

Service  
Service  
**Service**



# Service Manual

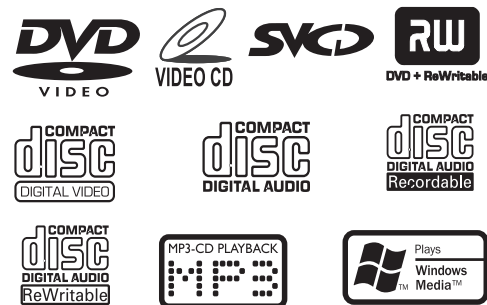


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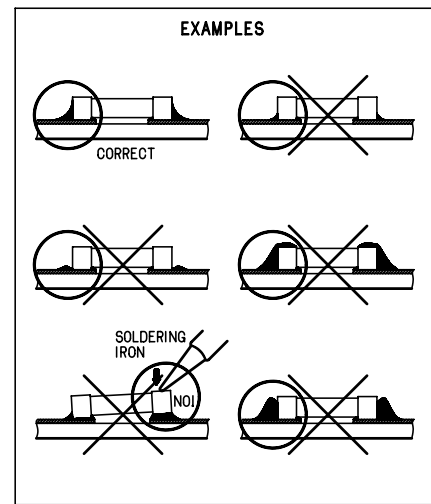
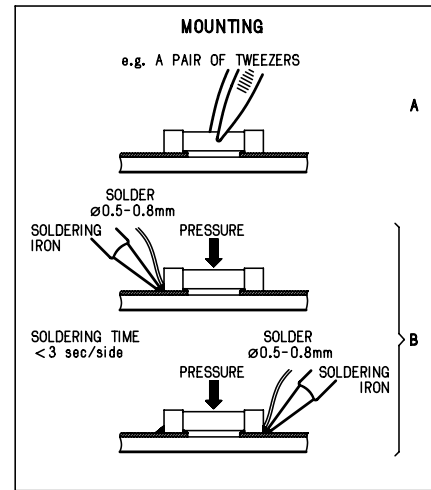
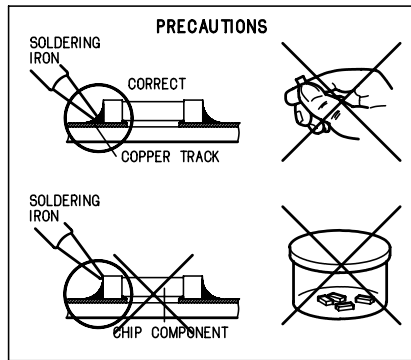
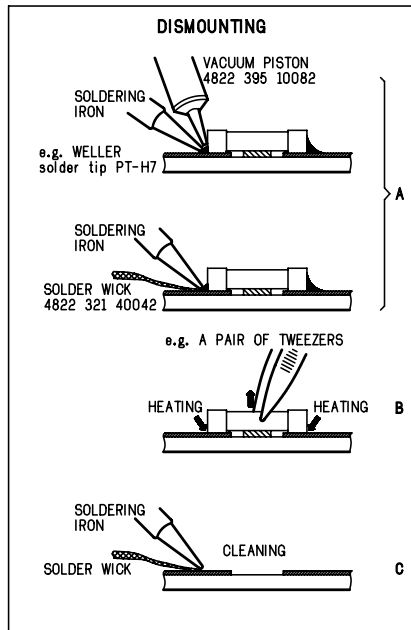
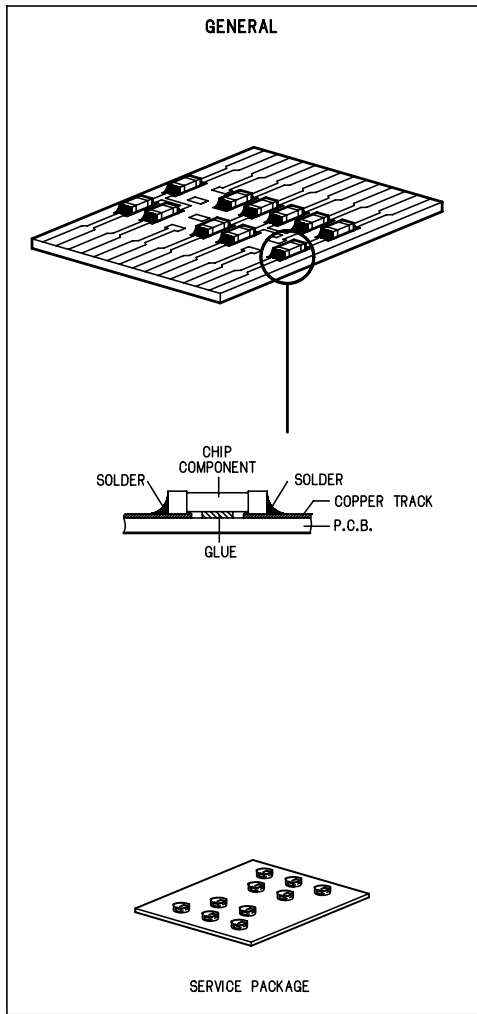
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# HANDLING CHIP COMPONENTS



## 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

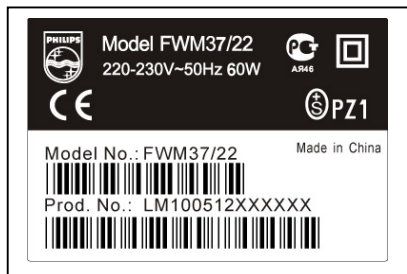
Philips CE is producing lead-free sets from 1.1.2005 onwards.

### 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.

## SPECIFICATIONS

### AMPLIFIER

Output power ..... 2 x 75 W RMS  
 Signal-to-noise ratio .....  $\geq 60$  dBA  
 Frequency response 63 – 20000 Hz, +0.5 / -1 dB  
 Input sensitivity AUX ..... 1.0 V (max. 2 V)  
 Impedance loudspeakers ..... 6  $\Omega$   
 Impedance headphones ..... 32  $\Omega$  -1000  $\Omega$

### DVD PLAYER

Laser Type ..... Semiconductor  
 Disc Diameter ..... 12cm / 8cm  
 Video Decoding ..... MPEG-2 / MPEG-1  
 Video DAC ..... 10 Bits  
 Signal System ..... PAL / NTSC  
 Video Format ..... 4:3 / 16:9  
 Video S/N ..... 56 dB (minimum)  
 Composite Video Output ..... 1.0 Vp-p, 75  $\Omega$   
 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  
 Number of programmable tracks ..... 16  
 Signal-to-noise ratio .....  $\geq 65$  dBA  
 Channel separation .....  $\geq 40$  dB (1 kHz)  
 Total harmonic distortion .....  $< 0.1\%$  (1 kHz)

### TUNER

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

### SPEAKERS

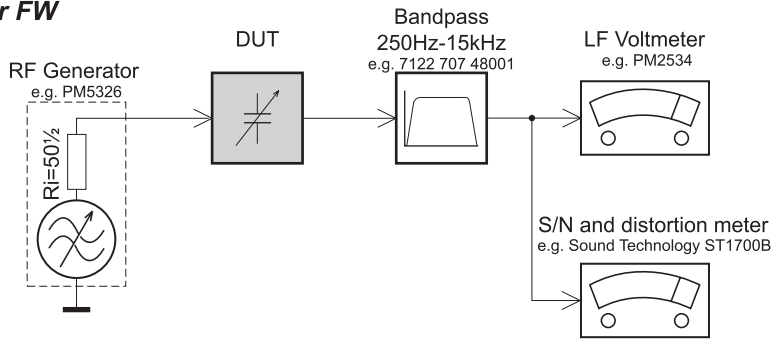
2-way bass reflex system  
 Woofer ..... 2 x 13 cm  
 Tweeter ..... 1 x 5 cm  
 Dimensions (w x h x d) .....  
 ..... 165 x 410 x 285 (mm)

### GENERAL INFORMATION

AC Power ..... 110 – 127 / 220 – 240 V;  
 ..... 50/60 Hz Switchable  
 Dimensions (w x h x d) .....  
 ..... 177 x 292 x 341 (mm)  
 Weight(with/without speakers) ..... 17.7 /5.9 kg  
 Standby power consumption .....  $\leq 7$  W

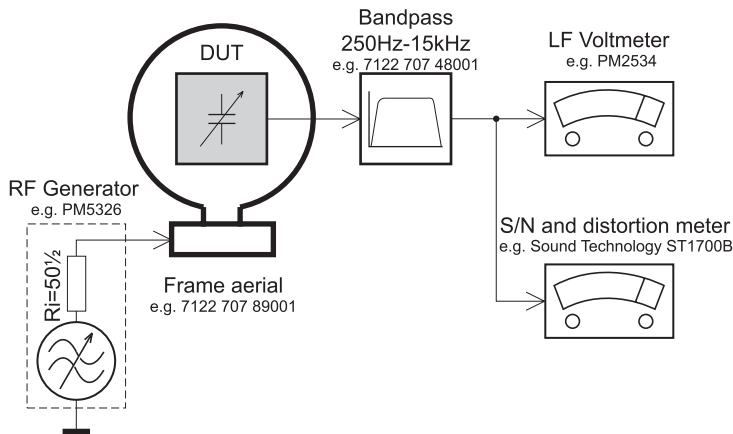
## SERVICE MEASUREMENT

### Tuner FW



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

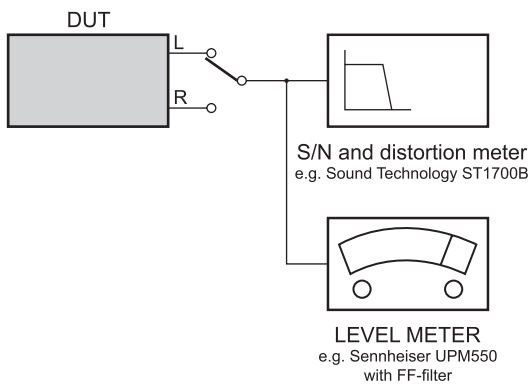
### Tuner AM (MW,LW)



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

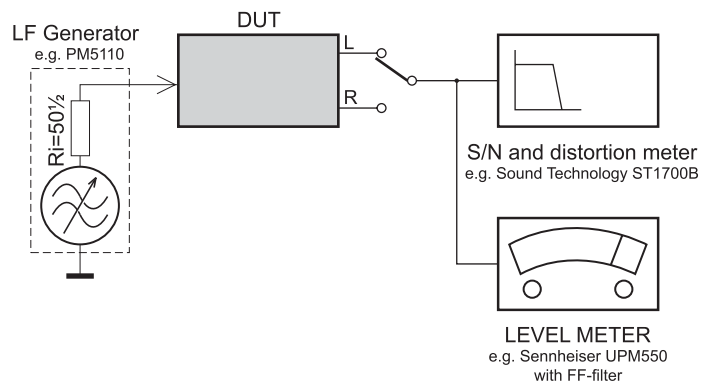
### CD

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

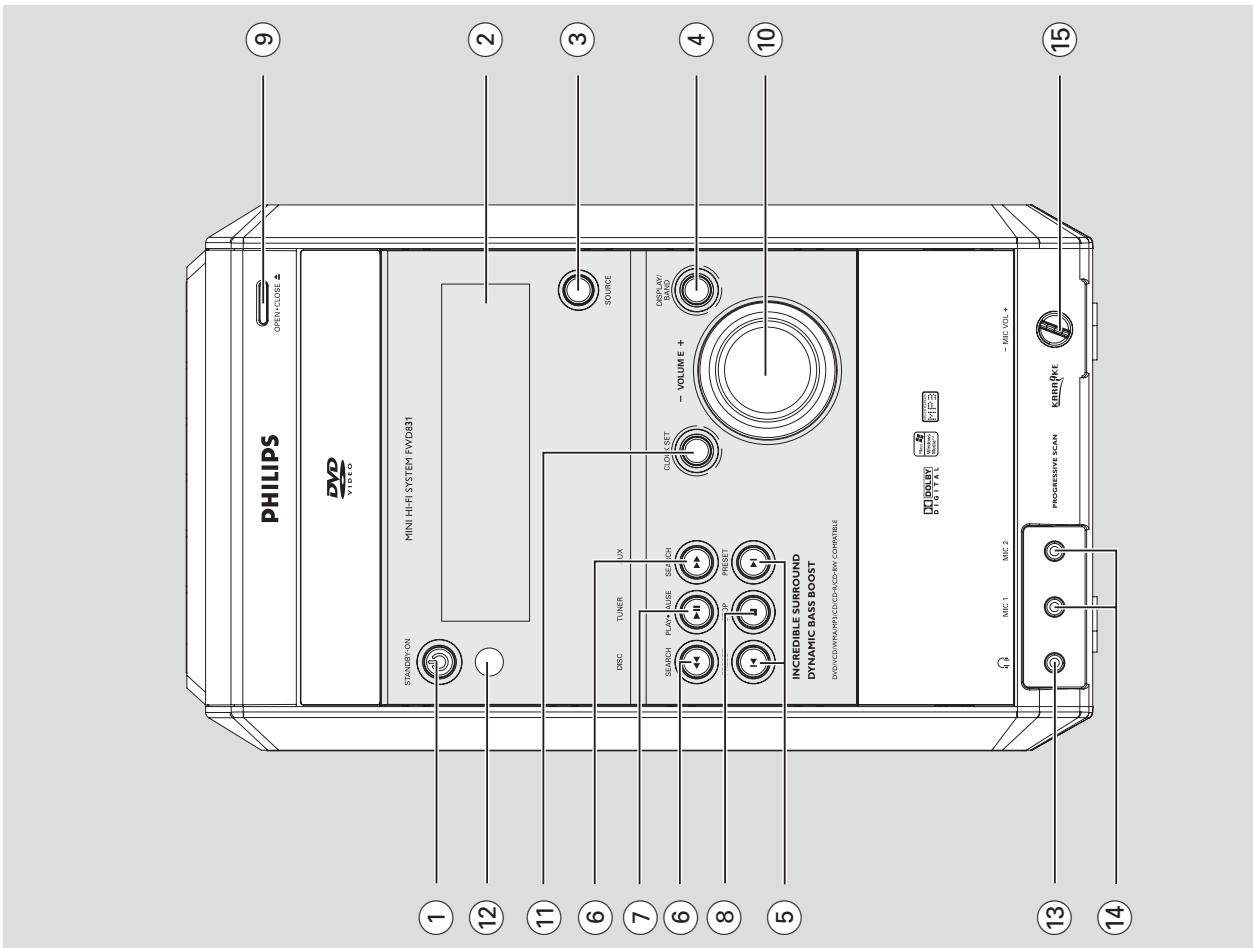
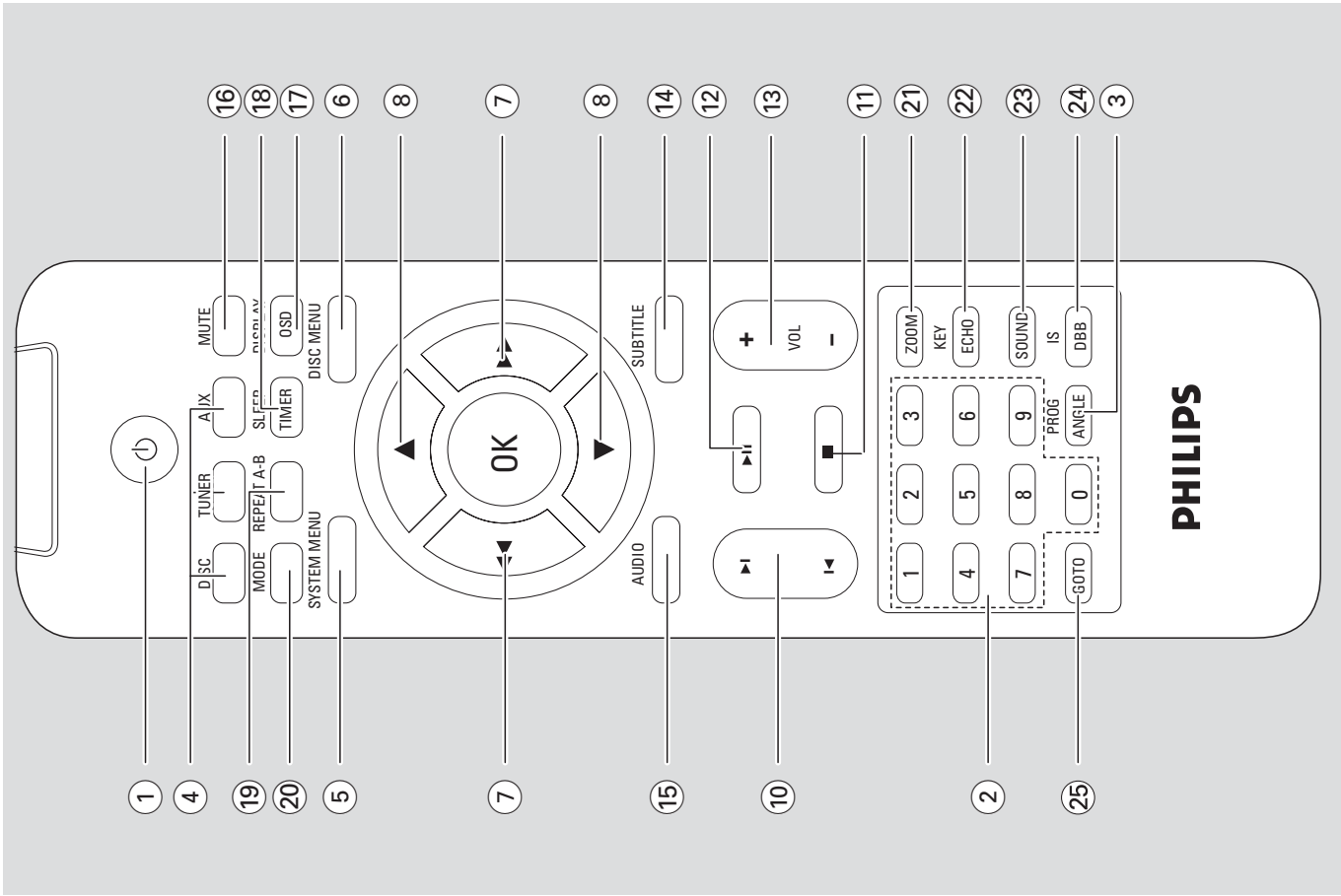


### RECORDER

Use Universal Test Cassette Fe SBC420 4822 397 30071



CONNECTION AND CONTROLS



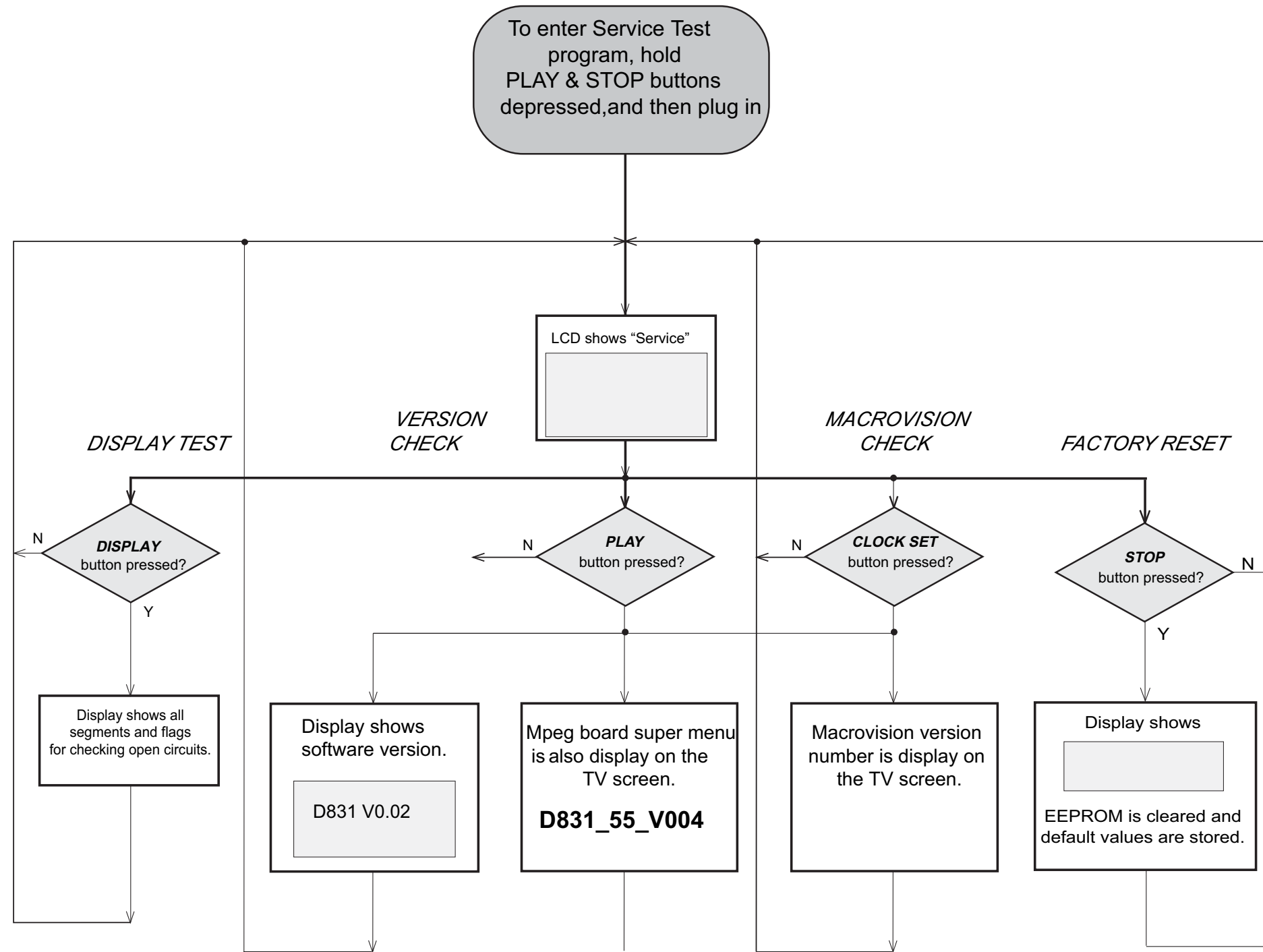
Controls

- 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.
  - ⑪ **■**  
Tuner: to select a preset radio station.  
In DISC mode, to stop playback or clear a program.
  - ⑫ **▶II**  
In DISC mode, to start or interrupt playback.
  - ⑬ **VOL +/-**  
adjusts the volume upward/downward.  
adjusts the echo/level or turns on/off the MIC in the karaoke mode.
  - ⑭ **SUBTITLE**  
selects a subtitle language.
  - ⑮ **AUDIO**  
for VCD  
sets Stereo, Mono-Left or Mono-Right sound mode.  
for DVD  
selects an audio language.
  - ⑯ **MUTE**  
to interrupt or resume sound reproduction.
  - ⑰ **DISPLAY (OSD)**  
displays information on TV screen during playback.
  - ⑱ **SLEEP/TIMER**  
Standby mode  
sets a time for switching on the system automatically.  
Power-on mode  
sets the sleep timer function (auto-off).
  - ⑲ **REPEAT A-B**  
for VCD/CD: to repeat a specific section within the same track  
for DVD: to repeat a specific section in a disc.
  - ⑳ **MODE**  
to select various repeat modes or the shuffle play mode for a disc.
  - ㉑ **ZOOM**  
DVD/VCD/Picture CD: enlarges or reduces a picture or active image on the TV screen.
  - ㉒ **KEY/ECHO**  
turns on/off microphone setting.  
turns on/off key setting.
  - ㉓ **SOUND**  
selects different types of preset sound equalizer settings: OPTIMAL, ROCK, JAZZ or TECHNO during CD/MP3/WMA playback; HALL, CINEMA or CONCERT during DVD/VCD playback.
  - ㉔ **IS/DBB**  
\*to create a super-enhanced stereo effect.  
to select desired bass enhancement effect.
  - ㉕ **GOTO**  
In DISC mode, to fast search in a disc by entering a time, title, chapter or track.
- Notes for remote control:**  
 – First, select the source you wish to control by pressing one of the source select keys on the remote control (DISC or TUNER, for example).  
 – Then select the desired function (▶II, ◀, ▶I for example).

Controls

- ⑭ **MIC 1/2**  
to connect microphone
  - ⑮ **MIC VOL +/-**  
to adjust the mixing level for Karaoke
- Controls on the remote control**
- ① **⓪**  
switches the system on/off.
  - ② **Numeric Keypad (0-9)**  
inputs a track/title/chapter number of the disc.
  - ③ **PROG/ANGLE**  
DVD/VCD/CD/MP3-CD: enters the program menu.  
Tuner: programs preset radio stations.  
DVD: selects a DVD camera angle.
  - ④ **SOURCE**  
to select the respective sound source: DISC, TUNER or AUX.
  - ⑤ **SYSTEM MENU** (disc mode only)  
to enter or exit the system menu bar.
  - ⑥ **DISC MENU** (disc mode only)  
DVD/VCD: enters or exits the disc contents menu.  
VCD2.0: in stop mode, switches the playback control mode on or off.
  - ⑦ **▶▶ / ◀◀**  
Tuner  
press to tune to a lower/higher radio frequency gradually.  
press and hold, then release the key to start automatic search for a radio frequency downward/upward.  
Disc  
(not for MP3 CD) searches backward/forward in a disc at different speeds.  
In DISC mode, to select a movement direction in the disc menu or system menu bar.  
moves an enlarged picture left/right.  
for picture CD, rotates an image clockwise or counterclockwise.
  - ⑧ **PLAY•PAUSE ▶II**  
for disc.....to start or interrupt playback.  
for Tuner.....to activate plug and play function
  - ⑧ **STOP ■**  
for DVD/VCD/CD/MP3-CD...to stop playback or to clear a program.
  - ⑨ **OPEN/CLOSE ▲**  
to open the disc compartment.
  - ⑩ **VOLUME +/-**  
to increase or decrease the volume.
  - ⑪ **CLOCK SET**  
\*for Clock.....(on the system only) to set the clock function.
  - ⑫ **iR sensor**  
infrared sensor for remote control.
  - ⑬ **📶**  
to connect headphones.
- \* = Press and hold the button for more than three seconds.

SOFTWARE VERSION AND UPGRADING



V0.02 is the software version,

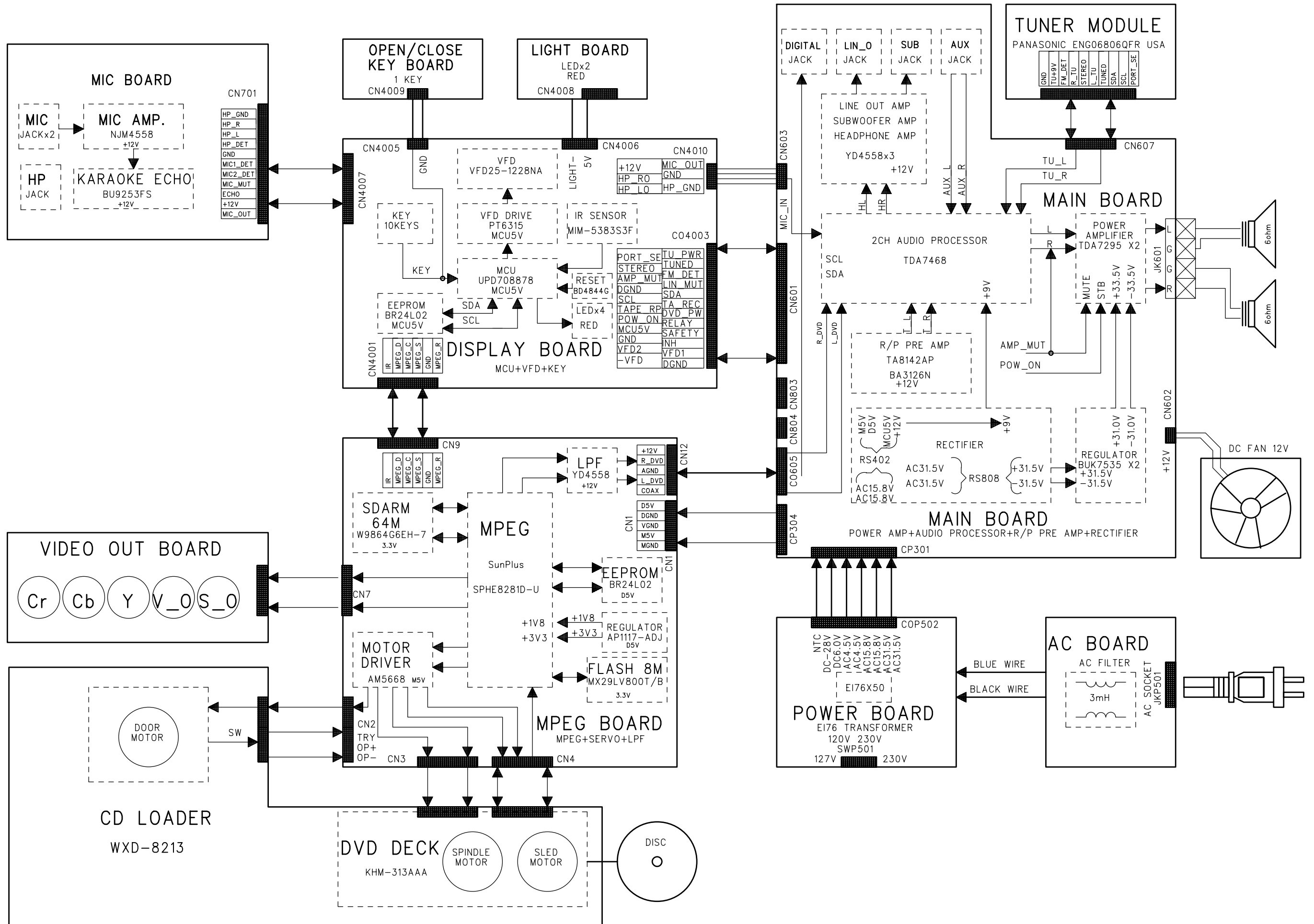
**D831\_55\_V004 :**  
The model number is FWD831.  
Software version is V0.04.  
Sale region is 55.

**servo code version:**  
SO3SO3-SLM-791

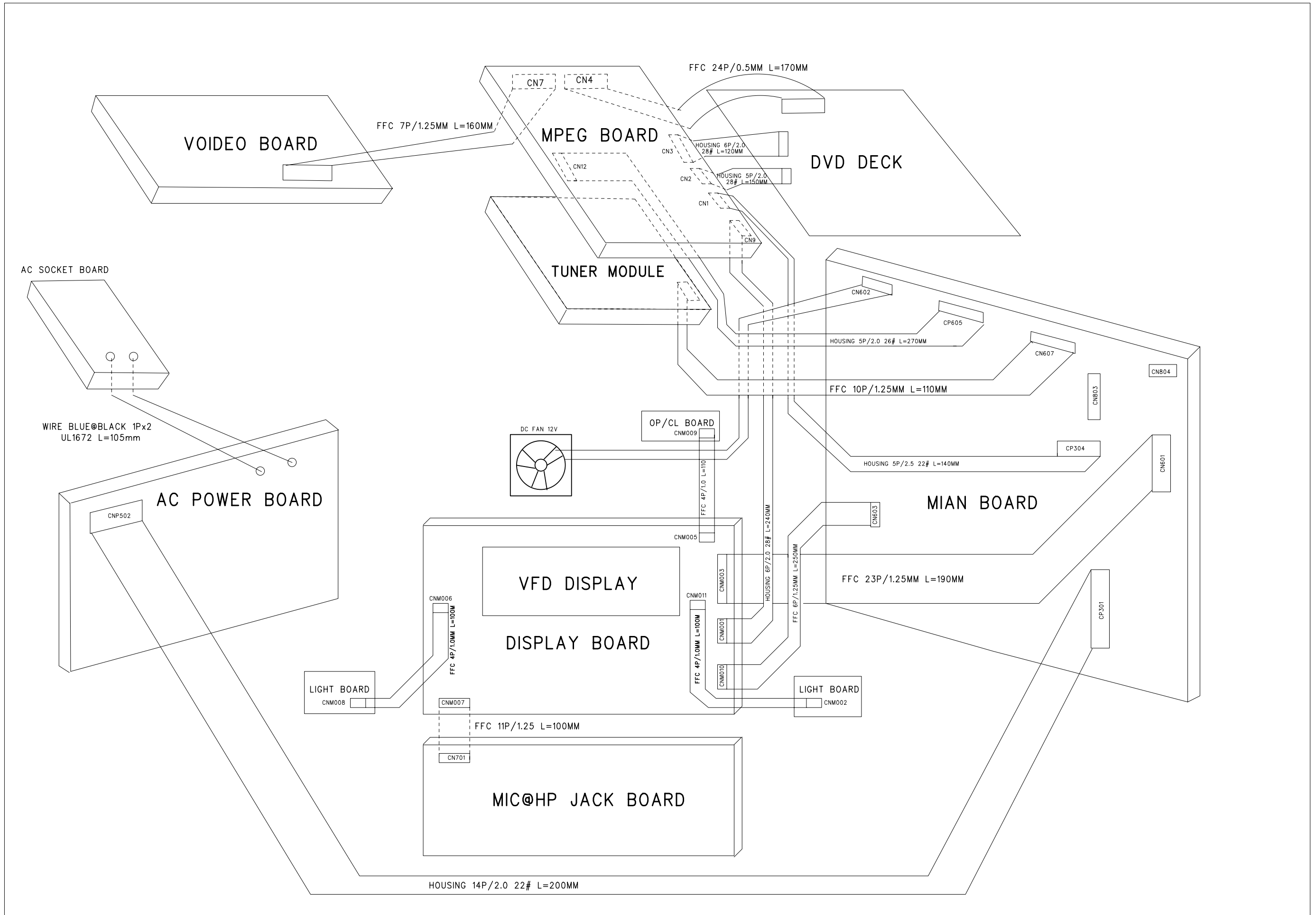
This test should be done at the end of the production process so that every set is customised before leaving factory.



# SET BLOCK DIAGRAM

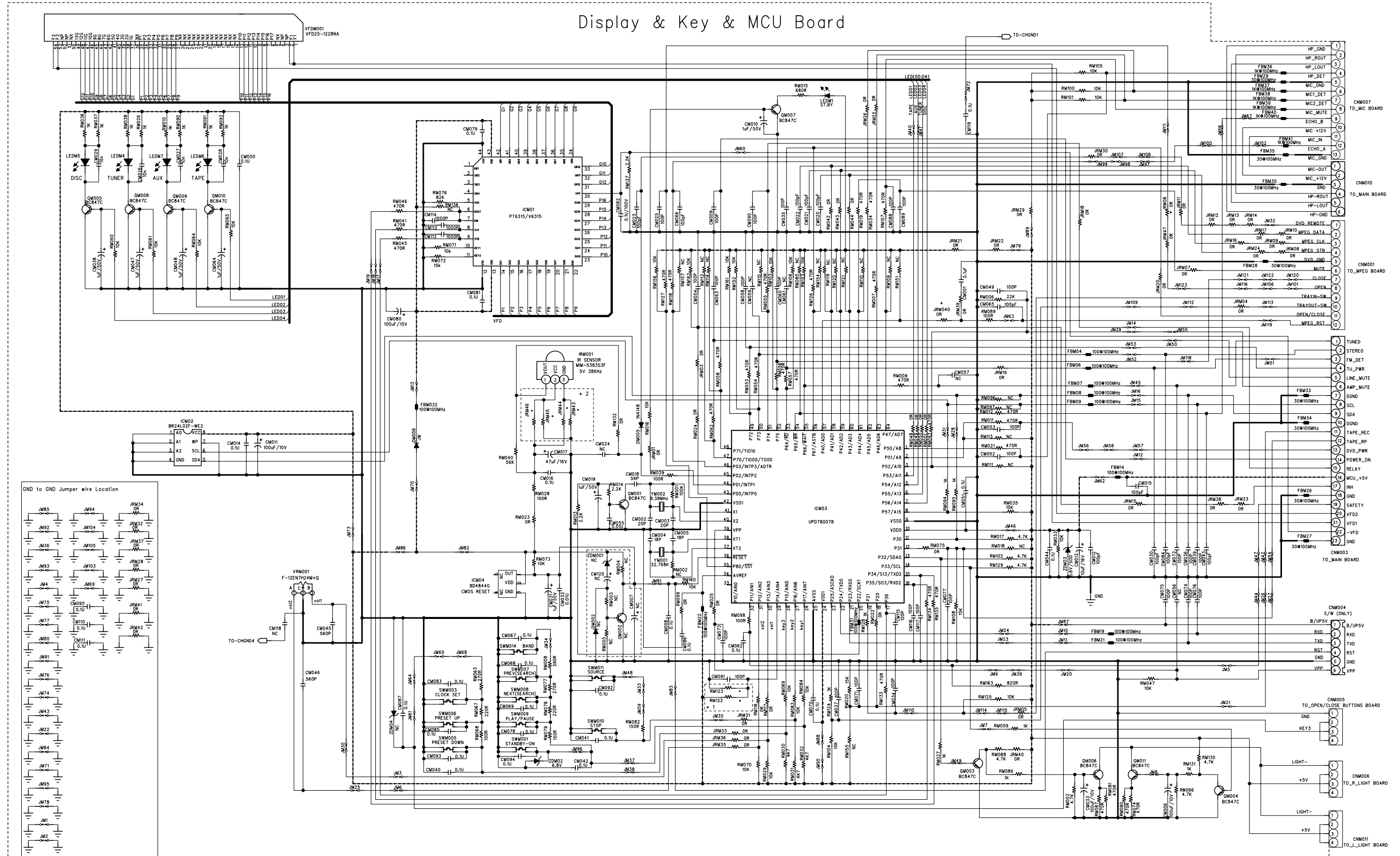


SET WIRING DIAGRAM



CIRCUIT DIAGRAM - DISPLAY BOARD  
PART 1

Display & Key & MCU Board

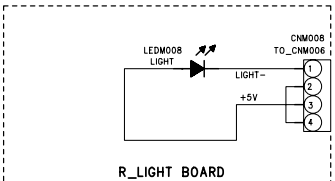
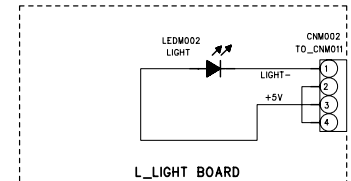
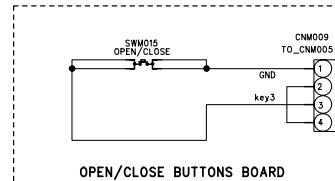


\* 1

location	98 (FWB832)	55 (FWB831)
RM122	10K	NC
RM123	NC	1K

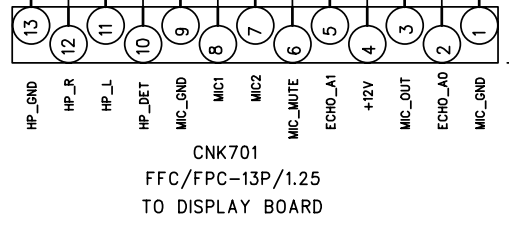
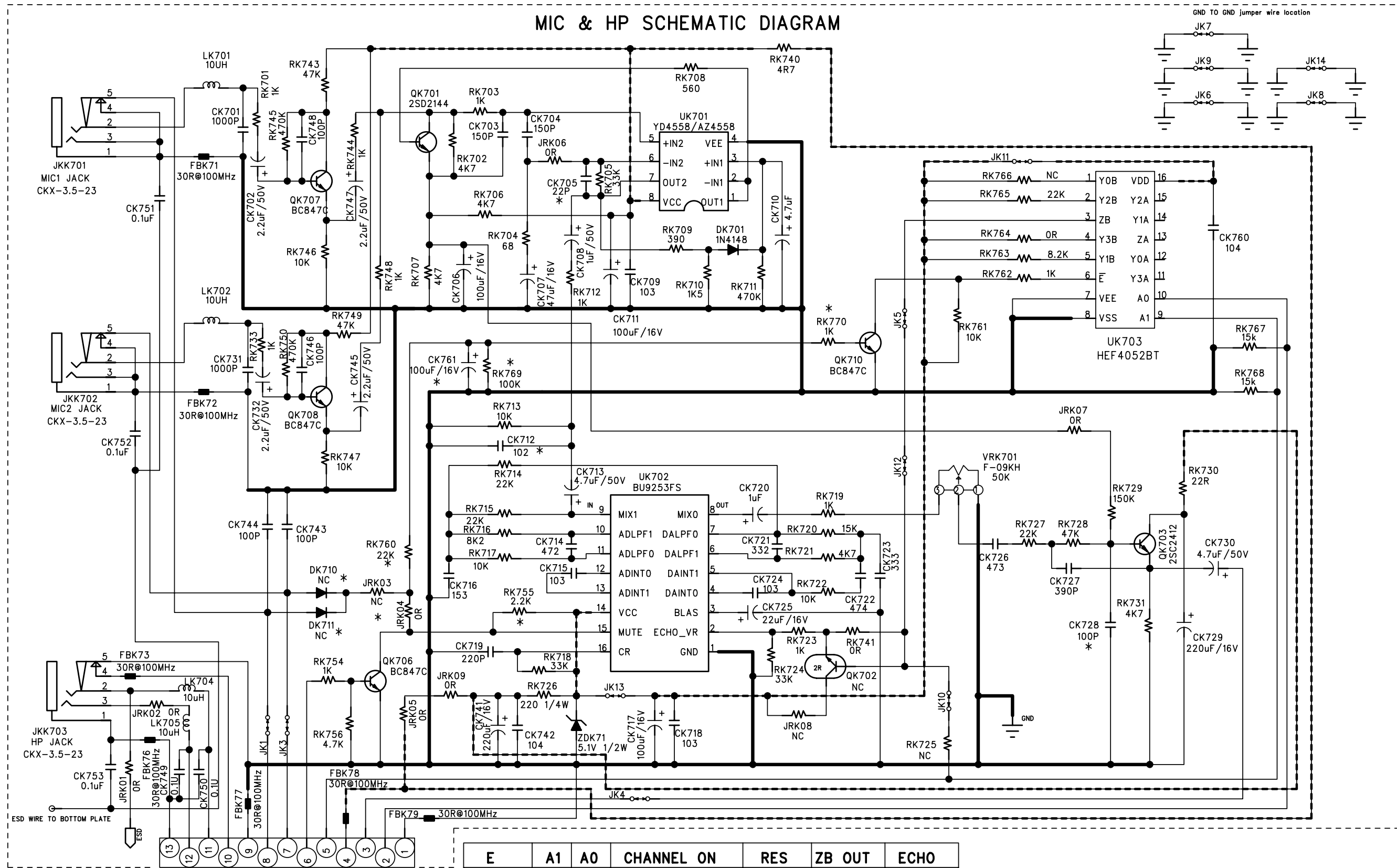
\* 2

IR sensor location	MIM-538353F	TSOP4836ZC1
JRM43	OR	NC
JRM44	NC	OR
JRM45	NC	OR
JRM46	OR	NC



CIRCUIT DIAGRAM - DISPLAY BOARD  
PART 2

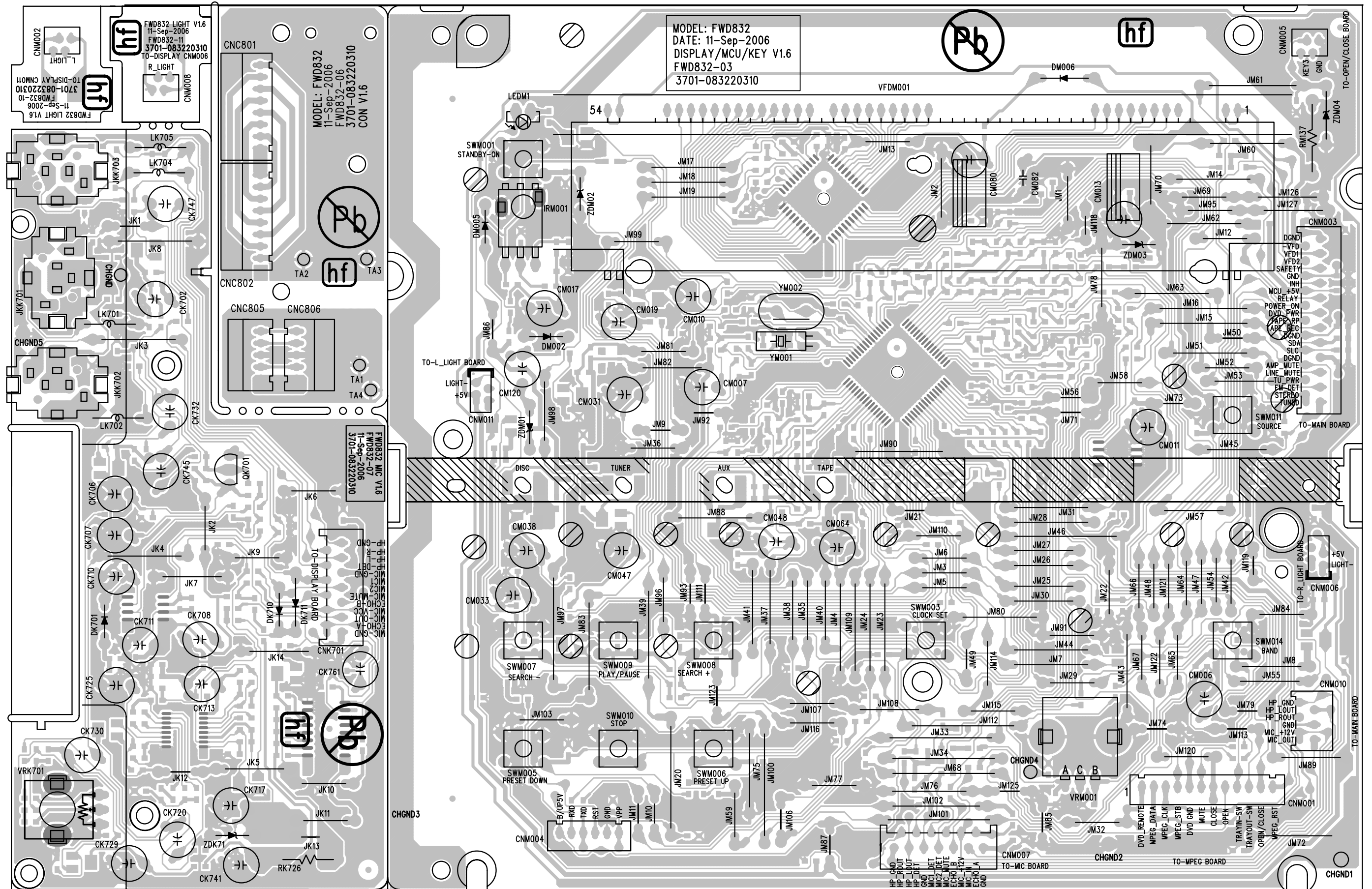
MIC & HP SCHEMATIC DIAGRAM



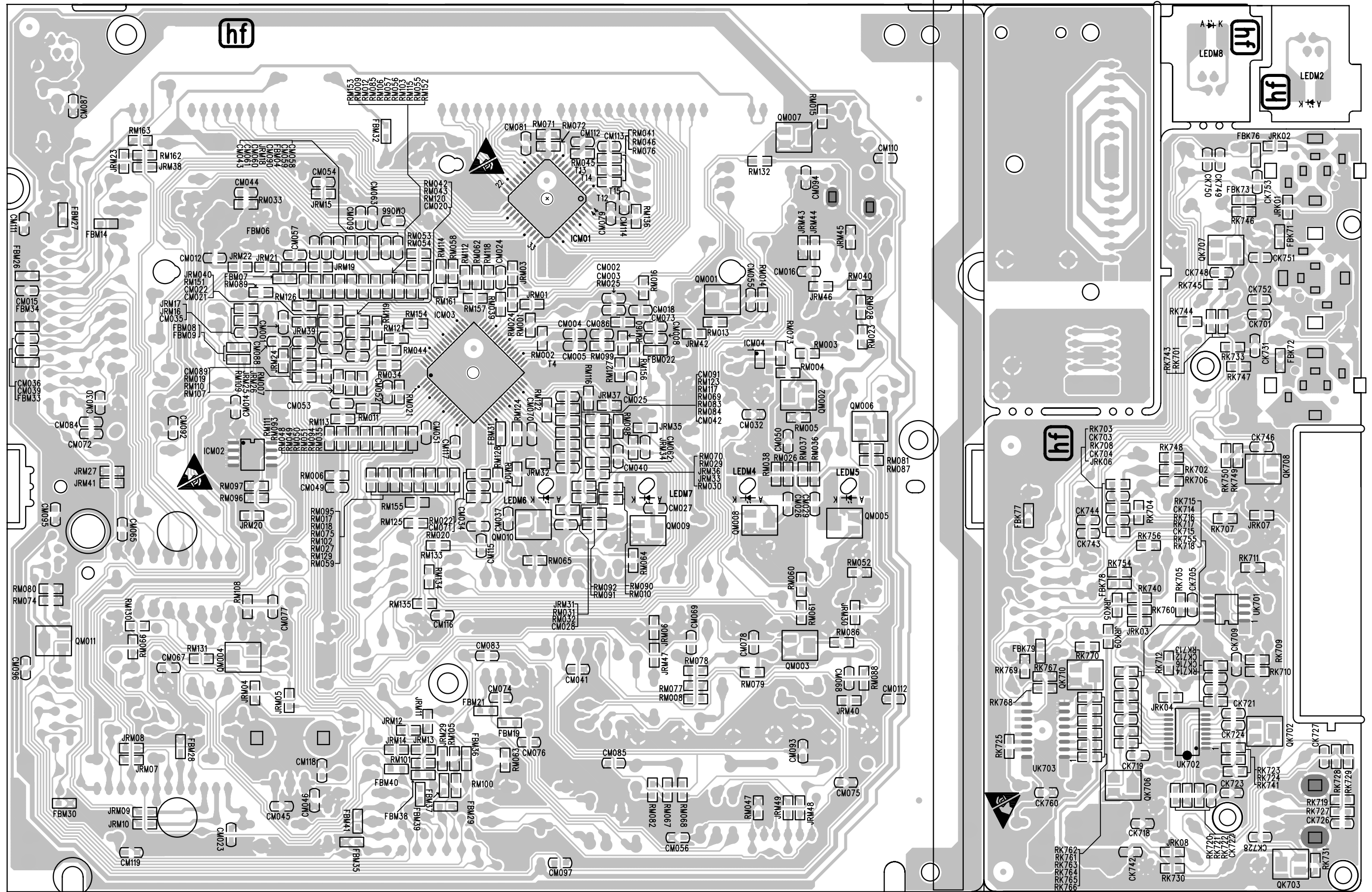
E	A1	A0	CHANNEL ON	RES	ZB OUT	ECHO
L	L	L	Y0	RK766 NC	0V	MIN (OFF)
L	L	H	Y1	RK763 8.2K	4.12V	+ 2
L	H	L	Y2	RK765 22K	3.10V	+ 1
L	H	H	Y3	RK764 OR	5.12V	MAX
H	X	X	NONE			

CNK701  
FFC/FPC-13P/1.25  
TO DISPLAY BOARD

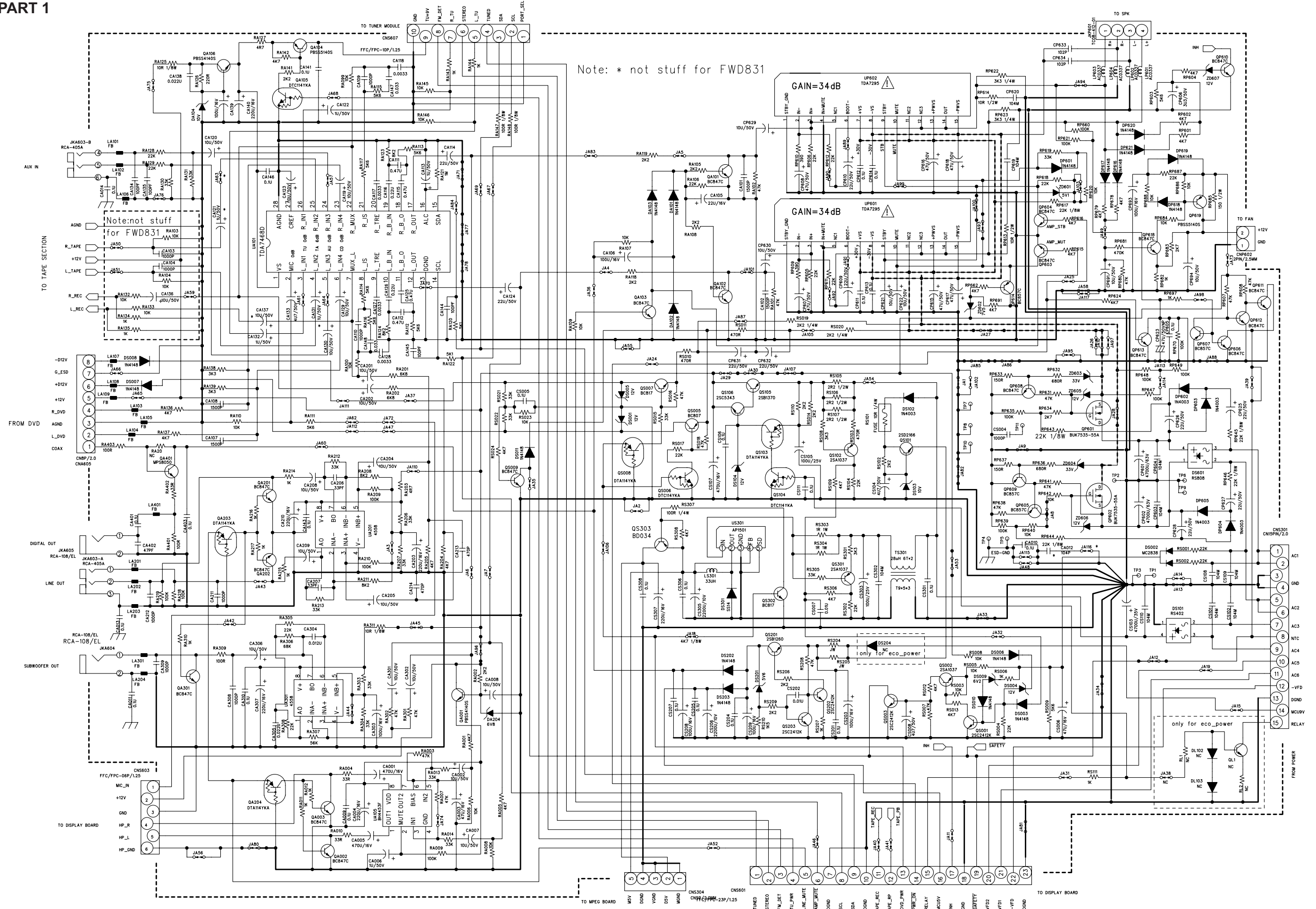
# LAYOUT DIAGRAM - DISPLAY BOARD COMPONENT SIDE



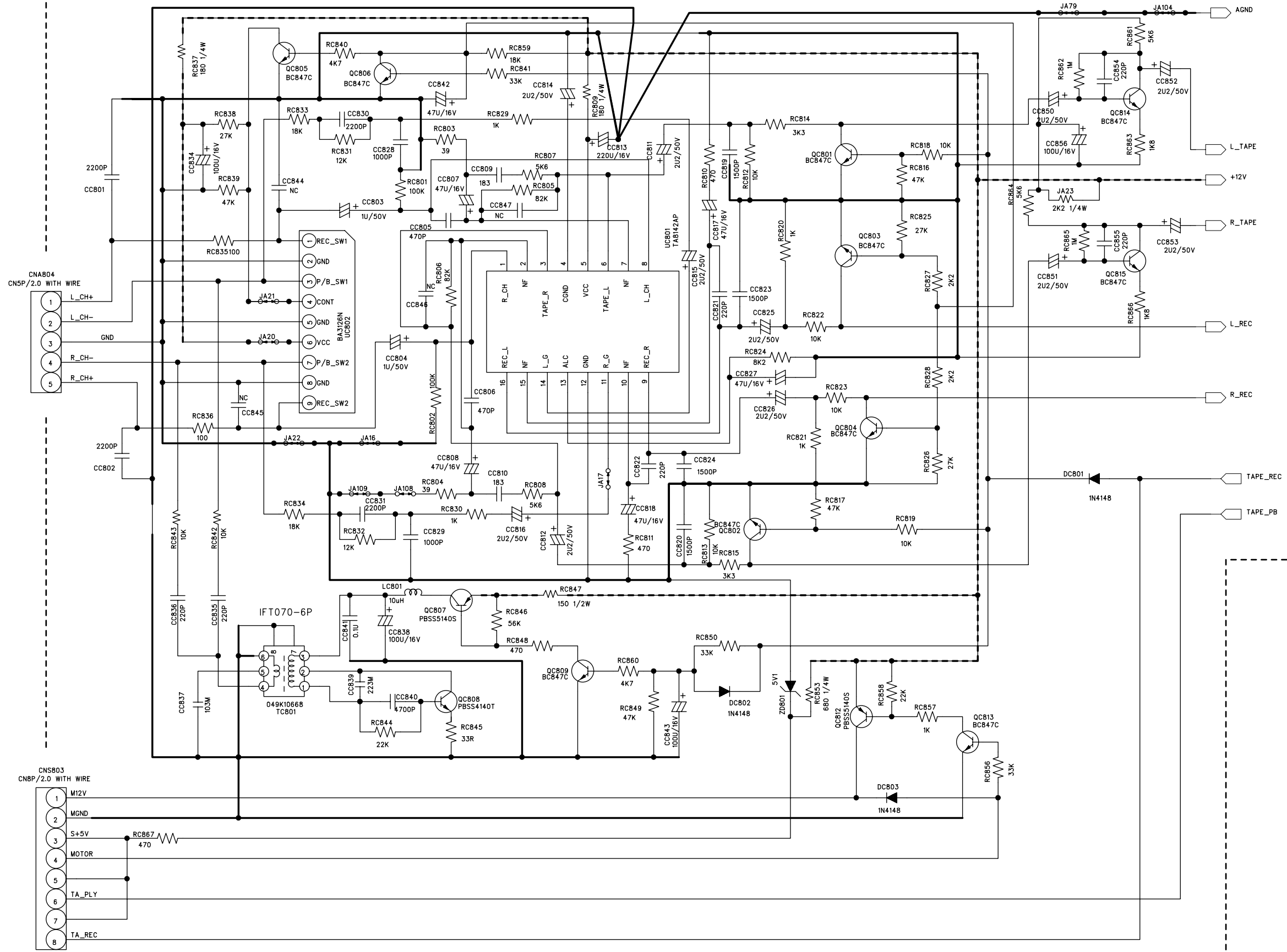
LAYOUT DIAGRAM - DISPLAY BOARD  
COPPER SIDE



# CIRCUIT DIAGRAM - MAIN BOARD PART 1



CIRCUIT DIAGRAM - MAIN BOARD  
PART 2

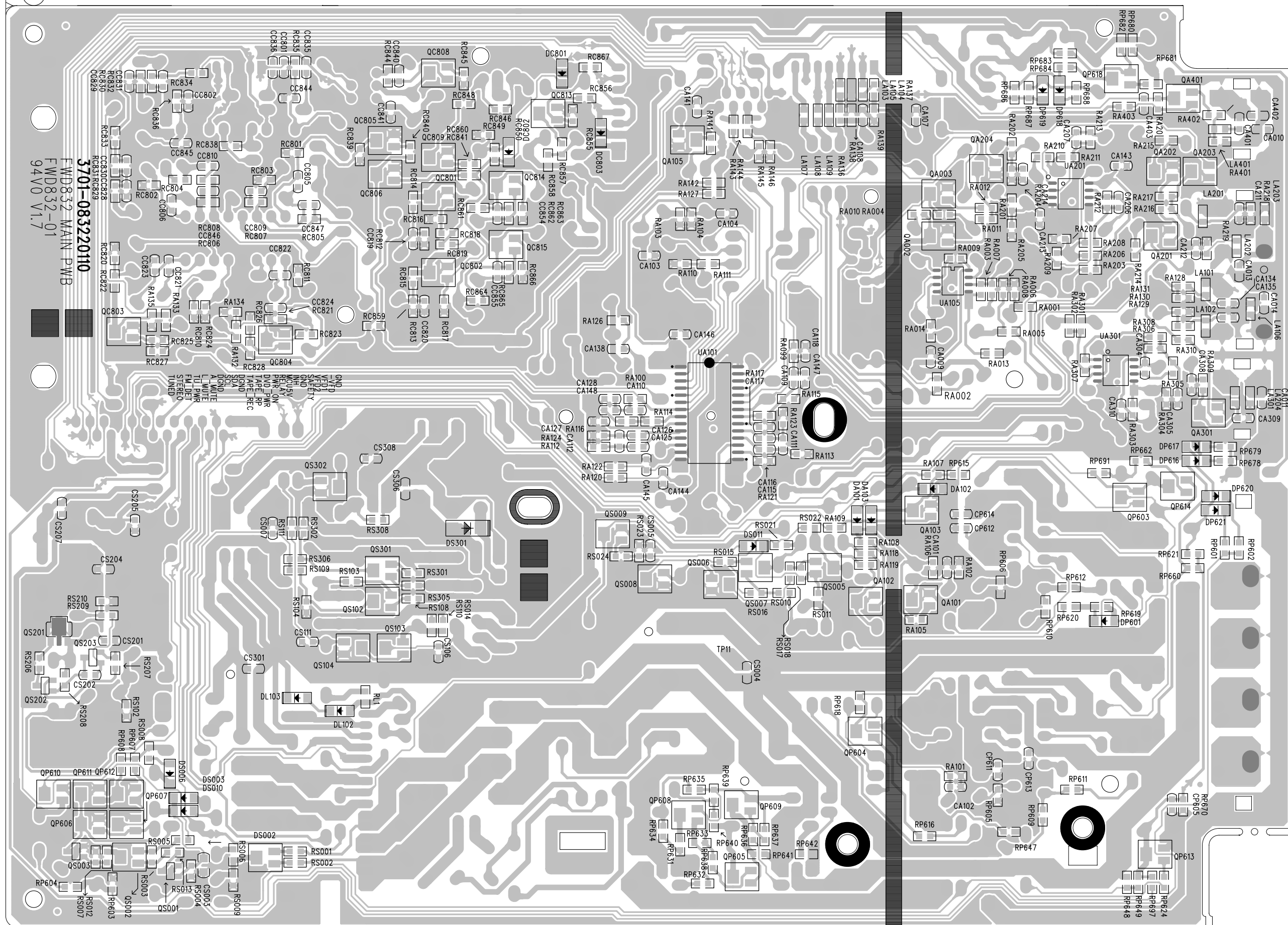


TO MAIN SECTION

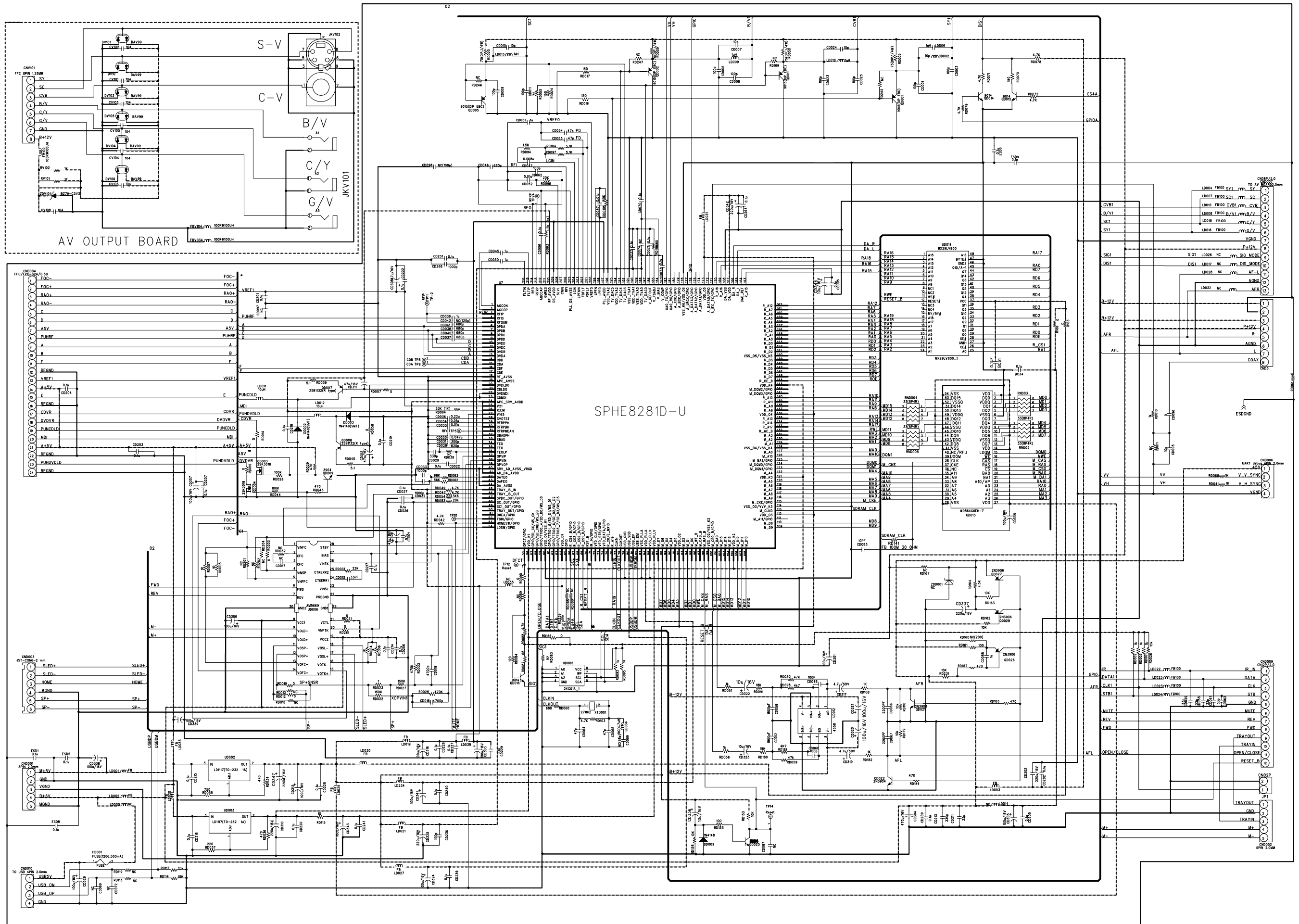




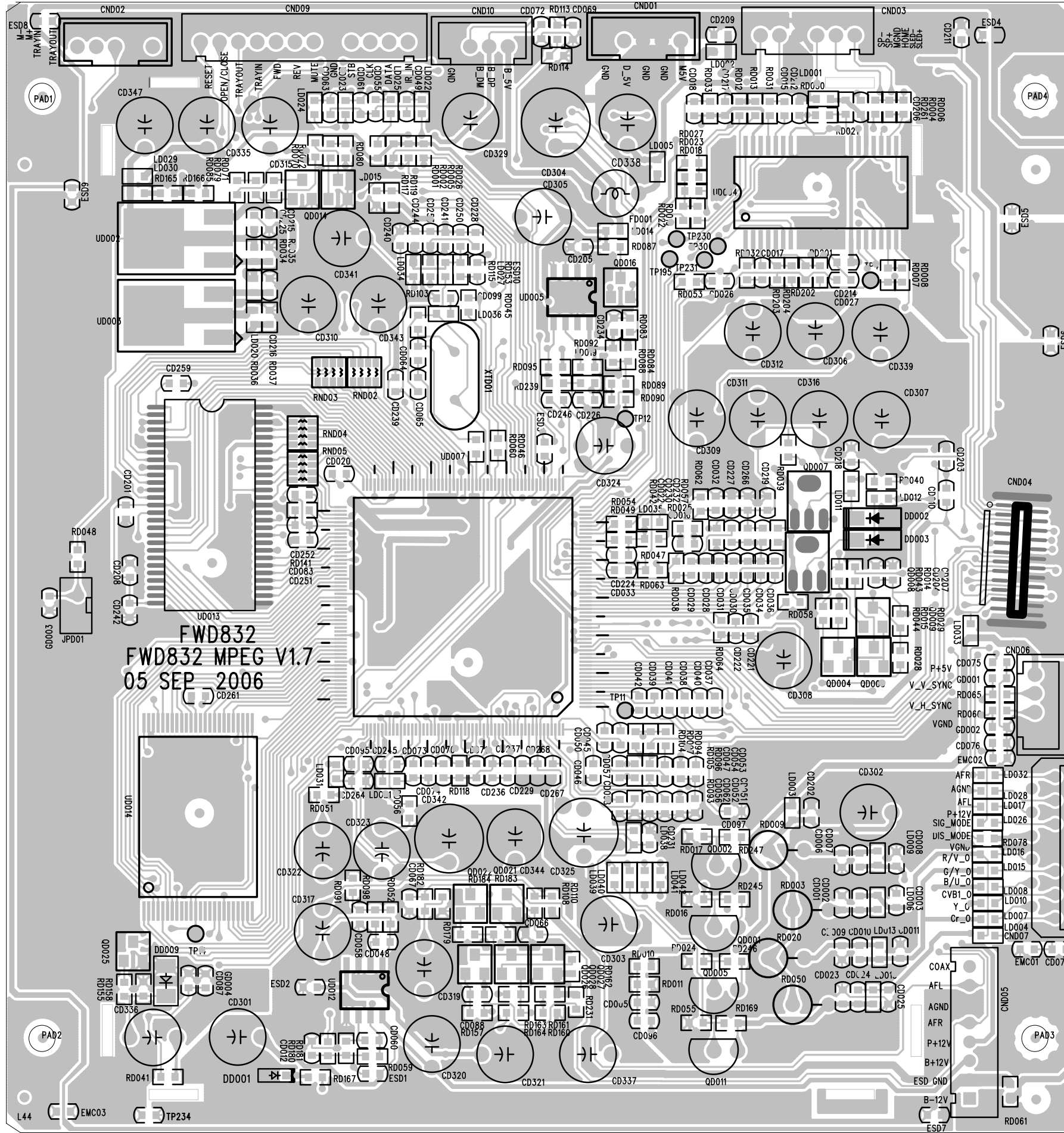
LAYOUT DIAGRAM - MAIN BOARD  
COPPER SIDE



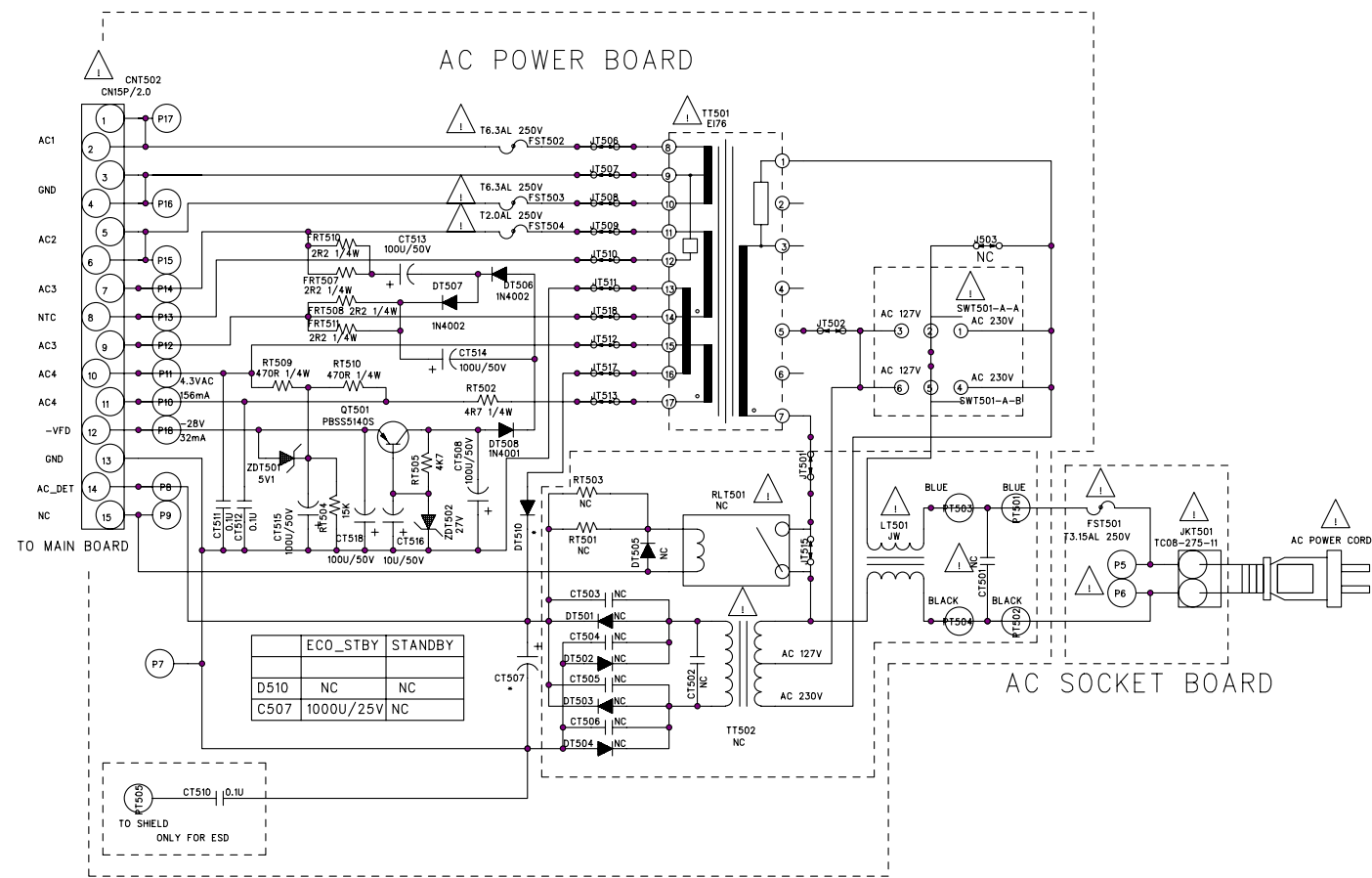
# CIRCUIT DIAGRAM - DVD MPEG BOARD



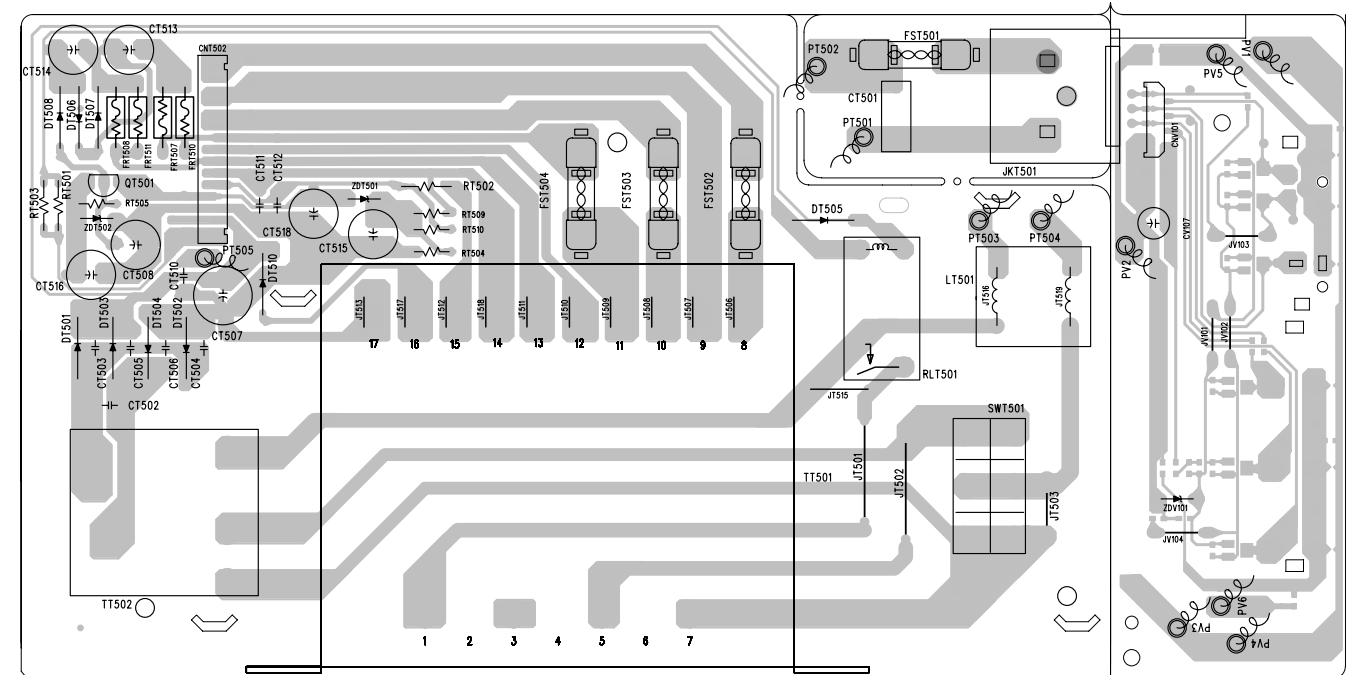
LAYOUT DIAGRAM -DVD MPEG BOARD



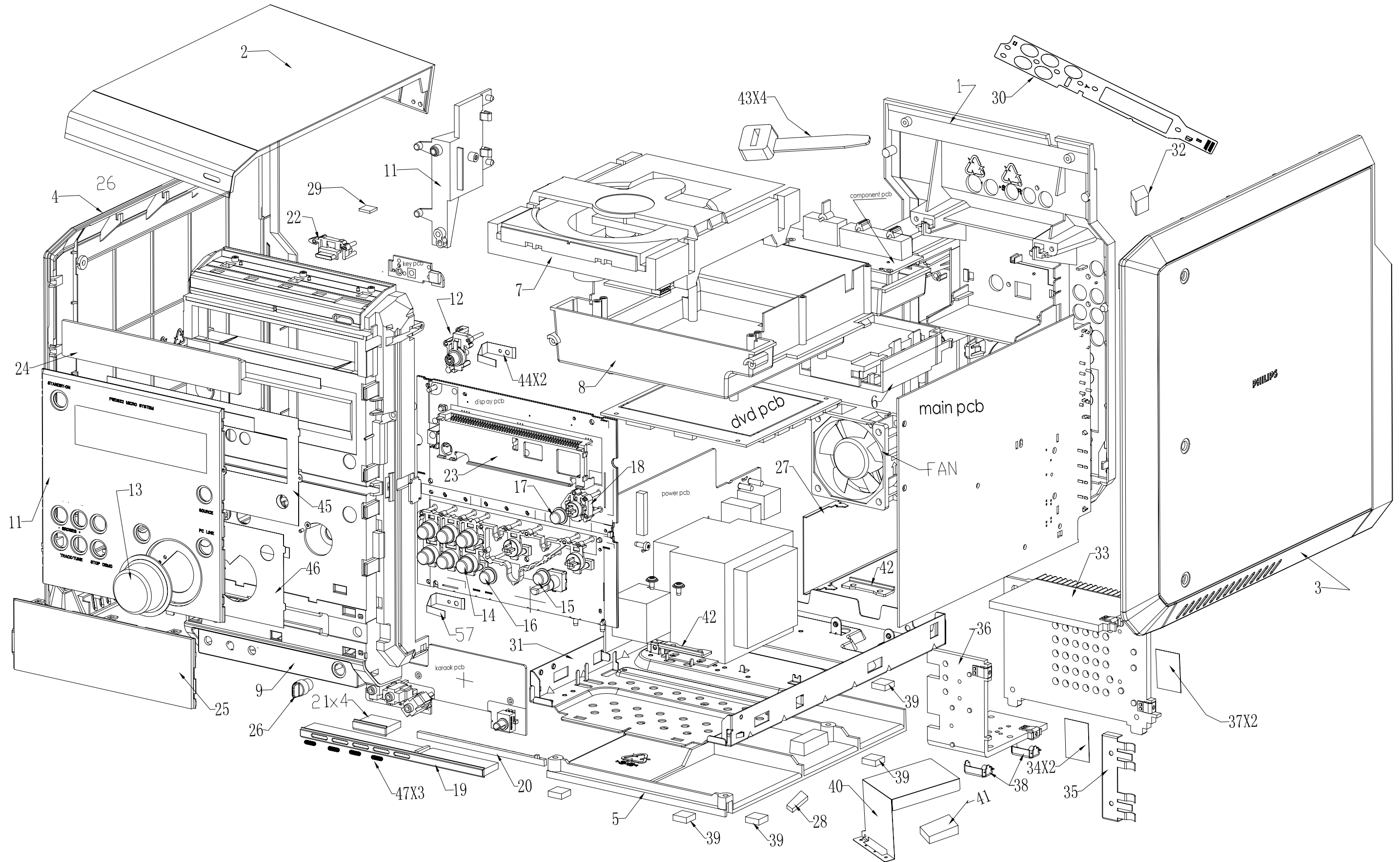
CIRCUIT DIAGRAM - AC POWER BOARD



LAYOUT DIAGRAM - AC POWER BOARD



SET MECHANICAL EXPLODED VIEW



**ACCESSORIE**

996500041694	REMOTE CONTROL "PHILIPS"
△ 994000003386	POWER CORD VDE 230V
994000002597	RCA CABLE VIDEO (YELLOW)
994000002598	RCA CABLE AUDIO (RED/WHITE)
994000002596	RCA CABLE COMP VIDEO (R/B/G)
996510000306	AM LOOP ANT 18.1uH 8T
994000003618	CONVERSION MAINS PLUG ADAPTOR
996510000308	FM ANT WIRE 75R L1.0M
996510000309	SINGLE SPEAKER BOX 6ohm 75W

**MECHANICAL PARTS LIST**

1	996500041666	CABINET-REAR
2	996510000302	CABINET TOP
4	996500041668	PANEL-LEFT
3	996500041669	PANEL-RIGHT
5	996500041670	FOOT BOTTOM
7	996500041671	CDM LOADER WXD-8213
8	996510000303	CD TRAY
9	996500041673	CABINET FRONT
11	996510000304	LENS DISPLAY
12	996500041675	BUTTON-STANDBY CHROME
13	996500041676	KNOB-VOLUME
14	996500041677	BUTTON-SET-PLAY-PAUSE
15	996500041678	CAP-OCLINK-CHROME
16	996500041680	CAP-BROWSE-CHROME
17	996500041681	CAP-SOURCE-CHROME
18	996500041679	BUTTON-SET-SOURCE
19	996500041682	LENS-LIGHT GUIDE-SOURCE-2
20	996500041683	LENS-LIGHT GUIDE-SOURCE-3
21	996500041684	LENS-LIGHT GUIDE-SOURCE-A
22	996500041685	BUTTON EJECT CHROME
24	996500041687	CD DOOR
25	996510000305	COVER FRONT
26	996500041689	MIC KNOB
39	994000002094	RUBBER-FOOT 4MM

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

**ELECTRICAL PARTSLIST - MAIN BOARD****- MISCELLANEOUS -**

CNA605	9965 000 41704	HEADER 8PIN P=2.0MM STRAIGHT
JKA604	9965 000 41705	JACK RCA-107B-02 1PORT(BLACK)
JKA605	9965 000 41706	JACK RCA-107B-04 1PORT (ORANGE)
JKA603	9940 000 03315	JACK RCA-405A-04 WHITE/RED
JKP601	9940 000 02095	SPK TERMINAL TC08-412-0
TC801	9965 000 41709	IFT 049K10668 TYPE 7CDA BLACK

**- COILS -**

LP601	9940 000 05659	FM COIL AC0377 18.5TX5.6X0.5MM
LP602	9940 000 05659	FM COIL AC0377 18.5TX5.6X0.5MM
LP603	9940 000 05659	FM COIL AC0377 18.5TX5.6X0.5MM
LP604	9940 000 05659	FM COIL AC0377 18.5TX5.6X0.5MM

**- IC & TRANSISTORS -**

QA106	9965 000 41697	TRANSISTOR PBSS4140S
QA401	9965 000 41698	CH-TRANS. 8050M SOT23
QA203	9965 000 41699	CH-TRANS. DTA114YKA SMT3
QA204	9965 000 41699	CH-TRANS. DTA114YKA SMT3
QA105	9965 000 41700	CH-TRANS. DTC114YKA NPN
UA101	9965 000 41701	IC TDA7468D SOUND SO28
UA201	9965 000 41702	IC, AZ4558 OPERATIONALL
UA301	9965 000 41702	IC, AZ4558 OPERATIONALL
UA105	9965 000 41703	IC, BH4453F
QP619	9940 000 05652	TRANSISTOR PBSS5140S
QP601	9965 000 38552	MOSFET BUK7535-55A
QP602	9965 000 38552	MOSFET BUK7535-55A
UP601	9940 000 05655	IC TDA7295 AMPLIFIER 80V-80W
UP602	9940 000 05655	IC TDA7295 AMPLIFIER 80V-80W
QC808	9940 000 05653	TRANSISTOR PBSS4140T
QC807	9940 000 05652	TRANSISTOR PBSS5140S
QC812	9940 000 05652	TRANSISTOR PBSS5140S
UC802	9965 000 41707	IC BA3126N
UC801	9965 000 41708	IC TA8142AP

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




**ELECTRICAL PARTS LIST - DISPLAY & MIC BOARD**

ICM01	996510000296	IC, VFD DRIVER PT6315 LQFP44
ICM02	994000002671	IC, BR24L02F-WE2
ICM03	996500041717	IC MICROCONTROLLER UPD780078
ICM04	996500041716	IC, CMOS RESET BD4844G SSOP5
IRM001	996510000294	IR SENSOR MIM-5383S3F 5V 38KHz
JKK701	994000003605	MICRO PHONE JACK
JKK702	994000003605	MICRO PHONE JACK
JKK703	994000003605	MICRO PHONE JACK
LEDM1	994000002115	LED 3MM 3R4HD-7(REL)
LEDM2	996500041733	CH-LED 67-21SUBC BLUE
LEDM4	996510000293	LED KA-3528SURCK-09 RED
LEDM5	996510000293	LED KA-3528SURCK-09 RED
LEDM7	996510000293	LED KA-3528SURCK-09 RED
LEDM8	996500041733	CH-LED 67-21SUBC BLUE
QK701	996500041729	TRANSISTOR, 2SD2144 NPN
QK703	996500041728	TRANS 2SC2412 NPN SMT3
SWM001	994000004259	SWITCH TACT TSA-06430-150
SWM003	994000004259	SWITCH TACT TSA-06430-150
SWM005	994000004259	SWITCH TACT TSA-06430-150
SWM006	994000004259	SWITCH TACT TSA-06430-150
SWM007	994000004259	SWITCH TACT TSA-06430-150
SWM008	994000004259	SWITCH TACT TSA-06430-150
SWM009	994000004259	SWITCH TACT TSA-06430-150
SWM010	994000004259	SWITCH TACT TSA-06430-150
SWM011	994000004259	SWITCH TACT TSA-06430-150
SWM014	994000004259	SWITCH TACT TSA-06430-150
SWM015	994000004259	SWITCH TACT TSA-06430-150
UK701	996500041702	IC, AZ4558 OPERATIONALL
UK702	996500041732	KARAOKE ECHO IC BU9253FS
UK703	996500041731	IC,HEF4052BT(SOP16) DUAL4-CH
VFDM001	996500041718	VFD, VFD25-1228NA
VRK701	996510000298	RESISTOR 50K +/-20% F-09KH
VRM001	996510000297	ROTARY ENCODER
YM001	994000005671	XTAL 32.768KHZ +/-20PPM 12PF
YM002	994000003343	CRYSTAL 8.38MHZ /-20PPM

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

**ELECTRICAL PARTSLIST - MAIN BOARD(DC POWER PORTION)****- MISCELLANEOUS -**

RS101  9940 000 05648 FUSE RES 22R 1/4W +/-5%

**- DIODES -**

DS601 9940 000 05313 RECTIFIER BRIDGE DIODE RS808  
 DS003 9940 000 03599 DIODE RLS4148 LL-34  
 DS006 9940 000 03599 DIODE RLS4148 LL-34  
 DS004 9940 000 04222 ZENER DIODE 9.1V  
 DS002 9965 000 41720 SWITCHING DIODE SDS2838F

DS103 9965 000 41721 ZENER DIODE BZX79-C10  
 DS301 9965 000 41722 SCHOTTKY SS14 SMA/DO-214AC

**- IC & TRANSISTORS -**

QS005 9965 000 41699 CH-TRANS. DTA114YKA SMT3  
 QS008 9965 000 41699 CH-TRANS. DTA114YKA SMT3  
 QS103 9965 000 41699 CH-TRANS. DTA114YKA SMT3  
 QS006 9965 000 41700 CH-TRANS. DTC114YKA NPN  
 QS007 9965 000 41700 CH-TRANS. DTC114YKA NPN  
 QS104 9965 000 41700 CH-TRANS. DTC114YKA NPN  
 QS302 9965 000 41700 CH-TRANS. DTC114YKA NPN  
 QS101 9965 000 41723 TRANS. 2SD2166-R NPN TO-126FP  
 QS303 9940 000 02642 TRANSISTOR, 3CA8550  
 QS201 9965 000 41724 TRANS.2SB1260RPNP TO-92  
 QS105 9965 000 41725 TRANS. 2SB1370PNP TO-220FP  
 QS106 9965 000 41726 TRANS. 2SC5343 NPN TO-92  
 QS002 9965 000 41727 TRANS. 2SA1037AK PNP SMT3  
 QS102 9965 000 41727 TRANS. 2SA1037AK PNP SMT3  
 QS301 9965 000 41727 TRANS. 2SA1037AK PNP SMT3  
 QS001 9965 000 41728 TRANS.2SC2412 NPN SMT3  
 QS003 9965 000 41728 TRANS.2SC2412 NPN SMT3  
 QS202 9965 000 41728 TRANS.2SC2412 NPN SMT3  
 QS203 9965 000 41728 TRANS.2SC2412 NPN SMT3  
 US301 9965 000 41730 IC TD1501 TO220B-5L 5V 3A 150K

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

**ELECTRICAL PARTS LIST - SERVO AND MPEG BOARD**

DD002	994000003599	DIODE RLS4148 LL-34
DD003	994000003599	DIODE RLS4148 LL-34
GD001	994000004265	PULSE GUARD
GD001	996510000291	PULSE GUARDESDA-TR1
GD002	994000004265	PULSE GUARD
GD002	996510000291	PULSE GUARDESDA-TR1
GD003	994000004265	PULSE GUARD
GD003	996510000291	PULSE GUARDESDA-TR1
GD004	994000004265	PULSE GUARD
GD004	996510000291	PULSE GUARDESDA-TR1
LD011	994000001597	CHOCK COIL 10UH
LD012	994000001597	CHOCK COIL 10UH
QD001	996510000283	TRANSISTOR PNP 3CG9015C
QD002	996510000283	TRANSISTOR PNP 3CG9015C
QD003	996510000284	MOSFET 2SK3018 UMT3
QD004	996510000284	MOSFET 2SK3018 UMT3
QD005	996510000283	TRANSISTOR PNP 3CG9015C
QD007	996510000285	TRANSISTOR 2SB1132R
QD008	996510000285	TRANSISTOR 2SB1132R
QD009	996510000272	TRANSISTOR, SMBT3904
QD011	996510000283	TRANSISTOR PNP 3CG9015C
QD014	996510000281	TRANS. NPN 3DG9014M-C
QD015	996510000281	TRANS. NPN 3DG9014M-C
QD016	996510000281	TRANS. NPN 3DG9014M-C
QD021	996510000272	TRANSISTOR, SMBT3904
QD022	996510000272	TRANSISTOR, SMBT3904
QD026	996510000282	TRANSISTOR SMBT3906
QD027	996510000282	TRANSISTOR SMBT3906
QD028	996510000282	TRANSISTOR SMBT3906
RND002	996510000280	ARRAY-RES 33Rx4 1/16W 5%
RND003	996510000280	ARRAY-RES 33Rx4 1/16W 5%
RND004	996510000280	ARRAY-RES 33Rx4 1/16W 5%
RND005	996510000280	ARRAY-RES 33Rx4 1/16W 5%
UD002	996500041905	IC AZ1117D-ADJTRE1 1A
UD003	996500041905	IC AZ1117D-ADJTRE1 1A
UD004	996510000290	IC AM5669M28-E1 MOTOR DRIVER
UD005	994000002671	IC, BR24L02F-WE2
UD007	996510000288	IC MPEG DECODER SPHE8281D-U
UD012	996500041702	IC, AZ4558 OPERATIONALL
UD013	996510000286	IC W9864G6EH-7 TSOP54L SDRAM
UD013	996510000287	IC W9864G6EH-6 TSOP54L SDRAM
UD014	996510000289	IC 8M FLASH MX29LV800BTTC-70G

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

**ELECTRICAL PARTS LIST****- AC POWER BOARD -**

FRT507	△ 994000004221	FUSE RES 2.2R 1/4W +/-5%
FRT508	△ 994000004221	FUSE RES 2.2R 1/4W +/-5%
FRT510	△ 994000004221	FUSE RES 2.2R 1/4W +/-5%
FRT511	△ 994000004221	FUSE RES 2.2R 1/4W +/-5%
FST501	△ 994000005593	FUSE T3.15AL 250V 5X20MM
FST502	△ 994000005594	FUSE T6.3AL 250V 5X20MM
FST503	△ 994000005594	FUSE T6.3AL 250V 5X20MM
FST504	△ 994000001617	FUSE UTE002 2A 250V
JKT501	△ 994000003327	AC POWER SOCKET 2PIN
QT501	994000005652	TRANSISTOR PBSS5140S
SWT501	△ 994000001674	VOLTAGE SELECT 110/220V
TT501	△ 996500041743	POWER TRASFO AC127-230V

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

JKV101	996500041734	VIDEO JACK RCA-314/PB
JKV102	996500041735	VIDEO JACK DASW-13
	994000005607	FAN 12VDC 0.1A
	996500041693	DVD MECHANISM KHM-313AAA
	996500041736	FFC CABLE 4P WHITE
	996500041737	FFC CABLE 6P P1.25MM WHITE
	996500041740	FFC CABLE 13P P1.25MM
	996500041741	FFC CABLE 23P P1.25MM
	996500041742	FFC CABLE 24P P0.5MM
	996500041744	TUNER MODULE ENG06806QRF
	996500041745	SERVO AND MPEG PCB ASSY
	996510000299	FFC CABLE 8P P1.25MM L240MM
	996510000300	FFC CABLE 10P P1.25MM L130MM

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