



SERVICE MANUAL

MODEL: SN4A(SN4A, SPN4BM-W)



Wireless Sound Bar **SERVICE MANUAL**

MODEL: SN4A
(SN4A, SPN4BM-W)

CAUTION

BEFORE SERVICING THE UNIT, READ THE "SAFETY PRECAUTIONS" IN THIS MANUAL.



P/NO : AFN30064620

JULY, 2021

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SECTION 1

SUMMARY

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PRODUCT SAFETY SERVICING GUIDELINES FOR AUDIO PRODUCTS

IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-video service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from LG Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

Special components are also used to prevent x-radiation, shock and fire hazard. These components are indicated by the letter "x" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by LG Corporation.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

CAUTION : Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

GRAPHIC SYMBOLS



The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.



The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

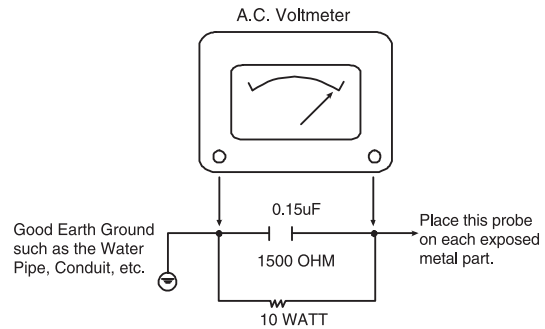
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items transported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a high current device or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After reassembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. **DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST.** Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

SERVICING PRECAUTIONS

CAUTION: Before servicing the Audio products covered by this service data and its supplements and addends, read and follow the SAFETY PRECAUTIONS.

NOTE: if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.

Remember Safety First :

General Servicing Precautions

1. Always unplug the Audio products AC power cord from the AC power source before:
 - (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
 - (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
 - (3) Connecting a test substitute in parallel with an electrolytic capacitor.
Caution: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this Audio products or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.
Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
5. Do not apply AC power to this Audio products and / or any of its electrical assemblies unless all solid state device heat sinks are correctly installed.
6. Always connect the test instrument ground lead to an appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1Mohm.

Note 1: Accessible Conductive Parts include Metal panels, Input terminals, Earphone jacks, etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

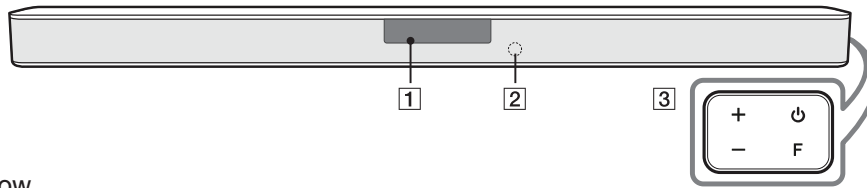
1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate an electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

LOCATION OF CUSTOMER CONTROLS

● Front panel



- 1** Display Window
- Display window will be darkened automatically if there is no key input for 15 seconds. When you press any button, the display window will brighten.
- 2** Remote sensor
- 3** ⏻ (Standby)
- Switches the unit ON or OFF.

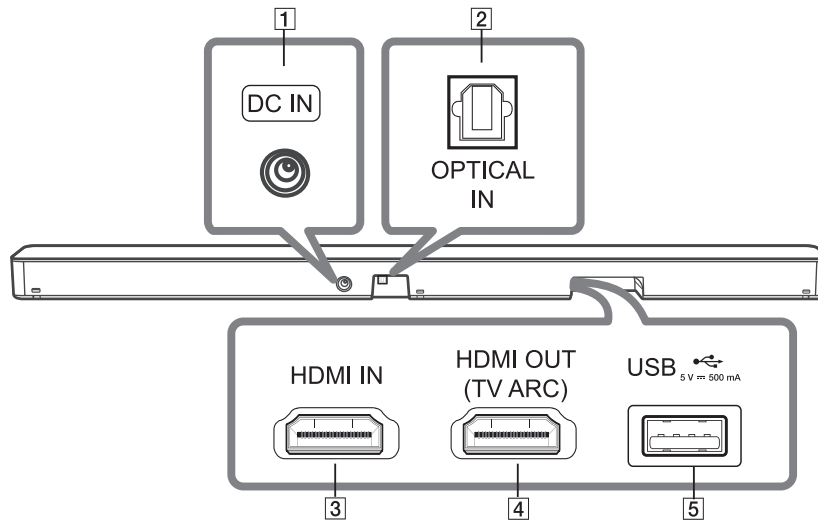
F (Function)

- Select the function and input source by pressing **F** repeatedly.

Input source / Function	Display
Optical, ARC, LG Sound Sync (Wired)	OPT/HDMI ARC
Bluetooth	BT
LG Sound Sync (Wireless)	LG TV
HDMI IN	HDMI
USB	USB

+/- (Volume)
- Adjusts volume level.

● Rear panel



- 1** **DC IN**
- Connect to the AC adapter.
- 2** **OPTICAL IN**
- Connect the OPTICAL IN jack on the back of the unit to OPTICAL OUT jack on the TV.
- 3** **HDMI IN**
- Connect HDMI IN jack on the back of the unit to HDMI OUT jack on the external device.
- 4** **HDMI OUT (TV ARC)**
- Connect the HDMI OUT (TV ARC) jack on the back of the unit to ARC jack on the TV.
- 5** **USB Port**
- Connect USB memory device to the USB port on the back of the unit.

You can enjoy the sound and picture from HDMI connection on an external device.

WIRELESS SUBWOOFER CONNECTION

LED indicator of wireless subwoofer

LED Color	Status
Yellow - green (Blink)	The connection is trying.
Yellow - green	The connection is completed.
Red	The wireless subwoofer is in standby mode or the connection is failed.
Off (No display)	The power cord of wireless subwoofer is disconnected.

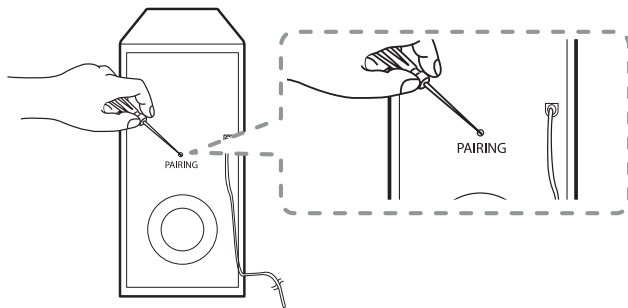
Setting up the wireless subwoofer for the first time

1. Connect the power cord to the subwoofer and plug the power cord into a power outlet.
2. Turn on the main unit : The sound bar and wireless subwoofer will be **automatically** connected.
 - Yellow - green on the rear of wireless subwoofer turns on.

Manually pairing wireless subwoofer

When your connection is not completed, you can check red LED on the wireless subwoofer and the wireless subwoofer does not make sound. To solve the problem, follow the steps below.

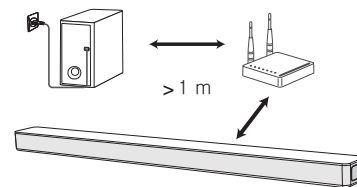
1. Press **PAIRING** button on the rear of the wireless subwoofer.





- The yellow - green LED on the rear of the wireless subwoofer blinks quickly. (If the green LED does not blink, press and hold the **PAIRING**.)
2. Turn on the sound bar.
 - Pairing is completed. The yellow - green LED on the front of the wireless subwoofer turns on.

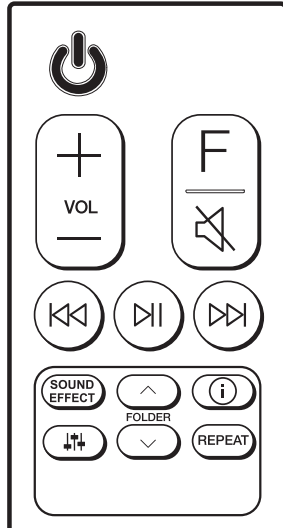
Note:

- It takes a few seconds (and may take longer) for the main unit and the subwoofer to communicate with each other and make sounds.
- The closer the main unit and the subwoofer, the better sound quality. It is recommended to install the main unit and the subwoofer as close as possible and avoid the cases below.
 - There is an obstacle between the main unit and the subwoofer.
 - There is a device using the same frequency as this wireless connection, such as medical equipment, a microwave, or a wireless LAN device.
 - Keep the sound bar and the subwoofer away from the device (ex. wireless router, microwave oven, etc.) over 1m to prevent wireless interference.



HIDDEN KEY MODE

HIDDEN MODE	KEYS
EEPROM OPTION EDIT	Main unit 'VOL-' + Remote Control '  '
EEPROM CLEAR (Initialize)	Main unit 'VOL-' + Remote Control '  '
VERSION CHECK	Main unit 'VOL-' + Remote Control 'Play/Pause'



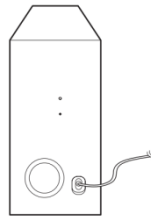
SOFTWARE UPDATE GUIDE

1. Preparation

- 1) SN4 Series Units : Main Unit, Wireless Subwoofer Unit.
- 2) SN4 RCU.
- 3) USB Memory.
- 4) Android Device with “Music Flow Bluetooth” App for FOTA update, “Version Check APP” for Version Check.



<Main Unit>
Necessary



<Wireless Subwoofer Unit>
If wireless subwoofer rx module
of primary unit is updated



<RCU>
Necessary



<USB Memory>
for USB update



<Android Device>
“Music Flow Bluetooth”
must be installed for FOTA update
“Version Check APP”
must be installed for Version Check

Caution:

- Take care not to power off during update.
- Do format USB memory before update (FAT32 file system).

2. Using USB

Step 1. Prepare SN4 update binaries.

Update module	Prefix & Extension	Filename Sample
B/E	MAIN_SN4*.ROM	MAIN_SN4_BAR_1812170_PRO1.ROM
Micom	MICOM_SN4*.HEX	MICOM_SN4_1905220_A4A3_rev1901.HEX
Wireless Subwoofer Tx	WOOFERTX_SN4*.BIN	WOOFERTX_SN4_BAR_190007_PRO1_CHECKSUM_C7CA.bin
Wireless Subwoofer Rx	WOOFERRX_SN4*.BIN	WOOFERRX_SN4_BAR_191008_PRO1_CHECKSUM_90BE.bin
MEQ	MEQ_SN4*.BIN	MEQ_SN4_161221B0.BIN
PEQ	PEQ_SN4*.BIN	PEQ_SN4_171016.BIN
Option	OPT*.BIN	OPTION_SN4.BIN

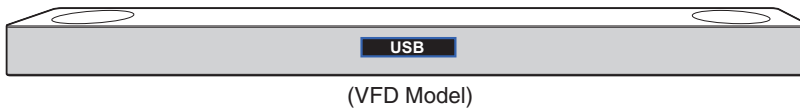
Step 2. Copy all updated SN4 binaries to USB memory.

Step 3. Power on SN4 main unit.

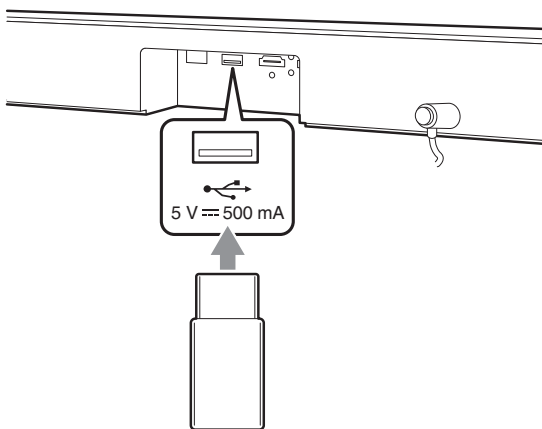
Step 4. If there is an updated wireless subwoofer rx binary in update list, you need to pair between main unit and subwoofer unit before start update.

Step 5. If there is an updated wireless rear rx binary in update list, you need to pair between main unit and rear speaker unit before start update.

Step 6. Press Function key to change function to USB. Verify whether USB function is or not by VFD.



Step 7. Attach USB which has update binaries to the USB slot back of SN4 main unit.



Update module	VFD display
B/E	D-UP
Micom	M-UP
Wireless Subwoofer Tx	WT 00
Wireless Subwoofer Rx	WR 00
MEQ	MQ-UP
PEQ	EQ-UP
TOUCH	T-UP
Option	OP-UP

<SN4 Series VFD Display in Update>

Step 8. Update will start automatically.

Check VFD what module is in progress one by one.

※ The numbers in VFD display of wireless modules will increase in progress as progress percent from 00 to 100.

Using USB

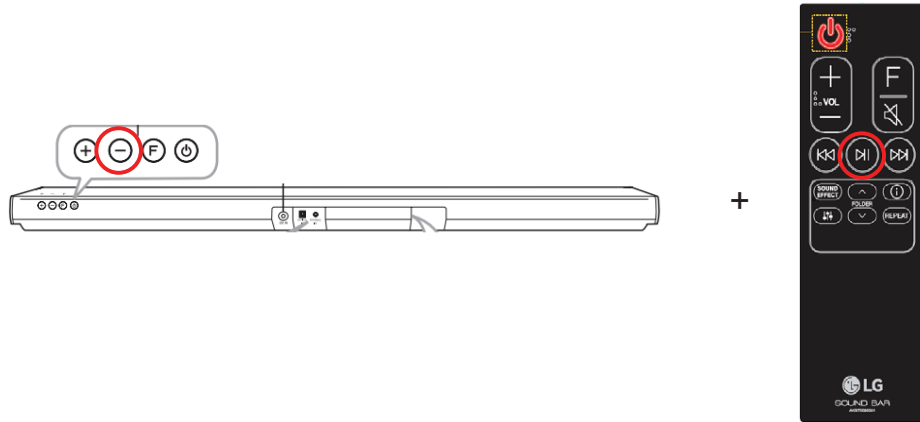
Step 9. SN4 main unit will be off automatically after update finish.

Step 10. Power on SN4 main unit again.

Step 11. Check the current versions to verify whether the update was successfully completed or not.

1) Press “Version Check” hidden key

- Version Check Hidden Key : Press Set “Vol-” + RCU “Play/Pause” for 3secs.



2) SN4 shows the version of all modules in the order shown below.

- The order that SN4 shows version in version check hidden mode.

MICOM → PEQ → B/E → MEQ → Wireless Subwoofer Tx → Wireless Subwoofer Rx
→ Boot loader (do not mind) → Option

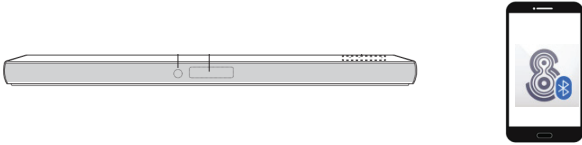
Module	VFD display sample
MICOM	M1901140
PEQ	PQ1812030-6326
B/E	B1901140
MEQ	MQ161221
Wireless Subwoofer Tx	TX190007
Wireless Subwoofer Rx	RX191008
Boot loader	BL014004
Touch	T1910310
Option	00 75 05 93 ...

<SN4 VFD Display in Version Display>

3) Compare the version VFD shows and you updated.

3. Using APP (FOTA : Firmware update Over The Air)

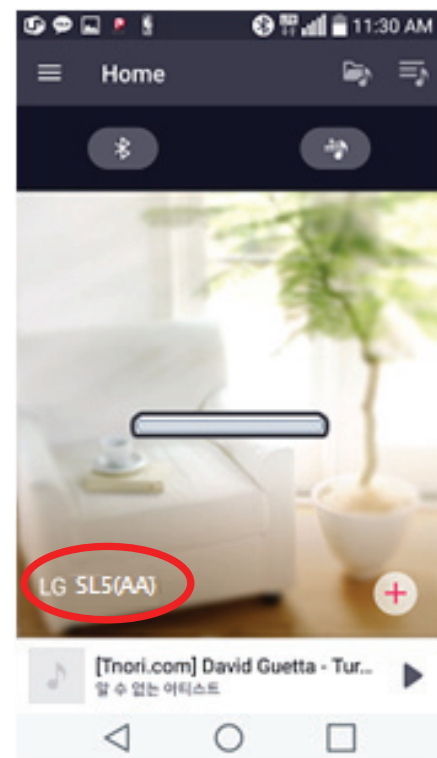
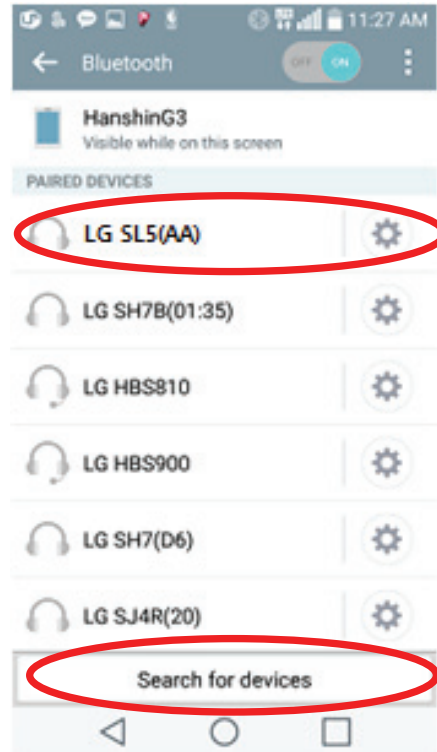
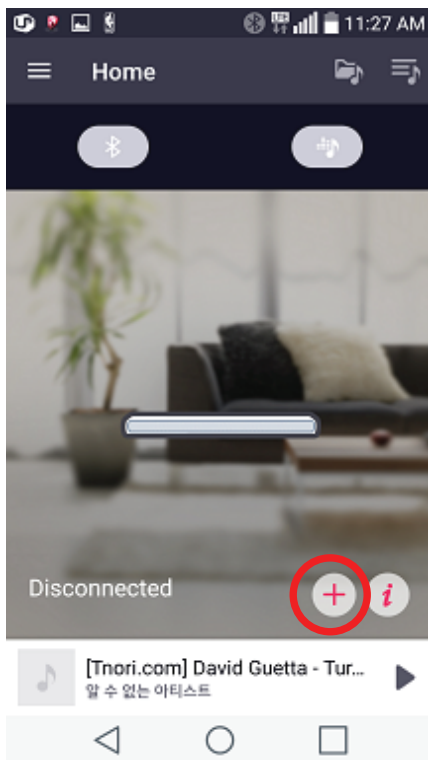
Step 1. Prepare SN4 main unit and Android Device with “Music Flow Bluetooth”. FOTA Update only supports B/E(Main) and MICOM module update.



Step 2. Power on SN4 main unit.

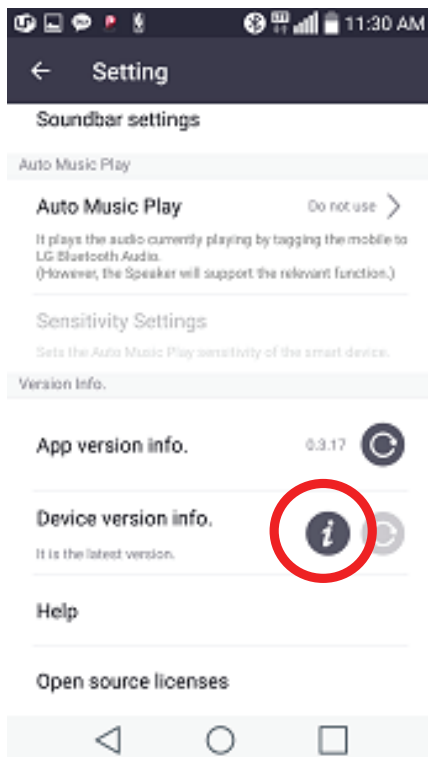
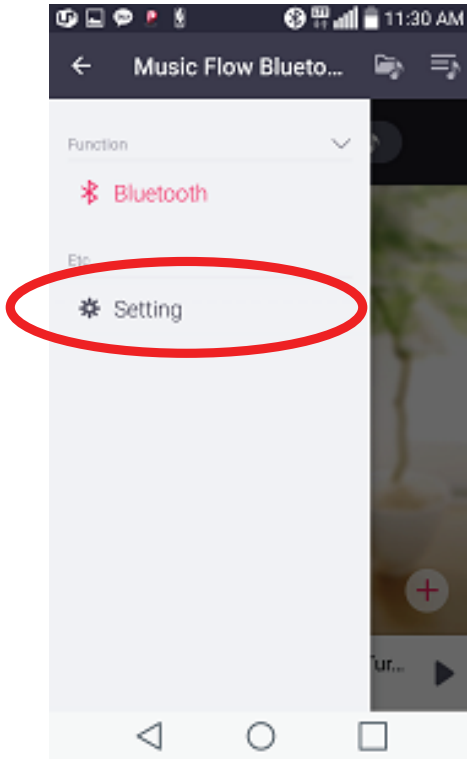
Step 3. Execute “Music Flow Bluetooth” App.

Step 4. Connect between android device and SN4 main unit by “Music Flow Bluetooth” App.

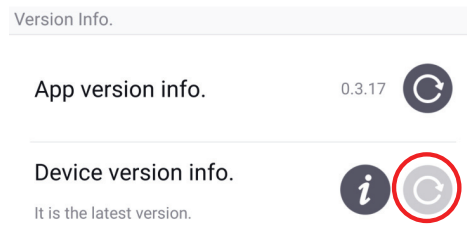
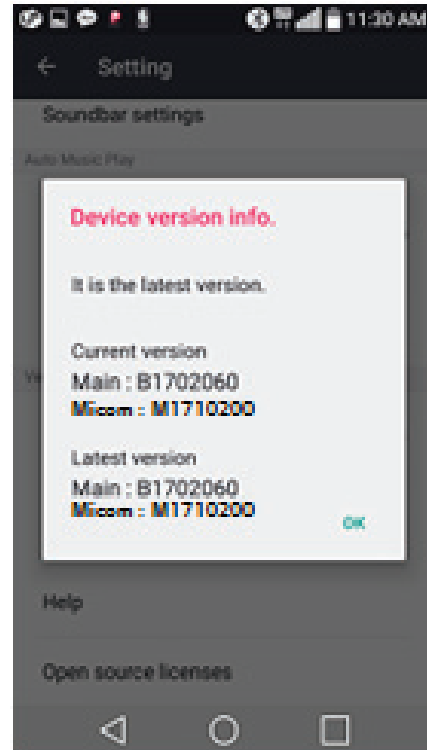


Using APP (FOTA : Firmware update Over The Air)

Step 5. Check the SN4 current version with “Music Flow Bluetooth” App.

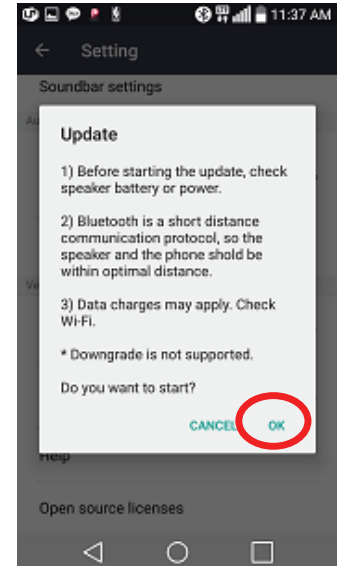
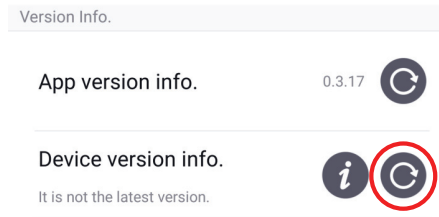
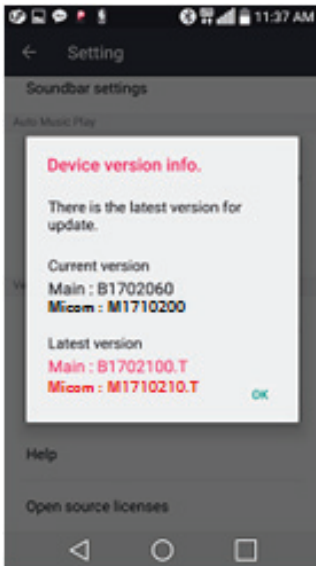


Step 6. If the main and micom version and of SN4 is already the latest version, Current version and Latest version in pop up window “Device version info.” are same. Also update icon must be disabled.



Using APP (FOTA : Firmware update Over The Air)

Step 7. If the main or micom version of SN4 is not the latest version, Current version and Latest version in pop up window “Device version info.” are different. Also update icon must be enabled. touch update icon to start FOTA update.



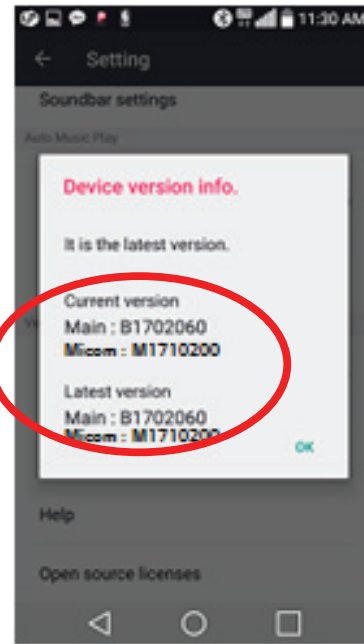
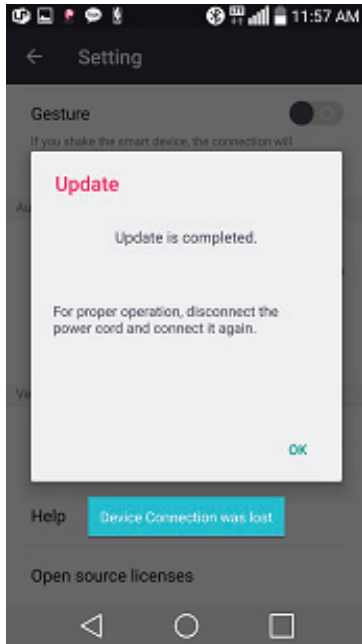
Step 8. FOTA update will be progress automatically as below sequence.

- 1) Download binary from server.
- 2) Transfer binary from Android device to SN4 main unit.
- 3) SN4 main unit executes update.

	1) Download binary	2) Transfer to SN4	3) Update progress
“Music Flow Bluetooth” App			
VFD Model	Current Function	DNLD	<div style="border: 1px solid black; padding: 5px; text-align: center; margin-bottom: 5px;">D-UP</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">M-UP</div>

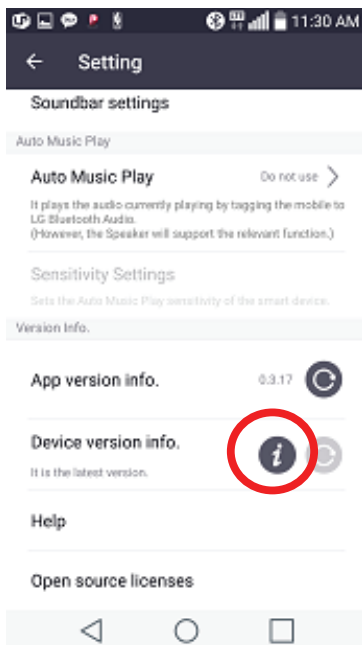
Using APP (FOTA : Firmware update Over The Air)

Step 9. SN4 main unit will be off automatically after update finish.



Step 10. Power on SN4 main unit again.

Step 11. Check the current versions to verify whether the update was successfully completed in such a way of Step 5.~ 6.



SPECIFICATIONS

• GENERAL

Power consumption AC adapter	Refer to the main label on the unit. • Model : DA-50F25 • Manufacturer : Asian Power Devices Inc. • Input : 100 - 240 V ~ 50 - 60 Hz • Output : 25 V \approx 2 A
Dimensions (W x H x D)	Approx. 890.0 mm X 57.0 mm X 85.0 mm With foot
Operating temperature	5 °C to 35 °C (41 °F to 95 °F)
Operating humidity	5 % to 90 %
Bus Power Supply	5 V \approx 500 mA
Available Digital Audio In Sampling Frequency	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz
Available Digital Audio In format	Dolby Audio, DTS Digital Surround, PCM

• INPUT/OUTPUT

OPTICAL IN	3 V (p-p), Optical jack x 1
HDMI IN	19 Pin (Type A, HDMI™ connector) x 1
HDMI OUT	19 Pin (Type A, HDMI™ connector) x 1

• AMPLIFIER (RMS Output)

Total	400 W RMS
Front	90 W RMS x 2 (4 Ω at 1 kHz, THD 10 %)
Subwoofer	220 W RMS (3 Ω at 80 Hz, THD 10%)

• WIRELESS SUBWOOFER

Power requirements	Refer to the main label on the subwoofer.
Power consumption	Refer to the main label on the subwoofer.
Type	1 Way 1 Speaker
Impedance	3 Ω
Rated Input Power	200 W
Max. Input Power	400 W
Dimensions (W x H x D)	Approx. 171 mm x 390 mm x 261 mm

- Designs and specifications are subject to change without prior notice.

MEMO

A series of horizontal dotted lines for writing.

SECTION 2

CABINET & MAIN CHASSIS

CONTENTS

DISASSEMBLY INSTRUCTIONS 2-2

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 2. WIRELESS SUBWOOFER SECTION 2-11

 3. PACKING ACCESSORY SECTION 2-15

DISASSEMBLY INSTRUCTIONS

1. HOW TO DISASSEMBLE THE MAIN SET

1) Remove the 19 screws.



Figure 1-1

2) Remove the Case Bottom Assembly.

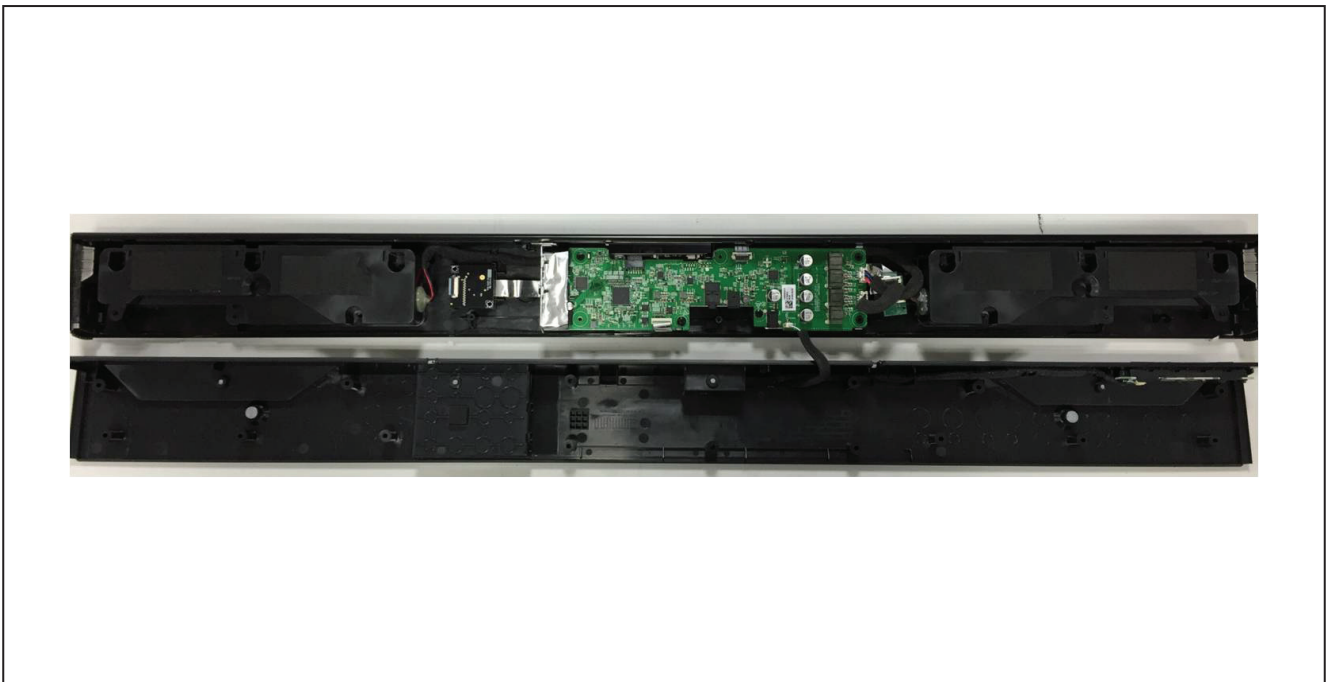


Figure 1-2

HOW TO DISASSEMBLE THE MAIN SET

3) Remove the 2 screws, Disconnect the Harness/FFC cables (KEY, SPK) and Remove the Main PCB Assembly.

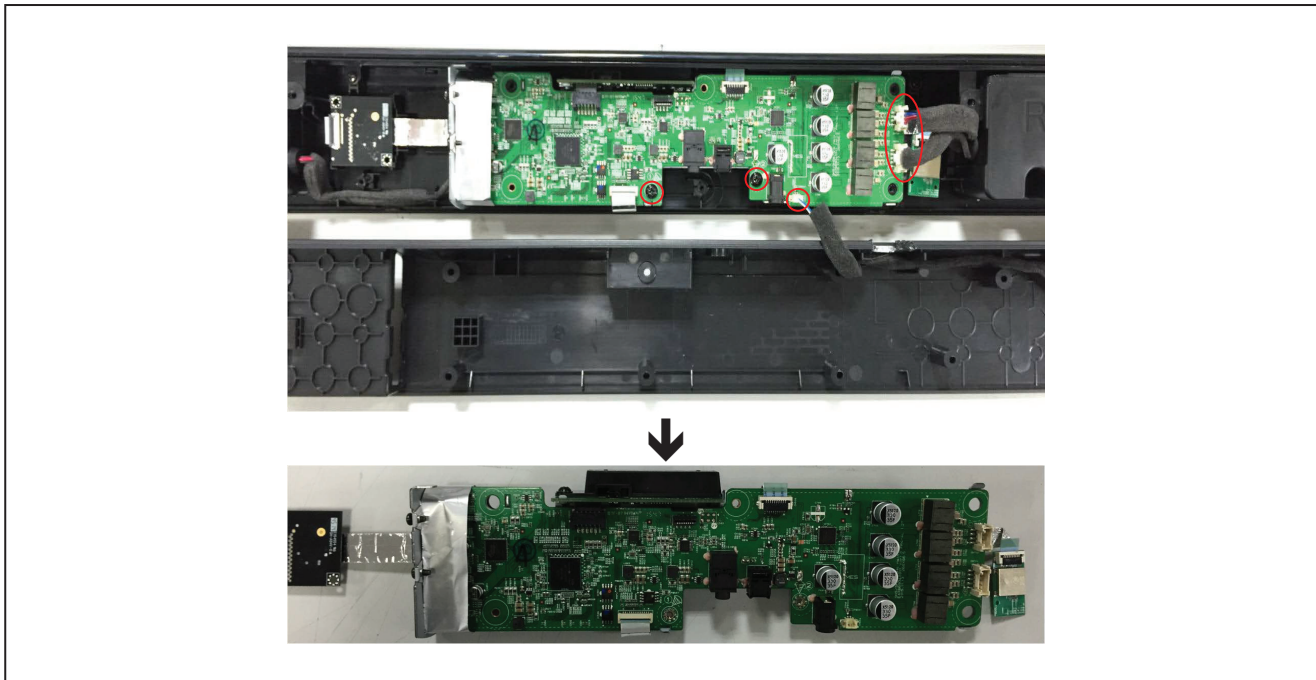


Figure 1-3

4) Remove the SPK Chamber L/R Assembly.

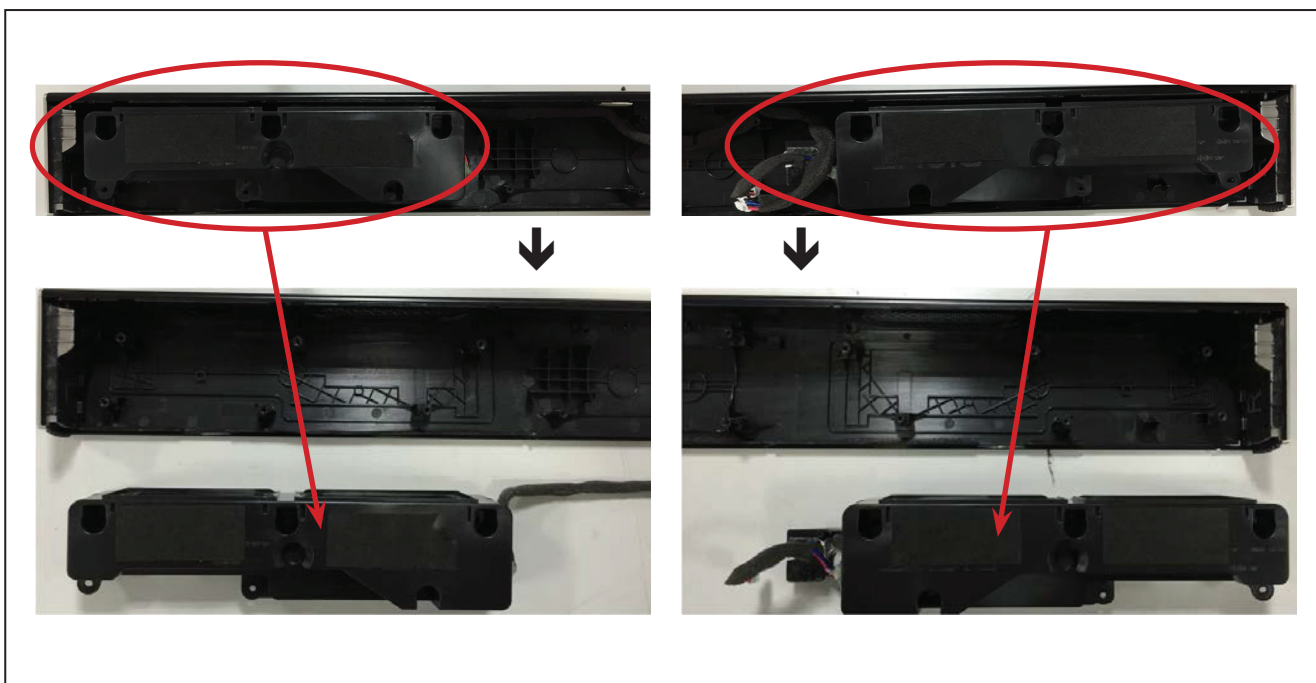


Figure 1-4

HOW TO DISASSEMBLE THE MAIN SET

5) Remove the L/R Deco Assembly.

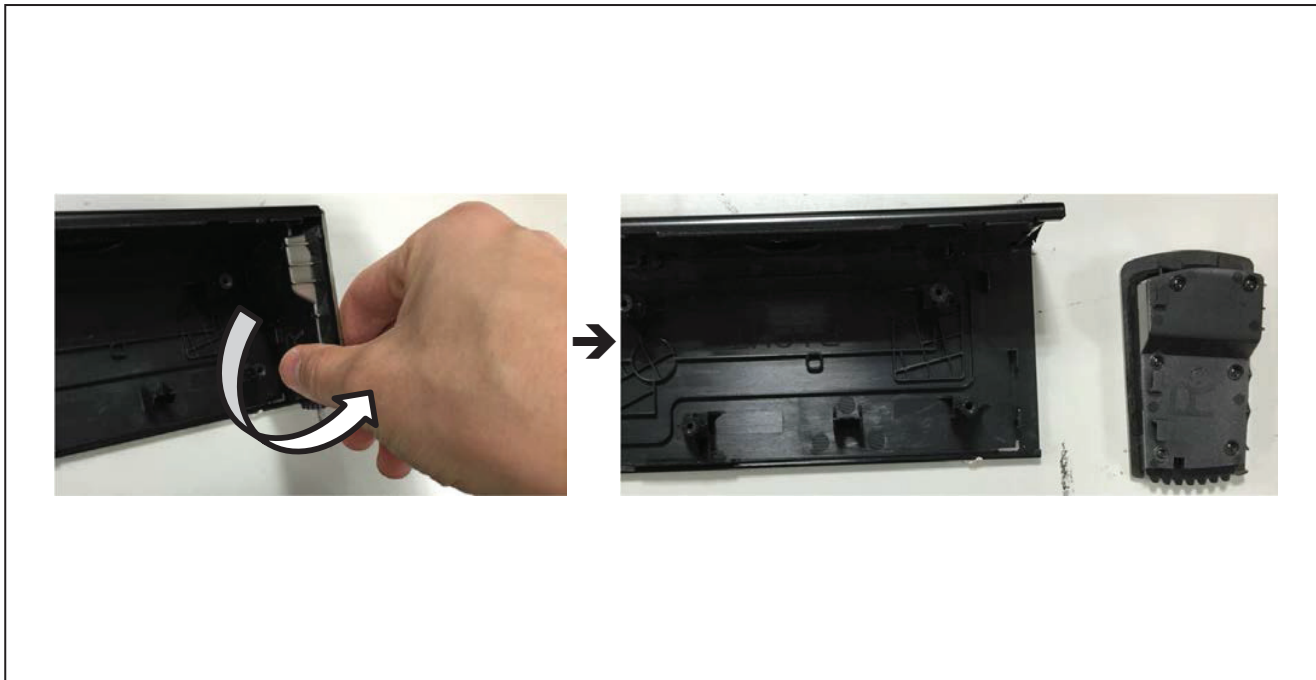


Figure 1-5

6) Remove the 4 screws and Disconnect FFC cables (BT, Wireless).

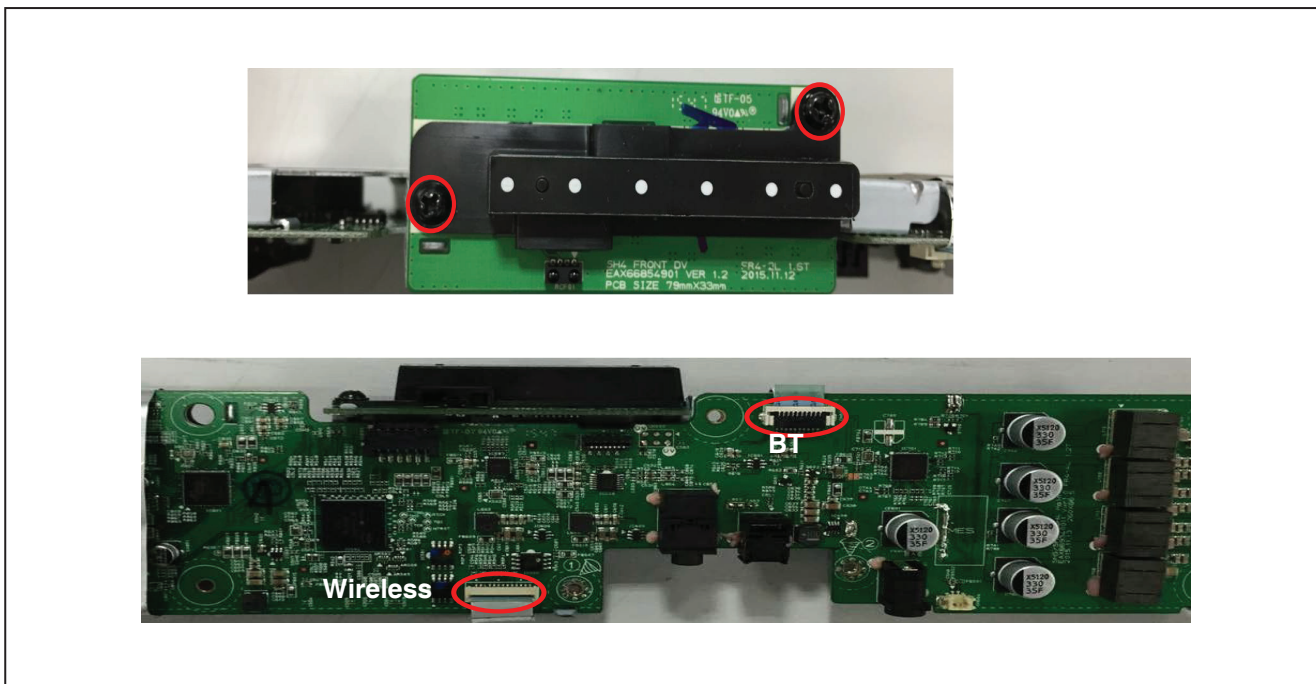


Figure 1-6

HOW TO DISASSEMBLE THE MAIN SET

7) Remove the EMI Shield Tape.

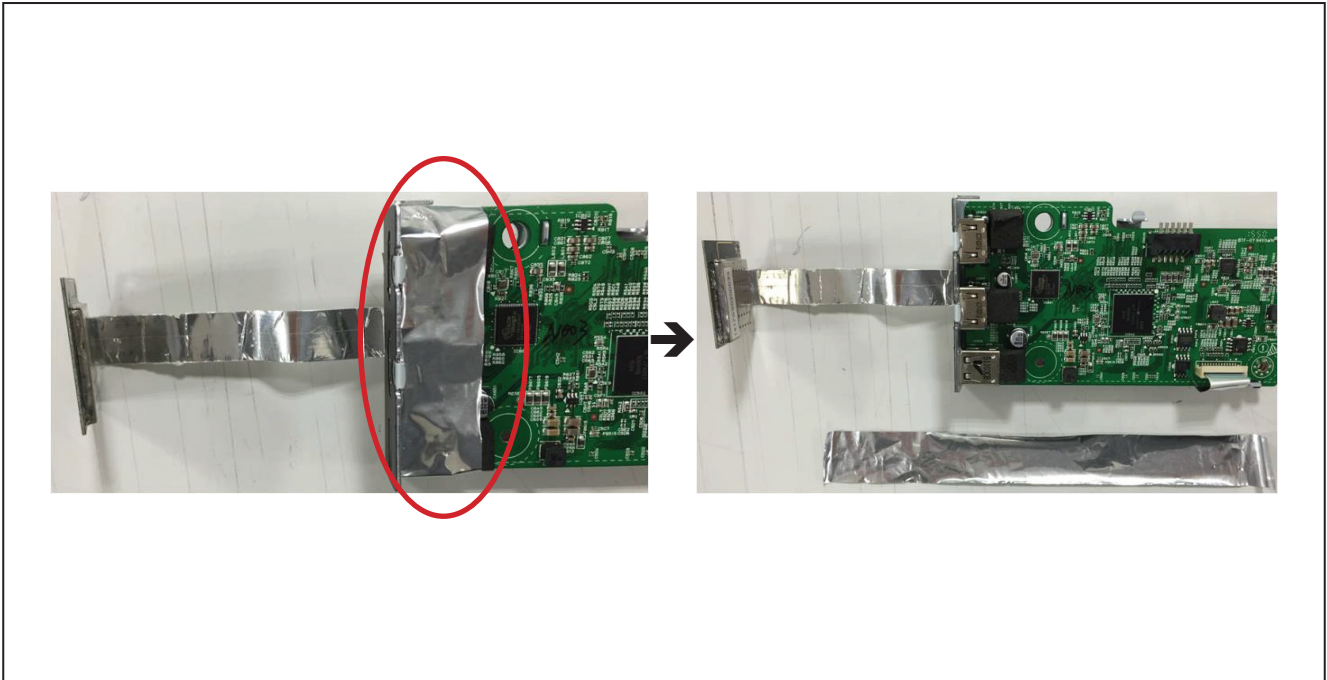


Figure 1-7

8) Remove the EMI Shield Tape of Bottom side.

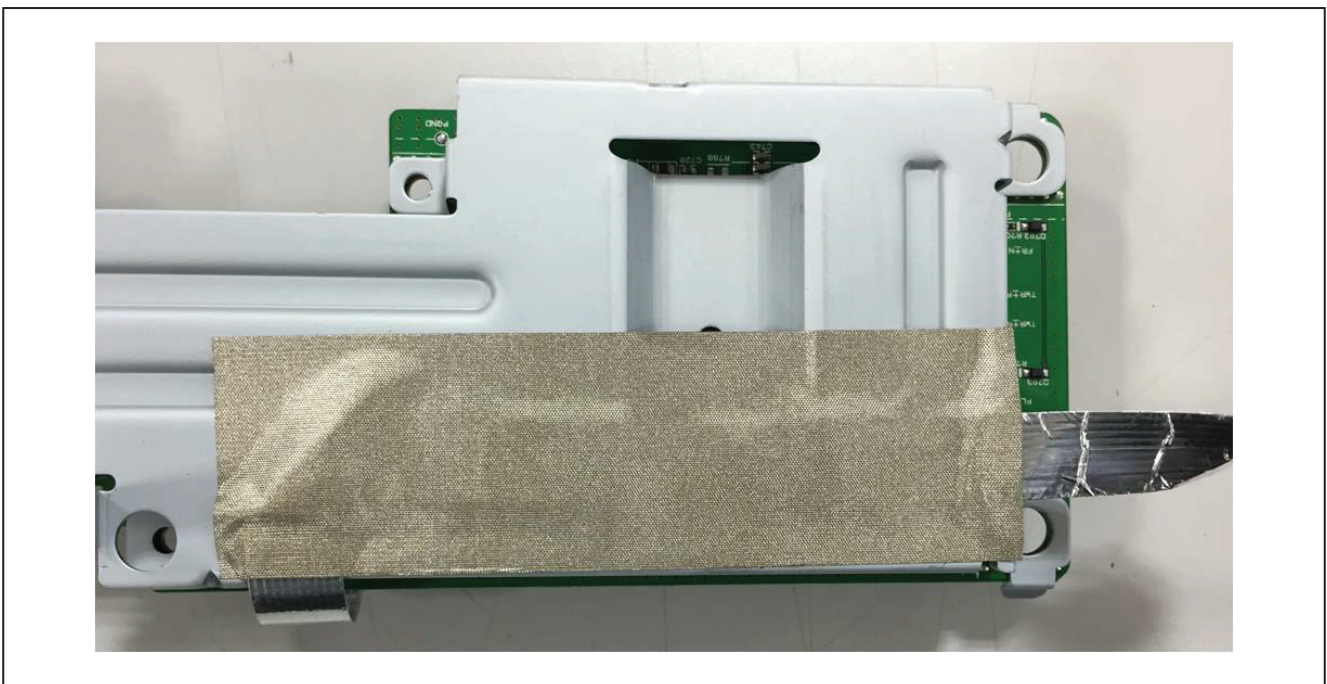


Figure 1-8

HOW TO DISASSEMBLE THE MAIN SET

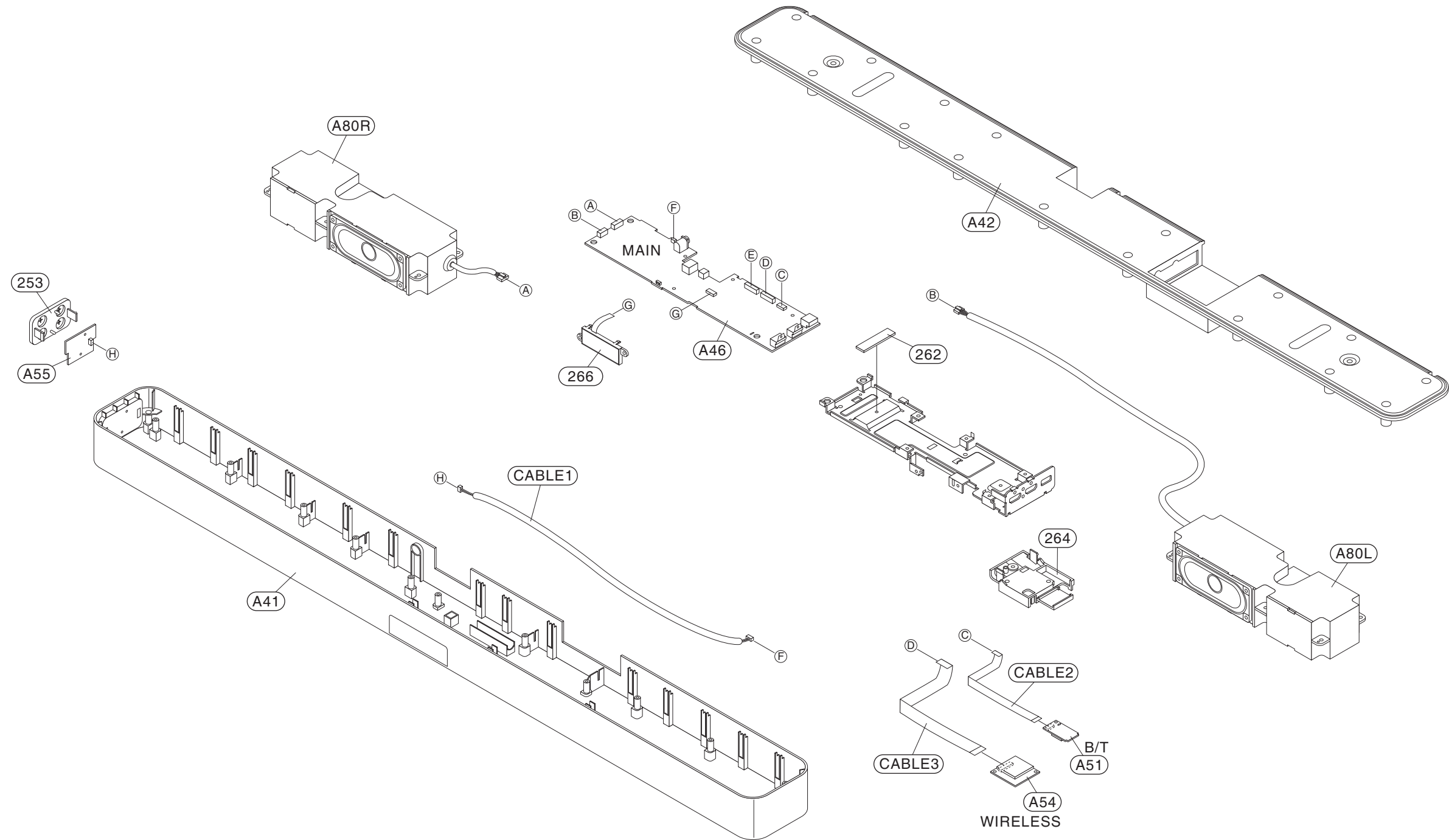
9) Disassembly finish.



Figure 1-9

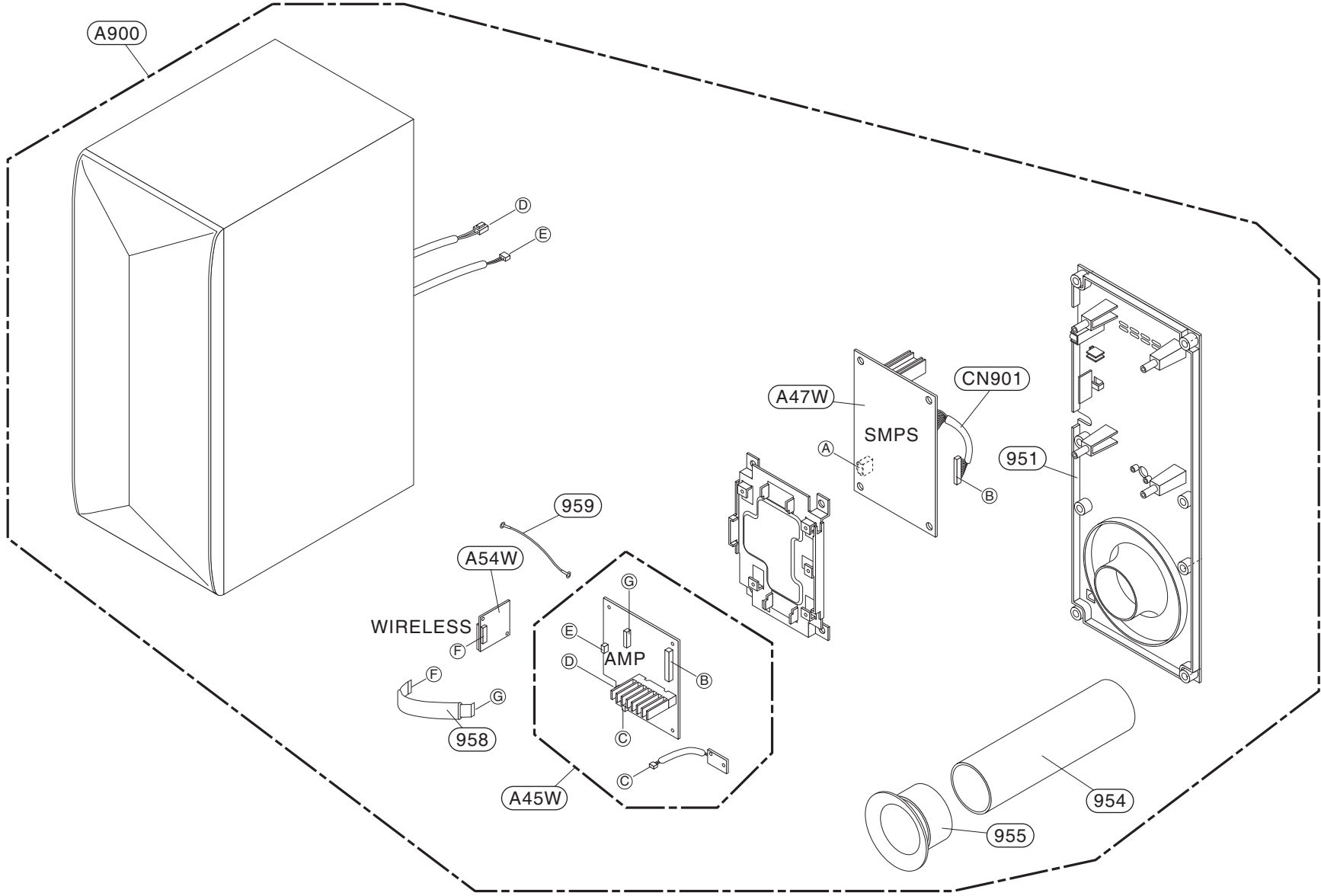
EXPLODED VIEWS

1. MAIN UNIT SECTION



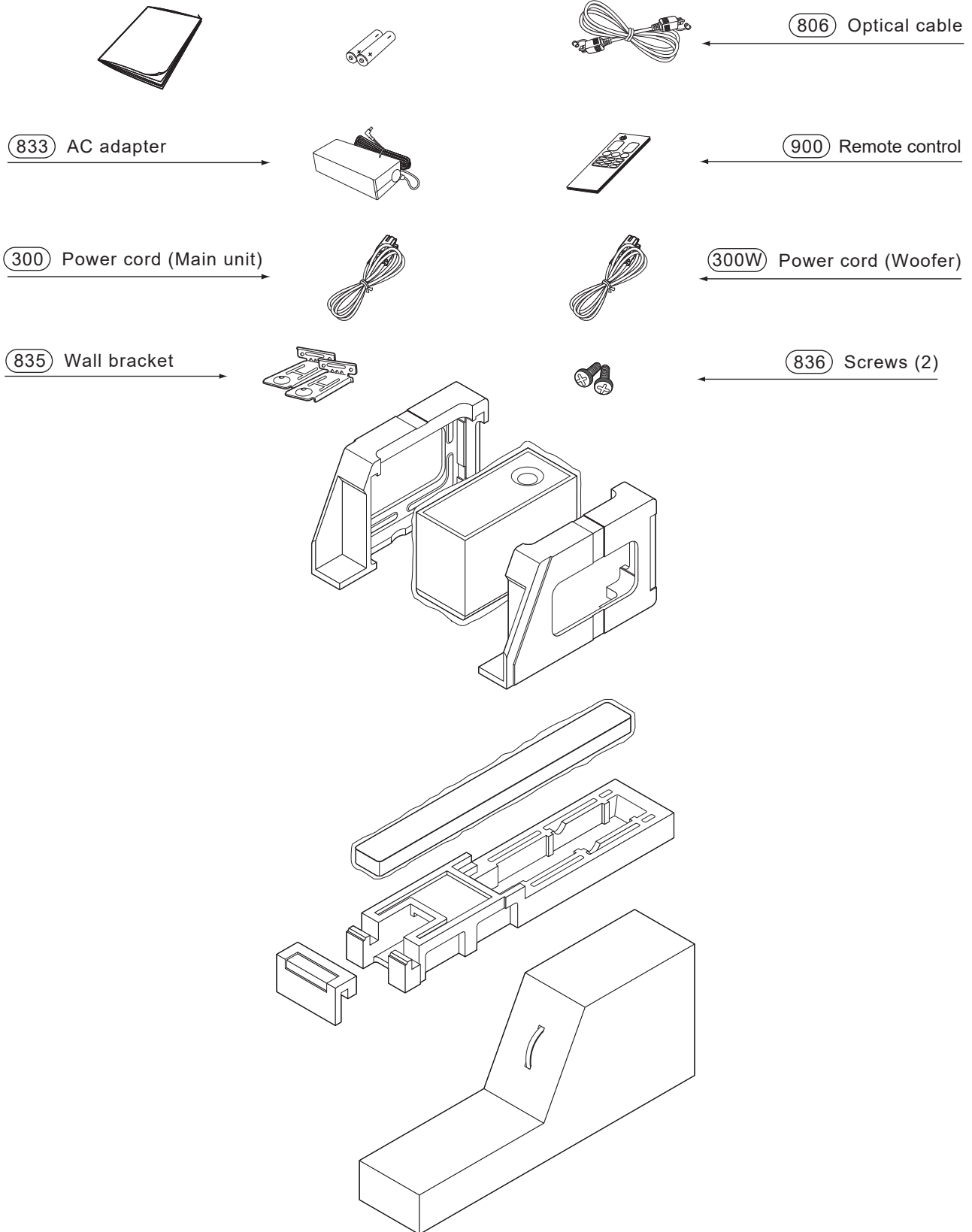
2. WIRELESS SUBWOOFER SECTION

NOTES) THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.



3. PACKING ACCESSORY SECTION

NOTES) IF YOU WANT TO SVC A PACKAGE, BAG,
BOX, PLEASE REQUEST AT A TIME.



• Packing accessory parts list

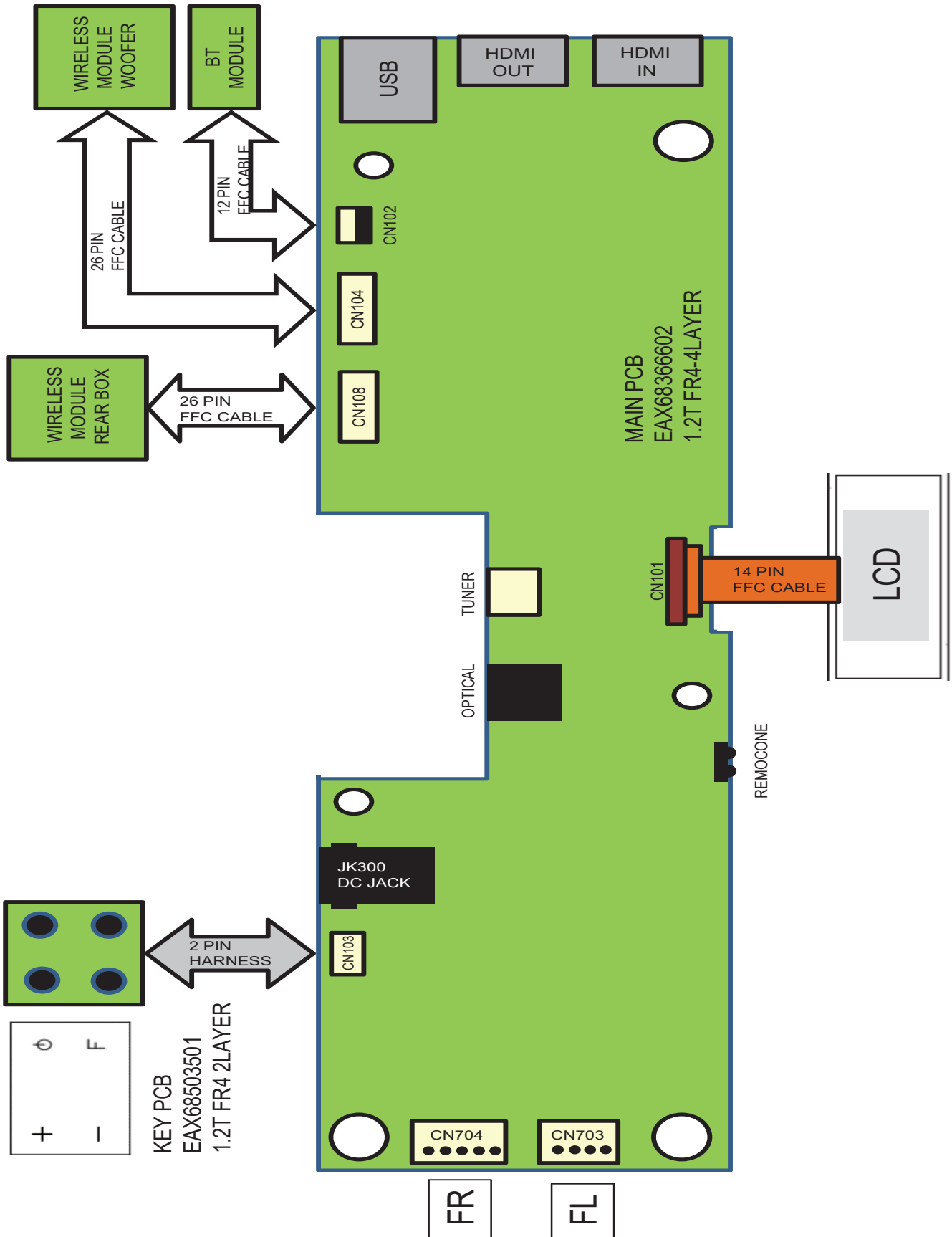
S	AL	LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION	REMARKS
△		300	EAD63525402	Power Cord	DE-2P-A-N-2P-S-1000-N-00-BK-US	
△		300W	EAD60816752	Power Cord	USA95Y AT-H2P-1500/95-T-00-BK-	
		806	EAD61071210	Cable,Assembly	OPTICAL-1P-OPTICAL-OPTICAL-150	
	OR	806	EAD63727901	Cable,Assembly	210-26424 OPTICAL OPTICAL 1.5M	
	OR	806	EAD63345601	Cable,Assembly	POF1-BB2B-1500-02 OPTICAL OPTI	
△		833	EAY64290801	Adapters	DA-38A25-AAAA 100-240V 25V 1.5	
		835	AAA77427003	Accessory Assembly	HOME THEATER SK5,SK6,SK8 Black	
		836	AGG75620751	Packing Assembly	LAS550H silver new screw + bag	
		900	AKB75595361	Remote Controller Assembly	MA6 SN/SL10/9/8/7/6/5/4 (Add	
	OR	900	AKB75595331	Remote Controller Assembly	MA6 SM/SL10/9/8/7/6/5/4 Soundb	

SECTION 3 ELECTRICAL

CONTENTS

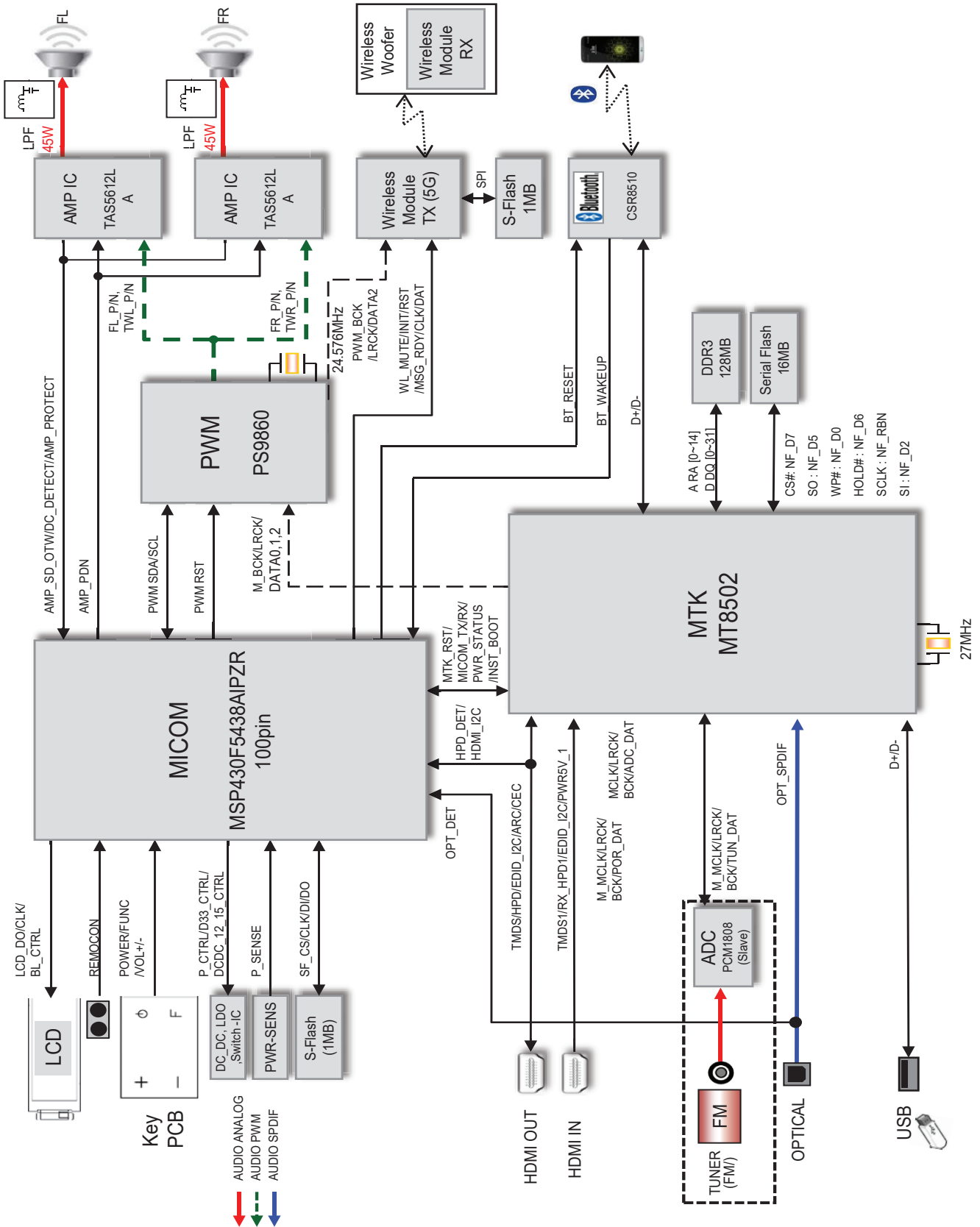
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BLOCK DIAGRAMS	3-3
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2. POWER BLOCK DIAGRAM	3-4
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WIRING DIAGRAM

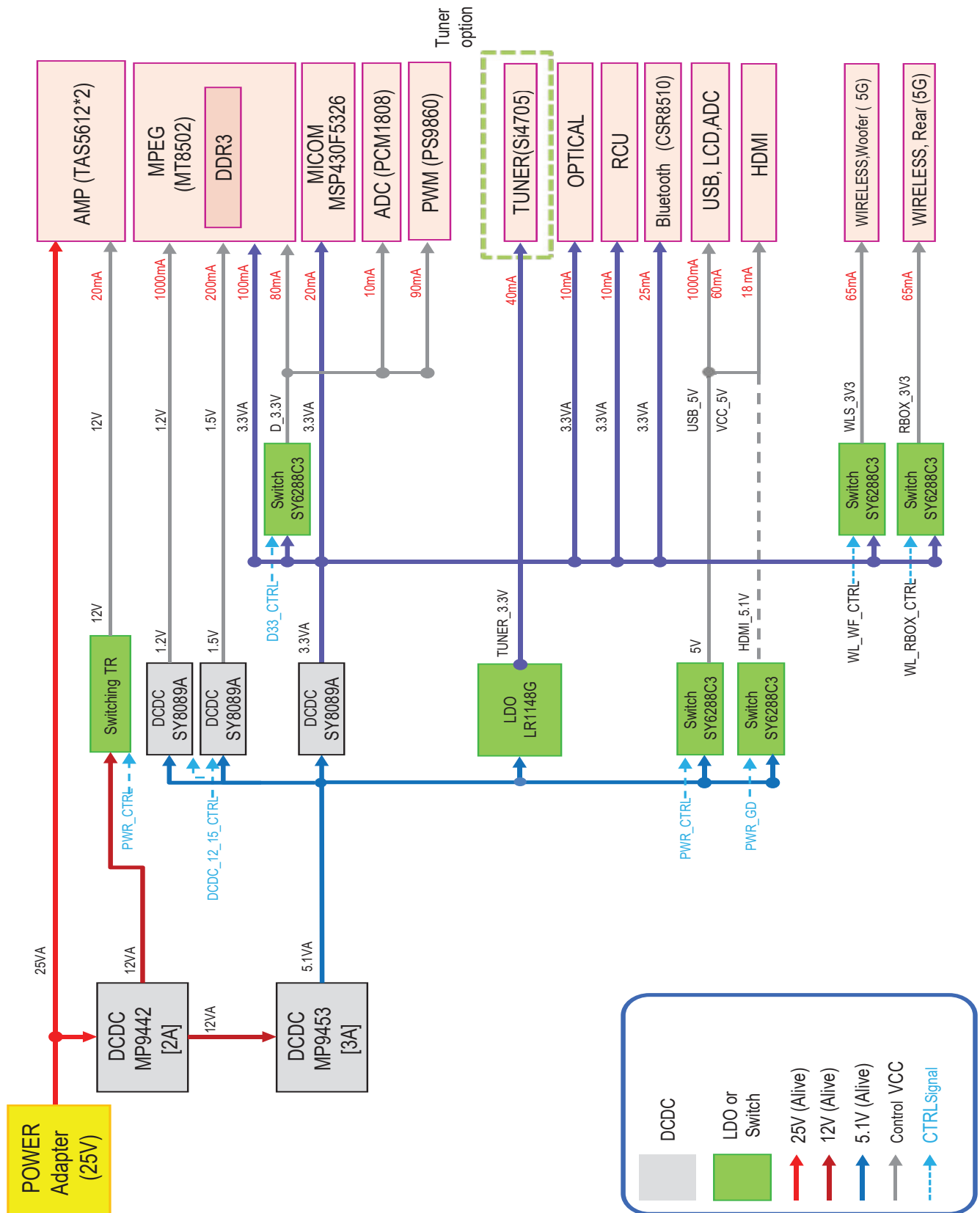


BLOCK DIAGRAMS

1. SYSTEM BLOCK DIAGRAM



2. POWER BLOCK DIAGRAM



ONE POINT REPAIR GUIDE

1. NO BOOTING WHEN YOU TURN THE UNIT ON, NO MESSAGE OR “HELLO” ON FRONT PANEL

When you turn on your set, no message on the front panel, and stand-by LED doesn't work.

1-1. IC302 System 12 VA (No 12 VA)

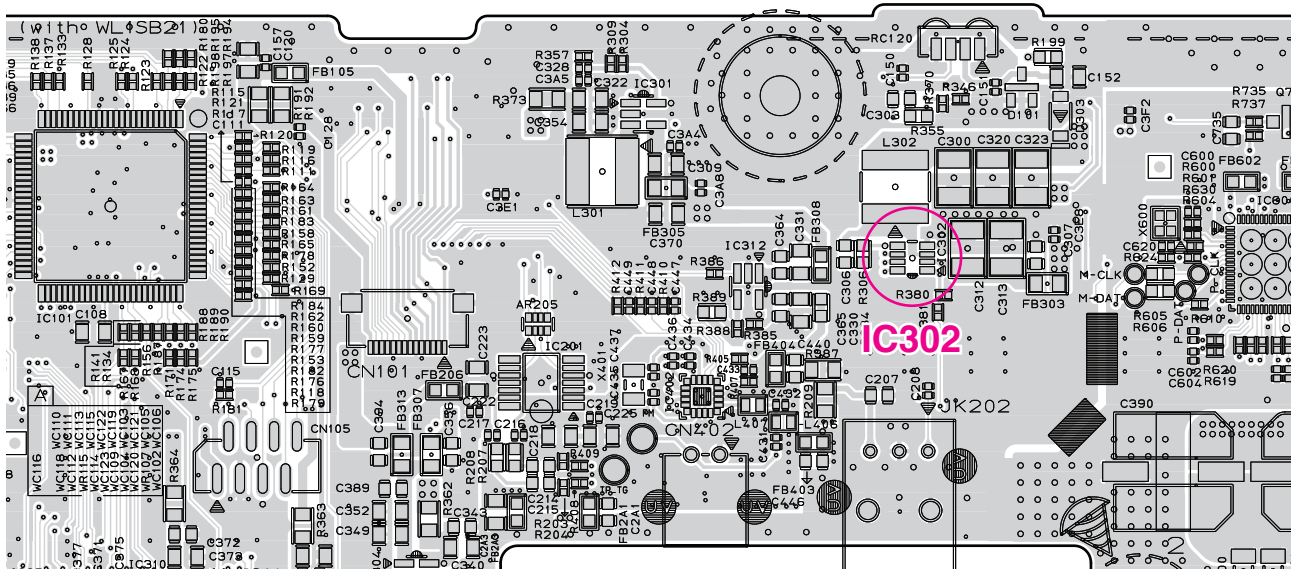
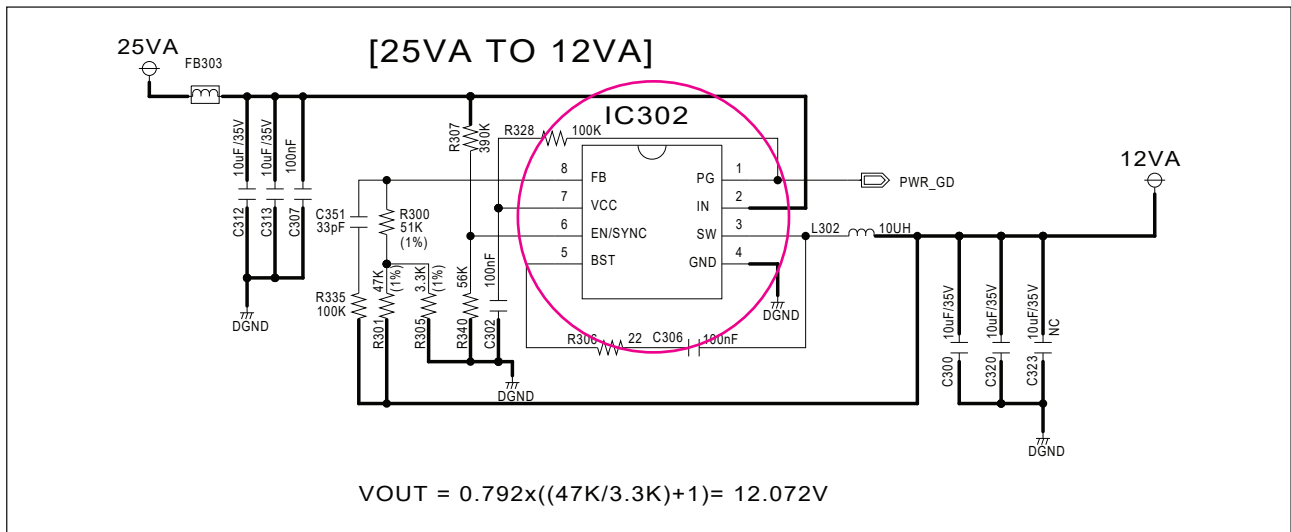
1-1-1. Solution

Replace MAIN board.

1-1-2. How to troubleshoot (Countermeasure)

- 1) Please check 25 VA of IC302 pin2 (VIN).
- 2) If 25 VA is abnormal, please check adapter.
- 3) If 25 VA is OK, but 12 VA is abnormal pin3 of IC302 (VOUT), replace MAIN board.

1-1-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO MESSAGE OR “HELLO” ON FRONT PANEL

When you turn on your set, it will blank / no message on front panel / doesn't work.

1-2. IC305 System 5.1 V (No 5.1 VA)

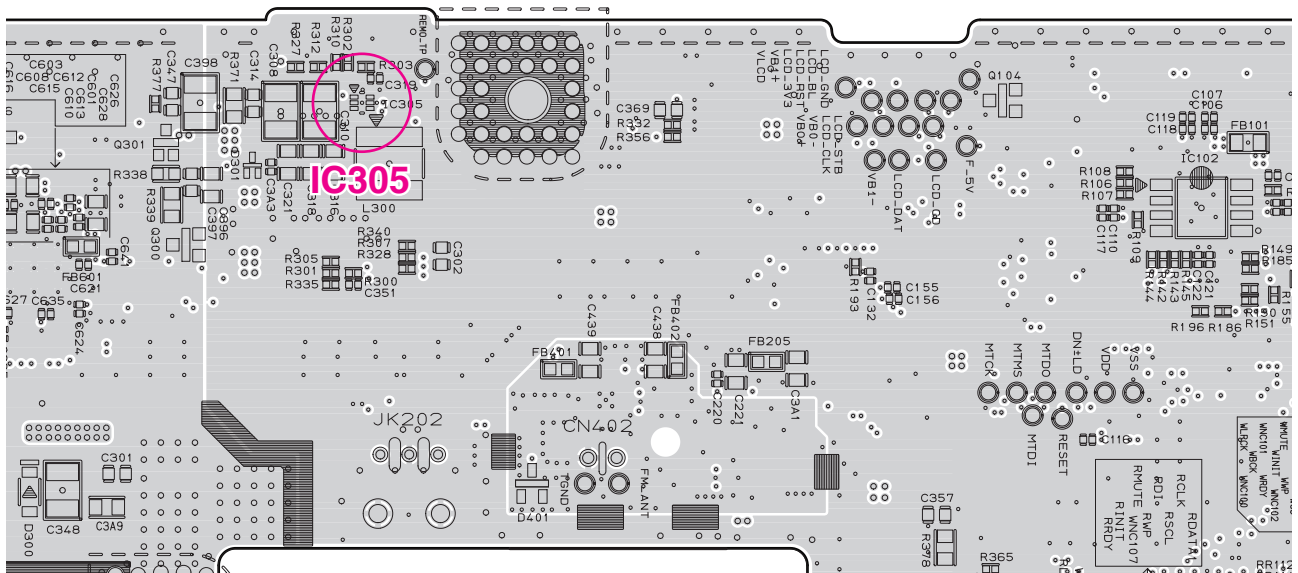
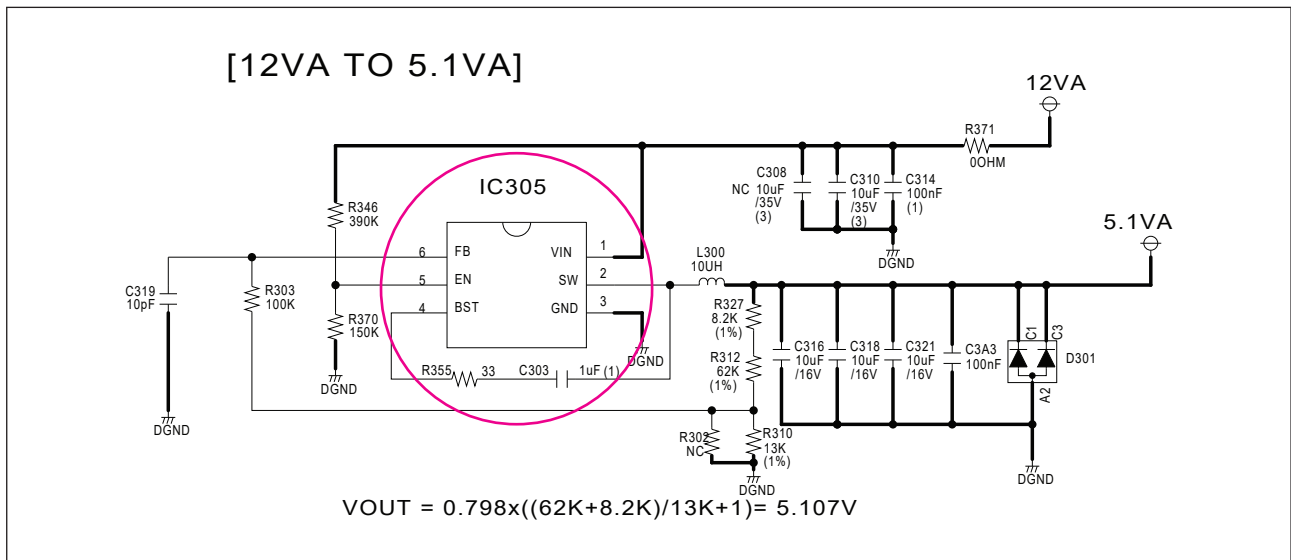
1-2-1. Solution

Check MAIN board.

1-2-2. How to troubleshoot (Countermeasure)

- 1) Please check 5.1 VA of IC305 pin2
- 2) If 5.1 VA is abnormal, replace MAIN board.

1-2-3. Service hint (Any picture / Remark)



< MAIN board bottom view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO MESSAGE OR "HELLO" ON FRONT PANEL

When you turn on your set, it will blank / no message on front panel / doesn't work.

1-3. IC301 System 3.3 V (No 3.3 VA)

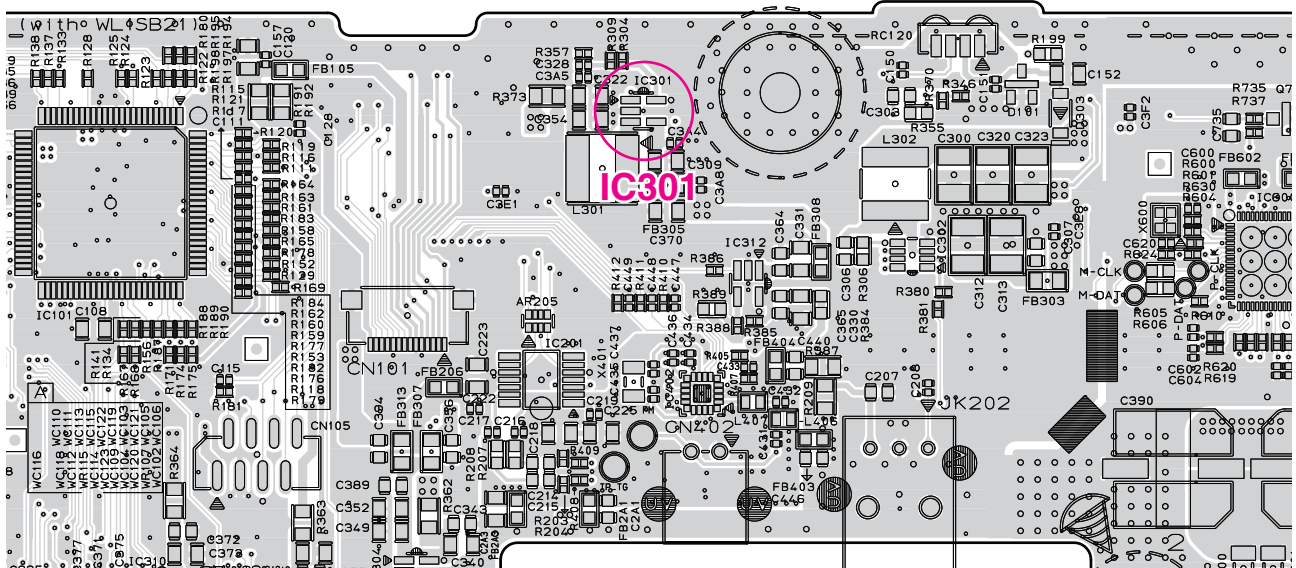
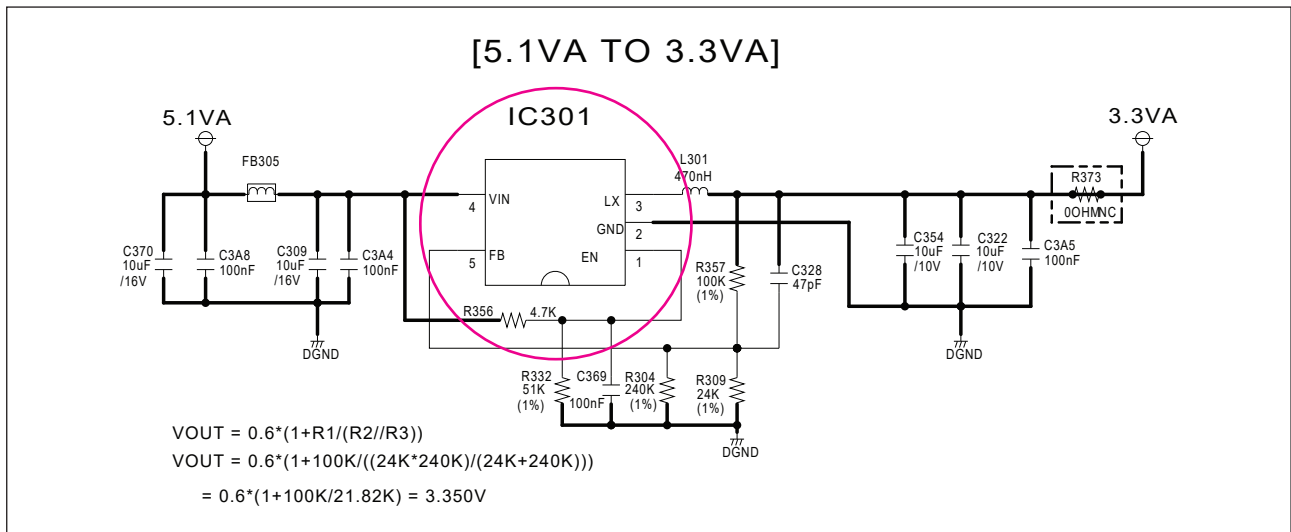
1-3-1. Solution

Replace MAIN board.

1-3-2. How to troubleshoot (Countermeasure)

- 1) Please check 3.3 VA of IC301 pin3.
- 2) If 3.3 VA is abnormal, replace MAIN board.
- 3) If 5.1 VA is OK, replace MAIN board.

1-3-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO MESSAGE OR “HELLO” ON FRONT PANEL

When you turn on your set, it will blank / no message on front panel, LCD doesn't work.

1-4. LCD System power VCC_5V

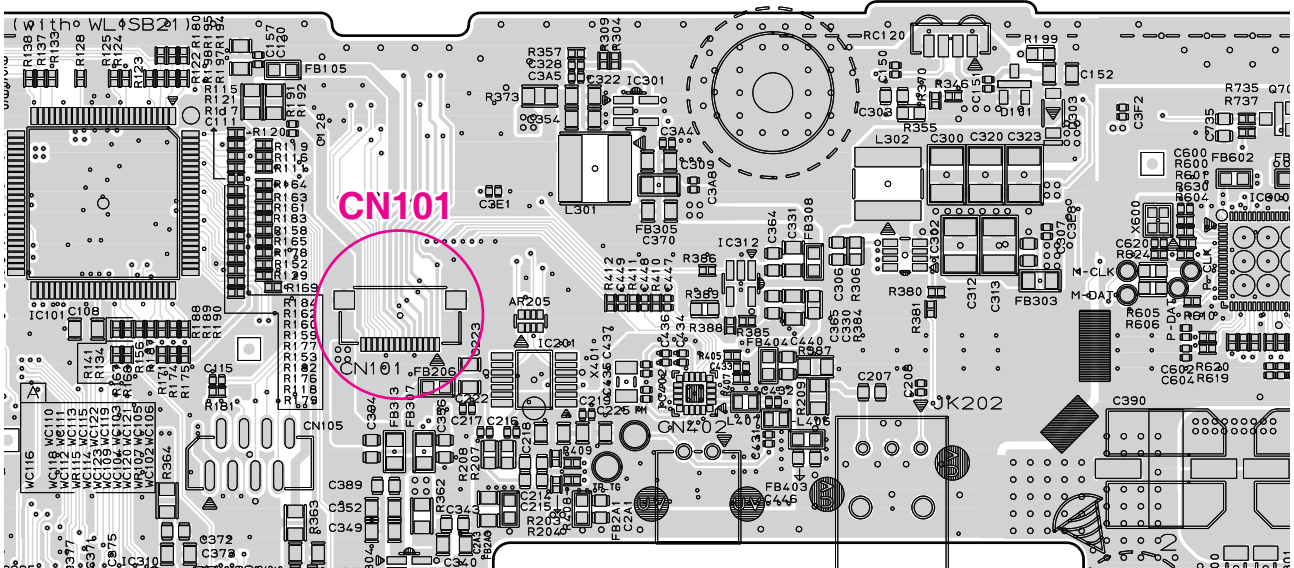
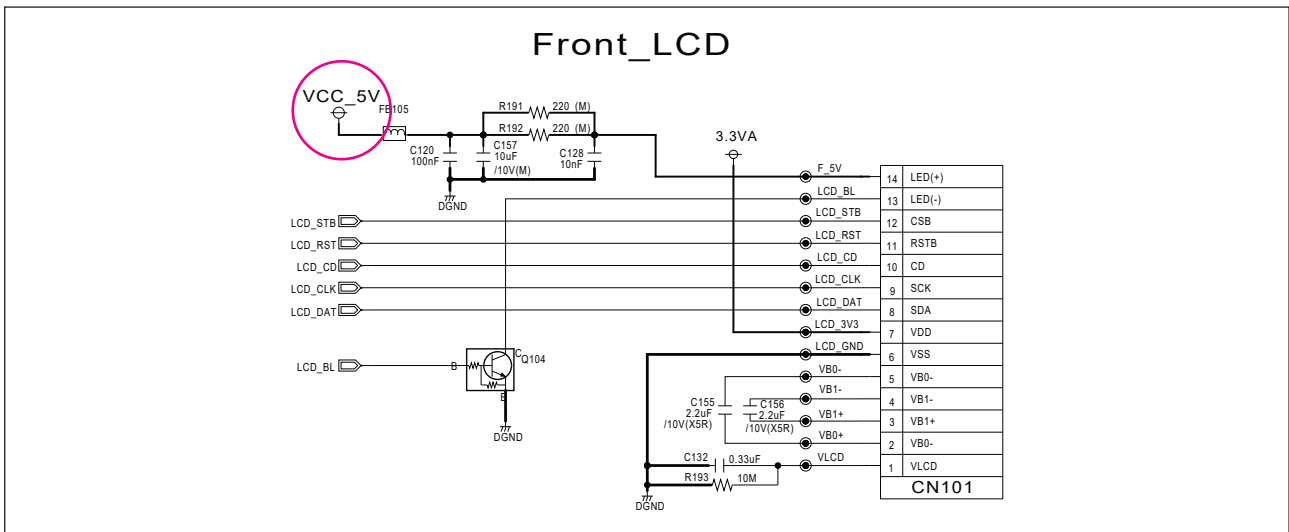
1-4-1. Solution

Replace MAIN/ LCD Module.

1-4-2. How to troubleshoot (Countermeasure)

- 1) Please check CN101 VCC_5V of CN101 pin1.
- 2) If VCC_5V is abnormal, replace MAIN board.
- 3) If VCC_5V OK, replace LCD module.

1-4-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

2. NO SOUND

2-1. BLUETOOTH

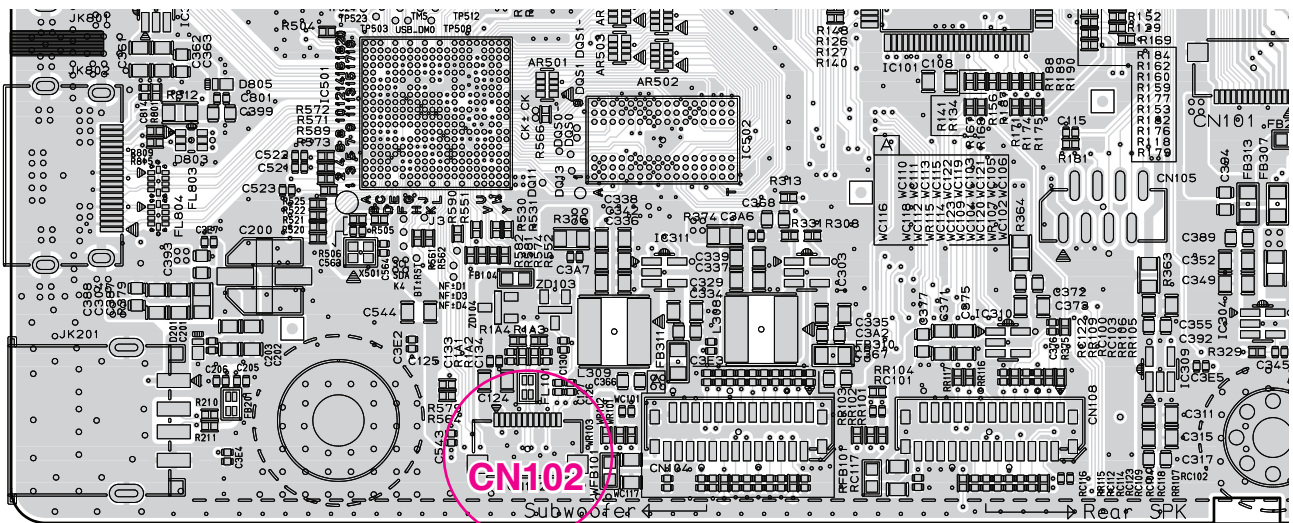
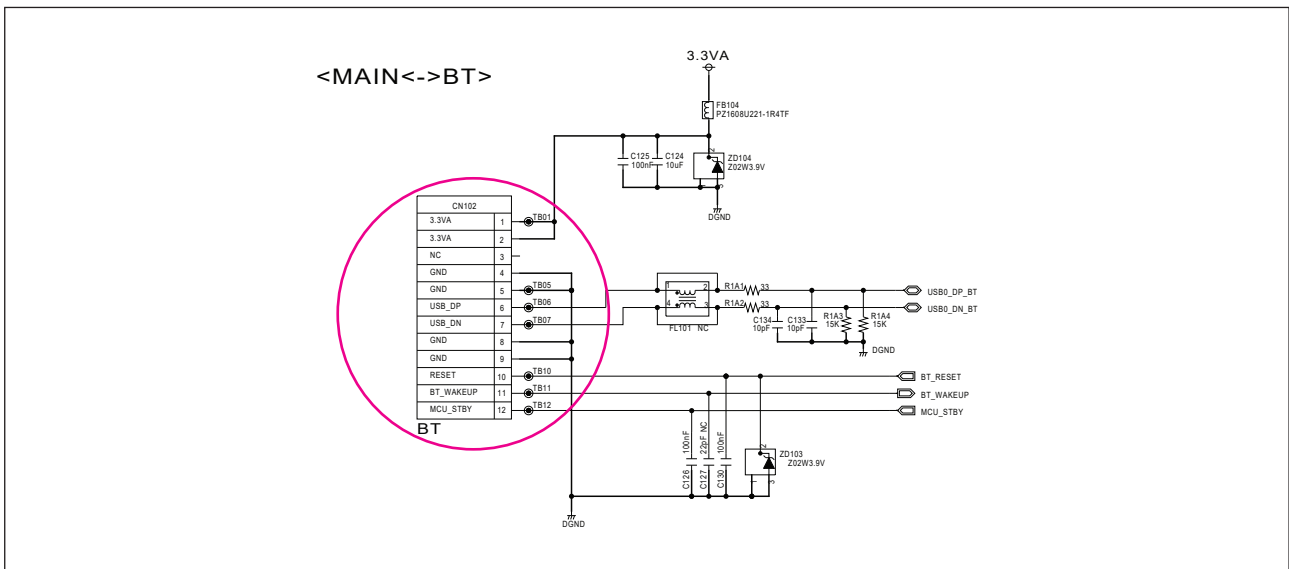
2-1-1. Solution

Replace MAIN board.

2-1-2. How to troubleshoot (Countermeasure)

- 1) Please check status of Bluetooth cable connection. (at CN102 and BT module)
- 2) Please check 3.3 VA
If 3.3 VA is OK, please check USB_BT, BT_RST, BT_WAKEUP, BT_STBY (pin7, 6, 3, 2, 1).
If no signal, please replace MAIN board.

2-1-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO SOUND

2-2. OPTICAL

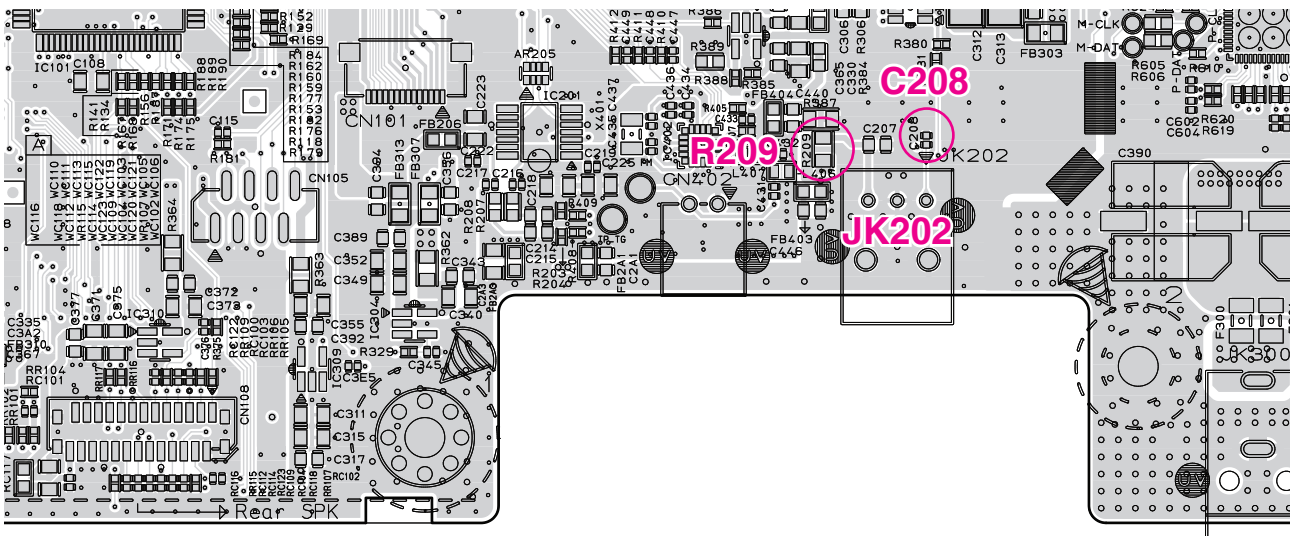
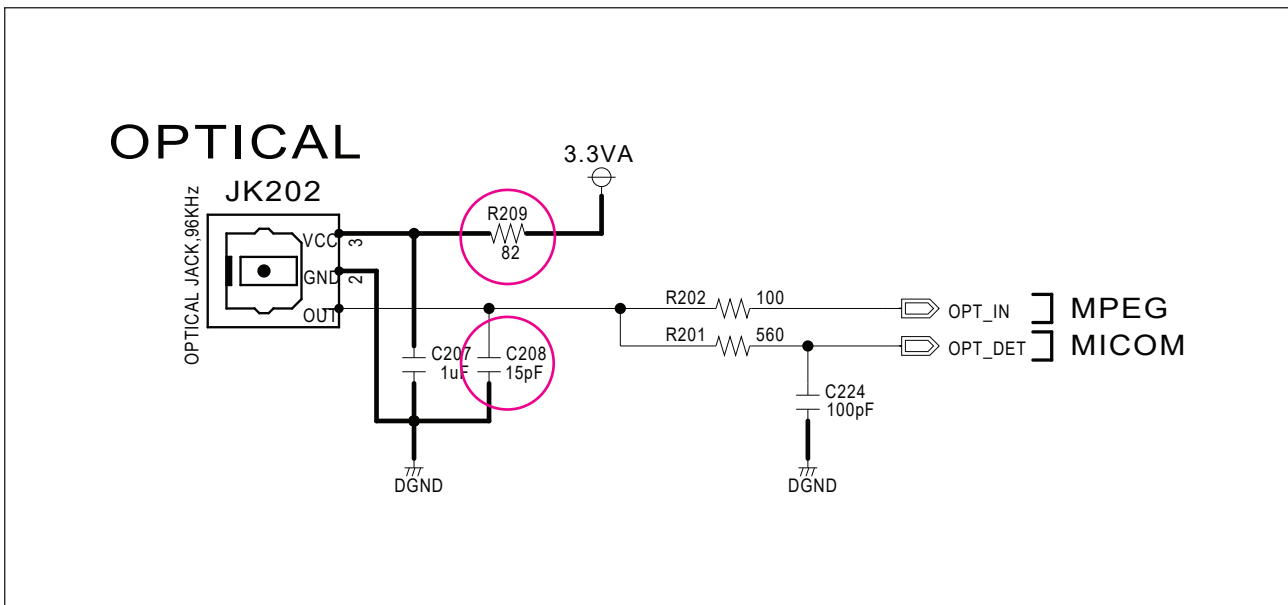
2-2-1. Solution

Replace MAIN board.

2-2-2. How to troubleshoot (Countermeasure)

- 1) Please check 3.3 VA at R209.
- 2) If 3.3 VA is ok, please check OPT_IN signal (C208) when OPTICAL mode.
- 3) If signal is abnormal, replace MAIN board.

2-2-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO SOUND

2-4. USB

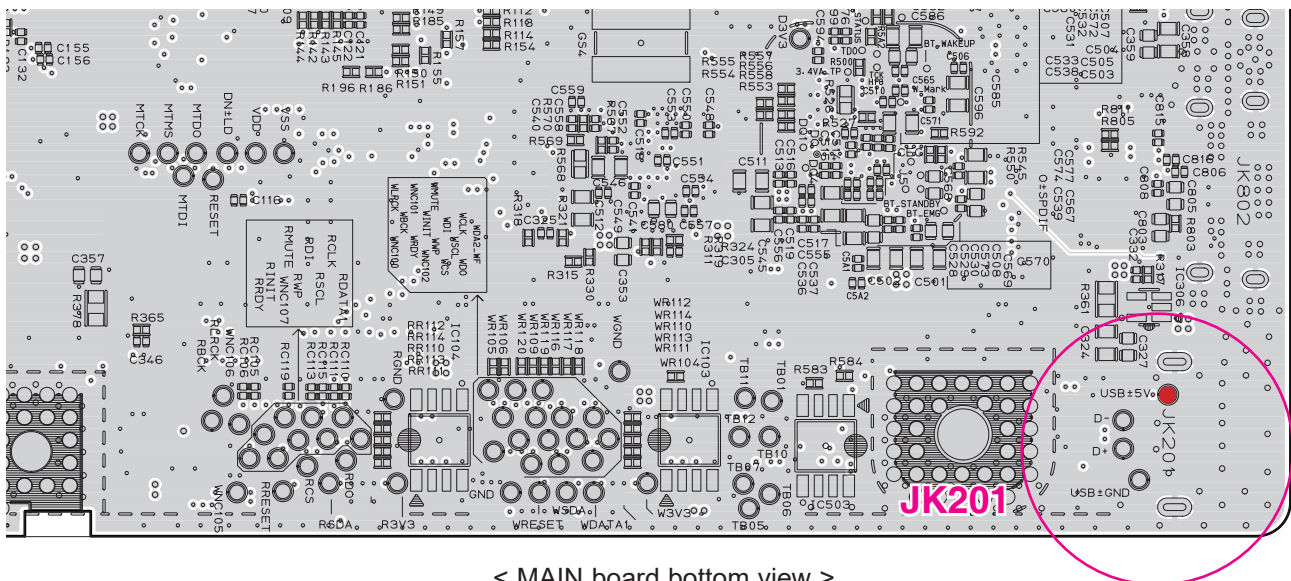
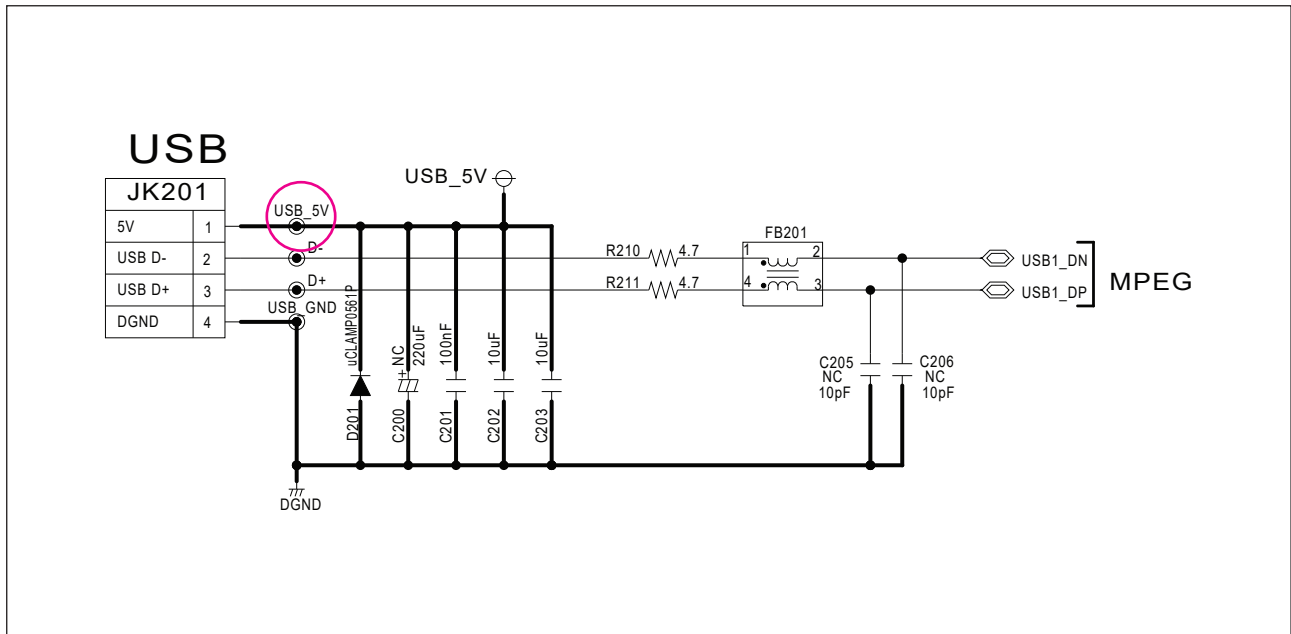
2-4-1. Solution

Replace MAIN board.

2-4-2. How to troubleshoot (Countermeasure)

- 1) Please check USB_5V at JK201 pin1.
- 2) If soldering status and voltage has abnormal status, replace MAIN board.

2-4-3. Service hint (Any picture / Remark)



< MAIN board bottom view >

ONE POINT REPAIR GUIDE

3. PROTECTION ERROR

No display or No Sound.

3-1. D(DC) PROTECTION

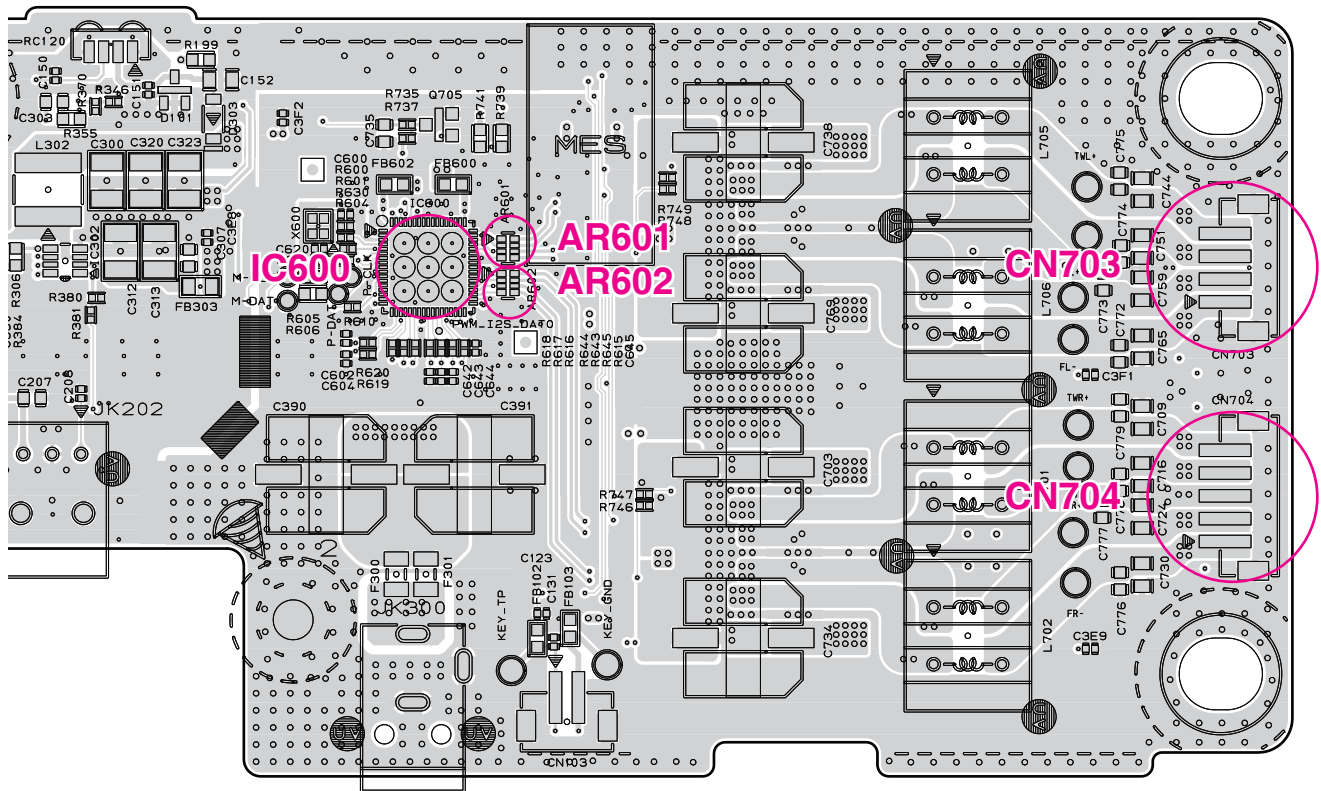
3-1-1. Solution

Replace MAIN board.

3-1-2. How to troubleshoot (Countermeasure)

- 1) Check DC Voltage of speaker out FL+/-, TWL+/- (CN703 pin1, 2, 3, 4), FR +/-, TWR+/- (CN704 pin1, 2, 4, 5)
- 2) Check resistor crack, cold solder of PWM IC out (AR601, AR602)
- 3) If PWM IC out is ok and speaker out (FL+/-, FR+/-, TWL+/-, TWR+/-) has DC voltage, replace MAIN board.

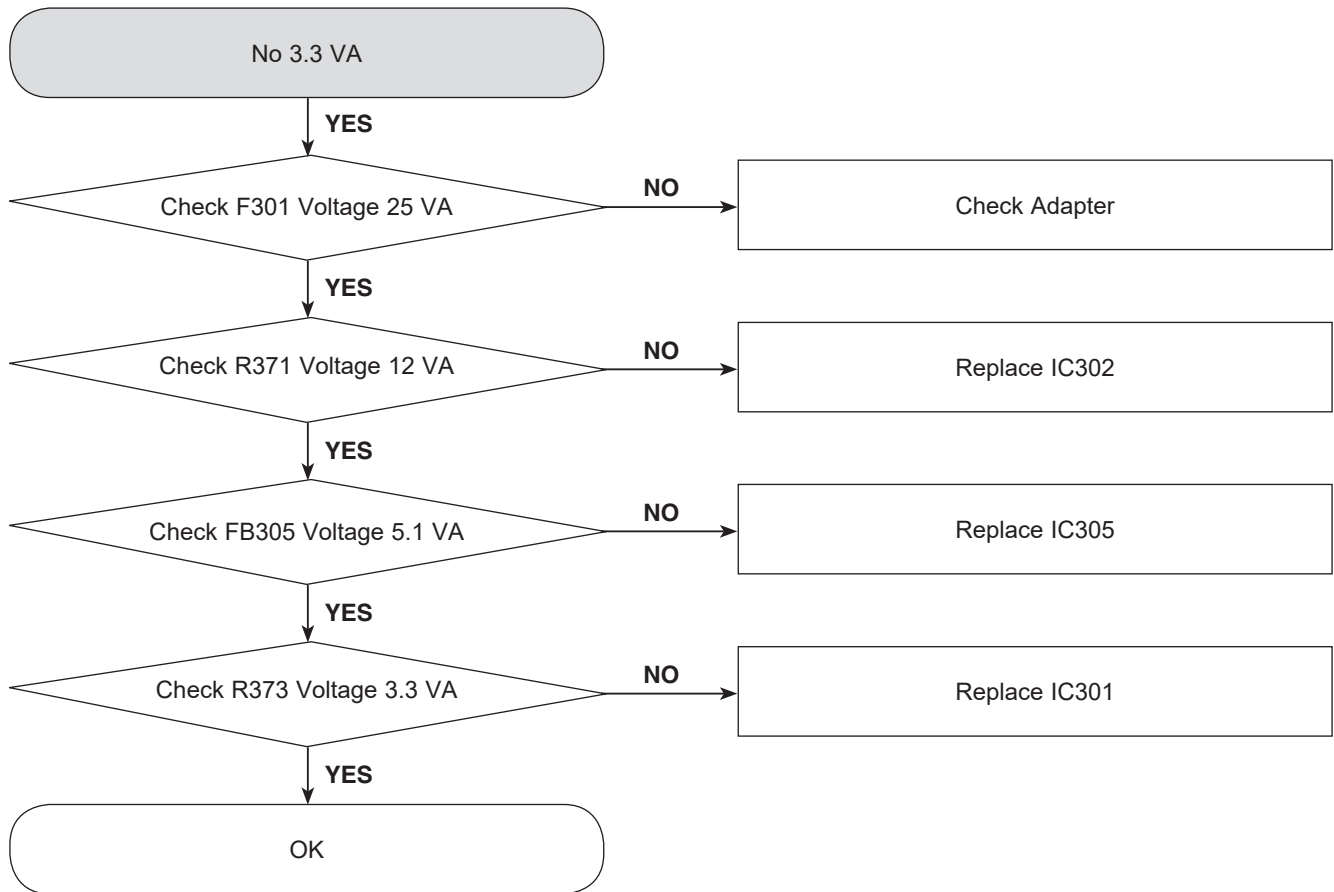
3-1-3. Service hint (Any picture / Remark)



< MAIN board top view >

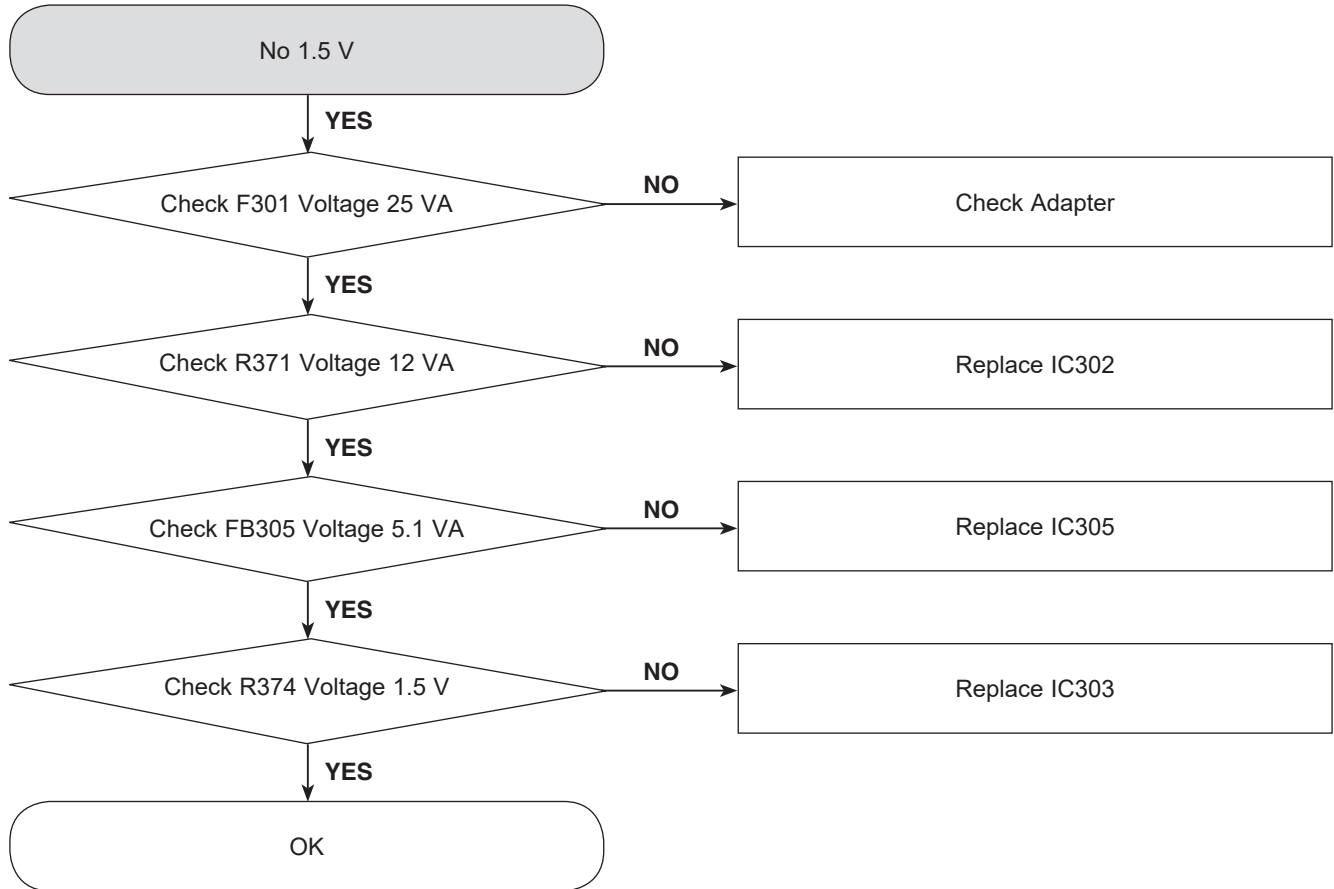
ELECTRICAL TROUBLESHOOTING GUIDE

1. ADAPTER POWER CIRCUIT



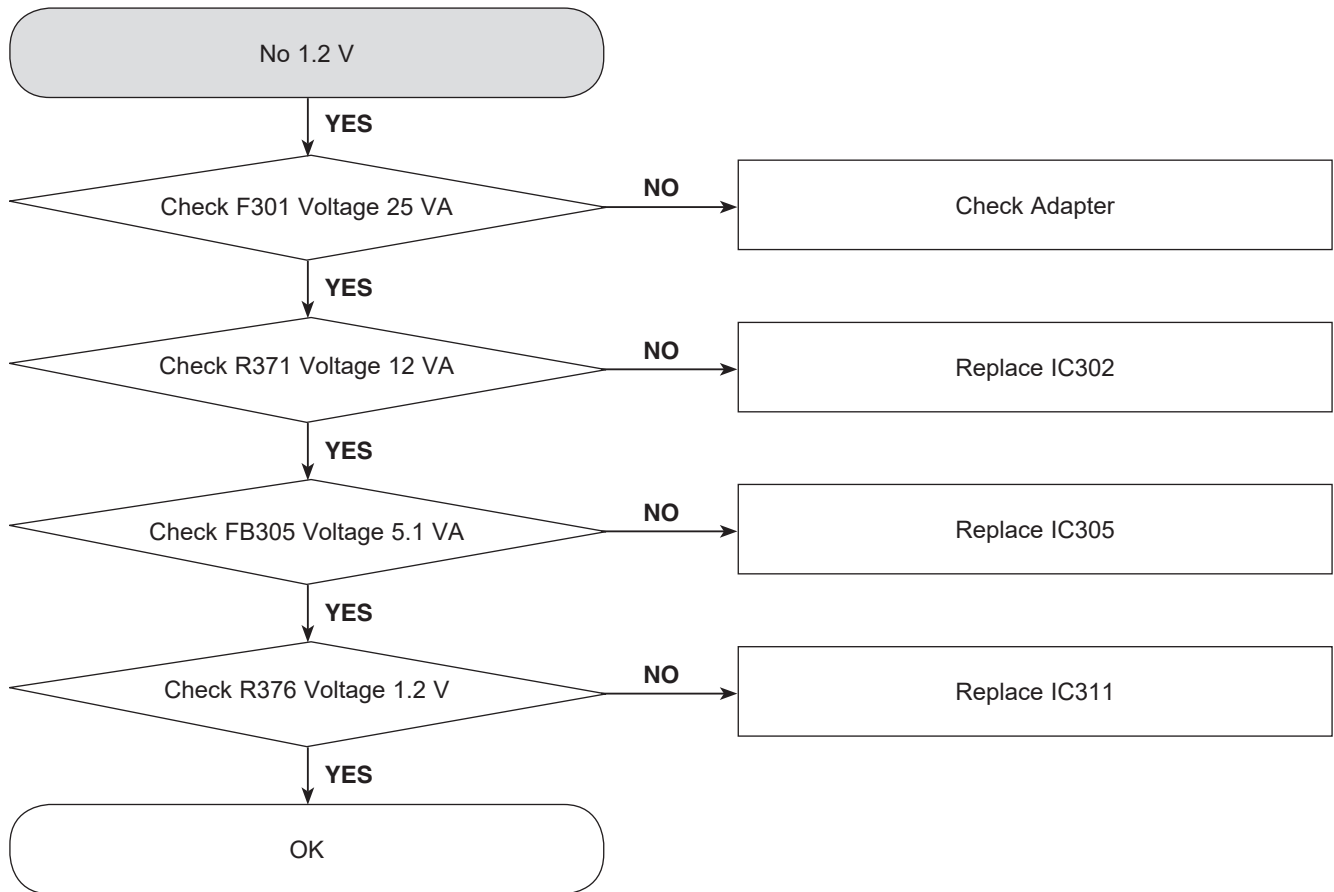
ELECTRICAL TROUBLESHOOTING GUIDE

ADAPTER POWER CIRCUIT



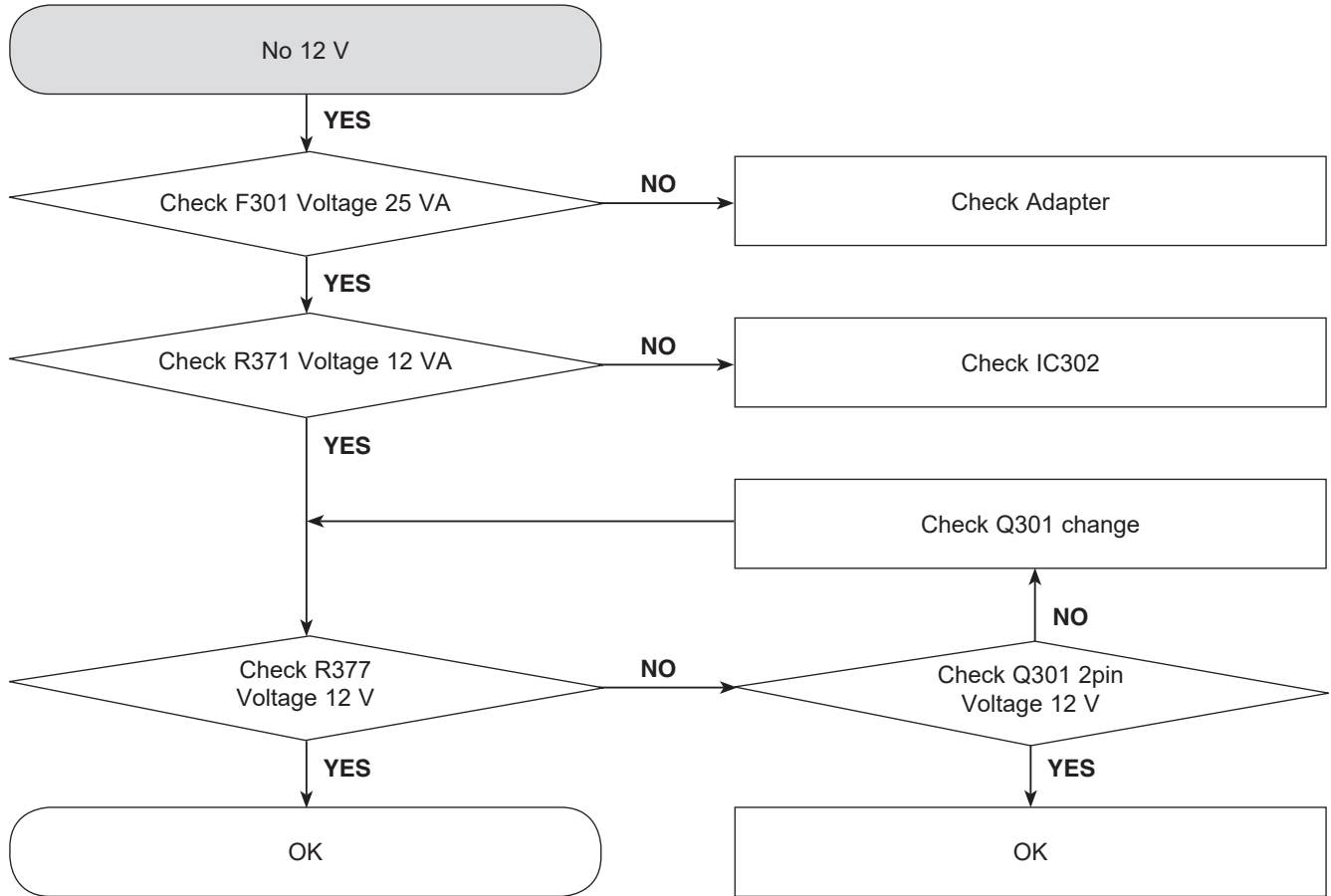
ELECTRICAL TROUBLESHOOTING GUIDE

ADAPTER POWER CIRCUIT



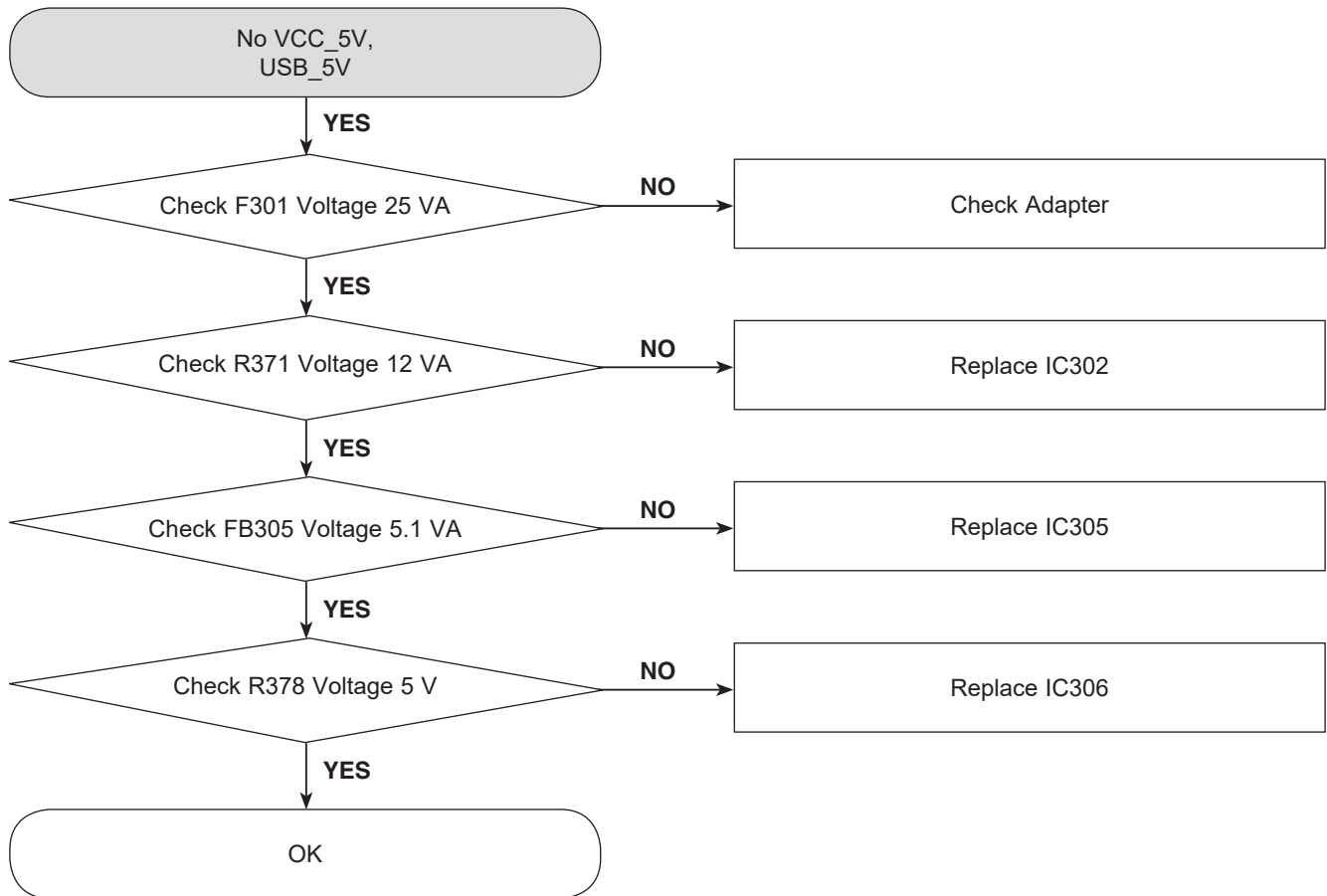
ELECTRICAL TROUBLESHOOTING GUIDE

ADAPTER POWER CIRCUIT



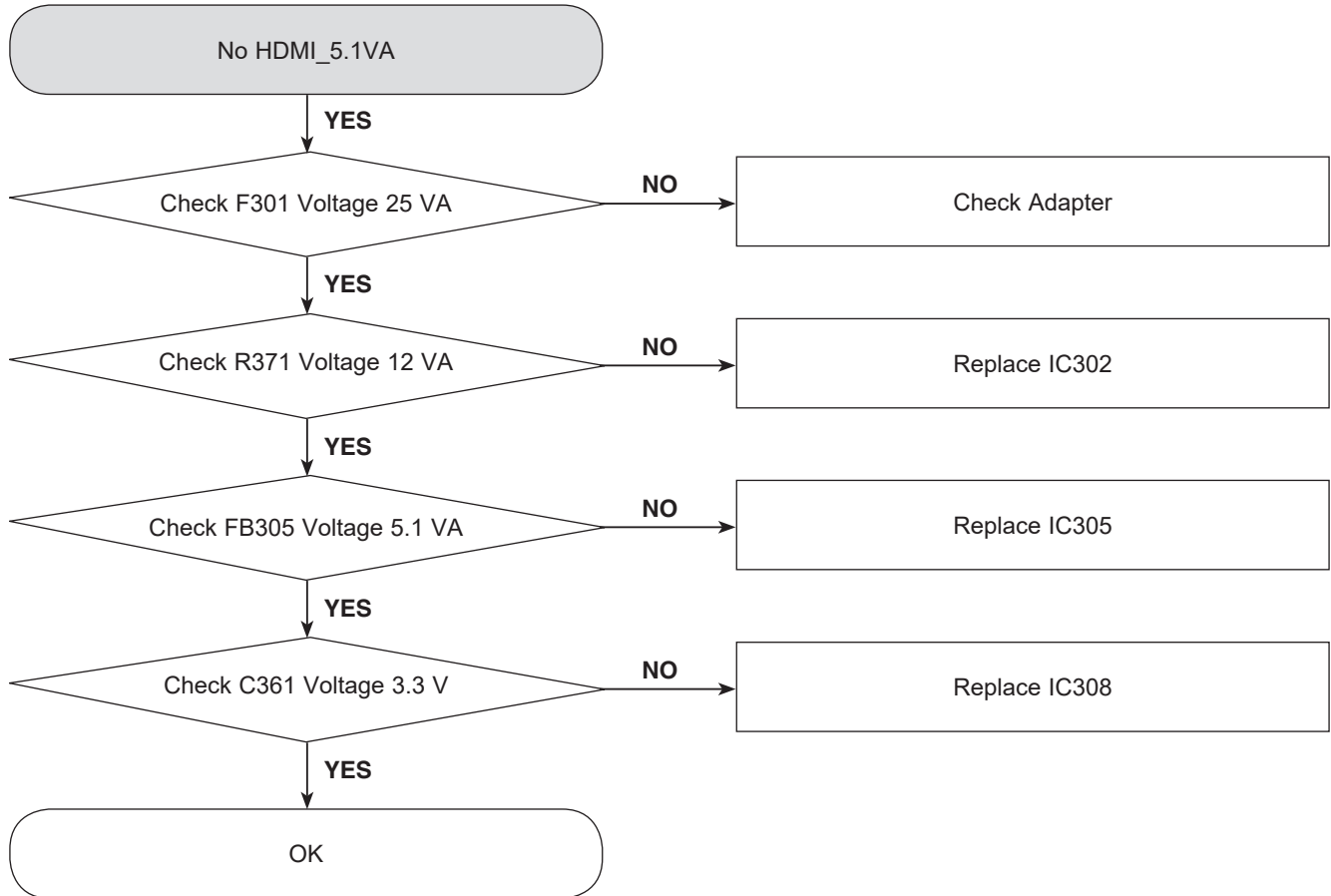
ELECTRICAL TROUBLESHOOTING GUIDE

ADAPTER POWER CIRCUIT



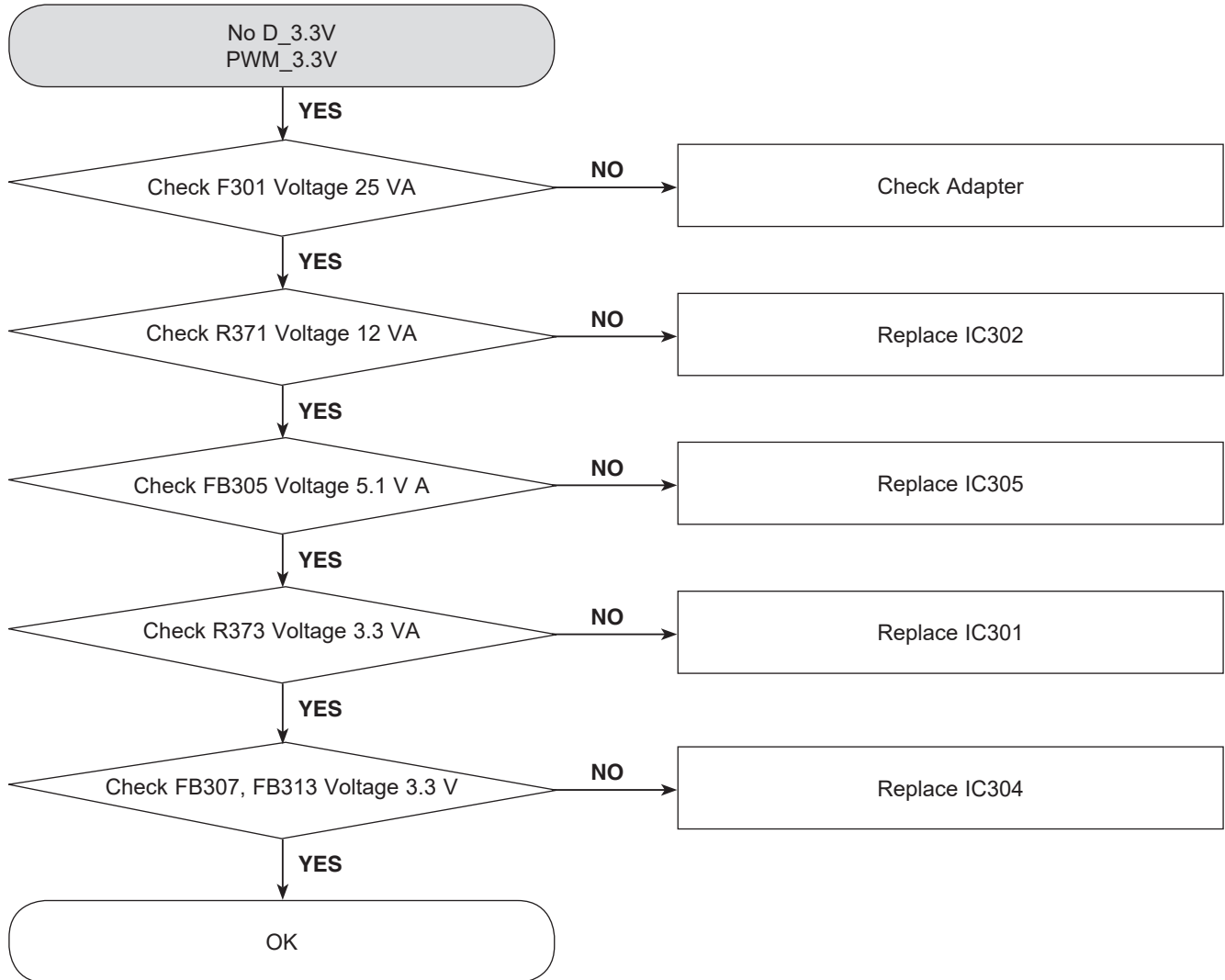
ELECTRICAL TROUBLESHOOTING GUIDE

ADAPTER POWER CIRCUIT



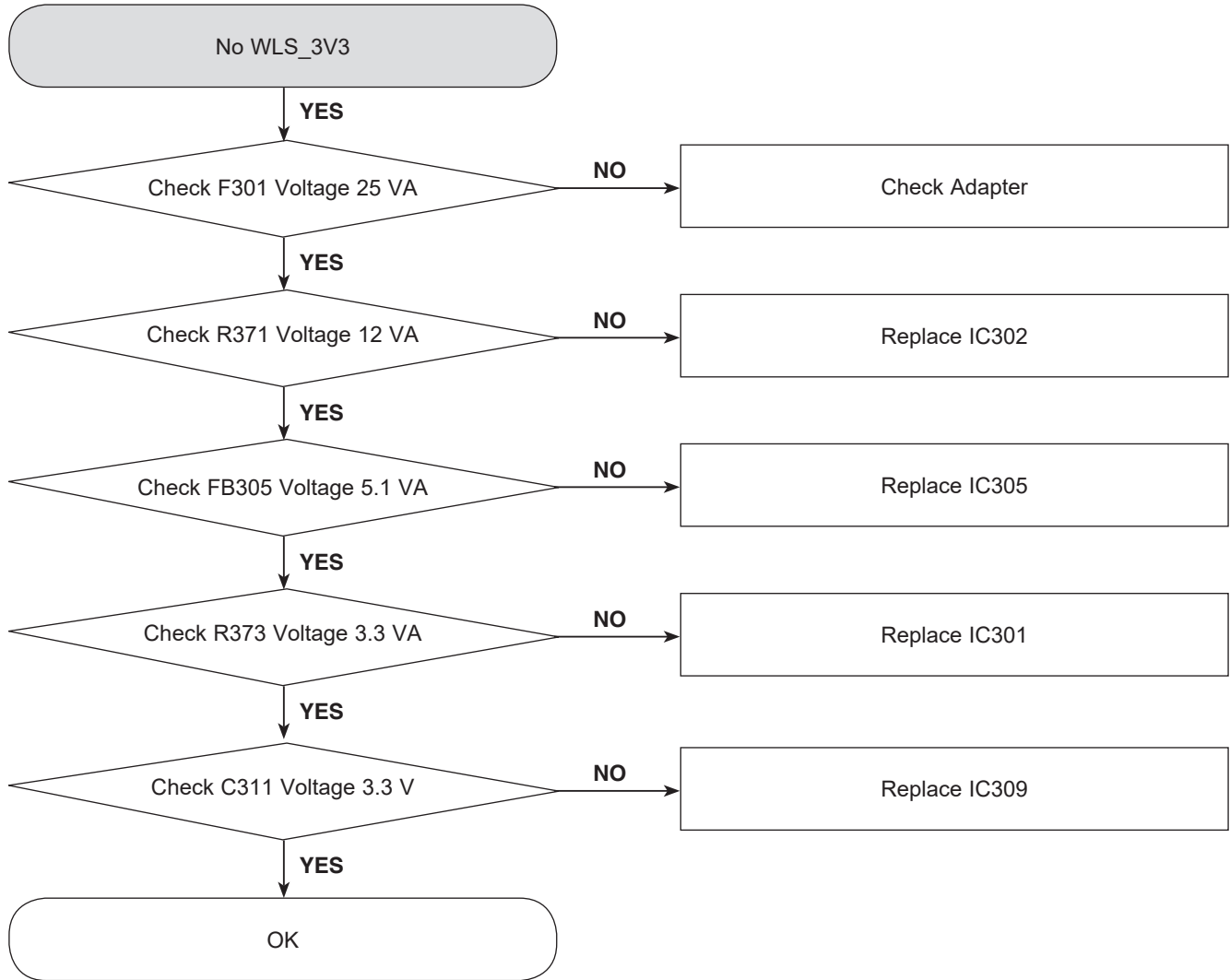
ELECTRICAL TROUBLESHOOTING GUIDE

ADAPTER POWER CIRCUIT



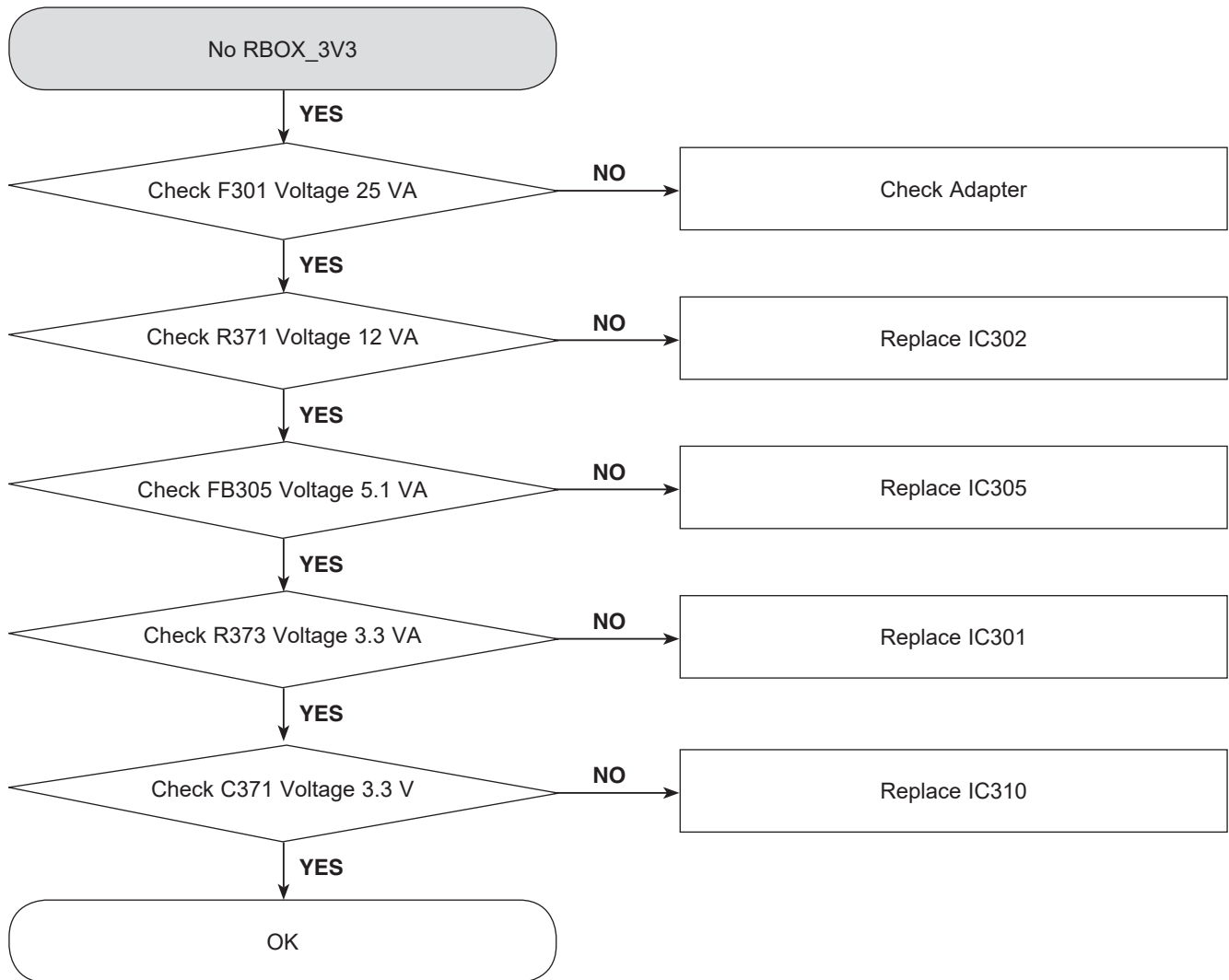
ELECTRICAL TROUBLESHOOTING GUIDE

ADAPTER POWER CIRCUIT



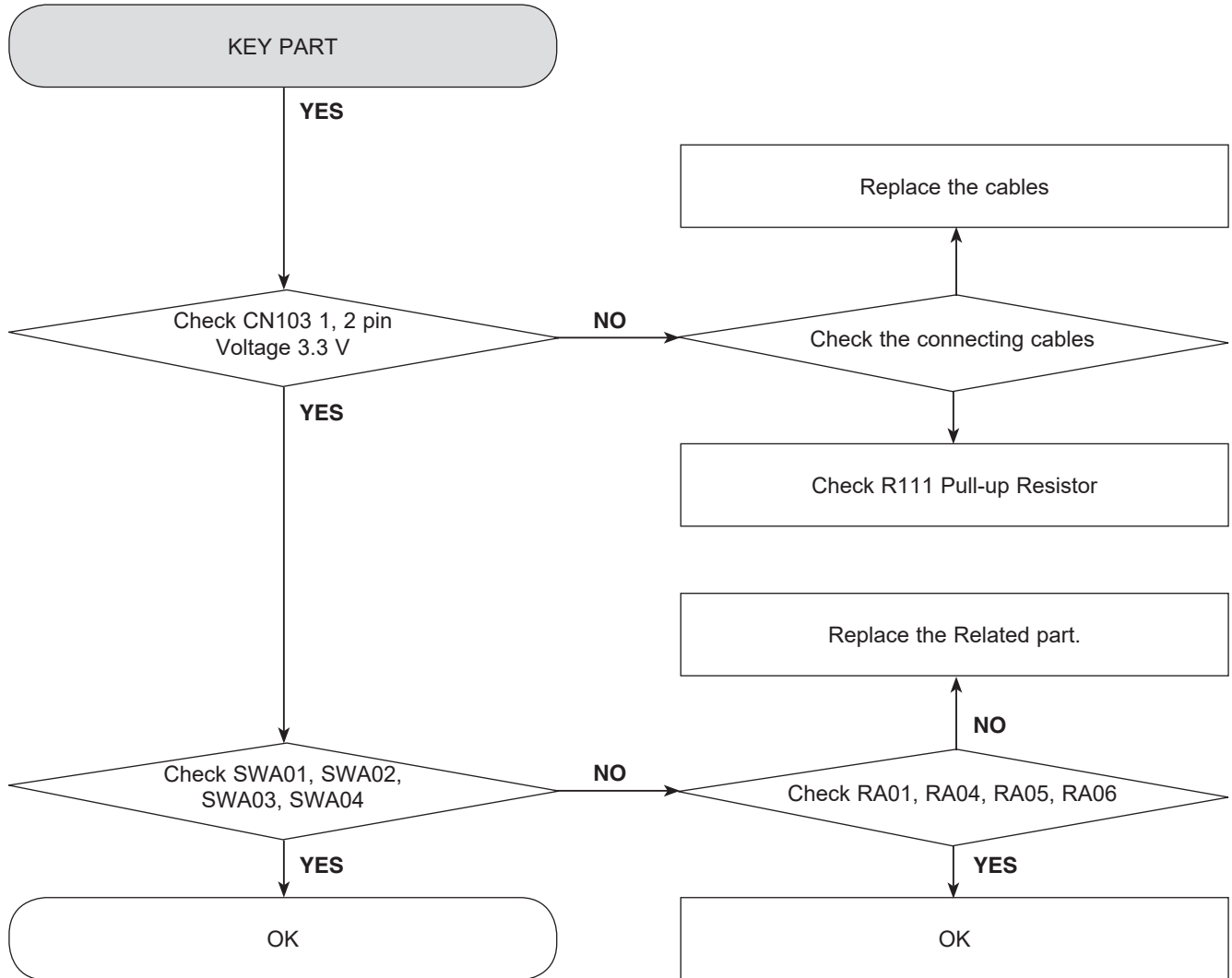
ELECTRICAL TROUBLESHOOTING GUIDE

ADAPTER POWER CIRCUIT



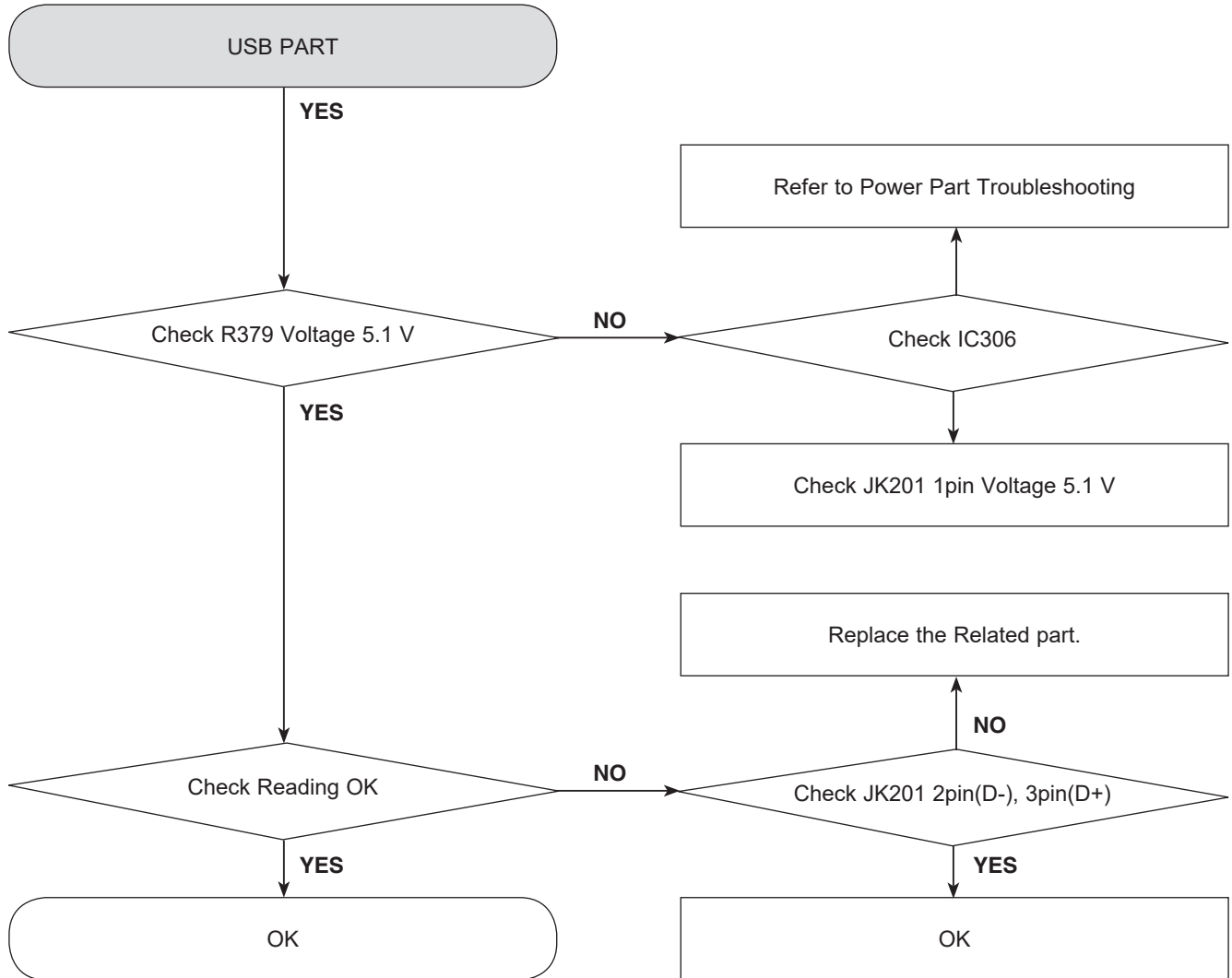
ELECTRICAL TROUBLESHOOTING GUIDE

2. KEY PART



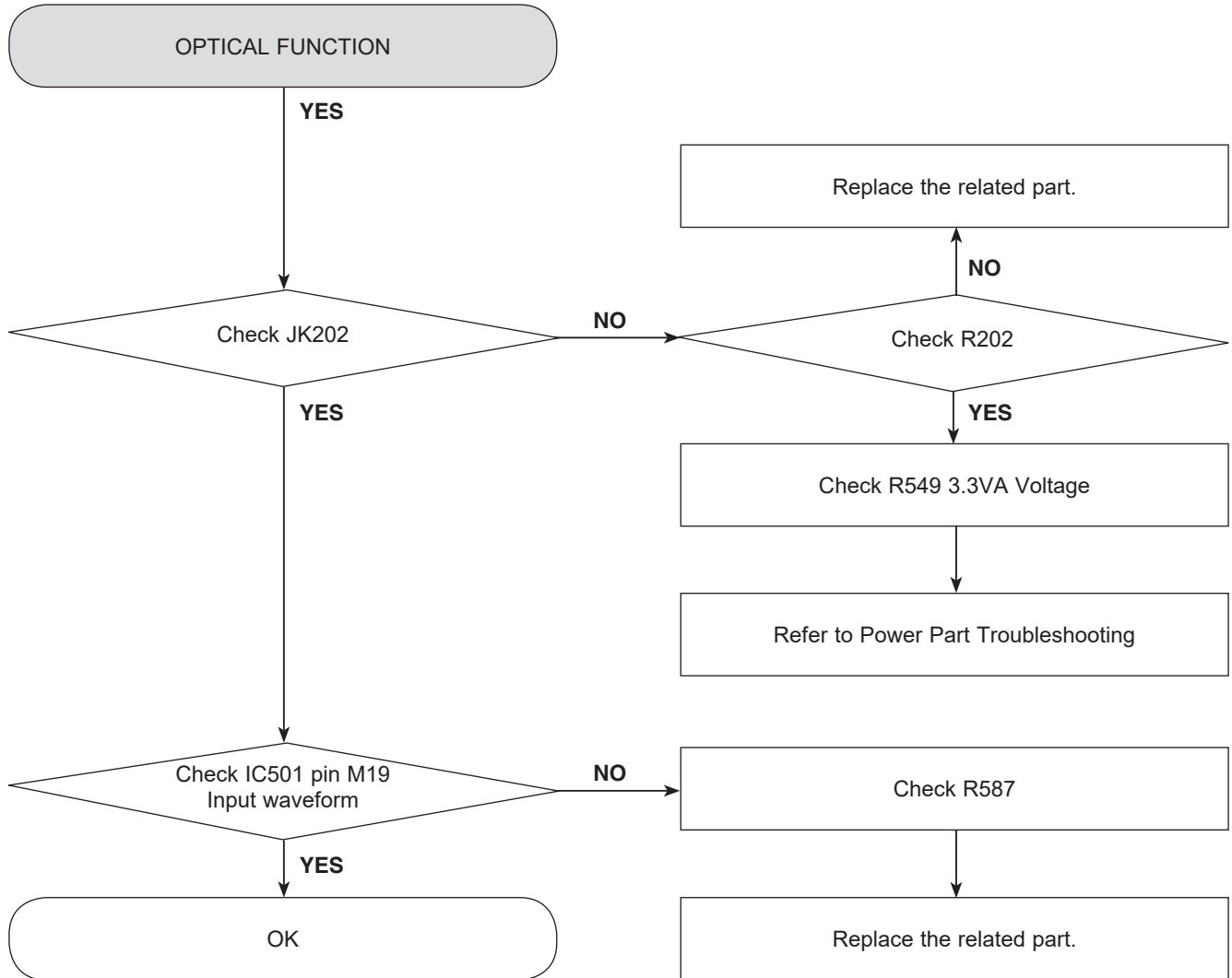
ELECTRICAL TROUBLESHOOTING GUIDE

3. USB FUNCTION



ELECTRICAL TROUBLESHOOTING GUIDE

4. OPTICAL FUNCTION



WAVEFORMS OF MAJOR CHECK POINT

1. CRYSTAL

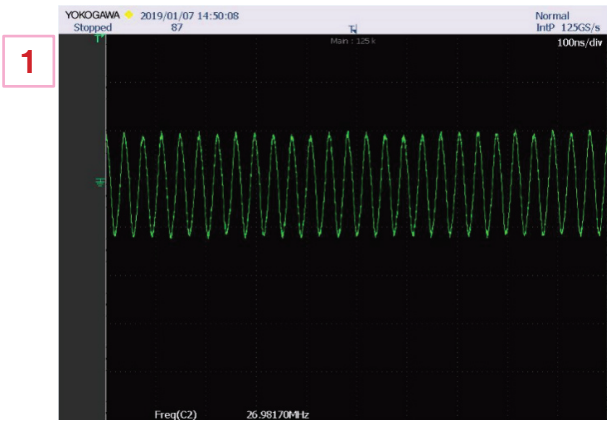


FIG 1-1. X501 (27 MHz)

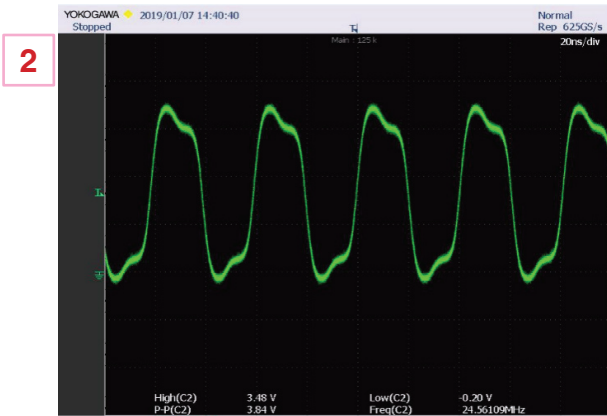
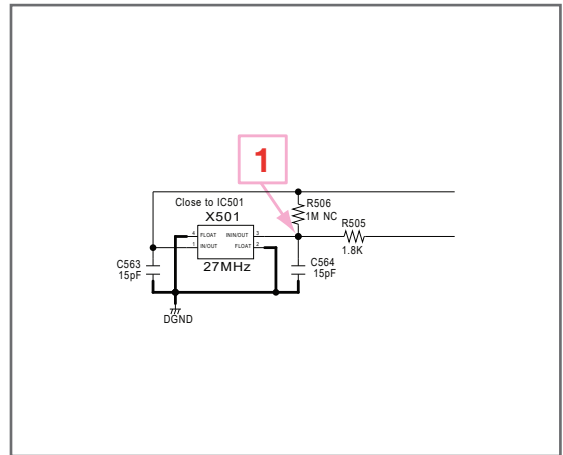
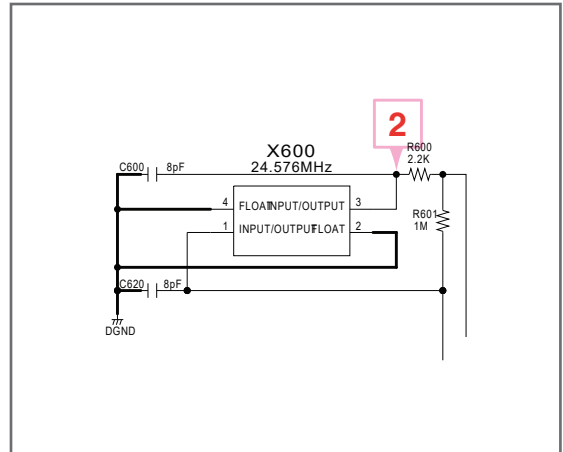


FIG 1-2. XA501 (24.576 MHz)



2. FLASH MEMORY

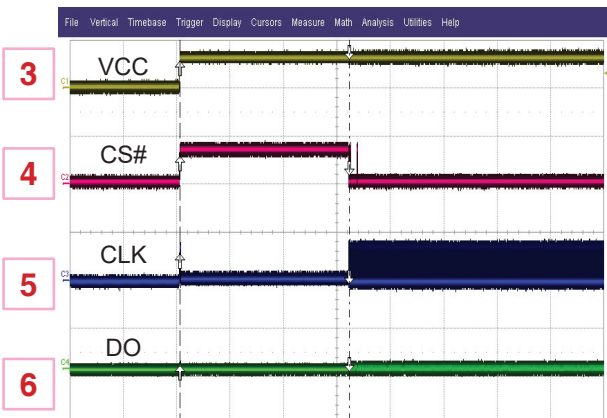
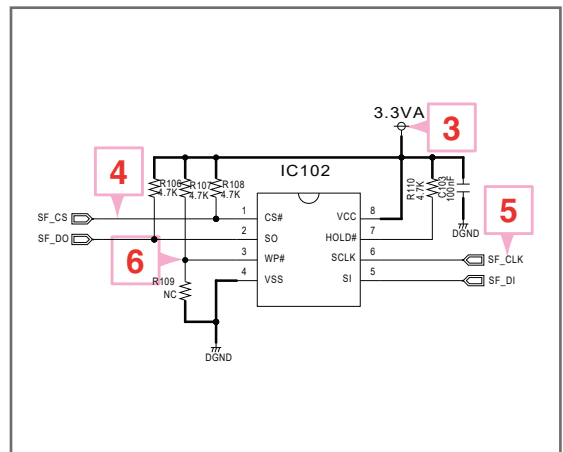


FIG 2. VCC, CS#, CLK, DO



3. TACT KEY

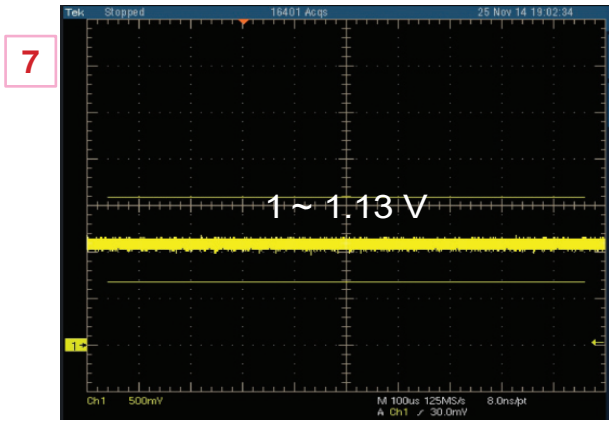


FIG 3-1. Press Power Key

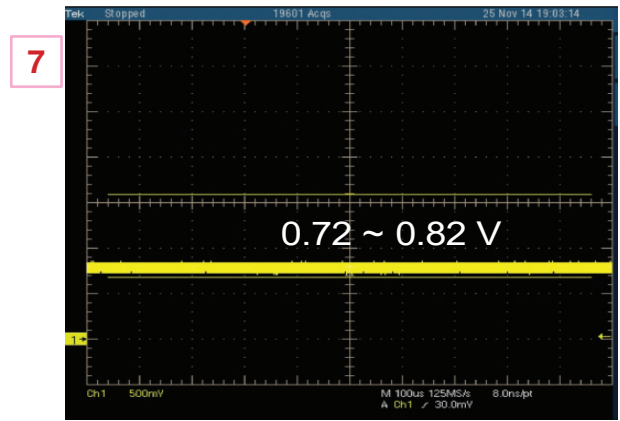


FIG 3-2. Press Function Key

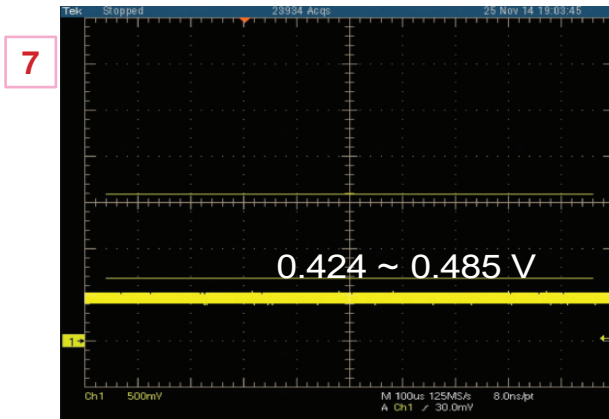


FIG 3-3. Press VOL- Key

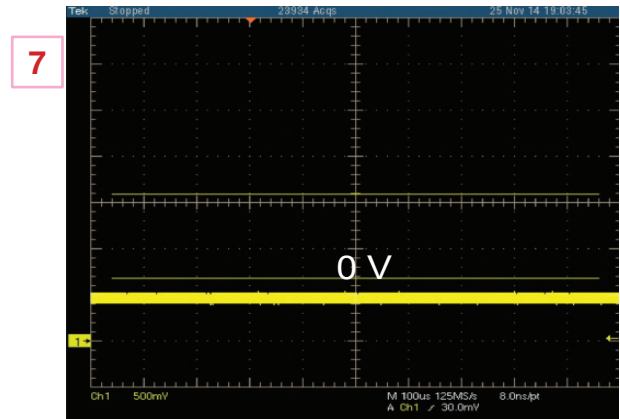
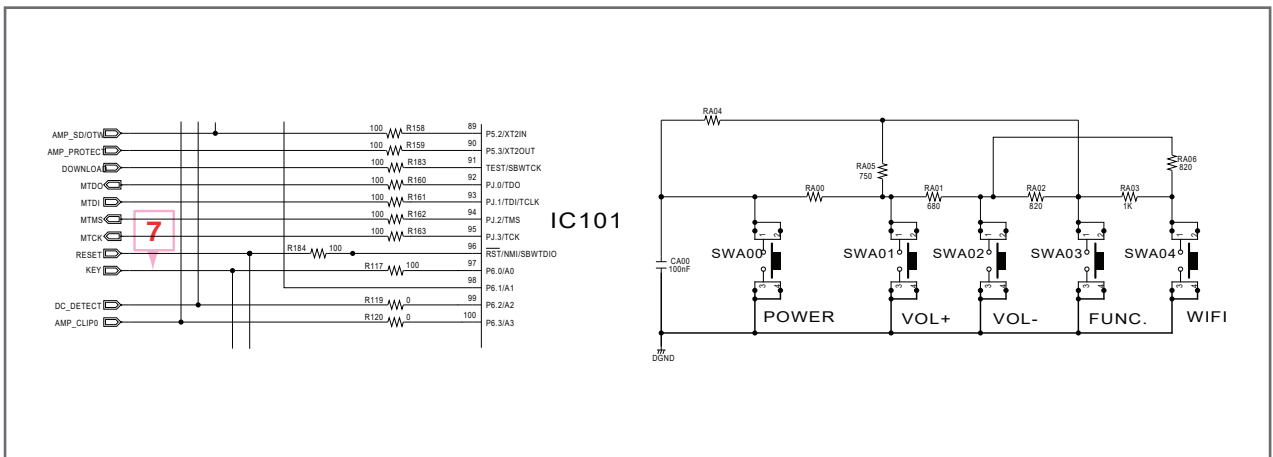


FIG 3-4. Press VOL+ Key



4. USB

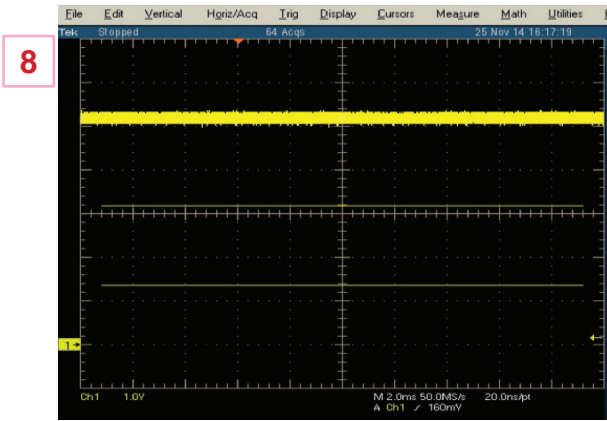


FIG 4-1. USB 5 V

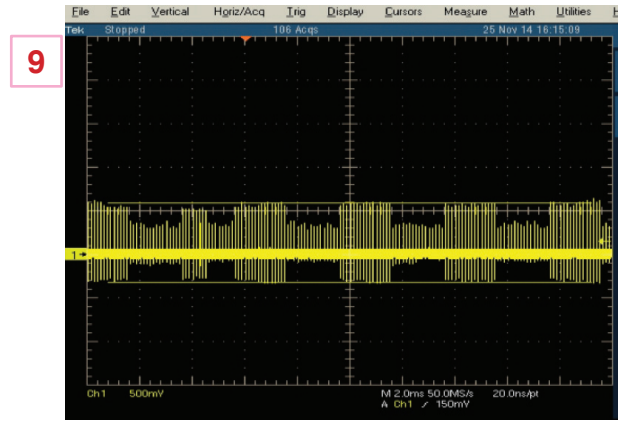
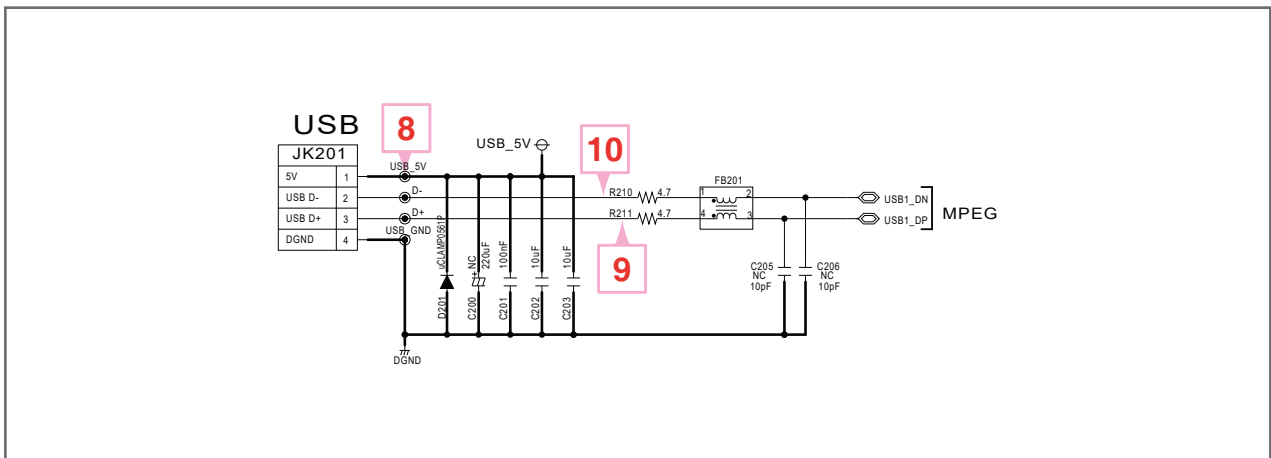


FIG 4-2. USB D+



FIG 4-3. USB D-



6. OPTICAL

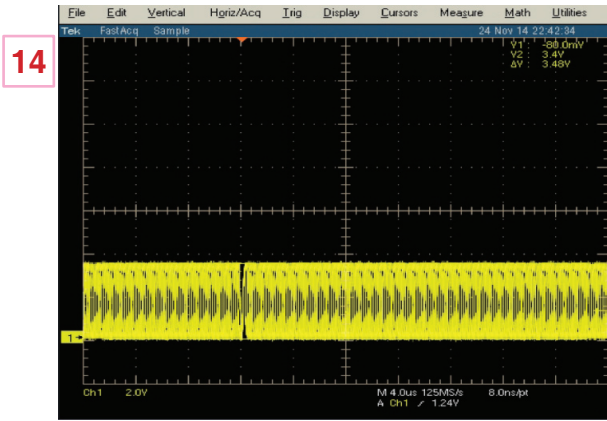


FIG 6-1. OPT IN

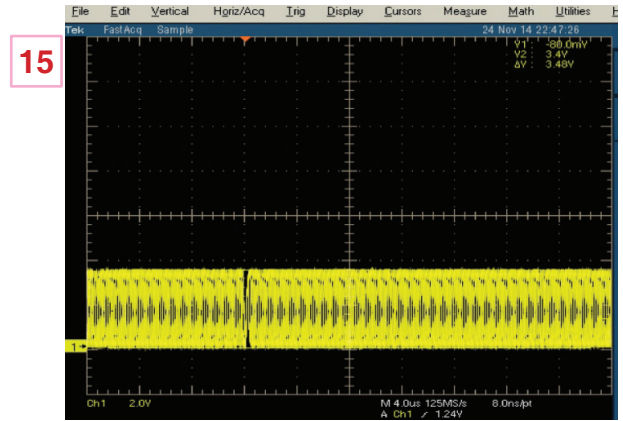
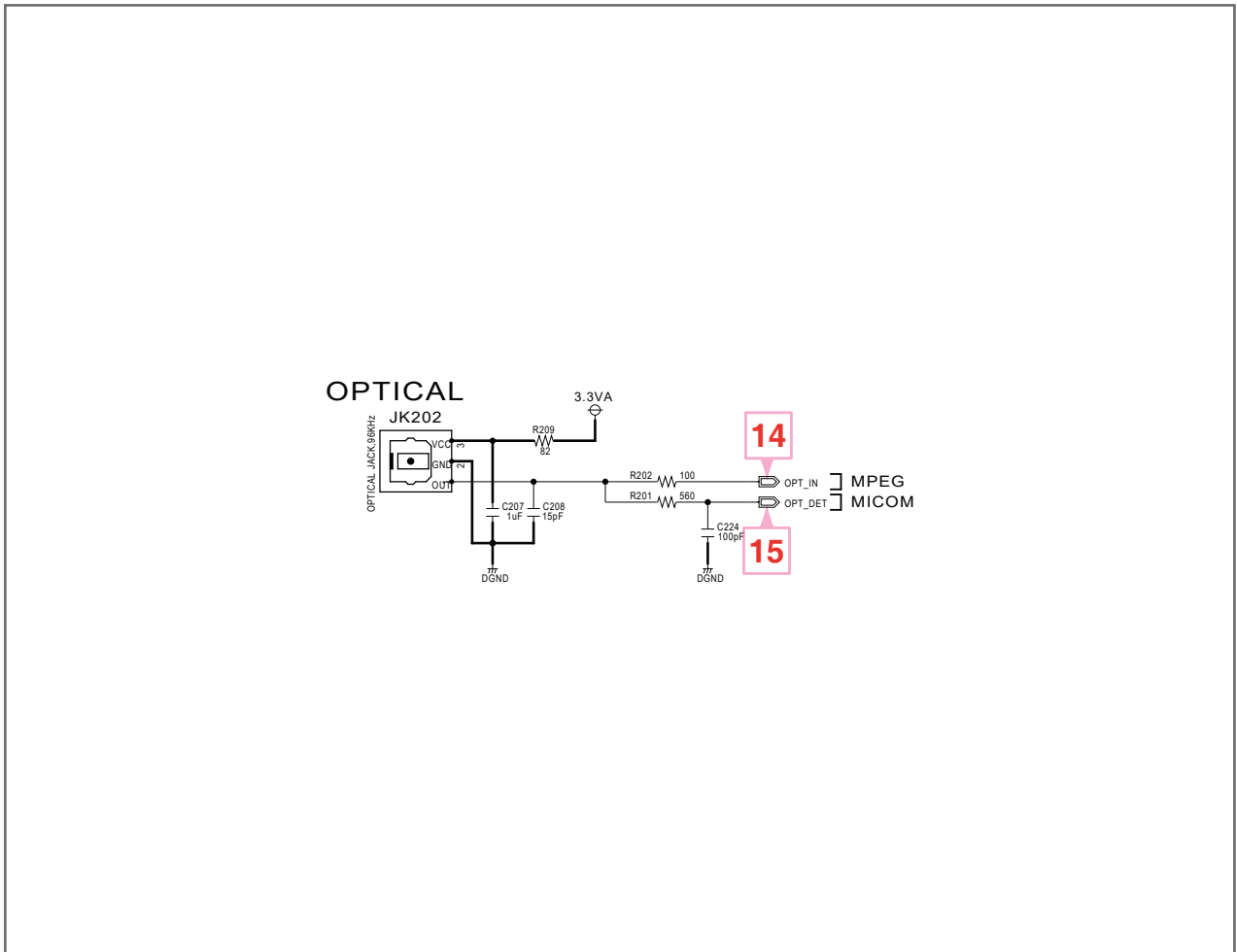


FIG 6-2. OPT DET



7. FM

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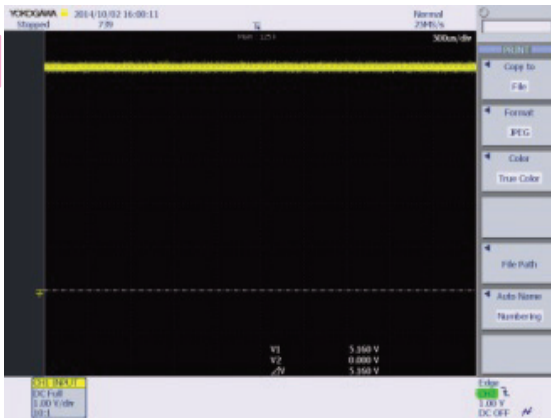


FIG 7-1. ADC IC 5 V

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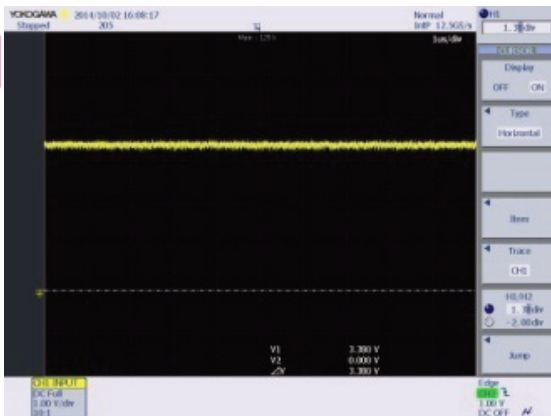


FIG 7-2. ADC IC 3.3 V

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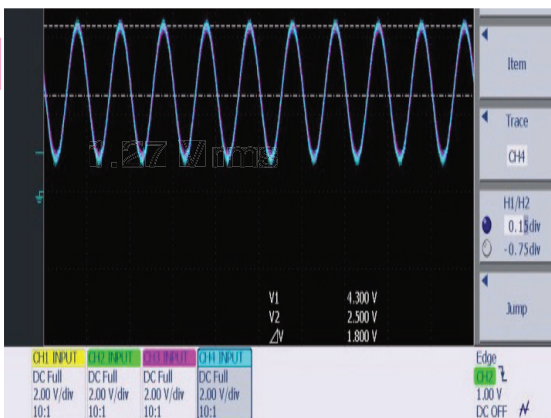
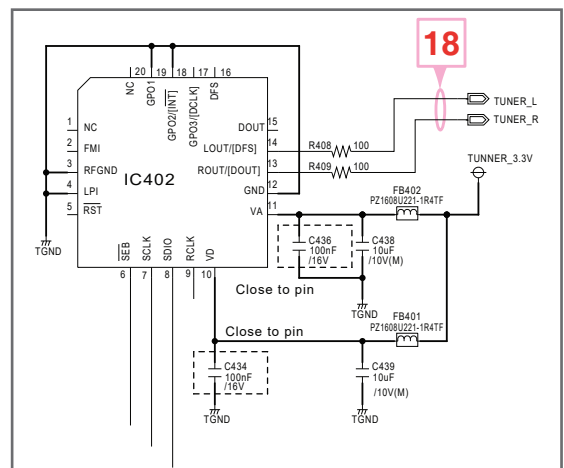
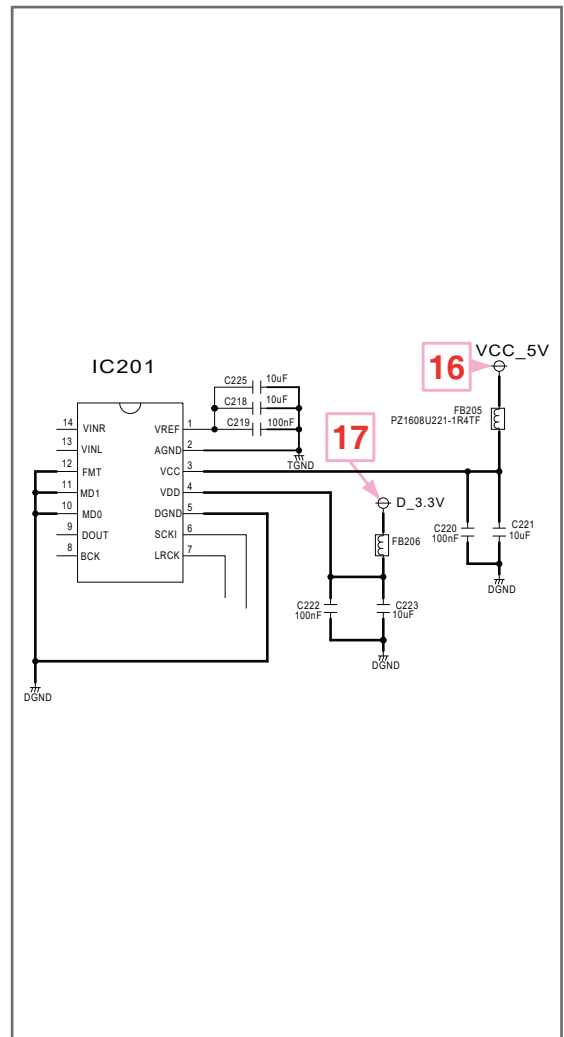


FIG 7-3. TUNER AUDIO

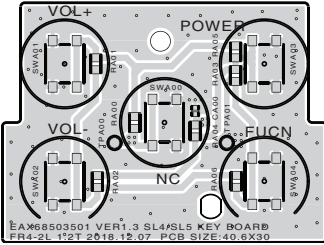


CIRCUIT VOLTAGE CHART

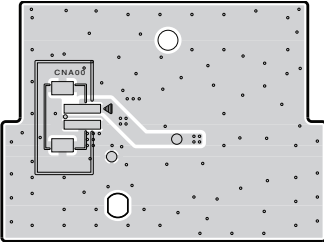
IC Sym	Pin	Specification	Measured Voltage
IC101 MICOM	AVCC	AVCC: 1.8 V ~ 3.6 V	AVCC: 3.33 V
	DVCC	DVCC: 1.8 V ~ 3.6 V	DVCC: 3.32 V
IC102 SERIAL FLASH MEMORY	VCC:8	VCC: 2.7 V ~ 3.6 V	VCC: 3.33 V
IC103 SERIAL FLASH MEMORY	VCC:8	VCC: 2.7 V ~ 3.6 V	VCC: 3.33 V
IC201 A/D CONVERTER	VCC : 3	VCC: 4.5 V ~ 5.5 V	VCC: 5.14 V
	VDD: 4	VDD: 2.7 V ~ 3.6 V	D_3.3V : 3.31 V
IC301 DC,DC	Vin: 4	Vin: 2.7 V ~ 5.5 V	Vin: 5.14 V
	LX: 3	Vout: 0.6 V ~ 5.225 V	Vout: 3.32 V
IC302 DC,DC	Vin: 2	Vin: +4.0 V ~ +36 V	Vcc: 25.56 V
	Vout: 3	Vout: 0.8 V ~ 33 V	Vout: 12.09 V
IC303 DC,DC	Vin: 4	Vin: 2.7 V ~ 5.5 V	Vin: 5.13 V
	LX: 3	Vout: 0.6 V ~ 5.225 V	Vout: 1.51 V
IC304 Switch IC	Vin: 5	Vin: 2.5 V ~ 5.5 V	Vin: 5.15 V
	Vout: 1	Vout: 0 V ~ 5.5 V	Vout(D_3.3V) : 3.32 V (PWM_3.3V)3.33 V
IC305 DC,DC	Vin: 1	Vin: 4.2 V ~ 17 V	Vin: 12.09 V
	SW: 2	Vout: 0.8 V ~ 10 V	Vout: 5.14 V
IC306 Switch IC	Vin: 5	Vin: 4.5 V ~ 5.5 V	Vin: 5.17 V
	Vout: 1		Vout(VCC_5V) : 5.12 V (USB_5V) : 5.15 V
IC308 Switch IC	Vin: 5	Vin: 4.5 V ~ 5.5 V	Vin : 5.12 V
	Vout: 1		Vout : HDMI_5.1VA : 5.15 V
IC309 Switch IC	Vin: 5	Vin: 2.5 V ~ 5.5 V	Vin: 5.16 V
	Vout: 1	out: 0 V ~ 5.5 V	Vout(WLS_3V3) : 3.32 V
IC311 DC,DC	Vin: 4	Vin: 2.7 V ~ 5.5 V	Vin: 5.14 V
	LX: 3	VOUT: 0.6 V ~ 5.225 V	VOUT: 1.218 V
IC312	Vin: 1	Vin: 2.3 V ~ 6.0 V	Vin: 5.18 V
	Vout: 5	out: 0.8 V ~ 5.0 V	out: 3.31 V
IC402 TUNER IC	VA : 11	VCC: 2.7V~5.5V	VCC: 3.31 V
IC501 IC, Video Processors	DVCC12_K	DVCC12_K : 1.14 V ~ 1.26 V	DVCC12_K : 1.21 V
	DVCC33_IO	DVCC33_IO : 3.15 V ~ 3.45 V	DVCC33_IO: 3.32 V
	DDRVCCIO1	DDRVCCIO1: 1.425 V ~ 1.575 V	DDRVCCIO1: 1.51 V
	AVDD33	AVDD33 : 3.15 V ~ 3.45 V	AVDD33: 3.32 V
	AVDD12	AVDD12 : 1.14 V ~ 1.26 V	AVDD12: 1.21 V
IC502 DDR3 SDRAM MEMORY	VDD: B2, D9, G7, K2, K8, N1, N9, R1, R9		VDD: 1.51 V
	VDDQ: A1, A8, C1, C9, D2 E9, F1, H2, H9	VDD/VDDQ = 1.5 V(±0.075 V)	VDDQ: 1.51 V
IC503 SERIAL FLASH MEMORY	VCC:8	VCC: 2.7 V ~ 3.6 V	D_3.3V : 3.34 V

IC Sym	Pin	Specification	Measured Voltage
IC600 IC, Sound/Audio Processor	VDD_IO: 17, 52	VDD_IO: 2.97 V ~ 3.63 V	VDD_IO: 3.33 V
	VDD_CORE: 6, 25	VDD_CORE: 1.08 V ~ 1.32 V	VDD_CORE: 1.24 V
	VIN33_REG1: 34	VIN33_REG1: 2.97 V ~ 3.63 V	VIN33_REG1: 3.33 V
	VIN33_REG2: 66	VIN33_REG2: 2.97 V ~ 3.63 V	VIN33_REG2: 3.3 V
	VDD_PLL: 68	VDD_PLL: 1.08 V ~ 1.32 V	VDD_PLL: 1.24 V
IC700 AMP	GVDD_AB: 1	GVDD_AB: -0.3 V ~ 13.2 V	GVDD_AB: 11.7 V
	GVDD_CD: 22	GVDD_CD: -0.3 V ~ 13.2 V	GVDD_CD: 11.7 V
	PVDD_AB: 36, 37, 38	PVDD_AB: -0.3 V ~ 50 V	PVDD_AB: 25.5 V
	PVDD_CD: 29, 30, 31	PVDD_CD: -0.3 V ~ 50 V	PVDD_CD: 25.5 V
	VDD: 2	VDD: -0.3 V ~ 13.2 V	VDD: 11.9 V
	DVDD: 8	DVDD: -0.3 V ~ 4.2 V	DVDD: 3.306 V
	AVDD: 13	AVDD: -0.3 V ~ 8.5 V	AVDD: 7.8 V
IC701 AMP	GVDD_AB: 1	GVDD_AB: -0.3 V ~ 13.2 V	GVDD_AB: 11.7V
	GVDD_CD: 22	GVDD_CD: -0.3 V ~ 13.2 V	GVDD_CD: 11.7 V
	PVDD_AB: 36, 37, 38	PVDD_AB: -0.3 V ~ 50 V	PVDD_AB: 25.5 V
	PVDD_CD: 29, 30, 31	PVDD_CD: -0.3 V ~ 50 V	PVDD_CD: 25.5 V
	VDD: 2	VDD: -0.3 V ~ 13.2 V	VDD: 11.9 V
	DVDD: 8	DVDD: -0.3 V ~ 4.2 V	DVDD: 3.306 V
	AVDD: 13	AVDD: -0.3 V ~ 8.5 V	AVDD: 7.8 V

**2. KEY P. C. BOARD DIAGRAM
(TOP VIEW)**



(BOTTOM VIEW)



SECTION 4

WIRELESS SUBWOOFER PART

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ONE POINT REPAIR GUIDE

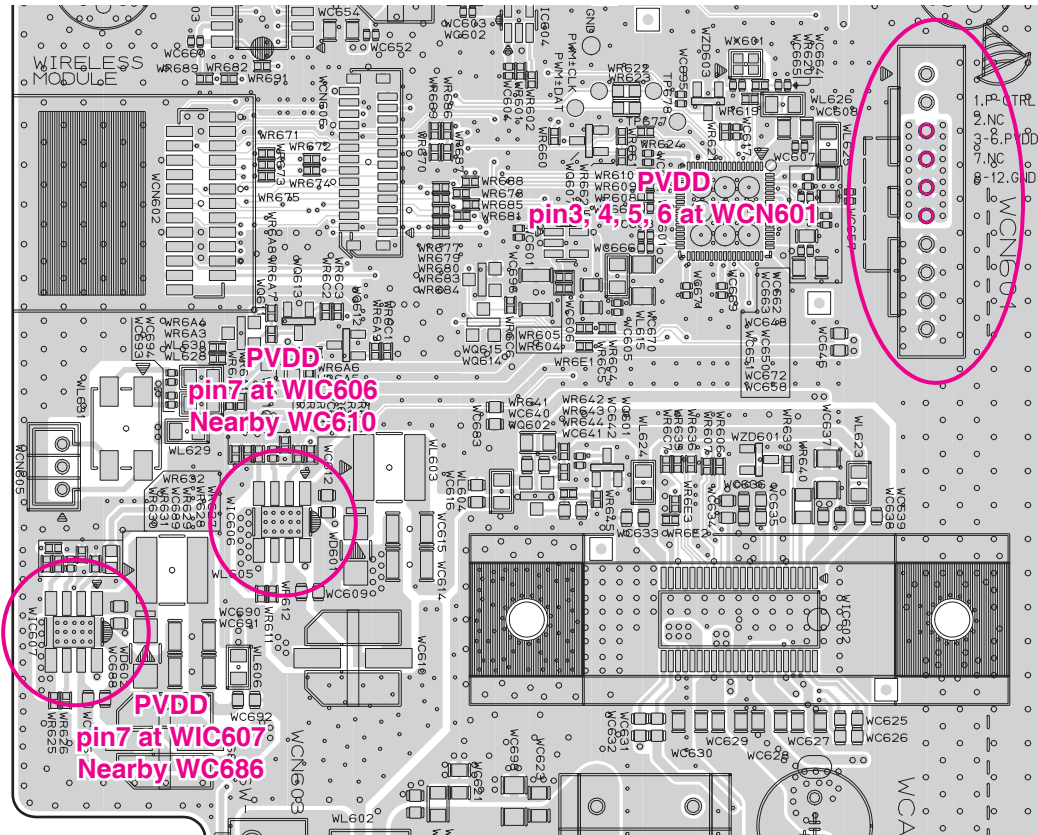
1. NO POWER PROBLEM (PVDD)

No power problem occurs when you power on the unit

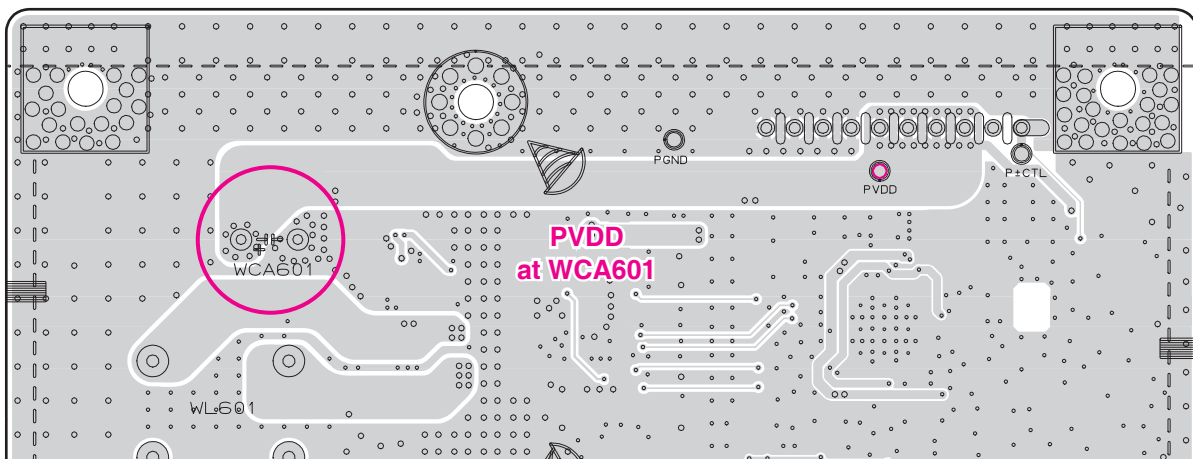
1-1. Solution

If you check these points and find PVDD voltage is not checked, replace woofer SMPS board.

1-2. Service hint (Any picture / Remark)



< Woofer AMP board top view >



< Woofer AMP board bottom view >

ONE POINT REPAIR GUIDE

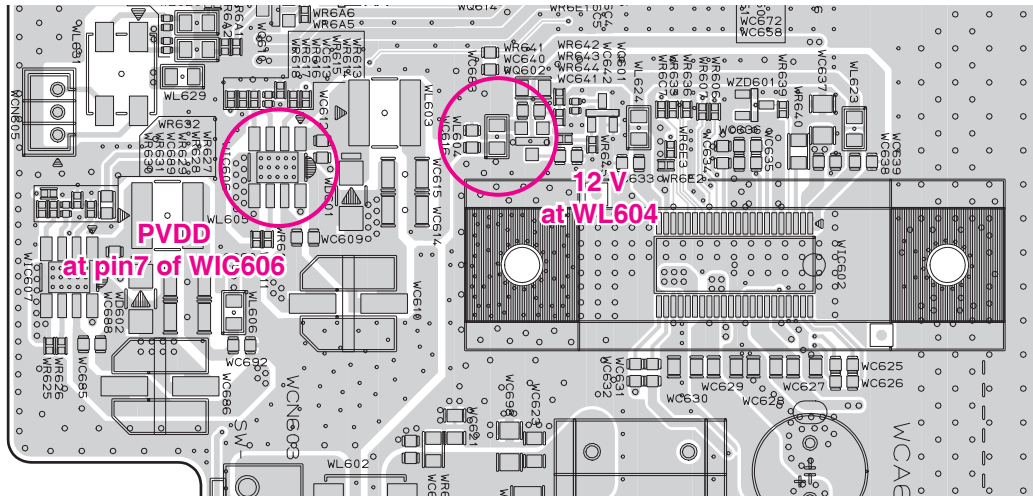
2. POWER ON ERROR

Fundamental power check points

2-1. 12 V

- 1) Check 12 V at WL604 nearby WL603 coil.
- 2) If 12 V is not checked at the point, then find PVDD at pin7 of WIC606.
- 3) 1), 2) is NG → Replace WIC606.

If you can't check PVDD voltage, then you replace woofer SMPS board.

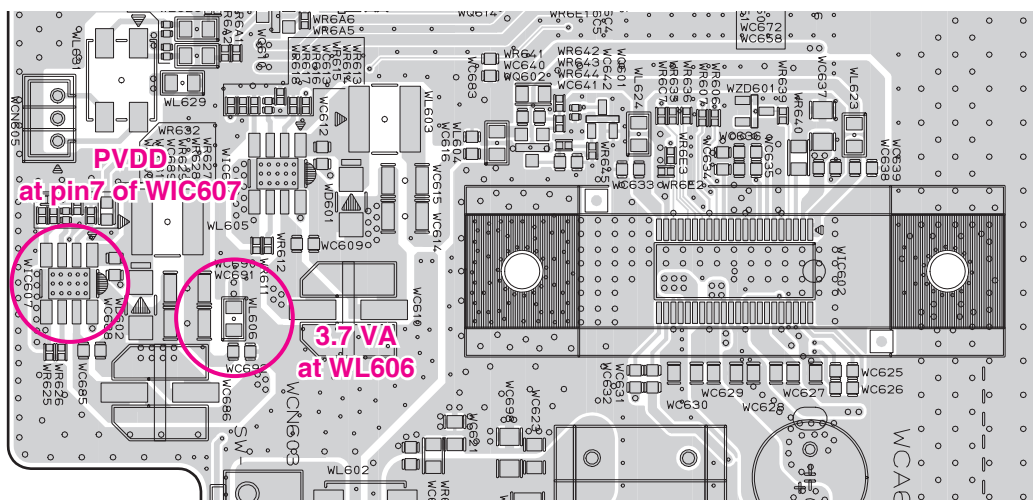


< Woofer AMP board top view >

2-2. 3.7 VA

- 1) Check 3.7 VA at WL606 coil.
- 2) If 3.7 VA is not checked at the point, then find PVDD at pin7 of WIC607.
- 3) 1), 2) is NG → Replace WIC607.

If you can't check PVDD voltage, then you replace woofer SMPS board.



< Woofer AMP board top view >

ONE POINT REPAIR GUIDE

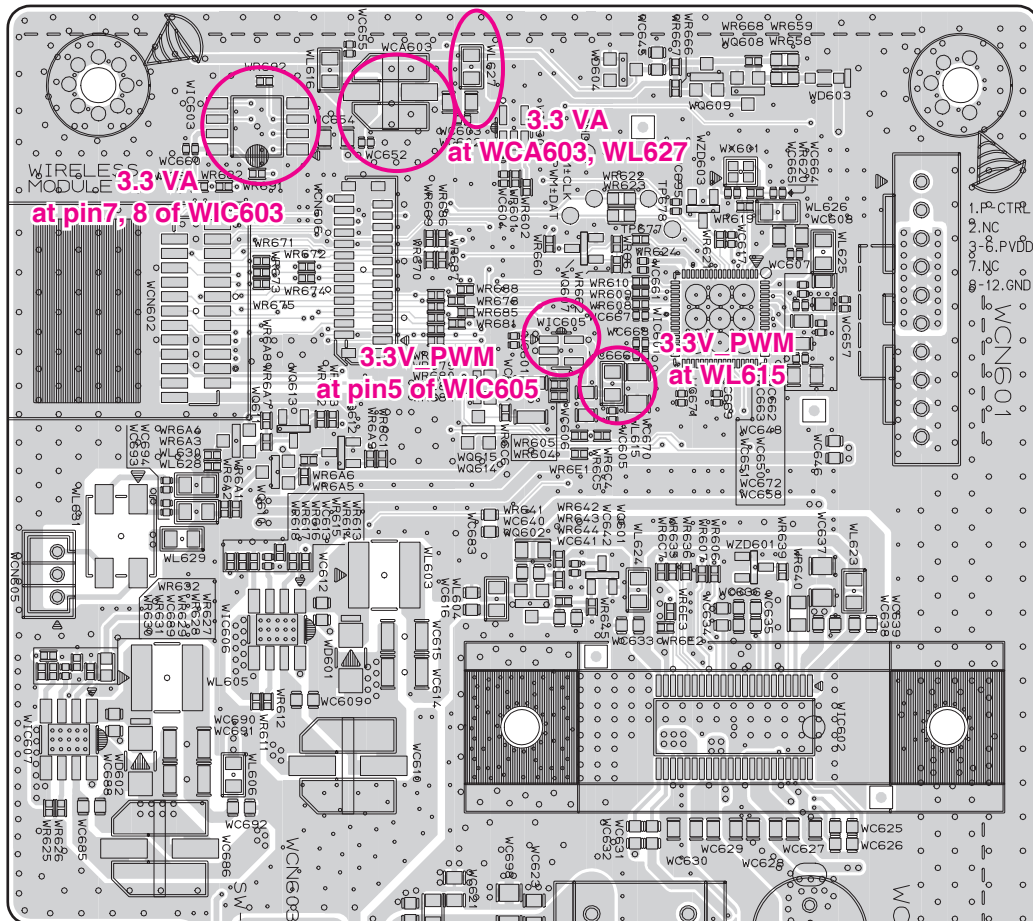
3. POWER ON ERROR

MAIN SoC IC supply voltage check points

3-1. 3.3 VA

- 1) Check 3.3 VA at WCA603 and WL627.
- 2) Check 3.3V_PWM at pin5 of WIC605.
- 3) Check 3.3 VA at pin7, 8 of WIC603.
- 4) Check 3.3V_PWM at WL615 nearby WIC601.

If all voltages are OK, then check the PVDD voltage of woofer SMPS board.



< Woofer AMP board top view >

ONE POINT REPAIR GUIDE

4. WIRELESS CONNECTION

Wireless connection malfunction

4-1. 3.3 VA

1) Check 3.3 VA at WL616.

4-2. Connection

1) Wireless module connection closely.

2) Implement Wireless Factory Reset.

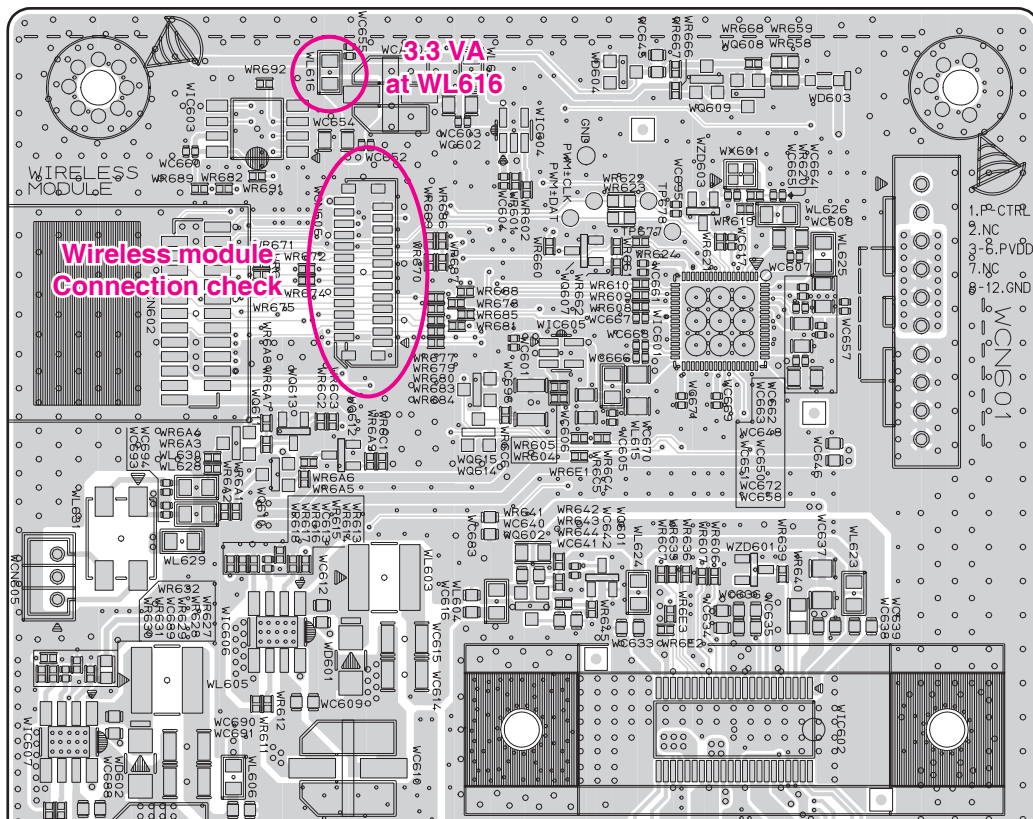
➔ MAIN SET : Soundbar vol MIN and push Mute key (sustain 3 ~ 5 sec).

➔ Subwofer :

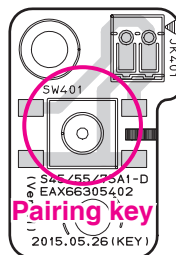
❶ Push Pairing key on the back case of the wireless subwoofer.

❷ The LED of of the wireless subwoofer blink red and green, pull out power cord.

❸ The main set and the wireless subwoofer are factory reset mode, then power on.



< Woofer AMP board top view >



< Woofer KEY board top view >

WAVEFORMS OF MAJOR CHECK POINT

1. VOLTAGE

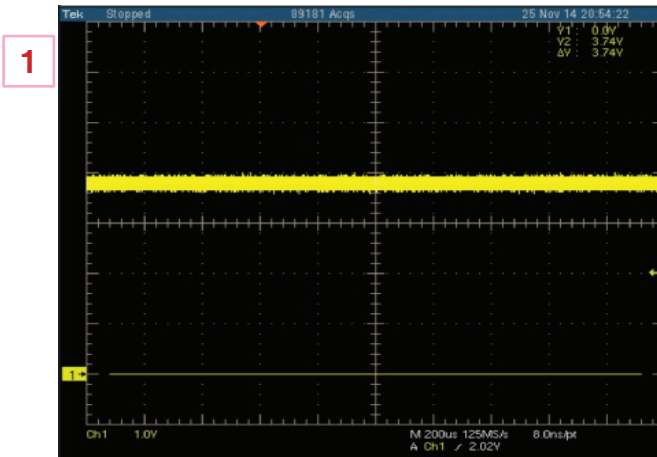


FIG 1-1. WIC607 3.7 VA

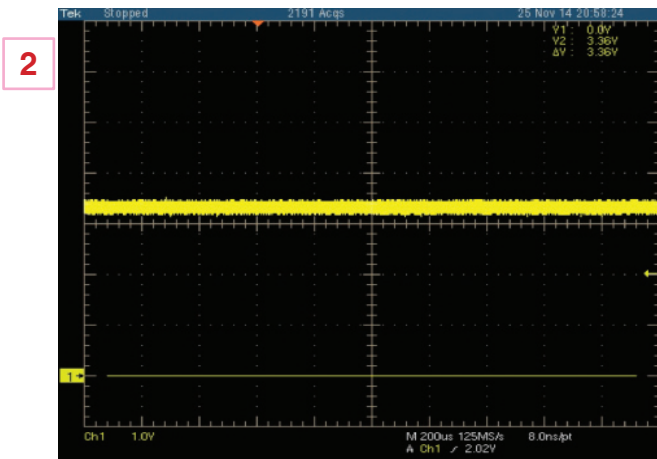


FIG 1-2. PWM 3.3 V

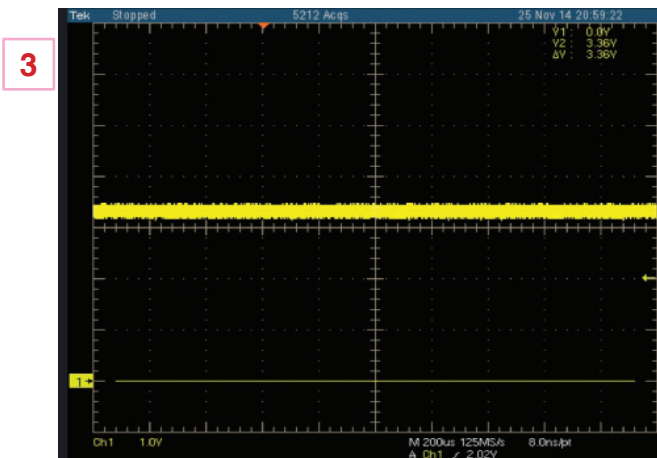
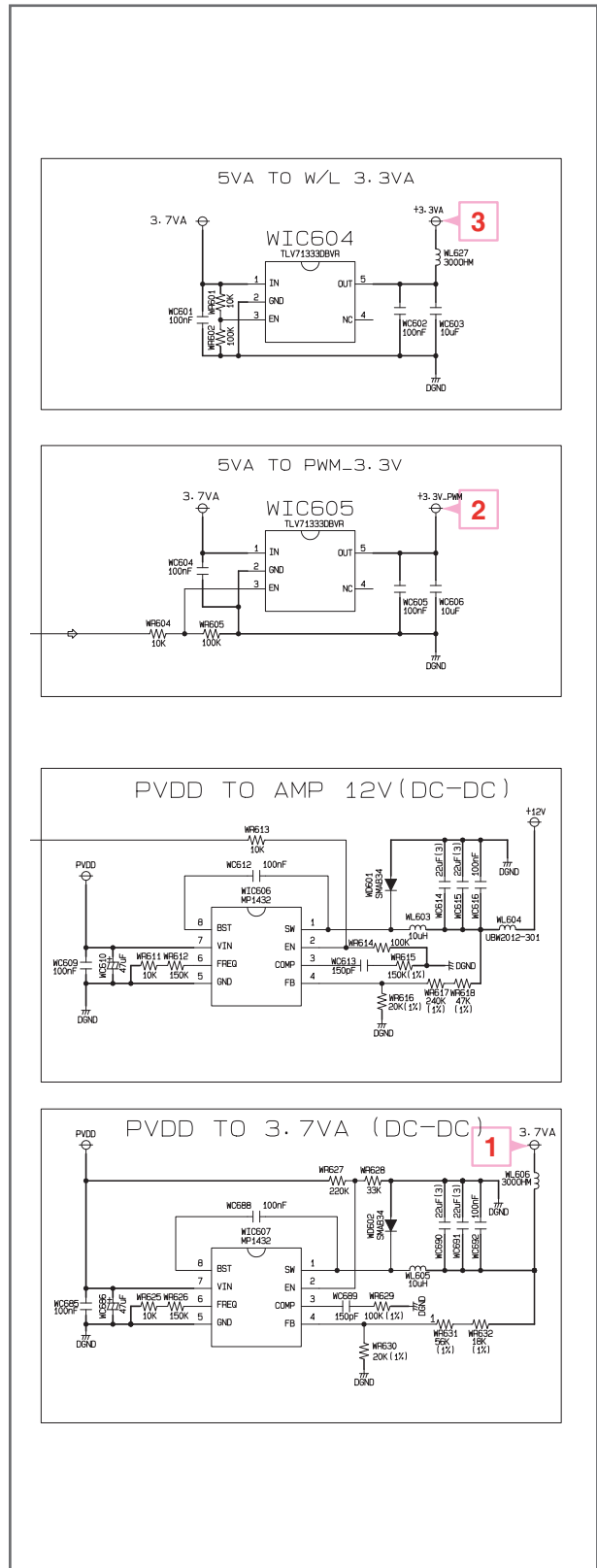


FIG 1-3. Wireless 3.3 VA



2. AMP VOLTAGE

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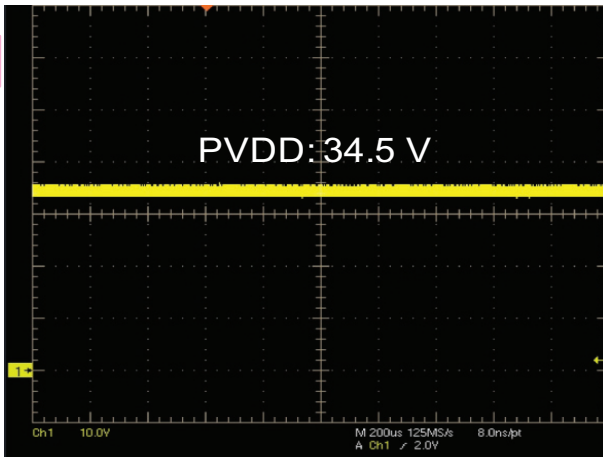
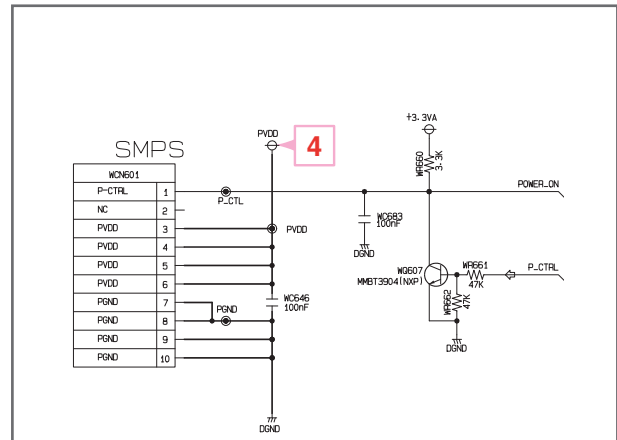


FIG 2-1. Woofer PVDD



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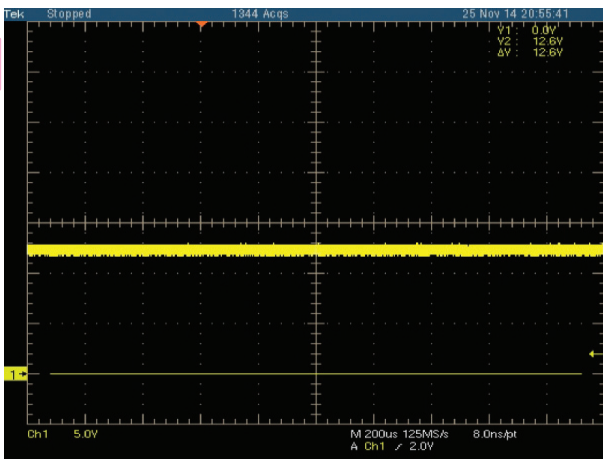
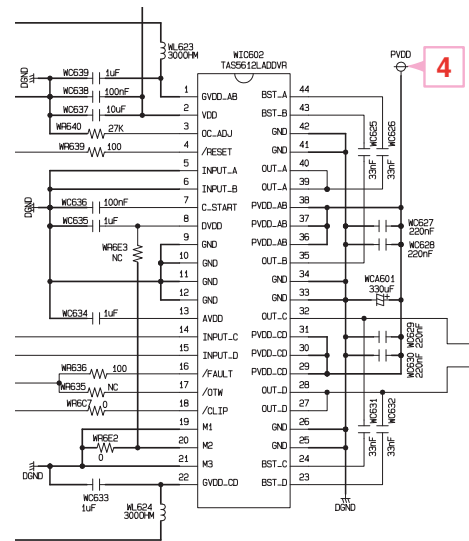
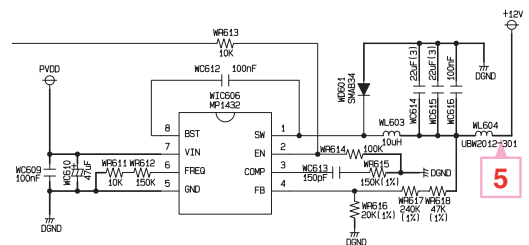


FIG 2-2. Woofer 12 V



PVDD TO AMP 12V(DC-DC)



3. PWM

6

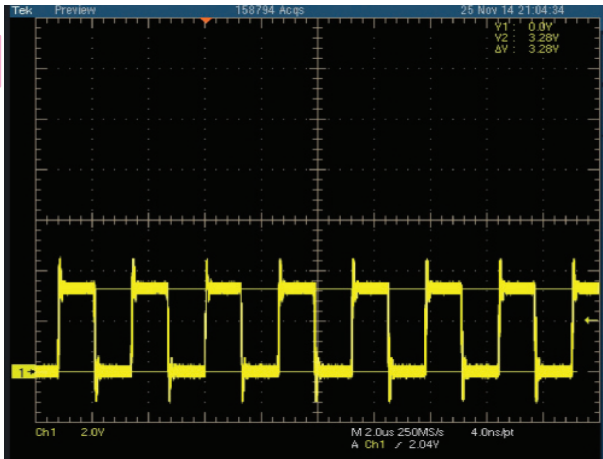


FIG 3-1. Woofer PWM SW+ Signal

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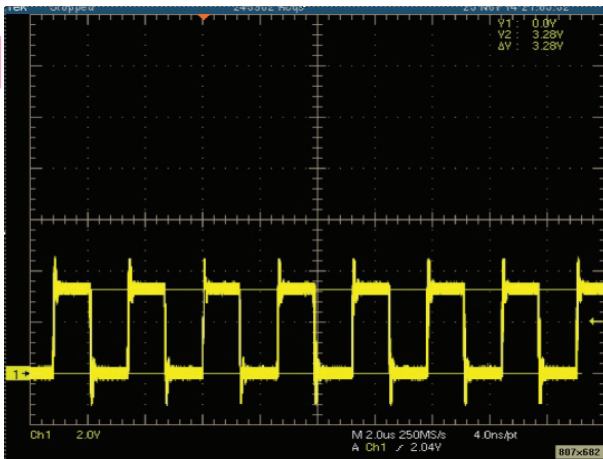
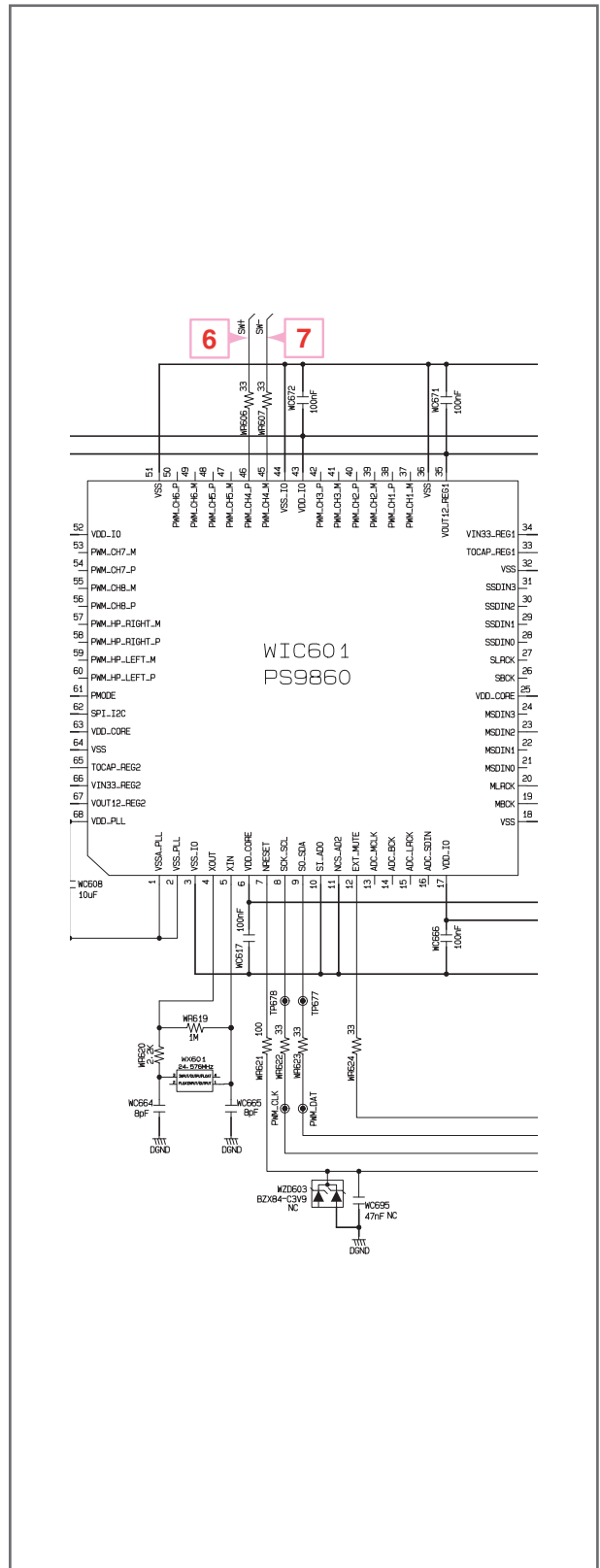


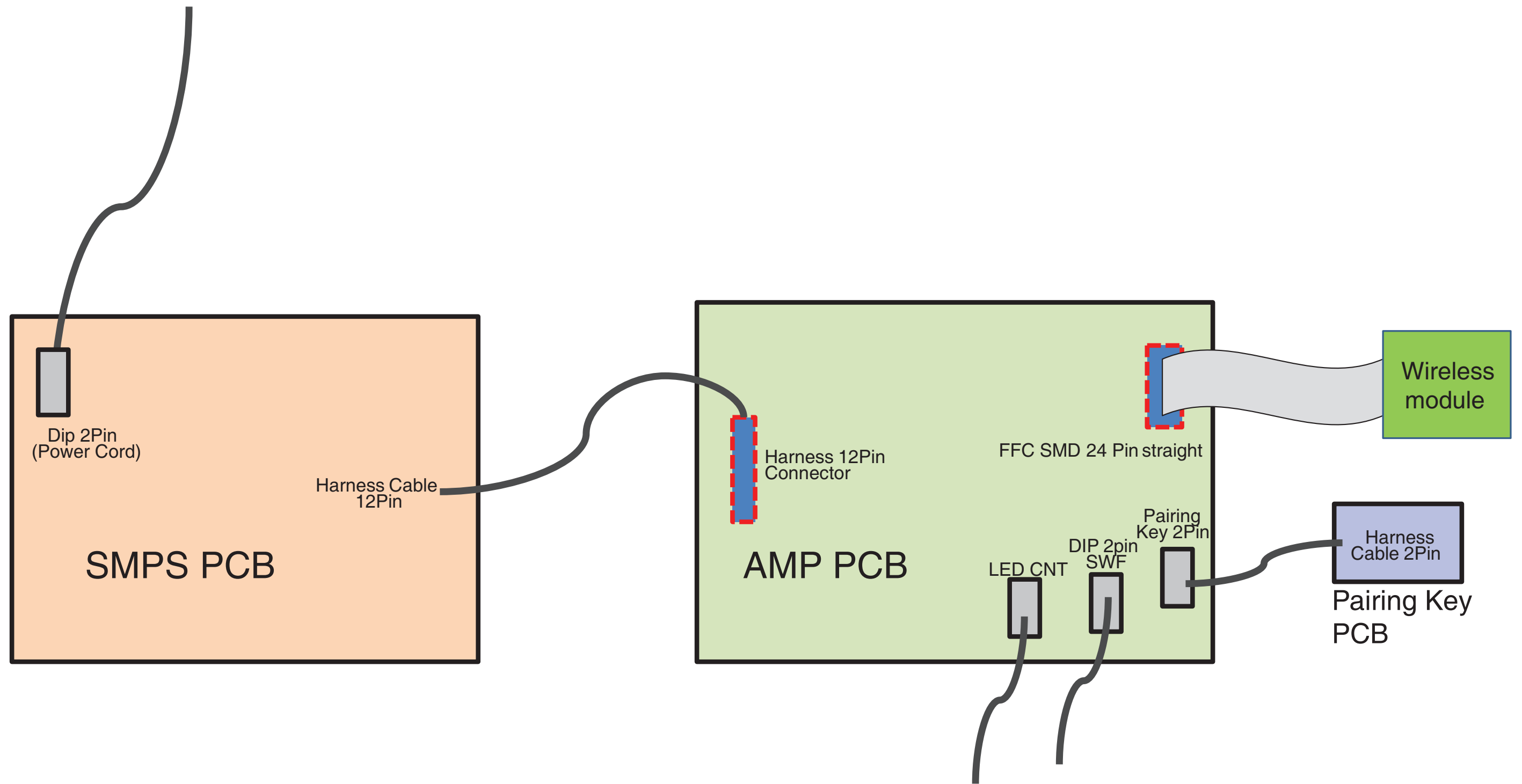
FIG 3-2. Woofer PWM SW- Signal



MEMO

A series of horizontal dotted lines for writing.

WIRING DIAGRAM



BLOCK DIAGRAM

