

Service
Service
Service



Service Manual



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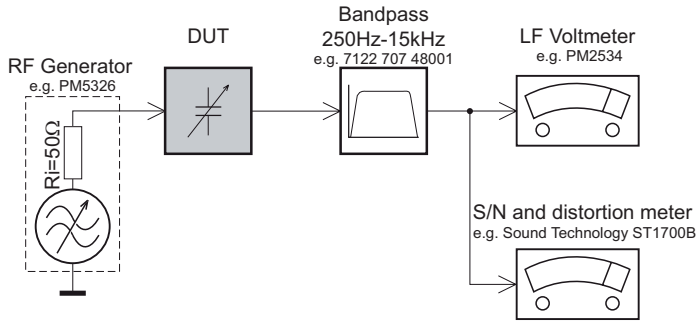


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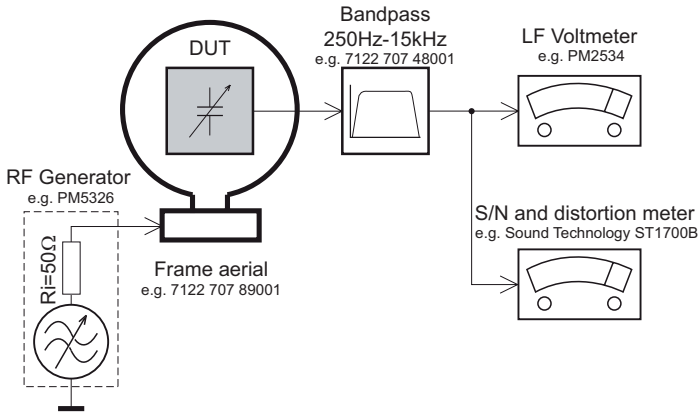
MEASUREMENT SETUP

Tuner FM



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

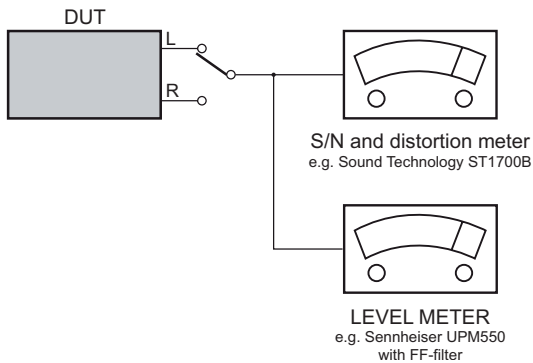
Tuner AM (MW,LW)



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

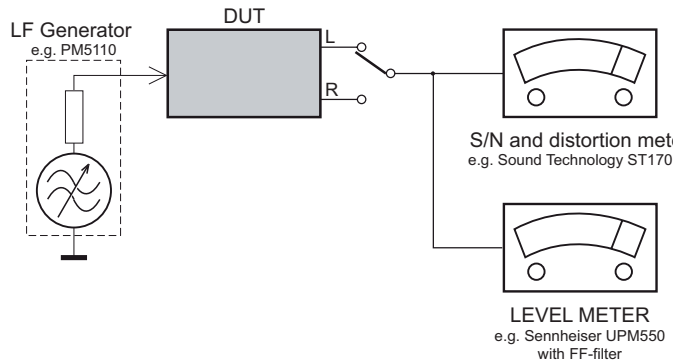
CD

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



Recorder

Use Universal Test Cassette **Cr02** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.


When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

ESD



GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used

Safety components are marked by the symbol .

**CLASS 1
LASER PRODUCT**

INFORMATION ABOUT LEAD-FREE SOLDERING

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

IDENTIFICATION:

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



- On our website www.atyourservice.ce.Philips.com you find more information to:
 - * BGA-de-/soldering (+ baking instructions)
 - * Heating-profiles of BGAs and other ICs used in Philips-sets
 - * Lead free

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

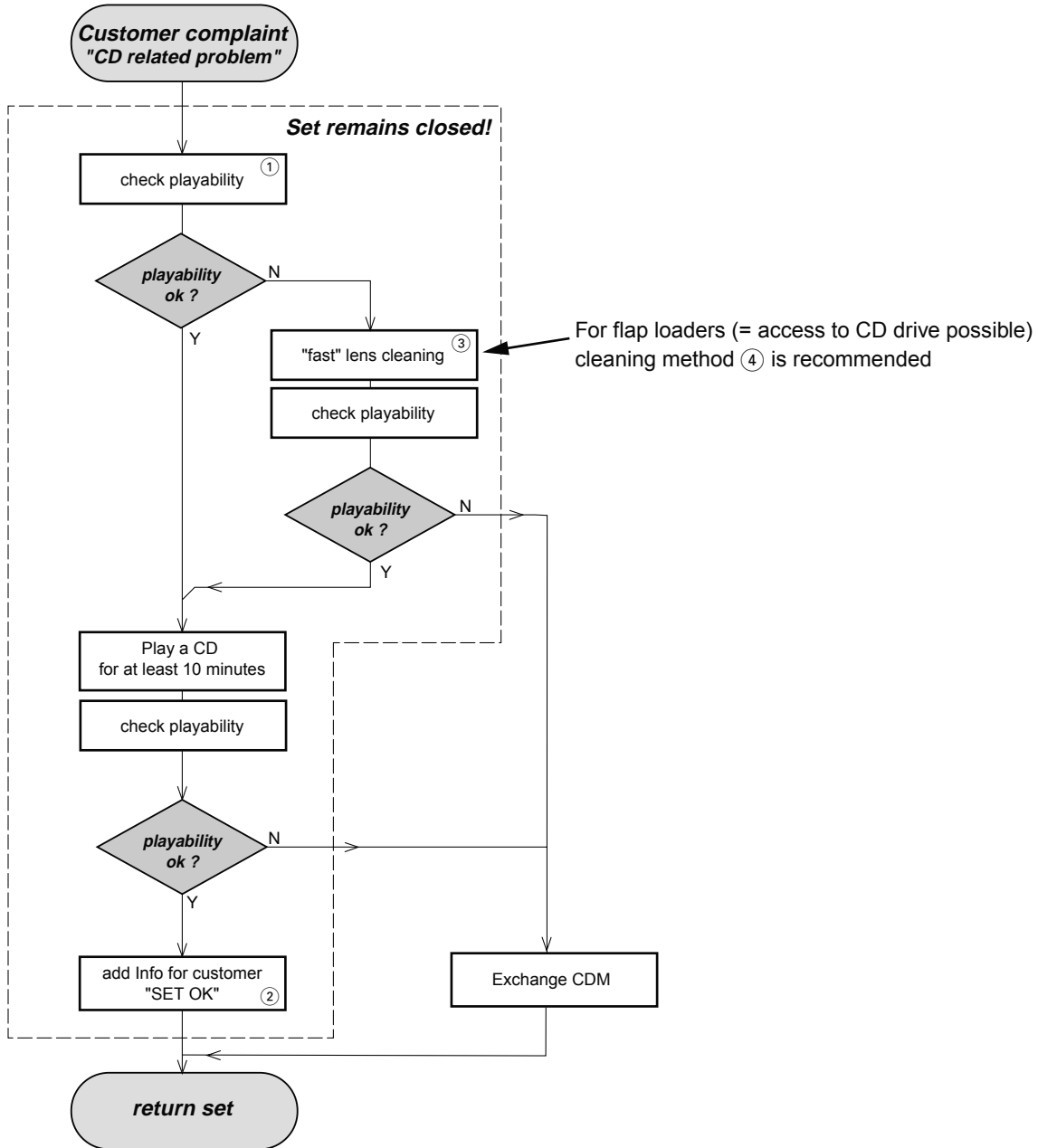
For additional questions please contact your local repair-helpdesk.

SERVICE INSTRUCTION

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

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

INSTRUCTIONS ON CD PLAYABILITY



① - ④ For description - see following pages

INSTRUCTIONS ON CD PLAYABILITY

①

PLAYABILITY CHECK

For sets which are compatible with **CD-RW** discs
 use CD-RW Printed Audio Disc7104 099 96611
 TR 3 (Fingerprint)
 TR 8 (600µ Black dot) **maximum at 01:00**

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

For all other sets
 use CD-DA SBC 444A4822 397 30245
 TR 14 (600µ Black dot) **maximum at 01:15**
 TR 19 (Fingerprint)
 TR 10 (1000µ wedge)

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

②

CUSTOMER INFORMATION

It is proposed to add an addendum sheet to the set which informs the customer that the set has been checked carefully - but no fault was found.

The problem was obviously caused by a scratched, dirty or copy-protected CD. In case problems remain, the customer is requested to contact the workshop directly.

The lens cleaning (method ③) should be mentioned in the addendum sheet.

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

④

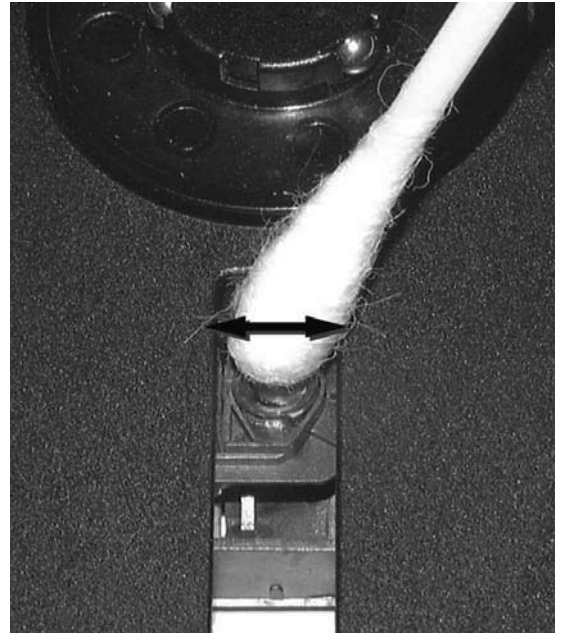
LIQUID LENS CLEANING

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

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

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

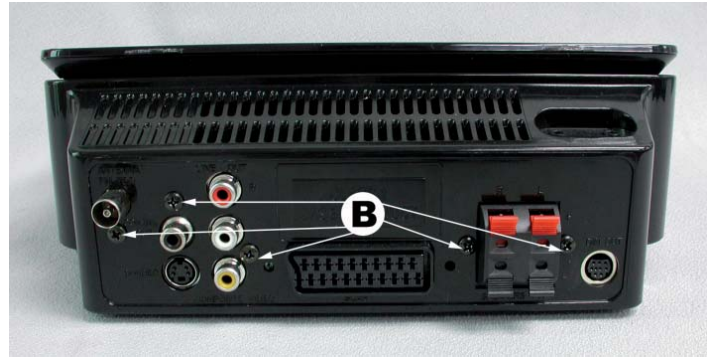
The direction of cleaning must be in the way as indicated in the picture below.



DISASSEMBLY DIAGRAM

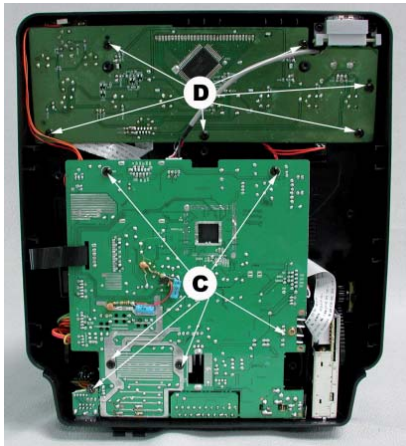
Dismantling of the Bottom Cabinet

- 1) Remove 7 screws A as indicated to loosen the Bottom Cabinet.
- 2) Remove 5 screws B

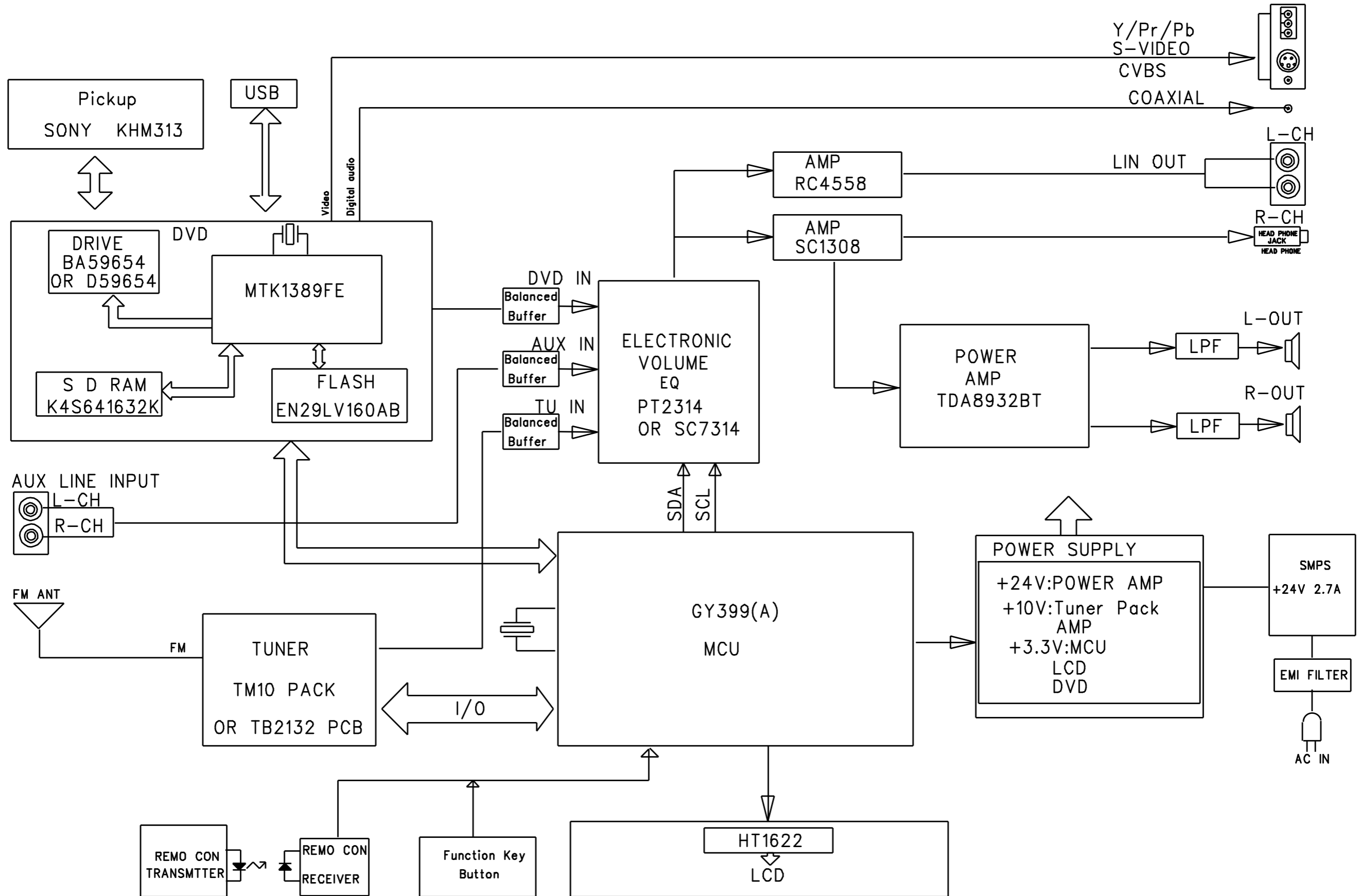


Dismantling of the PCB Board

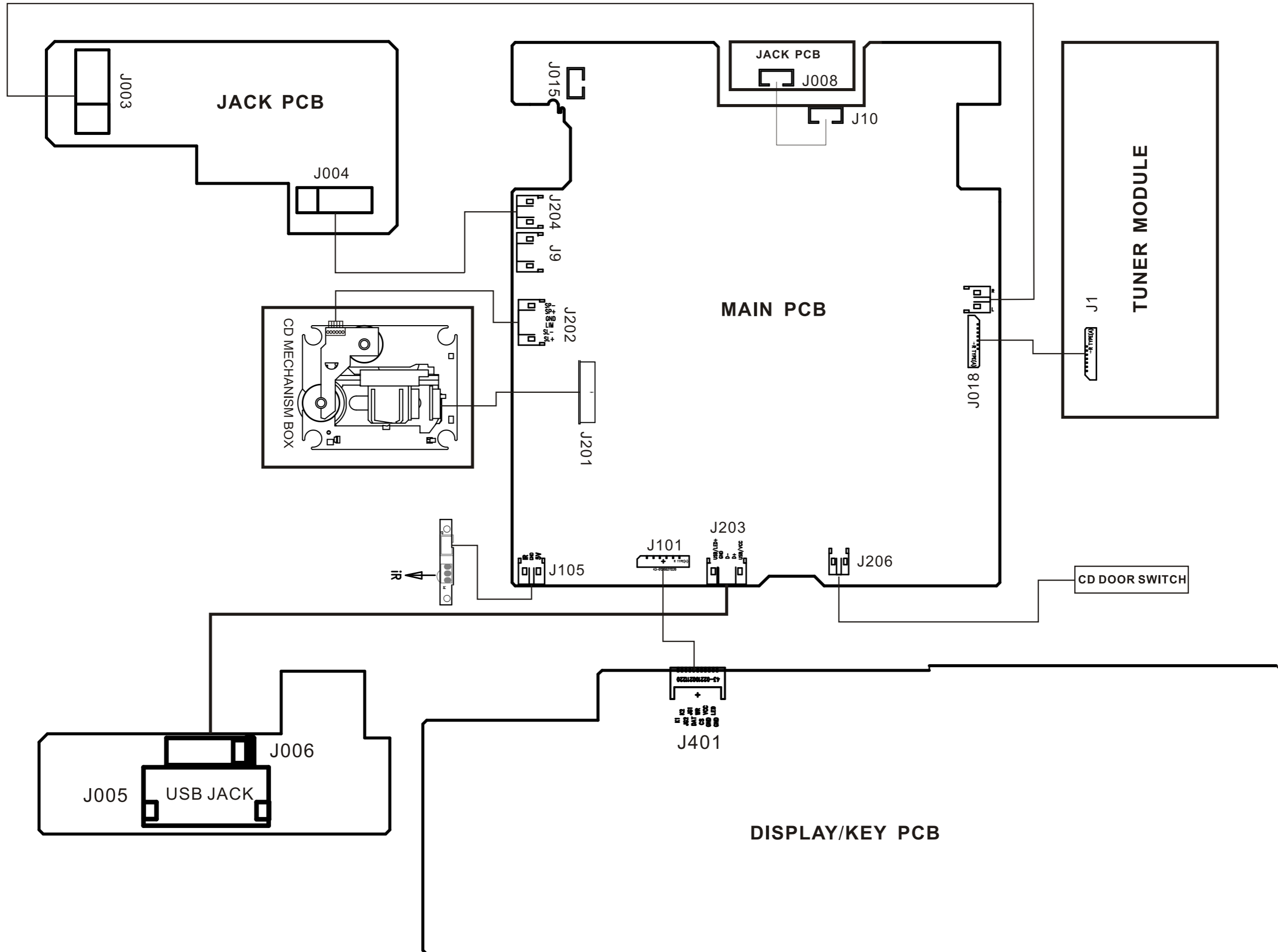
- 3) Remove 12 screws C&D as indicated to loosen the Main&Display Board.



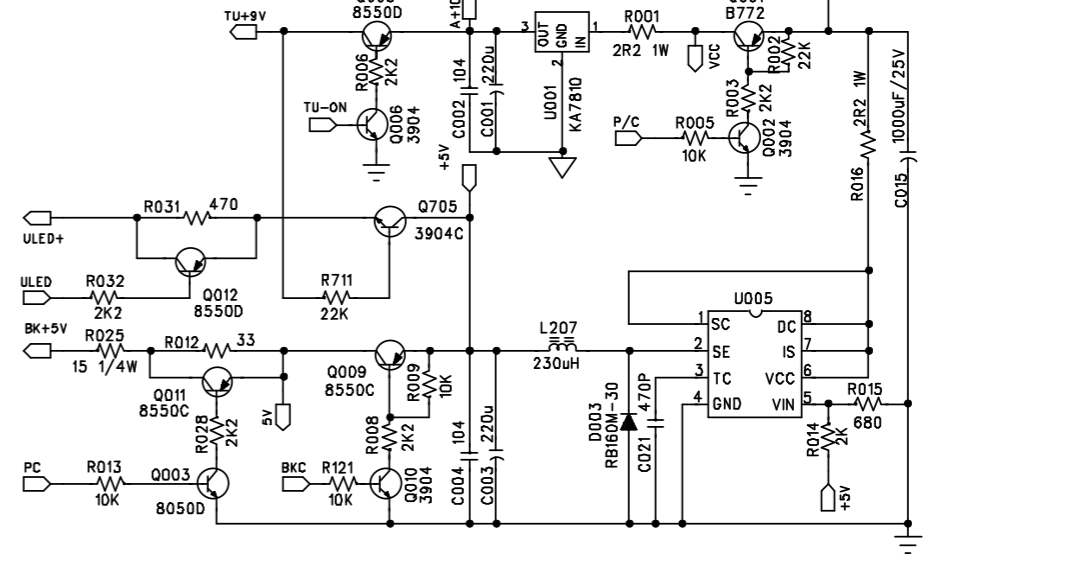
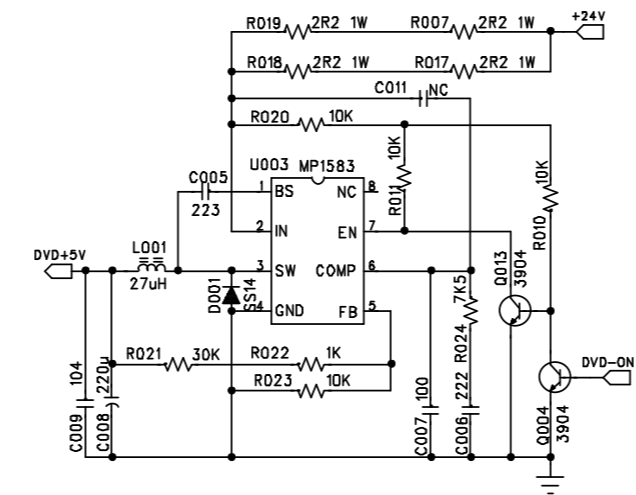
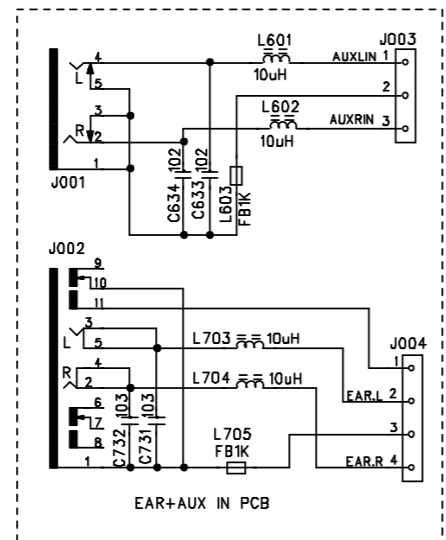
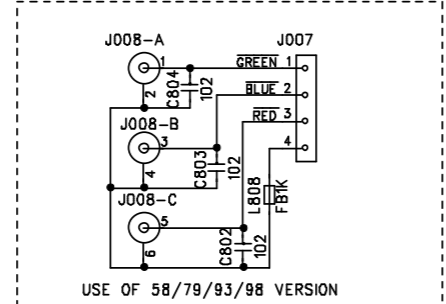
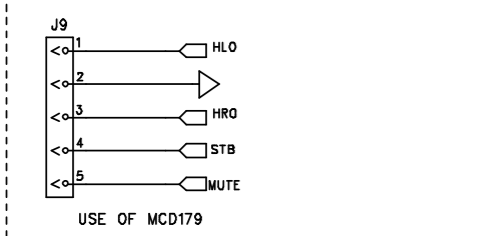
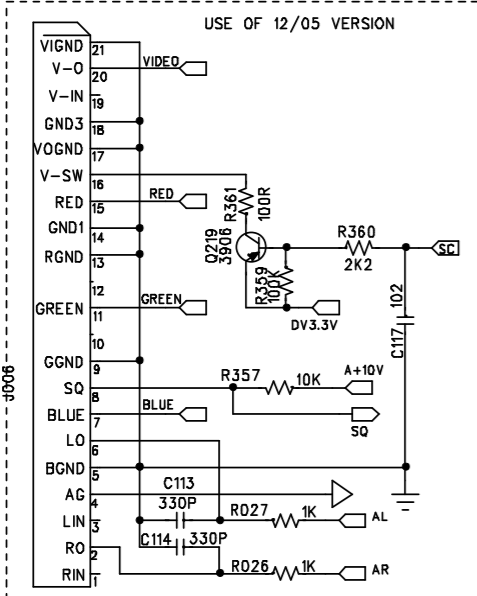
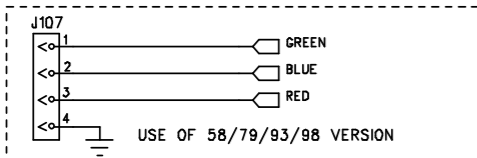
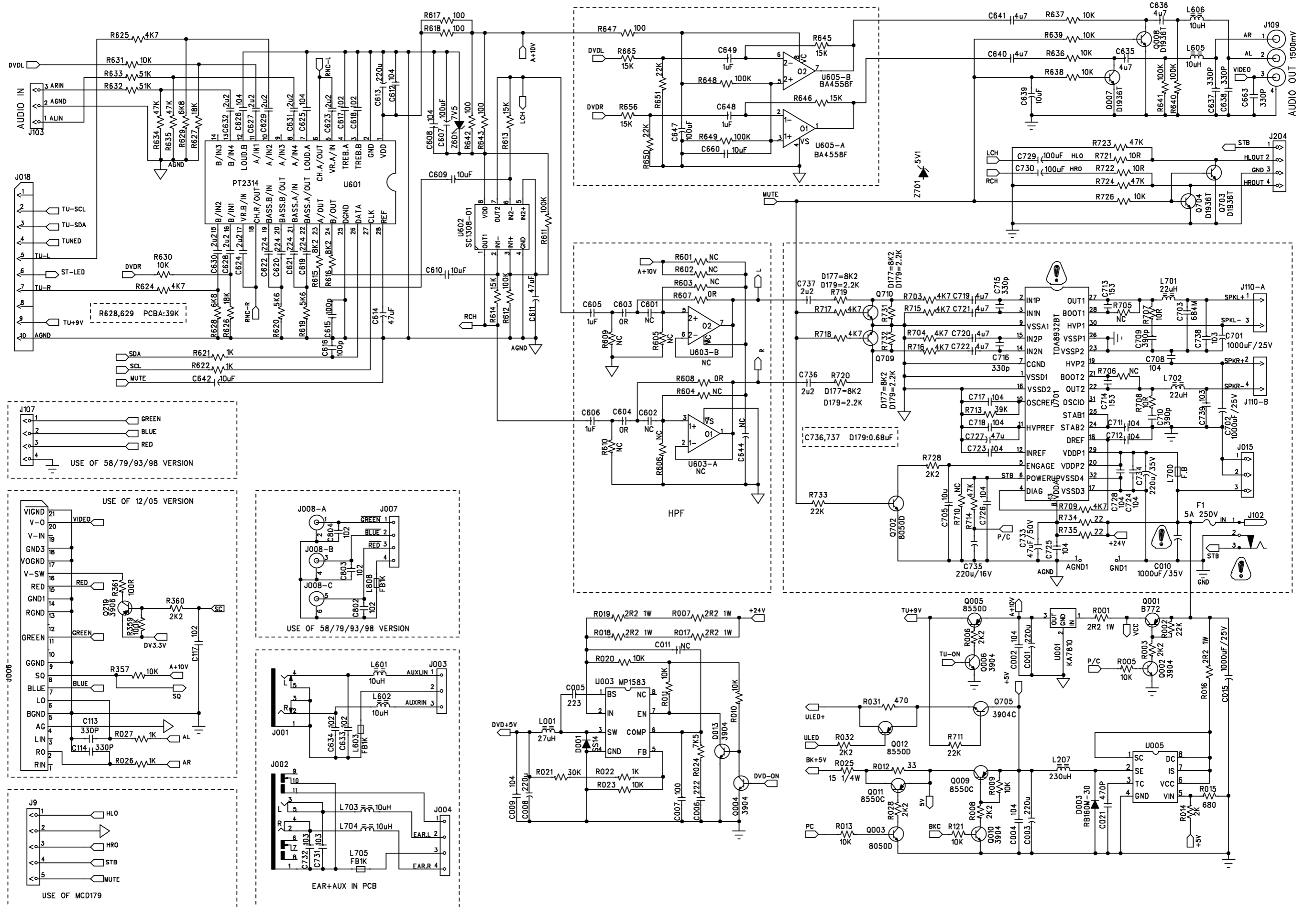
SET BLOCK DIAGRAM



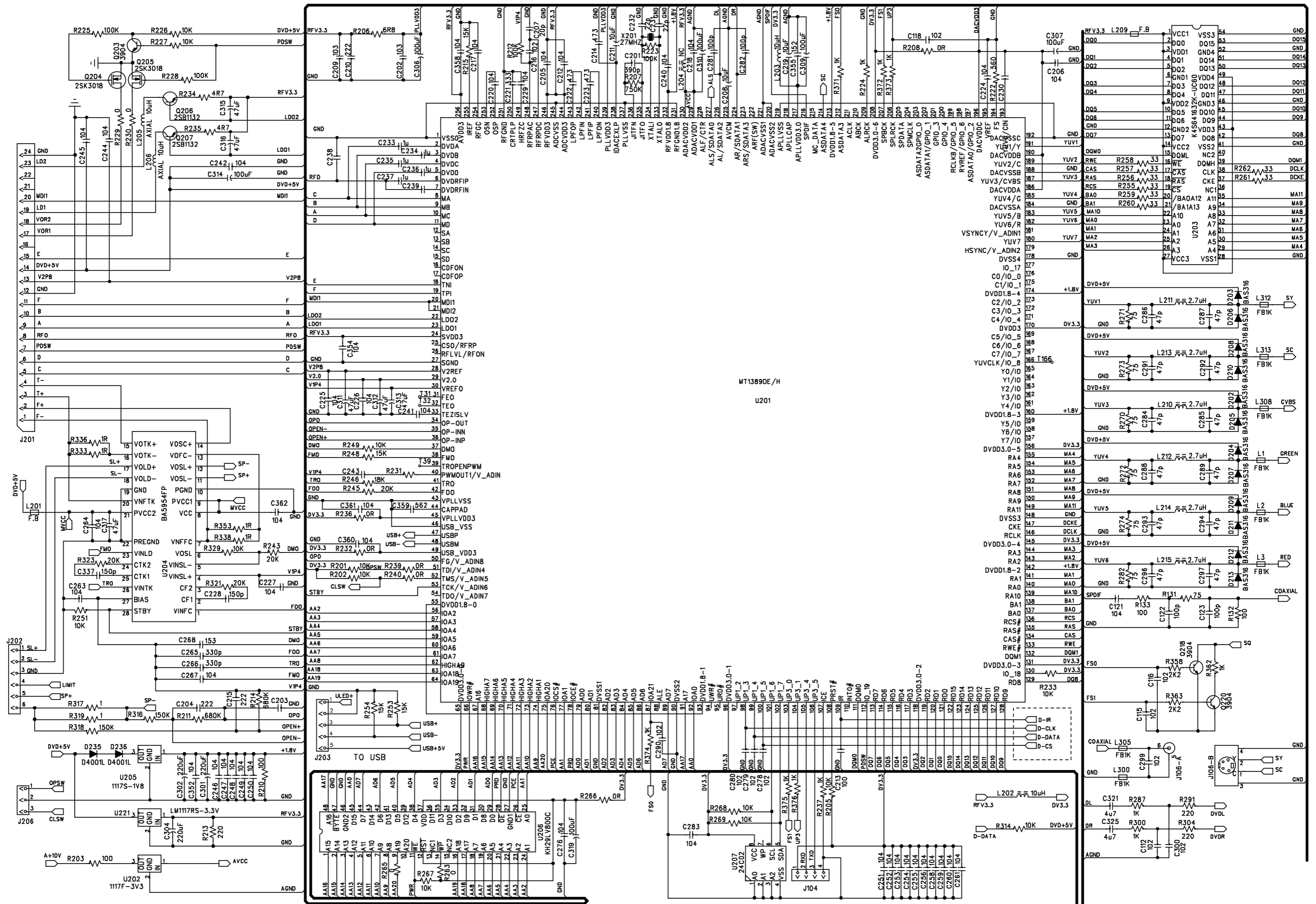
SET WIRING DIAGRAM



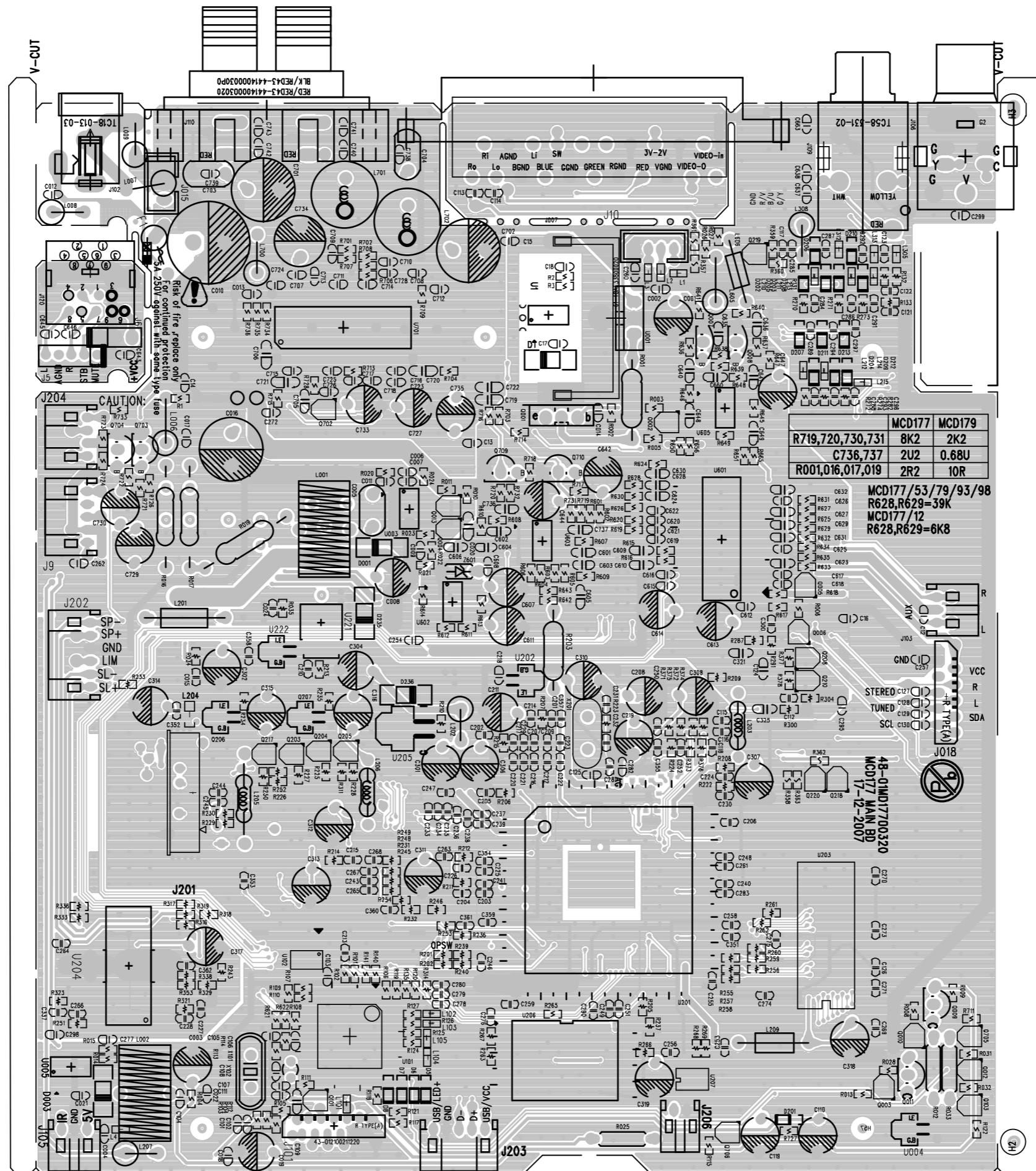
CIRCUIT DIAGRAM - MAIN BOARD AV-OUT PART



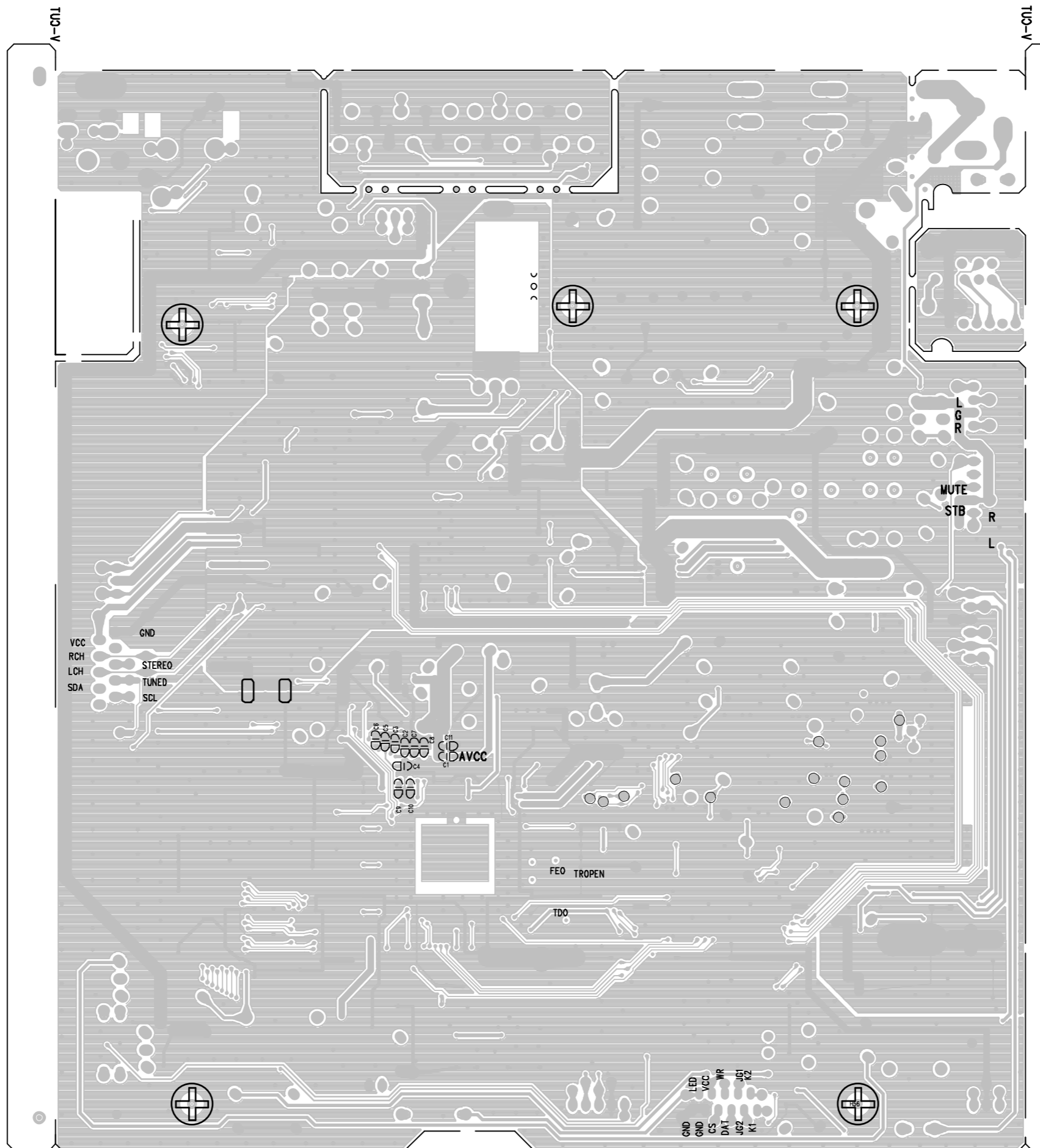
CIRCUIT DIAGRAM - MAIN BOARD DVD PART



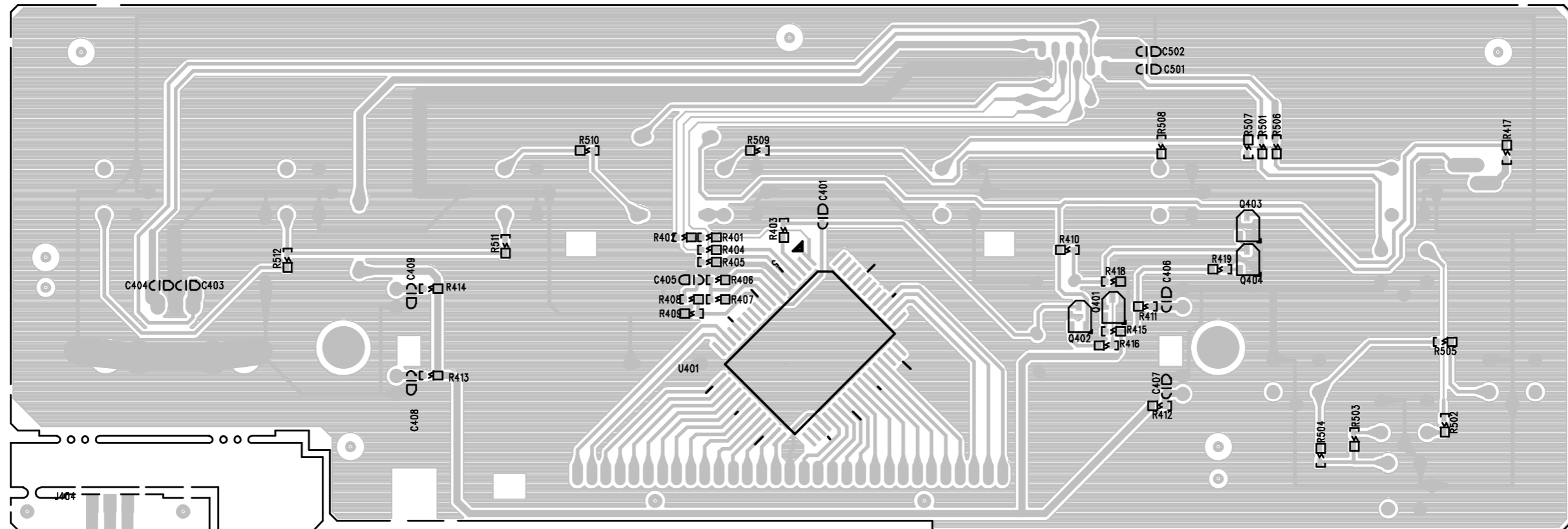
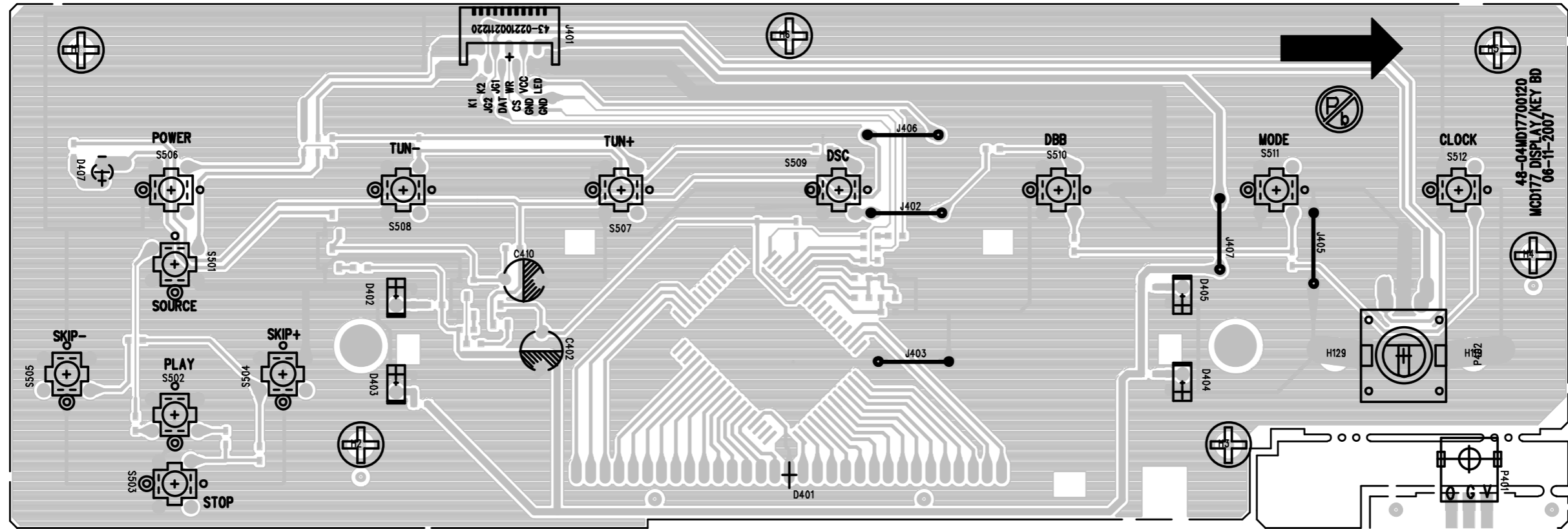
LAYOUT DIAGRAM - MAIN BOARD COMPONENT SIDE VIEW



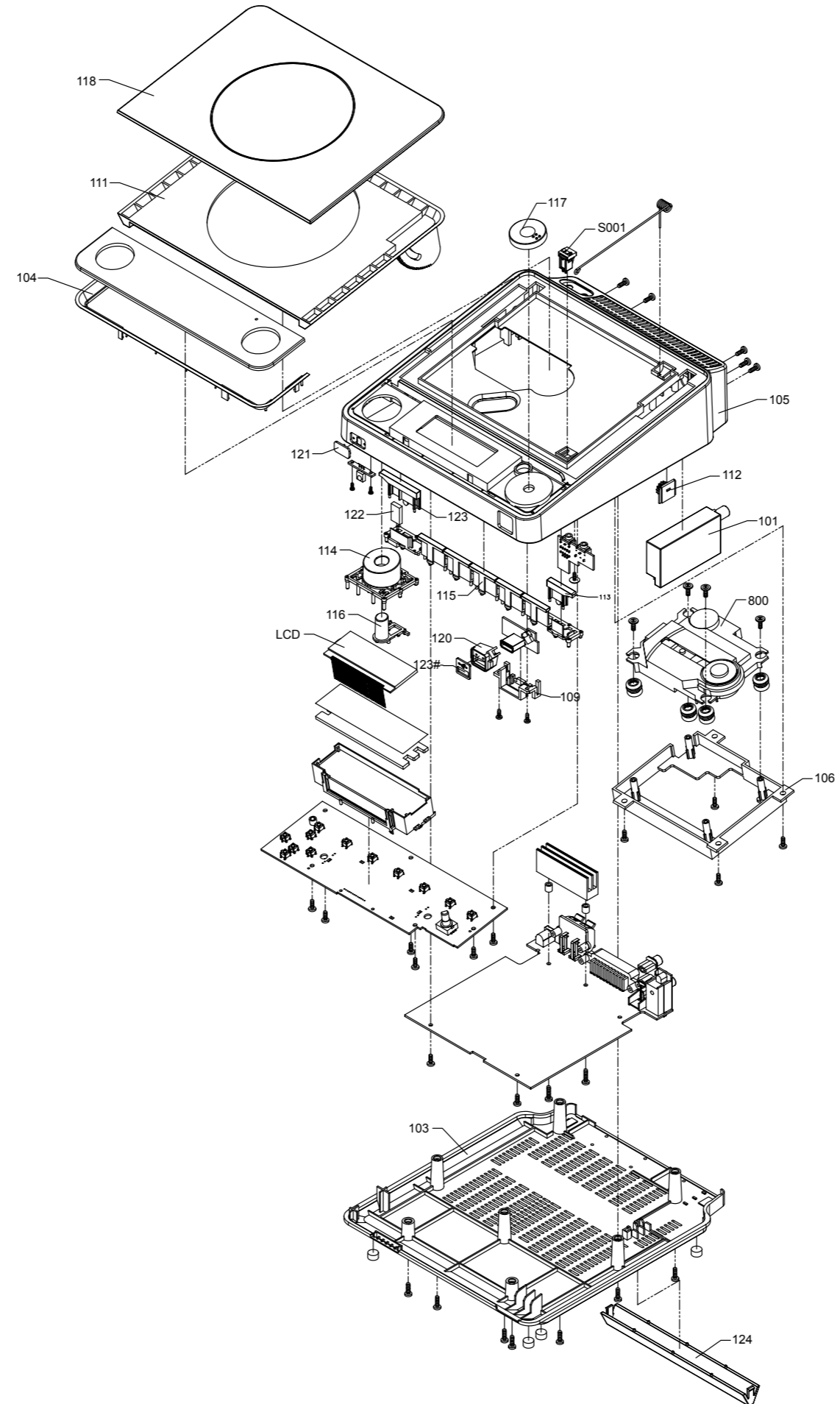
LAYOUT DIAGARM - MAIN BOARD
COPPER SIDE VIEW



LAYOUT DIAGARM - DISPLAY BOARD



EXPLODED VIEW DIAGRAM



MECHANICAL PARTSLIST

| | | |
|------|----------------|---------------------------------------|
| 101 | 996510012051 | TUNER MODULE EUROP |
| 103 | 996510019958 | BOTTOM CABINET |
| 104 | 996510012057 | TOP CAB FRONT |
| 105 | 996510019963 | HOUSING |
| 106 | 996510012096 | DVD HOLDER |
| 109 | 996510012059 | USB BRACKET |
| 111 | 996510012061 | CD DOOR |
| 112 | 996510008685 | DAMPER GEAR ASSY (70kgf/cm) |
| 113 | 996510012062 | TWO KEYS |
| 114 | 996510012063 | HOLDER UNDER KEYS |
| 115 | 996510012100 | CLUSTER KEYS |
| 116 | 996510012064 | PLAY KEY |
| 117 | 996510012065 | VOLUME KNOB |
| 118 | 996510012098 | CD DOOR LENS |
| 120 | 996510012066 | USB LENS |
| 121 | 996510012067 | IR LENS |
| 122 | 996510012069 | ECO POWER LIGHTGUIDE LENS |
| 123 | 996510012097 | STANDBY KEY |
| 123# | 996510012099 | USB LOGO PANEL |
| 800 | 996510012090 | DVD MECHANISM (SONY) |
| J001 | 996510012092 | 24P FFC 0.5mm L=140mm |
| J002 | 996510012093 | 11P FFC 1mm L=100mm |
| J003 | 996510012091 | FERRITE CORE 22.5x15x6.5mm |
| J005 | 996510012055 | 10P FFC.1.25mm L=180mm |
| J006 | ⚠ 994000003633 | AC CORD SET VDE APP 6FT(not for -/93) |
| J006 | ⚠ 996510014372 | AC CORD SET CCC CAP (only for -/93) |
| S001 | 994000002354 | CD DOOR SWITCH DLS-02-W-1 |
| 0003 | 996510012777 | TUNER PCB ASSY(ONLY FOR-/12/58/79/93) |
| 0002 | 996510035759 | PCBA-MAIN "MCD177/98" (-/93) |

ACCESSORIES

| | | |
|------|----------------|---------------------------------------|
| J007 | 994000001381 | FM ANT (BLACK) 1M |
| J008 | 996510012094 | RCA PLUG CORD 3P L=1.5M |
| P001 | 996510028866 | REMOTE CONTROL |
| SPK | 996510012089 | SPK BOX ASSY (Single) |
| T001 | ⚠ 996510012088 | AC ADAPTER 100-240V VDE -/12/58/79/93 |
| T001 | 996510012769 | AC ADAPTER -/98 |

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

ELECTRICAL PARTSLIST**MAIN BOARD ASSEMBLY**

| | | |
|------|--------------|---------------------------------|
| D001 | 996500042437 | CH-DIODE SS14 SMA/DO-214AC |
| D003 | 996500042437 | CH-DIODE SS14 SMA/DO-214AC |
| D202 | 996510000323 | SMD DIODE BAS316 |
| D203 | 996510000323 | SMD DIODE BAS316 |
| D204 | 996510000323 | SMD DIODE BAS316 |
| D205 | 996510000323 | SMD DIODE BAS316 |
| D206 | 996510000323 | SMD DIODE BAS316 |
| D207 | 996510000323 | SMD DIODE BAS316 |
| D208 | 996510000323 | SMD DIODE BAS316 |
| D209 | 996510000323 | SMD DIODE BAS316 |
| D210 | 996510000323 | SMD DIODE BAS316 |
| D211 | 996510000323 | SMD DIODE BAS316 |
| D212 | 996510000323 | SMD DIODE BAS316 |
| D213 | 996510000323 | SMD DIODE BAS316 |
| D235 | 996510002112 | REC. DIODE DL4001-T 1A 50V |
| D236 | 996510002112 | REC. DIODE DL4001-T 1A 50V |
| D7 | 996510000323 | SMD DIODE BAS316 |
| Z601 | 996510012073 | ZENER DIODE +-5% 7.5V 1/2W |
| Q001 | 994000004145 | TRANSISTORS B772Y (160-320) |
| Q002 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q003 | 996510008369 | TRANSISTORS MMBT8050D (SOT23) |
| Q004 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q005 | 996510009308 | TRANSISTORS MMBT8550D |
| Q006 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q007 | 994000004337 | TRANSISTORS 2SD1936T-AC (SANYO) |
| Q008 | 994000004337 | TRANSISTORS 2SD1936T-AC (SANYO) |
| Q009 | 996500038610 | TRANSISTORS 2W 8550C |
| Q010 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q011 | 996500038610 | TRANSISTORS 2W 8550C |
| Q012 | 996510009308 | TRANSISTORS MMBT8550D |
| Q013 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q101 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q103 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q203 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q204 | 996510009477 | SMD TRANSISTORS 2SK3018 |
| Q205 | 996510009477 | SMD TRANSISTORS 2SK3018 |
| Q206 | 996510009476 | SMD TRANSISTORS 2SB1132-Q-T100 |
| Q207 | 996510009476 | SMD TRANSISTORS 2SB1132-Q-T100 |
| Q208 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q210 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q218 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q219 | 994000003937 | SMD TRANSISTORS PMBT3906 |
| Q220 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q702 | 996510008369 | TRANSISTORS MMBT8050D (SOT23) |
| Q703 | 994000004337 | TRANSISTORS 2SD1936T-AC (SANYO) |
| Q704 | 994000004337 | TRANSISTORS 2SD1936T-AC (SANYO) |
| Q705 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| U001 | 996500038611 | IC KA7810E |
| U003 | 996510009443 | IC (MPS) MP1583 (SOP-8) |
| U004 | 996510012078 | IC LM1117F-3.3V SOT-89 |

ELECTRICAL PARTSLIST**MAIN BOARD ASSEMBLY**

| | | |
|------|--|--------------------------------|
| U005 | 996510012080 | IC MC34063A SOP8 |
| U101 | 996510019964 | IC GY399A LQFP44-1010 |
| U102 | 996510012074 | RESET IC AT24C01B |
| U201 | 996510009444 | IC MT1389FE/USB CMTK TQFP-256 |
| U202 | 996510012078 | IC LM1117F-3.3V SOT-89 |
| U203 | 996510012077 | IC (SAMSUNG) K4S641632K-UC60 |
| U204 | 996510009478 | IC DA5954FP |
| U205 | 996510009335 | IC LM1117S-1.8V SOT-223 |
| U206 | 996510009479 | IC EN29LV160AB-70TCP-NEED PROG |
| U207 | 994000004541 | IC M24C02-WMN6 |
| U221 | 996510012079 | LDO IC UTC1117B33 |
| U601 | 994400004607 | IC PT2314 |
| U602 | 996510008325 | IC (LIBERAL) SC1308-01 |
| U605 | 994000000249 | IC (ROHM) BA4558F SOP8 |
| U701 | 996510012038 | IC TDA8932BT |
| X101 | 994000004616 | CRYSTAL 4.500MHZ |
| X102 | 996510012083 | CRYSTAL 32.768KHZ |
| X201 | 996510009448 | CRYSTAL27MHzHC49/US30PF+-20PPM |
| F1 |  996510002426 | CERAMIC FUSE 3.9x10.5mmW |
| J007 | 996510012084 | SCART JACK |
| J102 | 996510002122 | DC JACK TC-18-013-03 |
| J106 | 996510012085 | S.V/RCA JACK |
| J109 | 996510012086 | RCA JACK 3P |
| J110 | 994000003661 | SPK JACK PT-22V11 |
| P401 | 996510012082 | IR SENSOR BRM-4050-8 |

ELECTRICAL PARTSLIST

DISPLAY BOARD ASSEMBLY

| | | |
|------|--------------|--------------------------|
| D401 | 996510012043 | LCD DISPLAY |
| D402 | 996500042438 | LED LAMP 2x5x7mm (WHITE) |
| D403 | 996500042438 | LED LAMP 2x5x7mm (WHITE) |
| D404 | 996500042438 | LED LAMP 2x5x7mm (WHITE) |
| D405 | 996500042438 | LED LAMP 2x5x7mm (WHITE) |
| | | |
| D407 | 994000001234 | LED LAMP 3MM (RED) |
| Q401 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q402 | 996510009308 | TRANSISTORS MMBT8550D |
| Q403 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| Q404 | 996510010292 | SMD TRANSISTORS MMBT3904 |
| | | |
| U401 | 996510002124 | IC (HOLTEK) HT1622 |
| S501 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S502 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S503 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S504 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| | | |
| S505 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S506 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S507 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S508 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S509 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| | | |
| S510 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S511 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| S512 | 994000004157 | TACT SWITCH 6X6MM H=5MM |
| P402 | 996510012044 | ROTARY ENCODER |

JACK BOARD ASSEMBLY

| | | |
|------|--------------|--------------------------|
| D002 | 996510000438 | LED LAMP |
| J001 | 996510012048 | PHONE JACK D3.6mm |
| J002 | 994000004369 | PHONE JACK TC38-063-05-0 |
| J005 | 996510009321 | USB SOCKET 4P |

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

REVISION LIST

Version 1.2 (3141 785 32512)

* P9-2 is revised.Change mainboard version for /93.(4/23/2010)