

Service
Service
Service



Service Manual

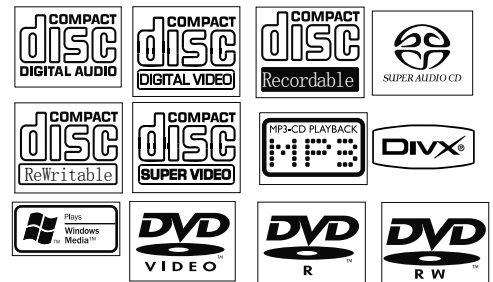
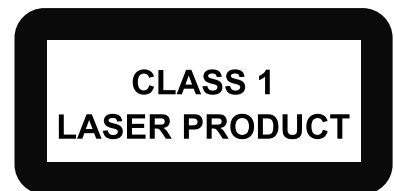


TABLE OF CONTENTS

Location of PC Boards 1-1
 Electronic Specification 1-2
 Measurement Setup 1-3
 Service Aids..... 1-4
 Instruction On CD Playability 1-5 to 1-6
 Software Version Check & Upgrade 2-1
 Malfunction Check Chart 2-2
 Disassembly Diagram..... 3-1
 Block Diagram 4-1
 Wiring Diagram 4-2
 Small Board 5
 Circuit diagram 5-1
 Layout diagram 5-1
 LCD Display Board 6
 Circuit diagram 6-1
 Layout diagram 6-2
 Power Board 7
 Circuit diagram 7-1 to 7-2
 Layout diagram 7-3

Decoder Board 8
 Circuit diagram 8-1 to 8-4
 Layout diagram 8-5
 Exploded View 9-1
 Service Partlist 10-1 to 10-3
 Factory Partlist 11-1



© Copyright 2009 Philips Consumer Electronics B.V. Eindhoven, The Netherlands
 All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of Philips.

Published by SW1044 Service Audio Printed in The Netherlands Subject to modification

© 3141 785 34132

Version 1.2



PHILIPS

Electronic Specification

AMPLIFIER

Rated Output Power 2X20W RMS
 Signal-to-noise ratio ≥65dBA
 Frequency response 20Hz--20kHz ±3dB
 Aux Input 1V/ RMS 16kohm

DISC

Laser Type Simeconductor
 Disc Diameter 12cm/8cm
 Support Disc CD-DA,
 CD-R,CD-RW,MP3,DVD,DVD-RW,DVD+RW
 Audio DAC 1KHz
 Total Harmonic Distortion < 1%
 Frequency Response 20Hz ~ 20KHz
 S/N Ration >65dBA

TUNER

FM Tuning Range 87.5--108 MHz
 Tuning grid 100K/50KHz

Sensitivity

– Mono, 26dB S/N Ratio 5uV
 – Stereo, 46dB S/N Ration 100uV
 Selectivity >33dB
 Image Rejection >25dB
 Total Harmonic Distortion 3%
 Signal to Noise Ration ≥50dBA

SPEAKERS

Speaker Impedance 2x8ohm
 Speaker Driver, base 4”
 Speaker Driver, tweeter Buzzer
 Frequency Response 100Hz +5dB+/-5 15KHz

GENERAL INFORMATION

Total Output power 40W RMS
 AC Power 220V / 50Hz
 Operation Power Consumption 40W
 Standby Power Consumption <6W
 Eco Standby Power Consumption <1W
 Headphone Output 500mV 32ohm
 USB Direct Version 2.0

Dimensions

– Main unit (w x h x d) 220x90x240mm
 – Speaker box (w x h x d) 100x220x160mm
 – SUBwoofer(w x h x d) NA

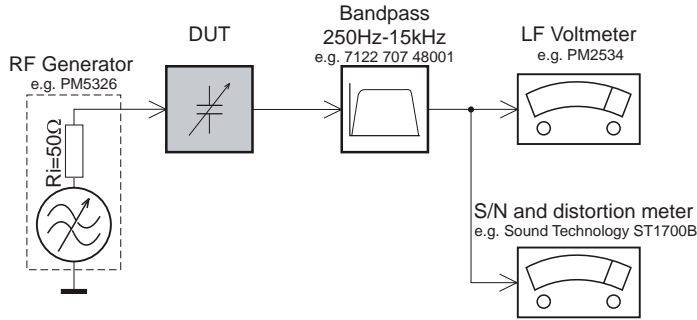
Weight

– With Packing 6KG
 – Main Unit 1.65 KG
 – Speaker box 1.5x2KG
 – SUBwoofer..... NA

Specifications and external appearance are subject to change without notice.

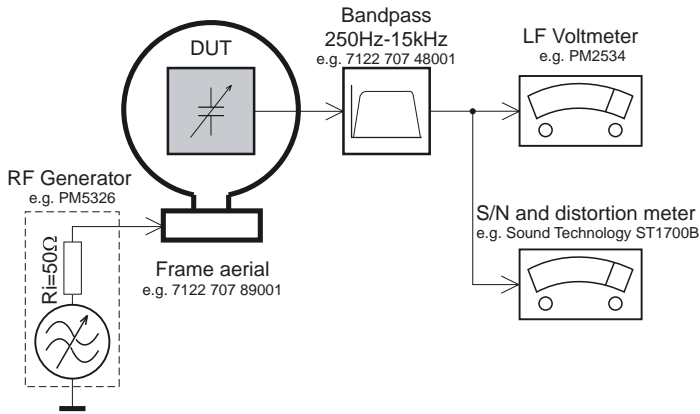
Measurement Setup

Tuner FM



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

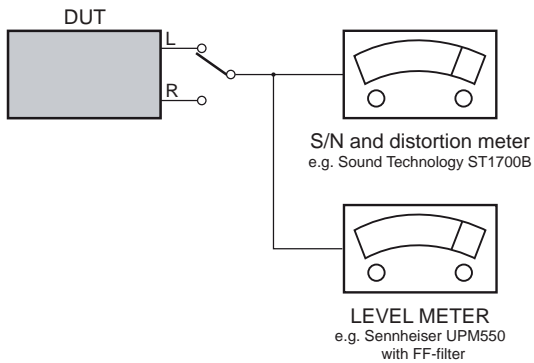
Tuner AM (MW,LW)



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).

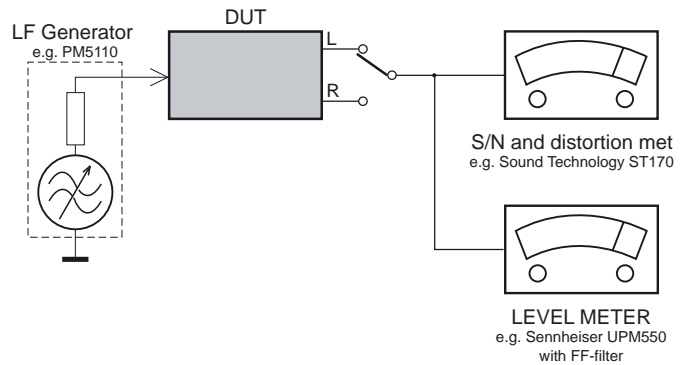
CD

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



Recorder

Use Universal Test Cassette **CrO2** 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 an 2005 onwards, according to the following 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.

Items of Safety Attention

MA

A: Please read items of Safety Attention carefully. If there are unexpected conflicts between safety attention and maintenance attention, please abide to safety attention. Safety first.

CM A

- ① Before operating, please unplug the AC power cord from the outlet.
 - a) Disassemble any parts.
 - b) Cut-off or re-connect plug and other inserting parts.
 - c) When electrolysis capacitance and test parts is parallel connected, anti-polarity and wrong replace will cause explosion.
- ② Do not spray chemical on the component system, surroundings and any parts.
- ③ Clean the electric junction with a cotton stick which is with cleaning mixture, except there is other demand in this manual.

P :

t is a kind of inflammable mixture.

 - ▶ Do not use lubricant to the soldering point, except there is
 - ▶ other demand in this manual

CC

During maintenance, please take common controlling to protect component system and electronic parts and prevent damages to the circuit due to improper operation.
Led out wire should be kept away from high-pressure or high-temperature parts.

ES

Some semi-conductor parts are easily damaged by static charges, these parts are called ES. They are mainly the cores of transistor lead identification. The following technical ways can be used to reduce the damages by static charges.

Before connecting semi-conductor or the parts. Let off the

- ① static charges of the body by connection the earth. On the other hand, to prevent potential electric shock hazard, please use industrial static handle before connecting power for checking the equipment.
- ② After unsoldering the ES parts, put the parts on a electric surface such as aluminum foil to prevent accumulating static charges to damage the parts.
 - ③ Only use anti-static charges grounded soldering irons to unsolder the parts or solder ES parts.
- ③ Some soldering tin called Anti-static charges can also generate charges to damage ES parts.
- ④ Do not use poisonous and caustic agent which these kinds of chemicals can generate static charges to damage the ES parts.
- ⑤ Do not take ES parts out of conductive packages until they are used (mostly replacing ES parts is packed with aluminum foil or similar conductive materials making a short circuit).
- ⑥ After taking replaceable ES parts from Anti-static charges cone, please insert the ES parts in the correctly location soon as possible.
- ⑦ During handing sealed ES parts, reduce the movement of the
- ⑧ body (clothes rubbing and moving on the rug can generate static charge to damage the ES parts.)

CS

R

- ① Use only grounded low-voltage soldering iron, and proper size and shape which can sustain the temperature of soldering horn to range from 350 to 390.
- ② Use rosin flux which is demanded by RMA include 60 Tin 40 lead.
- ③ To maintain soldering iron and its tin very well.
- ④ Use the wire brush but not spray cleaners such as Freon to clean the soldering surface.
- ⑤ Adopt the melting ways
 - a) The temperature of soldering horn range from 350 to 390.
 - b) Heat up the parts pin, until soldering tin is molten.
 - c) Use the desoldering pump to suck out the molten soldering tin quickly.

N: quickly operating can prevent superheating the electronic-plating copper.
- ⑥ Adopt the following soldering ways.
 - a) The temperature of soldering horn range from 350 to 390.
 - b) Hold the soldering iron and welding rod pointed to the parts pin, until soldering tin is molten. Then move the soldering horn quickly to the location that you want to solder.

N: quickly operating can prevent superheating electronic-plating copper of printed circuit board.
 - c) Check the wetting zone carefully, then brush the unwanted soldering tin away with a wire brush.

UR

IC

N:

- ① Do not touch the C body directly with soldering iron.
- ② Pre-heating soldering iron at about 130 for some seconds avoid the damages caused by C heated suddenly.
- ③ For normal C, the temperature of the solder horn is about 350, and can increase to 390 for some bigger C.
- ④ Use the filamentous welding rod and solder which thickness is about 0.3mm to solder thin C and add the solder as needed.
- ⑤ Replace the C carefully and solder it quickly.
- ⑥ After unsoldering the C, clean the basic board carefully to ensure the board is usable.
- ⑦ Prevent the molten soldering tin dripping on the board which will engender a short circuit.
- ⑧ Aim at the first terminal and fix it, then aim at other terminals for correctly inserting C. You can solder quickly just like this.
- ⑨ Before operating, please make sure the C is unusable. Do not unsolder repeatedly.
- ⑩ During soldering especially soldering a thin C with many pins, check the weld carefully.
- ⑪ After replacing, check that there is not soldering leak, rosin point, short circuit and so on.

U:

 - ① Use the soldering iron to melt the soldering tin.
 - ② Before unsoldering C, suck out the molten solder tin.

R :

 - ① Make sure all the C pins are on their correct location, then solder.
 - ② Use a wire brush to clean the wetting zone.

Items of Safety Attention

U

- ① After unsoldering the unusable diode, nip its body and take it out.
- ② Bend the two pins and the diode is vertical to circuit board.
- ③ Check the polarity of the diode, then place its pins to the correct location.
- ④ Pin the diode and solder it.
- ⑤ Check the weld carefully. If the surface of the weld is not smooth, please solder it again.

R -

- ① Repair the warped copper as following
- ② Use a sharp knife to scrape the unusable copper and the unwanted solder off.
- ③ Make one side of the lead bent like a small U, then put the U to C pins and solder. Another side of the lead is extended until overlap with the well copper then solder. Cut the unwanted lead.

T DVD

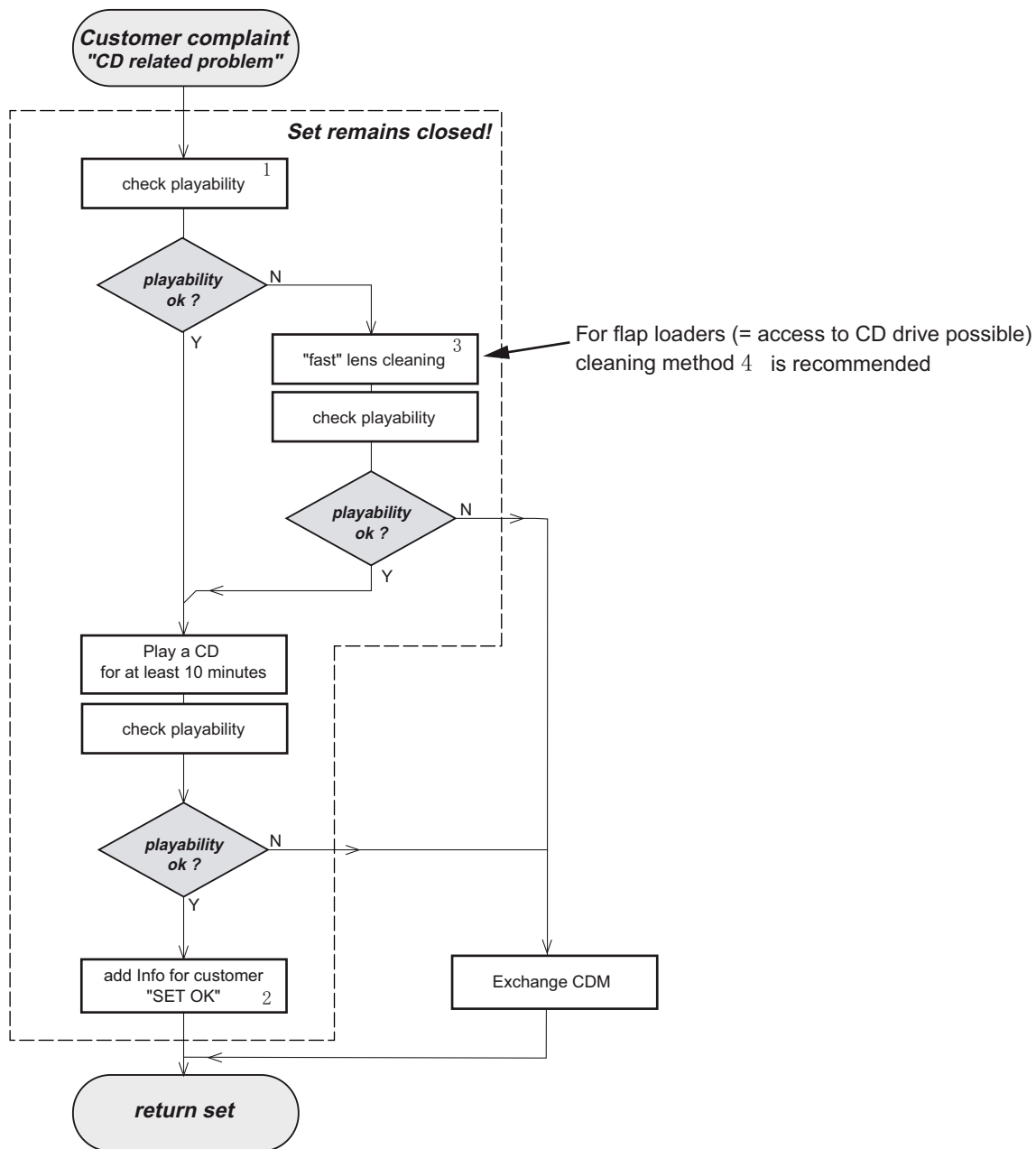
No sound or sound distorted when playing, please check the DVD part.

N

Before operating, read these notes as following to prevent the static charges damaging the laser head when reading the laser led.

- ① Lay an electric rug on the working table and the replaced parts are packed in black package.
- ② The electric rug is grounding by put on the electric base. Then put your hand on the electric rug and connect the static handle with the electric rug. Make sure the electric rug and the working table are grounding.
- ③ During the operating, do something such as operating on the electric rug to avoid the static charges touching the laser parts. After that, you can begin to take the laser parts down.
- ④ When replace the laser parts, please do something to make a short circuit and remember to cut the short circuit off after replacing.

Instruction On CD Playability



1 - 4 For description - see following pages

Instruction On CD Playability

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

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.

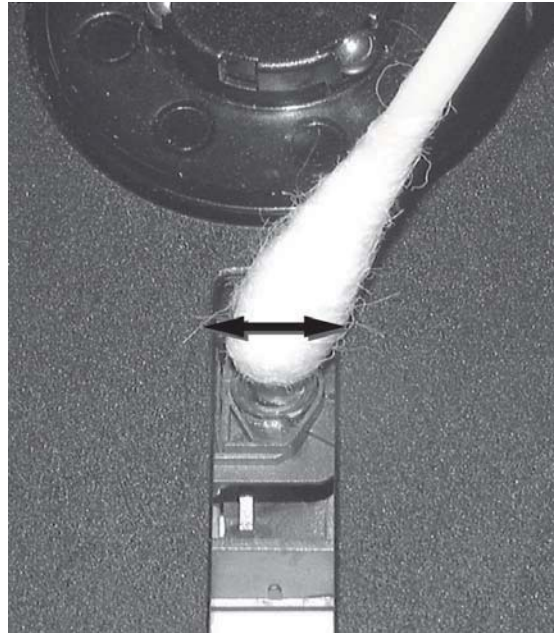
LIQUID LENS CLEANING

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.



Software Version Check & Upgrade

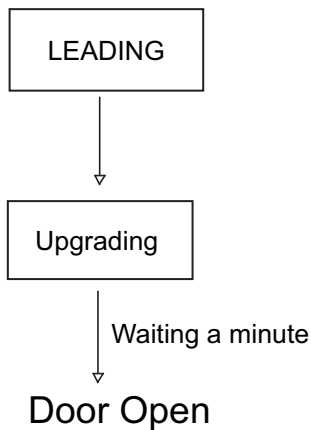
Upgrade software

1. Download the software from Philips support website:

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

2. Load the CD Disc or USB device with software, Software upgrade procedure starts automatically

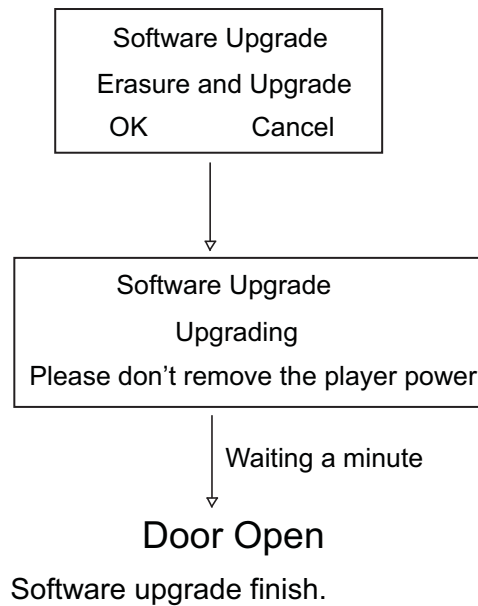
VFD Display:



Software upgrade finish.

TV Screen Display:

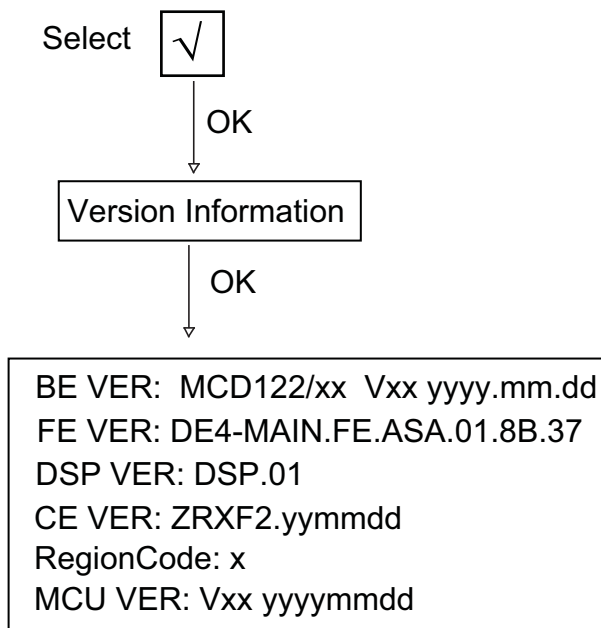
OR



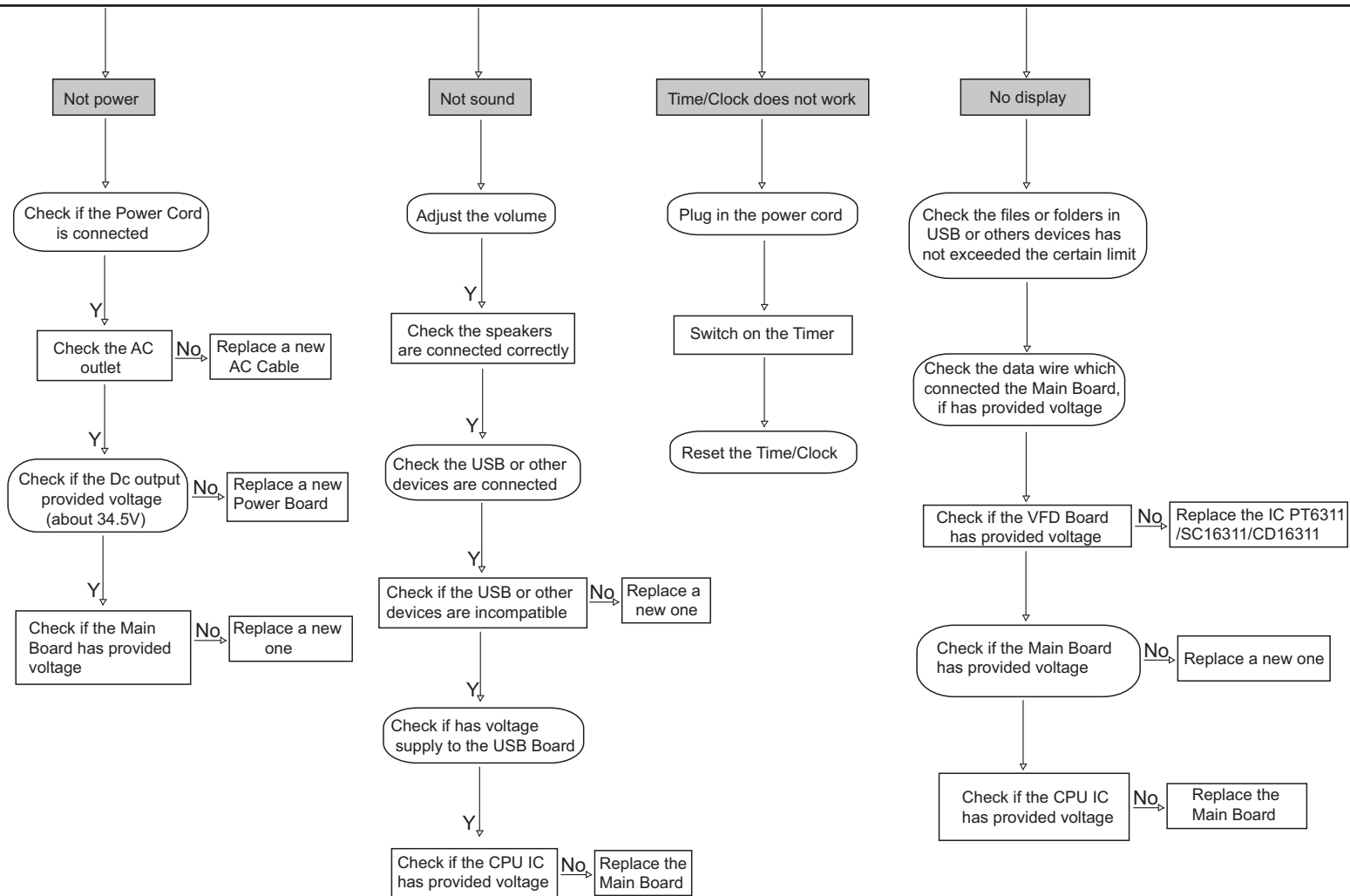
Software upgrade finish.

Software version and date check

1, In the absence of USB/DISC state or STOP status at the next, press the "SYSTEM/MENU" on remote control, TV Screen Display:

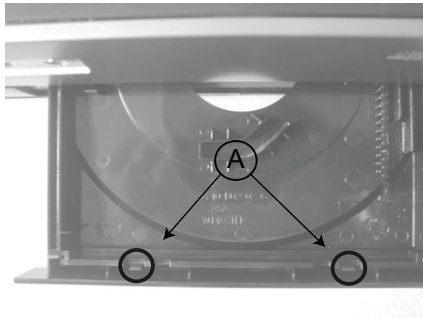


Malfunction Follow Check Chart



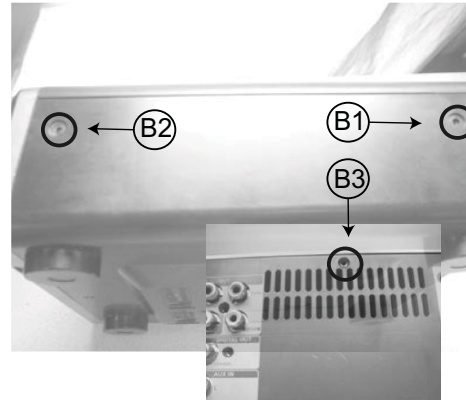
Disassembly Diagram

A. Open the DVD Door and loose 2 clips to remove the door



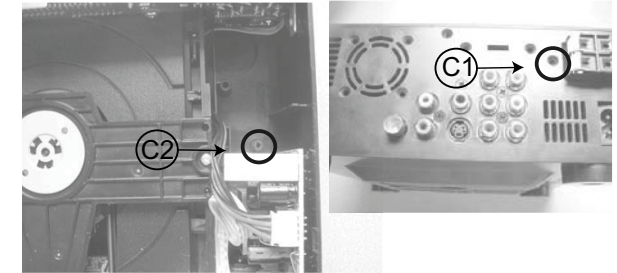
B. Remove the Top-cabinet

- B1. Loose 2pcs screws(3 x 6 KB) of both side near to the back side.
- B2. Loose 2pcs screws(3 x 8 Km) of both side near to the front cabinet.
- B3. Loose 1pc screw(3 x10 FA) of the back side.

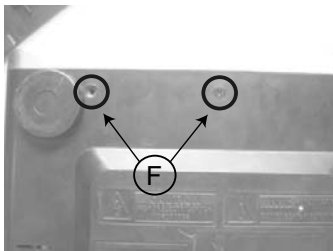


C. Remove the Power Board

- C1. Loose 1pc screw(3 x10 FA) of the back side.
- C2. Loose 1pc screw(3 x 8 BA)

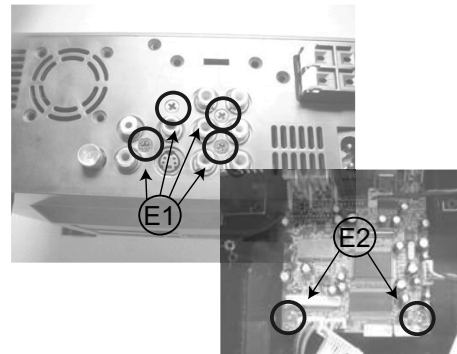


F. Loose 2pcs screws(3 x 8 FT) to remove the Front Cabinet

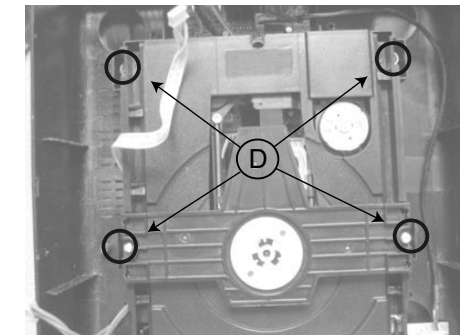


E. Remove Decoder Board

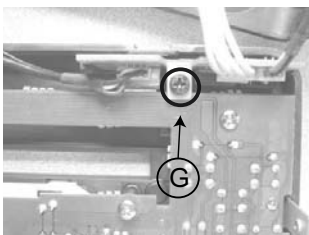
- E1. Loose 4pcs screws(3 x 10 FA) of the back side.
- E2. Loose 2pcs screws(3 x 10 FA) of the decoder board.



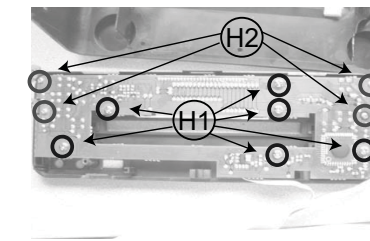
D. Loose 4pcs screws(3 x 10 PWA) to remove DVD Loader Driver



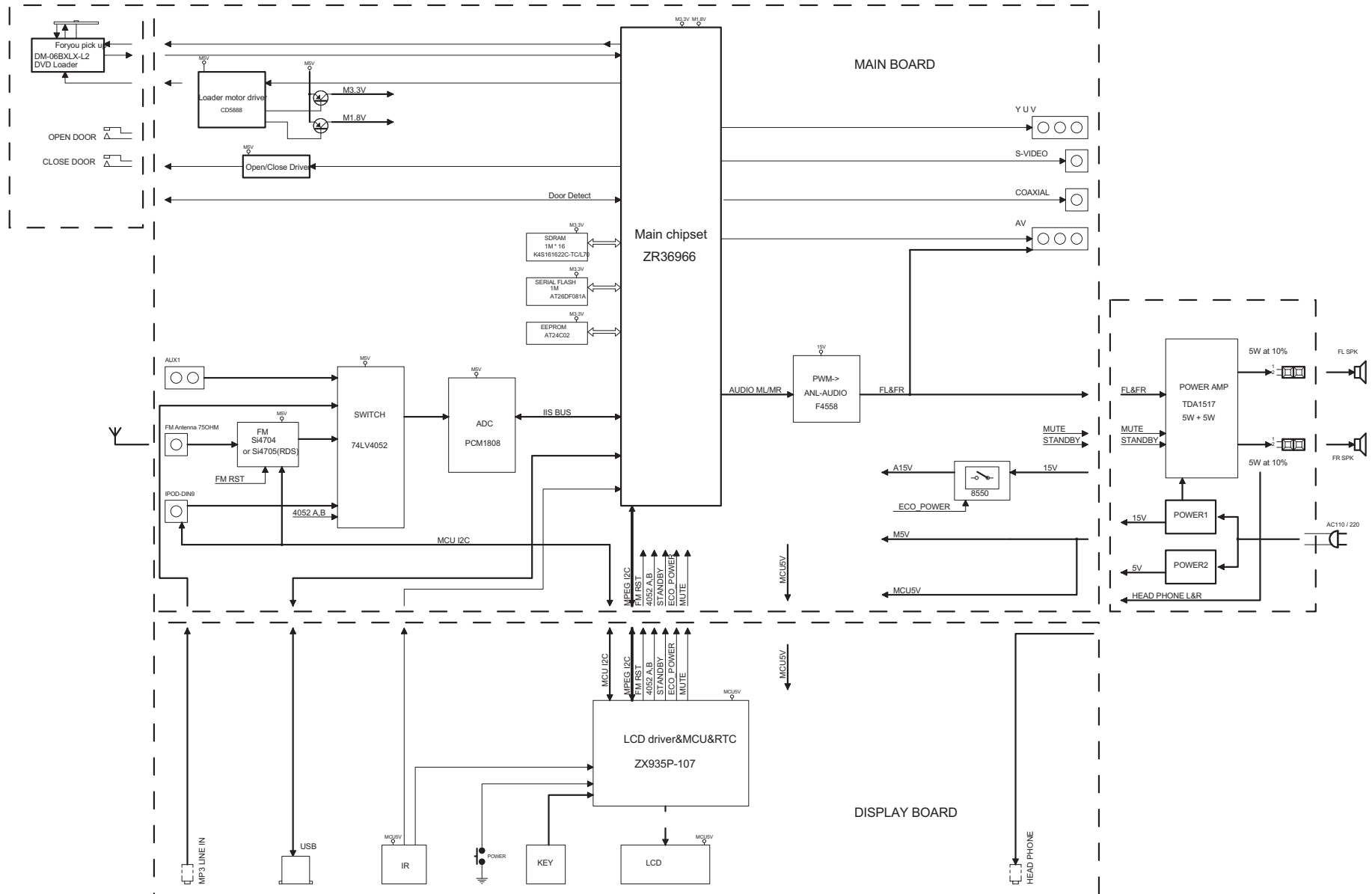
G. Loose 1pc screw(3 x 8 BA) to remove the Headphone Board



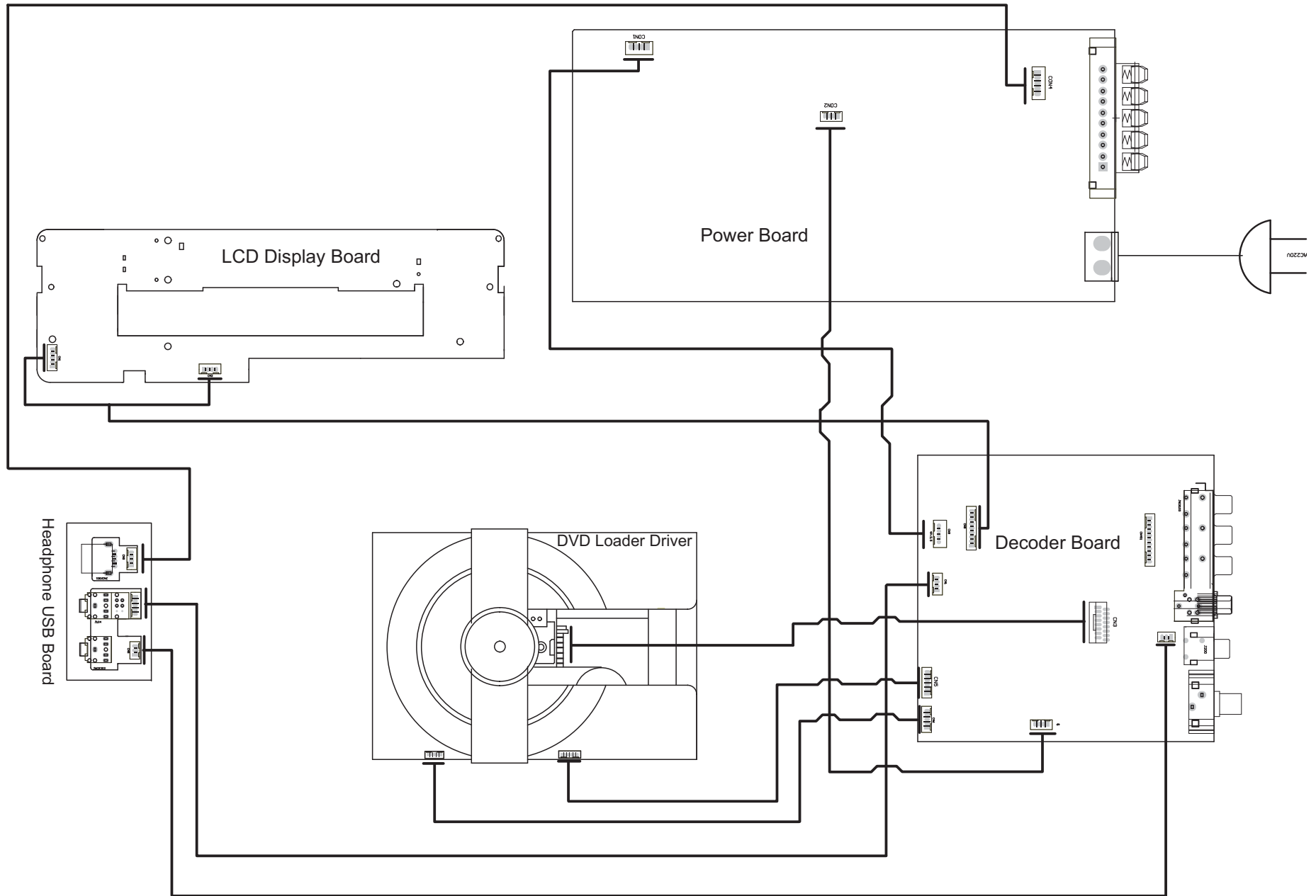
H. Remove the Display Board
 H1. Loose 6pcs screws(3 x 8 BA)
 H2. Loose 4pcs screws(2 x 8 BT)



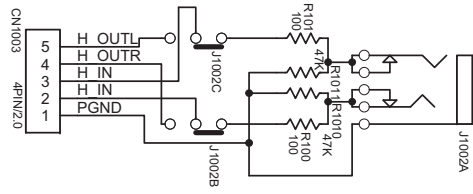
Block Diagram



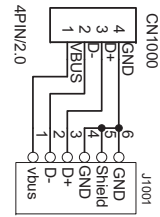
Wiring Diagram



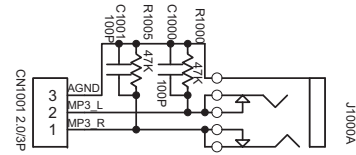
Small Board -- Layout & Circuit Diagram



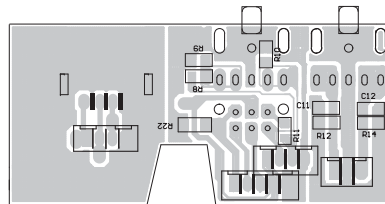
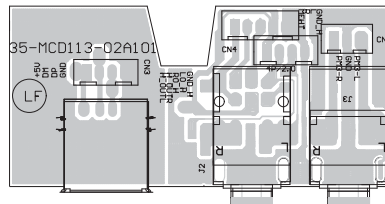
headphone



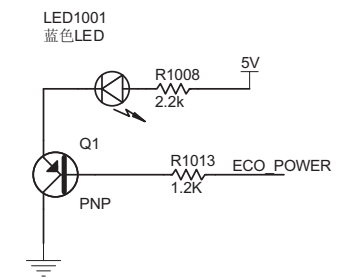
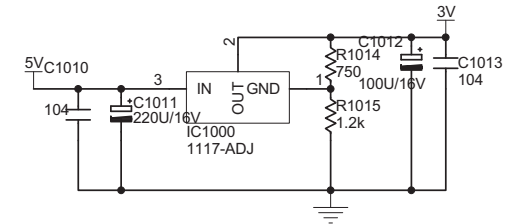
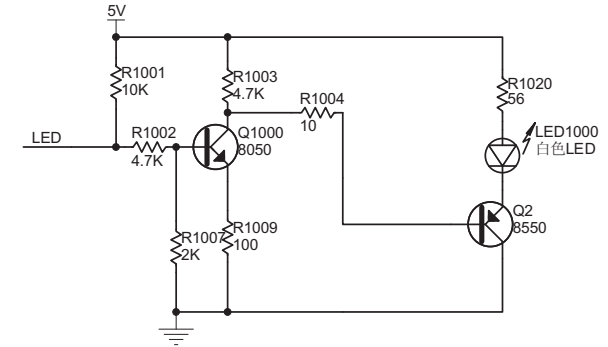
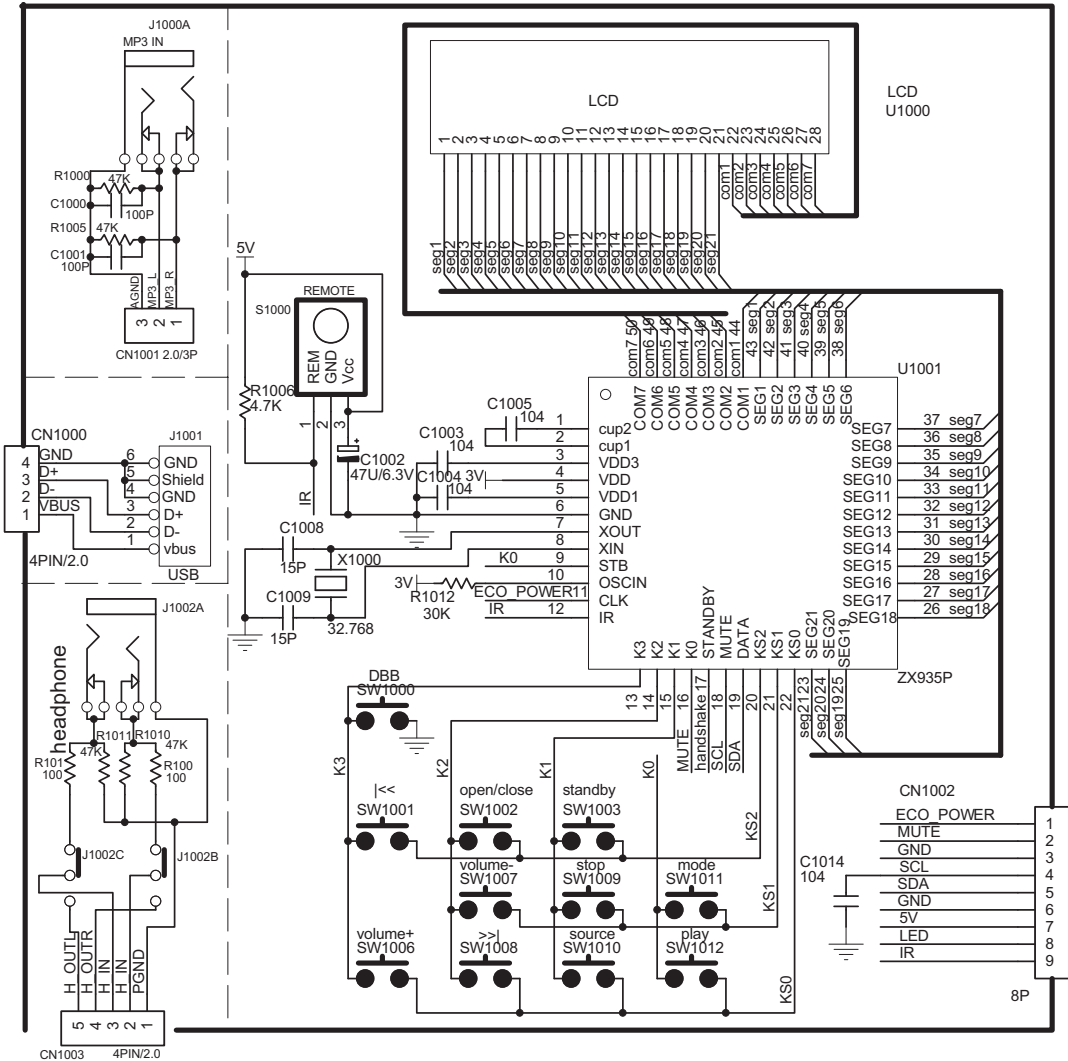
USB



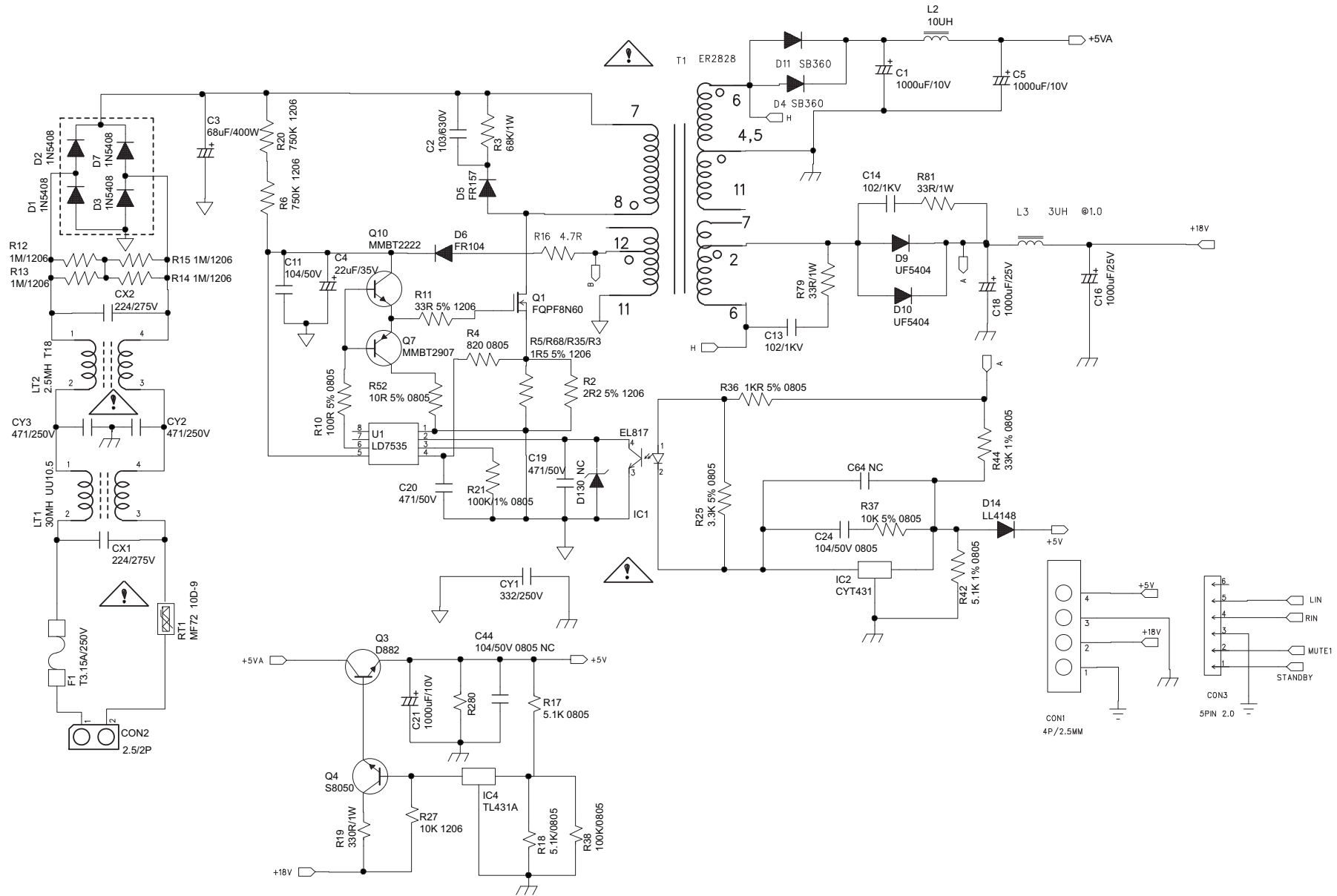
MP3 IN



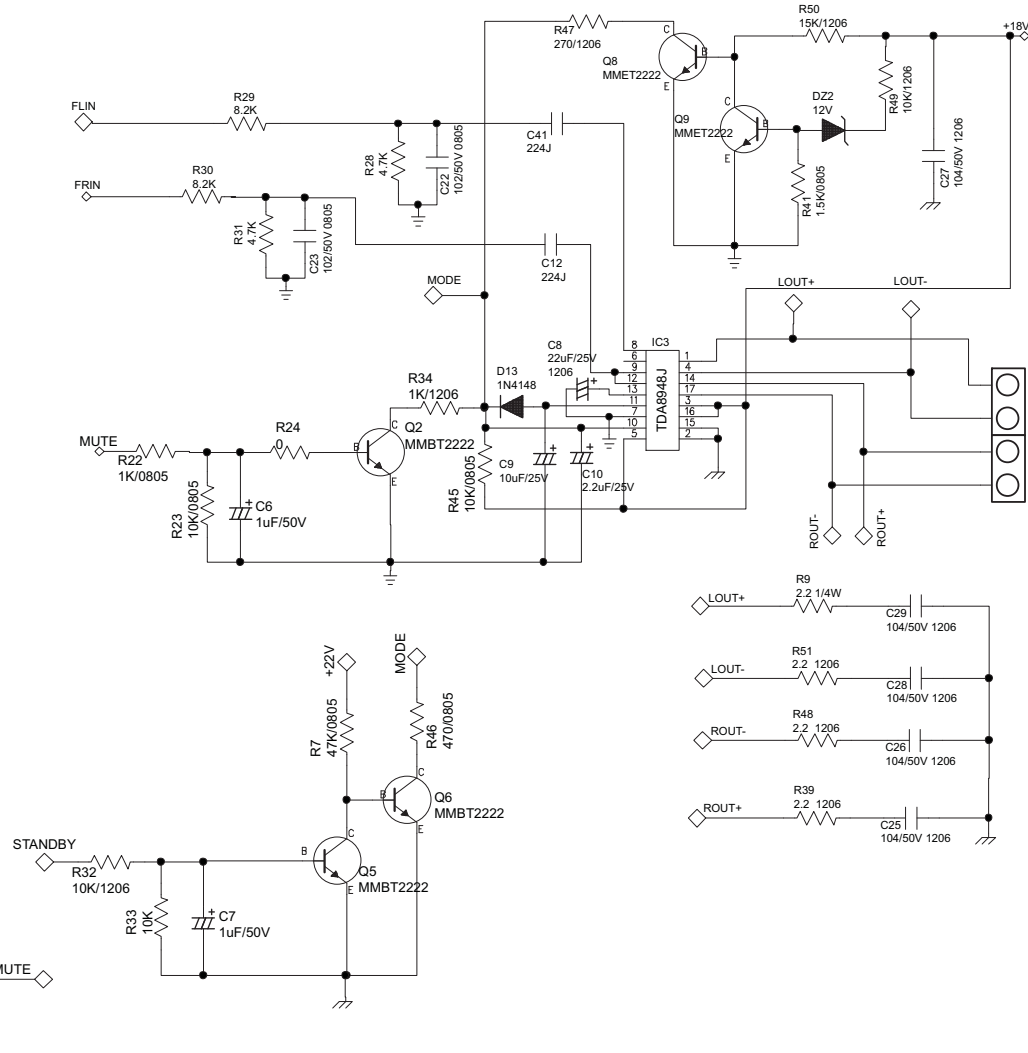
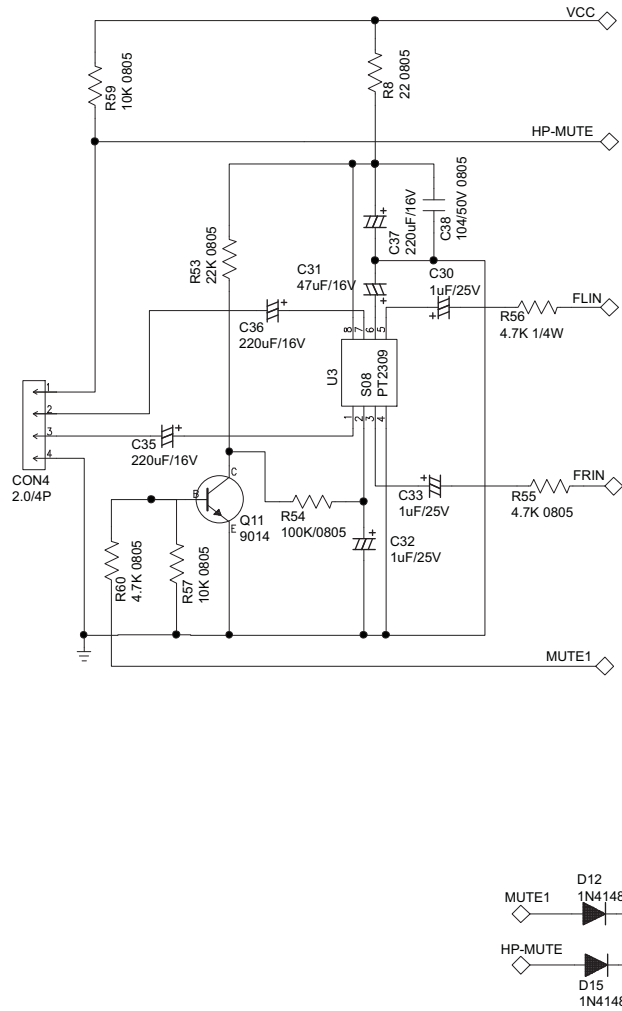
LCD Display Board -- Circuit Diagram



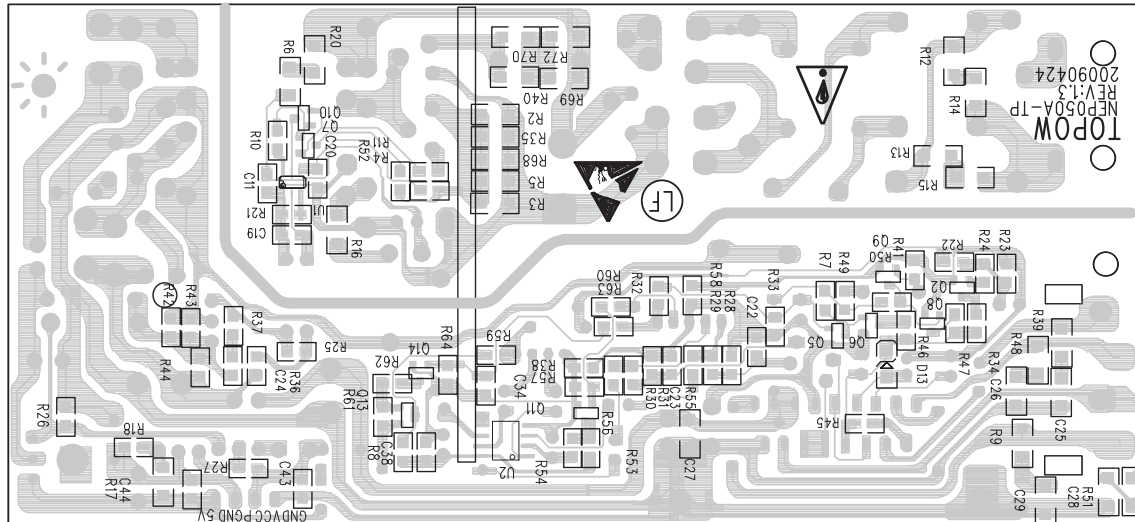
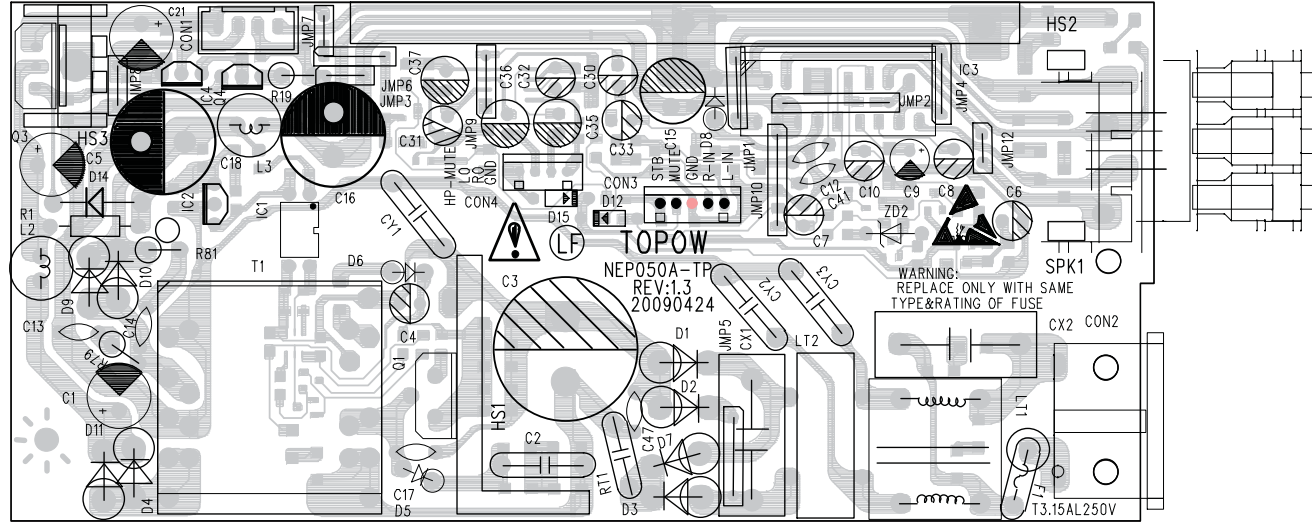
Power Board -- Circuit Diagram



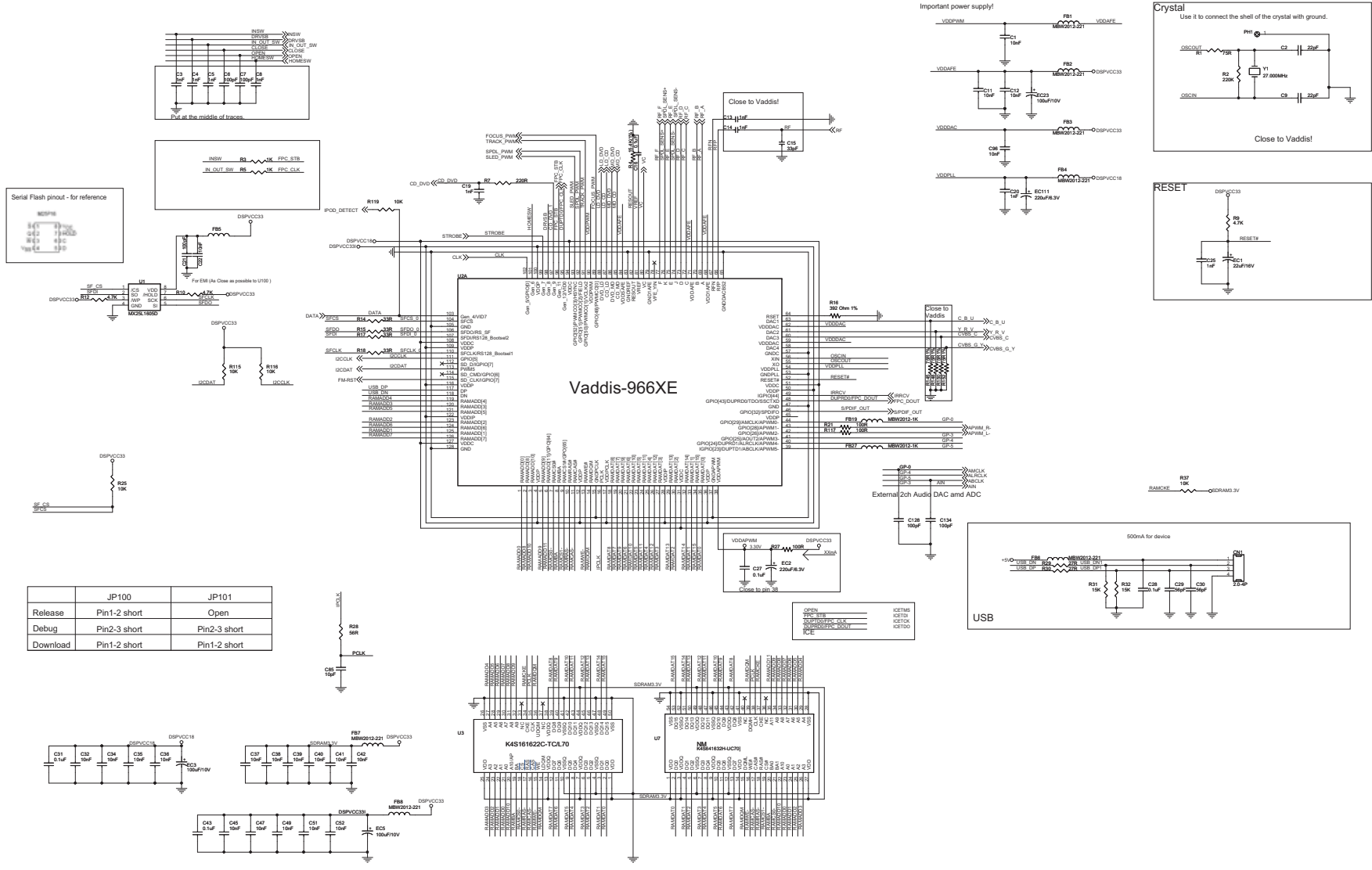
Power Board -- Circuit Diagram



Power Board -- Layout Diagram



Decoder Board -- Circuit Diagram

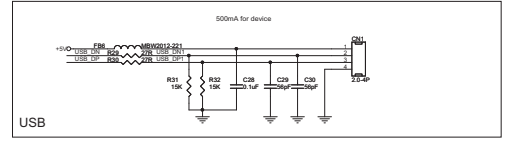
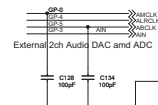
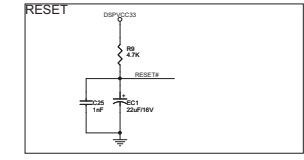
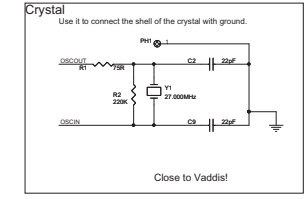
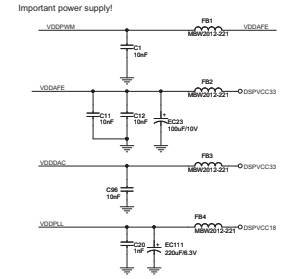


Serial Flash pinout - for reference

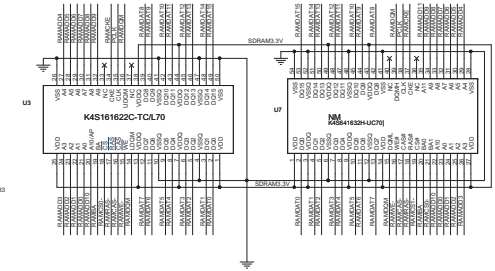
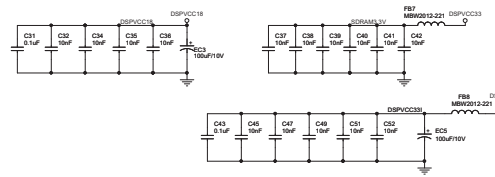
```

    M25P16
    Pin 1: GND
    Pin 2: VCC
    Pin 3: CS
    Pin 4: WP
    Pin 5: HOLD
    Pin 6: DQ
    Pin 7: DQ
    Pin 8: DQ
    Pin 9: DQ
    Pin 10: DQ
    Pin 11: DQ
    Pin 12: DQ
    Pin 13: DQ
    Pin 14: DQ
    Pin 15: DQ
    Pin 16: DQ
    Pin 17: DQ
    Pin 18: DQ
    Pin 19: DQ
    Pin 20: DQ
    Pin 21: DQ
    Pin 22: DQ
    Pin 23: DQ
    Pin 24: DQ
    Pin 25: DQ
    Pin 26: DQ
    Pin 27: DQ
    Pin 28: DQ
    Pin 29: DQ
    Pin 30: DQ
    Pin 31: DQ
    Pin 32: DQ
    Pin 33: DQ
    Pin 34: DQ
    Pin 35: DQ
    Pin 36: DQ
    Pin 37: DQ
    Pin 38: DQ
    Pin 39: DQ
    Pin 40: DQ
    Pin 41: DQ
    Pin 42: DQ
    Pin 43: DQ
    Pin 44: DQ
    Pin 45: DQ
    Pin 46: DQ
    Pin 47: DQ
    Pin 48: DQ
    Pin 49: DQ
    Pin 50: DQ
    Pin 51: DQ
    Pin 52: DQ
    Pin 53: DQ
    Pin 54: DQ
    Pin 55: DQ
    Pin 56: DQ
    Pin 57: DQ
    Pin 58: DQ
    Pin 59: DQ
    Pin 60: DQ
    Pin 61: DQ
    Pin 62: DQ
    Pin 63: DQ
    Pin 64: DQ
    Pin 65: DQ
    Pin 66: DQ
    Pin 67: DQ
    Pin 68: DQ
    Pin 69: DQ
    Pin 70: DQ
    Pin 71: DQ
    Pin 72: DQ
    Pin 73: DQ
    Pin 74: DQ
    Pin 75: DQ
    Pin 76: DQ
    Pin 77: DQ
    Pin 78: DQ
    Pin 79: DQ
    Pin 80: DQ
    Pin 81: DQ
    Pin 82: DQ
    Pin 83: DQ
    Pin 84: DQ
    Pin 85: DQ
    Pin 86: DQ
    Pin 87: DQ
    Pin 88: DQ
    Pin 89: DQ
    Pin 90: DQ
    Pin 91: DQ
    Pin 92: DQ
    Pin 93: DQ
    Pin 94: DQ
    Pin 95: DQ
    Pin 96: DQ
    Pin 97: DQ
    Pin 98: DQ
    Pin 99: DQ
    Pin 100: DQ
    
```

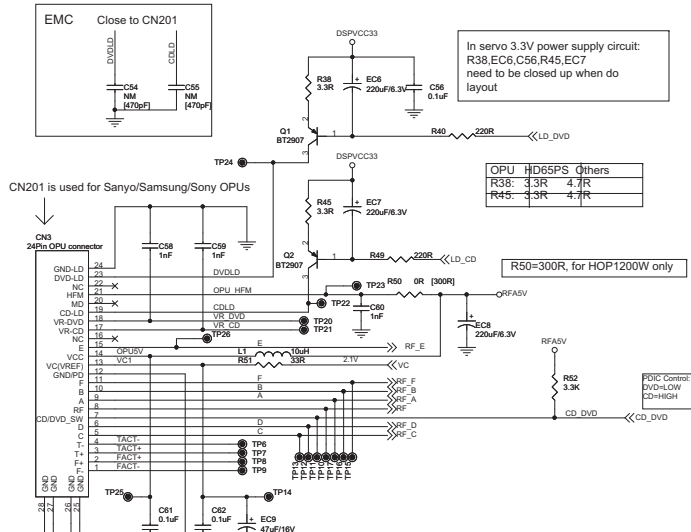
	JP100	JP101
Release	Pin1-2 short	Open
Debug	Pin2-3 short	Pin2-3 short
Download	Pin1-2 short	Pin1-2 short



IC20: VCE100
 IC21: ICE100
 IC22: ICE100
 IC23: ICE100
 IC24: ICE100
 IC25: ICE100
 IC26: ICE100
 IC27: ICE100
 IC28: ICE100
 IC29: ICE100
 IC30: ICE100
 IC31: ICE100
 IC32: ICE100
 IC33: ICE100
 IC34: ICE100
 IC35: ICE100
 IC36: ICE100
 IC37: ICE100
 IC38: ICE100
 IC39: ICE100
 IC40: ICE100
 IC41: ICE100
 IC42: ICE100
 IC43: ICE100
 IC44: ICE100
 IC45: ICE100
 IC46: ICE100
 IC47: ICE100
 IC48: ICE100
 IC49: ICE100
 IC50: ICE100
 IC51: ICE100
 IC52: ICE100
 IC53: ICE100
 IC54: ICE100
 IC55: ICE100
 IC56: ICE100
 IC57: ICE100
 IC58: ICE100
 IC59: ICE100
 IC60: ICE100
 IC61: ICE100
 IC62: ICE100
 IC63: ICE100
 IC64: ICE100
 IC65: ICE100
 IC66: ICE100
 IC67: ICE100
 IC68: ICE100
 IC69: ICE100
 IC70: ICE100
 IC71: ICE100
 IC72: ICE100
 IC73: ICE100
 IC74: ICE100
 IC75: ICE100
 IC76: ICE100
 IC77: ICE100
 IC78: ICE100
 IC79: ICE100
 IC80: ICE100
 IC81: ICE100
 IC82: ICE100
 IC83: ICE100
 IC84: ICE100
 IC85: ICE100
 IC86: ICE100
 IC87: ICE100
 IC88: ICE100
 IC89: ICE100
 IC90: ICE100
 IC91: ICE100
 IC92: ICE100
 IC93: ICE100
 IC94: ICE100
 IC95: ICE100
 IC96: ICE100
 IC97: ICE100
 IC98: ICE100
 IC99: ICE100
 IC100: ICE100

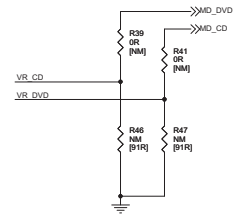


Decoder Board -- Circuit Diagram



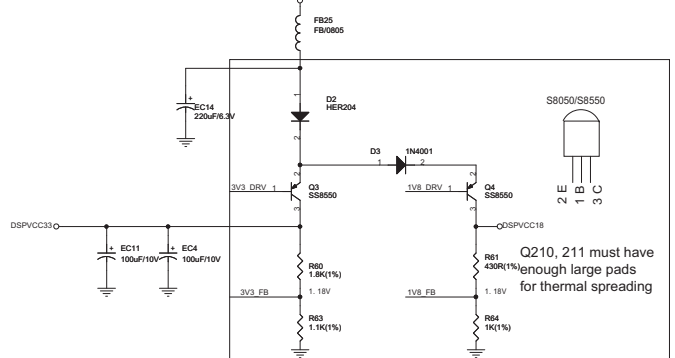
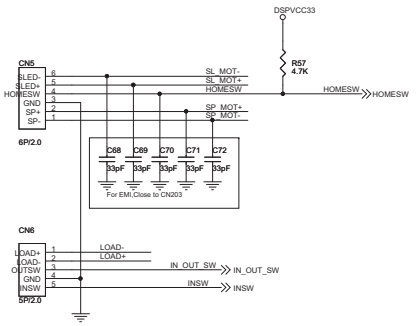
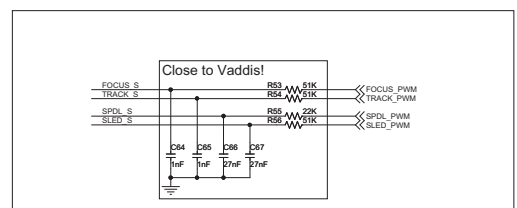
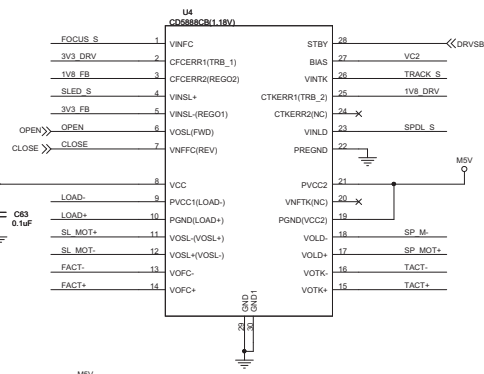
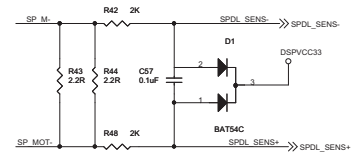
OPU	R41	R39
Sony310	100R	100R
DL3	0	0
IA1510	100R	100R
TOP1100S	10R	10R
SEMCCO-SP1	0	0
MITSUBISHI	91R	91R
HDR(DV23)	0	0
HOP1200W	NM	NM
HD65/HD62	0	0
502W	91R	91R
Anima681	NM	NM

OPU	R46	R47
HOP1200W	100R	100R
Anima681	100R	100R
Others	NM	NM



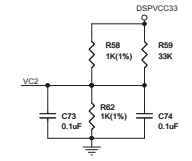
BEMF

Current Type(Default)

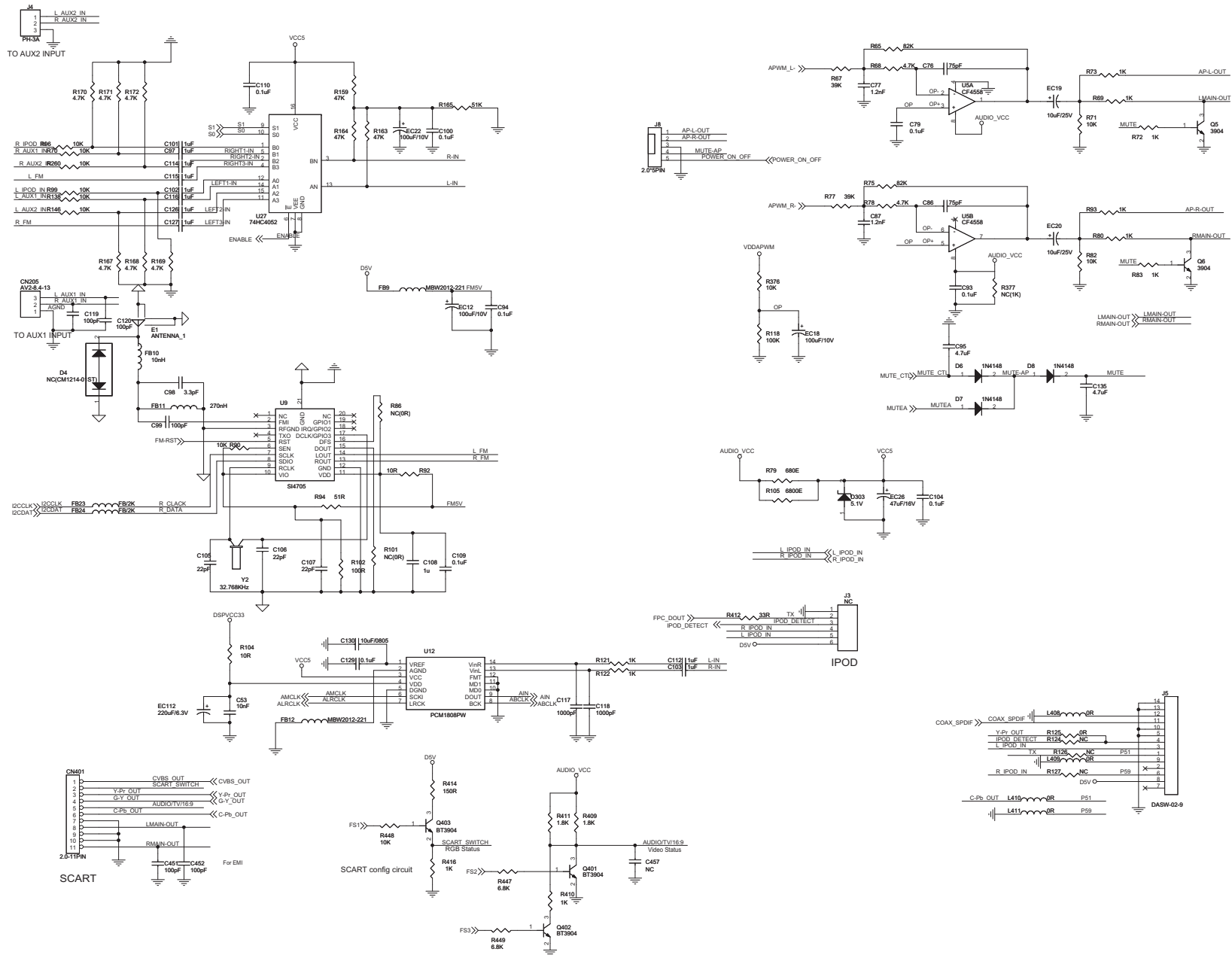


Motor driver	R63	R60	R61
CD5888(1.18V)	1K	1.8K	1% 510R
AM5888	1.2K	2K	1% 430R

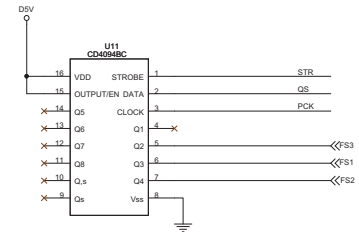
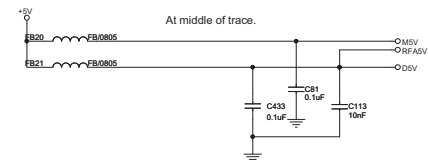
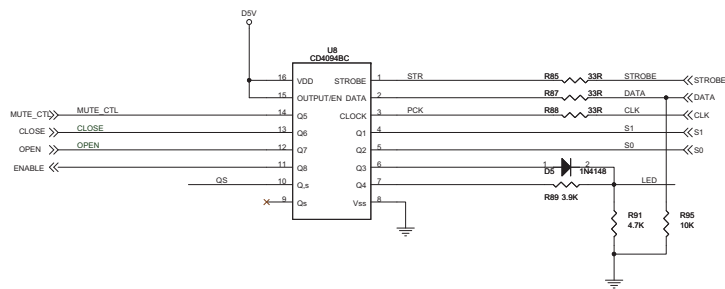
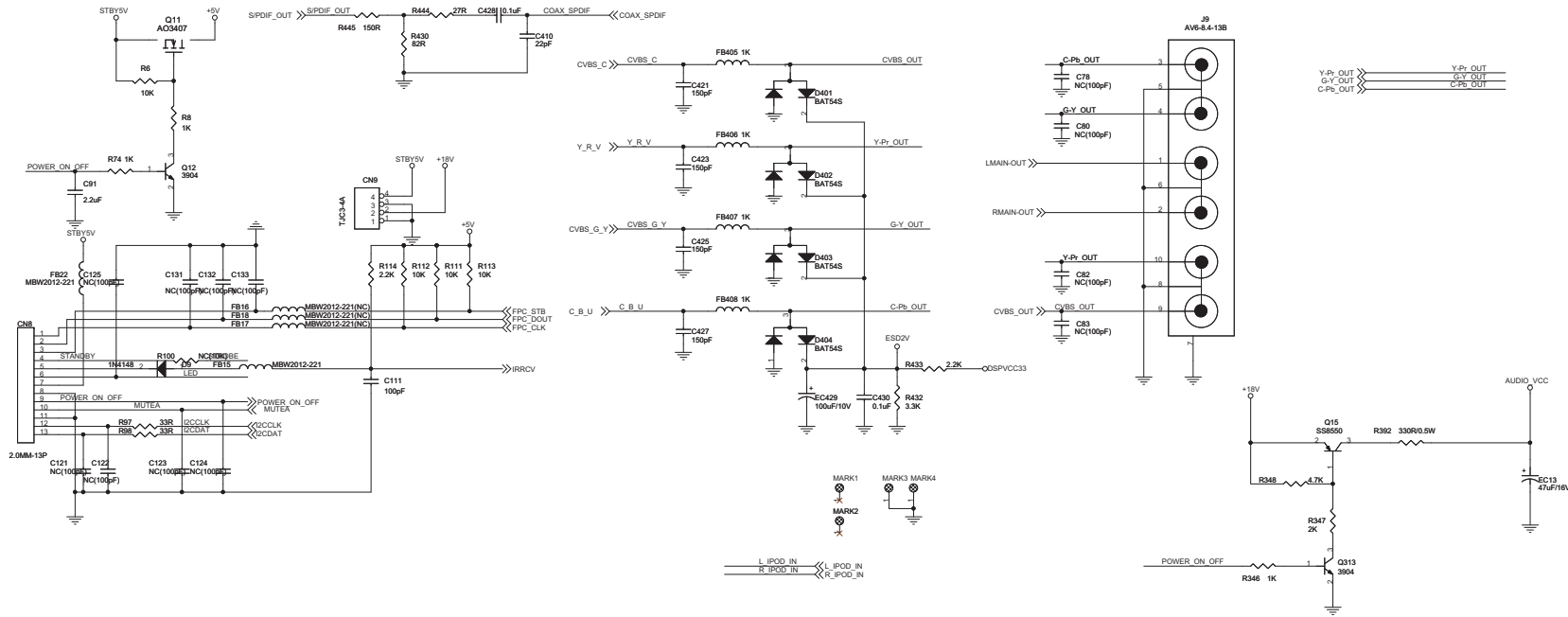
Close to motor driver.



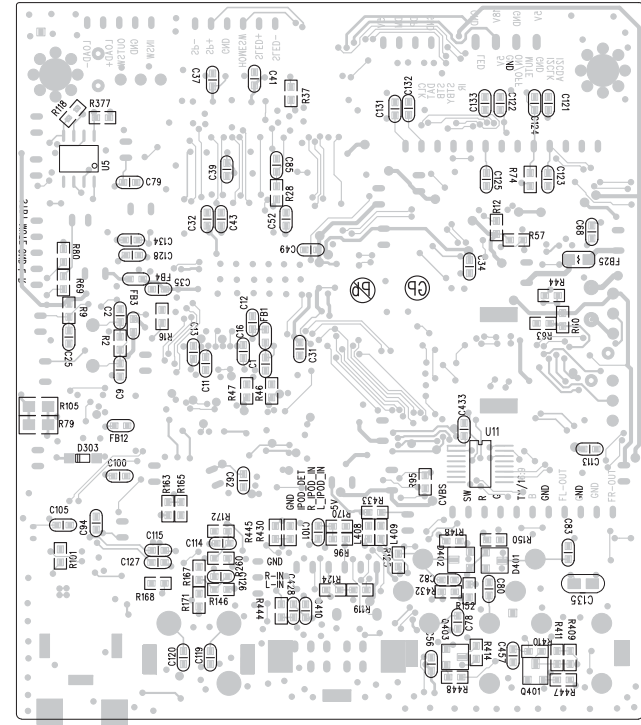
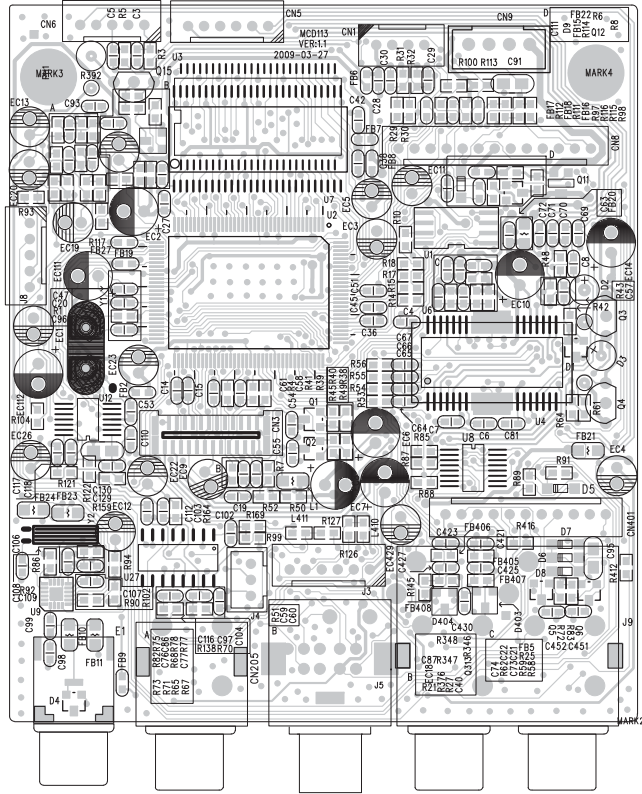
Decoder Board --Circuit Diagram



Decoder Board -- Circuit Diagram



Decoder Board



Exploded View

