

Service  
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**Service**



# Service Manual



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**Version 1.3**



# PHILIPS



# TECHNICAL SPECIFICATION

## GENERAL DESCRIPTION

iPod/Iphone/iPad Docking And Aux in 2 x 6W(3W) Power Amplifier

LIFETIME : \* Years

Class		Supply + Amplifier	Loudspeaker Boxes		
		TDA7491P	SPEAKER 1.5" 6Ω 6W		
Page		4,5,6,7,8,9	5		

## SAFETY requirements

Version	Safety	EMC
/10	EN60065	EN55013/EN55020
/37	UL60065	FCC99
/97	EN60065	CISPR13
/55	EN60065	CISPR13
/79	EN60065	CISPR13

RADIATION / IMMUNITY requirements ( EMC )

## CLIMATIC requirements

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

## PERFORMANCE CLASSES

## POWER SUPPLY

System voltage: Test Conditions: Power Source: DC 10V power supply or Li-Battery

Item	Minimum	Normal	Maximum	Unit	Remark	SN
V <sub>battery</sub>	6.4	7.4	8.4	V	Battery input	1
V <sub>ac-adaptor</sub>	9.5	10	11	V	Power adaptor input	2

charging current: iPod/iPhone=1A; iPad=2.1A

## Battery

	Typical	Limit
1. Battery capacity Li 7.4V	≥1000mAhx2	
2. Discharge cut-off voltage	≤3V/Cell	
3. Battery discharge cut-off current	50mA	
4. Battery charge voltage	8.4V	
5. Charging Time	4H	±0.5
6. Low Voltage protection	NA	NA
7. Over voltage protection	≥9VDC	<16V

## Battery Life Time: Test Conditions(AUX) Power Source: LI-Battery

Item	Condition	Normal	Limit	Unit	SN
Music Playback	60% volume level	10	8	H	1

VOLUME SETTING: 2X3W(RATED POWER)X60%=2X1.8W REF: 1KHZ 0dB

TEST SOUND: Hotel California Live+ Let It Will Be + Do It Well +Night+Superwoman REPEAT ALL

After check for battery life(Count from Ex-factory until the buyer get it) : 13 Months in normal operation without adaptor charging, besides, within 36 months (Inclusive of 13 month) can be act

MAINS ( A.C. )	120Vac± 20%	230 Vac ± 20 %	120/230 Vac± 20 %
Version	37	05/10	79
Voltage Selection	No	No	No
Frequency	60Hz	50 Hz	50/60Hz

## POWER CONSUMER

Standby : <2W			
( 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 - MAR 1995 )

DERIVED	REMARKS	APPROBATION
Remarks		

## GENERAL PART 1 - GENERAL SPECIFICATION

Class No	DS7700 GENERAL SPECIFICATION	Ver	Issued Date
		1	
		2	
		3	
NAME : ZC Jin	4/9	SH 190 - 1.0	A4
KT	CHECK		

## TECHNICAL DESCRIPTION

2 x 6 W matching LOUDSPEAKER of 2 x 6Ω. One INPUT SOURCE

## GENERAL PART

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

## INDICATORS

Standby Mode Indicator : N/A  
 ECO Mode Indicator : N/A

## ELECTRICAL DATA

DSC :	NO	Channel Differencer	2	dB
DBB	Yes	Hum ( Volume Max)A-Weighted		m W
SIS :	N/A	Residual Noise ( Volume Minium )A-Weighted Flat EQ		m W
VAC :	N/A	Channel Separation ( at 1 kHz )	≥ 35	dB
WOOX :	N/A	Signal / Noise ( A-weighted )	≥ 60	dBA

## INTERCONNECTS

Input Sensitivity (±3dB ) rated ouput power at 1 kHz		Output Parts ( *1 )	
Tuner	N/A	Line Out ( Left / Right )	N.A
CD	N/A	Subwoofer Out	N.A
USB	N/A	Headphone(Bass on+EQ)	N.A
AUX	800mV-1200mV	Digital Coaxial Out	N.A
iPod/iPhone	Loading 800mV	Booster Out	N.A
BlueTooth	N/A		
Microphone	N/A		

## OUTPUT POWER ( \* 1 )      At Max.volume output power , 1KHz sinewave

Main Operation for DS7700 ALL	: 6W, 2 Channels (Lim:'5W)	( At DC=10V )
	: 3W, 2 Channels (Lim:'2.0W)	( At DC=7.4V )
Frequency Response		

LEVEL DIFFERENCE : 1db ( Lim: 2dB )

LOUDSPEAKER ( BOXES )      N.A

## Rated Impedance

Left / Right : 6 Ohms at 120Hz to 14 KHz

## Remarks

( \*1 ) Electrical parameters are to be measurement at speaker terminals across 6 Ω spk load with rated input signal in AUX mode.

## GENERAL PART 1 - TECHNICAL SPECIFICATION

Class No	DS7700 TECHNICAL SPECIFICATION	Ver	Issued Date
		1	
		2	
		3	
NAME : ZC Jin	5/9	SH 190 - 1.0	A4
KT	CHECK		

TECHNIAL DESCRIPTION

AUX - Part Specifications

E

Measurement are directly done at the AUX IN

Description	Extern	Nom	Lim	Unit
Output Resistance			N/A	Ohms
Channel Unbalance		1	2	dB
Frequency Response		127HZ	± 3	dB
		10KHZ	± 3	
Signal to Noise Ration ( 20-20KHz BPF )(*1)		55	50	dB
Signal to Noise Ration ( A - weighted )(*1)		60	55	dB A
Channel Separation 1KHZ( 20-20KHz BPF )		40	35	dB
Distortion (-6dB from Prated) 1KHz( 20-20KHz BPF )		0.5	1	%
Max. volume power (900-1200mV INPUT) (DC=10V)		6	5	W
Hum (max. vol - 20dB) ( A - weighted )		200	300	nW

Remark

(\*1) Measured at AUX 800mV level input, at specker terminals across 6 Ω spk load output.

AUX SPECIFICATION

Class No				Ver	Issued Date
	<a href="#">DS7700_AUX</a>			1	
				2	
				3	
NAME : ZC Jin		6/9	SH 190 - 1.0		A4
KT		CHECK			

## TECHNIAL DESCRIPTION

Bluetooth - Part Specifications

用 iPhone or iTech Dongle 测

Description	Condition	Nom	Lim	Unit
Channel Unbalance 1KHZ		2	3	dB
Frequency Response ( DISC1 TR9 TO TR23)	127Hz	3	± 3	dB
	10KHz	3	± 3	dB
Signal to Noise Ration ( Unweighted ( 20-20KHz BPF ) )		55	45	dB
Signal to Noise Ration ( A - weighted )( *1 )		60	50	dB
Distortion 1KZ -6dB( 20-20KHz BPF )		1	3	%
Channel Separation 1KHZ( 20-20KHz BPF )		35	30	dB
Max.volume power (0dB 1KHZ) iTech DONGLE		6	5	W
Hum (max. vol - 20dB) ( A - weighted )		200	300	nW

## Transmitter (Test equipment: Tescom 3000B)

Connected distance		10	8	meter
Output Power	Ch. 0	-6	4	dBm
	Ch. 39	-6	4	dBm
	Ch. 78	-6	4	dBm
Adjacent Channel Power	± 2MHz		-20	dBm
	± 3MHz		-40	dBm
Modulation Characteristics	Flavg	140	175	KHz
Carrier Frequency Drift			± 25KHz	

## Receiver

Sensistvty (0. 1%BER) Sing Slot Packet	DH1	-70	-80	dBm
Multi Slot Packet	DH5	-70	-80	dBm
Maximum input Level	BER<0.1%		-2.0	dBm
Distance	iPhone	10	8	meter

## Remark

- (\*1) Measured at Bluetooth level
1. AUDIO SIGNAL DISC1, SBC 429
  2. Test enviroment RF radiation & without shield box

## Bluetooth SPECIFICATION

Class No				Ver	Issued Date
	<a href="#">DS7700-BLUETOOTH</a>			1	
				2	
				3	
NAME : ZC Jin	8/9	SH 190 -1.0			A4
KT	CHECK				

TECHNIAL DESCRIPTION

iPod / iPhone - Part Specifications

GENERAL PART

Measurement are directly done at the DOCKING IN

Description	Extern	Nom	Lim	Unit
Output Resistance			N/A	Ohms
Channel Unbalance		1	2	dB
Frequency Response		127HZ	± 3	dB
		10KHZ	± 3	
Signal to Noise Ration ( 20-20KHz BPF ) (*1 )		55	50	dB
Signal to Noise Ration ( A - weighted ) (*1 )		60	55	dB
Channel Separation 1KHZ( 20-20KHz BPF )		40	35	dB
Distortion (-6dB from Prated) 1KHz( 20-20KHz BPF )		0.5	1	%
Max. volume power (800mV INPUT) (DC=9V)		6	5	W
Hum (max. vol - 20dB) ( A - weighted )		200	300	nW

iPhone charge is 1000mA/4.75V-5.25V

iPad charge is 2100mA/4.60V-5.25V

Remark

( \*1 ) Measured at iPOD Loading output=800mV level, at speaker terminals across 6 Ω spk load output.

iPod / iPhone SPECIFICATION

Class No			Ver	Issued Date
	<a href="#">DS7700 iPod/iPhone/iPad</a>		1	
			2	
			3	
NAME : ZC Jin	8/9	SH 190 - 1.0		A4
KT	CHECK			

## 2.0 SAFETY 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 enfilez 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 kann 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 ridotta 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.

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

**(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 utilisés les pièces de rechange identiques à celles spécifiées.

**(D)**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand 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."

**(GB)** Warning !

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

**(S)** Varning !

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

**(SF)** Varoitus !

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

**DK** Advarsel !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse 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.

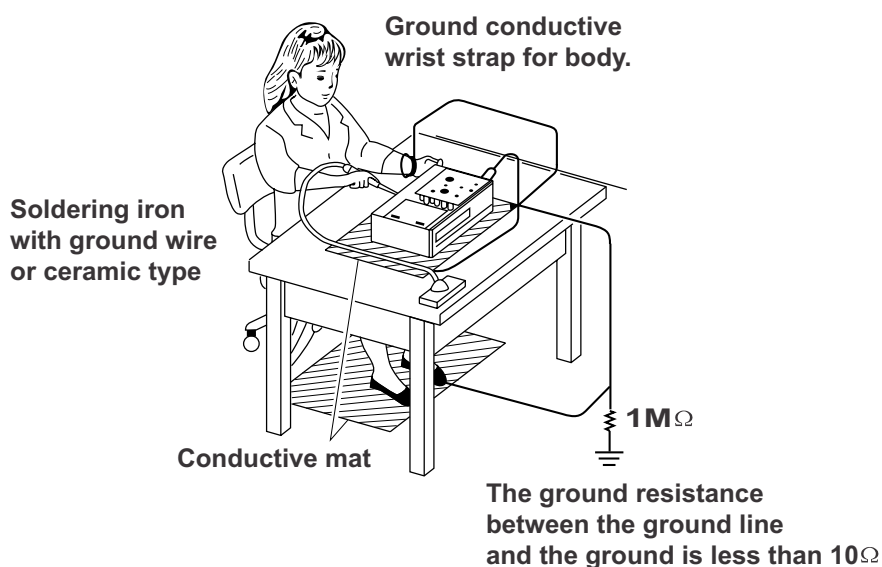
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of laser may be received.

### 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.



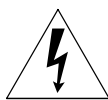
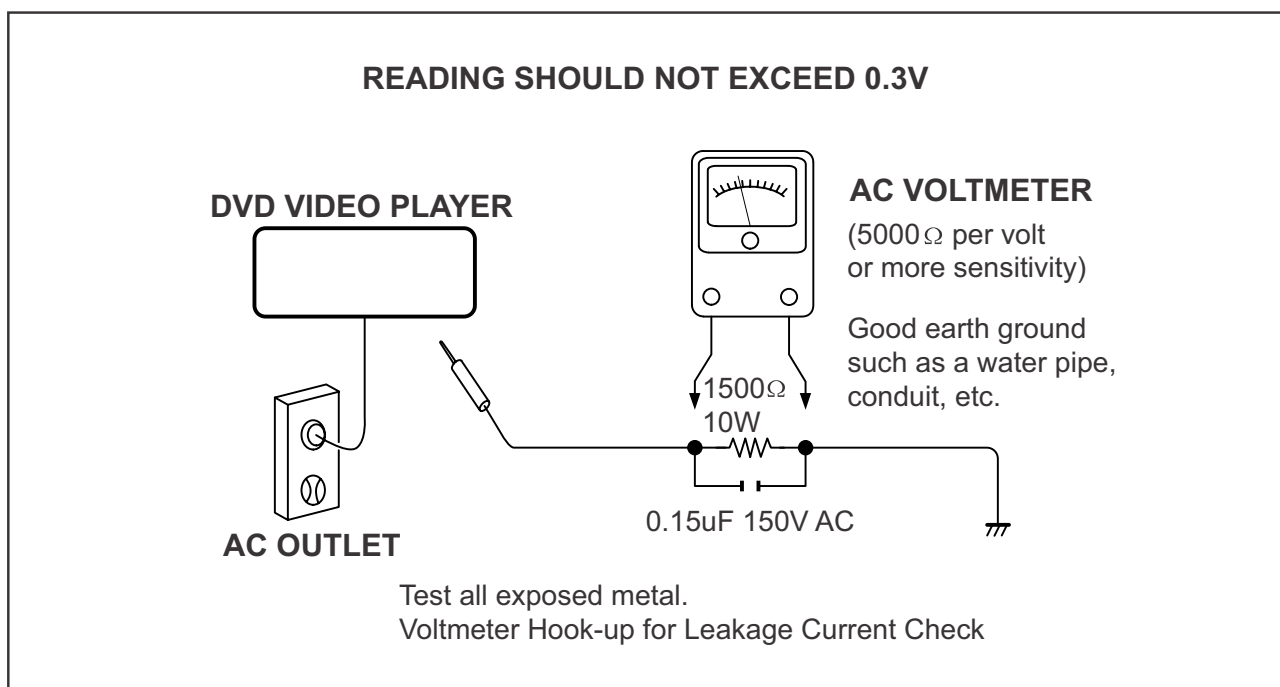
## SAFTY NOTICE

### 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  $5000\Omega$  per volt or more sensitivity. Connect a  $1500\Omega$  10W resistor, paralleled by a  $0.15\mu\text{F}$  150V AC capacitor between a known 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  $1500\Omega$  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.



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.

## 2.2 SAFETY INSTRUCTIONS

---

### **Battery Handling Guideline**

Since the battery is packed in soft package, to ensure its better performance, it's very important to carefully handle the battery

#### 2.2.1 Soft Aluminium foil

The soft aluminum packing foil is very easily damaged by sharp edge parts such as Ni-tabs, pins and needles.

- Don't strike battery with any sharp edge parts
- Trim your nail or wear glove before taking battery
- Clean worktable to make sure no any sharp particle



#### 2.2.2 Sealed edge

Sealing edge is very flimsy

- Don't bend or fold sealing edge



#### 2.2.3 Folding edge

The folding edge is form in battery process and passed all hermetic test.

- Don't open or deform folding edge



#### 2.2.4 Tabs

The battery tabs are not so stubborn especially for aluminum tab.

- Don't bend tab



#### 2.2.5 Mechanical shock

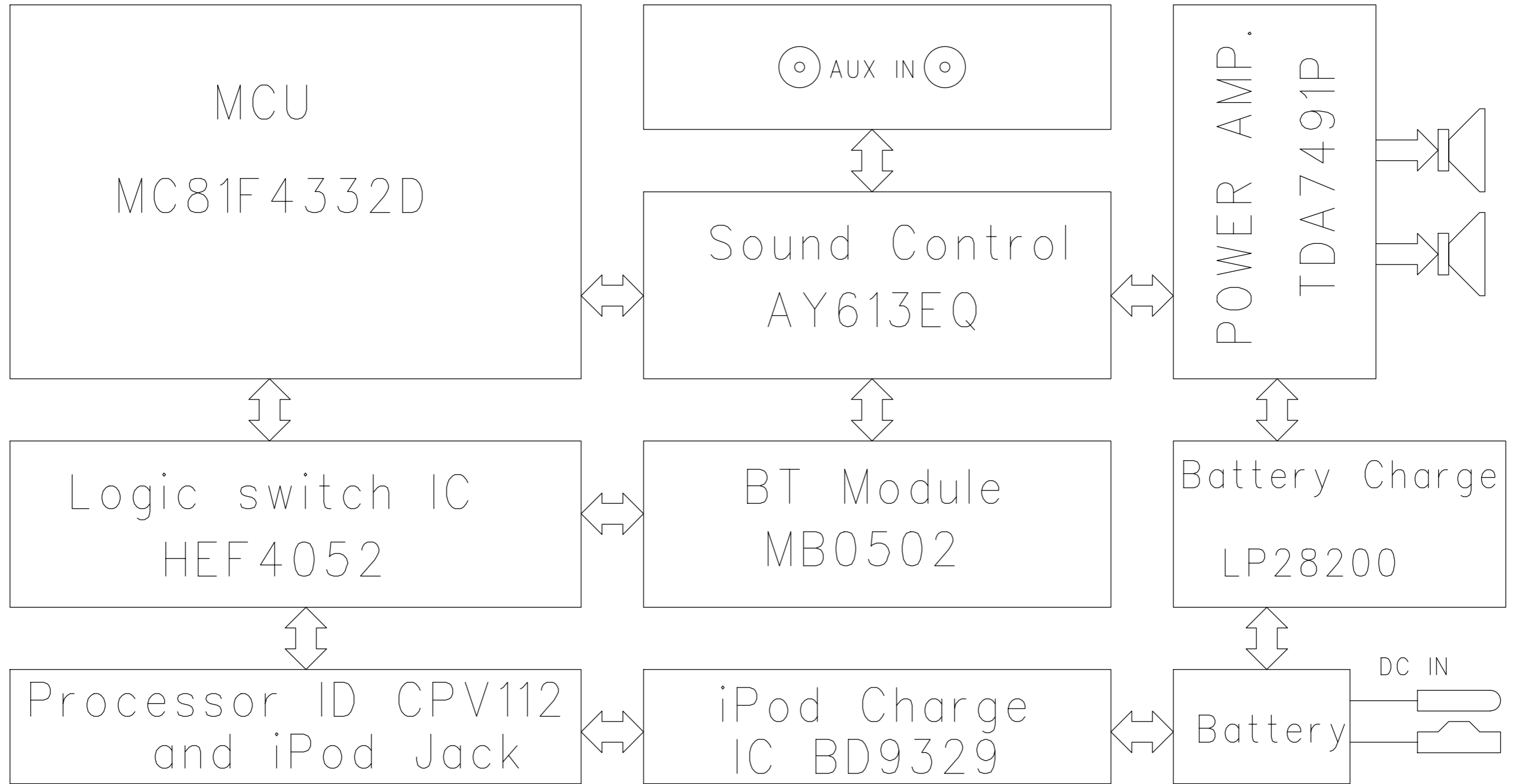
- Don't Fall, hit, bend battery body



#### 2.2.6 Short

Short terminals of battery is strictly prohibited, it may damage battery.

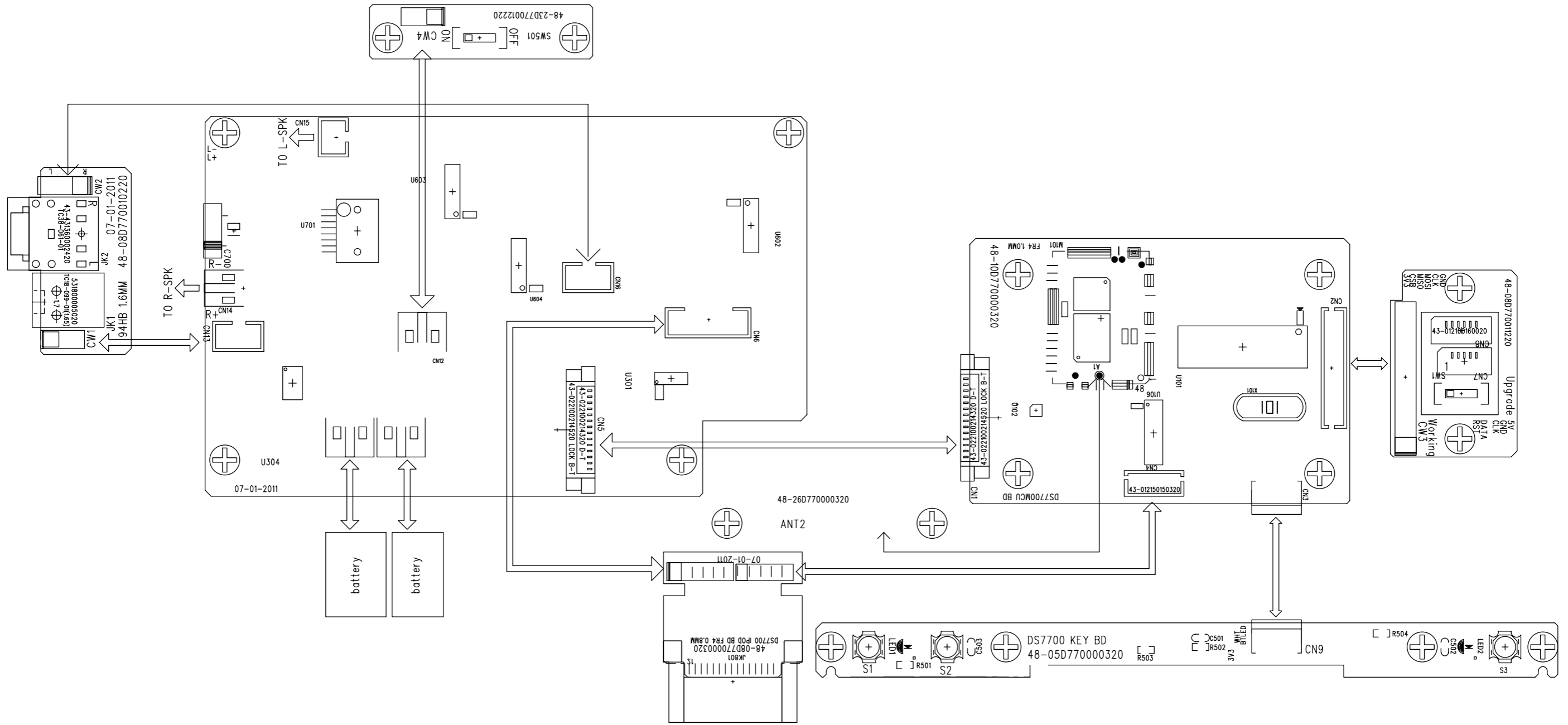
**Caution:** Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type.



WIRING DIAGRAM

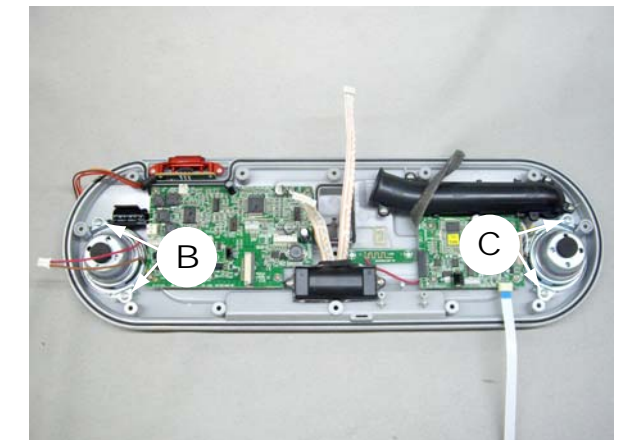
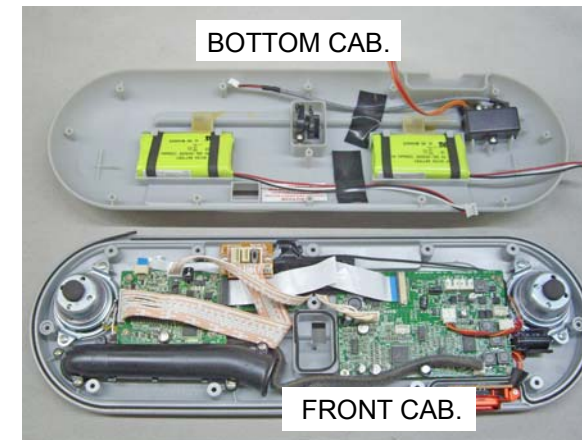
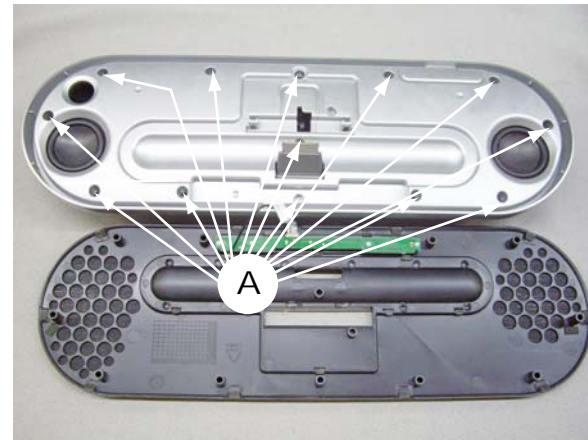
4-1

4-1

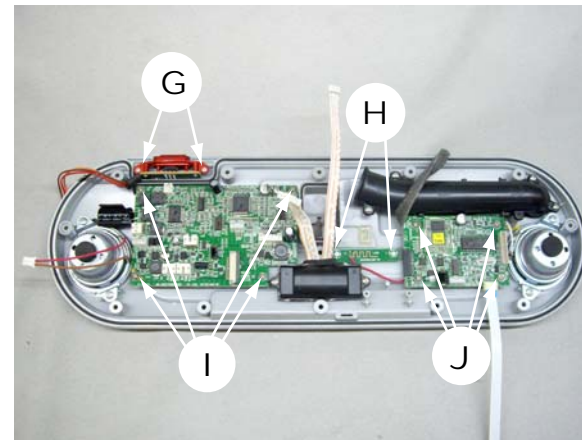
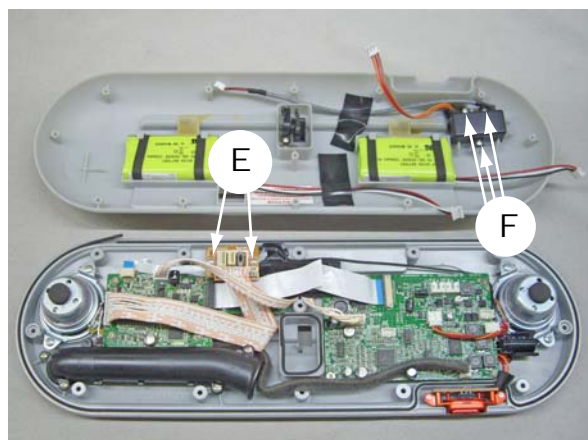
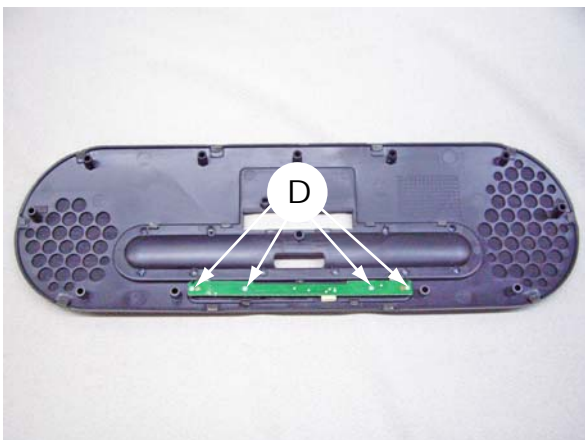


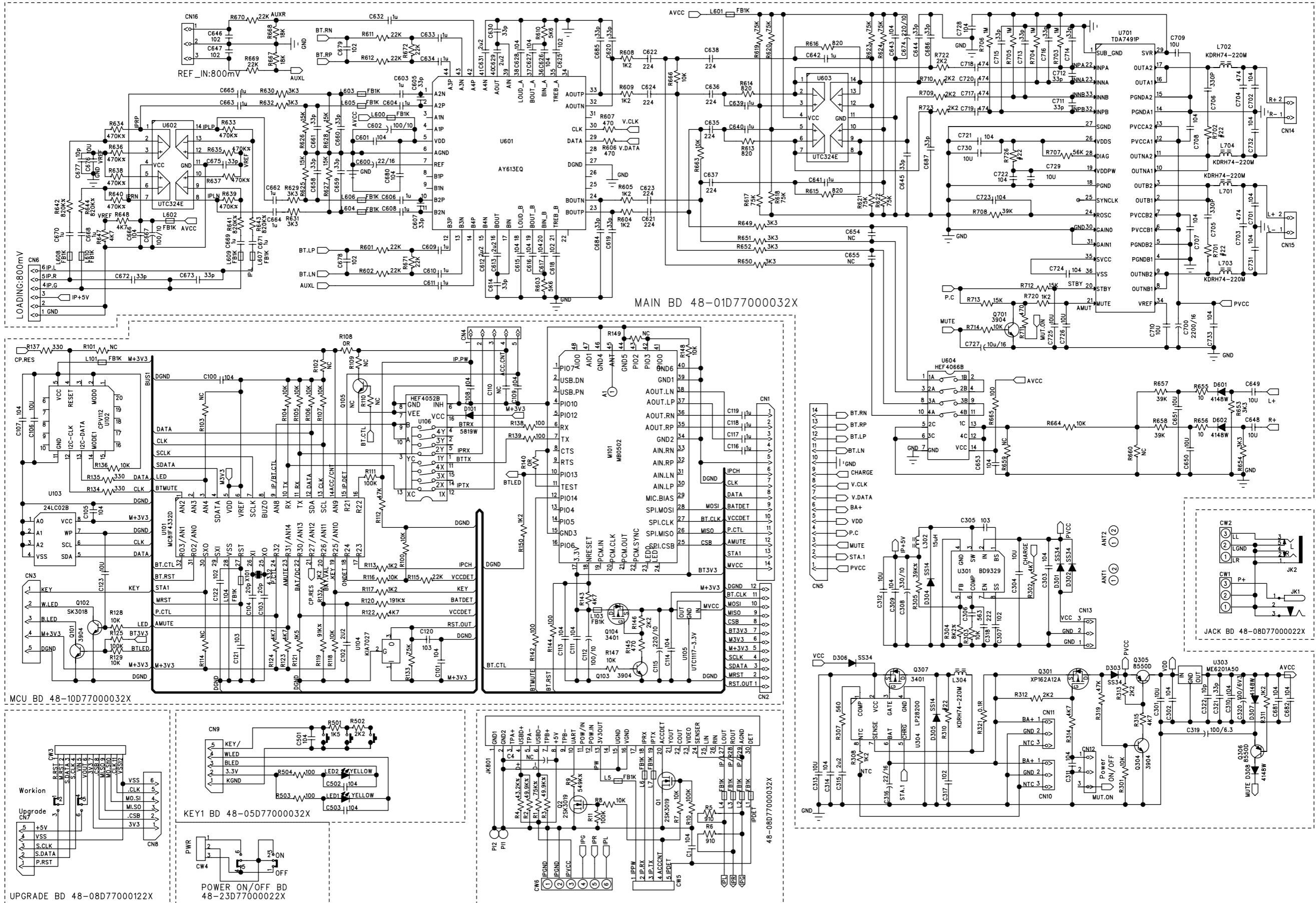
**DISASSEMBLY DIAGRAM****Dismantling of the Bottom Cabinet**

- 1) Remove the speaker grill as indicated.
- 2) Remove 13 screws A as indicated to loosen the Front Cabinet.
- 3) Remove 4 screws B and C as indicated to loosen the Speaker.

**Dismantling of the PCB Board.**

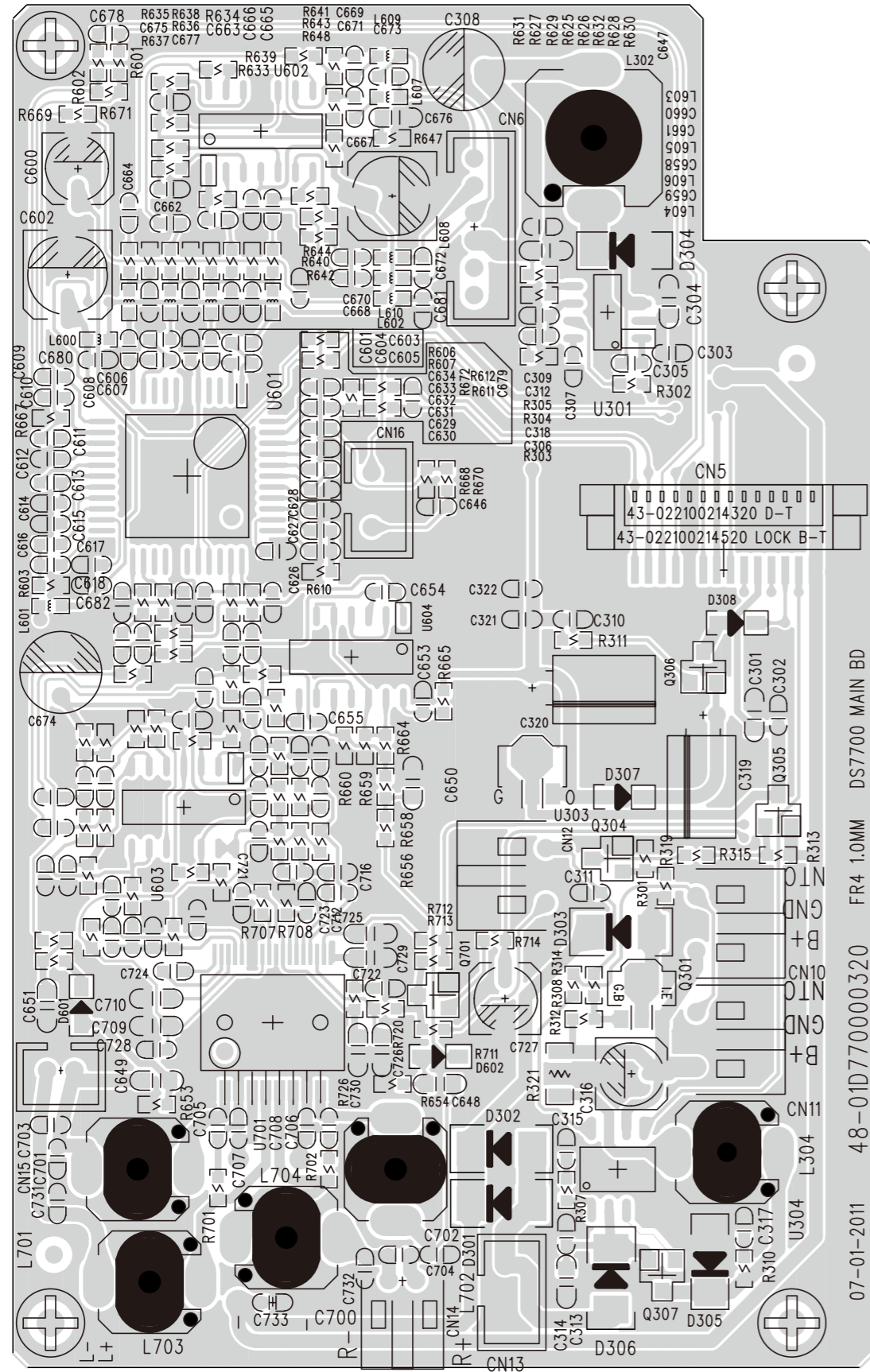
- 1) Remove 4 screws D as indicated to loosen the Key Board.
- 2) Remove 2 screws E as indicated to loosen the Upgrade Board.
- 3) Remove 3 screws F as indicated to loosen the Jack Board.
- 4) Remove 2 screws G as indicated to loosen the Switch Board.
- 5) Remove 2 screws H as indicated to loosen the Antenna Board.
- 6) Remove 4 screws I as indicated to loosen the Main Board.
- 7) Remove 4 screws J as indicated to loosen the Mcu Board.



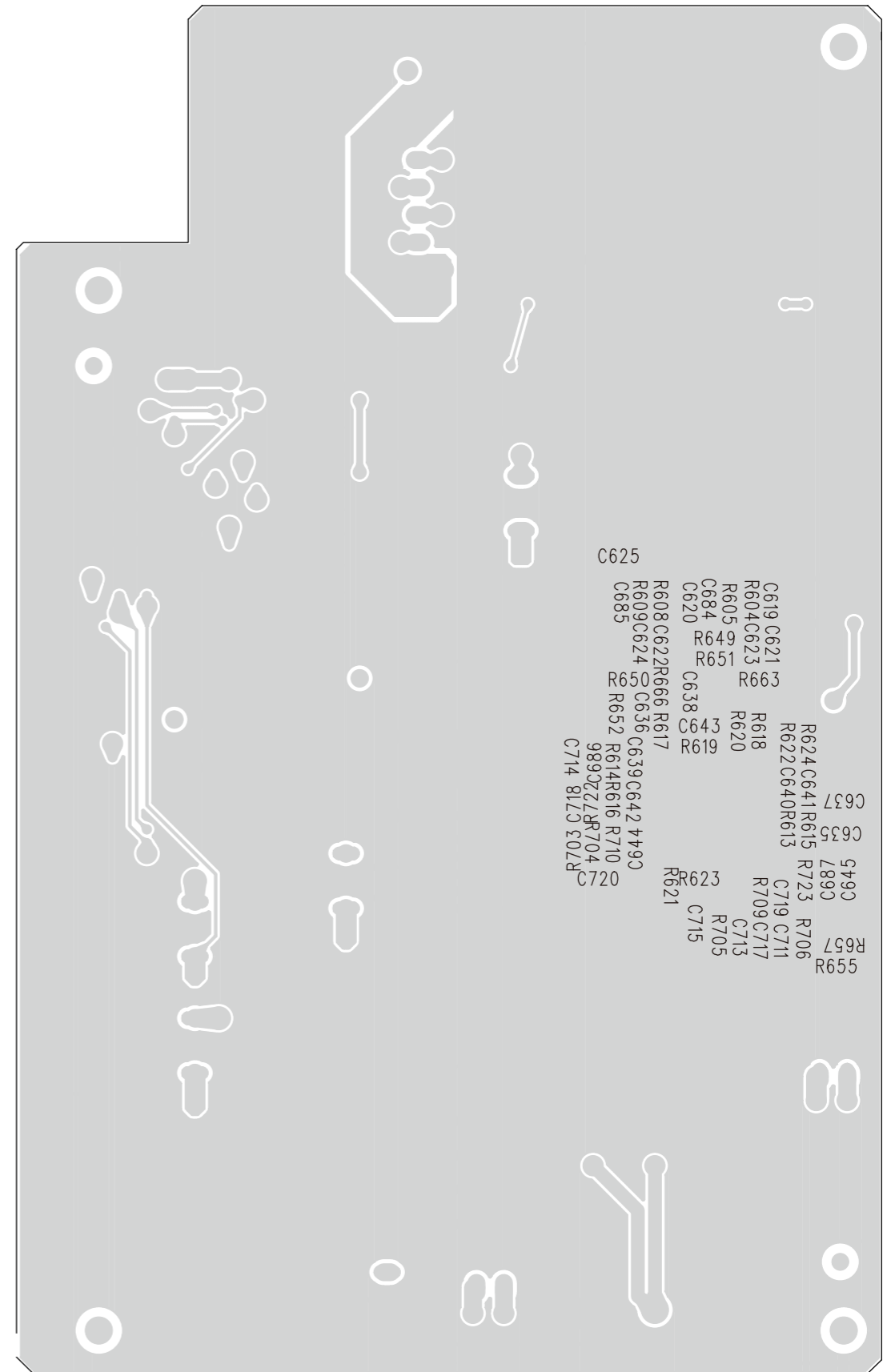


LAYOUT DIAGRAM-MAIN BOARD

TOP SIDE



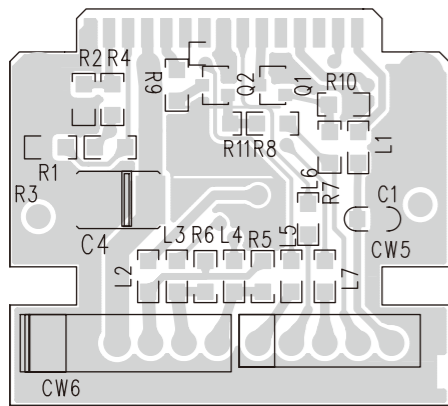
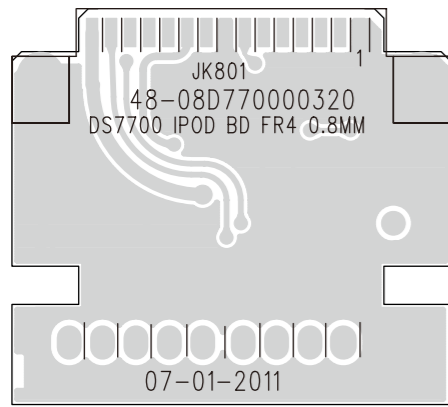
BOTTOM SIDE



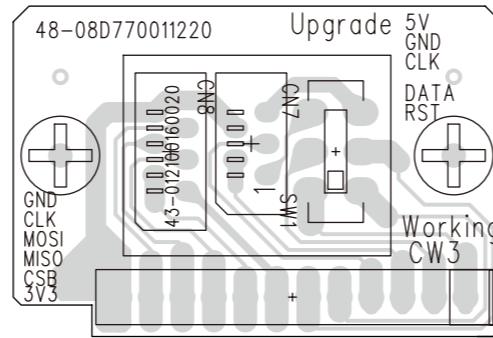


LAYOUT DIAGRAM-iPod BOARD/UPGRADE BOARD/MCU BOARD/  
SWITCH BOARD/KEY BOARD/ANTENNA BOARD

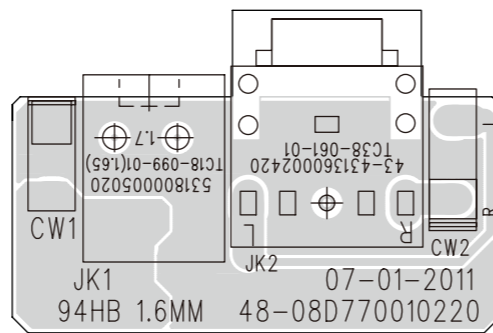
iPod BOARD



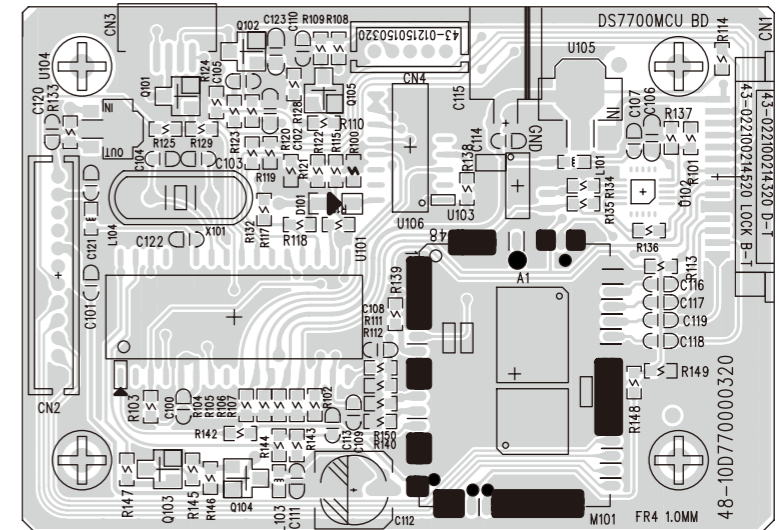
UPGRADE BOARD



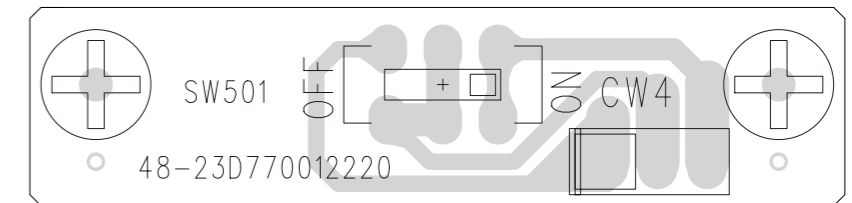
JACK BOARD



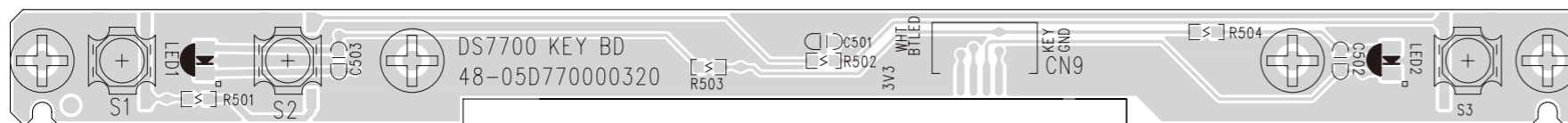
MCU BOARD



SWITCH BOARD



KEY- BOARD



ANTENNA BOARD



EXPLODED VIEW

7-1

7-1

