Bluetooth Wireless Micro System

BTM630/05/12/37

Service
Service
Service

Service Manual

TABLE OF CONTENTS

**CLASS 1
LASER PRODUCT**

PHILIPS

PCBS LOCATION

PCBA-IPOD JACK

PCBA-BT RX

PCBA-SD JACK

PCBA-KEY

PCBA-DISPLAY

PCBA-BT LED

PCBA-MCU

PCBA-MAIN

SPECIFICATIONS

AMPLIFIER
Output power .... 2 × 15 W RMS
Signal-to-noise ratio .... ≥ 70 dBA
Frequency response ...... 20 Hz – 20 KHz, ± 3 dB
Input sensitivity AUX .... 0.5 V (max. 2 V)
Impedance loudspeakers .... 4 Ω
Impedance headphones .... 32 Ω
Output power headphones .... <50 mW

CD PLAYER
Frequency range .... 20 Hz – 20 kHz
Signal-to-noise ratio .... 70 dBA

TUNER
FM wave range .... 87.5 – 108 MHz
AM wave range .... 530 – 1700 KHz
Antenna
   FM .... 75 Ω wire
   AM .... Loop antenna

USB PLAYER/SD/MMC CARD
USB 12Mb/s, V1.1
.... support MP3 and WMA files
Number of albums/folders .... maximum 99
Number of tracks/titles .... maximum 400

Bluetooth
Communication system .... Bluetooth Standard
version 2.0
Output .... Bluetooth Standard Power Class 2

Maximum communication range ...... Line of sight
approx. 10m[1]
Frequency band .... 2.4 GHz band (2.4000 GHz - 2.4835 GHz)
Modulation method .... FHSS
Compatible Bluetooth profiles[2] ....
...... A2DP (Advanced Audio Distribution Profile)
.. AVRCP (Audio Video Remote Control Profile)
Supported codecs
   Receive .... SBC (Sub Band Codec), MP3
   Transmit .... SBC (Sub Band Codec)

1) The actual range will vary depending on factors such as obstacles between devices, magnetic fields around a microwave oven, static electricity, reception sensitivity, antenna's performance, operating system, software application, etc.
2) Bluetooth standard profiles indicate the purpose of Bluetooth communication between devices.
*Wireless range: 10m/30ft line of sight, range may vary depending on actual conditions. Bluetooth® device with A2DP (Advanced Audio Distribution Profile) enabled.

GENERAL INFORMATION
AC Power .... 100 – 240 V / 50-60 Hz
Dimensions (w × h × d) . 206 × 141 × 390 (mm)
Weight .... 2.374 kg
Standby power consumption .... <7 W
Eco power standby .... <1 W

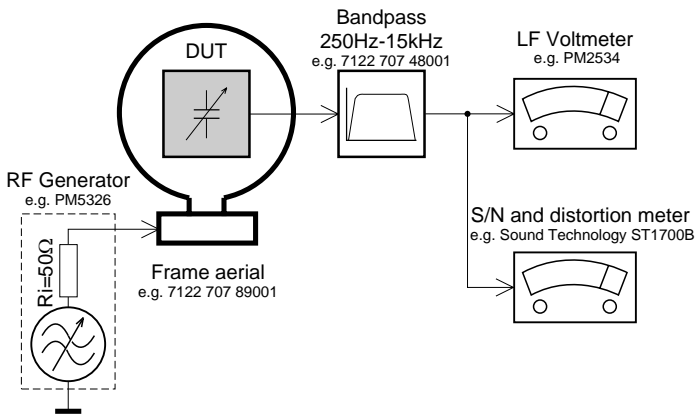*Specifications and external appearance are subject to change without notice.*

MEASUREMENT SETUP

Tuner FM
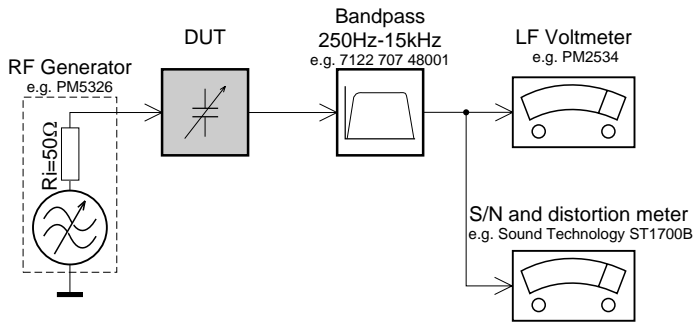
Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).
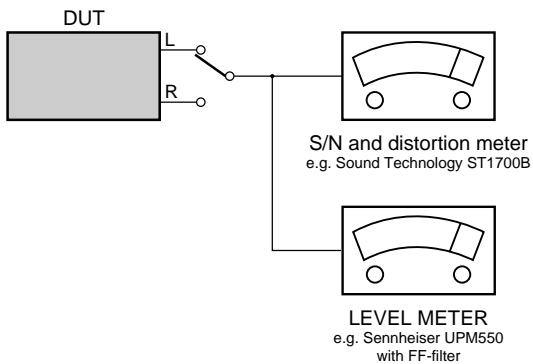
Tuner AM (MW,LW)

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)

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

(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.

(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 △ .

ESD

**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

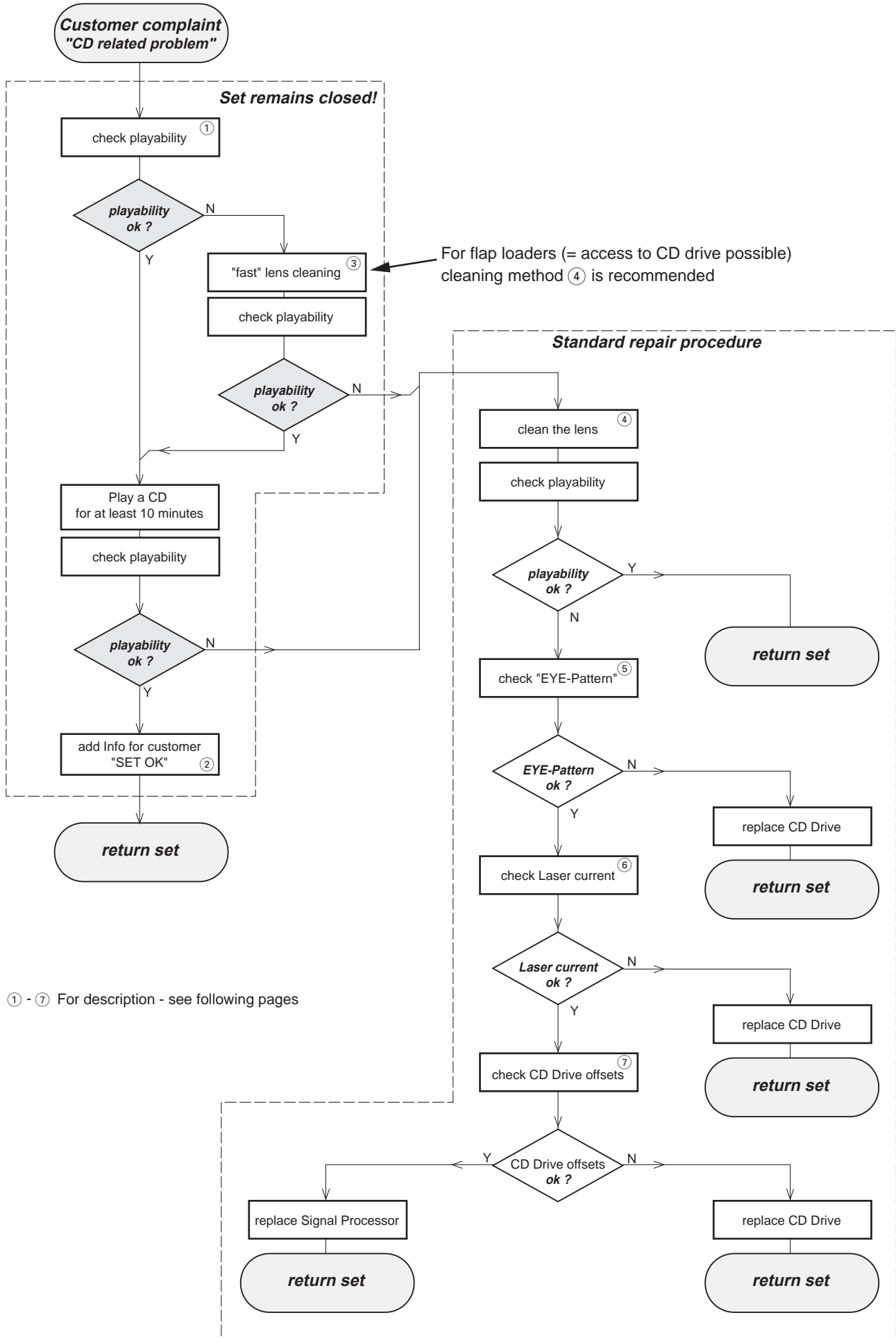   You will find this and more technical information within the "magazine", chapter "workshop news".

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

Customer complaint
"CD related problem"

Set remains closed!

check playability ①

playability ok ? → N

playability ok ? → Y

"fast" lens cleaning ③ ← For flap loaders (= access to CD drive possible) cleaning method ④ is recommended

check playability

Standard repair procedure

playability ok ? → N

playability ok ? → Y

clean the lens ④

check playability

Play a CD for at least 10 minutes

check playability

playability ok ? → Y

playability ok ? → N

return set

check "EYE-Pattern" ⑤

add Info for customer "SET OK" ②

EYE-Pattern ok ? → N

replace CD Drive

return set

EYE-Pattern ok ? → Y

check Laser current ⑥

Laser current ok ? → N

replace CD Drive

return set

Laser current ok ? → Y

① - ⑦ For description - see following pages

check CD Drive offsets ⑦

CD Drive offsets ok ?

Y ← → N

replace Signal Processor

replace CD Drive

return set

return set

INSTRUCTIONS ON CD PLAYABILITY

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 ≥10seconds
                        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 ≥10seconds
                        Fingerprint ≥10seconds
                        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.

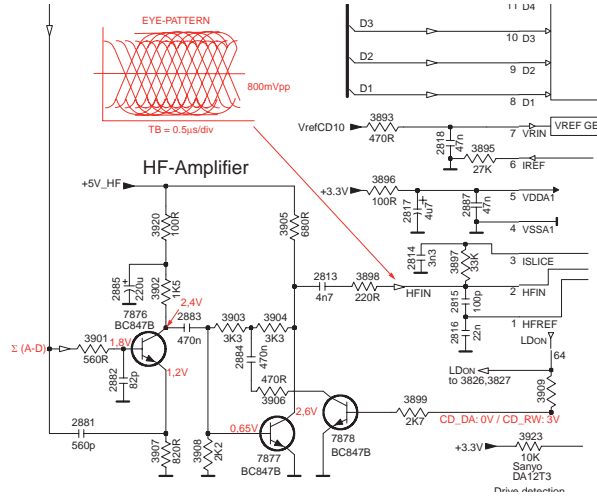The direction of cleaning must be in the way as indicated in
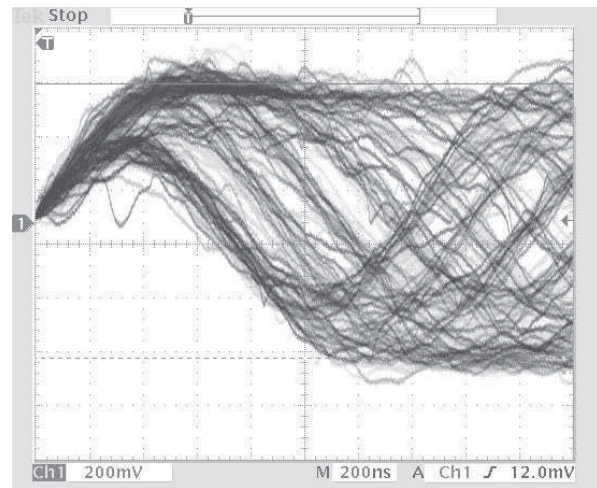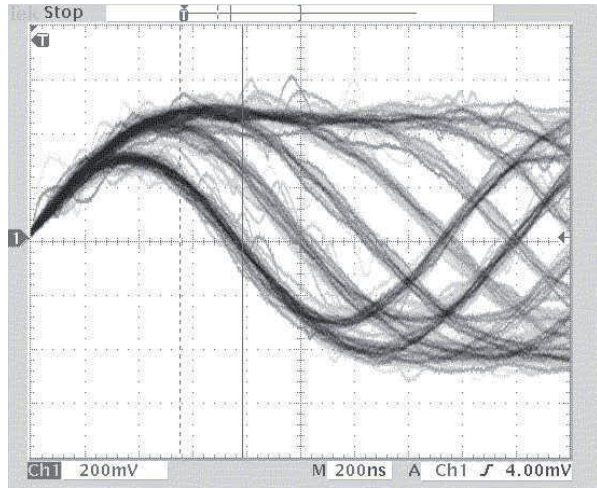the picture below.
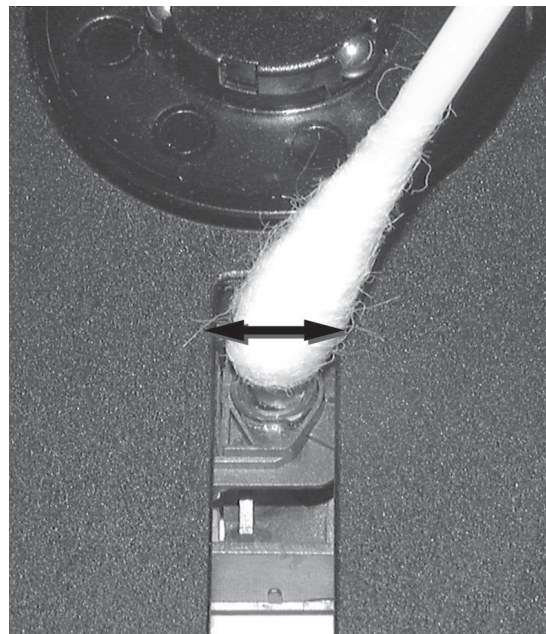
INSTRUCTIONS ON CD PLAYABILITY

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
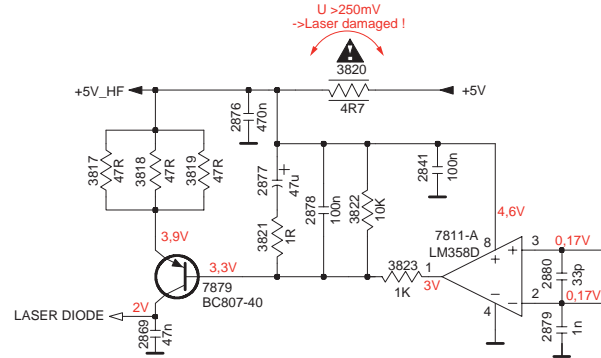
⑦

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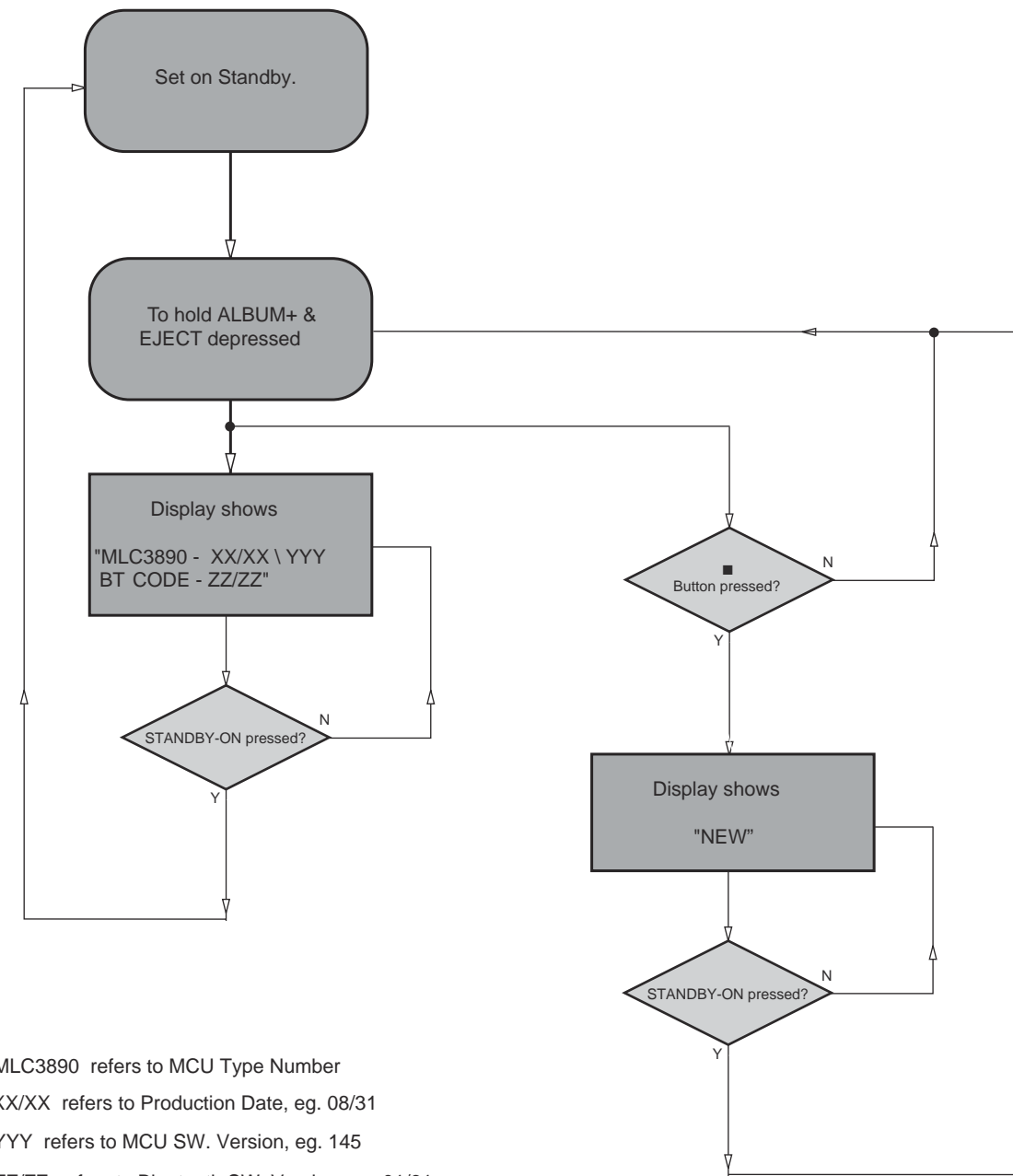
The offsets can be measured with a DC Millivoltmeter directly on the connector (see drawing below). Pin numbering varies from drive to drive.

The values from diode A-D should read 0±10mV. Diodes E and F are less critical.
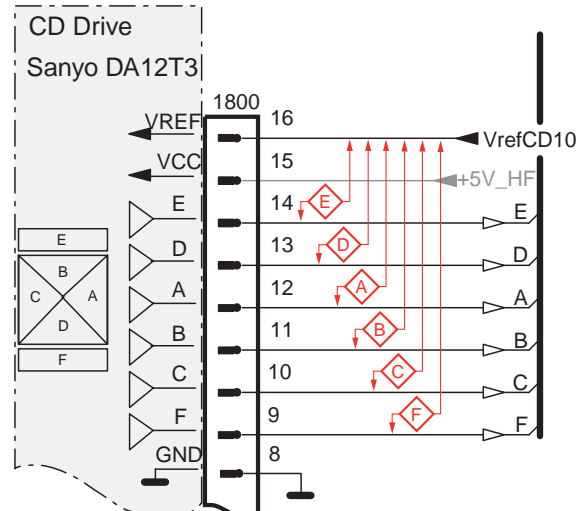
If one of the offsets is higher than ±10mV the CD drive has to be replaced. Otherwise replace the Signal Processor.

SOFTWARE VERSION CHECKING

Set on Standby.

To hold ALBUM+ &
EJECT depressed

Display shows

"MLC3890 - XX/XX \ YYY
BT CODE - ZZ/ZZ"

STANDBY-ON pressed?   N

Y

Button pressed?   N

Y

Display shows

"NEW"

STANDBY-ON pressed?   N

Y

MLC3890 refers to MCU Type Number

XX/XX refers to Production Date, eg. 08/31

YYY refers to MCU SW. Version, eg. 145

ZZ/ZZ refers to Bluetooth SW. Version, eg. 01/61

"NEW" ：load default data. *Caution: all presets from the customer will be lost!!*

BLUETOOTH FUNCTION CHECK

Connect the *Bluetooth Wireless* Dock

No		precondition	action	expected result	Fail behavior (if any) / Remark
1	/1	No dock is connected to the main set mode	Power on the main set.	Main set is power on.	
	/2		Connect bluetooth wireless dock with 10V DC source.	The red power LED will be illuminated.	
	/3		Press and hold the standby/power key on the dock for about 6 seconds.	Blue LED shows solid blue. Dock is powered and ready to pair.	
	/4		Press and hold the ANSERING/PARING button on the main set or RC for 5 seconds.	"PAIRING" flashes on the display. Within 30 seconds paring and connection should be completed. Double beep tone is heard. Main display briefly shows "STEREO CONNECTED". Blue LED on dock slowly flashes blue.	If the connection can't be completed in one minute there will show "FAILED" on the display. Check connections and try again.
2		In any mode	Power on the main set.	Main set will automatically reconnect to the dock every time it powers on.	
3		In dock mode	Move between the dock and main set within 8 meters without interruption.	The music should be heard clearly.	

Test case for *Bluetooth Wireless* Docking function check

Notice: Before start make sure the Bluetooth Wireless Dock is connected to DC power and powered on.
Make sure the dock is paired and connected to the main set.

i). test case for general function check

No	precondition	action	expected result
1	ECO/ Standby mode	Press Source/Dock button on RC to power on set	Set is power on and iPod device will playback automatically.
		No button is pressed at normal Standby mode	iPod display big charging logo.
		No button is pressed at ECO standby mode	1.connect iPod device with at playback or pause mode, iPod device will be power off.
			2.connect iPod device with at power off mode, iPod device keep power off mode.
2	Bluetooth wireless dock mode	connect iPod device with at playback / pause mode.	1.iPod device start to playback automatically.
			2.little charge logo is on.
		connect iPod device with at power off mode	1.iPod device is power on and playback atomatically.
			2.little charge icon is on
		No device is connected and no button is pressed	main set and the dock will switch to standby mode after 15 minutes.
3	Bluetooth wireless dock mode with iPod playback	Press Play/Pause button on main set, RC and iPod device	IPod playback is paused
		Press >| button on main set, RC and iPod device	Skip to next track with no pop noise
		Press |< button on main set, RC and iPod device	Skip to former track wit no pop noise
		Press >>| button on main set, RC and iPod device	Delivery track fast forward function, sound level is decreased to lower level.
		Press |<< button on main set, RC and iPod device	Delivery track fast backward function, sound level is decreased to lower level.
		Press VOL_UP/DOWN button on main set, RC and iPod device	When the VOL_UP/DOWN key is pressed, the volume will turn to higher/lower level.
4	Bluetooth wireless dock mode with iPod pause	Press Play/Pause button on main set, RC and iPod device.	iPod device starts to playback.
		no button is pressed.	main set will switch to standby mode after 15 minutes, and iPod device is power off and is charged.
5	Bluetooth wireless dock mode with iPod power off	Press Play/Pause button on main set, RC and iPod device	iPod device starts to playback.
		no button is pressed	iPod device is charged and big charge logo is displayed.

BLUETOOTH FUNCTION CHECK

ii). test case for stress test

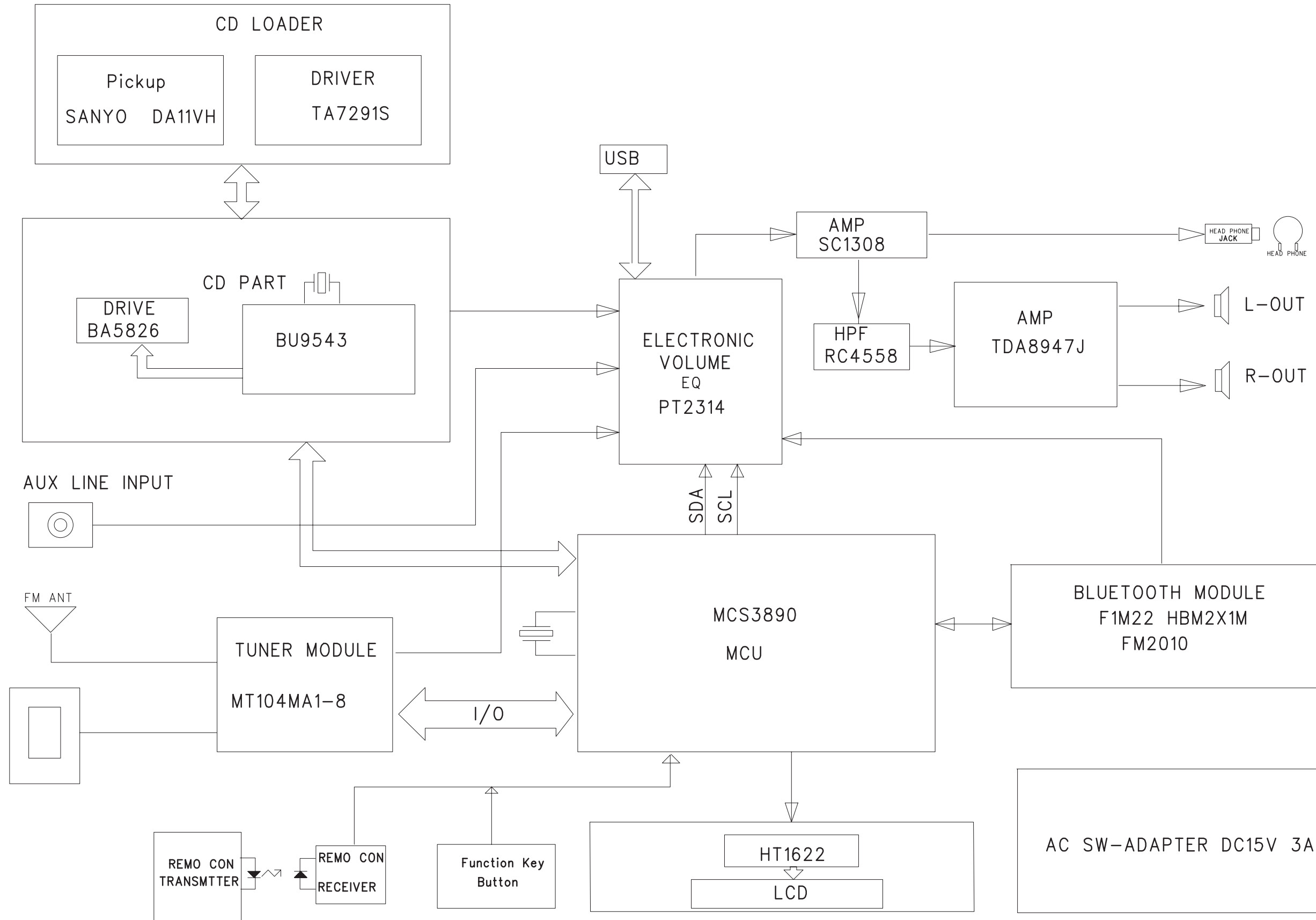| No	precondition	action	expected result
1	ECO/ Standby mode with iPod device on dock	Switch ECO/Standby button and Dock button for 10 times	Ipod can be power on and off, No abnormal symptom occur
2	Bluetooth wireless dock mode with IPod playback	Fast press Play/Pause for 10 times	no abnormal playback, no pop noise and no hang up
		Fast press >| / |< button for 10 times	function is ok, no abnormal playback and pop noise, no hung up
		press and hold >>| / |<< button for long time and repeatly	function is ok, no abnormal playback and pop noise, no hung up
		switch to other source repeatly for 5 cycle.	1.when switch to other source mode, iPod device is power off and is charged.
			2.when switch back to dock mode, iPod device can be power on and playback automatically with no hang up.
		Pull out iPod and put into repeatly for 10 times	1. iPod device with no hang up
			2. No big pop noise
3	Bluetooth wireless dock mode with iPod pause/power off	Pull out iPod and put into repeatly for 10 times	1.no big pop noise and can playback automatically when put into again.
			2. No hang up

Bluetooth Test Cases Functionality

TESTCASES FUNCTIONALITY PAIRING

No.		Precondition	Action	Expected Results	Pass/Fail/Accept/NA Set key	RC	Fail behavior (if any) / Remark
1	/1	In any mode. Bluetooth off. No bluetooth device connected.	Make sure the main power of the unit is on.Press and hold ANSWER/PAIRING for 5 seconds.	" PAIRING" flashes on the display			
	/2		Set the mobile phone (headset profile, hands free profile) to search for Bluetooth devices.	A device named BTM630 should be shown on your mobile phone's screen.			
	/3		Select the BTM630 for pairing.	The mobile phone should prompt for a passkey.			
	/4		Enter passkey "0000".	Main display shows "PHONE CONNECTED" together with two double "Beep " sound.			If the pairing cannot be completed within one minute, Long beep tone is heard and the display shows
2	/1	In any mode. Bluetooth off. No bluetooth device connected.	Power off the wireless iPod dock.	Show "DISCONNECT STEREO" about 30 seconds later.			
	/2		Make sure the main power of the unit is on.Press and hold ANSWER/PAIRING for 5 seconds	"PAIRING" flashes on the display.			
	/3		Set the A2DP-capable phone to search for bluetooth devices.	A device named BTM630 should be shown on your mobile phone's screen.			
	/4		Select the BTM630 for pairing.	The mobile phone should prompt for a passkey.			
	/5		Enter passkey "0000".	Main display briefly shows "PHONE CONNECTED" followed by "STEREO CONNECTED" together with two double "Beep " sound.			If the pairing cannot be completed within one minute, Long beep tone is heard and the display shows "FAILED".
3	/1	In any mode. Bluetooth off. No bluetooth device connected.	No bluetooth device connected.	No bluetooth device connected.			
	/2		Connect a mobile phone not support A2DP bluetooth profile.	No mobile phone is connected.			
	/3		Connect a stereo not support A2DP bluetooth profile.	No stereo is connected.			
4		In paring mode.	Hold the ANSWER /PAIRING button for 1 second.	Pairing mode is canceled, enter standby mode.			
5		In active connection mode.	Press and hold the STOP/BAND key for 5 seconds.	The display shows "DISCONNECT ALL" together with single "Beep"sound.			If after 5 seconds the display does not show any message, there are no active connections to terminate.
6		In any mode.	Power on the BTM630.	Reconnect the bluetooth device come into the range which once paired automatically.			

TESTCASES FUNCTIONALITY AUDIO PLAYBACK

No.		Precondition	Action	Expected Results	Set key	RC	Fail behavior
1	/1	A stereo (A2DP) mobile phone is connected.	Press the FUNCTION button to select "iPod /BT" mode.	In "iPod /BT" mode.			
	/2		Press PLAY on the mobile phone,main unit or remote for the first time.	The music playback will start. And BTM630 display will show "STEREO CONNECTED".			
	/3		Press PLAY for the second time.	The music playback will pause.			
	/4		Press PLAY for the third time.	The music playback will start again.			
	/5		Press previous/next once.	To select the previous/next track.			
	/6		Press STOP.	The music is stopped.			
	/7		Press PLAY.	The music will start at the point of stop just now or at the very beginning just depand on the stereo mobile.			
	/8		Press VOL_UP /DOWN.	When the VOL_UP/DOWN key is pressed, the volume will turn to higher/lower.			
	/9		Move between mobile and BTM630 within 8 meters without interruption.	The music should be heard clearly.			
	/10		Press MUTE.	Come into mute mode.			
	/11		Press MUTE again or VOL_UP/DOWN.	The mute mode is cleared.			
2	/1	A stereo (A2DP) mobile phone is connected.	Press the FUNCTION button to select any mode except "iPod /BT".	In any mode except "iPod /BT".			
	/2		Press PLAY on the mobile phone,main unit or remote for the first time.	The music will not output from BTM630 speaker.			

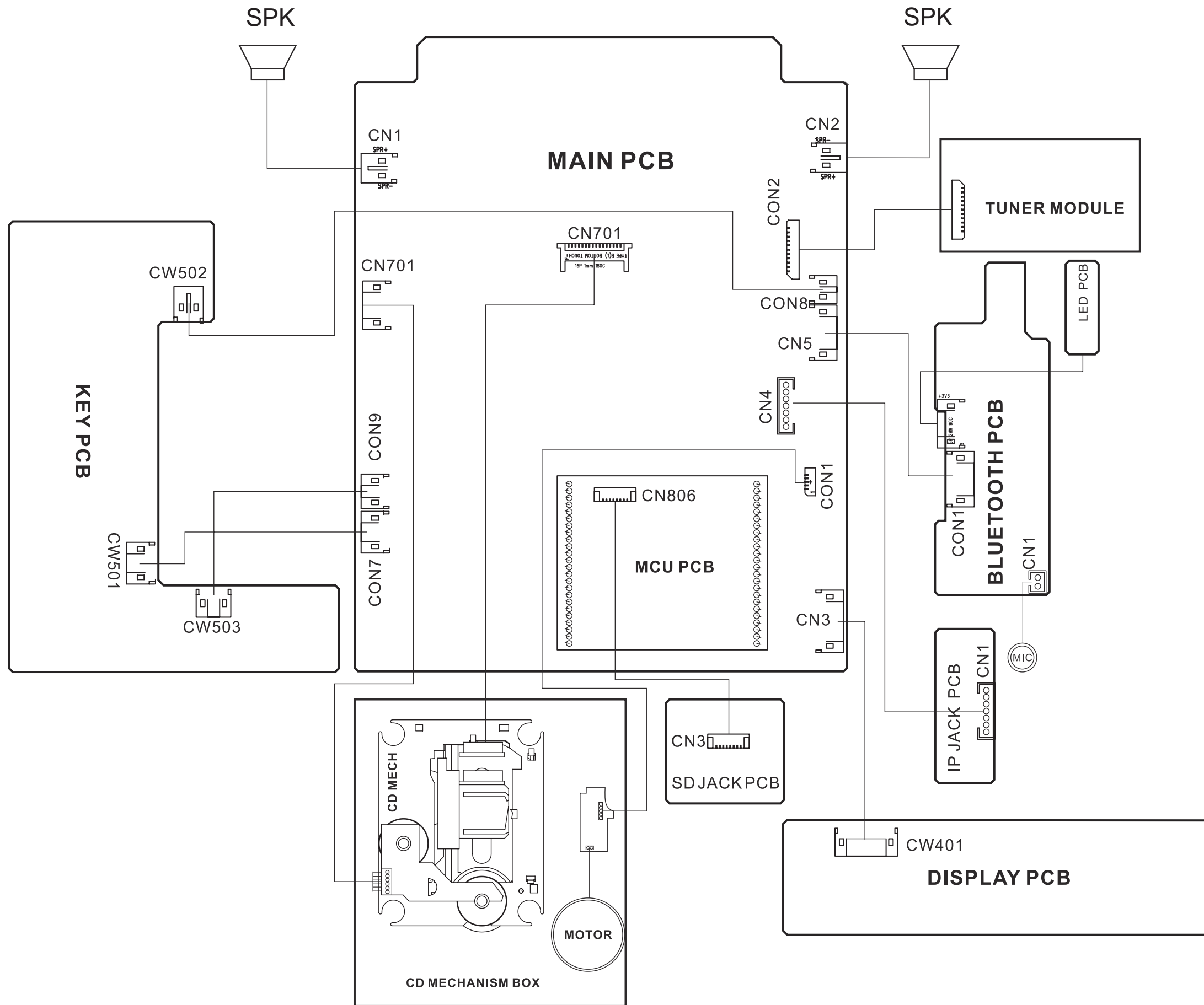# BLUETOOTH FUNCTION CHECK

TESTCASES FUNCTIONALITY SPEAKERPHONE									
1	/1	Playback the music on the mobile phone.	Dial the number and press send on the mobile phone.	Music playback will automatically pause.Display will show "DIALING".You will hear the ringing tone through the system or other preset announce sound.					
	/2		The call is answered.	Display shows "IN CALL".					
	/3		Move within 3 meters and 45 degree to the mobile phone.	MIC can receive the user voice clearly.					
	/5		Press FUNCTION on the mobile phone, main unit or the remote.	Display shows "END CALL". Music playback automatically resumes.					
	/6		The other party ends the call first.	Music playback automatically resumes.					
	/7		Hold ANSWER /PAIRING button for 5 seconds.	The last number you dailed should be redailed. And the music should stop.					
2	/1	Playback the music on the mobile phone.	Somebody call your mobile phone.	Music will stop.Hear an incoming call alert tone. Display will show "CALLING" and display caller ID if available.					
	/2		Press the ANSWER /PAIRING button on the main unit or remote once.	The call is received.The display shows "IN CALL".					
	/3		Press and hold ANSWER/PAIRING for 2 seconds during a call.	The sound is transferred from the speaker to the mobile headset. Display shows "TRANSFER".					
	/4		Press and hold ANSWER/PAIRING for 2 seconds again during the call.	The sound is transferred from the mobile headset to the speaker. Display shows "TRANSFER".					
	/5		Press FUNCTION on the main unit or on the remote.	Display shows "END CALL". Music playback automatically resumes.					
	/6		The other party ends the call first.	Music playback automatically resumes.					
3	/1	A call is active	Press the ANSWER /PAIRING button.	The display shows "HOLD". The microphone is mute.					
	/2		Press ANSWER /PAIRING again.	Display shows "IN CALL" Microphone mute is cancelled.					

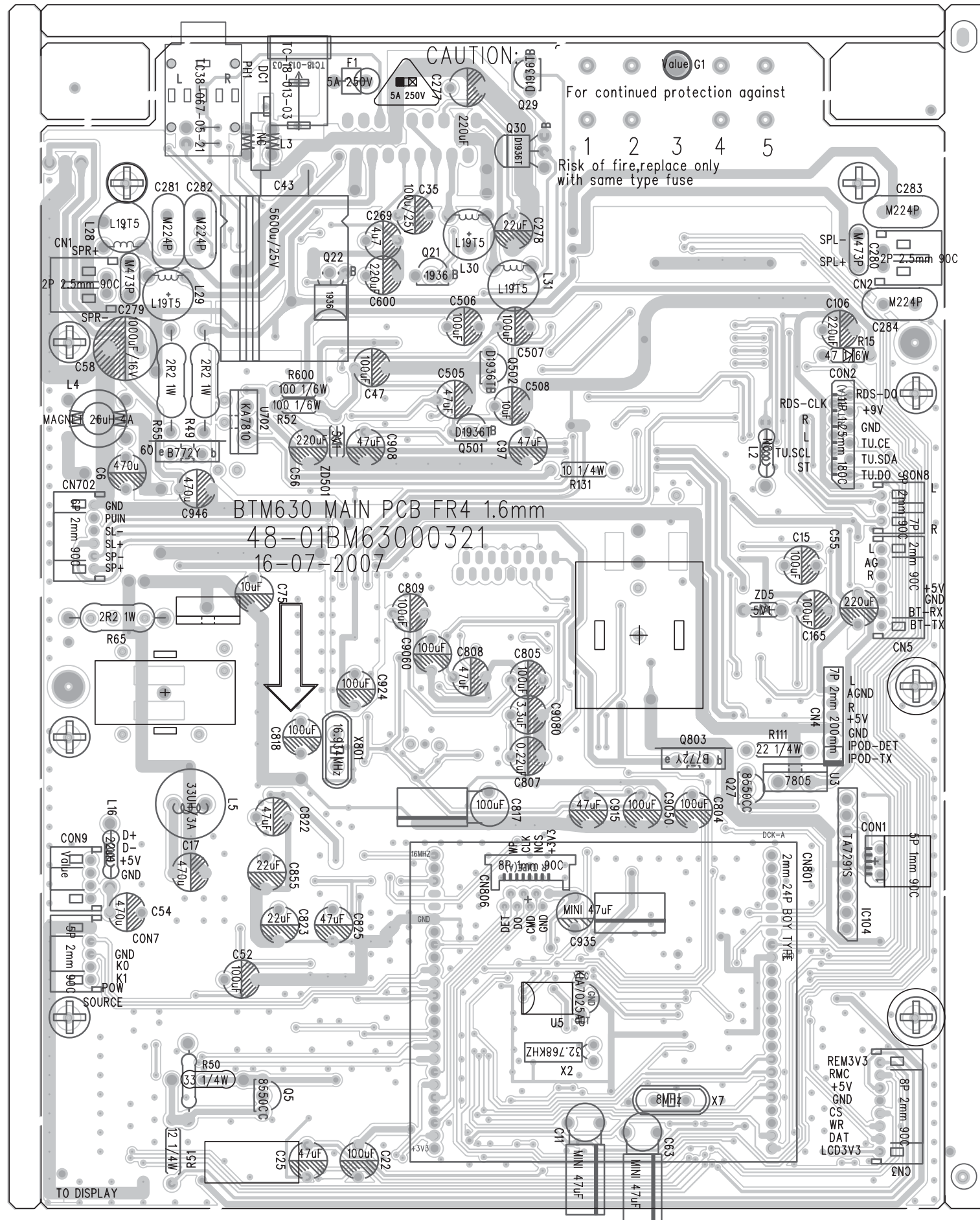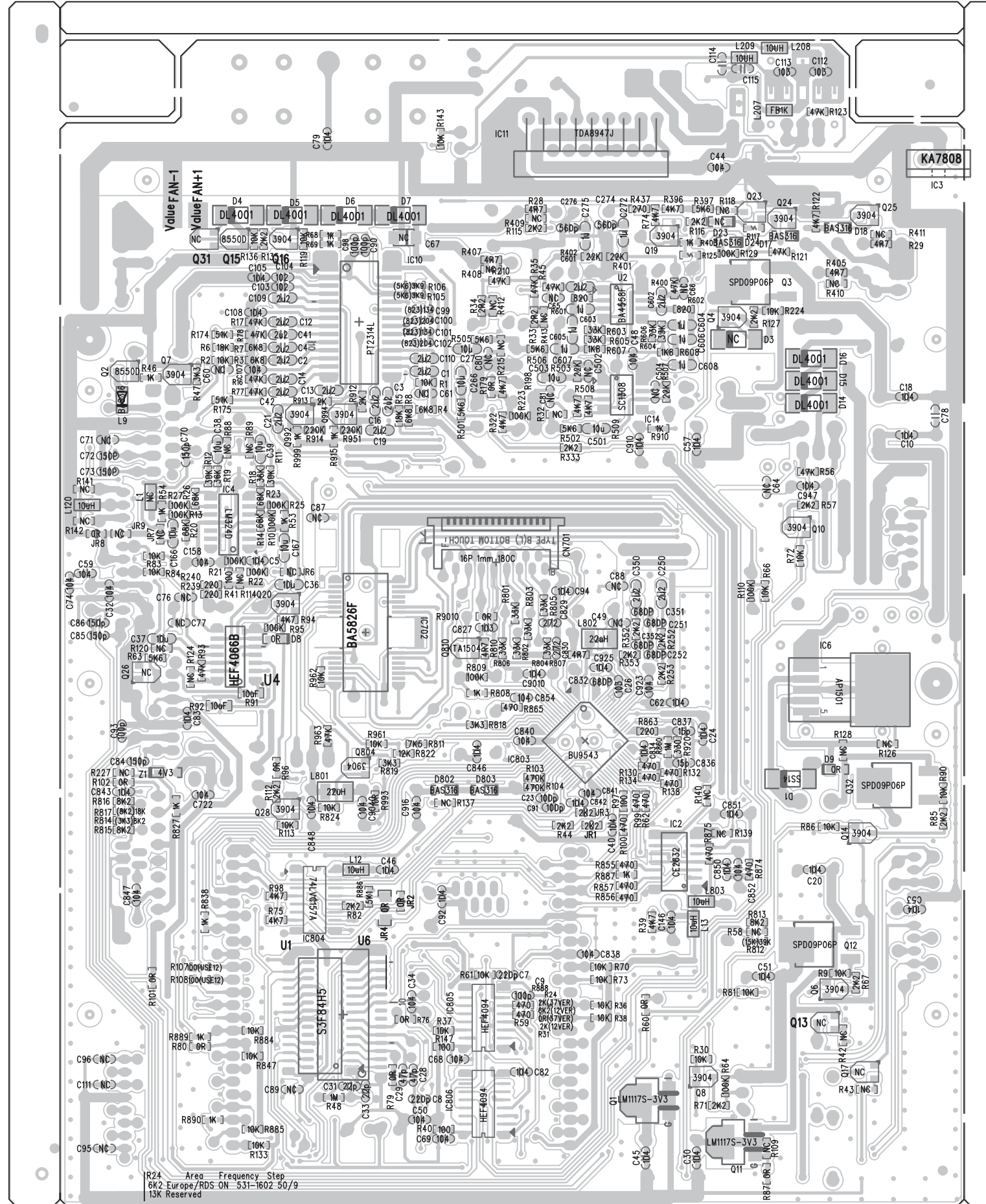| TESTCASES FUNCTIONALITY RECORD									
1	/1	A stereo bluetooth device is connected.	Press the SOURCE button to select " iPod /BLUETOOTH" mode.	In "iPod /BLUETOOTH" mode.					
	/2		Press PLAY.	Start music playback.					
	/3		Press the REC button once.	"USB", "CARD" or both appear on the display.					
	/4		Press REC again.	"REC" and "USB" or "CARD" shows flashing on the display. And recording begins.					
	/5		Press the STOP/ BAND button or REC.	End recording.					

SET BLOCK DIAGRAM

SET WIRING DIAGRAM

SPK

SPK

CN1

CN2

MAIN PCB

CON2

SPR+

SPR-

SPR-

SPR+

TUNER MODULE

CN701

CN701

CON8

LED PCB

CW502

CN5

KEY PCB

CON9

CON7

CN4

CON1

+3V3

BLUETOOTH PCB

CW501

CN806

CON1

CON1

CN1

CW503

MCU PCB

CN3

MIC

IP JACK PCB

CN1

CD MECH

CN3

SD JACK PCB

CW401

MOTOR

DISPLAY PCB

CD MECHANISM BOX

PCB LAYOUT - MAIN BOARD
TOP VIEW

PCB LAYOUT - MAIN BOARD
BOTTOM VIEW

CIRCUIT DIAGRAM - MAIN BOARD
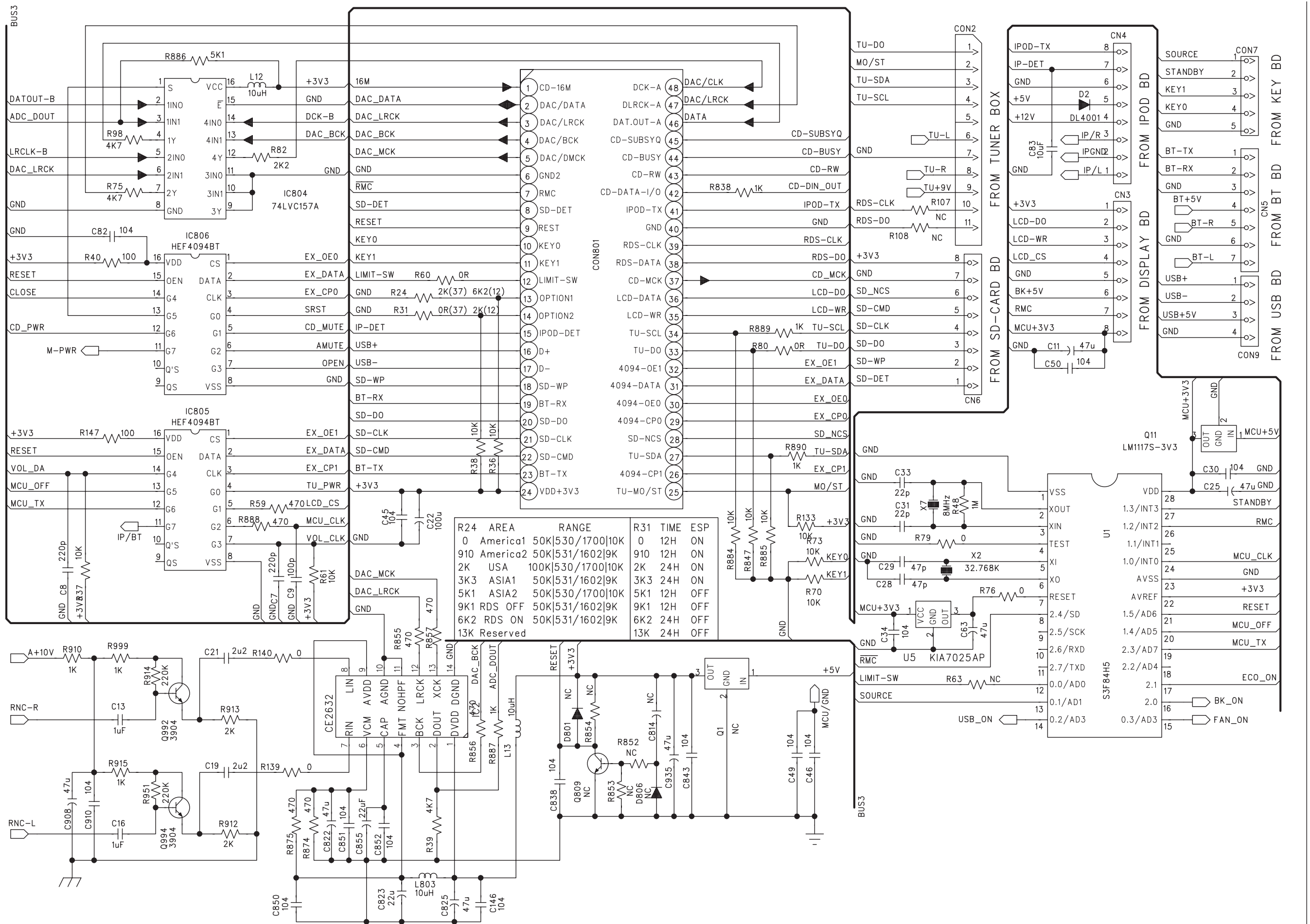
CIRCUIT DIAGRAM - MAIN BOARD
AUDIO PART
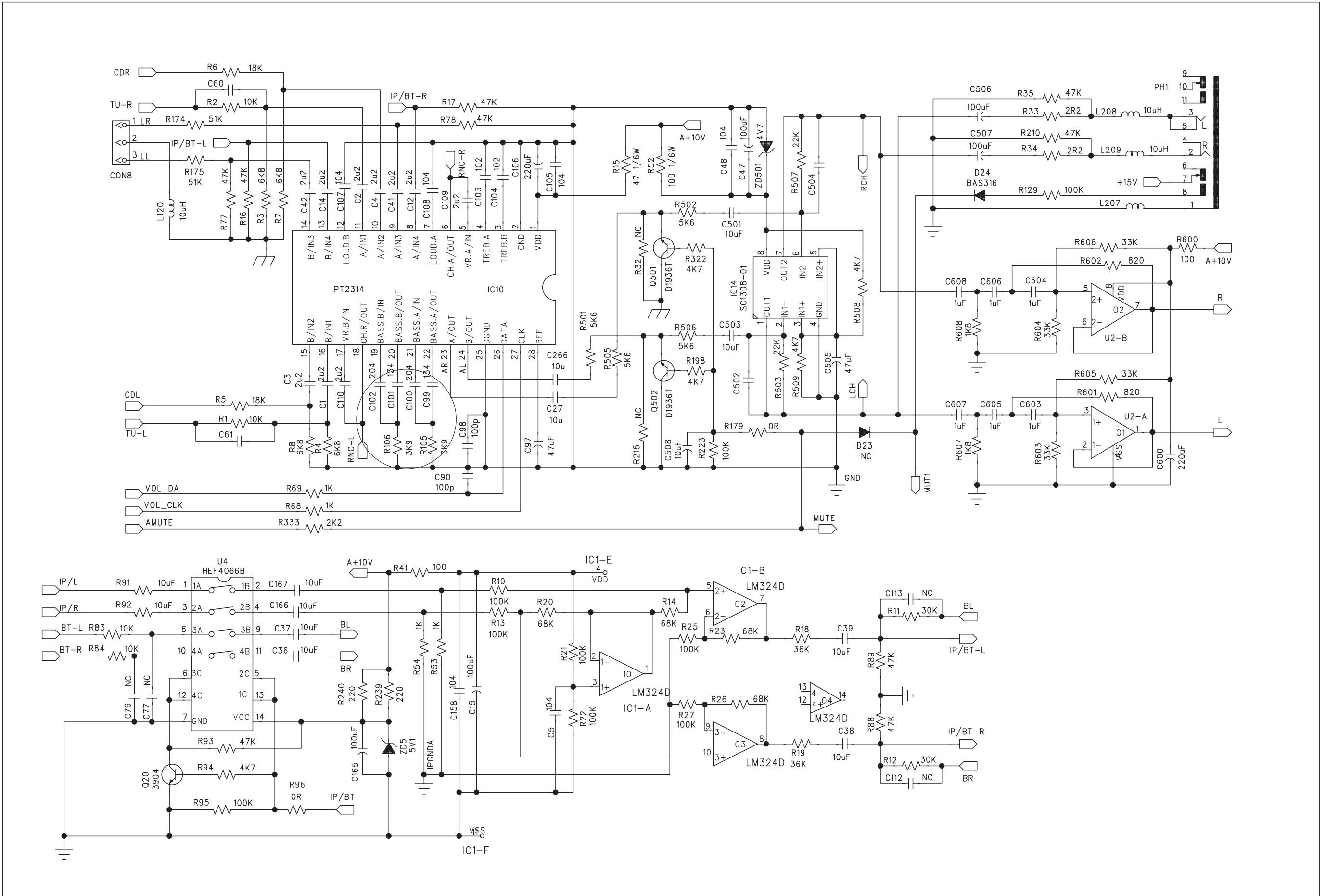
CIRCUIT DIAGRAM - MAIN BOARD
CD PART
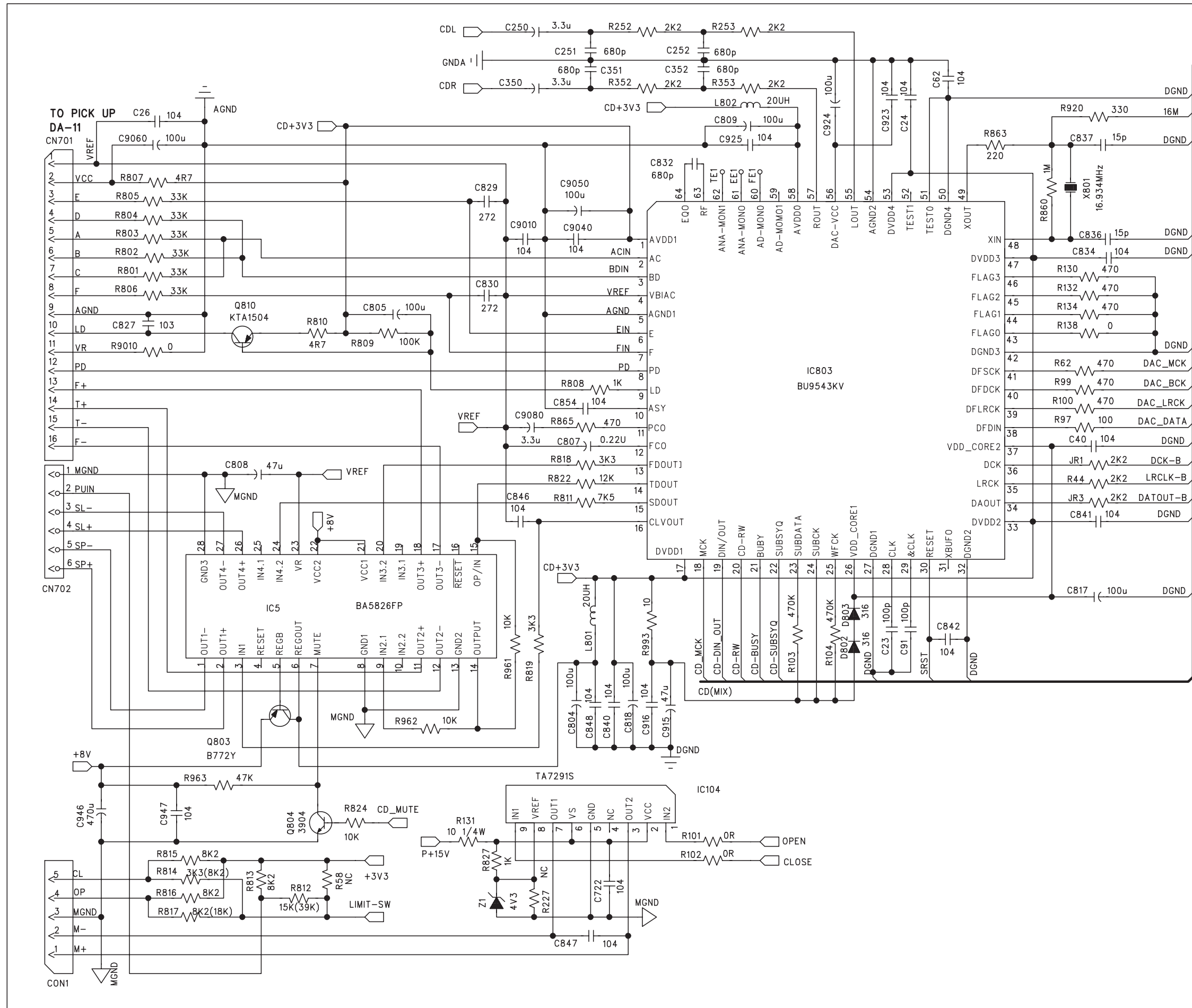
CIRCUIT DIAGRAM - MAIN BOARD
POWER PART
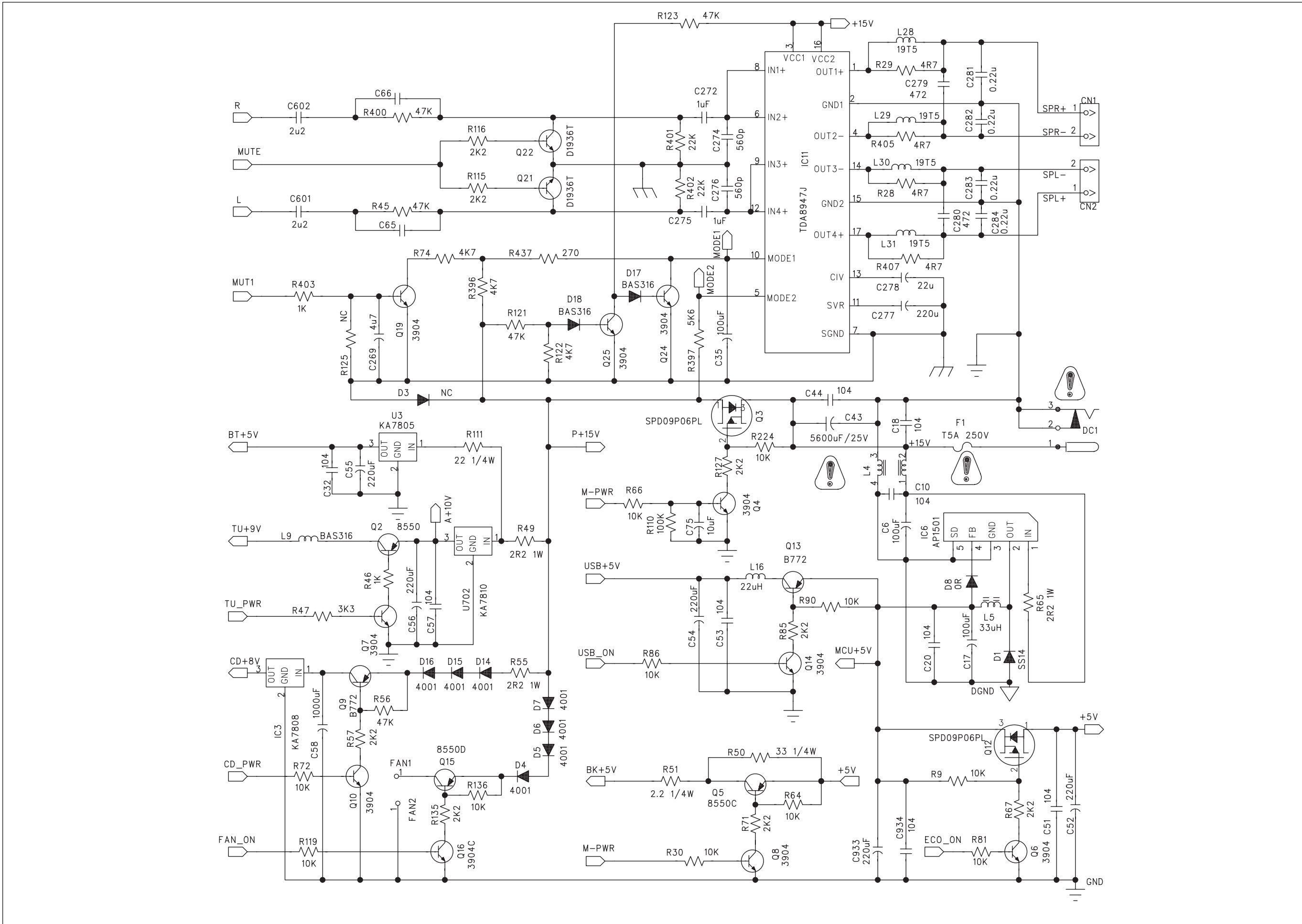
PCB LAYOUT - MCU BOARD
TOP VIEW
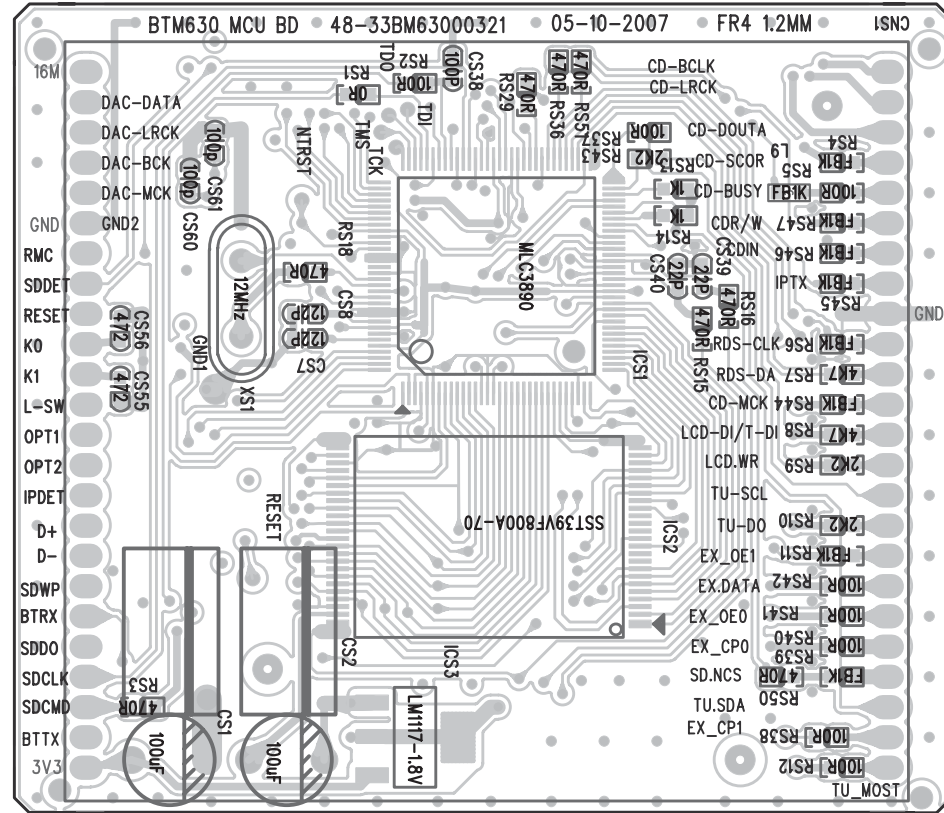
PCB LAYOUT - MCU BOARD
BOTTOM VIEW
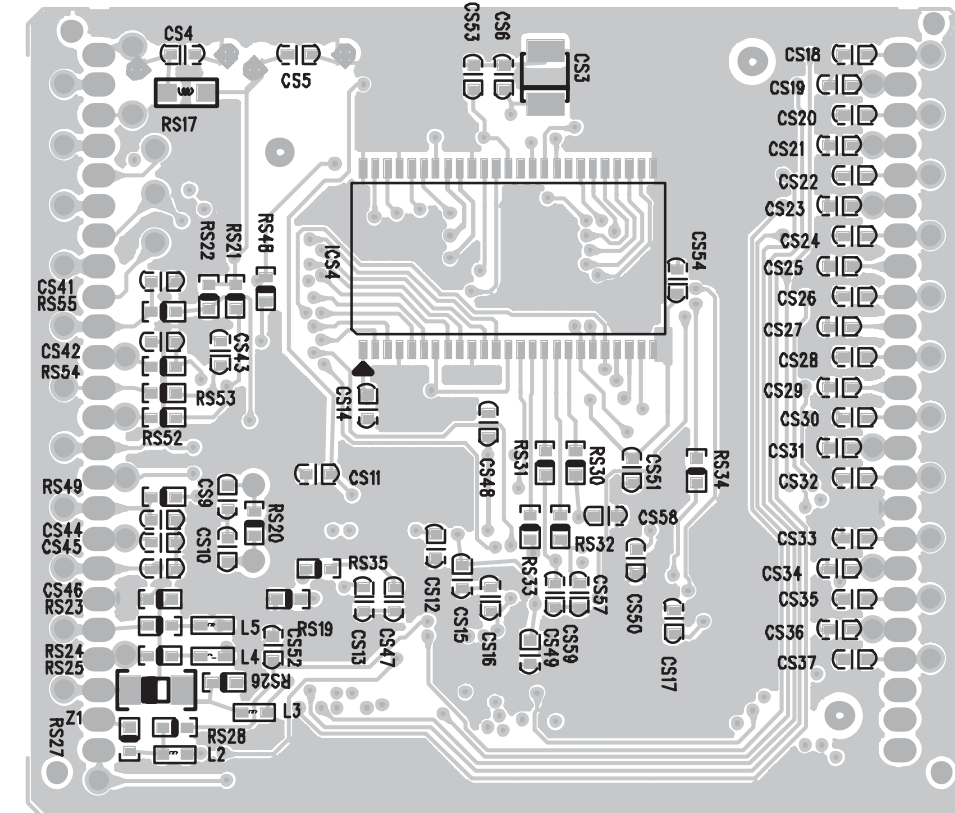
CIRCUIT DIAGRAM - MCU BOARD

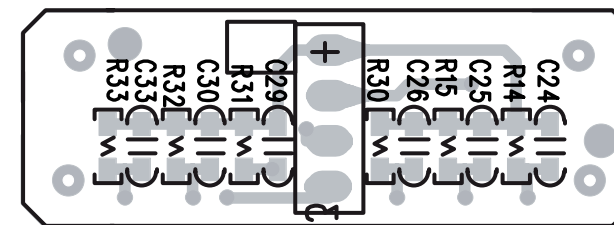MLC3890

ICS1
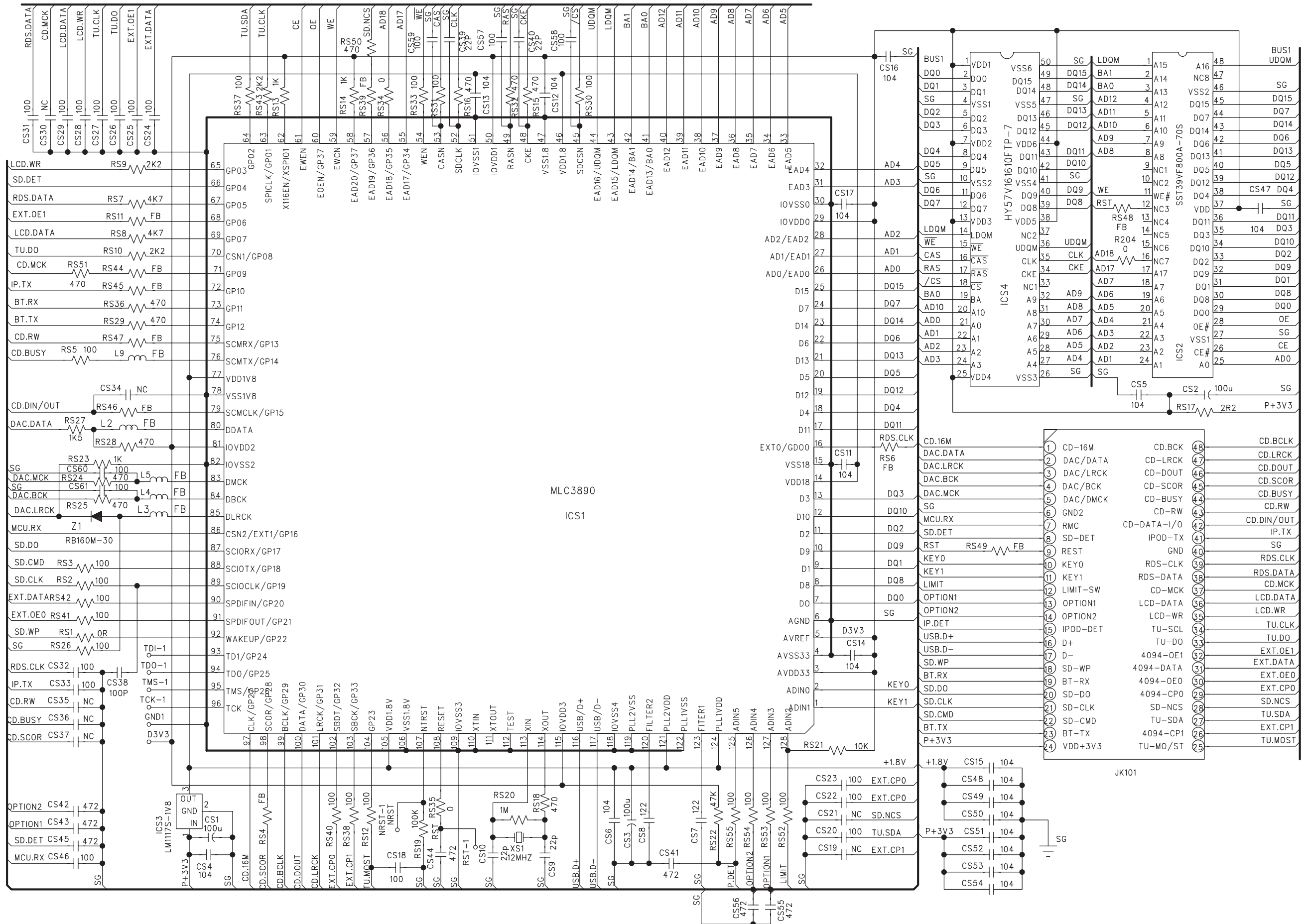
PCB LAYOUT - DISPLAY BOARD
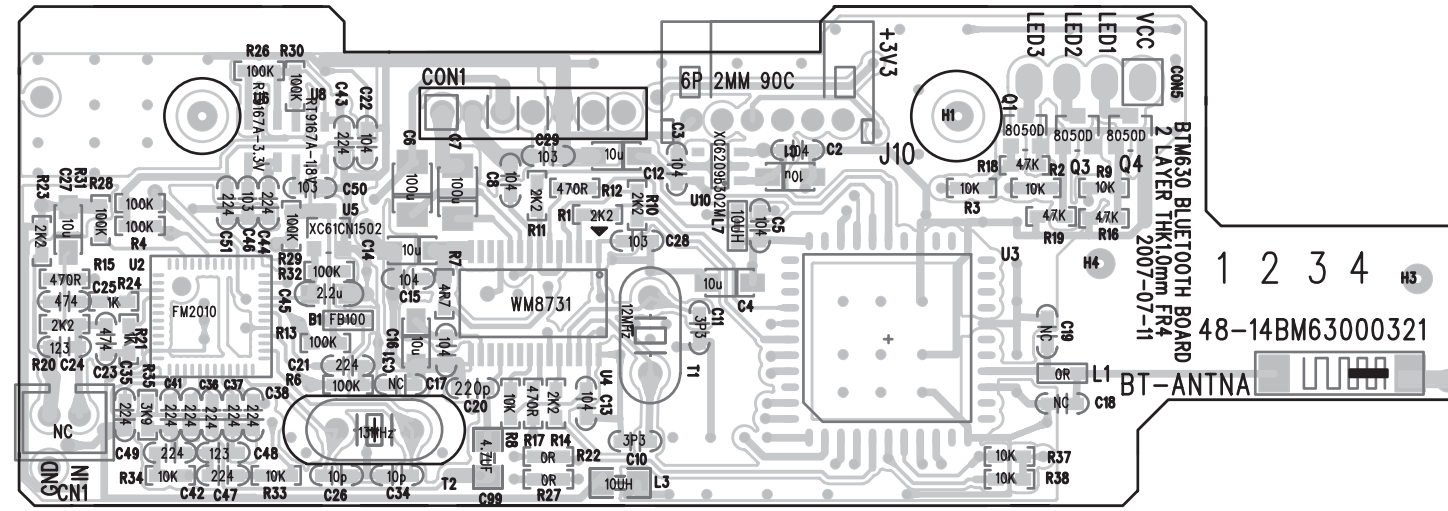## TOP VIEW
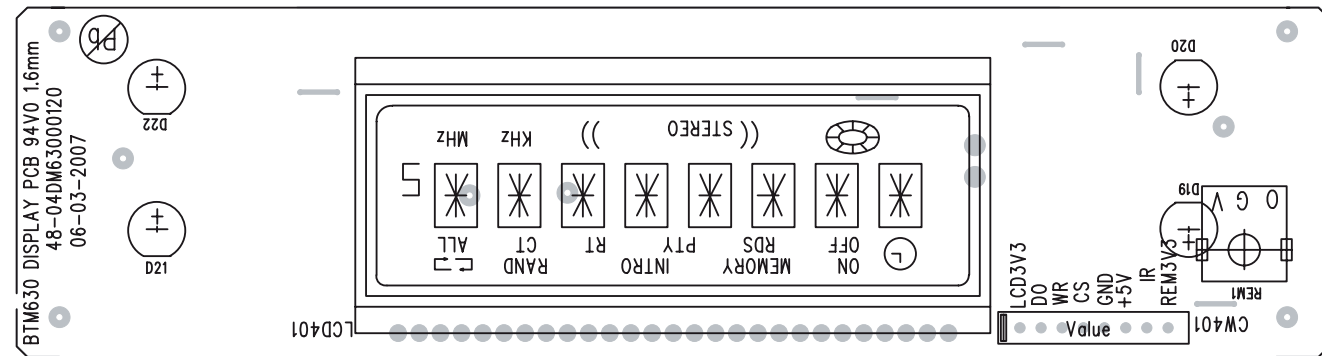
PCB LAYOUT - BLUETOOTH LED BOARD
TOP VIEW
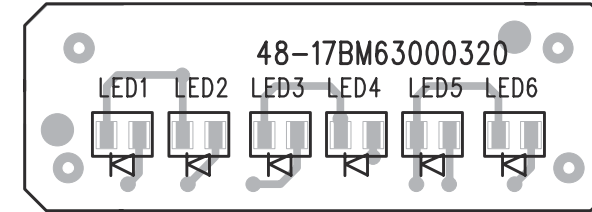
PCB LAYOUT - DISPLAY BOARD
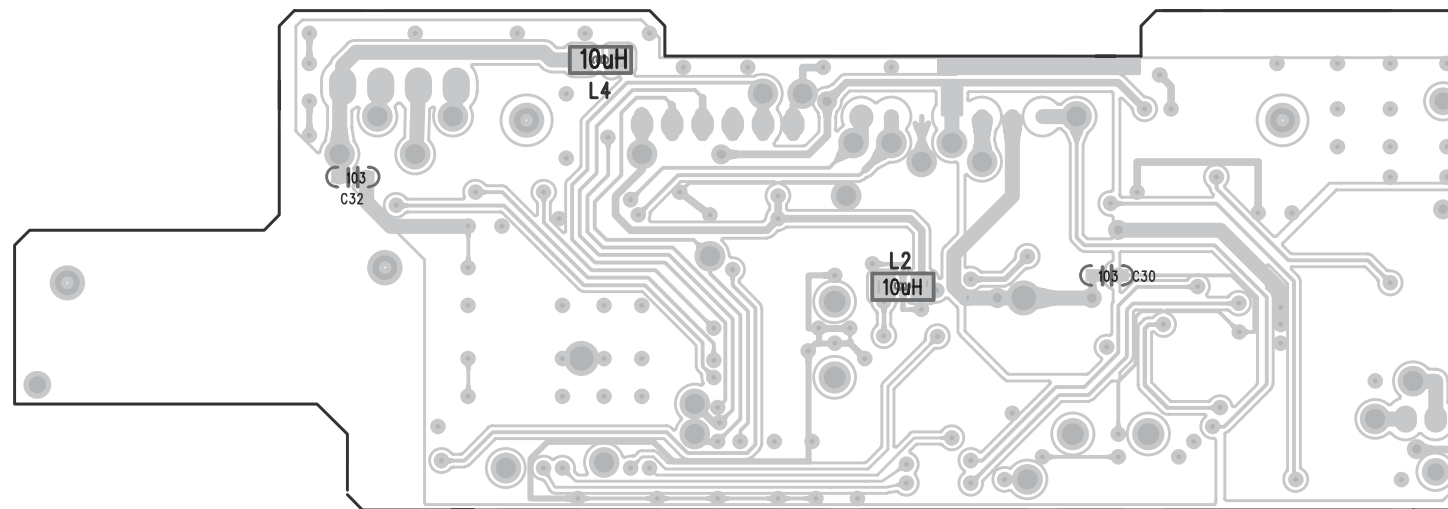## BOTTOM VIEW
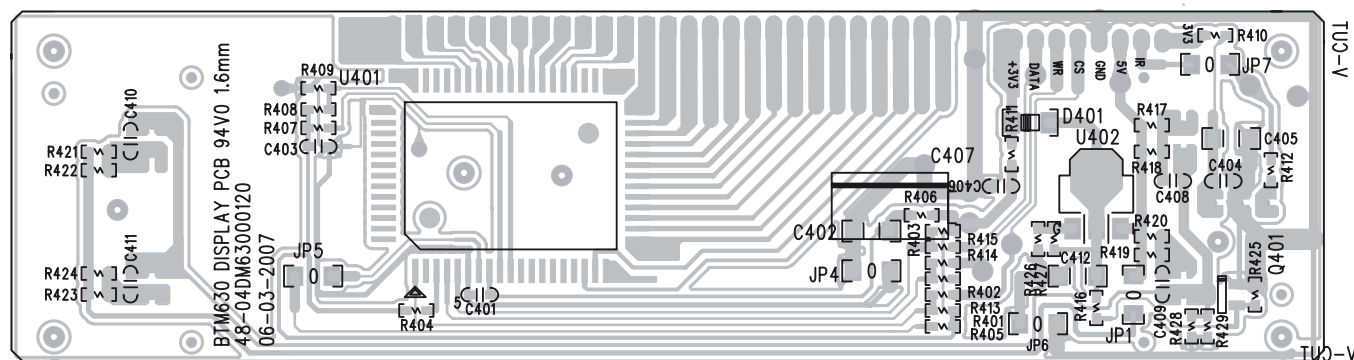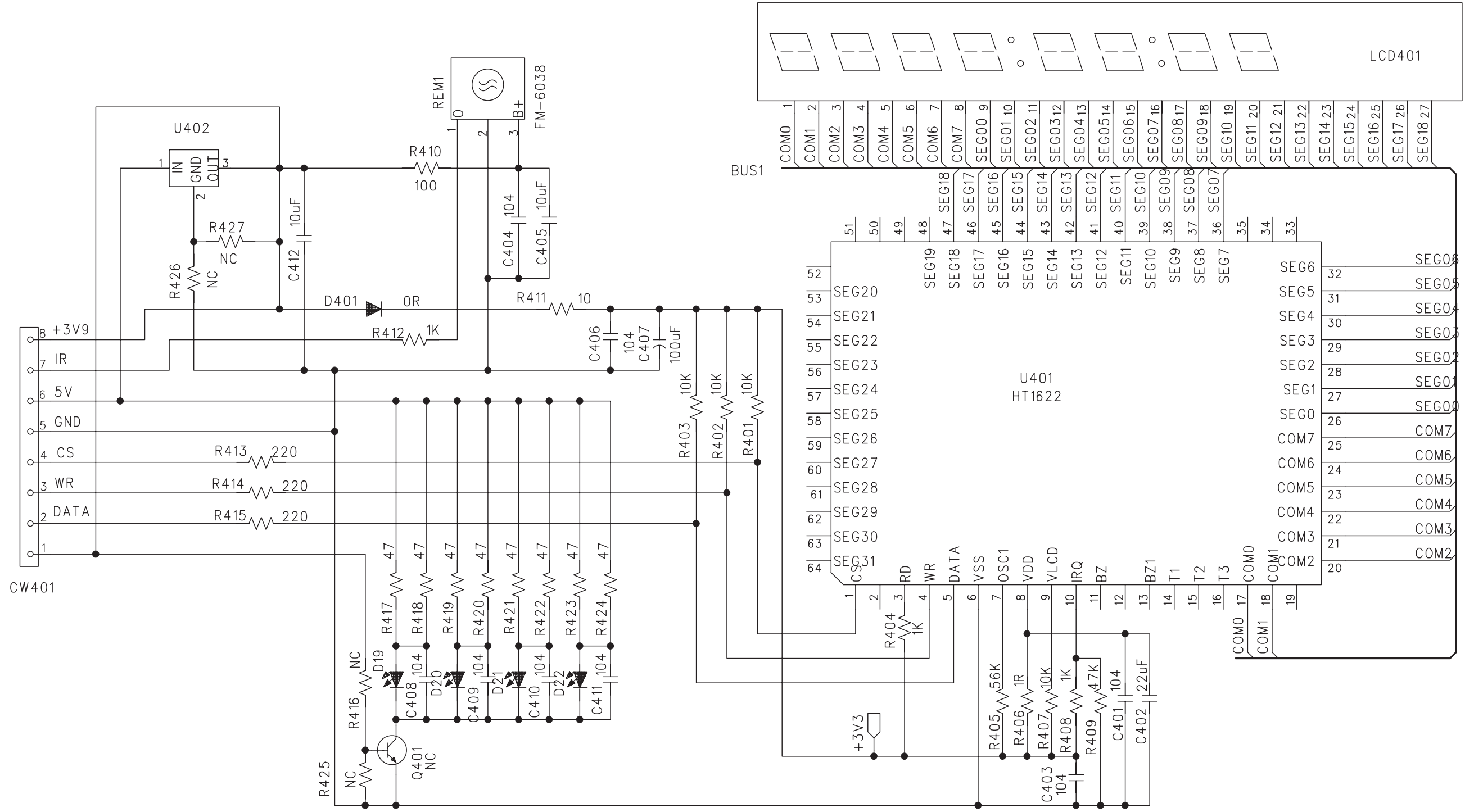
PCB LAYOUT - BLUETOOTH LED BOARD
BOTTOM VIEW

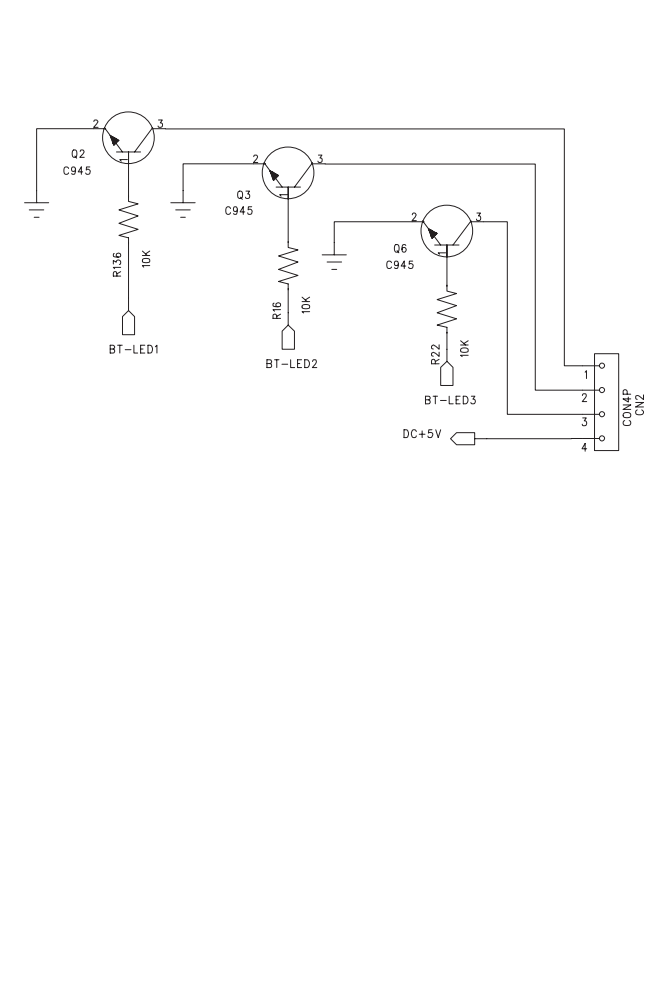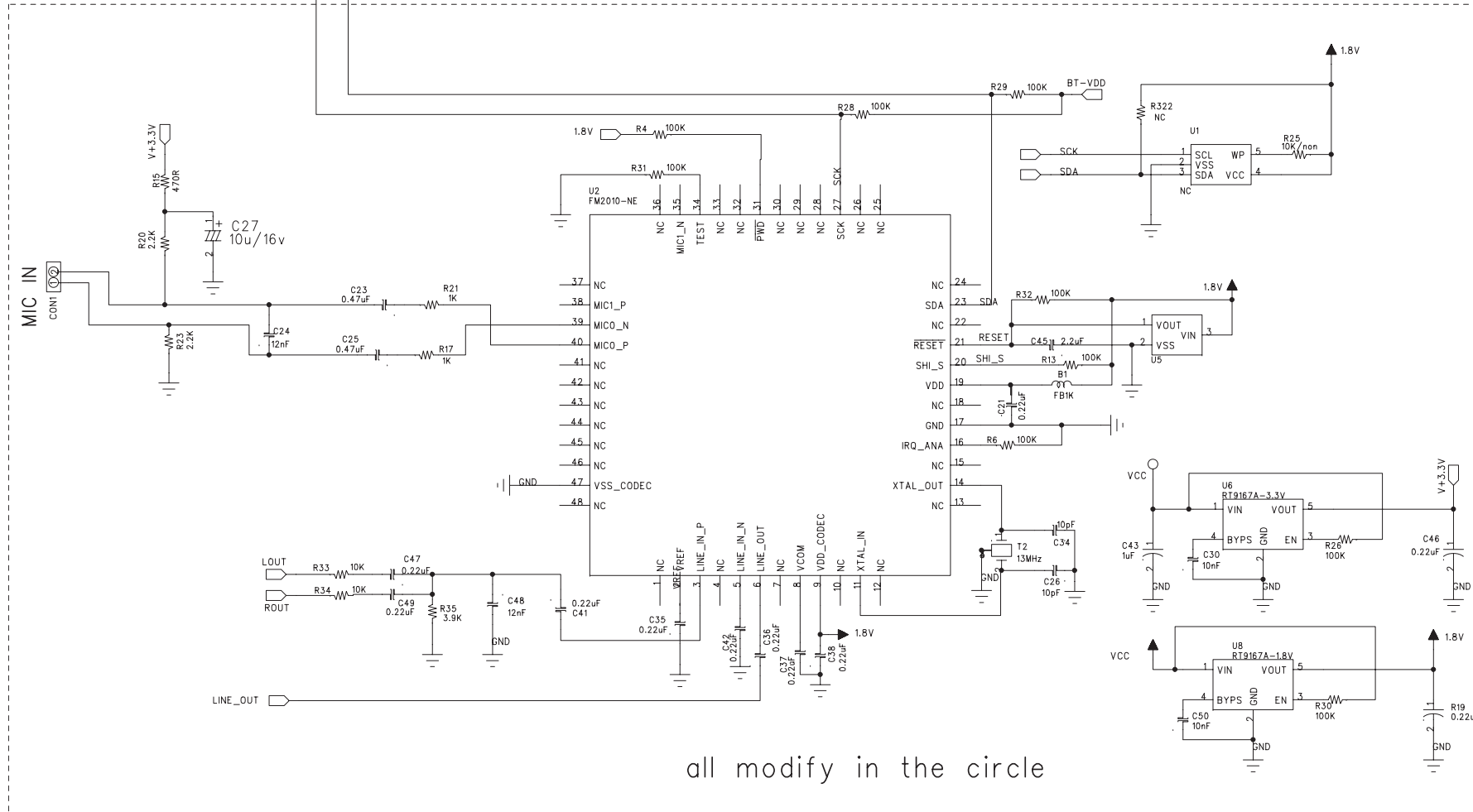## PCB LAYOUT - BLUETOOTH RX BOARD
TOP VIEW

PCB LAYOUT - BLUETOOTH RX BOARD
BOTTOM VIEW

CIRCUIT DIAGRAM - DISPLAY BOARD

CIRCUIT DIAGRAM - BLUETOOTH RX & LED BOARD
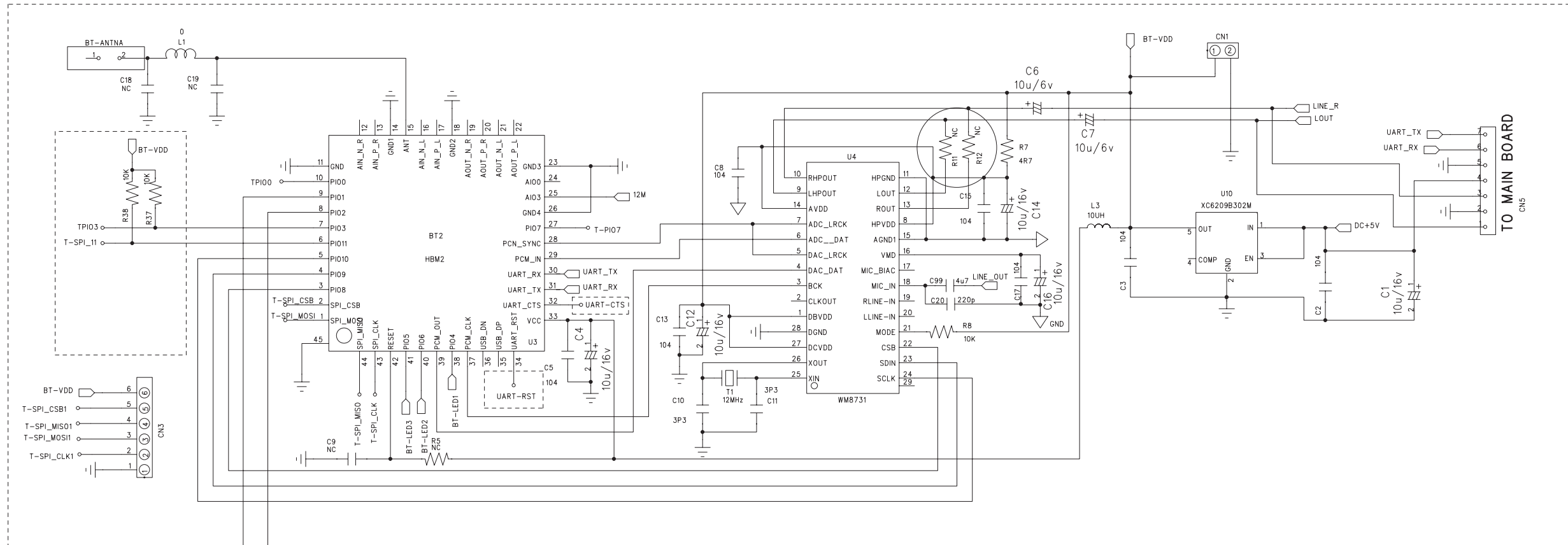
all modify in the circle

PCB LAYOUT - KEY BOARD
TOP VIEW
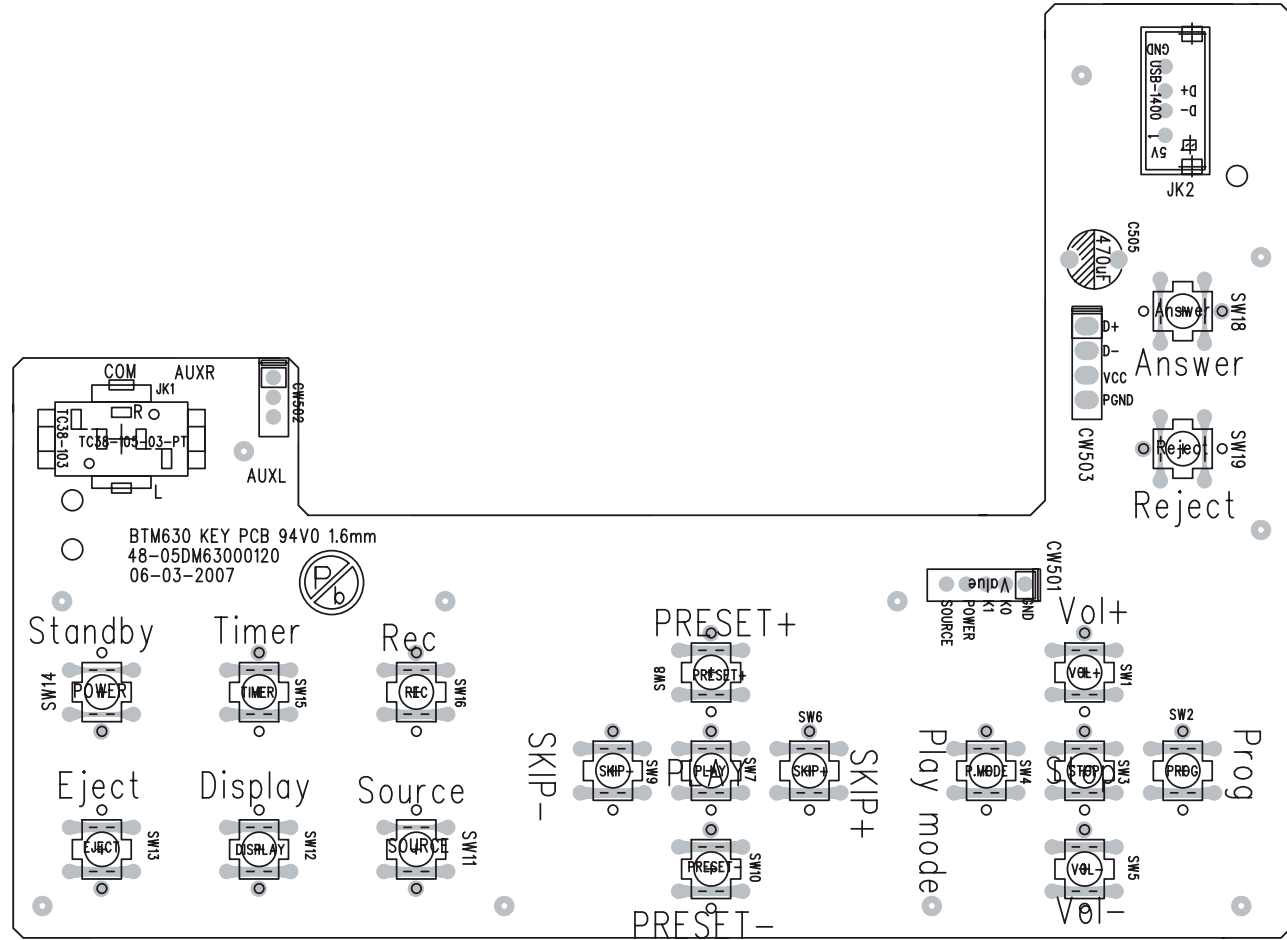
PCB LAYOUT - KEY BOARD
BOTTOM VIEW

BTM630 KEY PCB 94V0 1.6mm
48-05DM63000120
06-03-2007
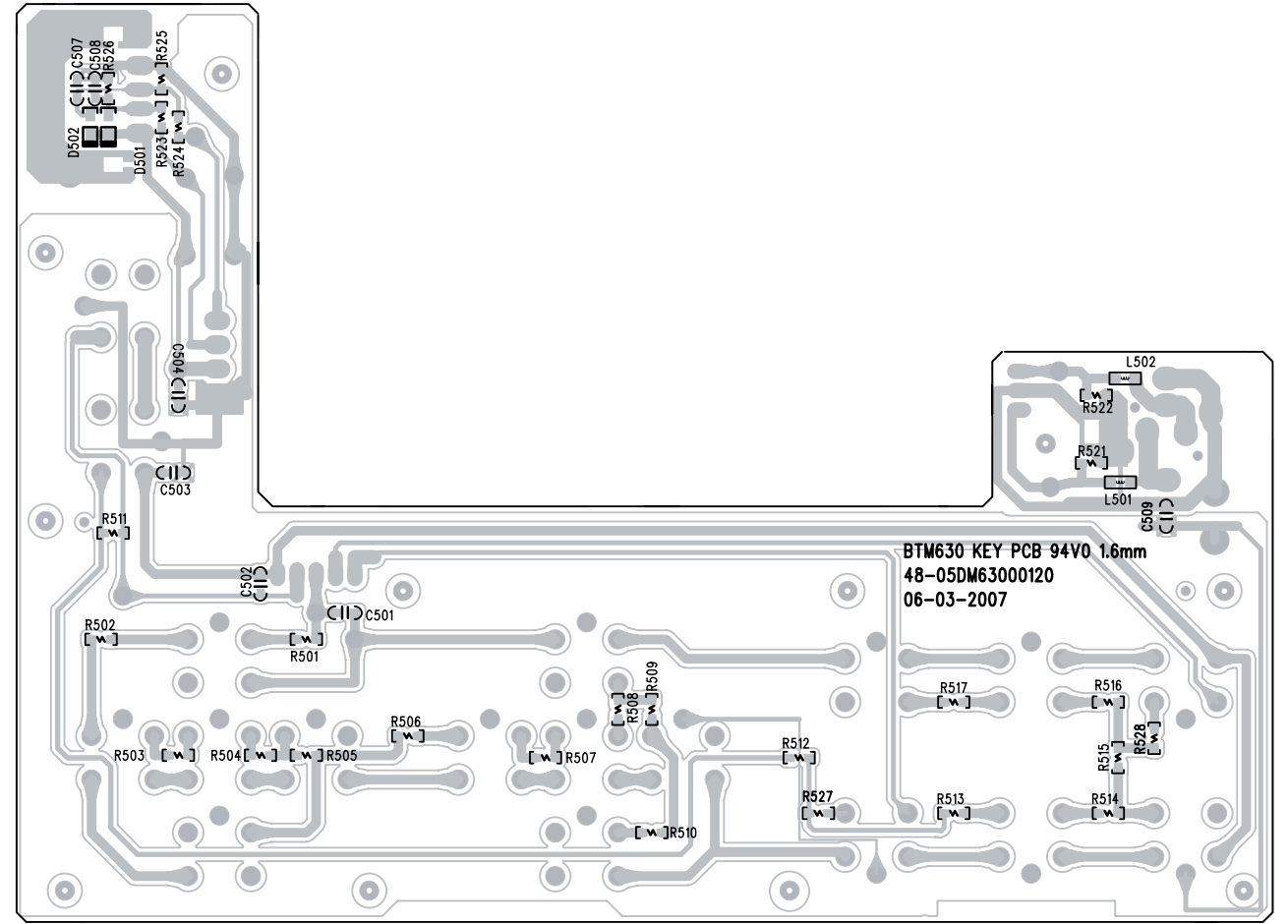
**PCB LAYOUT - IPOD JACK BOARD
TOP VIEW**

**PCB LAYOUT - SD JACK BOARD
TOP VIEW**

FR4 1.0mm IPOD JK BD   48-08BM63000320
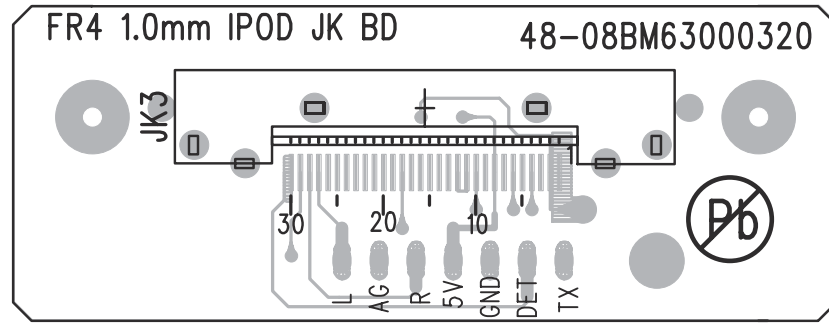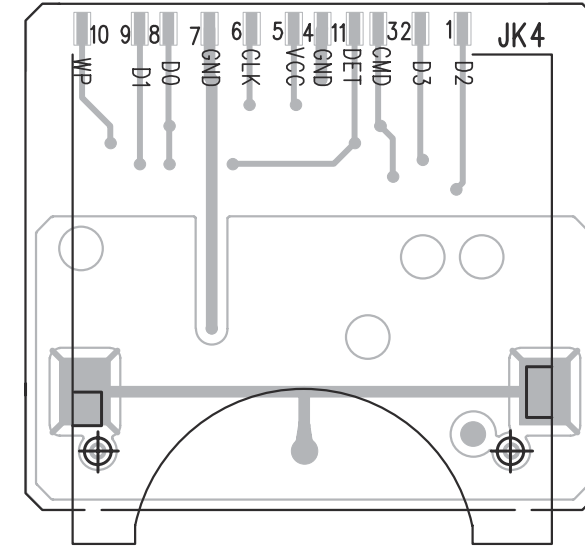
**PCB LAYOUT - IPOD JACK BOARD
BOTTOM VIEW**

48-08BM63000320

**PCB LAYOUT - SD JACK BOARD
BOTTOM VIEW**

48-08BM63001321

06-03-2007

BTM630 SD JACK PCB FR4 1.6mm
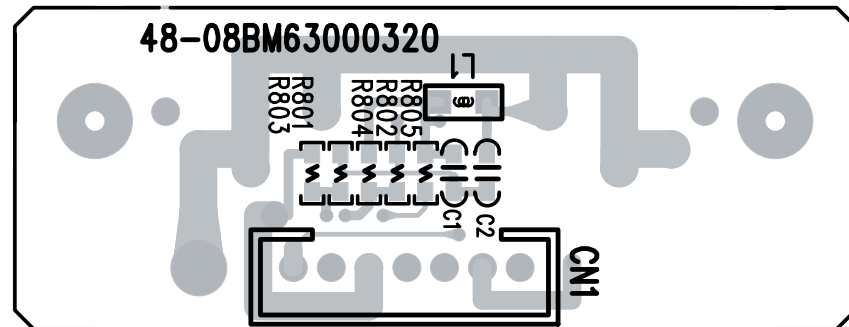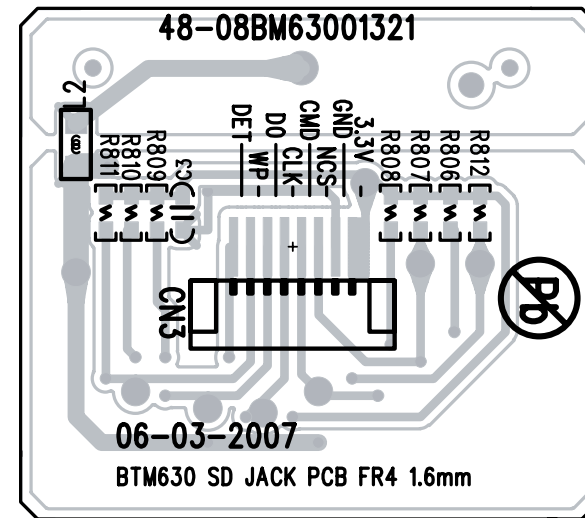
CIRCUIT DIAGRAM - KEY & IPOD & SD JACK BOARD

KEY PCB 94V0 1.6mm   48-04BM63000120

48-08BM63000320
IPOD JACK PCB FR4 1.0mm

48-08BM63001320
SD JACK PCB FR4 1.0mm
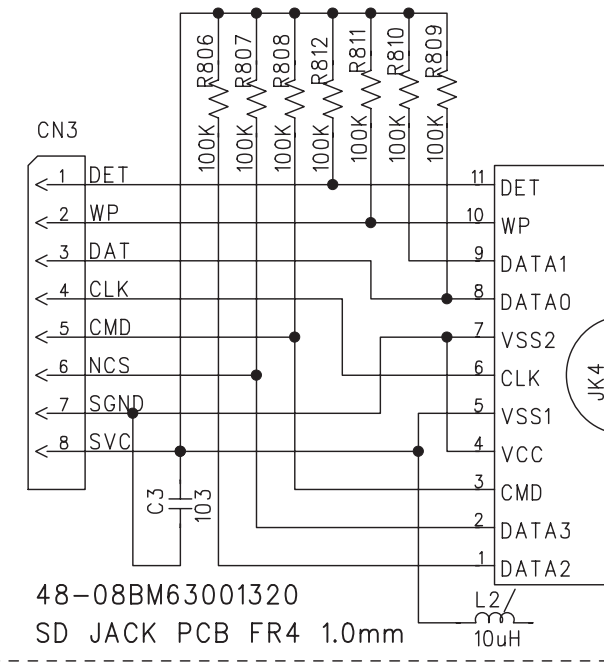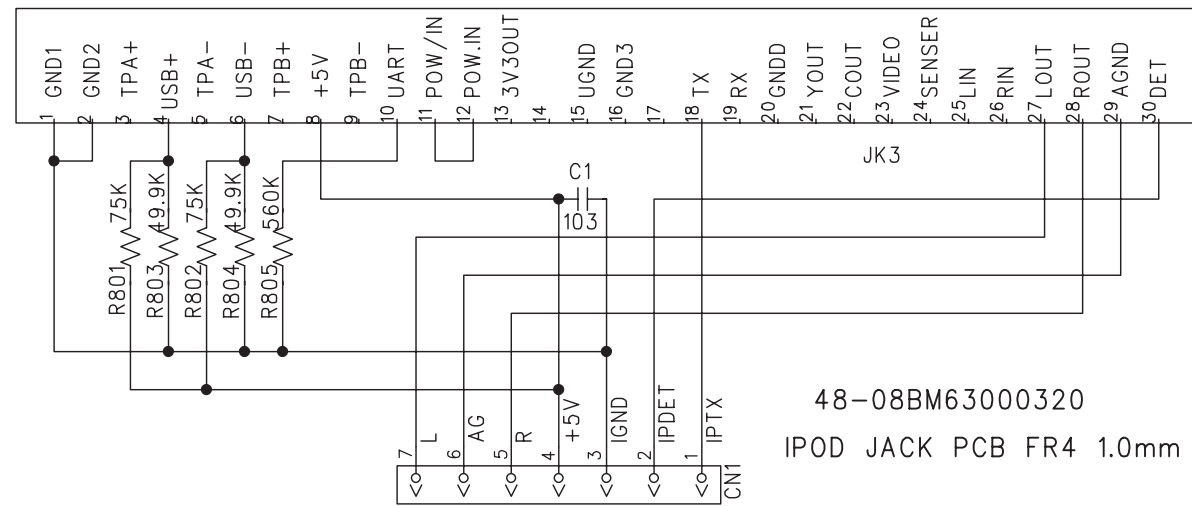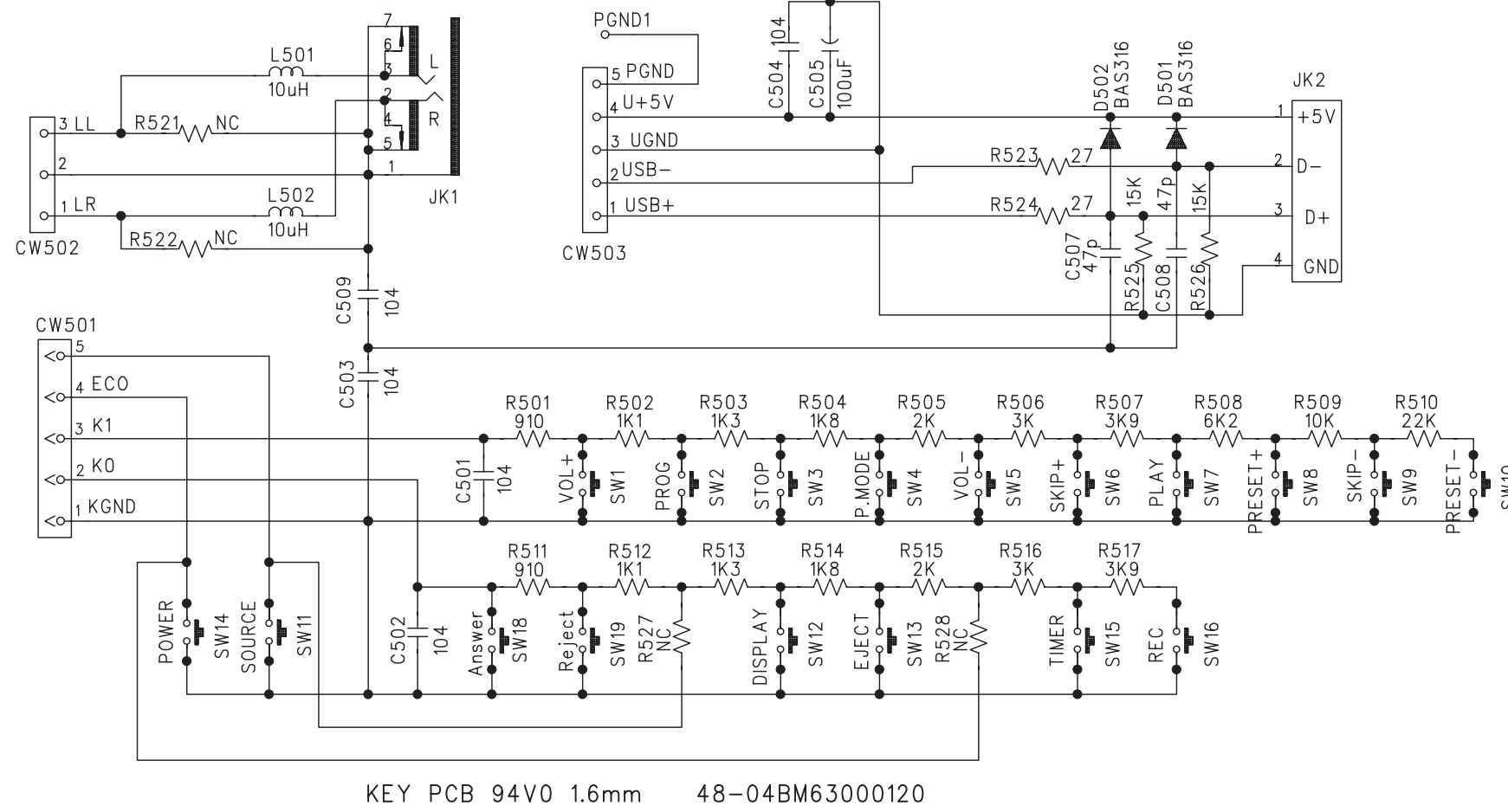
SET MECHANICAL EXPLODED VIEW
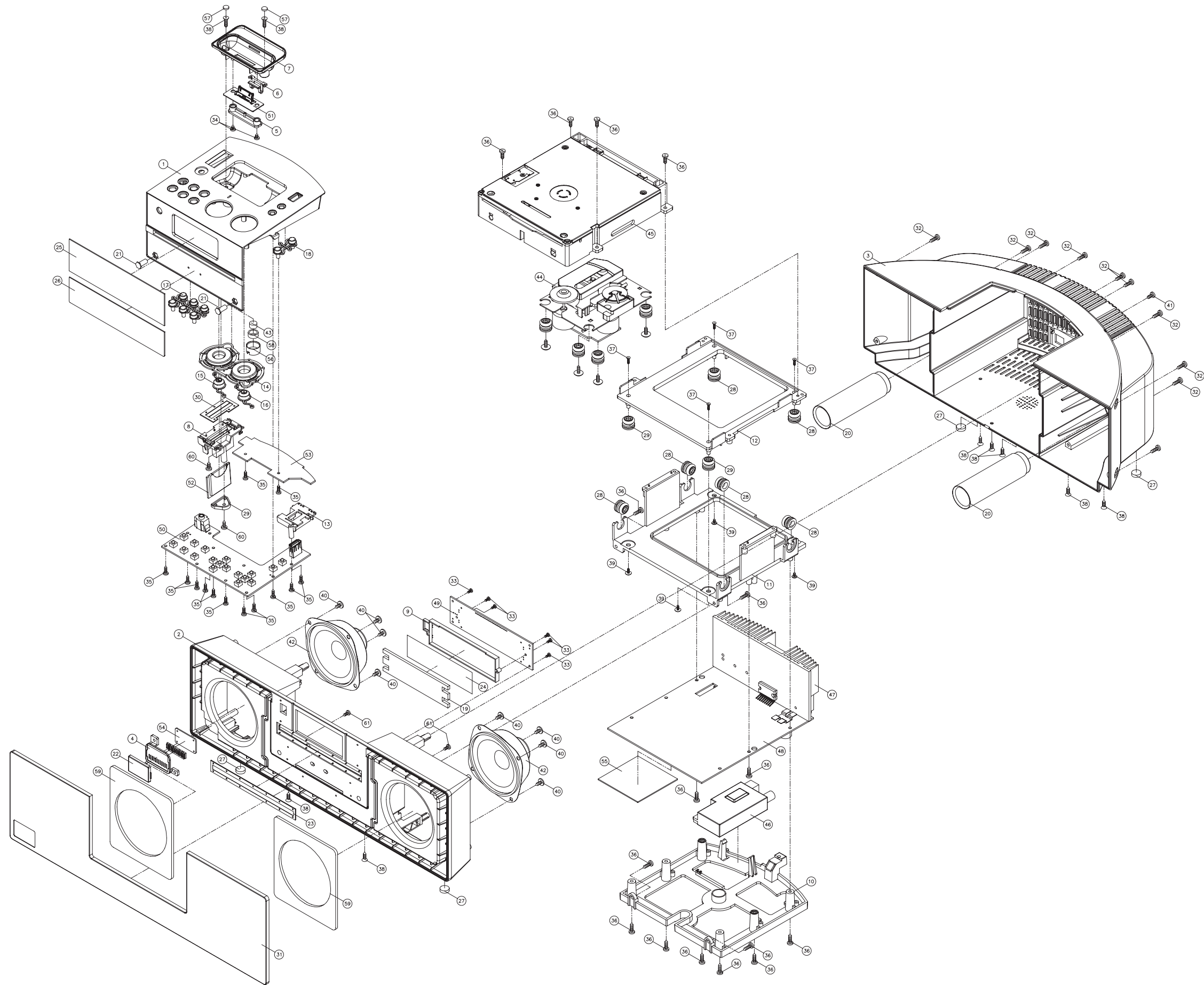
MECHANICAL & ACCESSORIES PARTS LIST

1	996510009347	TOP CABINET /05		213	996510001932	IPOD HOLDER -20GB BLK
1	996510009818	TOP CABINET /12		214	996510001933	IPOD HOLDER -30GB VIDEO 6G
2	996510009348	FRONT CAB /05		215	996510001934	IPOD HOLDER -30GB PHOTO 7G
2	996510009819	FRONT CAB /12		216	996510001935	IPOD HOLDER -40GB 7G BLK
3	996510009349	REAR CAB /05		217	996510001936	IPOD HOLDER -60GB 6G BLK
3	996510009820	REAR CAB /12		218	996510001937	IPOD HOLDER -60GB VIDEO 6G BLK
6	996510009356	IPOD LOCK		219	996510001938	IPOD HOLDER -NANO 7G BLK
10	996510006476	REMOTE CONTROL		220	996510001939	IPOD HOLDER -MINI 6G BLK
14	996510009350	CD KNOB		J001	996510006490	AM LOOP ANTENNA LAN-076
15	996510009351	PLAY KNOB		J002	994000001942	16P FFC 1MM L80MM
16	996510009352	STOP KNOB		J003	996510009344	8P FFC 1mm L200mm
17	996510009353	FUNCTION KNOB (6KEYS)		J004	996510009345	11P FFC 1.25mm L80mm
18	996510009354	ACCEPT KNOB (2KEYS)		J009	996510002103	CONN. CORD 3.5 ST/PLUGx2 500mm
22	996510009355	FLAG PANEL (SAN)		J009	996510009346	FM ANT (BLACK) 1M "CE"
25	996510009357	DISPLAY LENS		S001	996510009340	SPEAKER 3" 30W 4R
26	996510009358	LOGO LENS		T001 ⚠	996510009377	AC SW-ADAPTER 100-240V DC15V3A
28	996510002143	SHOCK ABSORBER (WHITE)				
31	996510009359	SPEAKER GRILL				
44	994000003669	CD MECHANISM (SANYO) DA11VF				
45	996510009341	CD LOADER #VSH-L33C-0928				
46	996510009343	TUNER MODULE MT104M VDE				

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

ELECTRICAL PARTS LIST - MAIN BOARD

101	996510009318	FAN JD3010MS1	Q32	996510000878	TRANSISTORS SPD09P06PL
C43	996510009317	E.CAP 5600UF 25V +-20% 16x32mr	Q4	994000004338	SMD TRANSISTORS PMBT3904
D1	996500042437	CH-DIODE SS14 SMA/DO-214AC	Q5	996500038610	TRANSISTORS 2W 8550C
D14	996510002112	REC. DIODE DL4001-T 1A 50V	Q501	994000004337	TRANSISTORS 2SD1936T-AC (SANY
D15	996510002112	REC. DIODE DL4001-T 1A 50V	Q502	994000004337	TRANSISTORS 2SD1936T-AC (SANY
D16	996510002112	REC. DIODE DL4001-T 1A 50V	Q6	994000004338	SMD TRANSISTORS PMBT3904
D4	996510002112	REC. DIODE DL4001-T 1A 50V	Q7	994000004338	SMD TRANSISTORS PMBT3904
D5	996510002112	REC. DIODE DL4001-T 1A 50V	Q8	994000004338	SMD TRANSISTORS PMBT3904
D6	996510002112	REC. DIODE DL4001-T 1A 50V	Q803	994000004145	TRANSISTORS B772Y (160-320)
D7	996510002112	REC. DIODE DL4001-T 1A 50V	Q804	994000004338	SMD TRANSISTORS PMBT3904
F1	⚠ 996510002426	CERAMIC FUSE 3.9x10.5mmW	Q810	996510009307	TRANSISTOR KTA1504
IC10	994000004607	IC PT2314	Q9	994000004145	TRANSISTORS B772Y (160-320)
IC104	996510002119	IC TA7291S	Q992	994000004338	SMD TRANSISTORS PMBT3904
IC11	994000001203	IC TDA8947J/N3	Q994	994000004338	SMD TRANSISTORS PMBT3904
IC14	996510008325	IC (LIBERAL) SC1308-01	U1	996510009314	IC S3F84H5
IC2	996510009312	IC D/A CE2632	U2	994000000249	IC (ROHM) BA4558F SOP8
IC3	994000000253	IC (SAMSUNG) KA7808	U3	994000004549	IC KA7805E
IC4	996500039808	IC SM LM324D	U4	996510009313	IC (PHILIPS) HEF4066BT(D)
IC6	996510002113	IC AP1501 (TO263-5L)	U5	996510009316	IC KIA7025AP/AF TO-92
IC702	996510009310	IC BA5826FP	U702	996500038611	IC KA7810E
IC803	996510009311	IC BU9543KV (SMD)	X2	994000004615	CRYSTAL 32.768KHZ 12.5PF
IC804	996510009309	IC (PHILIPS) 74LVC157AD	X7	994000004451	CRYSTAL 8.000MHZ +-20PPM
IC805	994000001247	IC HEF4094BT	X801	994000004551	CRYSTAL 16.9344MHZ +-20PPM
IC806	994000001247	IC HEF4094BT	Z1	996510009315	ZENER DIODE MM1Z4V3 (SOD-123)
J002	996510002121	PHONEJACK 3.6mm TC38-067-05-21			
J003	996510002122	DC JACK TC-18-013-03			
Q1	994000002839	IC LM1117S-3.3			
Q10	994000004338	SMD TRANSISTORS PMBT3904			
Q11	994000002839	IC LM1117S-3.3			
Q12	996510000878	TRANSISTORS SPD09P06PL			
Q14	994000004338	SMD TRANSISTORS PMBT3904	**Note:**	**Only these parts mentioned in the list are**	
Q15	996510009308	TRANSISTORS MMBT8550D		**normal service parts.**	
Q16	994000004338	SMD TRANSISTORS PMBT3904			
Q19	994000004338	SMD TRANSISTORS PMBT3904			
Q2	996510009308	TRANSISTORS MMBT8550D			
Q20	994000004338	SMD TRANSISTORS PMBT3904			
Q21	994000004337	TRANSISTORS 2SD1936T-AC			
Q22	994000004337	TRANSISTORS 2SD1936T-AC			
Q24	994000004338	SMD TRANSISTORS PMBT3904			
Q25	994000004338	SMD TRANSISTORS PMBT3904			
Q27	996500038610	TRANSISTORS 2W 8550C			
Q28	994000004338	SMD TRANSISTORS PMBT3904			
Q29	994000004337	TRANSISTORS 2SD1936T-AC			
Q3	996510000878	TRANSISTORS SPD09P06PL			
Q30	994000004337	TRANSISTORS 2SD1936T-AC			

ELECTRICAL PARTS LIST - MCU BOARD

CS1	996510009338	FLAT PIN 2mm 24P"I" TYPE L=9mm
CS2	996510009338	FLAT PIN 2mm 24P"I" TYPE L=9mm
CS3	996510009331	CAP 100UF 6.3V (3528-B TYPE)
ICS1	996510009336	IC MLC3890 (TQFP128)
ICS2	996510009337	IC SST39VF800A-70 8M 3.3V TSOP
ICS3	996510009335	IC LM1117S-1.8V SOT-223
ICS4	996510009334	IC 16M SDRAM HY57V161610FTP-7
XS1	996510008326	X'TAL 12 MHzHC-49/US H3.5mm
Z1	996510009333	DIODE RB160M-30 SOD-123

ELECTRICAL PARTS LIST - DISPLAY BOARD

102	996510002128	BACKNNIGHT LENS
D19	996500042438	LED LAMP 2x5x7mm (WHITE)
D20	996500042438	LED LAMP 2x5x7mm (WHITE)
D21	996500042438	LED LAMP 2x5x7mm (WHITE)
D22	996500042438	LED LAMP 2x5x7mm (WHITE)
LCD401	996510009319	LCD DISPLAY SDH-DA1573-TP-1
REM1	996510009320	OPTIC SENSER FM-6038TN2-5AN
U401	996510002124	IC (HOLTEK) HT1622

ELECTRICAL PARTS LIST - KEY BOARD

JK1	994000001244	V/PHONE JACK 3.5MM
JK2	996510009321	USB SOCKET 4P
SW1	996510002129	TACT SWITCH 6x6mm 5mm
SW10	996510002129	TACT SWITCH 6x6mm 5mm
SW11	996510002129	TACT SWITCH 6x6mm 5mm
SW12	996510002129	TACT SWITCH 6x6mm 5mm
SW13	996510002129	TACT SWITCH 6x6mm 5mm
SW14	996510002129	TACT SWITCH 6x6mm 5mm
SW15	996510002129	TACT SWITCH 6x6mm 5mm
SW16	996510002129	TACT SWITCH 6x6mm 5mm
SW17	996510002129	TACT SWITCH 6x6mm 5mm
SW18	996510002129	TACT SWITCH 6x6mm 5mm
SW19	996510002129	TACT SWITCH 6x6mm 5mm
SW2	996510002129	TACT SWITCH 6x6mm 5mm
SW3	996510002129	TACT SWITCH 6x6mm 5mm
SW4	996510002129	TACT SWITCH 6x6mm 5mm
SW5	996510002129	TACT SWITCH 6x6mm 5mm
SW6	996510002129	TACT SWITCH 6x6mm 5mm
SW7	996510002129	TACT SWITCH 6x6mm 5mm
SW8	996510002129	TACT SWITCH 6x6mm 5mm
SW9	996510002129	TACT SWITCH 6x6mm 5mm

ELECTRICAL PARTS LIST - IPOD JACK BOARD

JK3	996510008605	IPOD SOCKET 0.5mm 30P 180C

ELECTRICAL PARTS LIST - SD JACK BOARD

JK4	996510009323	SD CARD CONNECTOR

ELECTRICAL PARTS LIST - BLUETOOTH RX BOARD

C1	996510009330	CAP 10UF 6.3V +-20% (3216-A)
C12	996510009330	CAP 10UF 6.3V +-20% (3216-A)
C14	996510009330	CAP 10UF 6.3V +-20% (3216-A)
C16	996510009330	CAP 10UF 6.3V +-20% (3216-A)
C27	996510009330	CAP 10UF 6.3V +-20% (3216-A)
C4	996510009330	CAP 10UF 6.3V +-20% (3216-A)
C6	996510009331	CAP 100UF 6.3V (3528-B TYPE)
C7	996510009331	CAP 100UF 6.3V (3528-B TYPE)
J405	996510009306	ANTT AT9520 2.4GHz
Q1	996510008369	TRANSISTORS MMBT8050D (SOT23)
Q3	996510008369	TRANSISTORS MMBT8050D (SOT23)
Q4	996510008369	TRANSISTORS MMBT8050D (SOT23)
T1	996510008326	CRYSTAL 12 MHzHC-49/US H=3.5mm
T2	996510009332	CRYSTAL 13MHZ HC-49/US +-15PPM
U10	996510009329	IC XC6209B302M SOT-25
U2	996510009325	IC FM2010
U3	996510009324	IC RX F1M22 HBM2X1M(BC3MM)
U4	996510003994	IC WM8731 SSOP28
U5	996510009328	IC XC61CN1502MR (SOT-23)
U6	996510009327	IC RT9193-3.3V (SOT-23-5)
U8	996510009326	IC RT9193-1.8V (SOT-23-5)

ELECTRICAL PARTS LIST - BLUETOOTH LED BOARD

LED1	996510009342	LED LAMP(BLUE)
LED2	996510009342	LED LAMP(BLUE)
LED3	996510009342	LED LAMP(BLUE)
LED4	996510009342	LED LAMP(BLUE)
LED5	996510009342	LED LAMP(BLUE)
LED6	996510009342	LED LAMP(BLUE)

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