

Service
Service
Service



Service Manual



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Version 1.4



PHILIPS

SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6-T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216


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".

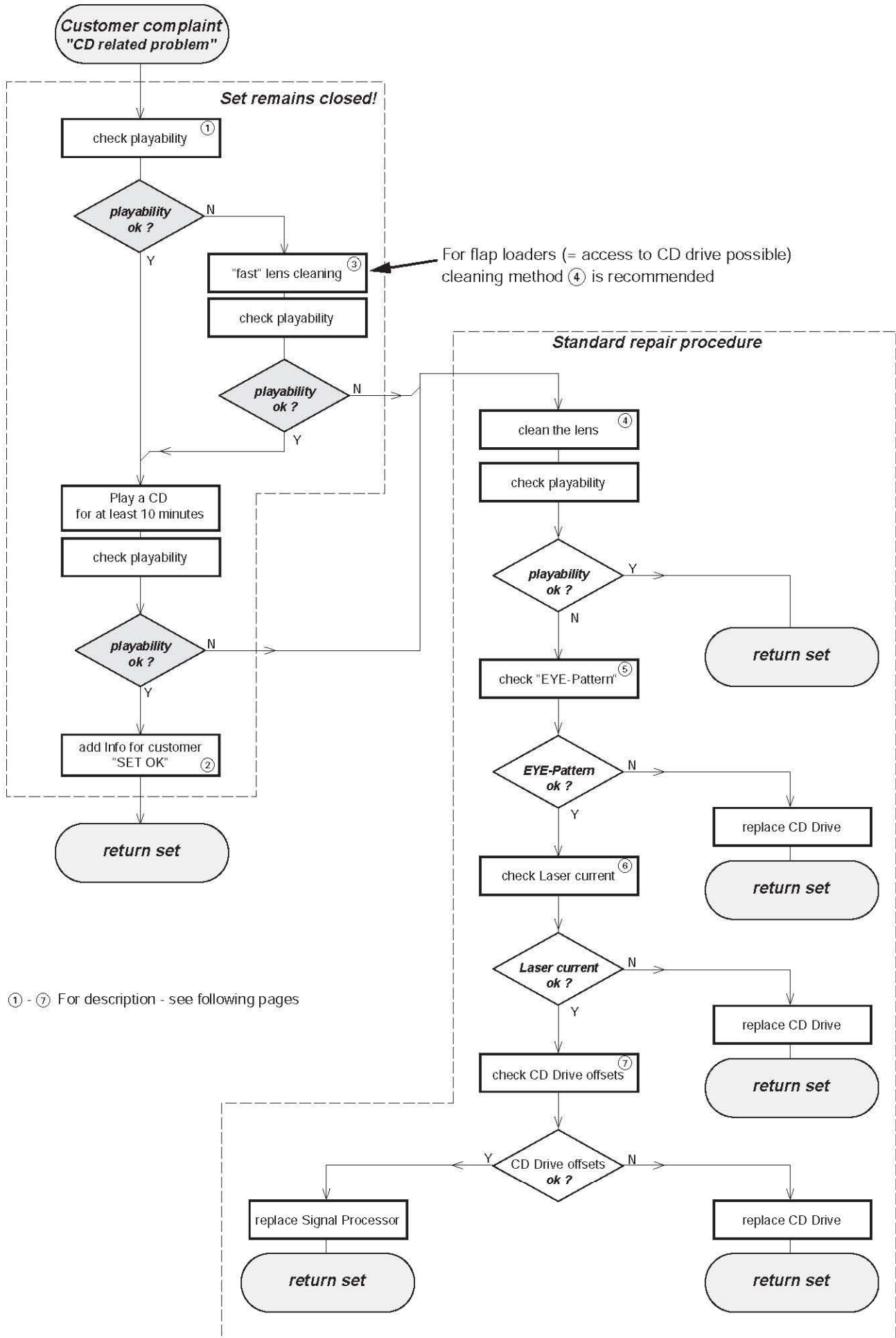
For additional questions please contact your local repair-helpdesk.

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.

CD PLAYABILITY CHECK



CD PLAYABILITY CHECK

①

PLAYABILITY CHECK

For sets which are compatible with **CD-RW** discs
 use CD-RW Printed Audio Disc.....7104 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 444A.....4822 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.

③

FAST LENS CLEANING (dry brush)

Use lens cleaning CD
 SBC AC300.....9082 100 00043

Insert the lens cleaning CD, press PLAY and follow the voice guide's instructions on the CD.

④

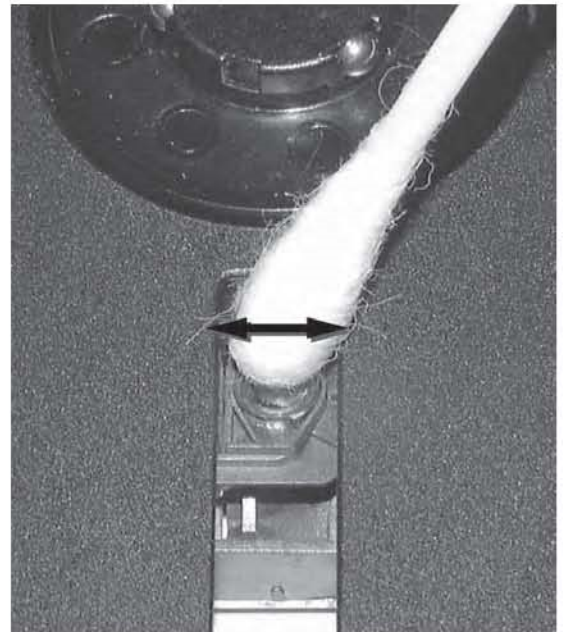
LIQUID LENS CLEANING

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 B4-No2", available with codenumber 4822 389 10026.

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.

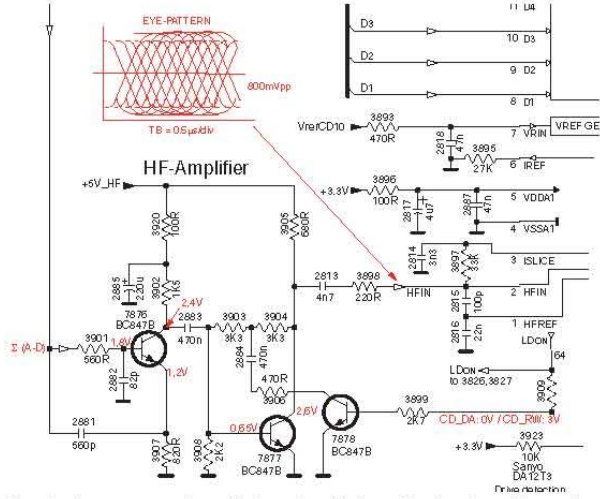


CD PLAYABILITY CHECK

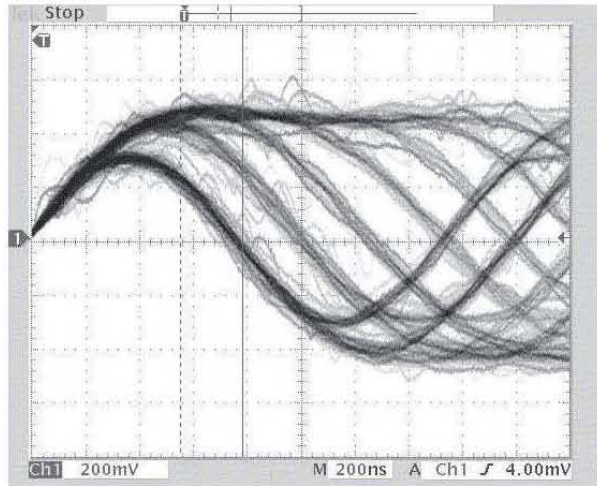
5

EYE-PATTERN SIGNAL – JITTER MEASUREMENT

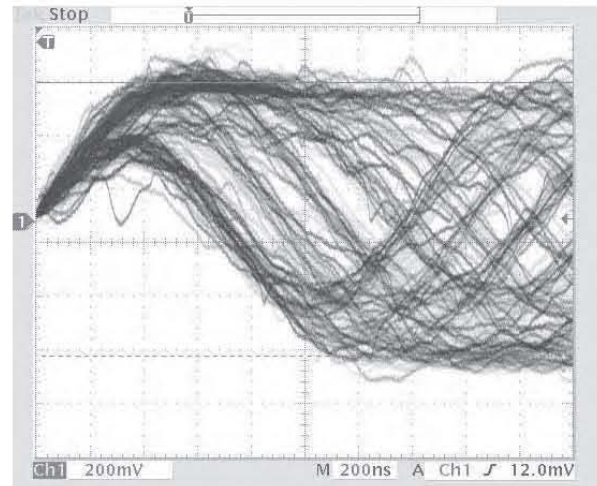
Measure the signal on the input of the Signal processor using an **analog** oscilloscope. Please find the exact measuring point in your Service Manual.



See below examples of the signal. Amplitude should read at least 700mVpp using SBC444A.



good



bad

If the oscilloscope shows a signal like the 'bad' one, and/or the amplitude decreases within 1 minute - the CD drive has to be replaced.

6

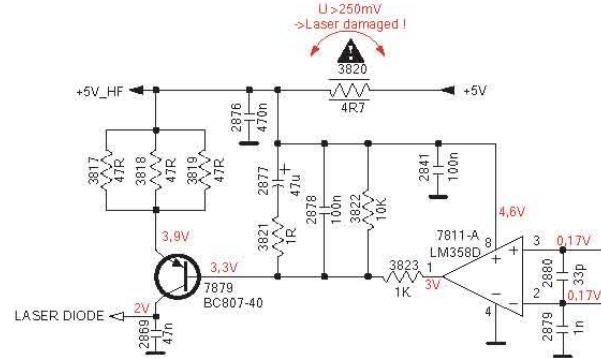
CD DRIVE – LASER CURRENT MEASUREMENT

The laser current can be measured as a voltage drop on a resistor. The resistor is marked in every Service Manual. The value depends on the type of CD drive.

	typical value	most probably defect
VAMxxxx	: 150-230mV	≥350mV
MCDxx	: 170-230mV	≥300mV
DA1x	: 210-250mV	≥350mV
DA2x	: 175-200mV	≥250mV

Use SBC444A (CD-DA) for measurement.

Laser power control



7

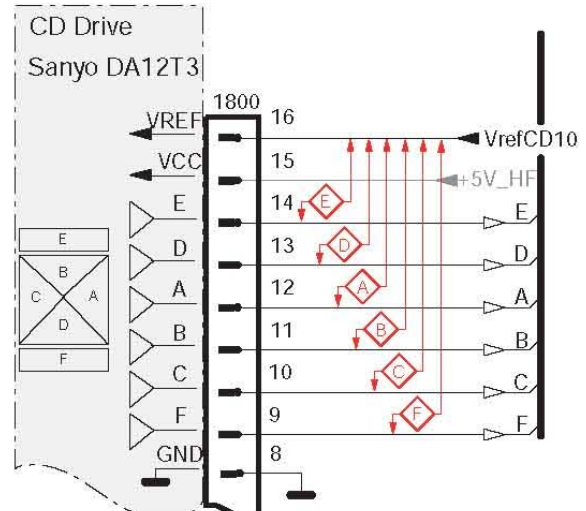
CD DRIVE – OFFSET MEASUREMENT

The photodiodes of the CD-drive may have an offset. These offsets have to be compensated by the signal processor. High offsets can lead to poor playability of some CDs (skipping tracks).

To measure the offset values, start the **Service Test Program** - section "Focus Test" without a CD.

The offsets can be measured with a DC Millivoltmeter directly on the connector (see drawing below). Pin numbering varies from drive to drive.

The values from diode A-D should read $0 \pm 10mV$. Diodes E and F are less critical.

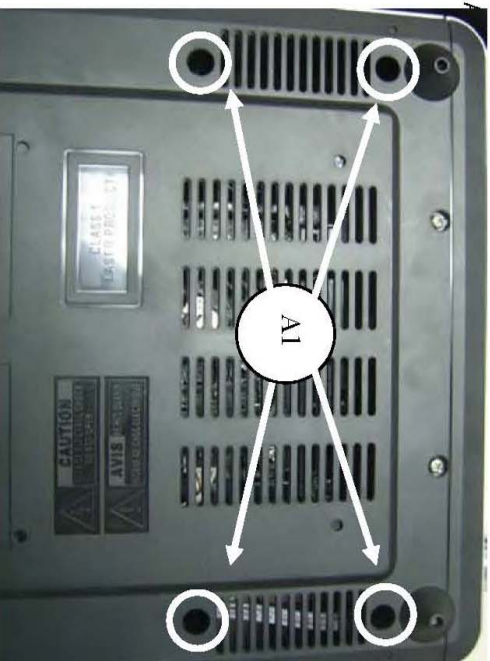


If one of the offsets is higher than $\pm 10mV$ the CD drive has to be replaced. Otherwise replace the Signal Processor.

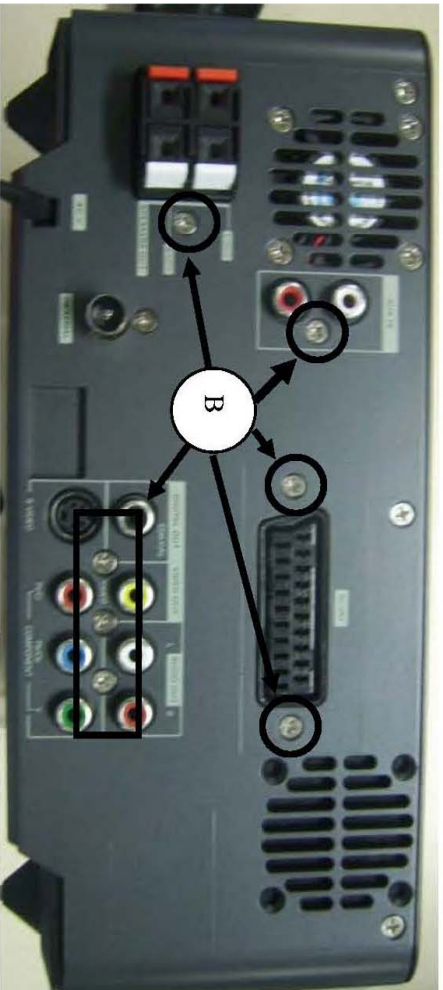
Disassembly Diagram

A. Open the top cover

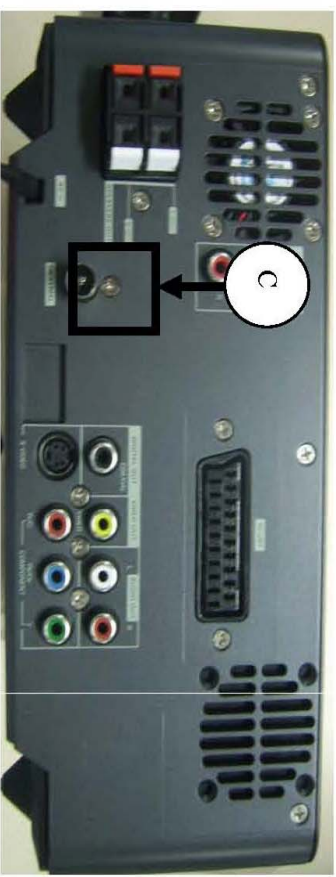
A1. Loosen screws 3x15PA (4PCS)



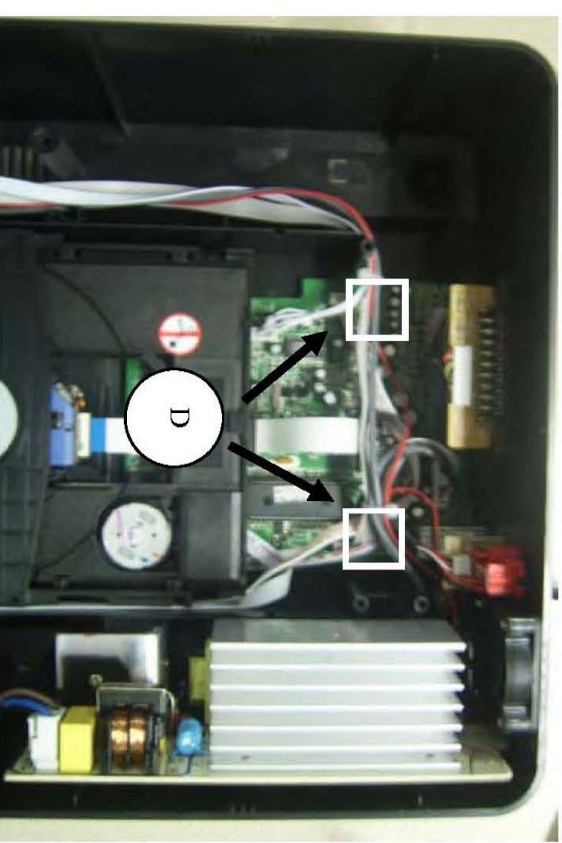
B. Loosen screws 3x10FA(7PCS), then remove back cover of output jack



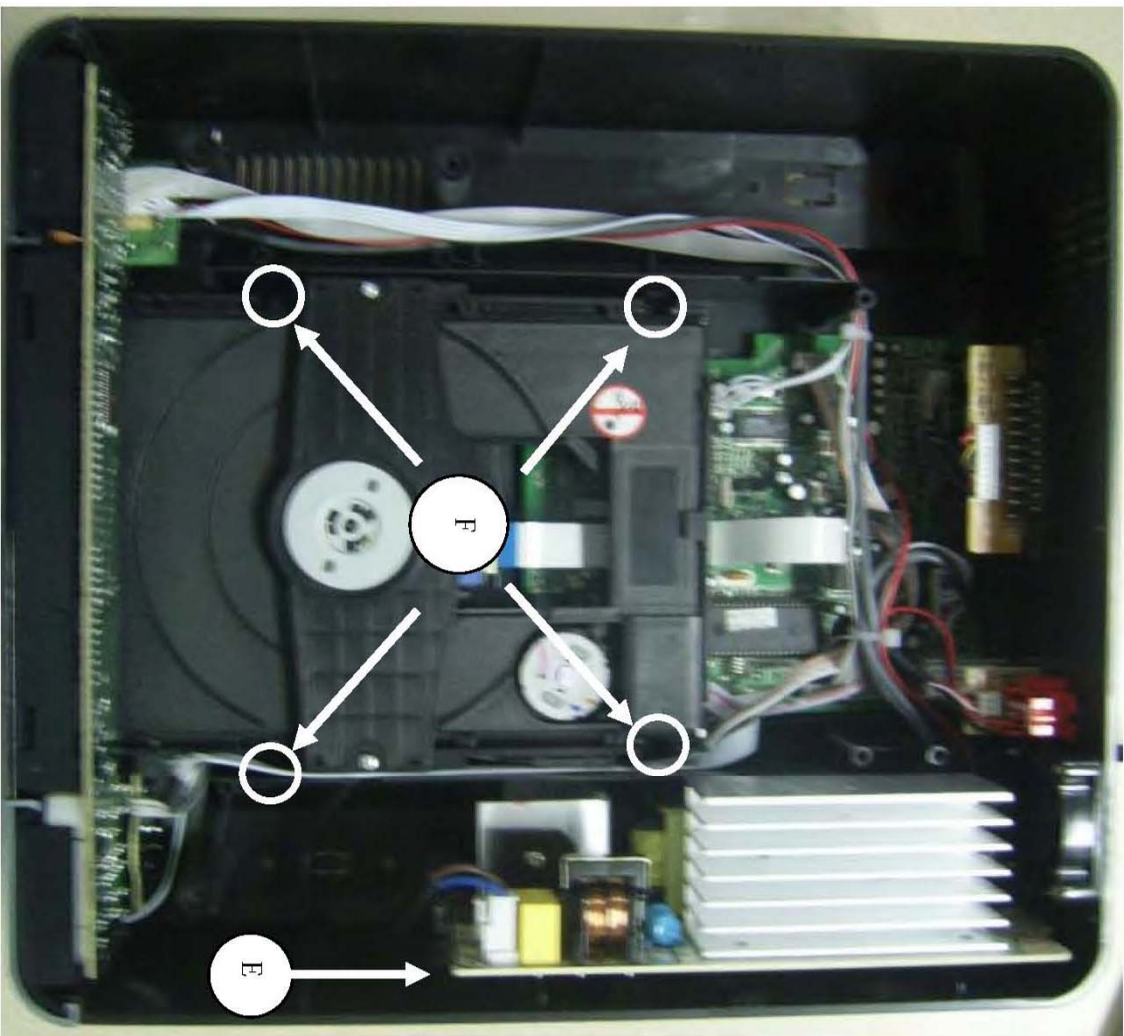
C. Loosen screw 3x6FMTT(1PCS), remove tuner board



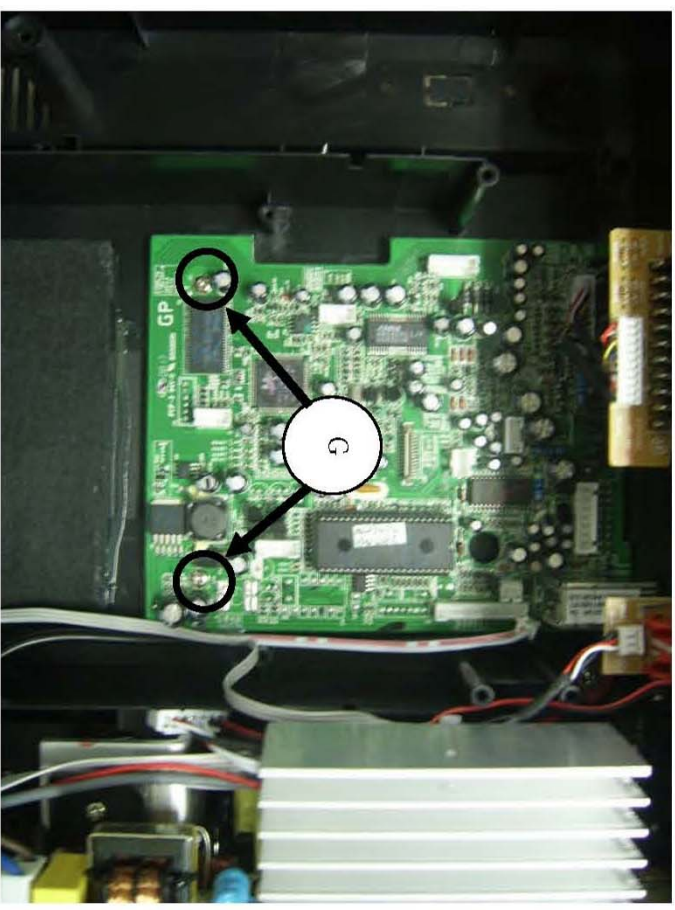
D. Cut off 2 PCS wire tie



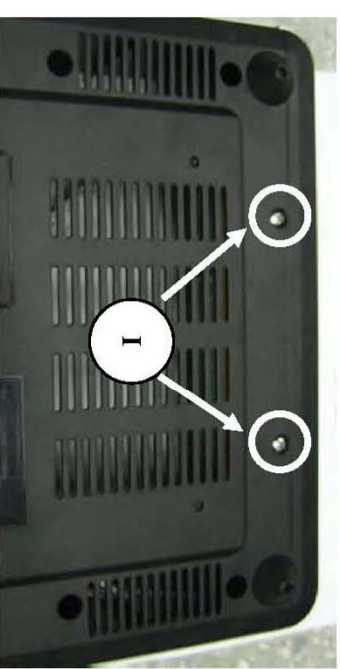
- E. Loosen screws 3x10PA(1PCS), then remove AMP board
- F. Loosen screws 3x15BA(4PCS), then remove mechanism core



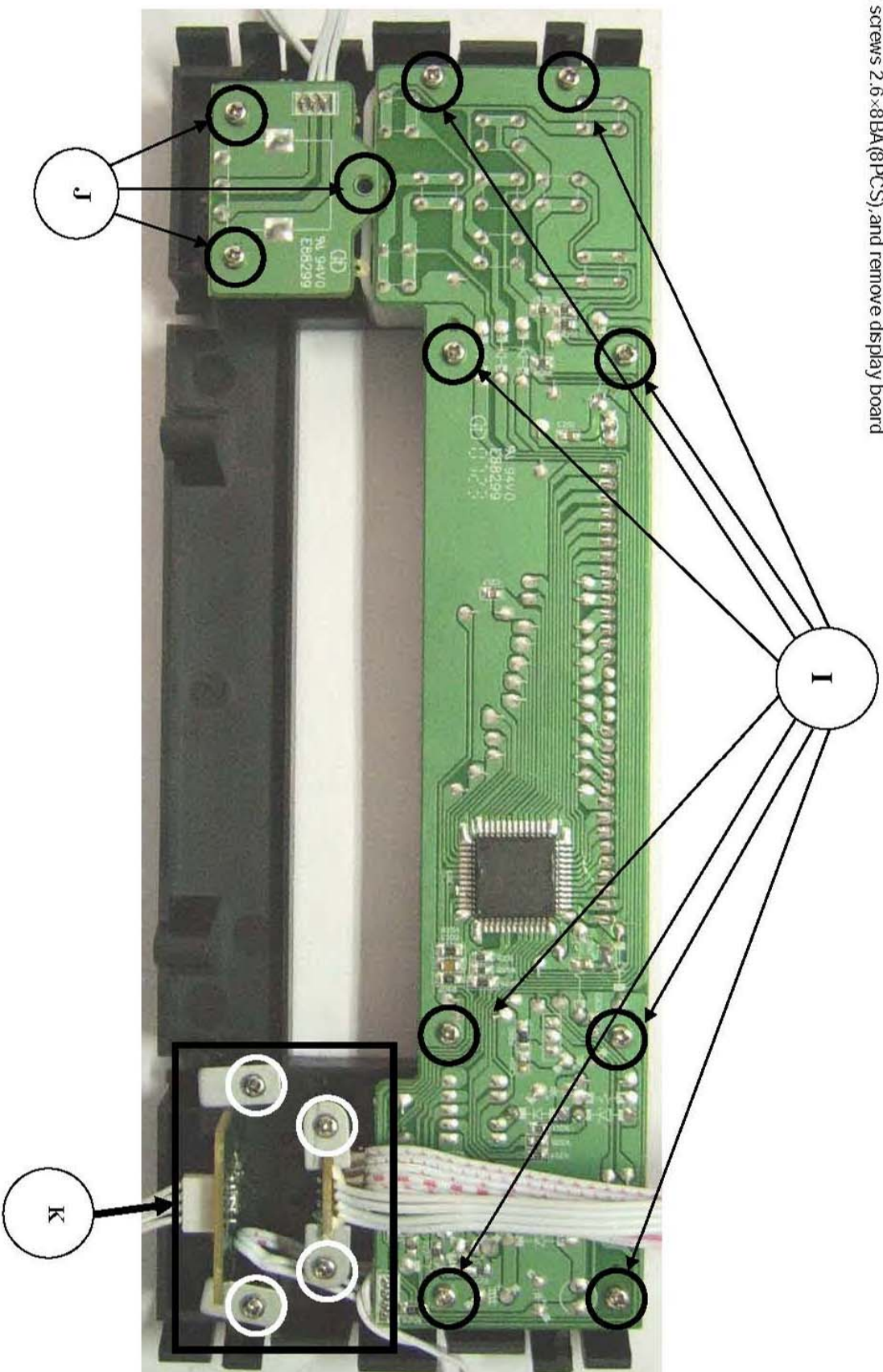
- G. Loosen screws 3x6PT(2PCS), then remove decoder board



- I. Loosen screws 3x10BA(2PCS), and remove top cover



I. Loosen screws 2.6×8BA(8PCS), and remove display board



J. Loosen screws 2.6×8BA(3PCS) and remove volume board

K. Loosen screws 2.6×8BA(4PCS), remove USB and earing socket

Software Version Check & Upgrade

Upgrade software

1. Downloading the software from the website that Philips supports
<http://www.philips.com/support>
2. Put in the Software CD Disc or USB, when it is loading, the TV screen shows as below:

```

Upgrade File detected
Upgrade?
Press PLAY to start
Upgrading
  
```

Waiting half to one minute, till the TV screen showing disappear.
Turn off electrical source and reopen.

3. Press SYSTEM on the remote open menu, press Left or Right to select "Preference Page", now TV screen shows as below:

```

--Preference Page--
TV type          PAL
Audio            CHI   English
Subtitle         CHI   French
Disc menu        CHI   Spanish
Parental         Chinese
                  Japanese
Default          Korean
                  Russian
                  Tjai
  
```

Press Up or Down to select "Default" on remote, Press OK to exit reset.
Software upgrade finish.

Software check

Input password "811502" on remote, TV screen showing as below:

```

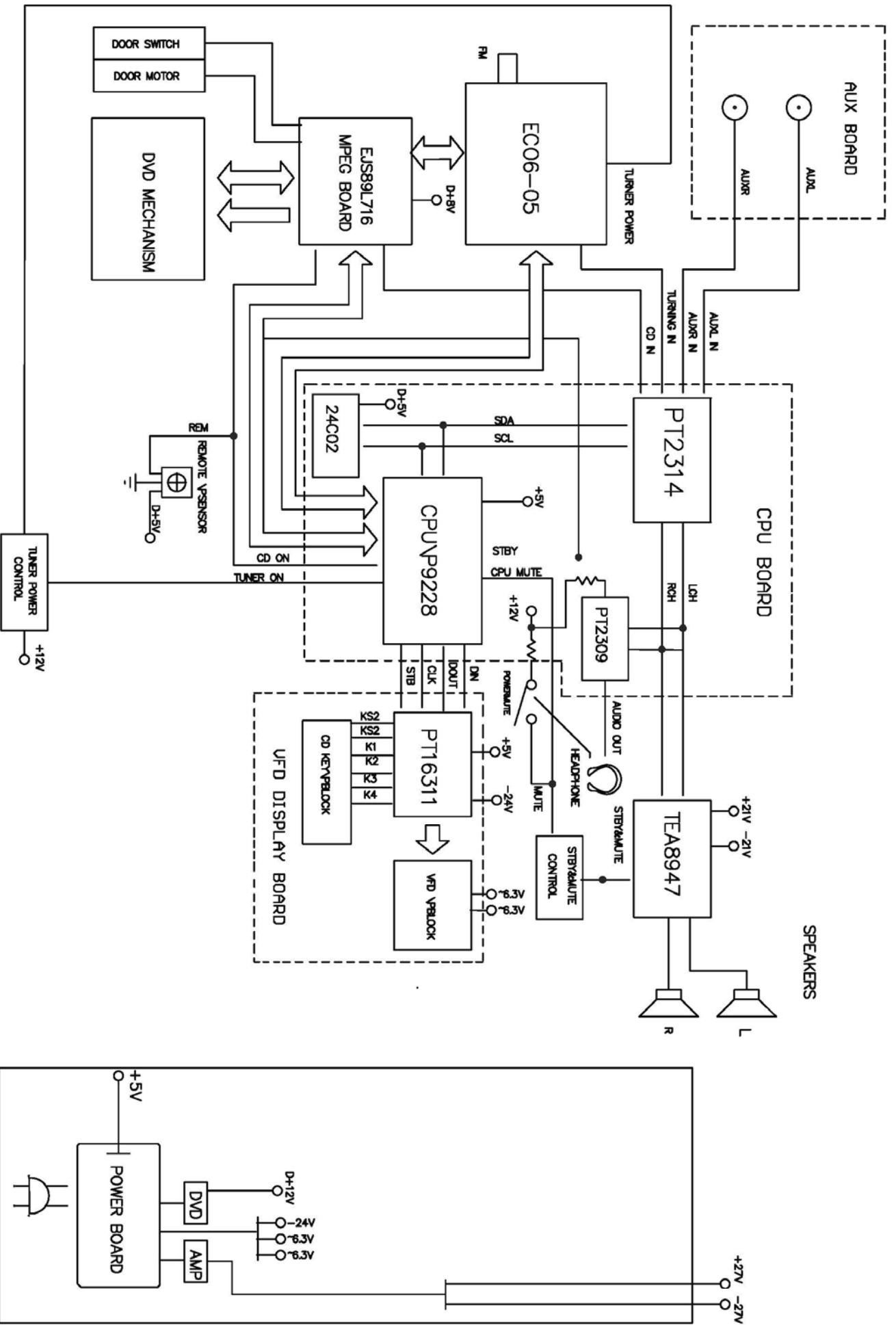
Ver : MCD710 / xxxx
Date mm dd yyyy
Time hh : mm : ss
Region code x
  
```

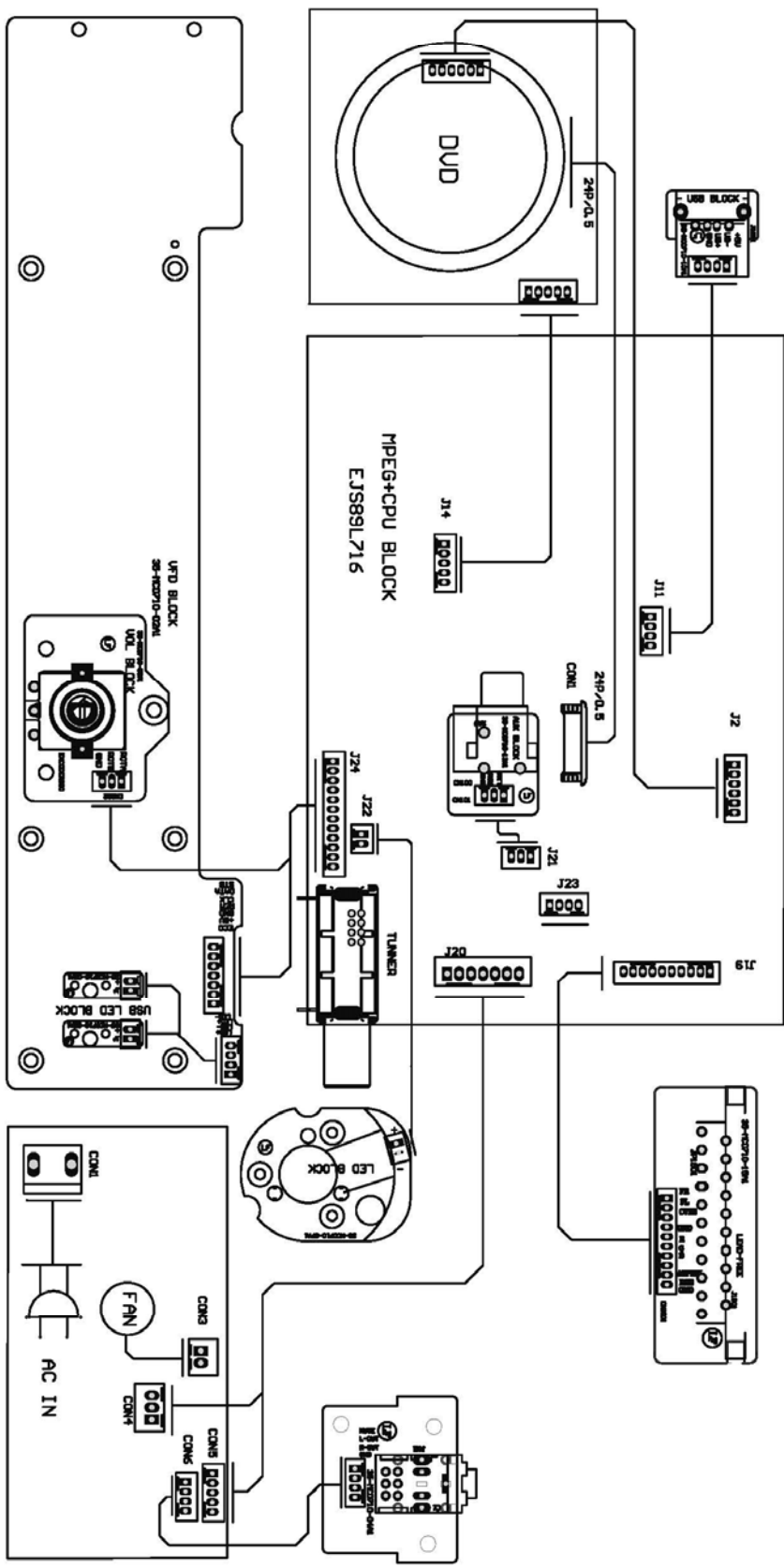
CPU version check

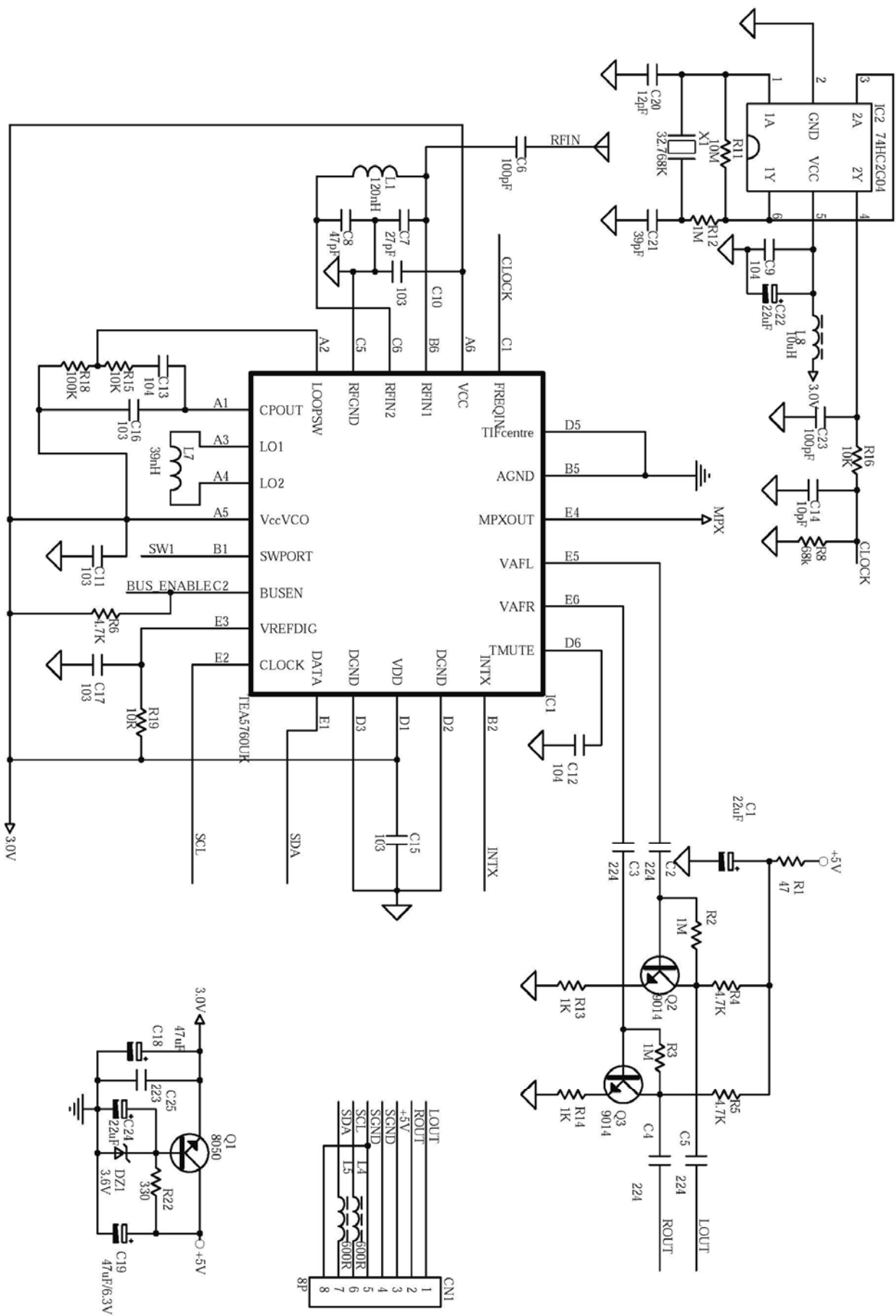
1. Keep press PLAY/PAUSE and STOP buttons, plug into the power cord at one time, TV showing as below:

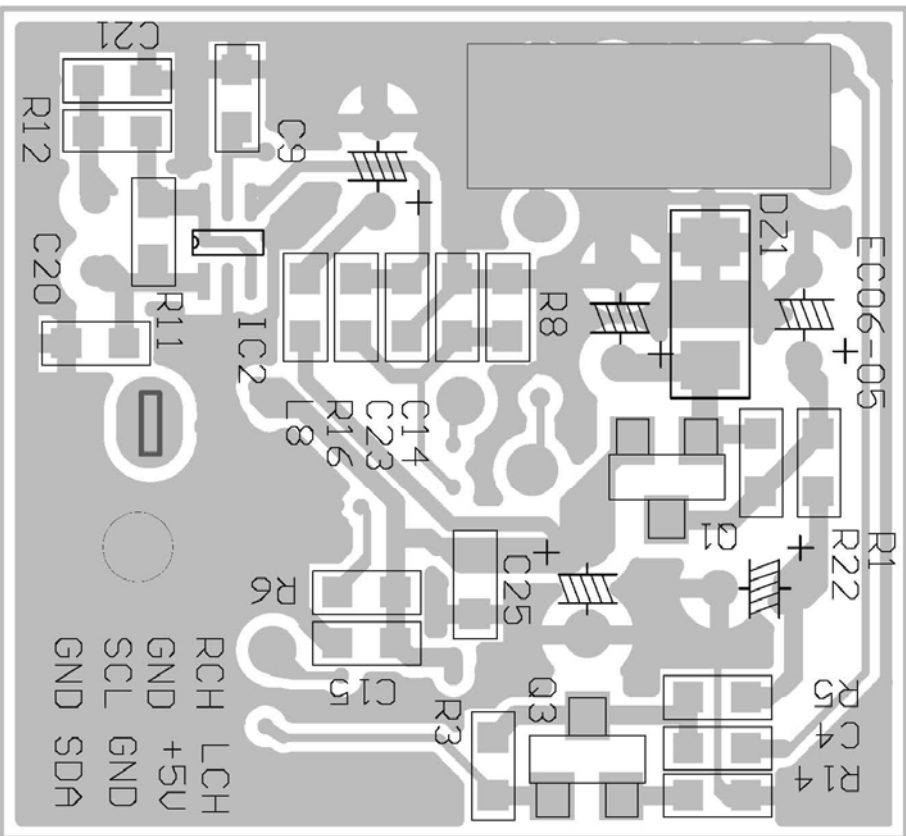
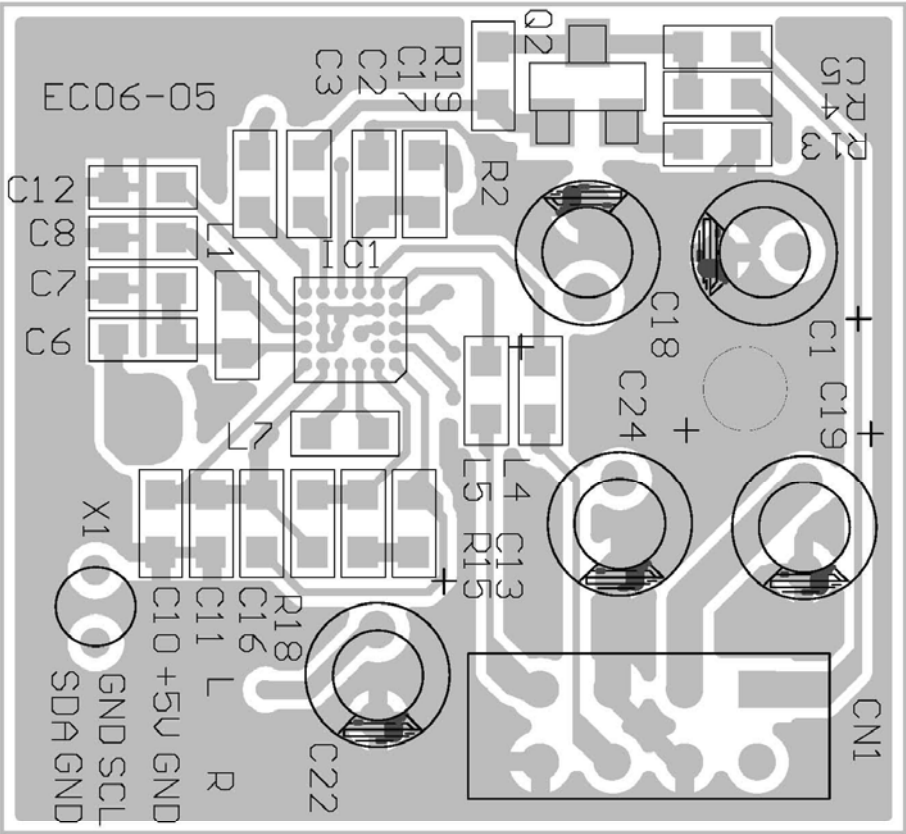
```

MCD710 Vxx
  
```

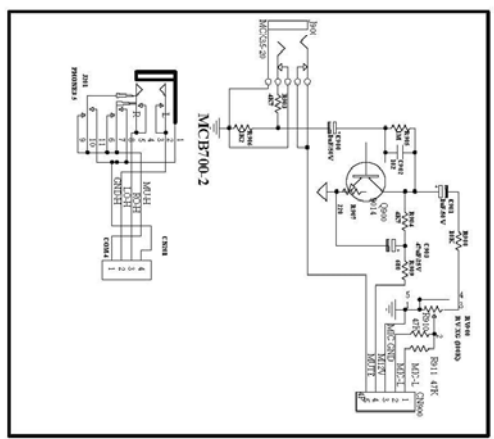
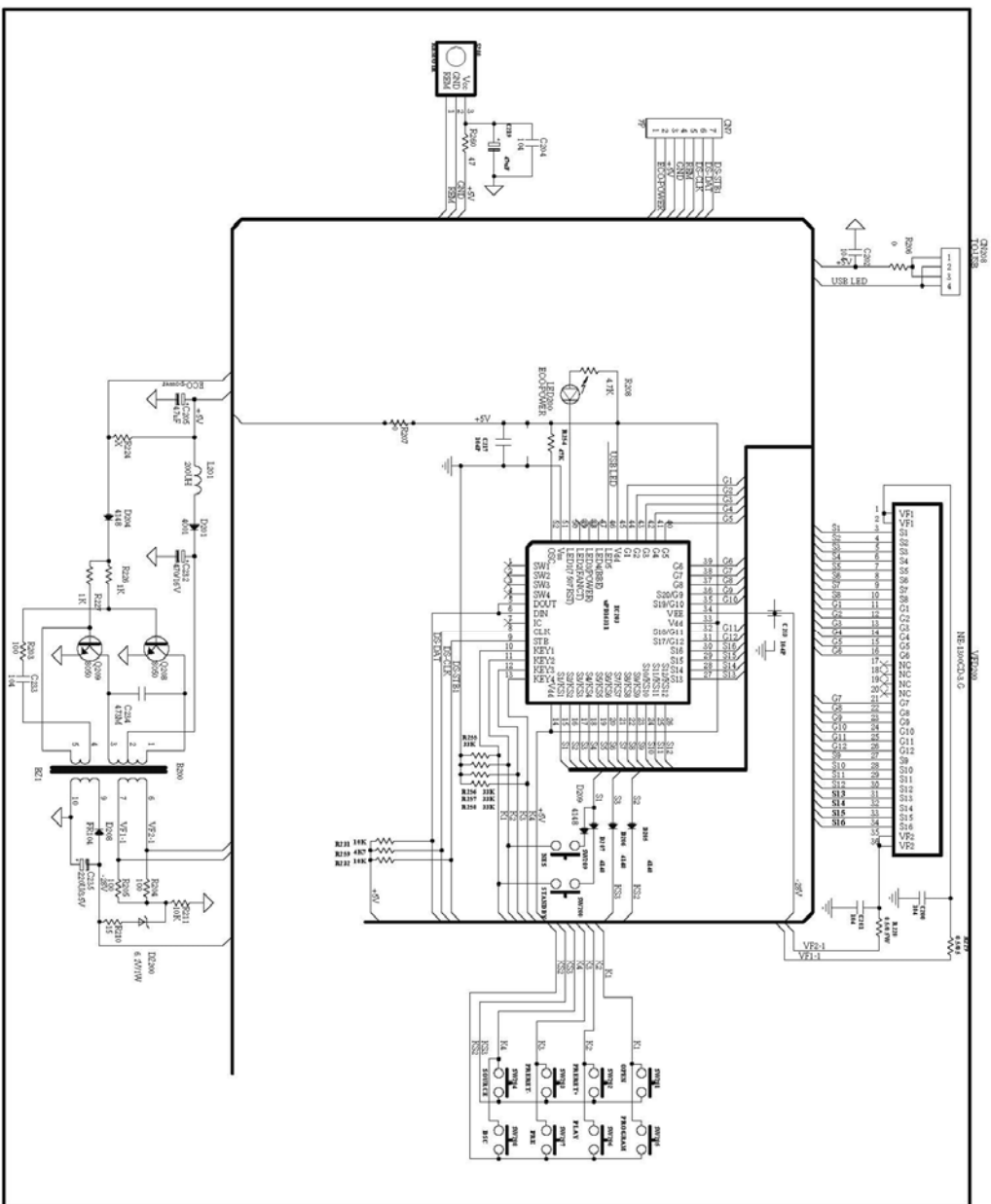
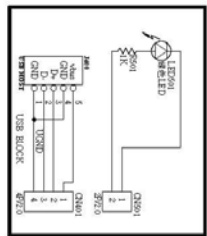
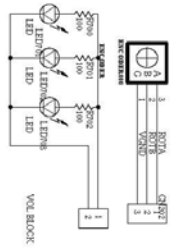






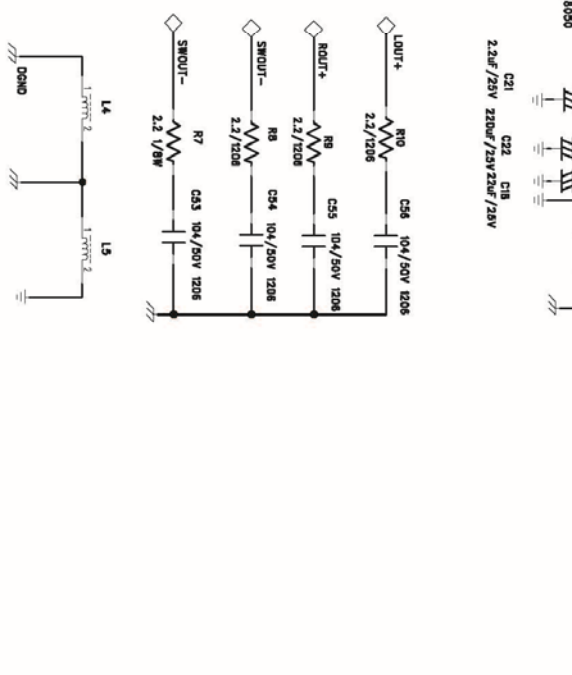
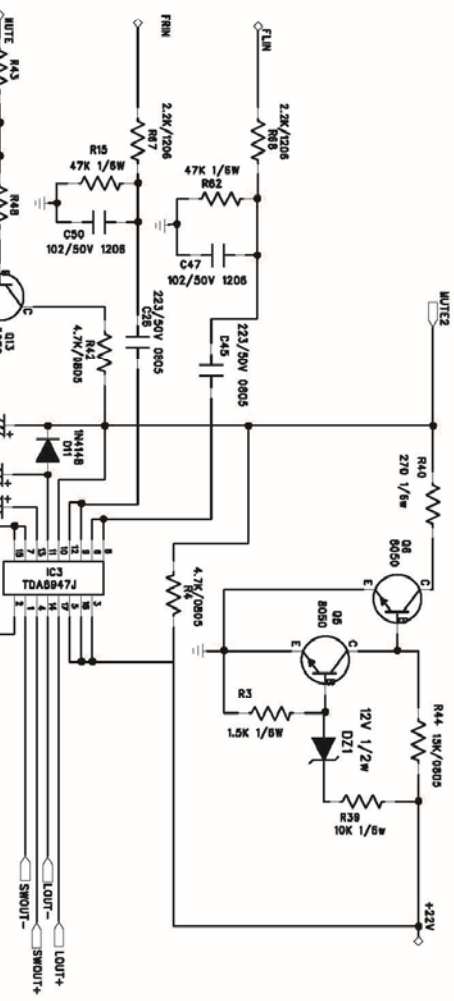
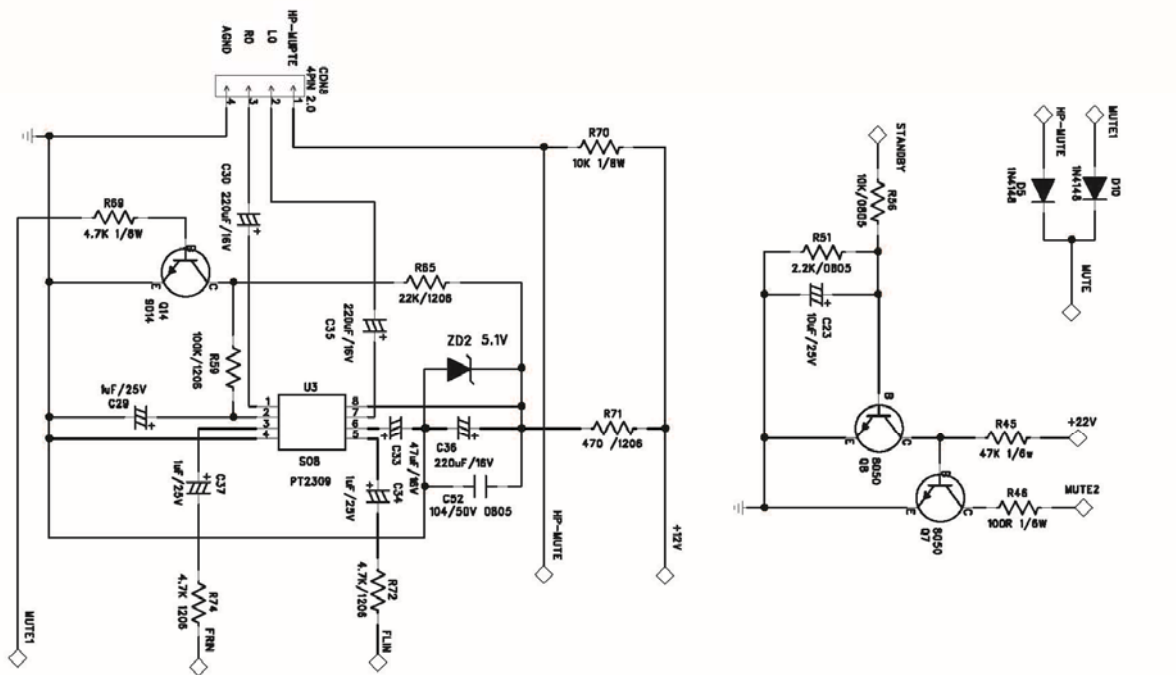


CIRCUIT DIAGRAM - VFD BOARD



CIRCUIT DIAGRAM - AMP/POWER BOARD
PART 1

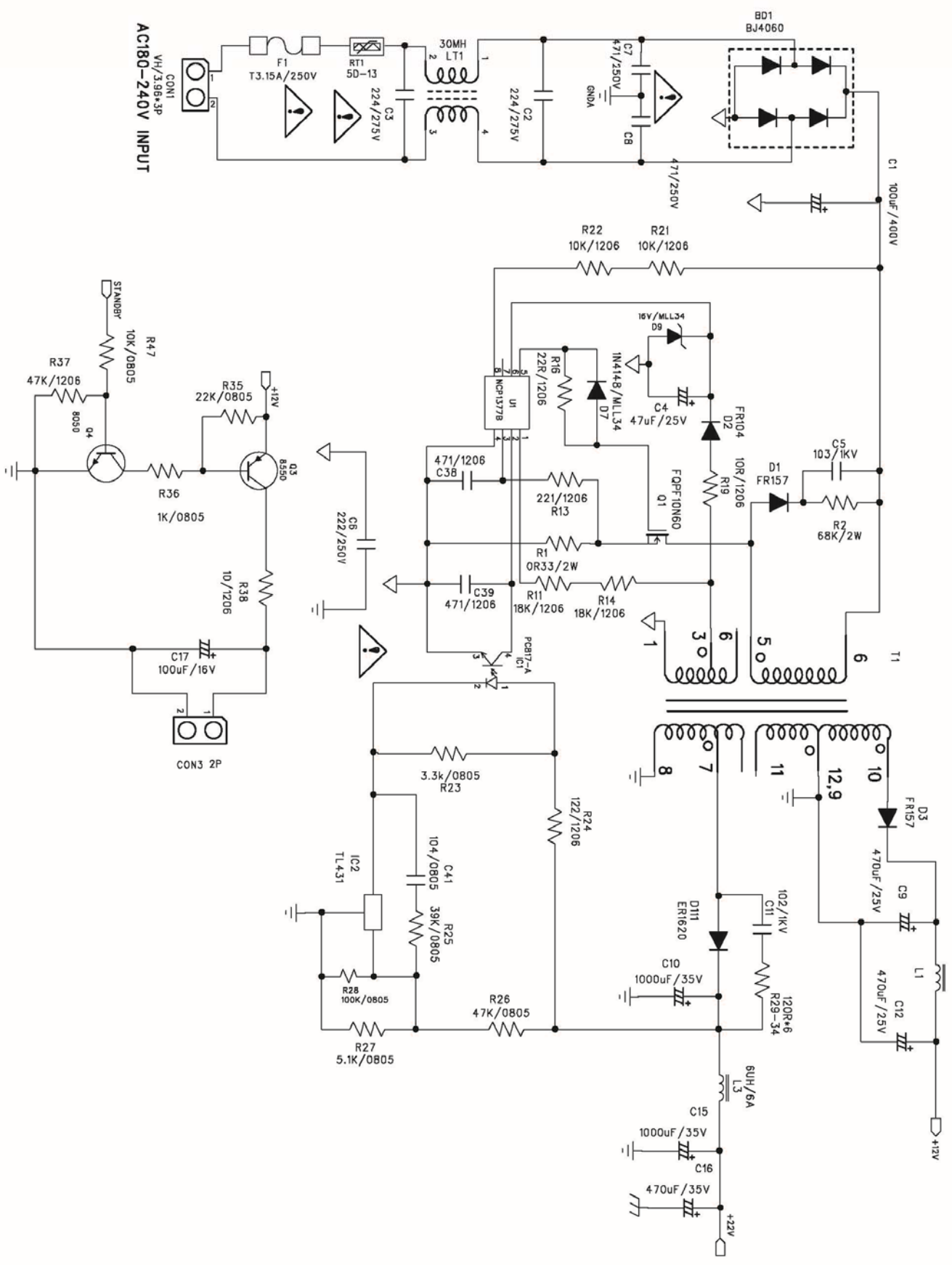
9 - 1



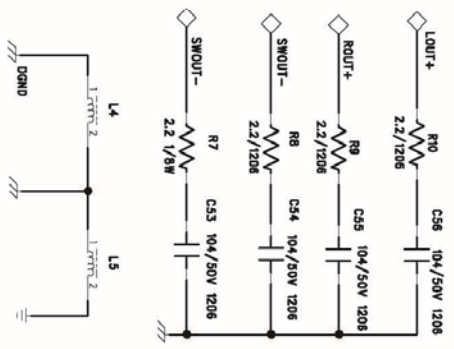
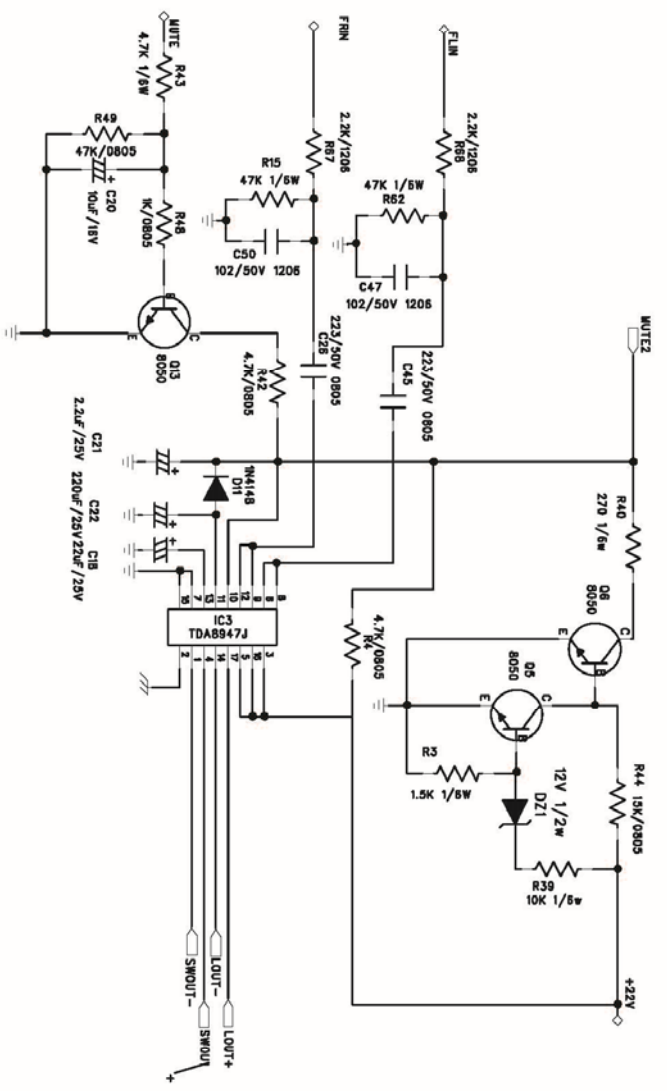
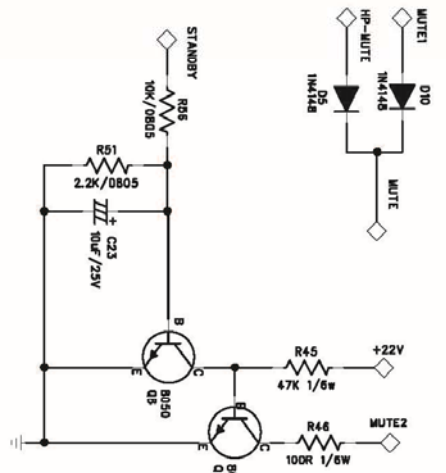
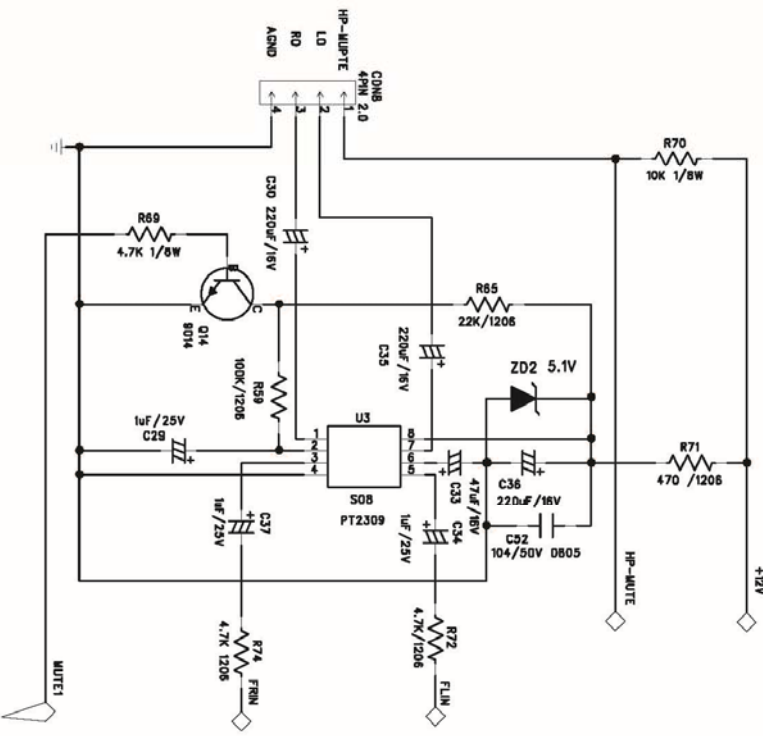
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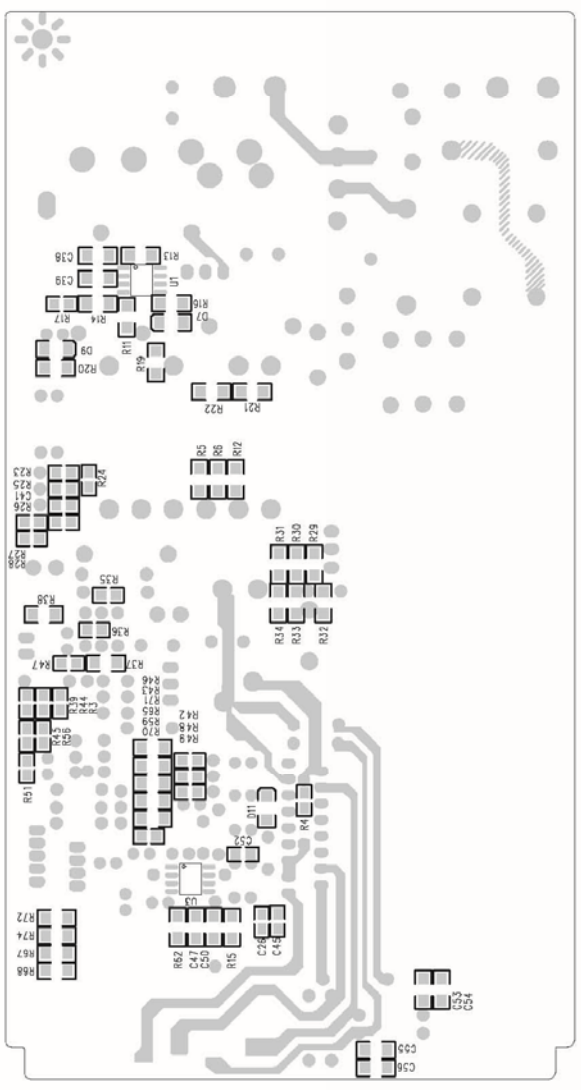
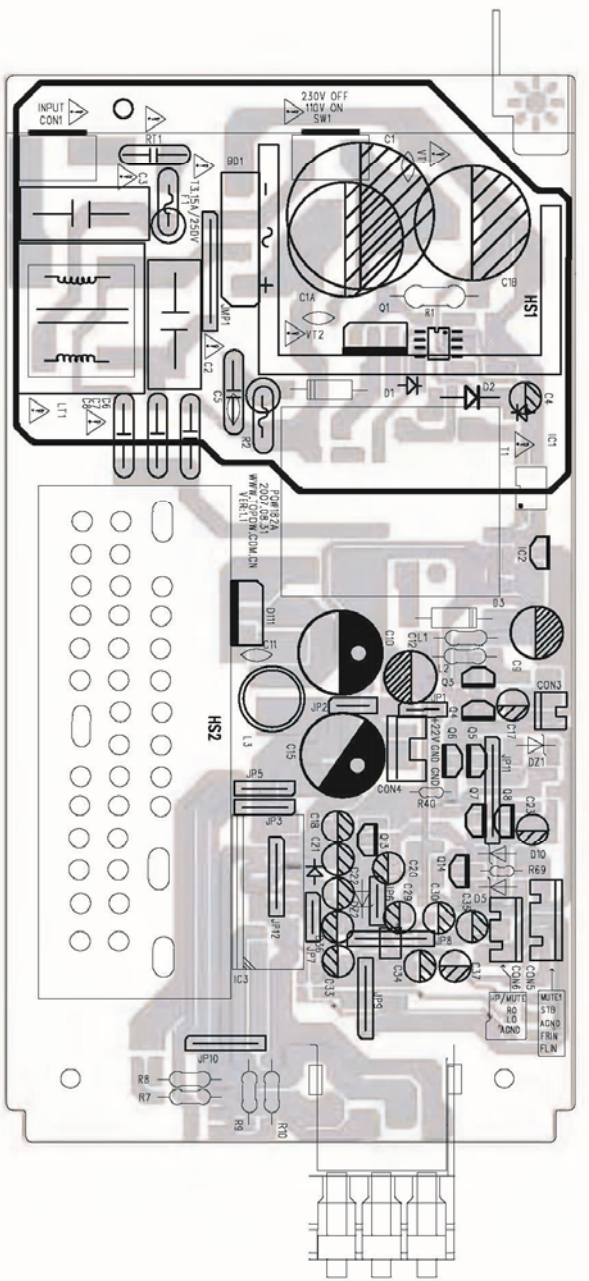
CIRCUIT DIAGRAM - AMP/POWER BOARD
PART 2

9 - 2

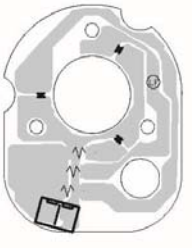
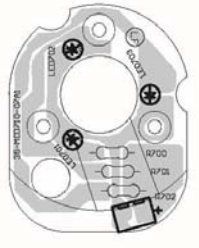
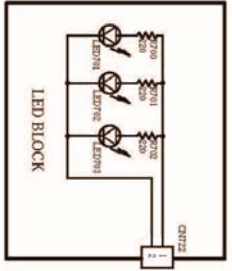
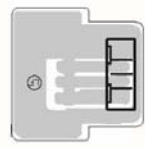
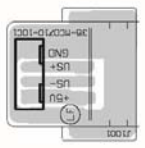
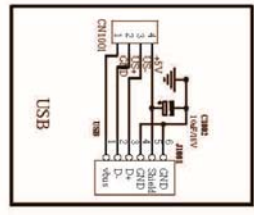
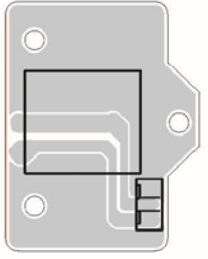
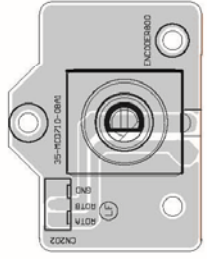
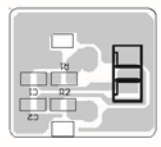
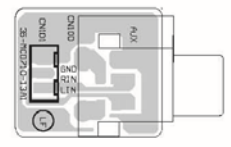
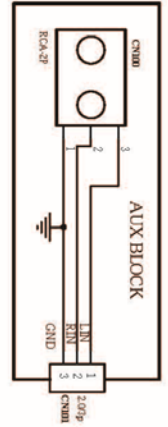
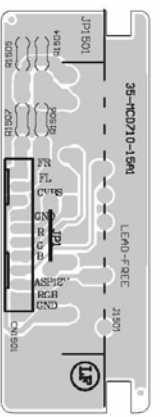
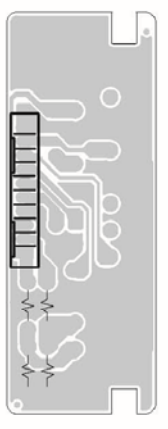
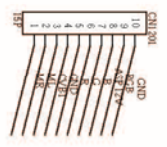
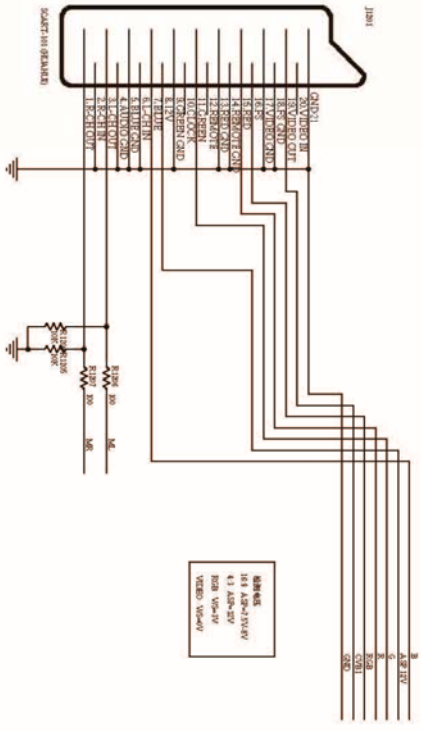


9 - 2





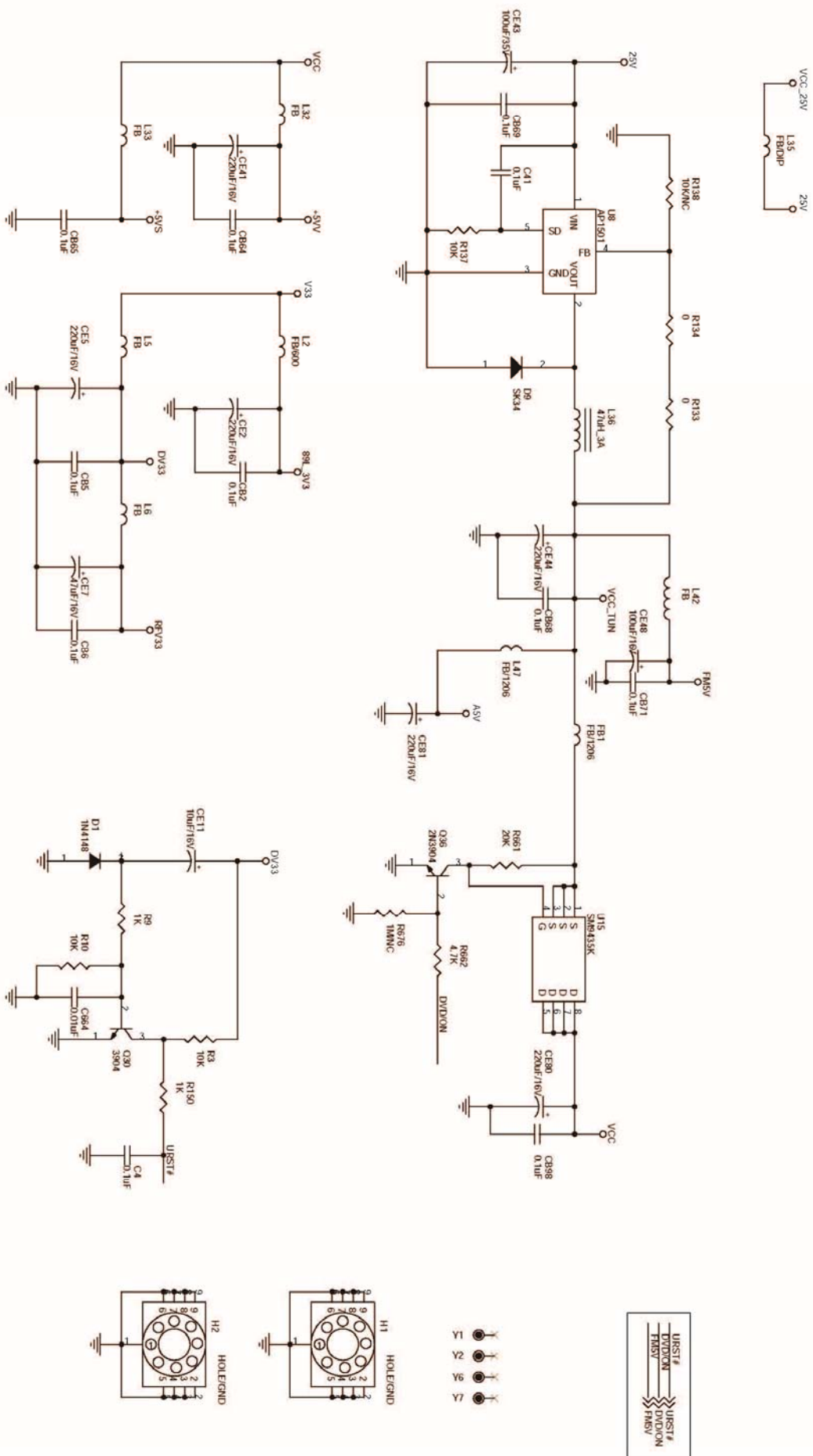
LAYOUT DIAGRAM AND CIRCUIT DIAGRAM - SMALL BOARD

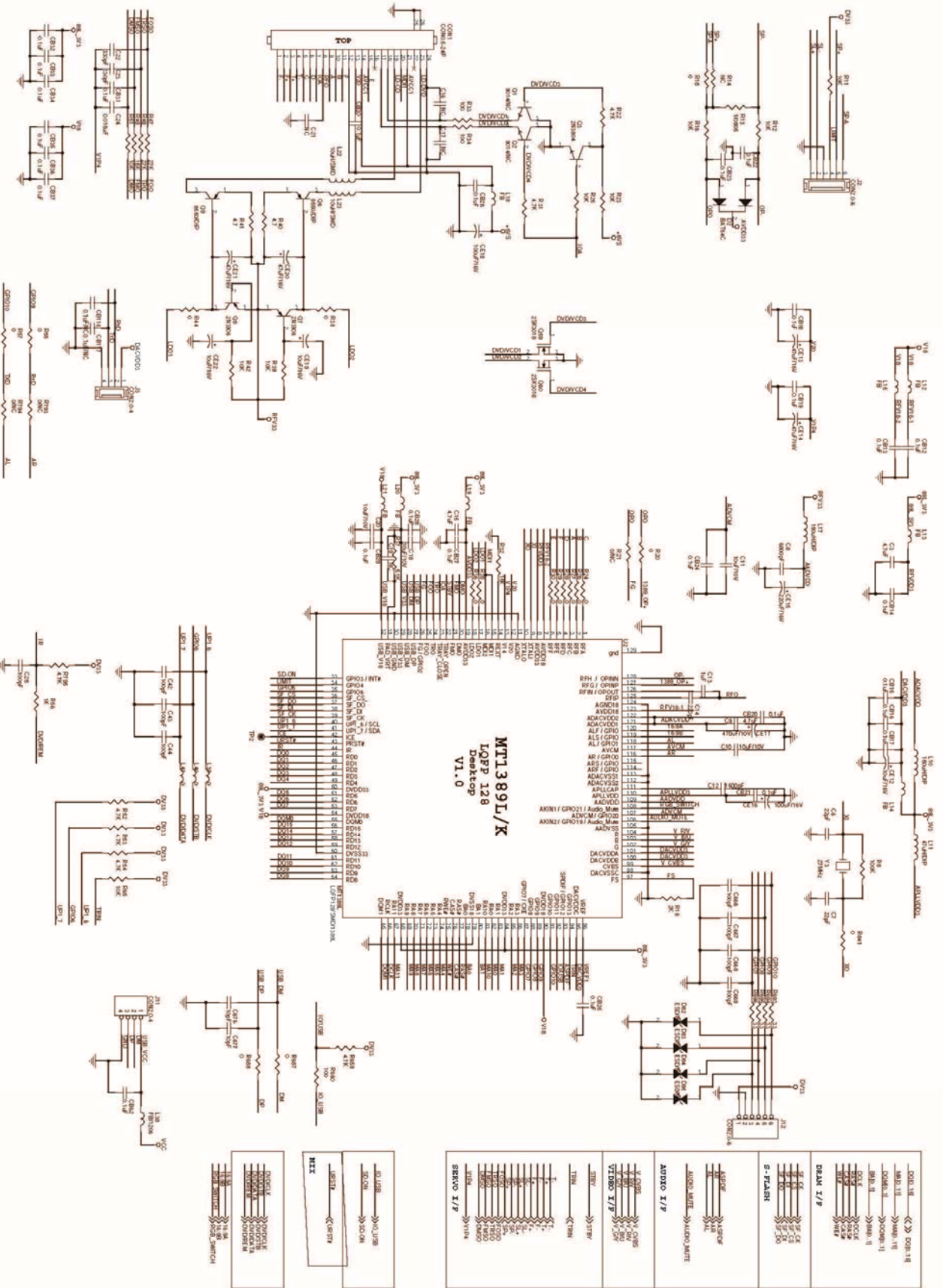


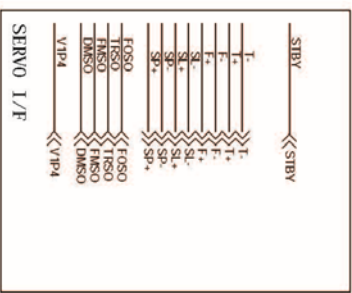
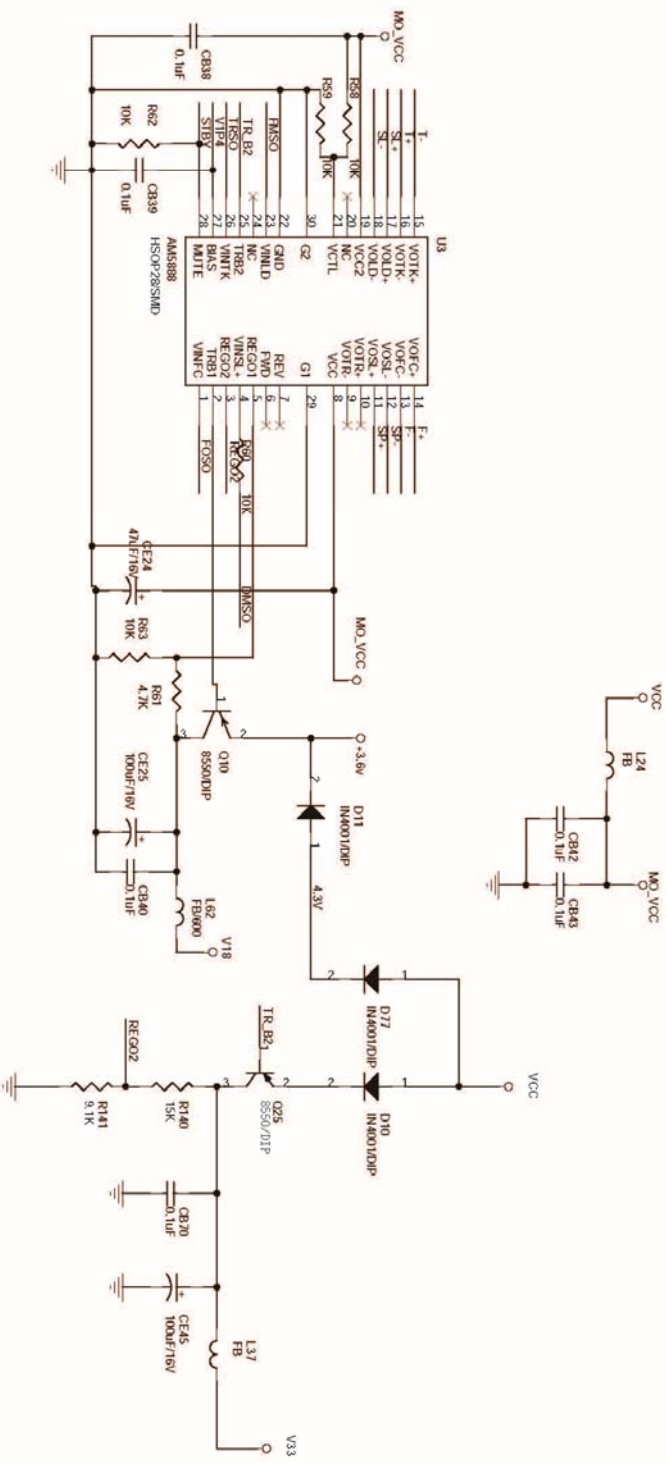
CIRCUIT DIAGRAM - MPEG BOARD
PART 1

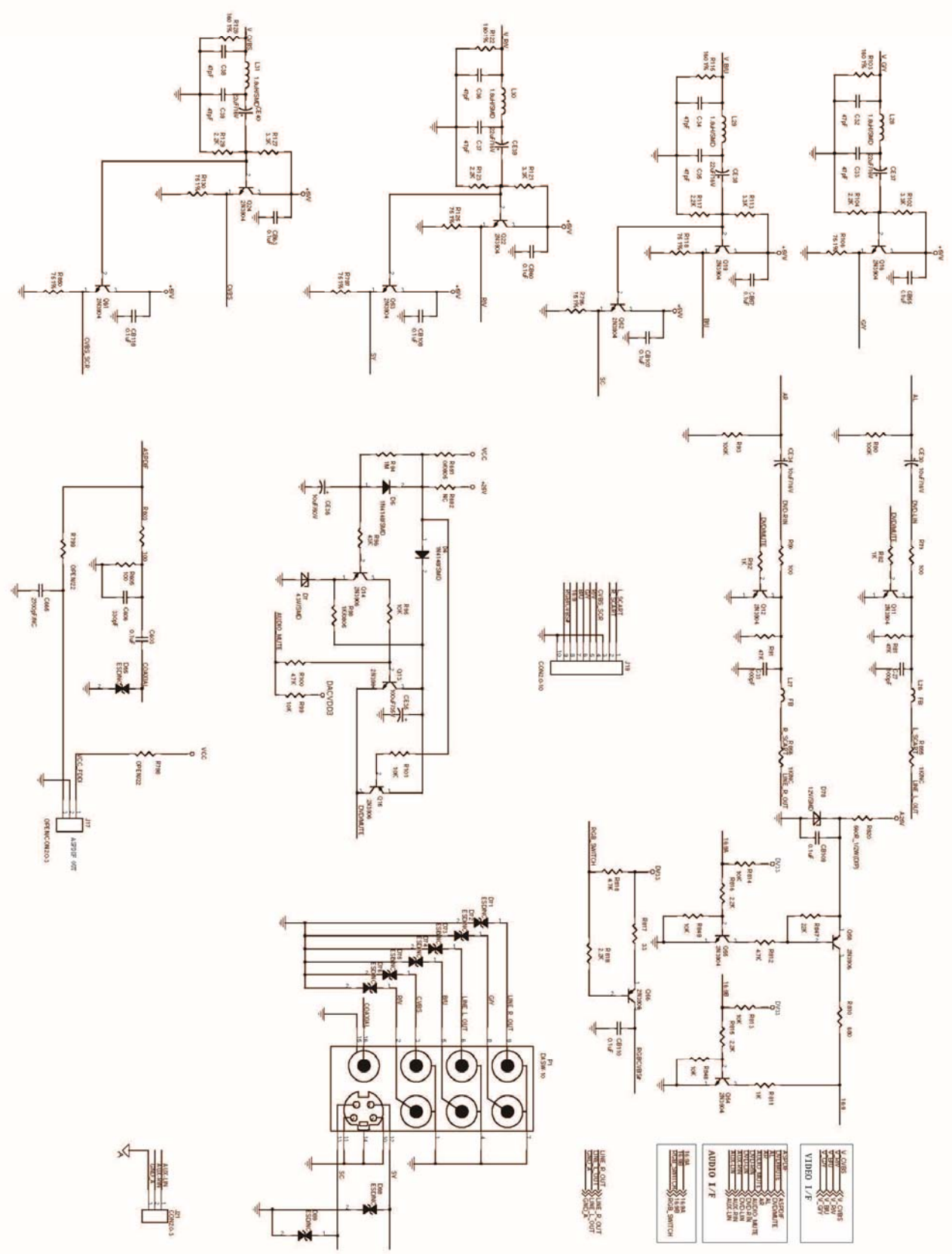
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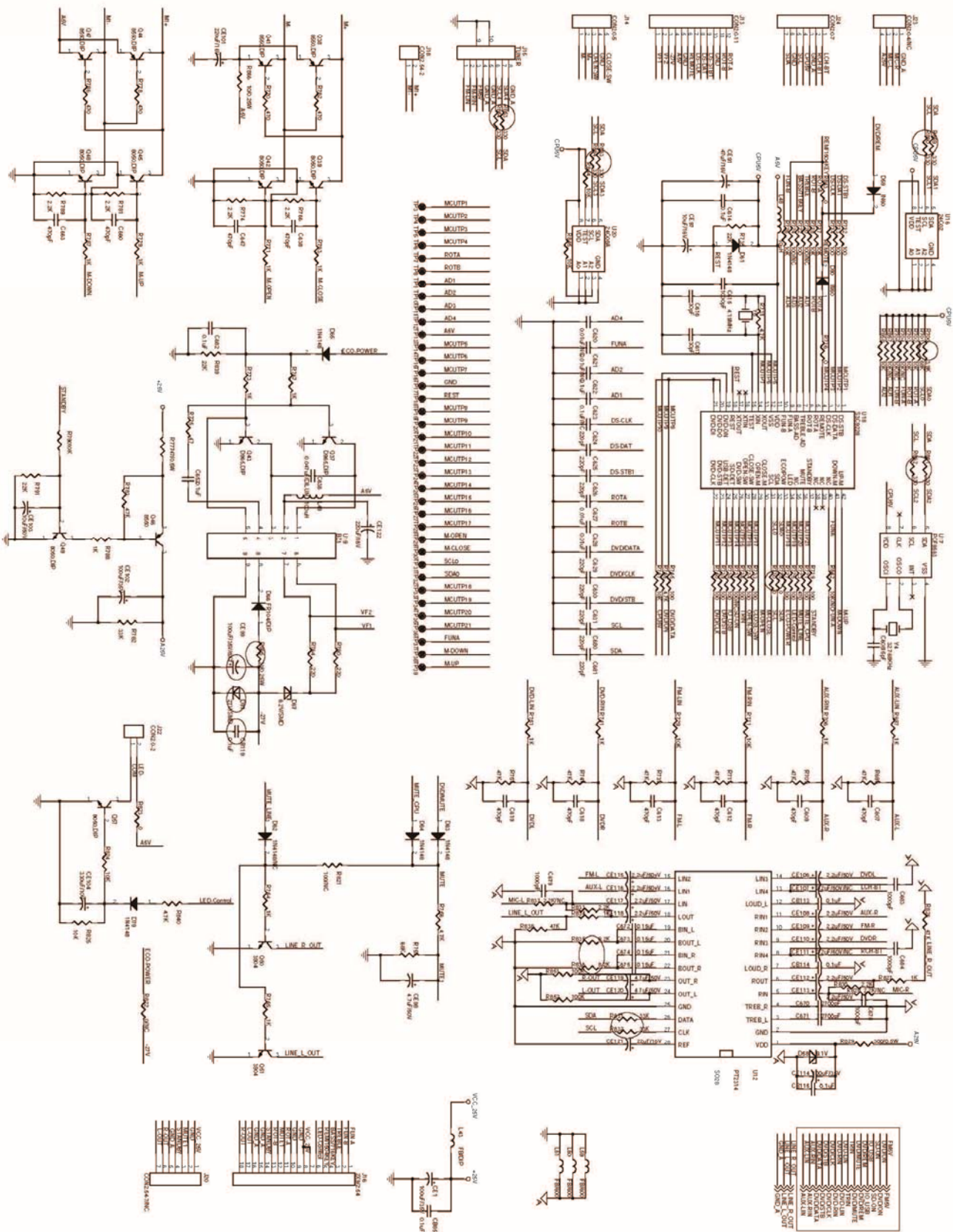
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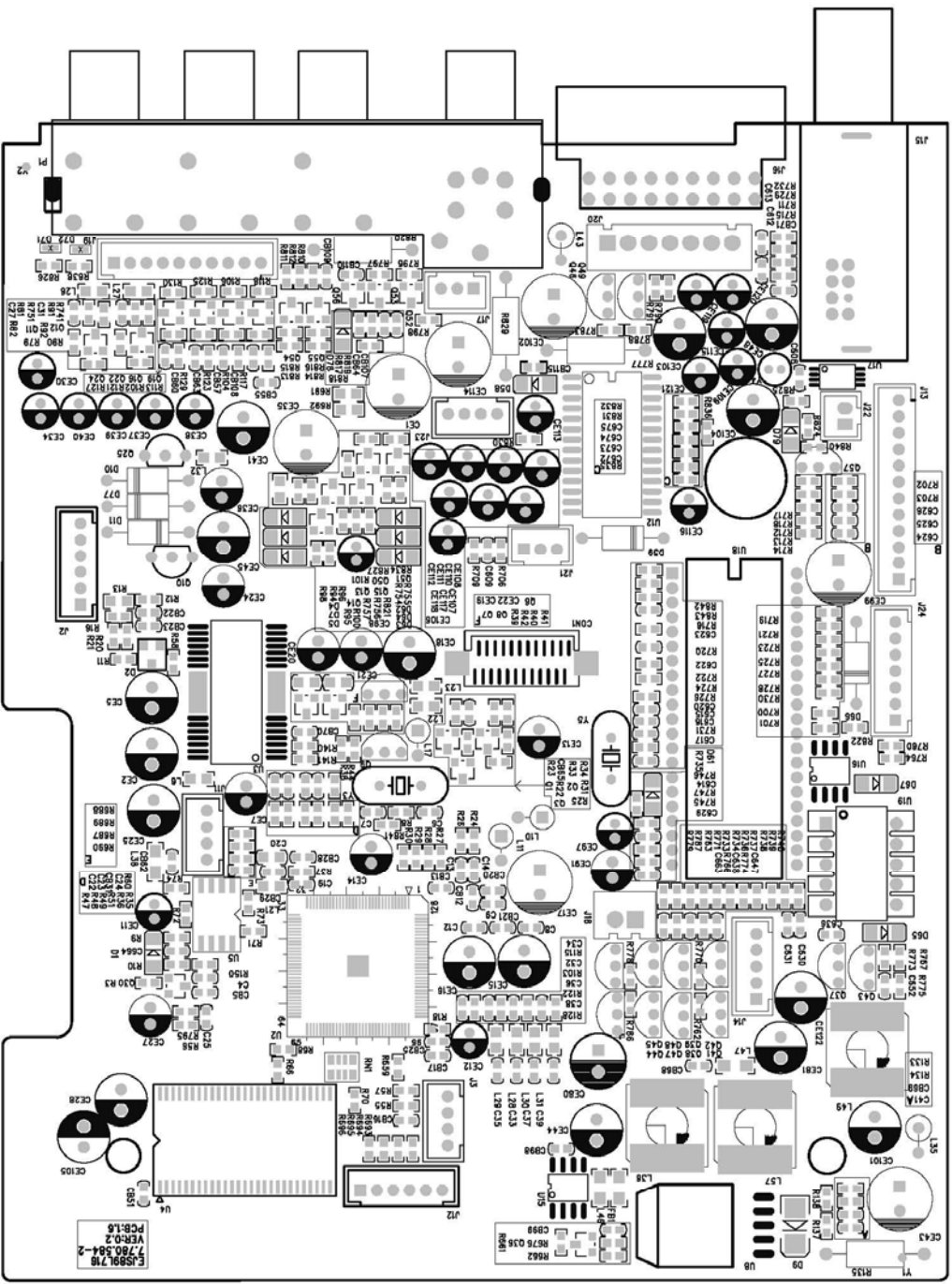


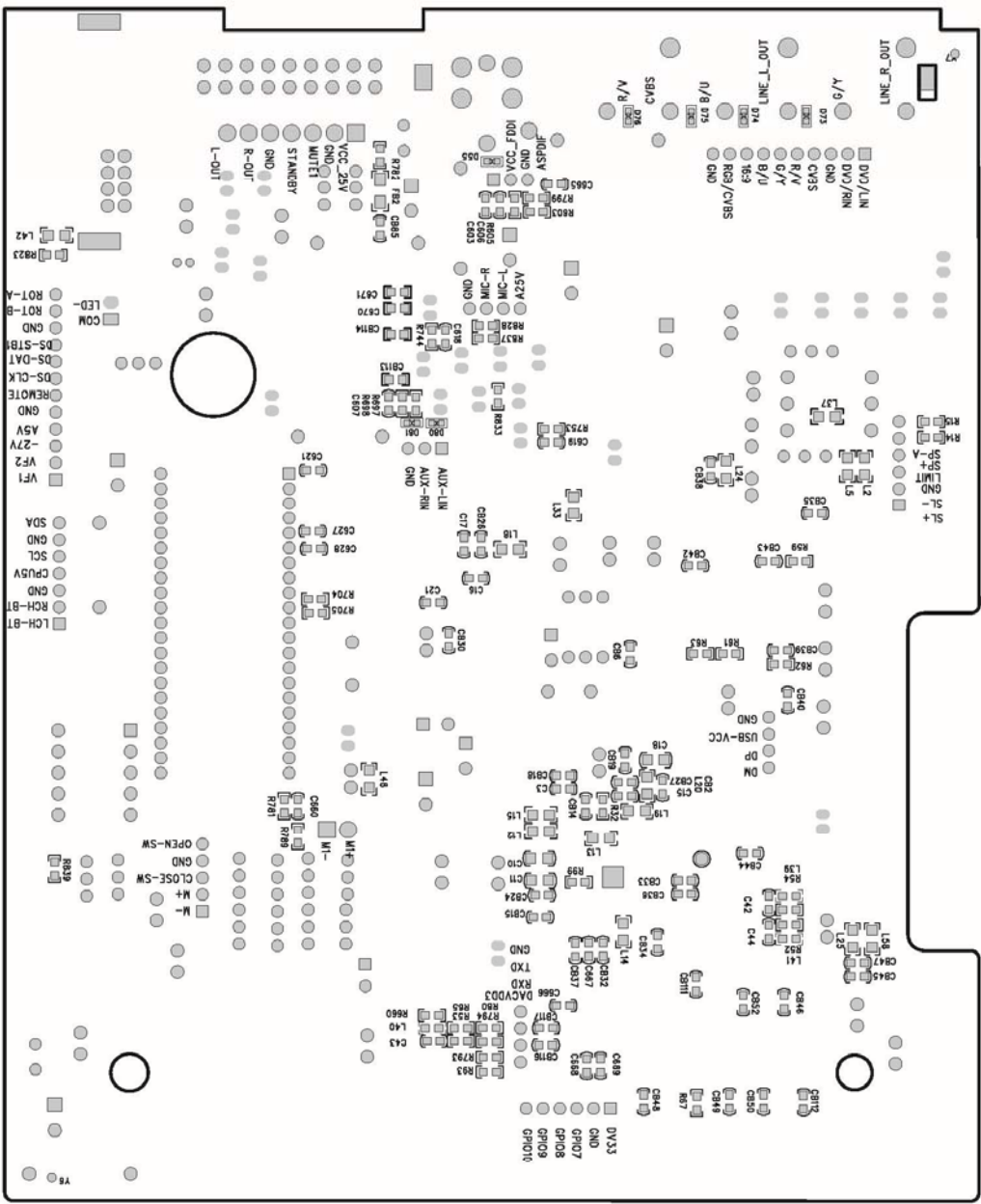


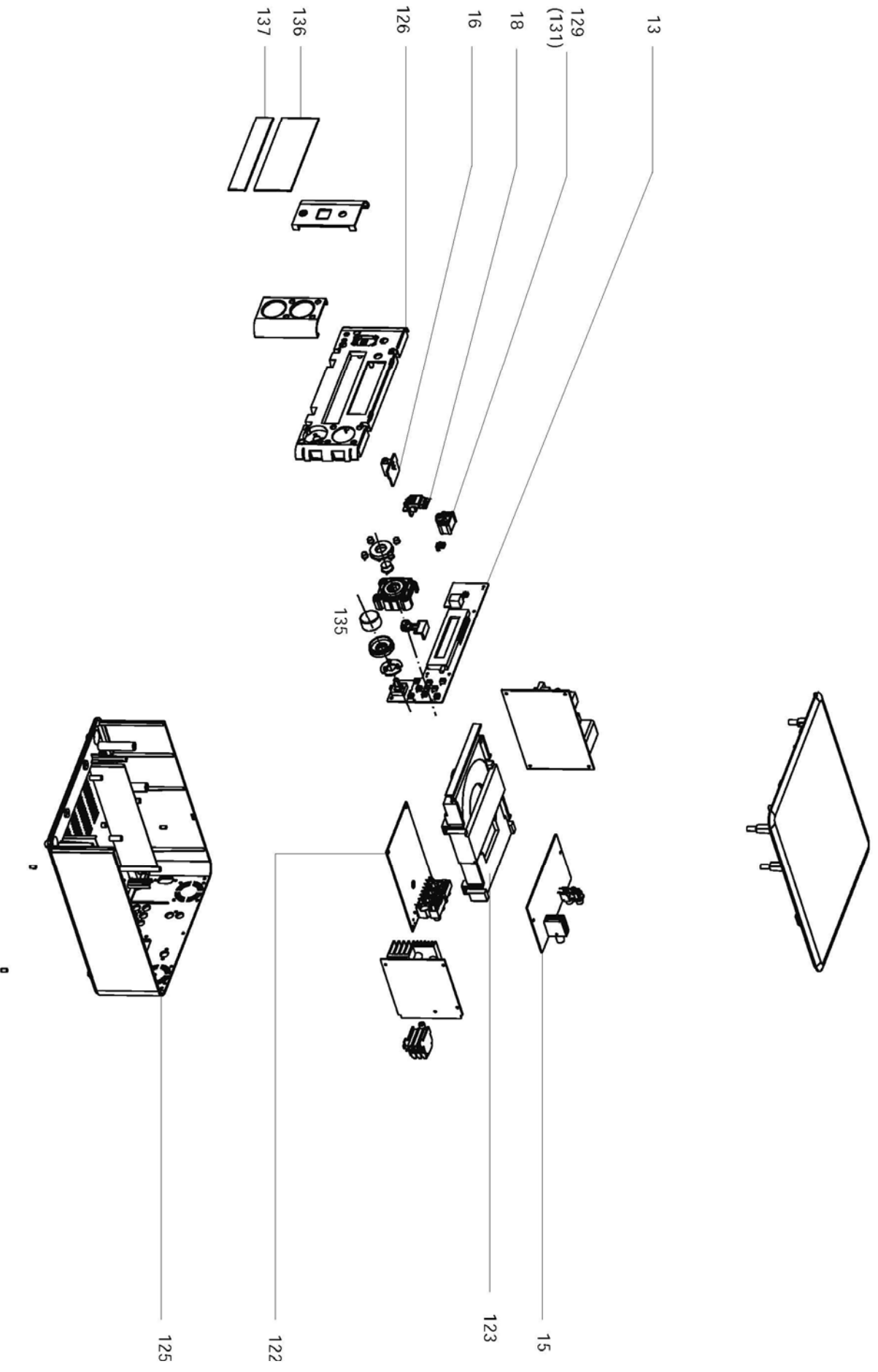












MECHANICAL PARTSLIST (only for MCD710/12)

124	996510007826	MCD710 CABINET FRONT HIPS BK
125	996510010547	BACK CABINET 2.0CH SILVER
126	996510010508	PLASTIC FRONT-PANEL(HIPS)
127	996510007829	MCD710 CENTER BUTTON BRACKET
128	996510007830	MCD710 BUTTON BRACKET
129	996510007831	MCD710 STANDBY BUTTON BRACKET
131	996510007832	MCD710 STANDBY BUTTON
132	996510007833	MCD710 FUNCTION -BUTTON
133	996510007869	MCD710 BEARING KNOB
134	996510007870	MCD710 KNOB
135	996510007871	MCD710 VOLUME KNOB
136	996510010548	BIG LENS PMMA
137	996510019832	SMALL LENS PMMA FOR710
138	996510007836	MCD710 FUNTION-KNOB OPEN/CLOSE
139	996510007837	MCD710 FUNTION-BUTTON(STOP)
141	996510010550	DVD DOOR ABS PA718 FOR
151	996510008413	MINI FAN RDM4010S DC12V/0.07A
152	996510010511	VOLUME KNOB LIGHT GUIDE(PMMA)
D103A	996510010386	USB DOOR SPRING
D103B	996510010387	USB LIGHT GUIDE
D103C	996510010388	USB DOOR ABS
D103D	996510010389	USB DOOR BRACKET ABS
147	996510004221	JACK VH3.96/3P
148	994000005519	FLAT FLEX CABLE 24PX200X0.5XA
149	996510003237	AC LINE CORD 1.95M

ACCESSORIES

142	994000005078	AUDIO SINGLE WIRE W/RCA 1.5M
143	996500041018	FM ANTENNA WIRE 1.5m
144	996510010552	SPEAKER BOX PARTS ASSY (L)
145	996510010553	SPEAKER BOX PARTS ASSY(R)
146	996510010551	REMOTE CONTROL ASSY

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

ELECTRICAL PARTSLIST (only for MCD710/12)

121	996510007824	VOLUME PCB ASSY MCD710
122	996510010545	CPU&DVD DECODER ASSY -/12
123	996510012338	DVD MECHANISM ASSY (inclu.CDM &Bracket)
15	996510010383	TUNER PCB ASSY(RDS)

POW	996510010501	POWER BOARD ASSY
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VFD DISPLAY BOARD ASS'Y

B200	996510002975	TRANSFORMER EE13 5V
D208	996510002976	DIODE FR104
DZ200	996510006505	ZENER DIODE 6.2V 1W
IC203	996510000500	IC PT6311/SC16311/CD16311
LED200	994000004948	LED LAMP(BLUE)
S1	996510010498	IR SENSOR BRACKET ABS
S200	994000004961	IR SENSOR BLACK
SW200	996510000020	LIGHT TOUCH SW.
SW201	996510000020	LIGHT TOUCH SW.
SW202	996510000263	LIGHT TOUCH SWITCH 6X6X5
SW203	996510000263	LIGHT TOUCH SWITCH 6X6X5
SW204	996510000020	LIGHT TOUCH SW.
SW205	996510000020	LIGHT TOUCH SW.
SW206	996510000263	LIGHT TOUCH SWITCH 6X6X5
SW207	996510000263	LIGHT TOUCH SWITCH 6X6X5
SW208	996510000020	LIGHT TOUCH SW.
SW209	996510000263	LIGHT TOUCH SWITCH 6X6X5
VFD200	996510002921	VFD DISPLAY NE-705D-3.GB
CN100	996510000228	RCA SOCKET 2p AV2-8.4-13 RD WH
J1501	996510010544	SOCKET 21PINS CS-106 1501D6

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

SERVICE PARTSLIST (only for MCD710/55)

121	996510007824	VOLUME PCB ASSY MCD710
122	996510010584	CPU&DVD DECODER ASSY -/55
123	996510012338	DVD MECHANIAM ASSY(inclu. CDM & Bracket)
13	996510007817	VFD DISPLAY PCB ASSY MCD710
211	996510010582	MCD710 MIC BOARD ASSY
212	996510010583	MCD710 MIC REVERBERATION BOARD
POW	996510010573	AMP&POWER BOARD ASSY -/55
124	996510007826	MCD710 CABINET FRONT HIPS BK
125	996510010586	BACK CABINET 2.0CH SILVER 55
126	996510010508	PLASTIC FRONT-PANEL(HIPS)
127	996510007829	MCD710 CENTER BUTTON BRACKET
128	996510007830	MCD710 BUTTON BRACKET
129	996510007831	MCD710 STANDBY BUTTON BRACKET
131	996510007832	MCD710 STANDBY BUTTON
132	996510007833	MCD710 FUNCTION -BUTTON
133	996510007869	MCD710 BEARING KNOB
134	996510007870	MCD710 KNOB
135	996510007871	MCD710 VOLUME KNOB
136	996510010548	BIG LENS PMMA
137	996510019831	SMALL LENS PMMA FOR710
138	996510007836	MCD710 FUNTION-KNOB OPEN/CLOSE
139	996510007837	MCD710 FUNTION-BUTTON(STOP)
141	996510010550	DVD DOOR ABS PA718 FOR
148	994000005519	FLAT FLEX CABLE 24PX200X0.5XA
15	996510007819	TUNER BOARD PCB ASSY ECO6-05
151	996510008413	MINI FAN RDM4010S DC12V/0.07A
152	996510010511	VOLUME KNOB LIGHT GUIDE(PMMA)
213	994000004988	AC LINE CORD 1.8M

ACCESSORIES

142	994000005078	AUDIO SINGLE WIRE W/RCA 1.5M
143	996500041018	FM ANTENNA WIRE 1.5m
144	996510010587	SPEAKER BOX PARTS ASSY (L) 55
145	996510010588	SPEAKER BOX PARTS ASSY(R) 55
146	996510007841	REMOTE CONTROL ASSY PRC501-15

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

SERVICE PARTSLIST (only for MCD710/98/79)

122	996510010574	CPU&DVD DECODER ASSY (only for -/98)
122	996510012337	DECODER BOARD ASS'Y (only for -/79)
123	996510012338	DVD MECHANISM ASS'Y(inclu.CDM&Bracket) (only for -/79/98)
13	996510007817	VFD DISPLAY PCB ASSY MCD710
15	996510007819	TUNER BOARD PCB ASSY ECO6-05
200	996510010573	AMP&POWER BOARD ASSY (only for -/98)
200	996510012336	POWER BOARD ASS'Y (only for -/79)
201	996510010583	MCD710 MIC REVERBERATION BOARD
202	996510010582	MCD710 MIC BOARD ASSY
124	996510011821	MCD710 TOP COVER
125	996510010586	BACK CABINET 2.0CH SILVER (only for -/98)
125	996510012339	MCD710 BOTTOM CABINET (only for -/79)
126	996510010508	PLASTIC FRONT-PANEL
127	996520032892	CENTER BUTTON ASS'Y
129	996520032894	STANDBY BUTTON ASS'Y
135	996510007871	MCD710 VOLUME KNOB
136	996510010548	BIG LENS PMMA
137	996510019831	SMALL LENS PMMA
138	996520032895	FUNCTION BUTTON ASS'Y
141	996510010550	DVD DOOR ABS PA718 FOR
203	996510010511	VOLUME KNOB LIGHT GUIDE
204	996510010581	MCD710 MIC VOLUME KNOB
205	996510008413	MINI FAN RDM4010S DC12V/0.07A
206	996510008411	RUBBER FOOT 4X7.8
207	996510010576	USB LIGHT GUIDE ASSY

ACCESSORIES

142	994000005078	AUDIO SINGLE WIRE W/RCA 1.5M
143	996500041018	FM ANTENNA WIRE 1.5m
144	996510010579	SPEAKER BOX PARTS ASSY (L) (only for -/98)
144	996510010587	SPEAKER BOX PARTS ASSY (L) (only for -/79)
145	996510010580	SPEAKER BOX PARTS ASSY(R) (only for -/98)
145	996510010588	SPEAKER BOX PARTS ASSY(R) (only for -/79)
146	996510010578	REMOTE CONTROL (only for -/98)
146	996510007841	REMOTE CONTROL PRC501-15 (only for -/79)
147	 994000004988	AC LINE CORD 1.8M (only for -/98)
147	 996510012340	POWER CORD 1.95M SAA (only for -/79)

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

ELECTRICAL PARTSLIST (only for MCD710B/93)

13	996510007817	VFD DISPLAY PCB ASSY MCD710
14	996510007820	HEADPHONE PCB ASSY MCD710
15	996510007819	TUNER BOARD PCB ASSY EC06-05
16	996520032906	AUX BOARD ASS'Y
17	996510007821	LAMP PCB ASSY MCD710
18	996510010500	USB BOARD ASSY
19	996510007823	USB LAMP PCB ASSY MCD710
121	996510007824	VOLUME PCB ASSY MCD710
122	996510013232	DVD DECODER ASSY
123	996510012338	DVD MECHANISM ASSY (Inclu.CDM&Bracket)
IC102	996510013233	MCU PARTS ASSY
POW	996510013234	AMP/POWER BOARD ASSY
20	996520032892	CENTER BUTTON ASS'Y
21	996520032894	STANDBY BUTTON ASS'Y
22	996520032895	FUNCTION BUTTON ASS'Y
23	996510010576	USB LIGHT GUIDE ASSY 98
124	996510011821	MCD710 TOP COVER
125	996510013235	PLASTIC BOTTOM COVER
126	996510010508	PLASTIC FRONT-PANEL(HIPS)
135	996510007871	MCD710 VOLUME KNOB
136	996510010548	BIG LENS PMMA
137	996510010549	SMALL LENS PMMA FOR710
141	996510013236	DVD DOOR(FOR MCD710B)
148	994000005519	FLAT FLEX CABLE 24PX200X0.5XA
151	996510008413	MINI FAN RDM4010S DC12V/0.07A
152	996510010511	VOLUME KNOB LIGHT GUIDE(PMMA)
213	996510008412	AC LINE CORD 1.95M CQ-5332-00
CN100	996510000228	RCA SOCKET 2p AV2-8.4-13 RD WH
M012A	996510007829	MCD710 CENTER BUTTON BRACKET
M012B	996510007870	MCD710 KNOB
M013A	996510007831	MCD710 STANDBY BUTTON BRACKET
M013B	996510007832	MCD710 STANDBY BUTTON
M014A	996510007830	MCD710 BUTTON BRACKET
M014B	996510007869	MCD710 BEARING KNOB
M014C	996510007833	MCD710 FUNCTION -BUTTON
M014D	996510007836	MCD710 FUNTION-KNOB OPEN/CLOSE
M014E	996510007837	MCD710 FUNTION-BUTTON(STOP)
PCBA	996510016386	POWER BOARD POW182A-93

ACCESSORIES

142	994000005078	AUDIO SINGLE WIRE W/RCA 1.5M
143	996500041018	FM ANTENNA WIRE 1.5m
144	996510013237	SPEAKER BOX ASSY(L)
145	996510013238	SPEAKER BOX ASSY(R)
146	996510007841	REMOTE CONTROL ASSY PRC501-15

REVISION LIST

Version 1.0 (3141 785 32070)

- Initial Release

Version 1.1 (3141 785 32071)

- New versions MCD710/55/12 are introduced.
- Pages 13-2 and 13-4: Service parts list added.

Version 1.2 (3141 785 32072)

- New versions MCD710/98/79 are introduced.
- Pages 13-5 : Service parts list added.

Version 1.3 (3141 785 32073)

- New versions MCD710B/93 are introduced.
- Pages 13-6: Service parts list added.

Version 1.4 (3141 785 32074)

- Pages 9-1,9-4 : files updated.
- Pages 11-1,11-7 : files updated.