

Service Service Service



Service Manual



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Please according below info to select correct SM(MCM233/12_DV3,/55_DV2 SM start with page 22)

1: for S/N start with AQ1X please refer DV1 SM.

2: For S/N start with AQ2X please refer DV2 SM(/12 after 1428,/55 after 1433)

**CLASS 1
LASER PRODUCT**

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TECHNICAL SPECIFICATION

Ampli?er

Total output power	2 x 10 W RMS
Frequency response	80 Hz - 16 kHz, ± 3 dB
Signal to noise ratio	> 60 dB
MP3 link input	0.5 V RMS 20 k Ω

Disc

<i>Laser type</i>	<i>Semiconductor</i>
<i>Disc diameter</i>	<i>12 cm /8 cm</i>
<i>Support disc</i>	<i>CD-DA, CD-R, CD-RW, MP3-CD, WMA-CD</i>
<i>Audio DA C</i>	<i>24 Bits /44.1 kHz</i>
<i>Total harmonic distortion</i>	<i>< 1.5%</i>
<i>Frequency response</i>	<i>60 Hz -16 kHz (44.1 kHz)</i>
<i>Signal to noise ratio</i>	<i>> 55 dBA</i>

Tuner

<i>Tuning range</i>	<i>FM: 87.5 - 108 MHz</i>
<i>Tuning grid</i>	<i>50 KHz</i>
<i>Number of presets</i>	<i>20</i>

Speakers

Speaker impedance 2 x 10 W, 6 Ω

General information

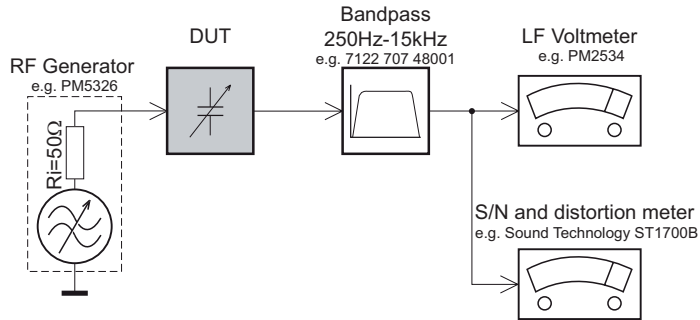
AC power	100-240V~, 50/60HZ
Operation Power Consumption	15 W
Standby Power Consumption	1 W
Eco Power Standby Power Consumption	0.8 W
USB Direct	Version 2.0/1.1
Dimensions	565 x 245 x
- Main Unit (W x H x D)	104 mm
Weight	
- Main Unit	2.7 kg

VERSION VARIATION

Type /Versions:		MCM233									
Board in used:	Service policy	/12			/58	/55	/78		/79	/98	
LCD BOARD		C			M/C	C	C		M/C		
KEY BOARD		C			M/C	C	C		C		
POWER KEY BOARD		C			M/C	C	C		C		
OPEN/CLOSE BOARD		C			M/C	C	C		C		
REMOTE INCEPT BOARD		C			M/C	C	C		C		
RADIO BOARD		C			M/C	C	C		C		
MAIN BOARD		C			M/C	C	M/C		M/C		
USB BOARD		C			M/C	C	C		C		
Type /Versions:		MCM233									
Features	Feature diffrence	/12			/58	/55	/78		/79	/98	
RDS & DAB		√			√	√					
VOLTAGE SELECTOR											
ECO STANDBY - DARK		√							√		
* TIPS : C -- Component Lever Repair. M -- Module Lever Repair √ -- Used											

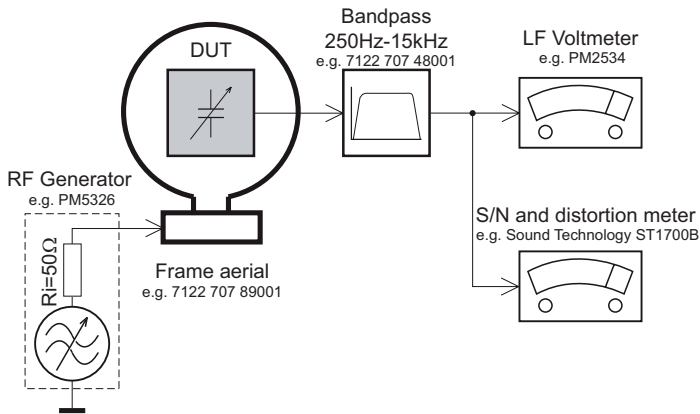
MEASUREMENT SETUP

Tuner FM



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

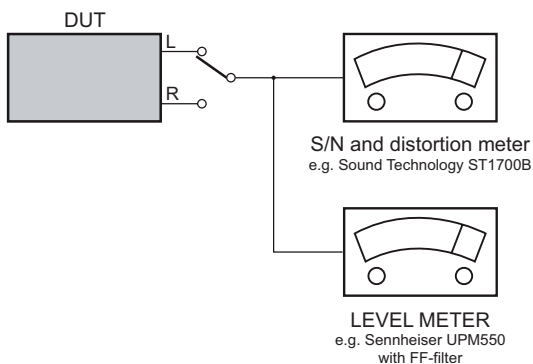
Tuner AM (MW,LW)



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).

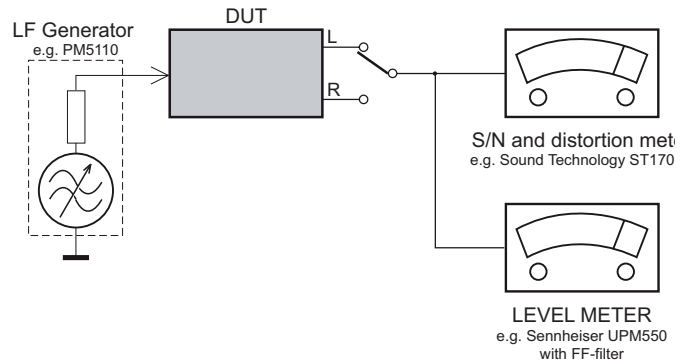
CD

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".

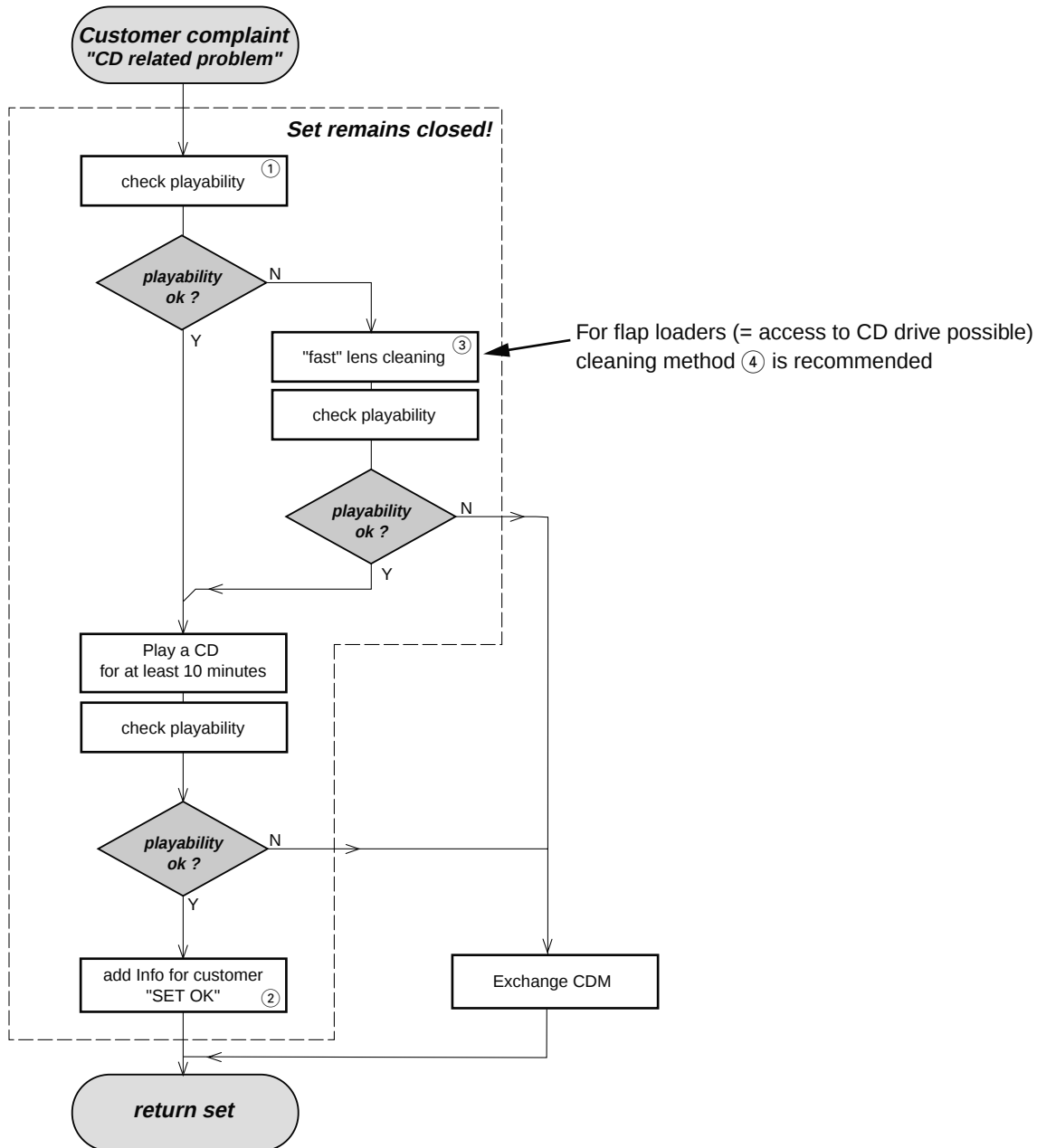
For additional questions please contact your local repair-helpdesk.

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

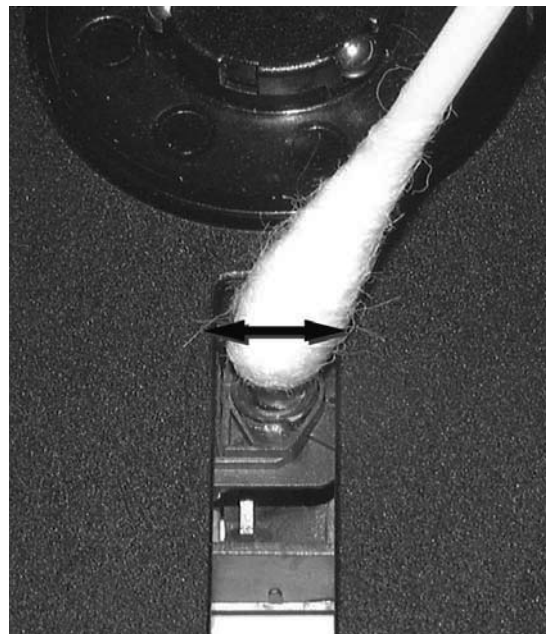
LIQUID LENS CLEANING

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.

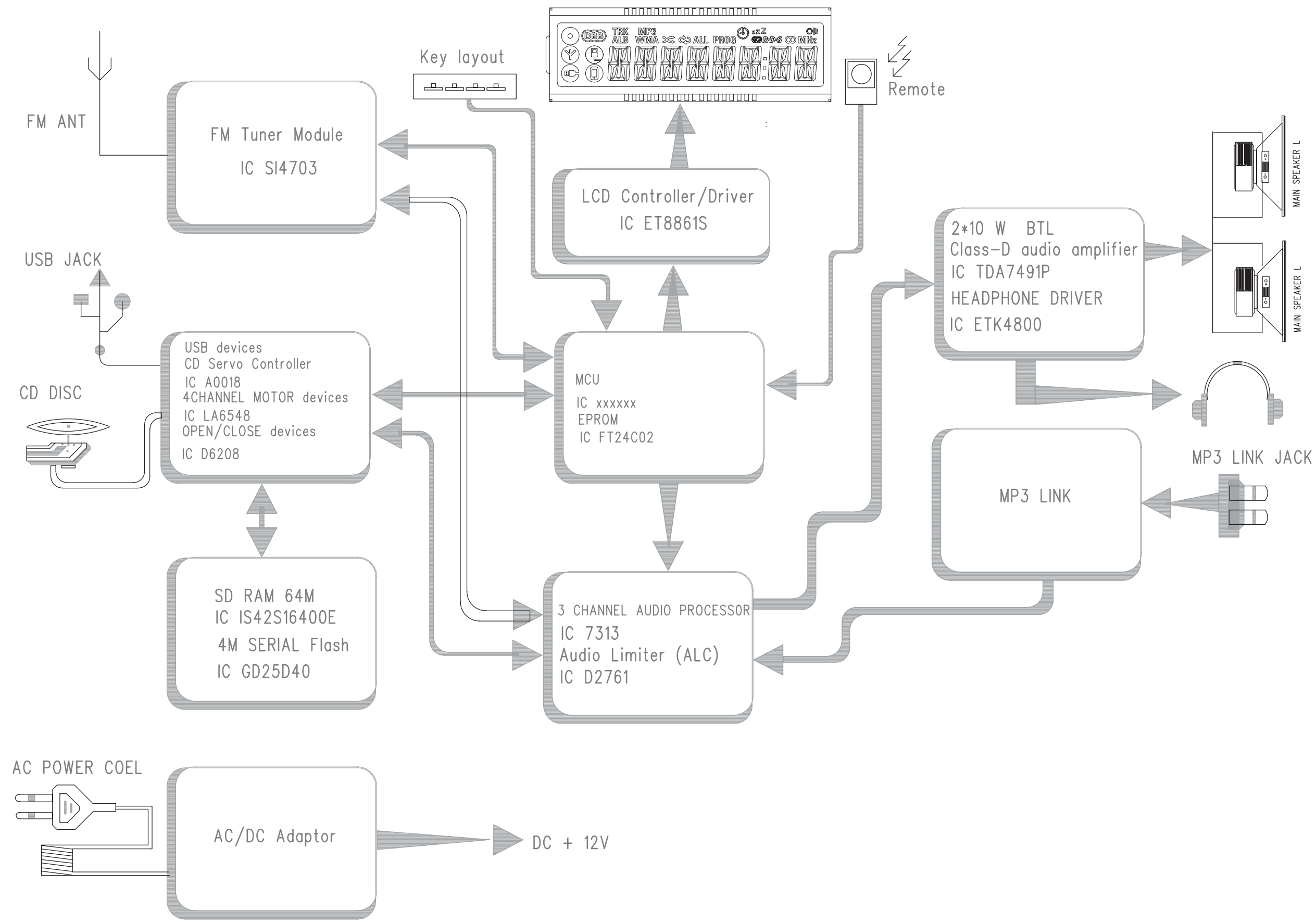
Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent

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.

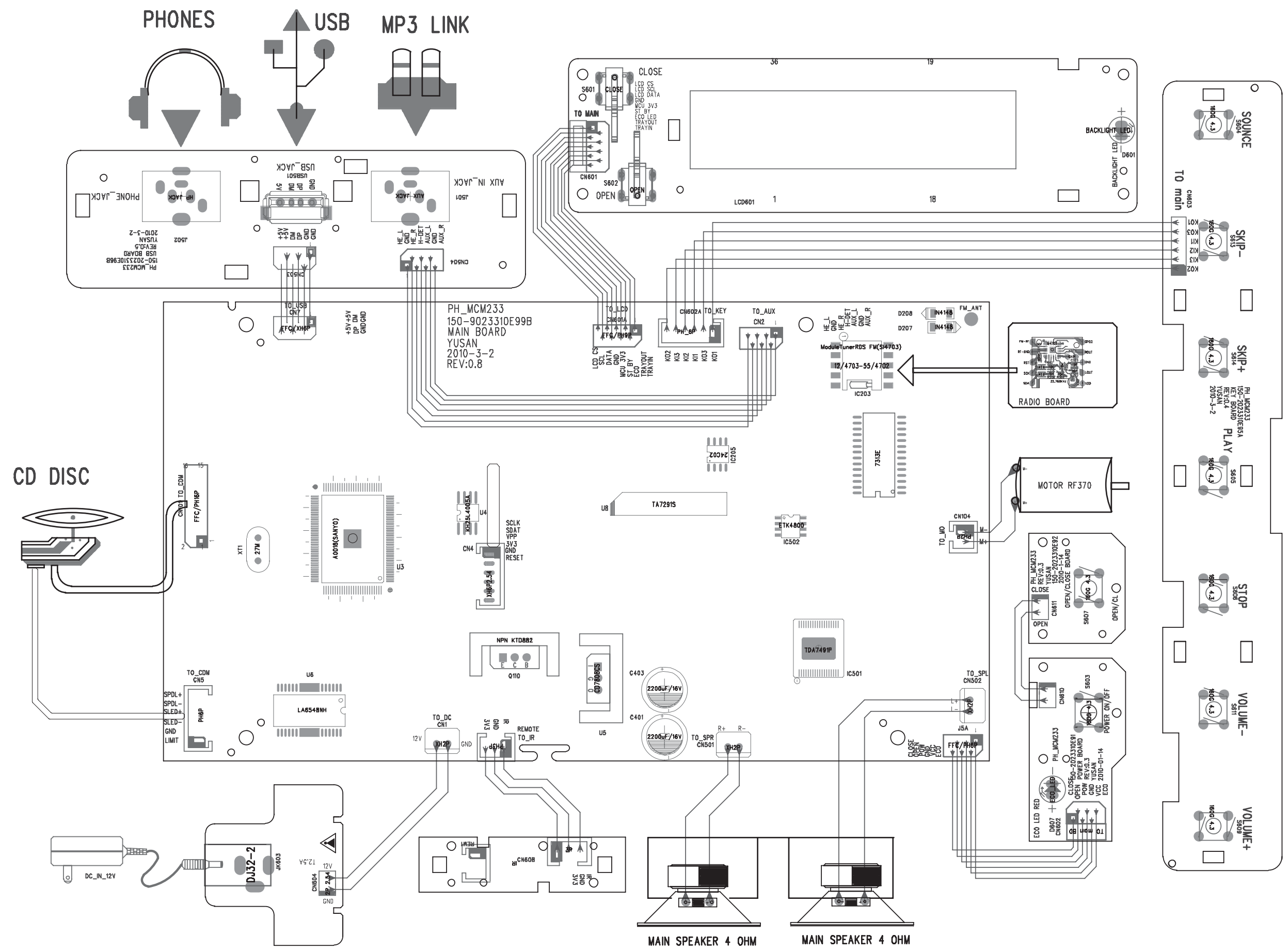
The direction of cleaning must be in the way as indicated in the picture below.



SET BLOCK DIAGRAM

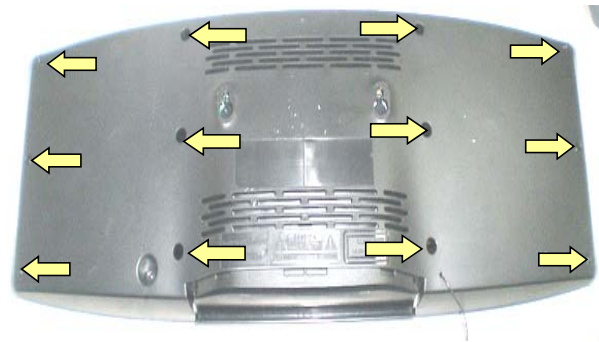


SET WIRING DIAGRAM

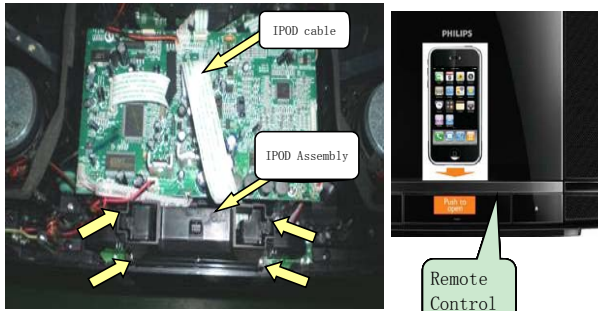


Set disassembly diagram

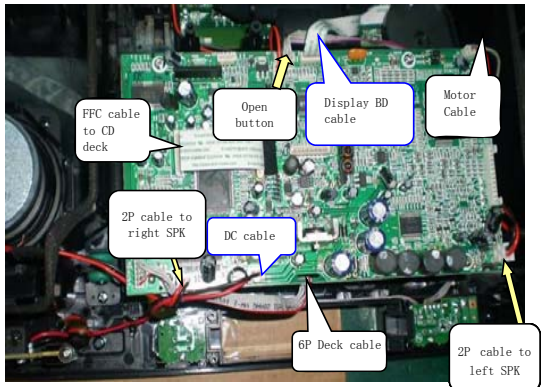
- 1)Remove the 12pcs screws(BT3x12) on the side cabinet to discharge the rear cabinet and place it well;
2)Remove the FFC cable on IPOD BD from Main BD,1st get remote control lens out, then remove the 4pcs screws (PA 2.3x8) which fix IPOD BD to discharge IPOD BD;
3)Remove all cables on Main BD;
PS: Get your hand to the Main BD as close as possible when you unplug the cables to avoid destroying cables;
4)Remove the 4pcs screws(PT 3x8) on Main BD, rip off the black paper from FCC cable on CD deck, discharge Main BD and place it well;



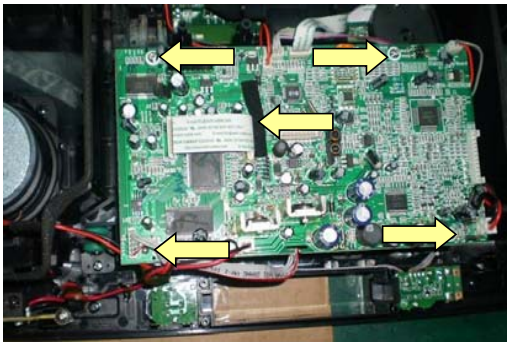
pic 1



pic 2

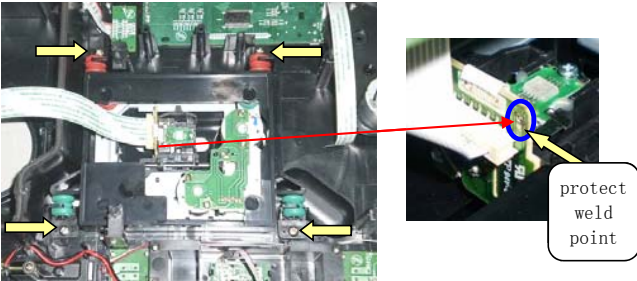


pic 3



pic 4

- 5)Remove the 4pcs screws(PT3x8) on CD deck, please add some soldering on the weld protect point and keep it in a ant-static bag;
6)Remove the 4pcs screws(PA 2.3x8) on Display BD, discharge Display BD and paste protect film on it and place it well;
7)Draw the CD door with your right hand,press one buckle with your left hand(pic 7-1),then press the other buckle(pic 7-2),discharge CD door and place it well;



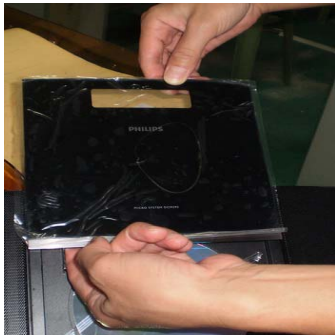
pic 5



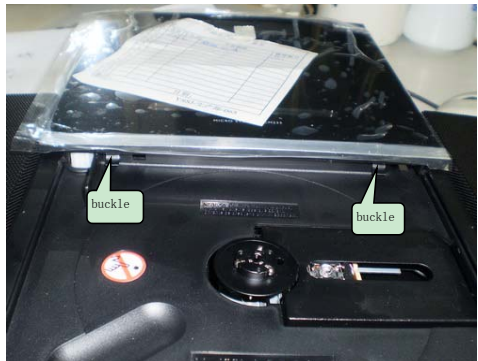
pic 6



pic 7-1

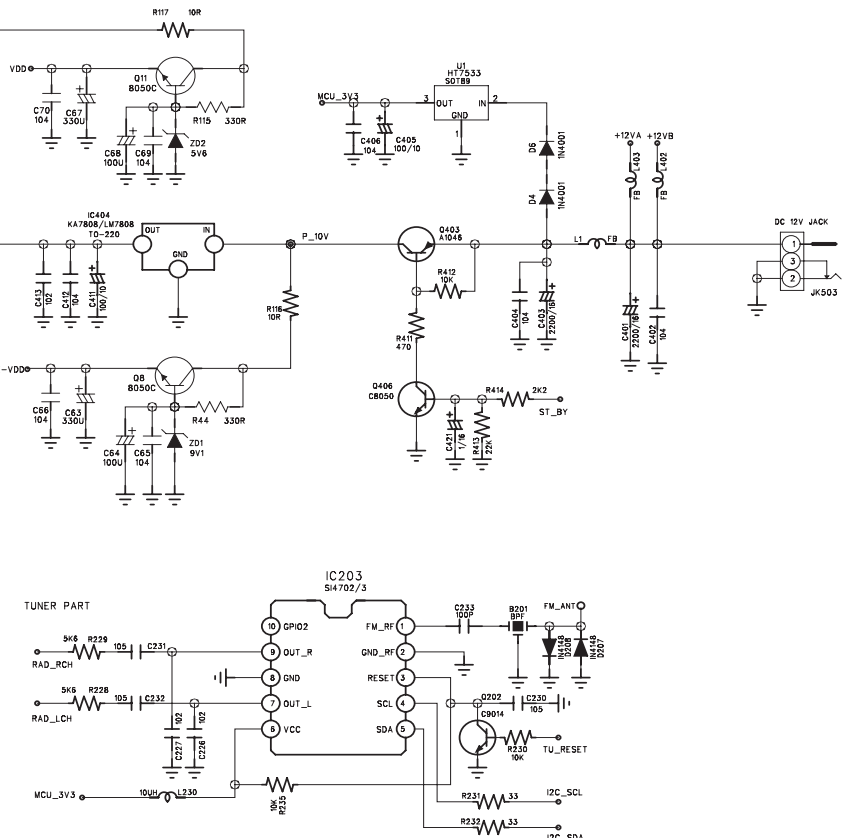
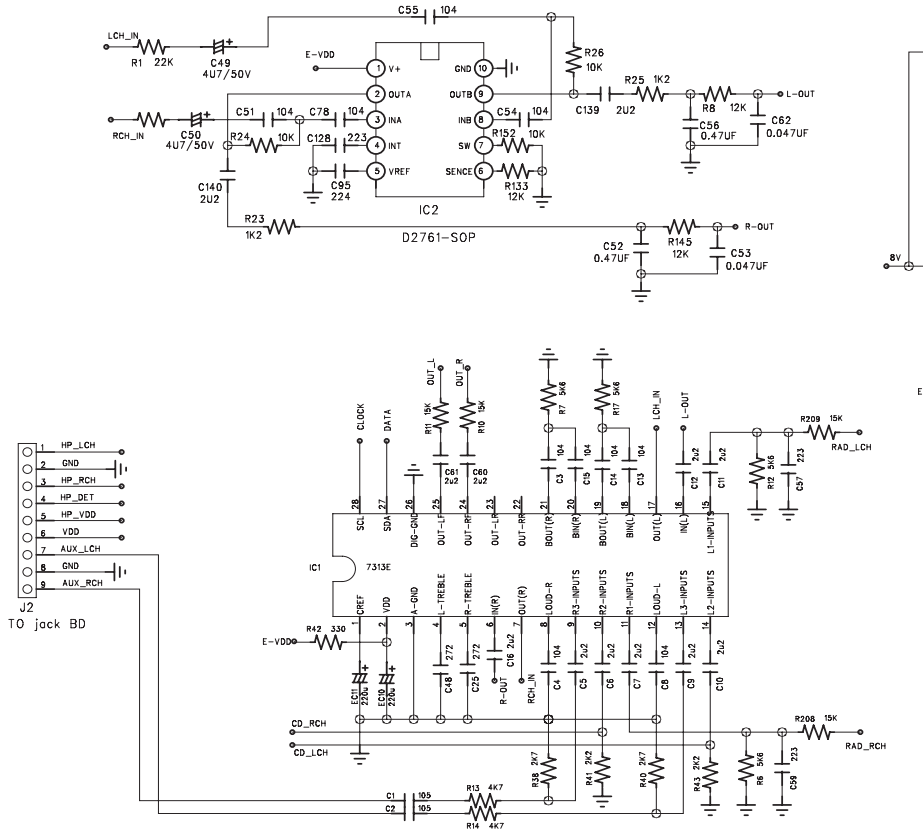
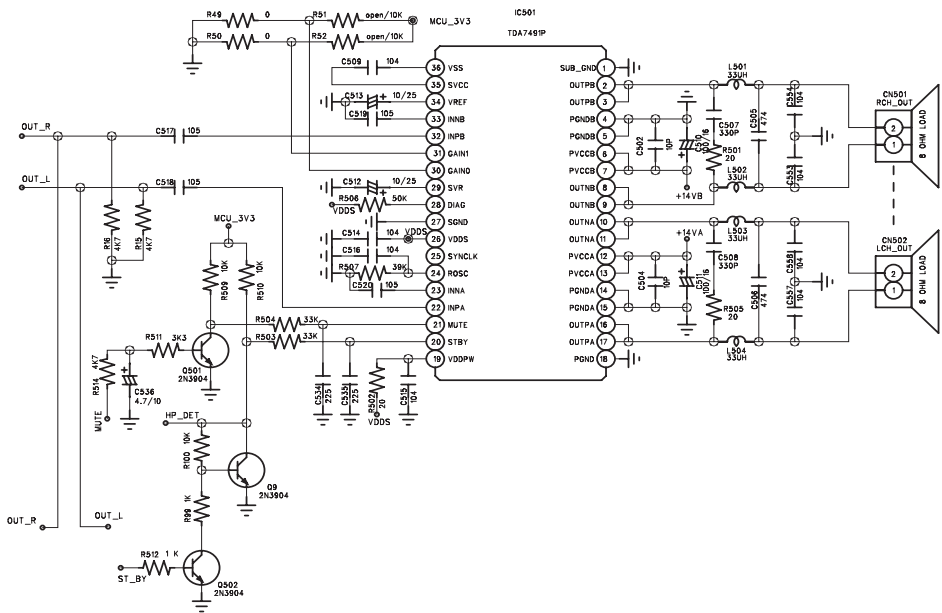
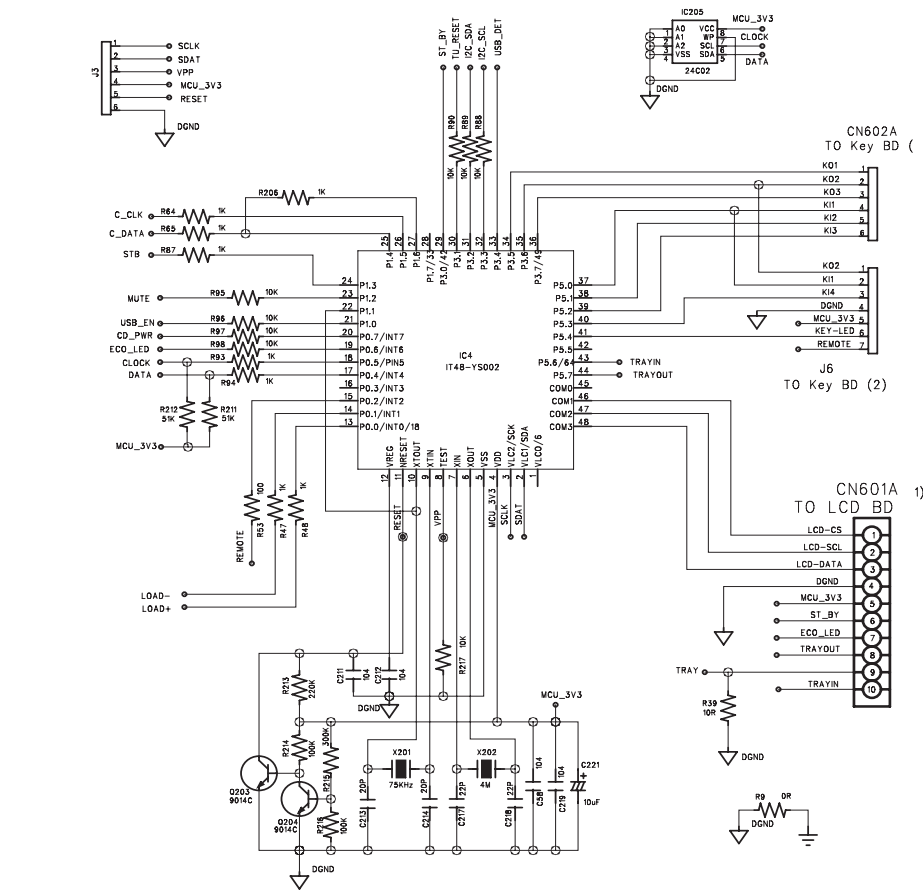


pic 7-2

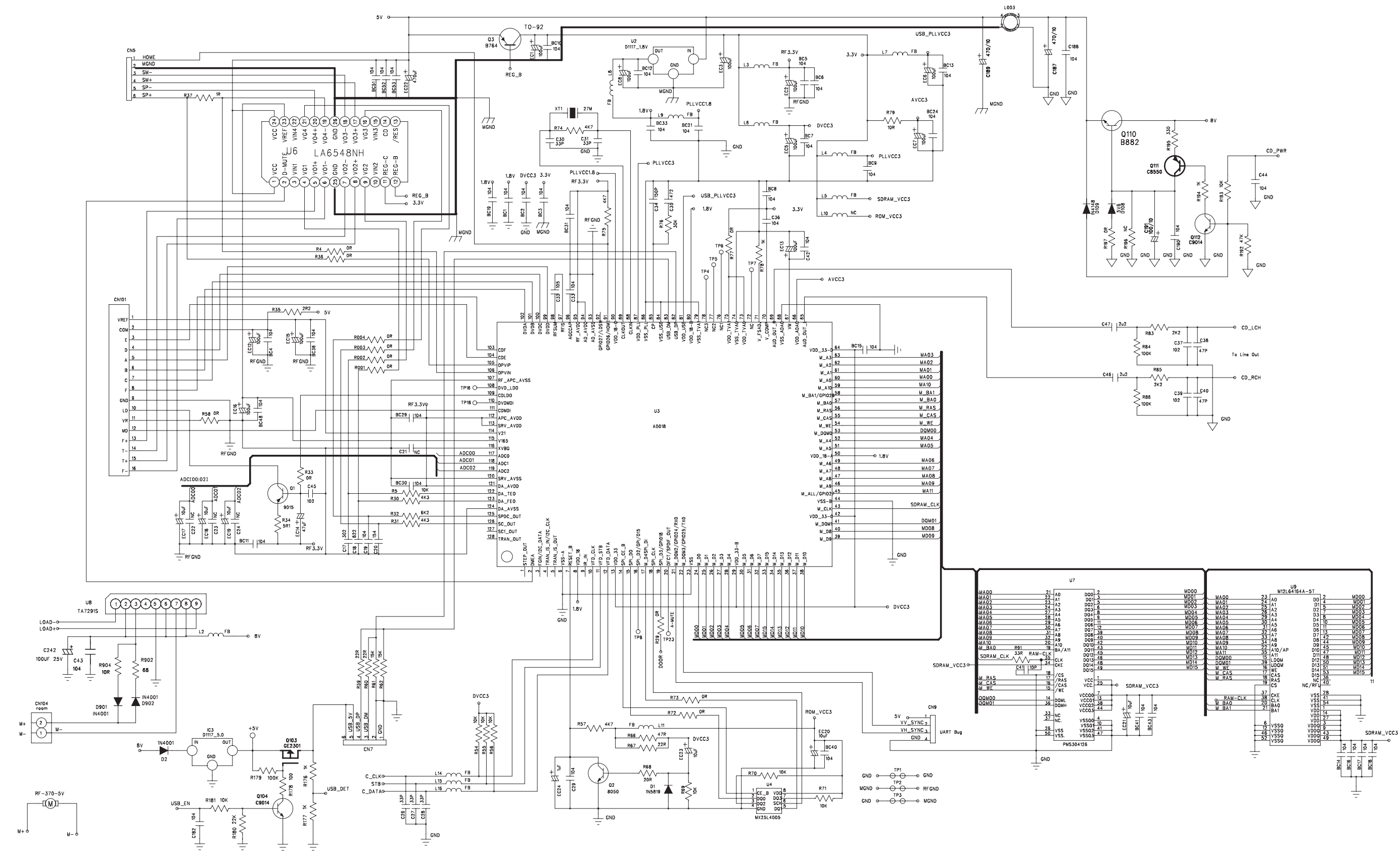


pic 7-3

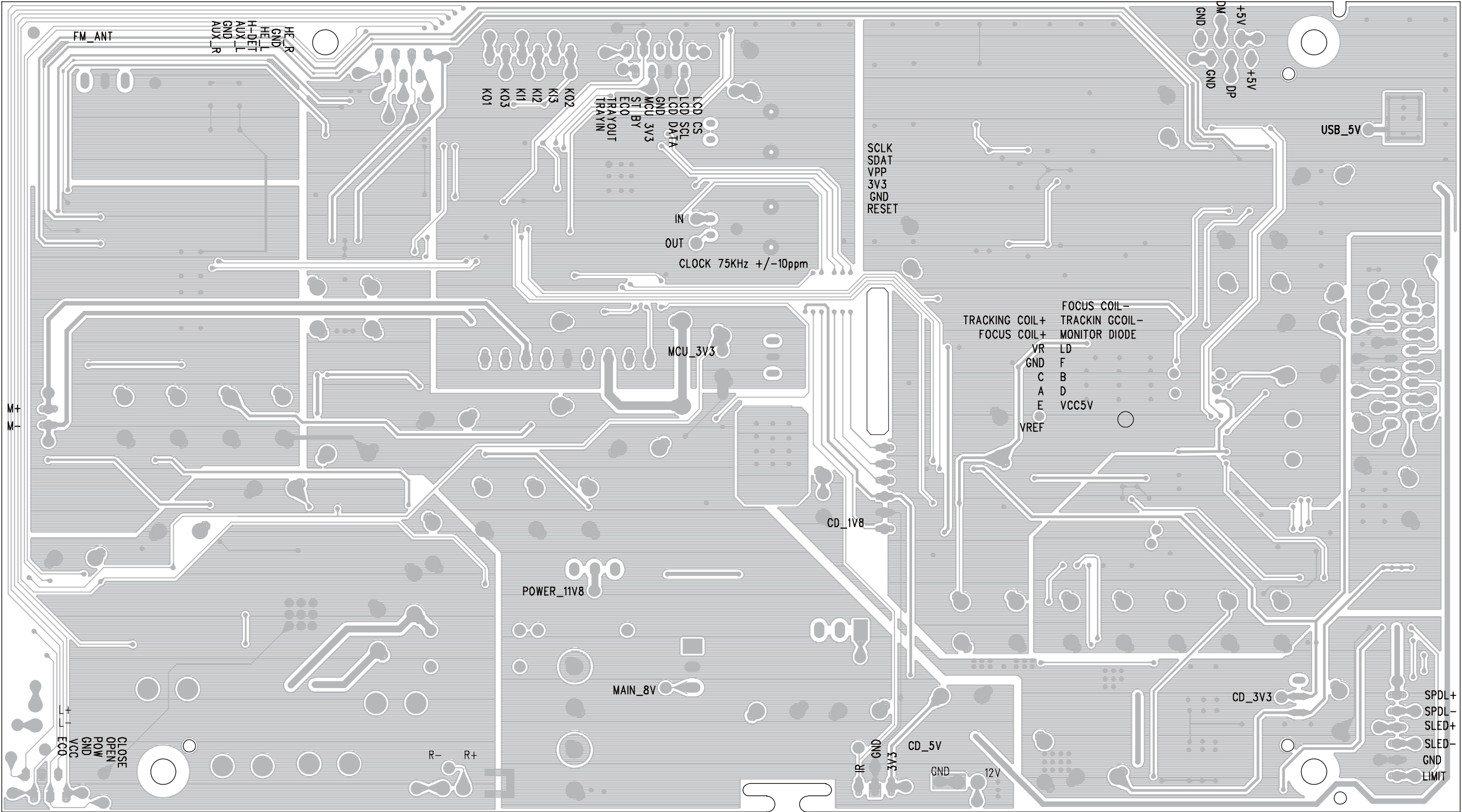
CIRCUIT DIAGRAM - MAIN BOARD
PART 1



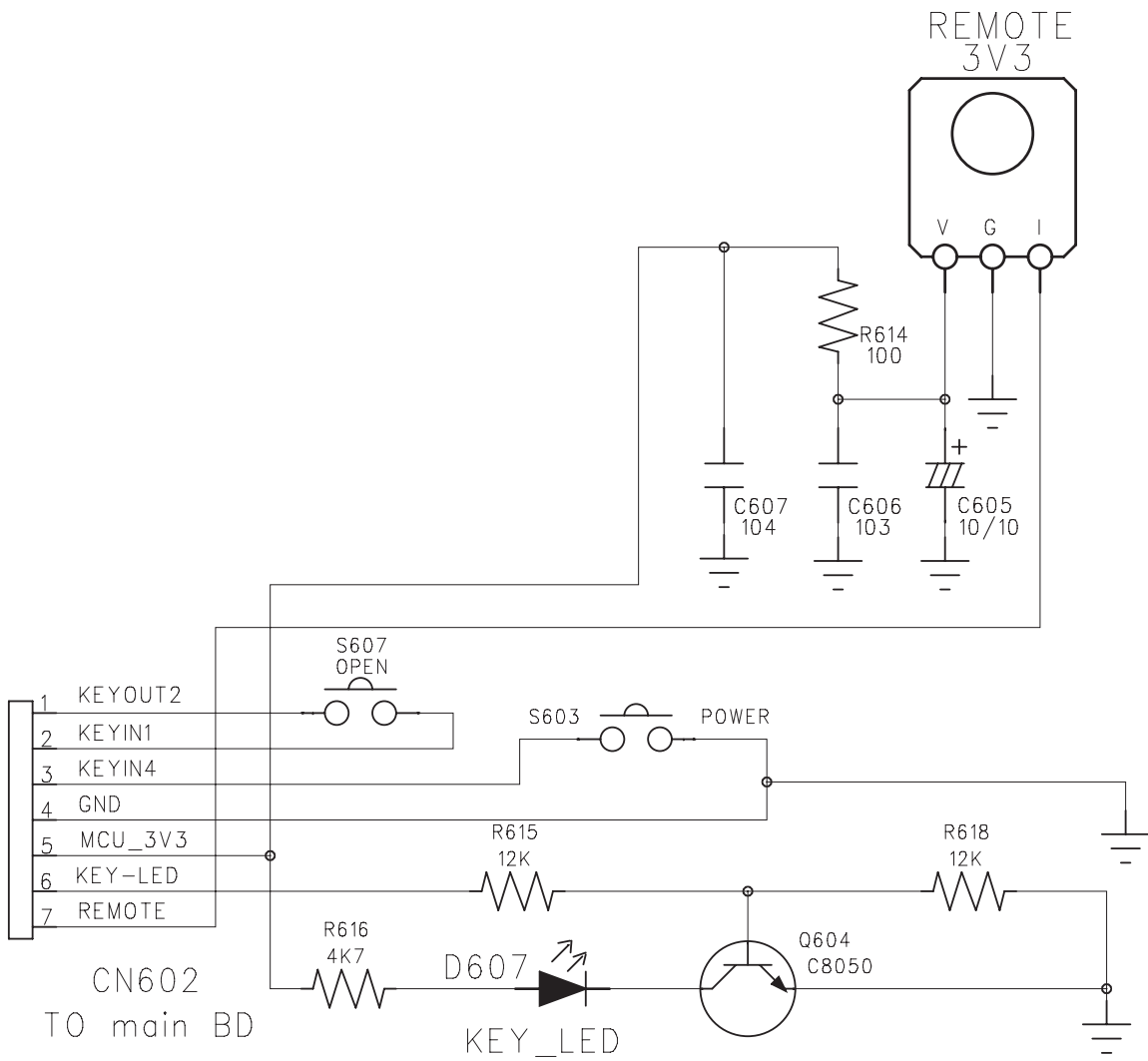
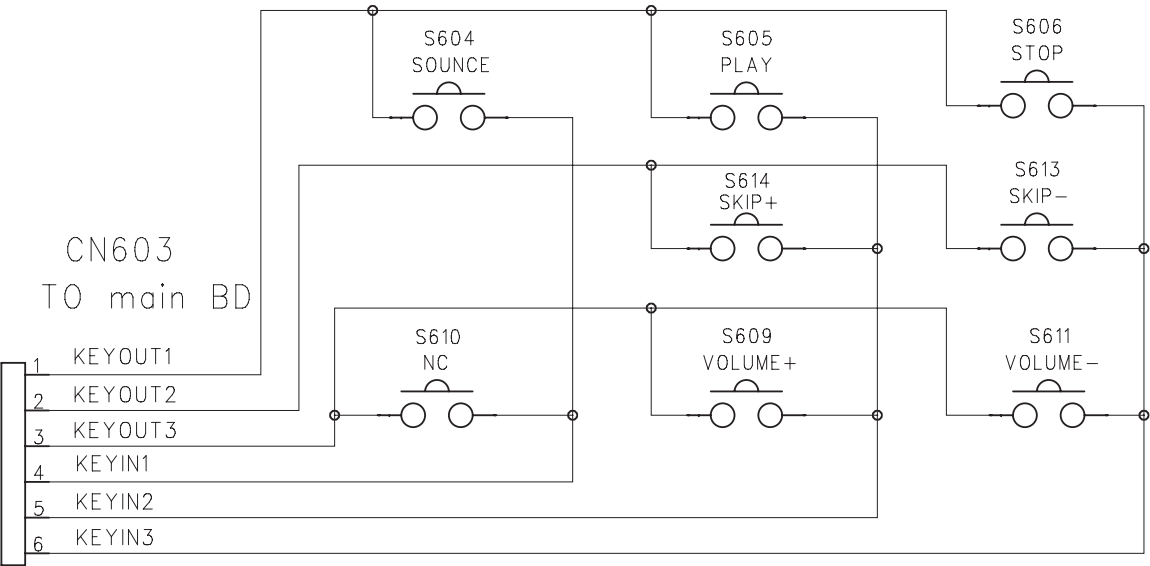
CIRCUIT DIAGARM - MAIN BOARD
PART 2



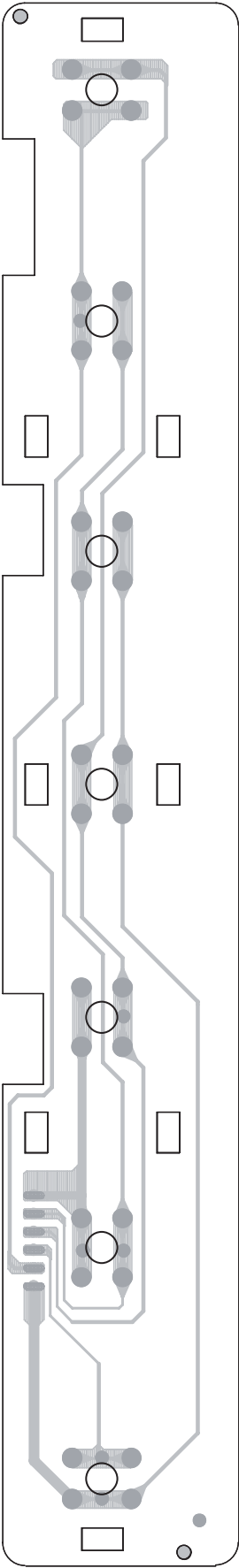
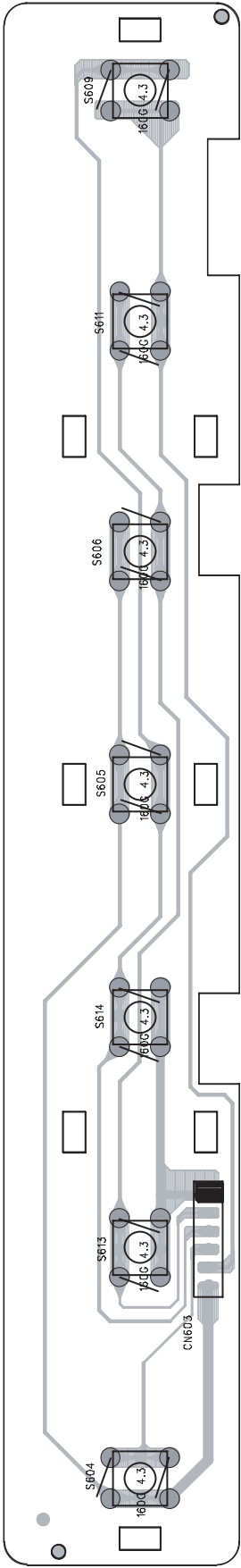
LAYOUT DIAGARM - MAIN BOARD
COPPER SIDE VIEW



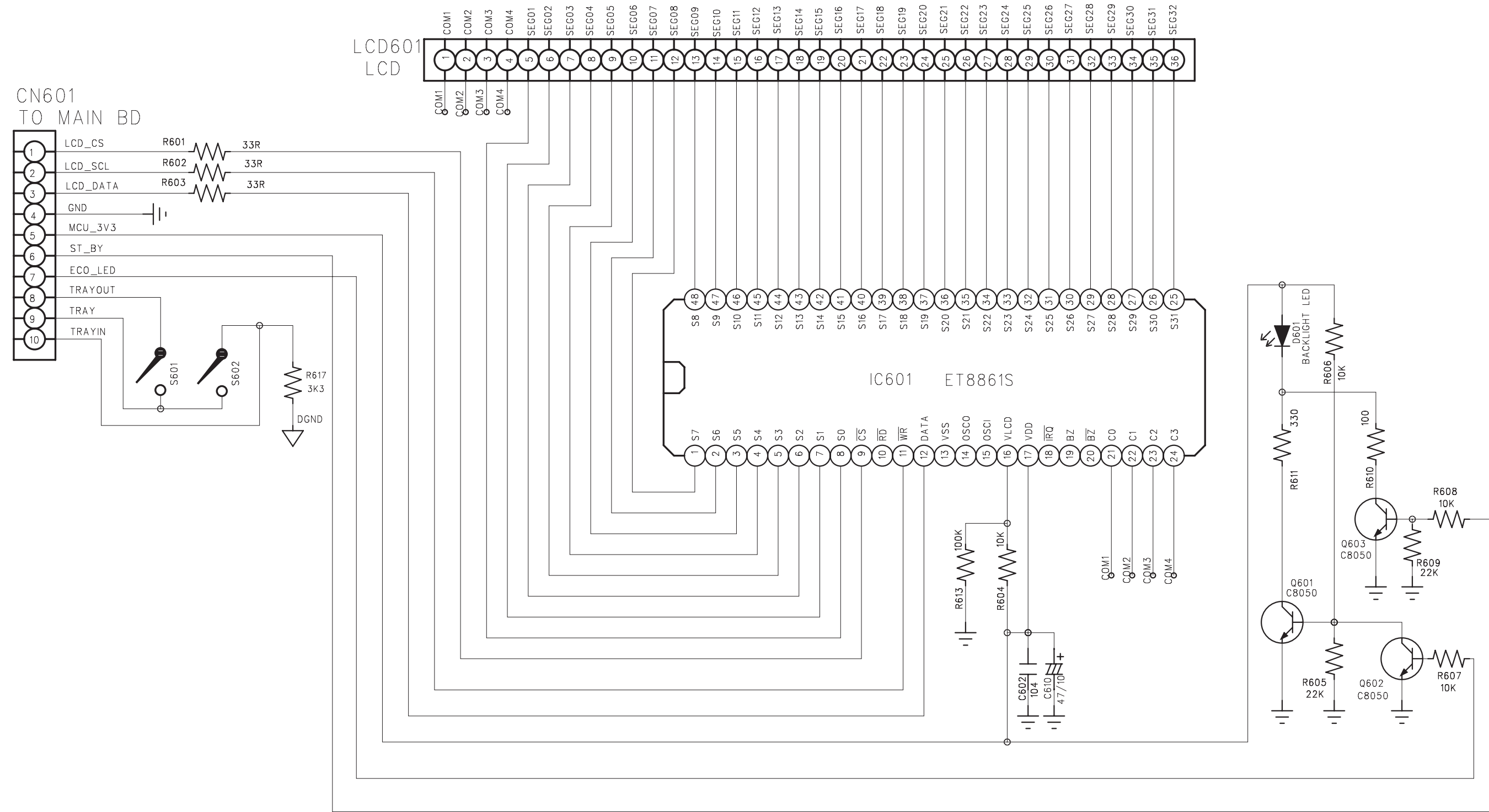
CIRCUIT DIAGRAM - KEY BOARD



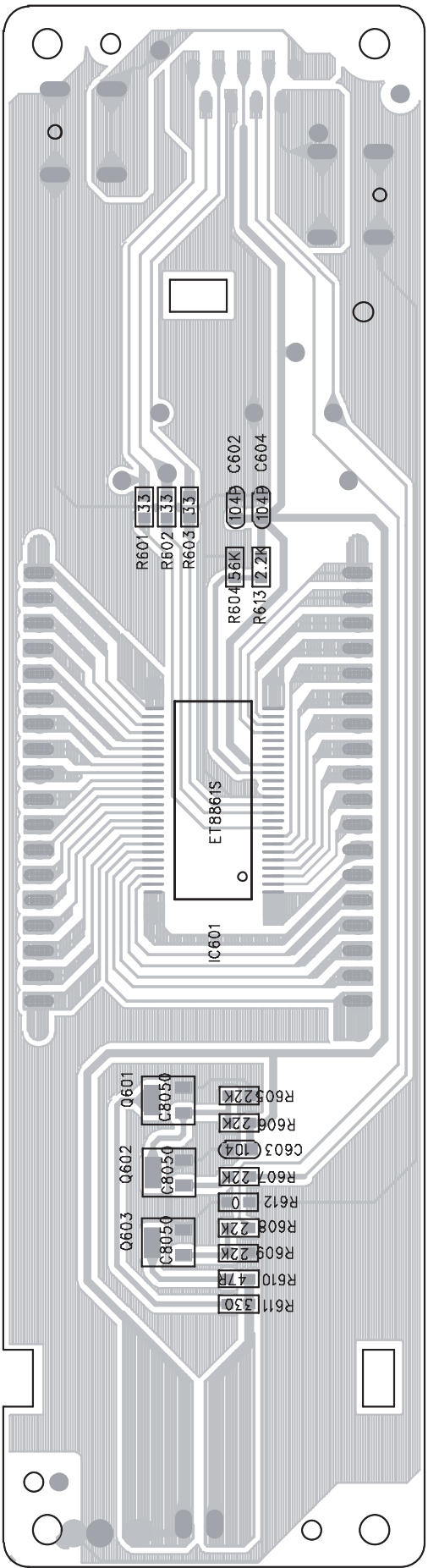
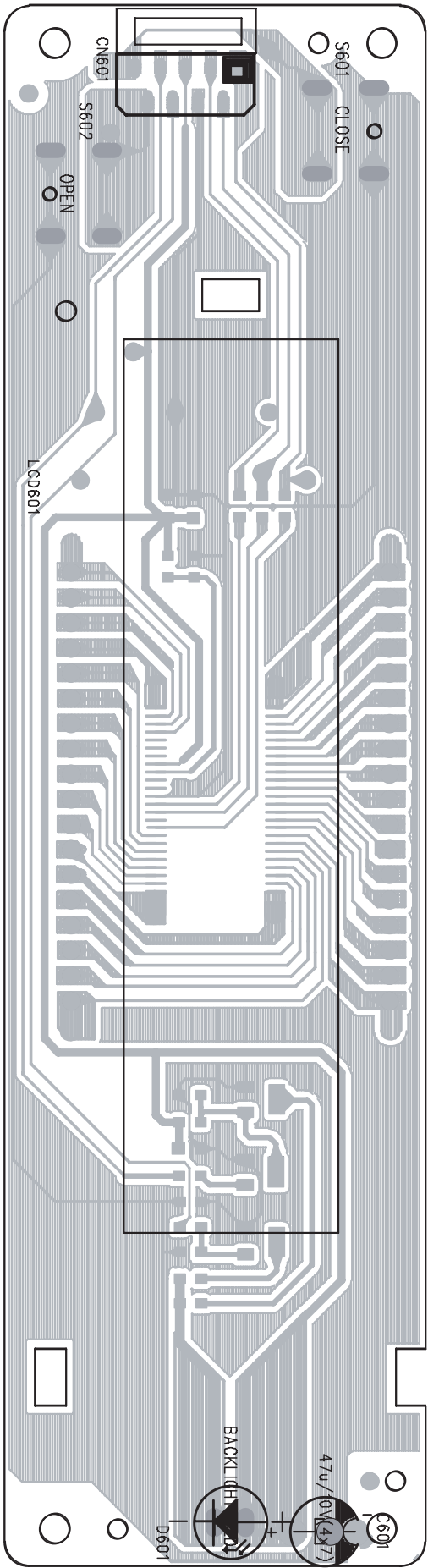
LAYOUT DIAGARM - KEY BOARD



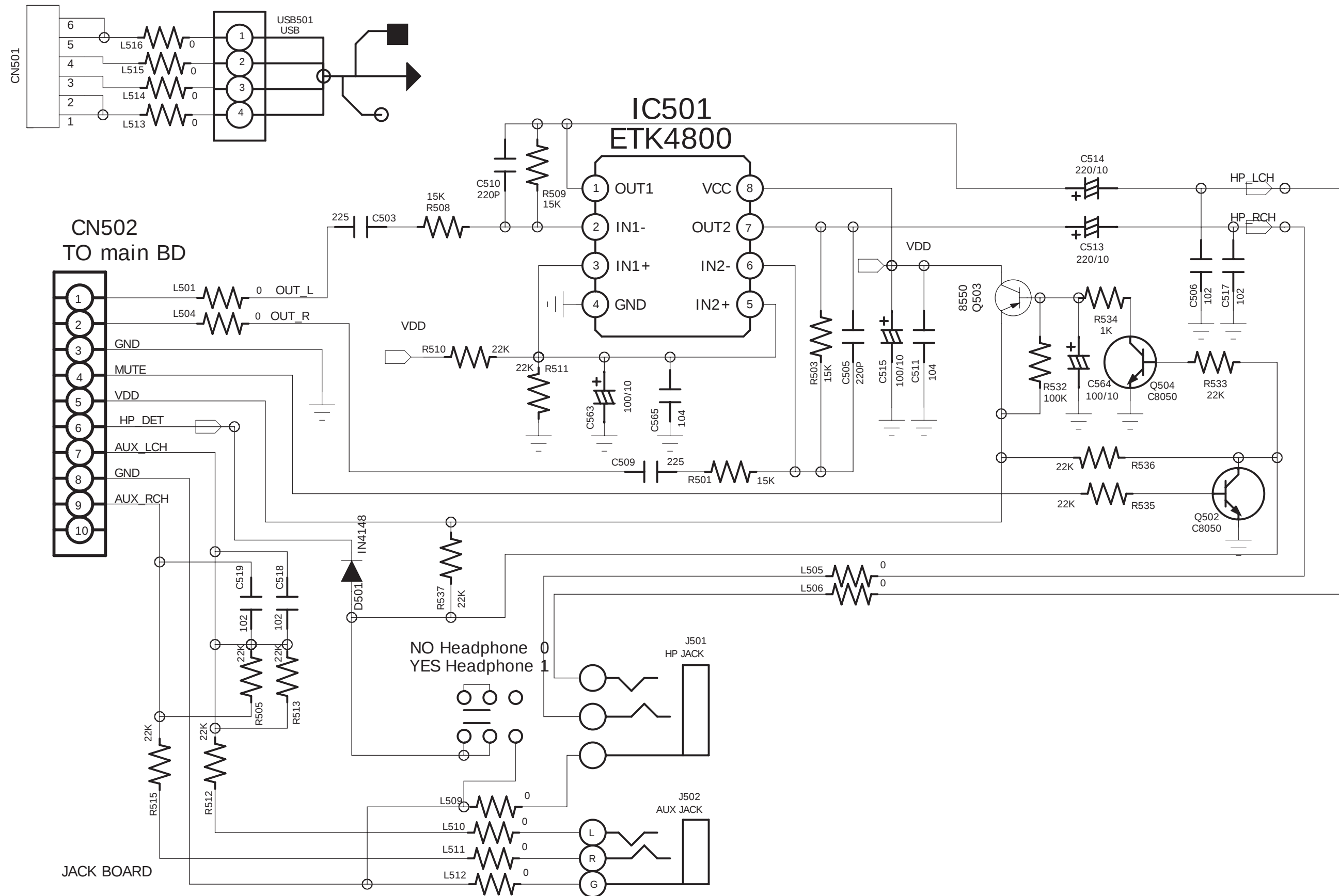
CIRCUIT DIAGARM - LCD BOARD



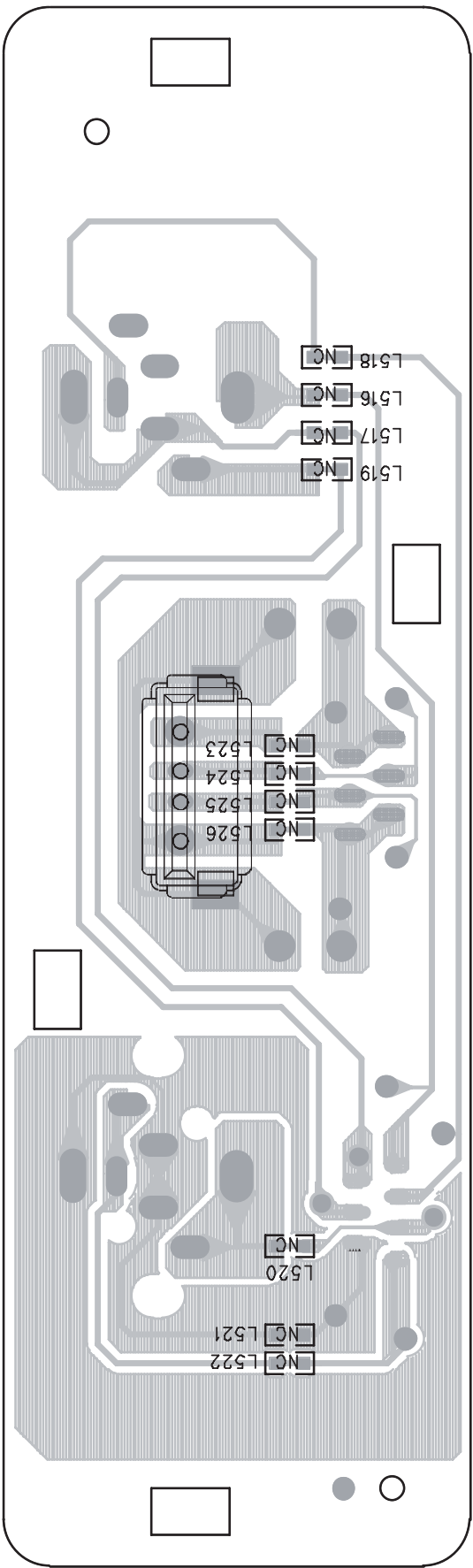
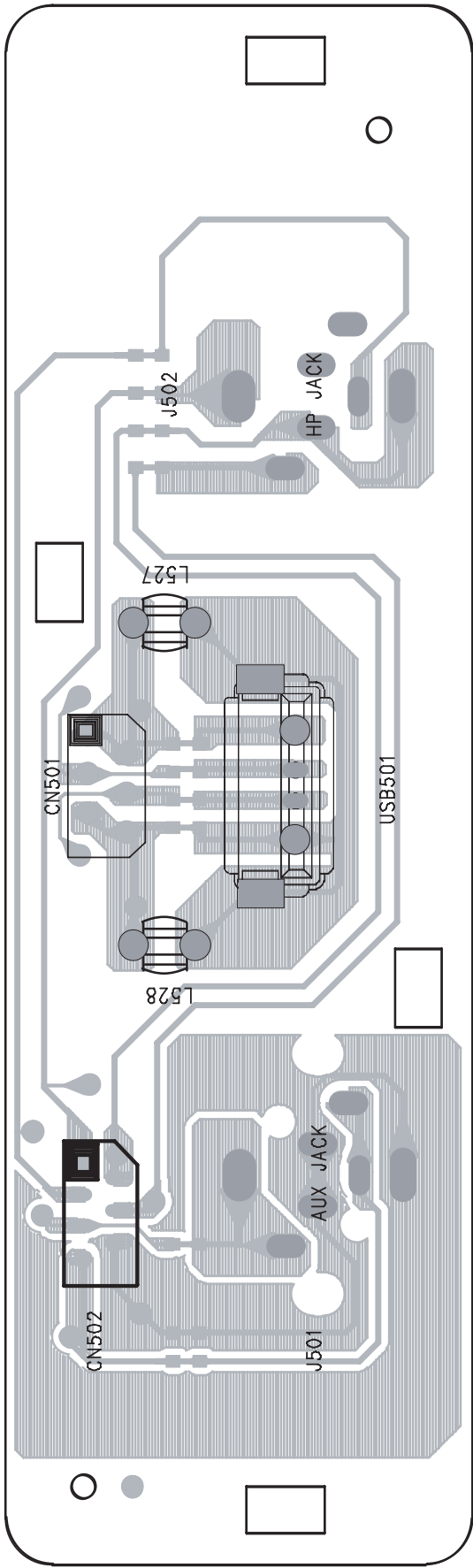
LAYOUT DIAGRAM - LCD BOARD



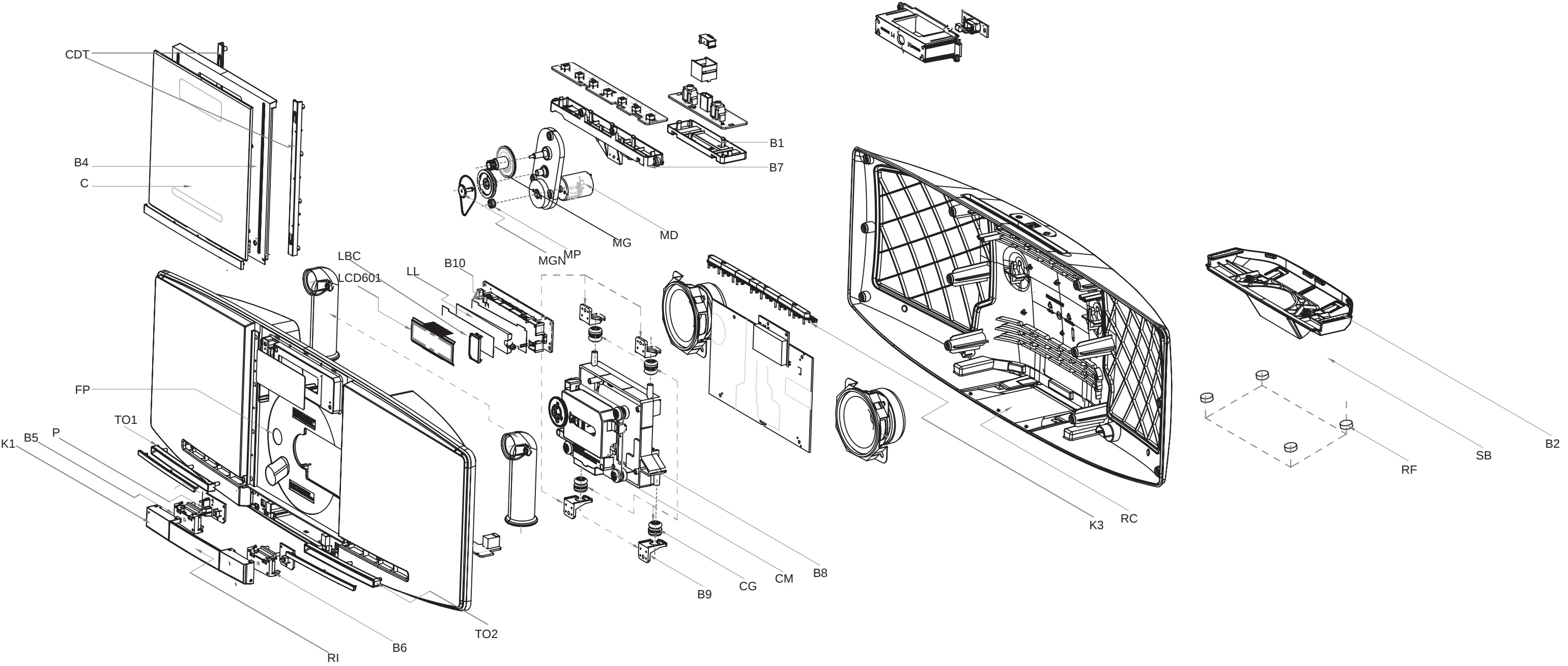
CIRCUIT DIAGARM - HEADPHONE BOARD



LAYOUT DIAGARM - HEADPHONE BOARD



EXPLODED VIEW DIAGRAM



REVISION LIST

Version 1.0 (3141 785 34890)

* Initial Release

Version 1.1 (3141 785 34891)

* Add /55

Version 1.2 (3141 785 34892)

* Add /78

Version 1.3 (3141 785 34893)

* Add /98

Version 1.4 (3141 785 34894)

* Add /58

Service Service Service



Service Manual

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Published by Lynn wk1432 Subject to modification

**CLASS 1
LASER PRODUCT**

Version 1.0



PHILIPS

Location of PCBA & Version Variation 1-1

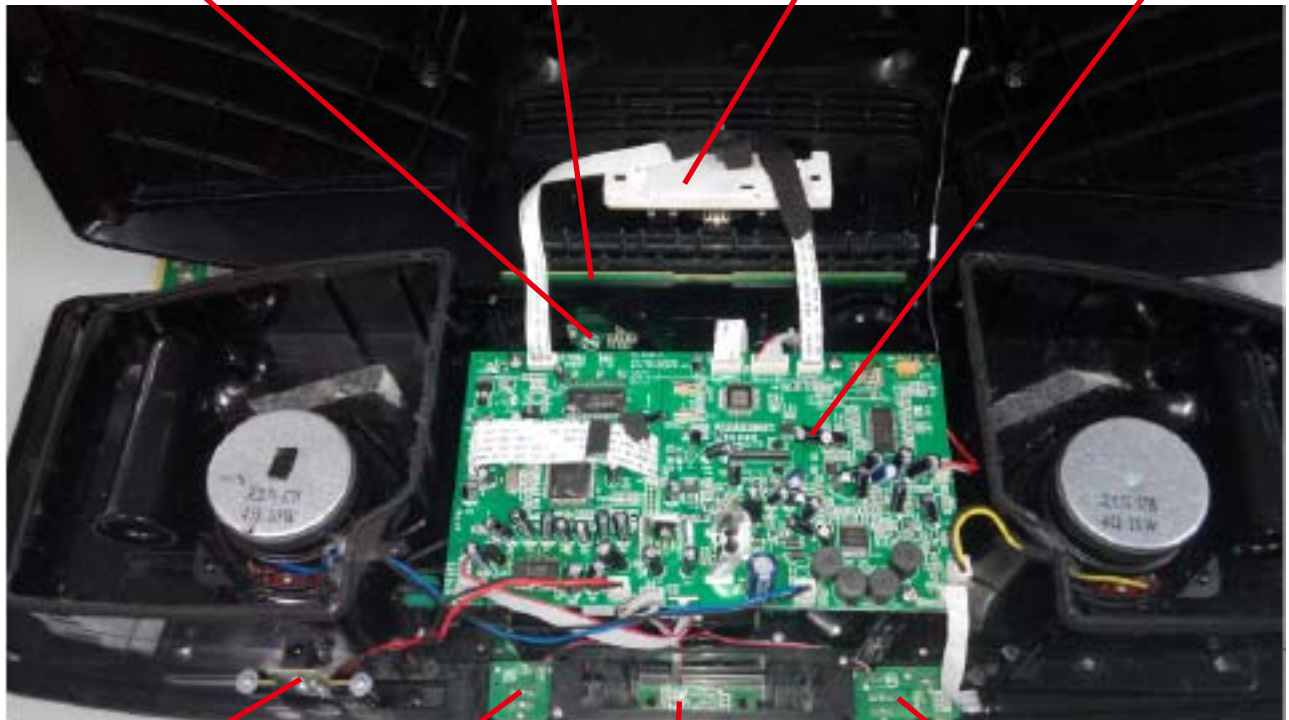
Type /Versions: Service policy	MCM233	
	Board in used:	/12/55
MAIN BOARD		M+C
KEY BOARD		M+C
LCD BOARD		M+C
USB BOARD		M+C
POWER BOARD		M+C
REMOTE RECEIVE BOARD		M+C
OPEN BOARD		M+C
POWER KEY BOARD		M+C
Type /Versions: Feature difference	MCM233	
	Features	/12/55
RDS		
VOLTAGE SELECTOR		
ECO STANDBY - DARK		
* TIPS : C -- Component Lever Repair. M -- Module Lever Repair √ -- Used		

LCD BOARD

KEY BOARD

UCB BOARD

MAIN BOARD



POWER BOARD

OPEN BOARD

REMOTE RECEIVE BOARD

POWER+KEY BOARD

Technical specification 2-1

GENERAL DESCRIPTION

Micro Hi-Fi System with PLL Tuner , CD-MP3, USB 10W * 2
MP3 LINK , Remote Control

LIFETIME : 7 Years

Class	Tuner	Supply + Amplifier	Loudspeaker Boxes	USB	CD	Clock	MP3 LINK
I			X				
II	X	X			X	X	X
III							
Page	9	4,5	4	6	7	8	10

SAFETY requirements

Version	Safety	EMC
55/	IEC60065	
98/	IEC60065	

RADIATION / IMMUNITY requirments (EMC)

CLIMATIC requirements

ALL climates : + 5 Dregree till + 35 Degree
MODERATE climates : + N.A till N.A Degree

PERFORMANCE CLASSES

POWER SUPPLY

MAINS (A.C.)	100/240 Vac(AC/DC Adaptor)	
Version	/55/98	
Voltage Selection	NO	
Frequency	60/50Hz	

POWER CONSUMER

	MCM233 /55/98	
Stadby :		
(DEMO mode " OFF ") , NOM. A, INPUT		
Maximum :	/	
@ 1/8 Prated , NOM. A, INPUT		
ECO Power mode :	/	

Q and R according to Product Division Rules

Quality : 0.4 % (Major) 1.5 % (Mirror)
Reliability : 2.0 % (C 42)

Tested according to General Test Instruction refer to PHILIPS standary (UAN -D1591)

Measured according to PHILIPS standary (UAN - L1059) unless other wise stated

All not mentioned date, please refer to PHILIPS standary (XUW - 0010 - jun 2001)

DERIVED	REMARKS	APPROBATION

Remarks

GENERAL PART 1 - GENERAL SPECIFICATION

Class No		Ver	Issued Date
		1	2009-9-22
		2	
		3	
NAME :CY-QIN	10	SH 190 - 3	A4
CHECK	DATE; 2009-9-22	YUSAN INDUSTRIES LTD	

MCM233

Technical specification 2-2

TECHNIAL DESCRIPTION

Total power **20W**, matching LOUDSPEAKER of 2 x **8** R. TWO INPUT SOURCE, (Digital Sound Control)

GENERAL PART

OUTPUT stage Protection : Yes Temperature : YES Shorcircuit : Yes
LoudSpeaker D.C. Protection : Yes.

INDICATORS

Standby Mode Indicator : LCD display Clock active, LED backlight turn ON
ECO Mode Indiicator : LCD turns off, ECO - Standby LED turn on (Only for 12/05)

ELECTRICAL DATA

DSC :	Rock, Jazz, Optimal, Techno	Channel Differencer at -46dB	3	dB
DBB	OFF	Hum (Volume Minimun -)	< 0.5	μW
SIS :	N/A	Residual Noise (Volume Minium)	0.06	μW
VAC :	N/A	Channel Separation (at 1 kHz)	≥ 35	dB
WOOX :	N/A	Signal / Noise (weighted)	≥ 55	dB

INTERCONNECTS

Input Sensitivity(±2 dB)rated ouput power at 1 kHz and 10kHz. Line Output Voltage (*1)

Tuner	:	FM MODE 75KZH /(CD -6dB)	Line Out (Left / Right)	N.A
CD / USB	:	0 dB track (Audio Disc 1, Trk 35)	Subwoofer Out	N.A
TAPE	:	NC	Headphone	700mV, RL = 32Ω
MP3 Link	:	Nor: 500mV Lim: 350mV ~ 800mV CD 0dB	Digital Coaxial Out	N.A
AUX IN	:	NC	Booster Out	N.A

OUTPUT POWER (* 1) At THD = 10% (Measured with 20Hz-22KHz filter),

Power output (RMS)	channel	10W *2 (1*)

LOUDSPEAKER (BOXES)

Please to package document of Speaker Box Assy

Rated Impedance

: **8** Ohms at Bass driver,

Remarks

(*1) Electrical parameters are to be measurement at specker terminals across **8** Ohm load (pure resistor)
with rated input signal in AUX mode; DSC OFF mode with DBB OFF
IS off unless specified otherwise

GENERAL PART 1 - TECHNICAL SPECIFICATION

Class No	MCM233		Ver	Issued Date
			1	2009-9-22
			2	
			3	
NAME : CY-QIN	10	SH 190 - 4		A4
CHECK	DATE : 2009-9-22	YUSAN INDUSTRIES LTD		

Technical specification 2-3

AUDIO SIGNAL PROCESSING

Micro Hi-Fi System with PLL Tuner ,USB, CD-MP3, 10W/ TWO channel Universal Class AB Power Amplifier

1) DSC (Digital Sound Control)

Input sinewave 500mV at 1kHz to R/L channel of MP3 Link socket

Set DSC to Flat mode

Adjust volume to obtain 500mW across 8 ohm load at R/L speaker output

The 500mW will be used as 0dB reference

Tabel 1a (Tolerance $\pm$ 3dB)

Frequency	DSC Modes with DBB Off VOL=20			
	JAZZ	ROCK	CLASSIC	POP

2) DBB (Dynamic Bass Boost)

Play CD testing signal of 1KHZ

Set DSC to FLAT mode and switch off DBB

Adjust volume level will be as "18"

Tabel 2 (Tolerance $\pm$ 3dB)

Frequency	DBB OFF	DBB ON		

Remarks

GENERAL PART 1 - AUDIO SIGNAL SPECIFICATION (1)

Class No		MCM233		Ver	Issued Date	
				1	2009-9-22	
				2		
				3		
NAME :CY-QIN			10	SH 190 - 5		A4
		CHECK	DATE : 2009-9-22	YUSAN INDUSTRIES LTD		

Technical specification 2-4

TECHNIAL DESCRIPTION

USB

See also SH 190 USB Audio Module (300605)

Measurment are directly done at the coonector on the board

GENERAL PART

Measurement are directly done at the connector on CDC board

Description	Specification
Output Resistance	< = 1.5 kOhm
Output Voltage RL = 33 k ohm ()dB, 1 Khz)	830mVrms +/- 1.5dB
Channel Unbalance	< = +/- 3 dB
THD + Noise (0dB, 1Khz)	<= 0.3 5
Channel Crosstalk (100Hz - 16,000 Hz)	>= 35 dB
(0 dB, 1 KHz)	>= 40 dB
Signal to Noise Ratio (0dB,1kHz)	>= 60dBA (A - weighted)
(100 - 16,000 Hz)	>= 55dBA (A - weighted)
Frequency Response (+/- 3dB), reference 1kHz	100Hz - 16kHz

Description	Specification

Remarks :

USB SPECIFICATION									
Class No		MCM233					Ver	Issued Date	
							1	2009-9-22	
							2		
							3		
NAME : CY_QIN				10		SH 190 - 6			
		CHECK		DATE :2009-9-22			YUSAN INDUSTRIES LTD		

Technical specification 2-5

TECHNIAL DESCRIPTION

CD + MP3 - Part Specifications

CD mechnism refer to Philips standard specification

GENERAL PART

Measurement are directly done at the connector on CDC board

Description	Extern Filter	Nom	Lim	Unit
Output Resistance	No		< 100	Ohms
Output Voltage - Unloaded (0dB , 1 kHz)	No	0.5	± 1	Vrms
Channel Unbalance	No		< ± 2	dB
Frequency Response (125 Hz - 16 kHz)	No		± 3	dB
Signal to Noise Ratio (Unweighted)	Yes	60	50	dB
Signal to Noise Ratio (A - weighted)	Yes	65	55	dBA
Crosstalk (1kHz)	Yes	65	55	dB
Crosstalk (125Hz to 16kHz)	No	<u>36</u>	<u>30</u>	dB
Hum & Noise (*1)	No	400	500	nW
Emphasis	-	/	/	/

Remark

CD / MP3 SPECIFICATION

Class No	MCM233				Ver	Issued Date
					1	2009-9-22
					2	
					3	
NAME :CY-QIN		10	SH 190 - 7			A4
	CHECK	DATE :2009-9-22	YUSAN INDUSTRIES LTD			

Technical specification 2-6

TECHNIAL DESCRIPTION

SOFTWARE IMPLEMENTED CLOCK / TIMER FUNCTION WITH 75.000kHz QUARTZ OSCILLATOR.

GENERAL PART

Timer Setting	:	Clock and Timer
Timer Wakeup Mode	:	LAST SETTING (MODE)
Remarks Time Setting	:	for 24hrs
Volume at Wakeup	:	Last Setting
No of Timer Settings	:	1
Clock Accuracy	:	Normal: 1 sec/day Limit : 2 sec/day

INDICATORS

Display Type	:	LCD
--------------	---	-----

Remark

CLOCK / TIMMER SPECIFICATION

Class No	MCM233		Ver	Issued Date
			1	2009-9-22
			2	
			3	
NAME :CY-QIN	10	SH 190 - 8		A4
CHECK	DATE :2009-9-22	YUSAN INDUSTRIES LTD		

Technical specification 2-7

TECHNIAL DESCRIPTION									
TUNER using SI4703									
GENERAL PART									
WAVE RANGE				TOLERANCE			TUNING GRID		
FM 87.5 - 108.00 MHz (98/55)				Quartz Precision			50KHZ		
NC									
AERIAL									
FM : PIG TAIL ANT									
MW : NC									
INDICATORS LCD DISPLAY									
ELECTRICAL DATA									
A.M		Nom	Limit	Unit	F.M.		Nom	Limit	Unit
					- 3 dB Limiting Point		:	17	23.5 dBf
Amplification Reverse		/	/	dB	Amplification Reverse		:	0	-4 dB
AGC Figure of Merit		/	/	dB	Distortion (RF 1mV, Frq Dev.75 kHz)		:	2	3 %
Distortion (RF 50mV, M 80%)		/	/	%	Stereo - 46 dB Quieting		:	46	49 dBf
IF		/	/	kHz	Crosstalk (RF1mV, Freq Dev.40kHz)		:	25	18 dB
					IF			/	/ MHz
Wave Range		Noise Limited Sensitivity 26 dB			Image Rejection dB	IF Rejection dB	Large Signal	Selectivity S3 / S9 / 300kHz dB	
MW 600 kHz		Nom.	1500uV/M		/	/	/	/	
		Lim.	4000uV/M		/	/	/	/	
MW 1400 kHz		Nom.	1500uV/M		/	/	/	/	
		Lim.	4000uV/M		/	/	/	/	
FM 98 MHz		Nom.		18dBf	/	/	116 dBf	30	
		Lim.		22dBf	/	/	108 dBf	25	
Remarks									
TUNER SPECIFICATION									
Class No		MCM233						Ver	Issued Date
								1	2009-9-22
								2	
								3	
NAME :CY-QIN			10		SH 190 - 9				A4
		CHECK	DATE :2009-9-22		YUSAN INDUSTRIES LTD				

Technical specification 2-8

TECHNIAL DESCRIPTION

MP3 Link

MP3 Link Part

	Nom.	Limit	Condition
SNR unwt'd.	60dB	50dB	500mV 1KHz input
SNR wtd. dBA	62dBA	57dBA	500mV 1KHz input
Crosstalk (different source, 1KHz)	60dB	50dB	500mV input
Crosstalk (different source, 10KHz)	60dB	50dB	500mV input
L, R Channel Separation	36dB	30dB	500mV input
Frequency response (-3dB)	100 to 10KHz (overall)		150mV input
THD (1KHz, 0dB)	2%	3%	500mV 1KHz input

AUX IN Part

SNR unwt'd.	/	/	/
SNR wtd. dBA	/	/	/
Crosstalk (different source, 1KHz)	/	/	/
Crosstalk (different source, 10KHz)	/	/	/
L, R Channel Separation	/	/	/
Frequency response (-3dB)	/	/	/
THD (1KHz, 0dB)	/	/	/

Description	Specification

Remarks :

USB SPECIFICATION

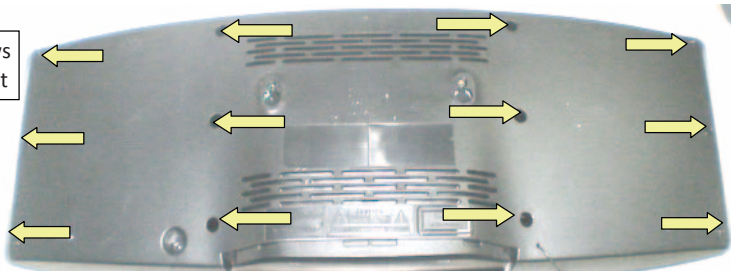
Class No		MCM233		Ver	Issued Date	
				1	2009-9-22	
				2		
				3		
NAME :CY-QIN			10	SH 190 - 10		A4
		CHECK	DATE :2009-9-22	YUSAN INDUSTRIES LTD		

A4

Disassembly drawing 3-1

MCM233 Disassembly Drawing

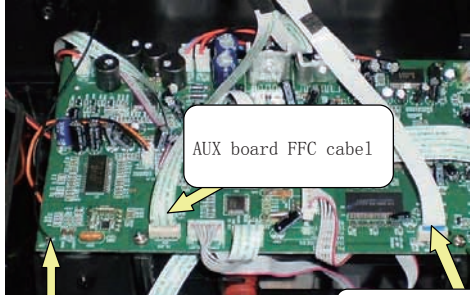
1.Loosen screws in rear cabinet



a. loosen 12 BT 3x12 screws in mainframe side

Electric screw driver
Torque: 4.5±0.5kgf.cm

2.Loosen rear cabinet and pull out the FFC cable and FM antenna

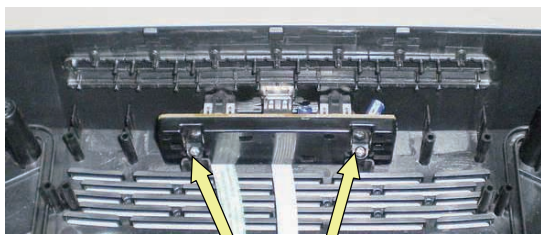


- a. take out the rear cabinet with hands and put well
- b. soldering fall the FM antenna from main board
- c. pull out FFC cable in AUX board and FFC cable in USB board from main board

Constant temperature searing iron: 380℃～410℃)



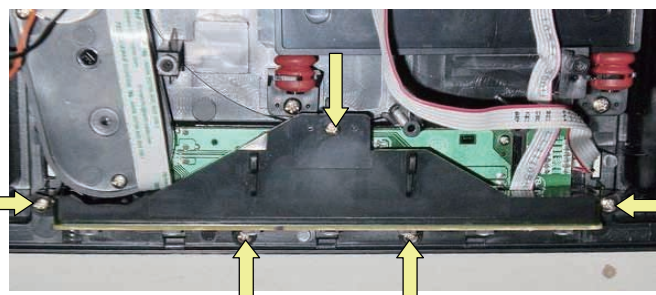
3. loosen USB board



- a. loosen 2 PA 2.6x8 screws of fixed USB board
- b. take out the USB board and put well

Electric screw driver
Torque : 3.0±0.5kgf.cm

4. Disassemble key board

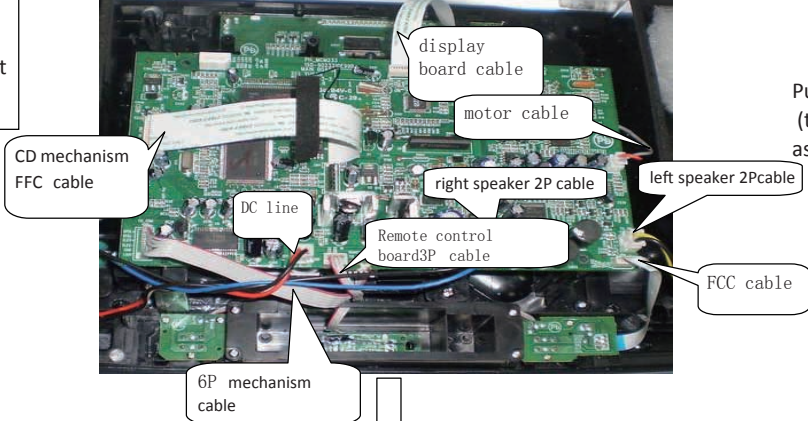


- a. loosen 5 PA 2.6x8 screws in key board side
- b. pull out the 6P cable on key board from main board
- c. take out the key board and put well

Electric screw driver
Torque : 3.0±0.5kgf.cm

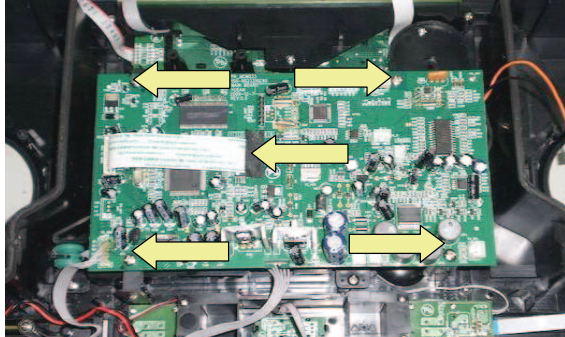


5. Pull out platooninsert



Pull out cables in main board (to avoid mangle the cable, the hands should be as near as possible to the socket)

6.Disassemble main board

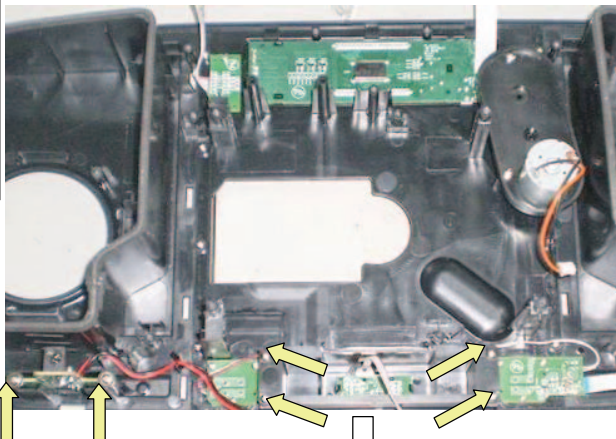


- a. loosen four PT 3x8 screws on main board
- b. tear off black velvet paper on the CD mechanism FFC cable
- c. pull out the main board and put well

Electric screw driver
Torque: 4.0±0.5kgf.cm



7. Disassemble remote control bracket / DC board

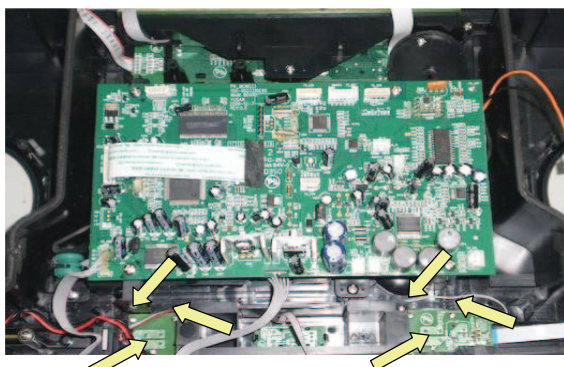


- a. loosen 4 PA 2.3x8 screws in remote control bracket
- b. loosen 2 PWB 2.3x8 screws in DC board
- c. take out remote control bracket and put well

Electric screw driver
Torque: 3.0±0.5kgf.cm

Note:make different screws put in different places

8. Disassemble OPEN board / power Switch board

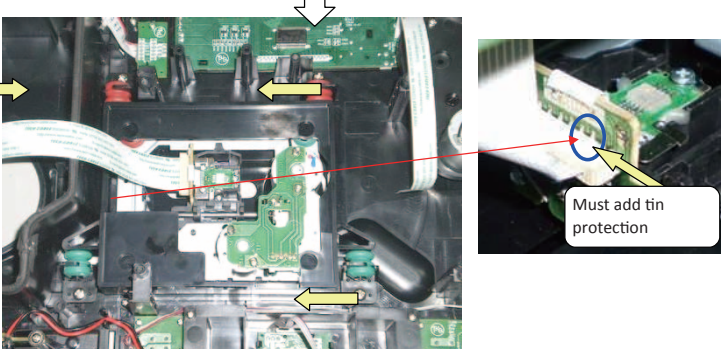


- a. loosen 3 PA 1.7x8 screws in OPEN board
- b. loosen 3 PA 1.7x8 screws in power Switch board
- c. take out the OPEN board / power Switch board and put well

Electric screw driver
Torque: 1.8±0.3 kgf.cm



9. Disassemble mechanism parts

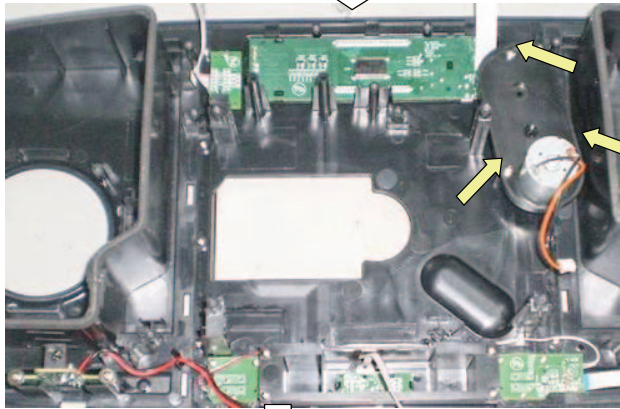


- a. loosen the four PT3x8 screws of mechanism parts
- b. the mechanism parts must add tin protection to the protect point on the mechanism and packed it with Anti-static bag

Electric screw driver
Torque: 4.0±0.5 kgf.cm
Constant temperature searing iron: (380℃～410℃)

Note: Don't touch mechanism bald head when pull out the CD mechanism

10. Disassemble motor parts

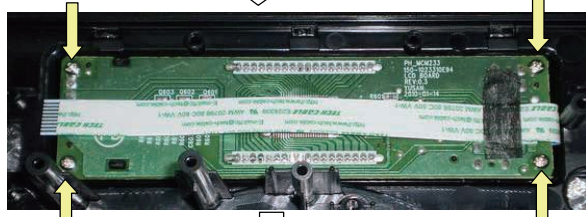


- a. loosen three PA 2.6x8 screws in motor parts
- b. take out motor parts and put well

Electric screw driver
Torque: 3.5±0.5kgf.cm



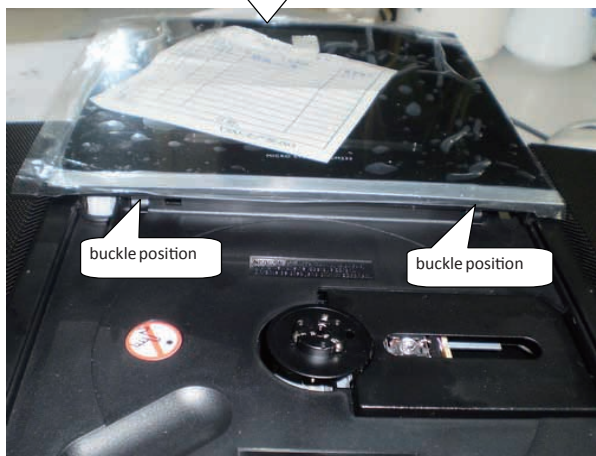
11. Disassemble display board



- a. loosen four PA 2.3x8 screws in display board
- b. pull out the display board and stick it by protective film then put well

Electric screw driver
Torque: 1.8±0.3kgf.cm

12. take the CD door



- a. hold the CD door with the right hand, press CD door and buckling with the left hand, then press other side buckling and pull out the CD door gently
- b. put the CD door well

please look at below picture

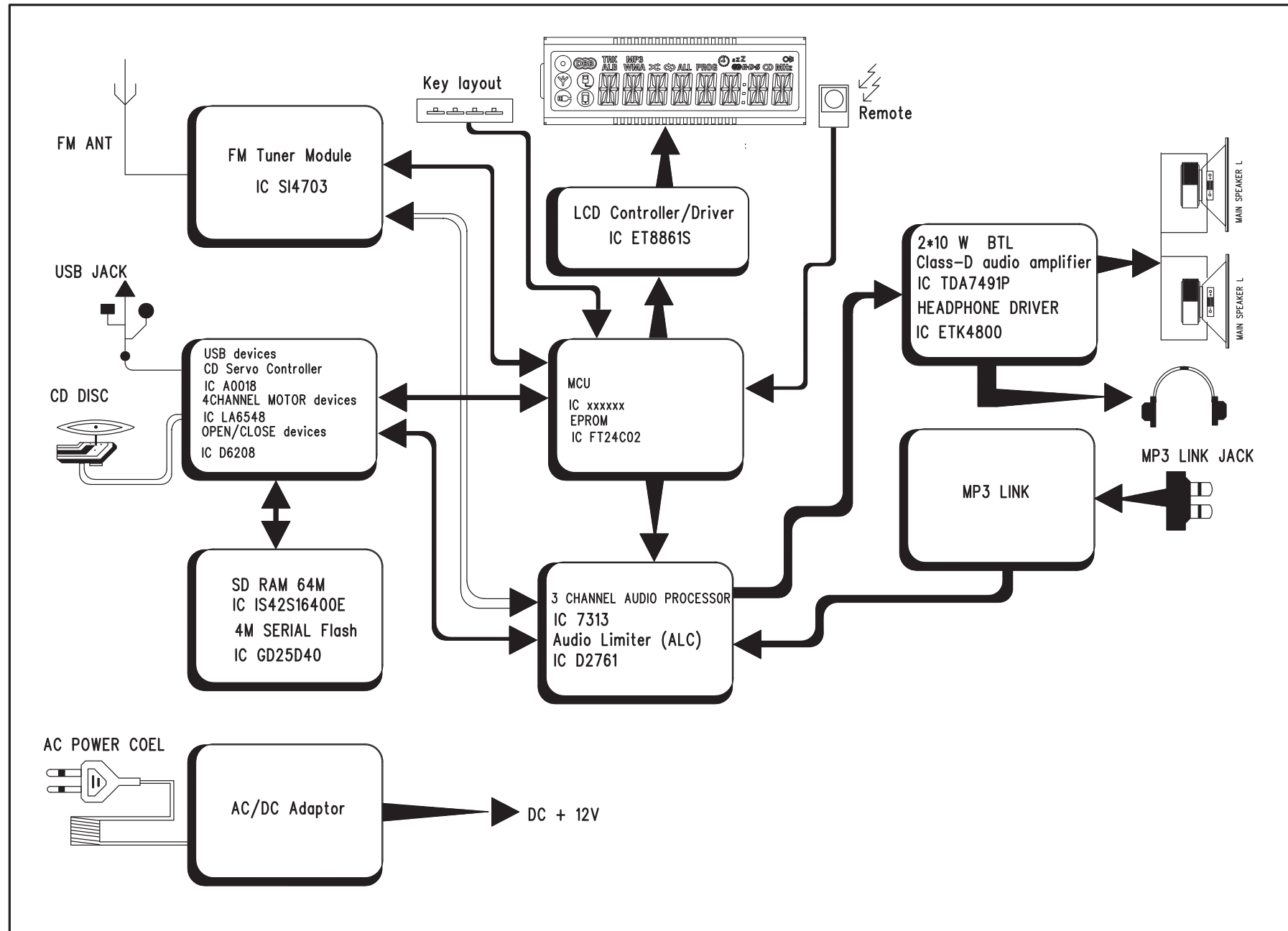


图1

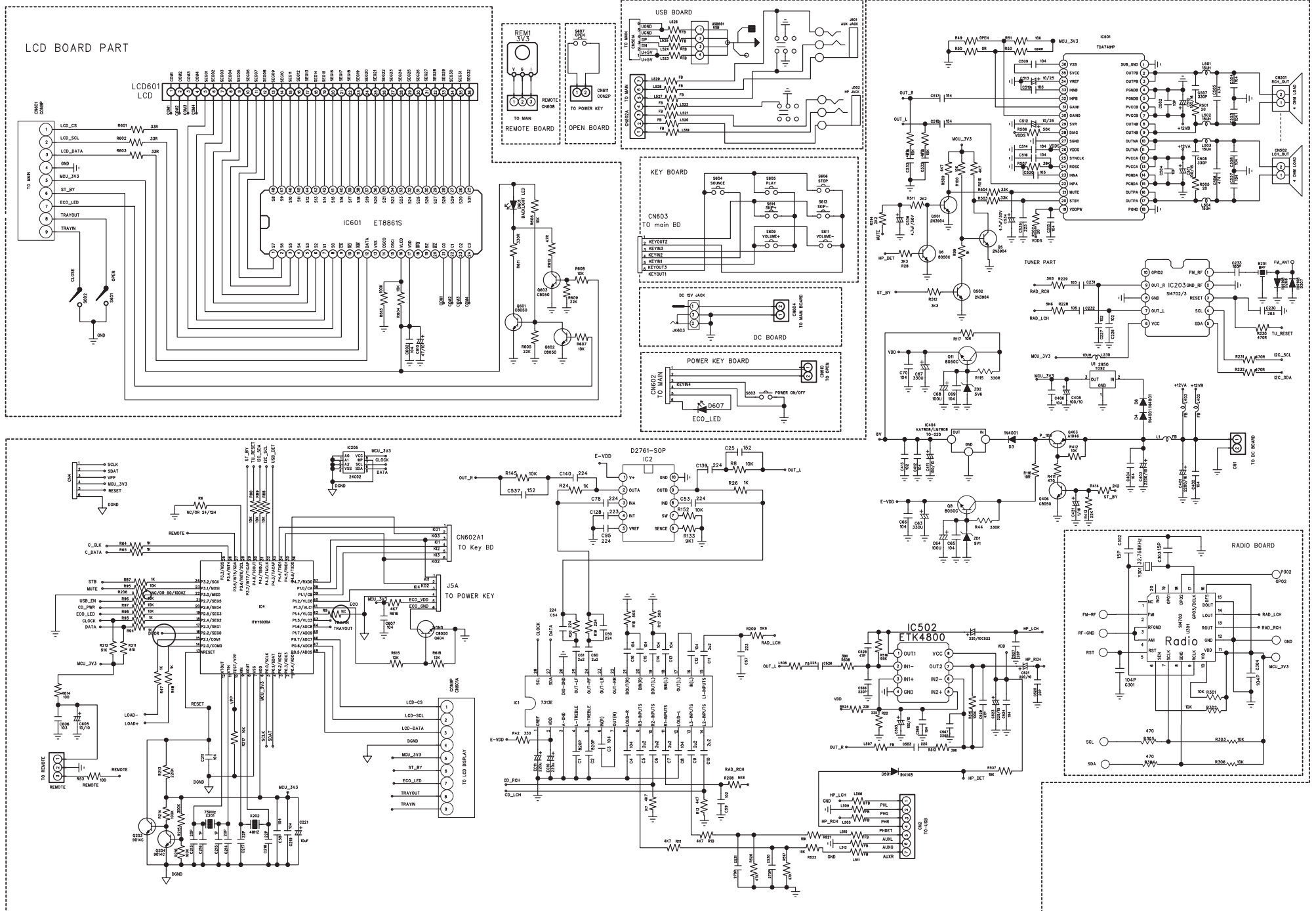


图2

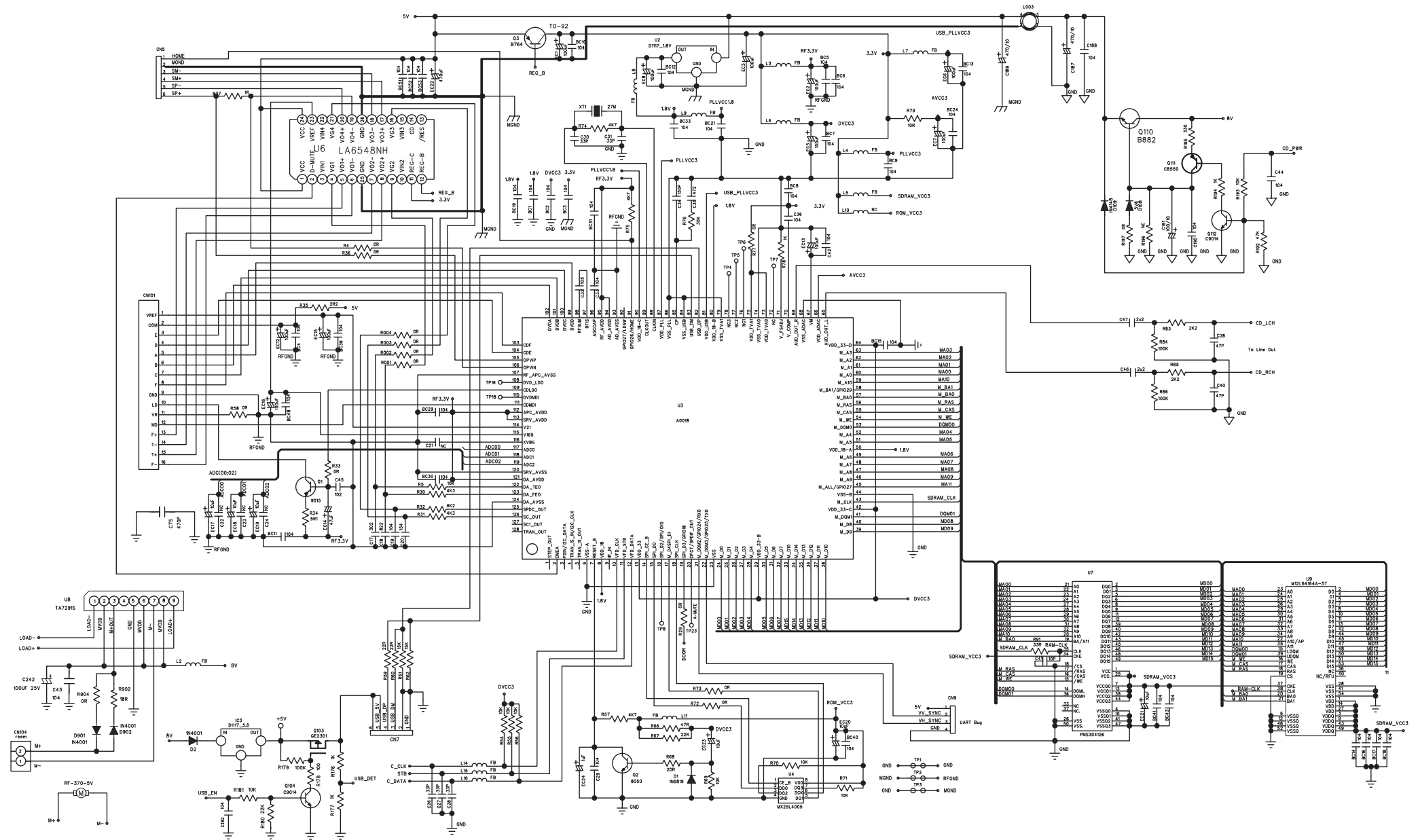
Block diagram 4-1



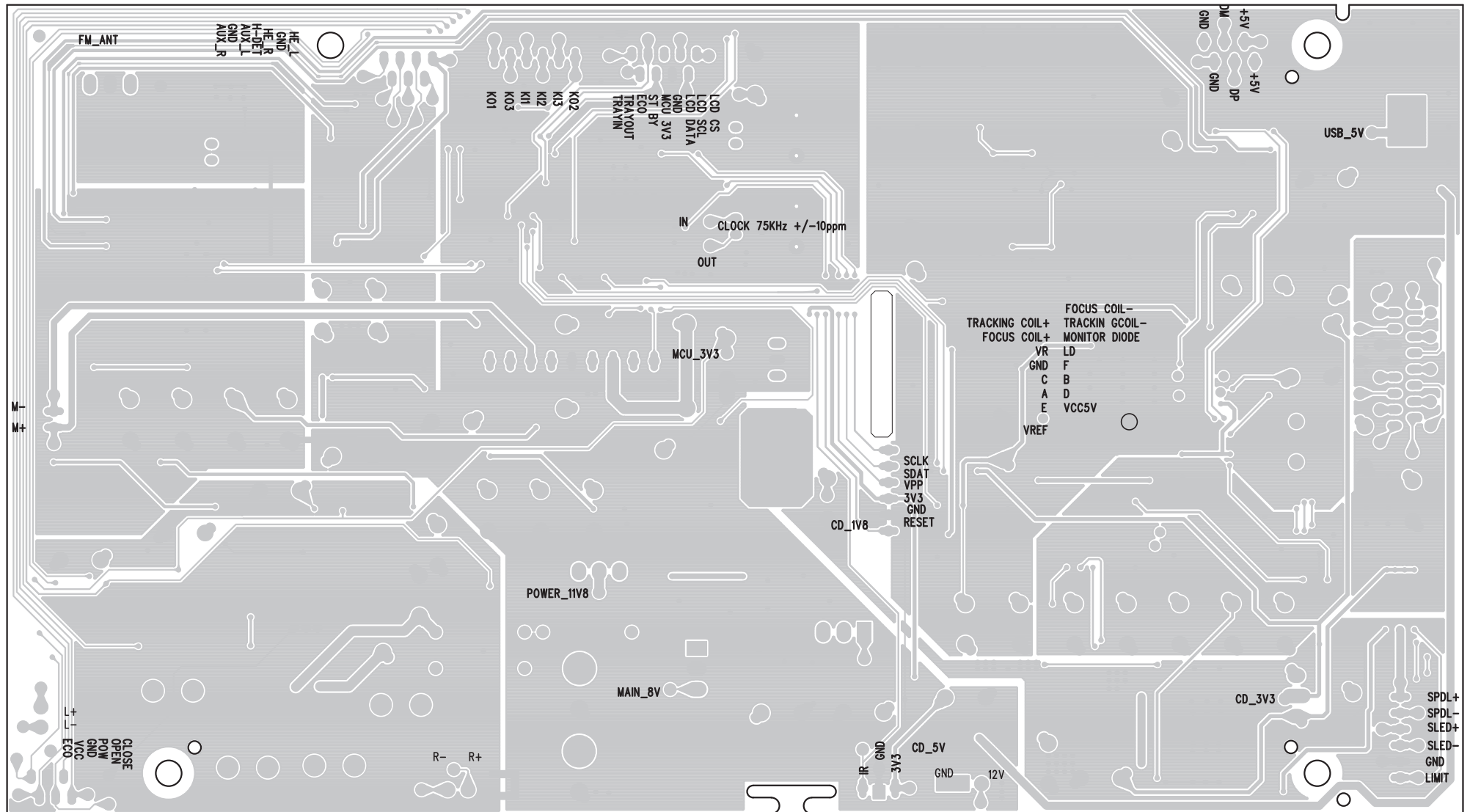
Circuit diagram 6-1



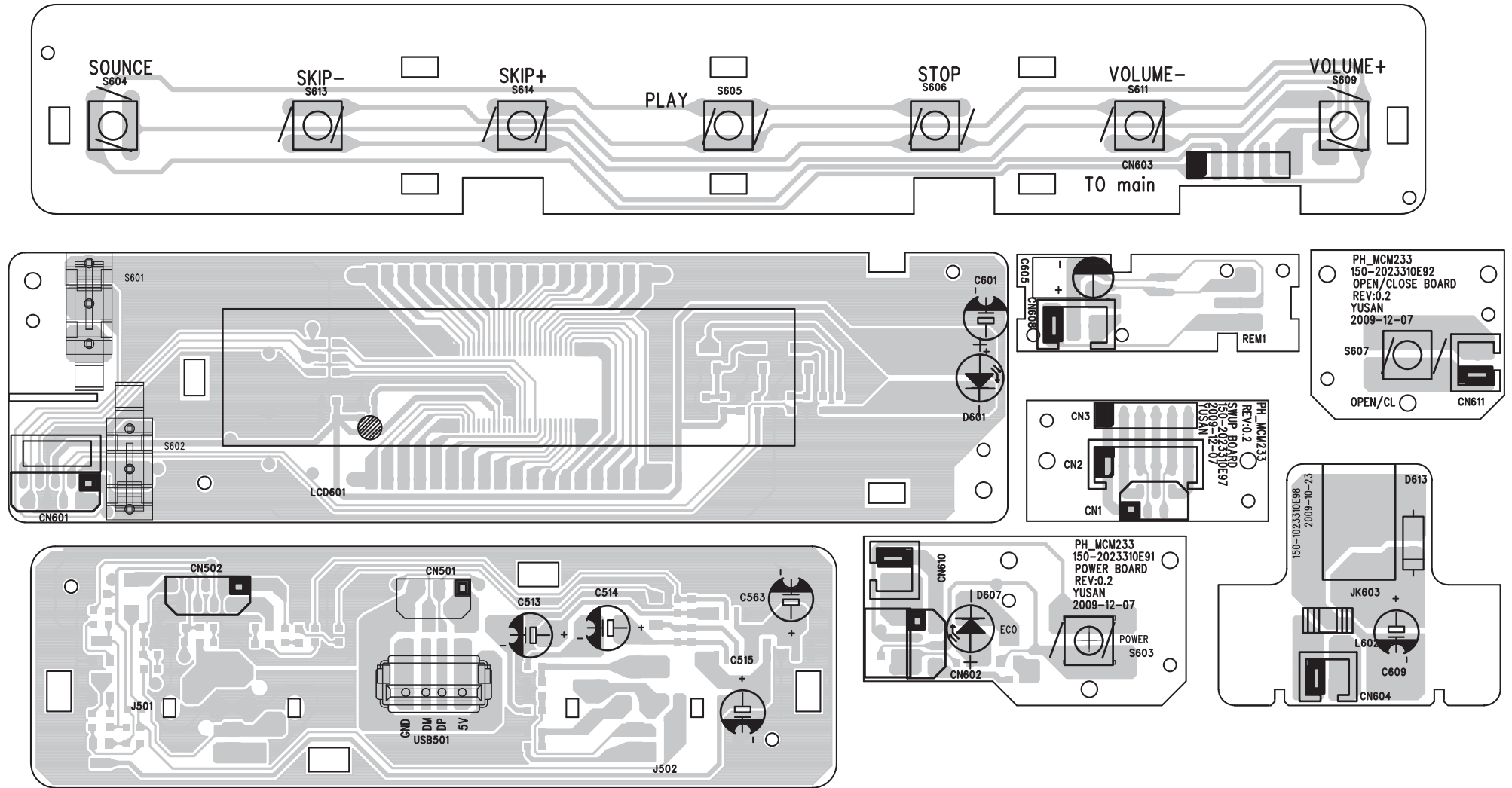
Circuit diagram 6-2



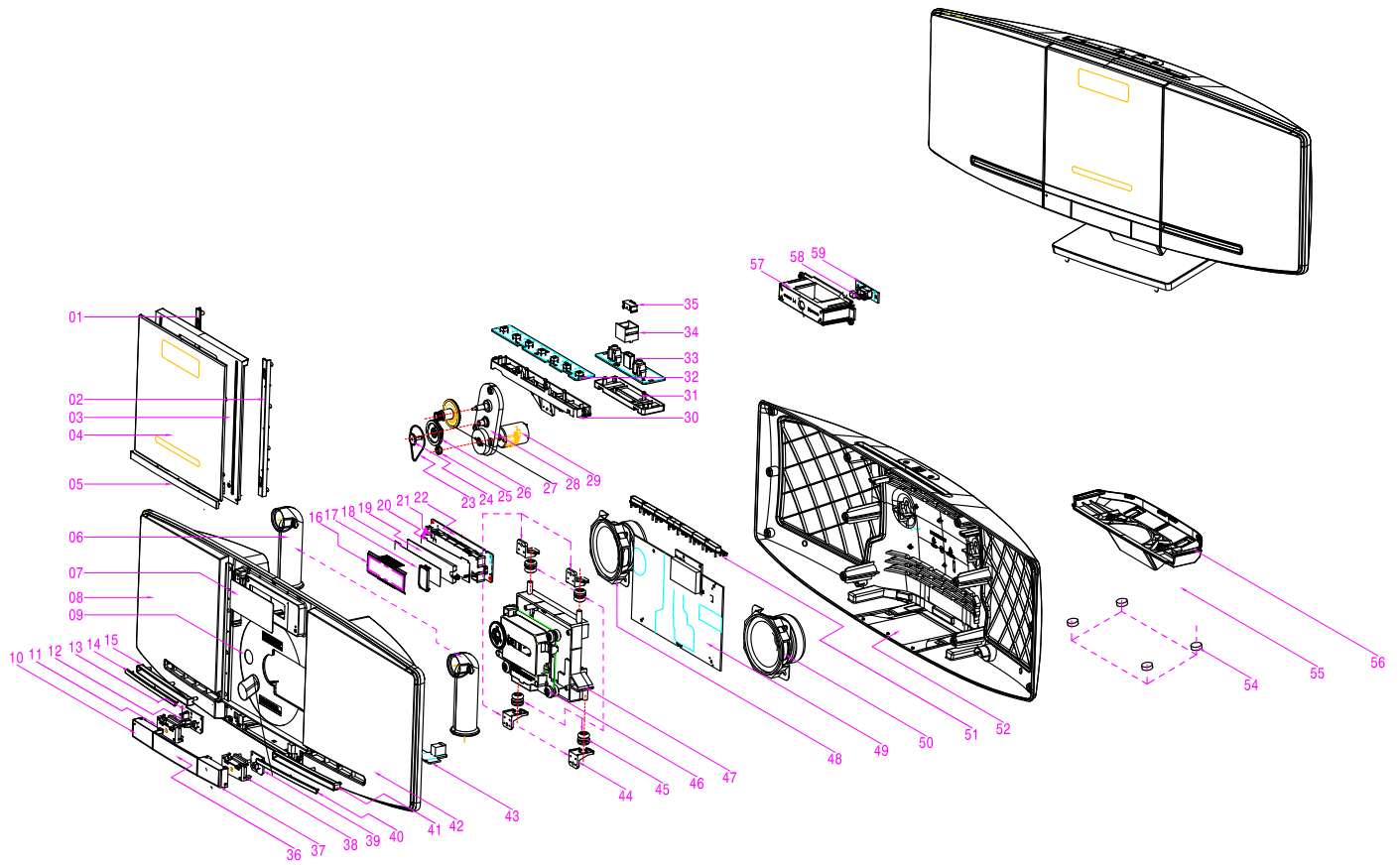
MAIN BOARD BOTTOM LAYOUT 7-2



KEY BOARD+ LCD BOARD + USB BOARD + POWER BOARD + REMOTE RECEIVE BOARD + OPEN + POWER KEY
BOARD TOP LAYOUT 7-3



Exploded drawing 8-1



Revision list 9-1

Revision list

V1.0 2014-08-08 initial release