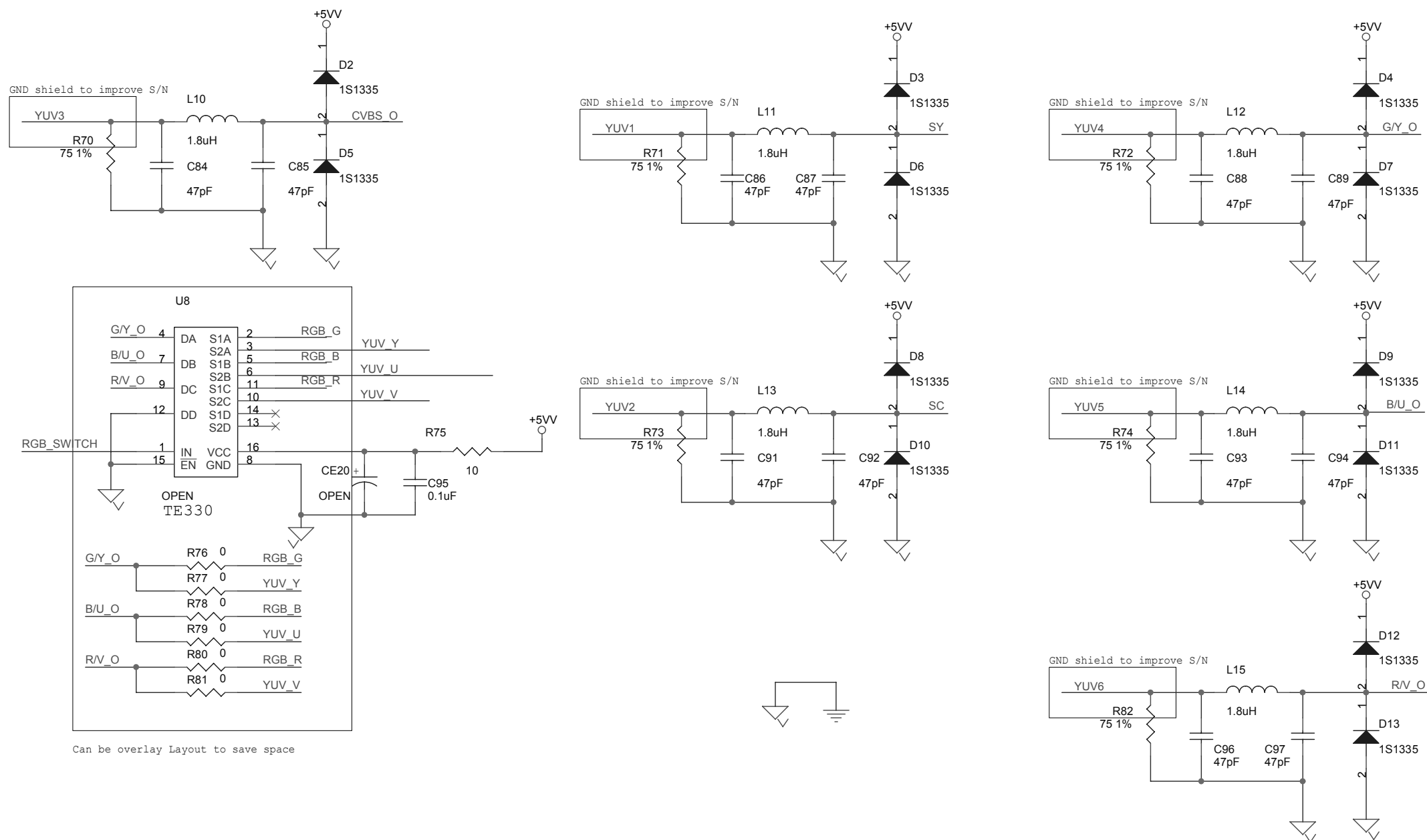




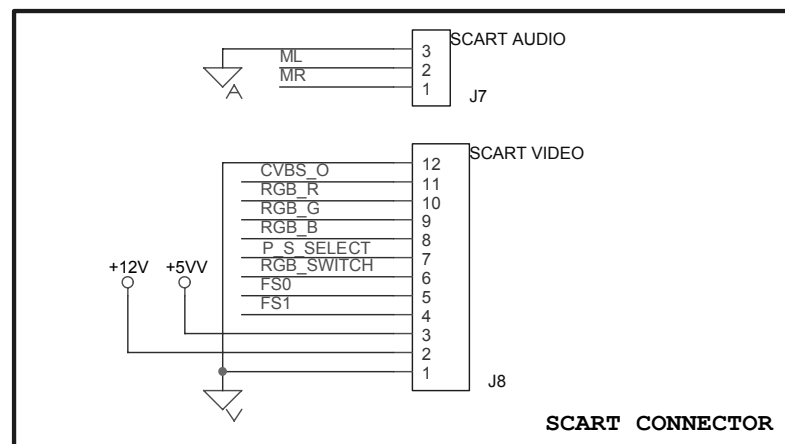




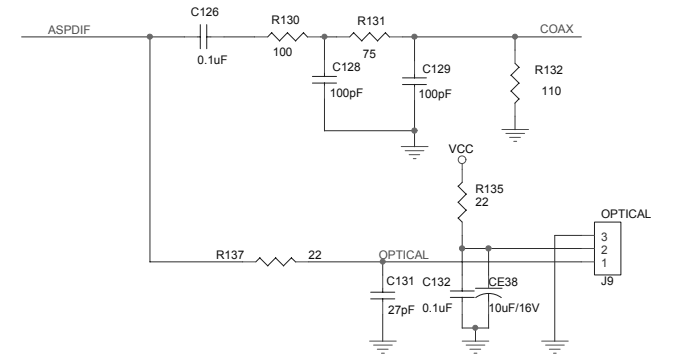
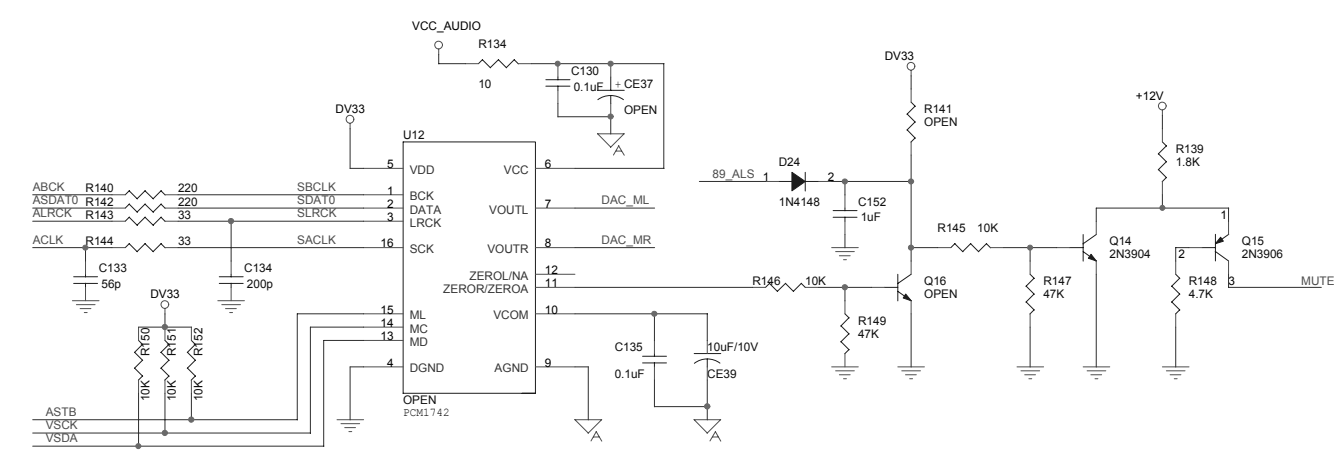
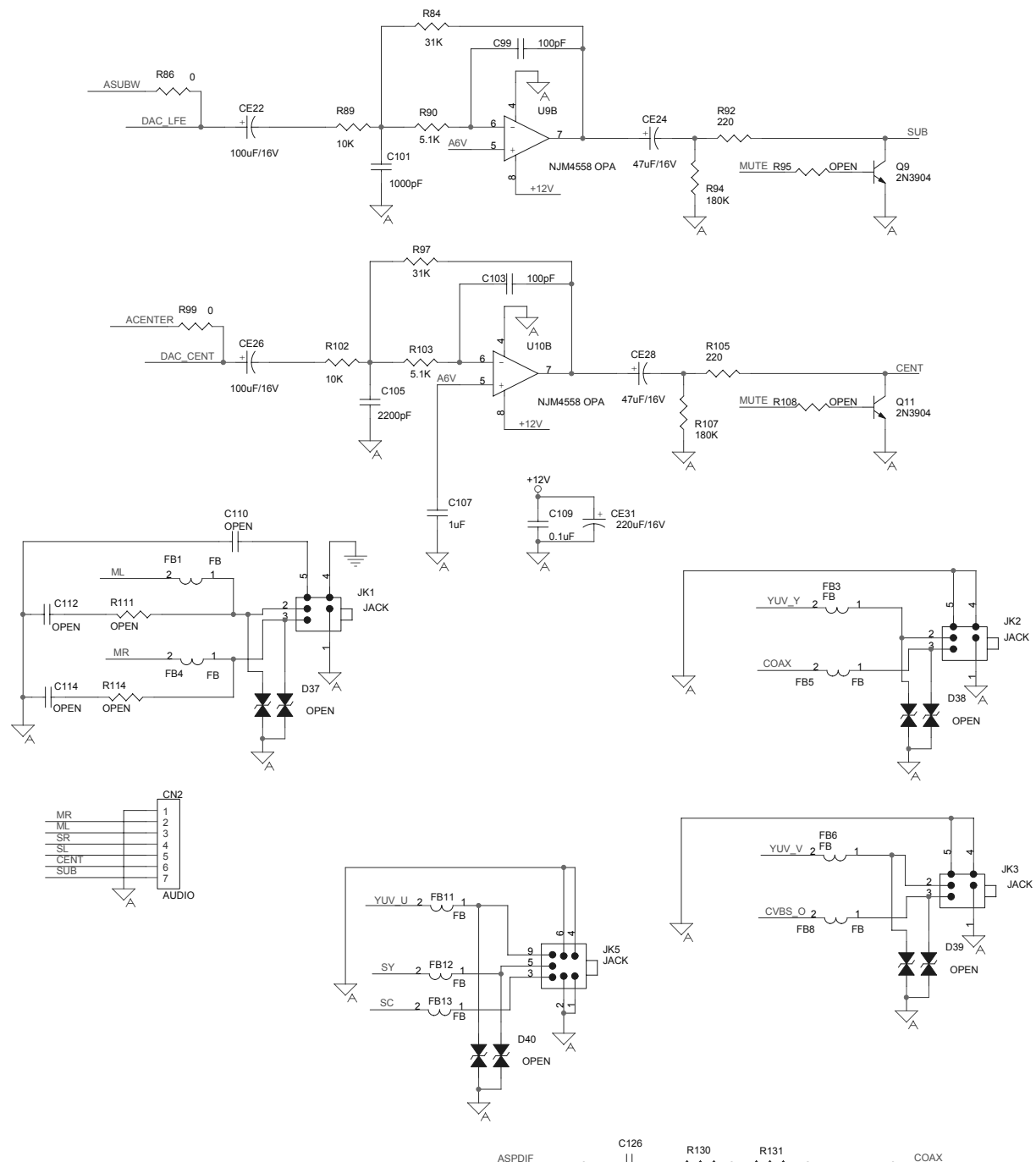
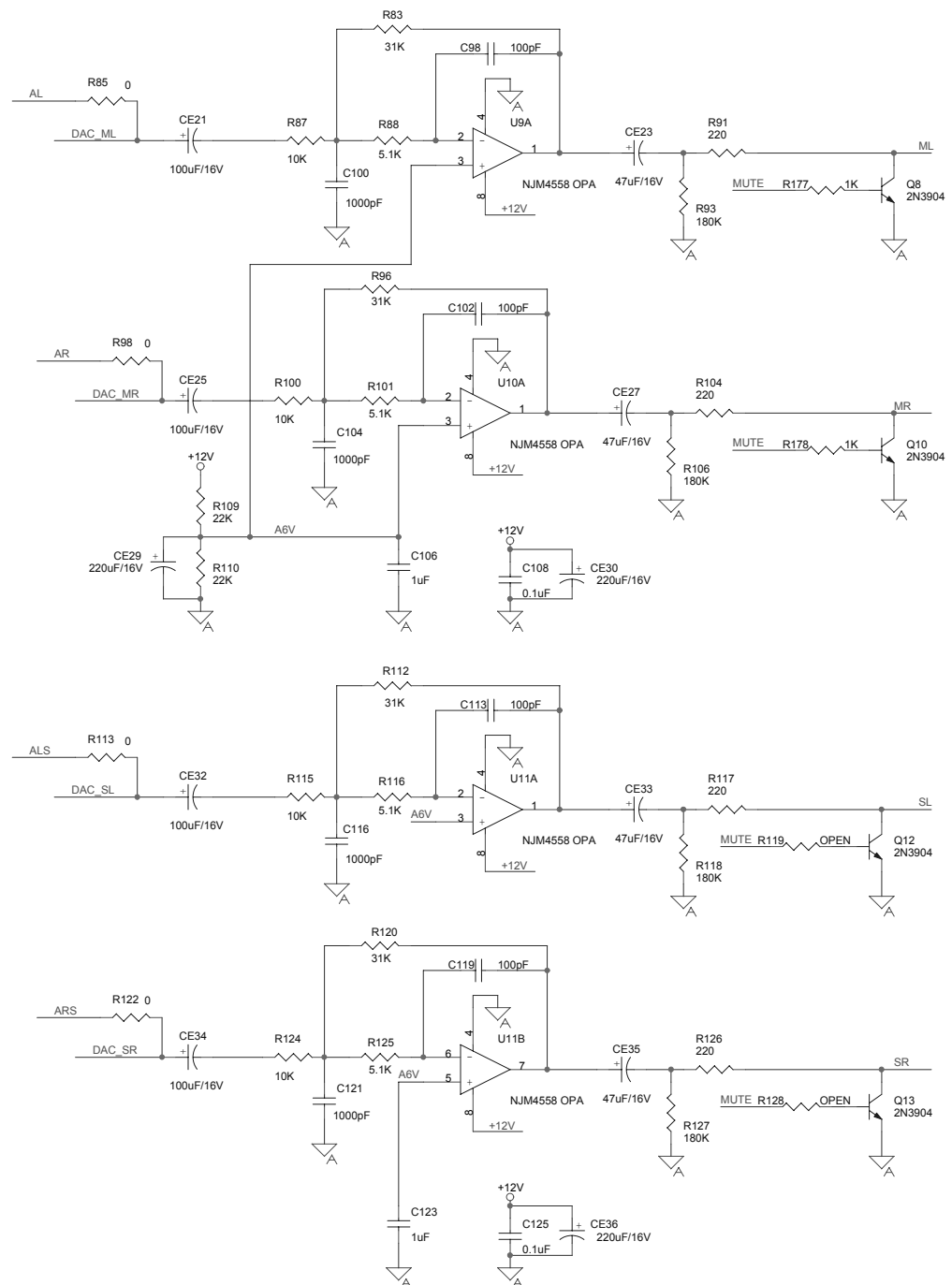
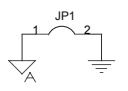
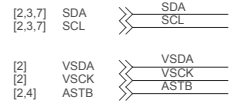
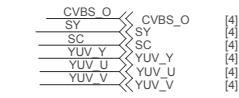
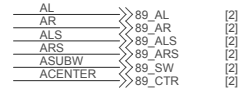
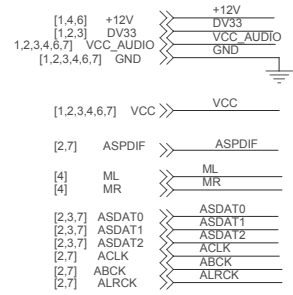
CIRCUIT DIAGRAM - MAIN BOARD - VIDEO OUT PART



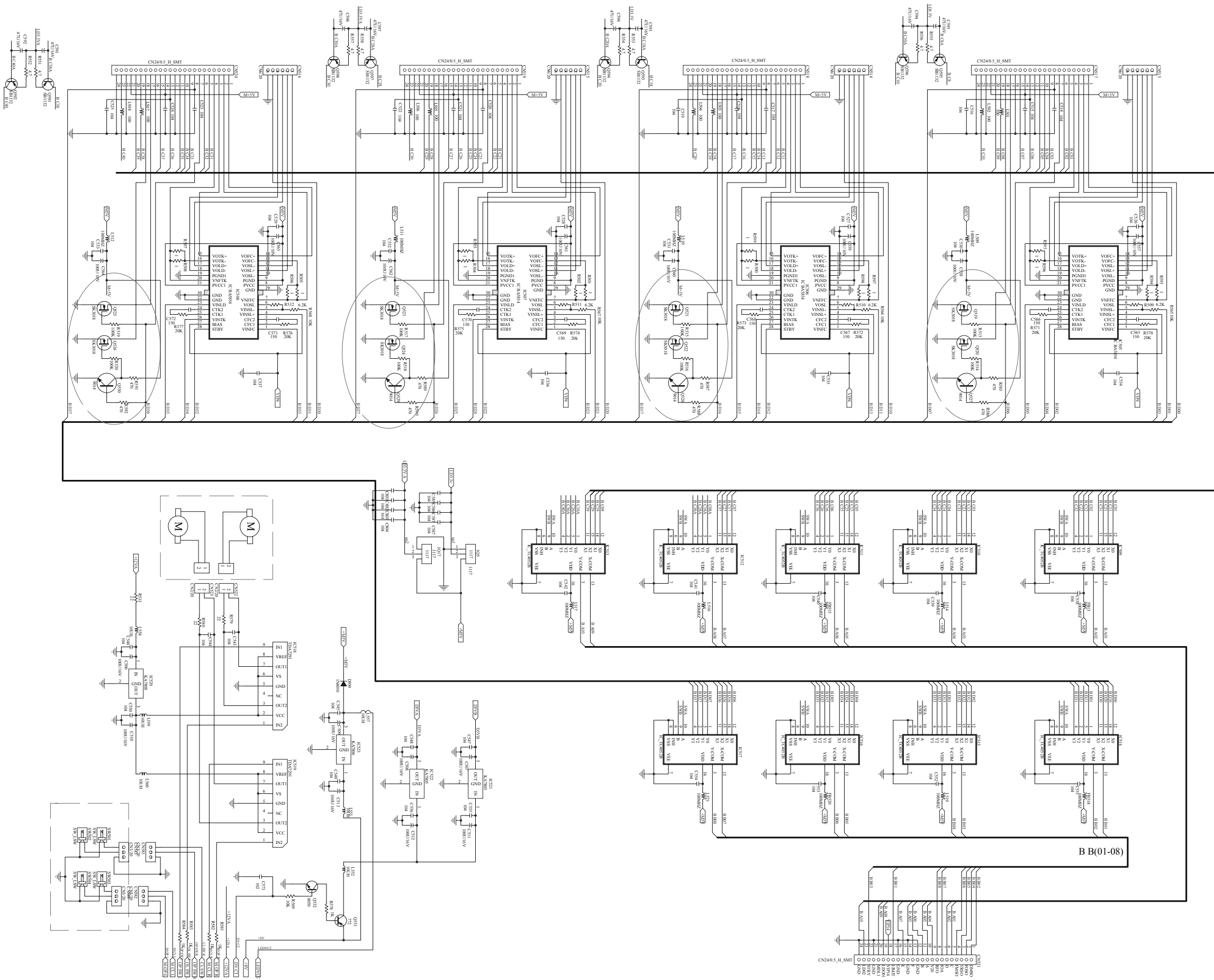
Can be overlay Layout to save space



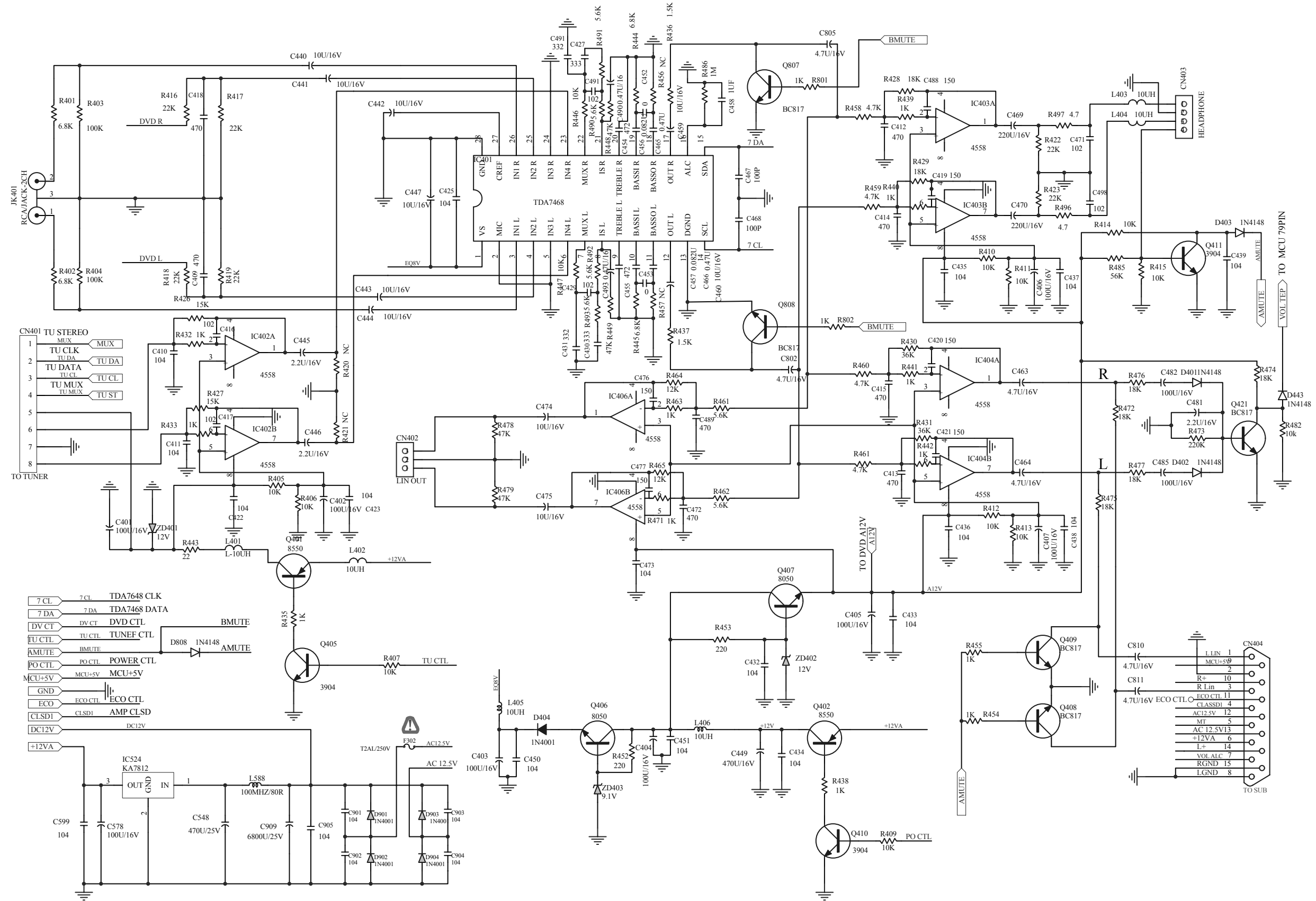
# CIRCUIT DIAGRAM - MAIN BOARD - AUDIO OUT PART



CIRCUIT DIAGRAM - MAIN BOARD - DRIVER PART



CIRCUIT DIAGRAM - MAIN BOARD - EQ PART





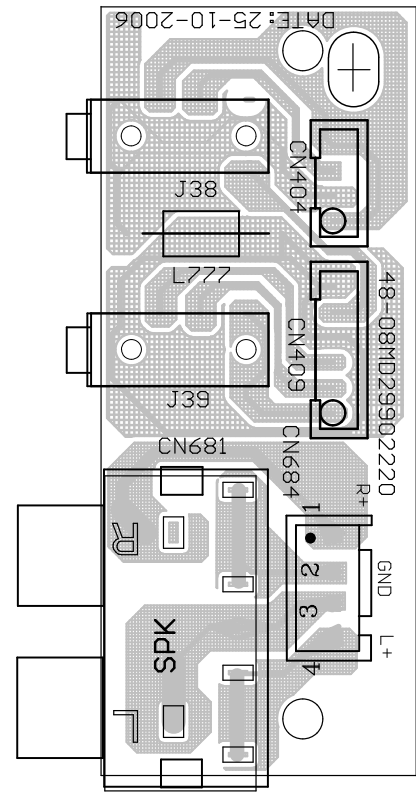




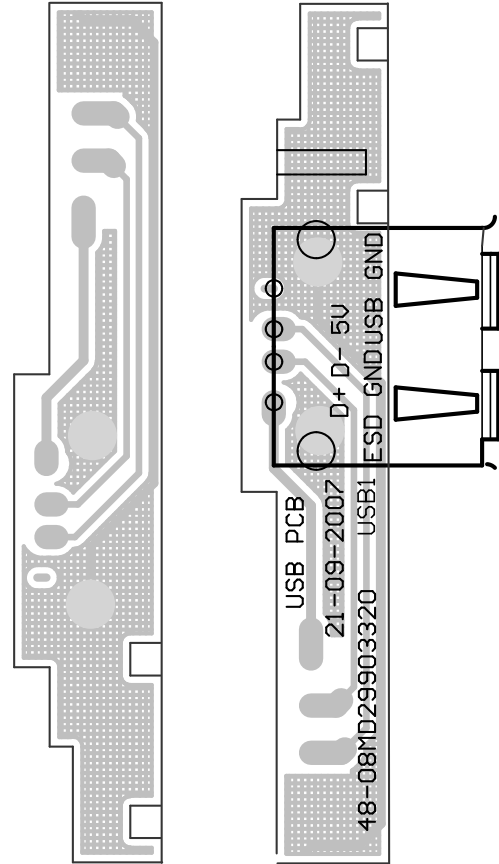


LAYOUT DIAGRAM - VIDEO PCB & USB PCB & VGA PCB

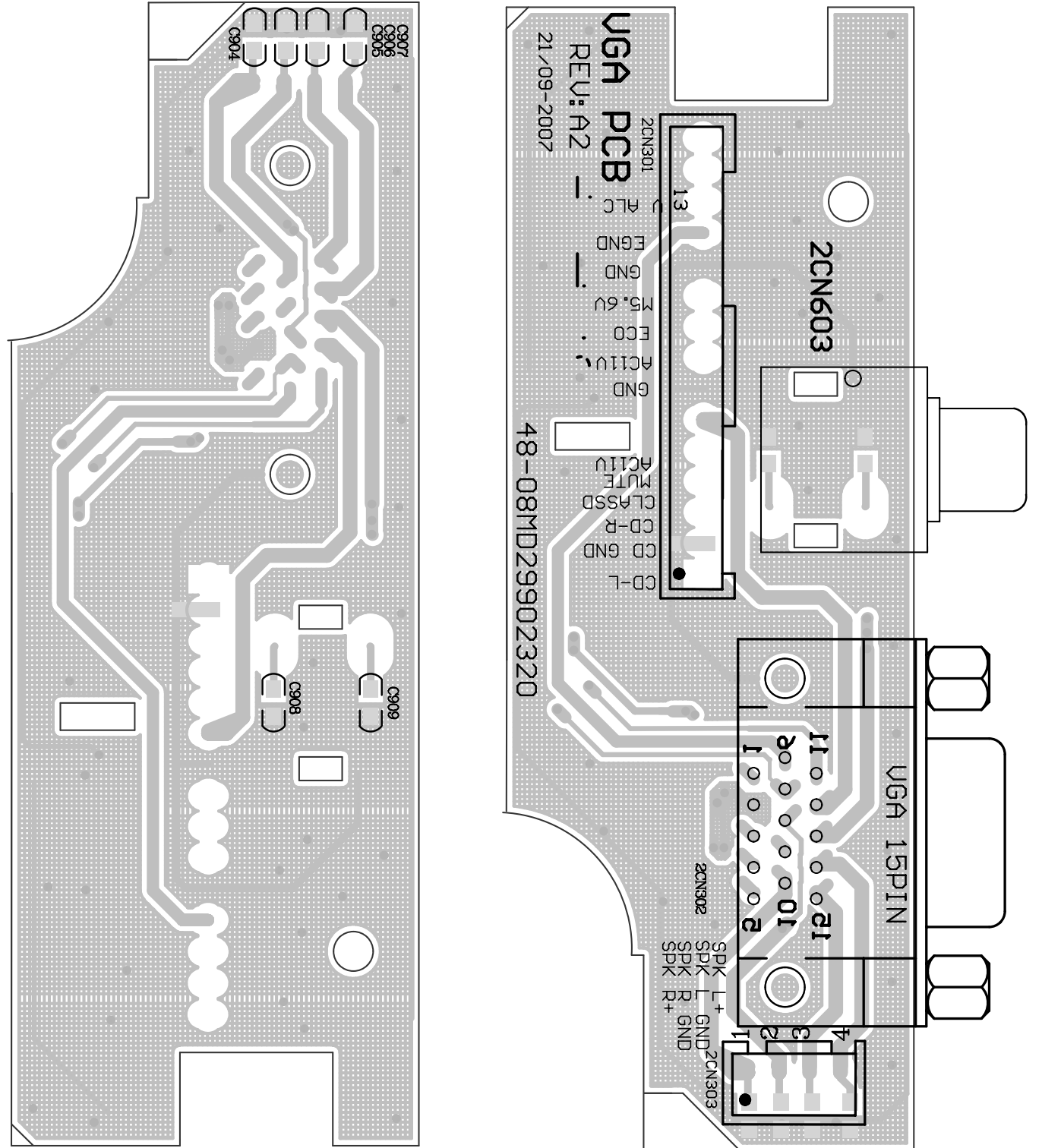
VIDEO PCB



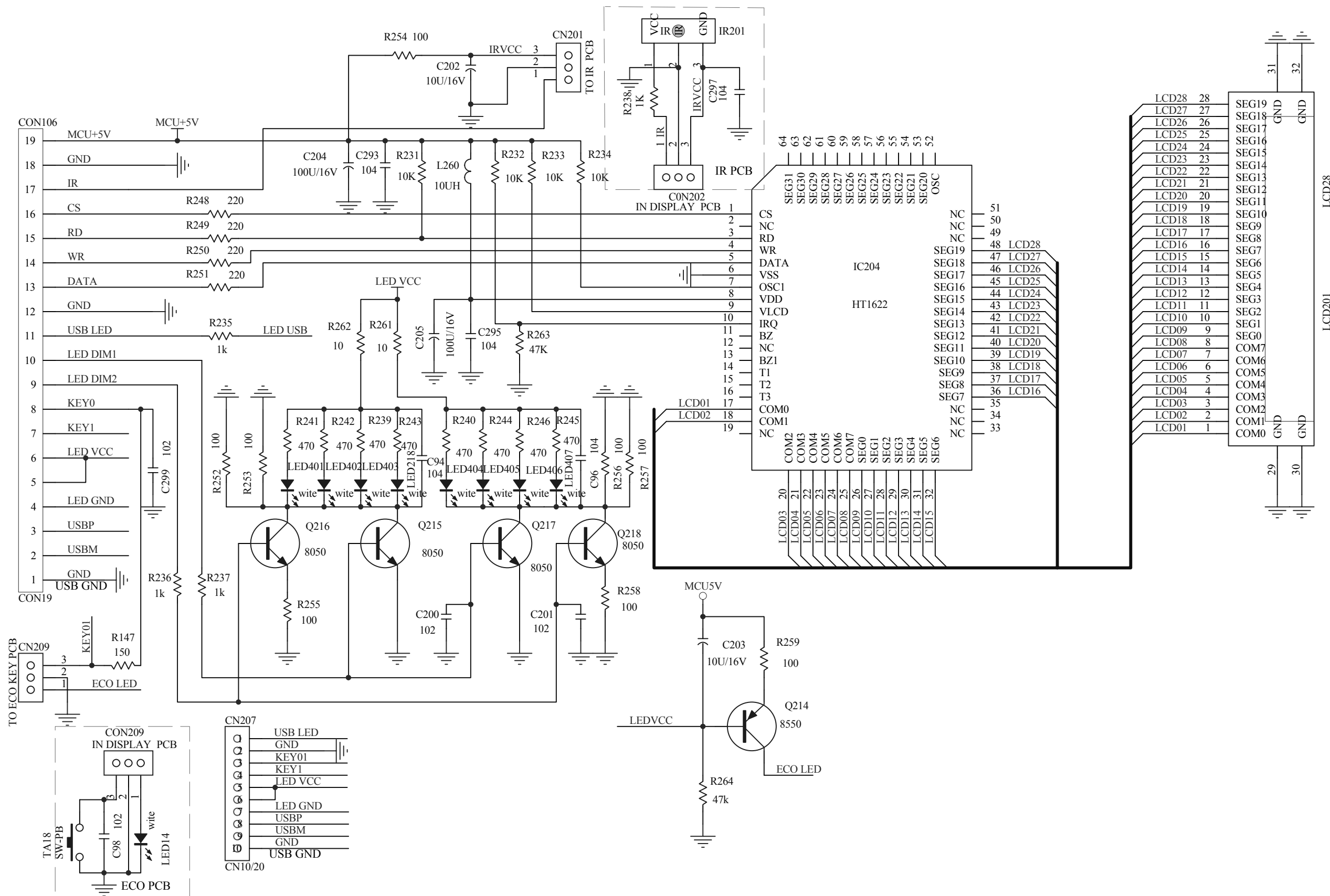
USB PCB



VGA PCB

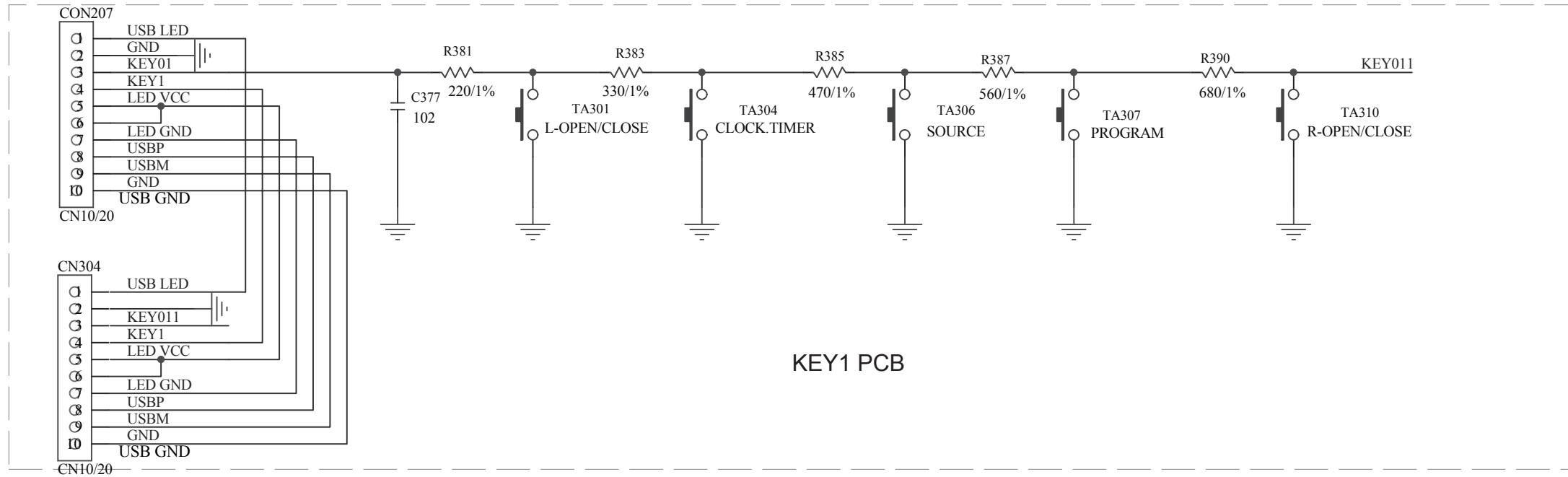


# CIRCUIT DIAGRAM - DISPLAY BOARD

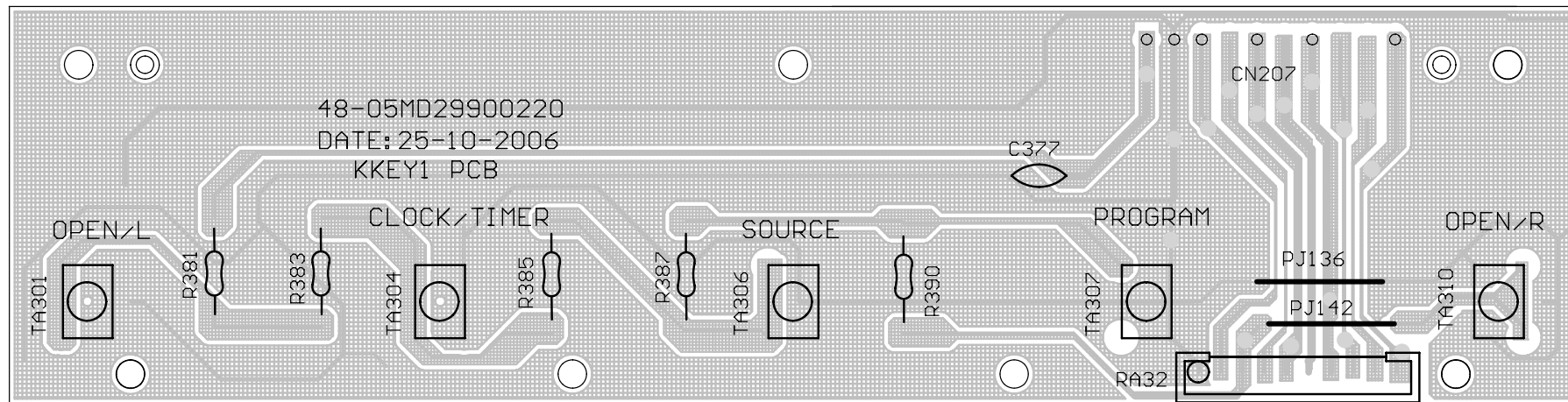




KEY1 PCB

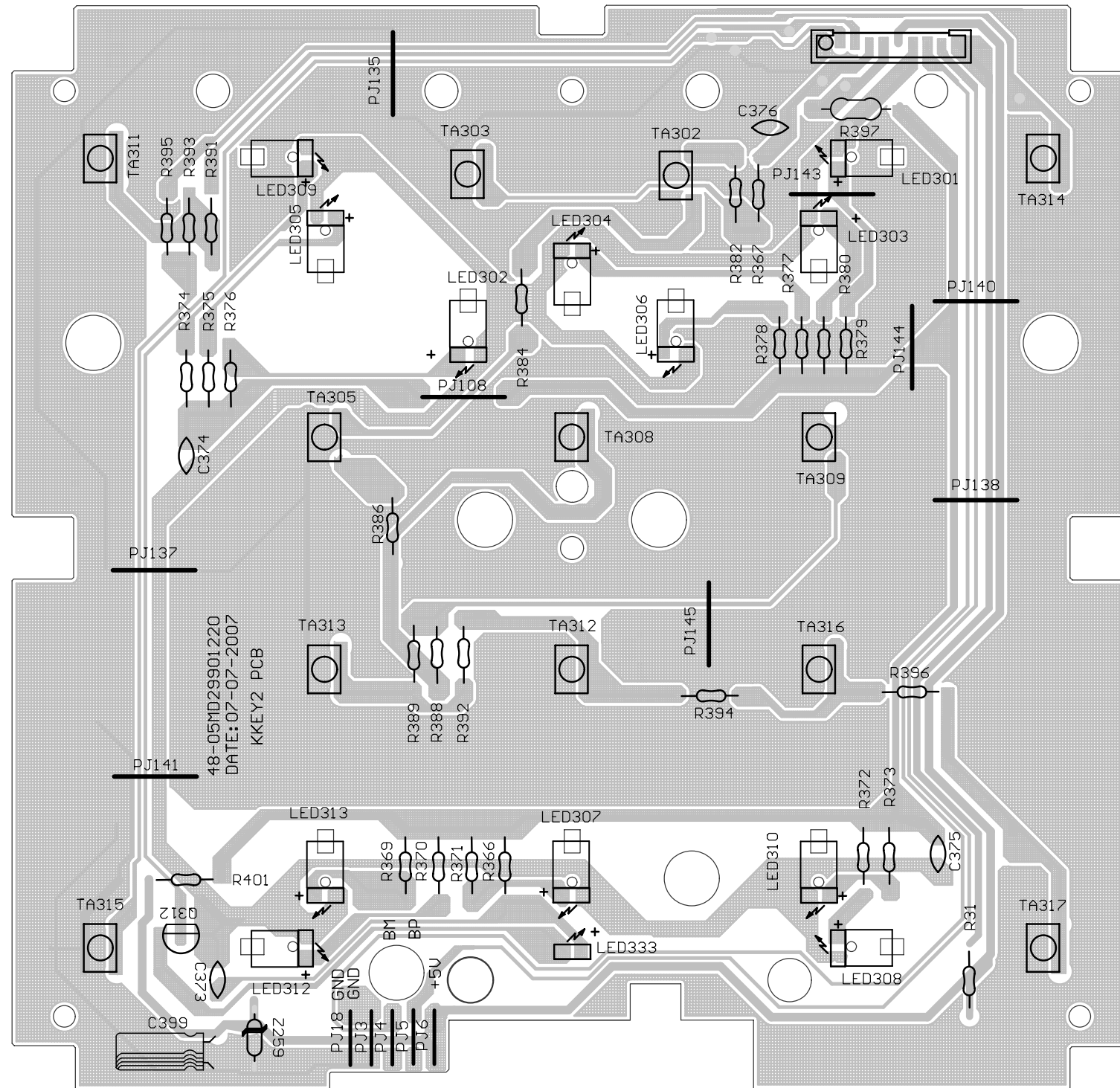


KEY1 PCB



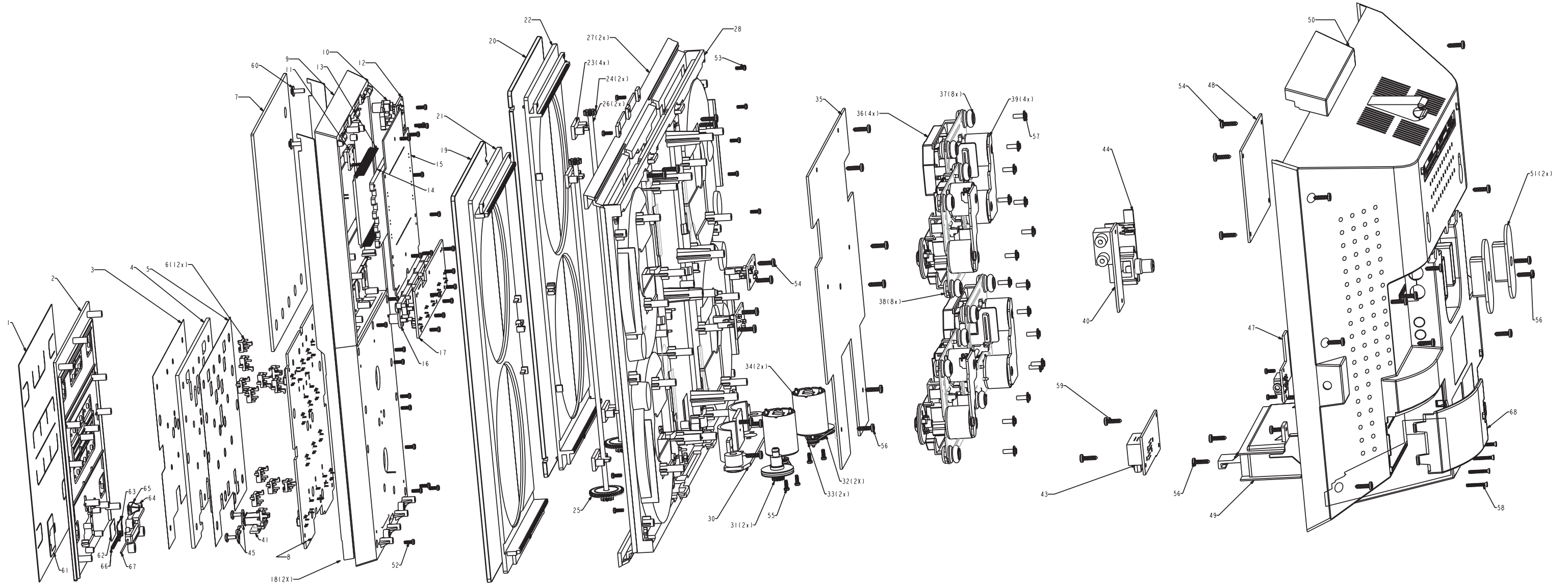


# LAYOUT DIAGRAM - KEY2 PCB





EXPLODE DIAGRAM



NO.	PART NO.	PART DESCRIPTION	QTY	NOTE	NO.	PART NO.	PART DESCRIPTION	QTY	NOTE	NO.	PART NO.	PART DESCRIPTION	QTY	NOTE
1		PLATE SHEET(PC)	1		24	9965 000 40386	ROLLER TOP GEAR	2		47		HEADPHONE PCB ASS'Y	1	
2	9965 100 01575	CONTROL PANEL(ABS)	1		25	9965 000 40385	ROLLER BOTTOM GEAR	2		48		TUNER PCB ASS'Y	1	
3		CONTROL KEY DIFFUSE PAPER	1		26	9965 100 09474	ROLLER	2		49	9965 100 01578	STAND HOLDER	1	
4	9965 100 01582	CONTROL KEY LHGTGUIDE LENS	1		27	9965 100 09435 9965 100 09436	CD DOOR TRACK	2		50	9965 100 09433	REAR PANEL	1	
5		CONTROL KEY GLISTEN PAPER	1		28	9965 100 09432	MIDDLE PANEL	1		51	9965 100 01579	FIX WIRE HOLDER COVER	2	
6	9965 100 09462	CONTROL KEY LED HOLDER	12		29					52		HARDEN SCREW 2.6X6	42	
7	9965 100 09441	FRONT LENS	1		30	9965 100 09434	MOTOR HOLDER	1		53		HARDEN SCREW 2.6X5	10	
8		CONTROL KEY PCB ASS'Y	1		31	9965 000 40387	DRIVER PULLY	2		54		HARDEN SCREW 3X8	12	
9	9965 000 40378	FRONT PANEL(HIPS)	1		32		BELT	2		55		MACHINE SCREW3X4	4	
10	9965 000 40388	STANDBY KEY	1		33	9940 000 02818	DOOR MOTOR PULLY	2		56		HARDEN SCREW3X10	28	
11		IR SENSOR PCB ASS'Y	1		34	9940 000 02815	DC MOTRO 5V	2		57		SCREW 2.6X10 WH	16	
12		STANDBY PCB ASS'Y	1		35		MAIN PCB ASS'Y	1		58		HARDEN SCREW TB/KH 2.6X14	4	
13		LCD DISPLAY	1		36		LASER COVER	4		59		HARDEN SCREW 3X6	3	
14	9965 100 01583	LCD LIGHTGUIDE LENS	1		37		DAMPER RUBBER	8		60		HARDEN SCREW 2.6X6 PW	6	
15		DISPLAY PCB ASS'Y	1		38		DAPER RUBBER	8		61		PVC SHEET	1	
16	9965 000 40389	SOURCE KEY	1		39		DVD MECHANISM	4		62	9965 100 09439	USB DOOR SHEET PC 12X21.5mm	1	
17		SOURCE KEY PCB ASS'Y	1		40		SPK PCB ASS'Y	1		63	9965 100 01573	USB DOOR HANDLE	1	
18	9965 100 09472	FRONT PANEL STEEL	2		41		USB PCB ASS'Y	1		64	9965 100 01584	USB RING	1	
19	9965 000 40393	CD DOOR LENS-R	1		42					65	9965 100 01581	USB LIGHT GUIDE LENS	1	
20	9965 000 40392	CD DOOR LENS-L	1		43		CONNECT SUB TERM/PCB ASS'Y	1		66		USB SPRING	1	
21	9965 000 40384	CD DOOR RIGHT	1		44		FM/JAM PCB ASS'Y	1		67	9965 100 09473	SHAFT L34.5XD11mm	1	
22	9965 000 40383	CD DOOR LEFT	1		45	9965 100 09475	FIXED CLIP	1		68	9965 100 01580	DISPLACE COVER	1	
23	9965 100 01577	ROLLER HOLDER	4		46					69				

**ACCESSORIES PARTS LIST**

9940 000 02823	AM/FM ANT (75R) ASS'Y PACKING
9965 100 09423	SPK BOX PART(L+R) (98)
	SUB BOX PART PHILIPS (98)
9965 100 18579	PCBA-AMP
9965 100 01557	LED BD ASS'Y
9965 100 09425	REMOTE CONTROL

**MECHANICAL&MISCELLANEOUS PARTS**

	9965 000 40400	TUNING BOARD ASS'Y
	9965 100 01565	STAND FRONT CAB
	9965 100 01566	STAND BACK CAB
	9965 100 01567	STAND PELLESTAL
	9965 100 01568	STAND BOTTOM -R
	9965 100 01569	STAND BOTTOM -L
28	9965 100 09432	MIDDLE PANEL
2	9965 100 01575	CONTROL PANEL
9	9965 000 40378	FRONT PANEL
50	9965 100 09433	REAR PANEL
23	9965 100 01577	ROLLER HOLDER
30	9965 100 09434	MOTOR HOLDER
49	9965 100 01578	STAND HOLDER
51	9965 100 01579	FIX WIRE HOLDER COVER
	9965 000 40382	WALL BRACKET
27	9965 100 09435	CD DOOR TRACK TOP
27	9965 100 09436	CD DOOR TRACK BOTTOM
22	9965 000 40383	CD DOOR LEFT
21	9965 000 40384	CD DOOR RIGHT
68	9965 100 01580	DISPLACE COVER
25	9965 000 40385	ROLLER BOTTOM GEAR
24	9965 000 40386	ROLLER TOP GEAR
31	9965 000 40387	DRIVER PULLEY
10	9965 000 40388	STAND KEY
16	9965 000 40389	SOURCE KEY
65	9965 100 01581	USB LIGHT GUIDE LENS
4	9965 100 01582	CONTROL KEY LIGHT GUIDE LENS
14	9965 100 01583	LCD LIGHT GUIDE
20	9965 000 40392	CD DOOR LENS -L
19	9965 000 40393	CD DOOR LENS-R
33	9940 000 02818	DOOR MOTOR PULLY
64	9965 100 01584	USB RING
	9965 100 09437	PVC PLATE 26.5x24x0.4mm W/TAPE
	9965 100 09438	PVC PLATE (SILVER) 29x24x0.3mm
62	9965 100 09439	USB DOOR SHEET PC 12x21.5mm
	9965 100 09440	MAP PASTE MIDDLE PANEL
7	9965 100 09441	FRONT LENS
	9965 100 09469	HARD RUBBER 15x10mmW/TAPEx1
	9965 100 09470	AC 206 CUSHSION (IIR) 60C
63	9965 100 01573	USB DOOR HANDLE
18	9965 100 09472	FRONT PANEL STEEL (SECC T=1mm)



**MECHNICAL&MISCELLANEOUS PARTS**

67	9965 100 09473	SHAFT L34.5xDIA1mm
26	9965 100 09474	ROLLER (SUS304) D3.5mm
45	9965 100 09475	FIXED CLIP
	9965 100 09471	AC 206 CUSHSION (IIR) 55C
800	9965 100 09426	DVD MECHANISM CMS-S76CFCN
J002	9940 000 03673	AC SOCKET TC08-115-02
J008	9940 000 01314	AC CORD SET VDE APP 2M
J009	9965 100 09427	4P COAXIAL CABLE L=140mm
J010	9965 100 09429	FM ANT (GREY) 1.5M CE/75
J018	9965 100 09430	RCA PLUG CORD 3P/1P L=1.5M RBG
J019	9965 100 09431	RCA PLUGCORD 3/1P L=1.5MWRY/WH
M002	9940 000 02815	DC MOTOR 5V
S002	9940 000 04376	SWITCH SL14-22AH-5AN

**ELECTRICAL PARTS - MAIN PCB**

1L2	9965 100 09450	TOROID COIL100UH +-10% 1.5A D7
1Q14	9965 100 00317	SMD TRANSISTORS BC817-25
1Q15	9940 000 03937	SMD TRANSISTORS PMBT3906
1Q17	9965 100 00317	SMD TRANSISTORS BC817-25
1Q18	9965 100 00317	SMD TRANSISTORS BC817-25
1Q19	9965 100 00317	SMD TRANSISTORS BC817-25
1Q20	9940 000 03937	SMD TRANSISTORS PMBT3906
1U1	9965 100 09444	IC MT1389FE/USB CMTK TQFP-256
1U3	9965 100 09442	IC HY57V641620E(L/S)T(P)-7TSOP
1U6	9965 100 09479	IC EN29LV160AB-70TCP-NEED PROG
1U7	9940 000 04541	IC M24C02-WMN6
1U9	9965 000 39809	IC YD4558
1Y1	9965 100 09448	CRYSTAL27MHzHC49/US30PF+-20PPM
2CN301	9965 100 09458	3+12P SHIELD/WIRE L=180/120mm
CN106	9965 100 09451	F.F.C WAFER 1.25mm 21P 90C
CN401	9965 100 06596	F.F.C.WAFER 1.25mm 8P 180C
CN402	9965 100 09454	3P/4P SHIELD WIRE L=110mm
CN403	9965 100 09457	4P SHIELD WIRE L=170mm
D509	9965 000 42437	CH-DIODE SS14 SMA/DO-214AC
D511	9965 000 42437	CH-DIODE SS14 SMA/DO-214AC
D580	9965 100 09446	DIODE 1N5822 3A 40V
D581	9965 000 40362	RECTIFIER DIODE 1N5402 3A 200V
D901	9965 100 00322	DIODE 1N5392 1.5A 100V
D902	9965 100 00322	DIODE 1N5392 1.5A 100V
D903	9965 100 00322	DIODE 1N5392 1.5A 100V
D904	9965 100 00322	DIODE 1N5392 1.5A 100V
D905	9965 000 42437	CH-DIODE SS14 SMA/DO-214AC
F302	9940 000 00585	CERAMIC FUSE W/LEAD 2A/250V
IC101	9965 100 09428	IC (GENNY) GY365 OTP-NEED PROG
IC401	9965 100 05250	IC TDA7468D
IC402	9965 100 09447	IC (NJRC) NJM4558M (SOP8)
IC403	9965 100 09447	IC (NJRC) NJM4558M (SOP8)
IC404	9965 100 09447	IC (NJRC) NJM4558M (SOP8)
IC406	9965 100 09447	IC (NJRC) NJM4558M (SOP8)

**ELECTRICAL PARTS - MAIN PCB**

IC407	9940 000 04541	IC M24C02-WMN6
IC505	9965 100 09478	IC BA5954FP
IC506	9965 100 09478	IC BA5954FP
IC507	9965 100 09478	IC BA5954FP
IC508	9965 100 09478	IC BA5954FP
IC518	9965 100 02119	IC TA7291S
IC519	9965 100 02119	IC TA7291S
IC520	9940 000 00253	IC (SAMSUNG) KA7808
IC523	9940 000 04345	IC (SAMSUNG) KA7806E (TO-220)
IC524	9965 100 03976	IC (SAMSUNG) KA7812E
IC550	9965 100 09443	IC (MPS) MP1583 (SOP-8)
J43	9965 100 09456	6P SHIELD/WIRE L=130mm
JK2	9965 100 09455	2P SHIELD WIRE L=130mm
JK401	9965 100 09453	3P SHIELD WIRE L=100mm
JK694	9965 100 09452	RCAJACK 2P (WH/RED) RCA-233-01
JK696	9940 000 01353	COAXIAL JACK IF-01A
L552	9965 100 09450	TOROID COIL100UH +-10% 1.5A D7
L580	9965 100 09449	TOROID COIL 27UH +-20% 3A
Q405	9940 000 04338	SMD TRANSISTORS PMBT3904
Q410	9940 000 04338	SMD TRANSISTORS PMBT3904
Q411	9940 000 04338	SMD TRANSISTORS PMBT3904
Q421	9965 100 00317	SMD TRANSISTORS BC817-25
Q51	9940 000 03937	SMD TRANSISTORS PMBT3906
Q519	9965 100 09477	SMD TRANSISTORS 2SK3018
Q52	9940 000 04338	SMD TRANSISTORS PMBT3904
Q520	9965 100 09477	SMD TRANSISTORS 2SK3018
Q521	9965 100 09477	SMD TRANSISTORS 2SK3018
Q522	9965 100 09477	SMD TRANSISTORS 2SK3018
Q523	9965 100 09477	SMD TRANSISTORS 2SK3018
Q524	9965 100 09477	SMD TRANSISTORS 2SK3018
Q525	9965 100 09477	SMD TRANSISTORS 2SK3018
Q526	9965 100 09477	SMD TRANSISTORS 2SK3018
Q527	9940 000 04338	SMD TRANSISTORS PMBT3904
Q528	9940 000 04338	SMD TRANSISTORS PMBT3904
Q529	9940 000 04338	SMD TRANSISTORS PMBT3904
Q53	9940 000 04338	SMD TRANSISTORS PMBT3904
Q530	9940 000 04338	SMD TRANSISTORS PMBT3904
Q580	9940 000 04338	SMD TRANSISTORS PMBT3904
Q583	9940 000 04338	SMD TRANSISTORS PMBT3904
Q590	9965 100 09476	SMD TRANSISTORS 2SB1132-Q-T100
Q591	9965 100 09476	SMD TRANSISTORS 2SB1132-Q-T100
Q593	9965 100 09476	SMD TRANSISTORS 2SB1132-Q-T100
Q594	9965 100 09476	SMD TRANSISTORS 2SB1132-Q-T100
Q595	9965 100 09476	SMD TRANSISTORS 2SB1132-Q-T100
Q596	9965 100 09476	SMD TRANSISTORS 2SB1132-Q-T100
Q597	9965 100 09476	SMD TRANSISTORS 2SB1132-Q-T100
Q598	9965 100 09476	SMD TRANSISTORS 2SB1132-Q-T100
Q807	9965 100 00317	SMD TRANSISTORS BC817-25
Q808	9965 100 00317	SMD TRANSISTORS BC817-25

**ELECTRICAL PARTS - MAIN PCB**

U102	9940 000 02839	IC LM1117S-3.3
U103	9965 100 09335	IC LM1117S-1.8V SOT-223
U109	9940 000 02839	IC LM1117S-3.3
U110	9940 000 02839	IC LM1117S-3.3
U509	9940 000 04344	IC (PHILIPS) HEF4052BT
U510	9940 000 04344	IC (PHILIPS) HEF4052BT
U511	9940 000 04344	IC (PHILIPS) HEF4052BT
U512	9940 000 04344	IC (PHILIPS) HEF4052BT
U513	9940 000 04344	IC (PHILIPS) HEF4052BT
U514	9940 000 04344	IC (PHILIPS) HEF4052BT
U515	9940 000 04344	IC (PHILIPS) HEF4052BT
U516	9940 000 04344	IC (PHILIPS) HEF4052BT
U517	9940 000 04344	IC (PHILIPS) HEF4052BT
U881	9940 000 04344	IC (PHILIPS) HEF4052BT
U882	9940 000 04344	IC (PHILIPS) HEF4052BT
XL101	9965 000 39820	CRYSTAL 10MHz 49/US
XL102	9940 000 04615	CRYSTAL 32.768KHZ 12.5PF
Z104	9965 100 00339	ZENER DIODE 2.2V 1/2W
ZD401	9965 100 09445	ZENER DIODE+-5% 10V1/2W T=52mm
ZD403	9965 100 06600	ZENER DIODE +-5% 9.1V 1/2W
ZD404	9965 100 00320	ZENER DIODE 3.9V 1/2W

**ELECTRICAL PARTS - DISPLAY PCB**

CON106	9965 100 09451	F.F.C WAFER 1.25mm 21P 90C
D992	9965 100 09459	ZENERDIODE +-5%4.3V1/2W T=52mm
D993	9965 100 00340	ZENER DIODE 3.3V 1/2W
IC204	9965 100 02124	IC (HOLTEK) HT1622
JK1	9965 100 09460	PHONEJACKD3.55mmTC38-020-05-05
LCD201	9965 000 42439	LCD DISPLAY FB0668TTN-P
LED401	9965 000 42438	LED LAMP 2x5x7mm (WHITE)
LED402	9965 000 42438	LED LAMP 2x5x7mm (WHITE)
LED403	9965 000 42438	LED LAMP 2x5x7mm (WHITE)
LED404	9965 000 42438	LED LAMP 2x5x7mm (WHITE)
LED405	9965 000 42438	LED LAMP 2x5x7mm (WHITE)
LED406	9965 000 42438	LED LAMP 2x5x7mm (WHITE)
LED407	9965 000 42438	LED LAMP 2x5x7mm (WHITE)
LED408	9965 000 42438	LED LAMP 2x5x7mm (WHITE)
LED421	9940 000 01965	LED LAMP 3MM (RED)
Q22	9940 000 04338	SMD TRANSISTORS PMBT3904
REM401	9940 000 04367	OPTIC SENSER FM-6038TM2-5AN
SW501	9965 000 42444	TACT SWITCH 6x6mm 4.3mm

**ELECTRICAL PARTS - KEY PCB**

101	6 9965 100 09462	CONTROL KEY-LED HOLDER
LED301	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED302	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED303	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)

**ELECTRICAL PARTS - KEY PCB**

LED304	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED305	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED306	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED307	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED308	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED309	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED310	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED312	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED313	9965 100 09461	LED LAMP 2x5x7mm(S.BLUE)
LED333	9965 100 00438	LED LAMP
TA301	9965 000 42444	TACT SWITCH 6x6mm 4.3mm
TA302	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA303	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA304	9965 000 42444	TACT SWITCH 6x6mm 4.3mm
TA305	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA306	9965 000 42444	TACT SWITCH 6x6mm 4.3mm
TA307	9965 000 42444	TACT SWITCH 6x6mm 4.3mm
TA308	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA309	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA310	9965 000 42444	TACT SWITCH 6x6mm 4.3mm
TA311	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA312	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA313	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA314	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA315	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA316	9965 000 42445	TACT SWITCH 6x6mm 7mm
TA317	9965 000 42445	TACT SWITCH 6x6mm 7mm

**ELECTRICAL PARTS - VIDEO PCB**

CN681	9965 100 09465	RCAJACK 2P(WH/RD)RJ2P361093-44
J38	9965 100 09463	PHONEJACKST-066-060-100/ST-360
J39	9965 100 09464	PHONEJACK TC38-047-54 (YELLOW)

**ELECTRICAL PARTS - USB JACK PCB**

2CN302	9965 000 42463	D-SUB CONNECTOR
2CN603	9965 100 09466	RCA JACK 1P(BLK)RJ1P072013-57-
USB1	9965 100 00890	USB SOCKET 4P USB

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