

Service  
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# Service Manual



From week 619 onwards, the DVD Drive was changed from KSM310AAA to DM3151-B. New MPEG Board and Display Borad Assy are used to match with the new DVD Drive.

Please refer chapter 6 to 12 for sets produced before week 618 and chapter 13 to 19 for sets produced in or after week 619.



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# PHILIPS

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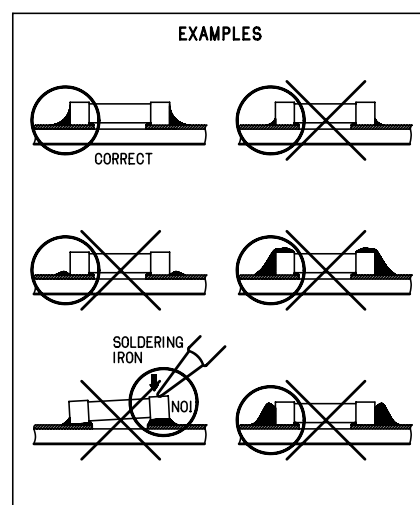
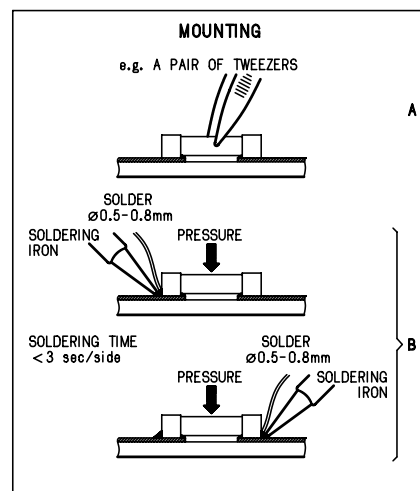
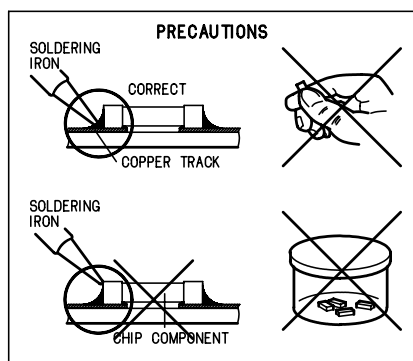
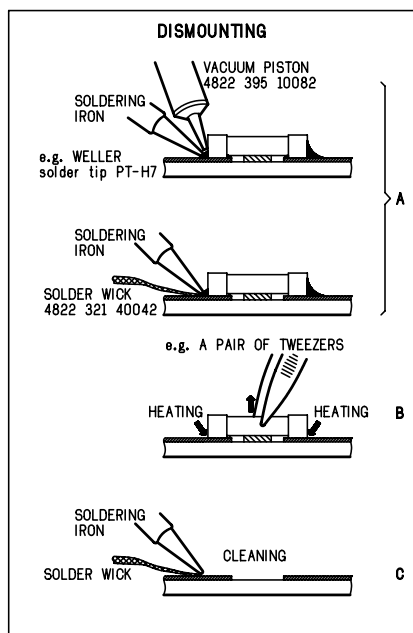
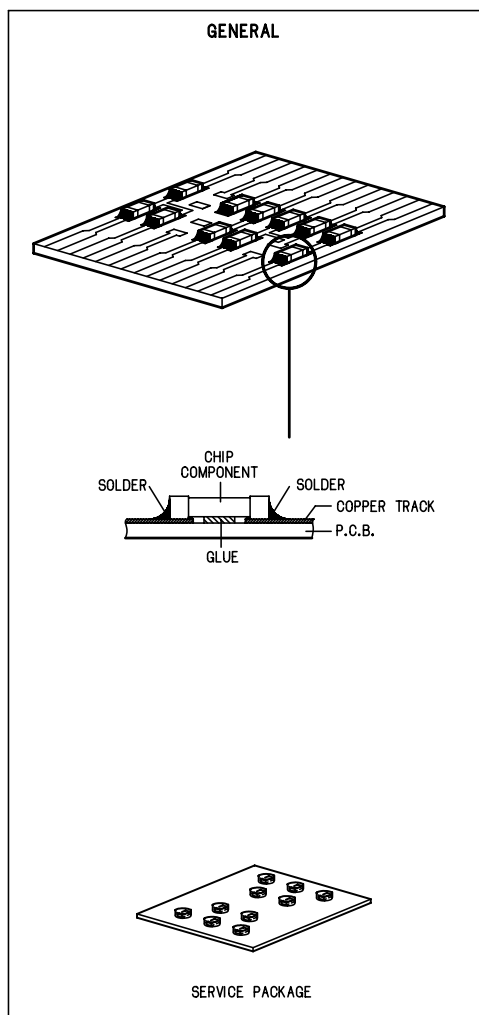
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# HANDLING CHIP COMPONENTS



## SERVICE TOOLS

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

## AVAILABLE ESD PROTECTION EQUIPMENT

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

## INFORMATION ABOUT LEAD-FREE SOLDERING

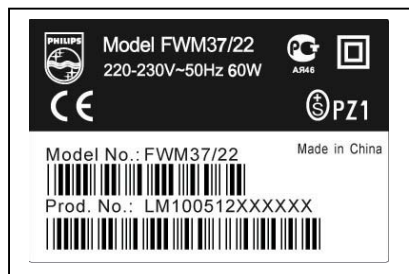
Philips CE is producing lead-free sets from 1.1.2005 onwards.

### IDENTIFICATION:

Regardless of special logo (not always indicated) one must treat all sets from 1 Jan 2005 onwards, according next rules:



### Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 2005 wk12

So from 0501 onwards = from 1 Jan 2005 onwards

**Important note:** In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - To reach at least a solder-temperature of 400°C,
  - To stabilize the adjusted temperature at the solder-tip
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).  
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- **Special information for BGA-ICs:**
  - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
  - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website. Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website [www.atyourservice.ce.Philips.com](http://www.atyourservice.ce.Philips.com) you find more information to:
  - BGA-de-/soldering (+ baking instructions)
  - Heating-profiles of BGAs and other ICs used in Philips-sets

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

For additional questions please contact your local repair-helpdesk.

## SERVICE INSTRUCTION

Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power Plug and the secondary side (only for sets which have a AC Power isolated power supply):
  1. Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
  2. Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be larger than 4.5 Mohm (For U.S. it should be between 4.2 Mohm and 12 Mohm).
  4. Switch "off" the set, and remove the wire between the two pins of the AC Power plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.



## SPECIFICATION

### GENERAL

Mains voltage	-/21/21M	: 120 / 230 V
Mains frequency	-/21/21M	: 50 / 60 Hz
Battery	remote	: 3V (R06 x 2)
Power consumption	Max.	: < 70 W (max.)
	Standby	: < 15 W
Dimension (W x H x D)		: 436 x 86 x 337 mm
Weight		: 5.5 Kg

No voltage selection is available in sets, which are produced after week 619.

### AMPLIFIER

Output power		: 2 x 30 W RMS
		: 1200 W PMPO
Speaker impedance		: 2 x 6 ohm
Frequency response		: 63 Hz - 16 kHz ( $\pm 3$ dB)
Aux input sensitivity		: 500mV (600 ohm)
Line Out		: 1 – 2 V RMS (10 Kohm)

### TUNER - FM SECTION

Tuning range		: 87.5 – 108.5 MHz
IF frequency		: 10.7 MHz $\pm$ 0.2 MHz
Sensitivity		: 22 dBf at 46dB S/N
Selectivity		: 20 dB at 300kHz
IF rejection		: 50 dB
Image rejection		: 20 dB

### TUNER - AM SECTION

Tuning range	AM(MW)	: 515 - 1646 kHz
IF frequency		: 455 kHz $\pm$ 3 kHz
Sensitivity	MW	: 3250 $\mu$ V/m at 26dB S/N
Selectivity	MW	: 20 dB
IF rejection	MW	: 24 dB
Image rejection	MW	: 28 dB

### AUDIO CASSETTE RECORDER

Number of tracks		: 1 stereo
Tape speed		: 4.76 cm/sec $\pm$ 3%
Wow & flutter		: < 0.4% DIN
Fast wind/rewind	C60	: < 170 sec.
Frequency response	P/B	: 80 – 12.5 Hz
S/N ratio		: < 42 dB (R/P)
Erasing ratio		: > 50 dB
Bias frequency		: 73 $\pm$ 10 kHz

### DVD / MP3 / CD

Laser Type		: Semiconductor
Disc Diameter		: 12cm / 8cm
Video Decoding		: MPEG-2 / MPEG-1
Signal System		: PAL / NTSC
Video S/N		: 56 dB (min.)
Composite Video Output		: 1.0 Vp-p, 75 $\Omega$
S-Video Output		: Y - 1.0 Vp-p, 75 $\Omega$
		: C - 0.286 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
No. of programmable tracks		: 20
Signal-to-noise ratio		: $\geq$ 50 dBA
Channel separation		: $\geq$ 40 dB (1 kHz)
Total harmonic distortion		: < 0.02% (1 kHz)

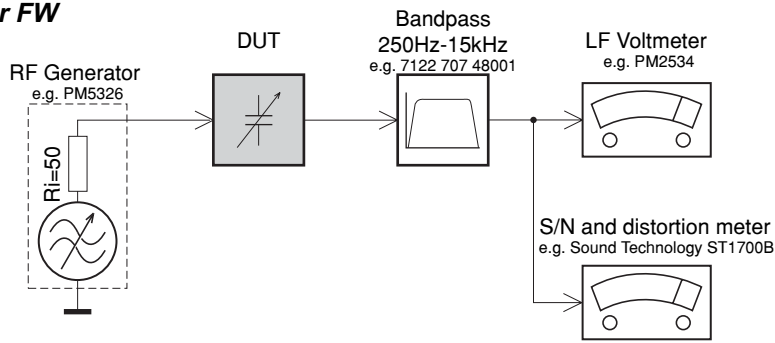
### LOUDSPEAKERS

2-way bass reflex system		
Dimension (W x H x D)		: 185 x 310 x 235 mm
Weight		: 2.5 Kg

Note: Specification of FWD16 loudspeakers may be different

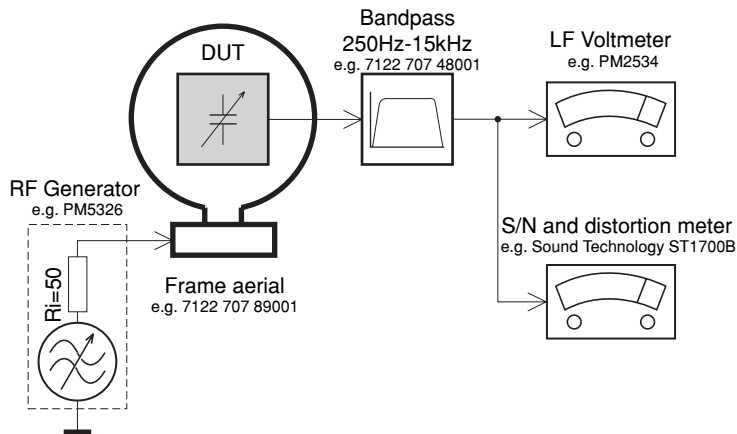
## SERVICE MEASUREMENT

### Tuner FW



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

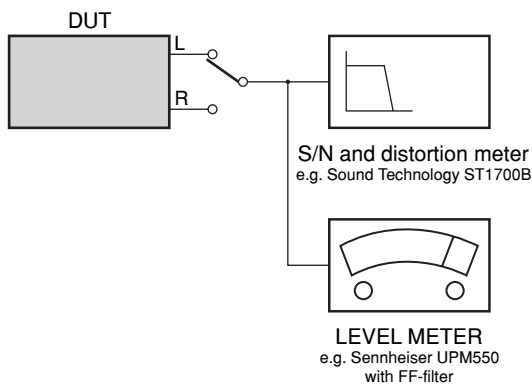
### Tuner AM (MW,LW)



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

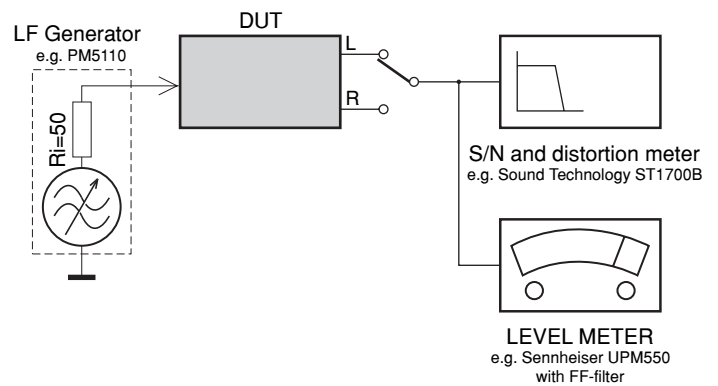
### CD

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

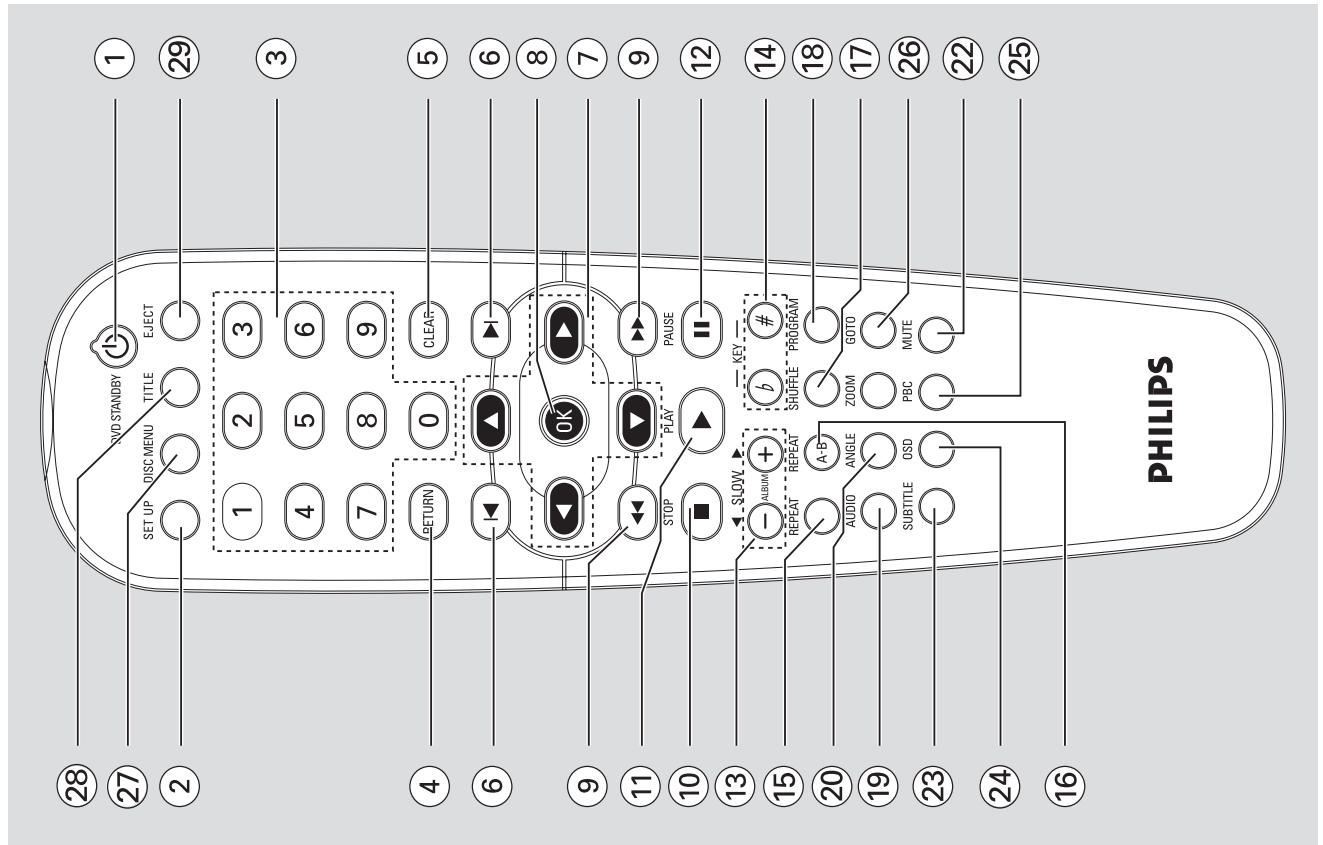
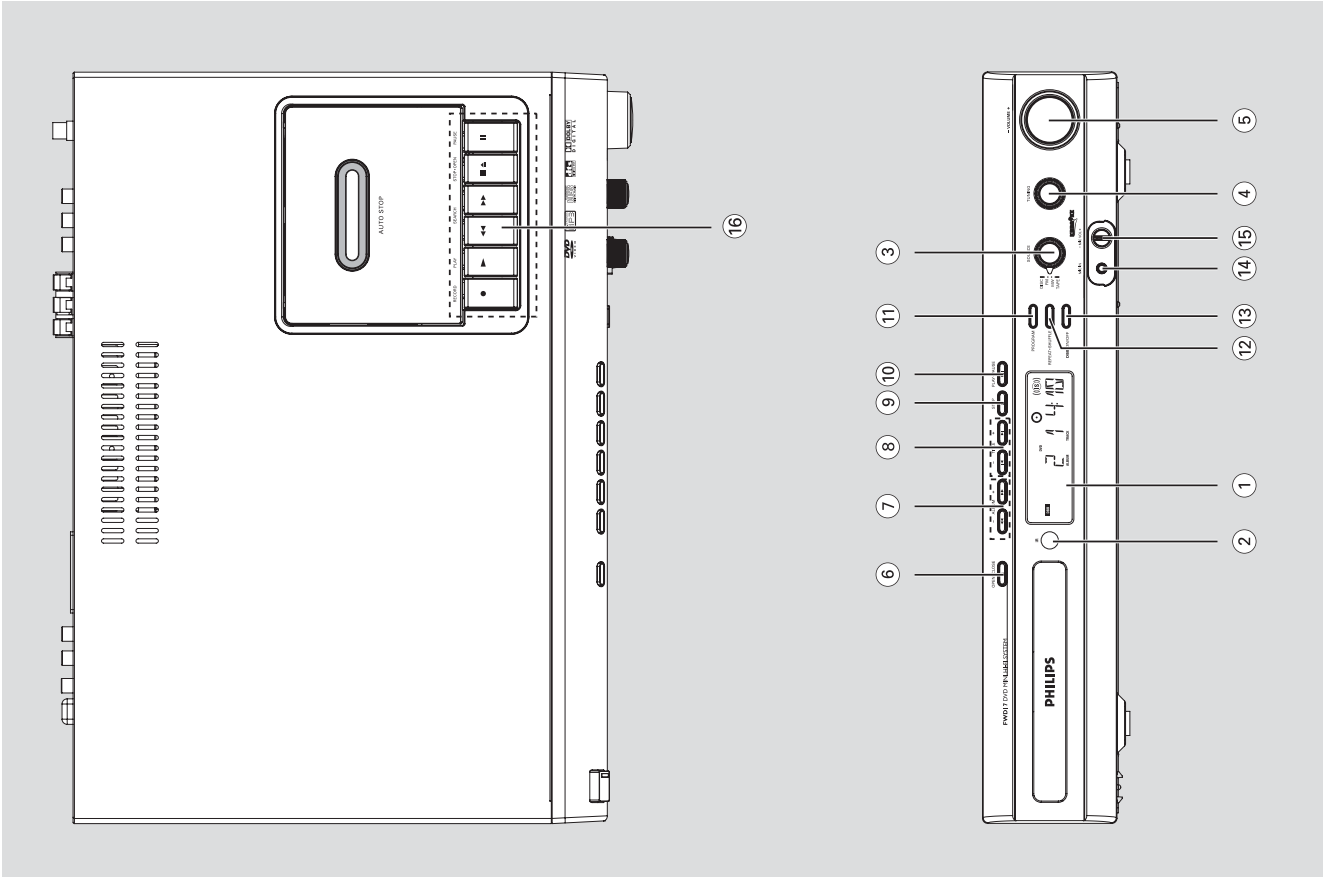


### RECORDER

Use Universal Test Cassette Fe SBC420 4822 397 30071



CONNECTION AND CONTROLS



## Controls

### Controls on the system

- ① **Display screen**
  - to view the current status of the system.
- ② **iR sensor**
  - infrared sensor for remote control.
- ③ **SOURCE**
  - to select the respective sound source : DISC (\*AUX), FM, MW or TAPE.
- ④ **TUNING**
  - In FM or MW mode, to tune to a lower or higher radio frequency
- ⑤ **VOLUME +/-**
  - to increase or decrease the volume.
- ⑥ **OPEN•CLOSE ▲**
  - to open or close the disc tray.
- ⑦ **ALBUM +/- ◀▶**
  - for MP3/Picture-CD
    - skips to the beginning of a current/previous/subsequent album.
    - to fast reverse/forward the disc.
    - for MP3-CD ....(press and hold) to fast reverse/forward the disc.
- ⑧ **TITLE +/- ◀▶**
  - In DISC mode, to select the previous or next chapter or track.
- ⑨ **STOP ■**
  - In DISC mode, to stop playback or to clear a program.
- ⑩ **PLAY•PAUSE ▶▶**
  - to start or interrupt playback.
- ⑪ **PROGRAM**
  - to program disc tracks (for VCD/CD/MP3-CD only).
- ⑫ **REPEAT•SHUFFLE**
  - to select different repeat or shuffle playback modes: Repeat Track, Repeat All, Shuffle On, Repeat All and Shuffle Off.
- ⑬ **DBB ON/OFF**
  - Enhances the bass

### ⑭ MIC IN

- Plug in the microphone jack here.

### ⑮ MICVOL +/-

- Adjusts the microphone volume level.

### ⑯ Tape Deck Operation

- RECORD ●** .. starts recording.
- PLAY ▶** ..... starts playback.
- SEARCH ◀▶▶▶** ..fast rewinds/winds the tape.
- STOP•OPEN ■▲**
  - stops the tape; opens the tape compartment.

### Controls on the remote control

- ① **DVD STANDBY**
  - to switch the system on or to standby mode (for the DISC mode only).
- ② **SET UP**
  - to enter or exit the system menu bar.
- ③ **Numeric Keypad (0-9)**
  - to enter a track/title number of the disc.
- ④ **RETURN**
  - for VCD 2.0 ..... to return to the disc menu if available during playback.
  - for DVD .....to return to the previously selected menu.
- ⑤ **CLEAR**
  - In the DISC mode, to clear wrong numeric input.
- ⑥ **◀▶**
  - In DISC mode, to select the previous or next chapter or track.
- ⑦ **◀▶, ▲, ▼**
  - In DISC mode, to select movement direction in disc contents menu/system menu bar.
- ⑧ **OK**
  - to exit or confirm the selection.
- ⑨ **◀▶▶▶**
  - for DVD/VCD/CD/MP3-CD to fast reverse/forward the disc.

## Controls

### ⑳ SUBTITLE

- to select the preferred language for subtitle.

### ㉑ OSD

- to show the status of the system.

### ㉒ PBC

- to turn on/off PBC of a VCD (2.0).

### ㉓ MUTE

- to interrupt or resume sound reproduction.

### ㉔ DISC MENU

- to enter or exit the disc contents menu.

### ㉕ TITLE

- to enter the title menu of the disc during DVD playback.

### ㉖ EJECT

- to open or close the disc tray.

### ⑩ STOP ■

- In DISC mode, to stop playback or to clear a program.

### ⑪ PLAY ▶

- to start playback in the stop mode.

### ⑫ PAUSE II

- to pause playback temporarily/start frame-by-frame playback.

### ⑬ SLOW ◀▶/ALBUM +/-

- for MP3/Picture-CD
  - to select previous/next album (folder).
- for DVD/VCD . to select a desired slow playback speed forward or backward.

### ⑭ KEY b/#

- to change the DVD/VCD key tone level to suit your vocal range.

### ⑮ REPEAT

- to repeat a track/disc.

### ⑯ 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.

### ⑰ SHUFFLE

- to play tracks in a random order

### ⑱ PROGRAM

- to program disc tracks (for VCD/CD/MP3-CD only).

### ⑲ AUDIO

- For DVD ..... to select the preferred language.
- In karaoke mode.....to select the preferred audio mode: Mono Left, Mono Right or Stereo.

### ㉑ ANGLE

- to view the same scene from different angles if the DVD is recorded with multi-angles (for DVD only).

### ㉒ ZOOM

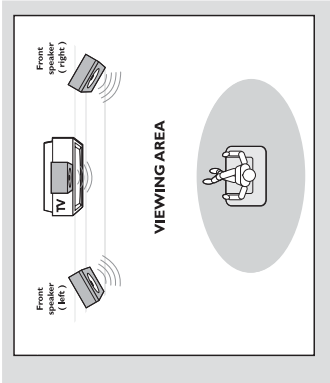
- to zoom in or zoom out picture.

### ㉓ GOTO

- to start playback at any chosen time on the disc (for VCD operation with PBC off and not for MP3-CD).

\* To enter the AUX mode, turn the SOURCE control knob to the DISC position without inserting any disc into the disc compartment.

Placing speakers

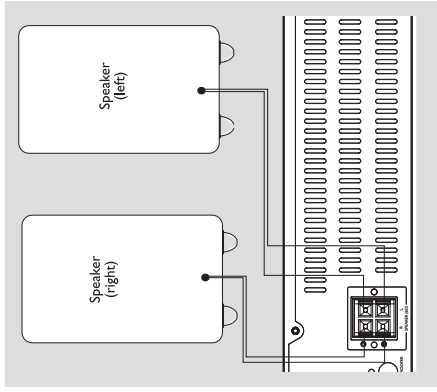


Place the front left and right speakers at equal distances from the TV set and at an angle of approximately 45 degrees from the listening position.

Notes:

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

Connecting speakers



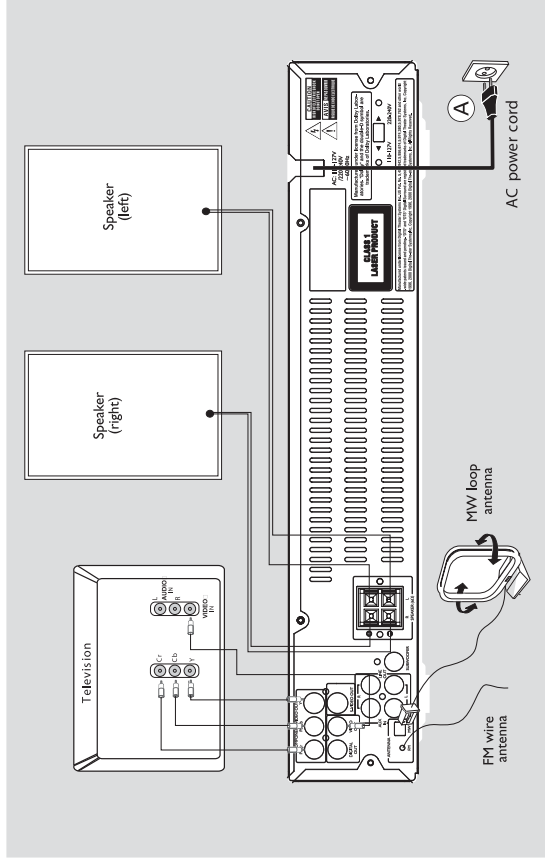
Connect the speaker wires to the SPEAKERS terminals, right speaker to "R+" and left speaker to "L+", coloured (marked) wire to "+" and black (unmarked) wire to "-". Fully insert the stripped portion of the speaker wire into the terminal as shown.

Speakers	+	-
Front Left (L)	Black	Black
Front Right (R)	Red	Red

Notes:

- 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.

CONNECTION AND CONTROLS



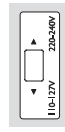
Rear connections

The type plate is located at the rear of the system.

(A) Power

Before connecting the AC power cord to the wall outlet, ensure that the following are done:

- If your system is equipped with a Voltage Selector, set the VOLTAGE SELECTOR to the local power line voltage.
- All other connections have been made.



WARNING!

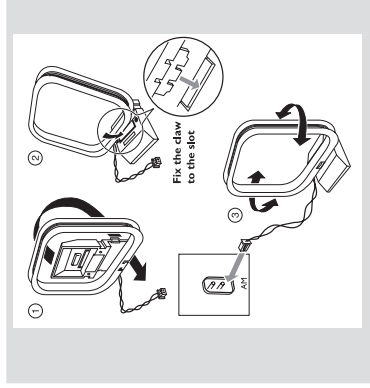
- For optimal performance, use only the original power cable.
- Never make or change any connections with the power switched on.

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).

(B) Antenna Connection

MW Antenna

Connect the supplied MW loop antenna to the "AM 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

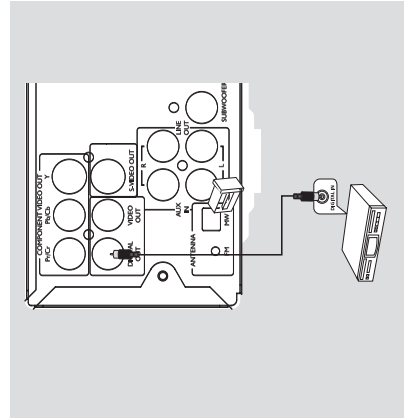
It is unnecessary to connect the FM pigtail antenna since it is fixed to the main unit.

Adjust the FM antenna for optimal FM stereo reception.

# CONNECTION AND CONTROLS

## Connections

### Connecting Digital out



**IMPORTANT!**

- If the picture is distorted, check the Video Output setting. Make sure it is set to 'S-Video'. (See Setting video preference).

**Using S-Video In jack**

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

**IMPORTANT!**

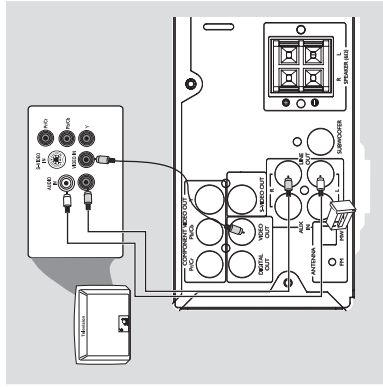
To select **ALL** or **PCM 48 KHz** for Digital Out, please see **Setting Digital Out**.

Digital out selection enables you to specify the type of digital output suitable for our amplifier or receiver.

Select **ALL** if you have connected the digital output to a multifunctional decoder receiver. Select **PCM 48K** if the external component is incapable of processing 96KHz digital signal input, and then convert the standard signal with the sampling rate of 48KHz.

## Connections

### Connecting TV set

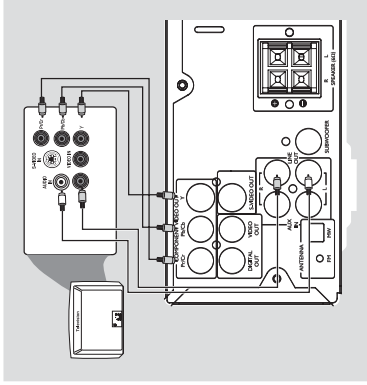


**IMPORTANT!**

- You only need to make one video connection from the following options, according to the capabilities of your TV system.
- **Component Video connection provides higher picture quality. These options must be available on your TV set.**
- **Connect the system directly to the TV set.**

**Using Video In jack (CVBS)**

Use the composite video cable (yellow) to connect the system's **VIDEO OUT** jack to the video input jack (or labeled as A/V In, Video In, Composite or Baseband) on the TV set.



**IMPORTANT!**

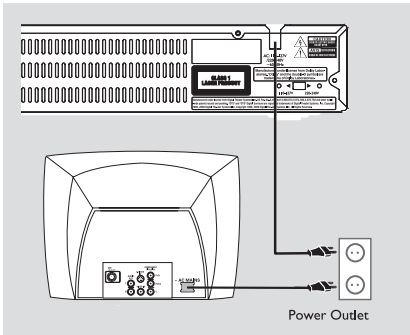
- To set the **VIDEO OUT** (put) to 'Cr Cb Y', (see Setting video preference).

**Using component Video In jack (Cr Cb Y)**

Use the component video cables (red/blue/green) to connect the system's **P/Cr Pb/Cb Y** jacks to the corresponding Component video input jacks on the TV set.

## CONNECTION AND CONTROLS

### 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.

For more information on operation instruction please visit Philips Audio internet site :

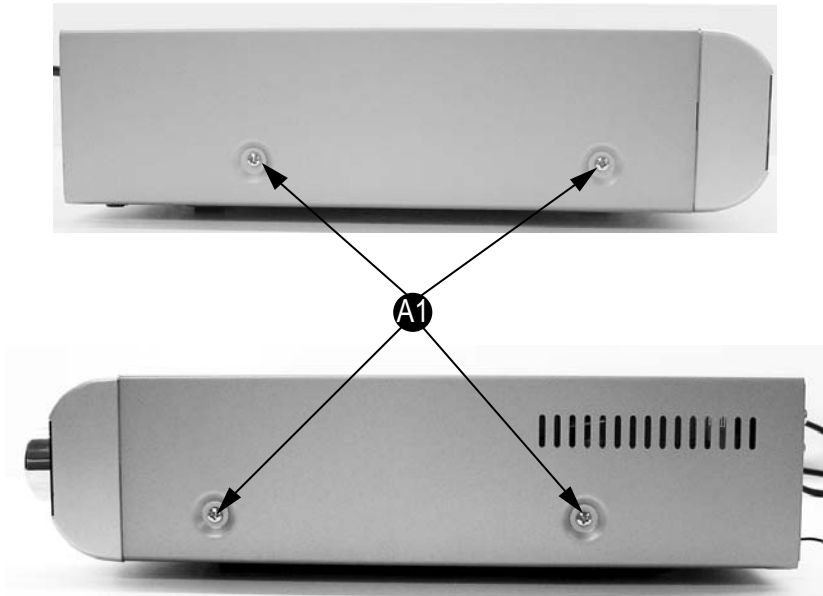
<http://www.p4c.philips.com>



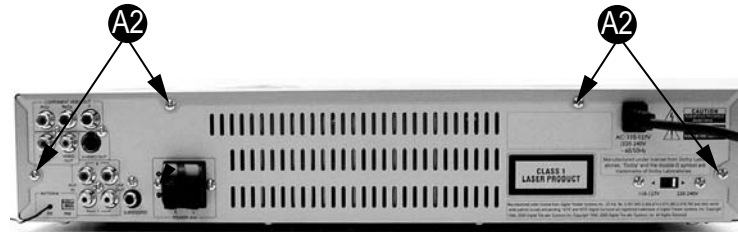
### DISASSEMBLY INSTRUCTION

#### A. Remove Top Cover

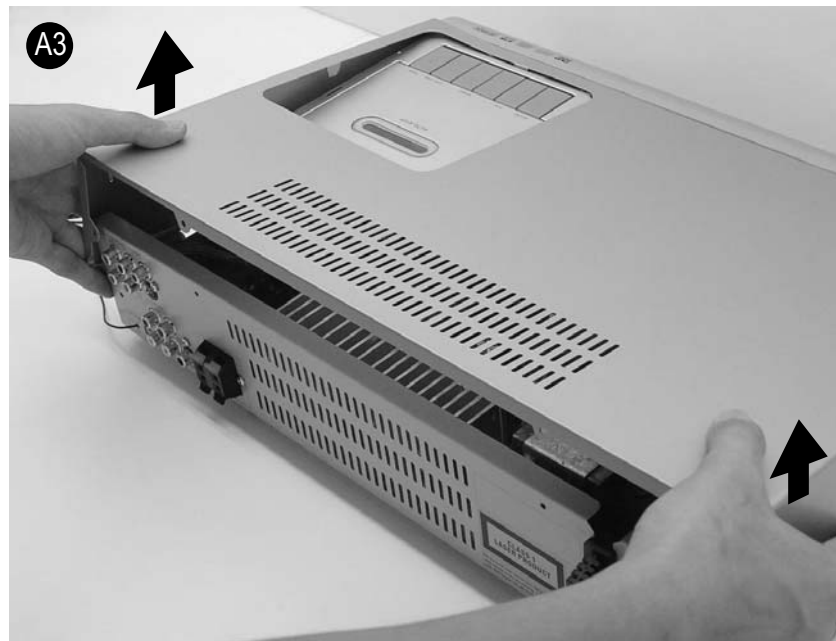
A1 remove screws M3x6 - 4 pcs.



A2 remove screws M3x6 - 4 pcs.

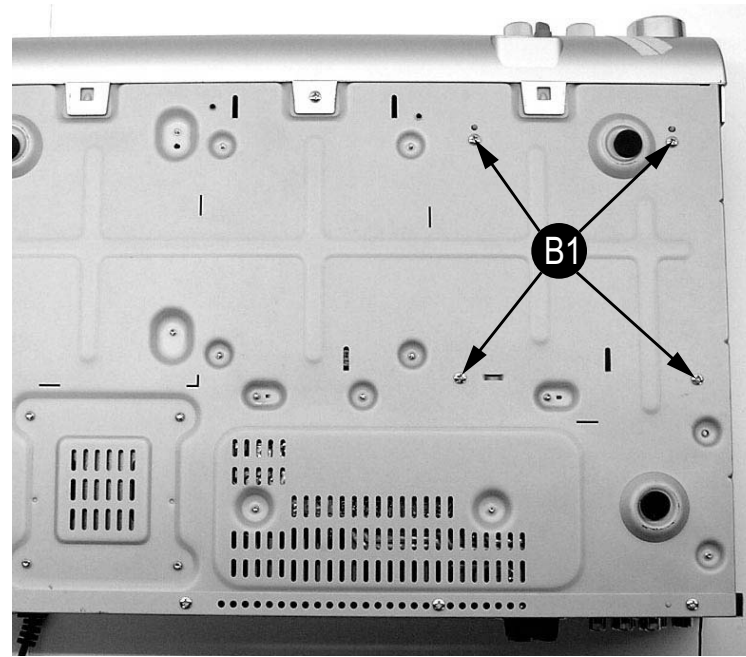


A3 lift up the top cover.



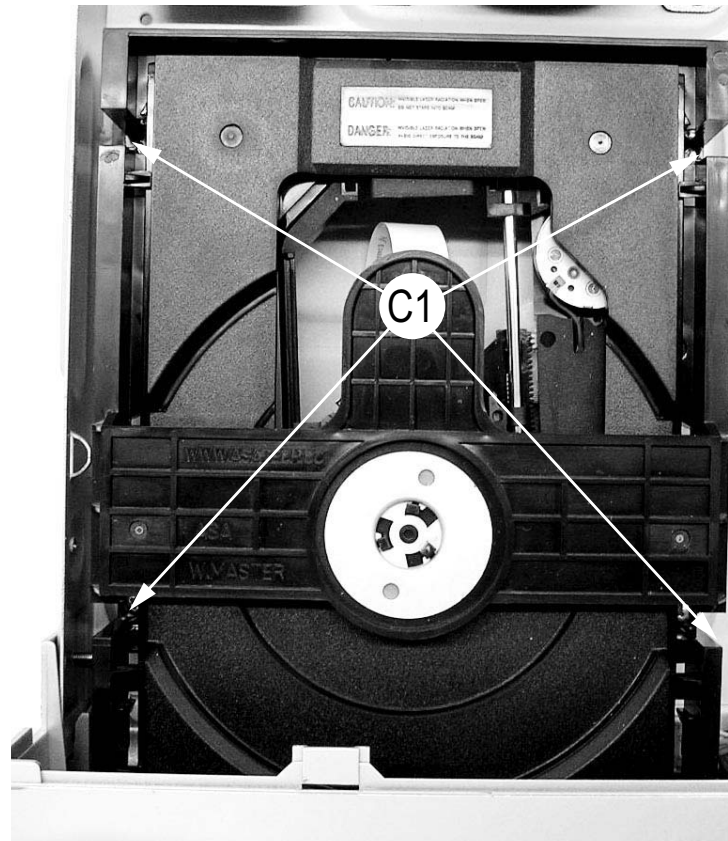
#### B. Remove Cassette mechanism

B1 remove screws T3x10 - 4 pcs.



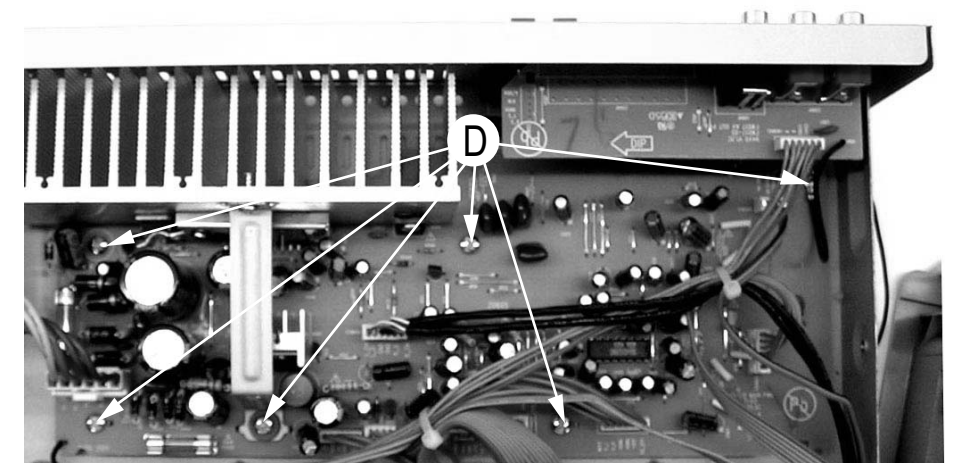
#### C. Remove DVD Loader

C1 remove screws M3x8 - 4 pcs.



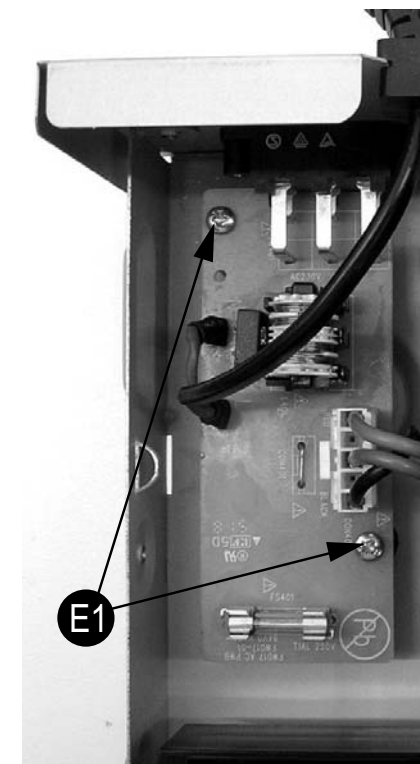
#### D. Remove Cassette mechanism

D1 remove screws M3x6 - 6 pcs.



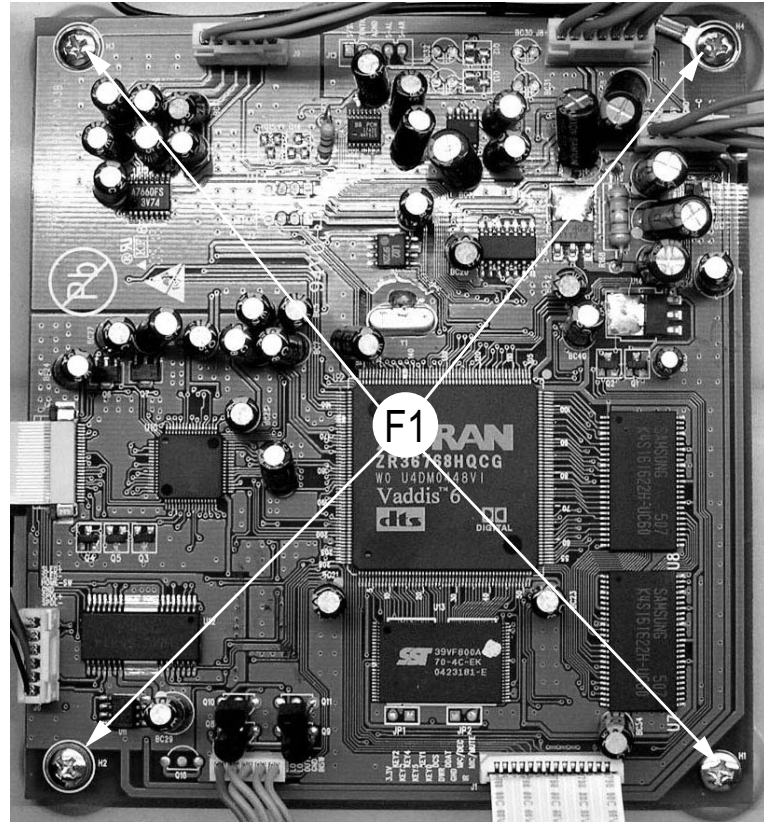
#### D. Remove Cassette mechanism

D1 remove screws M3x6 - 6 pcs.

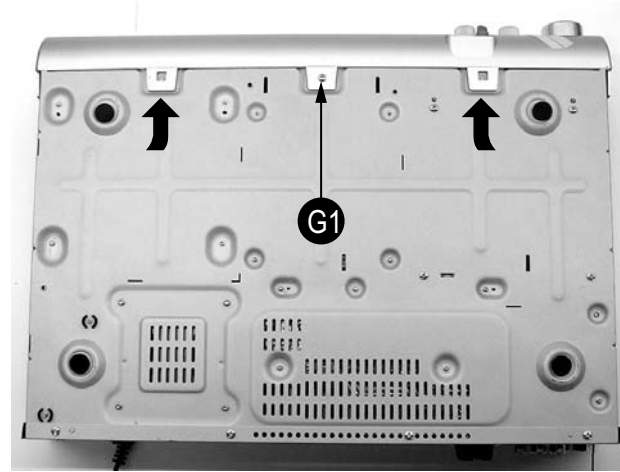


### DISASSEMBLY INSTRUCTION

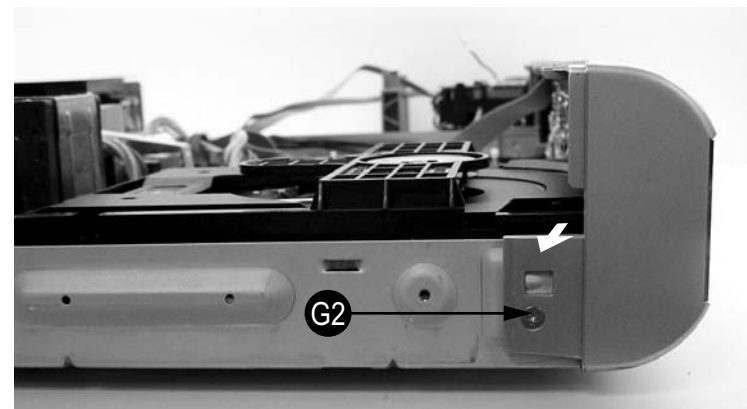
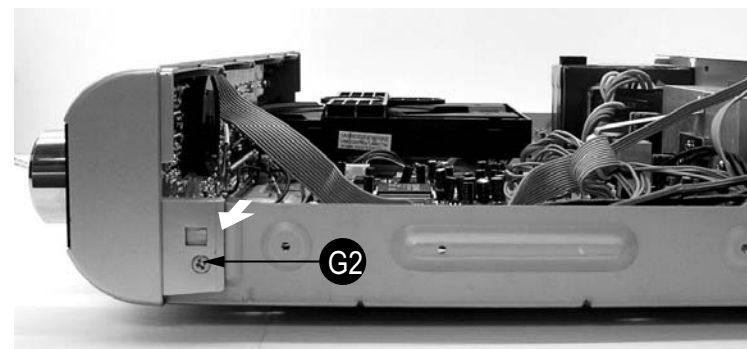
F. Remove DVD / MPEG board  
F1 remove screws M3x6 - 4 pcs.



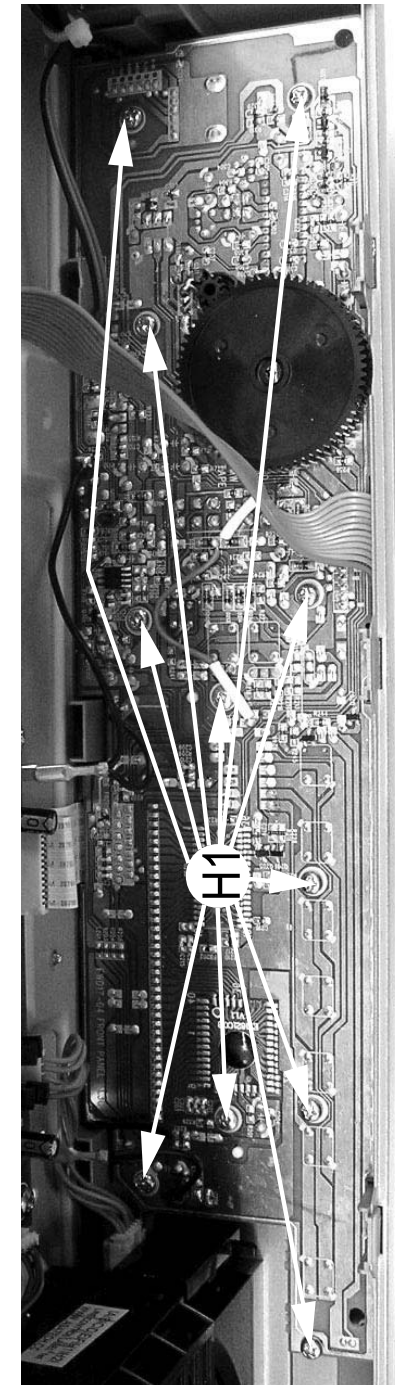
G. Remove Front Panel Assembly  
G1 remove screws M3x6 - 1 pc.



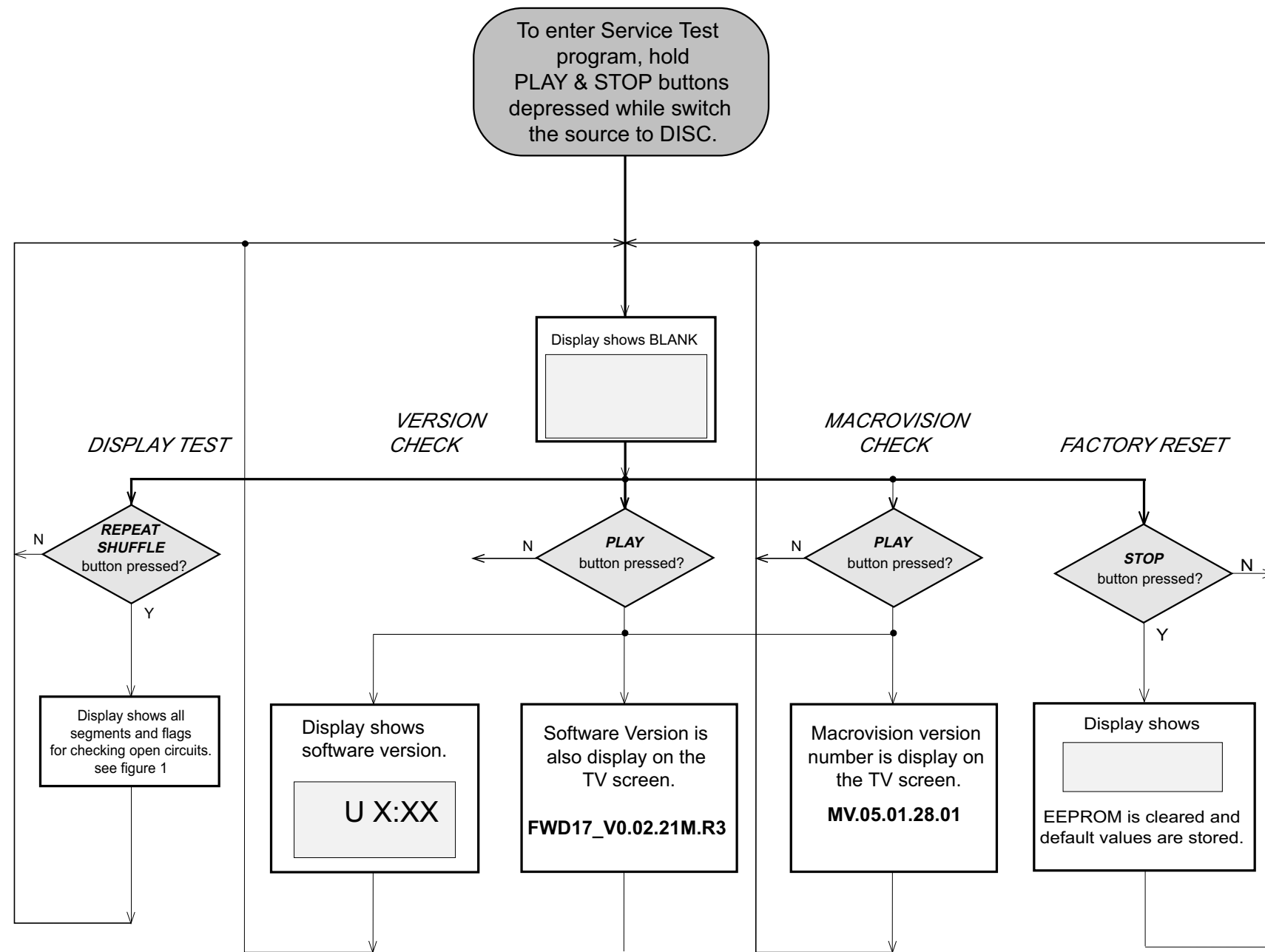
G2 remove screws M3x8 (C-head) - 2 pc.



H. Remove Front Panel Assembly  
H1 remove screws M3x8 (+ fibre washers) - 9 pc.



**SERVICE TEST PROGRAM**



X:XX is the software version, eg. U 0:02

**FWD17\_V0.02.21M.R3 :**  
 The model number is FWD17.  
 Software version is V0.02.  
 Destination region is 21M.  
 Region code for DVD disc is Region 3.

This test should be done at the end of the production process so that every set is customised before leaving factory.

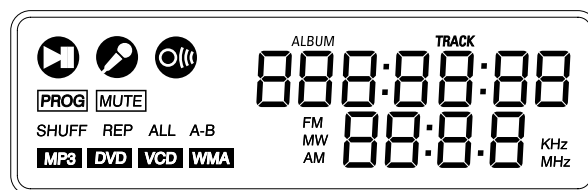
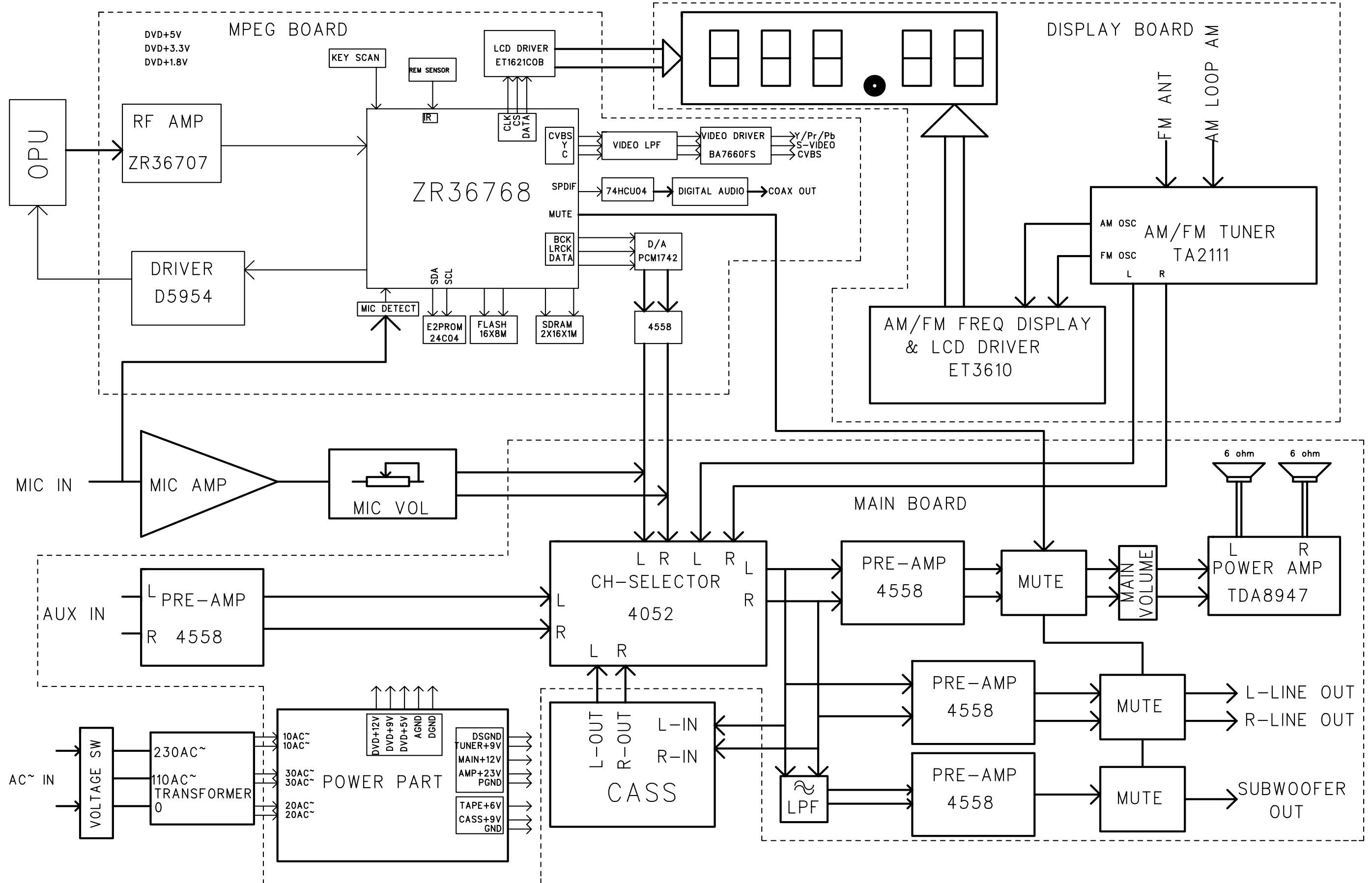
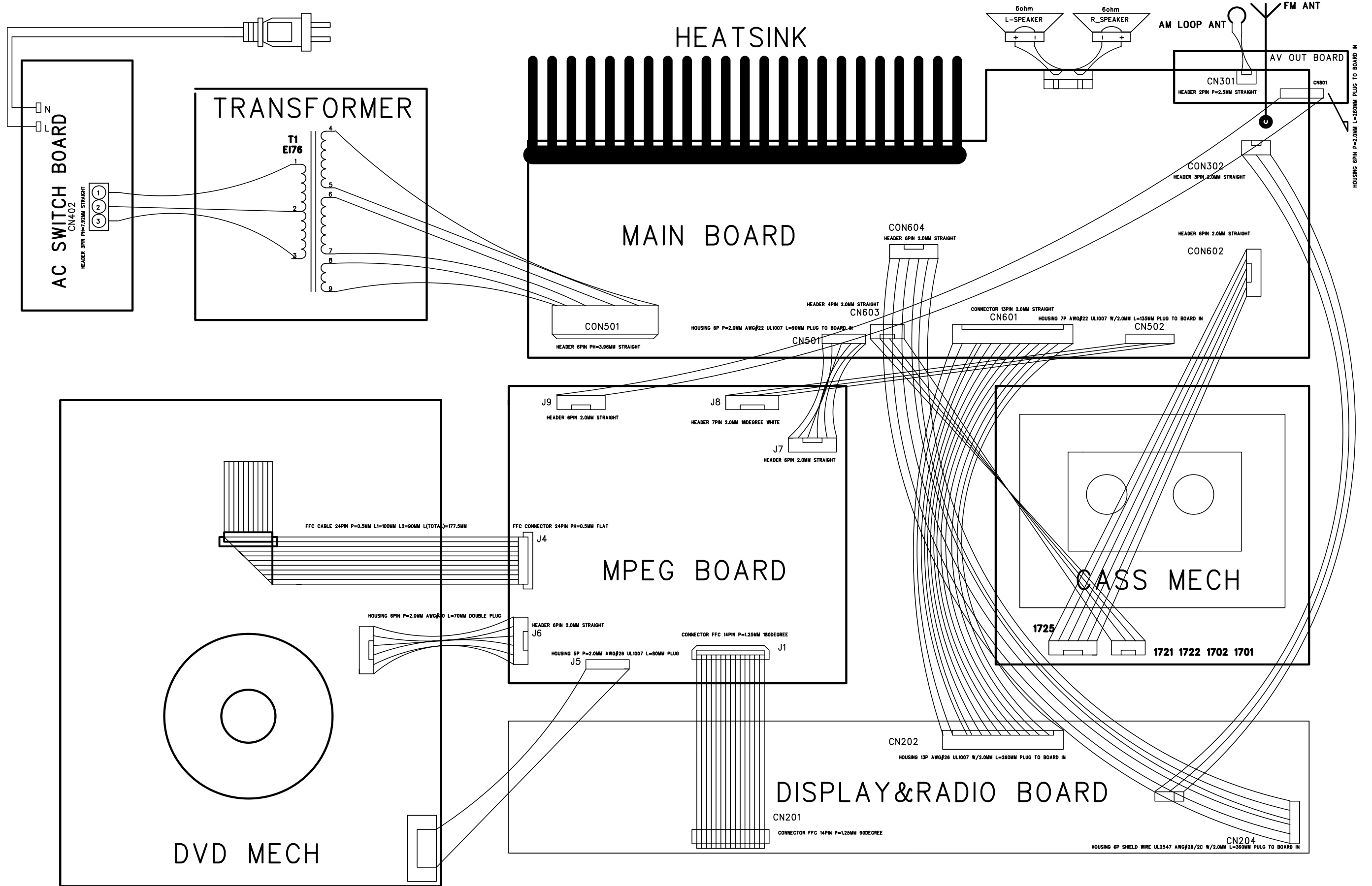


fig. 1

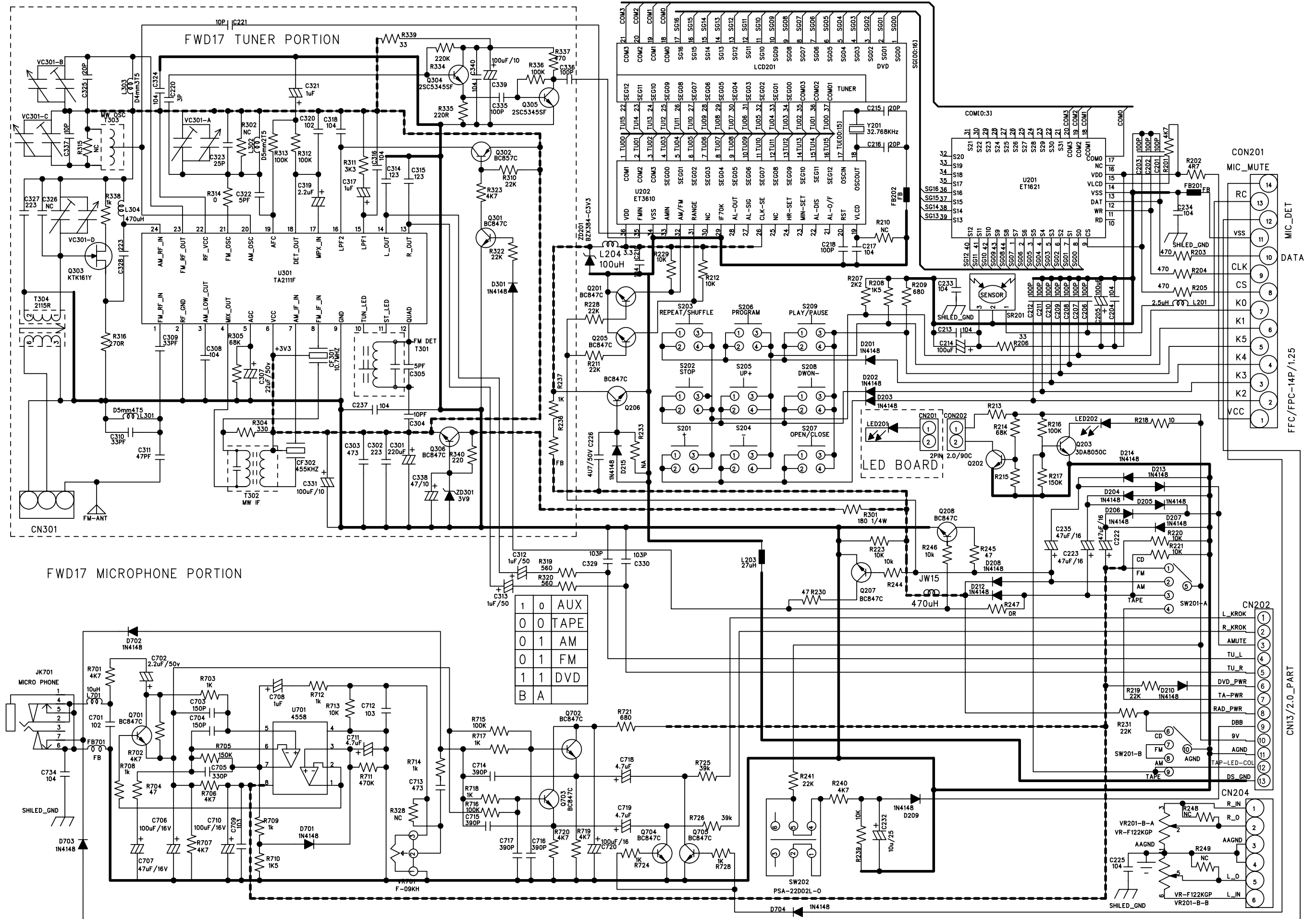
# SET BLOCK DIAGRAM



# SET WIRING DIAGRAM



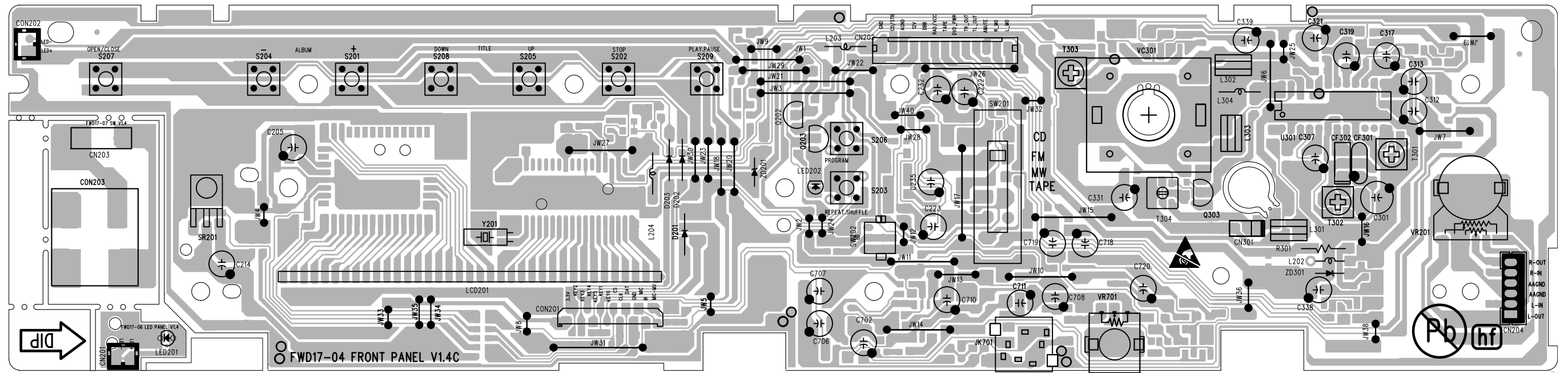
# CIRCUIT DIAGRAM - DISPLAY / TUNER BOARD



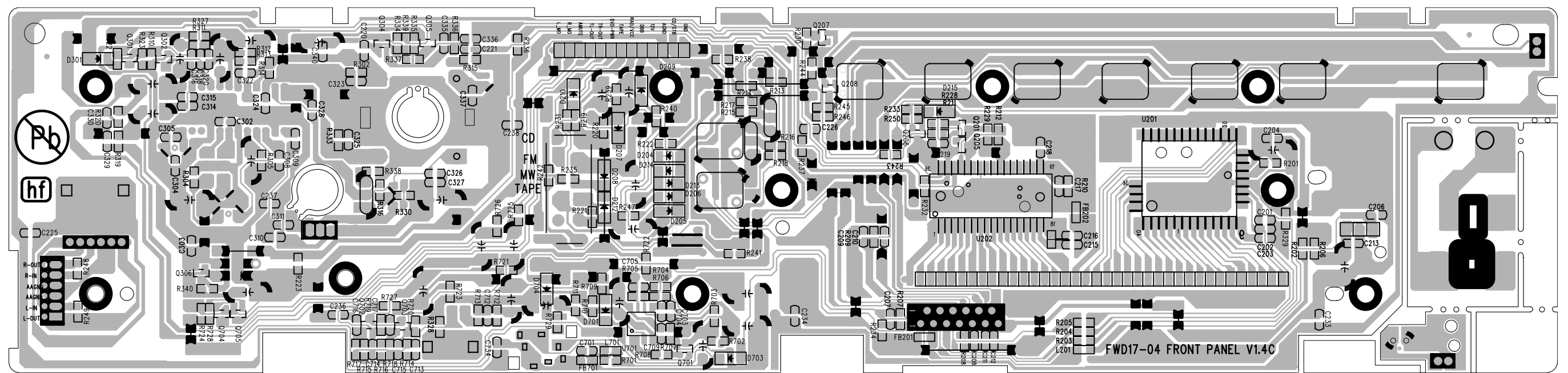


LAYOUT DIAGRAM - DISPLAY / TUNER BOARD

COMPONENT SIDE

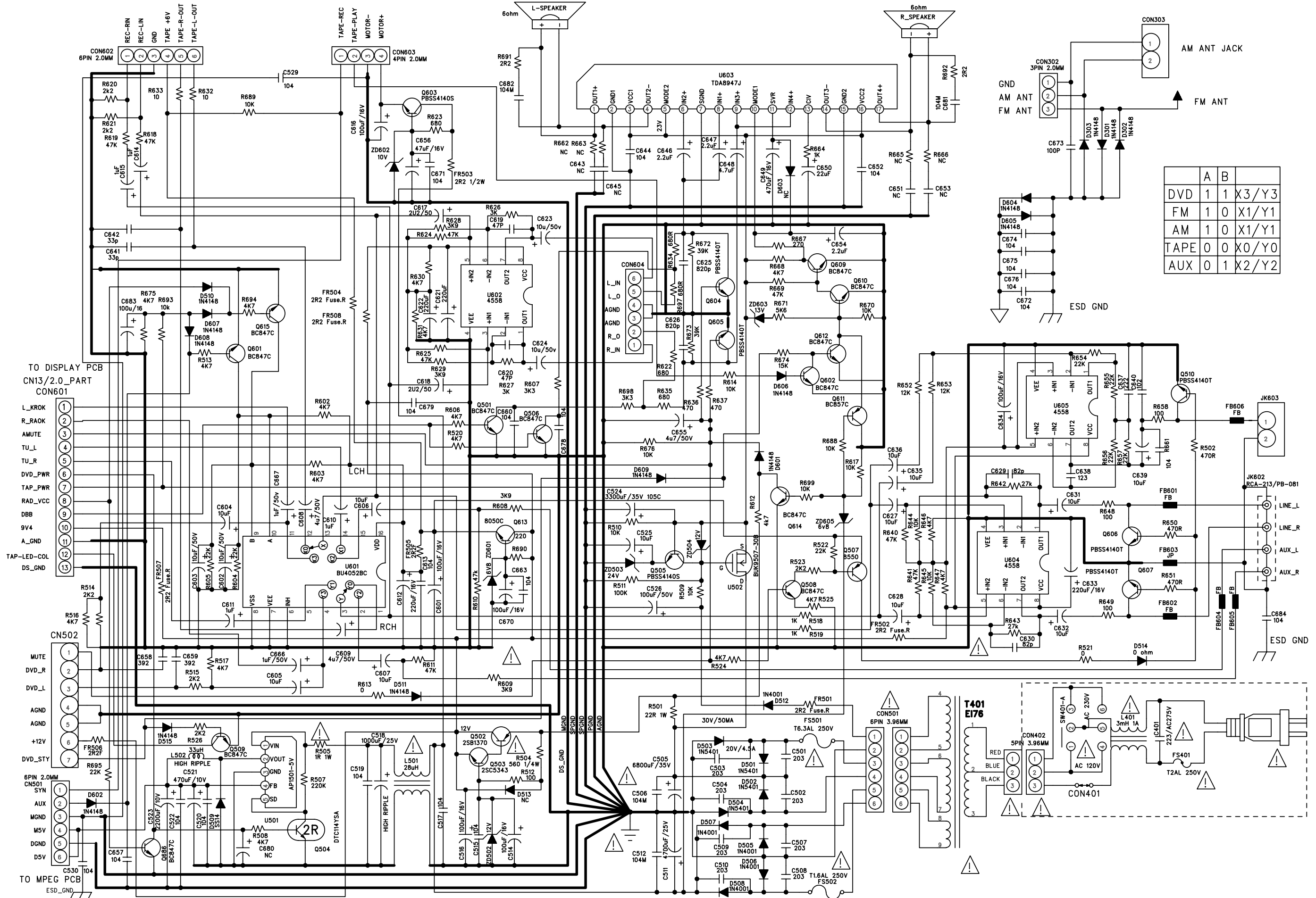


COPPER SIDE



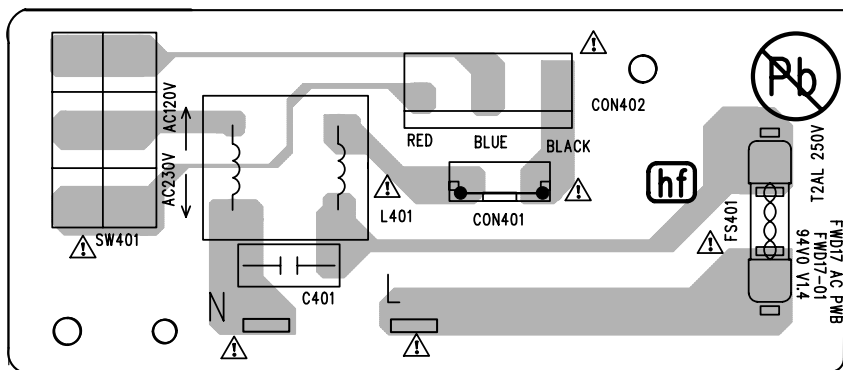
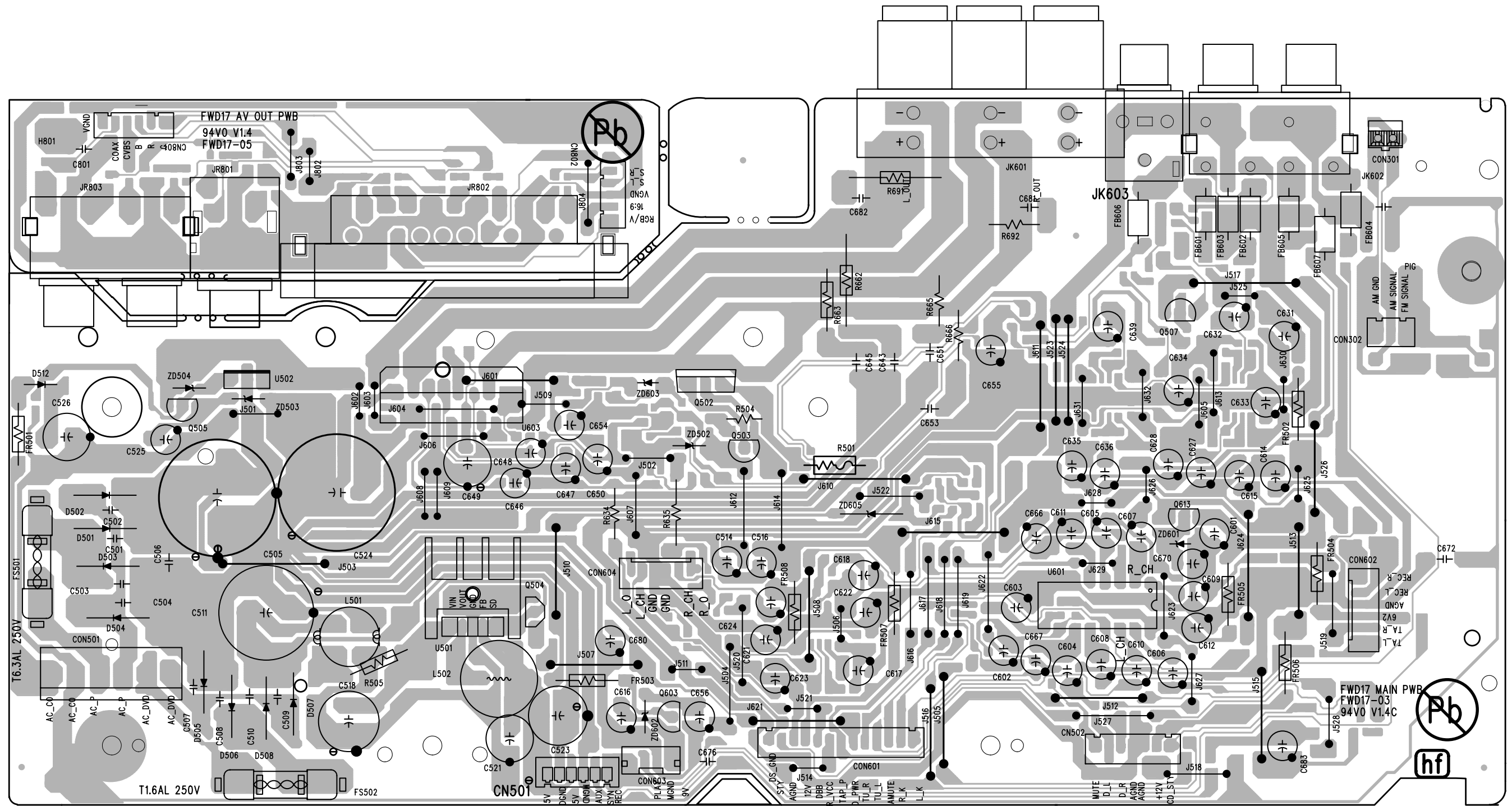


# CIRCUIT DIAGRAM - MAIN AND POWER BOARD

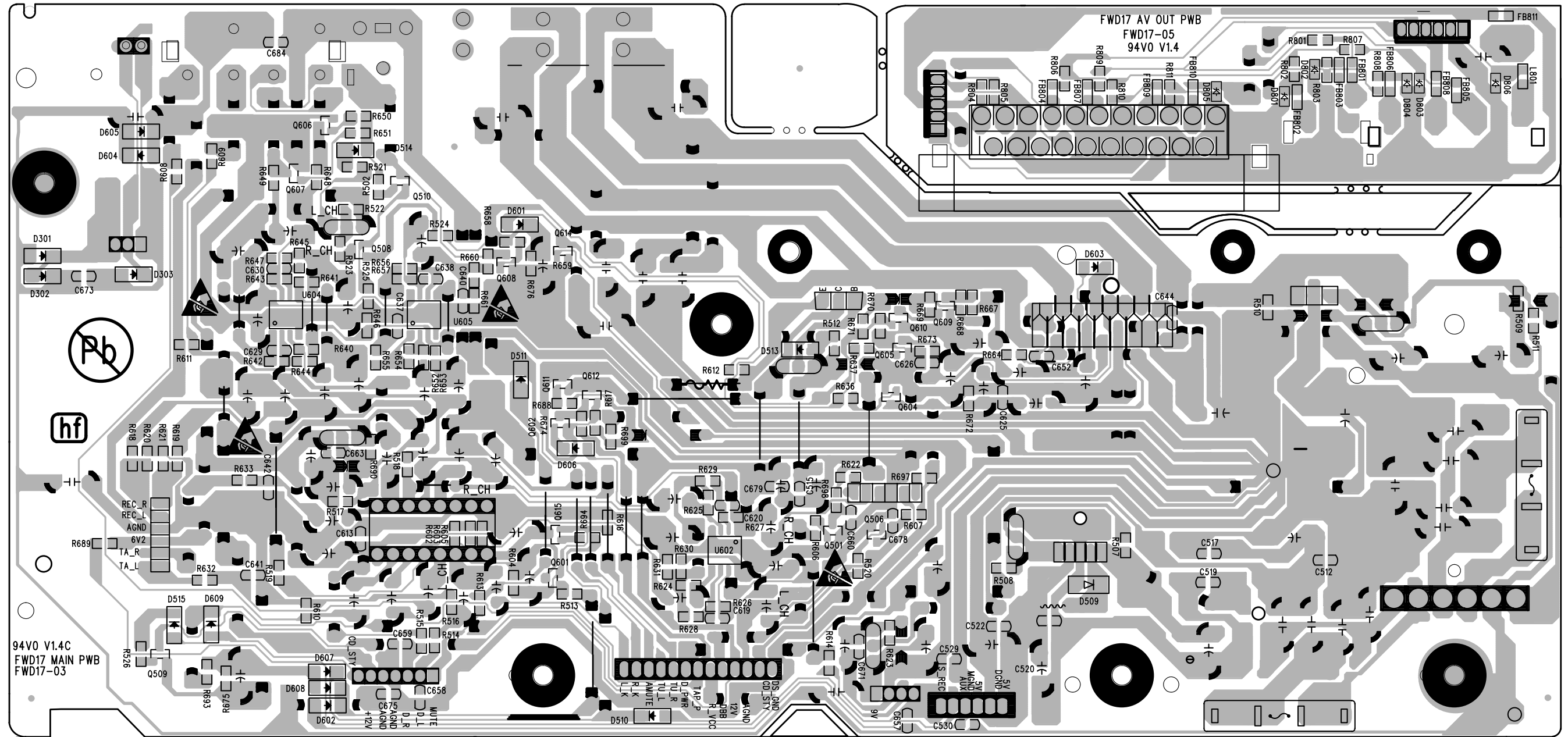


	A	B	
DVD	1	1	X3/Y3
FM	1	0	X1/Y1
AM	1	0	X1/Y1
TAPE	0	0	X0/Y0
AUX	0	1	X2/Y2

LAYOUT DIAGRAM - MAIN AND POWER BOARD (SIDE A)

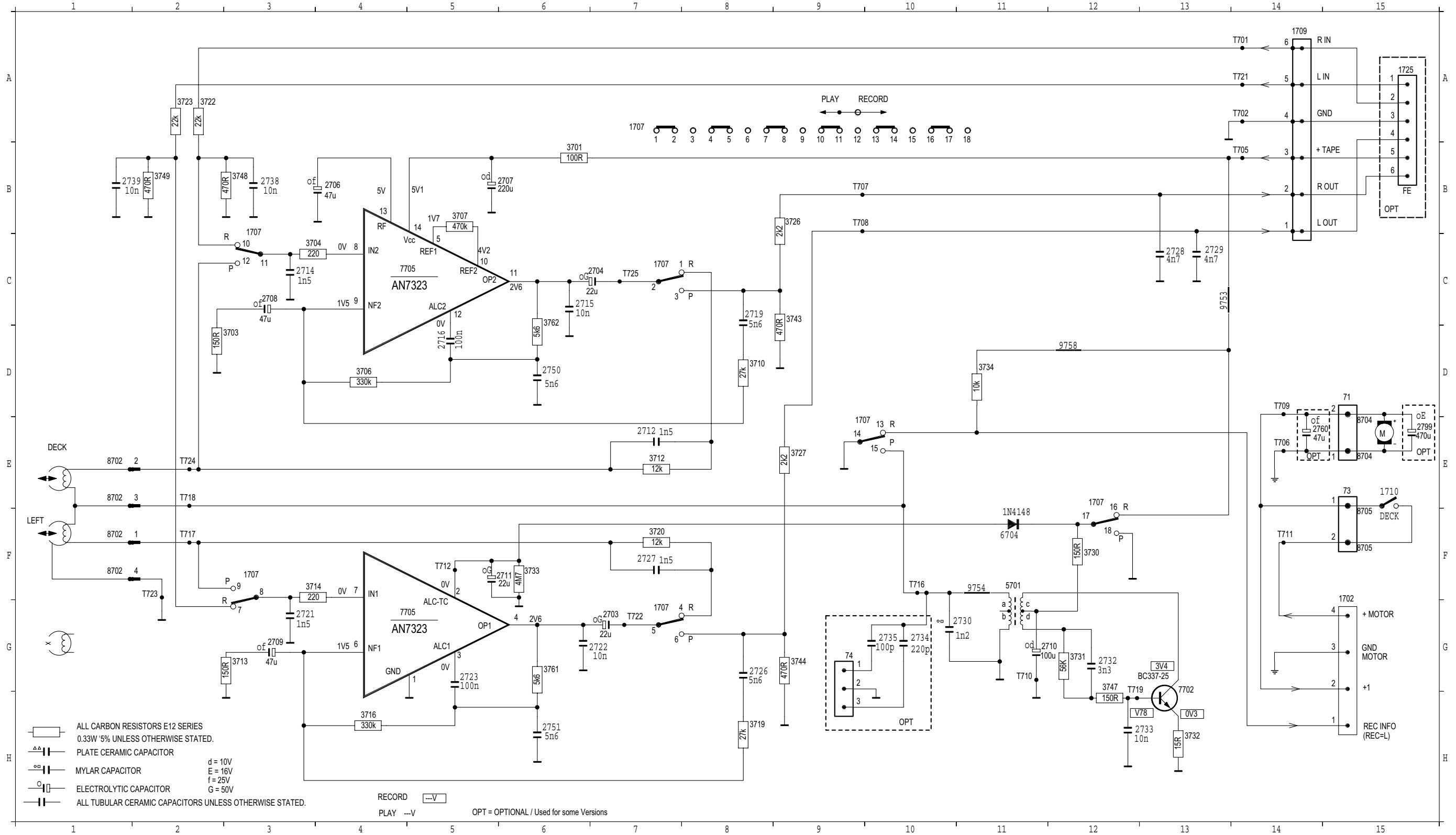


LAYOUT DIAGRAM - MAIN BOARD (SIDE B)

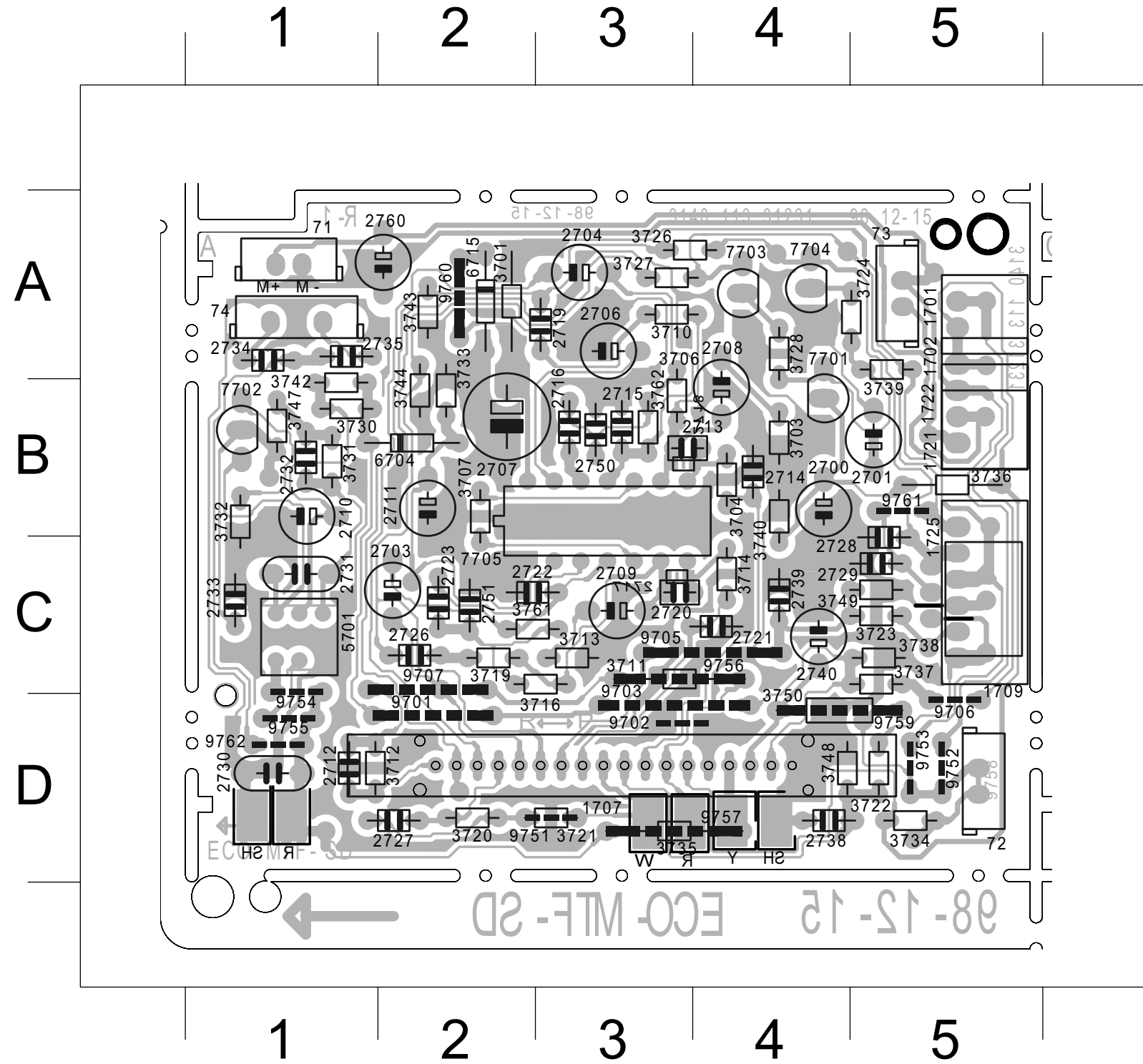


# CIRCUIT DIAGRAM - CASSETTE BOARD

71	D15	1707	C 3	1709	A14	2706	B 4	2711	F 6	2719	C 8	2727	F 7	2733	H13	2750	D 6	3703	D 3	3712	E 7	3720	F 7	3730	F12	3743	C 9	3761	G 6	7705	G 4	8702	E 1	9753	C13	T705	B14	T710	G11	T718	E 2	T724	E 2
73	B15	1707	G 7	1710	B15	2707	B 6	2712	E 7	2721	G 3	2728	C13	2734	G10	2751	H 6	3704	C 3	3713	G 3	3722	A 2	3731	G12	3744	G 9	3762	D 6	7705	C 4	8704	E15	9754	F11	T706	E14	T711	F14	T719	H13	T725	C 7
74	G 9	1707	C 7	1725	A15	2708	C 3	2714	C 3	2722	G 7	2729	C13	2735	G10	2760	E14	3706	D 4	3714	F 3	3723	A 2	3732	H13	3747	G12	5701	F11	8702	F 1	8704	E15	9758	D12	T707	B10	T712	F 5	T721	A14		
1702	G15	1707	E 9	2703	G 7	2709	G 3	2715	C 6	2723	G 5	2730	G11	2738	B 3	2799	E15	3707	B 5	3716	H 4	3726	B 9	3733	F 6	3748	B 3	6704	F11	8702	F 1	8705	F15	T701	A14	T708	B10	T716	F10	T722	G 7		
1707	F 3	1707	E12	2704	C 7	2710	G12	2716	D 5	2726	G 8	2732	G12	2739	B 1	3701	B 6	3710	D 8	3719	H 8	3727	E 9	3734	D11	3749	B 2	7702	H13	8702	E 1	8705	F15	T702	A14	T709	D14	T717	F 2	T723	F 2		



LAYOUT DIAGRAM - CASSETTE BOARD



71 A 1	2729 C 5	3733 B 2	9756 C 3
72 D 5	2730 D 1	3734 D 5	9757 D 3
73 A 5	2731 C 1	3735 D 3	9759 D 4
74 A 1	2732 B 1	3736 B 5	9760 A 2
1701 A 5	2733 C 1	3737 C 5	9761 B 5
1702 B 5	2734 A 1	3738 C 5	9762 D 1
1707 D 3	2735 A 1	3739 A 5	T701 C 5
1709 C 5	2738 D 4	3740 B 4	T702 C 5
1721 B 5	2739 C 4	3742 B 1	T705 B 5
1722 B 5	2740 C 4	3743 A 2	T706 B 5
1725 C 5	2750 B 3	3744 B 2	T709 A 5
2700 B 4	2751 C 2	3747 B 1	T710 C 1
2701 B 5	2760 A 2	3748 D 4	T711 B 5
2703 C 2	3701 A 2	3749 C 5	T712 C 2
2704 A 3	3703 B 4	3750 D 4	T713 A 5
2706 A 3	3704 B 4	3761 C 2	T714 D 5
2707 B 2	3706 B 3	3762 B 3	T715 D 5
2708 B 4	3707 B 2	5701 C 1	T716 D 1
2709 C 3	3710 A 3	6704 B 2	T719 B 1
2710 B 1	3711 C 3	6715 A 2	T720 A 5
2711 B 2	3712 D 1	7701 B 4	T721 C 5
2712 D 1	3713 C 3	7702 B 1	T722 C 2
2713 B 3	3714 C 4	7703 A 4	T725 D 2
2714 B 4	3716 C 3	7704 A 4	T7707 A 4
2715 B 3	3719 C 2	7705 B 3	T7708 A 4
2716 B 3	3720 D 2	9701 D 2	
2717 C 3	3721 D 3	9702 D 3	
2718 B 3	3722 D 5	9703 D 3	
2719 A 3	3723 C 5	9705 C 4	
2720 C 3	3724 A 5	9706 D 5	
2721 C 4	3726 A 3	9707 C 2	
2722 C 2	3727 A 3	9751 D 3	
2723 C 2	3728 A 4	9752 D 5	
2726 C 2	3730 B 1	9753 D 5	
2727 D 2	3731 B 1	9754 C 1	
2728 C 5	3732 B 1	9755 D 1	

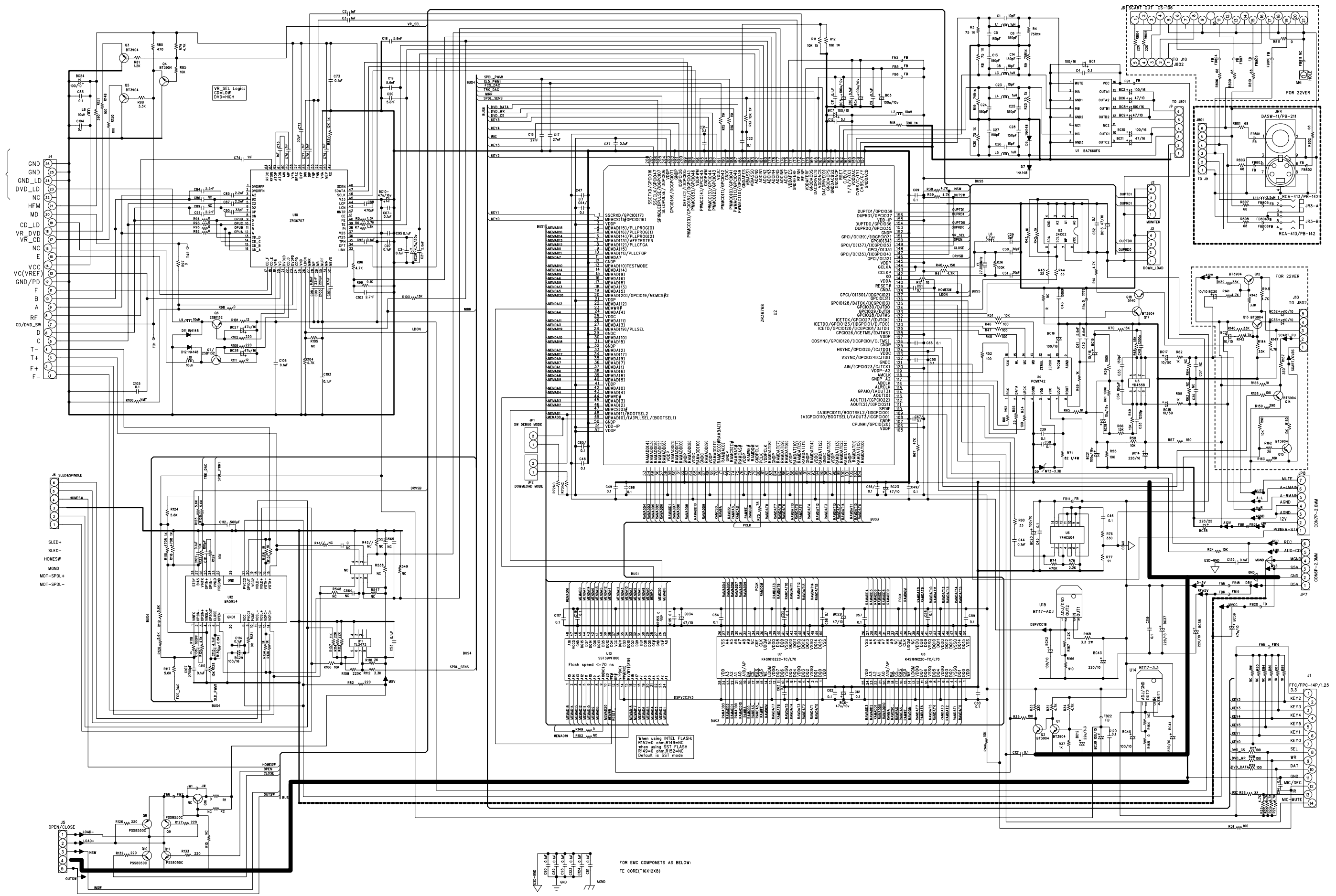
CASSETTE ADJUSTMENT

Adjustment	Cassette	SK ....	Deck 1	Measure on	Read on	Adjust with	Adjust to
Azimuth	10 kHz SBC420*	Tape	Play	H/P Jack	mV meter	Left hand Screw R/P head	max.
Motor Speed	3150 kHz SBC420*	Tape	Play	H/P Jack	Wow and flutter meter	Preset in motor	**a

\* SBC420 : 4822 397 30071

\*\*a The maximum permissible speed deviation is ± 3%.  
Moreover, the wow and flutter value can be read.

# CIRCUIT DIAGRAM - DVD MPEG BOARD



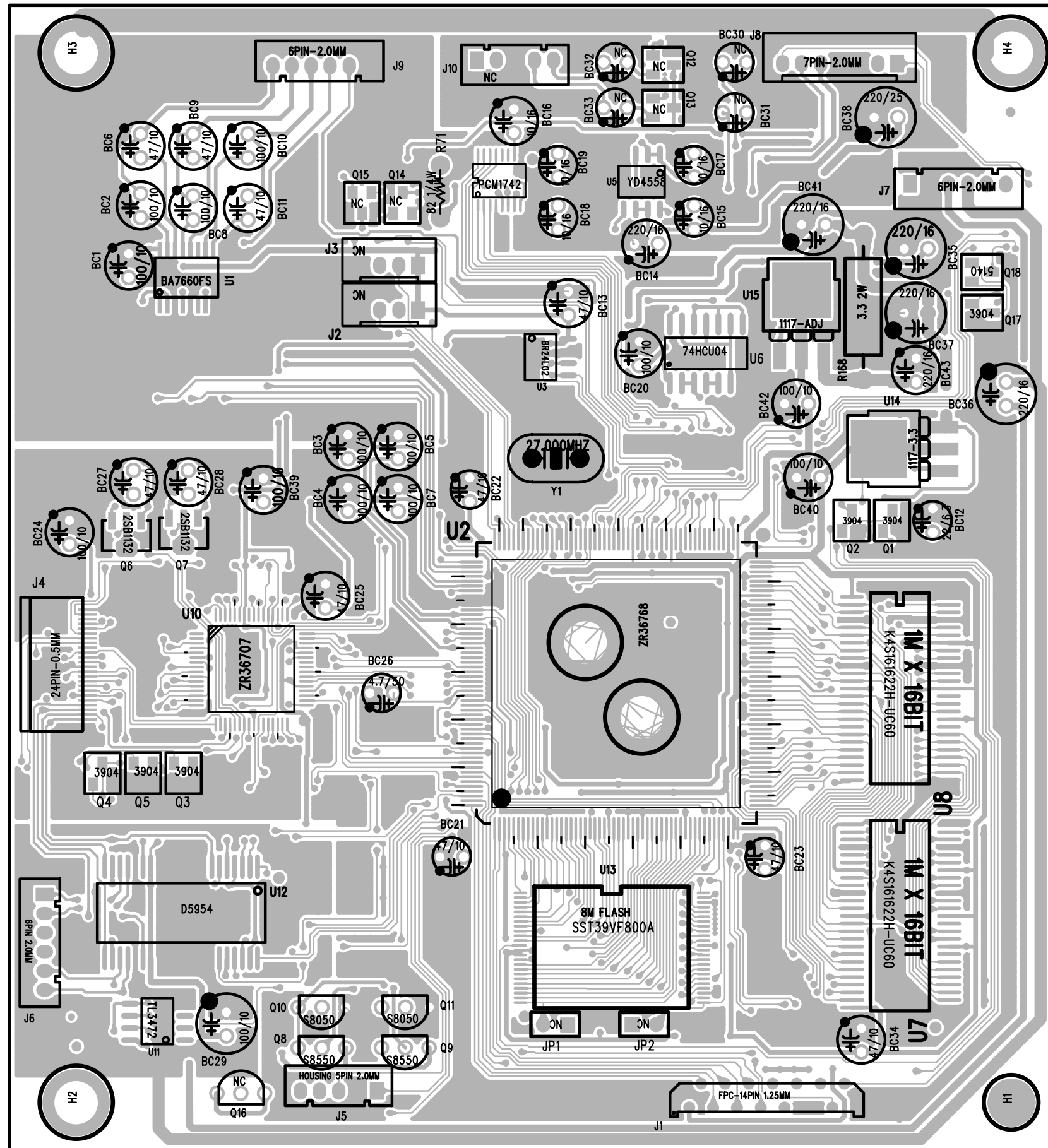
FOR EMC COMPONENTS AS BELOW:  
FE CORE (16X12X8)

When using INTEL FLASH:  
R152=0 ohm, R149=4K  
When using SST FLASH:  
R149=0 ohm, R152=4K  
Default is SST mode

COMP-2.0MM

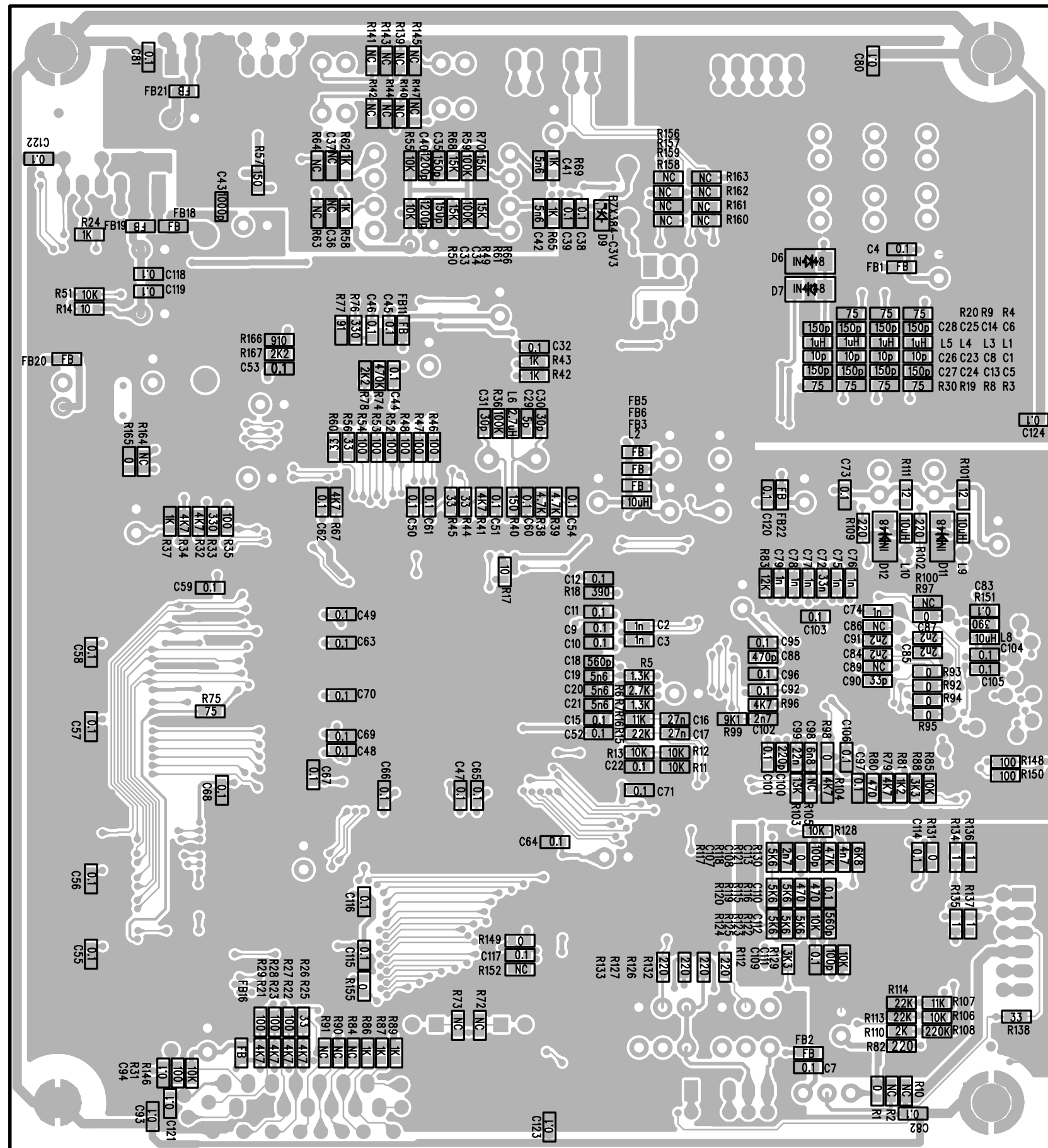
FFC/FPC-14P/1.25

LAYOUT DIAGRAM - DVD MPEG BOARD

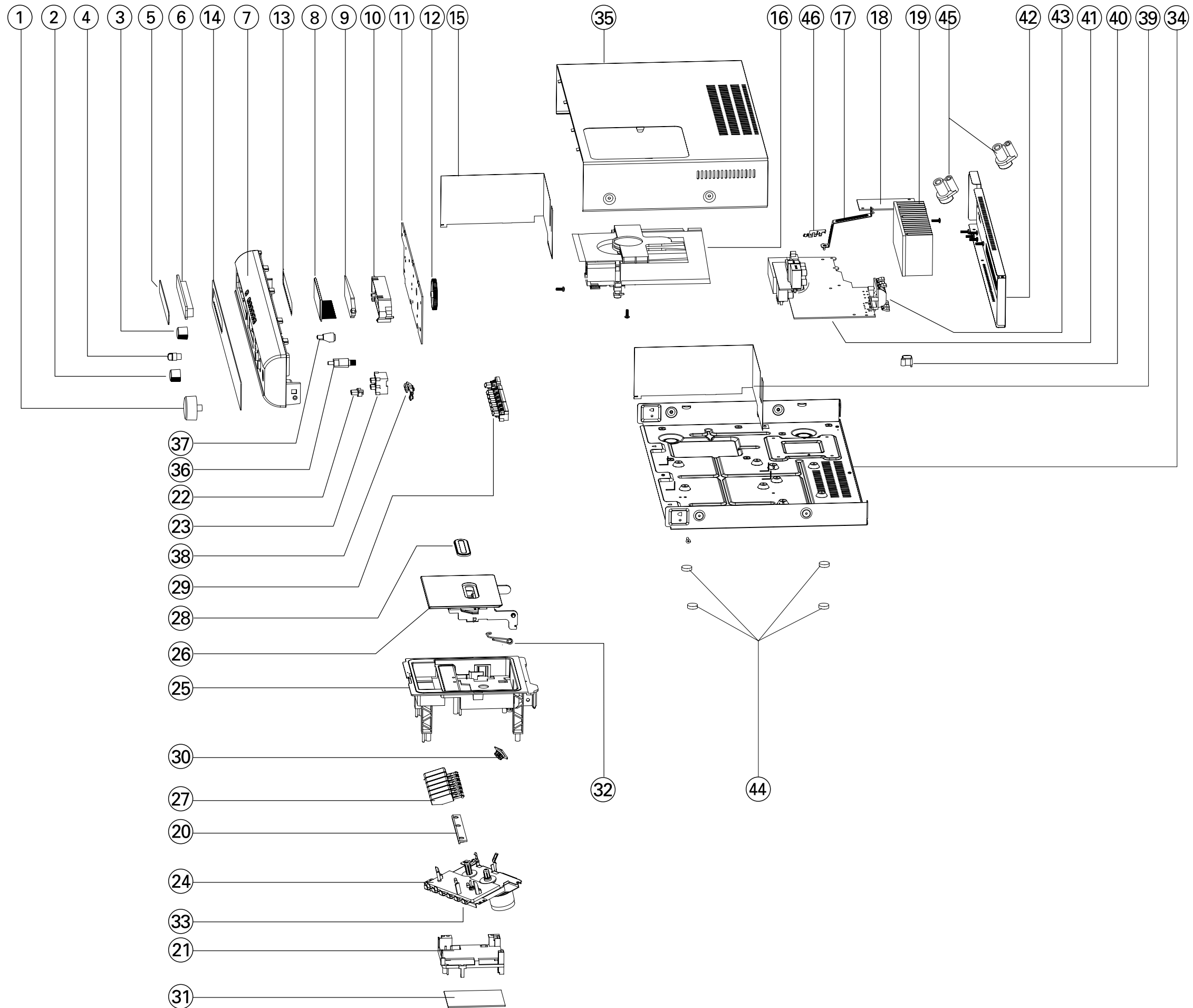




### LAYOUT DIAGRAM - DVD MPEG BOARD



EXPLODED VIEW DIAGRAM



**ACCESSORIES**

9940 000 02594	REMOTE CONTROL (FWD17)
9940 000 02595	AM LOOP ANT
9940 000 02596	RCA CABLE COMP VIDEO (R/B/G)
9940 000 02597	RCA CABLE VIDEO (YELLOW)
9940 000 02598	RCA CABLE AUDIO (RED/WHITE)
9940 000 02599	SPEAKER BOX 4" 6OHM 30W (for FWD17 only)

**MECHANICAL PARTS LIST**

1	9940 000 02619	KNOB VOLUME
2	9940 000 02618	KNOB TUNING
3	9940 000 02617	KNOB SOURCE
4	9940 000 02629	KNOB MIC VOLUME
6	9940 000 02602	DOOR CD (DVD)
7	9940 000 02601	PANEL FRONT
9	9940 000 02626	LENS LIGHT GUIDE
10	9940 000 02625	BRACKET LCD DISPLAY
11	N/A	DISPLAY/TUNER PCB
12	9940 000 02623	GEAR PVC
16	9940 000 02632	CDM LOADER WXD-8213
18	N/A	POWER PCB
20	9940 000 02614	BRACKET CASSETTE KEY
21	9940 000 02605	CASSETTE PWB BRACKET
22	9940 000 02628	KNOB DBB
23	9940 000 02616	BUTTON-FUNCTION B
24	9940 000 02698	CASS DECK VW CS-21SC-820
25	9940 000 02603	BRACKET CASSETTE DECK
26	9940 000 02604	DOOR CASSETTE
27	9940 000 02607	KEY CASSETTE- PLAY
27	9940 000 02608	KEY CASSETTE- PAUSE
27	9940 000 02609	KEY CASSETTE- REC
27	9940 000 02611	KEY CASSETTE- F.F
27	9940 000 02612	KEY CASSETTE- REW
27	9940 000 02613	KEY CASSETTE- STOP
28	9940 000 02606	LENS CASSETTE DOOR
29	9940 000 02615	BUTTON-FUNCTION A
30	9940 000 01664	DAMPER GEAR ASSEMBLY
31	N/A	CASSETTE PCB
32	9940 000 02633	SPRING CASSETTE
33	9940 000 02635	RECORD ARM
36	9940 000 02622	GEAR SHAFT
37	9940 000 02621	LEVER SOURCE KNOB
38	9940 000 02624	BRACKET TUNING SHAFT
40	9940 000 02631	FM PIG TAIL HOUSING
41	N/A	MAIN PCB
44	9940 000 02634	RUBBER FOOT DIA.14X4
45	9940 000 02627	BRACKET PCB BROAD
47	N/A	DVD MPEG PCB

**ELECTRICAL PARTS LIST****FRONT / TUNER PCB ASSEMBLY**

JK701	9940 000 02696	MICROPHONE JACK
S201	9940 000 02679	TACT SWITCH
S202	9940 000 02679	TACT SWITCH
S203	9940 000 02679	TACT SWITCH
S204	9940 000 02679	TACT SWITCH
S205	9940 000 02679	TACT SWITCH
S206	9940 000 02679	TACT SWITCH
S207	9940 000 02679	TACT SWITCH
S208	9940 000 02679	TACT SWITCH
S209	9940 000 02679	TACT SWITCH
SW201	9940 000 02677	SLIDE SWITCH 2P4T
SW202	9940 000 02678	PUSH SWITCH 2P2T
VC301	9940 000 02695	PVC 126/82/20PF
VR201	9940 000 02682	VARIABLE RES B50K
VR701	9940 000 02697	VARIABLE RES B50K.
L301	9940 000 02687	FM COIL 4.5Tx5x0.6MM
L302	9940 000 02688	FM OSC COIL 2.5Tx0.4MM
L303	9940 000 02687	FM COIL 4.5Tx5x0.6MM
T301	9940 000 02689	FM DETECT IFT BLACK 7MM
T302	9940 000 02692	AM IF IFT YELLOW 7MM
T303	9940 000 02691	AM OSC IFT RED 7MM
T304	9940 000 02693	AM ANT IFT BLACK 7MM
SR201	9940 000 01622	IR RECEIVER GR-MF902V0
LCD201	9940 000 02681	LCD A95000
LED202	9940 000 02676	LED LA504G7CS-2C-01-P
Q303	9940 000 02685	MOSFET KTK161Y
Q304	9940 000 02686	TRANS 2SC5345SF
Q305	9940 000 02686	TRANS 2SC5345SF
U201	9940 000 02683	ET1621COB LCD DRIVER
U202	9940 000 02684	ET3610COB LCD DRIVER
U301	9940 000 02694	TA2111N AM/FM TUNER
U701	9940 000 02107	YD4558 SOP8

**MAIN BOARD ASSEMBLY**

JK601	9940 000 02637	SPEAKER JACK PST-403
JK602	9940 000 02638	JACK RCA (RED/WHITE)
JK603	9940 000 02643	JACK SUBWOOFER RCA-113
FR501	△ 9940 000 00678	FUSE RES. 2.2R 1/4W +/-5%
FR502	△ 9940 000 00678	FUSE RES. 2.2R 1/4W +/-5%
FR503	△ 9940 000 00678	FUSE RES. 2.2R 1/4W +/-5%
FR504	△ 9940 000 00678	FUSE RES. 2.2R 1/4W +/-5%
FR505	△ 9940 000 00678	FUSE RES. 2.2R 1/4W +/-5%
FR506	△ 9940 000 00678	FUSE RES. 2.2R 1/4W +/-5%
FR507	△ 9940 000 00678	FUSE RES. 2.2R 1/4W +/-5%
FR508	△ 9940 000 00678	FUSE RES. 2.2R 1/4W +/-5%
FS501	△ 9940 000 02652	FUSE T6.3AL 250V (T-LAG)
FS502	△ 9940 000 02651	FUSE T1.6AL 250V (T-LAG)
C505	9940 000 02644	ELECT CAP 6800UF 35V 20%
R639	△ 9940 000 00678	FUSE RES. 2.2 1/4W +/-5%

**MAIN BOARD ASSEMBLY (con'd)**

D509	9940 000 02645	DIODE SCHOTTKY SS14
Q502	9940 000 02647	TRANS 2SB1370PNP
Q503	9940 000 02649	TRANS 2SC5343 NPN
Q504	9940 000 02648	TRANS DTC114YSA
Q505	9940 000 02636	TRANS PBSS4140S NPN
Q507	9940 000 02642	TRANS 3CA8550
Q603	9940 000 02636	TRANS PBSS4140S
Q613	9940 000 02646	TRANS SS8050
U501	9940 000 00619	AP1501-50T5 150KHZ
U502	9940 000 02653	MOSFET BUK9507-30B
U601	9940 000 02641	BU4052BC DUAL4-CH
U602	9940 000 02107	YD4558
U603	9940 000 02639	TDA8947J AMPLIFIER
U604	9940 000 02107	YD4558
U605	9940 000 02107	YD4558

**AV OUTPUT PWB ASSEMBLY**

JR801	9940 000 02654	JACK RCA (GREEN)
JR803	9940 000 02655	JACK+D32 RCA (RE/BL/OR/YE)

**AC POWER PWB ASSEMBLY**

C401	9940 000 02656	CER CAP 22NF/275V 10%
FS401	△ 9940 000 01617	FUSE UTE002 2A 250V (T-LAG)
L401	△ 9940 000 02657	AC LINE FILTER 3MH 1A
P401	△ 9940 000 02658	AC POWER CORD
SW401	△ 9940 000 01674	VOLTAGE SELECTOR 110/220V
T401	△ 9940 000 02659	POWER TRANSF. 110/230V

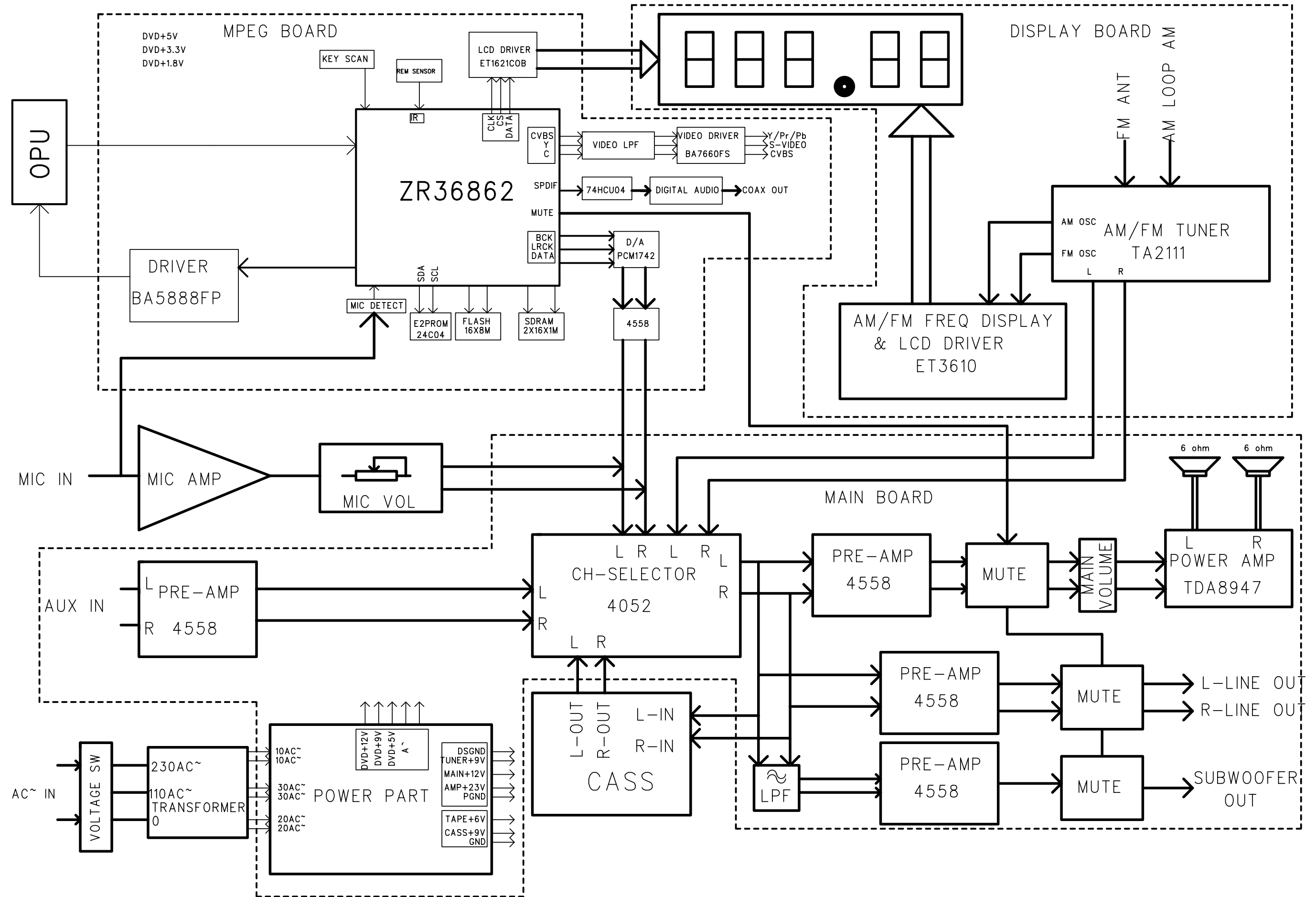
**DVD MPEG PWB ASSEMBLY**

	9940 000 02661	DVD MECHANISM KHM310AAA
Y1	9940 000 02675	CRYSTAL 27MHZ 30PF
U1	9940 000 02664	BA7660FS 3-CH 75OHM DRIVER
U2	9940 000 02665	ZR36768 DVD MPEG DECODE
U3	9940 000 02671	BR24L02F-WE2
U4	9940 000 02662	PCM1742 2CH AUDIO DAC
U4	9940 000 02663	PCM1748KE 2CH AUDIO DAC
U5	9940 000 02107	YD4558 SOP8
U6	9940 000 02177	74HCU04D HEX INVERTER
U7	9940 000 02667	16M SDRAM K4S161622H-UC60
U8	9940 000 02667	16M SDRAM K4S161622H-UC60
U10	9940 000 02666	ZR36707 DVD RF
U11	9940 000 02673	TL3472 HS-RATE OP-AMP
U12	9940 000 02674	CHMC D5954 MOTOR DRIVER
U13	9940 000 02668	SST39VF800A-70-4C-EK 8M
U14	9940 000 02672	CP1117-3.3 REGULATOR
U15	9940 000 02669	CP1117-ADJ REGULATOR

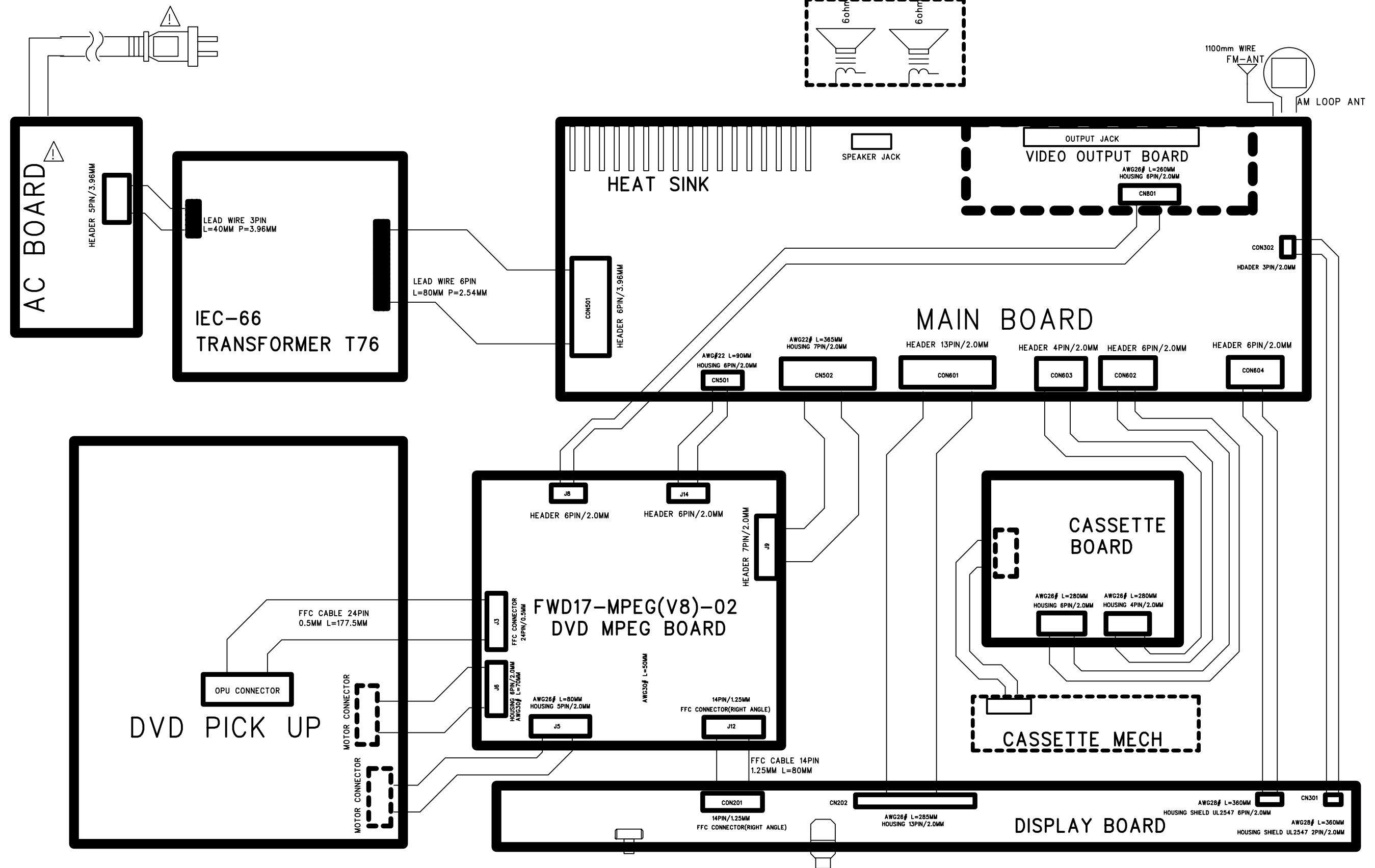
**CASSETTE PWB ASSEMBLY**

1707	9940 000 00389	REC SWITCH 6P2T
5701	9940 000 02701	IFT 10148BK7
7705	9940 000 02699	AN7323 PREAMP

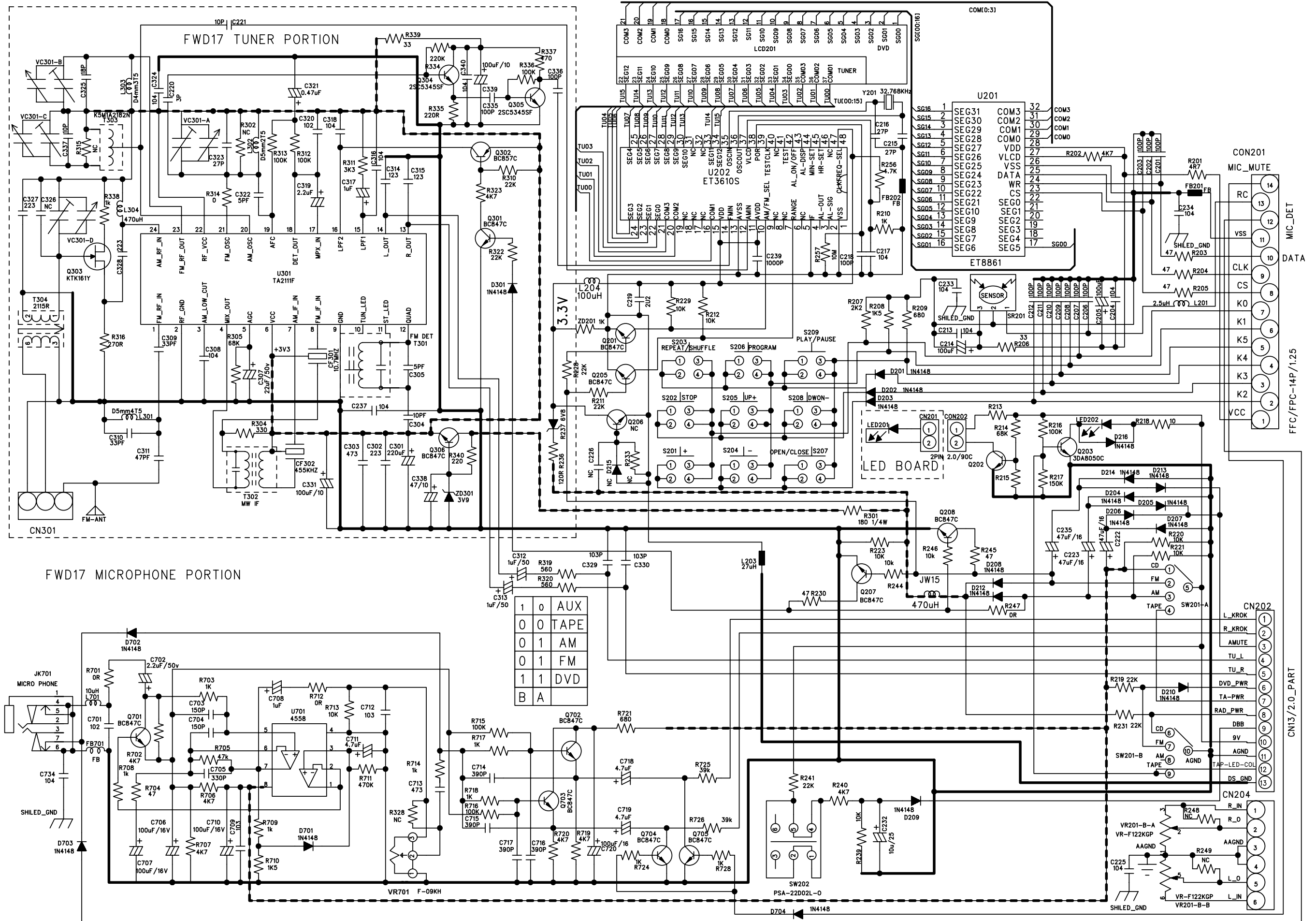
SET BLOCK DIAGRAM



SET WIRING DIAGRAM



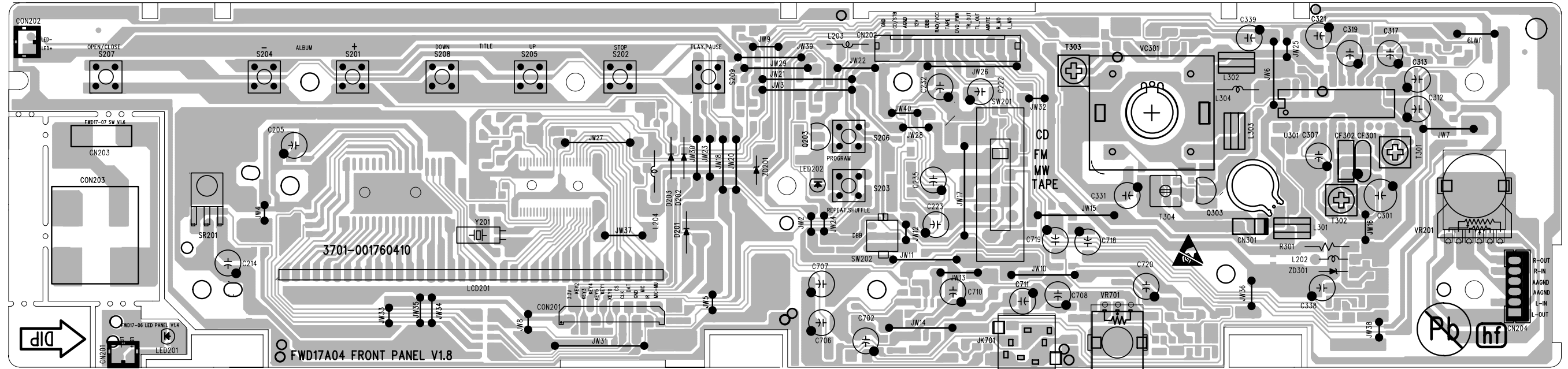
# CIRCUIT DIAGRAM - DISPLAY / TUNER BOARD



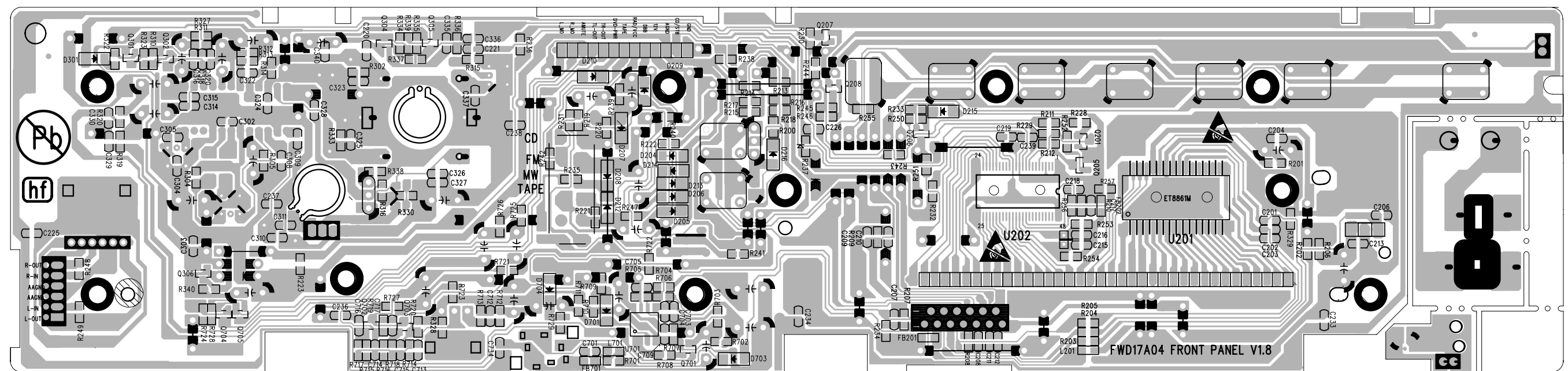


LAYOUT DIAGRAM - DISPLAY / TUNER BOARD

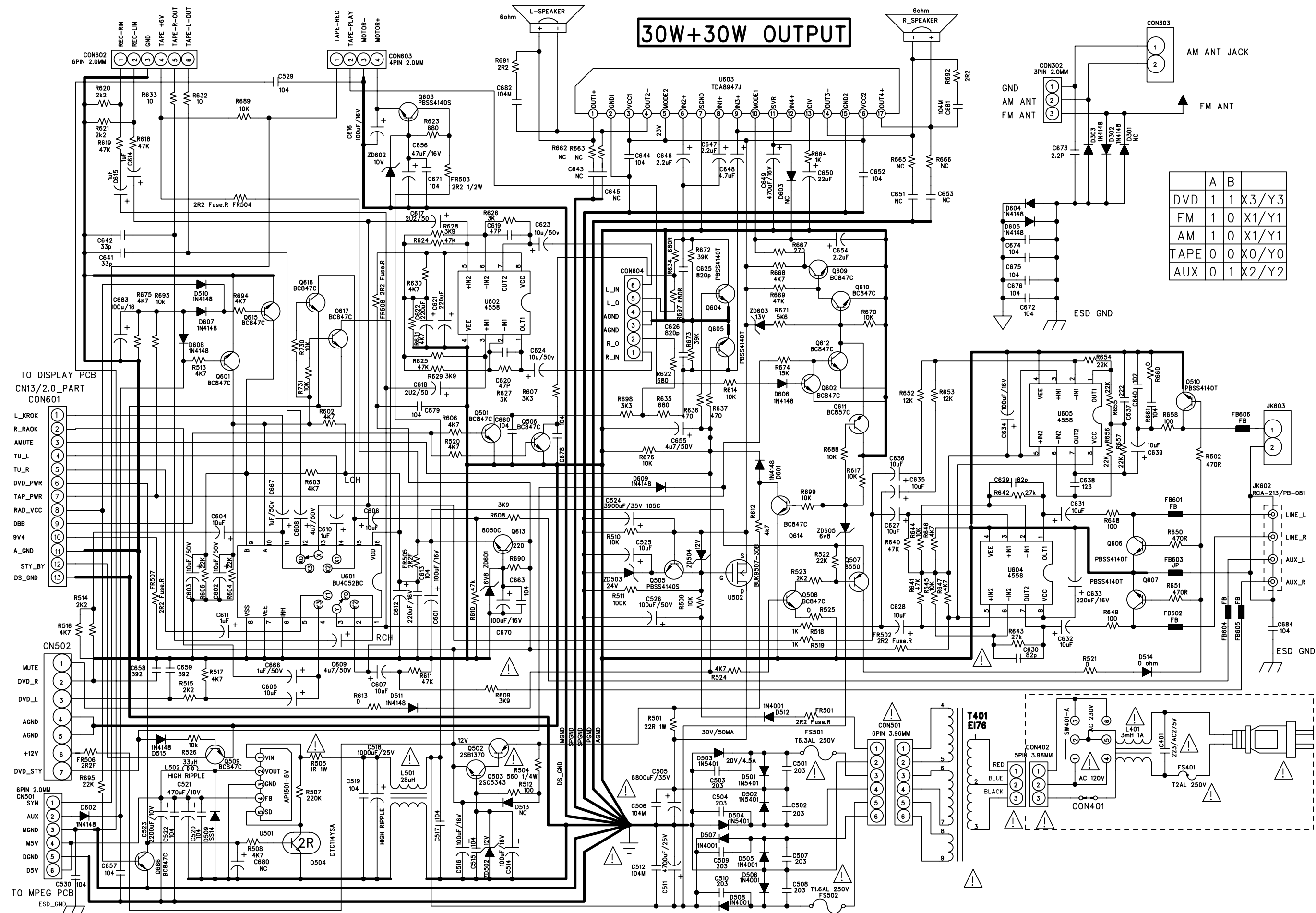
COMPONENT SIDE



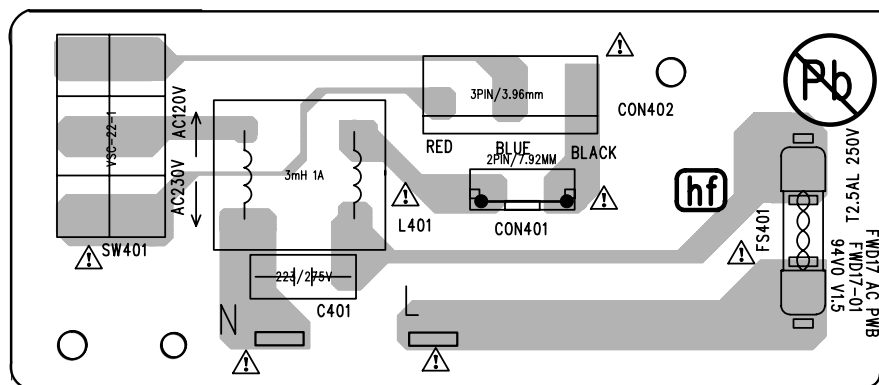
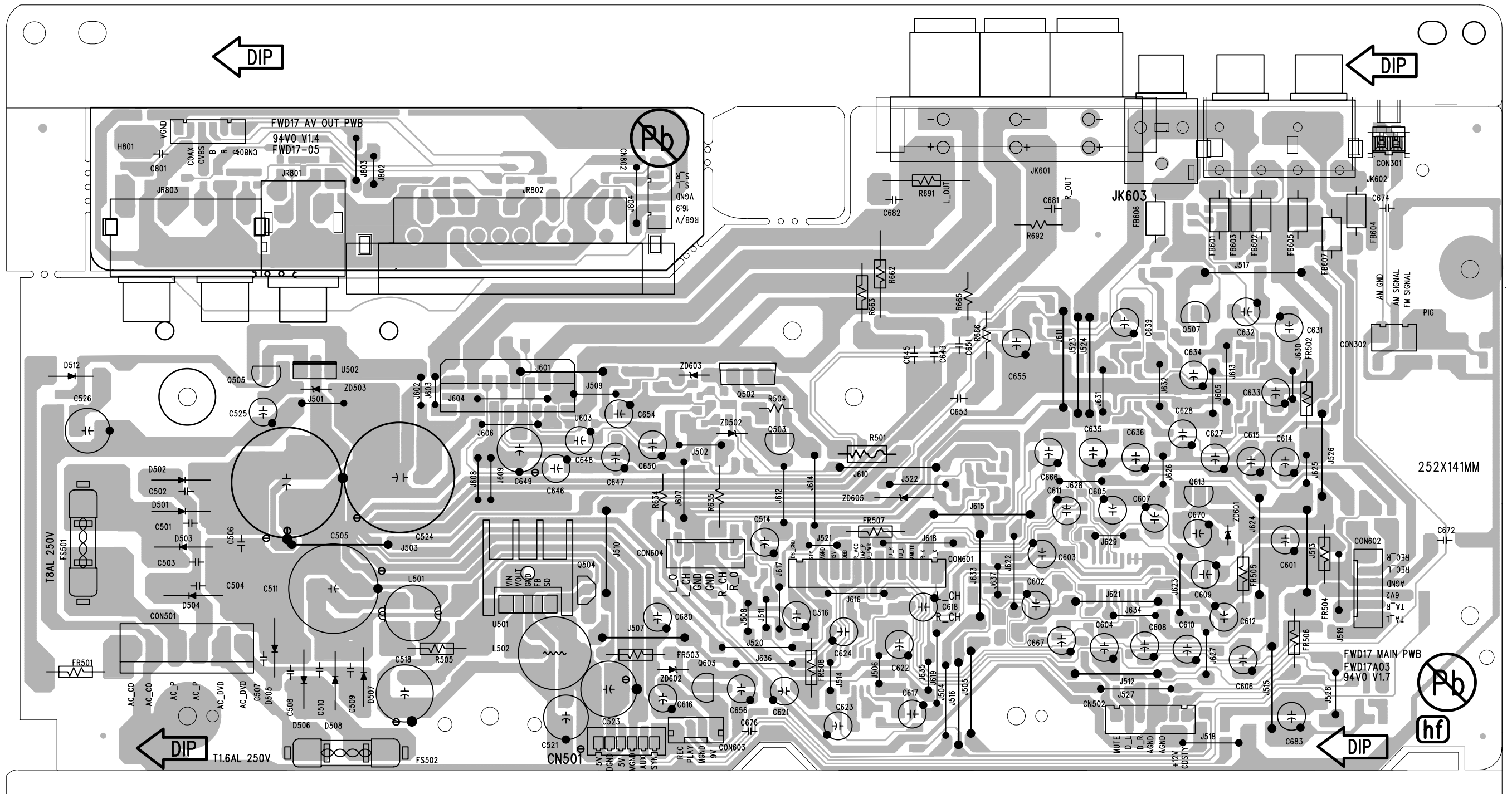
COPPER SIDE



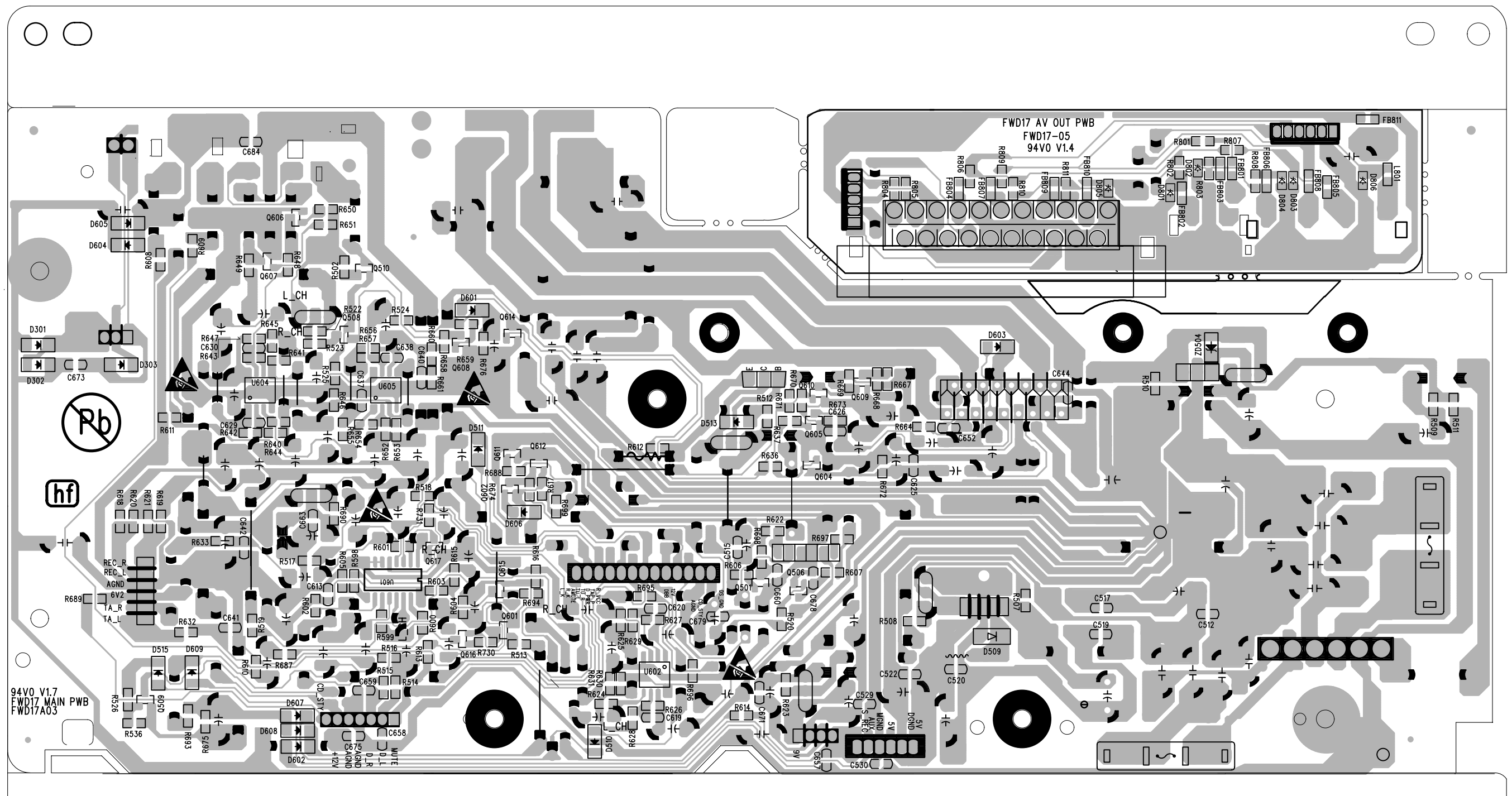
# CIRCUIT DIAGRAM - MAIN AND POWER BOARD



LAYOUT DIAGRAM - MAIN AND POWER BOARD (SIDE A)

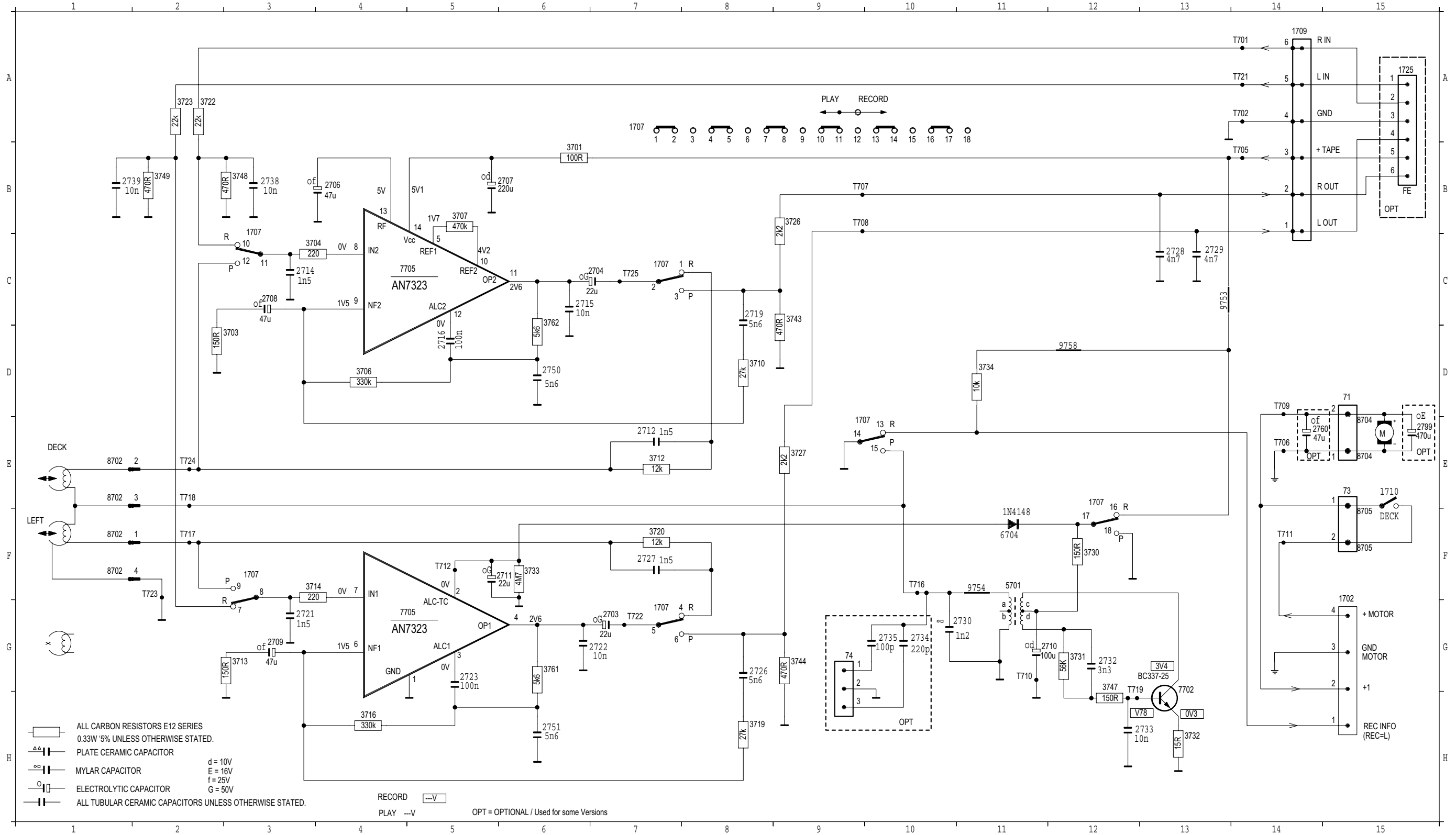


LAYOUT DIAGRAM - MAIN BOARD (SIDE B)



# CIRCUIT DIAGRAM - CASSETTE BOARD

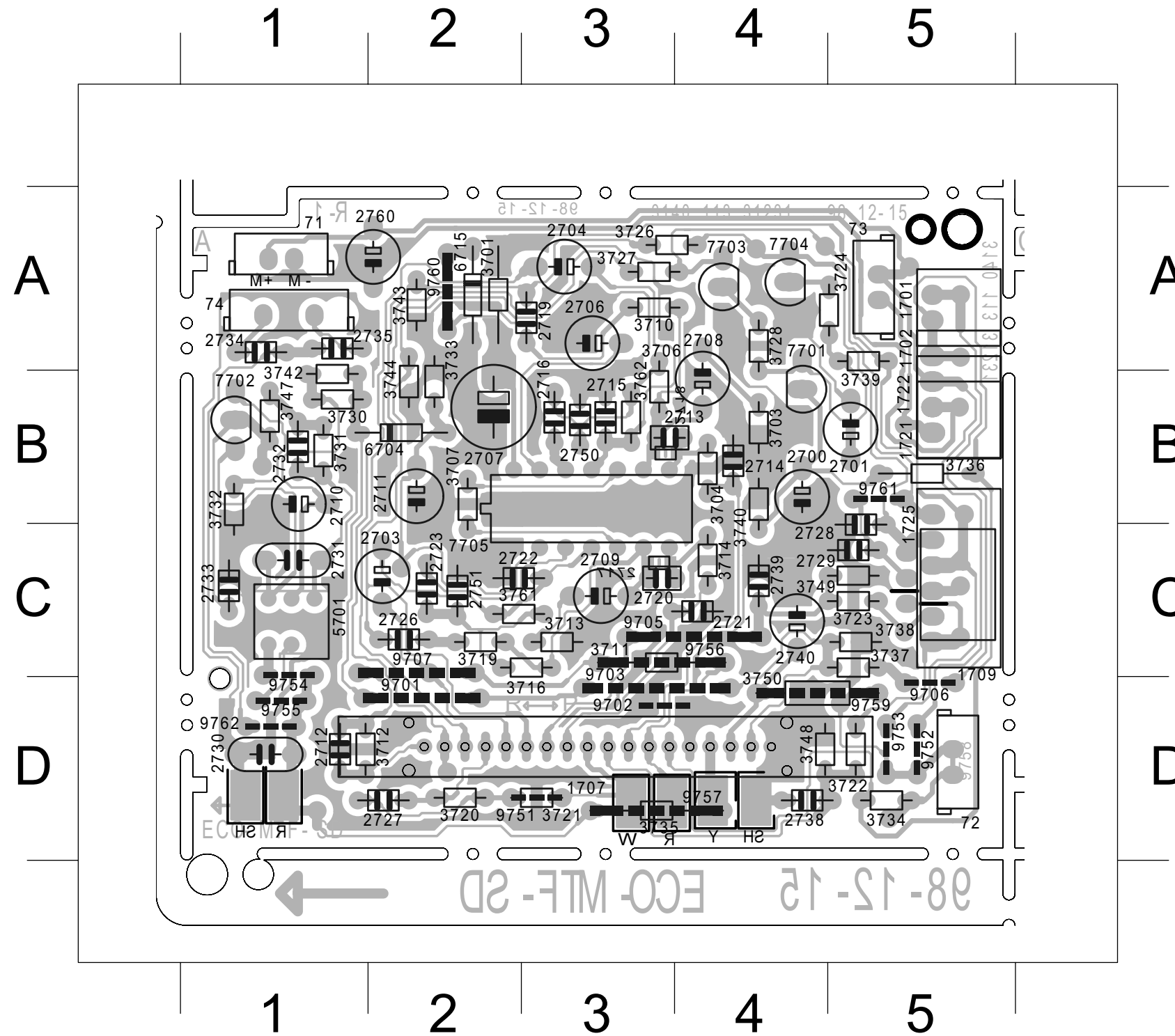
71	D15	1707	C 3	1709	A14	2706	B 4	2711	F 6	2719	C 8	2727	F 7	2733	H13	2750	D 6	3703	D 3	3712	E 7	3720	F 7	3730	F12	3743	C 9	3761	G 6	7705	G 4	8702	E 1	9753	C13	T705	B14	T710	G11	T718	E 2	T724	E 2
73	B15	1707	G 7	1710	B15	2707	B 6	2712	E 7	2721	G 3	2728	C13	2734	G10	2751	H 6	3704	C 3	3713	G 3	3722	A 2	3731	G12	3744	G 9	3762	D 6	7705	C 4	8704	E15	9754	F11	T706	E14	T711	F14	T719	H13	T725	C 7
74	G 9	1707	C 7	1725	A15	2708	C 3	2714	C 3	2722	G 7	2729	C13	2735	G10	2760	E14	3706	D 4	3714	F 3	3723	A 2	3732	H13	3747	G12	5701	F11	8702	F 1	8704	E15	9758	D12	T707	B10	T712	F 5	T721	A14		
1702	G15	1707	E 9	2703	G 7	2709	G 3	2715	C 6	2723	G 5	2730	G11	2738	B 3	2799	E15	3707	B 5	3716	H 4	3726	B 9	3733	F 6	3748	B 3	6704	F11	8702	F 1	8705	F15	T701	A14	T708	B10	T716	F10	T722	G 7		
1707	F 3	1707	E12	2704	C 7	2710	G12	2716	D 5	2726	G 8	2732	G12	2739	B 1	3701	B 6	3710	D 8	3719	H 8	3727	E 9	3734	D11	3749	B 2	7702	H13	8702	E 1	8705	F15	T702	A14	T709	D14	T717	F 2	T723	F 2		



- ALL CARBON RESISTORS E12 SERIES  
0.33W 5% UNLESS OTHERWISE STATED.
  - PLATE CERAMIC CAPACITOR
  - MYLAR CAPACITOR
  - ELECTROLYTIC CAPACITOR
  - ALL TUBULAR CERAMIC CAPACITORS UNLESS OTHERWISE STATED.
- d = 10V  
E = 16V  
f = 25V  
G = 50V

RECORD -V  
PLAY -V  
OPT = OPTIONAL / Used for some Versions

LAYOUT DIAGRAM - CASSETTE BOARD



71 A 1	2729 C 5	3733 B 2	9756 C 3
72 D 5	2730 D 1	3734 D 5	9757 D 3
73 A 5	2731 C 1	3735 D 3	9759 D 4
74 A 1	2732 B 1	3736 B 5	9760 A 2
1701 A 5	2733 C 1	3737 C 5	9761 B 5
1702 B 5	2734 A 1	3738 C 5	9762 D 1
1707 D 3	2735 A 1	3739 A 5	T701 C 5
1709 C 5	2738 D 4	3740 B 4	T702 C 5
1721 B 5	2739 C 4	3742 B 1	T705 B 5
1722 B 5	2740 C 4	3743 A 2	T706 B 5
1725 C 5	2750 B 3	3744 B 2	T709 A 5
2700 B 4	2751 C 2	3747 B 1	T710 C 1
2701 B 5	2760 A 2	3748 D 4	T711 B 5
2703 C 2	3701 A 2	3749 C 5	T712 C 2
2704 A 3	3703 B 4	3750 D 4	T713 A 5
2706 A 3	3704 B 4	3761 C 2	T714 D 5
2707 B 2	3706 B 3	3762 B 3	T715 D 5
2708 B 4	3707 B 2	5701 C 1	T716 D 1
2709 C 3	3710 A 3	6704 B 2	T719 B 1
2710 B 1	3711 C 3	6715 A 2	T720 A 5
2711 B 2	3712 D 1	7701 B 4	T721 C 5
2712 D 1	3713 C 3	7702 B 1	T722 C 2
2713 B 3	3714 C 4	7703 A 4	T725 D 2
2714 B 4	3716 C 3	7704 A 4	T7707 A 4
2715 B 3	3719 C 2	7705 B 3	T7708 A 4
2716 B 3	3720 D 2	9701 D 2	
2717 C 3	3721 D 3	9702 D 3	
2718 B 3	3722 D 5	9703 D 3	
2719 A 3	3723 C 5	9705 C 4	
2720 C 3	3724 A 5	9706 D 5	
2721 C 4	3726 A 3	9707 C 2	
2722 C 2	3727 A 3	9751 D 3	
2723 C 2	3728 A 4	9752 D 5	
2726 C 2	3730 B 1	9753 D 5	
2727 D 2	3731 B 1	9754 C 1	
2728 C 5	3732 B 1	9755 D 1	

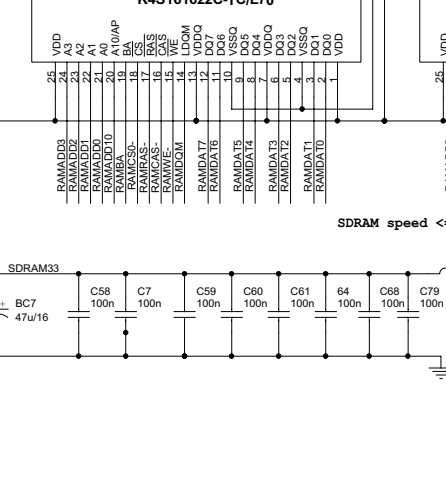
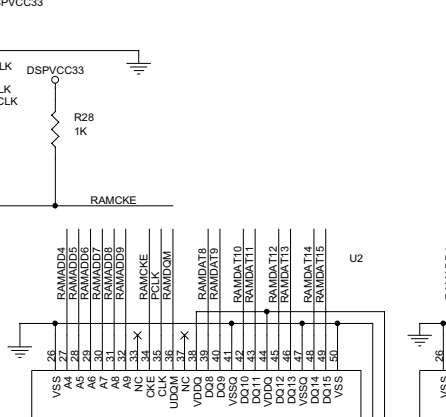
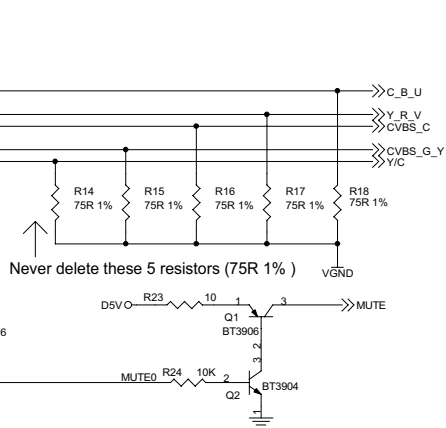
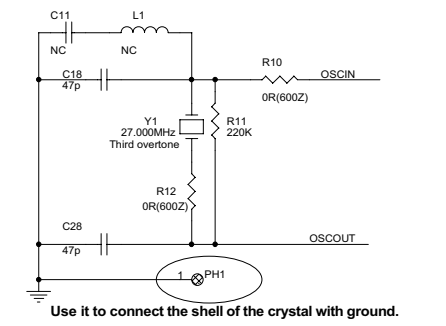
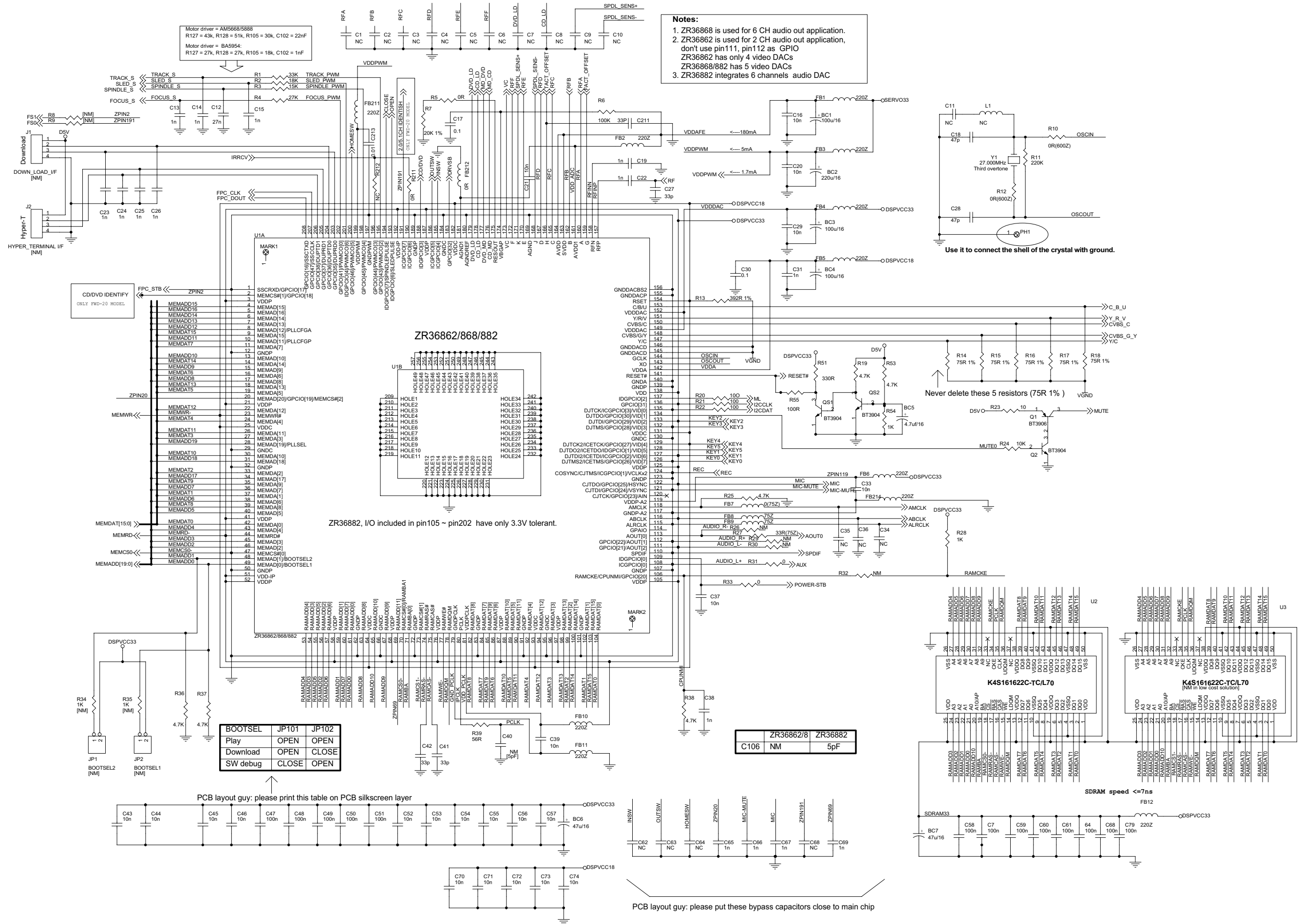
CASSETTE ADJUSTMENT

Adjustment	Cassette	SK ....	Deck 1	Measure on	Read on	Adjust with	Adjust to
Azimuth	10 kHz SBC420*	Tape	Play	H/P Jack	mV meter	Left hand Screw R/P head	max.
Motor Speed	3150 kHz SBC420*	Tape	Play	H/P Jack	Wow and flutter meter	Preset in motor	**a

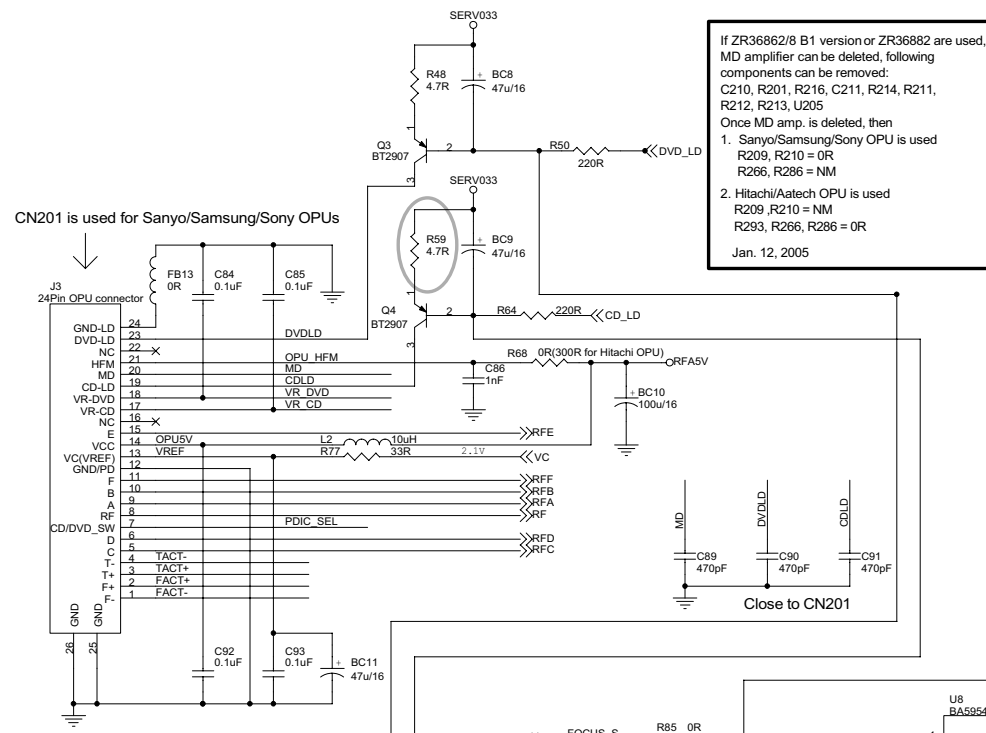
\* SBC420 : 4822 397 30071

\*\*a The maximum permissible speed deviation is ± 3%.  
Moreover, the wow and flutter value can be read.

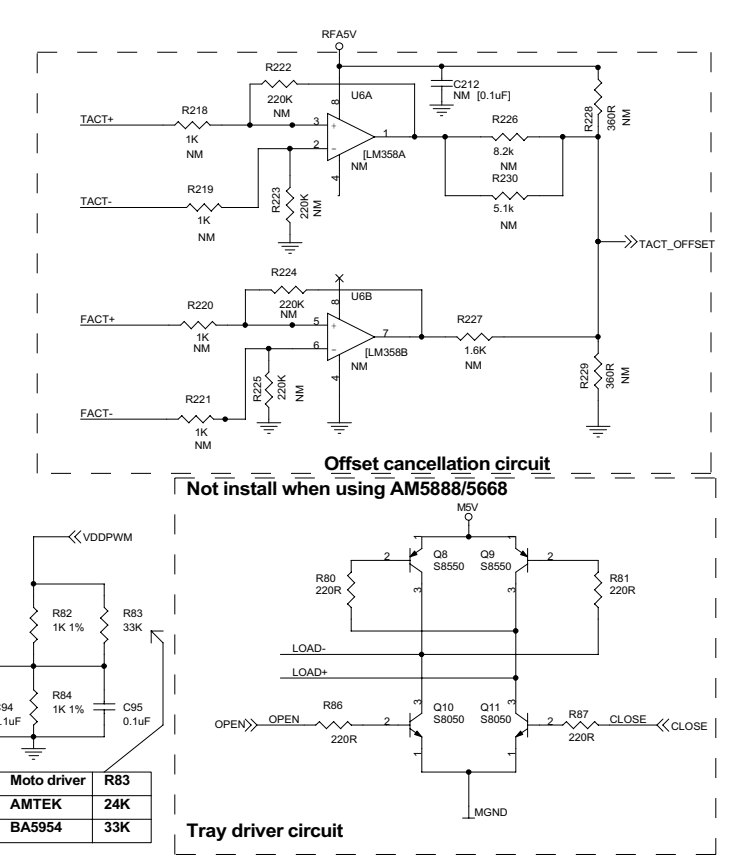
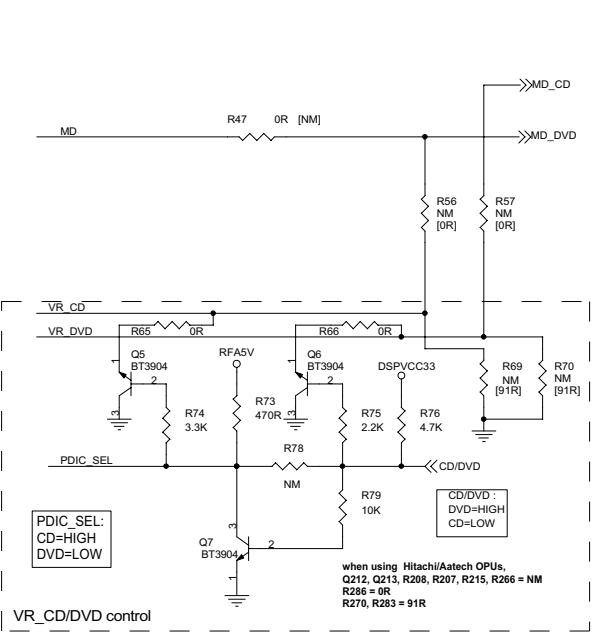
# CIRCUIT DIAGRAM - DVD MPEG BOARD (Part 1)



CIRCUIT DIAGRAM - DVD MPEG BOARD (Part 2)

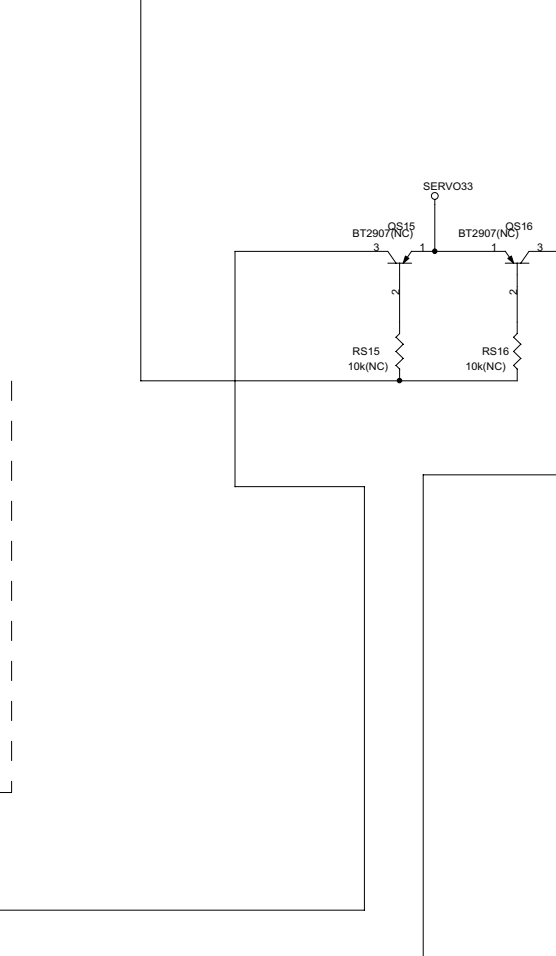
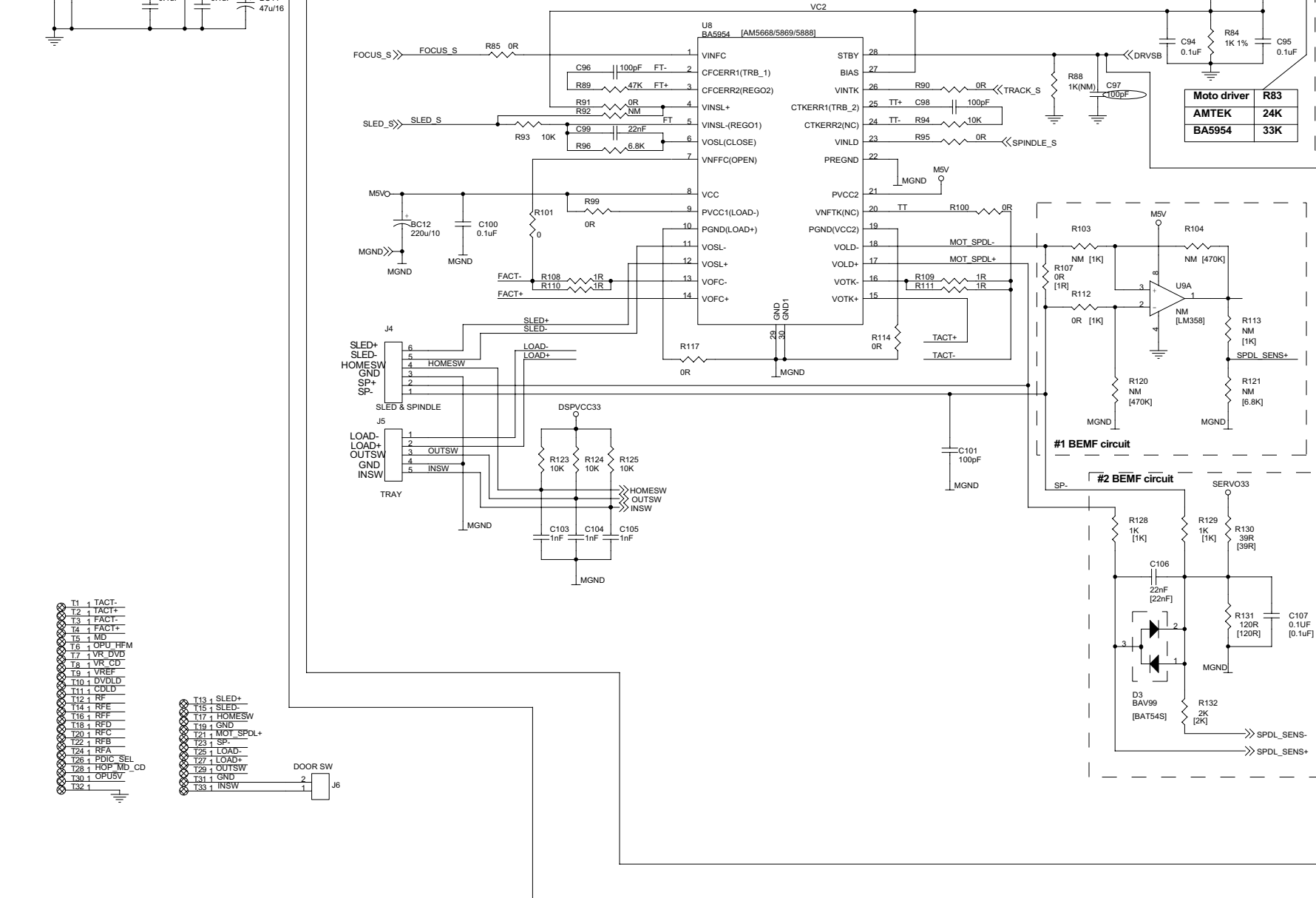


If ZR3682/8 B1 version or ZR36882 are used, MD amplifier can be deleted, following components can be removed:  
 C210, R201, R216, C211, R214, R211, R212, R213, U205  
 Once MD amp. is deleted, then  
 1. Sanyo/Samsung/Sony OPU is used  
 R209, R210 = NM  
 R266, R286 = NM  
 2. Hitachi/Atech OPU is used  
 R209, R210 = NM  
 R293, R266, R286 = 0R  
 Jan. 12, 2005

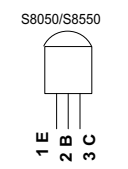


R, C values setting for variable moto driver

Item	Moto driver	BA5954	AM5668	AM5888	AM5869
1	C241	100pF	-	-	-
2	R244	47K	-	-	-
3	R245	0R	-	-	-
4	R246	-	0R	0R	0R
5	R247	10K	-	-	-
6	C243	22nF	-	-	-
7	R248	6.8K	-	-	-
8	R250	-	0R	0R	0R
9	R251	-	0R	0R	0R
10	R252	0R	-	-	-
11	R253	0R	-	-	-
12	R255	1R	0R	0R	0R
13	R256	1R	-	-	-
14	R257	-	0R	0R	0R
15	R258	-	0R	0R	0R
16	R259	0R	-	-	-
17	C247	100pF	-	-	-
18	R267	10K	-	-	-
19	R271	-	0R	0R	0R
20	R272	0R	-	-	-
21	R273	1R	0R	0R	0R
22	R274	1R	-	-	-
23	R275	0R	-	-	-
24	R282	-	-	0R	0R
25	R284	-	-	0R	0R
26	R285	-	-	0R	0R
27	R287	-	-	0R	0R
28	R278	33K	24K	24K	24K
29	R296	-	NM	NM	0R
30	R297	-	NM	0R	-
31	U206	-	LM358 or NM	NM	-
32	R298	-	NM	-	4.7K

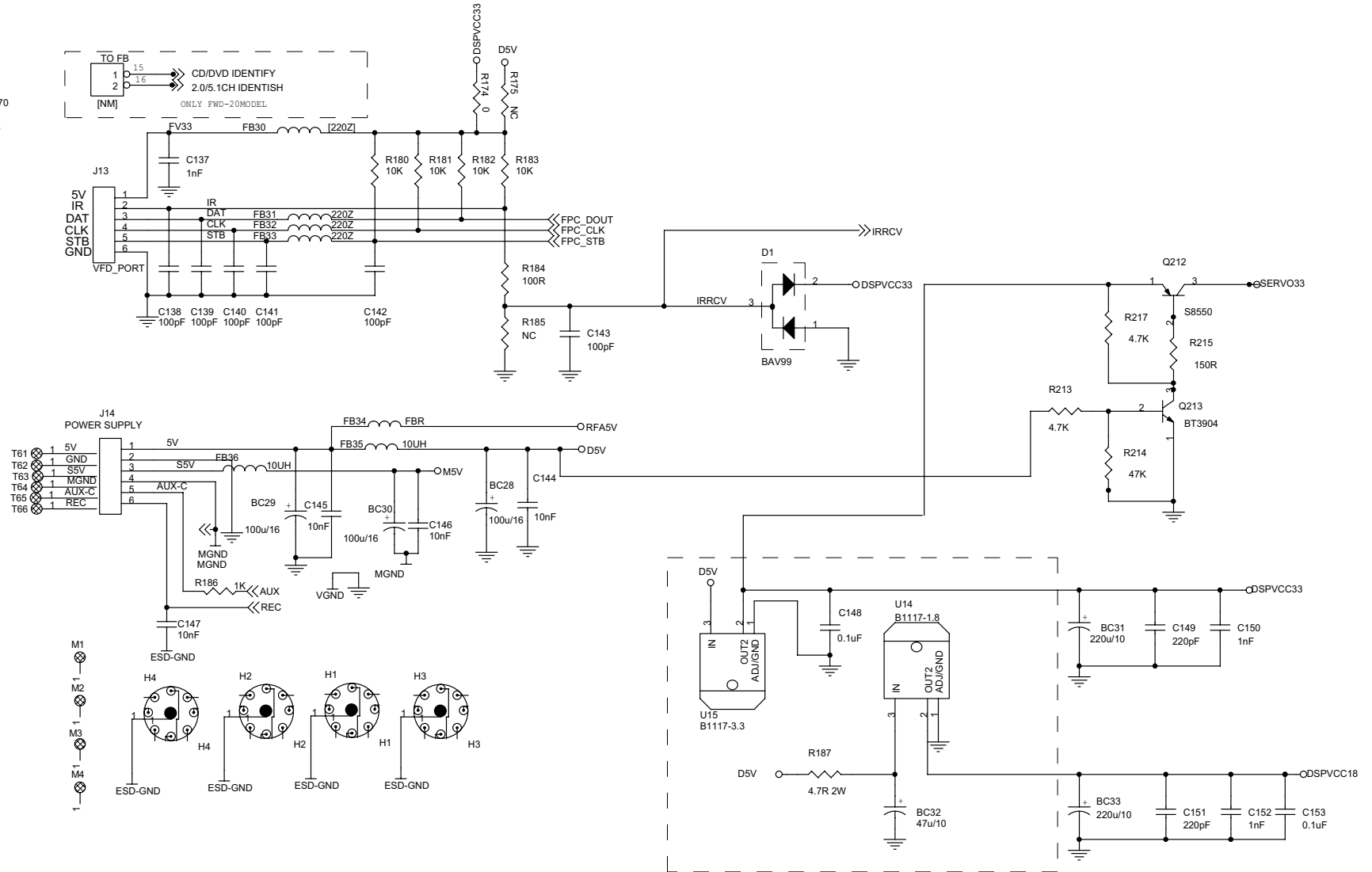
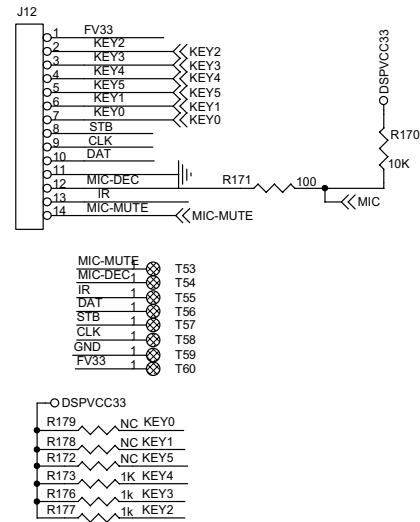


- T1 1 TACT-
  - T2 1 TACT+
  - T3 1 FACT-
  - T4 1 FACT+
  - T5 1 MD
  - T6 1 OPU\_HFM
  - T7 1 VR\_DVD
  - T8 1 VR\_CD
  - T9 1 VREF
  - T10 1 DVDLD
  - T11 1 CDLD
  - T12 1 RF
  - T14 1 RFE
  - T16 1 RFF
  - T18 1 RFD
  - T20 1 RFC
  - T22 1 RFB
  - T24 1 RFA
  - T28 1 PDIC\_SEL
  - T29 1 HOP\_MD\_CD
  - T30 1 OPU5V
  - T32 1
- T13 1 SLED+
  - T15 1 SLED-
  - T17 1 HOMESW
  - T19 1 GND
  - T21 1 MOT\_SPDL+
  - T23 1 SP
  - T25 1 LOAD-
  - T27 1 LOAD+
  - T29 1 OUTSW
  - T31 1 GND
  - T33 1 INSW
- DOOR SW

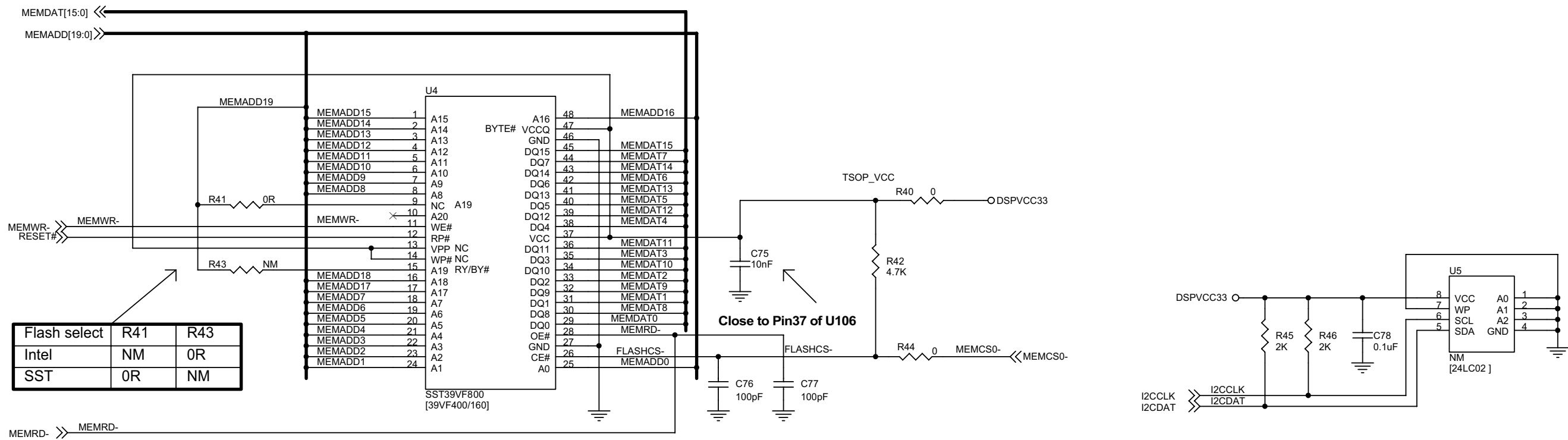




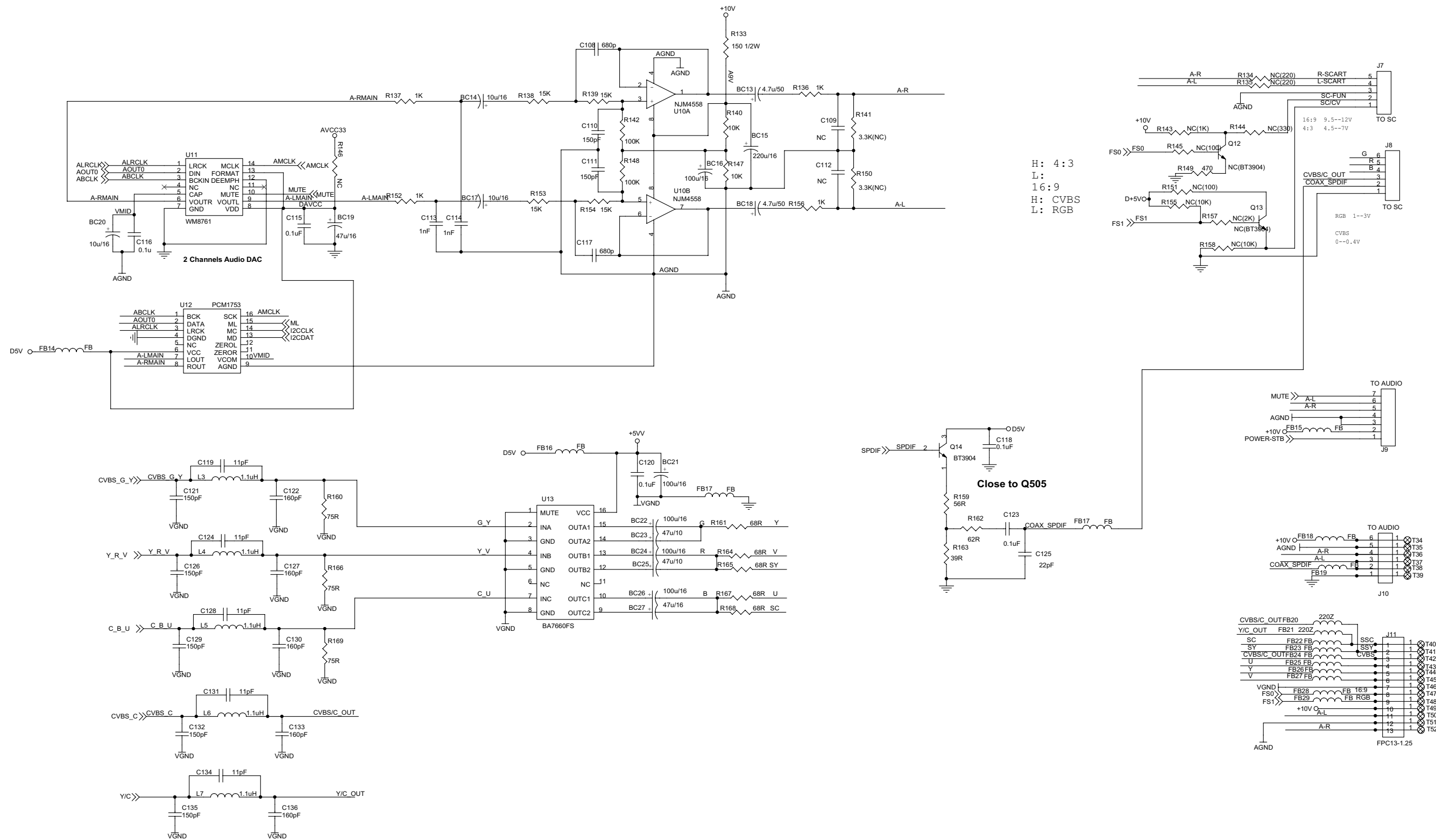
CIRCUIT DIAGRAM - DVD MPEG BOARD (Part 3)



Flash speed <= 70 nS.  
If plan to use 90ns Flash, it needs to be verified by s/w.

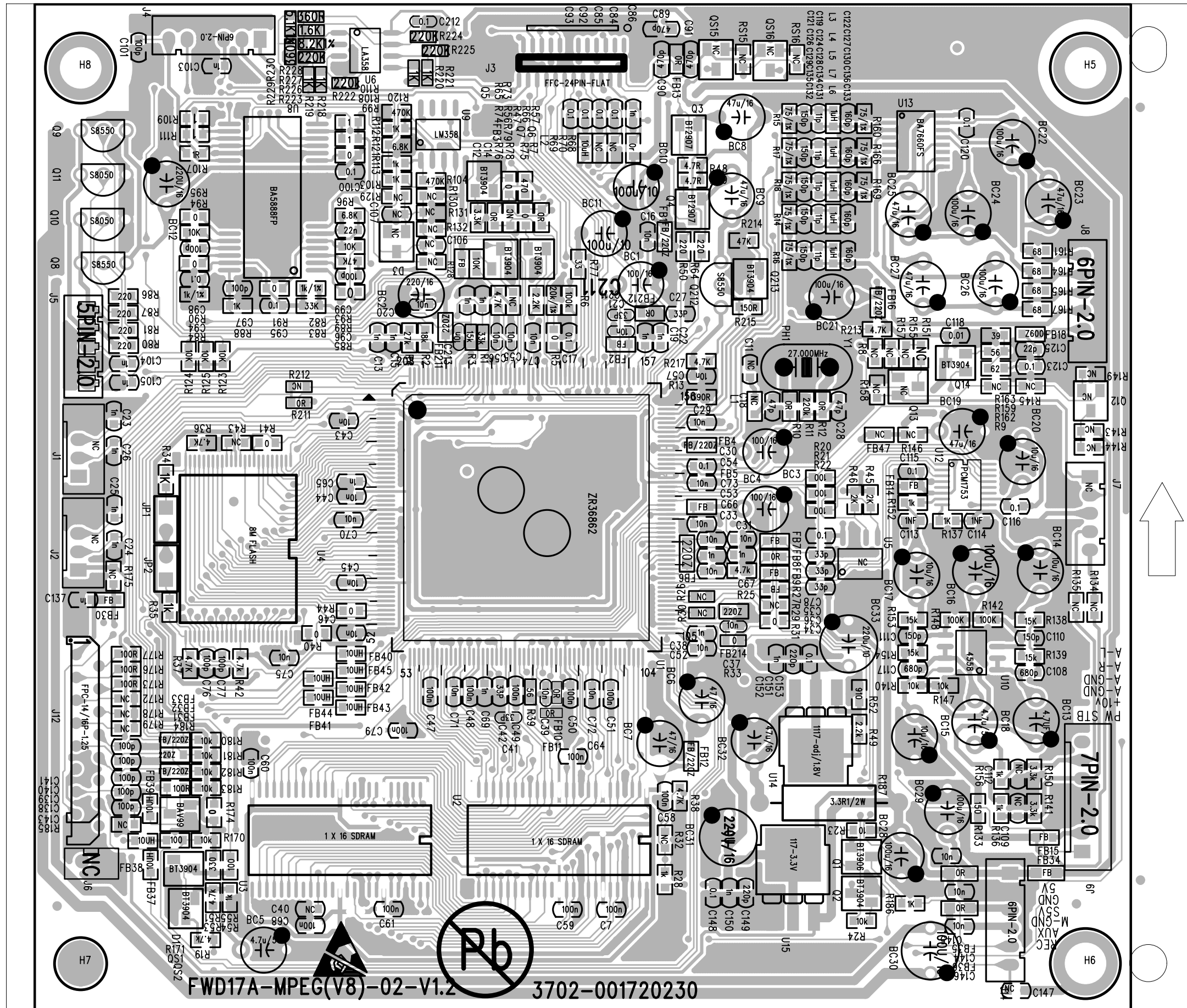


CIRCUIT DIAGRAM - DVD MPEG BOARD (Part 4)

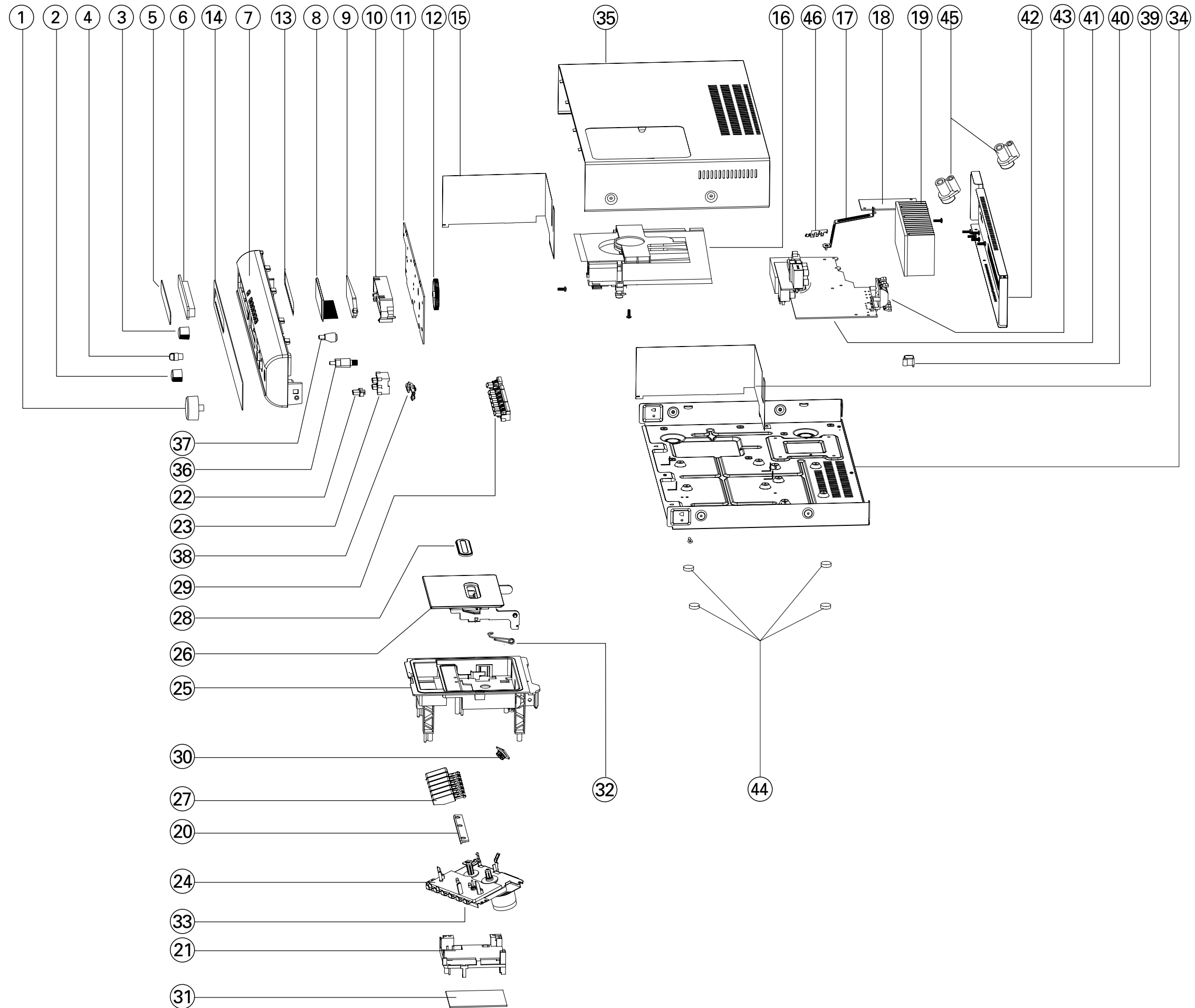


In case of enable 5th video DAC, Vaddis can output S-VIDEO and YUV signals at same time.

LAYOUT DIAGRAM - DVD MPEG BOARD



EXPLODED VIEW DIAGRAM



**ACCESSORIES**

9940 000 02594	REMOTE CONTROL FOR FWD17	
9940 000 02595	AM LOOP ANT	
9940 000 02596	RCA CABLE COMP VIDEO (R/B/G)	
9940 000 02597	RCA CABLE VIDEO (YELLOW)	
9940 000 02598	RCA CABLE AUDIO (RED/WHITE)	
9940 000 02599	SPEAKER BOX 6 OHM 30W	(For FWD17/21M only)

**MECHANICAL PARTS LIST**

1	9940 000 02619	KNOB VOLUME
2	9940 000 02618	KNOB TUNING
3	9940 000 02617	KNOB SOURCE
4	9940 000 02629	KNOB MIC VOLUME
6	9965 000 39833	DOOR CD (DVD)
7	9940 000 02601	PANEL FRONT
8		LCD DISPLAY
9	9940 000 02626	LENS LIGHT GUIDE
10	9940 000 02625	BRACKET LCD DISPLAY
11		DISPLAY/TUNER PCB
12	9940 000 02623	GEAR PVC
16	9965 000 39874	DVD MECHANISM LOADER DM3151-B
18		POWER PCB
20	9940 000 02614	BRACKET CASSETTE KEY
21	9940 000 02605	CASSETTE PWB BRACKET
22	9940 000 02628	KNOB DBB
23	9940 000 02616	BUTTON-FUNCTION B
24	9940 000 02698	CASS DECK VW CS-21SC-820
25	9940 000 02603	BRACKET CASSETTE DECK
26	9940 000 02604	DOOR CASSETTE
27	9940 000 02607	KEY CASSETTE- PLAY
27	9940 000 02608	KEY CASSETTE- PAUSE
27	9940 000 02609	KEY CASSETTE- REC
27	9940 000 02611	KEY CASSETTE- F.F
27	9940 000 02612	KEY CASSETTE- REW
27	9940 000 02613	KEY CASSETTE- STOP
28	9940 000 02606	LENS CASSETTE DOOR
29	9940 000 02615	BUTTON-FUNCTION A
30	9940 000 01664	DAMPER GEAR ASSEMBLY
31		CASSETTE PCB
32	9940 000 02633	SPRING CASSETTE
33	9940 000 02635	RECORD ARM
36	9940 000 02622	GEAR SHAFT
37	9940 000 02621	LEVER SOURCE KNOB
38	9940 000 02624	BRACKET TUNING SHAFT
41		MAIN PCB
44	9940 000 02634	RUBBER FOOT DIA.14XTHK4MM
45	9940 000 02627	BRACKET PCB BOARD
47		DVD MPEG PCB

**ELECTRICAL PARTS LIST****MISCELLANEOUS**

T401	△	9940 000 02659	POWER TRANSFORMER,110/230V
		9965 000 40072	SERVO/MPEG PWB ASSY FWD17A
		9965 000 40073	DISP/TUN/MIC PWB ASSY FWD17A

**MAIN BOARD ASSEMBLY**

JK601		9940 000 02637	SPEAKER JACK PST-403
JK602		9940 000 02638	JACK RCA (RED/WHITE)
JK603		9940 000 02643	JACK SUBWOOFER RCA-113
C505		9940 000 02644	CAP ELECT,6800UF35V +/-20%
FR501	△	9940 000 00678	FUSE RES, 2.2 1/4W 5%
FR502	△	9940 000 00678	FUSE RES, 2.2 1/4W 5%
FR503	△	9940 000 00678	FUSE RES, 2.2 1/4W 5%
FR504	△	9940 000 00678	FUSE RES, 2.2 1/4W 5%
FR505	△	9940 000 00678	FUSE RES, 2.2 1/4W 5%
FR506	△	9940 000 00678	FUSE RES, 2.2 1/4W 5%
FR507	△	9940 000 00678	FUSE RES, 2.2 1/4W 5%
FR508	△	9940 000 00678	FUSE RES, 2.2 1/4W 5%
FS501	△	9965 000 40074	FUSE T8AL 250V 5X20MM (TIME-LA
FS502	△	9940 000 02651	FUSE T1.6AL 250V 5X20 (T-LAG)
D509		9940 000 02645	DIODE SCHOTTKY SS14
Q502		9940 000 02647	TRANS 2SB1370PNP
Q503		9940 000 02649	TRANS 2SC5343 NPN
Q504		9940 000 02648	TRANS DTC114YSA
Q505		9940 000 02636	TRANS PBSS4140S NPN
Q507		9940 000 02642	TRANS 3CA8550
Q603		9940 000 02636	TRANS PBSS4140S NPN
Q613		9940 000 02646	TRANS NPNSS8050
U501		9940 000 00619	IC AP1501-50T5 150KHZ
U502		9940 000 02653	MOSFET BUK9507-30B
U601		9940 000 02641	IC BU4052BC DUAL4-CH
U602		9940 000 02107	IC YD4558
U603		9940 000 02639	IC TDA8947J AMPLIFIER
U604		9940 000 02107	IC YD4558
U605		9940 000 02107	IC YD4558

**AV OUTPUT PWB ASSEMBLY**

JR801		9940 000 02654	JACK DASW-11/PB-211 GREEN
JR803		9940 000 02655	JACK RCA (RED/BLU/ORA/YEL)

**AC POWER PWB ASSEMBLY**

C401	△	9940 000 02656	CAP CER 22NF 275V 10%
FS401	△	9965 000 39870	FUSE UTE002 2.5A 250V
L401	△	9940 000 02657	AC LINE FILTER 3MH 1A
P401	△	9940 000 02658	AC POWER CORD

**ELECTRICAL PARTS LIST****SERVO AND MPEG PWB ASSEMBLY**

U1	9965 000 40075	IC ZR36862PQCG DVD MPEG DECODE
U2	9940 000 02667	IC 16M SDRAM K4S161622H-UC60
U3	9940 000 02667	IC 16M SDRAM K4S161622H-UC60
U4	9940 000 02668	IC SST39VF800A-70-4C-EK 8M
U6	9965 000 40076	IC LM358
U8	9965 000 40077	IC BA5888FP MOTOR DRIVER
U9	9965 000 40076	IC LM358
U10	9940 000 02107	IC YD4558
U12	9965 000 40078	IC PCM1753DBQR SSOP16
U13	9940 000 02664	IC BA7660FS 3-CH 75OHM DRIVER
U14	9965 000 40079	IC AP1117-ADJ REGULATOR
U15	9965 000 40080	IC AP1117E33LA REGULATOR
Q1	9965 000 40081	CH-TRANSPNP MMBT3906
Q2	9940 000 03333	TRANS BT3904
Q3	9965 000 40082	TRANS PMBT2907A PNP
Q4	9965 000 40082	TRANS PMBT2907A PNP
Q5	9940 000 03333	TRANS BT3904
Q6	9940 000 03333	TRANS BT3904
Q7	9940 000 03333	TRANS BT3904
Q8	9940 000 02642	TRANS 3CA8550
Q9	9940 000 02642	TRANS 3CA8550
Q10	9940 000 02646	TRANS NPNSS8050
Q11	9940 000 02646	TRANS NPNSS8050
Q14	9940 000 03333	TRANS BT3904
Q212	9940 000 02642	TRANS 3CA8550
Q213	9940 000 03333	TRANS BT3904
QS1	9940 000 03333	TRANS BT3904
QS2	9940 000 03333	TRANS BT3904
PH1	9940 000 02675	CRYSTAL 27MHZ30PF /-20PPM
	9965 000 39872	FFC CABLE 24PIN
	9965 000 40083	FFC CABLE 14P P=1.25MM L=80MM

**CASSETTE PWB ASSEMBLY**

1707	9940 000 00389	REC SWITCH 18PIN
5701	9965 000 40084	BIAS COIL LOD8-871245NP
7705	9940 000 02699	IC AN7323 PREAMP

**ELECTRICAL PARTS LIST****FRONT PANEL PCB ASSEMBLY**

JK701	9940 000 02696	MICROPHONE JACK PPJ 35G-01
L301	9940 000 02687	FM COIL 4.5TX5X0.6MM
L302	9940 000 02688	FM OSC COIL 2.5TX0.4MM
L303	9940 000 02687	FM COIL 4.5TX5X0.6MM
T301	9940 000 02689	FM DETECT IFT BLACK 7MM
T302	9940 000 02692	AM IF IFT YELLOW 7MM
T303	9965 000 39865	IFT AM OSC COIL RED 7MM
T304	9940 000 02693	AM ANT IFT BLACK 7MM
VC301	9940 000 02695	PVC 126/82/20PF
VR201	9940 000 02682	VARIABLE RES B50K
VR701	9940 000 02697	VARIABLE RES B50K
S201	9940 000 02679	TACT SWITCH AI KFC-A06-01W
S202	9940 000 02679	TACT SWITCH AI KFC-A06-01W
S203	9940 000 02679	TACT SWITCH AI KFC-A06-01W
S204	9940 000 02679	TACT SWITCH AI KFC-A06-01W
S205	9940 000 02679	TACT SWITCH AI KFC-A06-01W
S206	9940 000 02679	TACT SWITCH AI KFC-A06-01W
S207	9940 000 02679	TACT SWITCH AI KFC-A06-01W
S208	9940 000 02679	TACT SWITCH AI KFC-A06-01W
S209	9940 000 02679	TACT SWITCH AI KFC-A06-01W
SW201	9940 000 02677	SLIDE SWITCH SS-24H11-T 2P4T
SW202	9940 000 02678	PUSH SWITCH PS-22D05L (2P2T)
SR201	9940 000 01622	IR RECEIVER GR-MF902V0
LED202	9940 000 02676	LED 5MM GR LA504G7CS-2C-01-P
LCD201	9940 000 02681	LCD A95000
Q303	9940 000 02685	MOSFET KTK161Y
Q304	9940 000 02686	TRANS 2SC5345SF RF
Q305	9940 000 02686	TRANS 2SC5345SF RF
U201	9940 000 03839	IC ET8861M SOP32 LCD DRIVER
U202	9965 000 39862	ET3610S LCD DRIVER
U301	9940 000 02694	IC TA2111N AM/FM TUNER
U701	9940 000 02107	IC YD4558



## REVISION LIST

### **Version 1.0 (3141 785 30410)**

- First issue

### **Version 1.1 (3141 785 30411)**

From week 619 onwards, the DVD Drive was changed from KSM310AAA to DM3151-B. New MPEG Board and Display Borad Assy are used to match with the new DVD Drive.

- Add chapters 13 to 19 for sets produced in or after week 619.

### **Version 1.2 (3141 785 30412)**

In this version, Mechanical Parts List updated

16 9965 000 39874 DVD MECHANISM LOADER DM3151-B

(was 16 9965 000 39837 CDM LOADER)