

Service
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Service



Service Manual



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**CLASS 1
LASER PRODUCT**

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Version 1.1



PHILIPS



Type /Versions:		HES2800										
Board in used:	Service policy	/05	/12	/37	/55	/58	/61	/79	/93	/94	/96	/98
DOOR LIMIT CONTROL BOARD		M	M									M
DECODER BOARD		M	M									M
POWER BUTTON CONTROL BOARD		M	M									M
FUNCTION BUTTON BOARD		M	M									M
POWER SWITCHING ADAPTOR		M	M									M
Type /Versions:	HES2800											
Features	Feature dffrence	/05	/12	/37	/55	/58	/61	/79	/93	/94	/96	/98
RDS		√	√									
VOLTAGE SELECTOR												√
ECO STANDBY - DARK		√	√									
TDS												
* TIPS : C -- Component Level Repair M -- Module Level Repair √ -- Used												

Electronic Specification

AMPLIFIER

Rated Output Power-----2X35W+75WRMS
 Signal-to-noise ratio-----≥67dB
 Frequency response-----20-20000Hz, ±3dB
 Aux Input-----1.00V RMS 20kohm

DISC

Lader type-----Semiconductor
 Disc Diameter-----12cm/8cm
 Support Disc-----CD-DA, CD-R,
 CD-RW, MP3, DVD, DVD-RW DVD+RW
 Video Decoding-----MPEG-1/MPEG-2/Divx
 Video DAC-----12Bits
 Signal System-----PAL/NTSC
 Video S/N-----48dB
 Audio DAC-----24Bits/96kHz
 Total Harmonic Distortion-----<1% (1kHz)
 Frequency Response-----4Hz - 20kHz (44.1kHz)
 -----4Hz - 22kHz (48kHz)
 -----4Hz - 24kHz (96kHz)
 S/N Ration-----≥67dB

TUNER

FM Tuning Range-----87.5 - 108MHz
 Tuning grid-----50kHz
 Sensitivity
 - Mono, 50dB S/N Ratio-----<22 dBf
 - Stereo, 50dB S/N Ration----->43 dBf
 Search Selectivity----->28 dBf
 Total Harmonic Distortion-----≤3%
 Signal to Noise Ration-----≤50dB

SPEAKERS

Speaker
 Impedance-----2x4ohm+8ohm(subwoofer)
 Speaker Driver, subwoofer-----6.25" subwoofer
 Speaker Driver, woofer-----3" subwoofer
 Speaker Driver, tweeter-----19mm tweeter
 Sensitivity
 - Subwoofer----->84dB/m/W ± 4dB/m/W
 - Woofer/Tweeter----->82dB/m/W ± 4dB/m/W

GENERAL INFORMATION

AC Power-----230V, 50Hz
 Operation Power Consumption-----25W
 Standby Power Consumption-----<4W
 Eco Standby Power Consumption-----<1W
 Composite Video Output-----1.0Vp-p, 75ohm
 Coaxial Output-----0.5Vpp ± 0.1Vpp, 75ohm
 HDMI (CEC) Output-----1.3a
 USB Direct-----Version 2.0

DIMENSIONS

- Main Unit (W x H x D)-----200 x 55 x 205 mm
 - Speakers-----100 x 230 x 90mm
 - Subwoofer Box-----170 x 330 x 340 mm

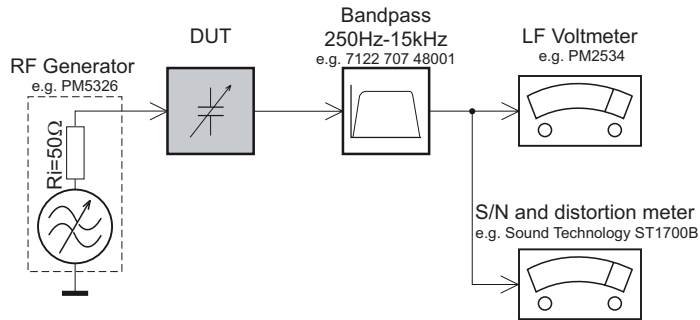
WEIGHT

- With Packing-----8g/pcs
 - Main Unit-----670g/pcs
 - Speaker Box-----690g/pcs
 - Subwoofer Box-----4100g/pcs

Specifications and external appearance are
 subject to change without notice.

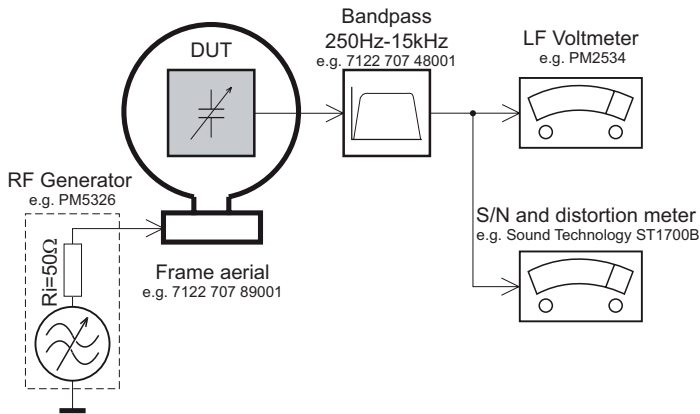
MEASUREMENT SETUP

Tuner FM



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

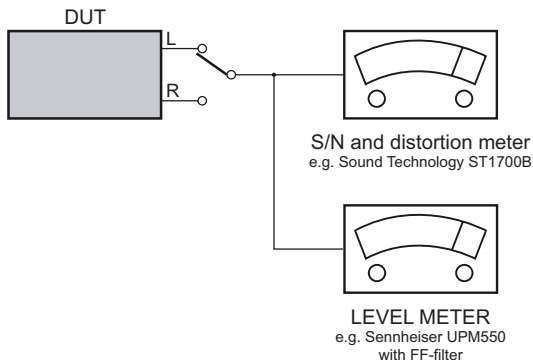
Tuner AM (MW,LW)



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).

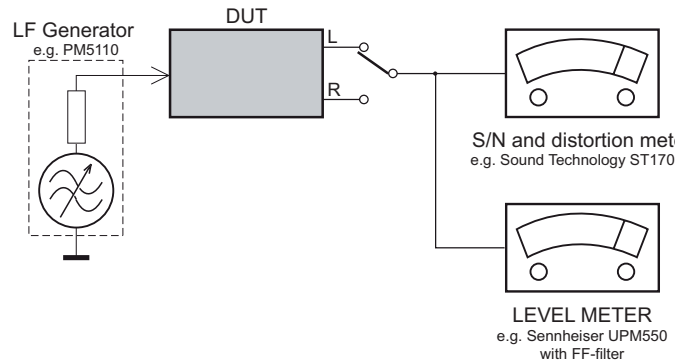
CD

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



Recorder

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



SERVICE AIDS



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



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".

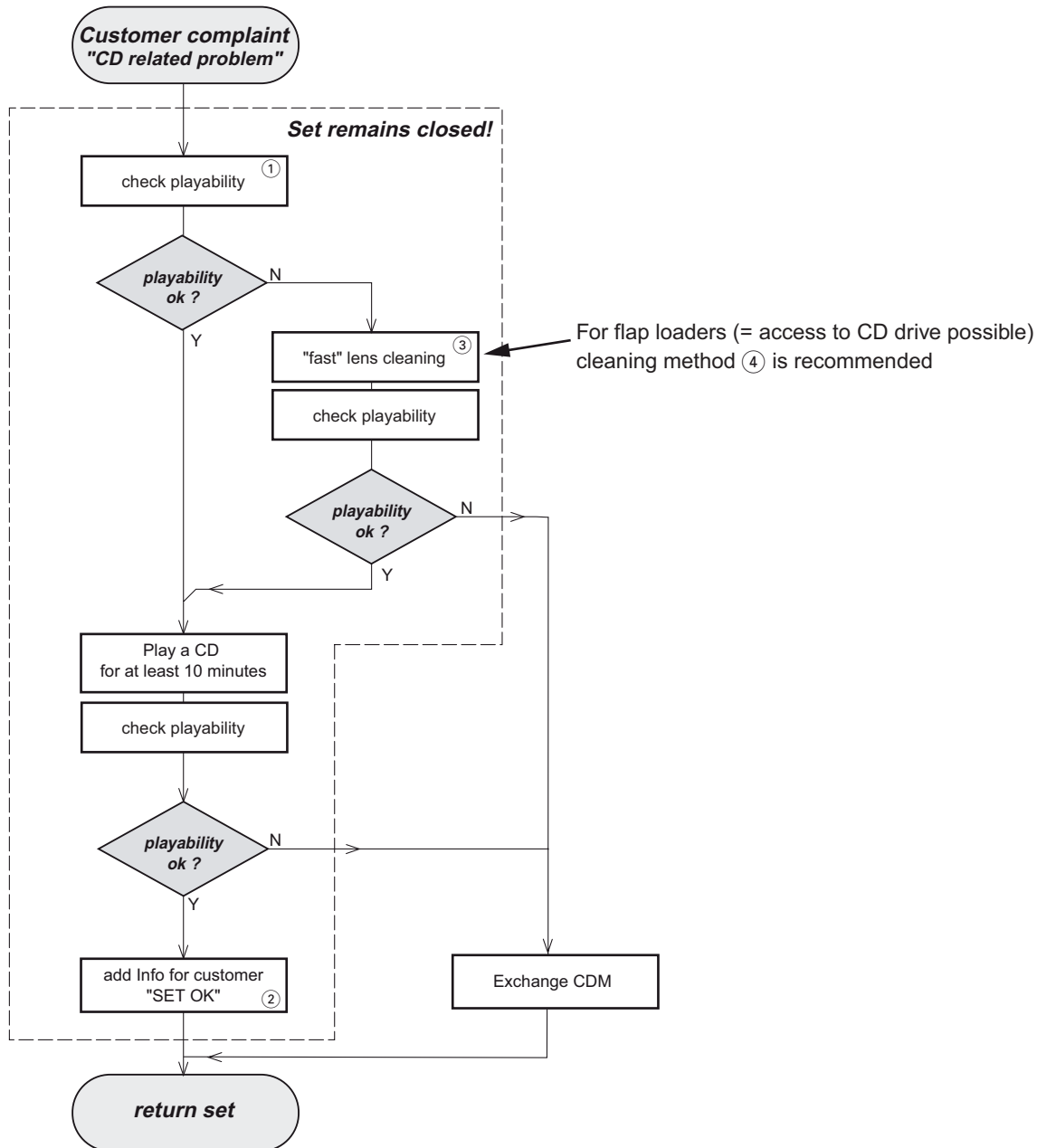
For additional questions please contact your local repair-helpdesk.

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

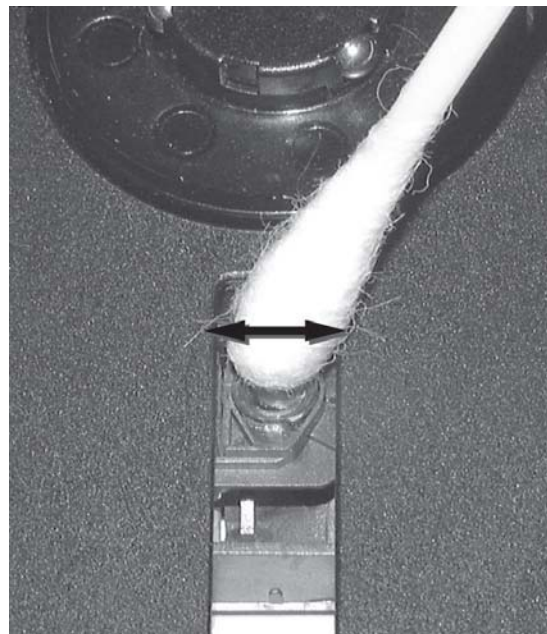
LIQUID LENS CLEANING

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.



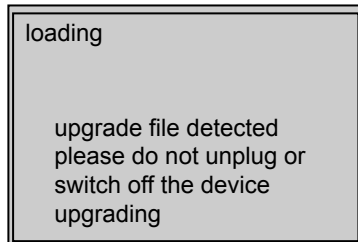
Software Version Check & Upgrade

Upgrade software

1. Download the software from Philips support website

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

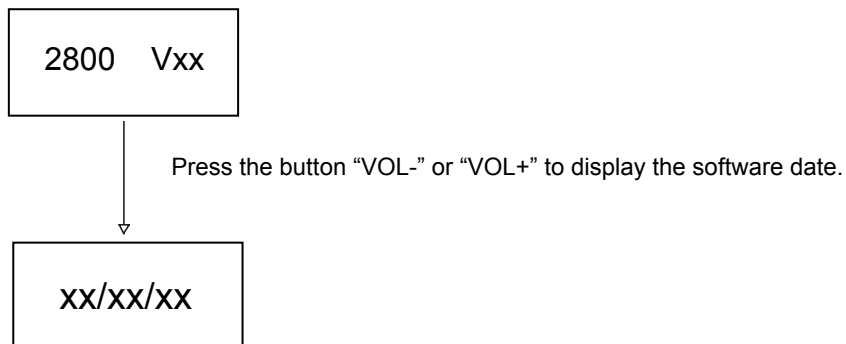
2. Insert the USB device which has stored the software. When it is loading, the TV screen showing as below:



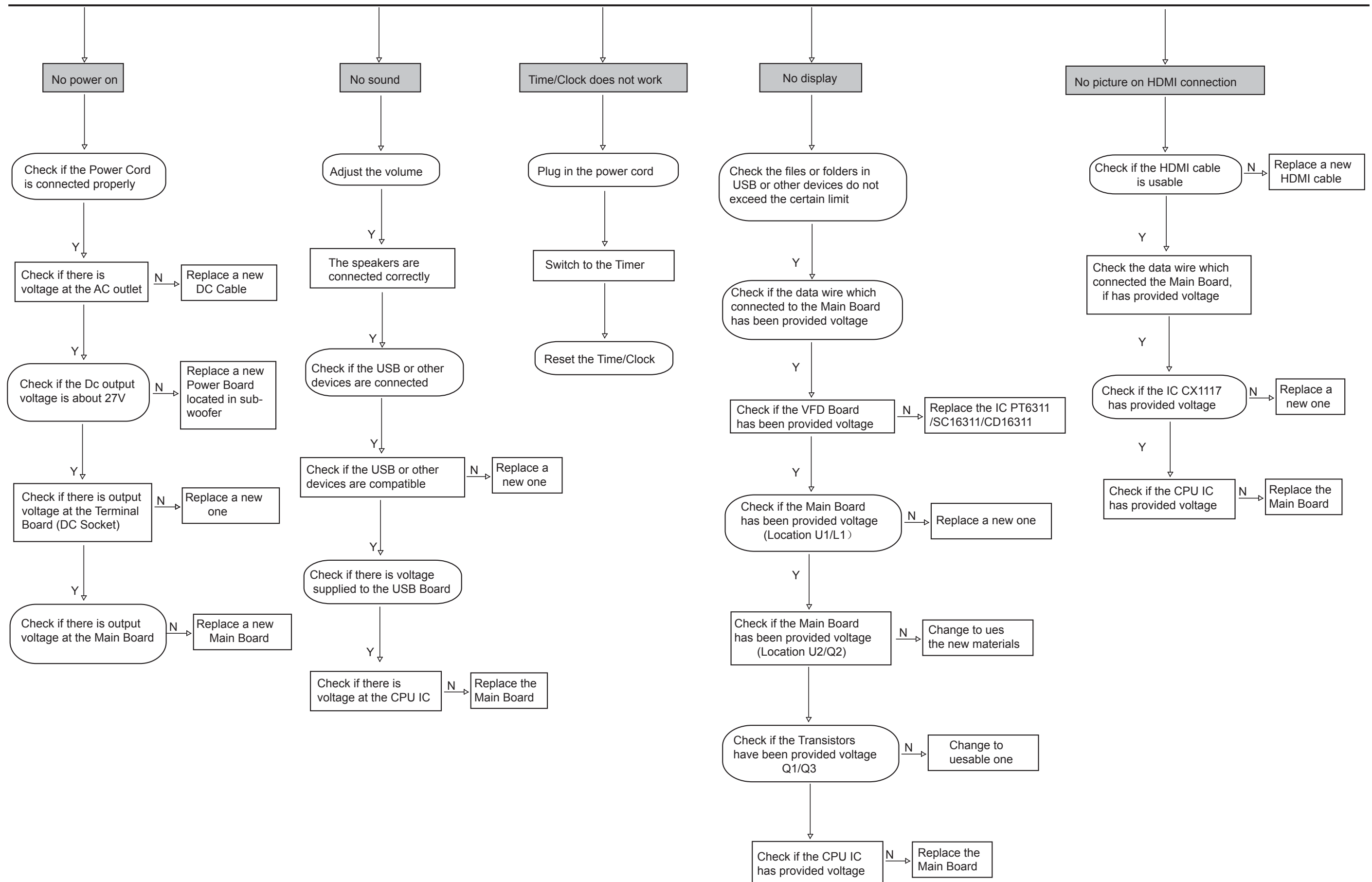
Waiting for a minute till the loading note disappear.

Software version and date check

1. Unplug the power cord.
2. Press and hold the buttons "VOL-" "VOL+" at the same time and insert the power cord. The VFD display as follows.

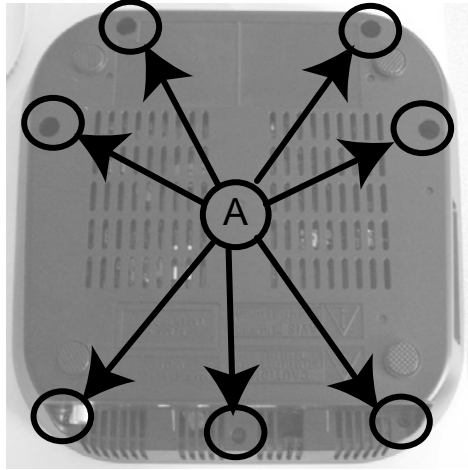


Malfunction Follow Check Chart

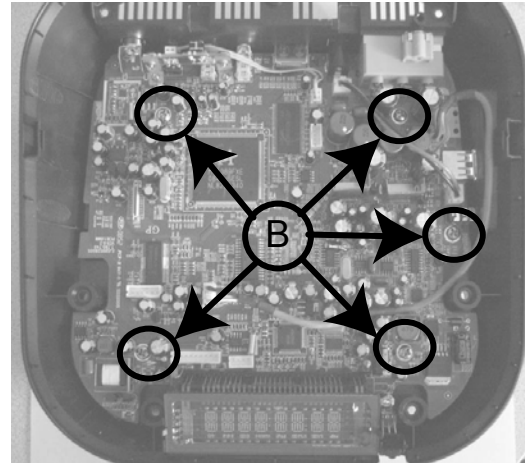


Disassembly Diagram

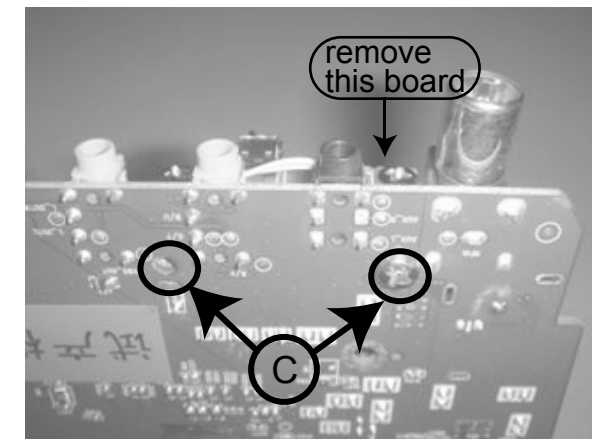
A. Loose 7pcs screws (2.6 x 8 PA)
to remove Bottom Cabinet



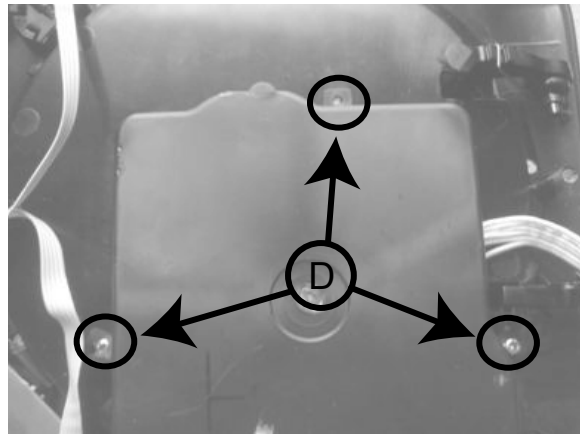
B. Loose 5pcs screws (3 x 6 PTH)
to remove the Main Decoder Board



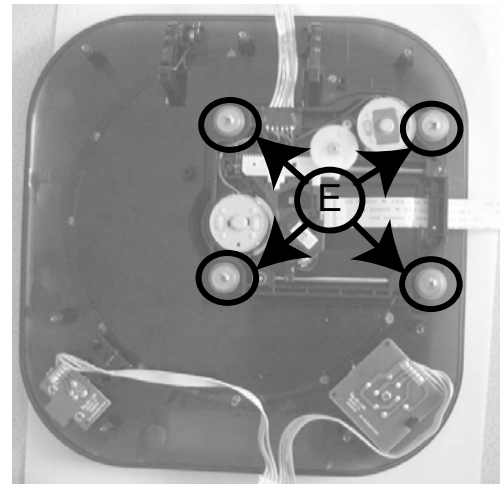
C. Loose 2pcs screws (3 x 5 PMTT)
to remove the Door Limit Board



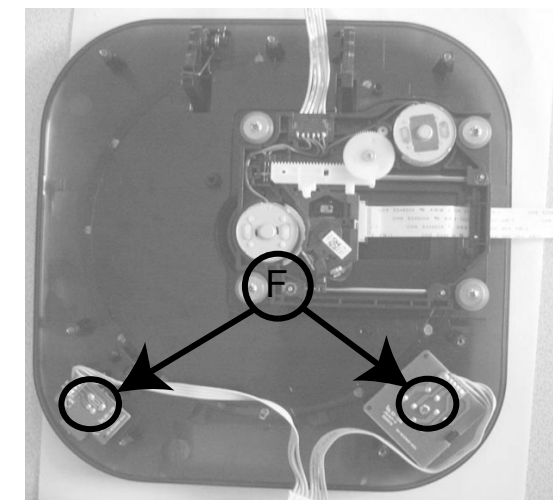
D. Loose 3pcs screws (2.6 x 6 PT)
to remove the Loader Dustproof Cover



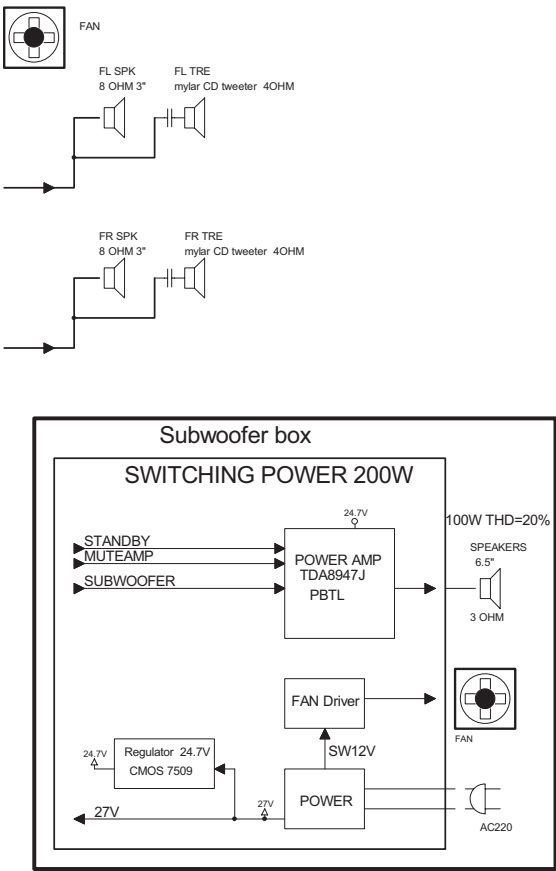
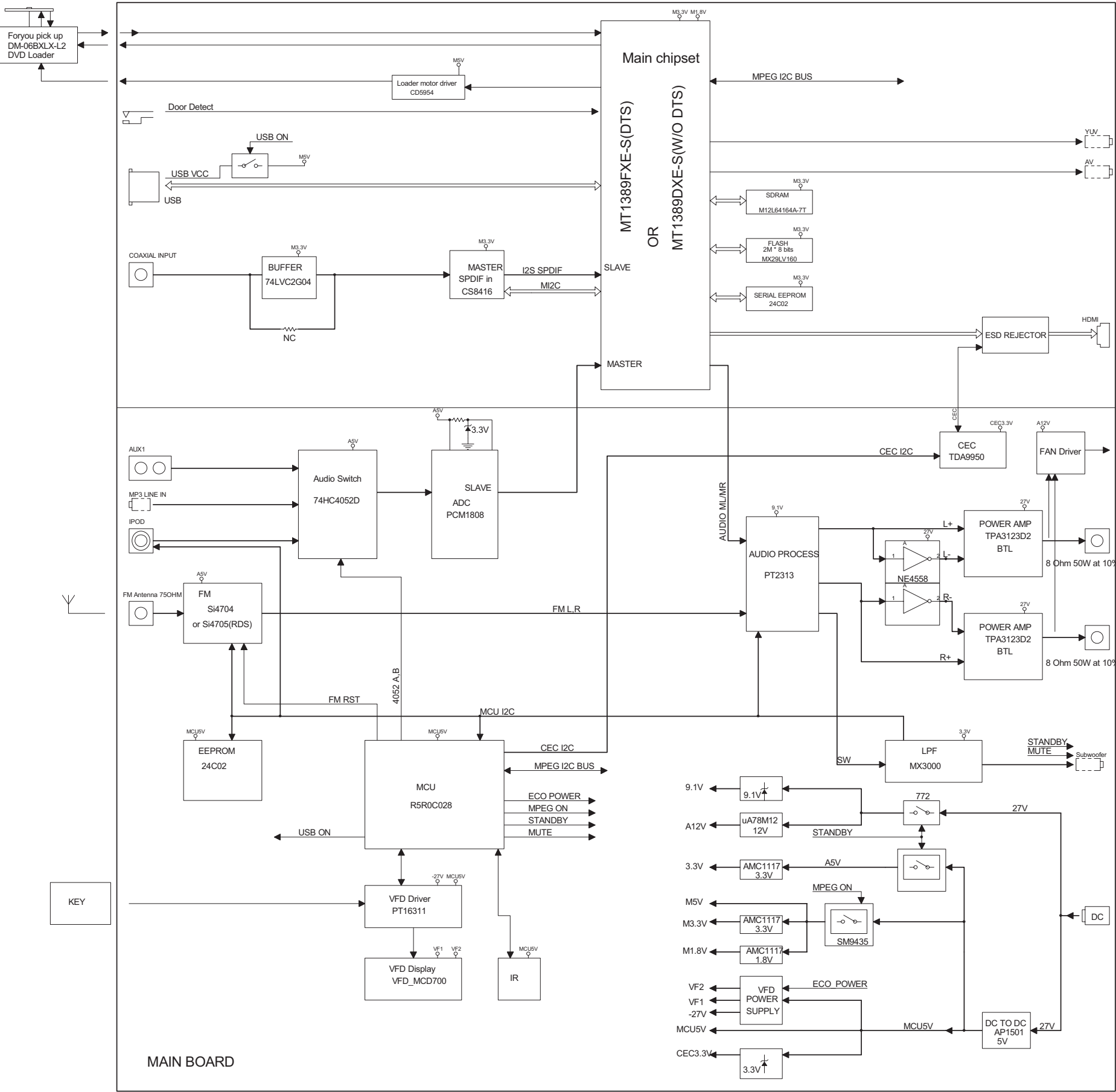
E. Loose 4pcs screws (2.6 x 10 PWBB)
to remove the Loader Dustproof Cover



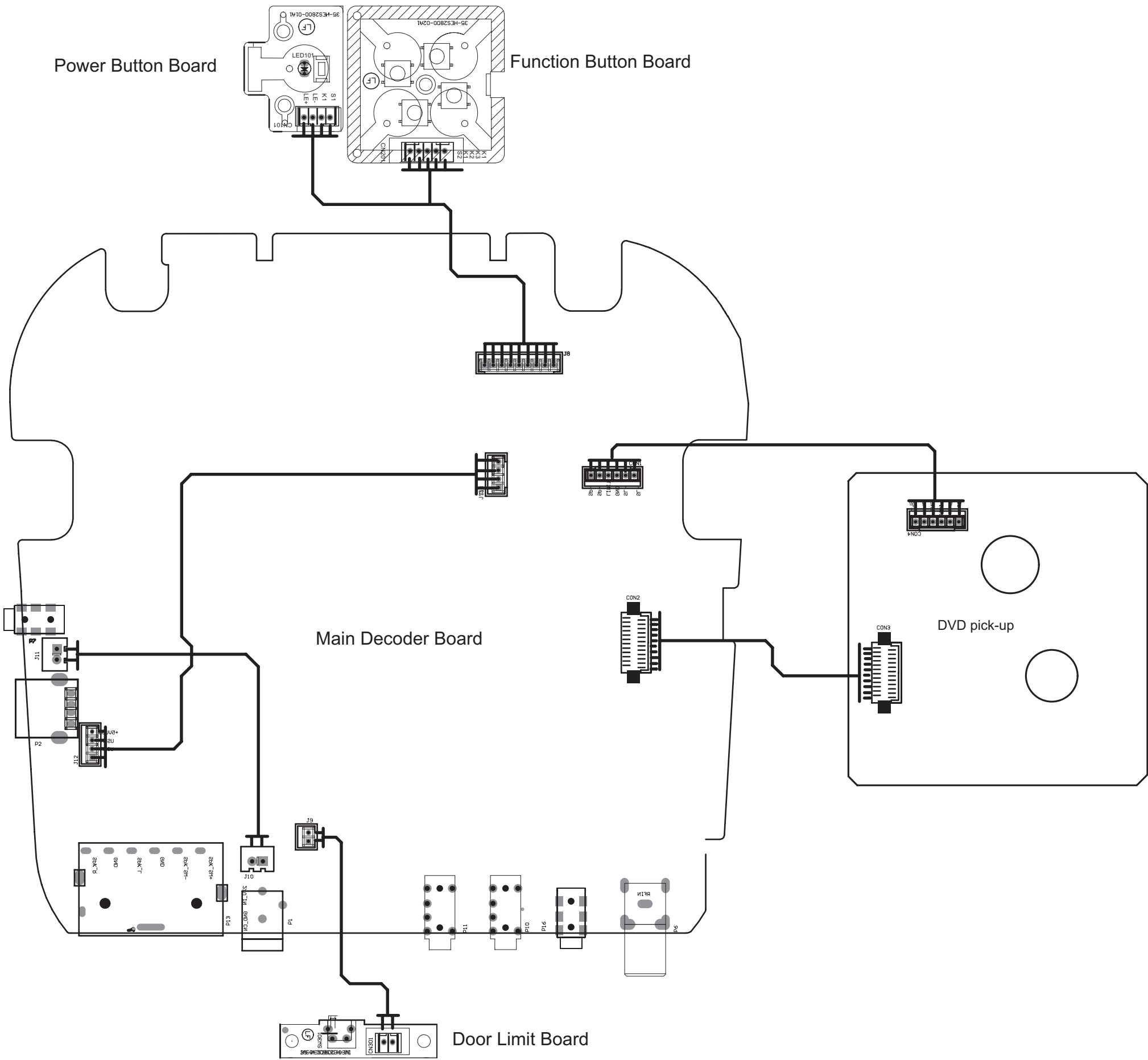
F. Loose 2pcs screws (2.6 x 8 PA)
to remove these two button boards



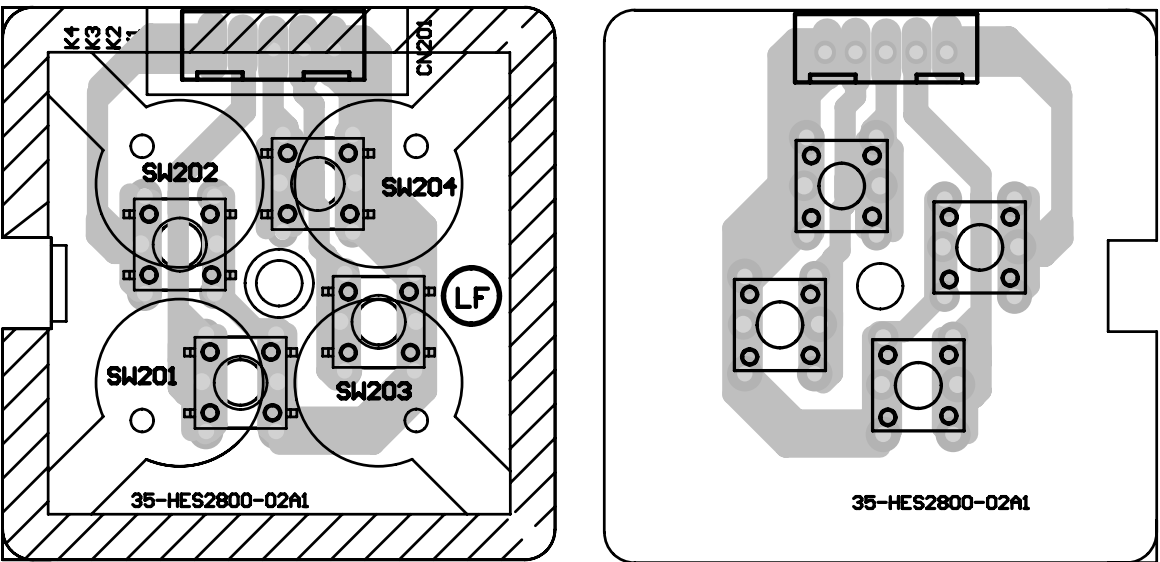
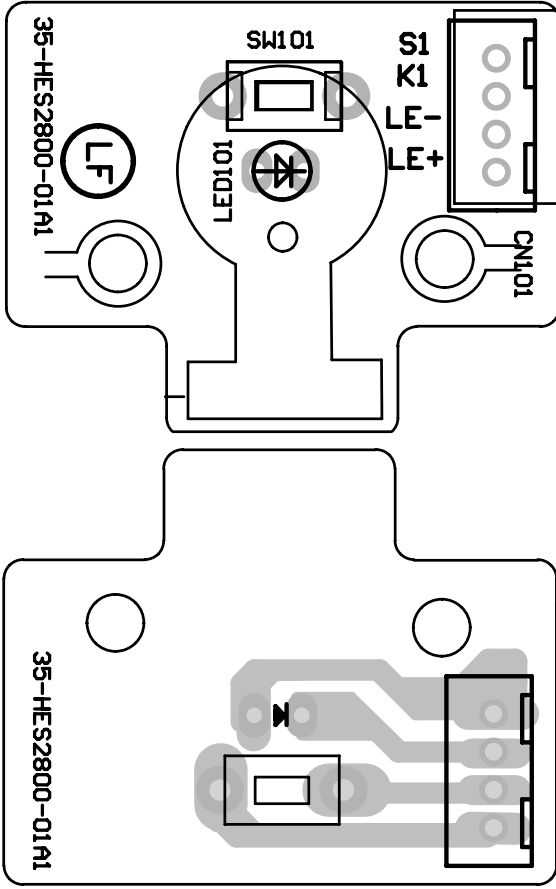
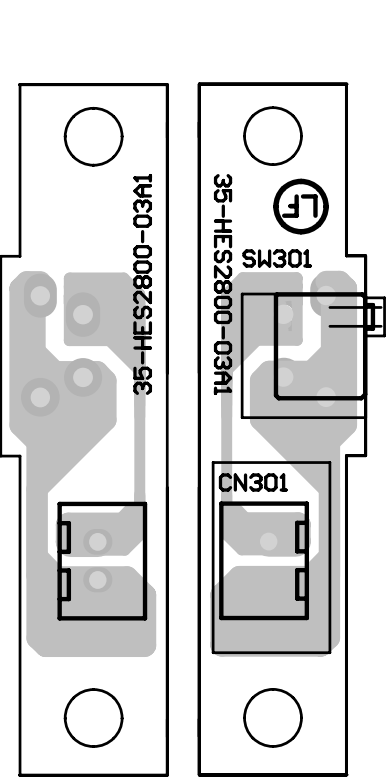
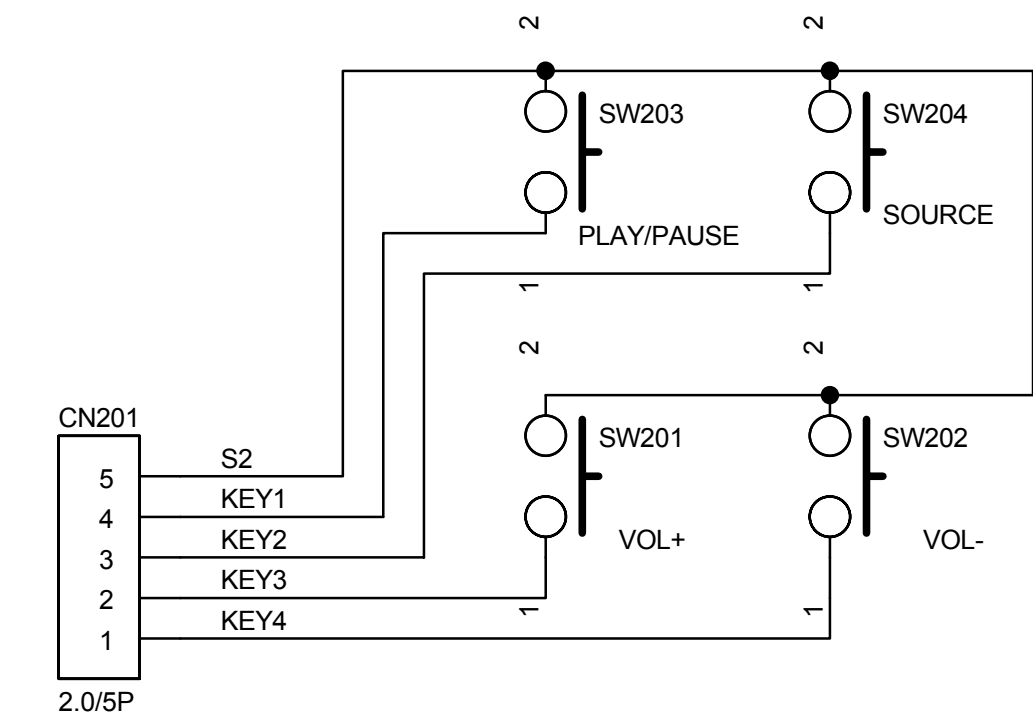
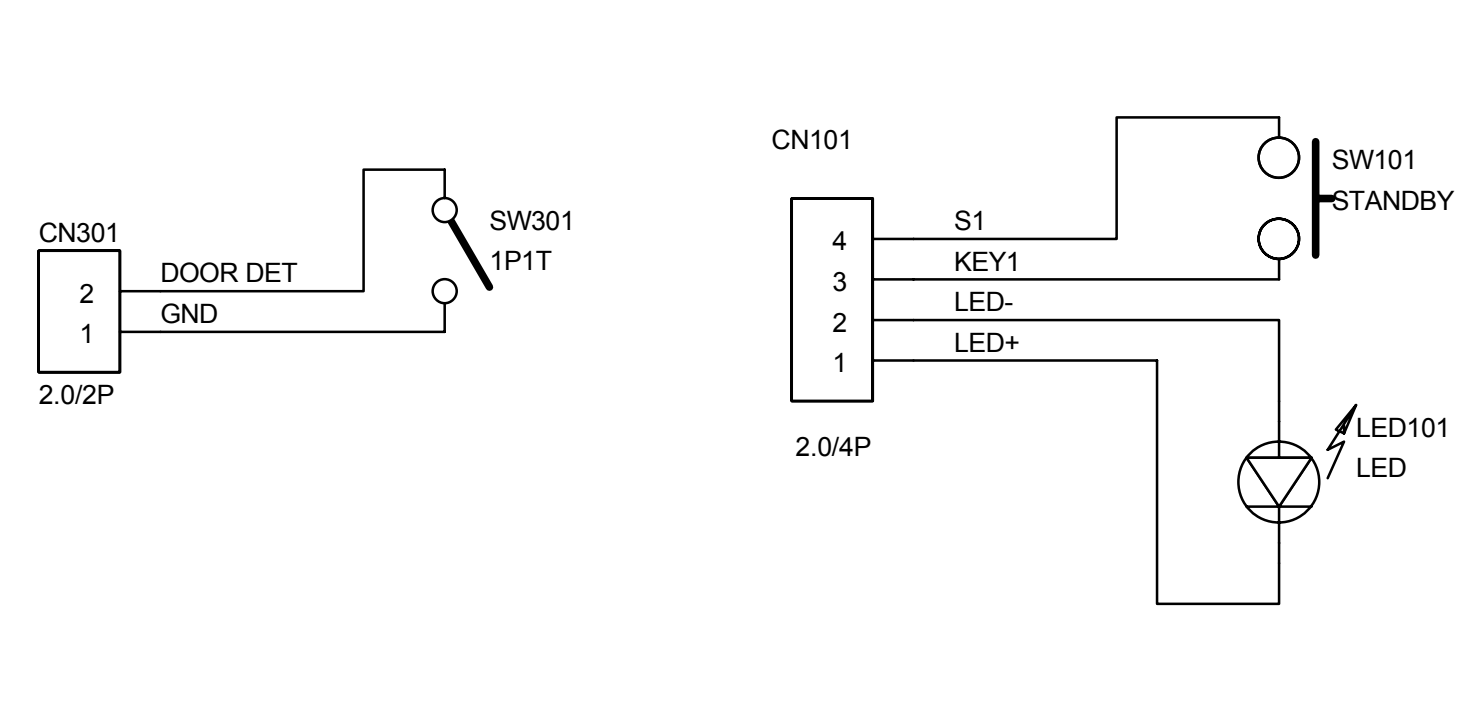
Block Diagram



Wiring Diagram



Small Board -- Circuit & Layout Diagram



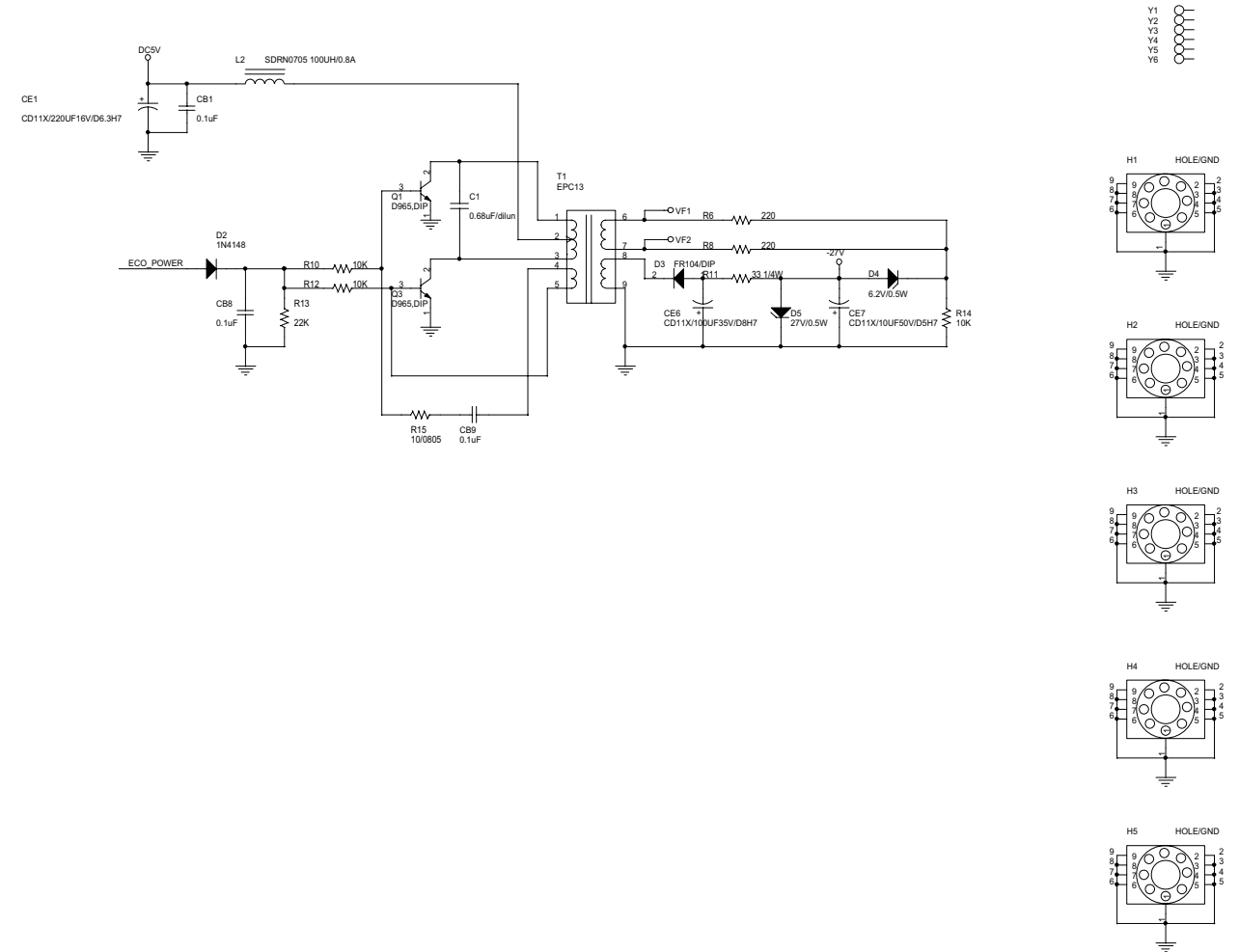
The schematic diagram illustrates the power supply and signal processing circuit for the M30000. The circuit is divided into two main sections: the top section for power supply and the bottom section for signal processing.

Power Supply Section (Top):

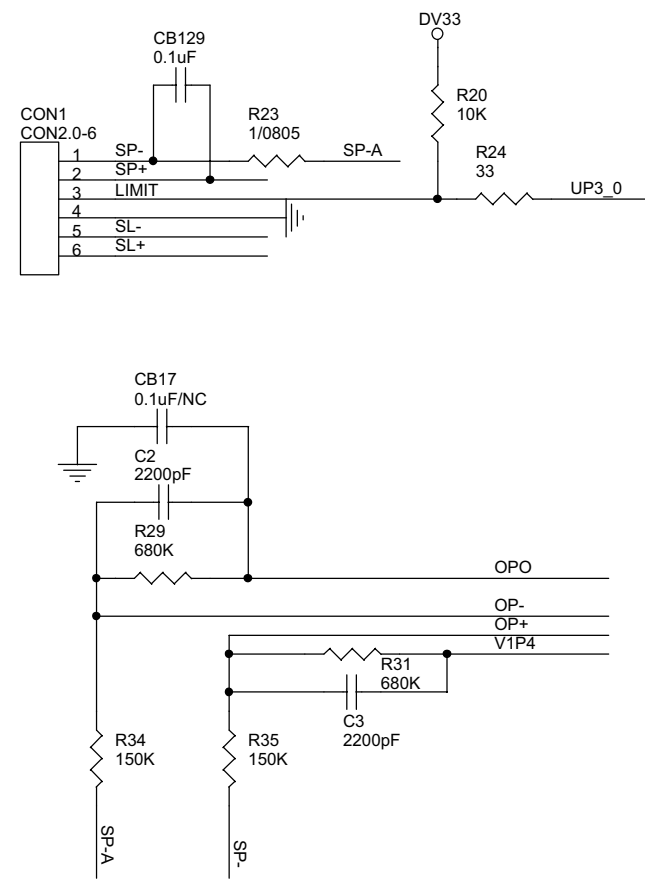
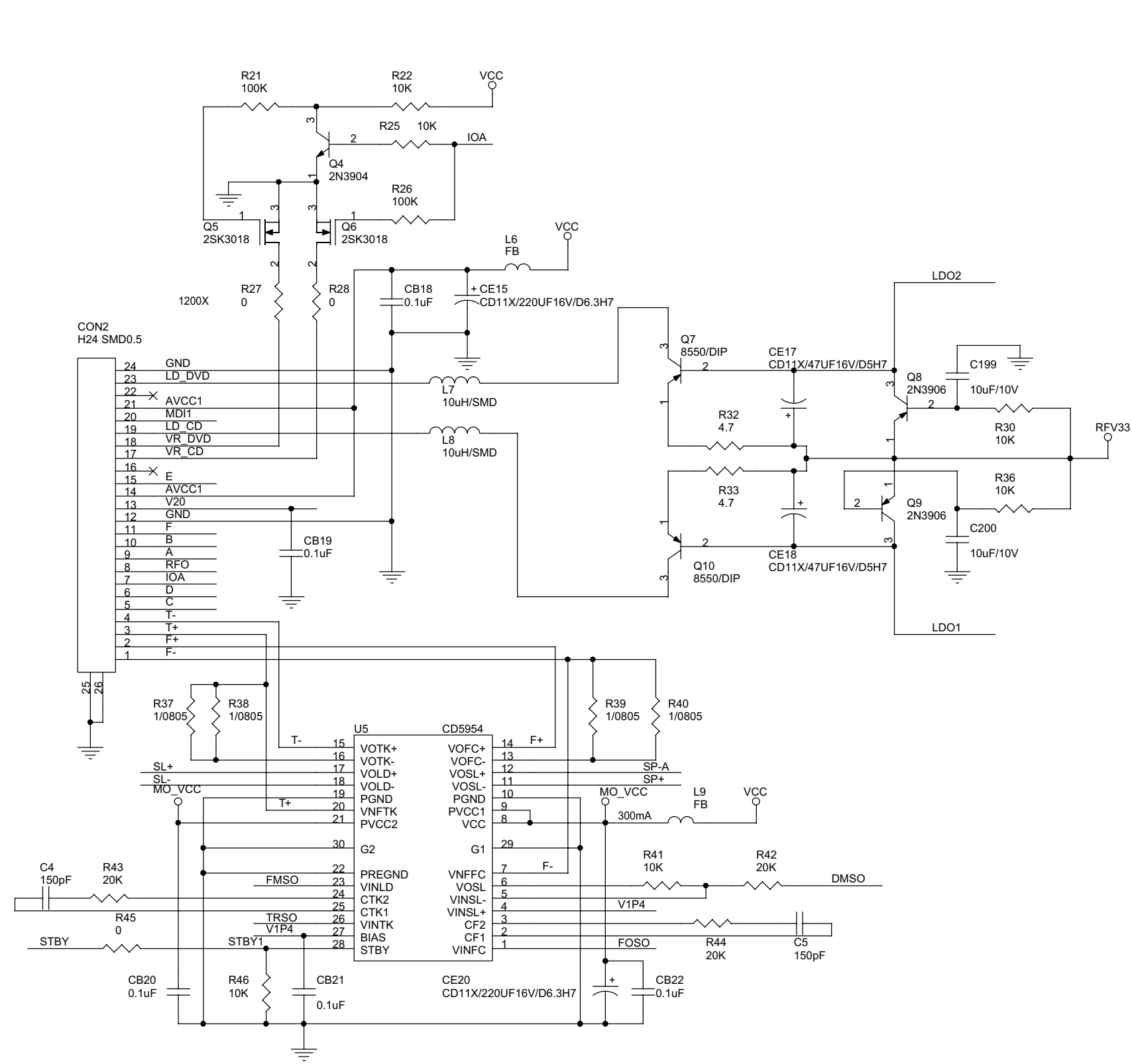
- Input:** A 27V input is connected to the circuit via a DC-DC converter (U1: DC-205).
- DC-DC Converter (U1):** The DC-205 converter is configured with a feedback network (R1: 10K, R2: 0.0805, R3: 0.0805) and a diode (D1: SK34) to regulate the output voltage.
- Output:** The output of the DC-205 converter is connected to a DC-DC converter (U2: APM843 5K) which provides a 5V output.
- Capacitors:** Various capacitors (CE1-CE15) are used for filtering and decoupling throughout the power supply section.

Signal Processing Section (Bottom):

- Input:** A 27V input is connected to the circuit via a DC-DC converter (U3: CX1084-A DJ).
- DC-DC Converter (U3):** The CX1084-A DJ converter is configured with a feedback network (R1: 10K, R2: 0.0805, R3: 0.0805) and a diode (D1: SK34) to regulate the output voltage.
- Output:** The output of the CX1084-A DJ converter is connected to a DC-DC converter (U4: CX1117-A DJ) which provides a 5V output.
- Capacitors:** Various capacitors (CE1-CE15) are used for filtering and decoupling throughout the signal processing section.

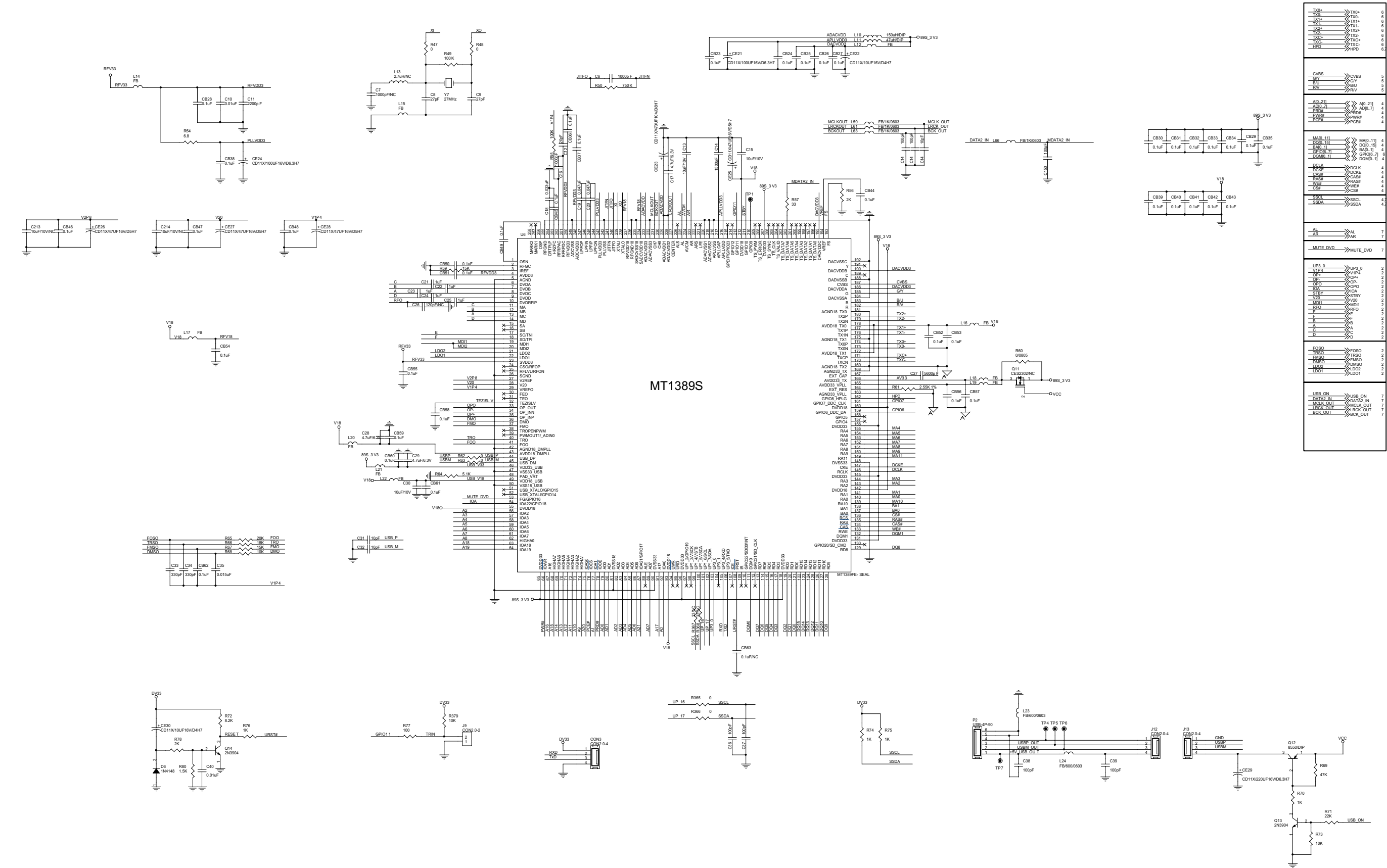


Decoder Board -- Circuit Diagram

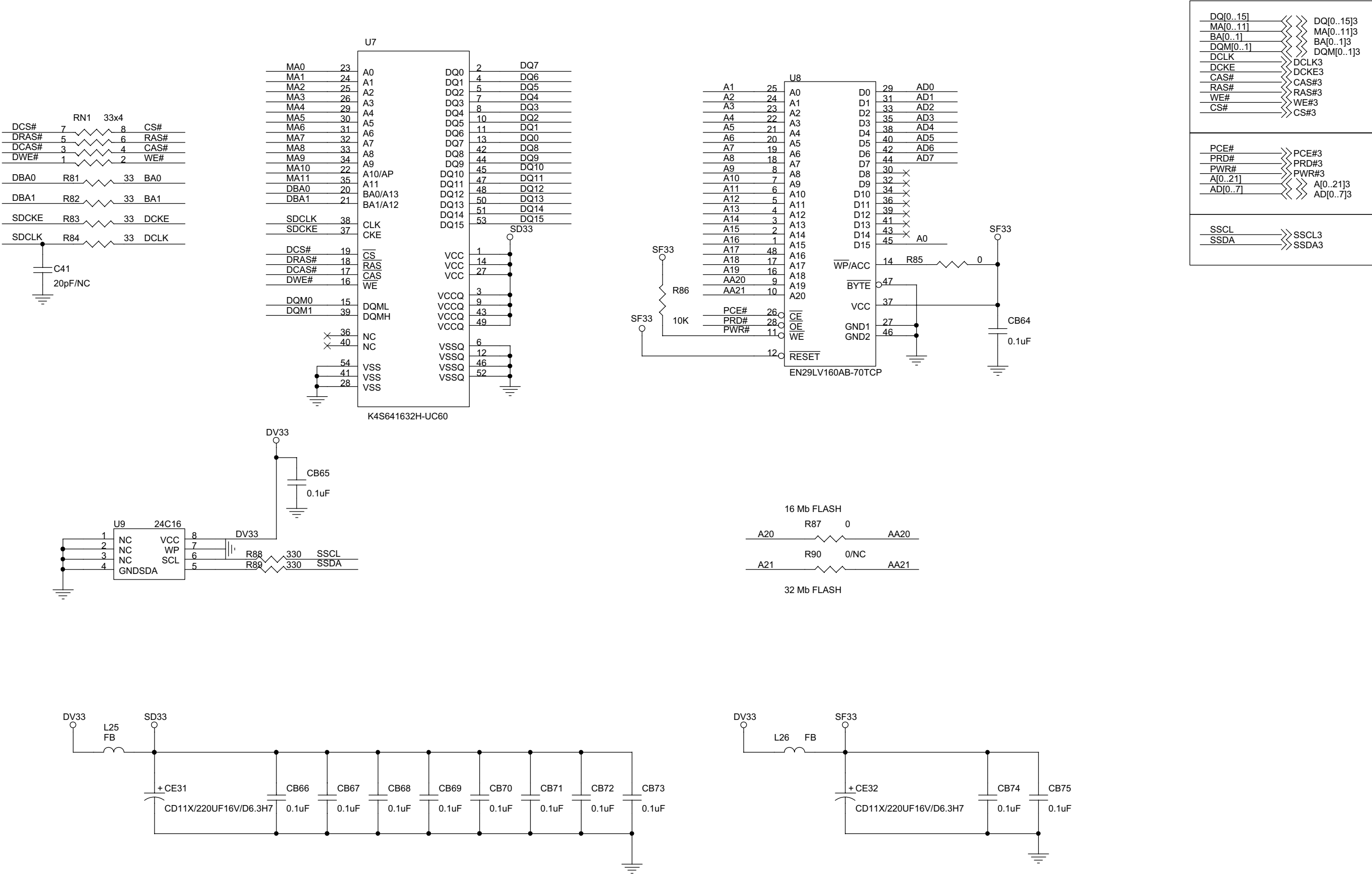


IOA	IOA	3
LDO2	LDO2	3
LDO1	LDO1	3
MDI1	MDI1	3
E	E	3
V20	V20	3
F	F	3
B	B	3
A	A	3
RFO	RFO	3
D	D	3
C	C	3
FMSO	FMSO	3
TRSO	TRSO	3
STBY	STBY	3
FOSO	FOSO	3
DMSO	DMSO	3
UP3_0	UP3_0	3
OPO	OPO	3
OP-	OP-	3
OP+	OP+	3
V1P4	V1P4	3

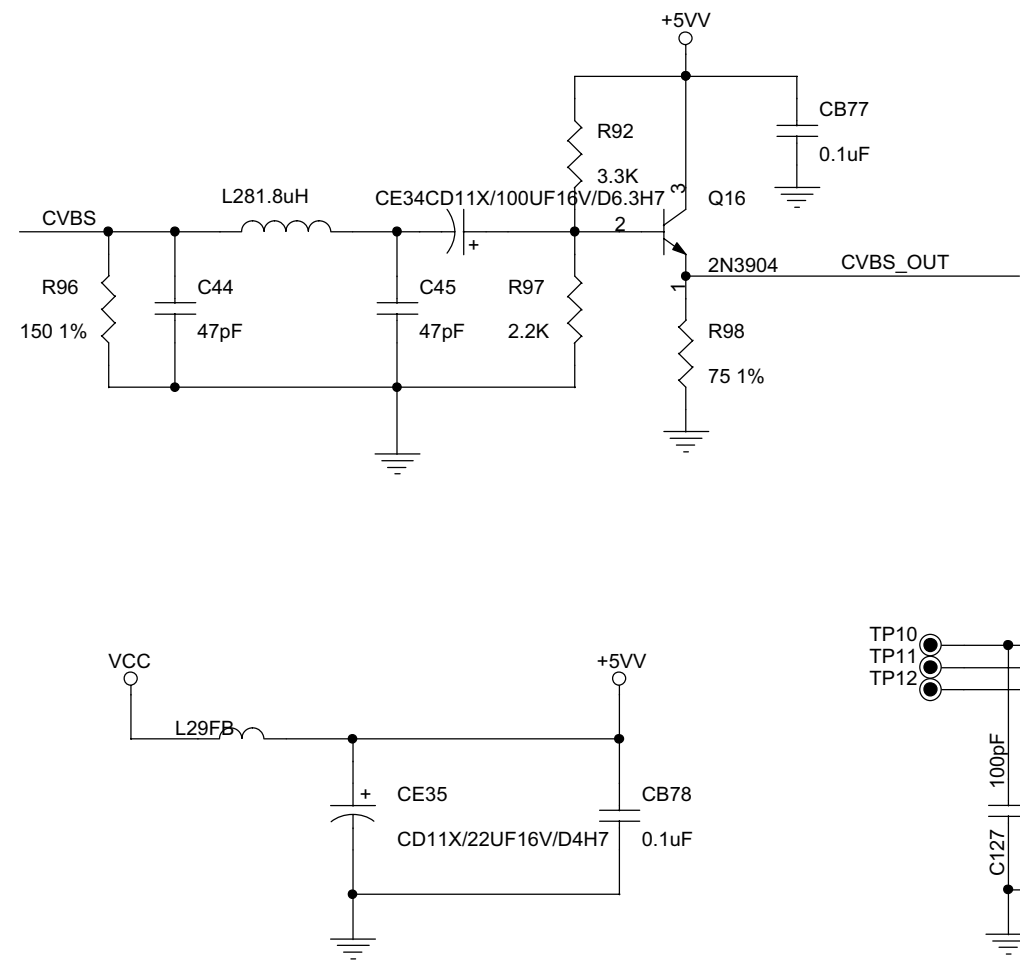
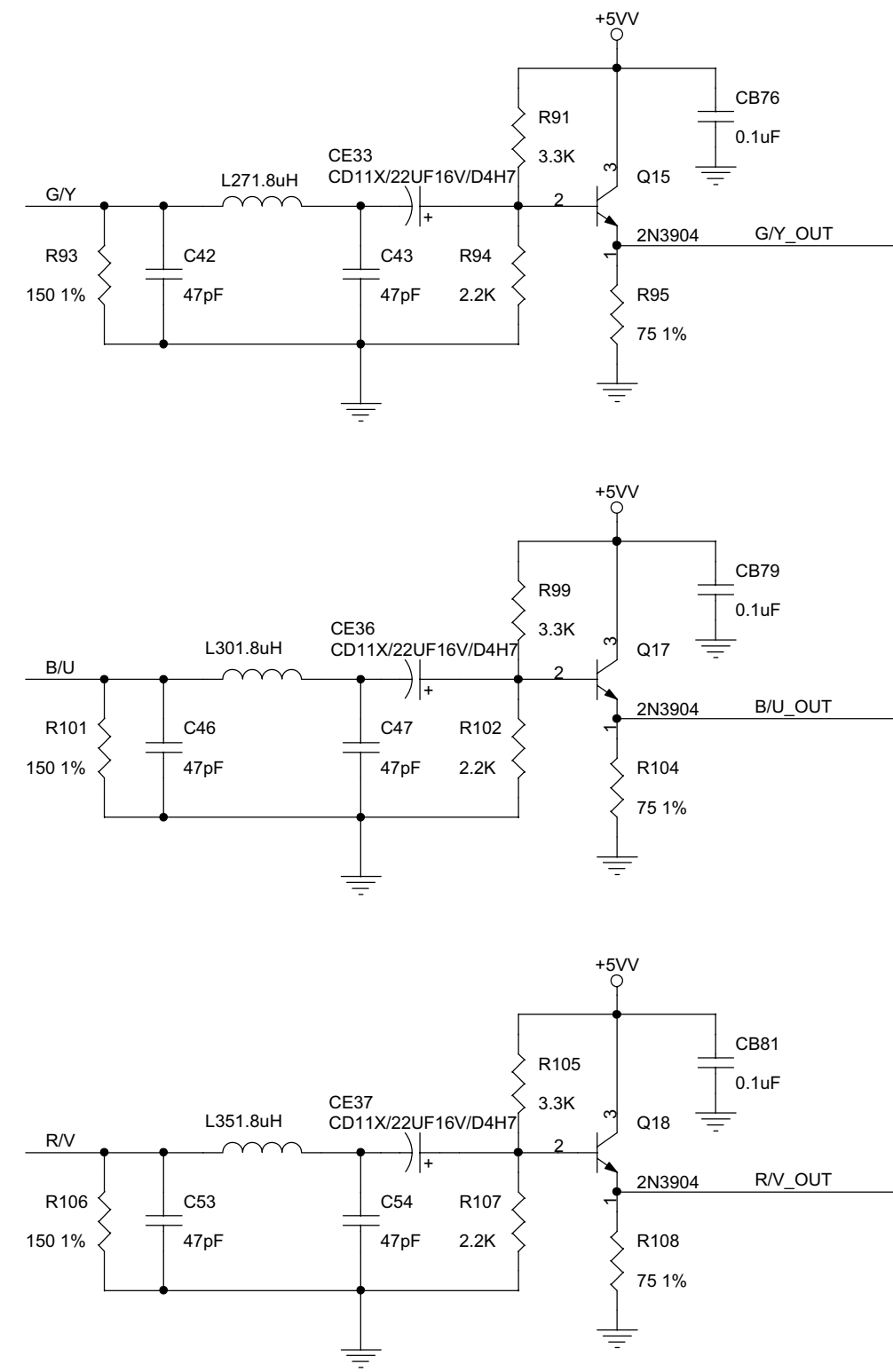
Decoder Board -- Circuit Diagram



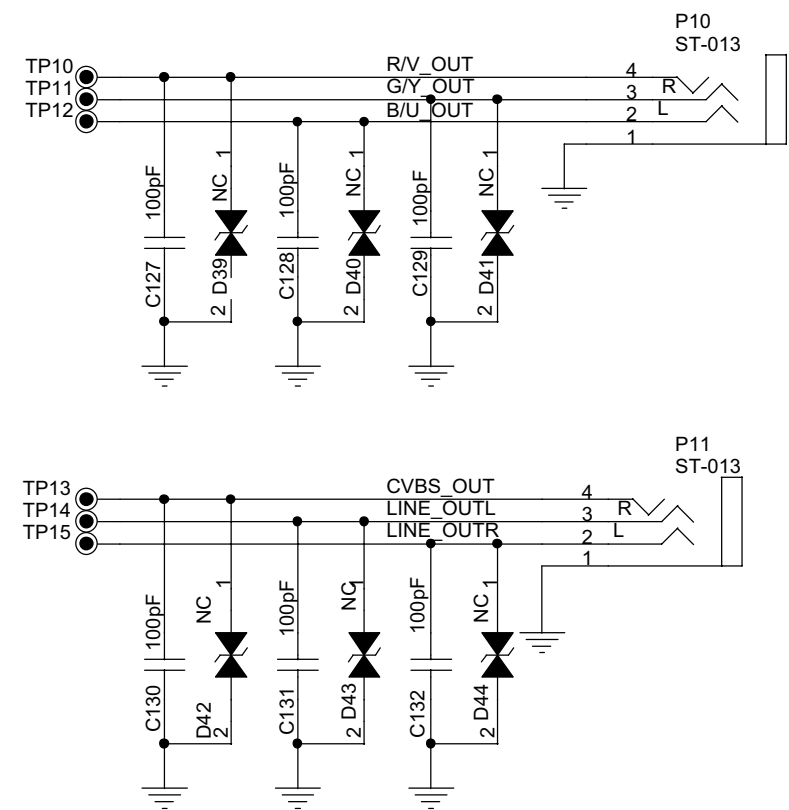
Decoder Board -- Circuit Diagram



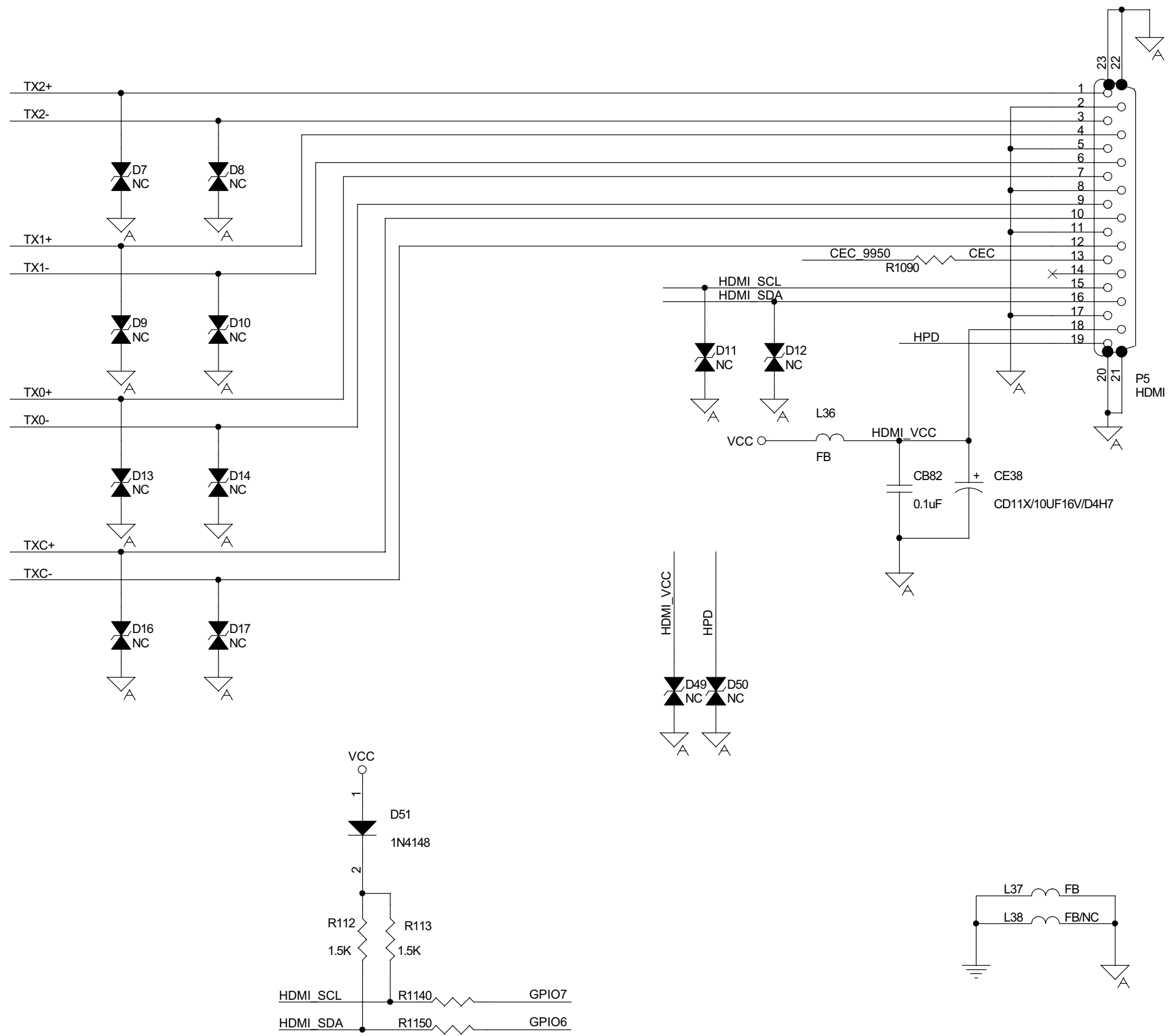
Decoder Board -- Circuit Diagram



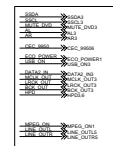
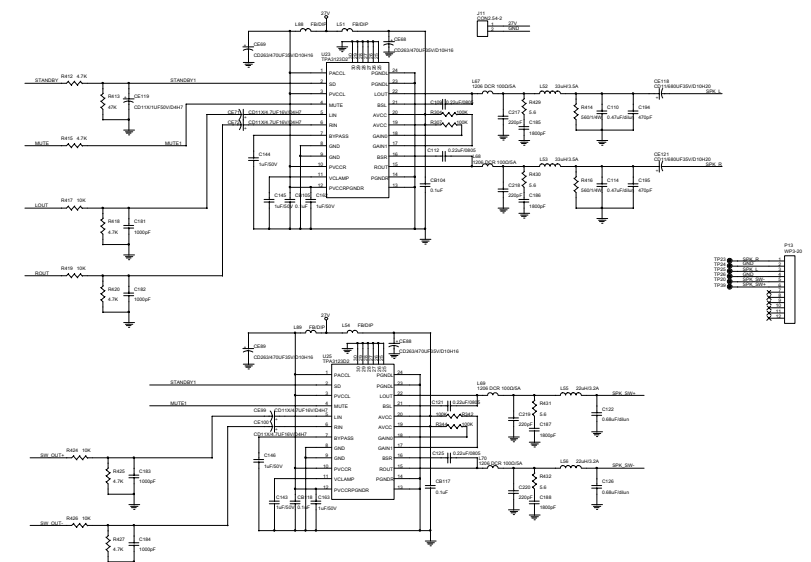
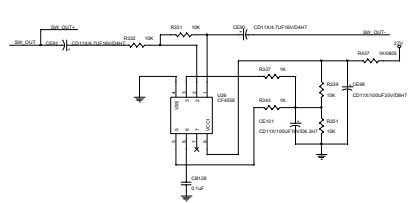
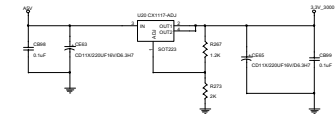
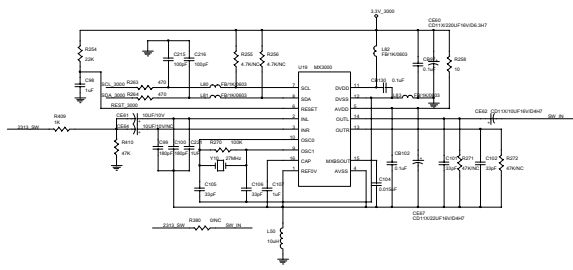
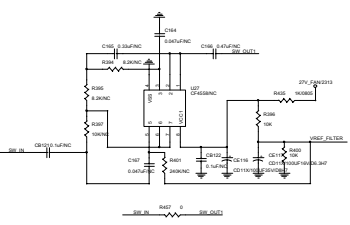
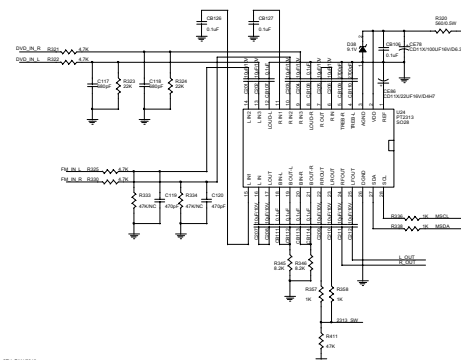
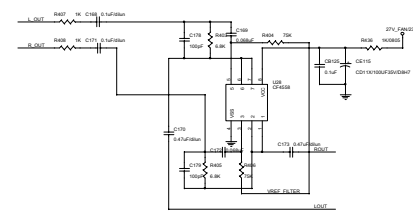
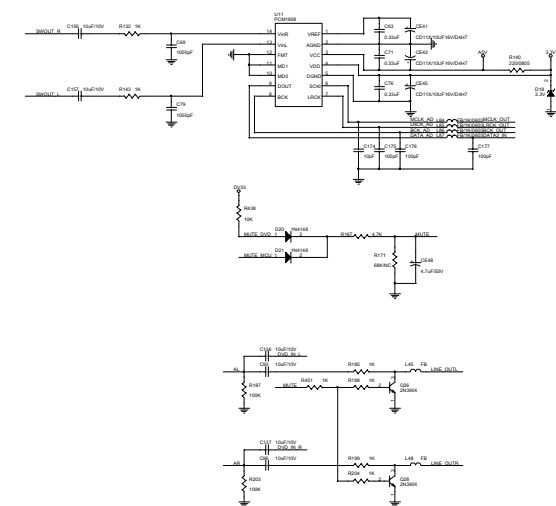
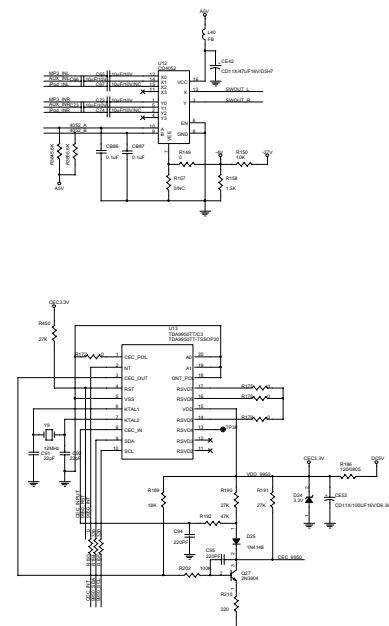
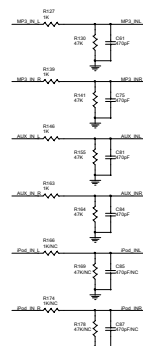
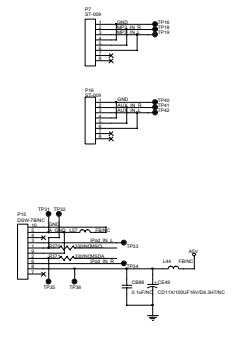
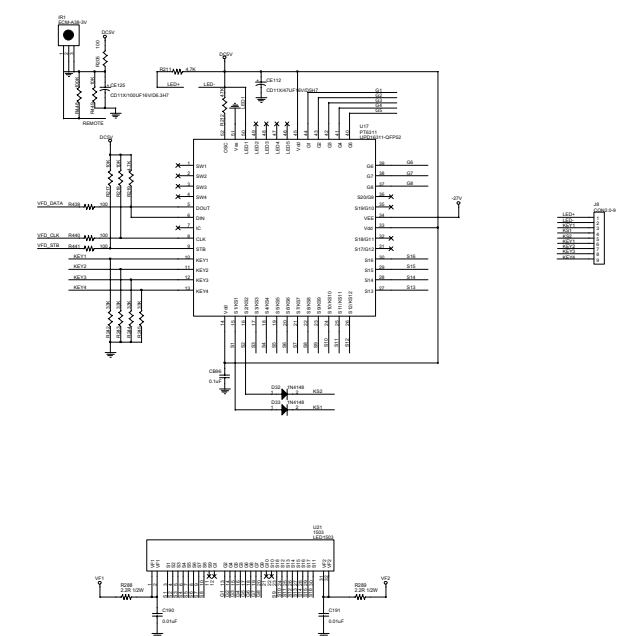
CVBS	CVBS	3
G/Y	G/Y	3
B/U	B/U	3
R/V	R/V	3
LINE_OUTL	LINE_OUTL	7
LINE_OUTR	LINE_OUTR	7

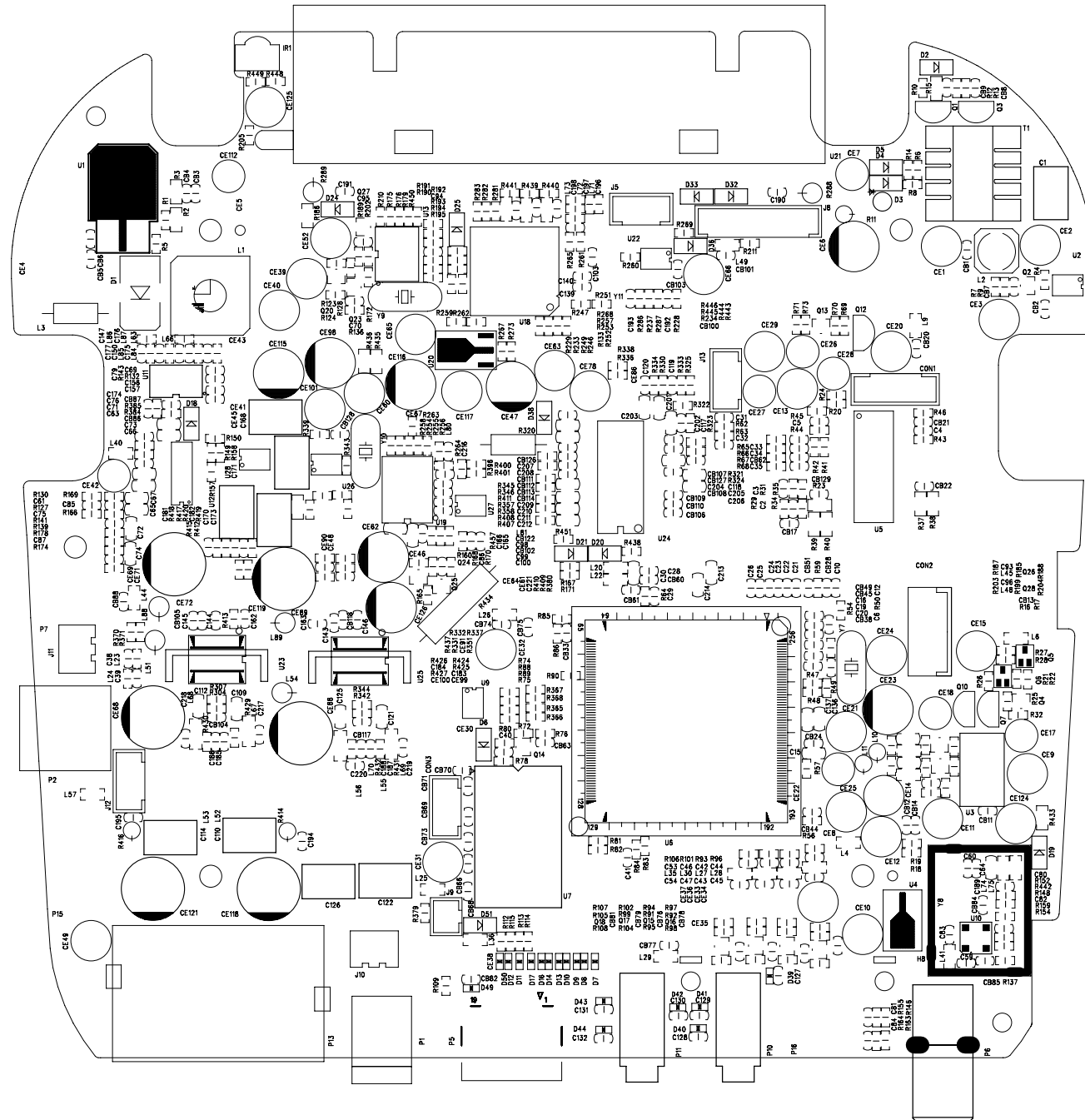


Decoder Board -- Circuit Diagram

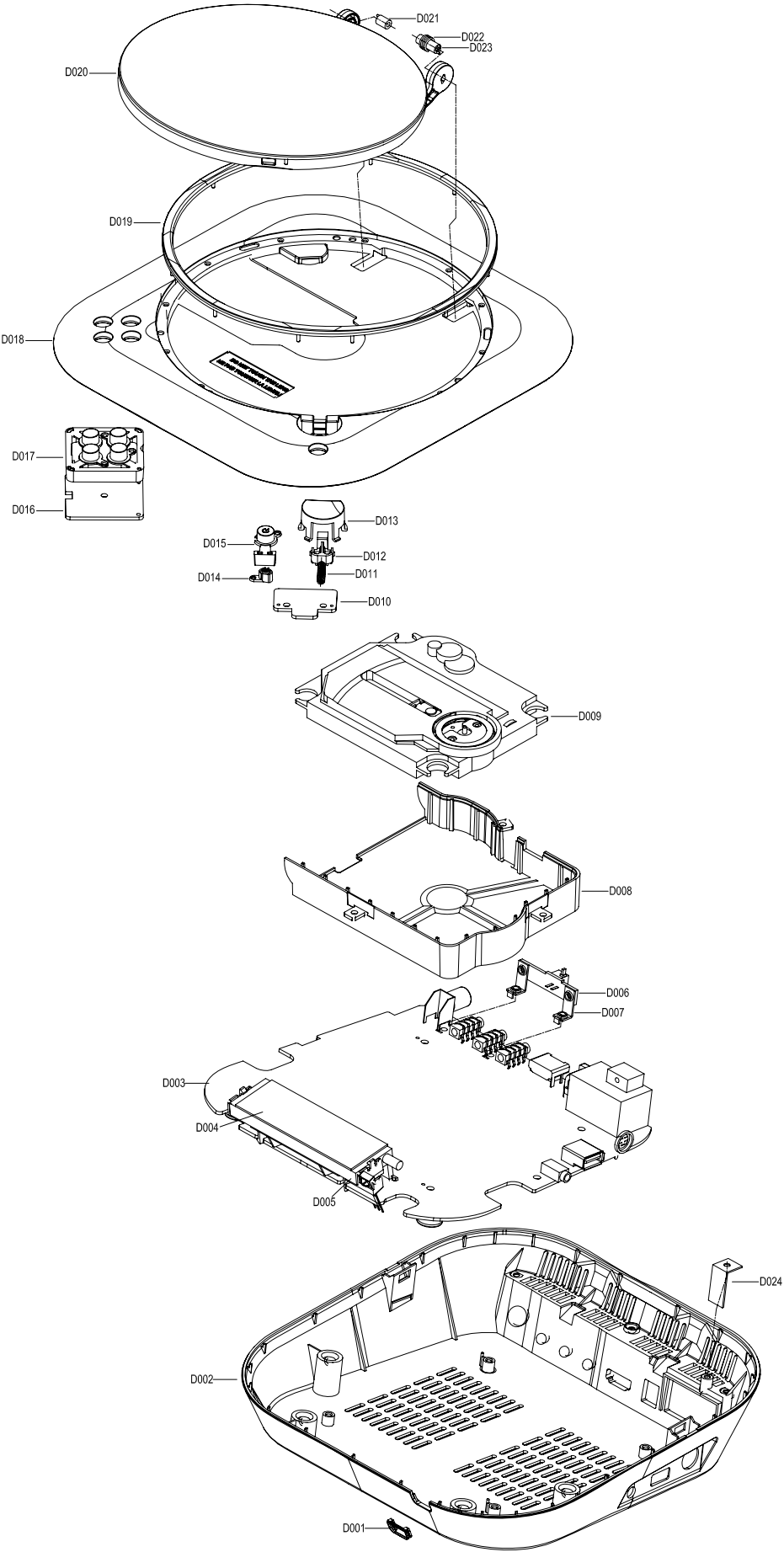


TXC+	TXC+	3
TXC-	TXC-	3
TX0+	TX0+	3
TX0-	TX0-	3
TX1+	TX1+	3
TX1-	TX1-	3
TX2+	TX2+	3
TX2-	TX2-	3
HPD	HPD	3,7
GPIO[6..7]	GPIO[6..7]	3
CEC_9950	CEC_9950	7





Explode View



ACCESSORIES PARTS LIST

ACC1	996510021349	AC SWITCH ADAPTER G721DA270250
ACC2	996510006198	SCART SWITCH JACK RCA-329(IN)
ACC3	996510018744	FM ANT CONNECTOR 1.5m BLACK
ACC4	994000004988	AC LINE CORD 1.8M
ACC5	996510022137	3.5 RCA WIRE 1.5M R/W/Y RCA
ACC7	996510022142	HES2800/12SPEAKER BOX CASING-L
ACC8	996510022141	HES2800/12SPEAKER BOX CASING-R
ACC9	996510022149	HES2800/12SUBWOOFER BOX
REMOTE	996510026031	REMOTE CONTROLE

MECHANICAL&MISCELLANEOUS PARTS

CASING1	996520033990	RUBBER PAD
CASING2	996510010886	FLAT FLEXIBLE CABLE
D001	996510022145	HSB3280 IR RECEIVER LENS
D002	996510022136	HES2800 BOTTOM CABINET/HIPS
D011	996510022135	HES2800 DOOR-LOCK SPRING
D012	996510022153	HES2800 DOOR-LOCK/HIPS
D013	996510022158	HES2800 DOOR OPEN BUTTON/ABS
D015	996510022146	HES2800 STANDBY BUTTON/ABS+PC
D017	996510022143	HES2800 FUNCTION BUTTON/ABS
D018	996510022152	HES2800 TOP CABINET/ABS
D019	996510022138	HES2800 DECORATIVE LOOP/ABS
D020	996510022156	HES2800 DVD DOOR PC2605
D021	996510022139	HES2800 PORT-1/HIPS
D022	996510022148	HES2800 DOOR SPRING
D023	996510022151	HES2800 PORT-2/HIPS
D003	996510022157	DVD DECODER EJS2800S-12
D003N	996510029745	DVD DECODER EJS2800S-12 V1.1
D006	996510022134	HES2800 LIMIT CONTROL BOARD
D009	996510022147	SONY313AAD LOADER MECHANISM
D010	996510022155	HES2800POWER BUTTON BOARD
D016	996510022154	HES2800 FUNCTION BUTTON BOARD

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