

Service
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Service Manual



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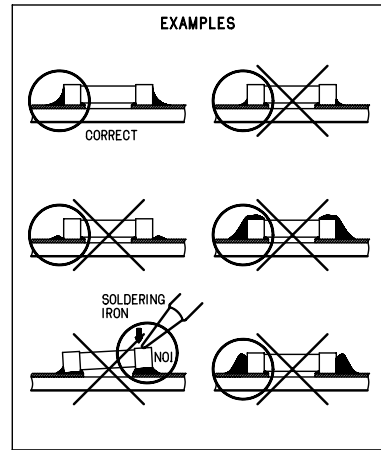
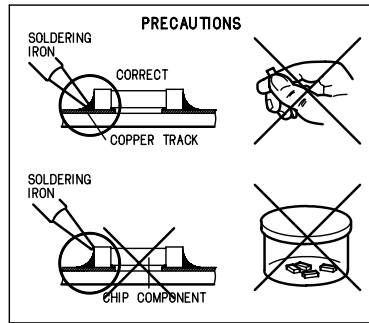
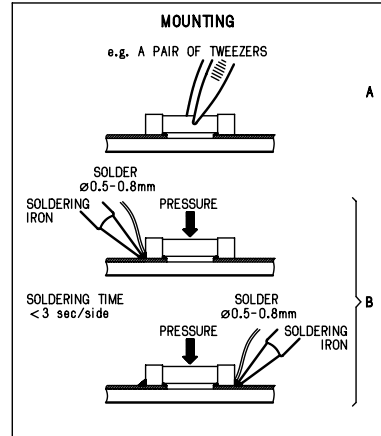
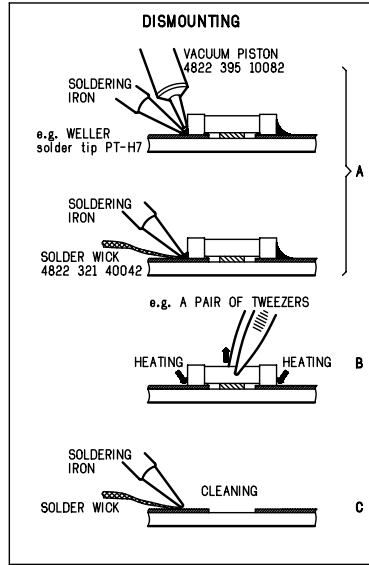
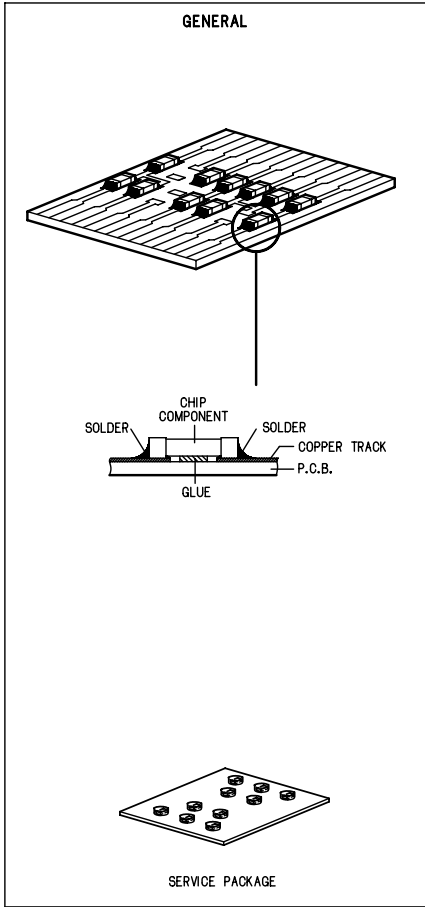
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Version 1.2



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.

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 enfilier le bracelet sert 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 cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialeto 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 ▲

(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 ▲

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 ▲

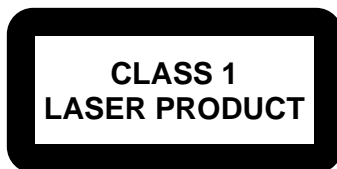
(I)

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 ▲

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

(S) Varning ! Osynlig laserstrålning när apparaten är öppnad och spärrar är urkopplad. Betrakta ej strålen.

(DK) Advarsel ! Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.



(FIN) Varoitus ! Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkömättömälle 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

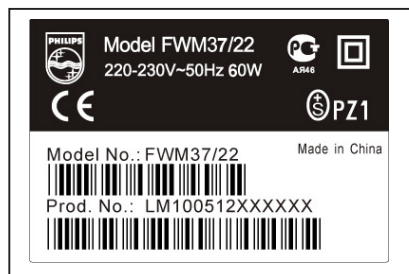
Philips CE is producing lead-free sets from 1.1.2005 onwards.

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 (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

GENERAL

Mains voltage	-/98 : 120 / 230 V -/79 : 240 V -/93 : 220V -/96 : 120 / 230 V
Mains frequency	-/98 : 50 / 60 Hz -/79 : 50 Hz -/93 : 50 Hz -/96 : 50 / 60 Hz
Battery	remote : 1.5 V (AA x 2)
Power consumption	normal : < 25 W Standby : < 4 W
Dimension (W x H x D)	: 141 x 233 x 212 mm
Weight (excluding packing and batteries)	: 2.9 Kg

AMPLIFIER

Output power	mains : 2 x 4 W
Speaker impedance	: 2 x 4 ohm
Frequency response	: 63 Hz - 16 kHz (± 3 dB)

TUNER - FM SECTION

Tuning range	: 87.5 - 108 MHz
IF frequency	: 10.7 MHz \pm 0.02 MHz
Sensitivity	: < 22 dBf at 26dB
Selectivity	300kHz : > 33 dB
IF Rejection	: > 60 dB
Image Rejection	: > 25dB
Distortion	: < 3 %
Crosstalk	: >28dB
Tuning Grid	: 100KHz

TUNER - AM SECTION

Tuning range	9kHz : 531 - 1602 kHz 10kHz : 520 - 1710 kHz for /55
IF frequency	: 450 kHz \pm 1 kHz
Sensitivity	: \leq 3.25 mV/m at 26dB
Selectivity S9/300kHz	: > 20 dB
IF rejection	: > 24 dB
Distortion	: < 5%
Image rejection	: > 28 dB

AUDIO CASSETTE RECORDER

Speed Control	: Nom \pm 1.5%
Wow & flutter	: < 0.4 % (DIN)
Tape speed	: 4.76 cm/s
Fast wind/rewind C60	: < 39 dB
No of Tacks	: 2 Tacks (stereo)
Recording Level	: Auto

DVD PLAYER

Frequency response	: 4 Hz – 20 kHz(44.1KHz) 4 Hz – 22 kHz(48KHz) 4 Hz – 44 kHz(96KHz)
Video S/N	: 56 dB(min)
Video decoding	: MPEG-2/MPEG-1
Channel Separation	1kHz : 40 dB
Video DAC	: 10bits

VIDEO PERFORMANCE

Video Format	: 4:3/16:9
Disc Diameter	: 12cm/8cm
Number of programmable tracks	: 16
Channel separation	: \geq 40dB (1KHz)
Signal to noise ratio	: \geq 65dBA

SERVICE TOOLS

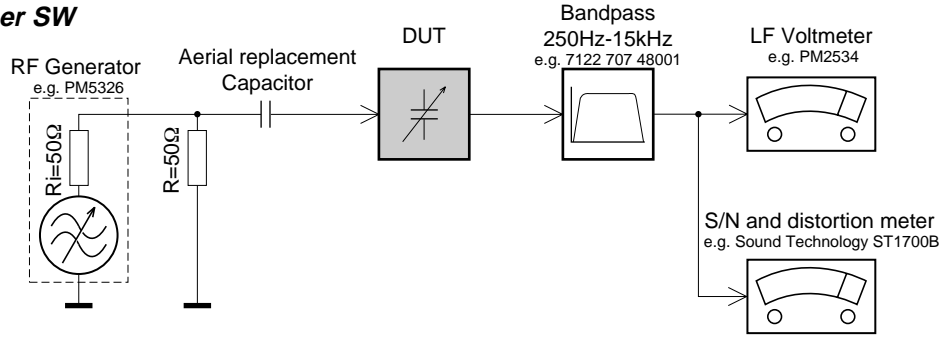
Audio signal disc SBC 429.....	4822 397 30184
Playability test disc SBC 444.....	4822 397 30245
Test disc 5 (disc without errors) +	
Test disc 5A (disc with dropout errors, black spots and fingerprints)	
SBC 426/426A.....	4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30 dB level without "pause").....	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 Ω)	4822 320 11307
extendible cable (2m, 2M Ω , to connect wristband to connection box)	4822 320 11305
connecting cable (3m, 2M Ω , to connect table mat to connection box)	4822 320 11306
earth cable (1M Ω , 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

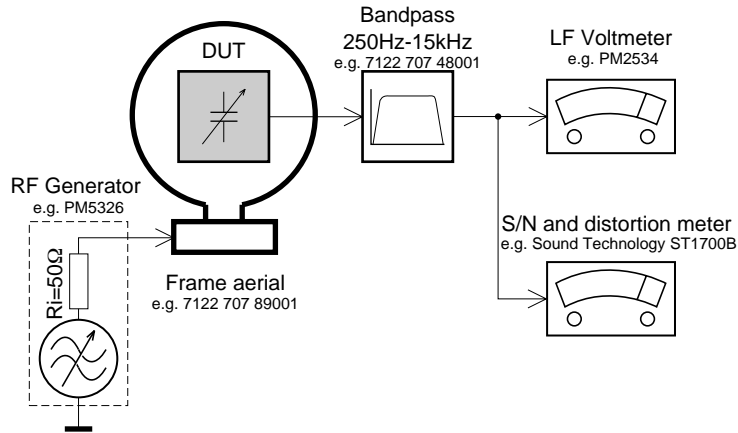
SERVICE MEASUREMENT

Tuner SW



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 250Hz) to eliminate hum (50Hz, 100Hz).

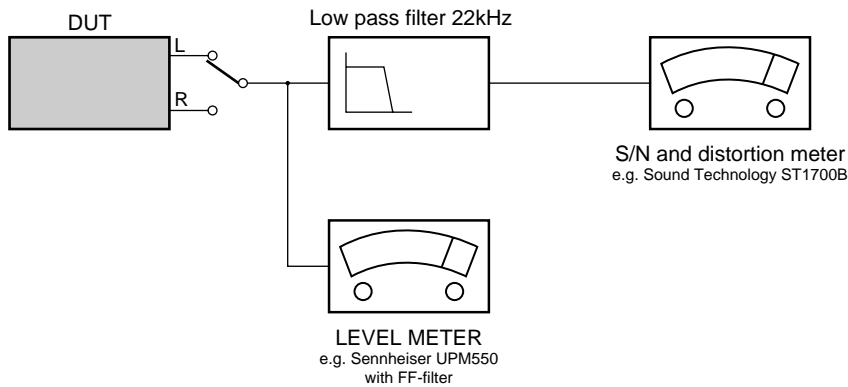
Tuner AM (MW,LW)



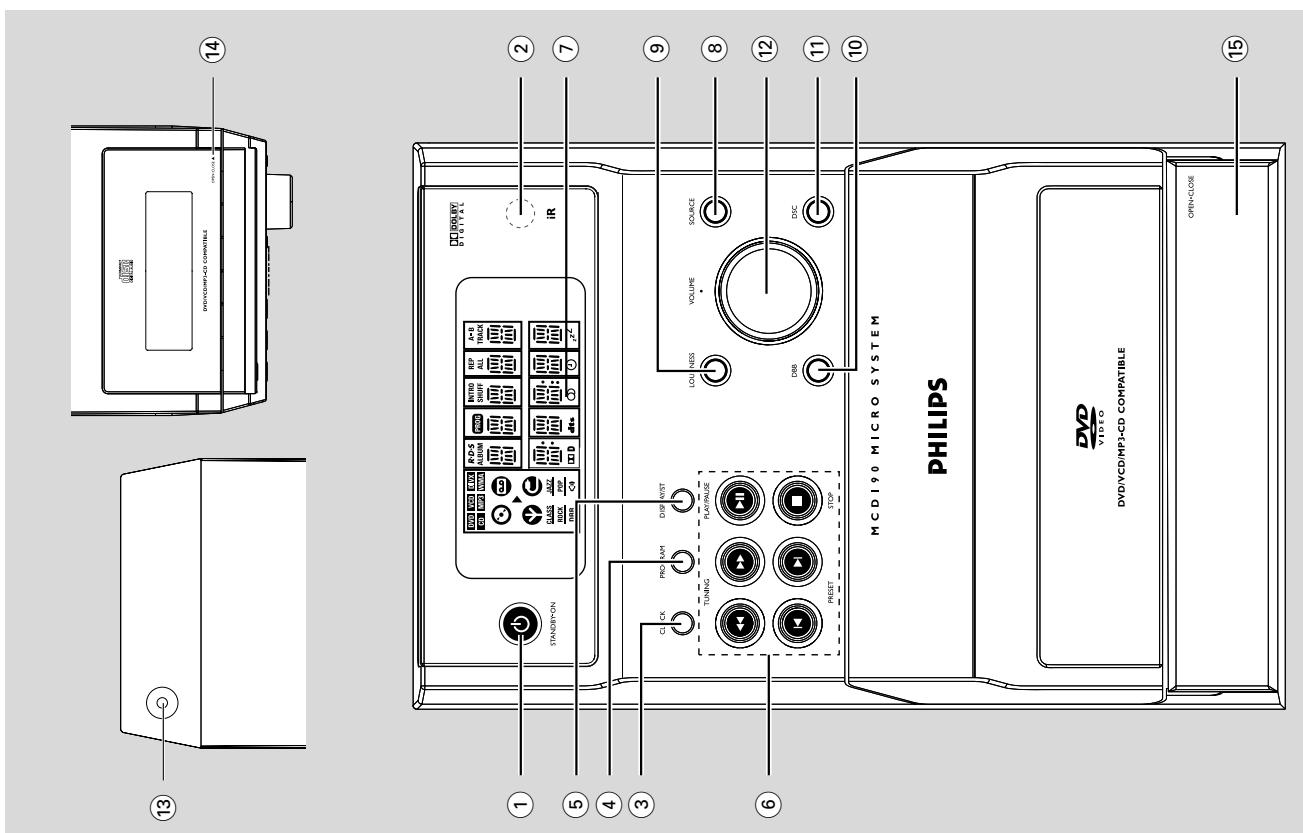
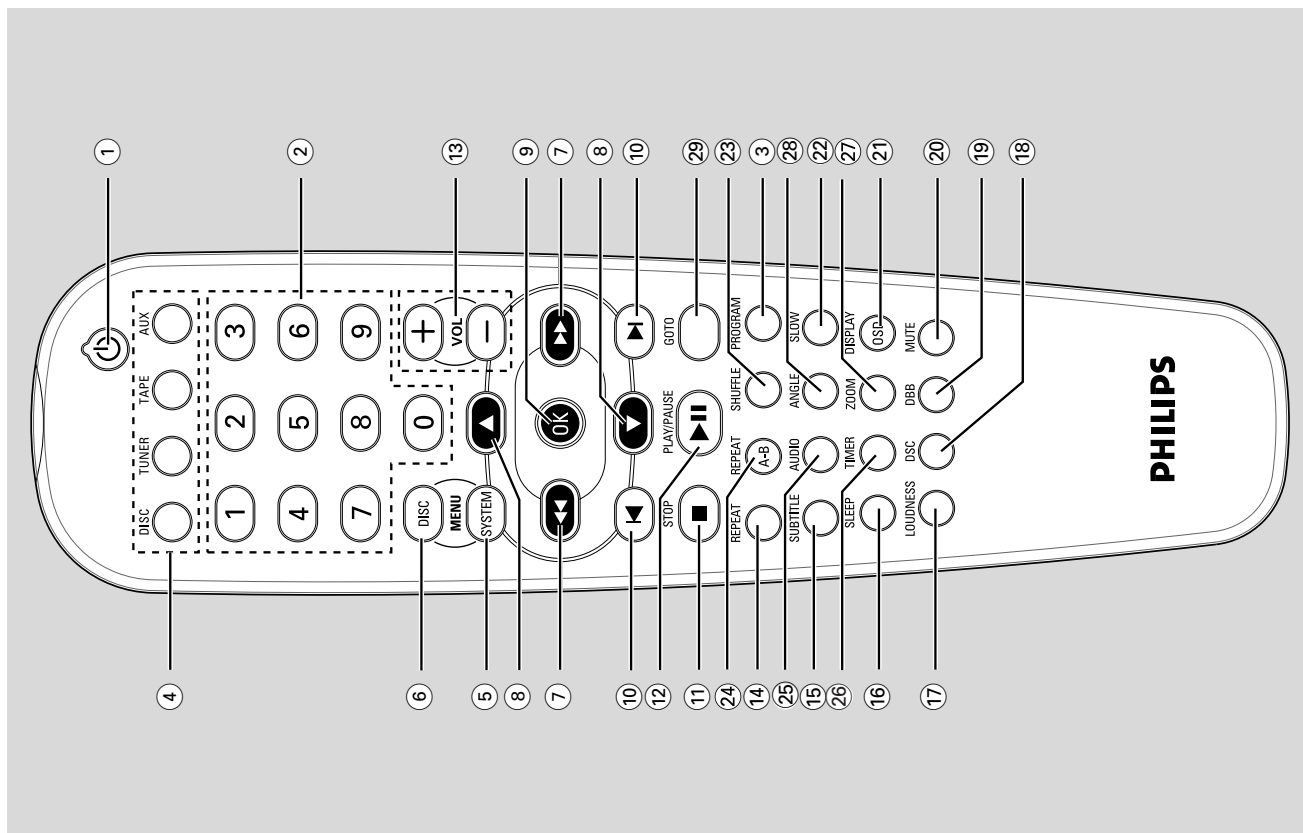
To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage.

CD

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



CONNECTION AND CONTROLS



CONNECTION AND CONTROLS

Controls

Controls on the system

- ① **STANDBY ON**
 - switches the system to standby/on.
- ② **IR sensor**
 - infrared sensor for remote control.
- ③ **CLOCK**
 - Standby mode
 - sets the system clock
 - Playback mode
 - displays the system clock.
- ④ **PROGRAM**
 - DVD/VCD/CD/MP3-CD: enters the program menu.
 - Picture CD: during playback, to select a slide show mode.
 - Tuner: programs preset radio stations.
- ⑤ **DISPLAY/ST**
 - Disc: to select disc information display mode.
 - FM: to set stereo or mono sound mode.
- ⑥ **Mode Selection**
 - **STOP** : in DISC mode, to stop playback or clear a program.
 - **PLAY/PAUSE** : in DISC mode, to start or interrupt playback.

Controls on the remote control

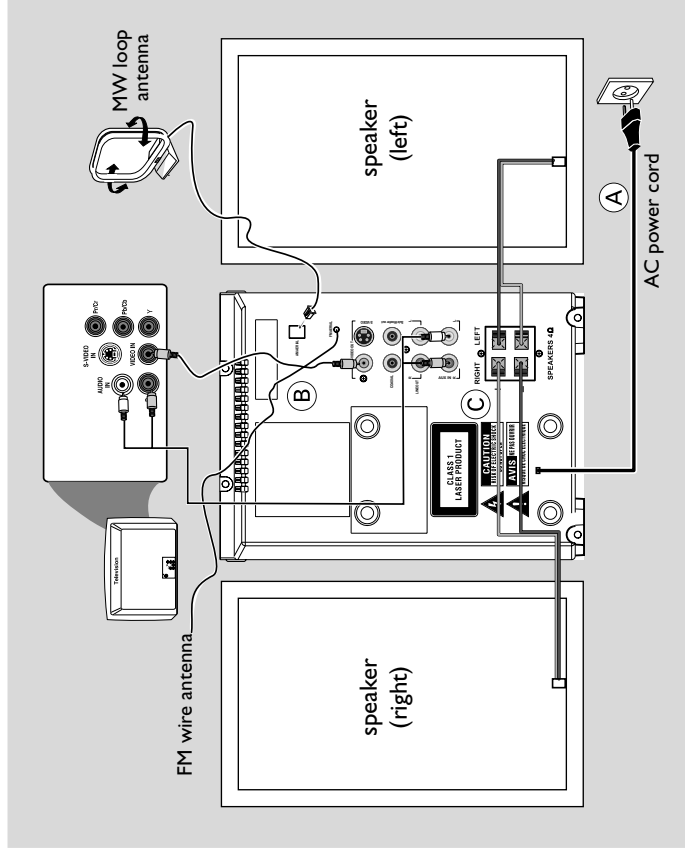
- ①
 - switches the system on/off.
- ② **Numeric Keypad (0-9)**
 - inputs a track/title/chapter number of the disc.
 - inputs the number of a preset radio station.
- ③ **PROGRAM**
 - DVD/VCD/CD/MP3-CD: enters the program menu.
 - Picture CD: during playback, to select a slide show mode.
 - Tuner: programs preset radio stations.
- ④ **SOURCE**
 - to select the respective sound source: DISC, TUNER, TAPE or AUX.
- ⑤ **SYSTEM MENU** (disc mode only)
 - to enter or exit the system menu bar.

Controls

- ⑥ **DISC MENU** (disc mode only)
 - to start playback at any chosen time on the disc (for-VCD operation with PBC 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
 - searches backward/forward in a disc at different speeds.
- ⑧
 - In DISC mode, to select a movement direction in the disc menu or system menu bar.
- ⑨ **OK**
 - to exit or confirm the selection.
- ⑩
 - Disc: skips to the previous/next chapter/title/track.
 - Tuner: selects a preset radio station.
- ⑪ **STOP**
 - In DISC mode, to stop playback or clear a program.
- ⑫ **PLAY/PAUSE**
 - In DISC mode, to start or interrupt playback.
- ⑬ **VOL +/-**
 - adjusts the volume upward/downward.
 - adjusts the hours and minutes in clock/timer setting mode.
 - switches the set timer ON or OFF.
- ⑭ **REPEAT**
 - to repeat a track/disc.
- ⑮ **SUBTITLE**
 - selects a subtitle language.
- ⑯ **SLEEP**
 - to set the sleep (auto-off) timer function.
- ⑰ **LOUDNESS**
 - enables or disables automatic loudness adjustment.
- ⑱ **DISC**
 - selects different types of preset sound equalizer settings (CLASSIC, JAZZ, POP or ROCK).
- ⑲ **DBB**
 - enables or disables bass enhancement.
- ⑳ **MUTE**
 - to interrupt or resume sound reproduction.
- ㉑ **DISPLAY (OSD)**
 - displays information on TV screen during playback.
 - FM: to set stereo or mono sound mode.
- ㉒ **SLOW**
 - selects different slow playback modes for a VCD/ SVCD/DVD.
- ㉓ **SHUFFLE**
 - to repeat playback of all tracks in a random order.
- ㉔ **REPEAT A-B**
 - for CD: to repeat a specific section within the same track.
 - for DVD/VCD: to repeat a specific section in a disc.
- ㉕ **AUDIO**
 - for VCD
 - sets Stereo, Mono-Left or Mono-Right sound mode.
 - for DVD
 - selects an audio language.
- ㉖ **TIMER**
 - : to set the timer.
- ㉗ **ZOOM**
 - DVD/VCD/Picture CD: enlarges or reduces a picture or active image on the TV screen.
- ㉘ **ANGLE**
 - selects a DVD camera angle.
- ㉙ **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 (VCD/ CD or TUNER, for example).
- Then select the desired function (for example).

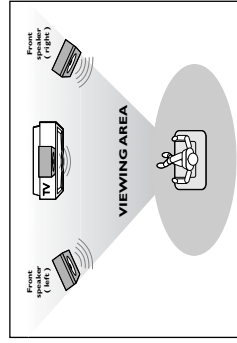


IMPORTANT!

- The type plate is located at the rear of the system.
- Before connecting the AC power cord to the wall outlet, ensure that all other connections have been made.
- Never make or change any connections with the power switched on.

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).

Step 1: Placing speakers



Place the front left and right speakers at equal distances from the TV set and at an angle of approximately 45 degrees from the listening position.

Notes:

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

Step 2: Connecting speakers



Connect the speaker wires to the **SPEAKERS** terminals, right speaker to "RIGHT" and left speaker to "LEFT", coloured (marked) wire to "+", and black (unmarked) wire to "-". Fully insert the stripped portion of the speaker wire into the terminal as shown.

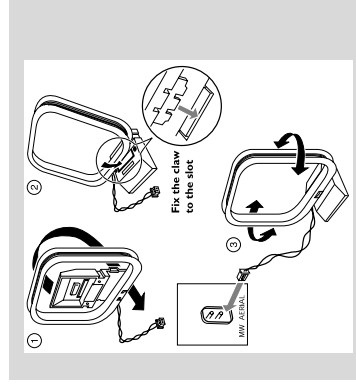
Notes:

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

Step 3: Antenna connection

MW Antenna

Connect the supplied MW loop antenna to the "MW AERIAL" terminal. Adjust the position of the antenna for optimal reception.



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

FM Antenna

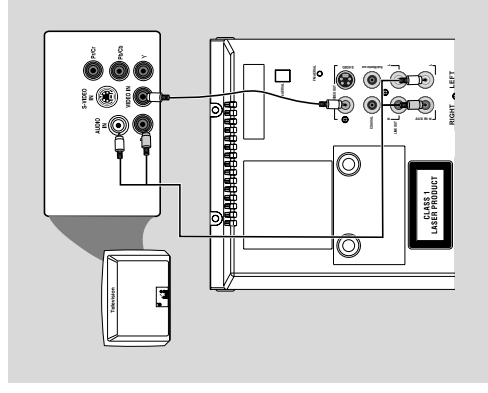
It is unnecessary to connect the FM pigtail antenna since it is fixed to the main unit. Adjust the FM antenna for optimal FM stereo reception.

Step 4: Connecting TV

IMPORTANT!

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

Using Video In jack (CVBS)

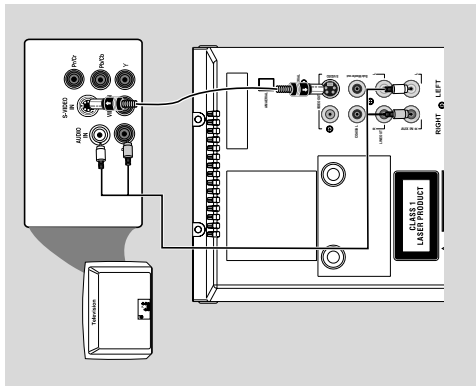


- Use the composite video cable (yellow) to connect the system's **VIDEO** jack to the video input jack (or labelled as AV In, Video In, Composite or Baseband) on the TV set.

CONNECTION AND CONTROLS

Connections

Using S-Video In Jack

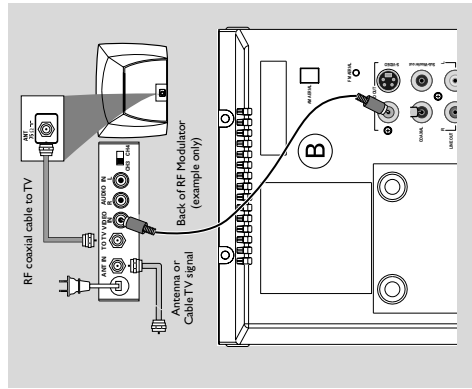


- Use the S-Video cable (not supplied) to connect the system's **S-VIDEO** jack to the S-Video input jack (or labelled as Y/C or S-VHS) on the TV set.

Using an accessory RF modulator

IMPORTANT!

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



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

Step 5: Connecting the power cord

IMPORTANT!

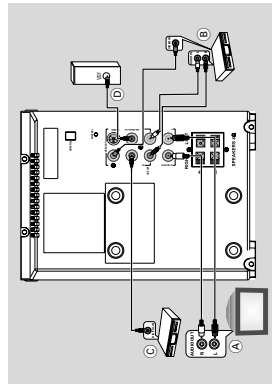
- Never make or change any connection with the power switched on.

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

Optional: Connecting additional equipment

IMPORTANT!

- Some discs are copy-protected. You cannot record the disc through a VCR or digital recording device.
- When making connections, make sure the colour of cables matches the colour of jacks.
- Always refer to the owner's manual of the other equipment for complete connection and usage details.



Viewing and listening to the playback of other equipment (A)

Connect the system's **AUX IN (RL)** jacks to the **AUDIO OUT** jacks on the other audio/visual device (such as a TV/VCR, Laser Disc player or cassette deck).
Before starting operation, press **SOURCE** on the front panel to select **AUX** or press **AUX** on the remote in order to activate the input source.

Using the VCR for recording DVDs (B)

Connect one of the system's **VIDEO OUT** jacks to the corresponding **VIDEO IN** jack and **LINE OUT (RL)** jacks to the **AUDIO IN** jacks on the VCR. This will allow you to make analogue stereo (two channel, right and left) recordings.

Recording (digital) (C)

Connect the system's **COAXIAL** jack to the **DIGITAL IN** jack on a digital recording device (such as DTS-Digital Theatre compatible, with Dolby Digital decoder).
Before starting operation, set the **AUDIO OUT** according to the audio connection. (See "DIGITAL OUT".)

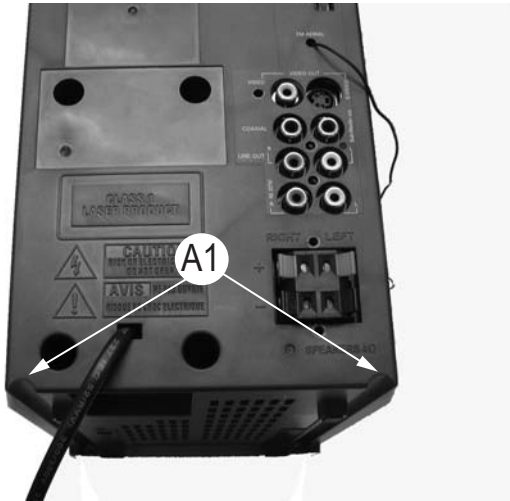
Connecting an active subwoofer (D)

Connect the DVD micro system's **SUBWOOFER OUT** jack to the **AUDIO INPUT** jack on an active subwoofer (not supplied).

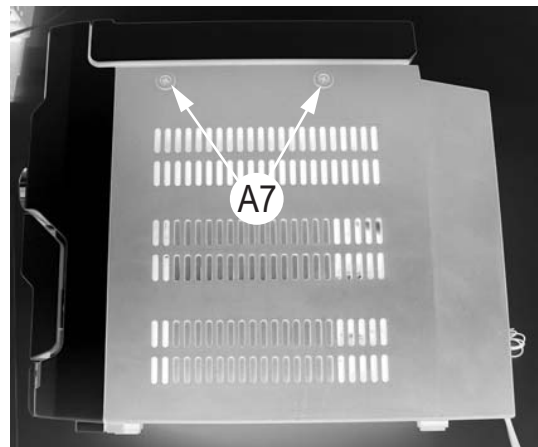
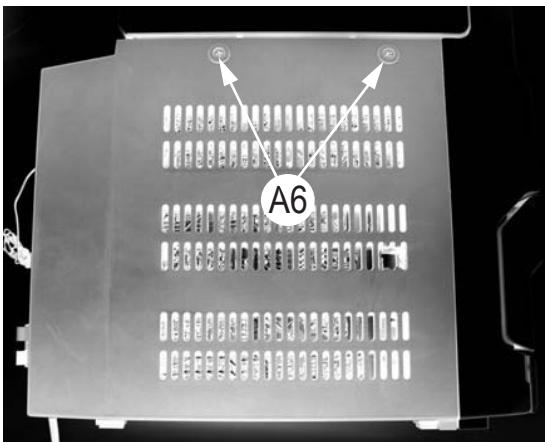
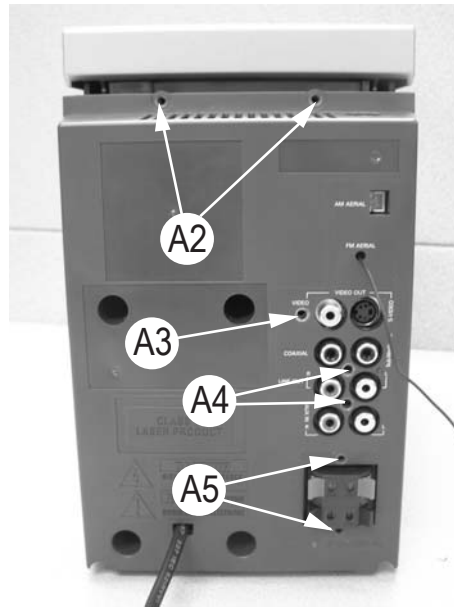
DISASSEMBLY DIAGRAMS

STEP A : Remove Rear Cabinet

- A1 : Remove 2 screws (SP3x12)
- A2 : Remove 4 screws (SP3x10)
- A3 : Remove 1 screws (SP3x10)
- A4 : Remove 2 screws (SP3x10)



- A5 : Remove 2 screws (SP3x10)
- A6 : Remove 2 screws (K3x10)
- A7 : Remove 2 screws (K3x10)

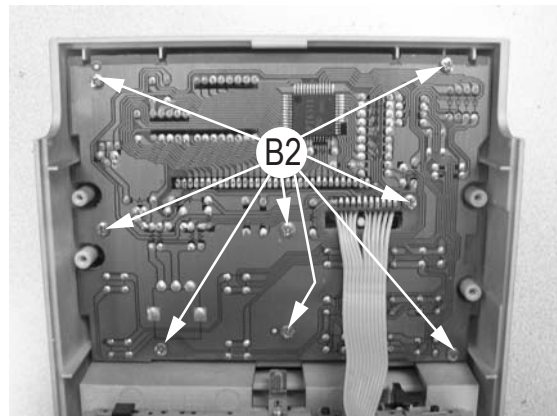
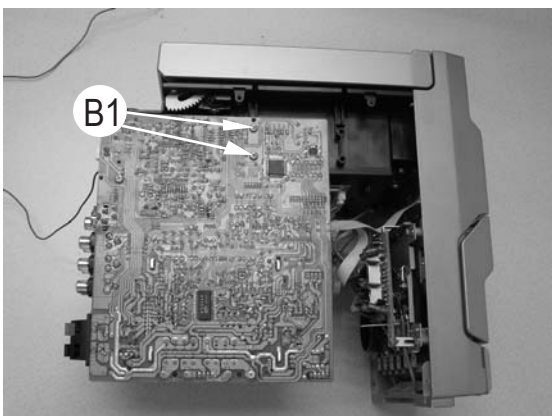


STEP B :

Remove Main board and LCD board

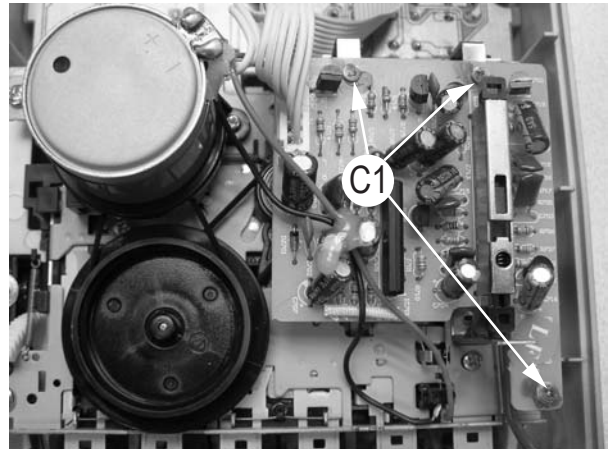
- B1: Remove 2 screws (SP3x8)

- B2: Remove 8 screws (SP2.5x8)

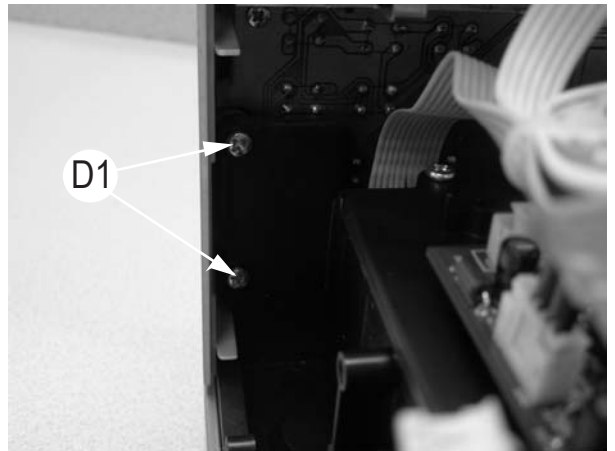


DISASSEMBLY DIAGRAMS

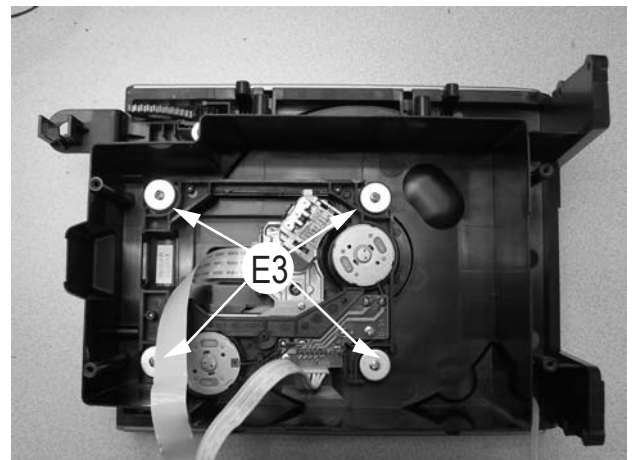
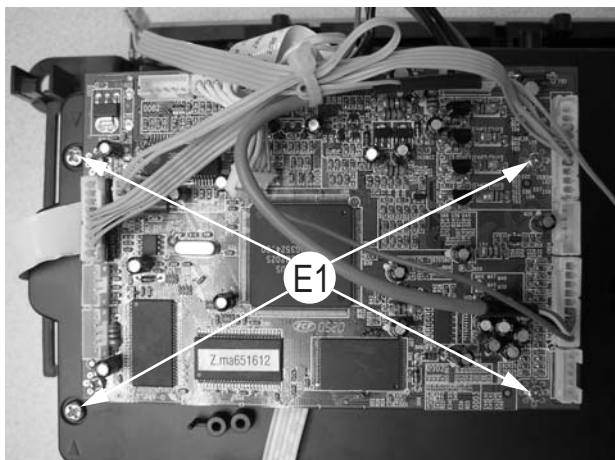
- STEP C :**
Remove Cassette PCB Assy
 - Remove 3 screws (K2x5)



- STEP D :**
Remove CD tray
 - Remove 4 screws (SP3x10)



- STEP E :**
Remove DVD Mechaniam
 - Remove DVD PC board 4 screws (SP2.5x6)
 - Remove CD tray cover 4 screws (SP3x8)
 - Remove DVD Mechaniam 4 screws(M2.5x10)



SERVICE TEST PROGRAM

SOFTWARE VERSION AND UPGRATING

A.MPEG SOFTWARE VERSION CHECK

Enter the password "9735",
TV Screen shows:

```

20041126 w448 32M 16

SC:121          KEOKEO-STD-707
F/W:ID          005.24D.VER 0.08
CHIP ID        8120F [387D 0866]

REGION  ▸      REGION 0
RATIING      REGION 1
PASSWORD     REGION 2
EXITSETUP    REGION 3
              REGION 4
              REGION 5
              REGION 6
    
```

B. MPEG SOFTWARE UPGRATING

1. download the firmware from Philips support website
<http://www.philips.com/support>
2. Prepare a uploading CD
3. Put the CD in the CD tray
4. TV Screen shows

```

                sware upgrade
                upgrade to V005.VER0.02 version?
    
```

and upgrading will run automatically

C.CPU VERSION CHECK

Keep PLAY/PAUSE and STOP buttons (on the set) depressed while pressing POWER on.
TV screen shows

```

                MCD190
                V0.2
    
```

D. SETUP MENU

Press SYSTEM key to show chart1
Press the removal key to show chart2,chart3,chart4
TV screen shows

```

System setup
TV system
Screen saver
TV type
Password
Rating
Default
    
```

(chart1)

```

Launguage setup
OSD Laungage
Audio lang
Subtitle
Menu lang
    
```

(chart2)

```

Video setup
Component
TV mode
Brightness
Contrast
Hue
Saturation
    
```

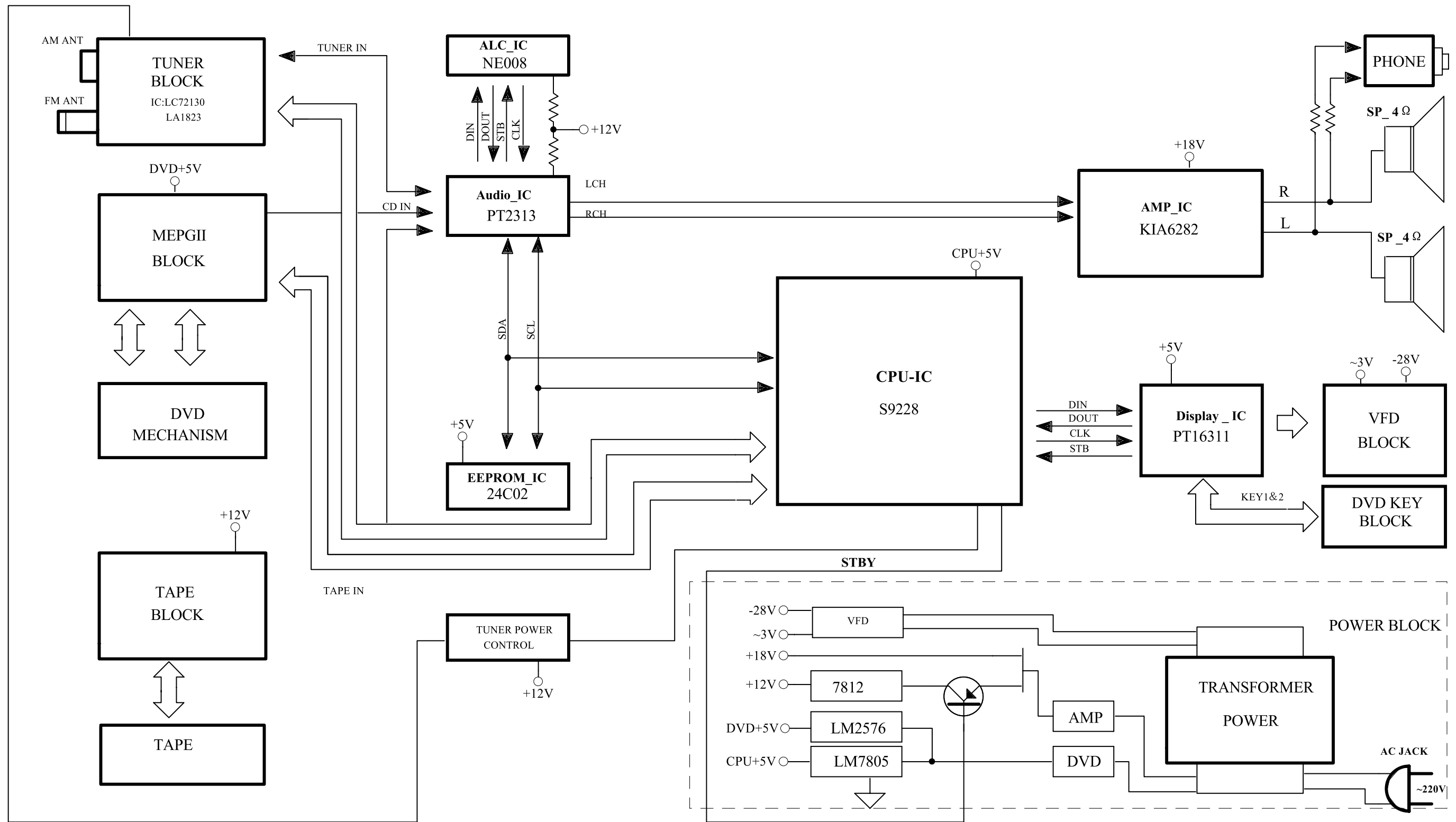
(chart3)

```

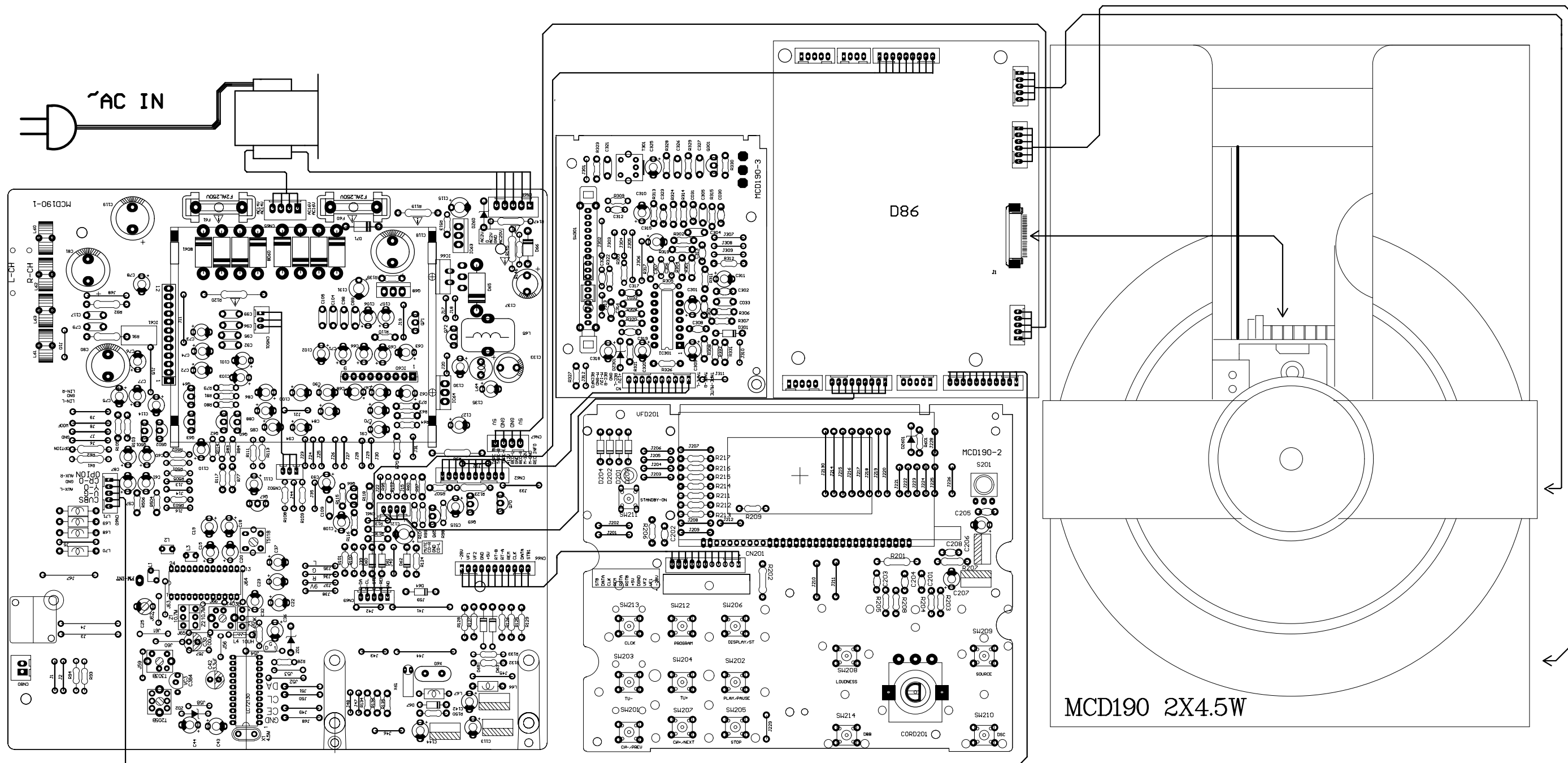
Audio setup
Digital out
Downmix
3D processing
LPCM
Night mode
    
```

(chart4)

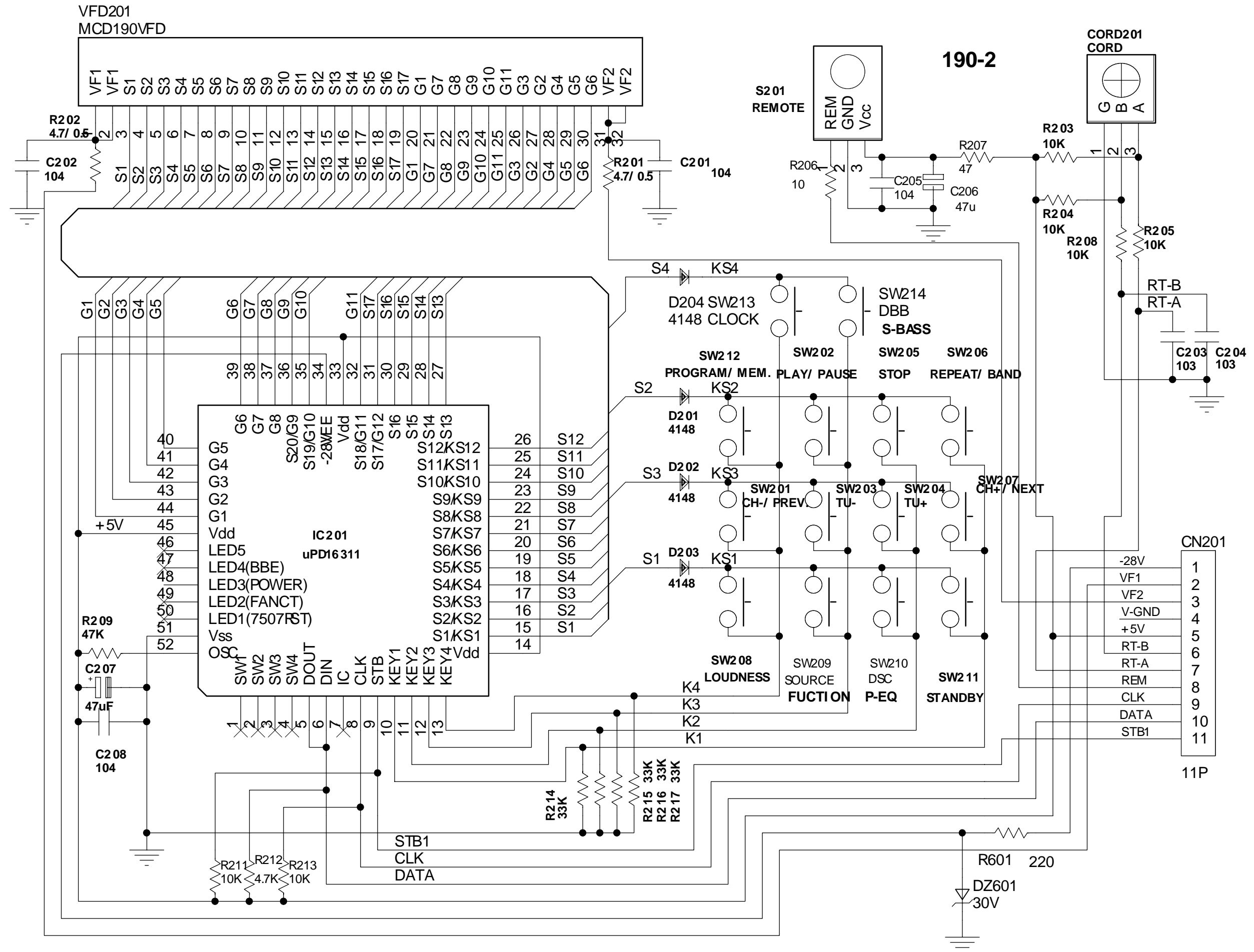
SET BLOCK DIAGRAM



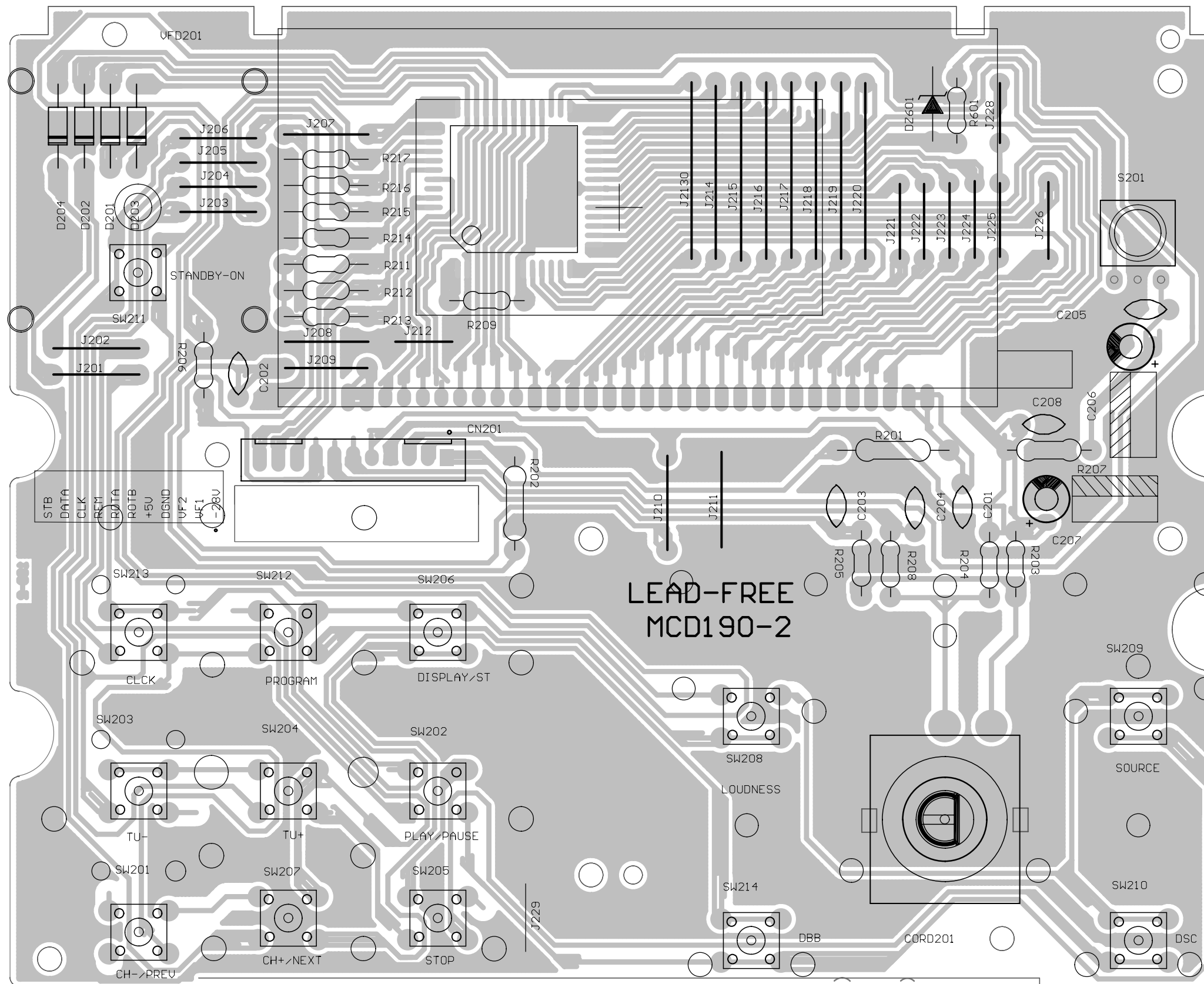
SET WIRING DIAGRAM



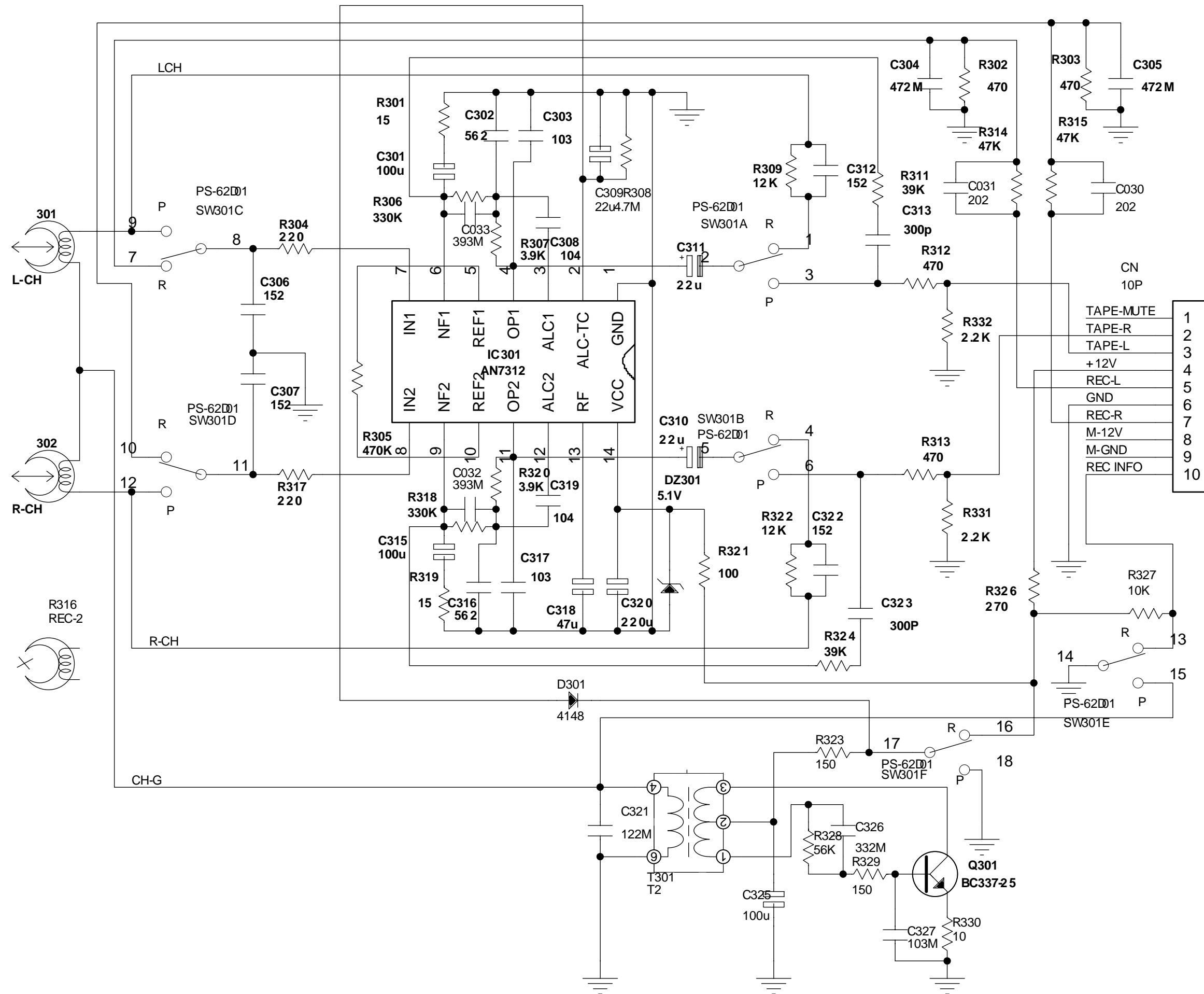
CIRCUIT DIAGRAM - DISPLAY BOARD



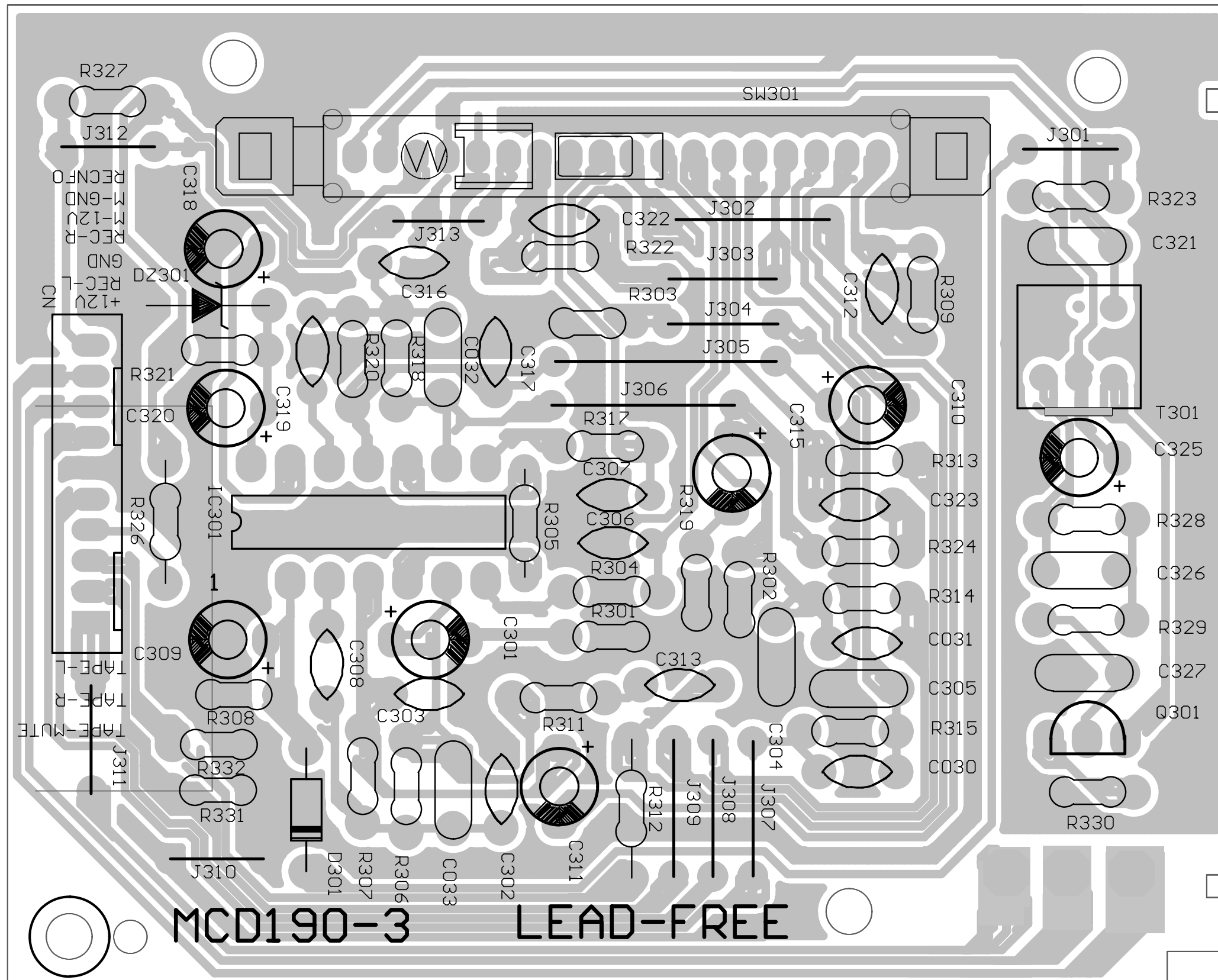
LAYOUT DIAGRAM - DISPLAY BOARD



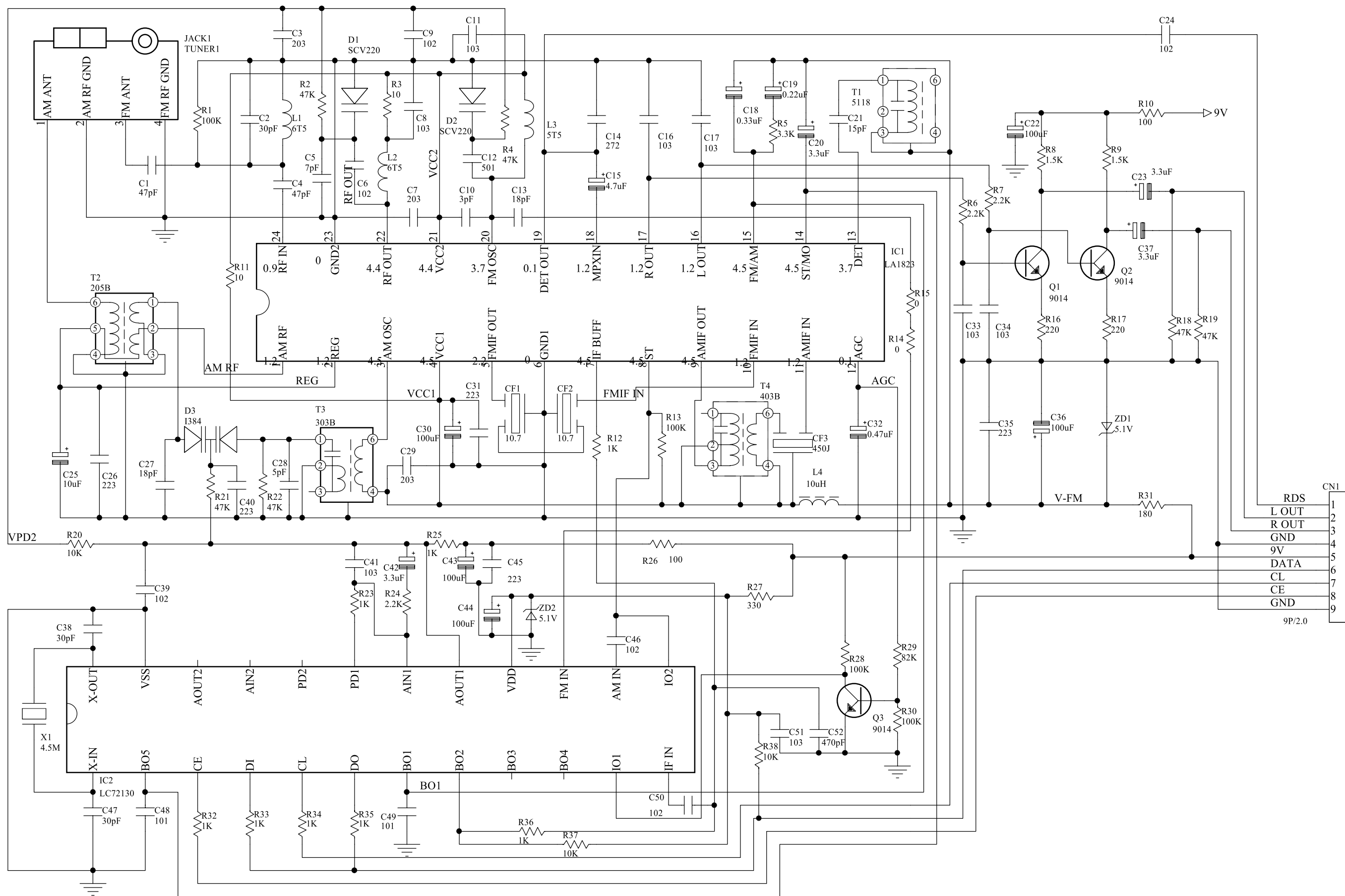
CIRCUIT DIAGRAM - CASSETTE BOARD



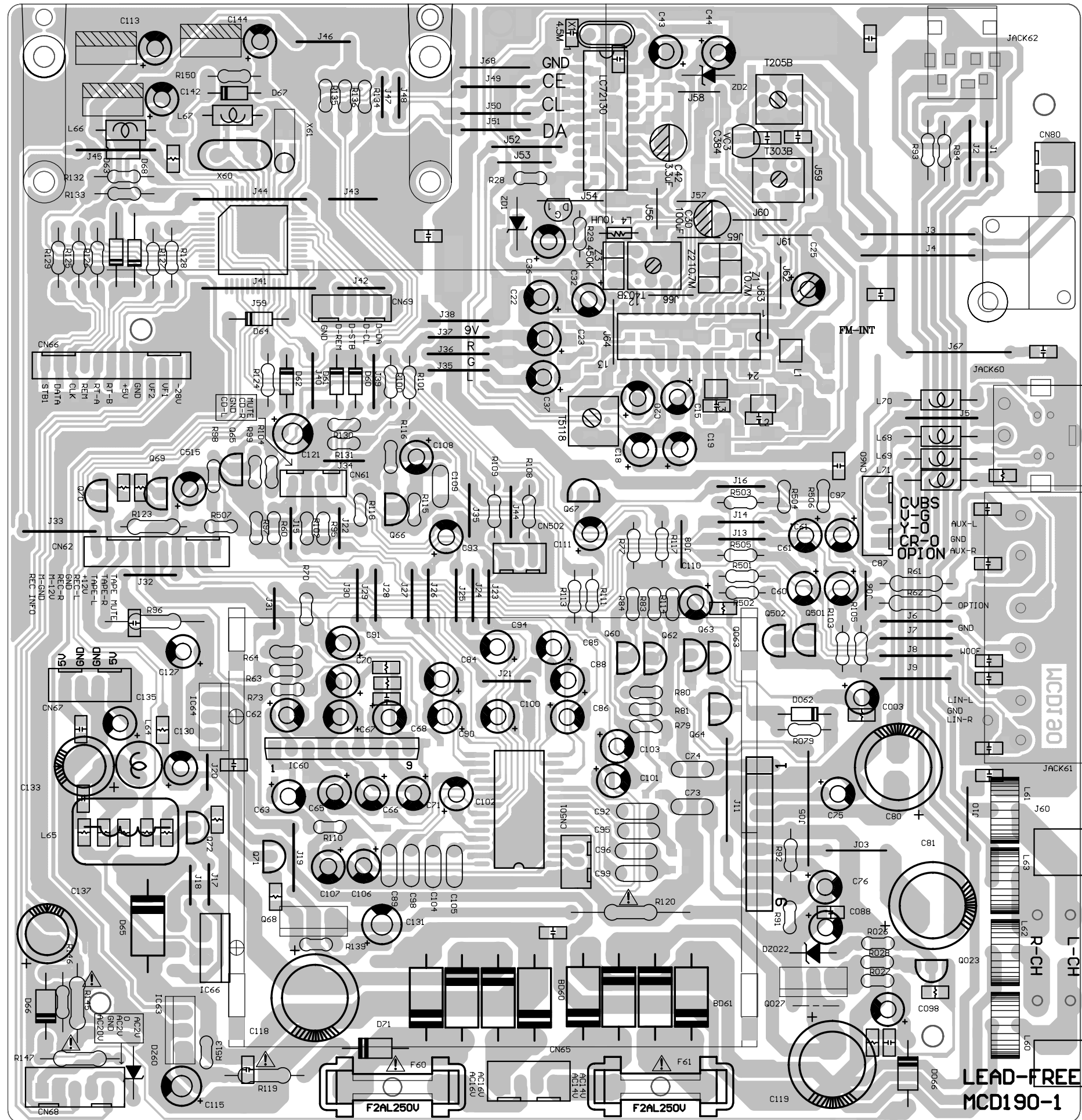
LAYOUT DIAGRAM - CASSETTE BOARD



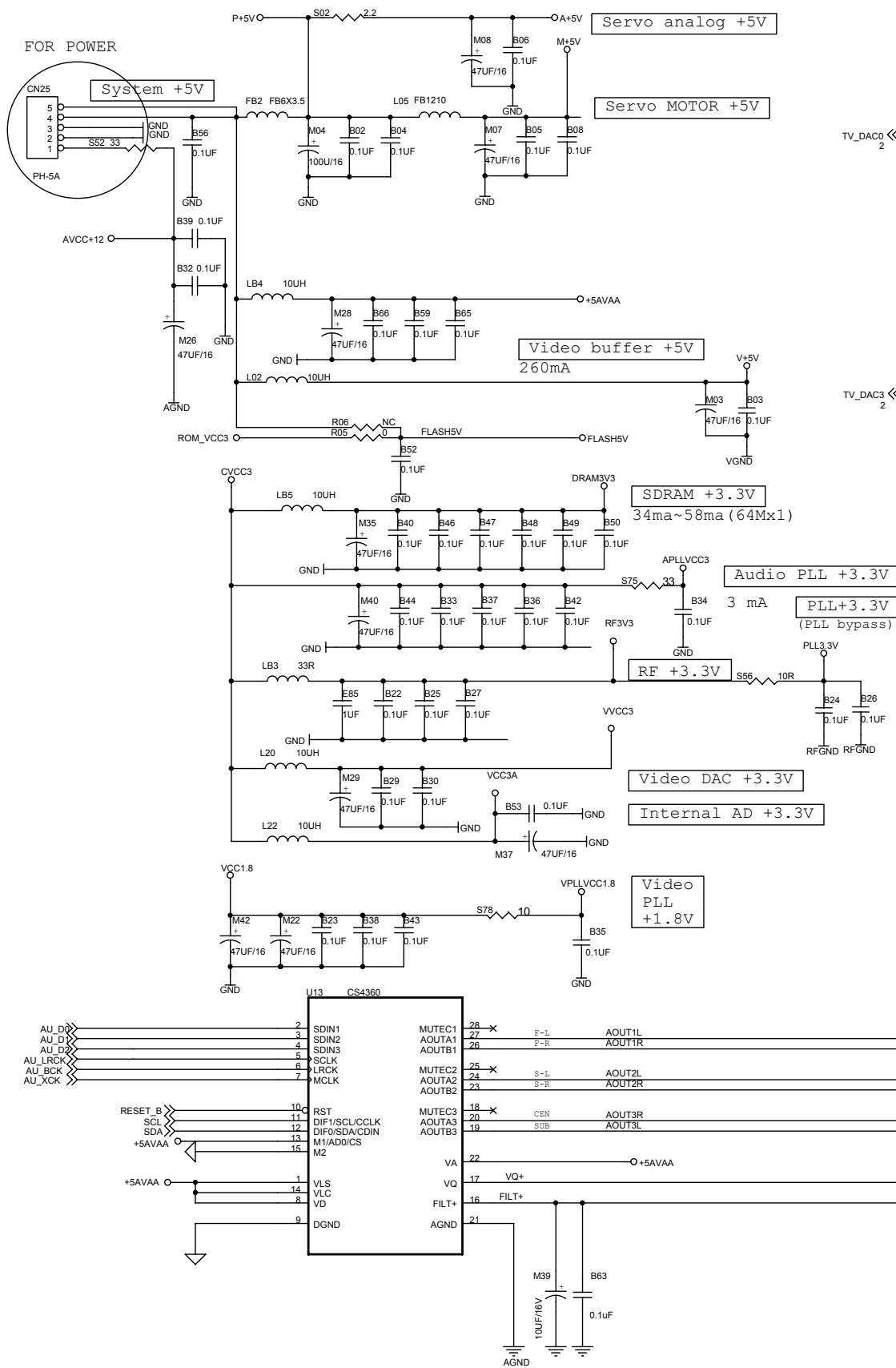
CIRCUIT DIAGRAM - MAIN BOARD TUNER PART



LAYOUT DIAGRAM - MAIN BOARD

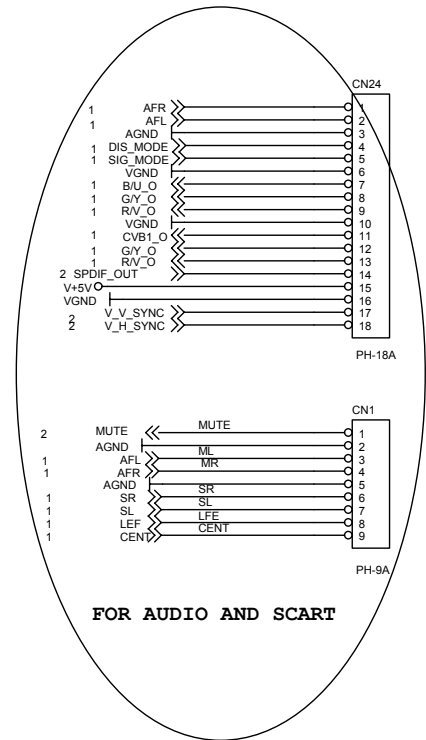
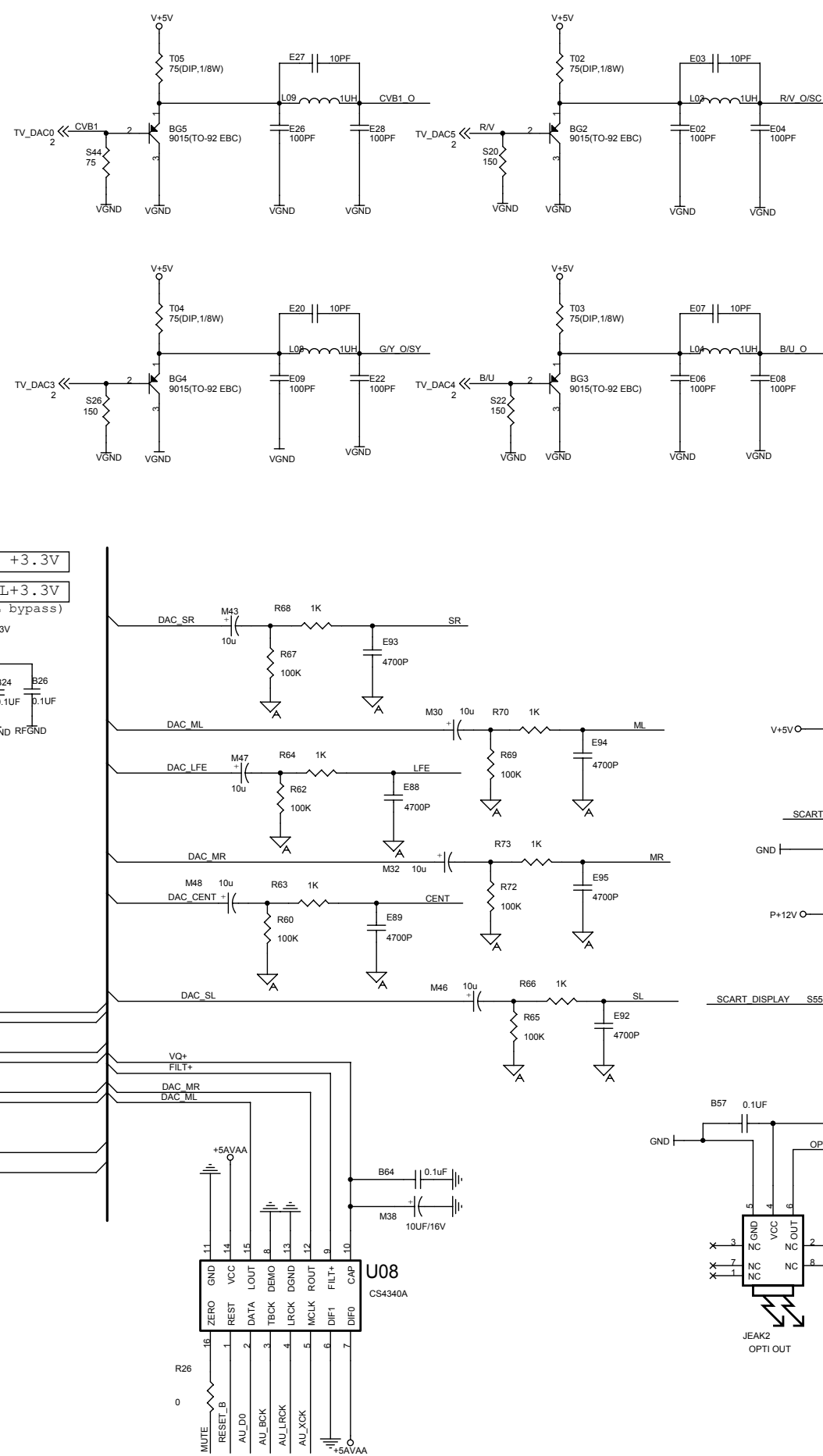


CIRCUIT DIAGRAM - MPEG BOARD

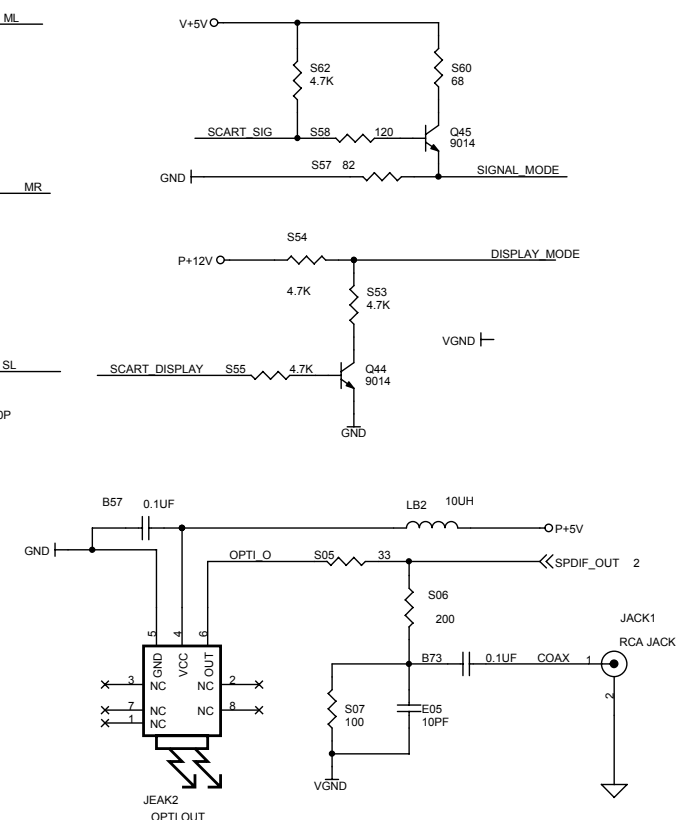


TV0	TV3	TV4	TV5
CVB	Y	Cb	Cr
CVB	Y	CVB	C
CVB	(S-Video)	CVB	(S-Video)
CVB	G	B	R

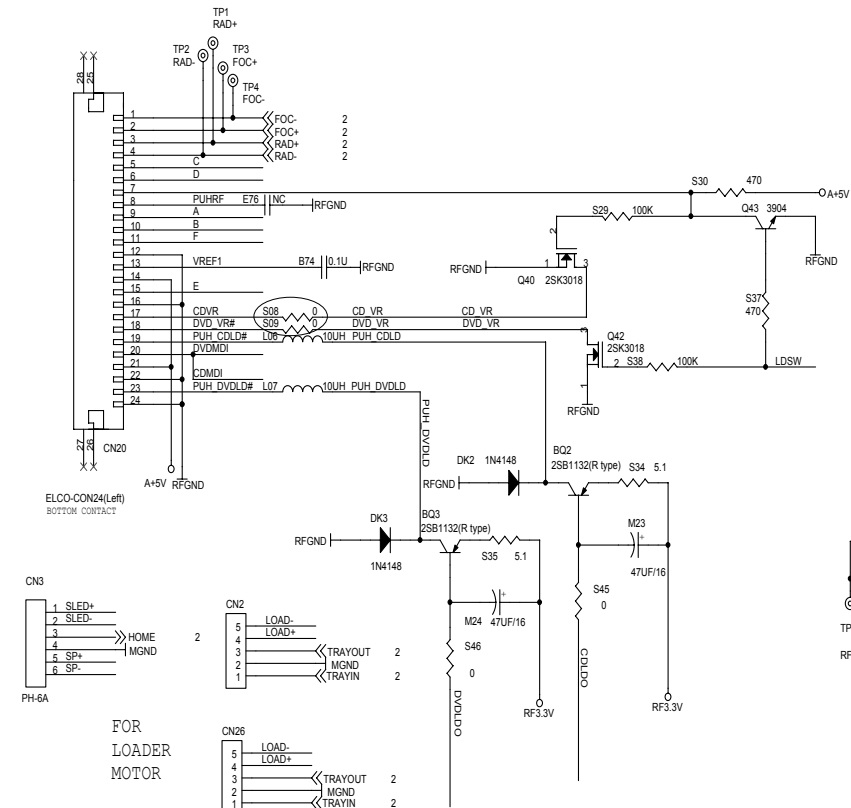
AU_D0 >>> AU_D0 2
 AU_BCK >>> AU_LRCK 2
 AU_XCK >>> AU_BCK 2
 AU_XCK >>> AU_XCK 2
 AUDIO_MUTE >>> AUDIO_MUTE 2



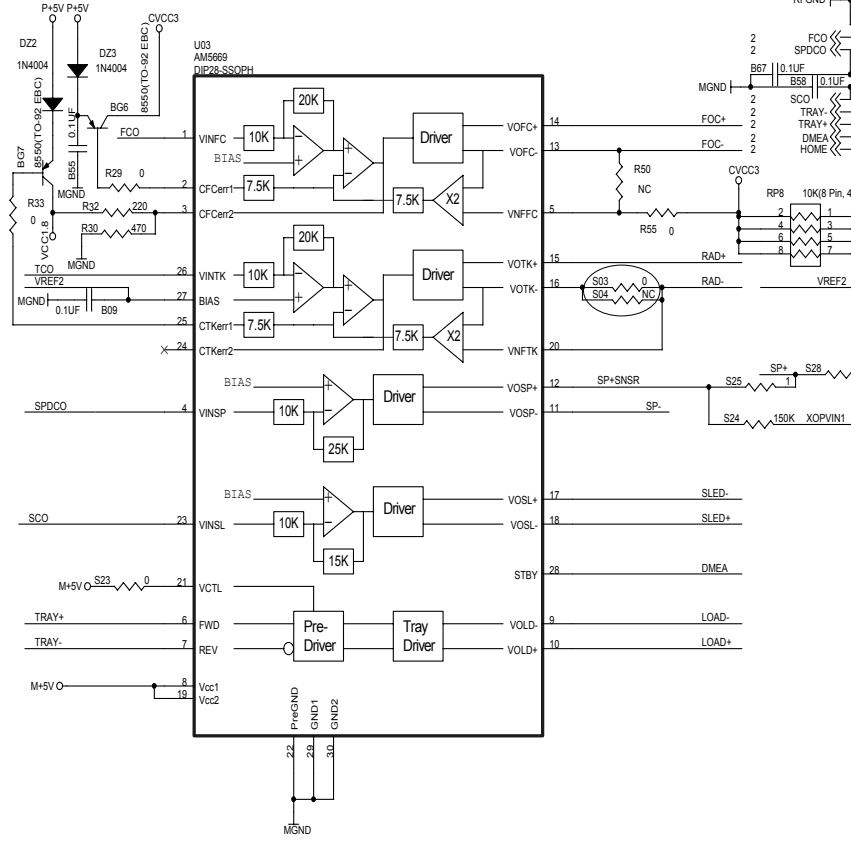
FOR AUDIO AND SCART



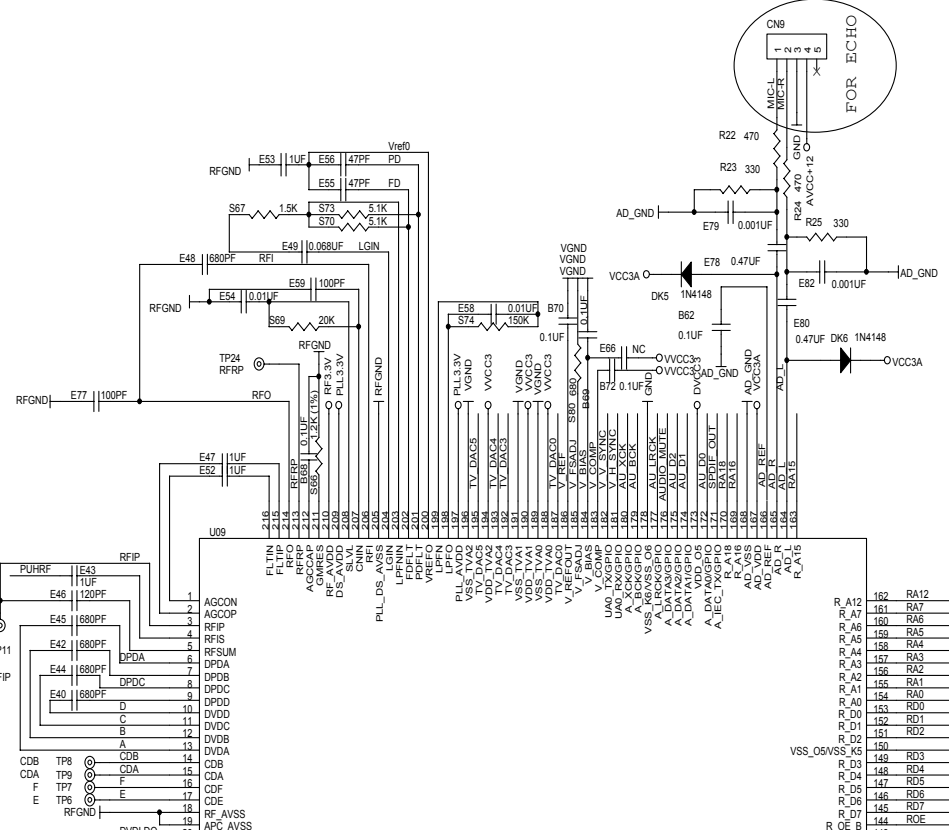
CIRCUIT DIAGRAM - MPEG BOARD



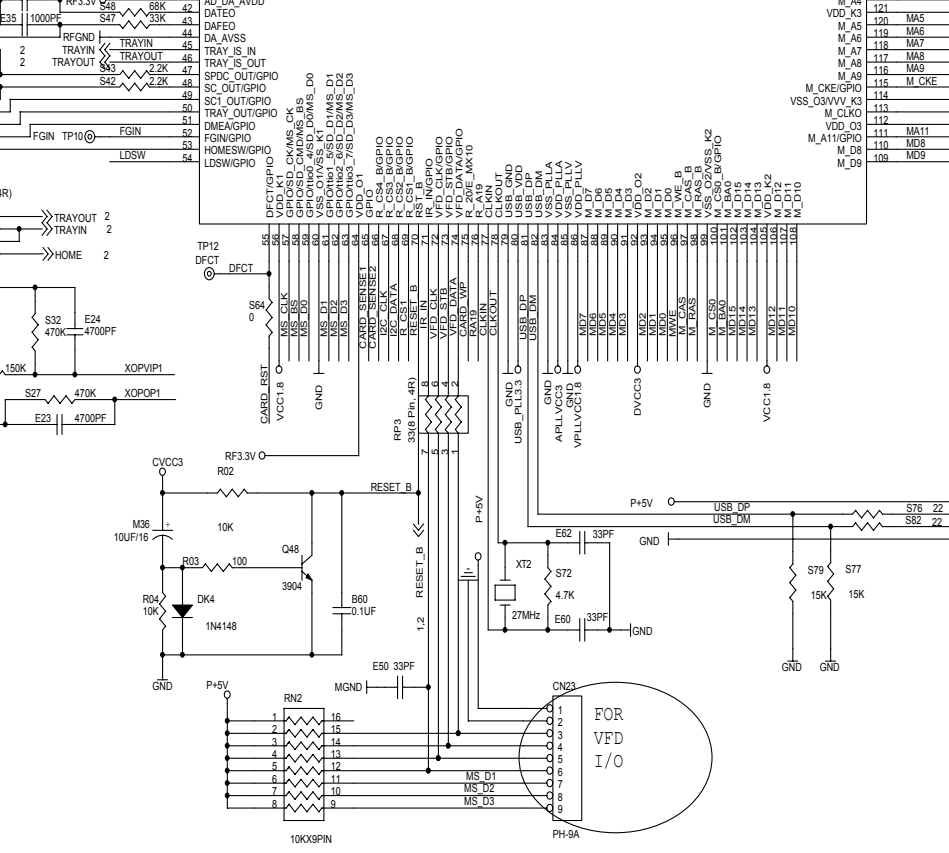
FOR LOADER MOTOR



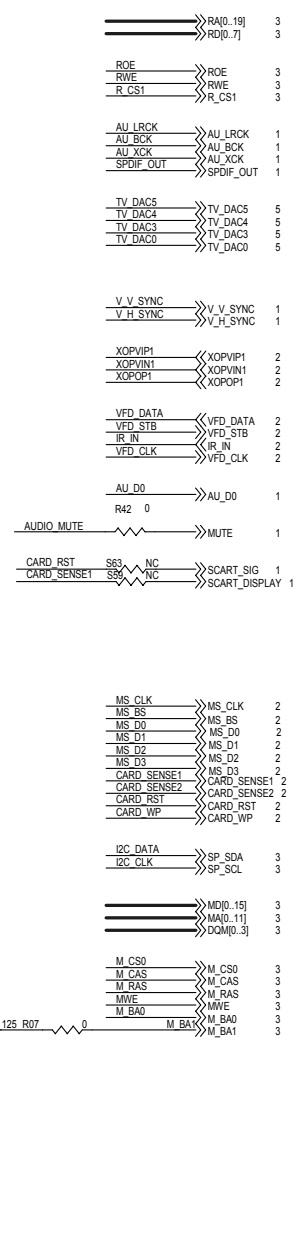
FOR VFD I/O



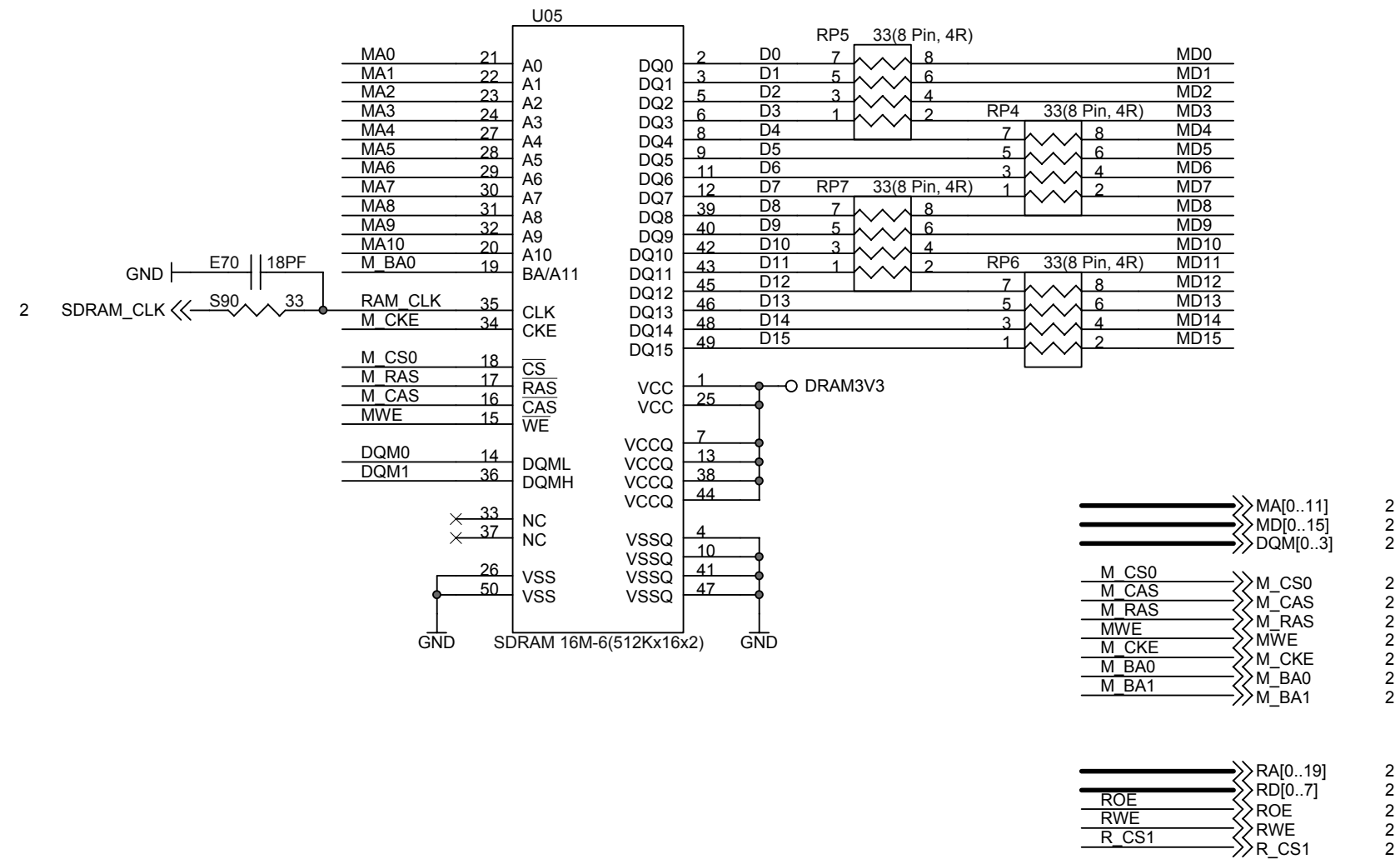
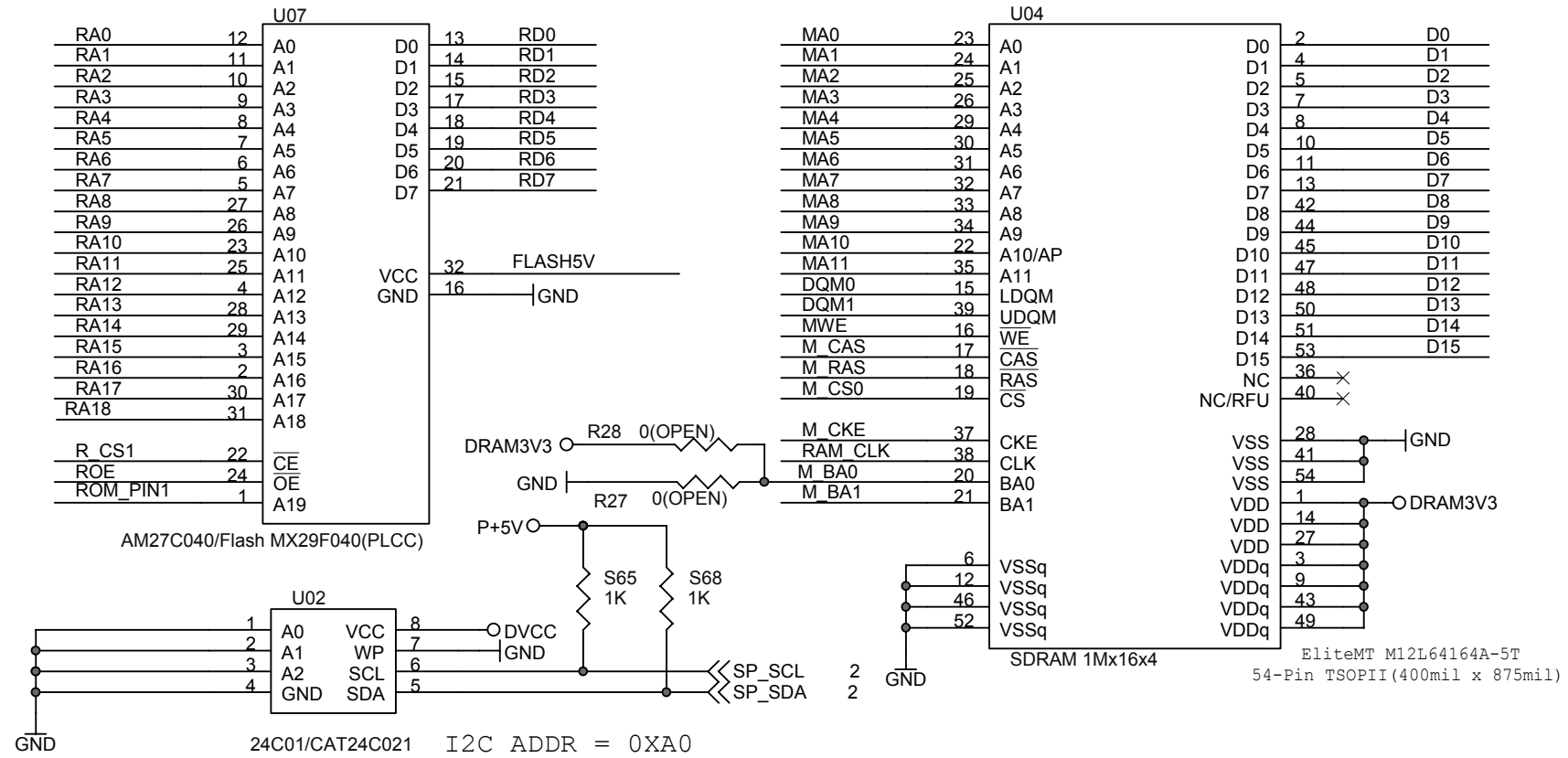
SPHE820S



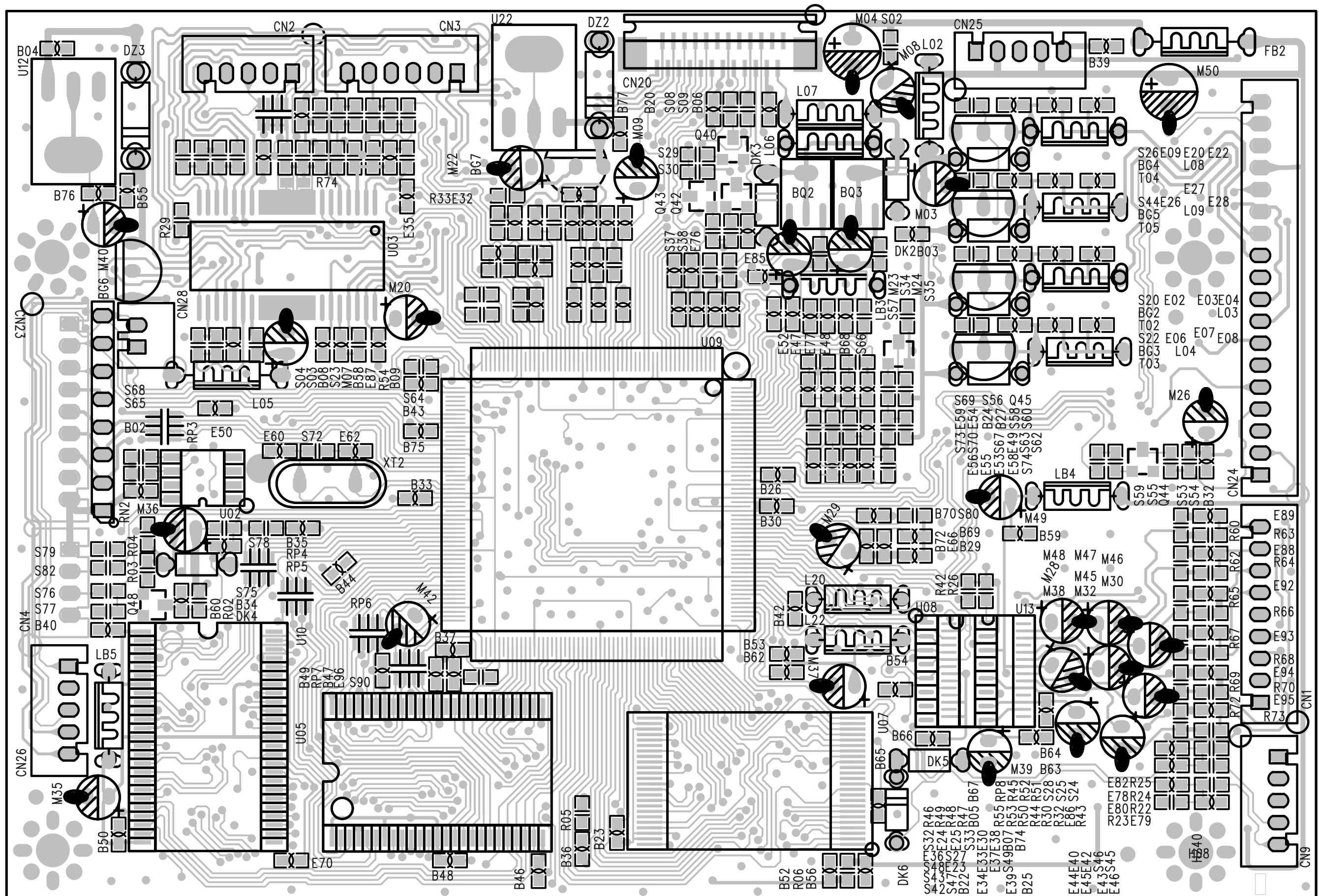
FOR USB (NC)



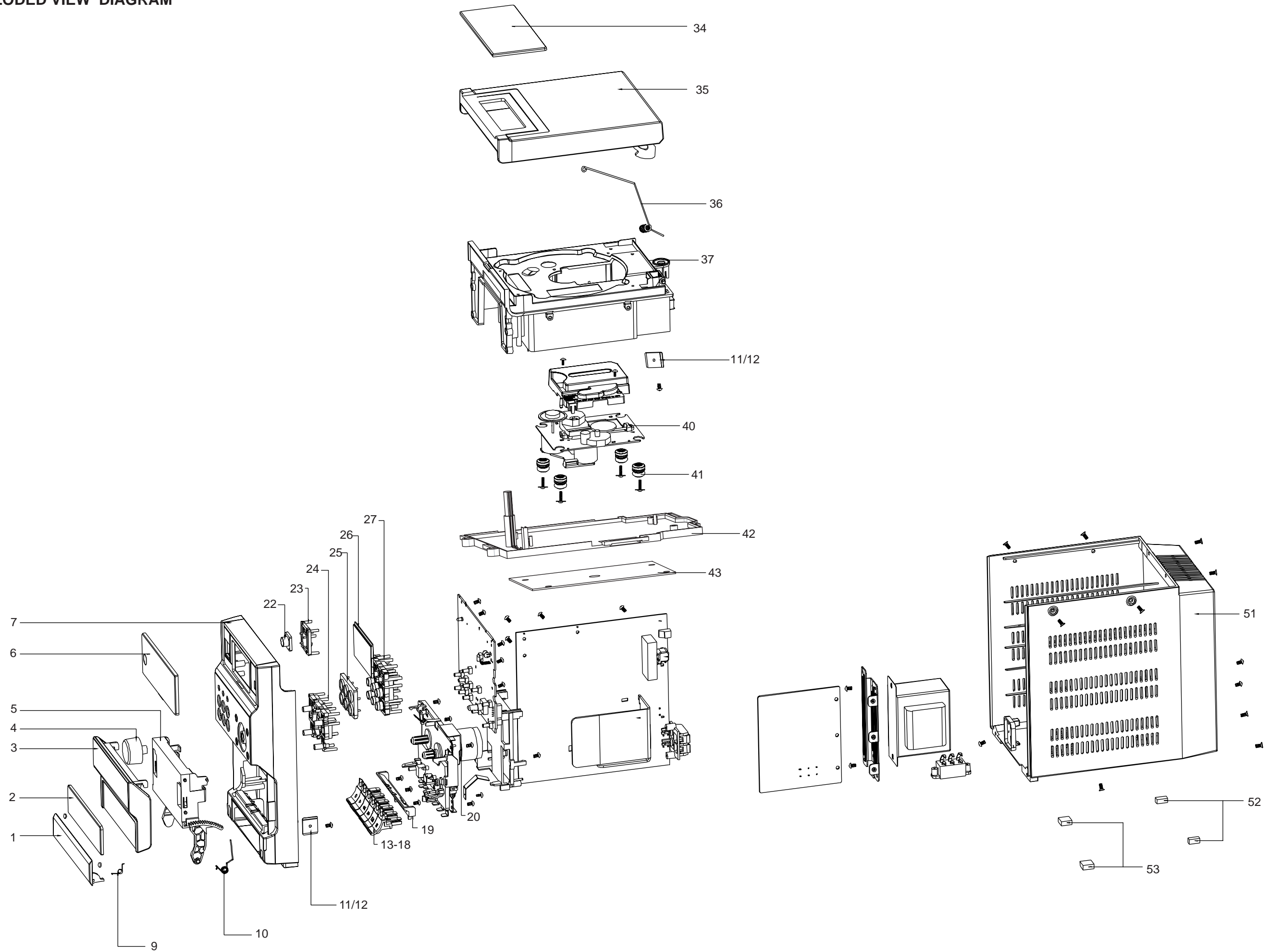
CIRCUIT DIAGRAM - MPEG BOARD



LAYOUT DIAGRAM - MPEG BOARD



EXPLODED VIEW DIAGRAM



MECHANICAL PARTSLIST

1	994000003115	COVER CASSETTE KEY
2	994000003118	LENS CASSETTE
3	994000003108	DOOR CASSETTE
4	994000003123	KNOB VOLUME
5	994000003111	BRACKET CASSETTE DOOR
6	994000003121	LENS DISPLAY
7	994000003105	CABINET FRONT
9	994000003136	CASSETTE KEY COVER SPRING
10	994000003137	CASSETTE DOOR SPRING
11	994000003113	DAMPER GEAR BRACKET
12	994000003142	DAMPER GEAR
13	994000003129	KEY CASSETTE RECORD
14	994000003132	KEY CASSETTE PLAY
15	994000003124	KEY CASSETTE FORWARD
16	994000003125	KEY CASSETTE REVERSE
17	994000003122	KEY CASSETTE STOP/OPEN
18	994000003127	KEY CASSETTE PAUSE
19	994000003117	CLAMPER CASSETTE KEY
20	994000003138	SINGLE CASSETTE MECHANISM
21	994000003114	CASS PCB BKT.
22	994000003131	BUTTON POWER
23	994000003112	BRACKET POWER KNOB
24	994000003128	BUTTON PROGRAM
25	994000003116	RING-CD FUNCTION BUTTON
27	994000003126	BUTTON CD FUNCTION
34	994000003119	LENS CD DOOR
35	994000003109	DOOR CD
36	994000003135	CD DOOR SPRING
37	994000003107	TRAY CD
40	994000002563	DVD MECHANISM IDM520A
41	994000003185	DVD VIBRATION CUSHION
42	994000003141	TRAY CD COVER
43	994000003139	DVD MPEG DECODER CARD ASS'Y
51	994000003106	CABINET REAR
52	994000003133	RUBBER FOOT A
53	994000003134	RUBBER FOOT B
		ACCESSORIES PARTS LIST
	994000003143	SPEAKER BOX ASS'Y
	994000003144	REMOTE HANDSET
	994000003145	AM ANT.

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

ELECTRIC PARTS LIST

- MAIN BOARD -

T2	994000003146	I.F.T. COIL 205B			
T3	994000003147	I.F.T. COIL 303B			
T4	994000003148	I.F.T.COIL 403B			
T1	994000003149	I.F.T 511BE			
CF3	994000003151	AM FILTER 450J			
X60	994000003152	CERMIC FILTER FREQUENCY 4.19MHZ			
CF1	994000003153	FM CERMIC FILTER FREQUENCY 10.7MHZ			
CF2	994000003153	FM CERMIC FILTER FREQUENCY 10.7MHZ			
ZD1	994000002515	ZENER DIODE 3V			
ZD2	994000002516	ZENER DIODE 5V1			
D1	994000003154	VARIODE DIODE SCV220			
D2	994000003154	VARIODE DIODE SCV220			
D3	994000003155	VARIODE DIODE 1384			
Q1	994000003156	CHIP TRANSISTOR 9014			
Q2	994000003156	CHIP TRANSISTOR 9014			
Q3	994000003156	CHIP TRANSISTOR 9014			
Q68	994000002517	TRANSISTOR 2SB772			
Q64	994000002519	TRANSISTOR 8550C			
Q69	994000002519	TRANSISTOR 8550C			
Q60	994000002545	TRANSISTOR 9014C			
Q62	994000002545	TRANSISTOR 9014C			
Q63	994000002545	TRANSISTOR 9014C			
Q65	994000002545	TRANSISTOR 9014C			
Q66	994000002545	TRANSISTOR 9014C			
Q67	994000002545	TRANSISTOR 9014C			
Q70	994000002545	TRANSISTOR 9014C			
Q71	994000002545	TRANSISTOR 9014C			
Q72	994000002545	TRANSISTOR 9014C			
Q501	994000002545	TRANSISTOR 9014C			
Q502	994000002545	TRANSISTOR 9014C			
IC66	994000003157	2576-ADJ PB			
	994000003158	LC72130 & LA1823			
IC61	994000003161	CD6282			
IC65	994000002547	AT24C02-PC27			
IC62	994000002525	PT2314			
IC63	994000002548	LM7805/LM340T5 7805			
IC64	994000002526	IC7812	IC67	996500040878	CPU U252 (only for -/96)
IC67	996500040880	CPU U252 (only for -/98)	IC67	996500040872	CPU U252 (only for -/55)
X61	994000002551	CRYSTAL OSC FREQ.32.768KHZ	IC67	996500040874	CPU U252 (only for -/79)
X1	994000003163	CRYSTAL 4.5MHZ	IC67	996500040876	CPU U252 (only for -/93)
JACK62	994000003164	HEADPHONE JACK			
J60	994000003165	SPEAKER TERMINAL			
JACK60	994000002554	S-Video + SINGLE RCA SOCKET			
JACK61	994000003166	6P RCA SOCKET			
F60	⚠ 994000002529	FUSE F2AL250V			
F61	⚠ 994000002529	FUSE F2AL250V			

ELECTRIC PARTS LIST








- DISPLAY BOARD -

SW211	994000003167	LIGHT TOUCH SWITCH
SW201	994000003168	LIGHT TOUCH SWITCH
SW202	994000003168	LIGHT TOUCH SWITCH
SW203	994000003168	LIGHT TOUCH SWITCH
SW204	994000003168	LIGHT TOUCH SWITCH
SW205	994000003168	LIGHT TOUCH SWITCH
SW206	994000003168	LIGHT TOUCH SWITCH
SW207	994000003168	LIGHT TOUCH SWITCH
SW208	994000003168	LIGHT TOUCH SWITCH
SW209	994000003168	LIGHT TOUCH SWITCH
SW210	994000003168	LIGHT TOUCH SWITCH
SW212	994000003168	LIGHT TOUCH SWITCH
SW213	994000003168	LIGHT TOUCH SWITCH
SW214	994000003168	LIGHT TOUCH SWITCH
IC201	994000002539	PT6311 / SC16311 / CD16311
VFD201	994000003171	VFD DISPLAY
S201	994000002542	IR SENSOR
CORD201	994000003173	ROT ENCODER

- CASSETTE BOARD -

T301	994000003174	BAIS I.F.T.COIL T1245
DZ301	994000002516	ZENER DIODE 5V1
Q301	994000003175	TRANSISTOR BC337-25
IC301	994000003176	AN7312
SW301	994000003177	SWITCH 6P2T

- MISCELLANEOUS -

	994000003178	POWER TRANSFORMER /98/96
	994000003186	POWER TRANSFORMER /93
	994000003278	POWER TRANSFORMER /79
	994000003179	DOOR LATCH SWITCH
	994000003181	AC LINE CORD /98
	994000003187	AC LINE CORD /93
	994000003085	AC LINE CORD /79
	994000003087	AC LINE CORD /96
	994000002508	VIDEO WIRE
	994000003184	24P FLAT FELX CABLE
	994000002566	110/220V AC CHANGE SWITCH /98/96

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

REVISION LIST

Version 1.0 (3141 785 30530)

* Initial Release MCD190/93/96/98/79

Version 1.1 (3141 785 30531)

* Page 5-1 : MPEG software version check - Update
- Change password "9725"
to password "9735"

Version 1.2 (3141 785 30532)

* Page 8-1 : Circuit Diagram -Main Board (Amplifier part) - Update
* Page 8-3 8-4 : Layout Diagram -Main Board - Update