Portable Sound system

AZP6/all

Service
Service
Service

Service Manual

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CLASS 1
LASER PRODUCT

Published by LX 1228 Service Audio Printed in The Netherlands Subject to modification

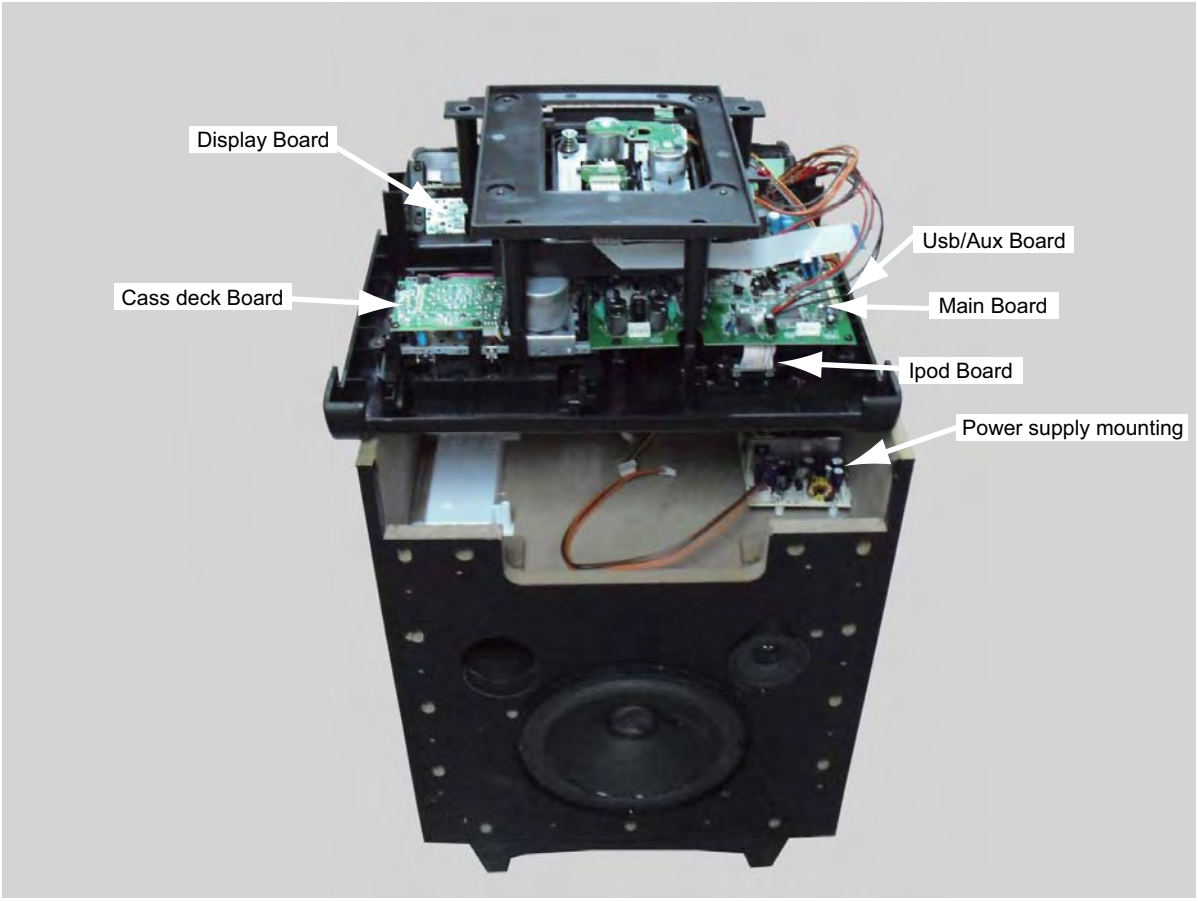
3141 785 38320

Version 1.0

PHILIPS

Technical Specification and Connection Facilities

Location of PC Boards



VERSION VARIATION

Type /Versions: / Service policy / Board in used:	AZP6									
	/12 (EUROPE)									
Main BOARD	C/M									
Display BOARD	C/M									
Usb/Aux BOARD	C/M									
Cass deck BOARD	C/M									
Ipod BOARD	C/M									
Power supply mounting	M									
Type /Versions: / Feature diffrence / Features	AZP6									
	/12									
RDS										
VOLTAGE SELECTOR										
ECO STANDBY - DARK										

* TIPS : C -- Component Lever Repair.
M -- Module Lever Repair
√ -- Used

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CABINET

Diemensions with Boxes (wxhxd)	Material : HIPS / ABS / POM / V2 / SAN	
Diemensions without Boxes (wxhxd)	Finshing : Chrome Plate	
Weight (inclusive packing)	Units in Masstercarton	
Weight (exclusive packing & batery)	Units in Dealercarton	

Remarks :

Remark :

GENERAL PART 1 - FRONT PANNEL SPECICFICATION

Class No		Ver	Issued Date
AZP6		1	2012-2-2
		2	
		3	

NAME : Andy Lai	10	10	SH 190 - 1			A4
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CABINET

Diemensions with Boxes (wxhxd)	Material :ABS/HIPS	
Diemensions without Boxes (wxhxd)	Finshing : Chrome Plate	
Weight (inclusive packing)	Units in Masstercarton	
Weight (exclusive packing & batery)	Units in Dealercarton	

GENERAL PART 1 - BACK PANNEL SPECICFICATION

Class No			Ver	Issued Date
	AZP6		1	2012-2-2
			2	
			3	

NAME :	10		SH 190 - 2	
		CHECK	DATE :	

GENERAL DESCRIPTION

MP3-Micro Hi Fi System with Digital Tuner , 2 x 20W Bi-Amplifier

CD,IPhone ,USB,AUX IN ,CASSETTE,MIC X2,CLOCK, Head Phone and Remote Control,LCD display.

LIFETIME : 7 Years

Class		Supply + Amplifier	Loudspeaker Boxes	IPOE	Clock	USB
I			X			
II		X		X	X	
III						
Page		4,5,6	4	8	7	9

SAFETY requirements

Version	Safety	EMC
/12/05	IEC60065	EN55013/EN55020
/37	UL60065	FCC99
/98	IEC60065	CISPR13
/55	EIC60065	CISPR13
/79	IEC60065	CISPR13

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 (AC ADAPTER)

MAINS (SMPS)	100V~240VAC		
Version	All		
Voltage Selection	No		
Frequency	60Hz/50Hz		

POWER CONSUMER

	/ 79	/ 55/98	/ 37	/12/05
Stadby :	<1W	<1W	<1W	<1W
(DEMO mode " OFF ") , NOM. A, INPUT				
Maximum :				
@ 1/8 Prated , NOM. A, INPUT				
ECO Power mode :	<1W	<1W	<1W	<0.5W

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 - MAR 1995)

DERIVED	REMARKS	APPROBATION

Remarks

GENERAL PART 1 - GENERAL SPECICFICATION

Class No			Ver	Issued Date
		AZP6	1	2012-2-2
			2	
			3	

NAME : Andy Lai	10	10	SH 190 - 3			A4
		CHECK	DATE :			

AUDIO SIGNAL PROCESSING

Main Operation for AZP6 /ALL VOERSION (RMS)	20W, 1 Channels (Lim:'±	(At Living Sound off, front 1channels)

1) DSC (Digital Sound Control)

At AUX MODE

Set DSC to JAZZ mode

Adjust volume to obtain 500mW across 6 ohm load at LOW/HIGHT speaker ouput

The 50mW will be used as 0dB reference

Inject sinewave 500mV to AUX-IN with frequencies indicated below :

Tabel 1a (Tolerance ± 3dB)

Frequency	DSC Modes with BASS Off (Db)				
	JAZZ	POP	CLASSIC	ROCK	
80 Hz	0	4	6	6	
1 kHz	0	0	0	0	
10 kHz	0	2	-4	4	

2) BASS (Dynamic Bass Boot)

Select AUX as input source with the following set conditions :

Inject sine wave 500mV at 1kHz to L/R channels from AUX IN

Set DSC to Flat mode and switch off DBB.

Adjust volume level will be as 0 dB reference.

Tabel 2 (Tolerance ± 3dB)

Frequency	CD	
	BASS ON	BASS OFF
80 Hz	8 dB	0 dB
10KHz	0 dB	0 dB

Remarks

GENERAL PART 1 - AUDIO SIGNAL SPECICFICATION (1)

Class No			Ver	Issued Date
		AZP6	1	2012-2-2
			2	
			3	

NAME : Andy Lai		10	10	SH 190 - 5			A4
			CHECK	DATE :			

TECHNIAL DESCRIPTION

20W +20W matching LOUDSPEAKER of 1x 6R. Two INPUT SOURCE Bi-amp)

GENERAL PART

OUTPUT stage Protection : Yes Temperature : YES Shorcircuit : Yes

LoudSpeaker D.C. Protection : Yes.

9

INDICATORS

Standby Mode Indicator : LCD display active

ELECTRICAL DATA

DSC :	Jazz, Pop, CLAS,Rock,	Channel Differencer at -46dB	3	dB
DBB	on/off	Hum (Volume Minimun)	<200	nW
SIS :	N/A	Residual Noise (Volume Minium)	<200	nW
VAC :	N/A	Channel Separation (at 1 kHz)	≥ NA	dB
WOOX :	N/A	Signal / Noise	≥ 50	dB
		Signal / Noise (A-weighted)	≥ 60	dB

INTERCONNECTS

Input Sensitity (± 3 dB) rated ouput power at 1 kHz Line Output Voltage (*1)

CASSETTE		Line Out (Left / Right)	N.A
CD	N/A	Subwoofer Out	N.A
USB	Have	Headphone	600mV ± 2 dB, RL = 32Ω
AUX	600mV(400mV ~ 800mV)	Digital Coaxial Out	N.A
Microphone	N/A	Booster Out	N.A
IPHONE	800mV		
Microphone	input leven 5mv rms(Lim:'-1dB) Rs=600ohm	Frequency response @±4dB	40HZ-7KHZ(reference 1KHZ)
			7KHZ-20KHZ(reference 10KHZ)

OUTPUT POWER (* 1) At Cold Condition with 10% THD , 1KHz,10KHZ and DBB of ,DSC=JAZZ (Bi-AMP)

Main Operation /ALL VOERSION (RMS)	Low Freq.1KHZ 20W ,	1 Channels (Lim:'-1dB)
	High Freq 10KHZ 20W,	

Rated Impedance

Remarks/Emphasis

(*1) Electrical parameters are to be measuremend at specker terminals across 6 Ohm load (pure resistor) with rated input signal in CD/AUX/USB mode; DSC setting in JAZZ mode with DBB OFF

Measuremend output data must used audio analyzer equipment.(必须使用音频分析仪测试+滤波器)

GENERAL PART 1 - TECHNAICAL SPECICFICATION

Class No		Ver	Issued Date
	AZP6	1	2012-2-9
		2	
		3	

NAME : Andy Lai	10	10	SH 190 - 4			A4
	CHECK	DATE :				

TECHNIAL DESCRIPTION

SOFTWARE IMPLEMENTED CLOCK / TIMER FUNCTION WITH 32.768kHz QUARTZ OSCILLATOR.

GENERAL PART

Timer Setting	:	Clock and Timer
Timer Wakeup Mode	:	, Tuner
Remarks Time Setting	:	05/12/98/79 version for 24hrs /37 version for 12hrs
Volume at Wakeup	:	12 level Volue
No of Timer Settings	:	1
Clock Accuracy	:	Nom : 1 sec/day Limit : 2 sec/day

INDICATORS

Display Type	LCD

Remark

CLOCK / TIMMER SPECICFICATION

Class No		Ver	Issued Date
AZP6		1	2012-2-2
		2	
		3	

NAME : Andy Lai	10	10	SH 190 - 6			A4
CHECK	DATE :					

TECHNIAL DESCRIPTION

CD + MP3 - Part Specifications

GENERAL PART

Measurement are directly done at the connector on CD board

Description	Extern Filter	Nom	Lim	Unit
Output Resistance	No		< 100	Ohms
Output Voltage - Unloaded (0dB , 1 kHz)	No			Vrms
Channel Unbalance	No		< ± 2	dB
Frequency Response BI-AMP(40 HZ -7 kHz for LOW channel,7KHz -20 kHz for HIGHT ch	No		±3 dB	dB
Signal to Noise Ration (Unweighted)(*1)	Yes	55	50	dB
Signal to Noise Ration (A - weighted)(*1)	Yes	62	55	dBA
Crosstalk (1kHz)	Yes	40	30	dB
Crosstalk (10kHz)	No	35	30	dB
Hum & Noise (Vol Max -20dB)(at speaker)	No	80	200	nW
Emphasis	-	15	50	uS

Remark

(*1) Measured at CDM level

TECHNIAL DESCRIPTION

USB

See also SH 190 USB Audio Module (300605)
Measurment are directly done at the coonector on the board

USB Measurement at Set Level

Electrical Parameters are to be measured at speaker teminals across 6 ohm load with 500mW output.

Description	Specification
Channel Crosstalk	>= 30dB (use 1 KHz filter)
Signal to Noise Ratio	>= 55 dBA (A - weighted)
Channel Unbalance	< +/- 3dB
Frequency Response (+/- 3dB), reference 1kHz OR 10KHZ	(40 HZ -7 kHz for LOW ch,7KHz -20 kHz for HIGHT ch)

Communication interface

3-wire I2C like protocol implement by software, operating frequency around 10 KHz.
An 'Busy' signal acknowledge, logic high, to inform MCU the module is ready for communication.
High level command set to read and access the module.

Remarks :(Measured with 125Hz-10KHz filter).

USB SPECICFICATION					
Class No				Ver	Issued Date
		AZP6		1	2012-2-2
				2	
				3	
NAME : Andy Lai			SH 190 -12		
		CHECK	DATE :		

TECHNIAL DESCRIPTION

AUX - Part Specifications

Measurement are directly done at the AUX IN

Description	Extern Filter	Nom	Lim	Unit
Output Resistance			N/A	Ohms
Channel Unbalance		2	3	dB
Frequency Response(40 HZ -7 kHz for LOW ch,7KHz -20 kHz fo		0	± 3	dB
Signal to Noise Ration (Unweighted)(*1)		55	50	dB
Signal to Noise Ration (A - weighted)(*1)		60	55	dBA
input sensitivity		400	800	mV

Remark

(*1) Measured at AUX level

AUX SPECICFICATION

Class No			Ver	Issued Date
		AZP6	1	2012-2-2
			2	
			3	

NAME : Andy Lai	15	SH 190 - 12			A4
		CHECK			

TECHNIAL DESCRIPTION

iPhone /- Part Specifications

GENERAL PART

Measurement are directly done at the DOCKING IN

Description	Extern Filter	Nom	Lim	Unit
Output Resistance			N/A	Ohms
Channel Unbalance		1	2	dB
Frequency Response (40 HZ -7 kHz for LOW ch,7KHz -20 kHz f			± 3	dB
Signal to Noise Ration (Unweighted)(*1)		55	50	dB
Signal to Noise Ration (A - weighted)(*1)		62	55	dB
Hum Noise(Volume control from min.till max.–20 dB(A-Weighte		1	1.5	mV
Channel Separation 1KHZ		40	35	dB
Distortion (-6dB from Prated) 1KHz		0.5	1	%
10% THD (800mV Input) (THD=10%)		20	Lim:'-1dB	W
Ipad charging		5	4.65 ~ 5.2	V

Remark

(*1) Measured at iPOD output=800mV level

TECHNIAL DESCRIPTION

V/CASS SINGLE DECK

GENERAL PART

Tape Speed	: 4.76	CM / S	Auto Stop (all functions)	:	Yes
Speed Control	: ± 3.0	%	Auto Reverse	:	No
WOW and Flutter	: 0.4 (DIN)	%	Auto Replay	:	No
Fast Wind / Rewind C 60	: 130	S	Cue Review	:	No
No. of Tracks	: 2 Tracks (Stereo)		Recording	:	Yes
Mech. Noise ISO	: Normal Speed : < 39	dB (A)	Mixing	:	No
Tape (PB)	: IEC I		Monitoring	:	No
Tape (Recording)	: IEC 1		Remote Controlled	:	No
Tape Select	: N/A		High Speed Dubbing	:	No
Recording Level	: Auto		Noise Reduction System	:	No

INDICATIONS

Recording Level	: No
Playback	: No
Display	: LCD

ELECTRICAL DARA

		Typ	Lim.				Typ	Lim.	
Bias & Erase System F.M. A.C.	:	70 ±	5	kHz	Channel Differenc at PB	:	0	4	dB
Bias & Erase System A.M. A.C.	:	70 ±	5	kHz	Channel Differenc at Overall	:	1	4	dB
RIF - Shift	:	No		kHz	Distortion 250nWb/m	:	< 3	7	%
Erasing Attenuation (ICE I)	:	40	30	dB	ALC Attack Time	:	3	<25	mS
Channel Separation at 1 kHz	:	24	18	dB	ALC Recovery Time	:		⩾ 40	S
Track Separation at 1 kHz	:	40	35	dB	REC LEVEL(From FM/67.5k dev)	:	-3	=± 3	dB
Play freq. Response(125Hz-8KHz)	:	+3 -8dB			Hum & Noise(Min Vol)	:		4	mV
Reco. Freq. Response(125Hz-8KHz)	:	+3 -8dB							
R/P Signal / Noise (Unwighted)	MTT121				:	40	30	Db	
P/B /Signal / Noise (A-wighted)	MTT121				:	45	40	dB	
Hum (Volume Max)		<120		Mv					

Remark

CASSSTTLE DECK SPECICFICATION

Class No			Ver	Issued Date
		AZP6	1	2012-2-2
			2	
			3	

NAME :Andy Lai		10	10	SH 190 -12			A4
KT		CHECK	DATE :				

VERSION OVERVIEW AZP6

Ver	DEST	APPROBATION		TUNER				AC SUPPLY			MIC MIX	MATRIX SURR. SPK.
		SAFETY	EMC	Wave RANGE	GRID	AERIAL SOCKET	AERIAL SUPPLIED	MAINS VOLTAGE	SOC.	CORD		
/37	USA Canada	UL 6500	FCC 99	FM 87.5-108.5MHz MW 520-1720kHz			AM Loop Sagami/FM Pigtail Antenna	120V 60Hz	UL	UL	No	No
79/12/05	EUROPE	EN60065 SEMKO DEMKO NEMKO SEV BS415-UK	EN55013 EN55020	FM 87.5-108.5MHz MW 525-1620kHz			AM Loop Sagami/FM Pigtail Antenna	230V 50Hz	IEC	IEC	No	No
55/98	LATAM APMEA	EN60065	CISPR13	FM 87.5-108.5MHz MW 515-1630kHz			AM Loop Sagami/FM Pigtail Antenna	120/230V 60Hz	IEC	IEC	No	No

VERSION OVERVIEW

Class No			Ver	Issued Date
		AZP6	1	2011-3-21
			2	
			3	

NAME :Andy Lai			10	10	SH 190 - 10			A4
			CHECK	DATE :				

2.0 SAFTETY INSTRUCTIONS

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

NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

NL
Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

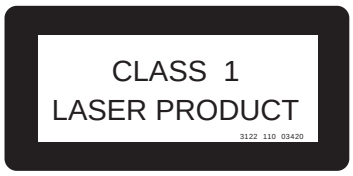
F
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

D
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

I
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".



GB Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

S Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

SF Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

DK Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

Caution: These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

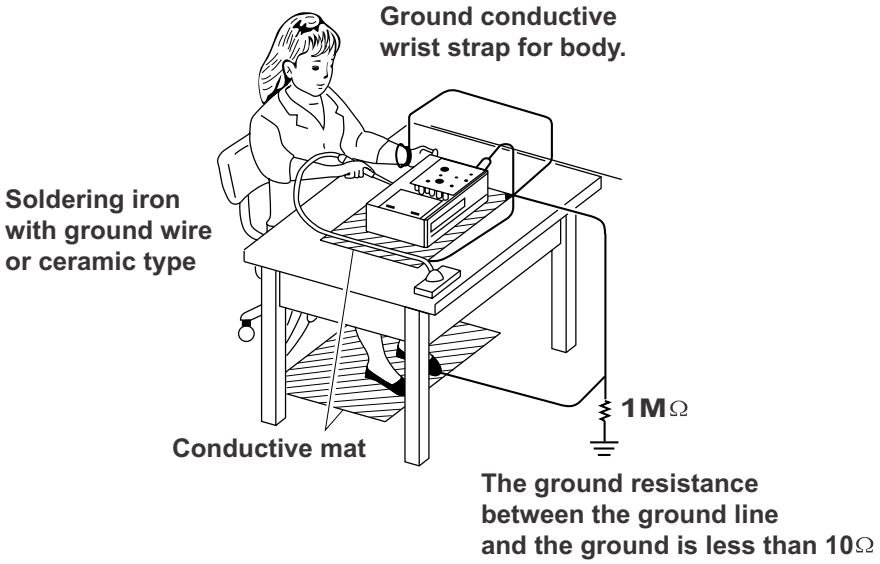
2.1 ESD PROTECTION

- レンズには絶対に触れないでください。
- DO NOT TOUCH THE LENS.
- LINSE NICHT BRÜHREN.
- NE PAS TOUCHER LA LENTILLE.

When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of laser may be received.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electrocity.
Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire,etc. to protect the laser diode form damage by static electricity.
And also, the LSI and IC are same as above.



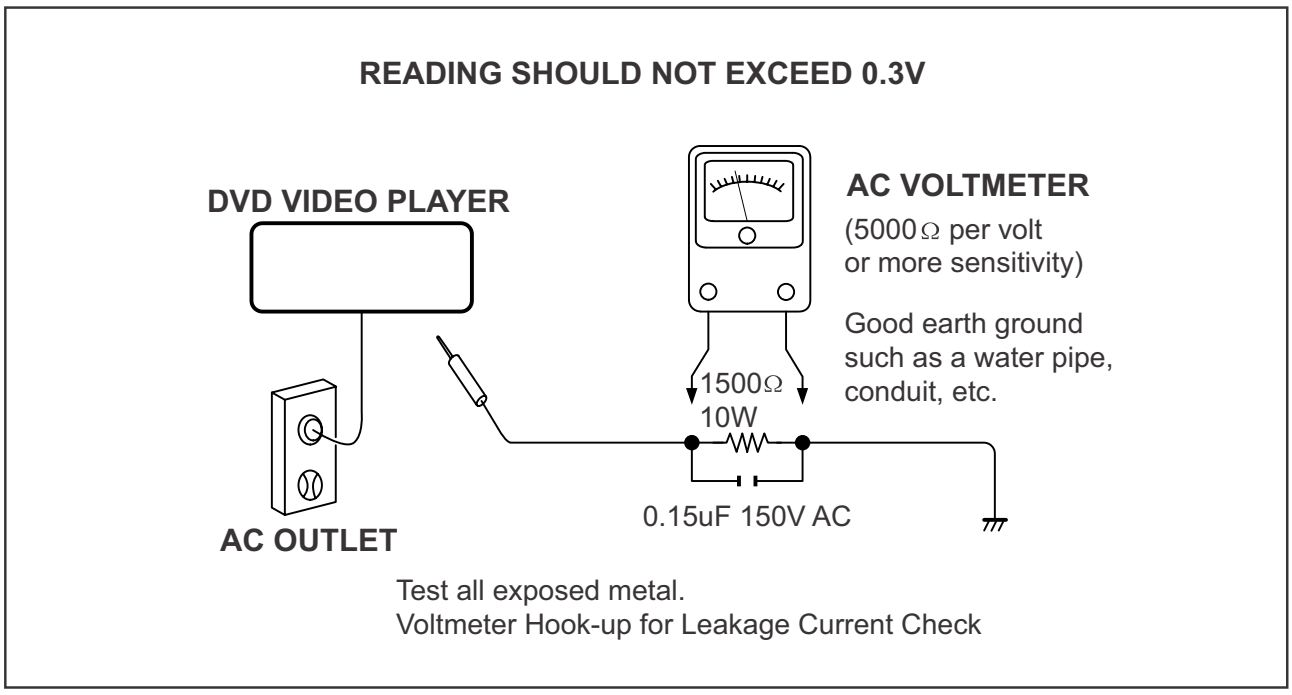
SAFTY NOTICE

SAFTY PRECAUTIONS

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having 5000Ω per volt or more sensitivity. Connect a 1500Ω 10W resistor,paralleled by a 0.15uF 150V AC capacitor between a knomn good earth ground (water pipe, conduit, etc.) and all exposed metal parts of cabinet (antennas, handle bracket, metal cabinet screwheads, metal overlays, control shafts, etc.).

Measure the AC voltage across the 1500Ω resistor. The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3V.A reading exceeding 0.3V indicates that a dangerous potential exists, the fault must be located and corrected. Repeat the above test with the DVD VIDEO PLAYER power plug reversed.
NEVER RETURN A DVD VIDEO PLAYER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.



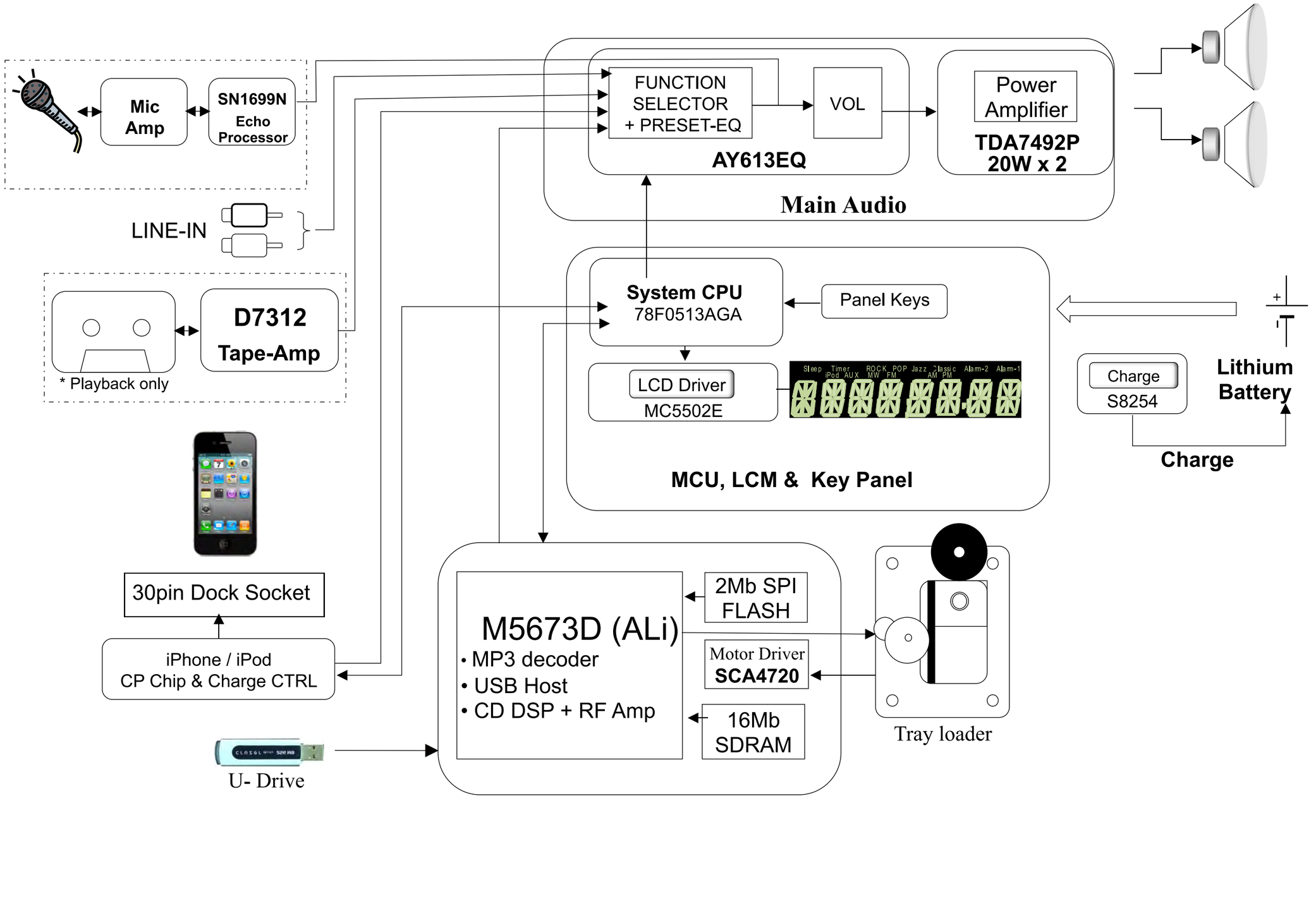
Test all exposed metal.
Voltmeter Hook-up for Leakage Current Check

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

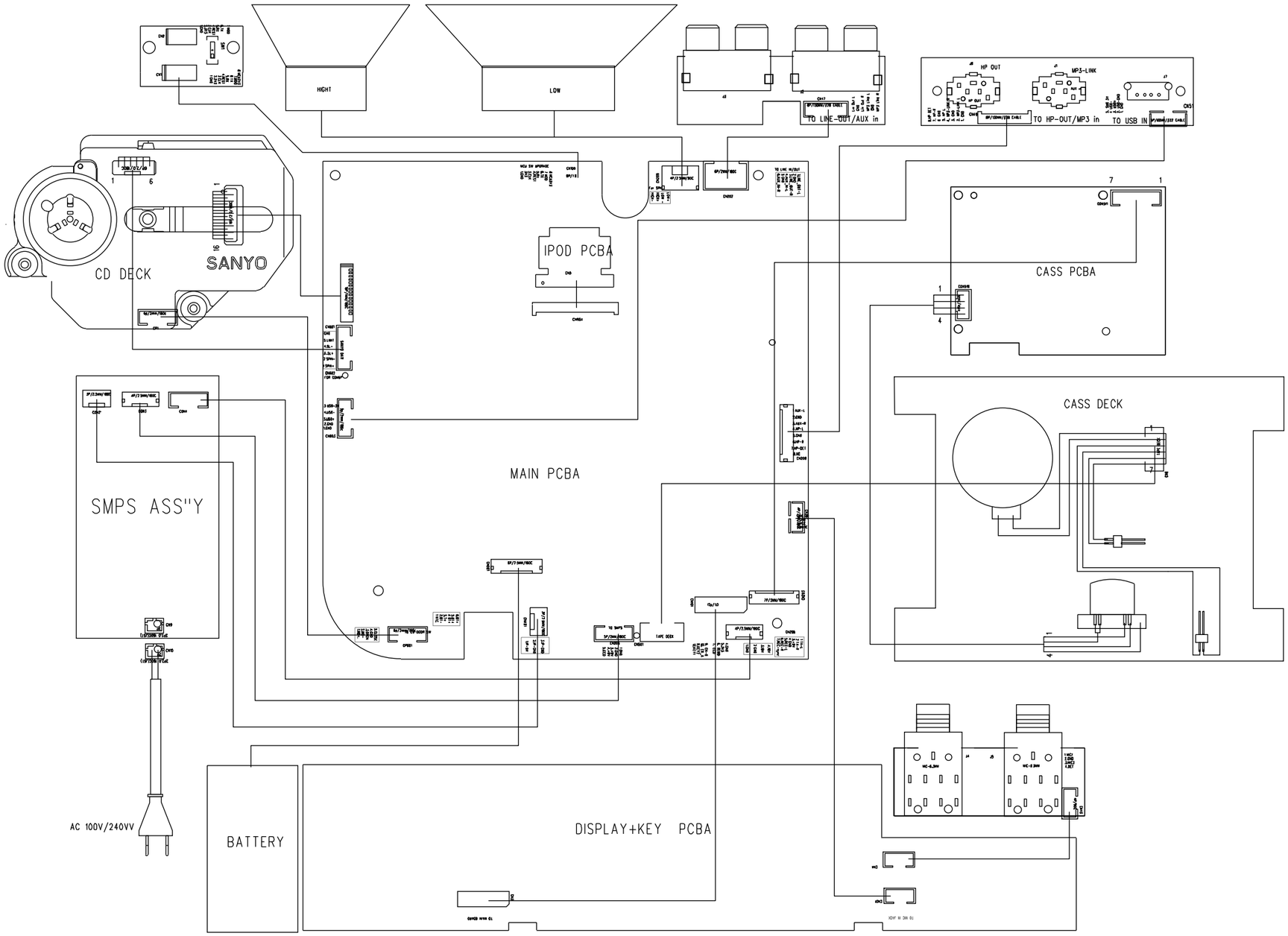
3-1

BLOCK DIAGRAM



4-1

WIRING DIAGRAM

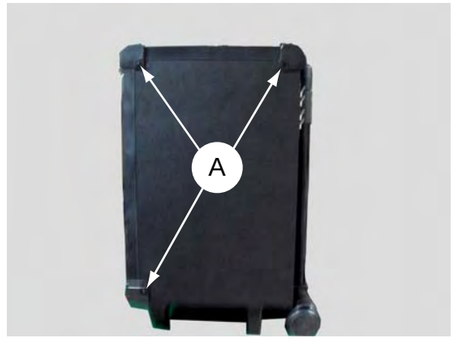


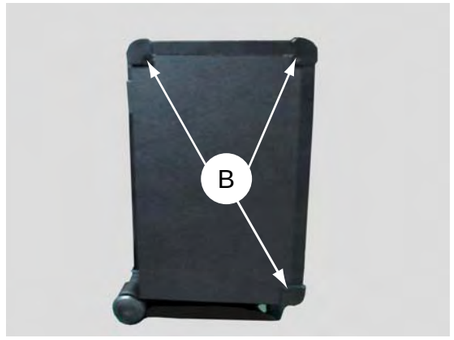
5-1

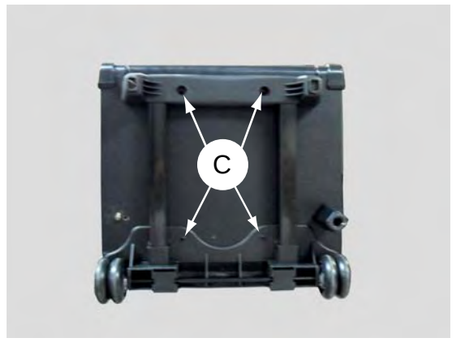
DISASSEMBLY DIAGRAM

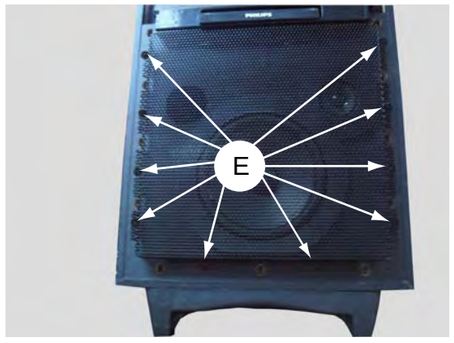
Dismantling of the Top Cabinet and Trolley.

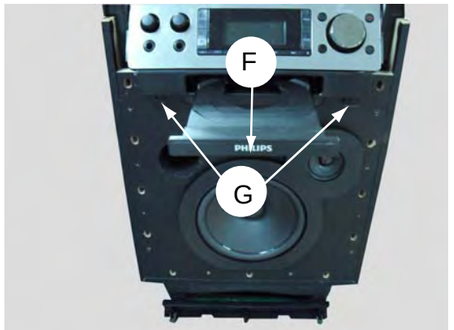
1) Remove 3 screws A and 3 screws B and 4 screws C and 2 screws D as indicated to loosen the Trolley.
2) Remove 10 screws E as indicated to loosen the Speaker grill.
3) In power on mode , Remove cd door F,then turn off the unit ,Remove 2 screws G as indicated to loosen the Top cabinet parts.
4) Remove 4 screws H as indicated to loosen the CD parts.

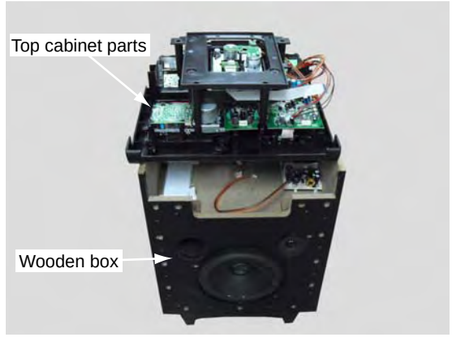


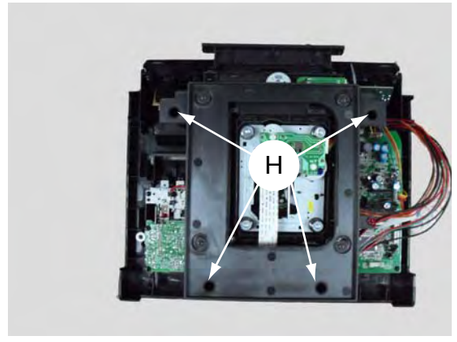






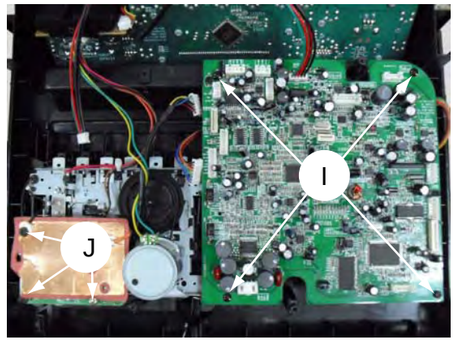


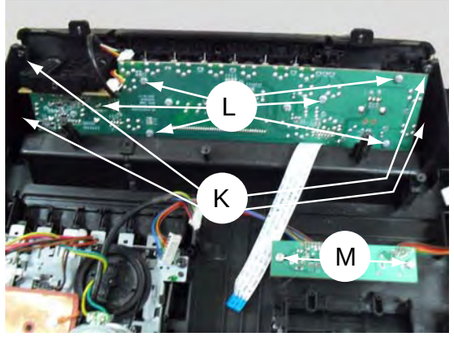


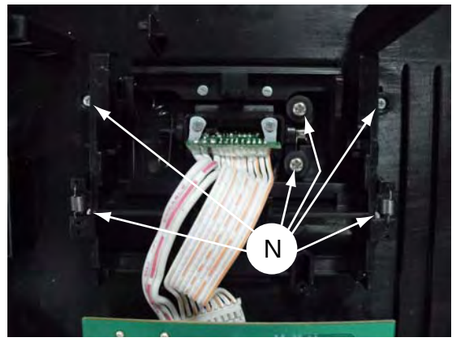


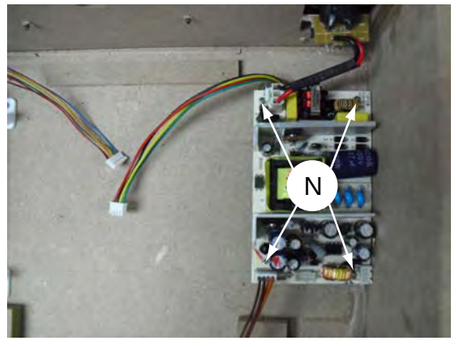
Dismantling of the PCB Board.

1) Remove 4 screws I as indicated to loosen the Main Board.
2) Remove 3 screws J as indicated to loosen the Cass deck Board.
3) Remove 4 screws K and 6 screws L as indicated to loosen the Display Board.
4) Remove 2 screws M as indicated to loosen the Usb Board.
5) Remove 6 screws N as indicated to loosen the Iopd Board.
6) Remove 4 screws O as indicated to loosen the Power Board.



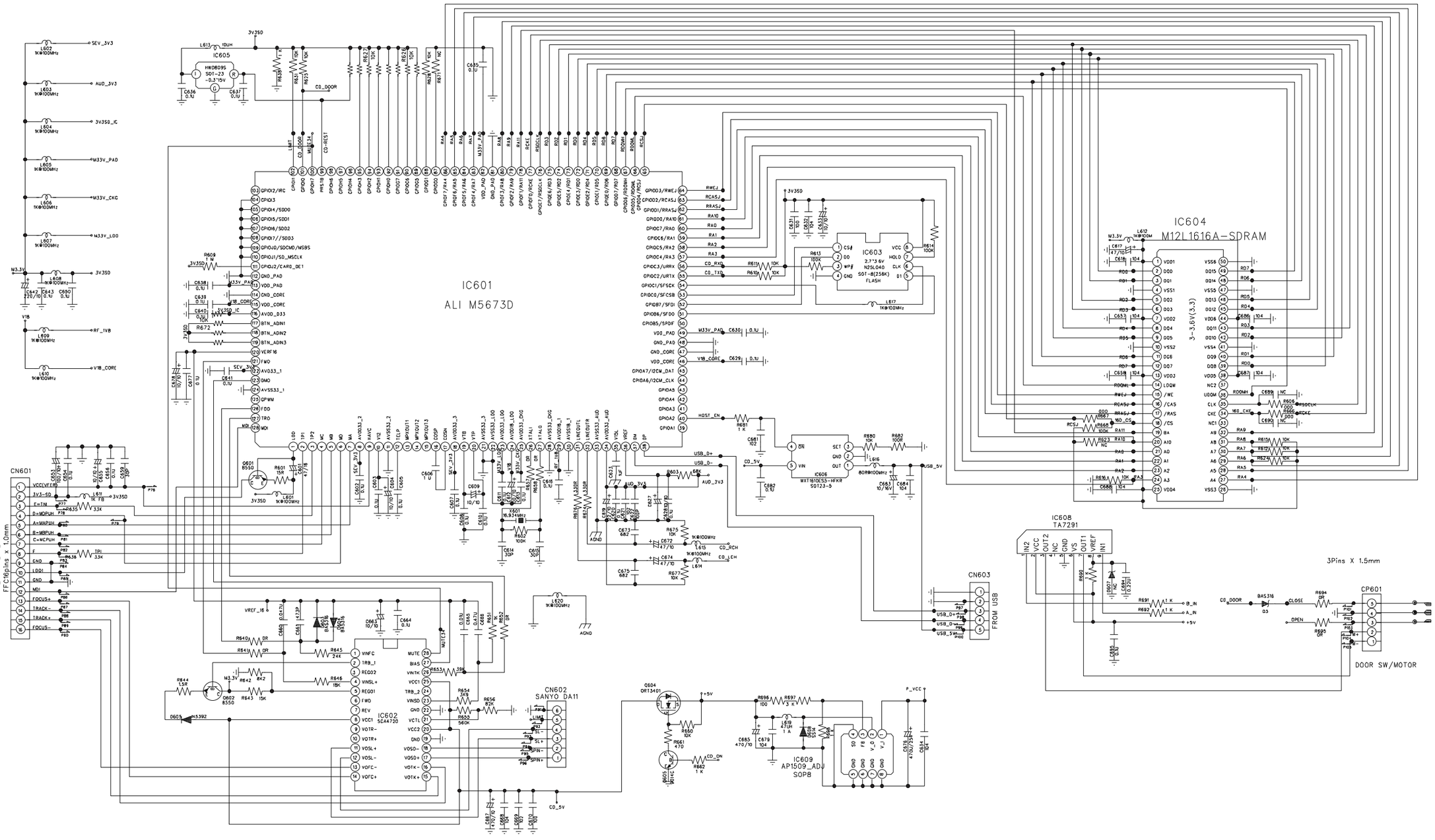






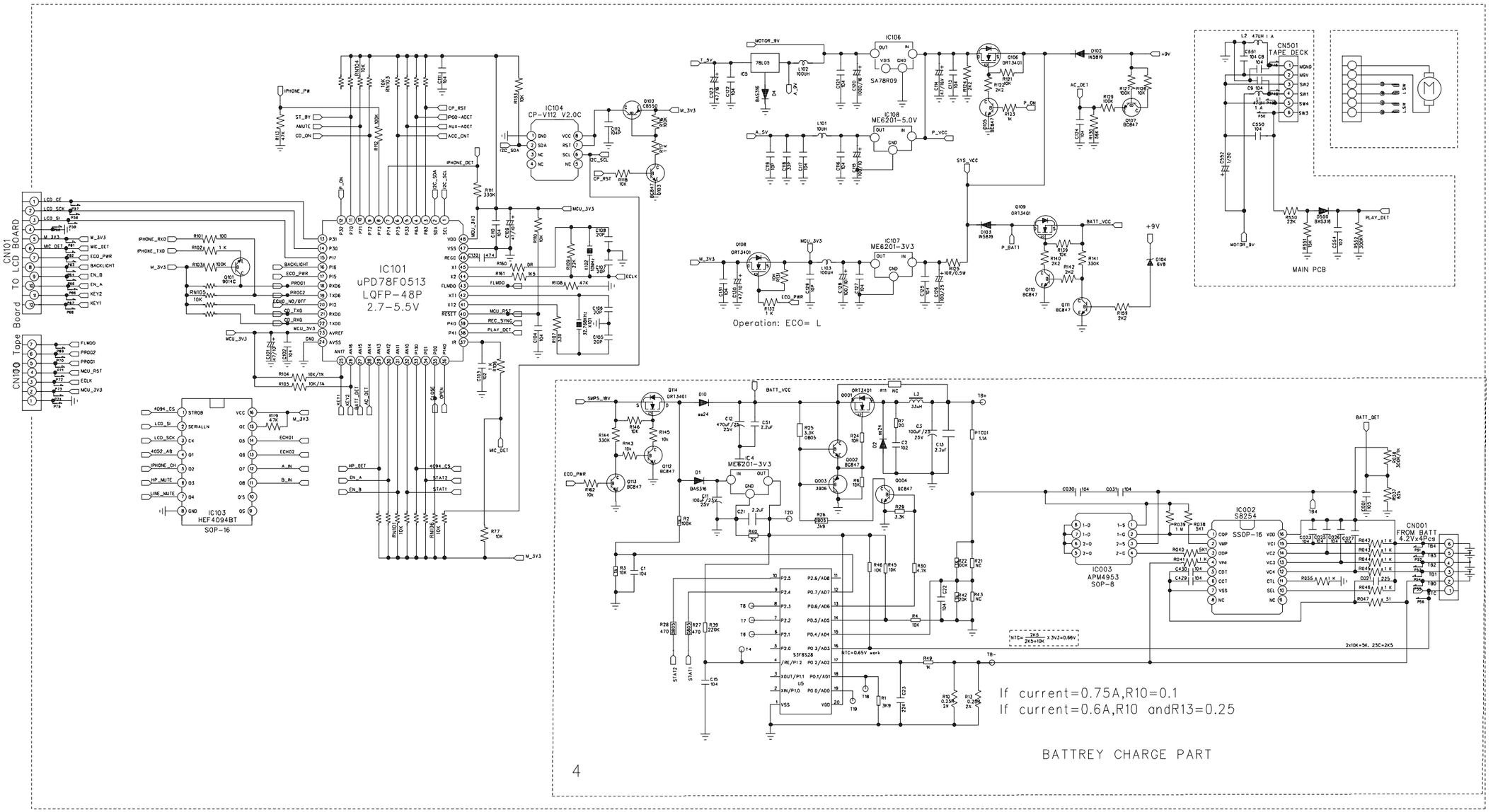
6-1

CIRCUIT DIAGRAM - MAIN/CD BOARD



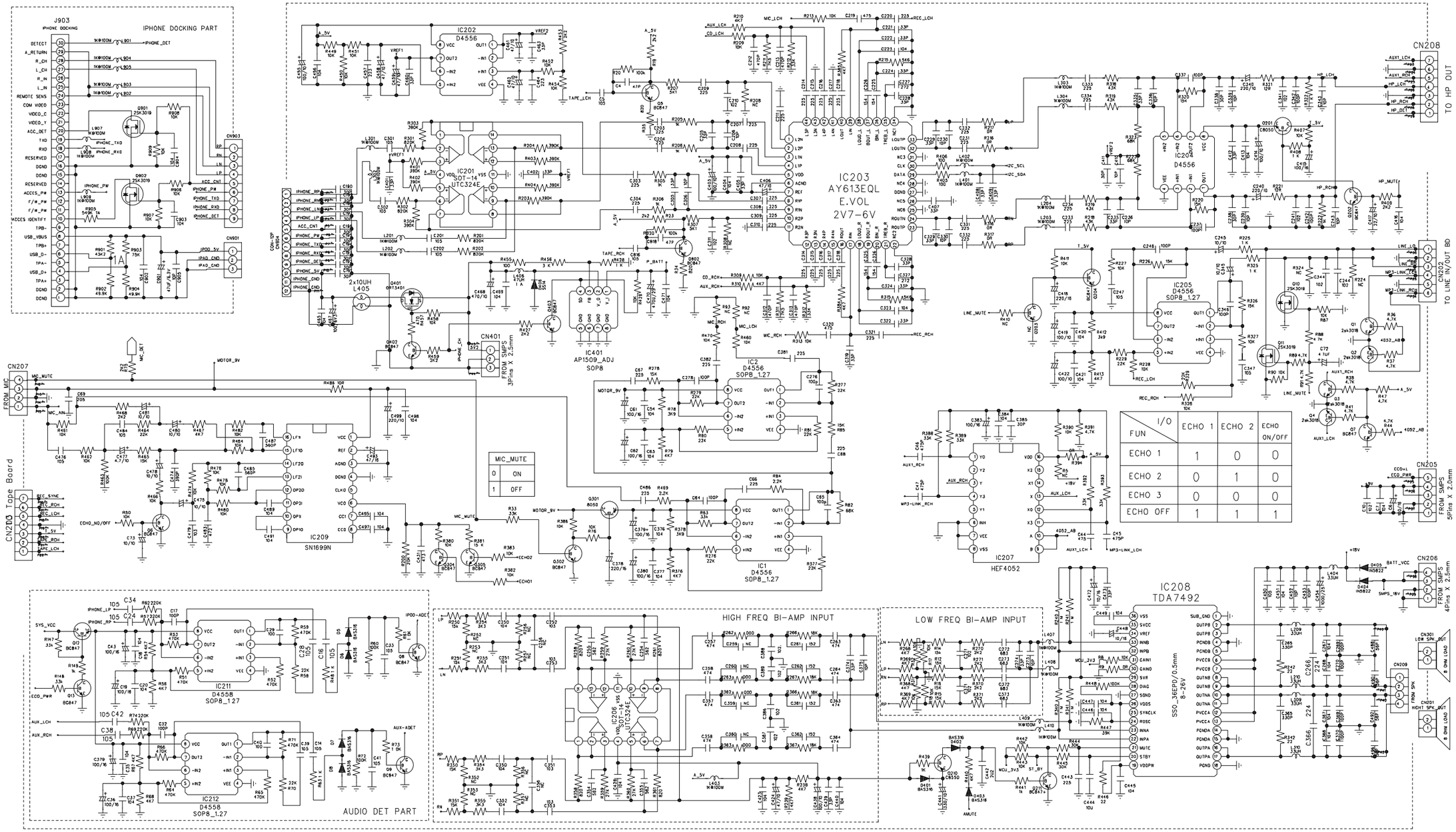
6-2

CIRCUIT DIAGRAM -MAIN BOARD



6-3

CIRCUIT DIAGRAM - MAIN/IPOD BOARD

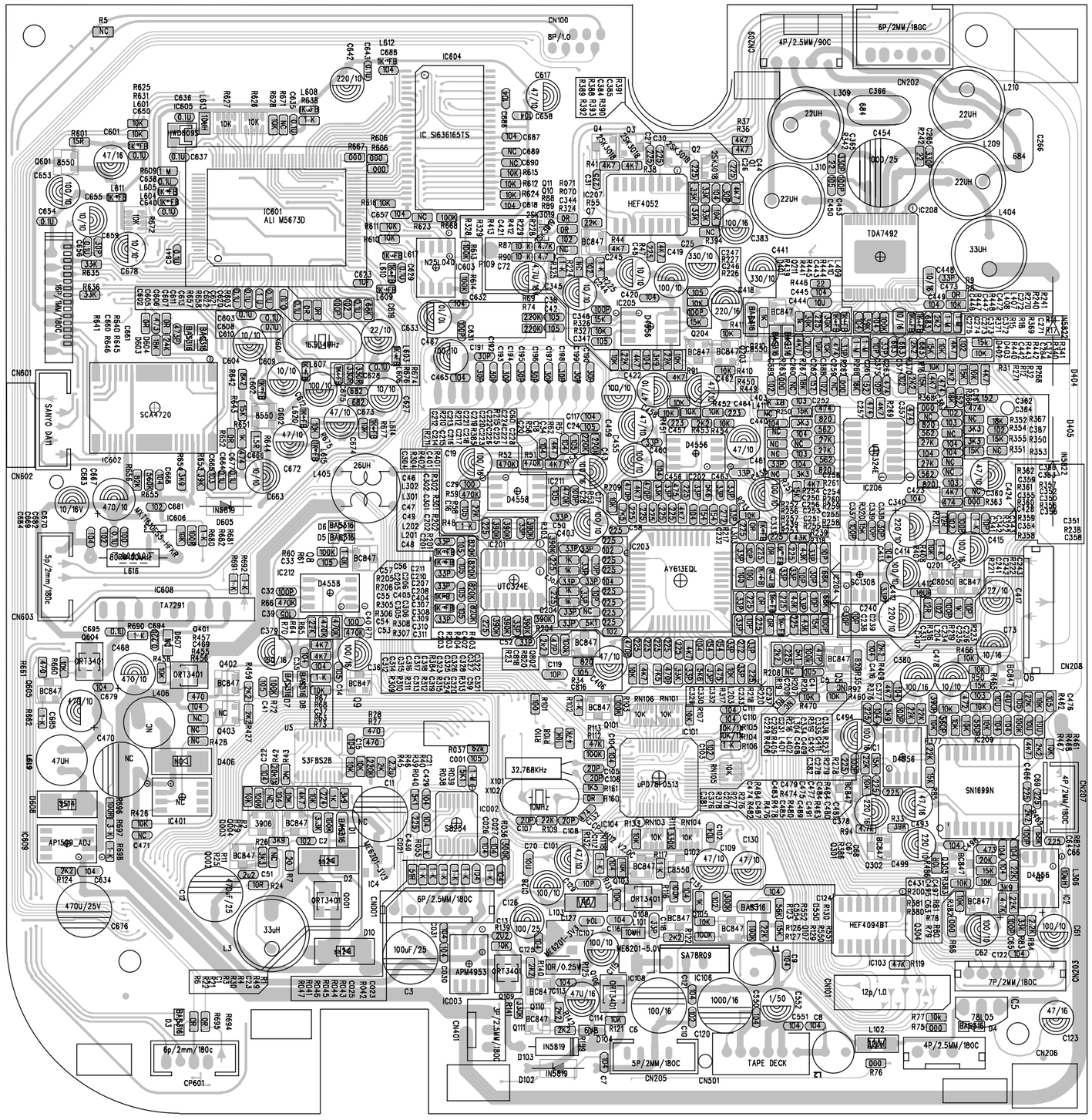


MIC_MUTE	
0	ON
1	OFF

I/O / FUN	ECHO 1	ECHO 2	ECHO ON/OFF
ECHO 1	1	0	0
ECHO 2	0	1	0
ECHO 3	0	0	0
ECHO OFF	1	1	1

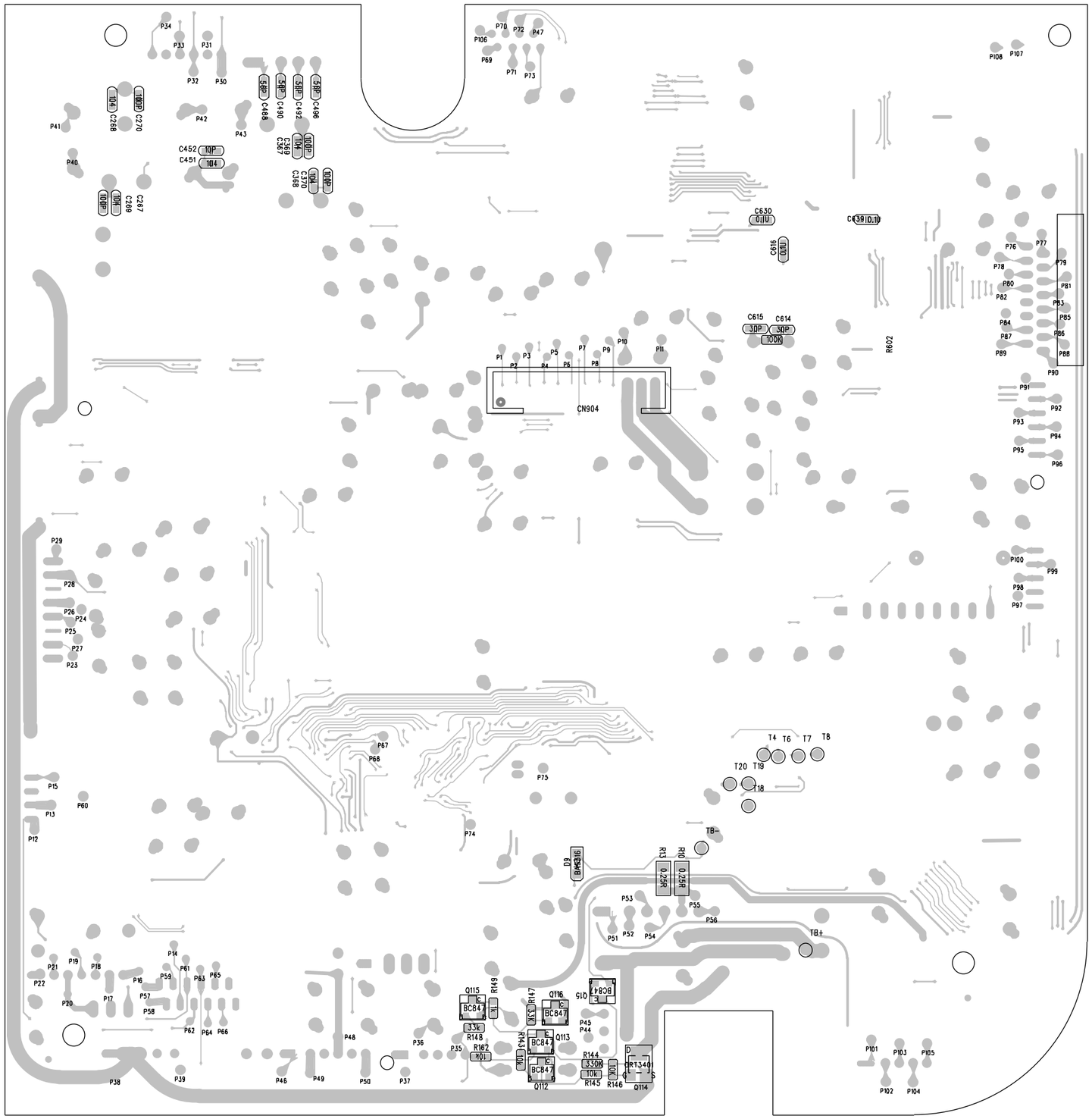
6-4

LAYOUT DIAGRAM - MAIN BOARD
TOP SIDE



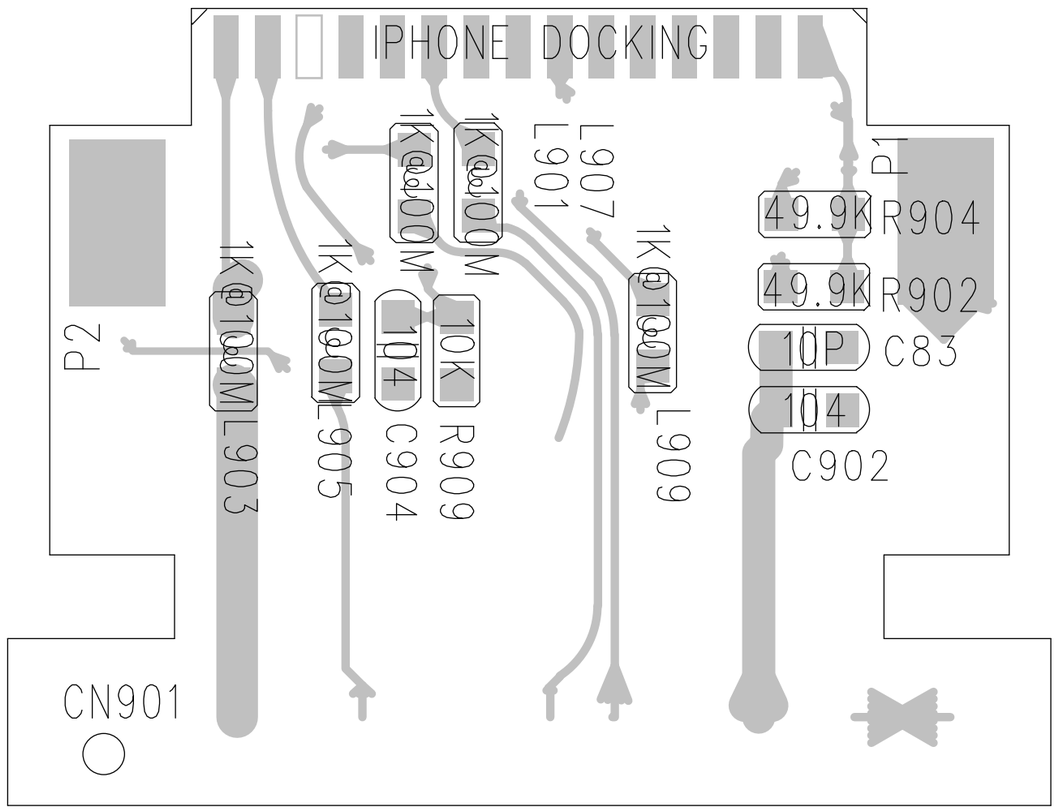
6-5

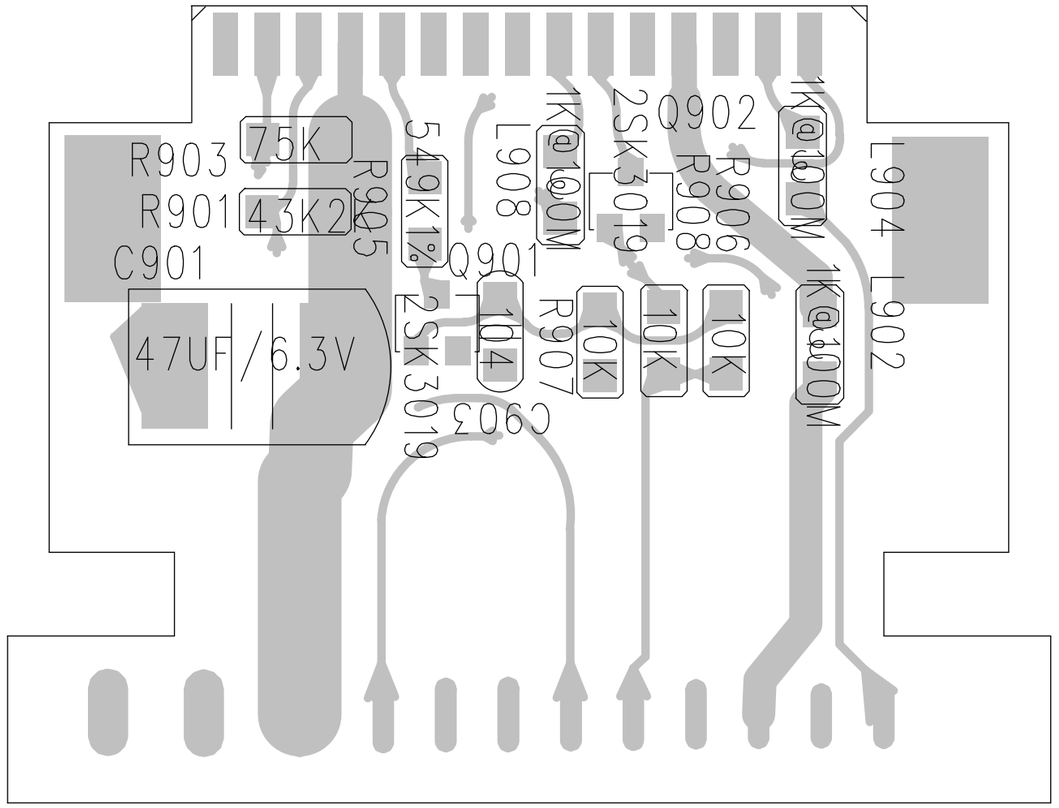
LAYOUT DIAGRAM - MAIN BOARD
BOTTOM SIDE



6-6

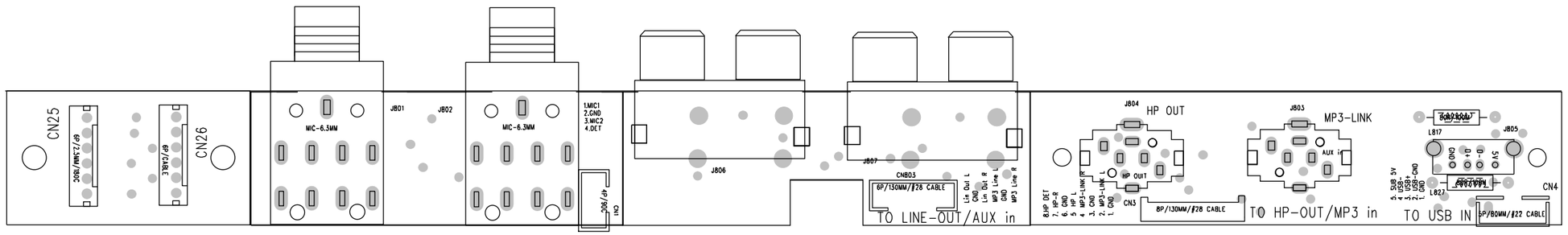
LAYOUT DIAGRAM - IPOD BOARD





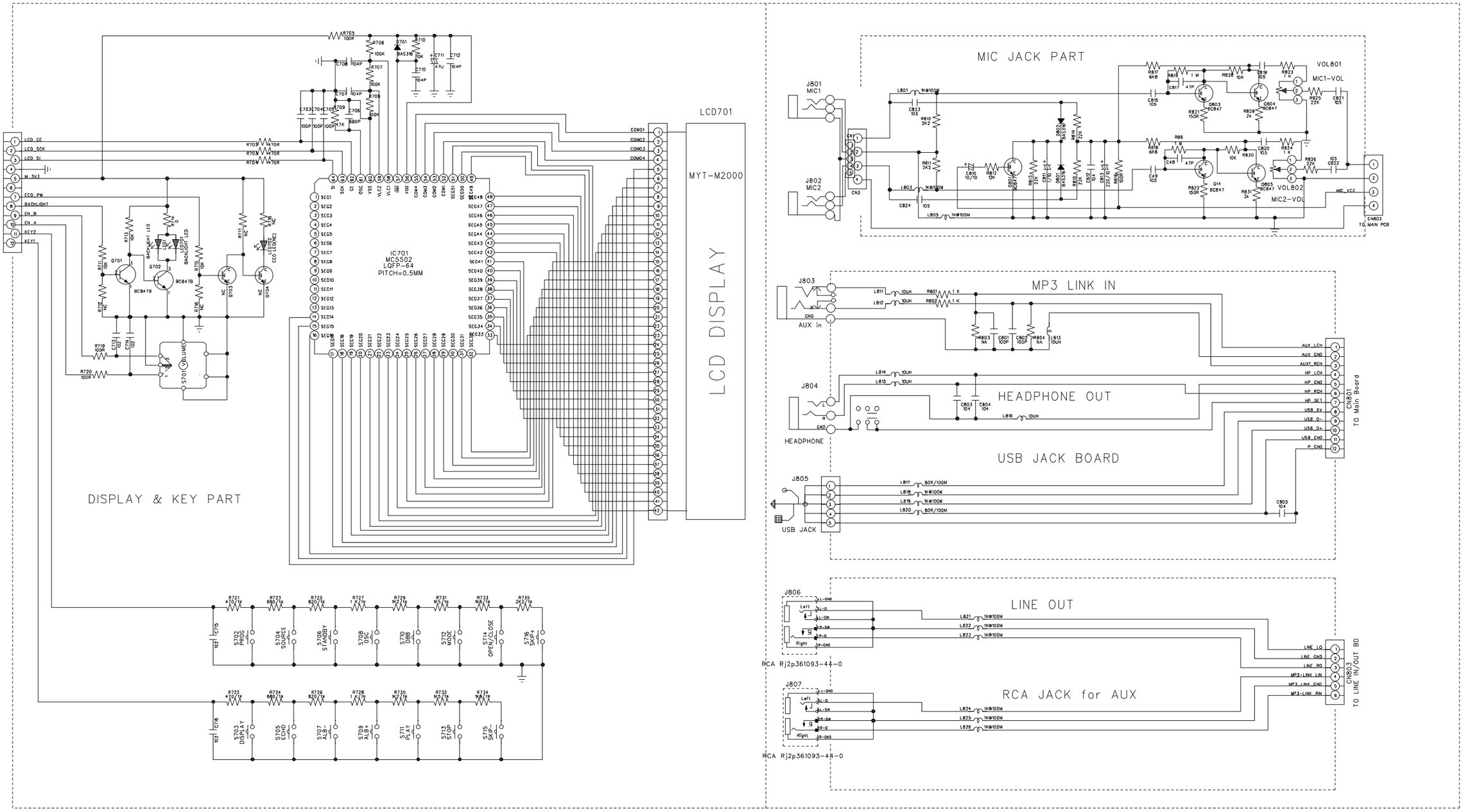
6-7

LAYOUT DIAGRAM - USB BOARD



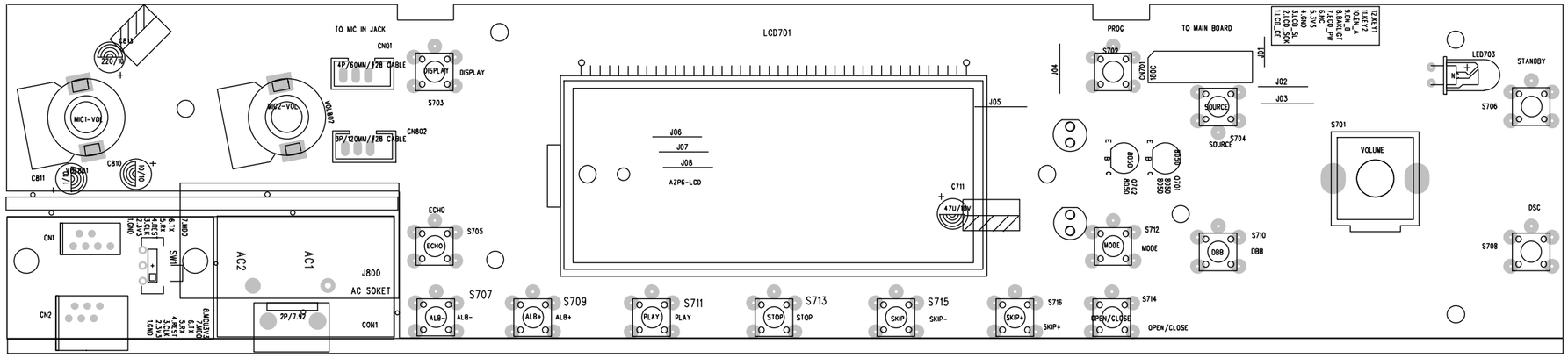
7-1

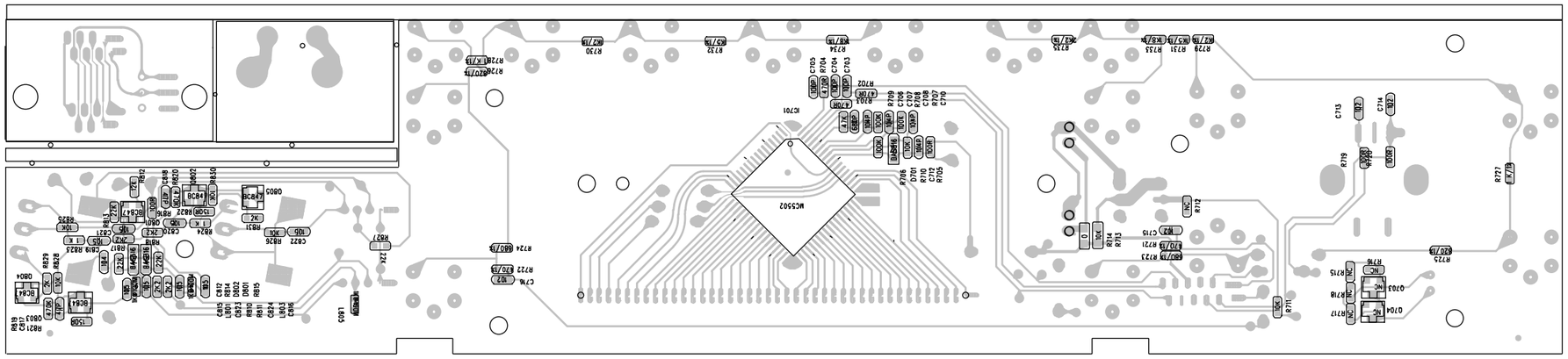
CIRCUIT DIAGRAM -DISPLAY BOARD



7-2

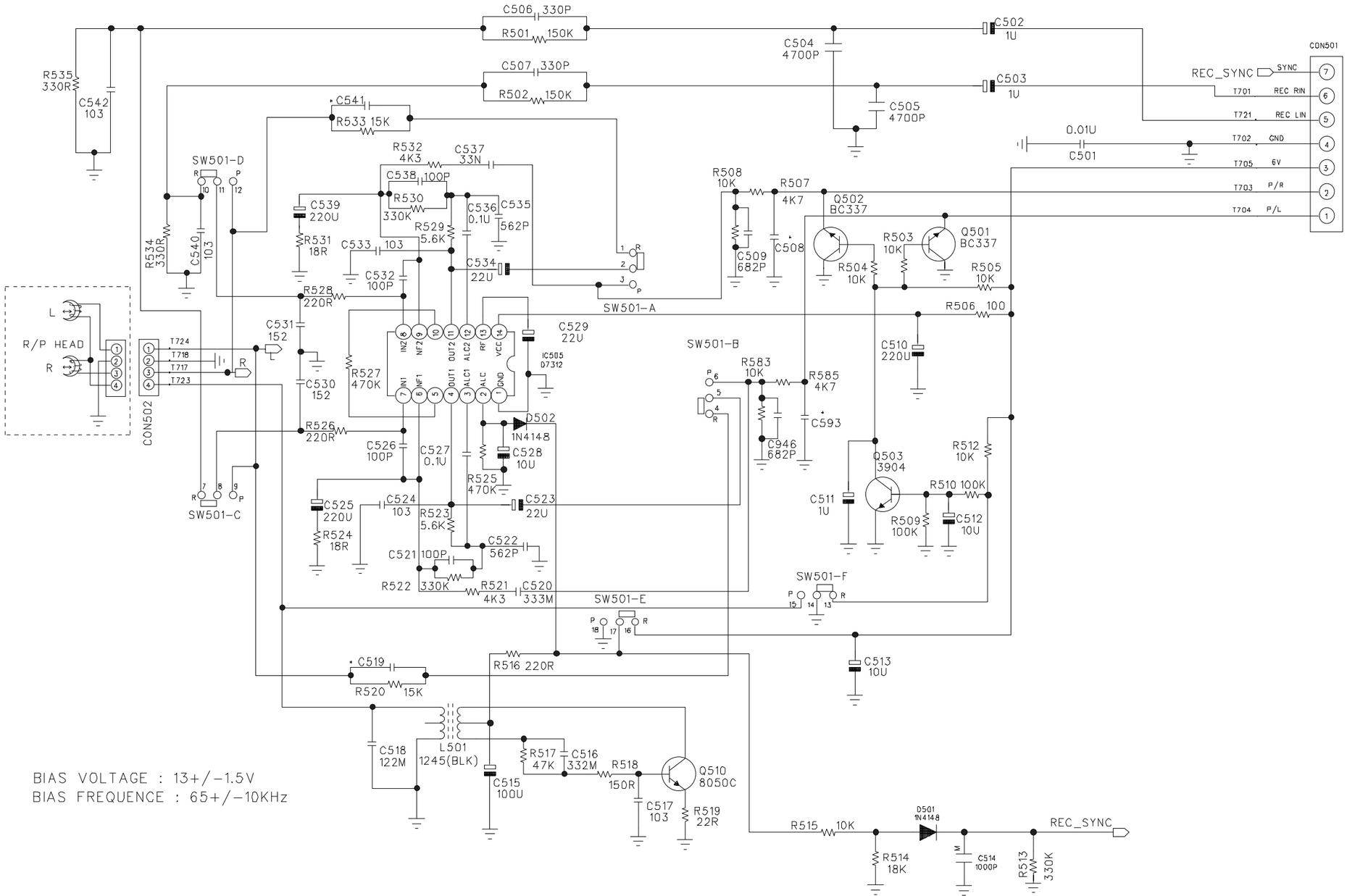
LAYOUT DIAGRAM - DISPLAY BOARD





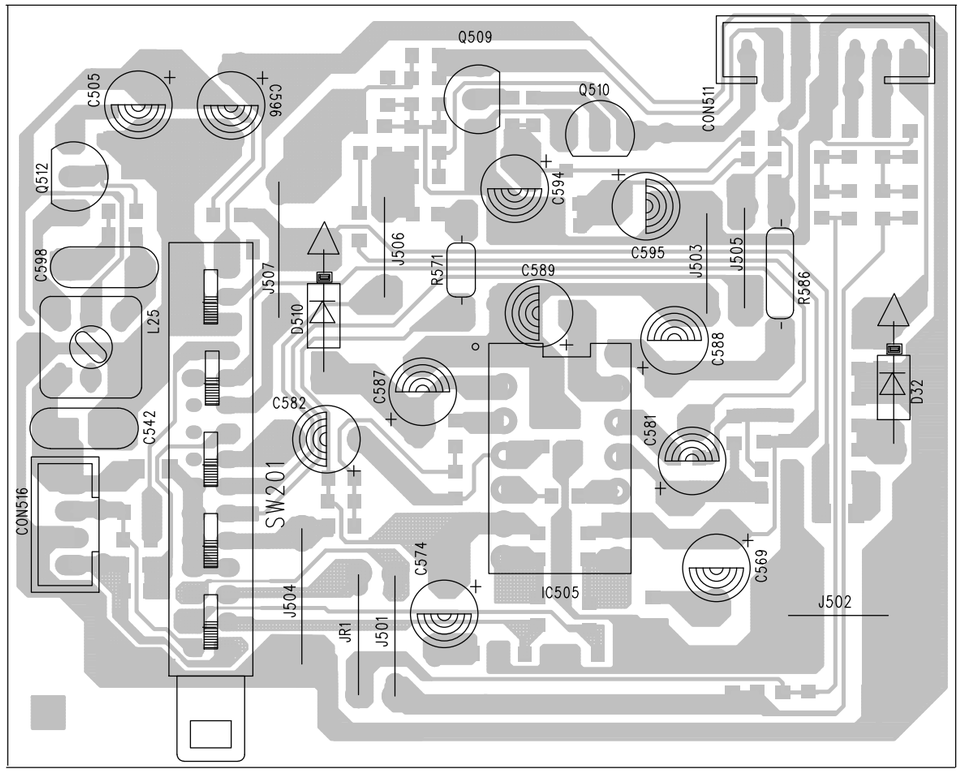
8-1

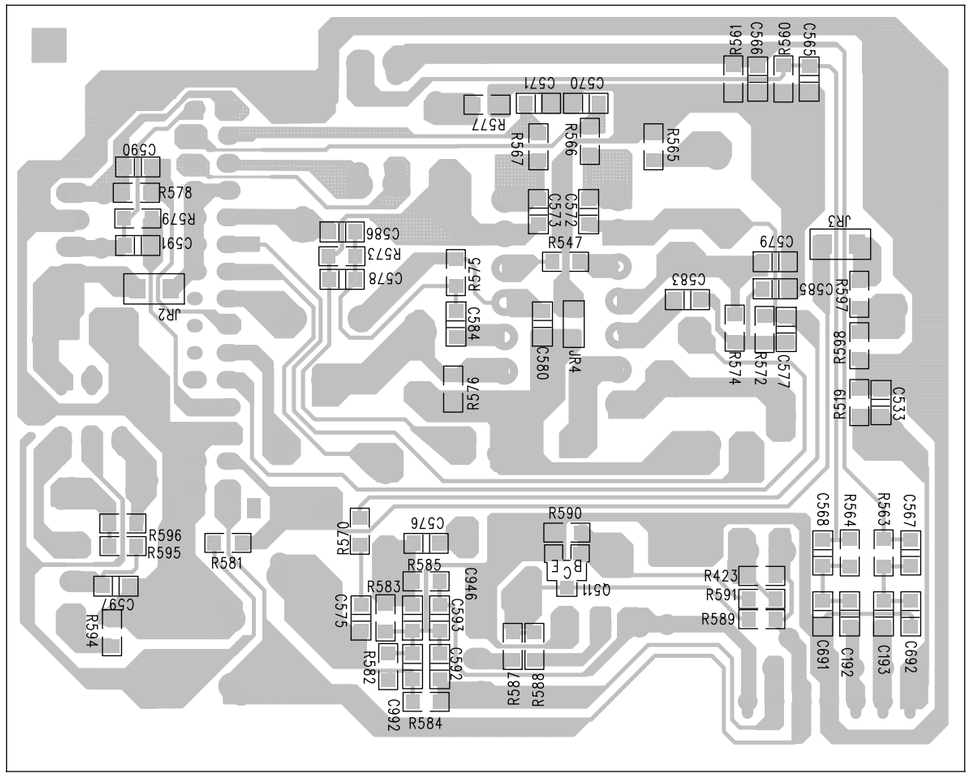
CIRCUIT DIAGRAM -TAPE BOARD



8-2

LAYOUT DIAGRAM - TAPE BOARD





9-1

EXPLODED VIEW