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SERVICE MANUAL

MODEL: BH9530TW (BH9530TW, S93T1-S/ C/ W, T2, W3-4)

LG

CINEMA 3D SOUND Blu-ray™ HOME CINEMA SYSTEM

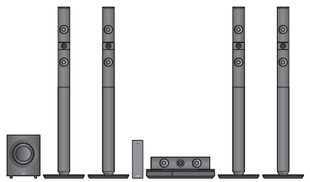
SERVICE MANUAL

MODEL: BH9530TW

(BH9530TW, S93T1-S/ C/ W, T2, W3-4)

CAUTION

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



CONTENTS

SECTION 1

SUMMARY

CONTENTS

PRODUCT SAFETY SERVICING GUIDELINES FOR BD-HTS 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:

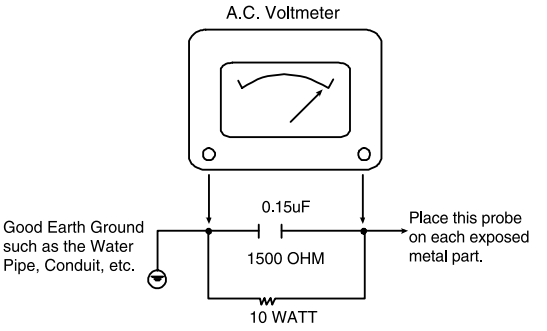
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

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:

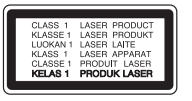
FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items trans-ported 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.



CAUTION : CLASS 1M VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

SERVICING PRECAUTIONS

CAUTION: Before servicing the BD-HTS 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 publications, always follow the safety precautions.
Remember Safety First :

General Servicing Precautions

1. Always unplug the BD-HTS 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 BD-HTS 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 whitch instruments covered by this service manual might be equipped.

5. Do not apply AC power to this BD-HTS and / or any of its electrical assemblies unless all solidstate 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.)

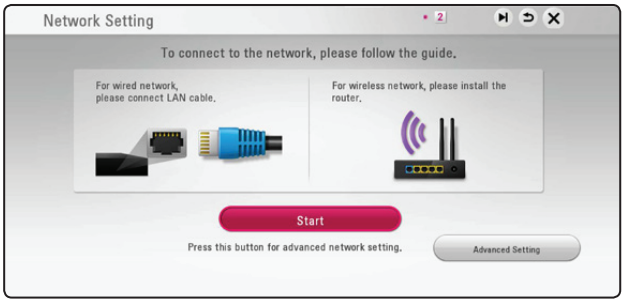
INITIAL SYSTEM SETUP

When you turn on the unit for the first time, the initial setup wizard appears on the screen.
Set the display language and network settings on the initial setup wizard.

1. Press ⏻ (POWER).
The initial setup wizard appears on the screen.

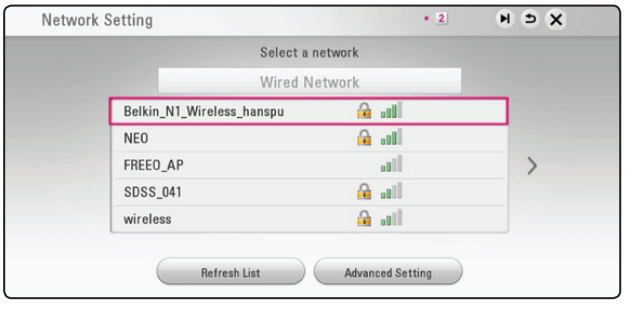
2. Use ▲/▼/◀/▶ to select a display language and press ENTER (⊙).

3. Read and prepare the preparations for the network settings and then press ENTER (⊙) while [Start] is highlighted.



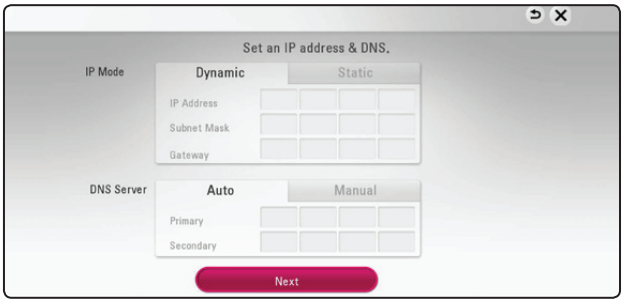
If wired network is connected, the network connection setting will automatically be finished.

4. All available networks are displayed on the screen. Use ▲/▼ to select [Wired Network] or desired SSID of wireless network and press ENTER (⊙).



If you have security on your access point, you need to input the security code as necessary.

5. Use ▲/▼/◀/▶ to select the IP mode between [Dynamic] and [Static]. Normally, select [Dynamic] to allocate an IP address automatically.



6. Select [Next] and press ENTER (⊙) to apply network settings.

Network connection status is displayed on the screen. For details on network settings, refer to “Connecting to your Home Network” in Owner’s manual.

7. Select [Next] and press ENTER (⊙).

Read and prepare the preparations for the wireless speaker setting.

8. Select [Next] and press ENTER (⊙).

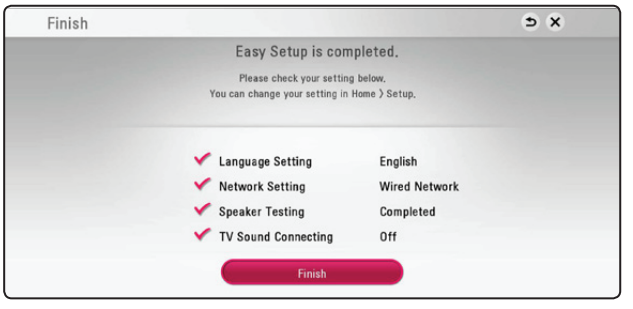
9. Press ENTER (⊙) to verify the test tone signals of the speakers.

After verifying the test tone signals, press ENTER (⊙) while [Stop] is highlighted. Select [Next] and press ENTER (⊙).

9. You can listen to TV sound through HTS speaker automatically when TV is turned on. TV and HTS should be connected with optical cable.

Press ▲ to move and press ◀/▶ to select [On] or [Off]. Select [Next] and press ENTER (⊙).

11. Check all the settings that you have set in the previous steps.



Press ENTER (⊙) while [Finish] is highlighted to finish the initial setup settings. If there is any settings to be changed, use ▲/▼/◀/▶ to select ⮌ and press ENTER (⊙).

HIDDEN KEY MODE

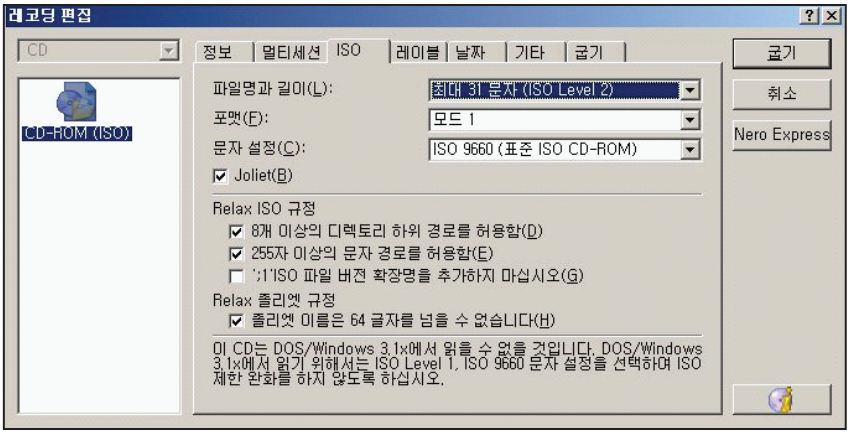
HIDDEN MODE	AVAILABLE STATUS	ENTRANCE KEY	EXIT KEY	DISPLAY
DISPLAY SYSTEM INFORMATION	(NO DISC||OPEN)&& (Highlight on 16:9 Full)	1 + 3 + 9 + 7 + 1 +3 + 9 + ENTER or MP2	PAUSE or HOME ※ 'Pause' Key FACTORY RESET	SYSTEM INFORMATION (KEY, VERSION)
DISPLAY DEBUG INFORMATION	(NO DISC||OPEN)&& (Highlight on 16:9 Full)	4 + 5 + 6 + 2 + 5 + 8 + 0 + ENTER	RETURN / PAUSE	1. PLATFORM INFORMATION 2. HDMI CONNECTTON INFORMATION 3. WIRELESS INFORMATION
EEPROM INITIAL	POWER ON STATUS	Front 'STOP' + RMC '0' for 5 seconds	Auto exit	"E2P CLEAR"
DOOR LOCK	DVD FUNCTION and POWER ON STATUS	Front 'STOP' + RMC 'STOP' for 5 seconds	Toggling	"D-LOCK" display for 3 seconds
DOOR UNLOCK	DVD FUNCTION and POWER ON STATUS	Front 'STOP' + RMC 'STOP' for 5 seconds	Toggling	"D-UNLOCK" display for 3 seconds
WIRELESS SPK REMATE	POWER ON STATUS	Front 'STOP' + RMC 'MUTE'	-	"REMATE"

FIRMWARE UPDATE GUIDE

1. COPY AN UPDATE FILE TO A MEDIA (USB OR CD-ROM)

Update File Name: LG_HB_8000M80.ROM

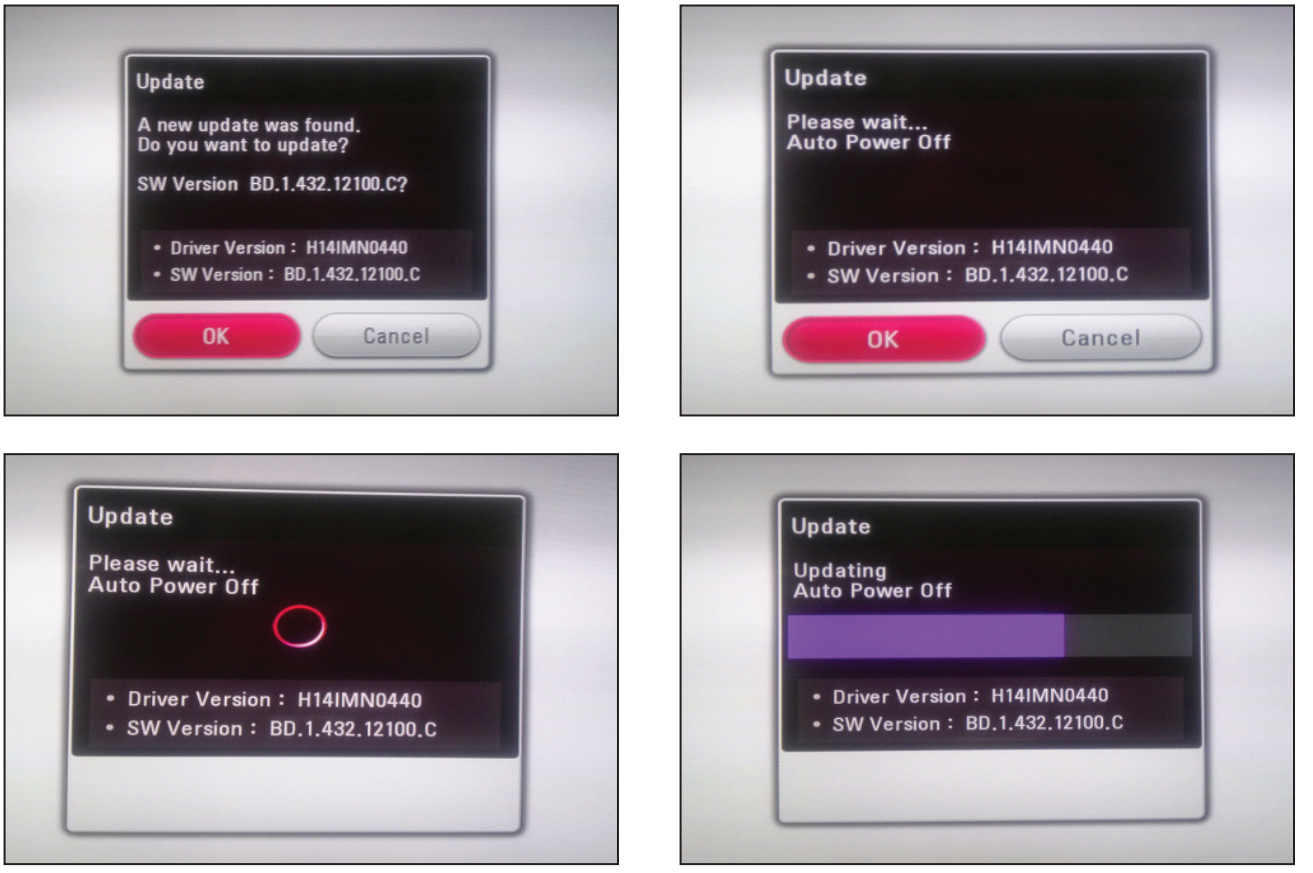
1) An update file have to be copied onto the root of file system.
2) USB and CD-ROM are able to use firmware update.



< Example: Nero Burning Rom >

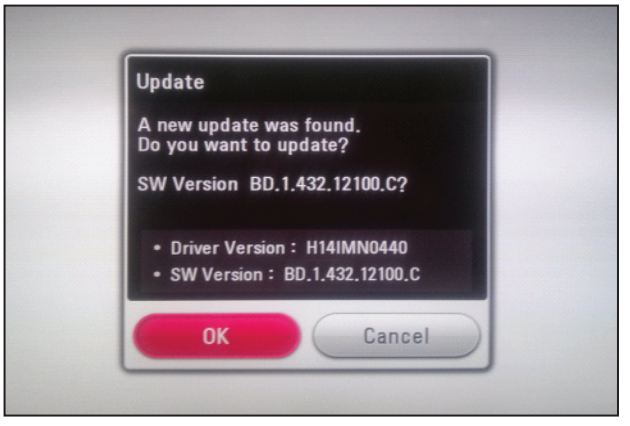
2. UPDATE FIRMWARE

1) Insert USB or CD-ROM which has an update file.
2) OSD responds to the insertion event.
3) OSD is shown as below.



< Firmware Update OSD >

OSD contents:



Front Panel contents:

3. DURING UPDATING

1) Progressive bar is shown on the update time repeatedly.
2) Tray is opened.

Front Panel contents:

4. AFTER UPDATE COMPLETE

1) Power off / on automatically after update complete.
2) Tray will be closed.

NETWORK SOFTWARE UPDATE

You can update the software by connecting your unit directly to the software update server.

Configuring Network Settings

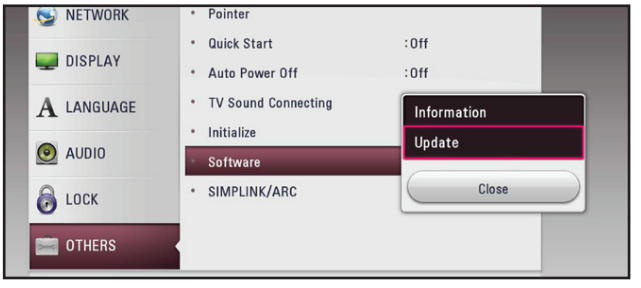
To update the software by connecting your player directly to the software update server, your player must be connected to network. If your player is not connected to network, make a physical connection.

Note

- Before updating the software in your player, remove any disc and USB Device from the player.
- Before updating the software in your player, turn the player off and then turn it back on.
- **During the software update procedure, do not turn off the player or disconnect AC power, or do not press any button.**
- If you cancel the update, turn off the power and turn it on for stable performance.
- This unit cannot be updated to previous software version.

1) Press Home on the Remote Control.
2) Press or select the [Settings] menu.

3) Select [Software] option in the [OTHERS] menu then press ENTER (⊙).
   Select [Update] option, and press ENTER (⊙).

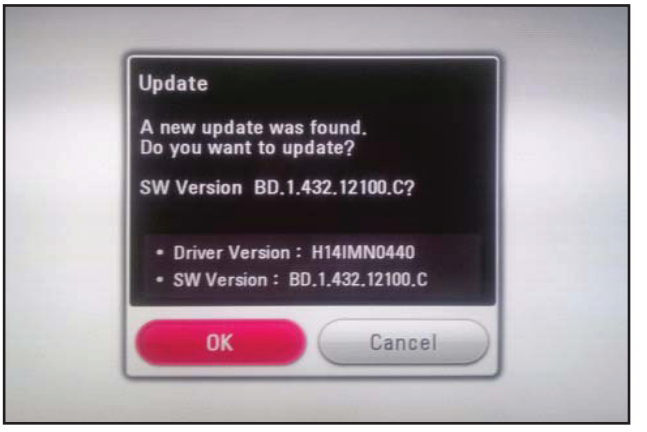


The player will check for the newest update.

Note

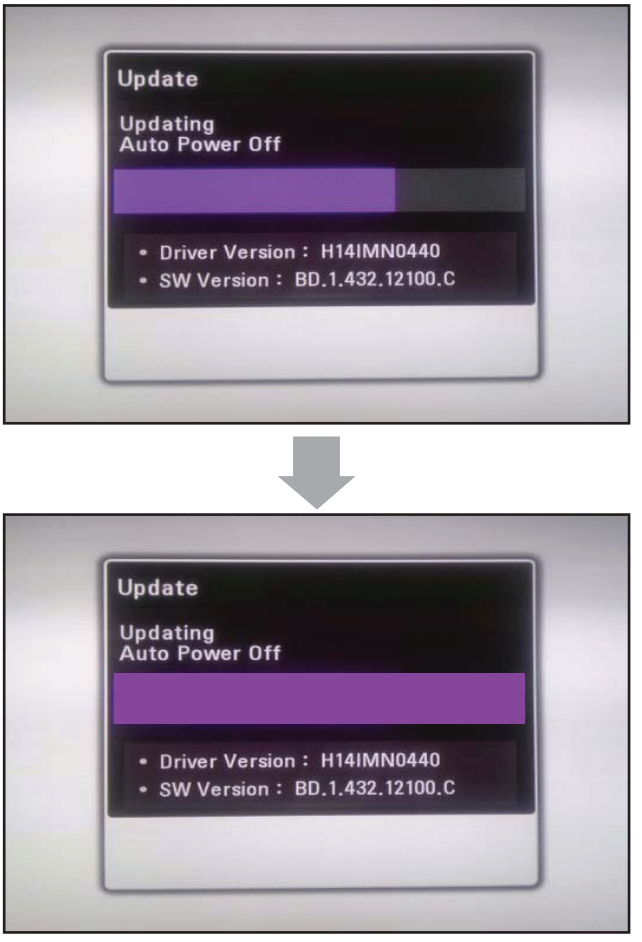
- Pressing ENTER (⊙) while checking for the update will end the process.
- If there is no update available, the Message, "No update is found." appears. Press ENTER (⊙) to return to the [Home Menu].

4) If newer version exists, the message "Do you want to download it?" appears.
5) Select [OK] to start update. (Selecting [Cancel] will end the update.)



6) The player starts downloading the newest update from the server. (Downloading will takes several minutes depending

7) When downloading is completed, the message, “Download is complete. Do you want to update?” appears.
8) Select [OK] to start updating. (Selecting [Cancel] will end the update and downloaded file will not be re-usable. To update software the next time, the software update procedure has to be started from the beginning again.)



Caution
Do not turn off the power during the software update.

9) When update is completed, the power will be turned off automatically in a few seconds.
10) Turn the power back on.
The system now operates with the new version.

SPECIFICATIONS

• GENERAL

Power requirements	Refer to main label on the rear panel.
Power consumption	Refer to main label on the rear panel.
Dimensions (W x H x D)	Approx. 444 mm x 65 mm x 292.5 mm
Net Weight (Approx.)	3.5 kg
Operating temperature	5 °C to 35 °C (41 °F to 95 °F)
Operating humidity	5 % to 90 %

• INPUTS/OUTPUTS

HDMI IN/OUT (video/audio)	19 pin (Type A, HDMI™ Connector)
ANALOG AUDIO IN	2.0 Vrms (1 kHz, 0 dB), 600 Ω, RCA jack (L, R) x 1
DIGITAL IN (OPTICAL)	3 V (p-p), Optical jack x 1

• TUNER

FM Tuning Range	87.5 to 108.0 MHz or 87.50 to 108.00 MHz

• AMPLIFIER

Power output (8 Ω/ 4 Ω/ 3 Ω), (RMS), THD 10 %

Total	1460 W
Front	180 W x 2
Center	180 W
Rear	180 W x 2
Sub-Woofer	200 W (Passive)
3D Effect -Left	180 W
3D Effect -Right	180 W

• SYSTEM

Laser	Semiconductor laser
wavelength	405 nm / 650 nm
Signal system	Standard PAL/NTSC color TV system
LAN port	Ethernet jack x 1, 10BASE-T / 100BASE-TX
Wireless LAN (internal antenna)	Integrated IEEE 802.11n (5 GHz and 2.4 GHz bands) wireless networking access, compatible with 802.11a/b/g Wi-Fi networks.
Bus Power Supply (USB)	DC 5 V ⎓ 2.1 A (Front) / DC 5 V ⎓ 300 mA (Rear)

• SPEAKERS

Front speaker (Left/ Right)

Type	2 Way 3 speaker
Impedance Rated	4 Ω
Input Power	180 W
Max. Input power	360 W
Net Dimensions (W x H x D)	270 mm x 1300 mm x 270 mm
Net Weight	5.3 kg

Rear speaker (Left/ Right)

Type	2 Way 3 speaker
Impedance Rated	4 Ω
Input Power	180 W
Max. Input power	360 W
Net Dimensions (W x H x D)	270 mm x 1300 mm x 270 mm
Net Weight	5.3 kg

Center speaker

Type	1 Way 1 speaker
Impedance Rated	4 Ω
Input Power	180 W
Max. Input power	360 W
Net Dimensions (W x H x D)	360 mm x 81 mm x 70 mm
Net Weight	1.1 kg

Subwoofer

Type	1 Way 1 speaker
Impedance Rated	3 Ω
Input Power	200 W
Max. Input power	400 W
Net Dimensions (W x H x D)	251 mm x 336 mm x 310 mm
Net Weight	5.9 kg

Top speaker (Front +Rear Left / Front +Rear Right)

Type	1 Way 1 speaker
Impedance Rated	8 Ω
Input Power	180 W
Max. Input power	360 W
Net Dimensions (W x H x D)	Built in Front and Rear speakers
Net Weight	Built in Front and Rear speakers

• WIRELESS RECEIVER

Power requirements	Refer to main label on the bottom of the receiver.
Power consumption	Refer to main label on the bottom of the receiver.
Dimensions (W x H x D)	80.2 mm x 245 mm x 190 mm
Net Weight (Approx.)	1.21 kg

Design and specifications are subject to change without notice.

SECTION 2 ELECTRICAL

CONTENTS

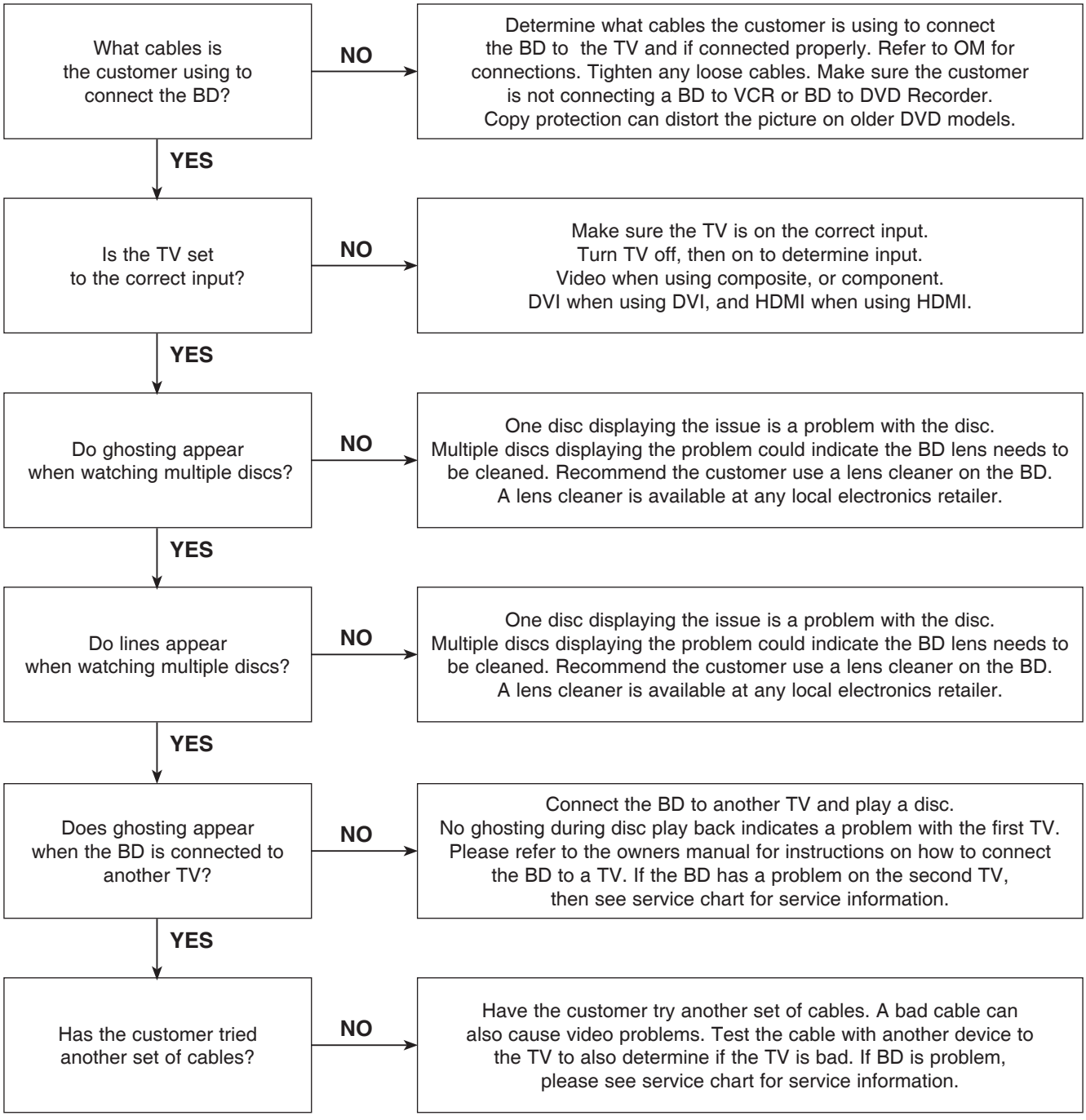
DIGITAL DISPLAY & MEDIA TRAINING MASTER

Objective: To provide clear and concise guidelines for customer service agents to handle calls on box goods calls.

1. DISTORTED PICTURE

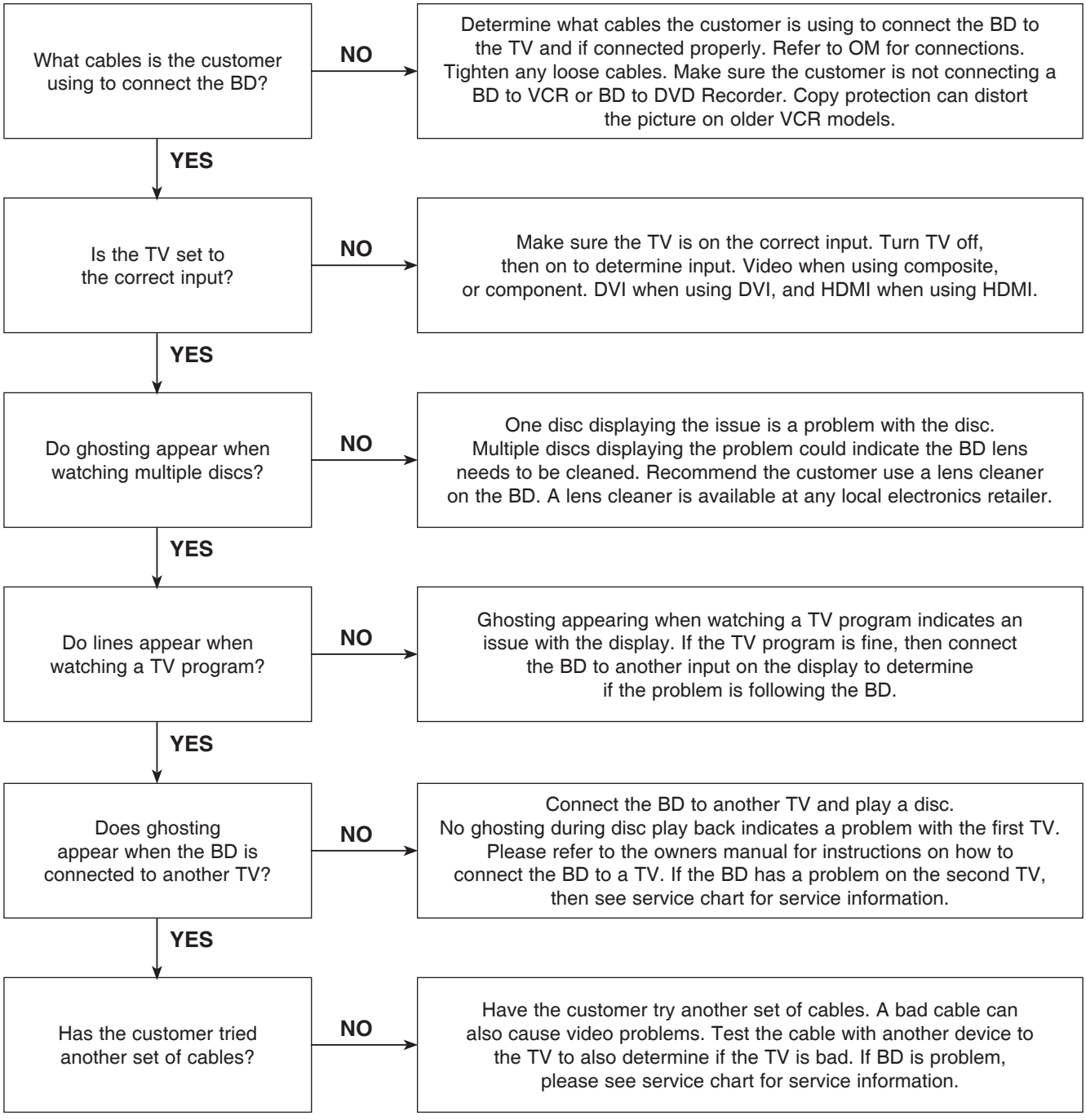
1-1. Lines on Picture

Distorted picture refers to the customer getting video, but there is a problem with the video.



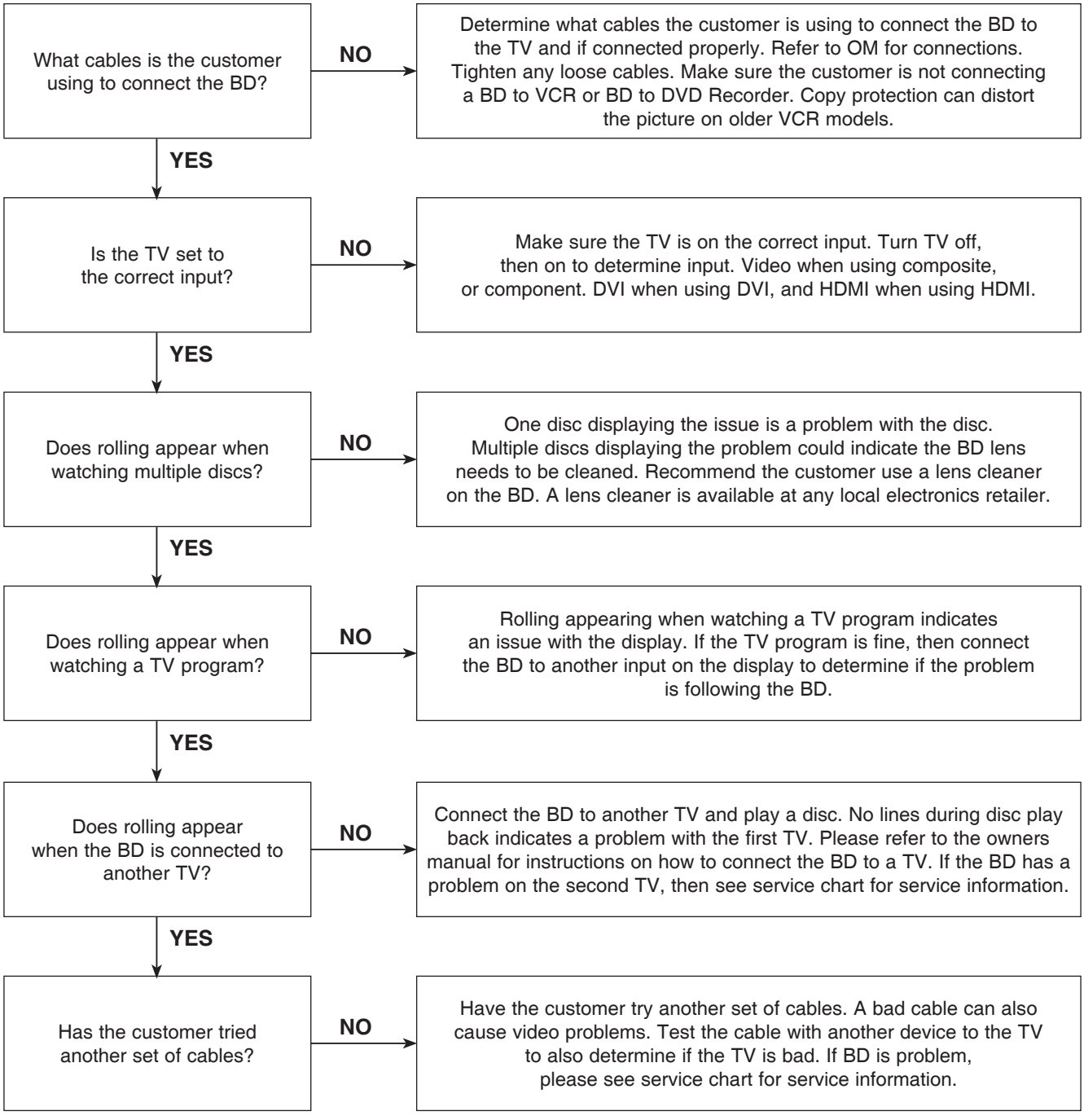
1-2. Ghost Picture

Distorted picture refers to the customer getting video, but there is a problem with the video.



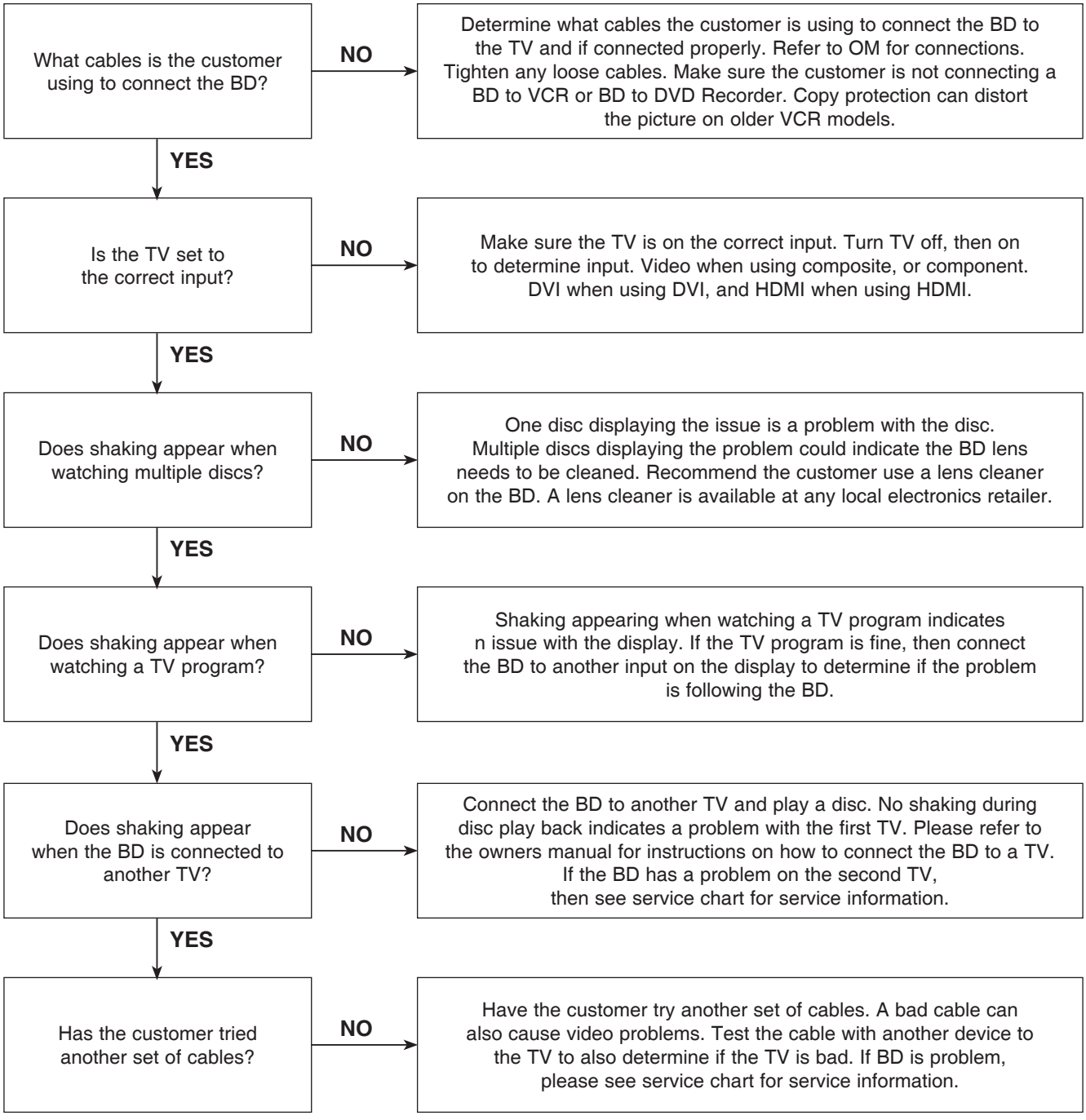
1-3. Rolling Picture

Distorted picture refers to the customer getting video, but there is a problem with the video.



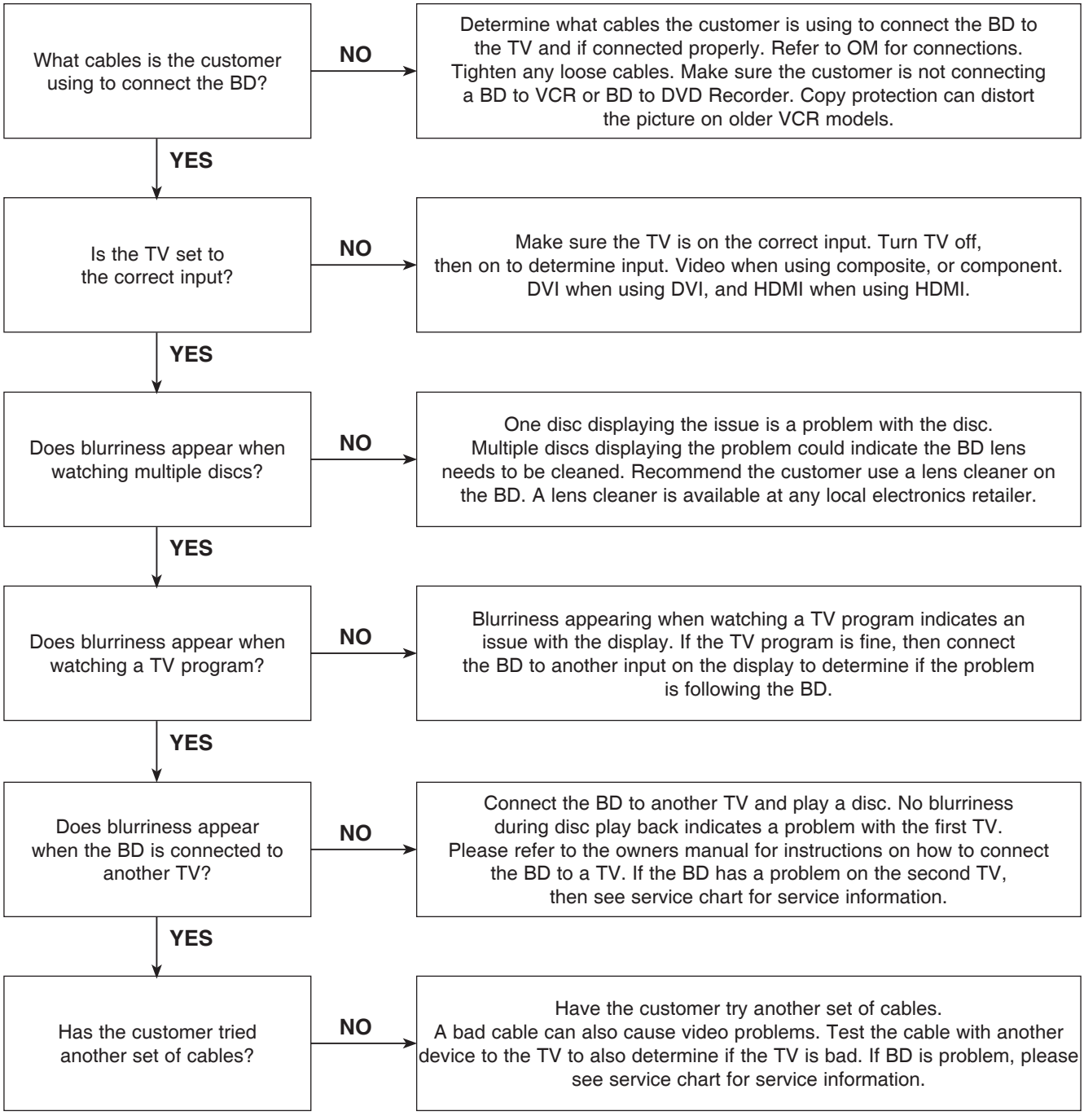
1-4. Shaky Picture

Distorted picture refers to the customer getting video, but there is a problem with the video.



1-5. Blurry Picture

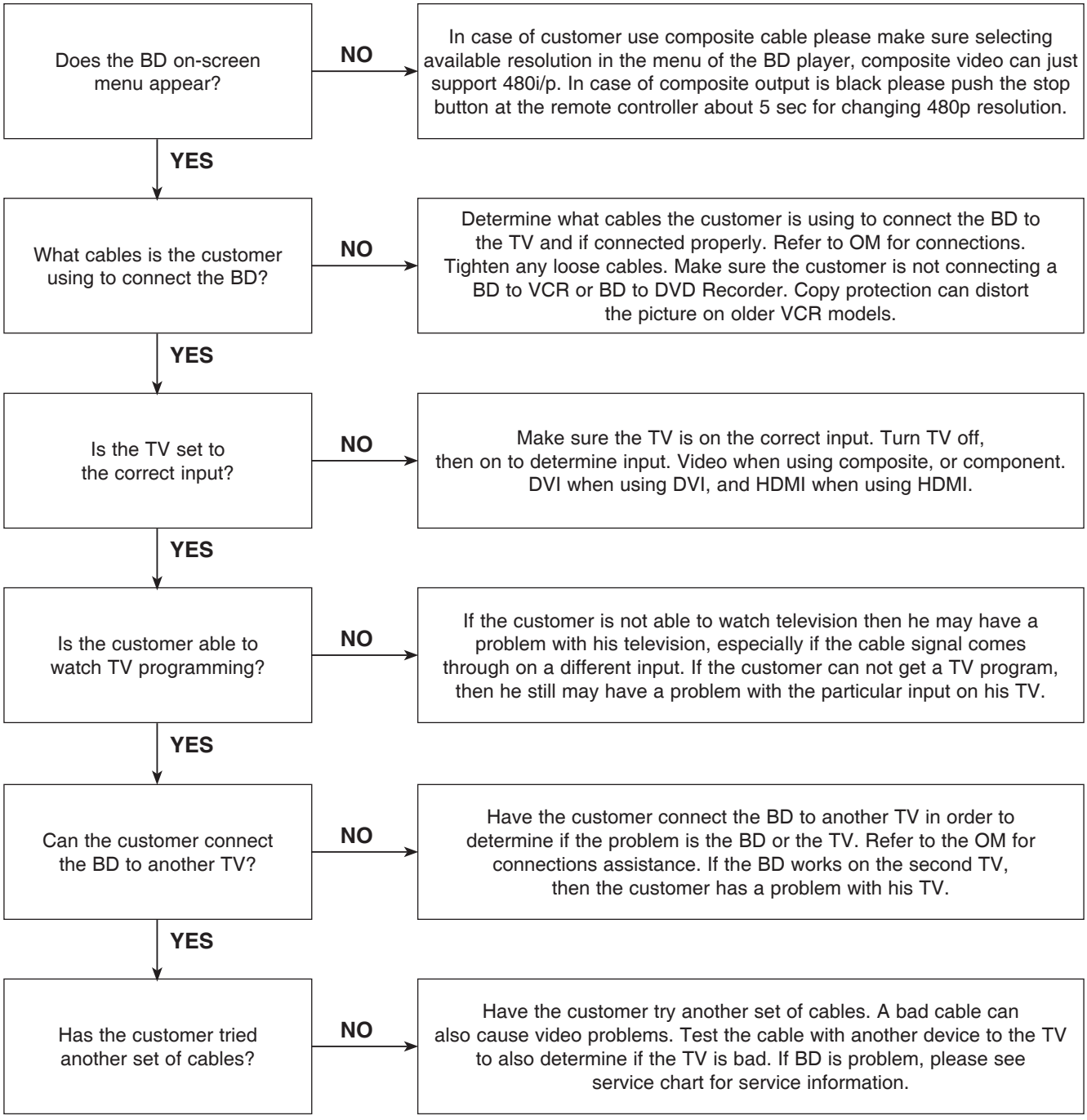
Distorted picture refers to the customer getting video, but there is a problem with the video.



2. NO PICTURE

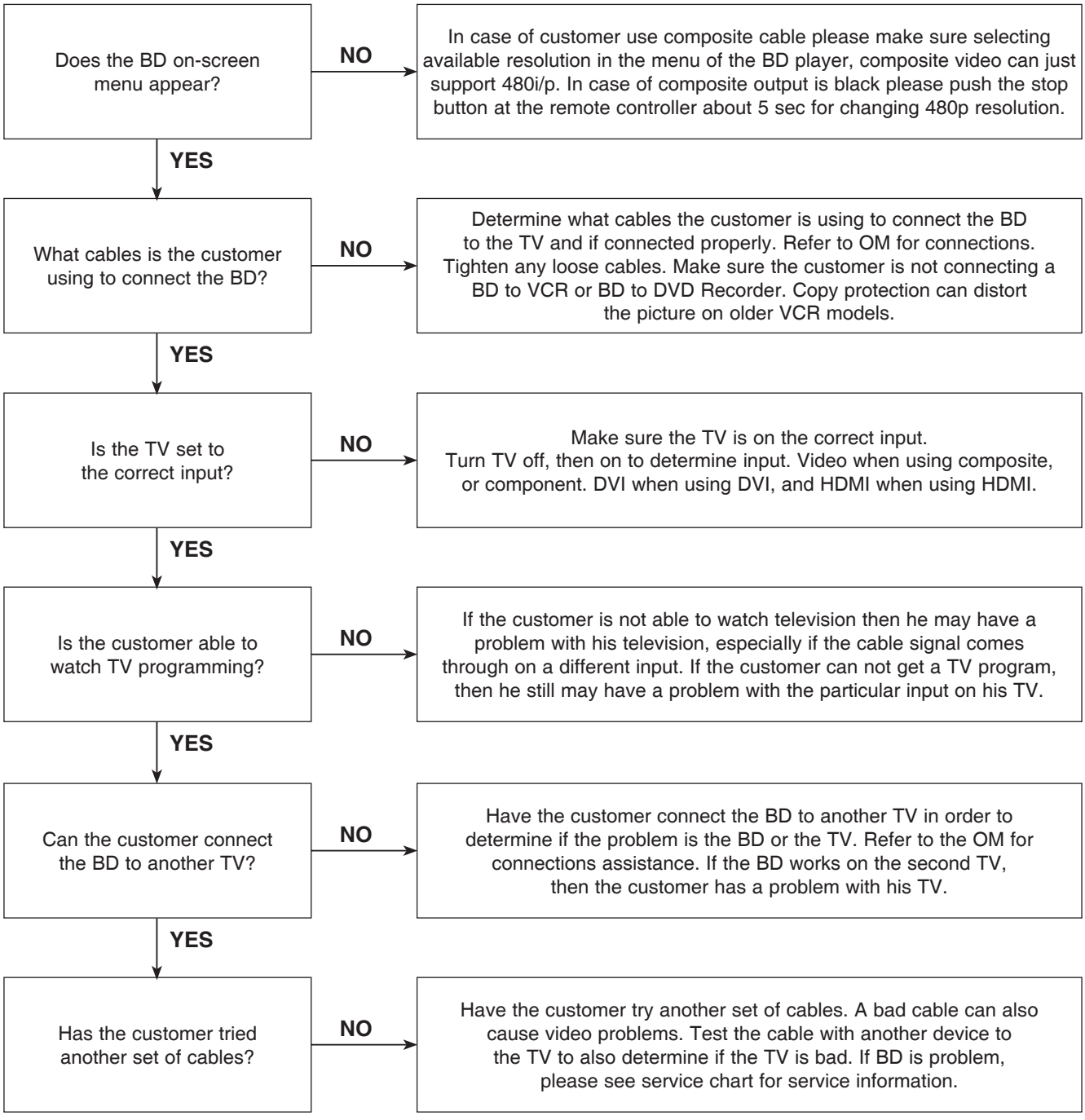
2-1. Black Screen

The entire screen is black.



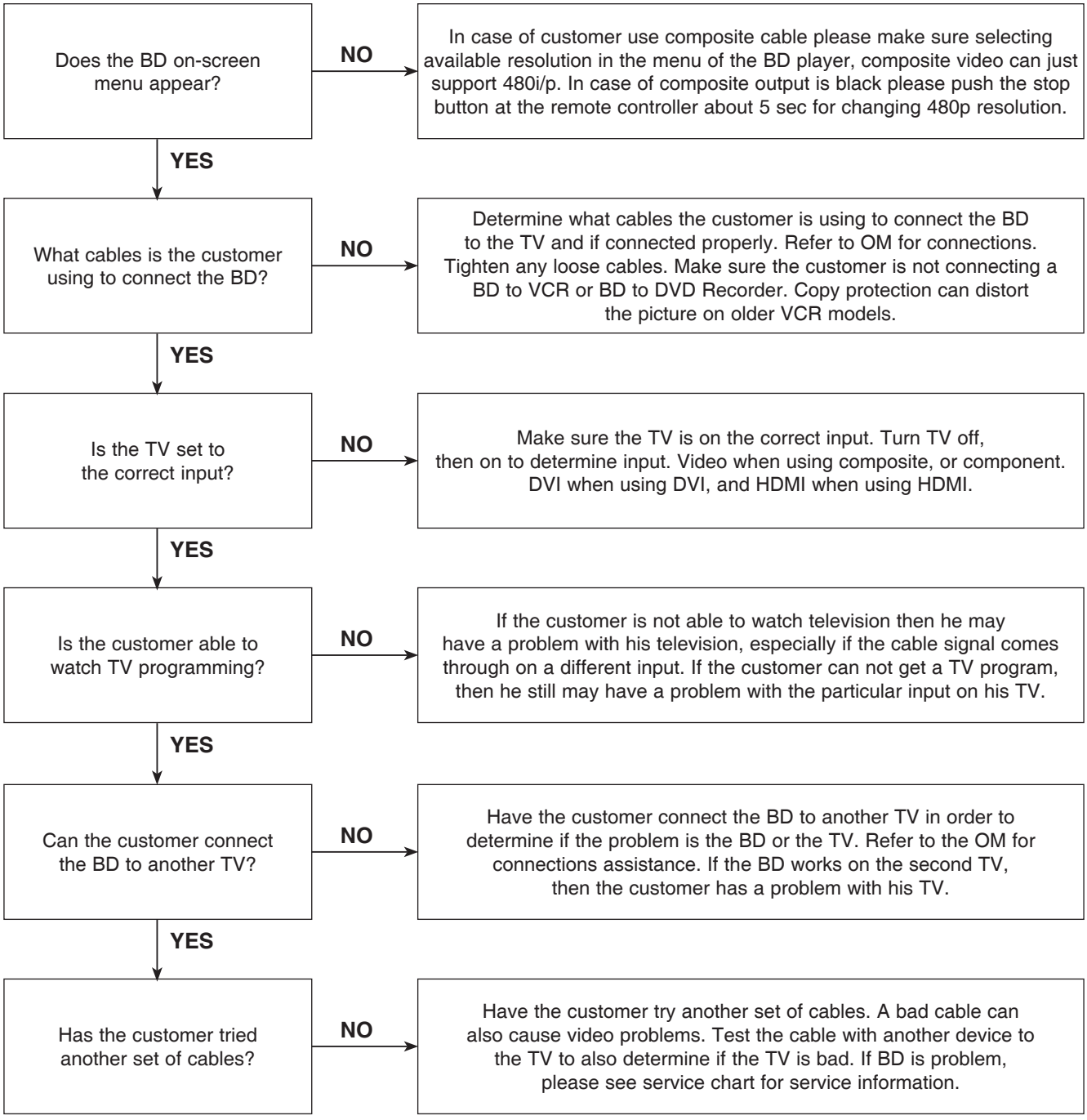
2-2. Blue Screen

The entire screen is a solid blue color.



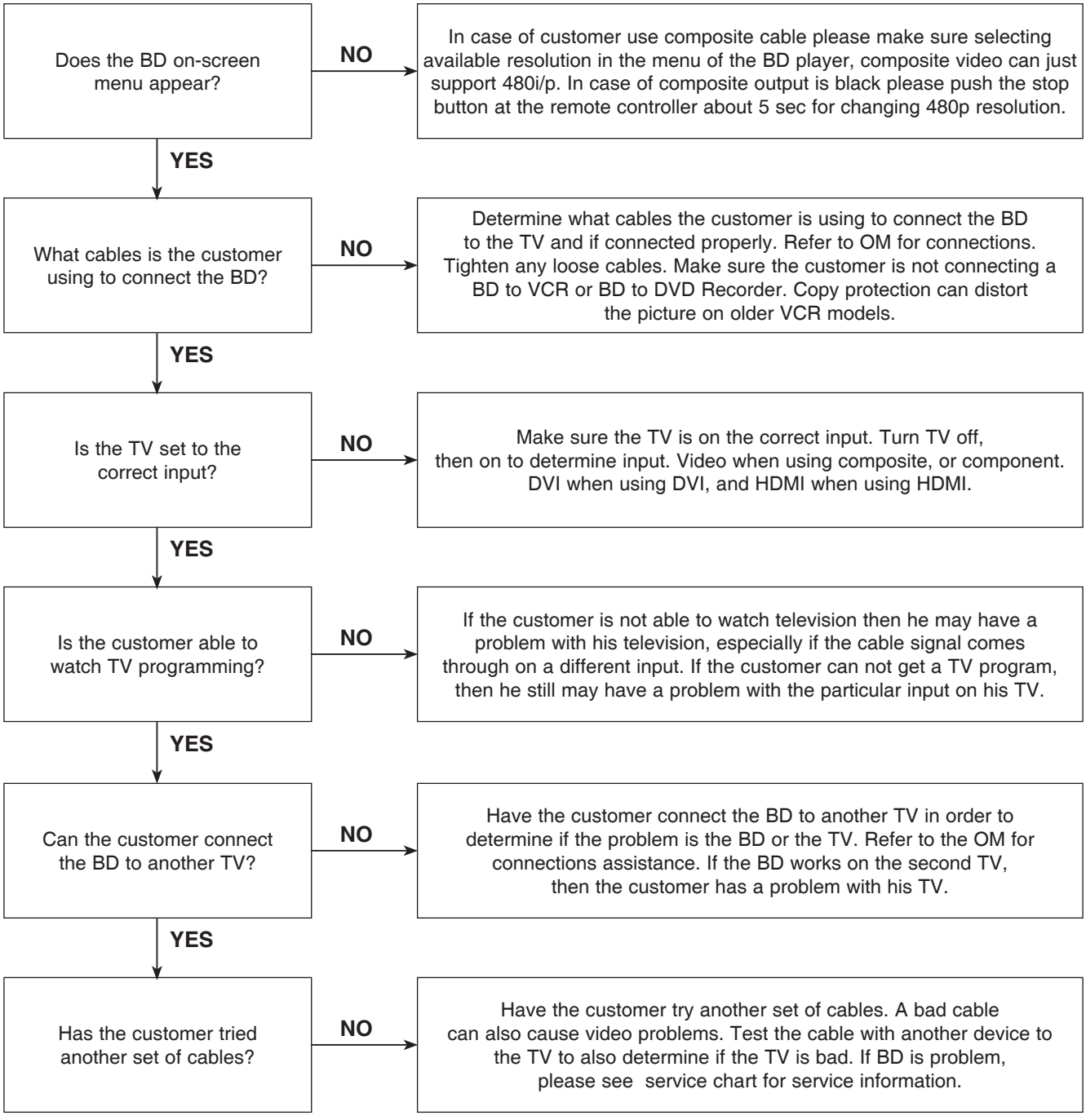
2-3. Snowy Screen

A snowy picture is when black and white dots are all over the screen.

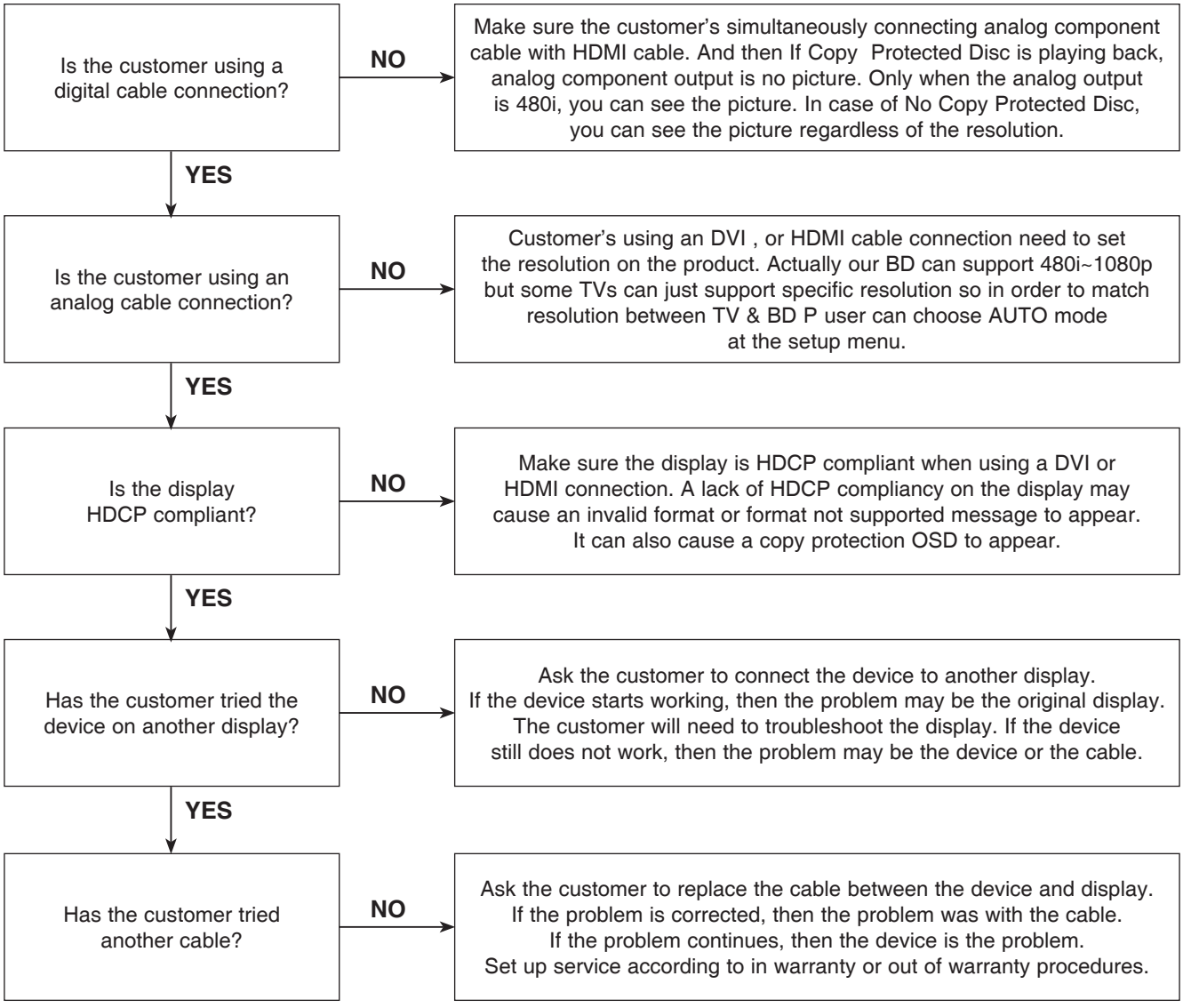


2-4. No Signal

A “no signal” message appears on the screen of the display.



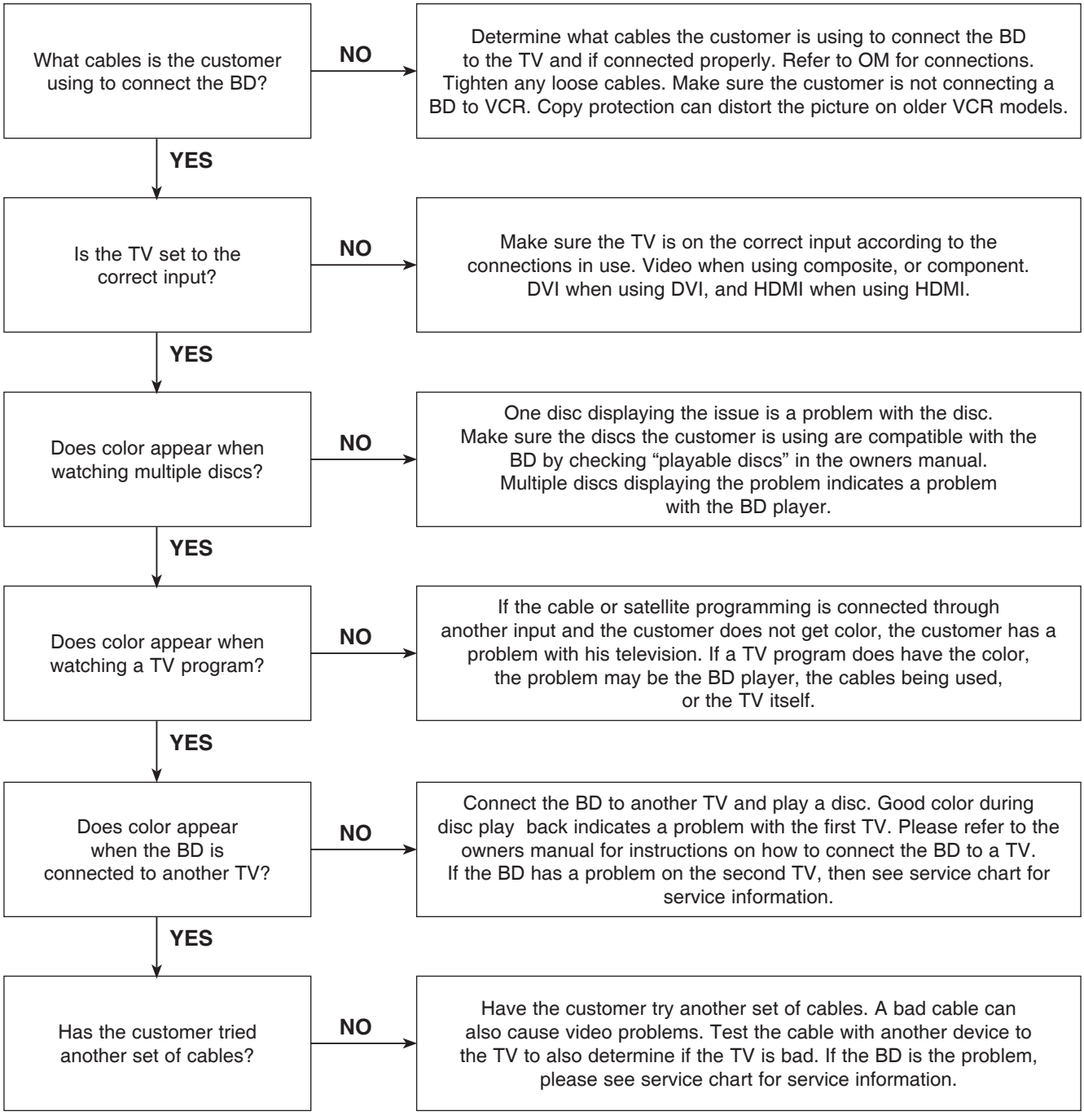
2-5. Invalid Format or Format Not Supported



3. PICTURE COLOR

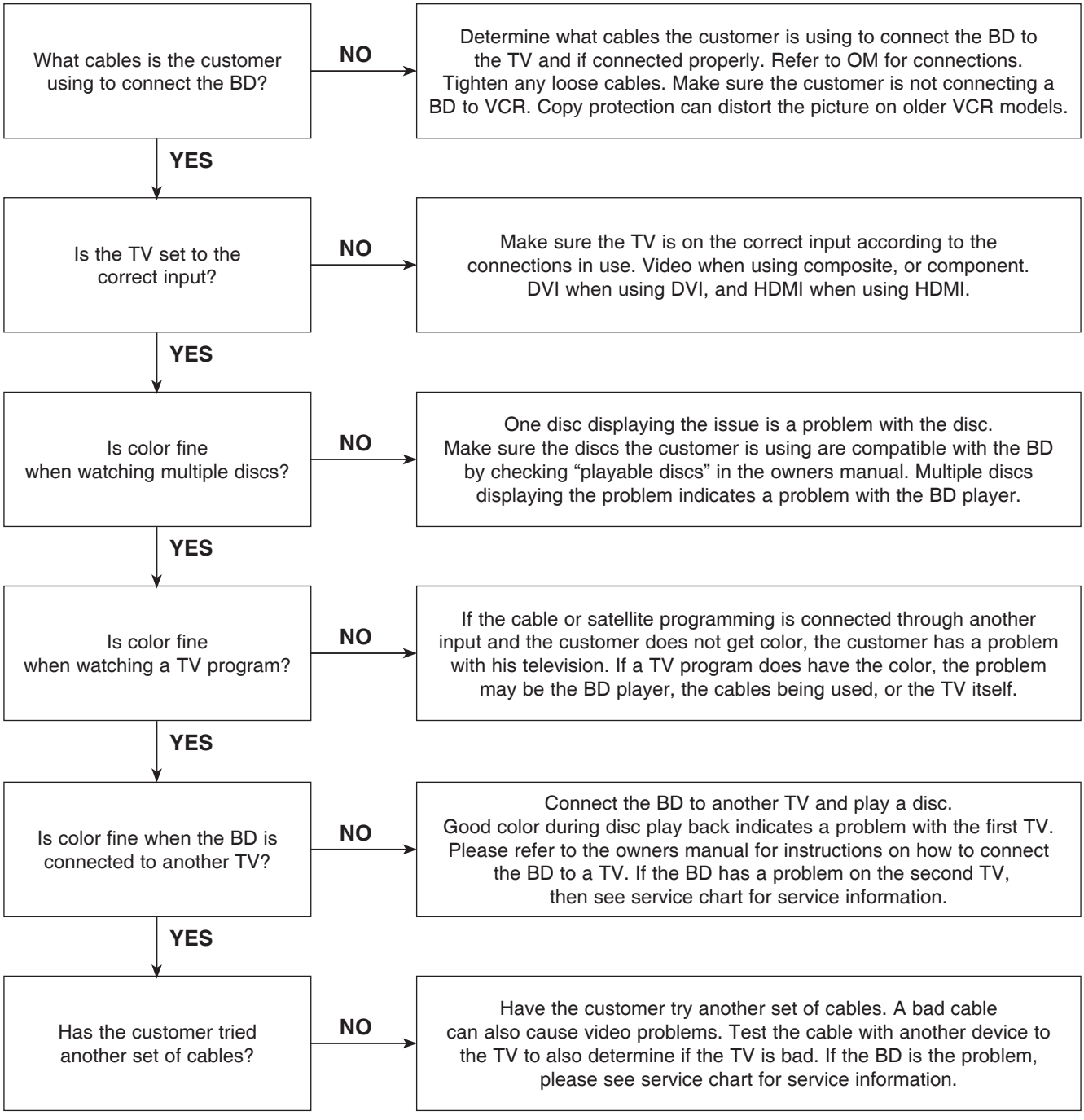
3-1. No Color

The video displays no color and only shows in black and white.



3-2. Poor Color

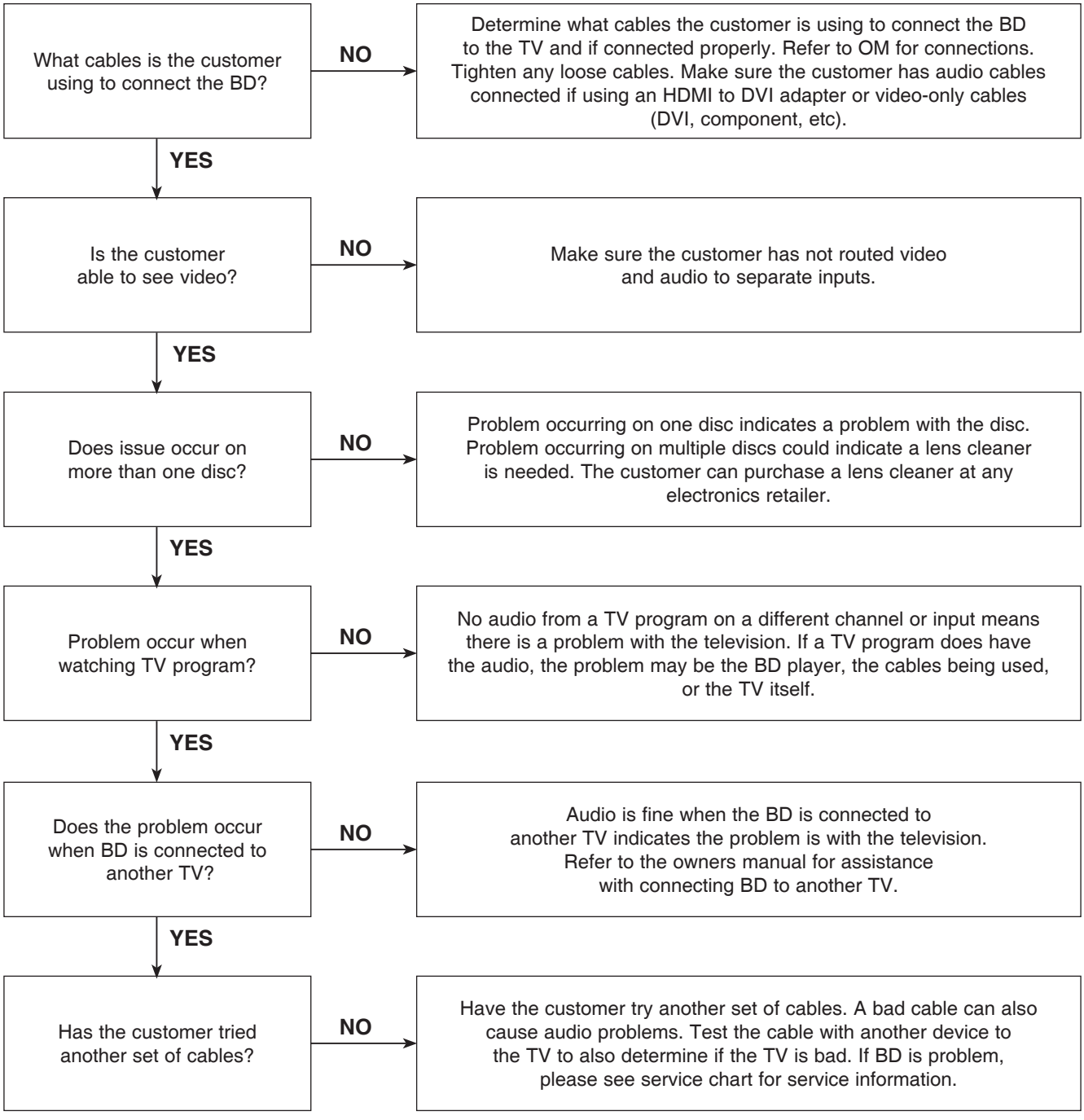
The color is poor. Examples would be washed out colors, colors bleeding into one another, or a solid tint to a screen.



4. NOISE/AUDIO PROBLEMS

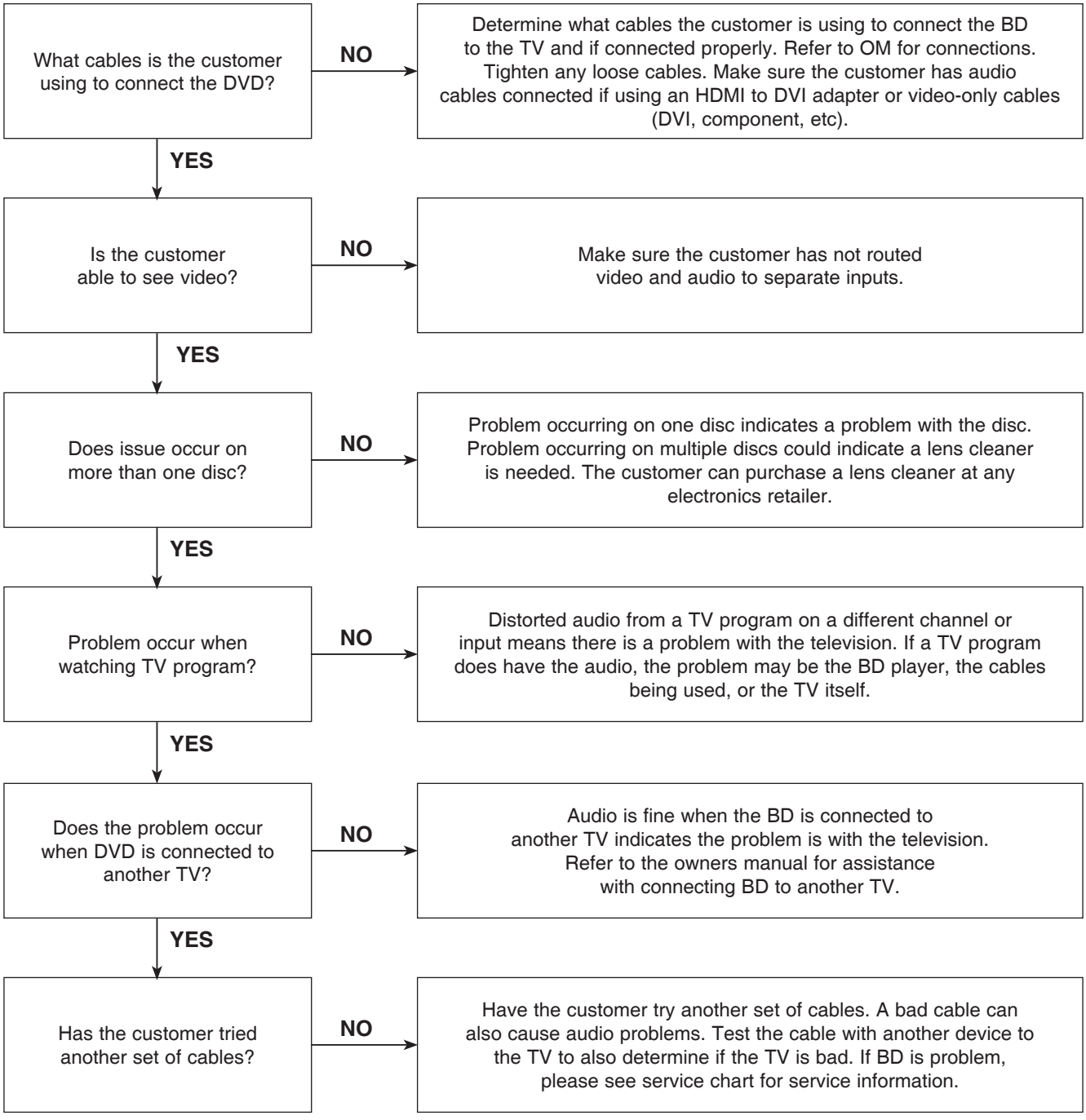
4-1. No Audio

The customer is not able to get audio.



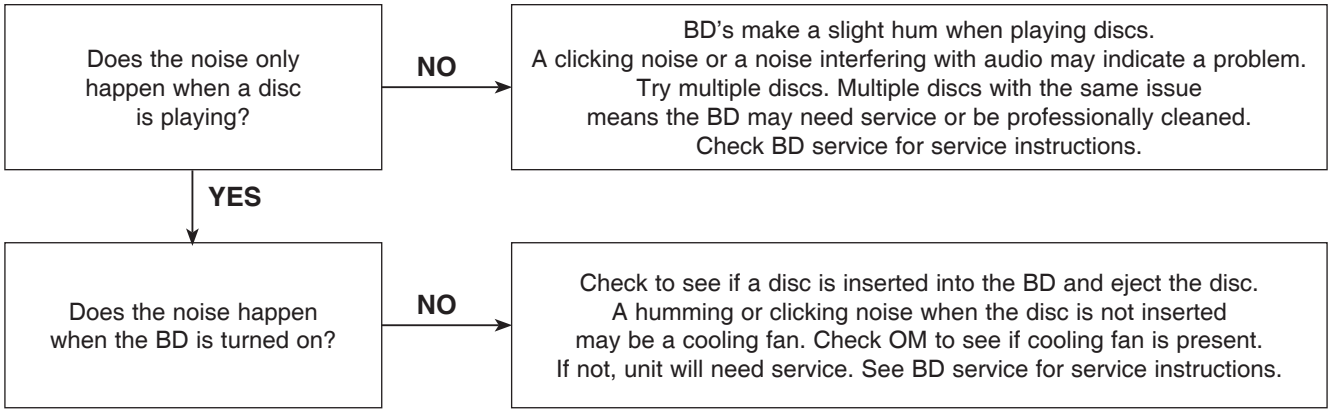
4-2. Distorted Audio

The audio sounds muffled, scratchy, or the audio skips.



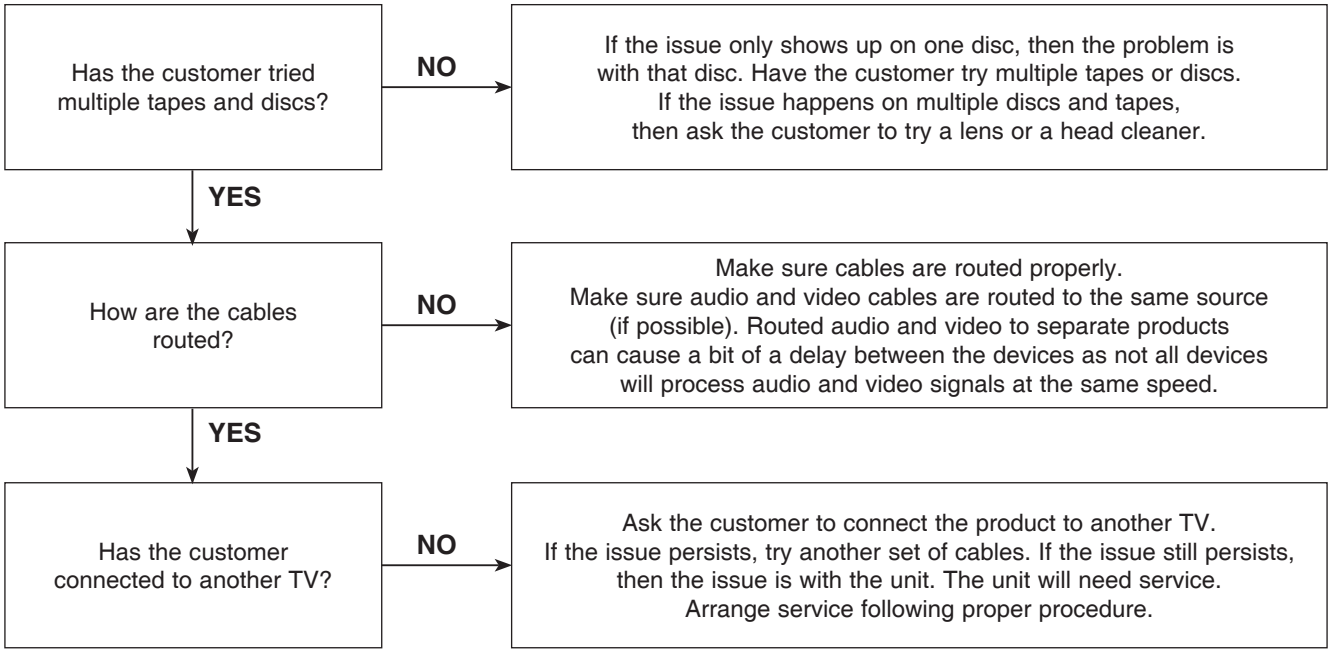
4-3. Humming/Clicking Noise

The unit is making a humming noise or a clicking noise.



4-4. Audio/Video Out of Synch

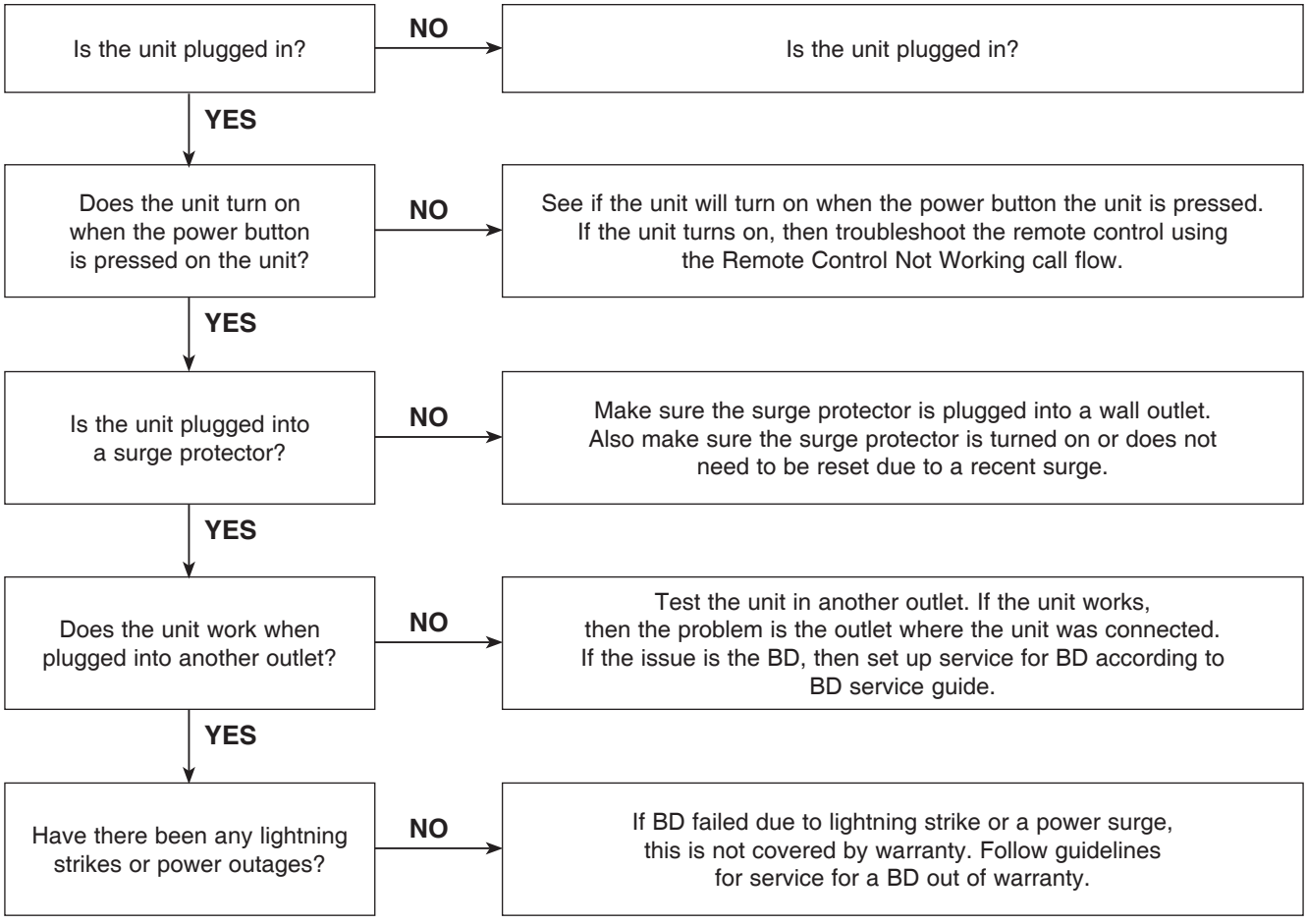
The audio and video do not match up. People look to be talking, but their voices are delayed by a few seconds.



5. MISCELLANEOUS

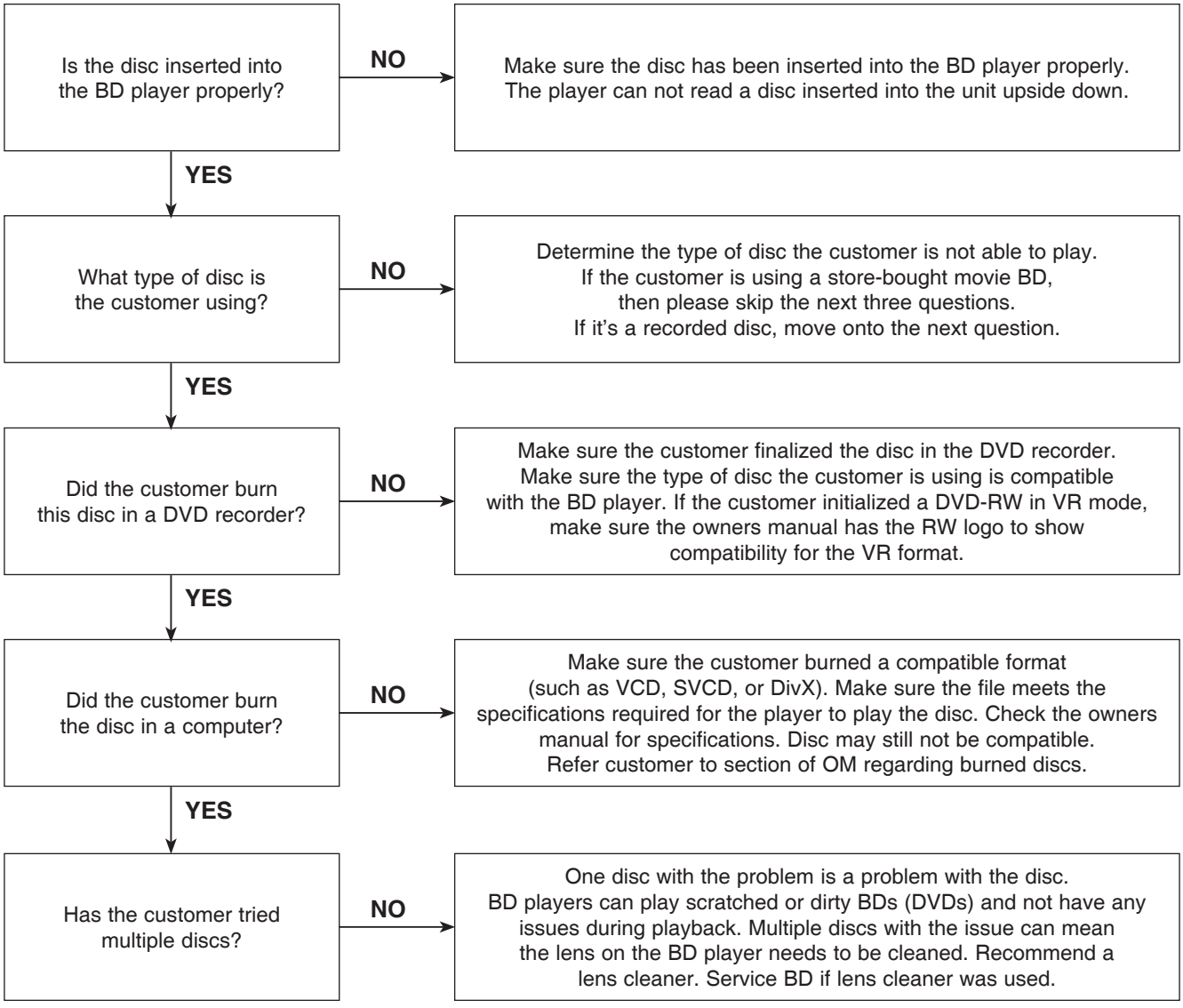
5-1. No Power

The unit will not turn on.

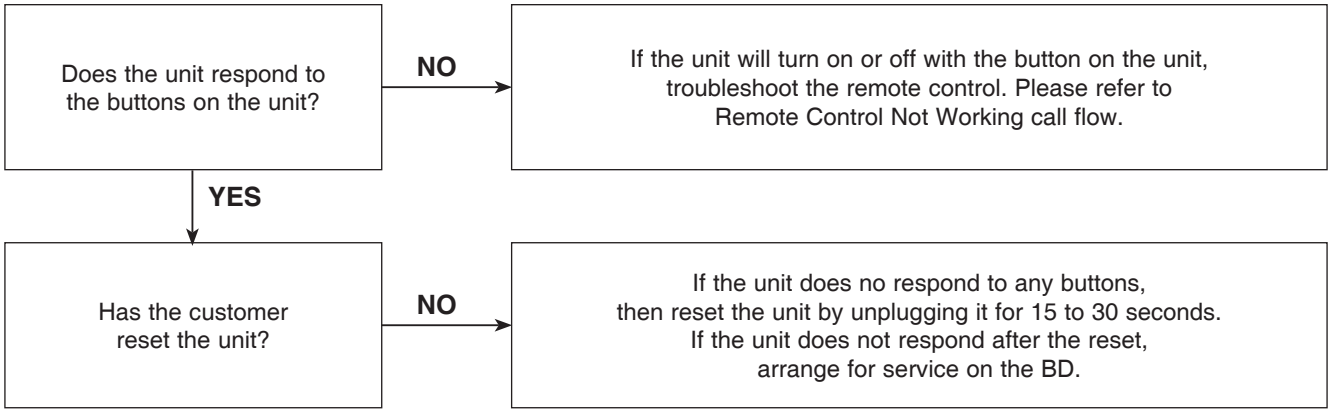


5-2. Disc Error

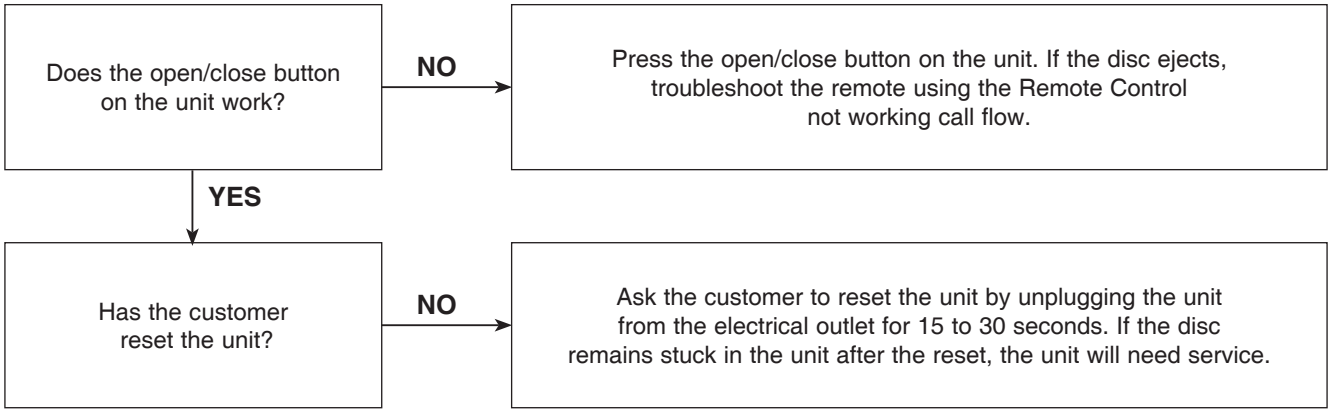
The unit displays “disc error” when a disc is inserted into the BD player.



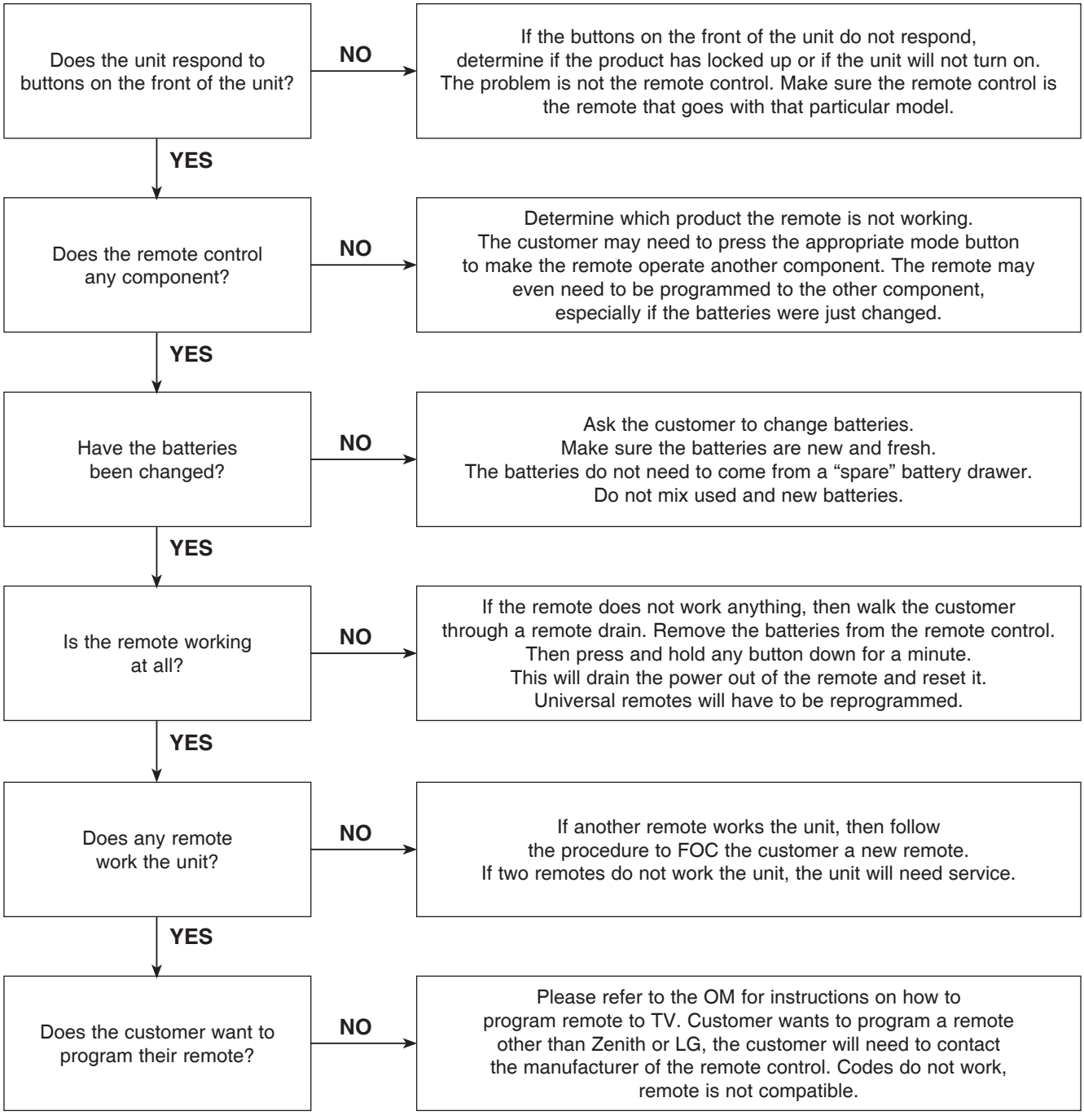
5-3. Unit Locks Up
Unit does not respond to any commands.



5-4. Disc Stuck
A BD disc is stuck in the unit.

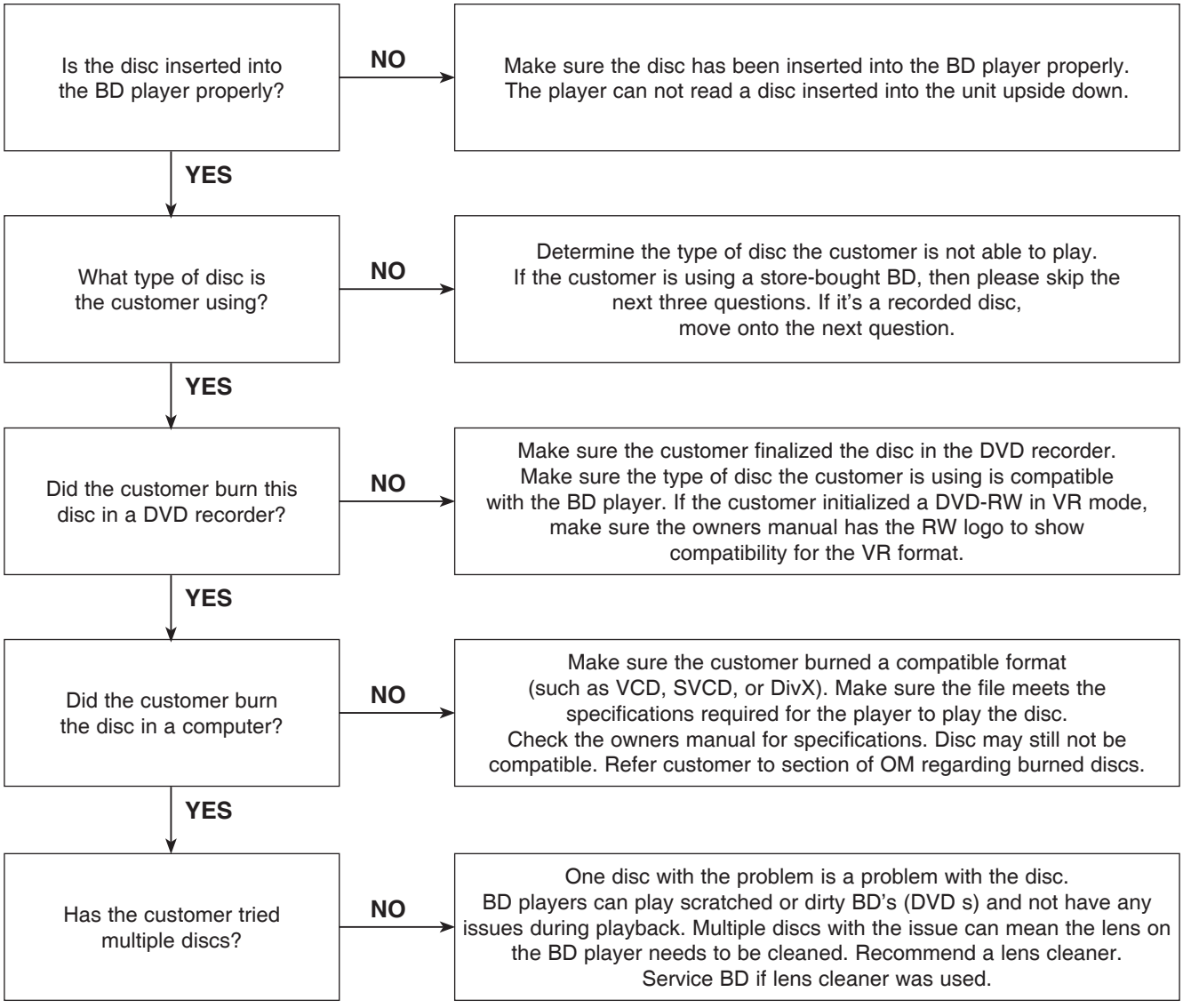


5-5. Remote Control Not Working



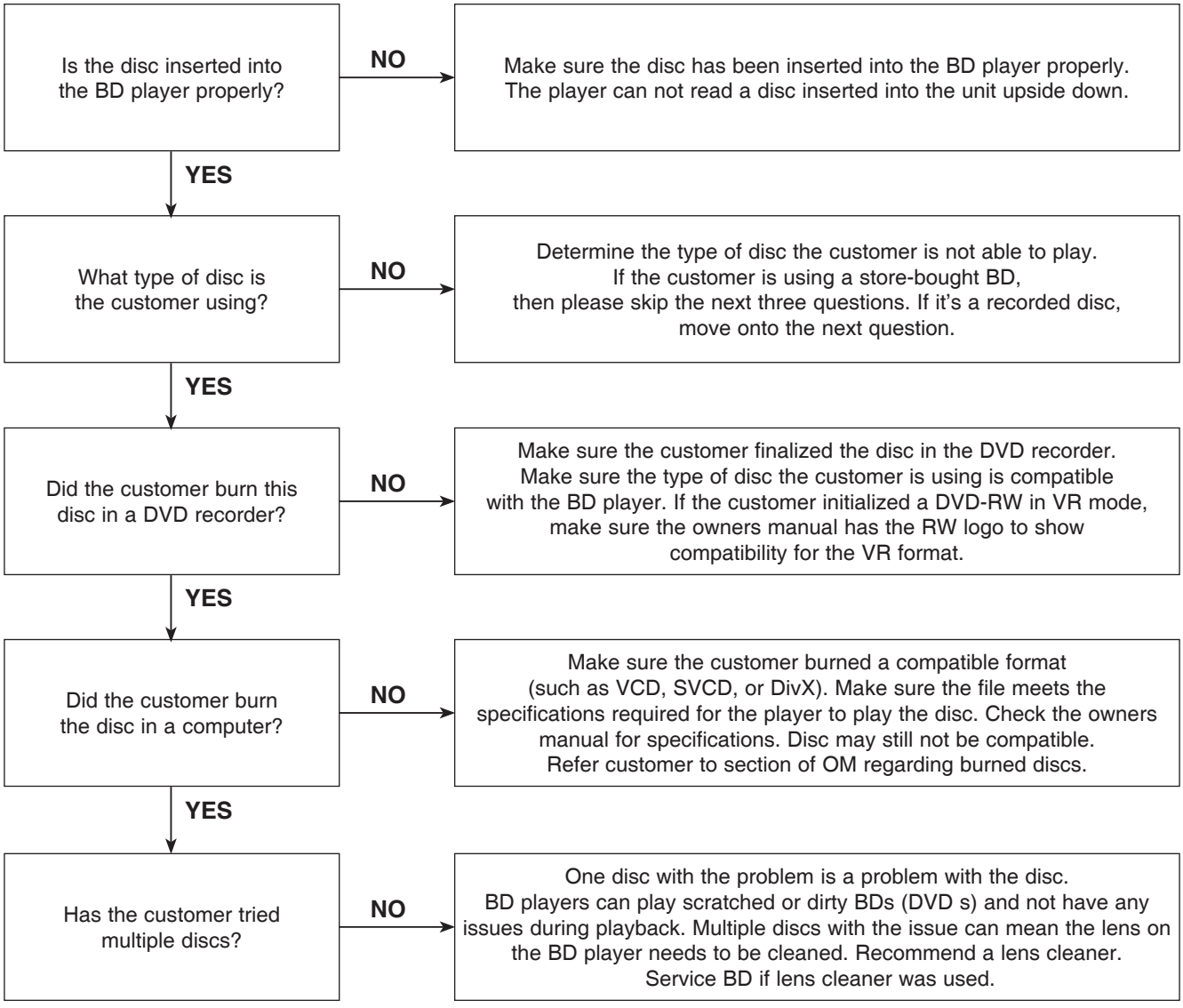
5-6. Will Not Play Disc

The unit will not play a disc when a disc is inserted into the player.



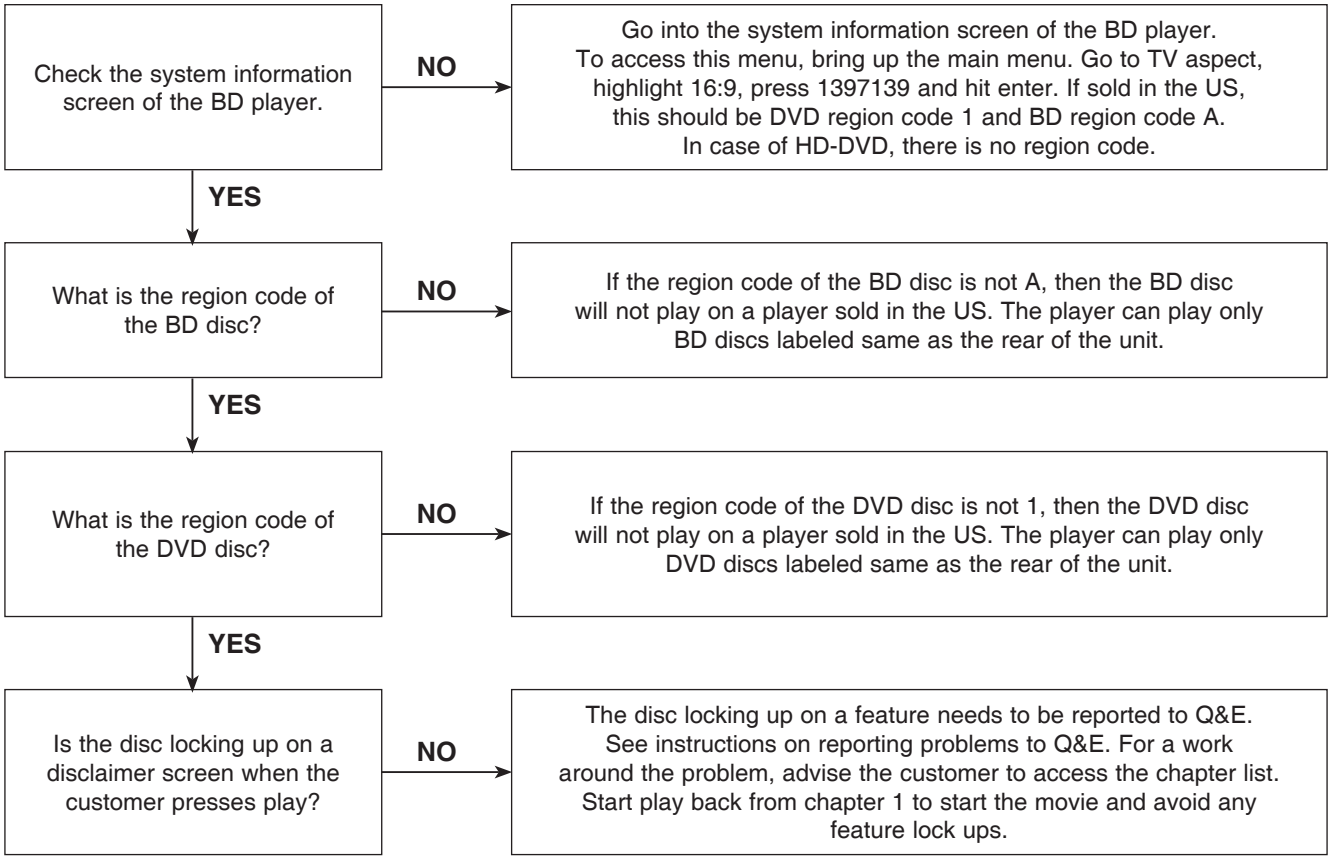
5-7. Disc Freezes or Skips

The audio and video freeze and skip during play back of a BD or DVD disc.



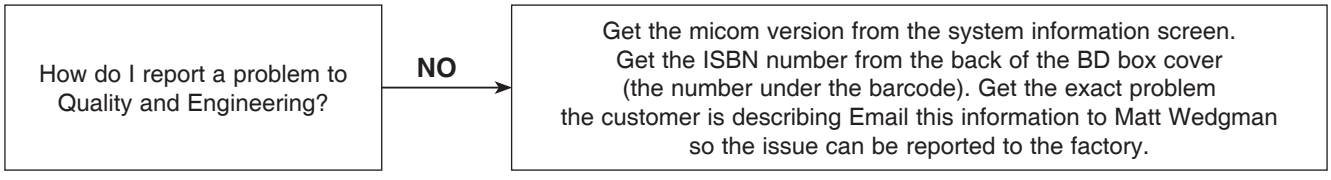
5-8. Can Access Menu, but Not Play a Movie

The disc menu is displayed but the disc will not play.



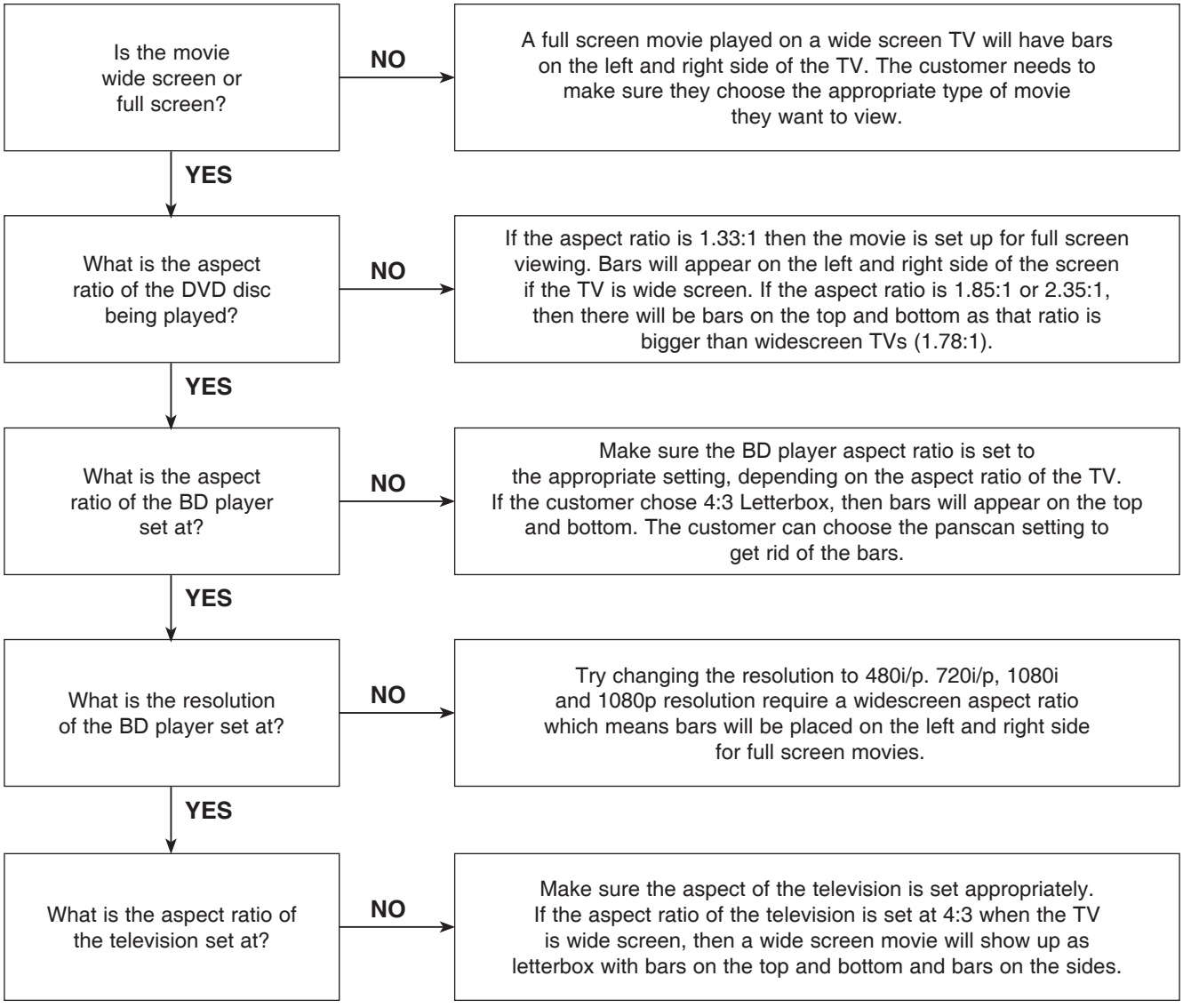
5-9. Reporting a problem to Quality & Engineering

Reporting a problem that may require a firmware update to fix.



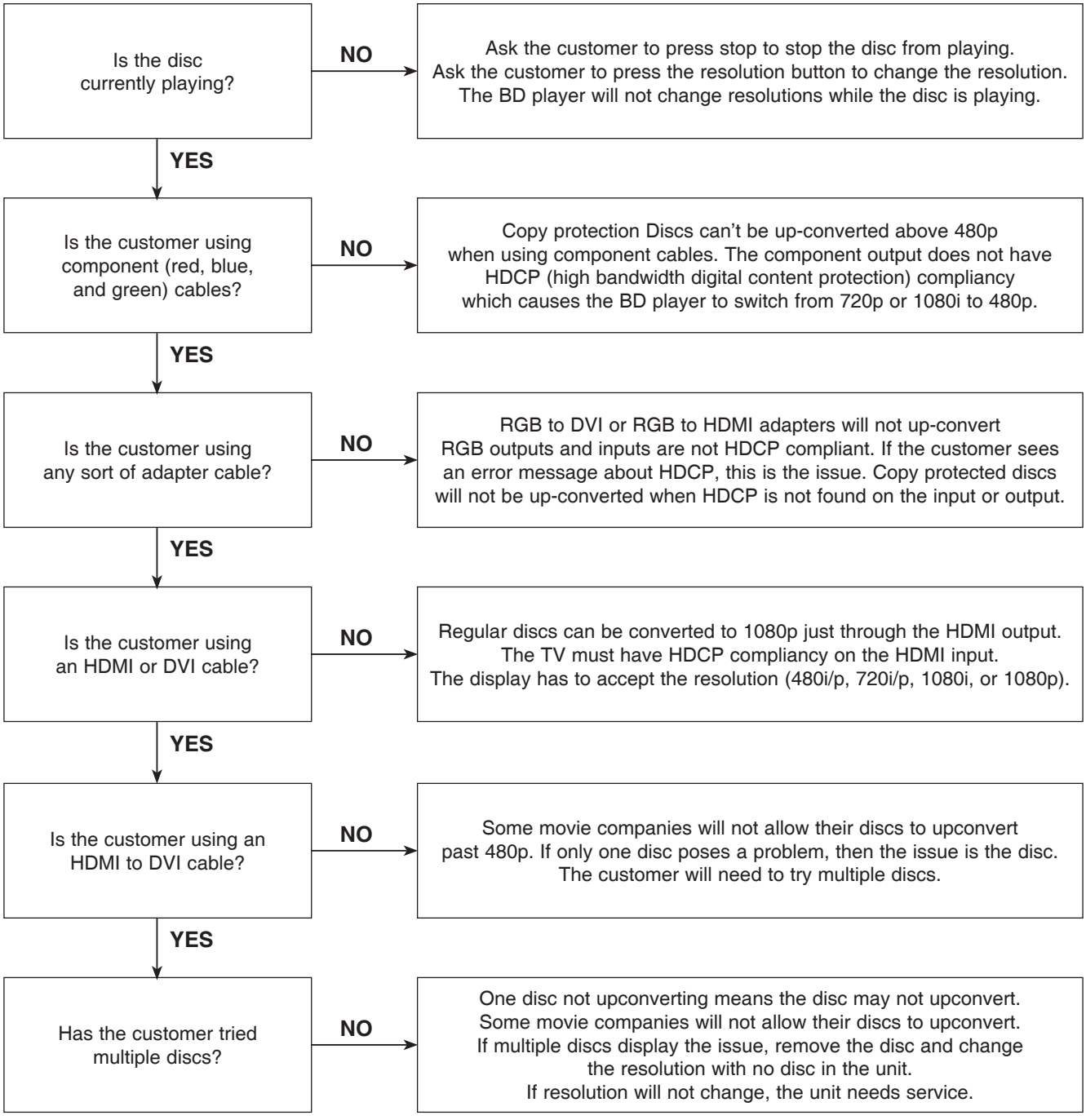
5-10. Aspect Ratio

The customer has bars on the top and bottom of the screen, the left and right of the screen, or both.



5-11. My Unit Won't be up-converted

The customer has a problem with getting the unit to change resolutions to 480i/p, 720i/p, 1080i, or 1080p.



6. BLU-RAY PLAYER

6-1. Slow Loading Times for BD's

Why does it take so long to load my BD's?	NO →	When a customer switches from one disc to another, the lens have to be changed what causes the delay. BLU-RAY require different lasers to read the discs.

6-2. Booting Times

Why does it take so long to boot my BD?	NO →	The booting times for the BD is under 15 seconds. When the set is booted, it takes a little long time to loading the OS program.

ONE POINT REPAIR GUIDE

1. NO POWER PROBLEM

No power problem occurs when you power on the unit.

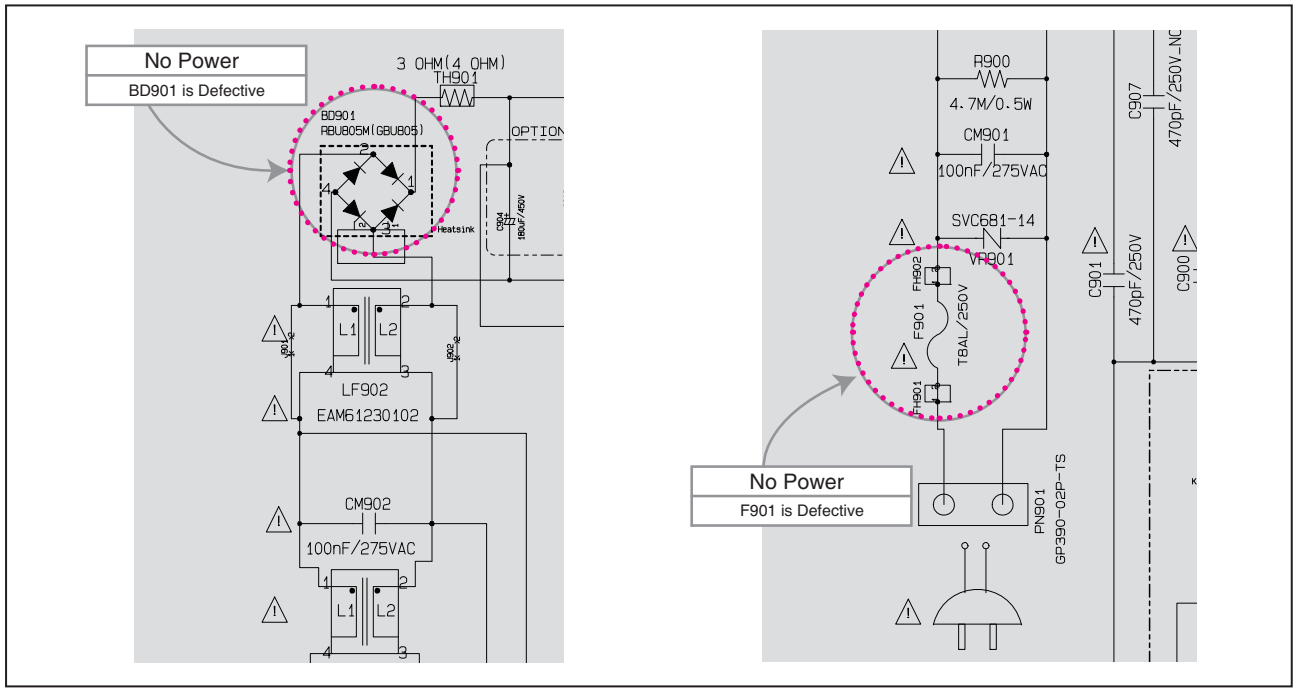
1-1. Fuse & Bridge diode

1-1-1. Solution

Replace F901, BD901 on SMPS board.

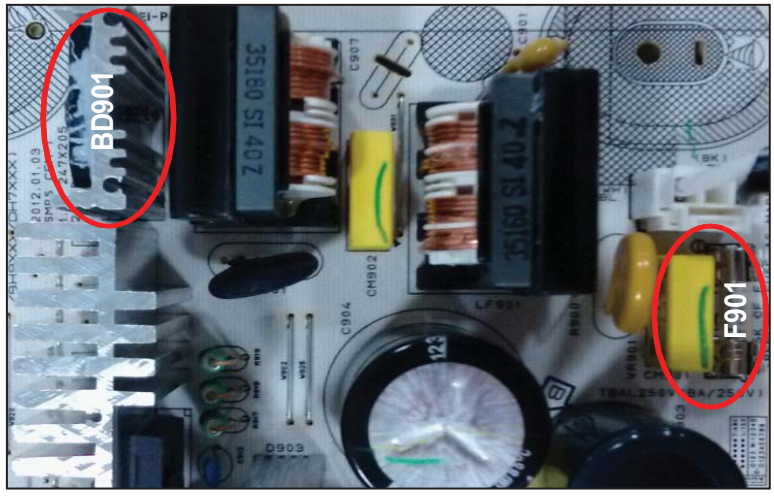
1-1-2. How to troubleshoot (Countermeasure)

1) Look at the physical of fuse F901.
2) Check the bridge diode BD901.



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

< Fuse, F901 >
Can look at physical condition.



< SMPS board top view >

ONE POINT REPAIR GUIDE

No power problem occurs when you power on the unit.

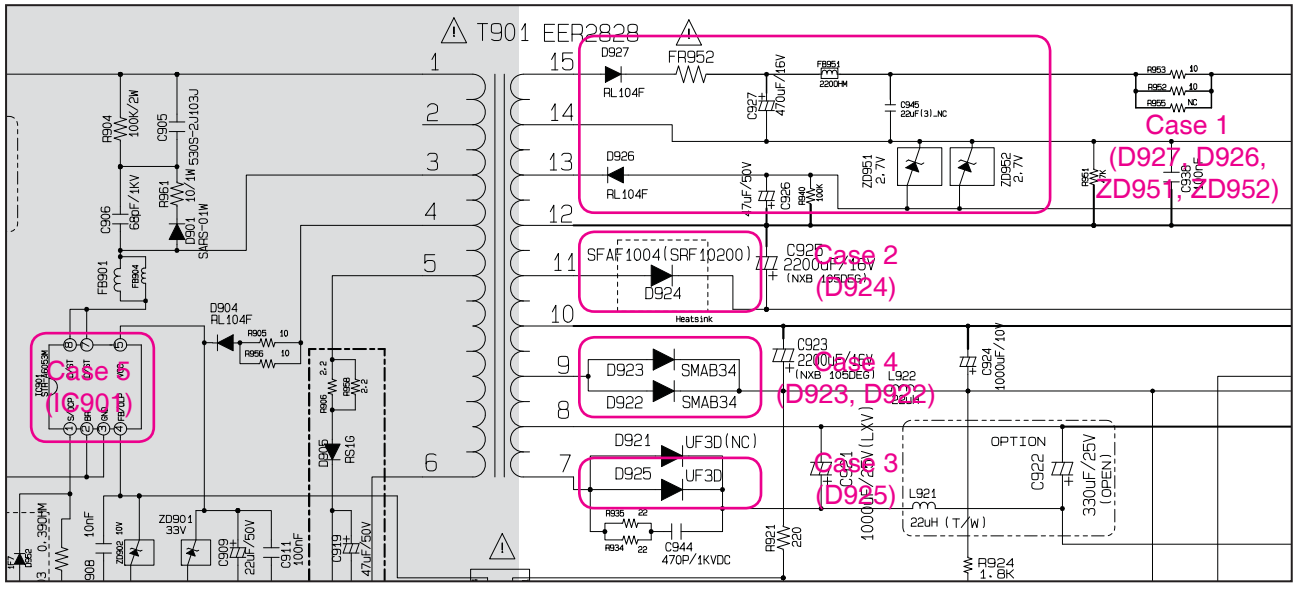
1-2. VFD, 14 VA, 6 VA, 3.8 VA

1-2-1. Solution

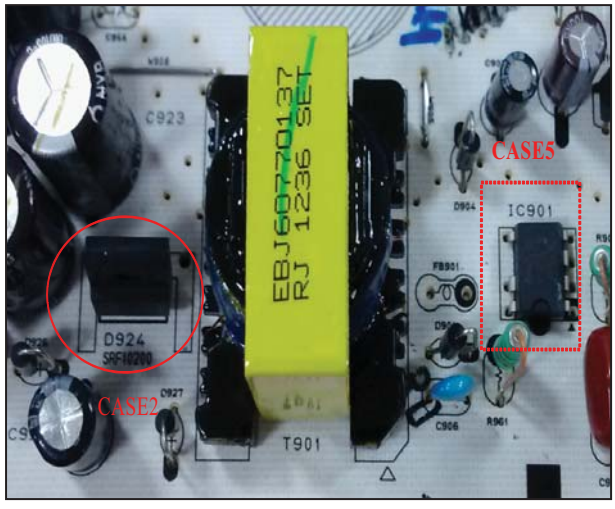
Replace D922, D923, D924, D925, D926, D927, IC901.

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

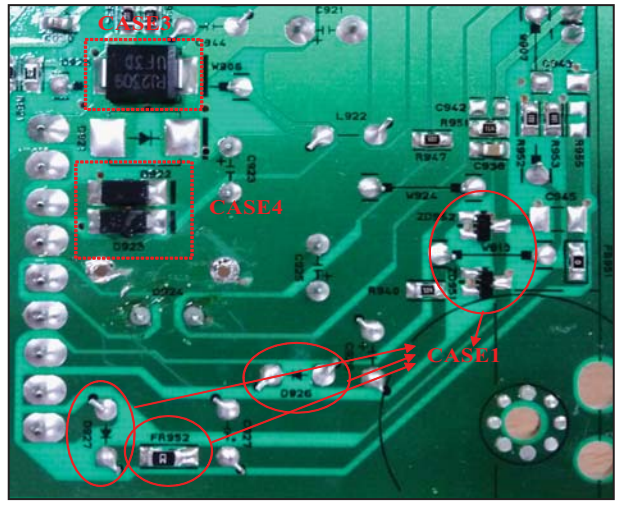
Case 1) FLD abnormal: Check D926, D927, ZD951, ZD952, FR952 and replace it.
Case 2) 6 VA abnormal: Check D924 and replace it.
Case 3) 14 VA abnormal: Check D925 and replace it.
Case 4) 3.8 VA abnormal: Check D922, D923 and replace it.
Case 5) All voltage abnormal: Check IC901 and replace it.



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



< SMPS board top view >



< SMPS board bottom view >

ONE POINT REPAIR GUIDE

2. NO BOOTING WHEN YOU TURN THE UNIT ON, NO MESSAGE OR "WELCOME" ON FRONT PANEL

When you turn on your set, it will <u>blank / no message</u> on front panel, and stand-by led no working.

2-1. IC100 (No 3.8 VA & 3.3 VA)

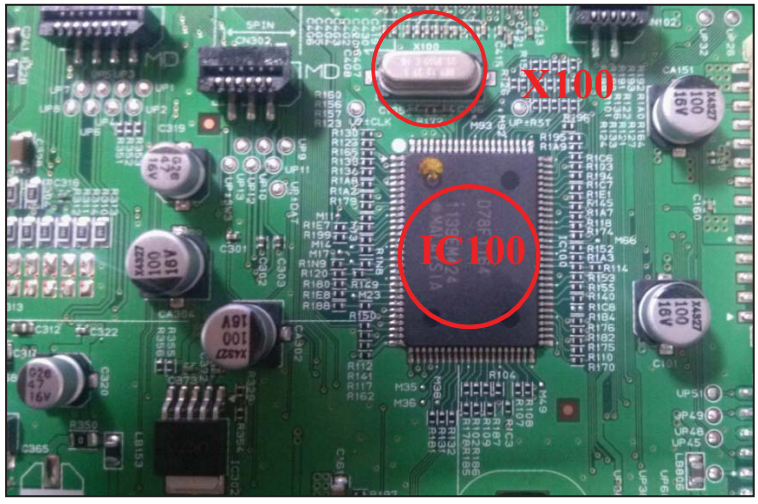
2-1-1. Solution

Replace IC100 on MAIN board.

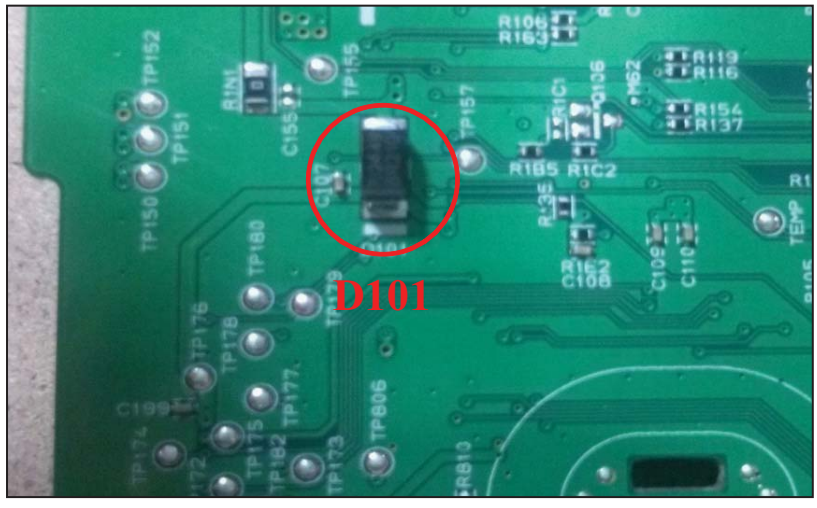
2-1-2. How to troubleshoot (Countermeasure)

1) Please check 3.8 VA of IC100.
2) If 3.8 VA is abnormal, please check SMPS 3.8 VA and D101 diode.
3) If 3.8 VA is OK, but 3.3 VA is abnormal, replace D101 diode.
4) If 3.8 VA, 3.3 VA is OK, check X100 crystal signal.

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



< MAIN board top view >



< MAIN board bottom view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will <u>blank / no message or Welcome</u> on front panel, and it will not boot-up.

2-2. IC155_System 3.3 V (No System 3.3 V)

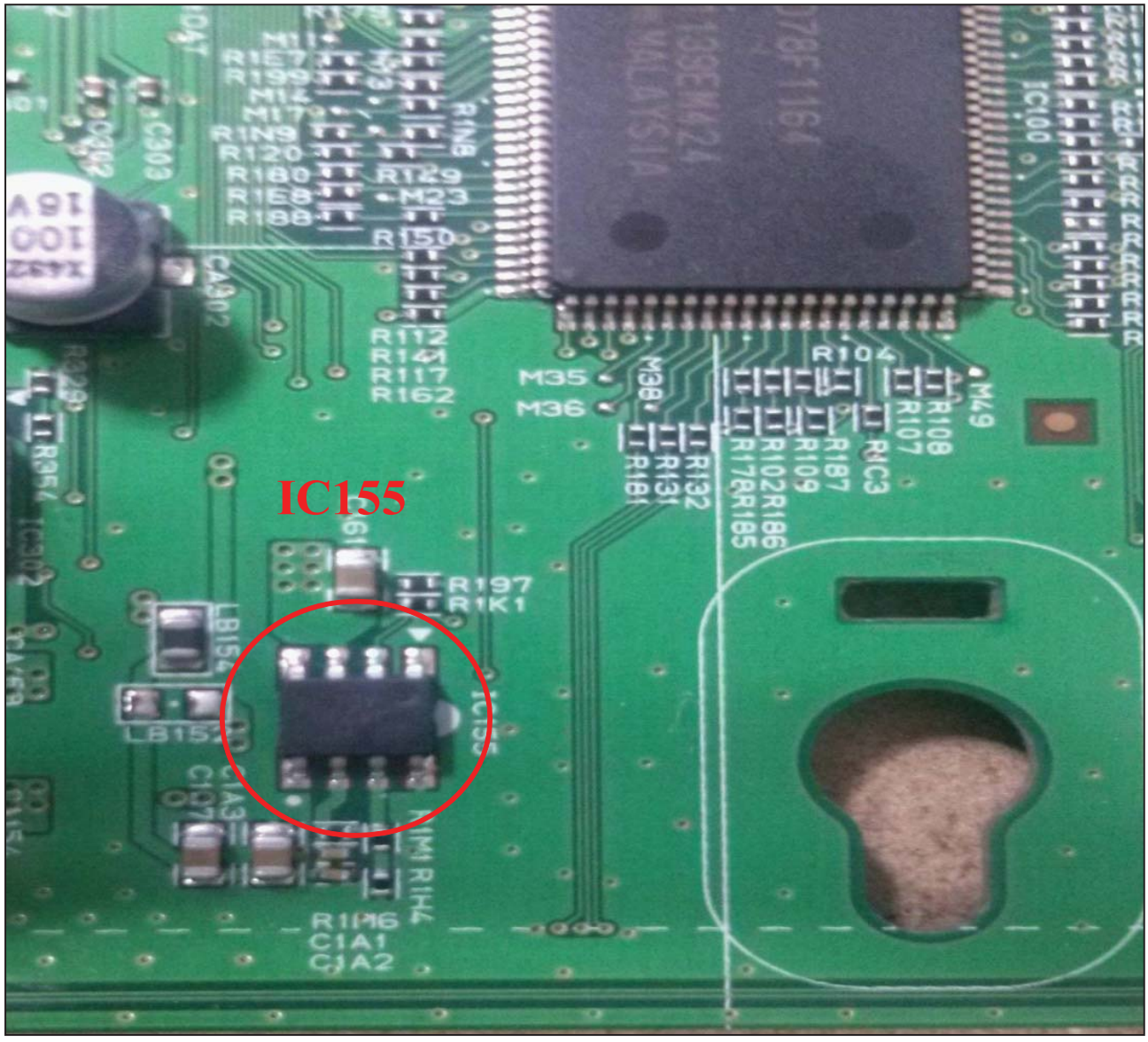
2-2-1. Solution

Replace IC155 on MAIN board.

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

1) Please check 3.8 VA of IC155 pin3 (VIN).
2) If 3.8 VA is abnormal, please check SMPS 3.8 VA.
3) If 3.8 VA is OK, but 3.3 VA is abnormal at the IC155 pin6 (VOUT), replace IC155.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will <u>blank / no message or Welcome</u> on front panel, and it will not boot-up.

2-3. IC150 (No 1.5 V)

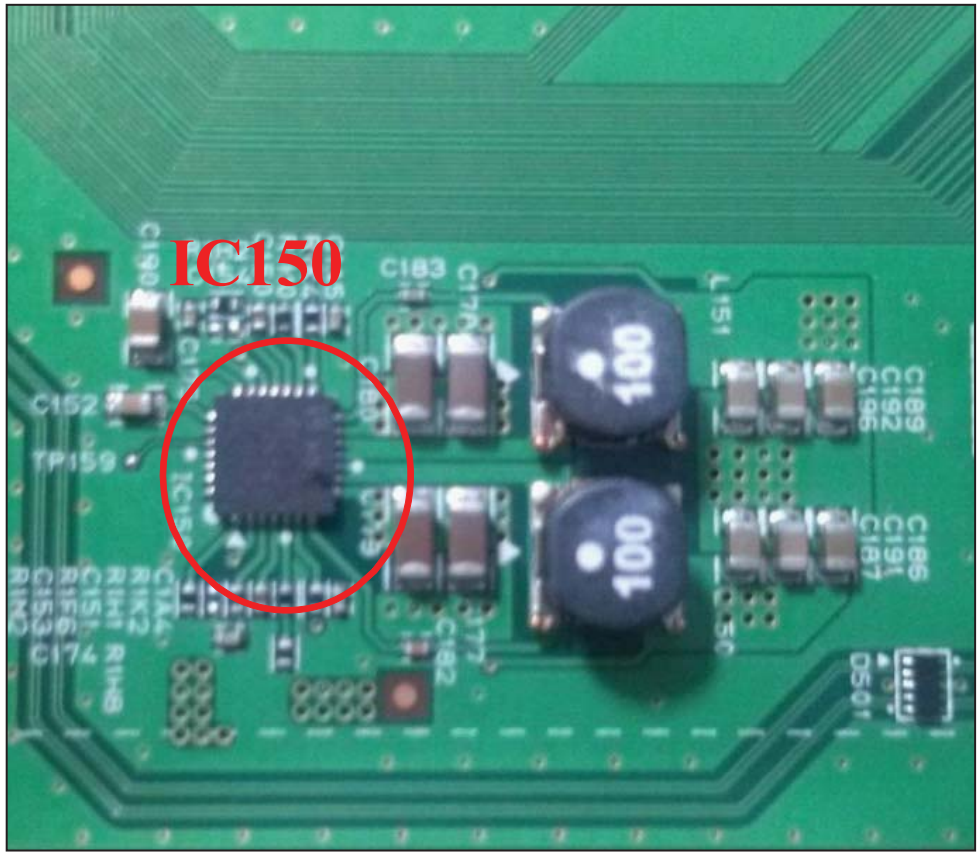
2-3-1. Solution

Replace IC150 on MAIN board.

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

1) Please check 1.5 V of IC150 on MAIN board.
2) If 1.5 V voltage doesn't come out,
   - Check IC150 pin13 (VCC 14 VA).
     If there is no 14 V, please check 14 VA from SMPS.
3) If VCC input IC150 there are 14 VA signal,
   First of all, check the pin15 is high and if it's high, check resister value
   and if there's no defective component, please replace IC150.
4) After changing it, if the set is still not booting:
   - Check 1.2 V / 3.3 V is normal. (please refer to other sections of this guide)
   - Check crystal X501 refer to item 2-6.
   - Check eMMC flash IC (IC506) refer to item 2-7.
   - Check DDR IC (IC503, IC504, IC505) refer to item 2-8.
   - Check MT8580 IC (IC501) refer to item 2-9.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will blank / no message or Welcome on front panel, and it will not boot-up.

2-4. IC150 (No 1.2 V)

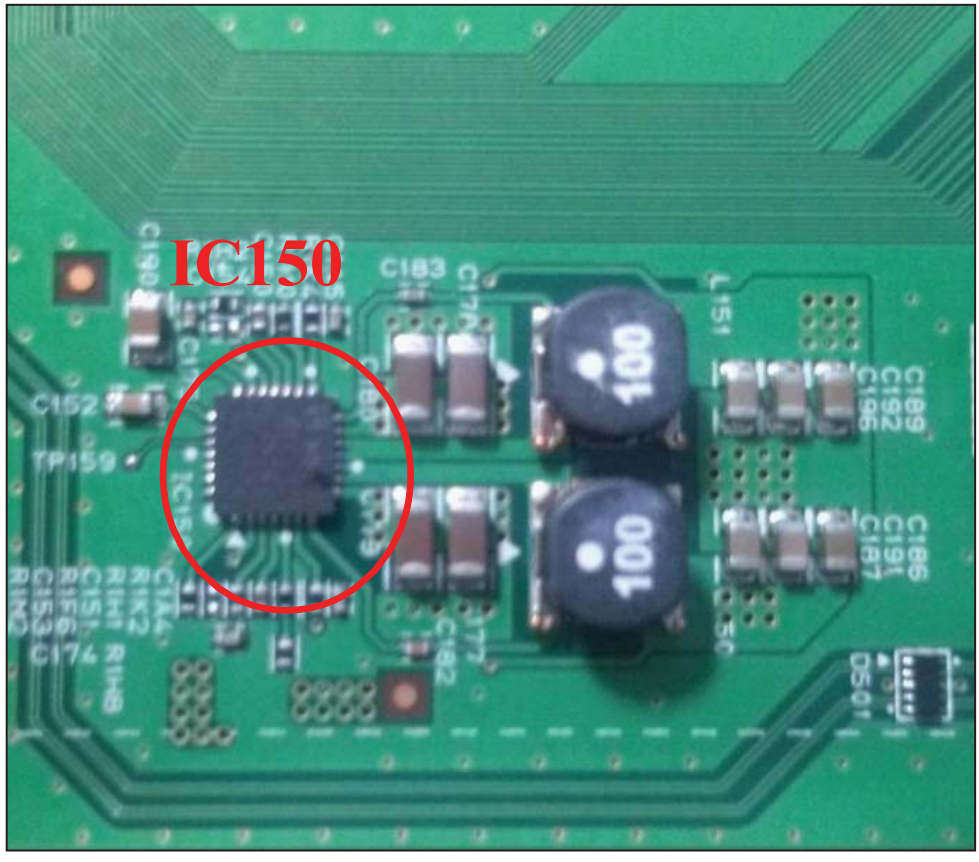
2-4-1. Solution

Replace IC150 on MAIN board.

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

1) Please check 1.2 V of IC150 on MAIN board.
2) If 1.2 V voltage doesn't come out,
   - Check IC150 pin8 (VCC 14 VA).
     If there is no 14 VA, please check 14 VA from SMPS.
3) If VCC input IC150 there are 14 VA signal,
   First of all, check the pin6 is high and if it's high, check resister value
   and if there's no defective component please replace IC150.
4) After changing it, if the set is still not booting:
   - Check 1.5 V / 3.3 V is normal. (please refer to other sections of this guide)
   - Check crystal X501 refer to item 2-6.
   - Check eMMC flash IC (IC506) refer to item 2-7.
   - Check DDR IC (IC503, IC504, IC505) refer to item 2-8.
   - Check MT8580 IC (IC501) refer to item 2-9.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will <u>blank / no message</u> on front panel, and it will not boot-up.

2-5. IC155 (No 3.3 V)

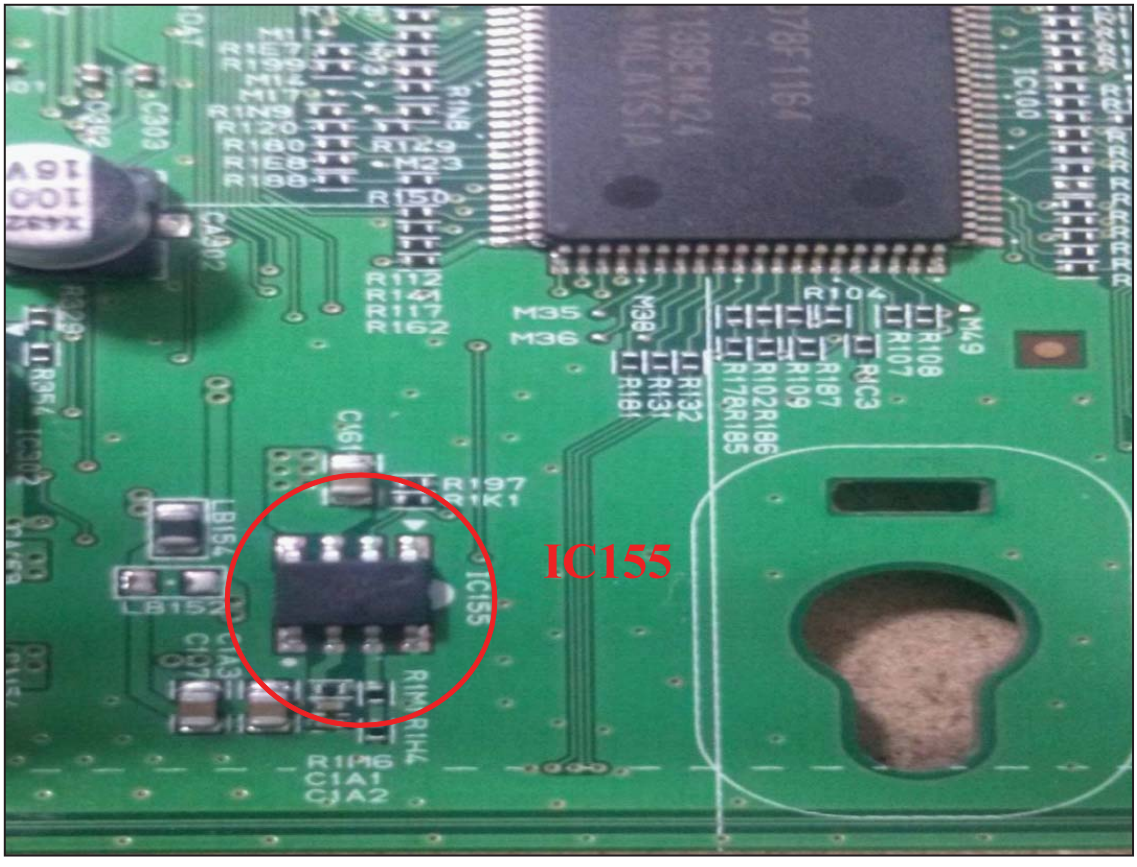
2-5-1. Solution

Replace IC155 on MAIN board.

2-5-2. How to troubleshoot (Countermeasure)

1) Please check 3.3 V of IC155 on MAIN board.
2) If 3.3 V voltage doesn't come out,
   - Check IC155 pin3 (VCC 3.8 VA).
     If there is no 3.8 VA, please check 3.8 VA from SMPS.
3) If VCC input IC155 there are 3.8 VA signal,
   First of all, check the pin6 is high and if it's high, check resister value
   and if there's no defective component please replace IC155.
4) After changing it, if the set is still not booting:
   - Check 1.2 V / 1.5 V is normal. (please refer to other sections of this guide)
   - Check crystal X501 refer to item 2-6.
   - Check eMMC flash IC (IC506) refer to item 2-7.
   - Check DDR IC (IC503, IC504, IC505) refer to item 2-8.
   - Check MT8580 IC (IC501) refer to item 2-9.

2-5-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will display “WELCOME” on front panel, and it will not boot-up normally.

2-6. X501

2-6-1. Solution

Replace X501 on MAIN board.

2-6-2. How to troubleshoot (Countermeasure)

1) Please check the soldering status of 27 MHz crystal (X501).
2) Please check the frequency of 27 MHz crystal (X501).
3) If the crystal doesn’t oscillate, replace X501.
4) After changing it, if the set is still not booting:
   - Check eMMC flash IC (IC506) refer to item 2-7.
   - Check DDR IC (IC503, IC504, IC505) refer to item 2-8.
   - Check MT8580 IC (IC501) refer to item 2-9.

2-6-3. Service hint (Any picture / Remark)

< MAIN board top view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will display “WELCOME” on front panel, and it will not boot-up normally.

2-7. IC506 (eMMC FLASH MEMORY)

2-7-1. Solution

Replace IC506 on MAIN board.

2-7-2. How to troubleshoot (Countermeasure)

1) Please check physical status of IC506 on your eyes.
2) Check the VCC (3.3 V) of IC506 and if it’s normal please replace IC506.
   (Please make sure IC506 has proper program.)
3) After changing it, if the set is still not booting:
   - Check DDR IC (IC503, IC504, IC505) refer to item 2-8.
   - Check MT8580 IC (IC501) refer to item 2-9.

2-7-3. Service hint (Any picture / Remark)

< MAIN board top view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will display “WELCOME” on front panel, and it will not boot-up normally.

2-8. IC503, IC504, IC505 (DDR3 MEMORY)

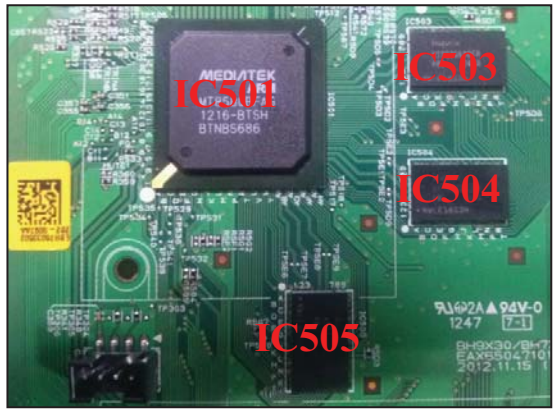
2-8-1. Solution

Replace IC503, IC504, IC505 on MAIN board.

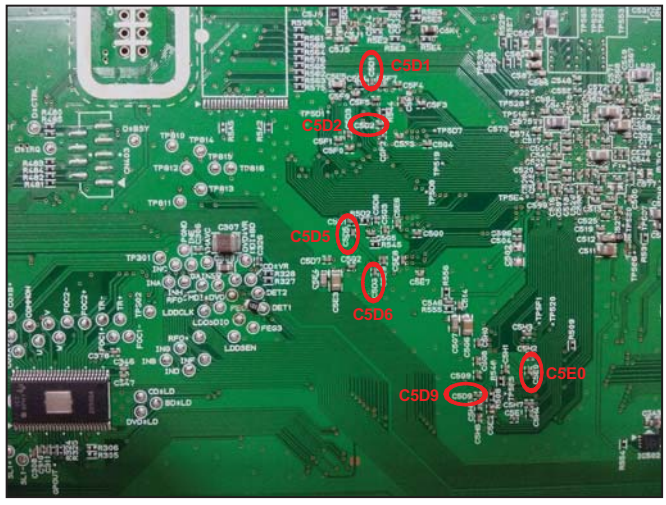
2-8-2. How to troubleshoot (Countermeasure)

1) Please check 0.75V of DDR3_VREF. (between C5D1 and C5D2).
   Please check 0.75V of DDR3_VREF. (between C5D5 and C5D6).
   Please check 0.75V of DDR3_VREF. (between C5D9 and C5E0).
   Please check 1.5V of IC503, IC504, IC505.
2) If it doesn’t work even though IC150, IC155 are no problem,
   IC503, IC504, IC505 (DDR memory) could have problem.
3) After changing it, if the set is still not booting:
   - Check MT8580 IC (IC501) refer to item 2-9.
   - Check MAIN board refer to item 2-10.

2-8-3. Service hint (Any picture / Remark)



< MAIN board top view >



< MAIN board bottom view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will display “WELCOME” on front panel, and it will not boot-up normally.

2-9. IC501 (MPEG IC)

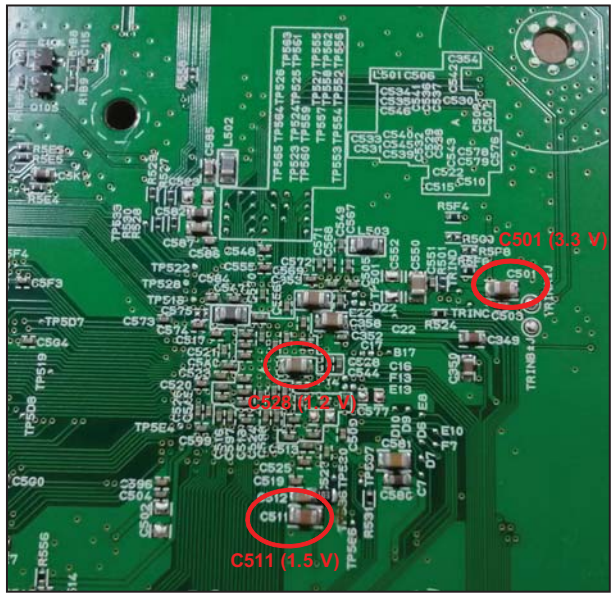
2-9-1. Solution

Replace IC501 on MAIN board.

2-9-2. How to troubleshoot (Countermeasure)

1) Please check 1.2 V of C528 on MAIN board.
   Please check 3.3 V of C501 on MAIN board.
   Please check 1.5 V of C511 on MAIN board.
2) If it doesn’t work even though IC150, IC155 are no problem,
   IC501 MT8580 could have problem.
3) After changing it, if the set is still no booting, check MAIN board refer to item 2-10.

2-9-3. Service hint (Any picture / Remark)



< MAIN board bottom view >

< MAIN board top view >

ONE POINT REPAIR GUIDE

When you turn on your set, it will display “WELCOME” on front panel, and it will not boot-up normally.

2-10. MAIN BOARD

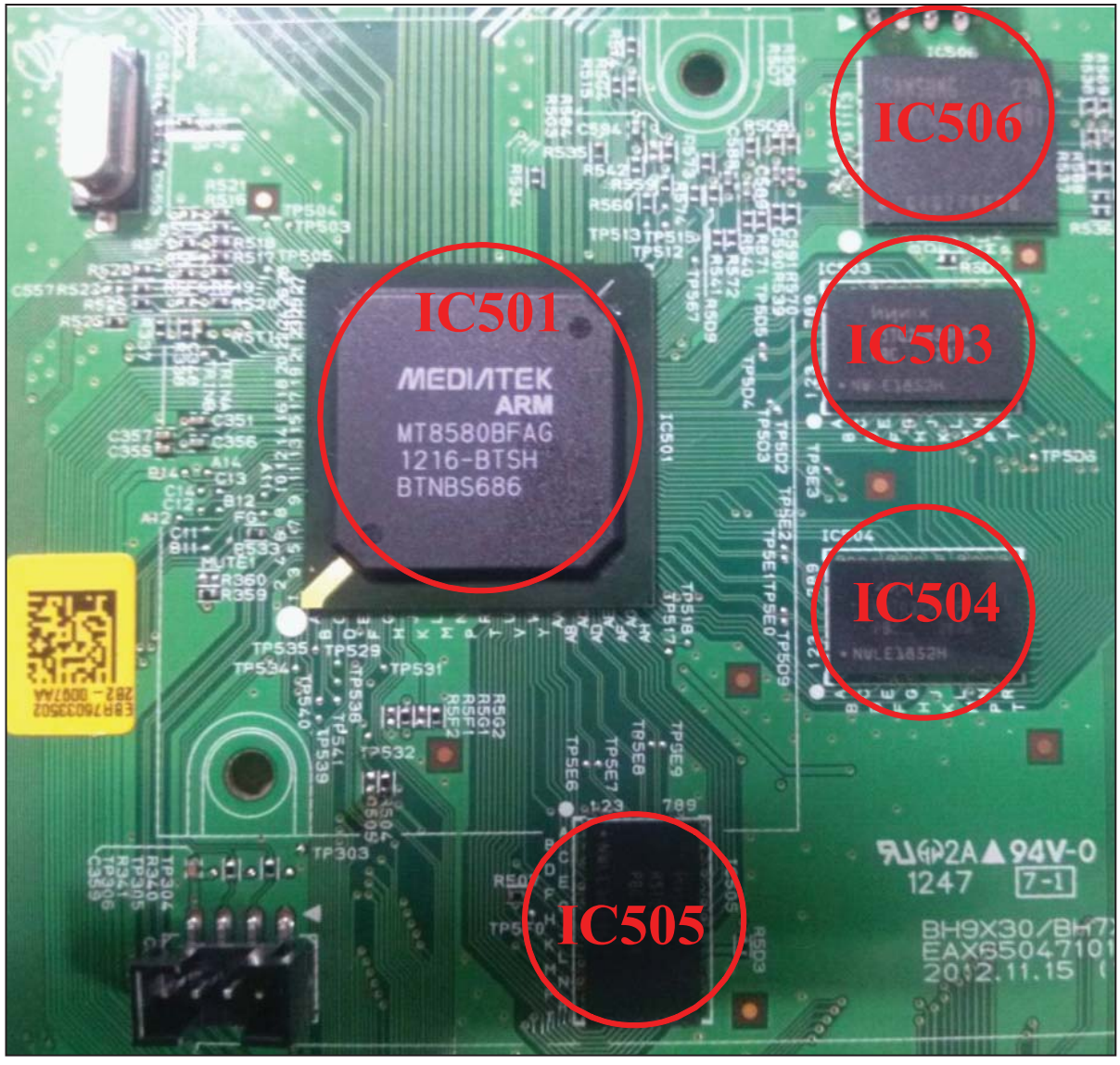
2-10-1. Solution

Replace MAIN board.

2-10-2. How to troubleshoot (Countermeasure)

1) Please remove IC501 and IC502, IC503, IC504, IC505, IC506 and then check the Impedance between each signal (DATA, ADDRESS, and so on).
2) If there is some Impedance (a few Ω or infinite Ω) especially power source trace, PCB via might be broken. You’d better replace MAIN board.

2-10-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

3. WIRED NETWORK CONNECTION ERROR

When you connect online service (like You-tube or Netflix2.1) through the wired LAN, the “no connection“ message appears.

3-1. JK804 (ETHERNET JACK)

3-1-1. Solution

Replace JK804 on MAIN board.

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

1) Check you internet connection. Make sure it connect properly to modem or router.
2) If internet connection OK, please check the Ethernet jack (JK804).
3) If there is soldering problem, please re-soldering pin JK804.
4) If after re-soldering problem still occurs, replace JK804.
5) If problem still occurs after replace JK804. Check MT8580 IC (IC501). Refer to item 2-9.

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

< MAIN board top view >

ONE POINT REPAIR GUIDE

4. WIRELESS NETWORK CONNECTION ERROR

When you connect online service (like You-tube or Netflix2.1) through the Wi-Fi, the “no connection“ message appears.

4-1. Wi-Fi MODULE

4-1-1. Solution

Replace Wi-Fi module on FRONT panel.

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

1) Check you internet connection. Make sure it connect properly to modem or router.
2) If internet connection OK, please check the CN801.
3) If there is soldering problem, please re-soldering pin CN801.
4) If after re-soldering problem still occurs, replace Wi-Fi module.
5) If problem still occurs after replace Wi-Fi module. Check MT8580 IC (IC501). Refer to item 2-9.

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

< MAIN board top view >

< Wi-Fi module >

ONE POINT REPAIR GUIDE

5. BAD HDMI VIDEO / AUDIO OUTPUT

When unit is connected to HDMI TV using HDMI cable, picture shows bad color, no output or mixed color on the screen. But component output is OK.

5-1. JK802 (HDMI JACK)

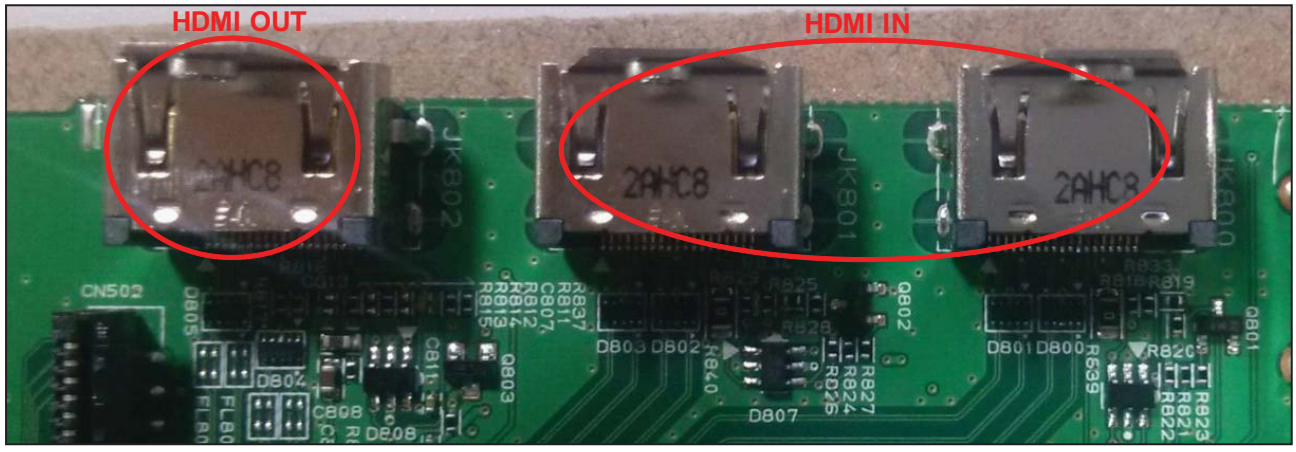
5-1-1. Solution

Replace JK802 (HDMI Jack).

5-1-2. How to troubleshoot (Countermeasure)

1) Check JK802 pin soldering.
2) If there is short soldering on pin JK802, re-soldering pin JK802.
3) If problem still occurs, check HDMI data.
   - If all data OK, replace JK802.
   - If data NG, check set on BD mode:
     Replace IC501.

5-1-3. Service hint (Any picture / Remark)



< MAIN board top view >

ONE POINT REPAIR GUIDE

6. NO AUDIO FROM SPEAKER

When unit is connected to speaker, no audio from speaker.

6-1. IC602 (PWM IC)

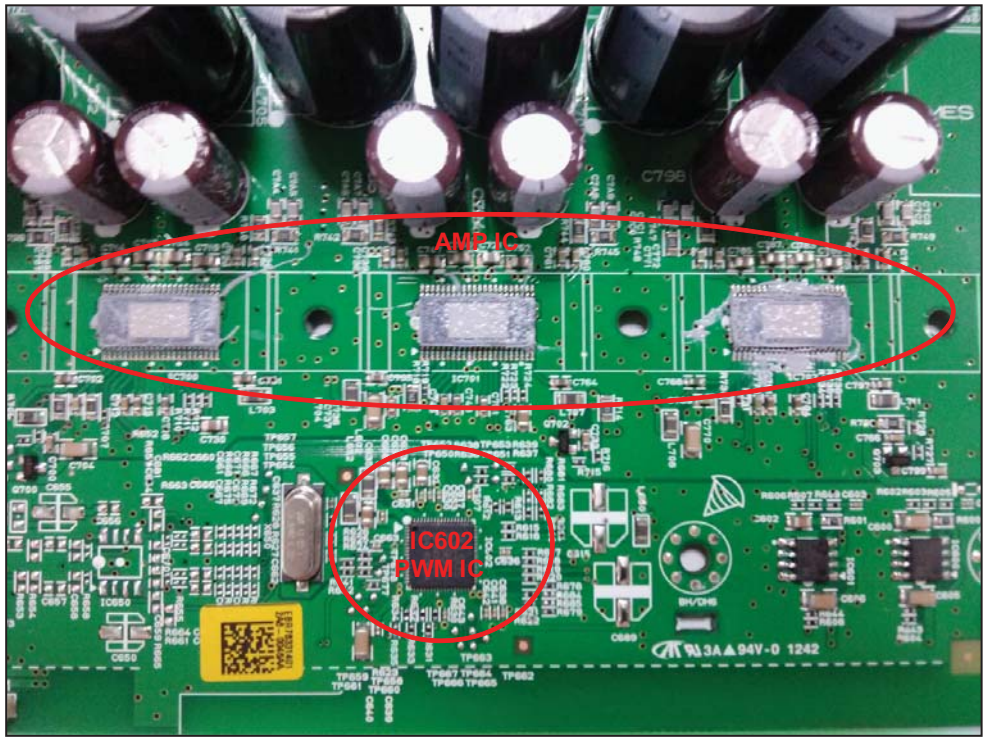
6-1-1. Solution

Replace IC602 (PWM IC).

6-1-2. How to troubleshoot (Countermeasure)

1) Check IC602 pin soldering.
2) If there is short soldering on pin IC602, re-soldering pin IC602.
3) If problem still occurs, check AMP IC (IC700, IC701, IC702).
   - Check IC700, IC701, IC702 pin soldering.
   - If soldering ok, check the AMP heat sink:
     Replace IC700, IC701, IC702.

6-1-3. Service hint (Any picture / Remark)



< AMP board top view >

< AMP heat sink view >

ONE POINT REPAIR GUIDE

7. NO USB

When unit is connected to USB, no audio and video from SET.

7-1. IC501 (MT8580)

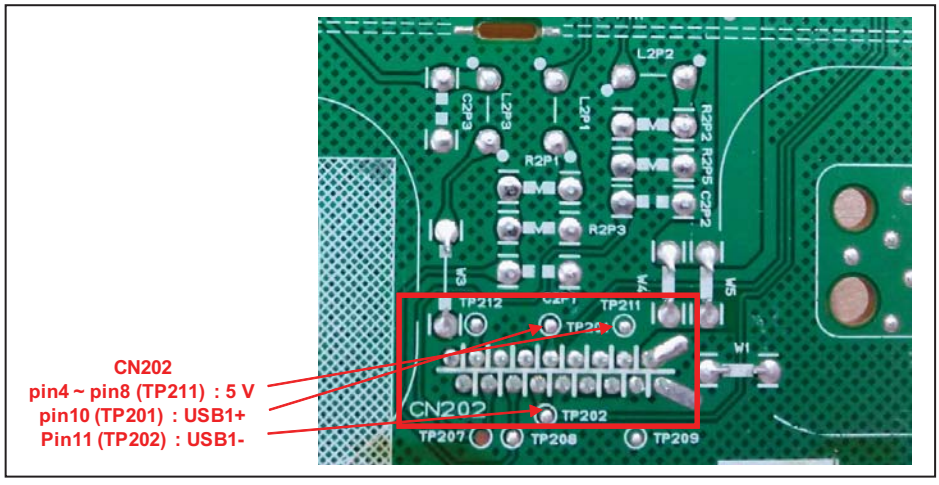
7-1-1. Solution

Replace IC501 (MT8580).

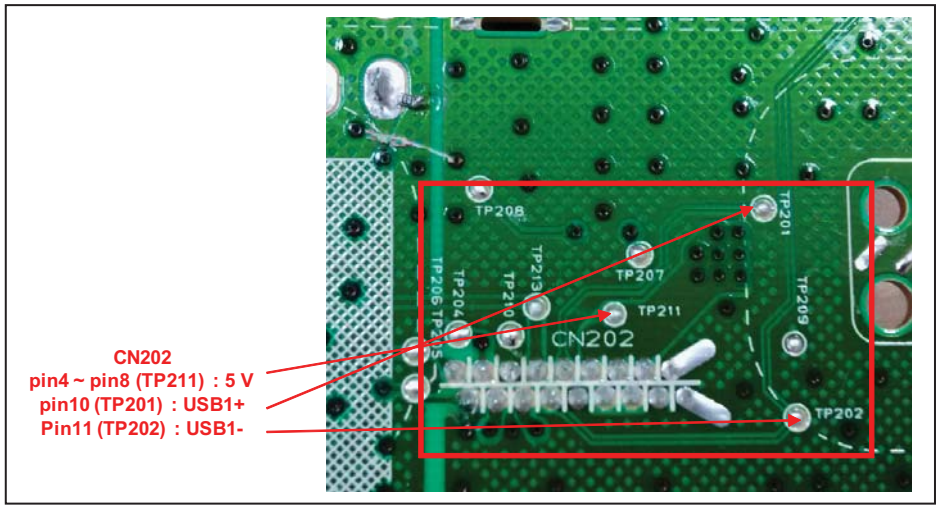
7-1-2. How to troubleshoot (Countermeasure)

1) Check CN202 connector and FFC cable.
2) If there is short soldering on CN202, re-soldering CN202.
3) If problem still occurs, check 5 V (CN202 pin4 ~ pin8).
   - If no output, check IC151 on MAIN board.
   - If OK, check USB1+, USB1- signal.
   - If there is no signal, replace IC501.

7-1-3. Service hint (Any picture / Remark)



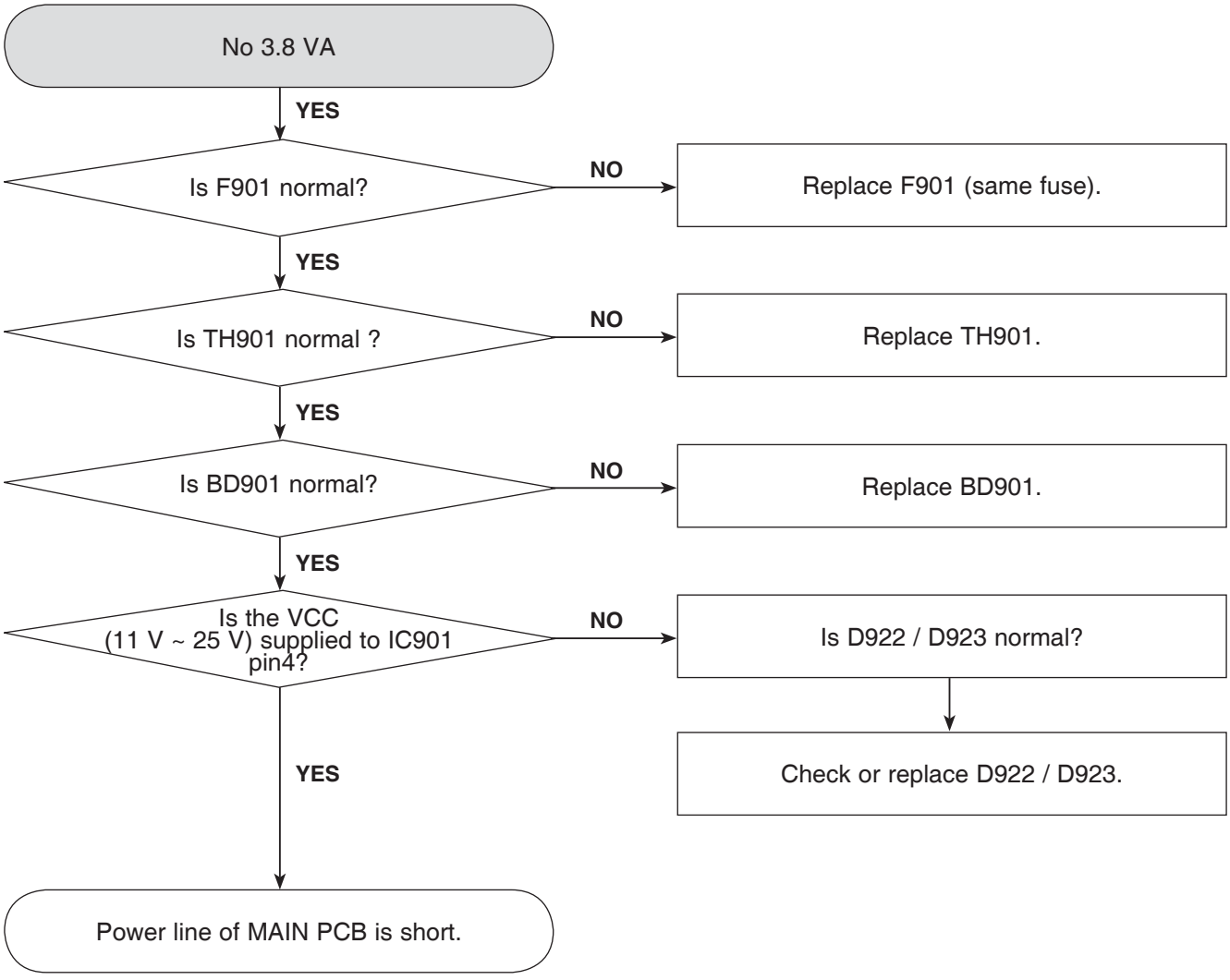
< JACK (Without Mic) board bottom view >



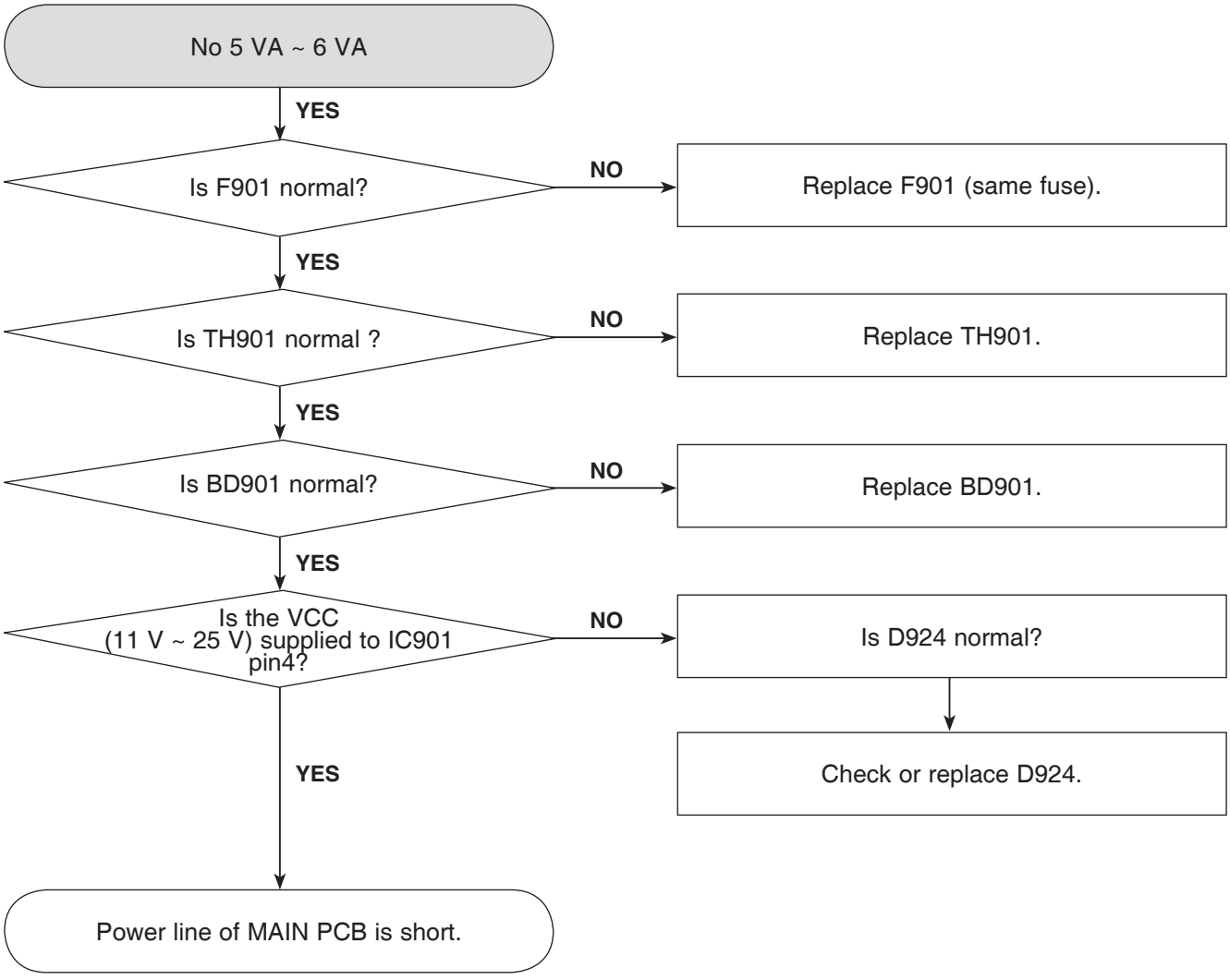
< JACK board bottom view >

ELECTRICAL TROUBLESHOOTING GUIDE

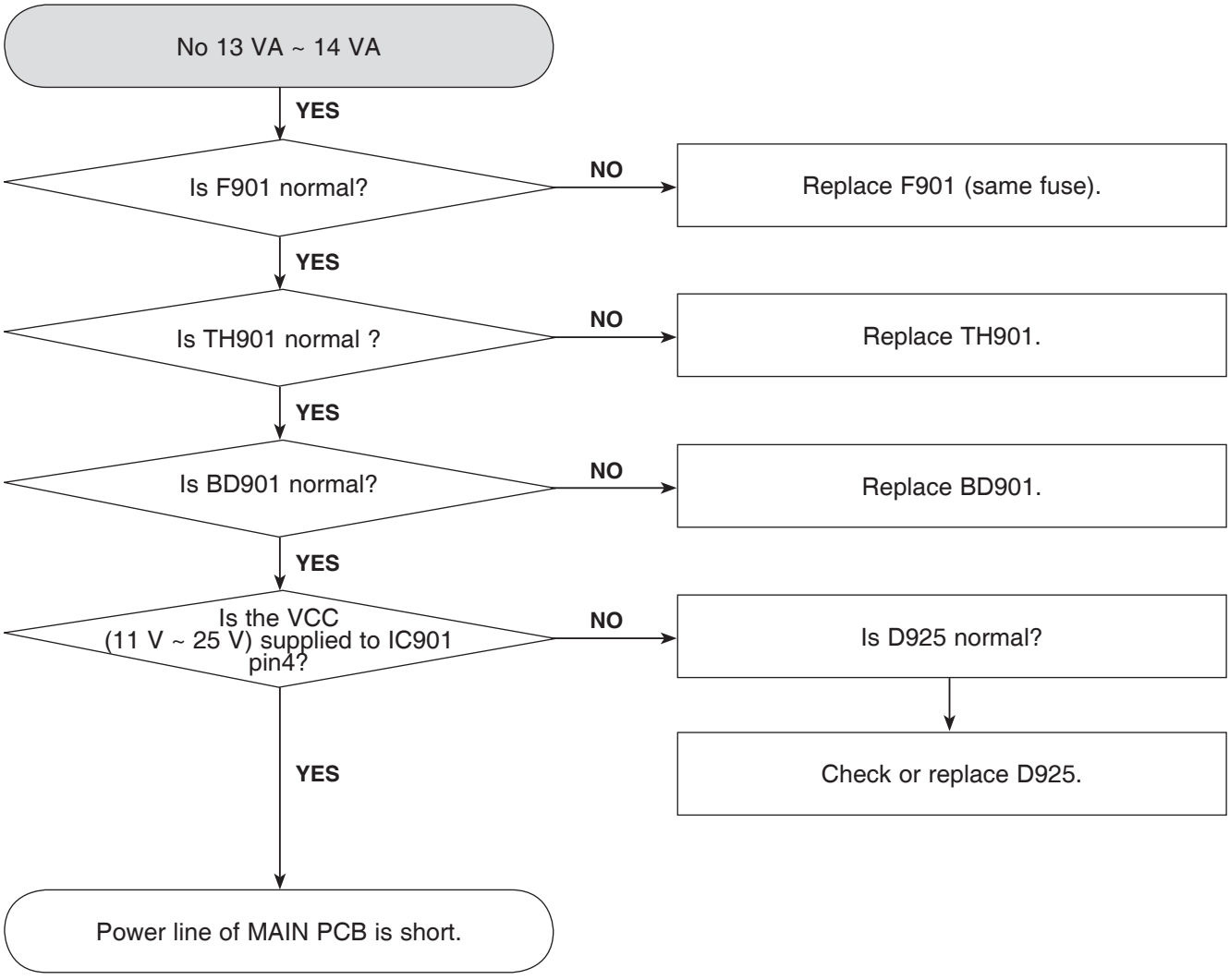
1. SYSTEM POWER SUPPLY ON SMPS BOARD



ELECTRICAL TROUBLESHOOTING GUIDE

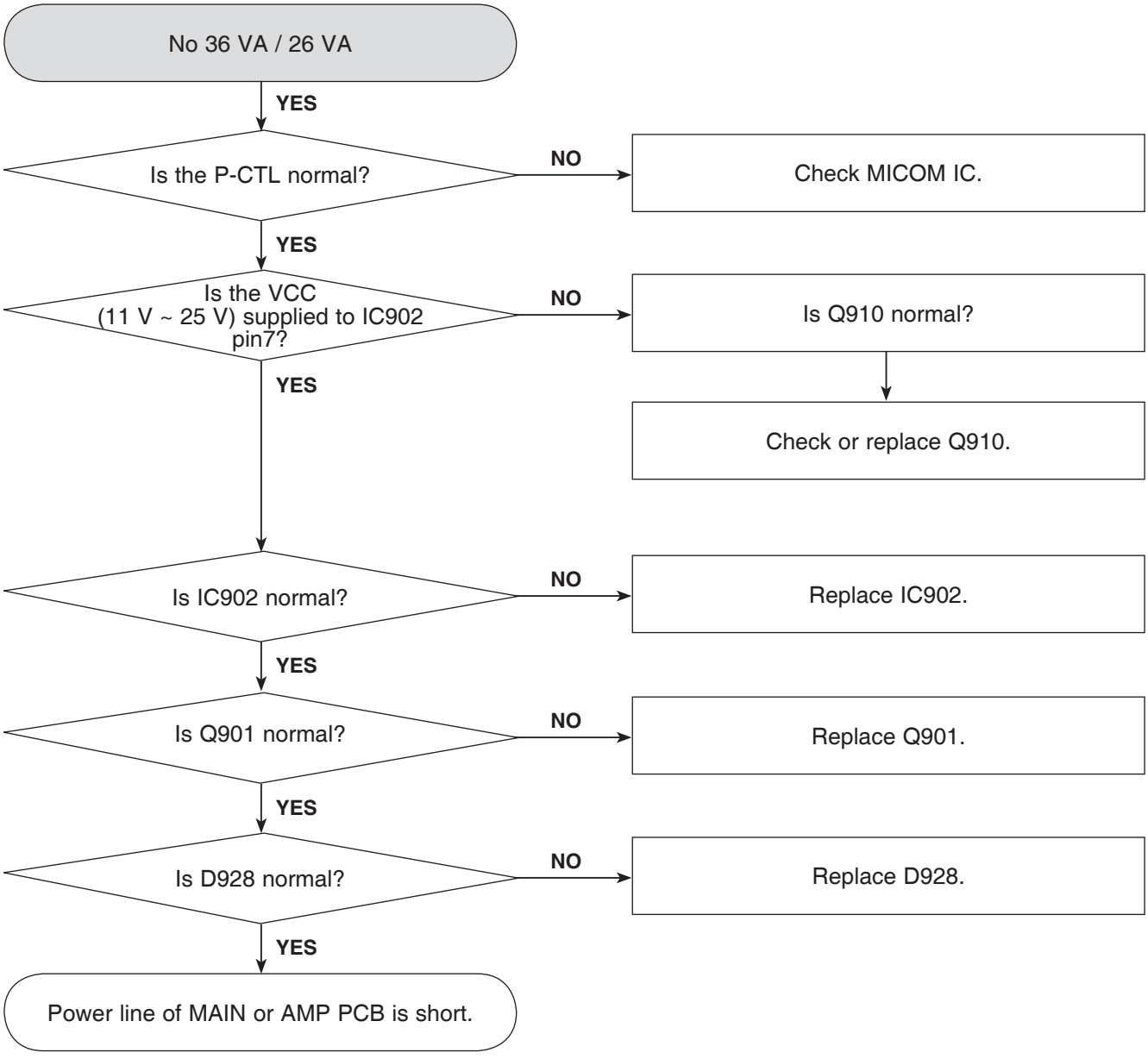


ELECTRICAL TROUBLESHOOTING GUIDE



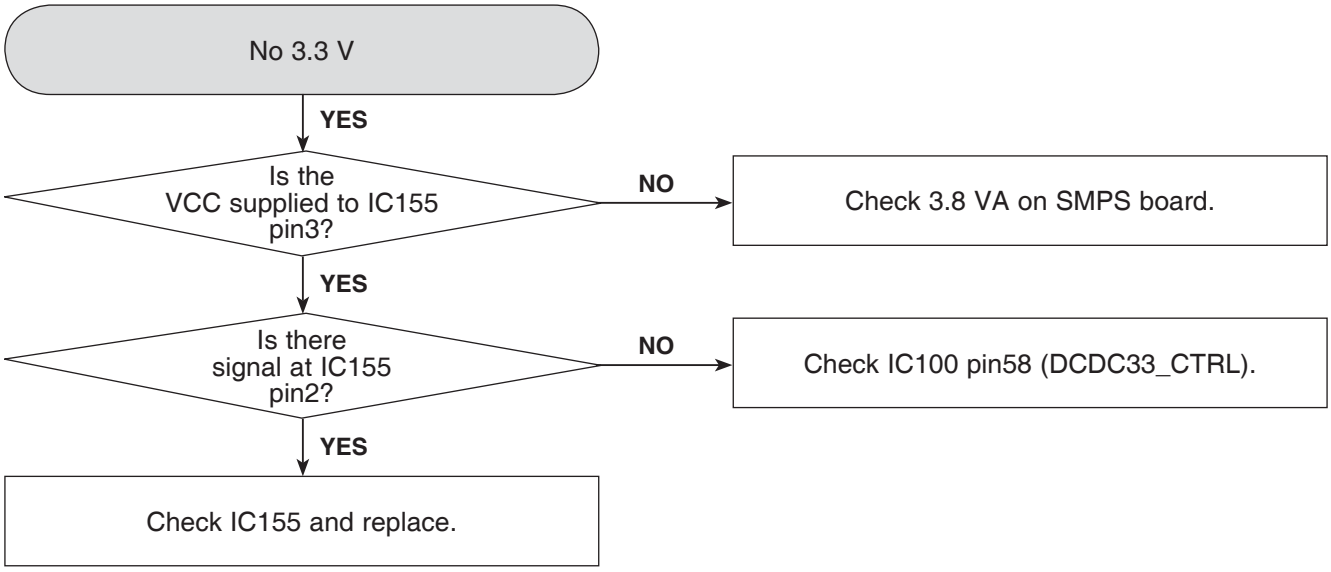
ELECTRICAL TROUBLESHOOTING GUIDE

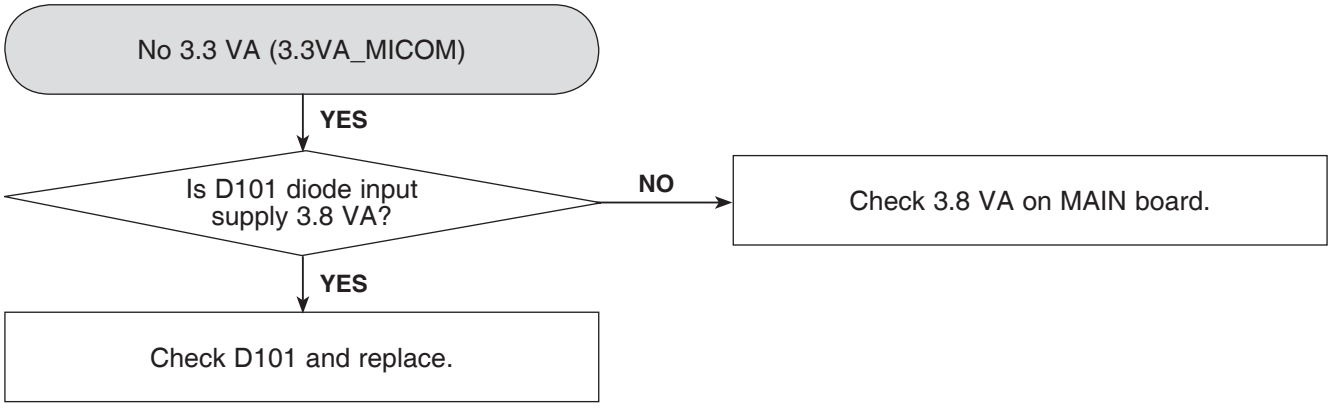
2. AMP POWER SUPPLY ON SMPS BOARD



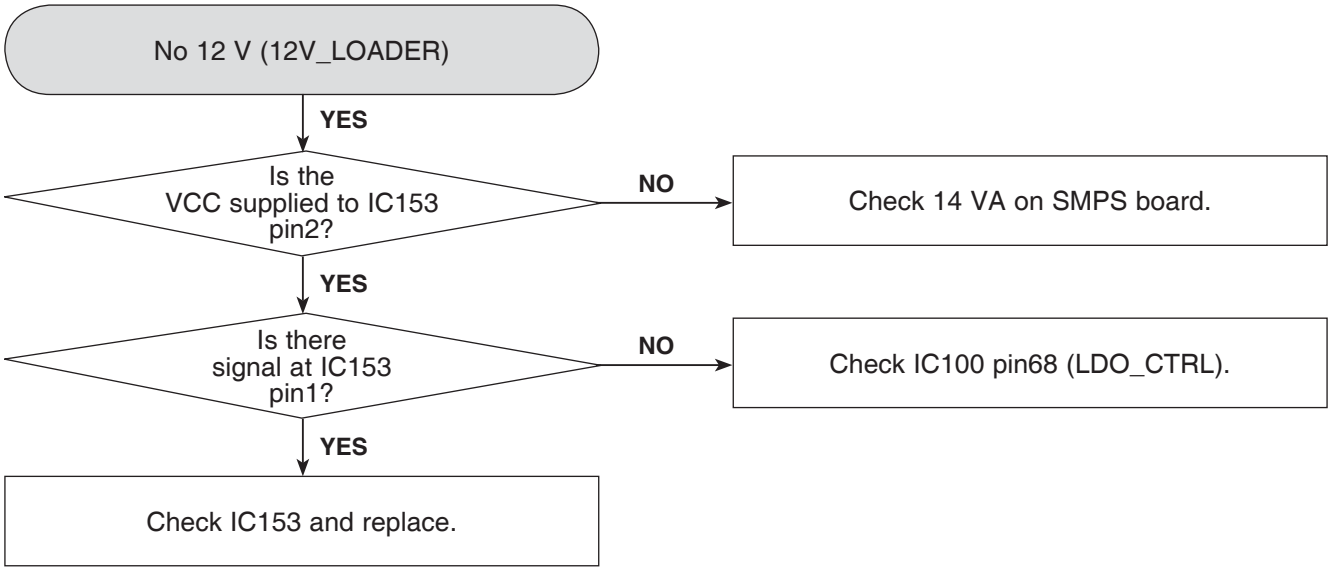
ELECTRICAL TROUBLESHOOTING GUIDE

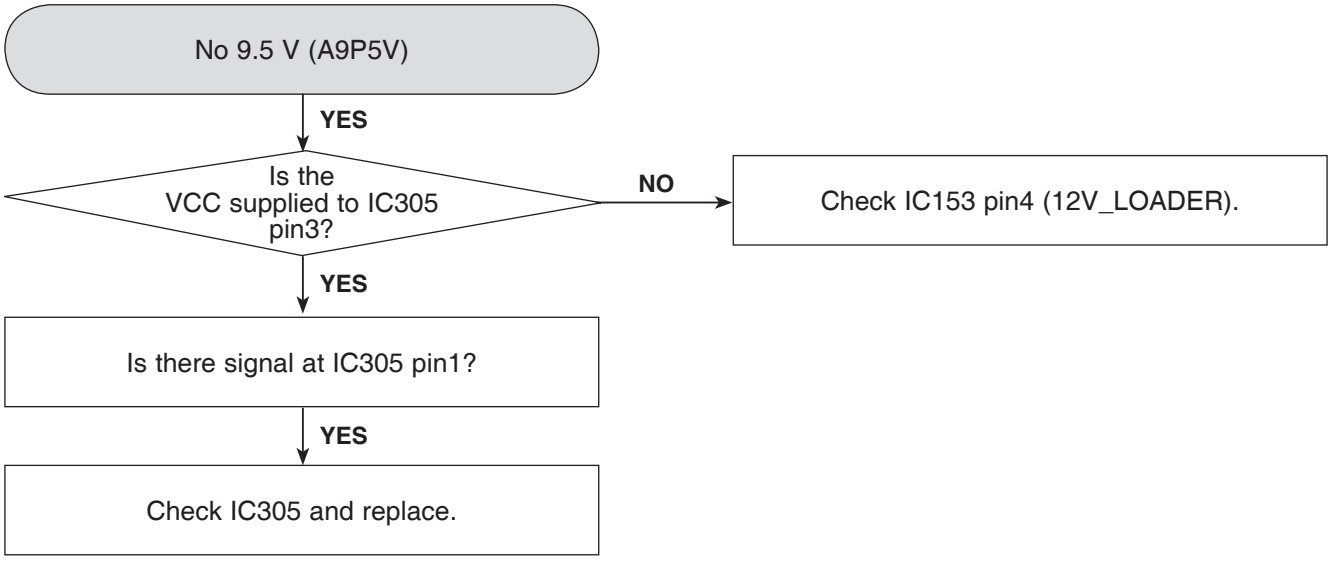
3. POWER SUPPLY ON MAIN BOARD



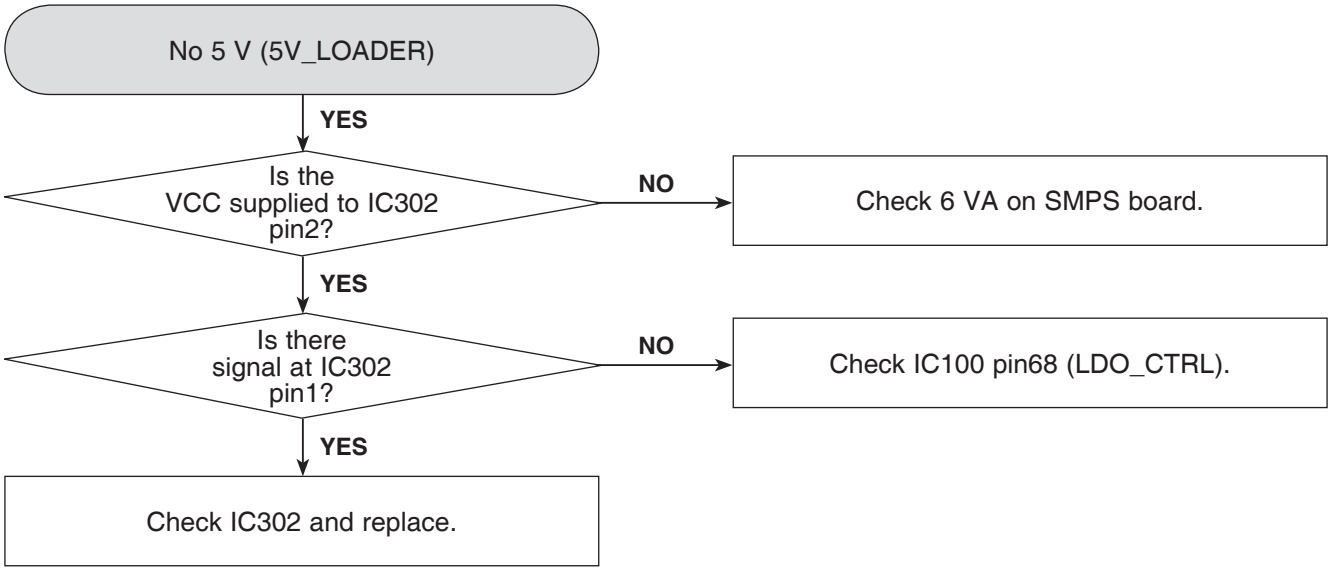


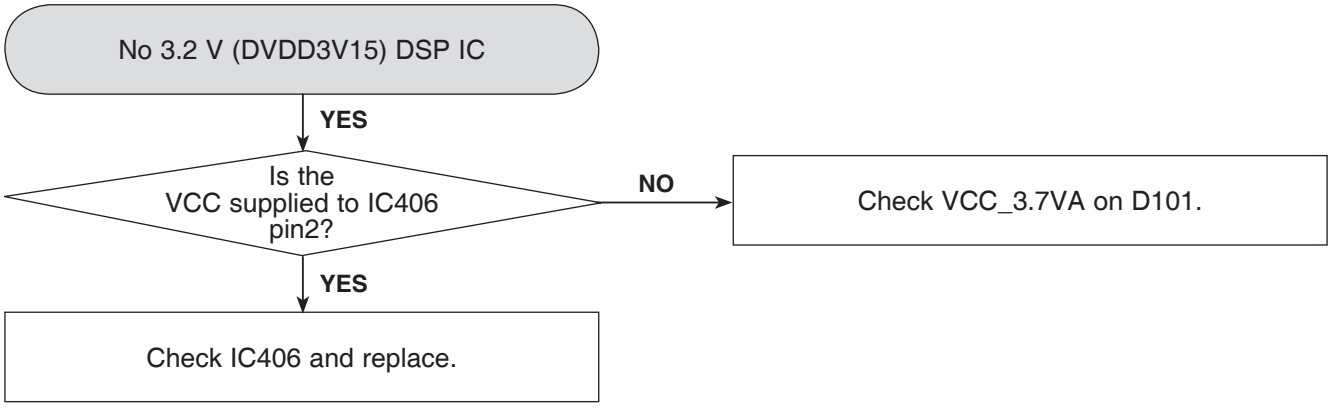
ELECTRICAL TROUBLESHOOTING GUIDE

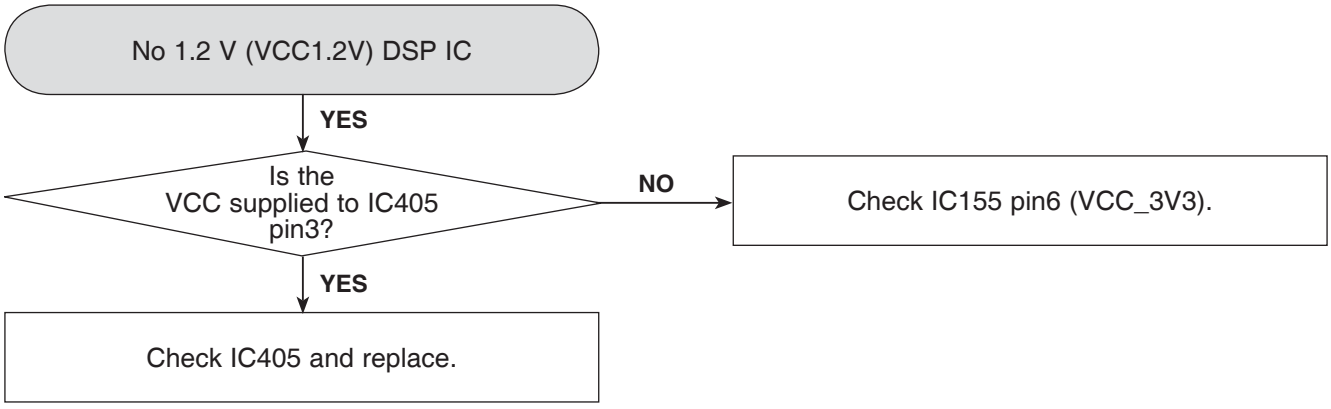


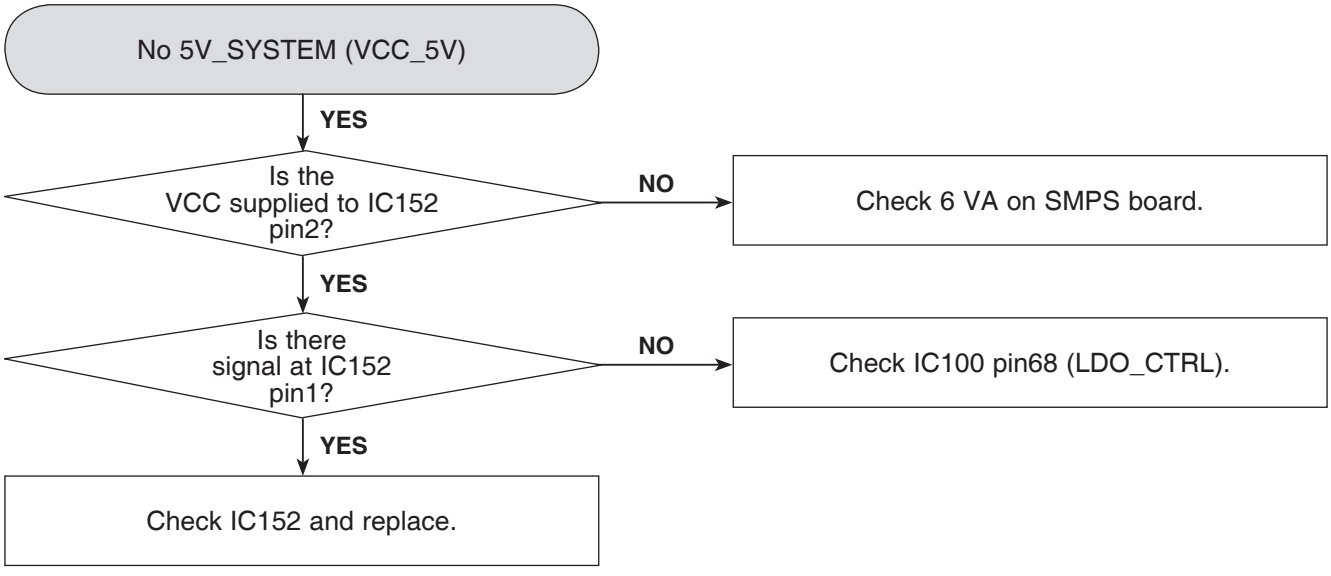


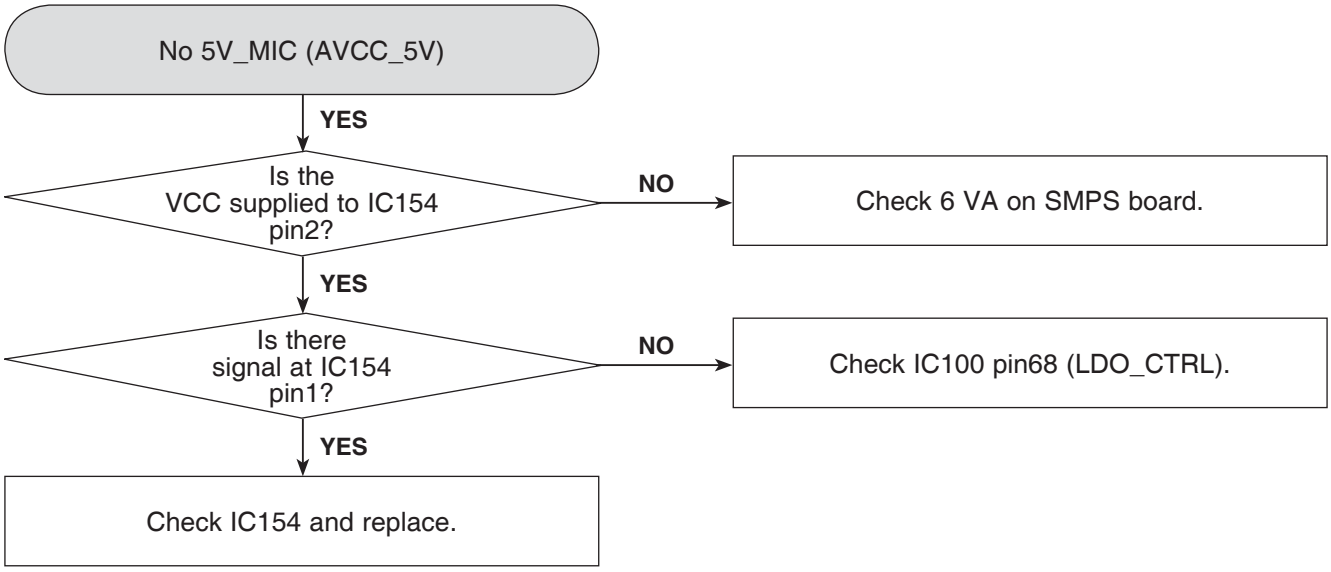
ELECTRICAL TROUBLESHOOTING GUIDE

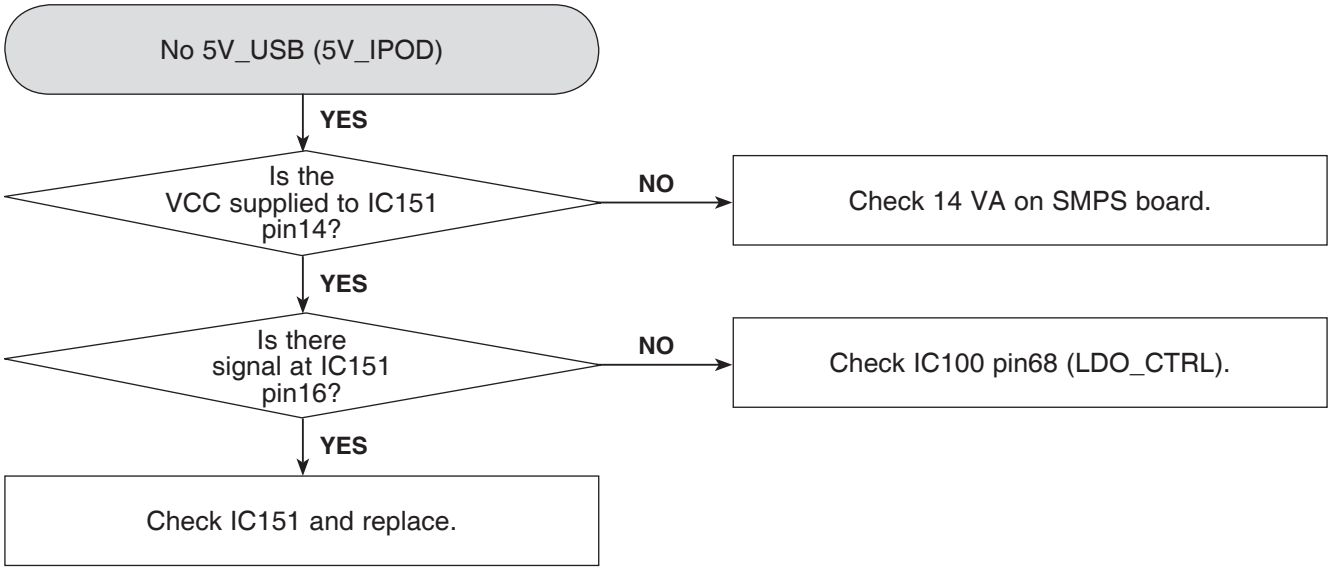




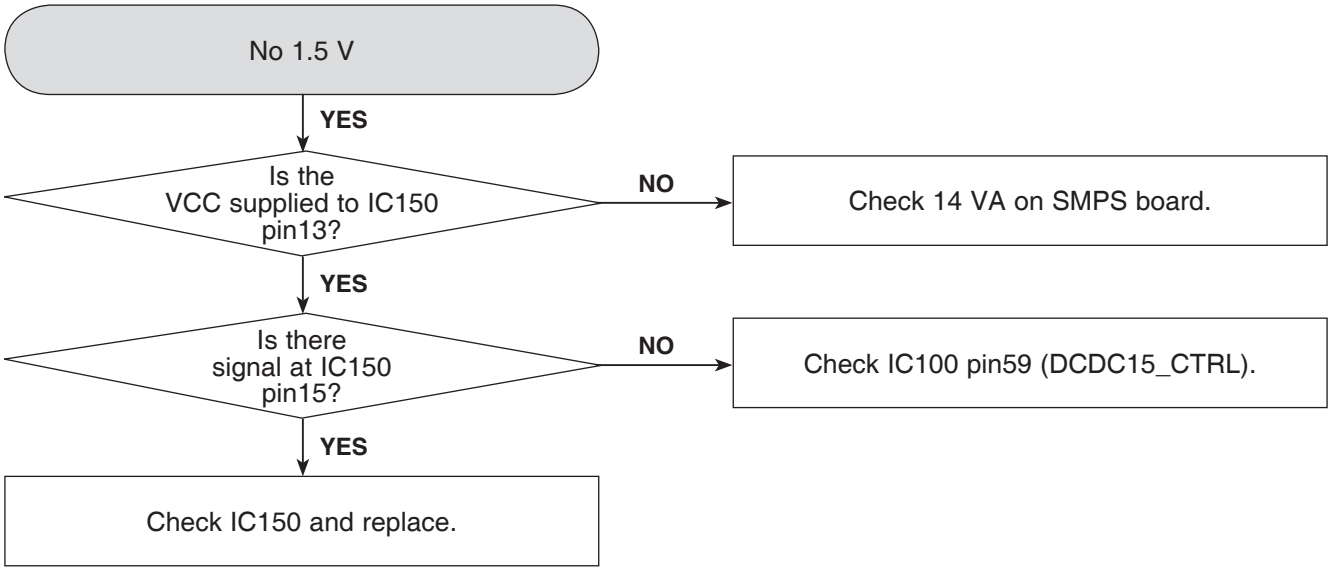


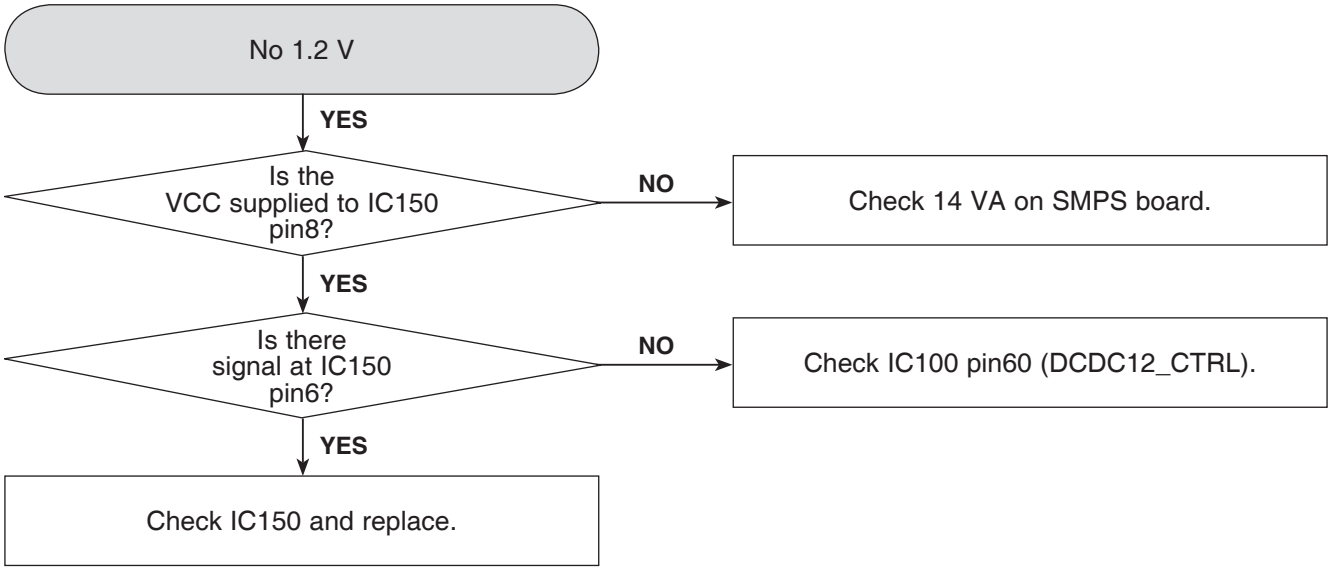






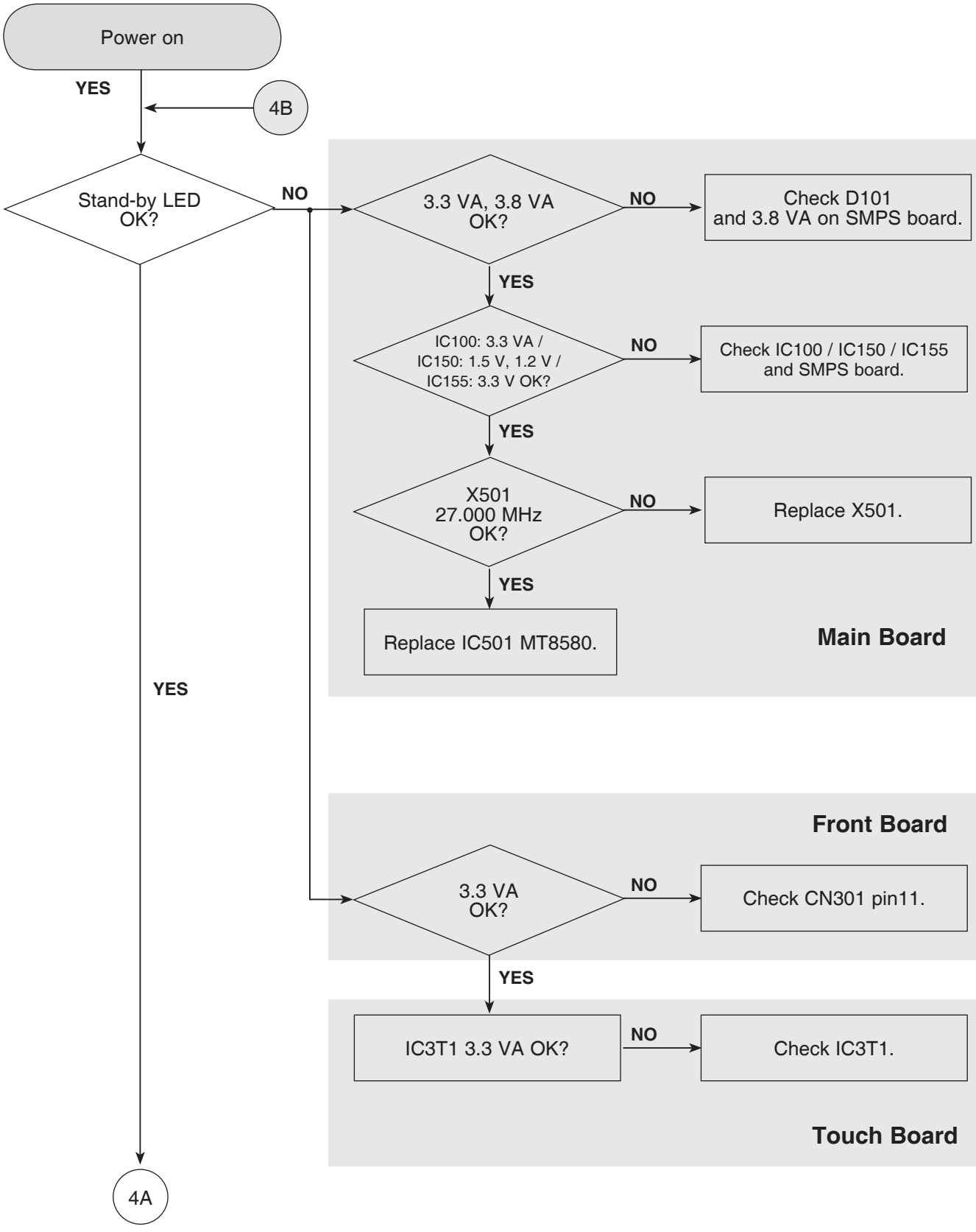
ELECTRICAL TROUBLESHOOTING GUIDE



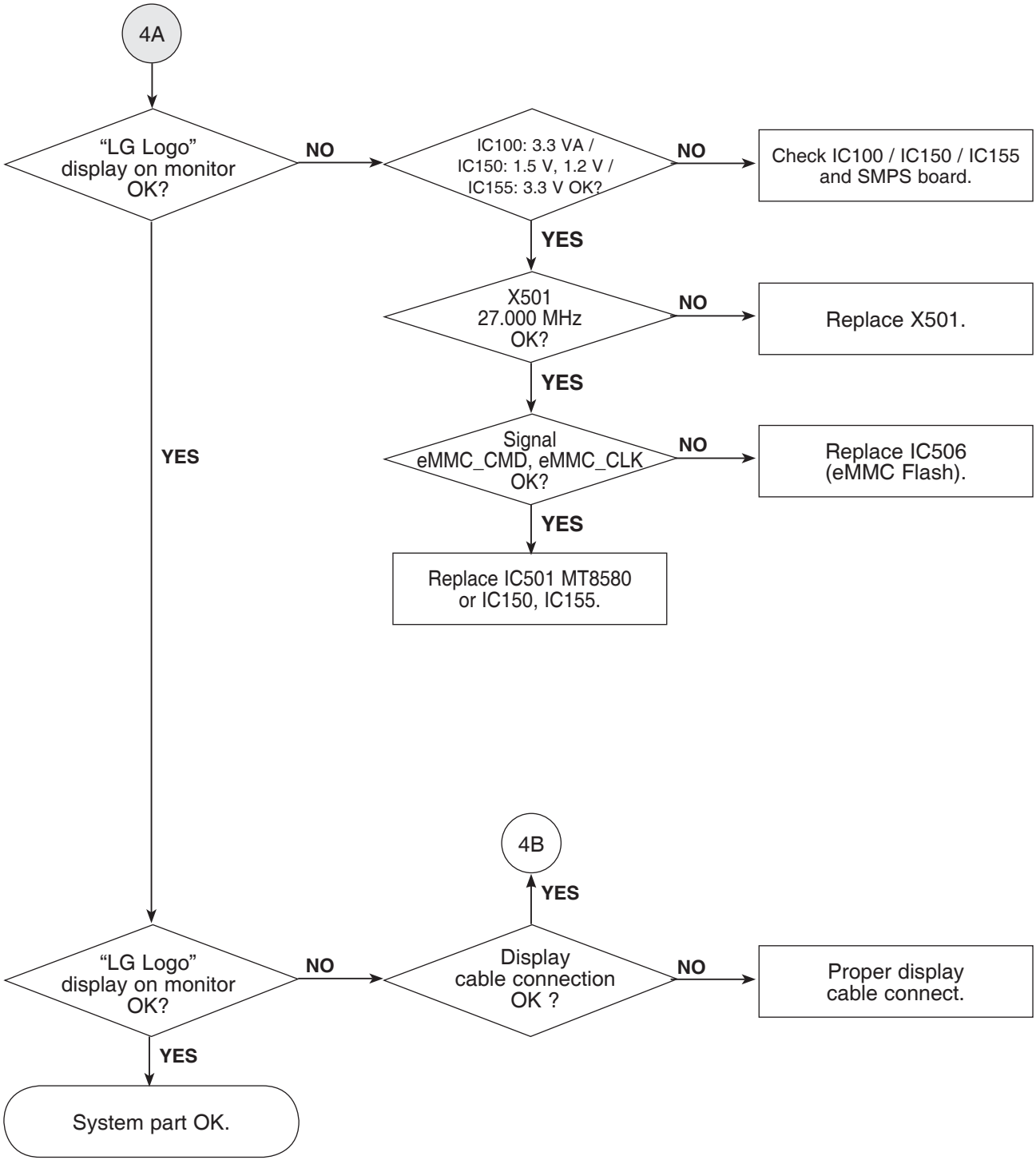


ELECTRICAL TROUBLESHOOTING GUIDE

4. SYSTEM PART

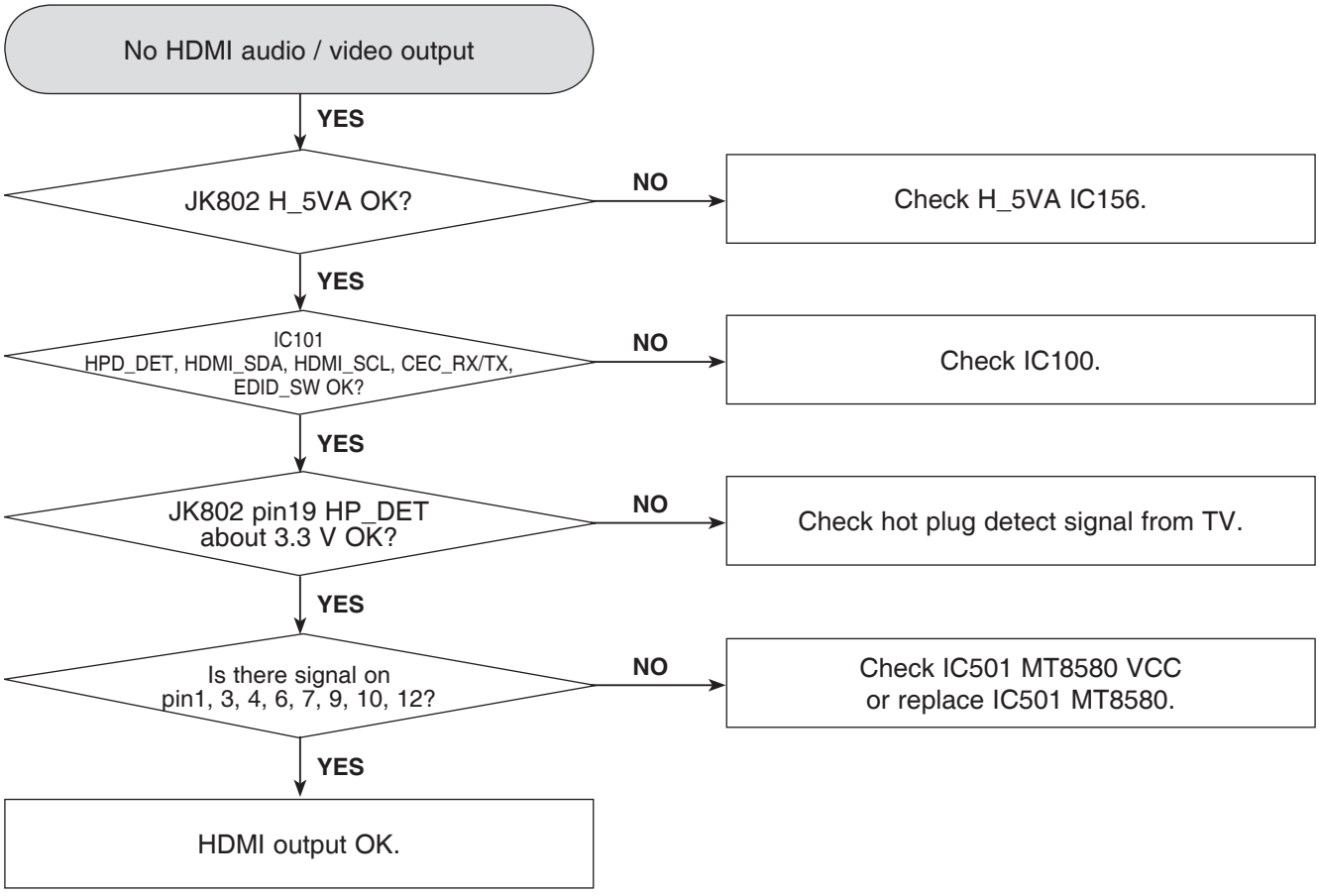


ELECTRICAL TROUBLESHOOTING GUIDE



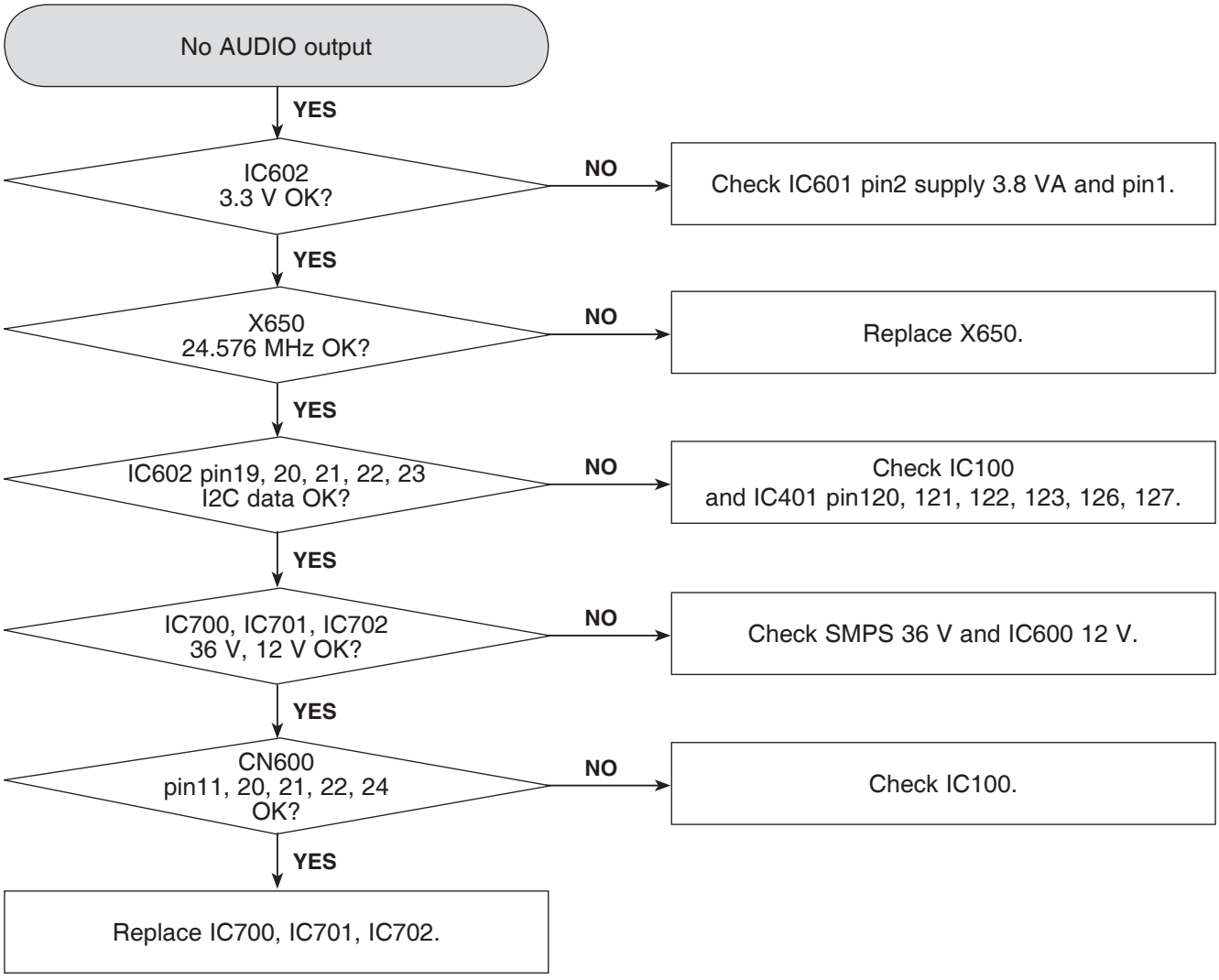
ELECTRICAL TROUBLESHOOTING GUIDE

5. NO HDMI OUTPUT



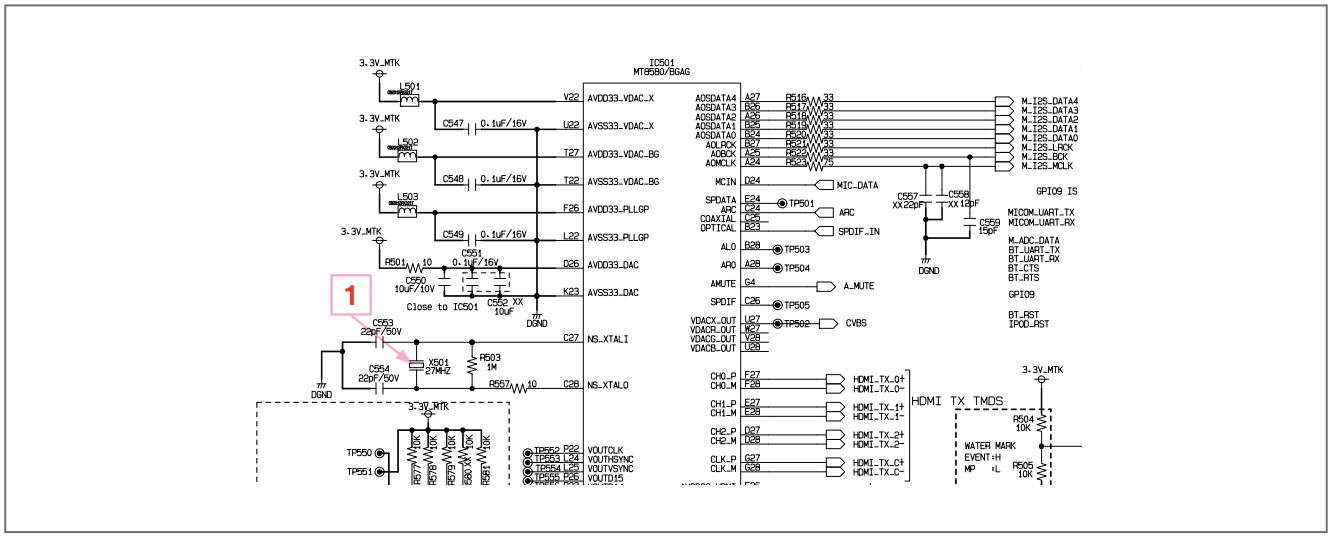
ELECTRICAL TROUBLESHOOTING GUIDE

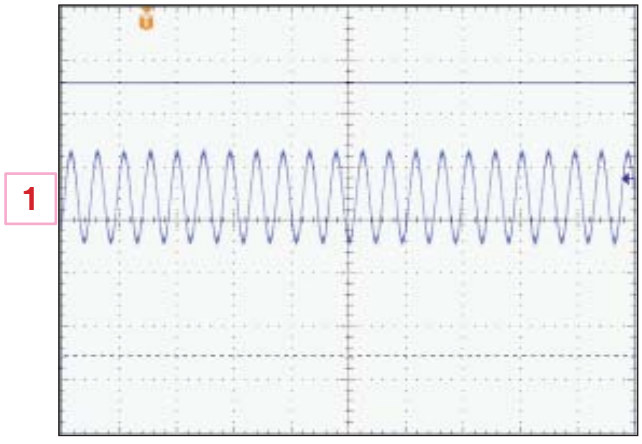
6. NO AUDIO OUTPUT



WAVEFORMS

1. SYSTEM PART - 1 (MPEG CRYSTAL 27 MHZ)

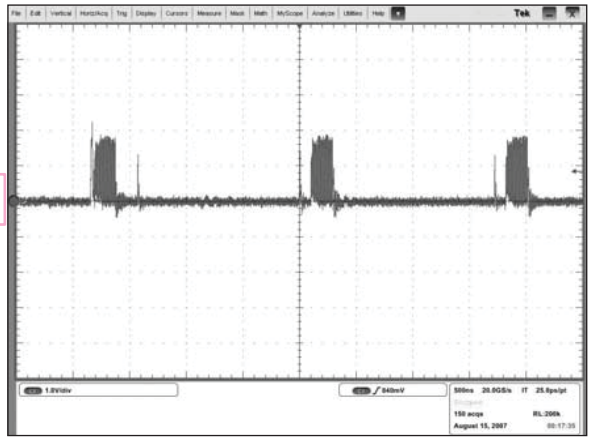




IC501 MT8580 X-TAL 27 MHz

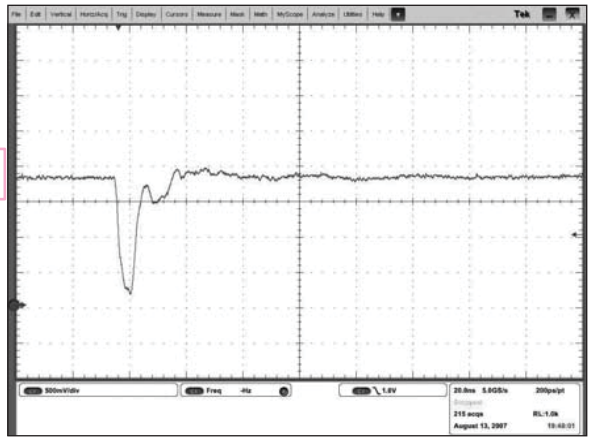
2. SYSTEM PART - 2 (DDR3 MEMORY)

2

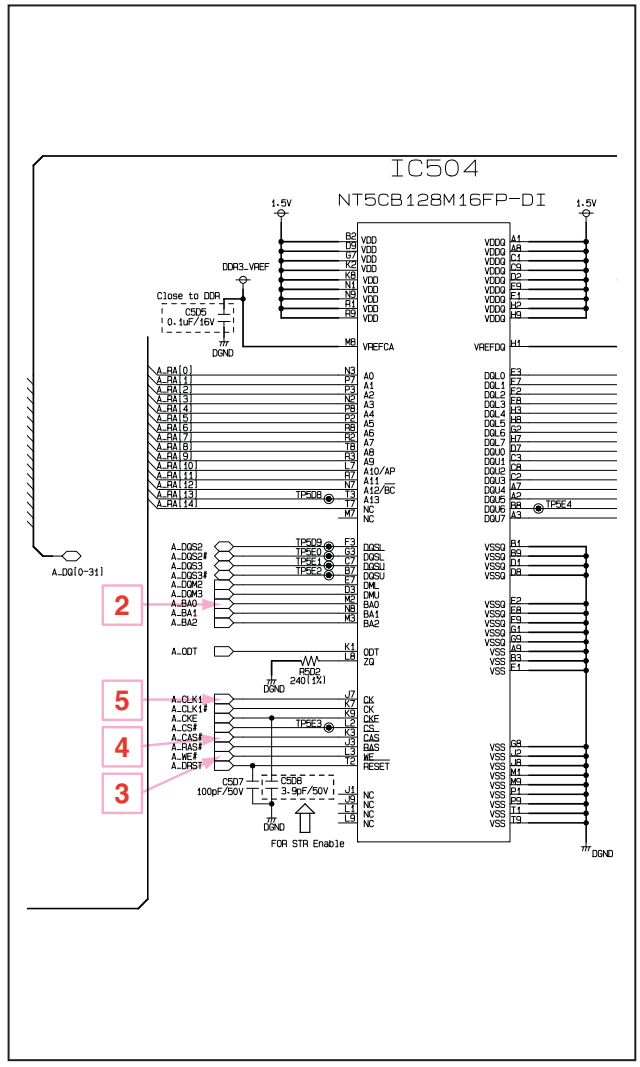


MT8580 BA0

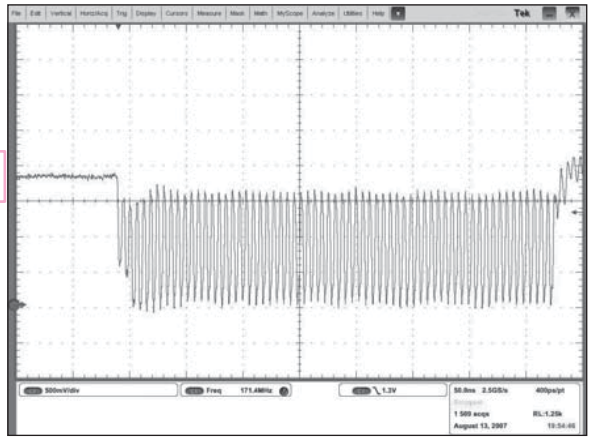
3



MT8580 WE#

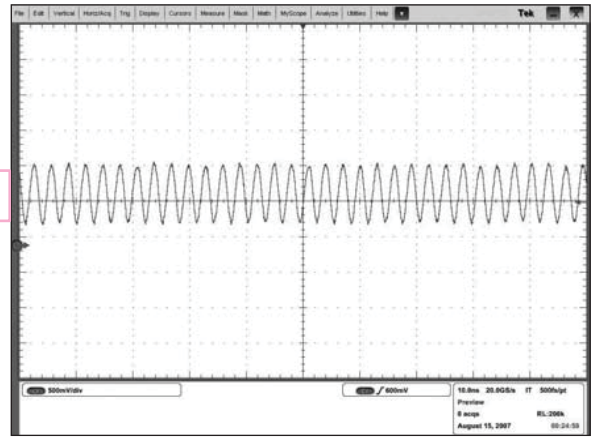


4



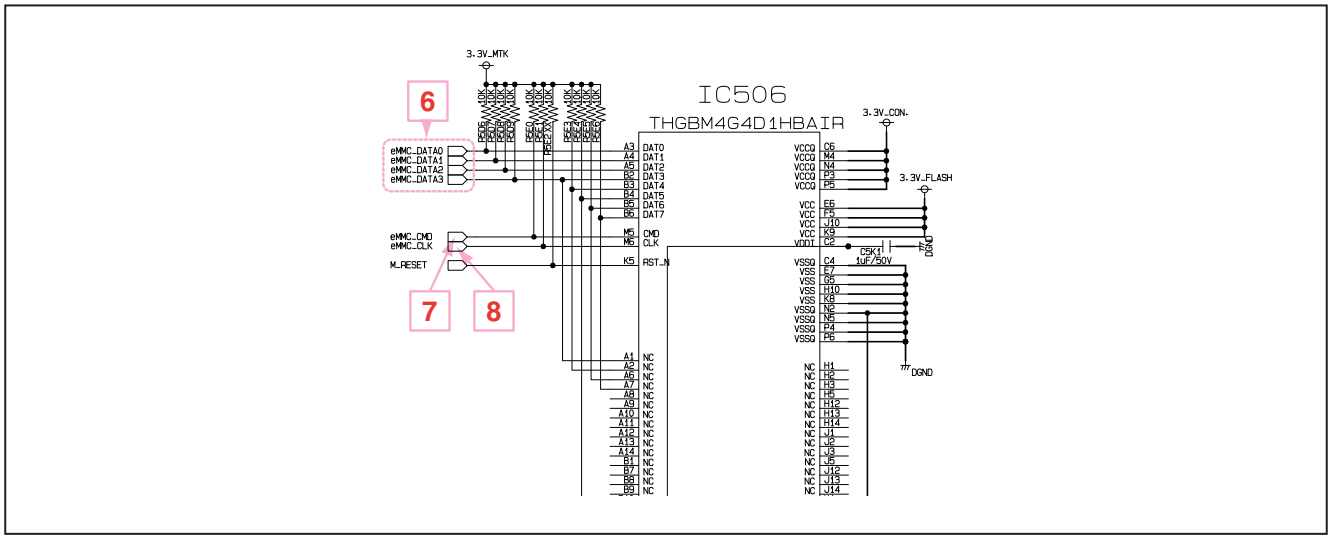
MT8580 CAS#

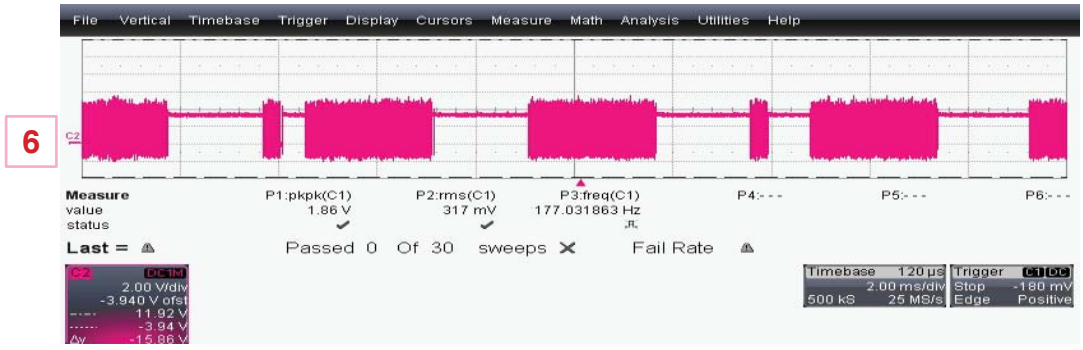
5

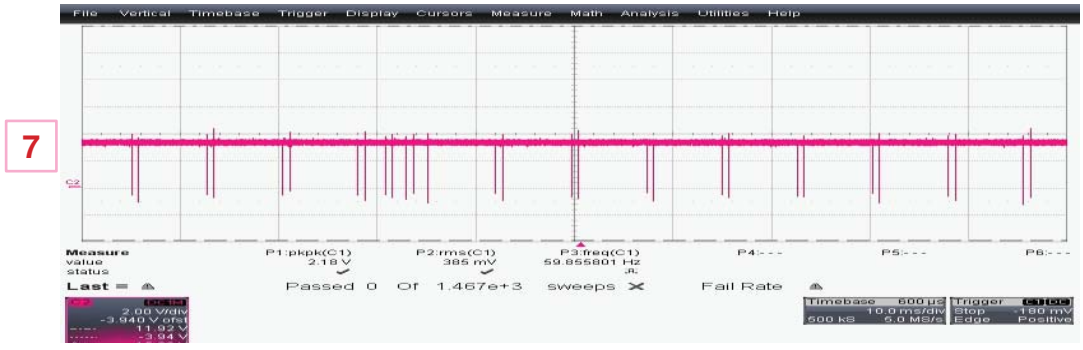


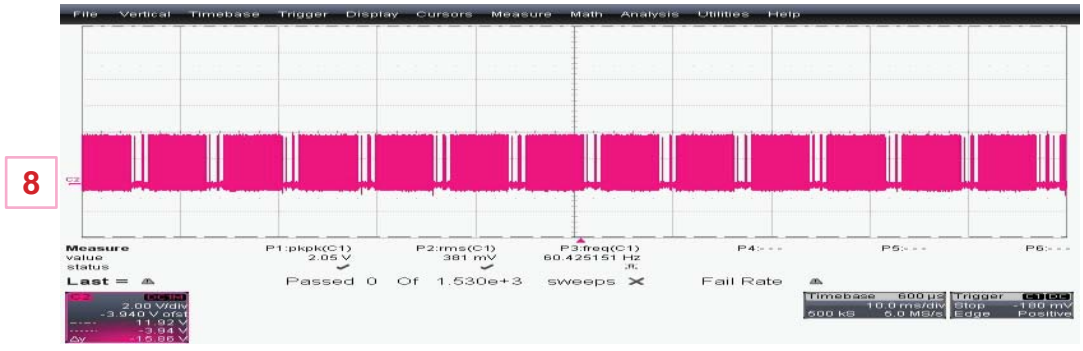
MT8580 CK

3. SYSTEM PART - 3 (eMMC FLASH MEMORY)

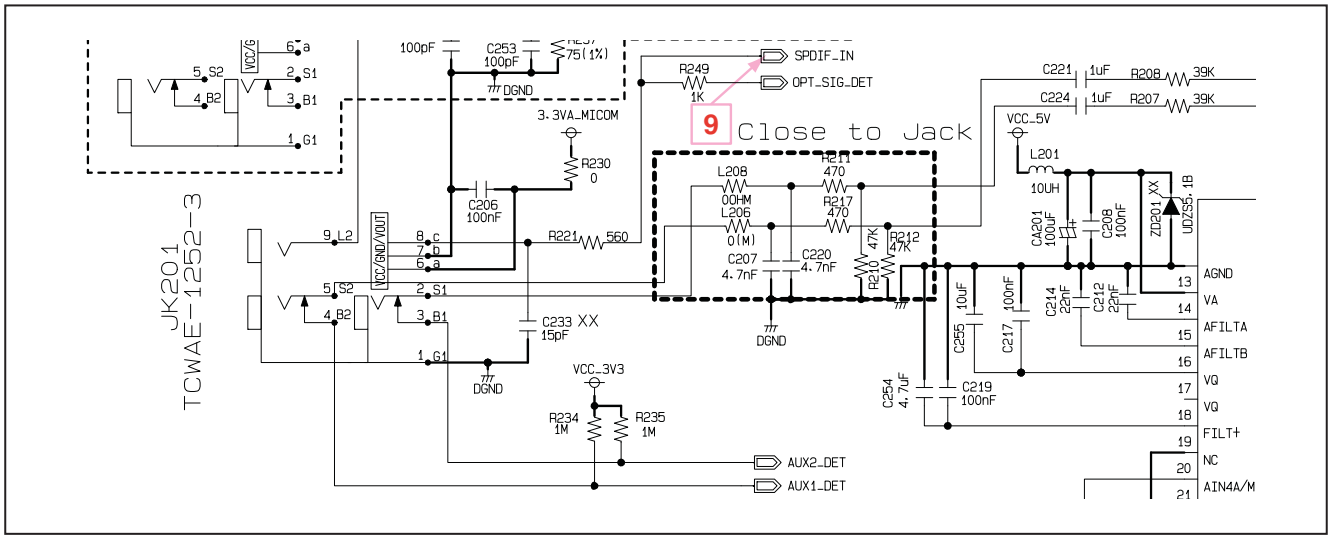


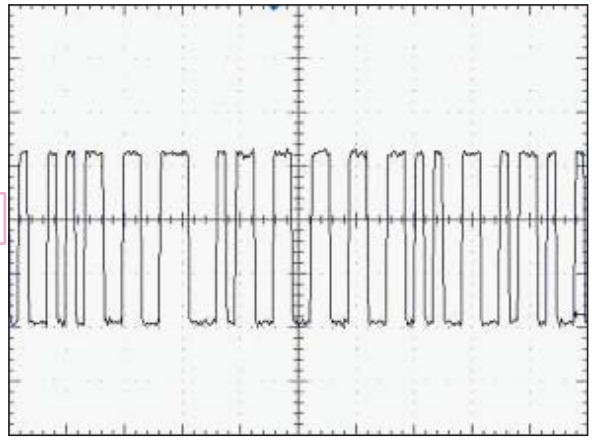






4. AUDIO PART - 1 (S/PDIF)

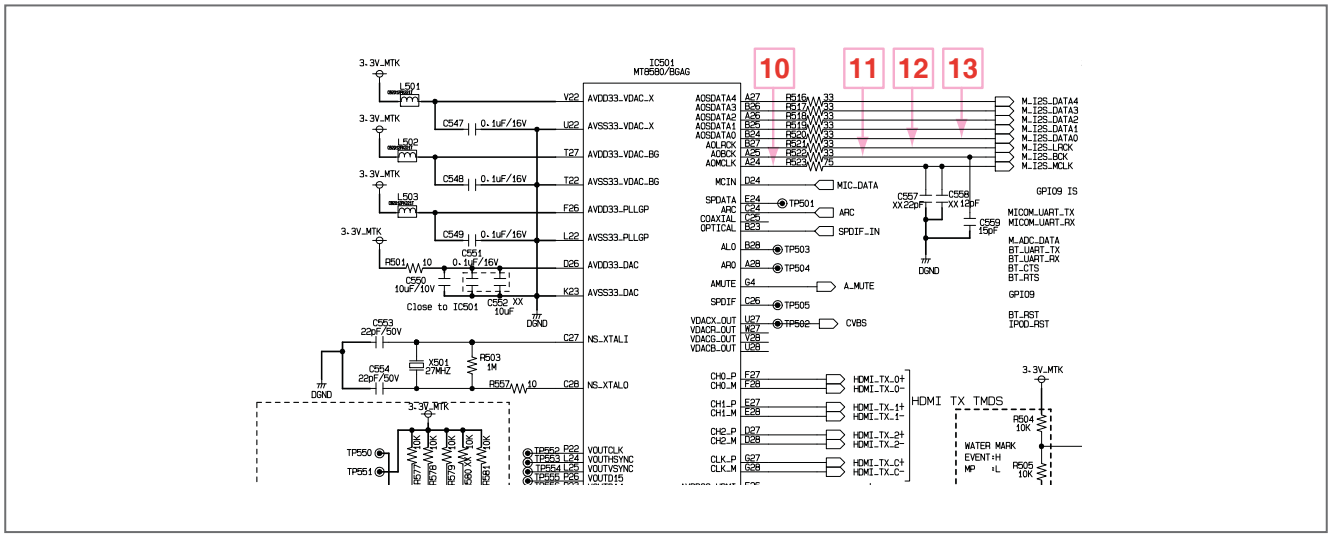


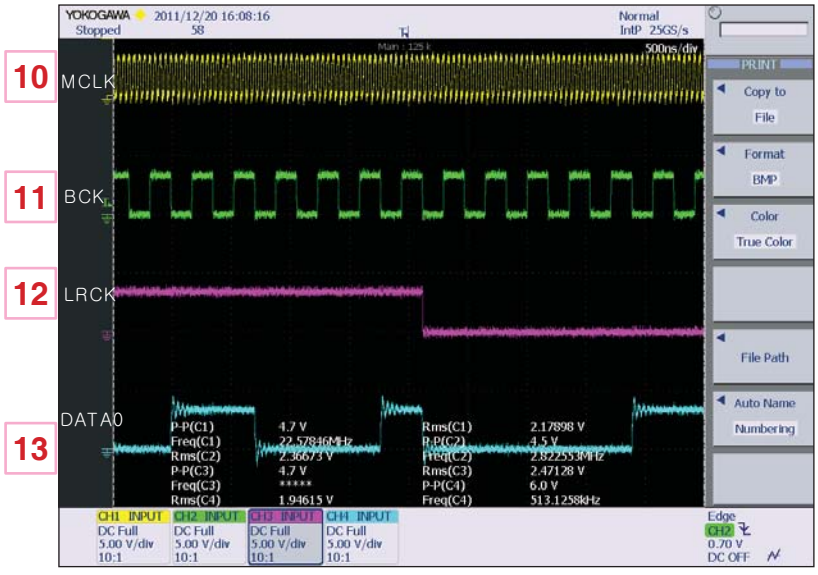


9

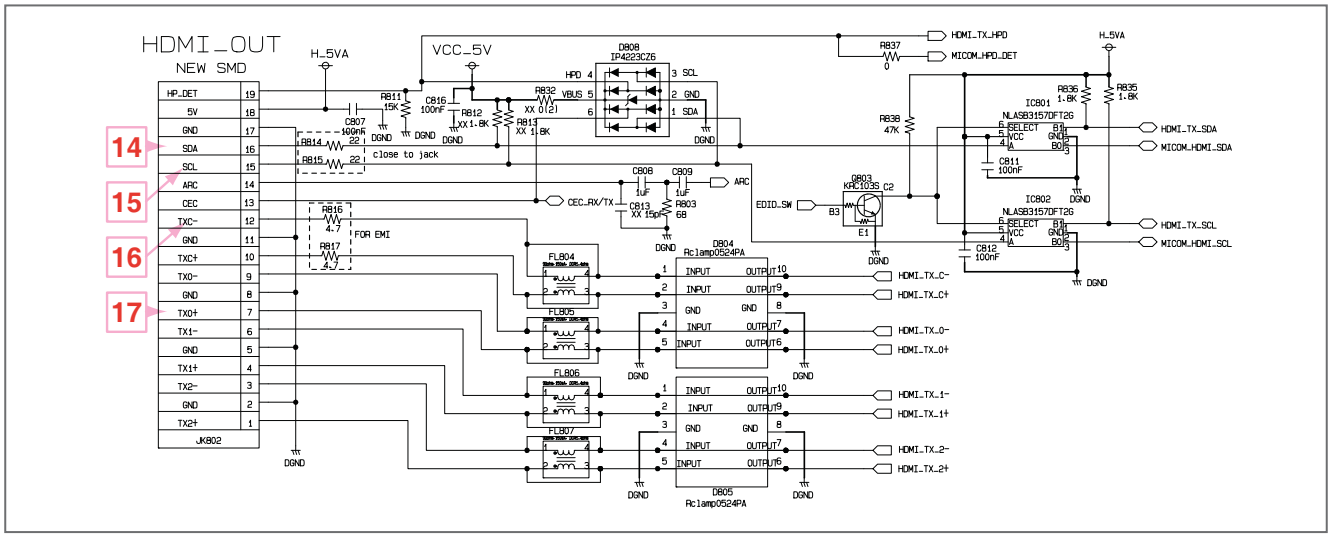
MT8580_AUDIO_SPDIF IN

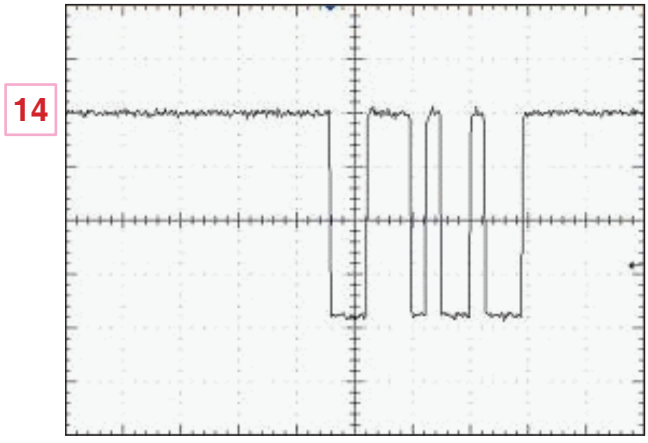
5. AUDIO PART - 2 (I2S)



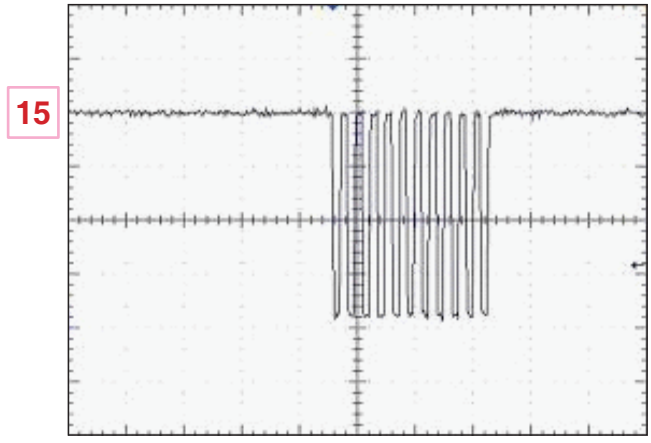


6. HDMI PART

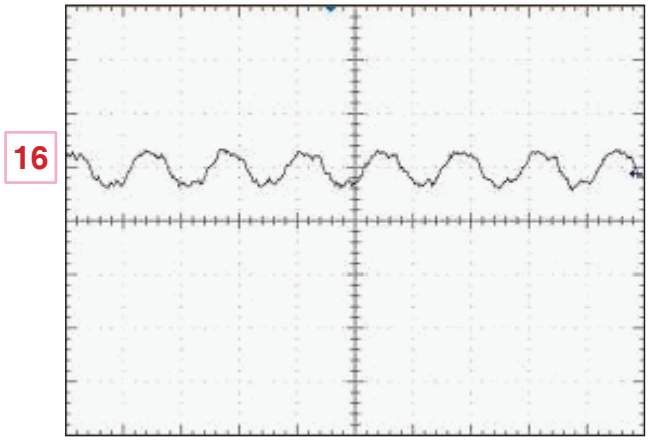




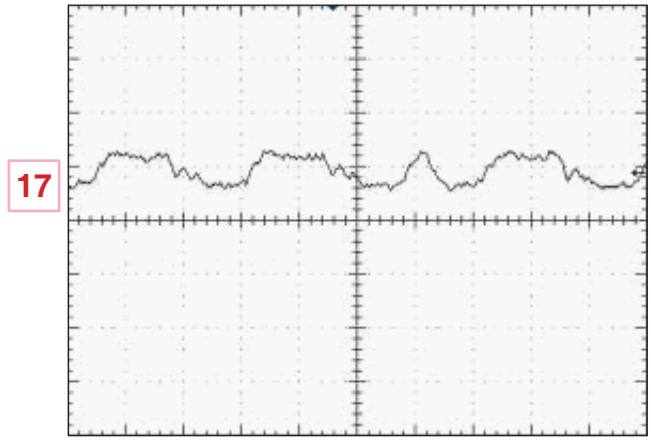
H_SDA



H_SCL



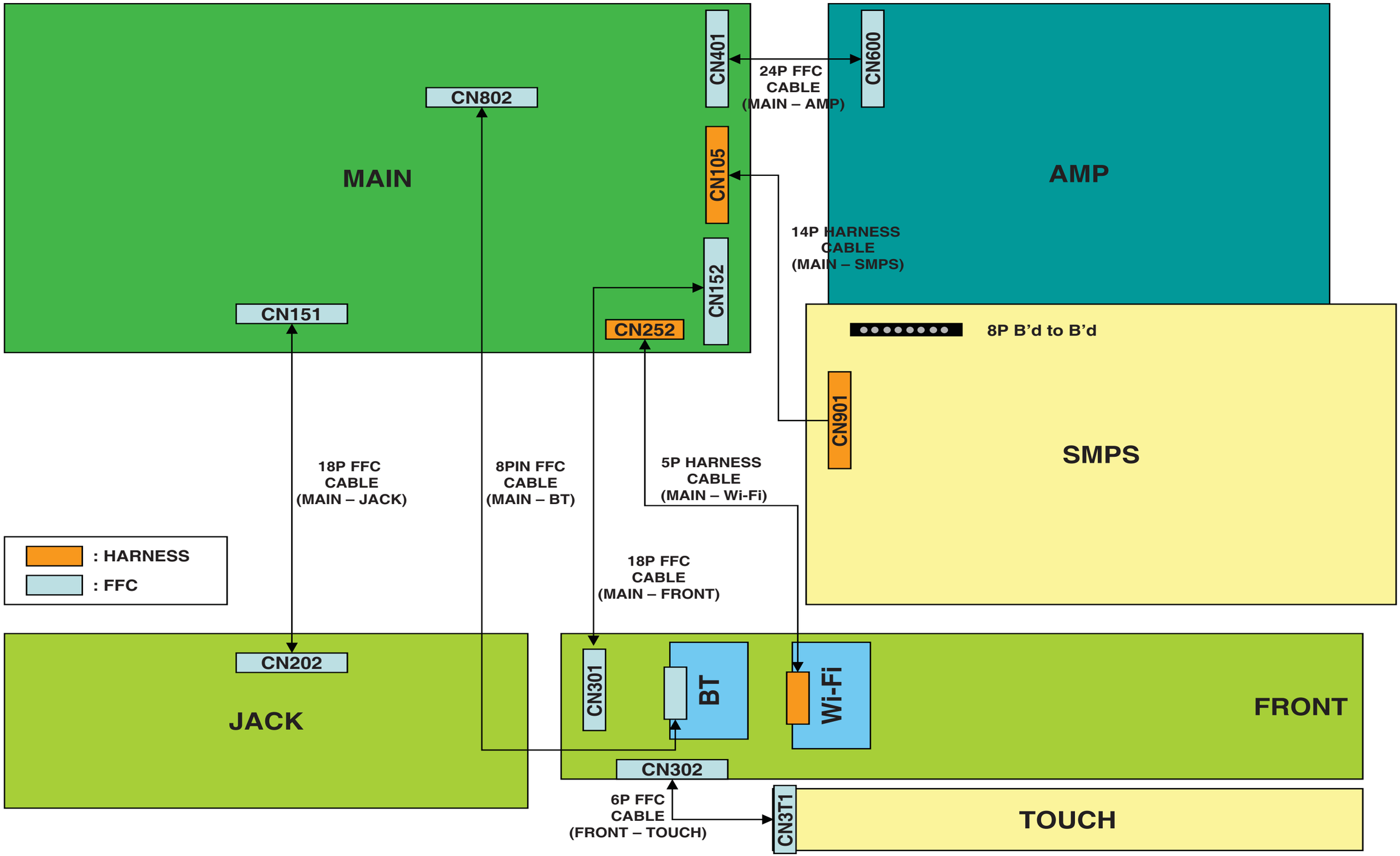
HDMI_CLK_N



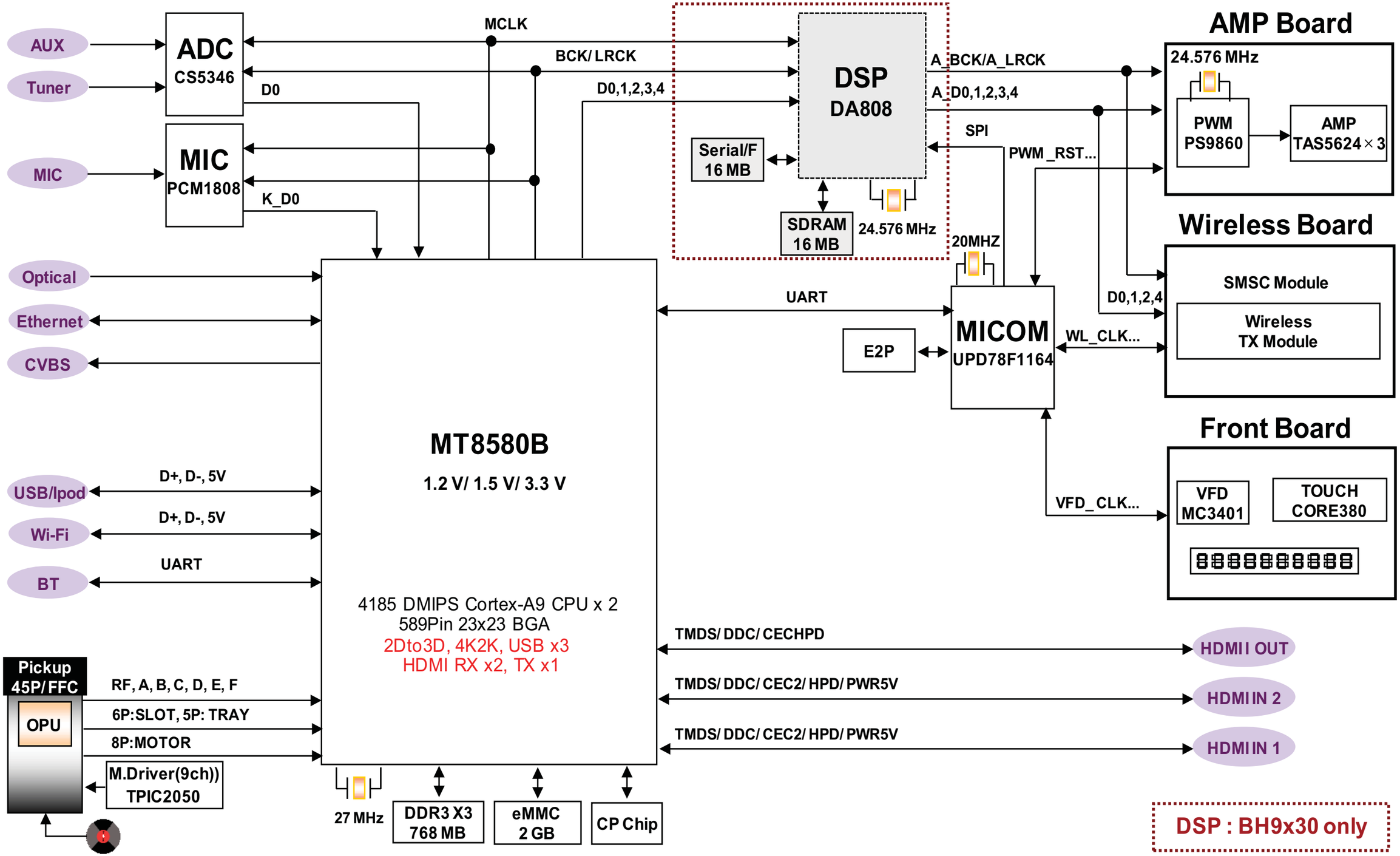
HDMI_0_N

MEMO

WIRING DIAGRAM



BLOCK DIAGRAM



CIRCUIT DIAGRAMS

1. SMPS CIRCUIT DIAGRAM

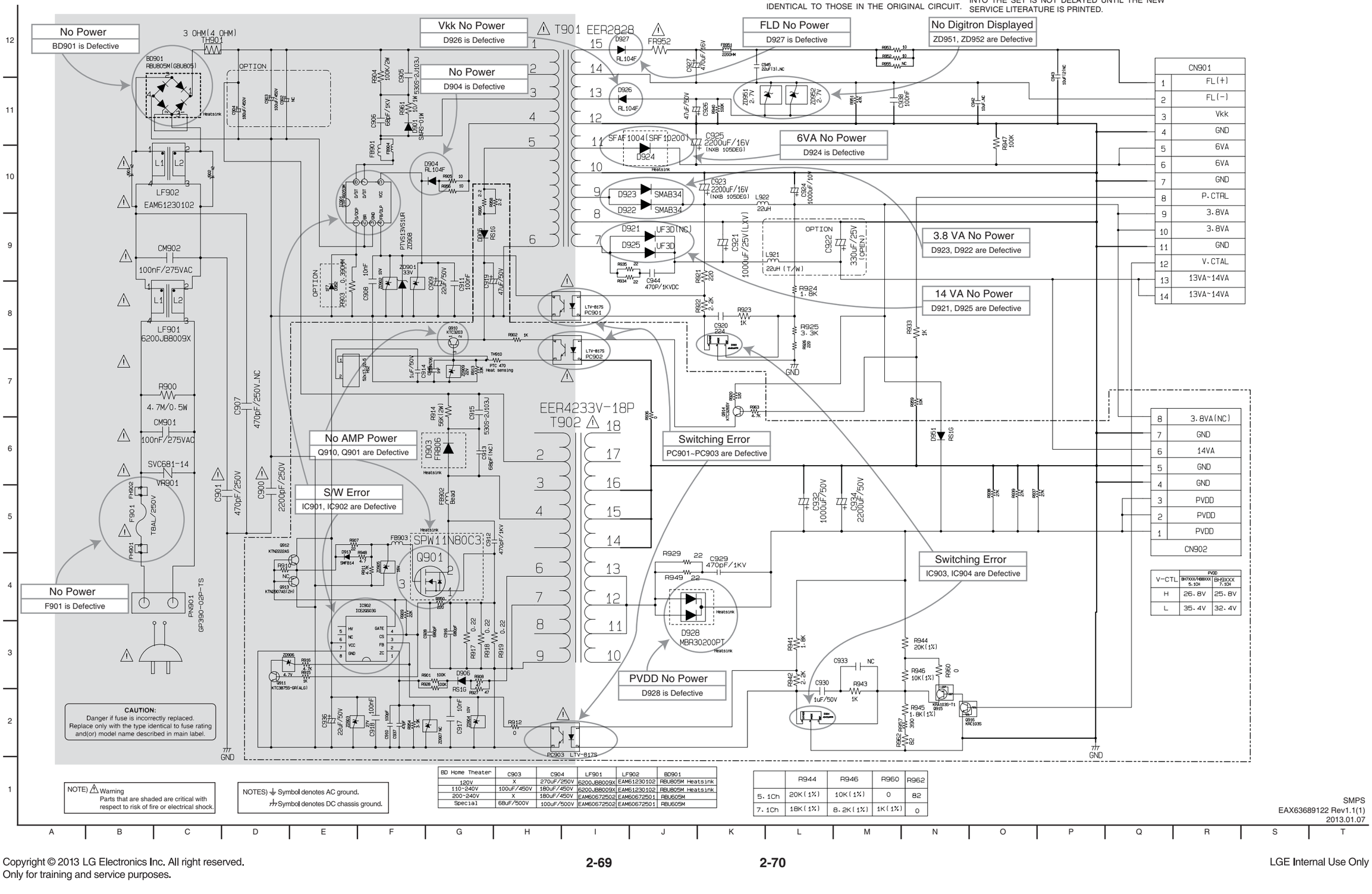
IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITH OUT PERMISSION FROM THE LG CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION.

THIS CIRCUIT DIAGRAM 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.

NOTE :

1. Shaded(▩) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.



NOTE) ⚠ Warning
Parts that are shaded are critical with respect to risk of fire or electrical shock.

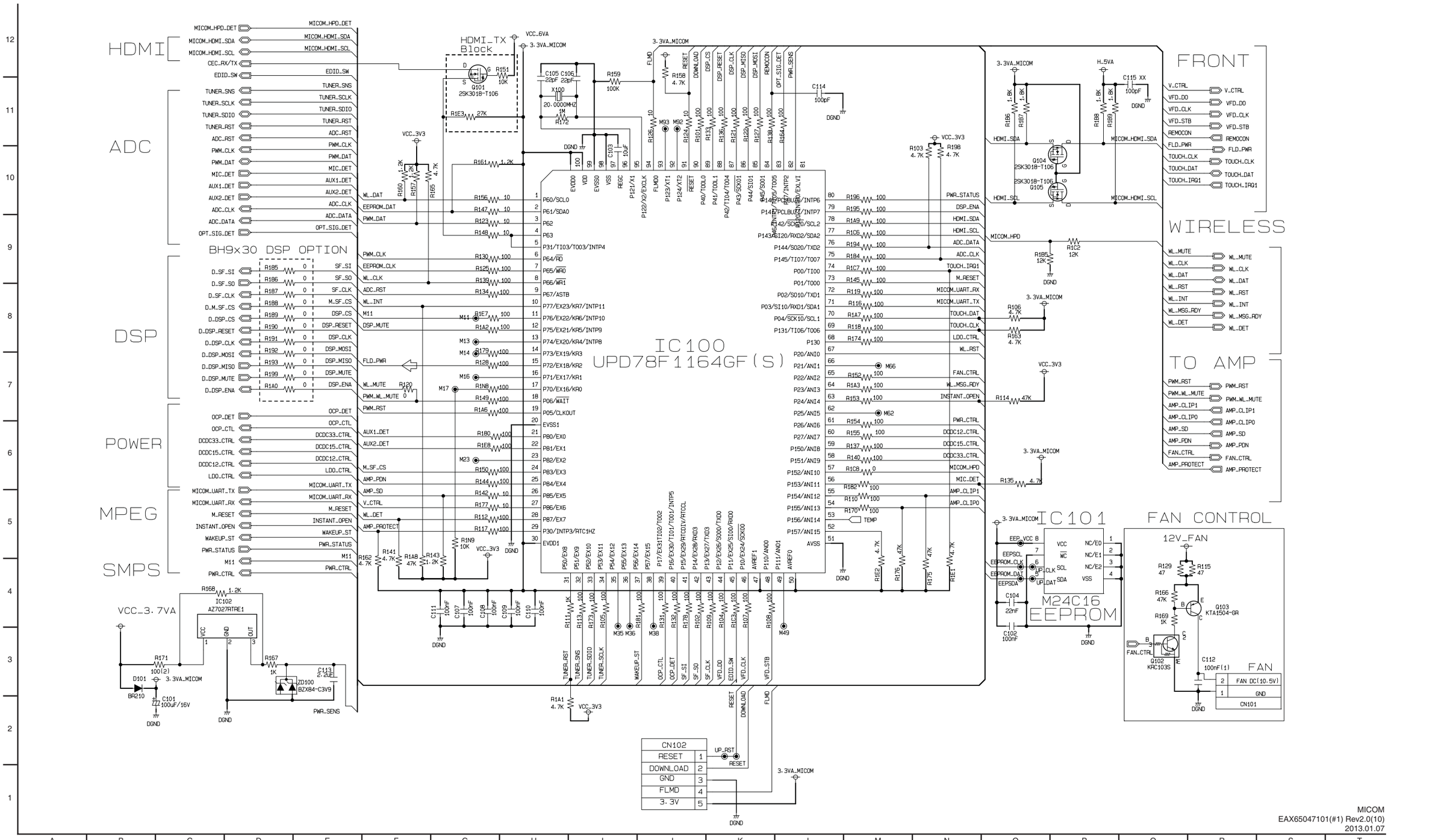
NOTES) ⏚ Symbol denotes AC ground.
⏚ Symbol denotes DC chassis ground.

BD Home Theater	C903	C904	LF901	LF902	BD901
120V	X	270uF/250V	6200JB8009X	EAM61230102	RBU805M Heatsink
110-240V	100uF/450V	180uF/450V	6200JB8009X	EAM61230102	RBU805M Heatsink
200-240V	X	180uF/450V	EAM60672502	EAM60672501	RBU605M
Special	68uF/500V	100uF/500V	EAM60672502	EAM60672501	RBU605M

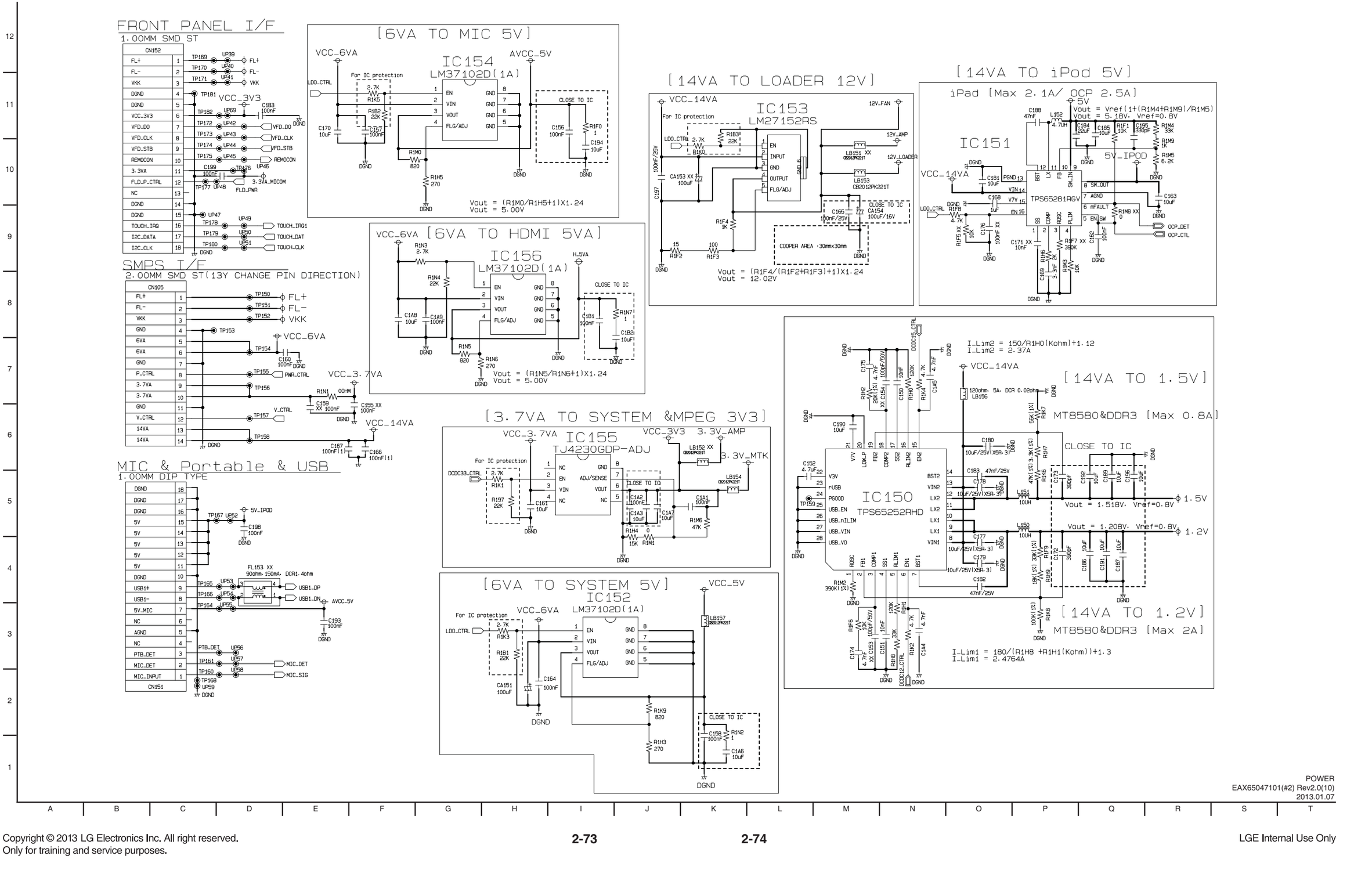
	R944	R946	R960	R962
5.1Ch	20K(1%)	10K(1%)	0	82
7.1Ch	18K(1%)	8.2K(1%)	1K(1%)	0

SMPS
EAX63689122 Rev1.1(1)
2013.01.07

2. MAIN - MICOM CIRCUIT DIAGRAM

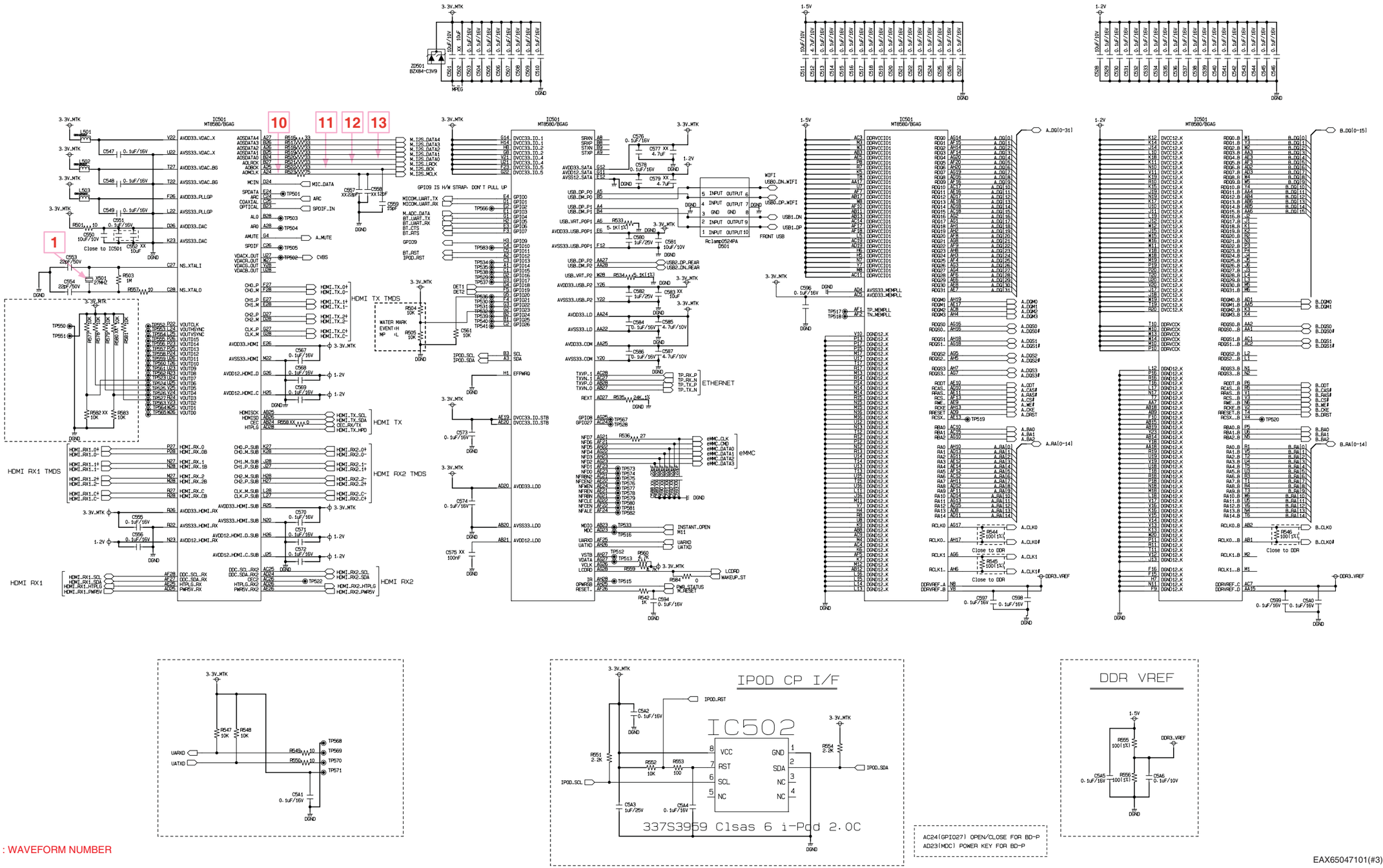


3. MAIN - POWER CIRCUIT DIAGRAM

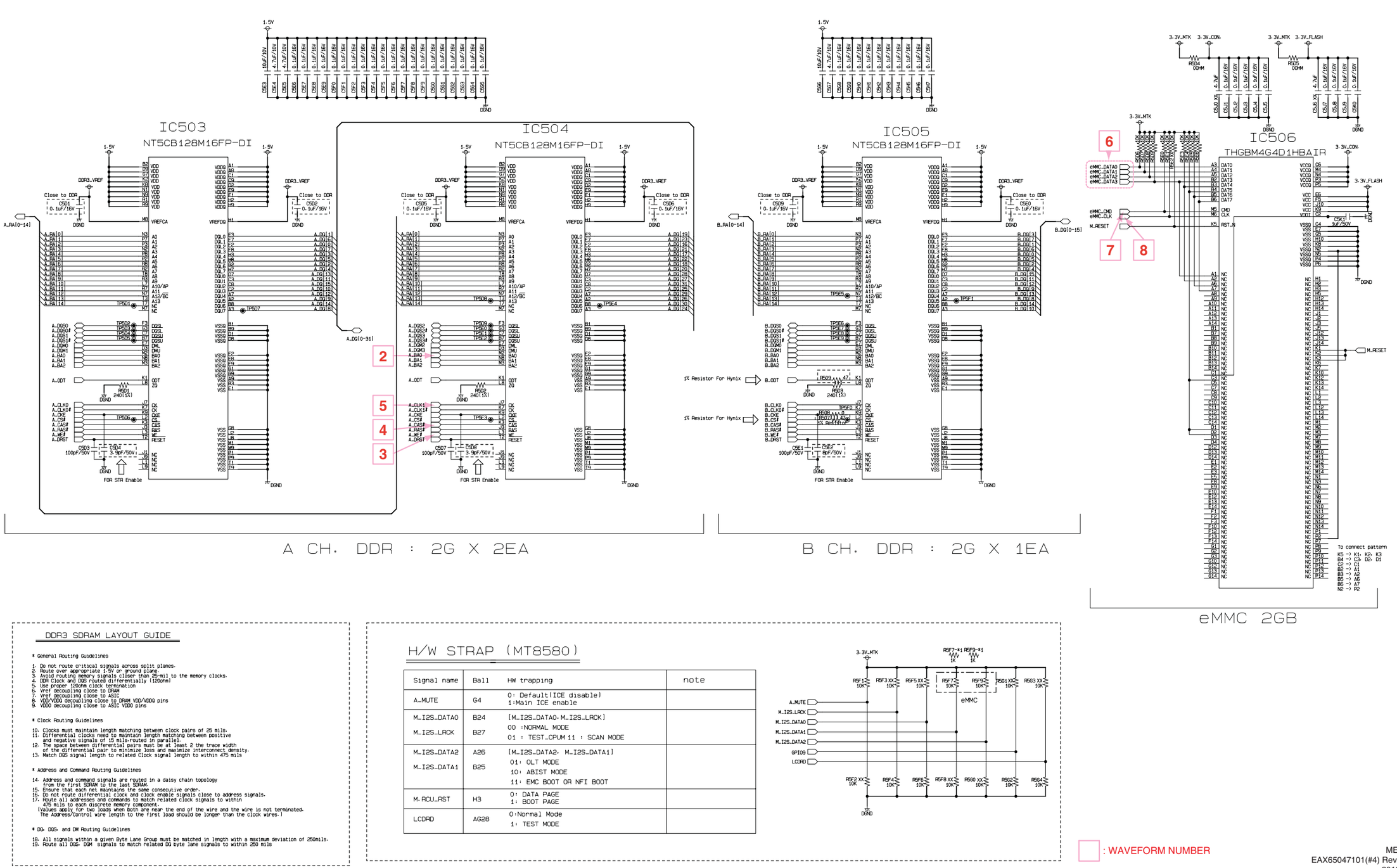


POWER
EAX65047101(#2) Rev2.0(10)
2013.01.07

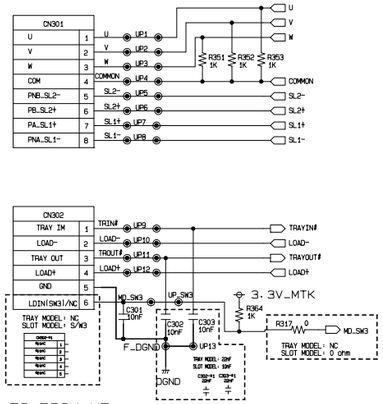
4. MAIN - MPEG CIRCUIT DIAGRAM



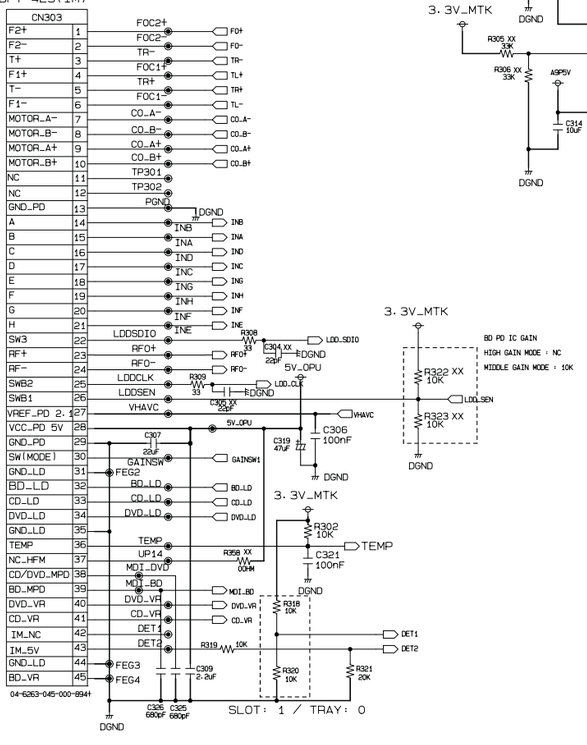
5. MAIN - MEMORY CIRCUIT DIAGRAM

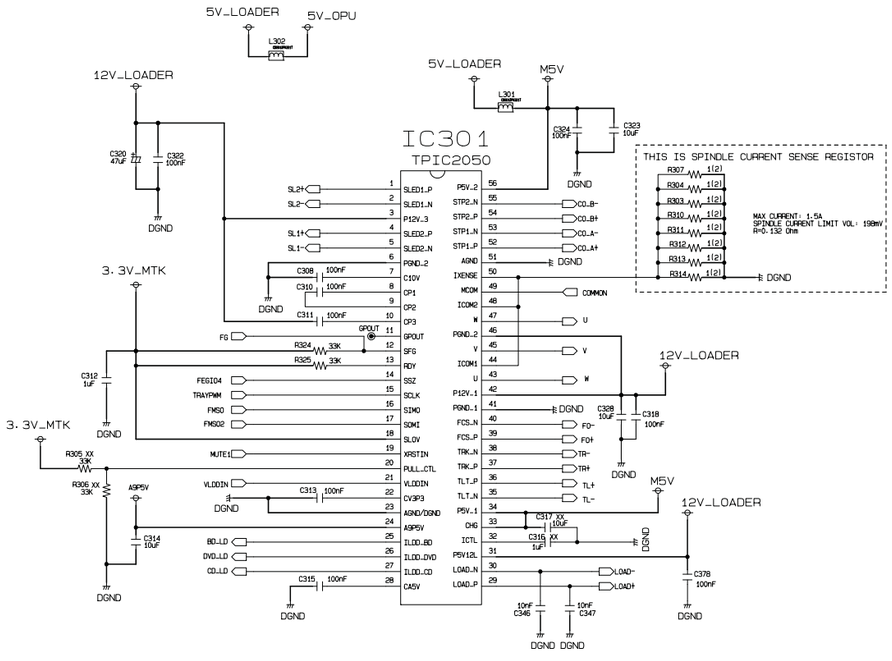


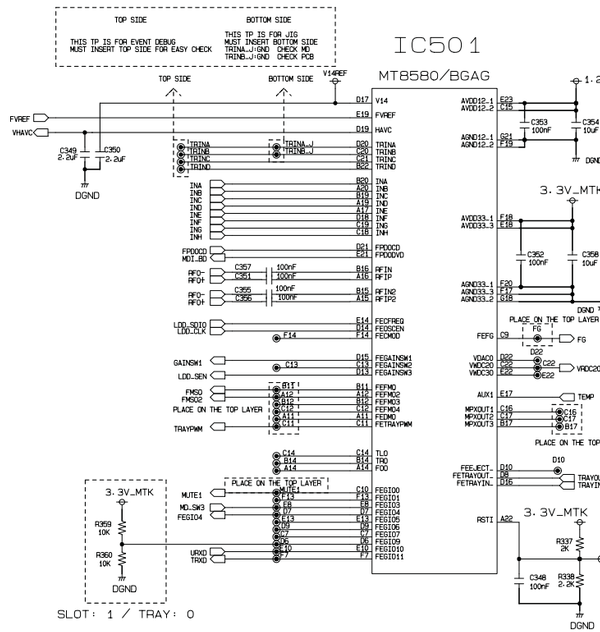
6. MAIN - FRONT END CIRCUIT DIAGRAM

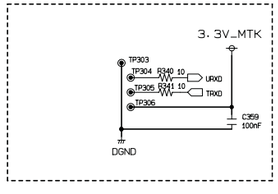


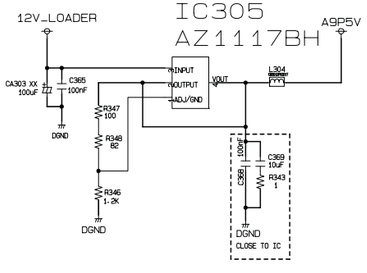
TO PICK UP
BPT-423(IM)

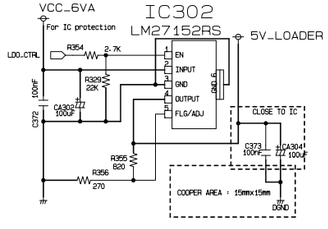


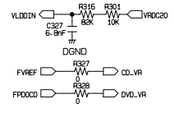












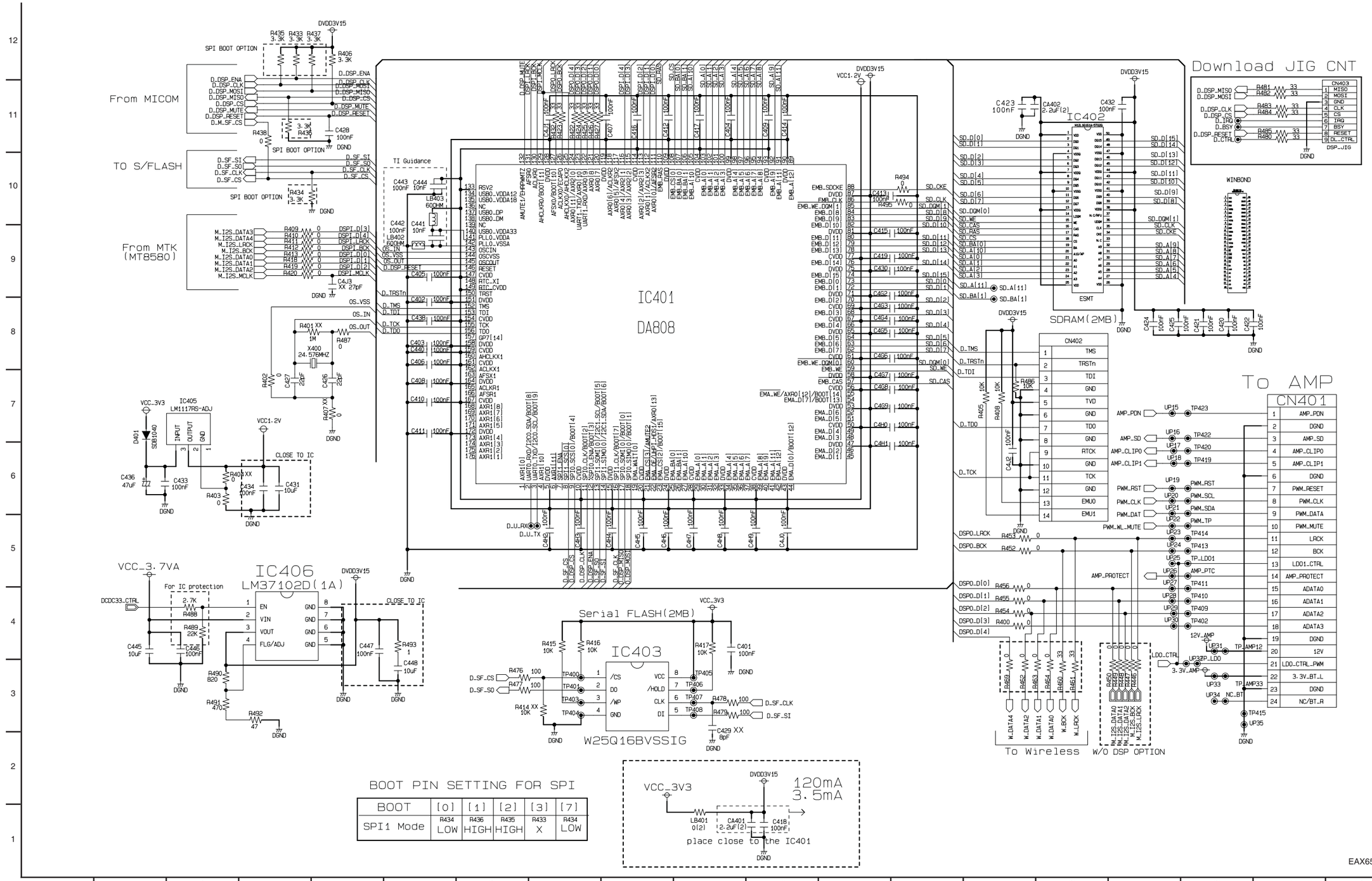
Motor Vcc and Pick up Vcc must be completely seperated (12V, 5V)
RFO+, RFO-, INA, INB, INC, IND Signal < 6Cm
Separate with motor driver power trace
Red Color TP must on top side

F/E H/W TRAPING OPTION

SIGNAL NAME	BALL	H/W TRAPPING	NOTE
FEGIO7			1: Not allowed to pull up in circuit.
MPXOUT2			
MPXOUT1		1: TEST MODE	
FEGIO6		0: NORMAL MODE	2. IC internal pull down- no need connect external resistor.
FEGIO1			
FEGIO0			

F/E
EAX65047101(#5) Rev2.0(10)
2013.01.07

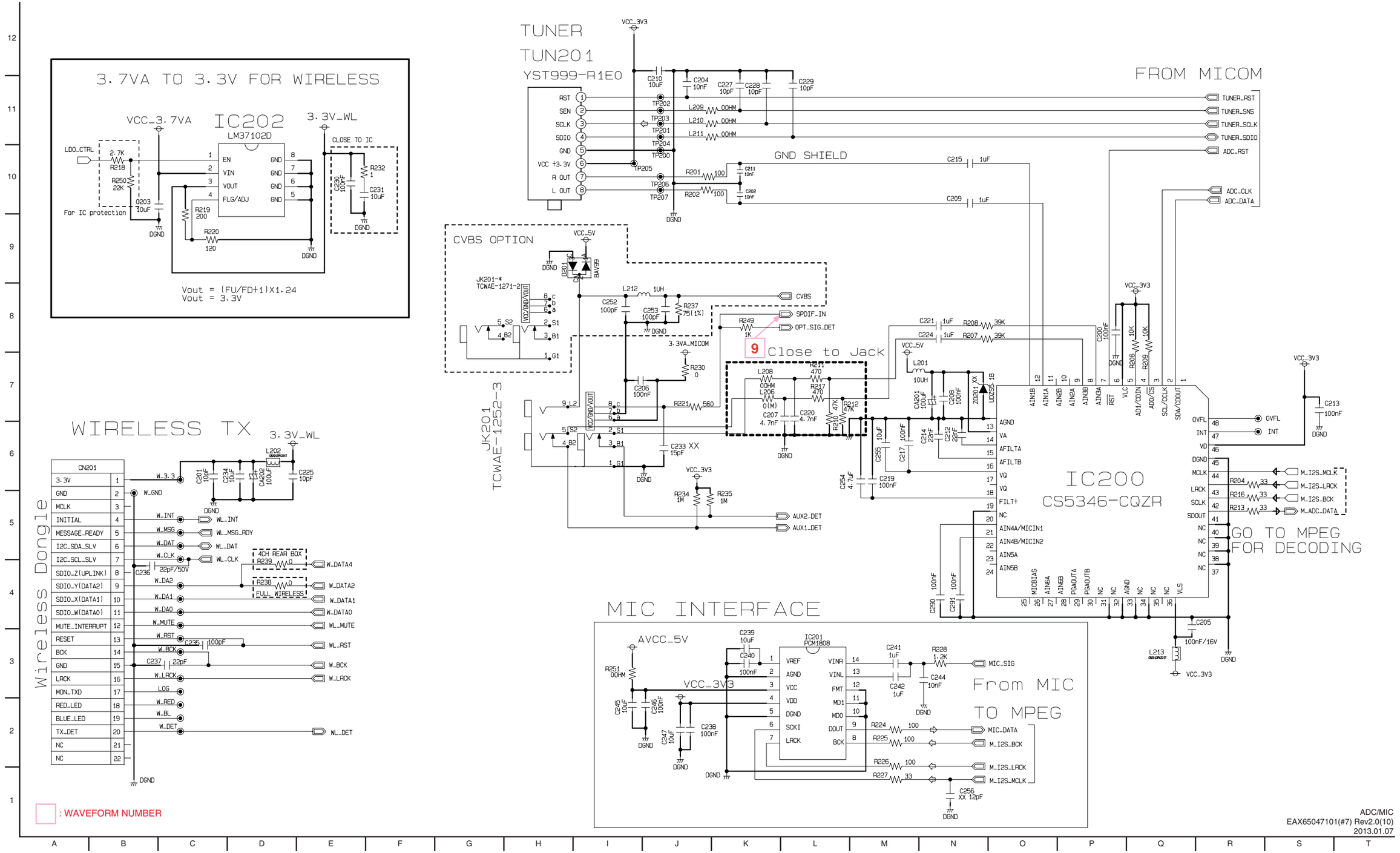
7. MAIN - DSP CIRCUIT DIAGRAM



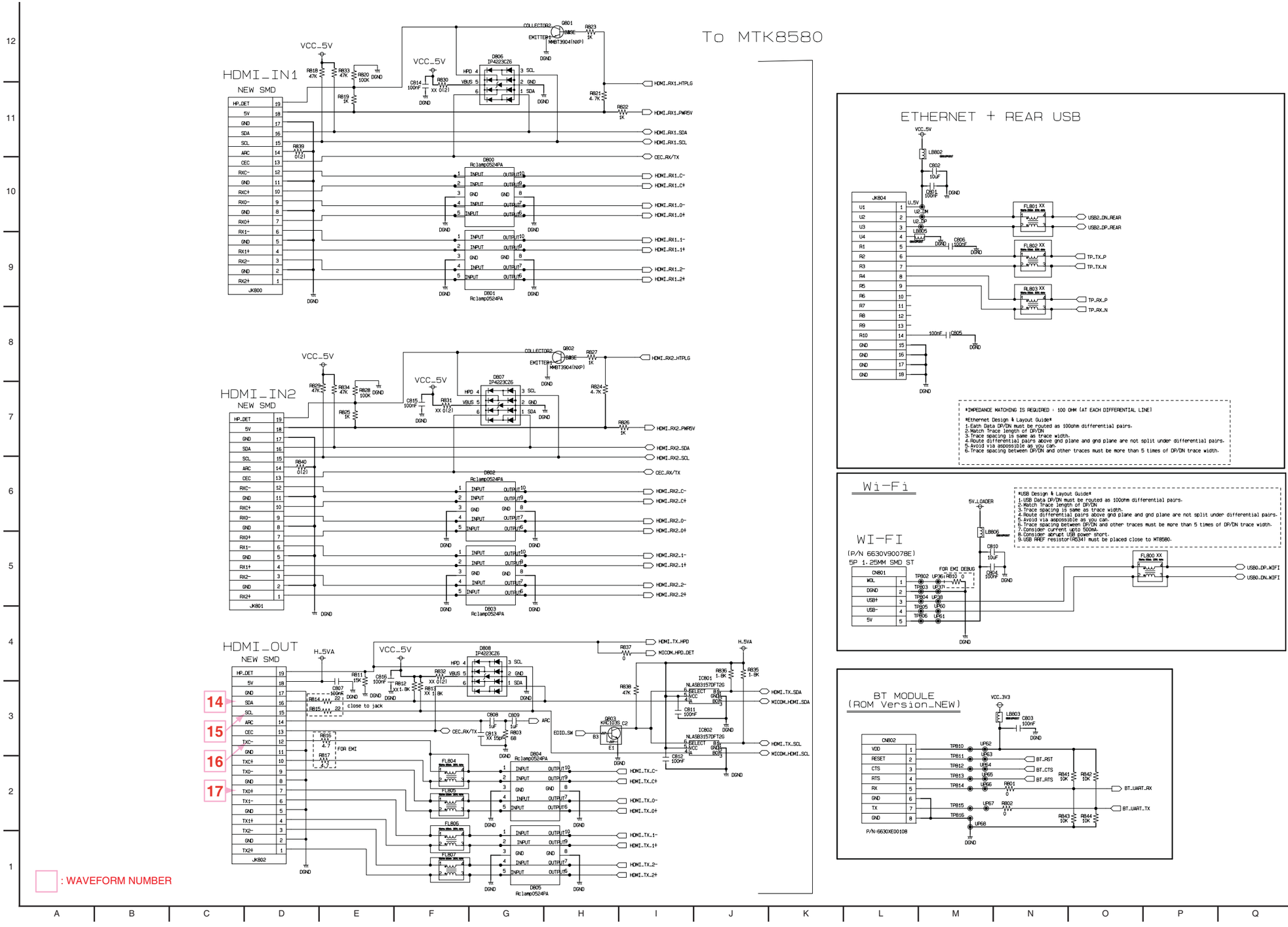
BOOT	[0]	[1]	[2]	[3]	[7]
SPI1 Mode	R434 LOW	R436 HIGH	R435 HIGH	R433 X	R434 LOW

DSP
EAX65047101(#6) Rev2.0(10)
2013.01.07

8. MAIN - ADC/ MIC CIRCUIT DIAGRAM

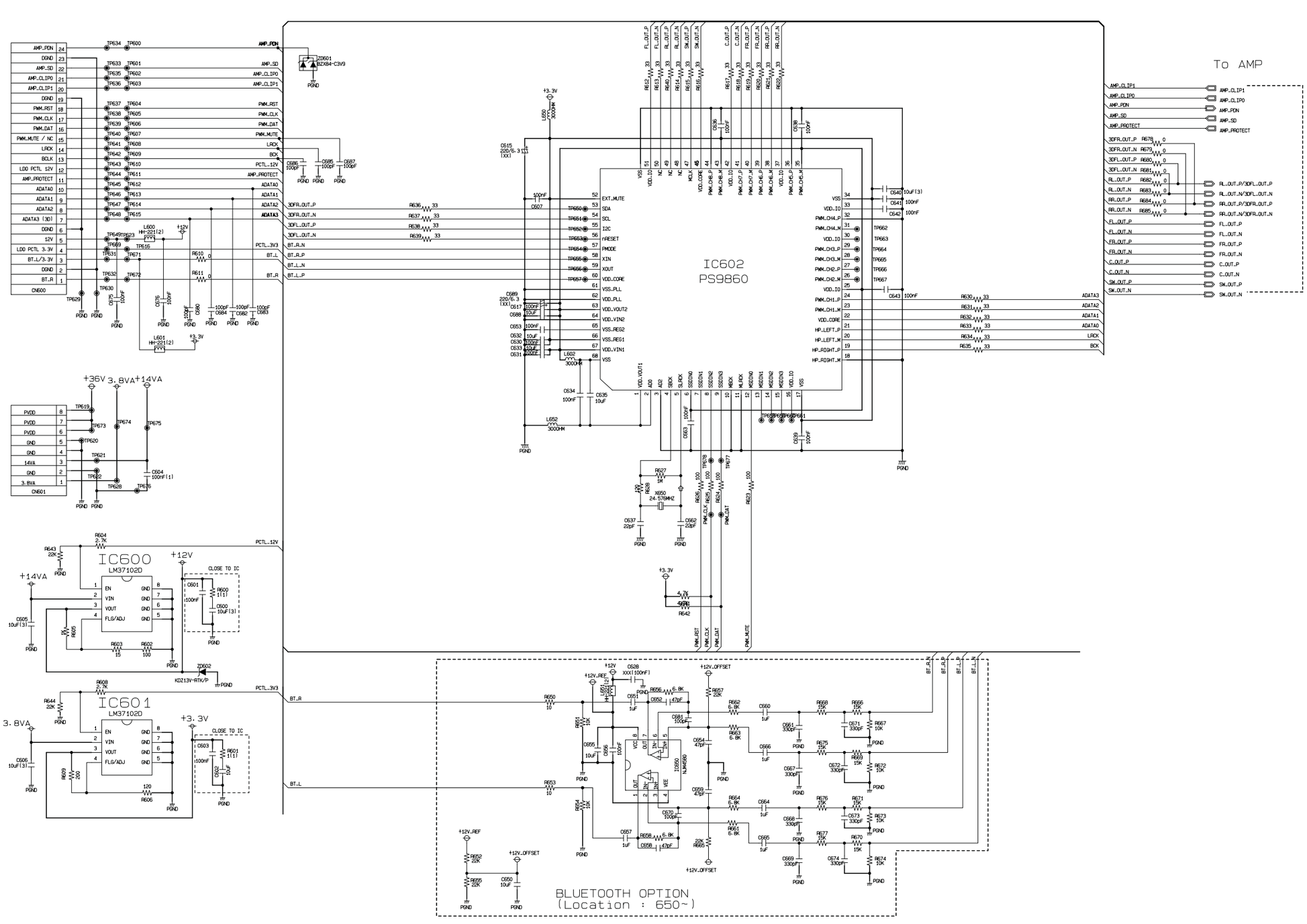


9. MAIN - I/O CIRCUIT DIAGRAM



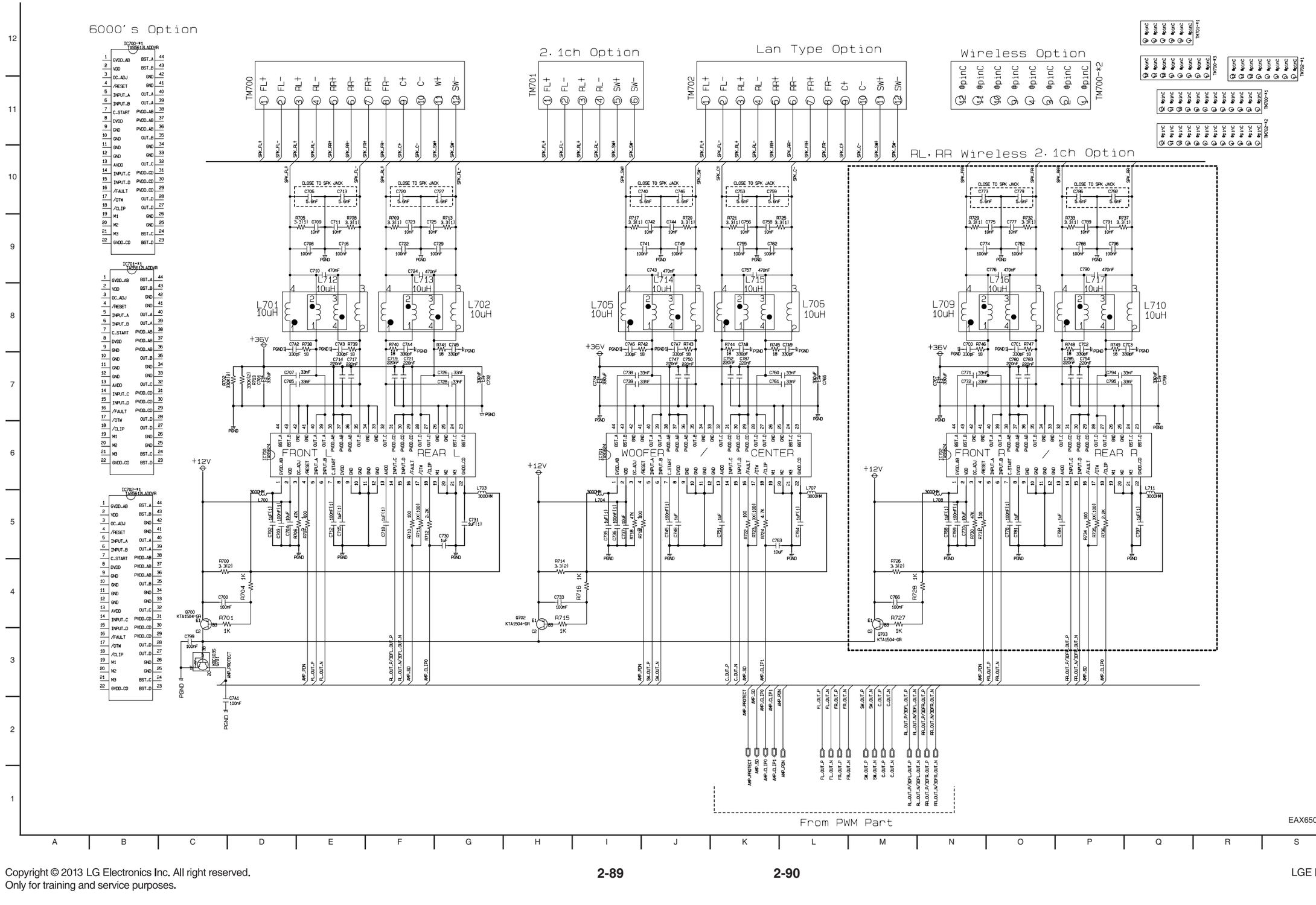
I/O
EAX65047101(#8) Rev2.0(10)
2013.01.07

10. AMP - PWM CIRCUIT DIAGRAM



PWM
EAX65033801(#1) Rev1.6(6)
2012.11.11

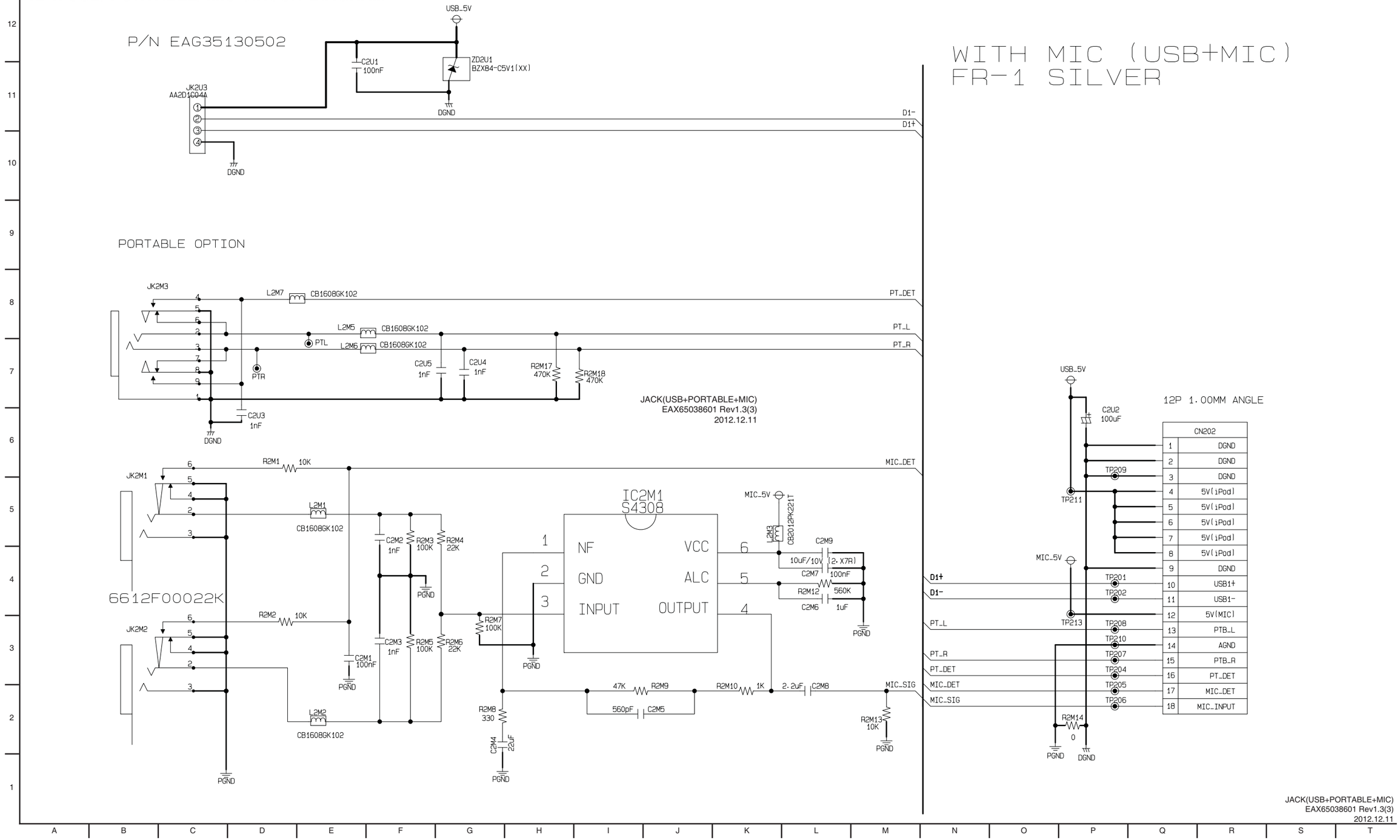
11. AMP - AMP CIRCUIT DIAGRAM



AMP
EAX65033801(#2) Rev1.6(6)
2012.12.11

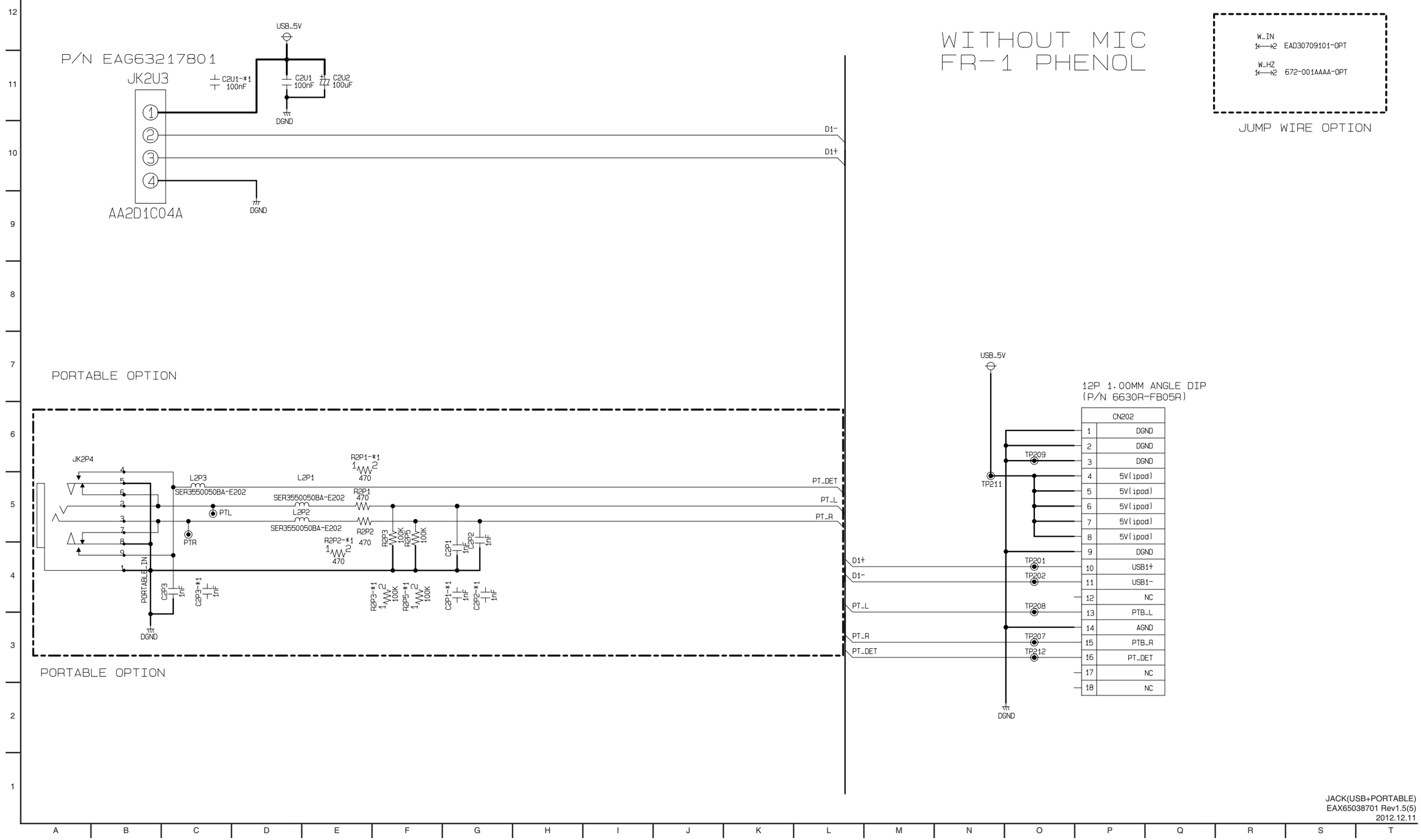
12. JACK CIRCUIT DIAGRAM (OPTIONAL PART)

12-1. USB/ PORTABLE/ MIC CIRCUIT DIAGRAM



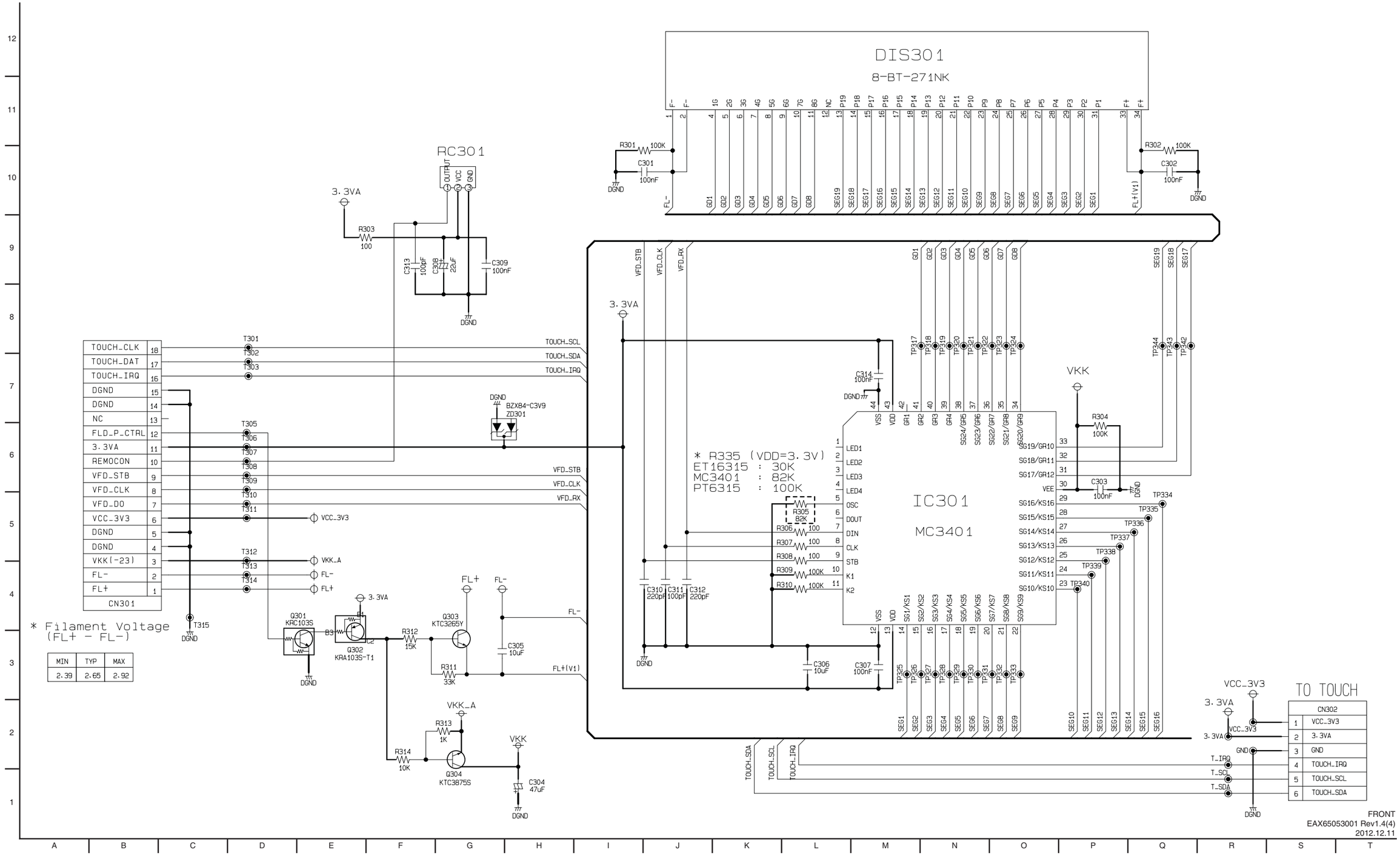
JACK CIRCUIT DIAGRAM (OPTIONAL PART)

12-2. USB/ PORTABLE CIRCUIT DIAGRAM

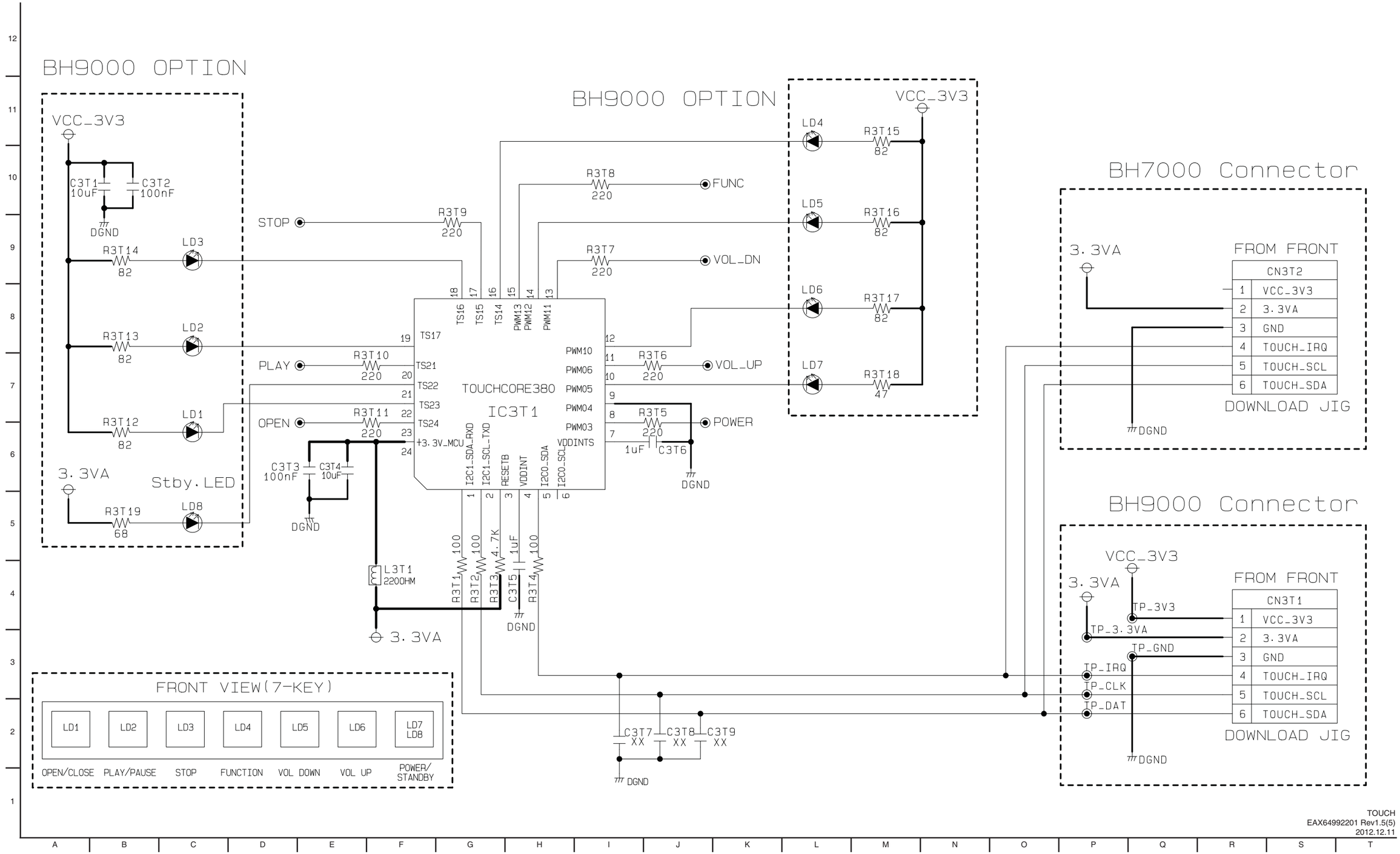


JACK(USB+PORTABLE)
EAX65038701 Rev1.5(5)
2012.12.11

13. FRONT CIRCUIT DIAGRAM



14. TOUCH CIRCUIT DIAGRAM



TOUCH
EAX64992201 Rev1.5(5)
2012.12.11

CIRCUIT VOLTAGE CHART

1. ICs

Pin No.	Pin Name	Spec. (V)	Stand-by Mode	EE Mode (V)
IC100 (MICOM)				
100	3.3VA_MICOM	3.4	3.487	3.449
IC101 (EEPROM)				
8	3.3VA_MICOM	3.4	3.487	3.449
IC150 (TPS65252)				
8	VIN1	12~14.5	14.03	12.94
9	LX1	1.2	0	1.218
12	LX2	1.5	0	1.531
IC151 (TPS65281)				
8	SW_OUT	5	0	5.22
9	SW_IN	5	0	5.22
14	VIN	12~14.5	14.03	12.91
IC152 (LM37102D)				
2	INPUT	6	5.75	5.76
3	OUTPUT	5	0	5.13
IC153 (LM27152RS)				
2	INPUT	12~14.5	14.05	13.01
4	OUTPUT	12	0	12.09
IC154 (LM37102D)				
2	VIN	6	5.7	5.82
3	VOUT	5	0	5.03
IC155 (TJ4230)				
3	VIN	3.7	3.8	3.75
6	VOUT	3.3	0	3.354
IC156 (LM37102D)				
2	VIN	6	5.75	5.76
3	VOUT	5	4.94	4.94
IC200 (ADC)				
46	VD	3.4	0	3.343
IC201 (MIC ADC)				
3	VCC	5	0	4.97
4	VDD	3.3	0	3.271
IC202 (LM37102D)				
2	VIN	3.7	3.8	3.76
3	VOUT	3.3	0	3.365
IC301 (TPIC2050)				
3	P12V_3	12	0	12.08
24	A9P5V	9.5	0	9.65
31	P5V12L	12	0	12.08
34	P5V_1	5	0	5.04
42	P12V_1	12	0	12.08
56	P5V_2	5	0	5.04
IC302 (LM27152RS)				
2	INPUT	6	5.7	5.82
4	OUTPUT	5	0	5.03

Pin No.	Pin Name	Spec. (V)	Stand-by Mode	EE Mode (V)
IC305 (AZ1117BH)				
4	VOUT	9.5	0	9.64
3	INPUT	12	0	12.08
IC401 (DSP)				
87	DVDD	3.3	0	3.341
77	CVDD	1.2	0	1.253
IC402 (SDRAM)				
1	VDD33	3.3	0	3.292
IC403 (Serial Flash)				
8	VCC	3.3	0	3.342
IC405 (LM1117RS)				
4	INPUT	1.2	0	1.259
3	OUTPUT	2.9	0	2.987
IC501 (MPEG)				
	DVCC33_IO	3.3	0	3.324
	AVDD33	3.3	0	3.324
	DVCC12_K	1.2	0	1.218
	AVDD12	1.2	0	1.218
	AVDD12_LDO	1.2	0	1.218
	DDRVCCIO	1.5	0	1.531

2. CAPACITORS

Location No.	Value & Spec.	Voltage_ Spec	EE Mode		Standby	
			Positive (+)	Negative (-)	Positive (+)	Negative (-)
C101	100uF	16V	3.471	0	3.491	0
CA151	100uF	16V	5.7	0	5.7	0
CA154	100uF	16V	12.07	0	0	0
CA201	100uF	16V	5.11	0	0	0
CA202	100uF	16V	3.362	0	0	0
CA302	100uF	16V	5.7	0	5.7	0
CA304	100uF	16V	5.03	0	0	0
C320	47uF	16V	12.08	0	0	0
C436	47uF	16V	2.99	0	0	0
C2M4	22uF	16V	2.036	0	0	0

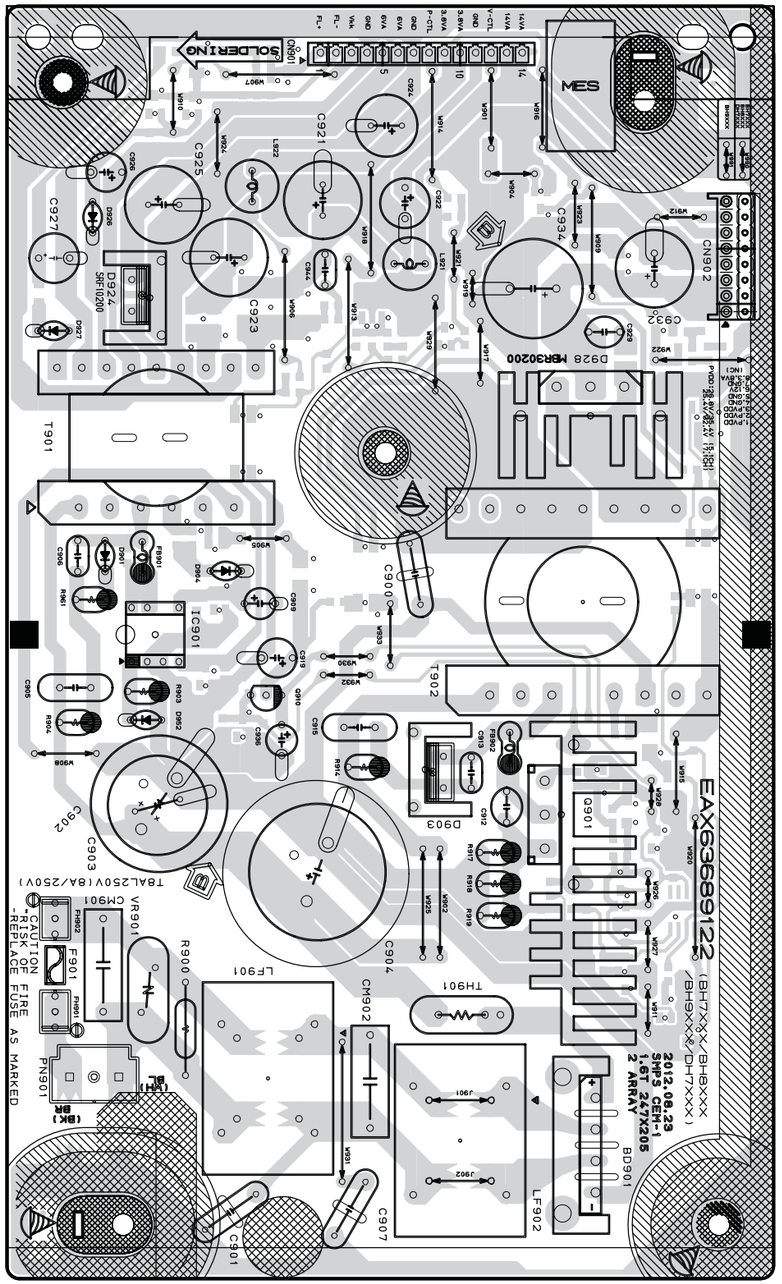
3. CONNECTORS

Pin No.	Pin Name	Spec. (V)	Stand-by Mode	EE Mode (V)
CN105 (MAIN -> SMPS)				
5	6VA	6	5.7	5.82
6	6VA	6	5.7	5.82
9	3.7VA	3.7	3.807	3.793
10	3.7VA	3.7	3.807	3.793
13	14VA	12~14.5	14.02	12.93
14	14VA	12~14.5	14.02	12.93
CN151 (MAIN -> FRONT JACK I/O)				
7	AVCC_5V	5	0	5.03
11	5V (IPOD)	5	0	5.21
12	5V (IPOD)	5	0	5.21
13	5V (IPOD)	5	0	5.21
14	5V (IPOD)	5	0	5.21
15	5V (IPOD)	5	0	5.21
CN152 (MAIN -> FRONT)				
6	VCC_3V3	3.3	0	3.341
11	3.3VA	3.3	3.489	3.427
CN801 (MAIN -> Wi-Fi)				
5	5V	5	0	5.03
CN802 (MAIN -> BT)				
1	VDD	3.4	0	3.346

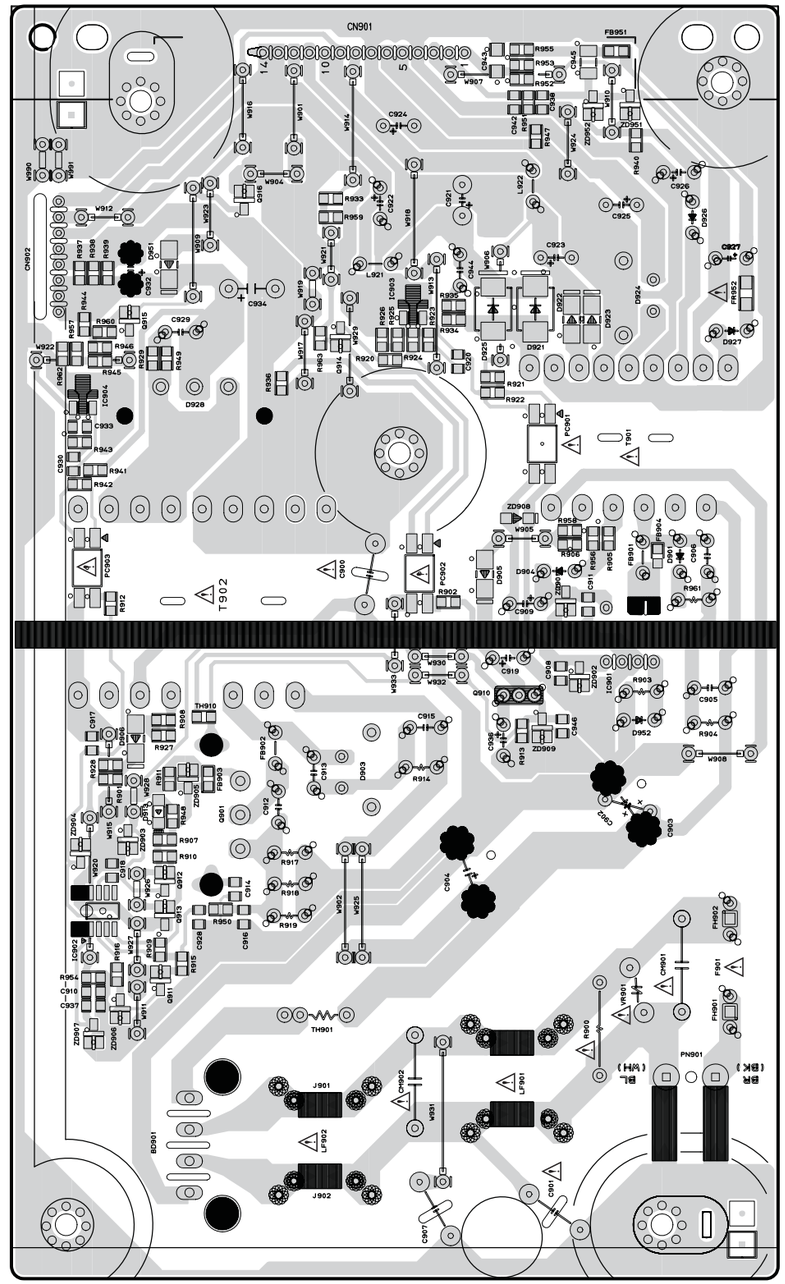
PRINTED CIRCUIT BOARD DIAGRAMS

1. SMPS P. C. BOARD

(TOP VIEW)



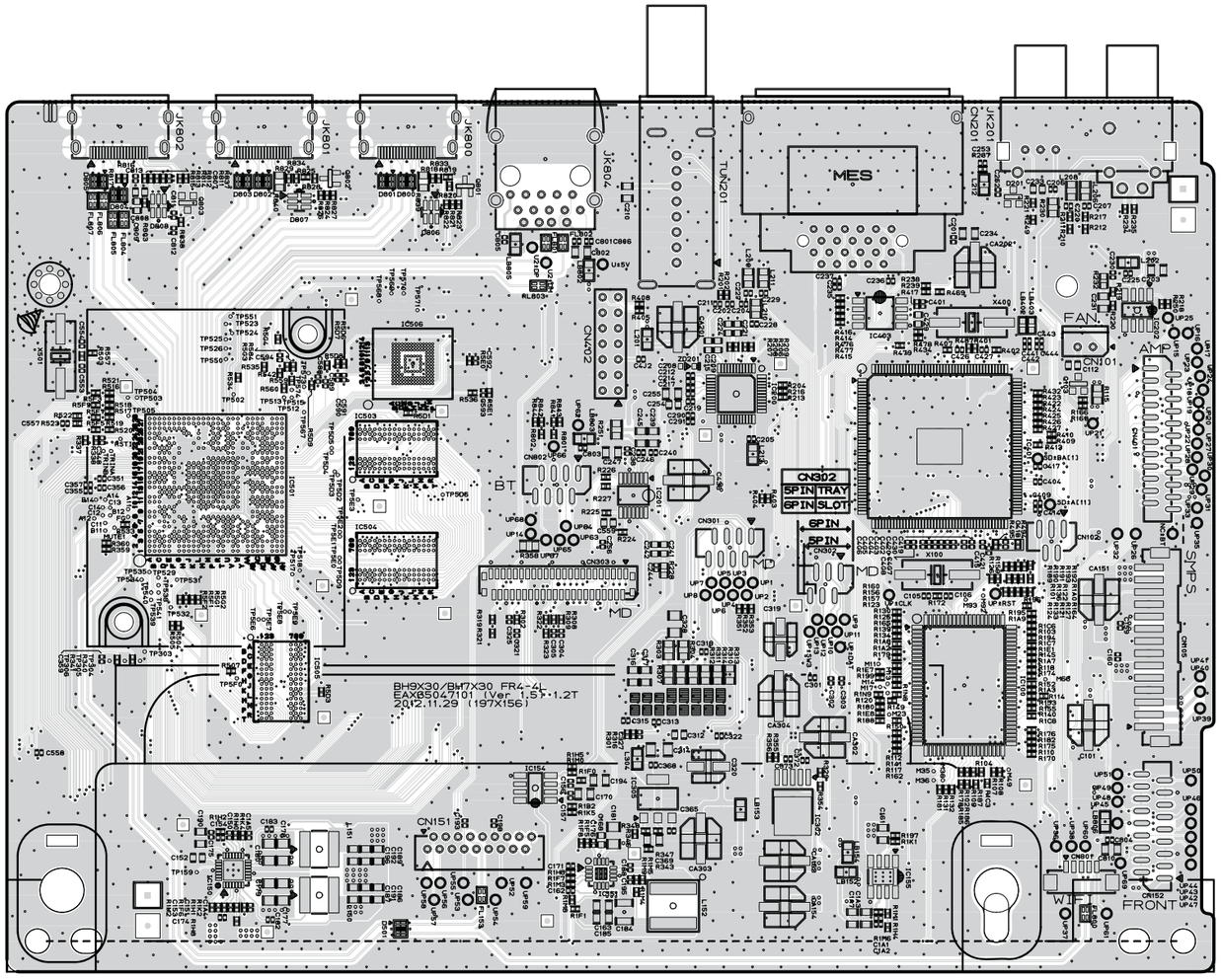
(BOTTOM VIEW)



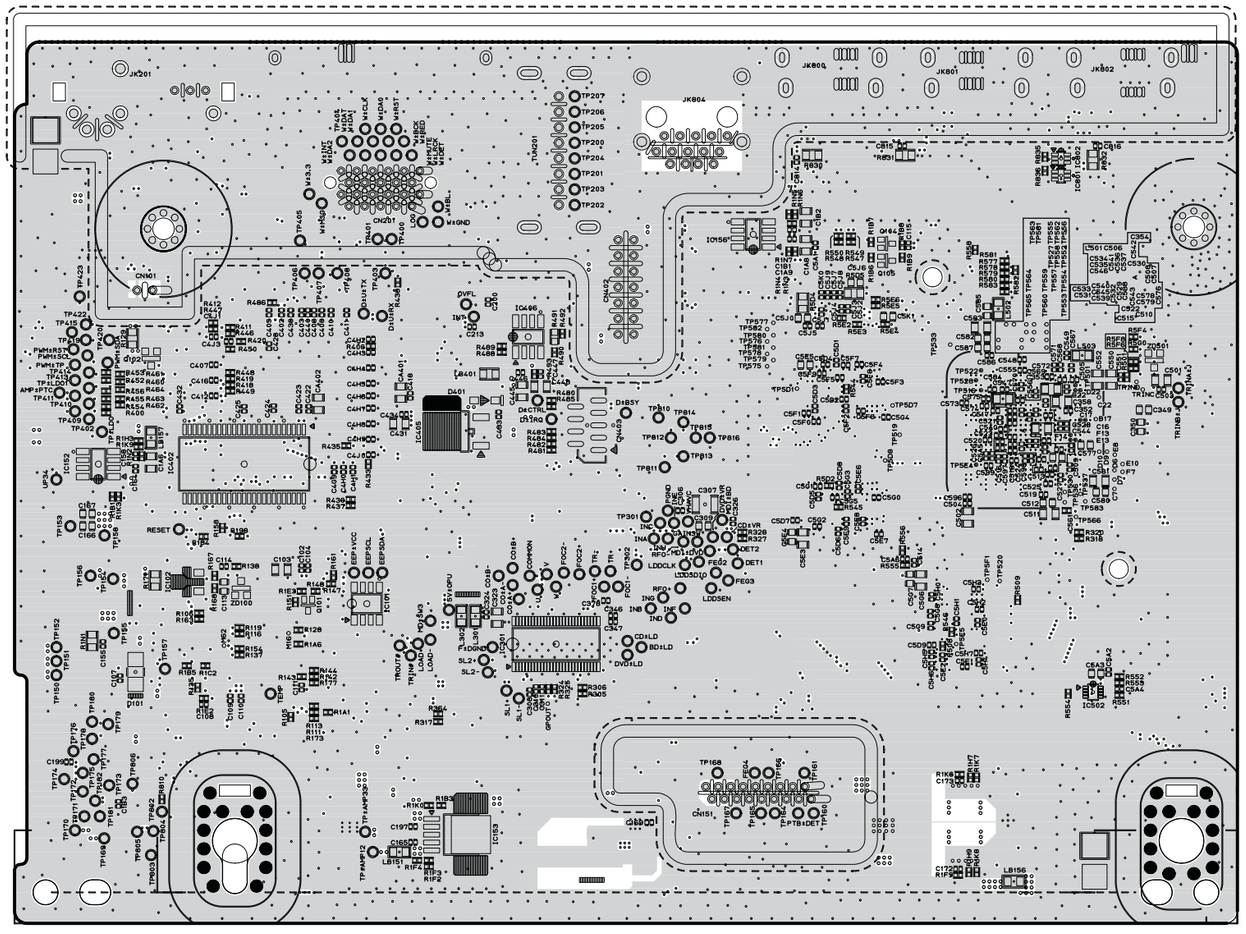
NOTE) Warning
⚠ Parts that are critical with respect to risk of fire or electrical shock.

2. MAIN P. C. BOARD

(TOP VIEW)

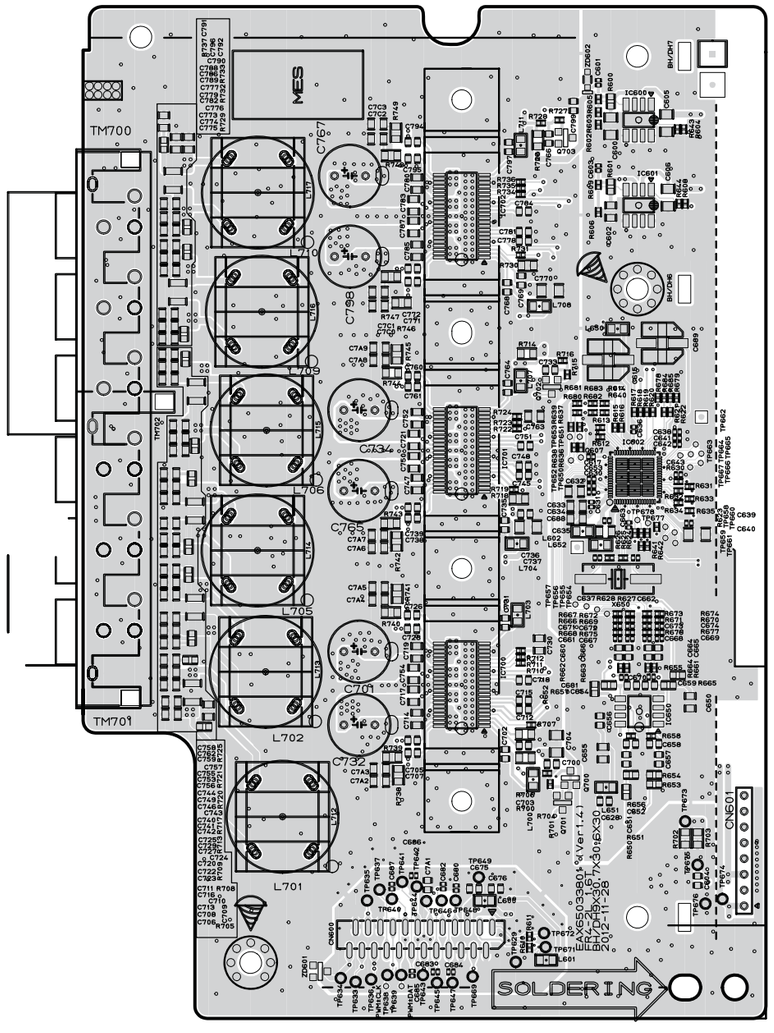


MAIN P. C. BOARD
(BOTTOM VIEW)

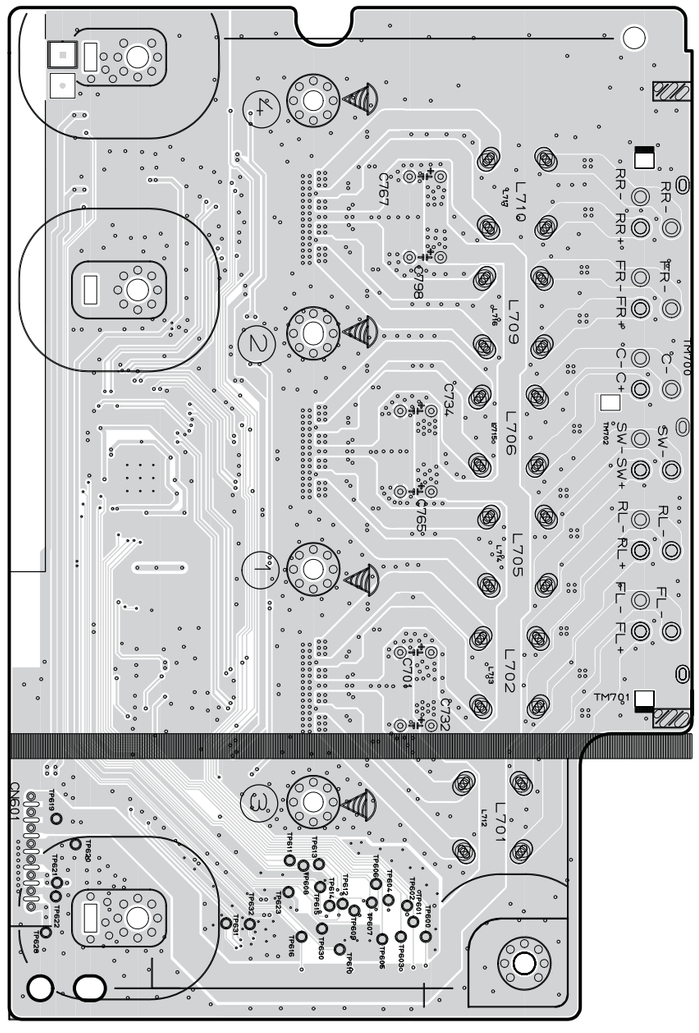


3. AMP P. C. BOARD

(TOP VIEW)



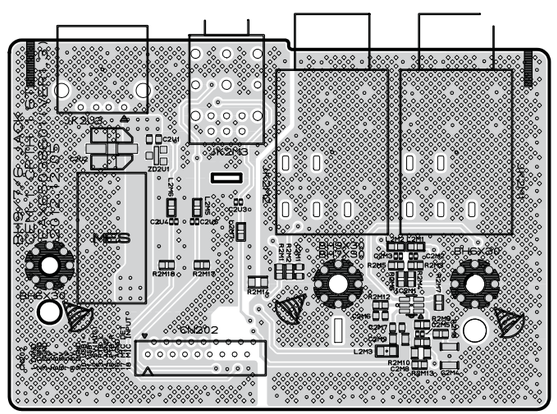
(BOTTOM VIEW)



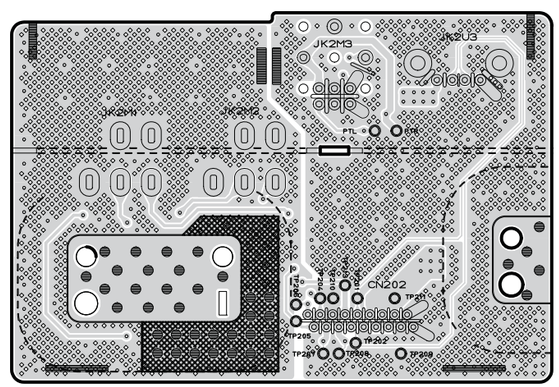
4. JACK P. C. BOARD (OPTIONAL PART)

4-1. USB/ PORTABLE/ MIC P. C. BOARD

(TOP VIEW)

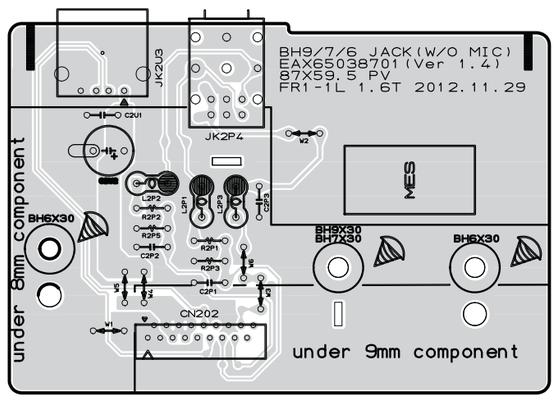


(BOTTOM VIEW)

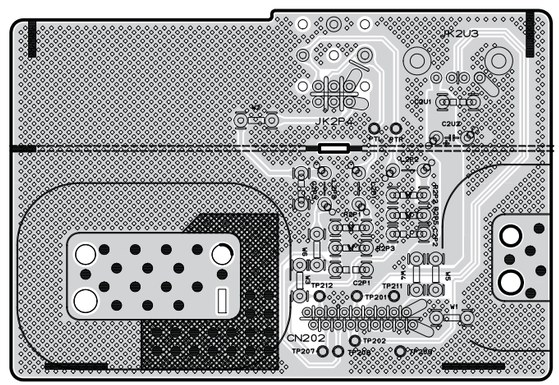


4-2. USB/ PORTABLE P. C. BOARD

(TOP VIEW)

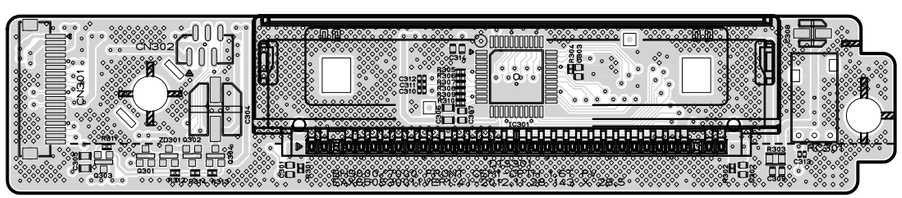


(BOTTOM VIEW)

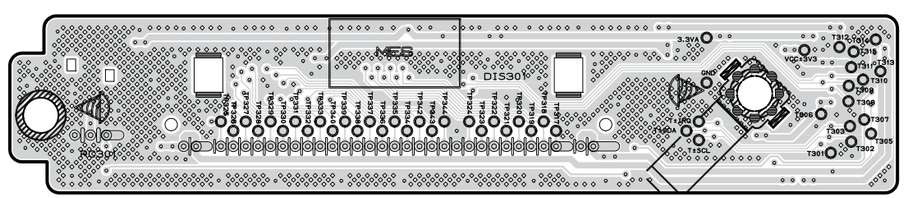


5. FRONT P. C. BOARD

(TOP VIEW)

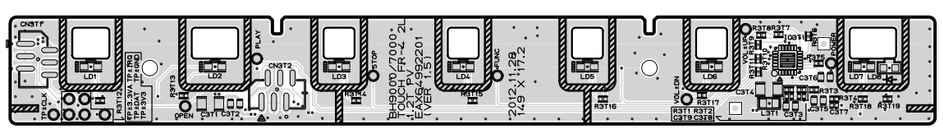


(BOTTOM VIEW)

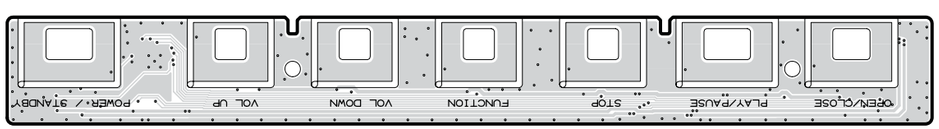


6. TOUCH P. C. BOARD

(TOP VIEW)



(BOTTOM VIEW)



SECTION 3

CABINET & MAIN CHASSIS

CONTENTS

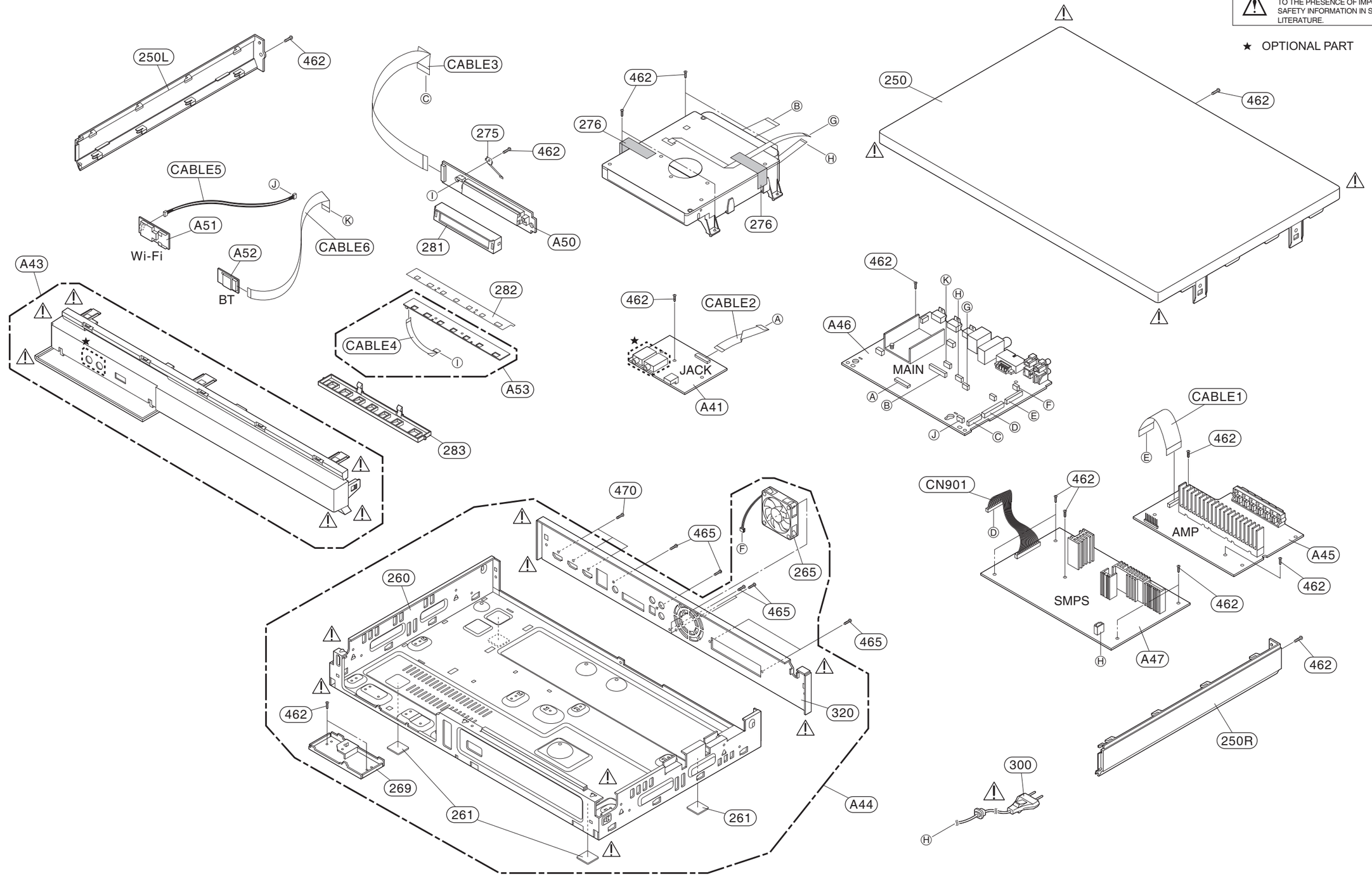
MEMO

EXPLODED VIEWS

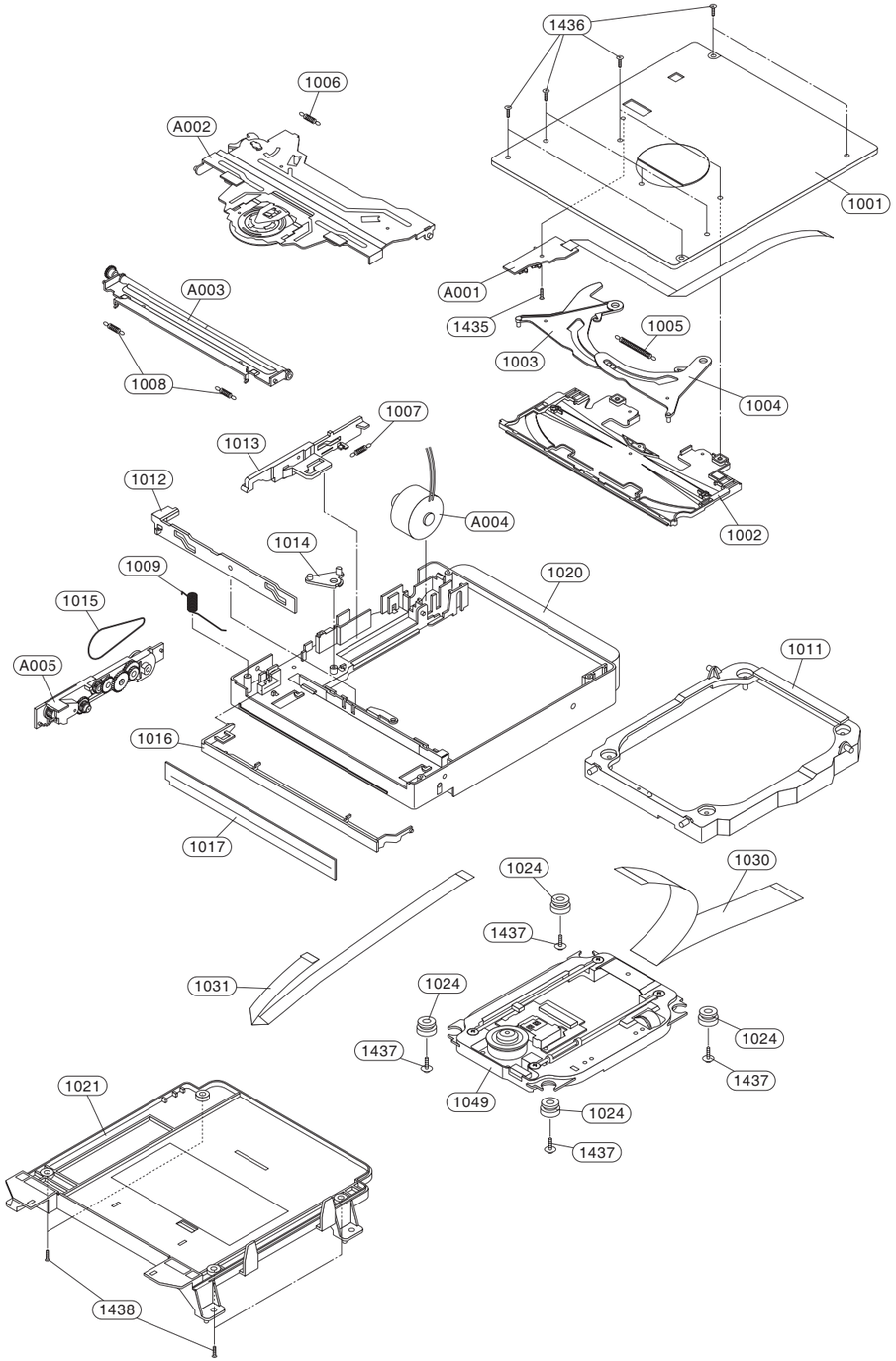
1. CABINET AND MAIN FRAME SECTION

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.

★ OPTIONAL PART

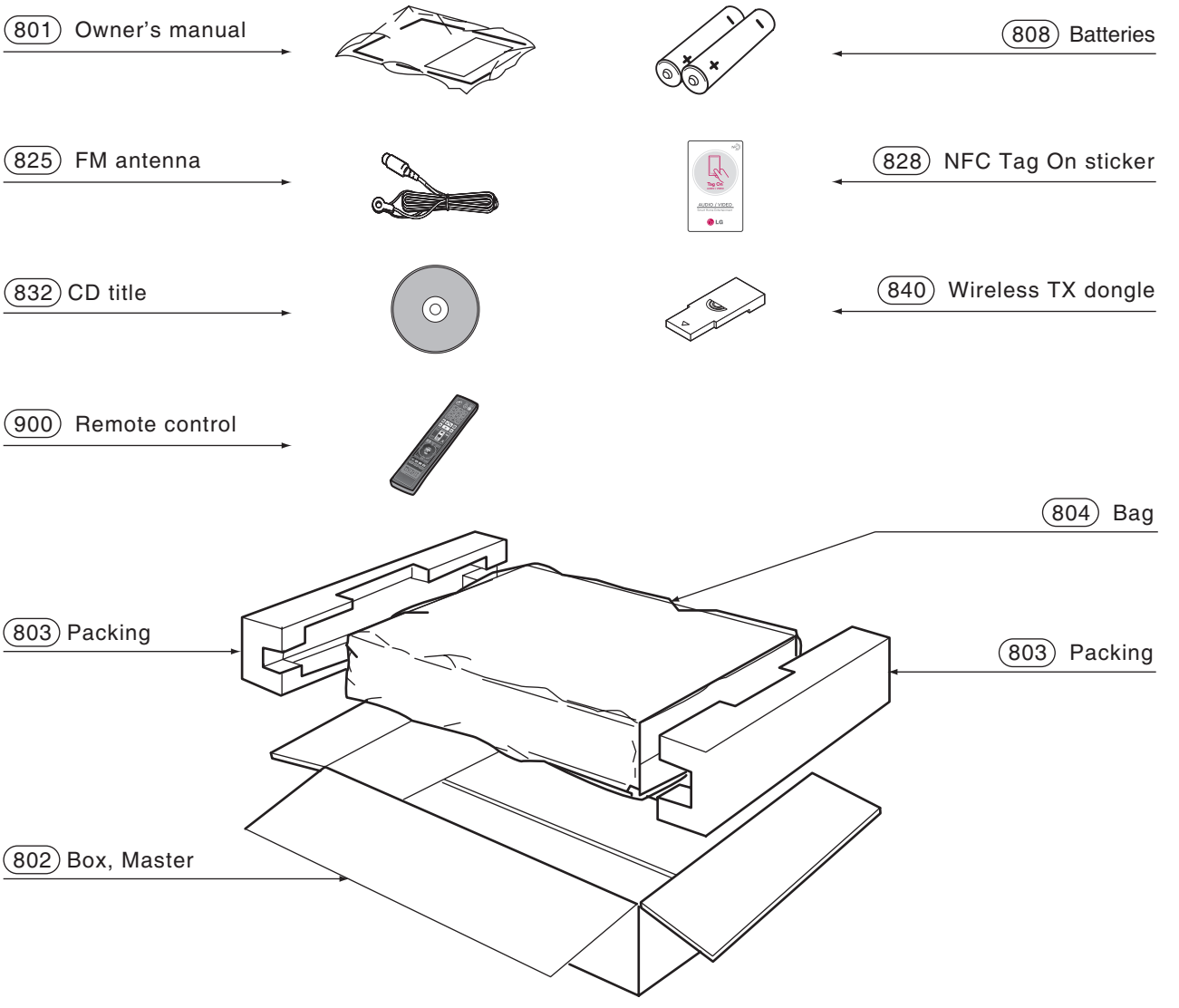


2. DECK MECHANISM SECTION



MEMO

3. PACKING ACCESSORY SECTION

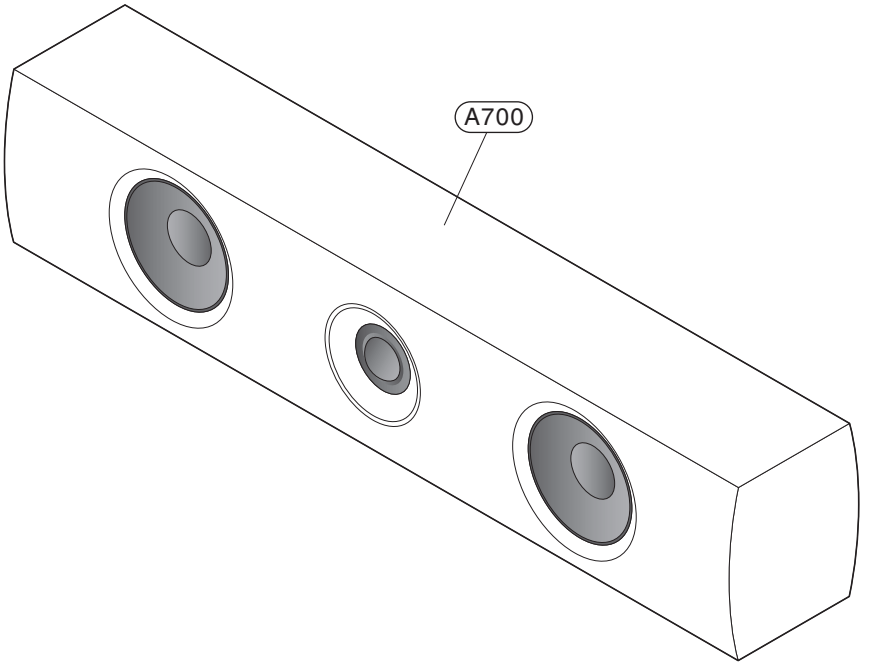


Speaker cables

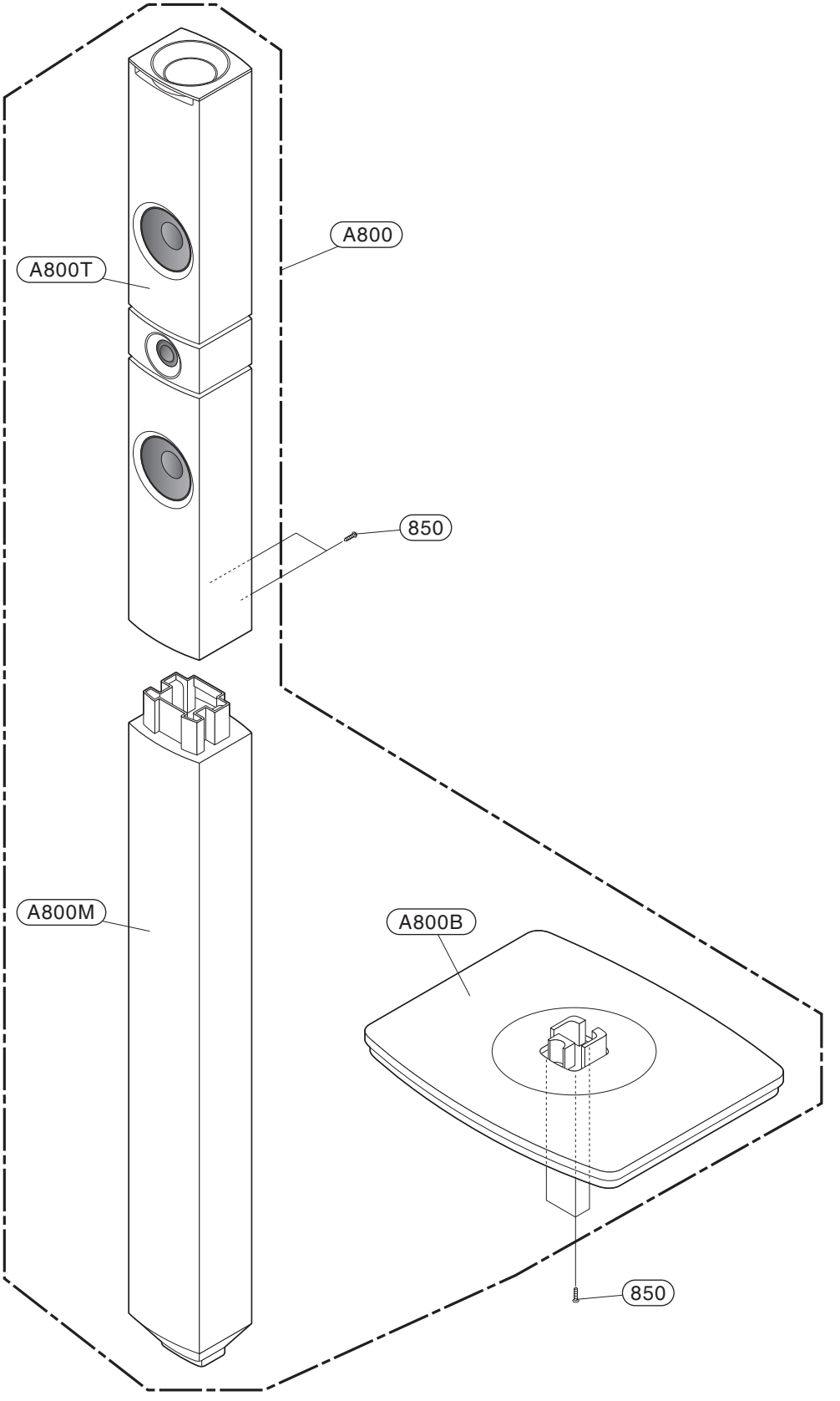
WIRE80	White (Front left)
WIRE81	Red (Front right)
WIRE70	Green (Center)
WIRE90	Orange (Sub woofer)
WIRE60	Blue (Rear left)
WIRE61	Grey (Rear right)

4. SPEAKER SECTION

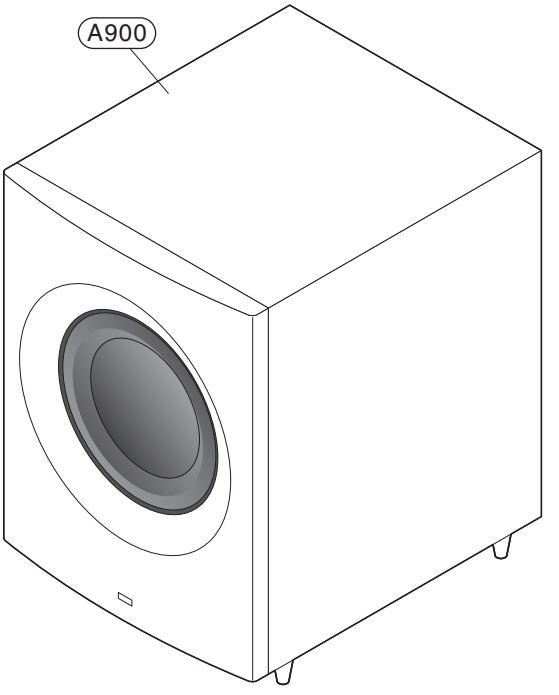
4-1. CENTER SPEAKER



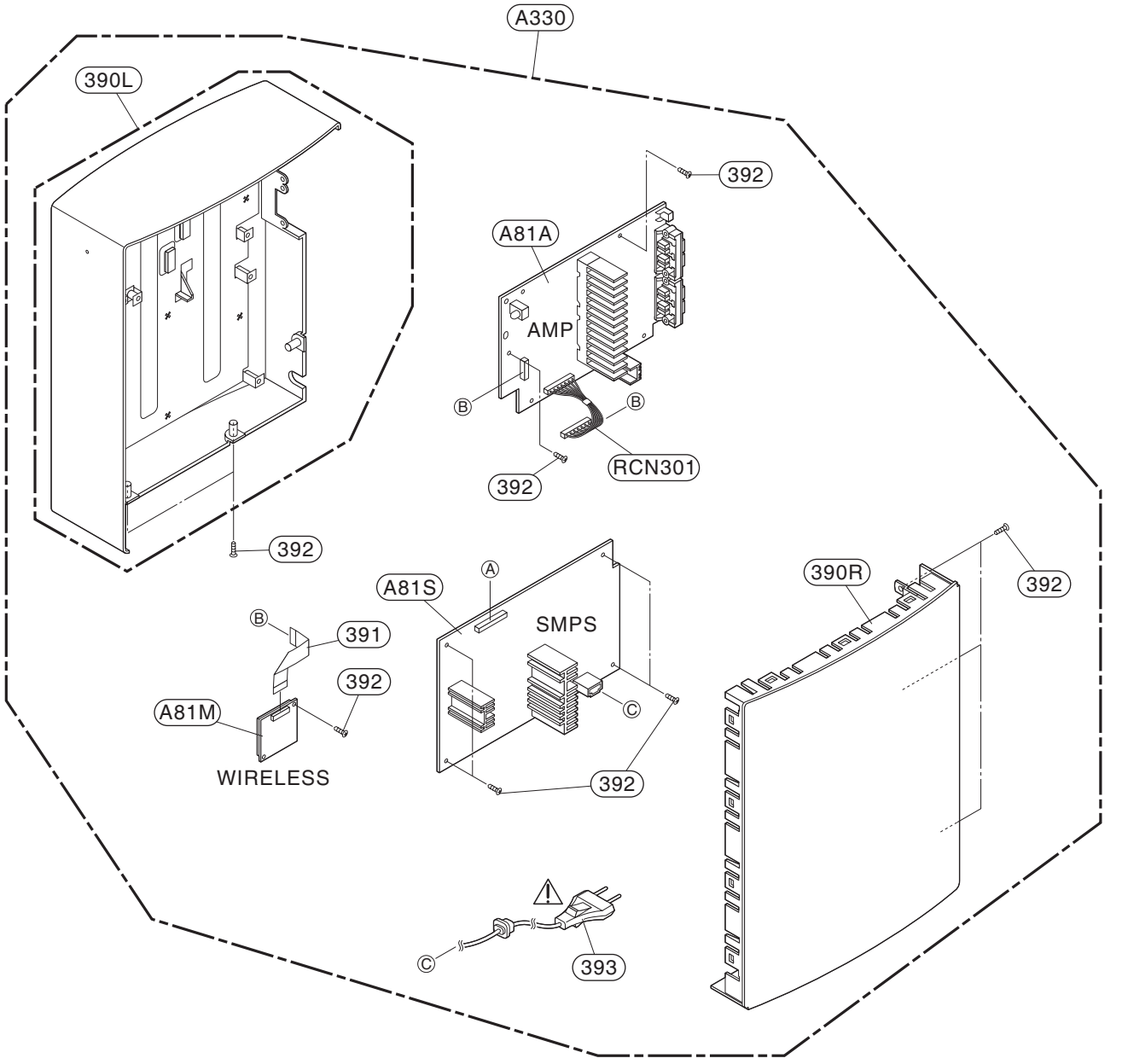
4-2. FRONT/ REAR SPEAKER



4-3. PASSIVE SUBWOOFER



5. WIRELESS RECEIVER SECTION



MEMO

SECTION 4

MT8580 F/E LOADER PART

CONTENTS

ONE POINT REPAIR GUIDE

1. "ALL BD DISC" READING ERROR

- All BD disc did not recognized, but DVD and CD are recognized normally.
- If LD output current's level is abnormal, set can not recognize BD disc.

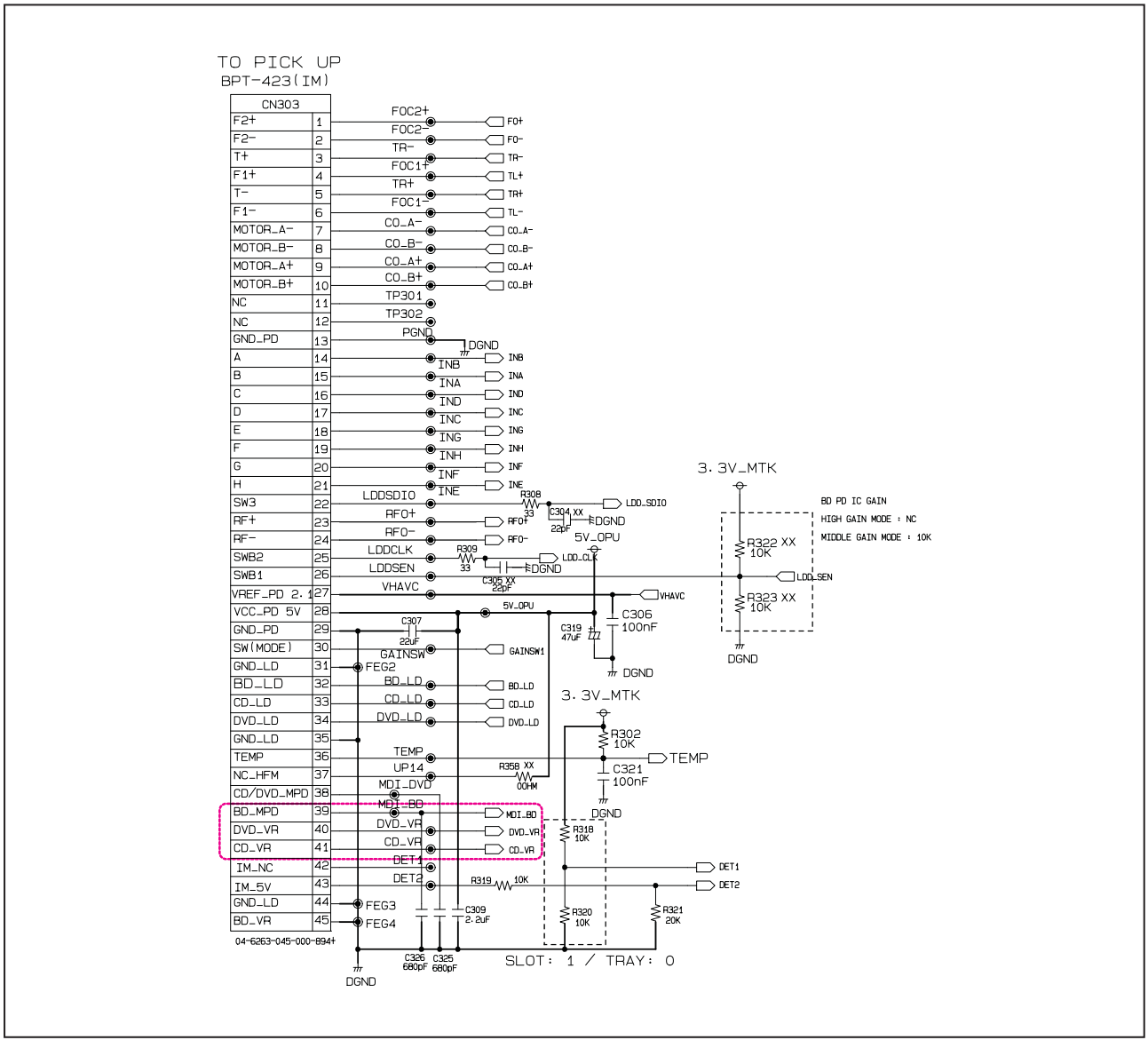
1-1. Component

1) MD (Traverse Assembly)
2) IC301 (TPIC2050), CN303

1-2. How to troubleshoot (Countermeasure)

1) Check MD's cable's status. (Pick-up/ Sled-Spindle/ Tray Cable)
2) Check power source of IC301. (pin42 --> 12 V, pin24 --> 9.5 V, pin34 --> 5 V)
3) Check pin39 (MDI_BD) of CN303 during BD single layer playback.
   (pin39 = 180 mV)

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



ONE POINT REPAIR GUIDE

2. "ALL DVD DISC" READING ERROR

- All DVD disc did not recognized, but BD and CD are recognized normally.
- If LD output current's level is abnormal, set can not recognize DVD disc.

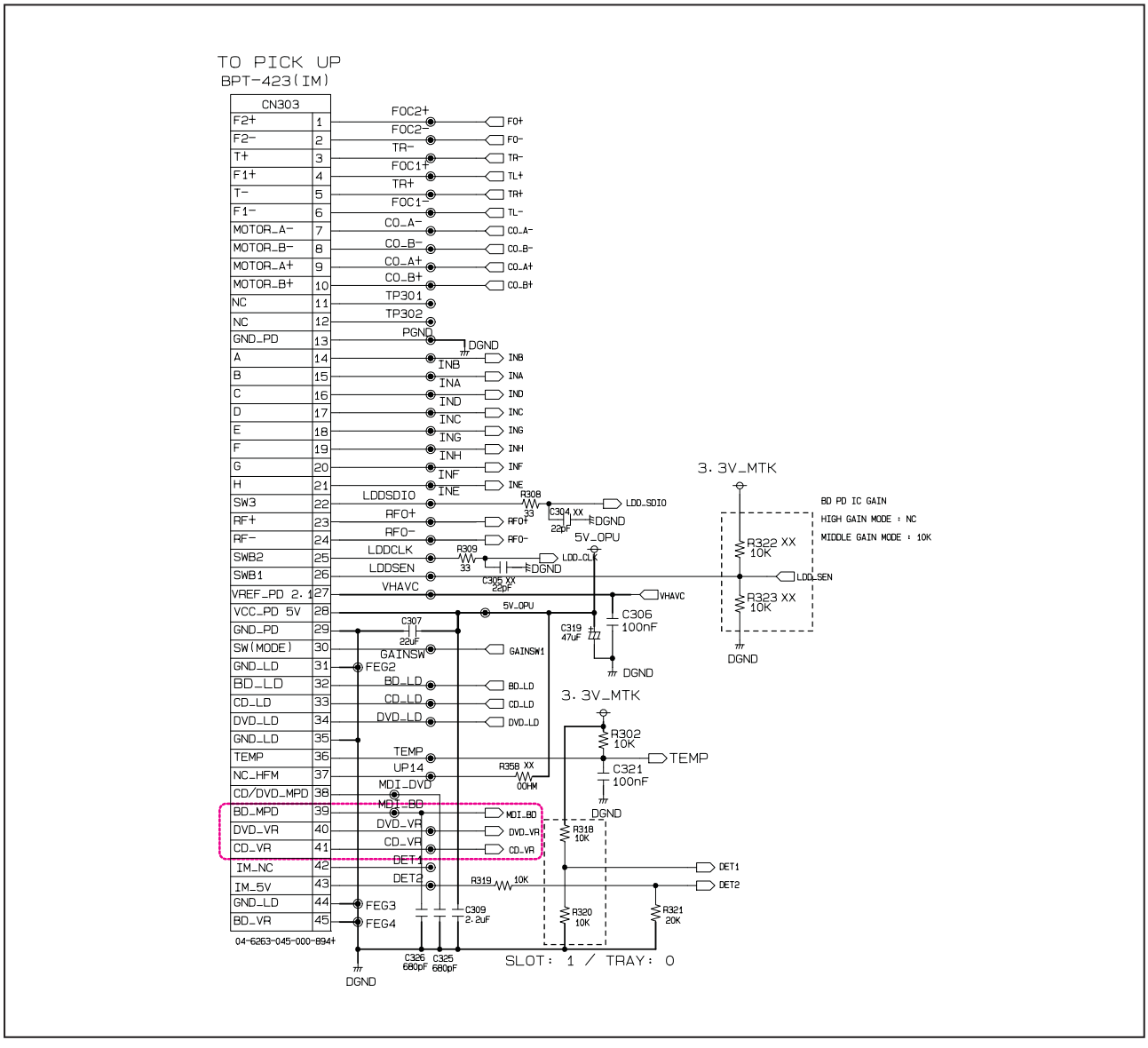
2-1. Component

1) MD (Traverse Assembly)
2) IC301 (TPIC2050), CN303

2-2. How to troubleshoot (Countermeasure)

1) Check MD's cable's status. (Pick-up/ Sled-Spindle/ Tray Cable)
2) Check power source of IC301. (pin42 --> 12 V, pin24 --> 9.5 V, pin34 --> 5 V)
3) Check pin40 (DVD_VR) of CN303 during DVD playback.
   (pin40 = 180 mV)

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



ONE POINT REPAIR GUIDE

3. "ALL CD DISC" READING ERROR

- All CD disc did not recognized, but BD and DVD are recognized normally.
- If LD output current's level is abnormal, set can not recognize CD disc.

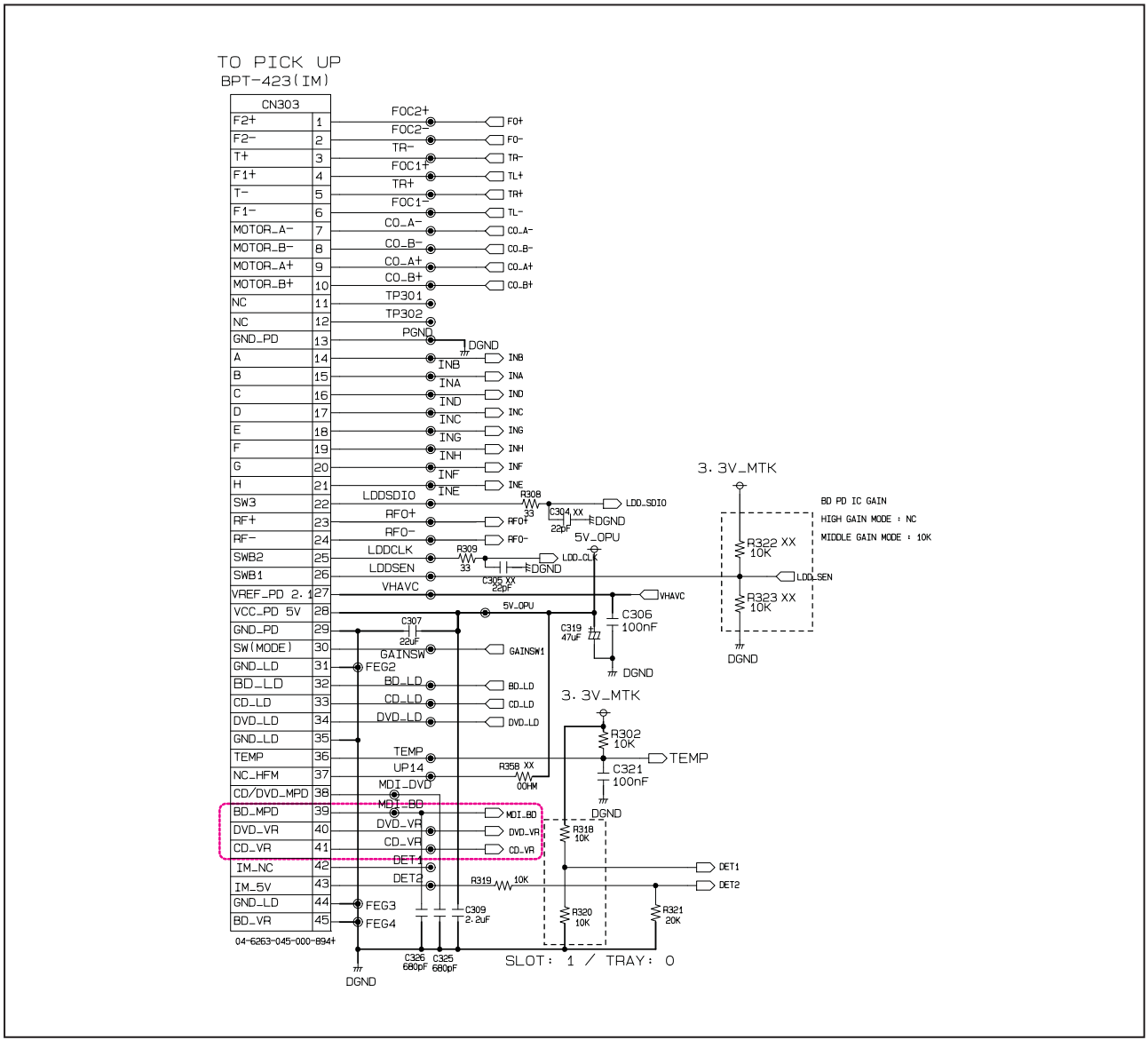
3-1. Component

1) MD (Traverse Assembly)
2) IC301 (TPIC2050), CN303

3-2. How to troubleshoot (Countermeasure)

1) Check MD's cable's status. (Pick-up/ Sled-Spindle/ Tray Cable)
2) Check power source of IC301. (pin42 --> 12 V, pin24 --> 9.5 V, pin34 --> 5 V)
3) Check pin41 (CD_VR) of CN303 during DVD playback.
   (pin41 = 180 mV)

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



HOW TO USE THE SA RESET FUNCTION

1. PURPOSE

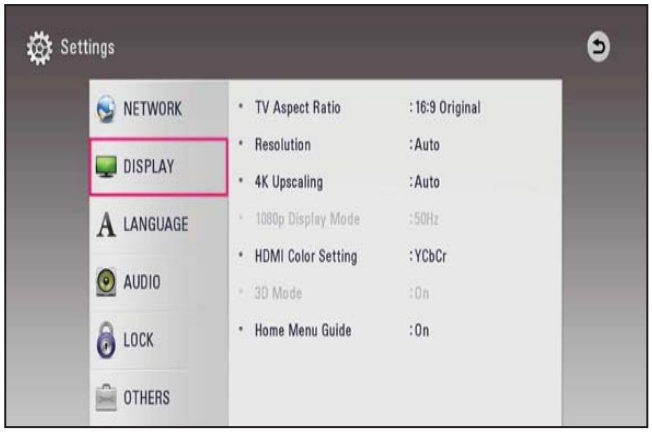
In order to insert the new SA adjustment values, it needs clearing SA initial values of the flash memory.

2. REQUIRED SA RESET

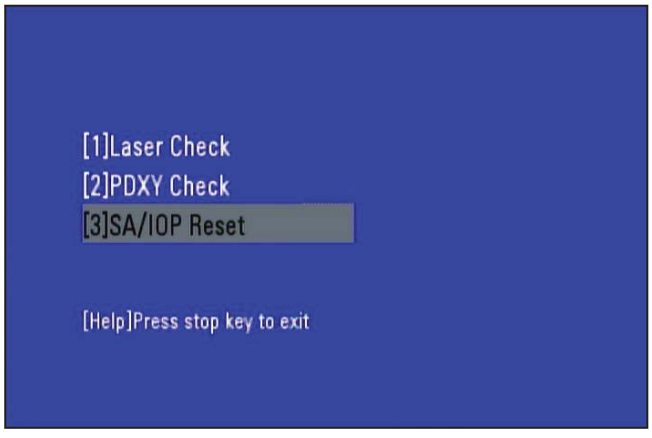
- After changing Traverse.
- After changing Main Board Assembly.
- After changing Main Board Flash IC.

3. SA RESET PROCEDURE

1) Power on the set (then, mode is in home menu).

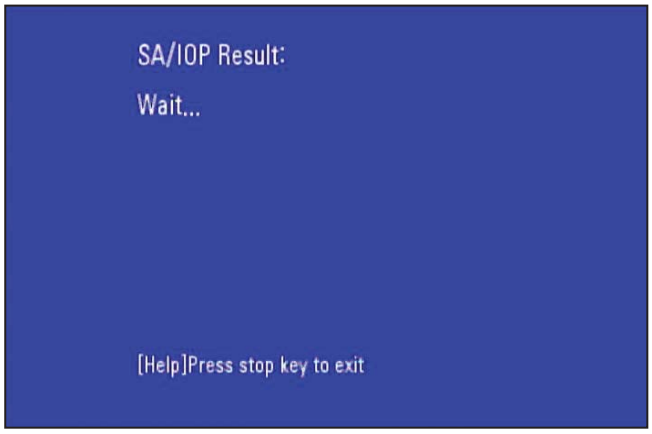


2) Press Setup.

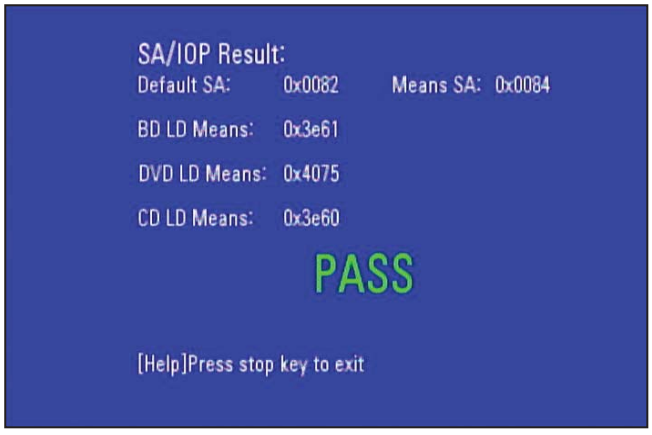


3) Under DISPLAY highlighted condition, **press '5' -> '1' -> '7' -> '7' -> '7' -> '7' -> '7'-> 'Enter'** on the remote controller to display special mode. Move to the SA/IOP Reset and click.

4) Insert BD-ROM SL Disc.
(Tray is opened automatically.)



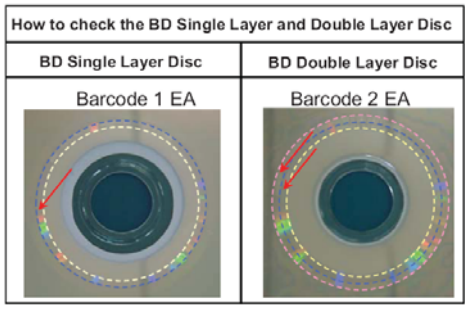
5) If the disc is inserted, you will see “Wait...”.



6) If SA Adjustment is finished, tray is opened automatically.

7) Press stop key twice to escape this special mode.

Reference:



MAJOR IC INTERNAL BLOCK DIAGRAM AND PIN DESCRIPTION

1. IC501 (MT8580)

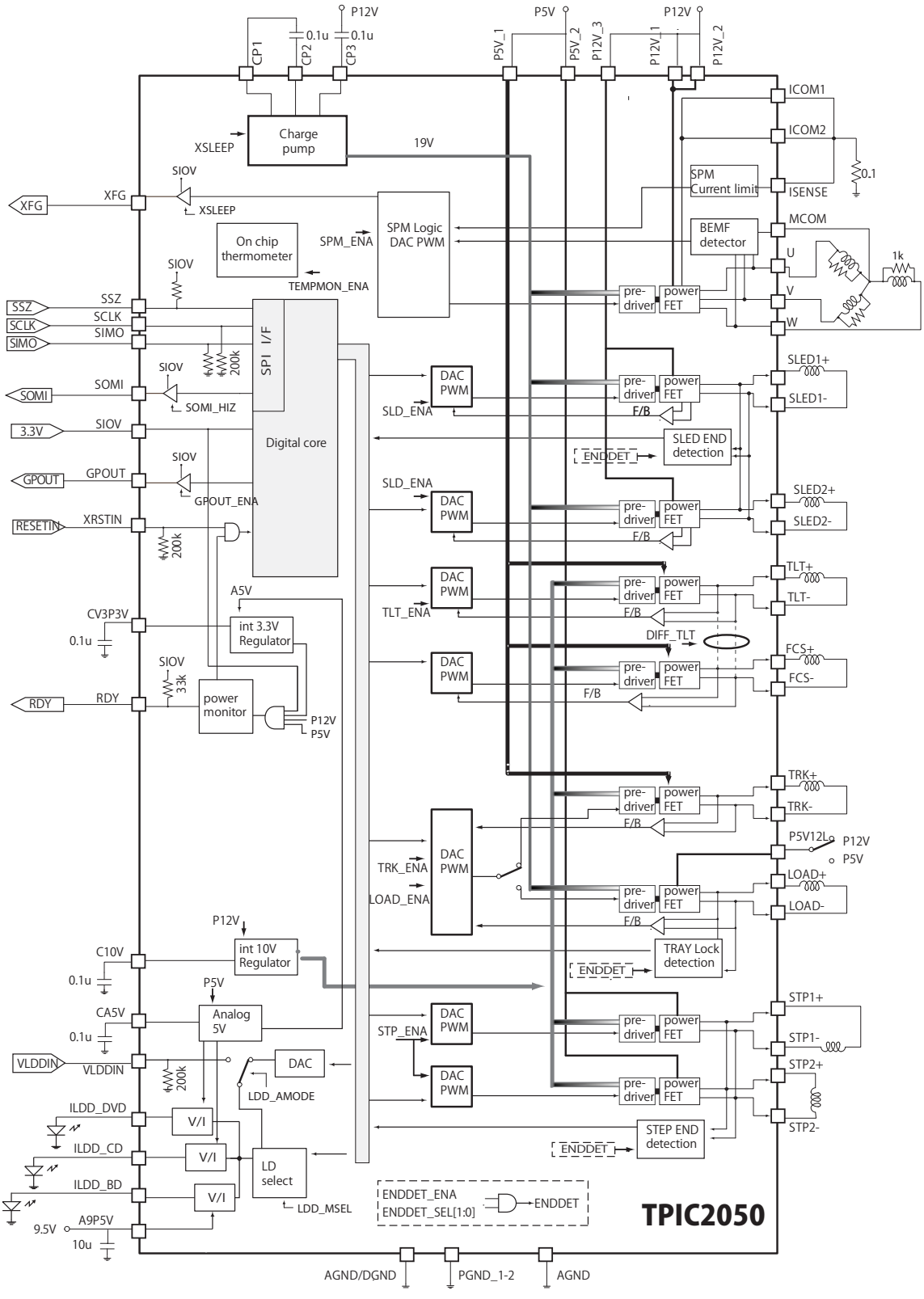
1-1. Pin Function

PIN NO.	SYMBOL	TYPE	DESCRIPTION
F20	AGND33_1	Analog Ground	Analog Ground
G18	AGND33_2	Analog Ground	Analog Ground
F17	AGND33_3	Analog Ground	Analog Ground
G21	AGND12_1	Analog Ground	Analog Ground
F19	AGND12_2	Analog Ground	Analog Ground
E23	AVDD12_1	Analog Power (1.2 V)	Power Pin
C15	AVDD12_2	Analog Power (1.2 V)	Power Pin
F18	AVDD33_1	Analog Power (3.3 V)	Power Pin
E18	AVDD33_3	Analog Power (3.3 V)	Power Pin
E17	AUX1	Analog I/O	Auxiliary Input. Alternateive Function : Signal Monitoring
E14	FECFREQ	3.3V LVTTL I/O, 5V-tolerance, Slow slew, 2, 4, 6, 8 mA PDR, 75K pull-up (3.3 V)	Frequency selection signal output, or LDD serial interface data or 12C SDA. The pin is spike-free at power-on stage.
F14	FECMOD	3.3V LVTTL I/O, 5V-tolerance, Slow slew, 2, 4, 6, 8 mA PDR, 75K pull-up (0 V)	High frequency modulation mode selection signal output, or LDD serial interface command enable. The pin is spike-free at power-on stage.
A11	FEDMO	Analog Output	Disk motor control output. DAC output.
D10	FEEJECT_	3.3V LVTTL I/O, 5V-tolerance, 6 mA PDR, 75K pull-up (3.3 V)	Eject/stop key input, active low. The pin is spike-free at power-on stage. Alternate function : General IO.
C9	FEFG	3.3V LVTTL I/O, 5V-tolerance, 6 mA PDR, 75K pull-up (3.3 V)	Motor Hall sensor input. The pin is spike-free at power-on stage.
B11	FEFMO	Analog Output	Feed motor 1 control. DAC output.
A12	FEFMO2	Analog Output	Feed motor 2 control. DAC output.
B12	FEFMO3	Analog I/O	Feed motor 3 control. DAC output. Alternative Function : Auxiliary servo input.
C12	FEFMO4	Analog I/O	Feed motor 4 control. DAC output. Alternative Function : Auxiliary servo input.
A14	FOO	Analog Output	Focus servo output. PDM output of focus servo compensator.
D21	FPDOCD	Analog Input	Laser Power Monitor Input for CD APC / Differential negative input
E21	FPDODVD	Analog Input	Laser Power Monitor Input for DVD APC / Differential positive input
D15	FEGAINSW1	Analog Output	Read gain switch 1.
C13	FEGAINSW2	Analog Output	Read gain switch 2.
D13	FEGAINSW3	Analog Output	Read gain switch 3.
C10	FEGIO0	3.3V LVTTL I/O, 5V-tolerance, 2, 4, 6, 8 mA PDR, 75K pull-down (0 V)	LDD serial interface data. The pin is spike-free at power-on stage. The pin is not allowed to pull-up in circuit layout. Alternate function : 1. Internal monitored signal output 2. General IO

PIN NO.	SYMBOL	TYPE	DESCRIPTION
F13	FEGIO1	3.3V LVTTL I/O, 5V-tolerance, 2, 4, 6, 8 mA PDR, 75K pull-down (0 V)	LDD serial interface CLK. The pin is spike-free at power-on stage. The pin is not allowed to pull-up in circuit layout. Alternate function : 1. Internal monitored signal output 2. General IO
E10	FEGIO10	3.3V LVTTL I/O, 5V-tolerance, 2, 4, 6, 8 mA PDR, 75K pull-down (3.3 V)	PC RS232 serial receive data. The pin is spike-free at power-on stage. Alternate function : 1. High speed serial output port. (CLOCK) 2. Internal monitored signal output 3. LED Control Output. Initial “0” Output 4. General IO
F7	FEGIO11	3.3V LVTTL I/O, 5V-tolerance, 2, 4, 6, 8mA PDR, 75K pull-down (3.3 V)	PC RS232 serial transmit data. The pin is spike-free at power-on stage. Alternate function : 1. High speed serial output port. (Data) 2. Internal monitored signal output 3. General IO
E8	FEGIO3	3.3V LVTTL I/O, 5V-tolerance, 2, 4, 6, 8mA PDR, 75K pull-down (0 V)	LED Control Output. Initial 0 Output. The pin is spike-free at power-on stage. Alternate function : 1. Internal monitored signal output 2. General IO
D7	FEGIO4	Analog Output	Read gain switch 4 Alternate function : 1. LCD serial interface command enable. 2. LCD_DRV: Square wave output for LCD control. 3. Internal monitored signal output 4. General IO.
E13	FEGIO5	Analog Output	Read gain switch 5 Alternate function : 1. SIDM 2. LCD serial interface command enable. 3. Internal monitored signal output 4. General IO.
D9	FEGIO6	Analog Output	Read gain switch 6. The pin is not allowed to pull-up in circuit layout Alternate function : 1. SIDM 2. LCD serial interface command enable. 3. Internal monitored signal output 4. General IO.
C7	FEGIO7	3.3V LVTTL I/O, 5V-tolerance, 2, 4, 6, 8 mA PDR, 75K pull-down (0 V)	General IO. The pin is spike-free at power-on stage. The pin is not allowed to pull-up in circuit layout.
D6	FEGIO9	3.3V LVTTL I/O, 5V-tolerance, 2, 4, 6, 8 mA PDR, 75K pull-down (0 V)	General IO. The pin is spike-free at power-on stage. Alternate function : 1. Internal monitored signal output 2. Spoke input 3. Power on reset input, high active. 4. General IO.
D19	HAVC	Analog Output	Decoupling Pin for Reference Voltage of Main and Sub Beams
B20	INA	Analog Input	Input of Main Beam Signal (A)
A20	INB	Analog Input	Input of Main Beam Signal (B)
B19	INC	Analog Input	Input of Main Beam Signal (C)
A19	IND	Analog Input	Input of Main Beam Signal (D)

PIN NO.	SYMBOL	TYPE	DESCRIPTION
A17	INE	Analog Input	Input of Sub-Beam Signal (E)
D18	INF	Analog Input	Input of Sub-Beam Signal (F)
C19	ING	Analog Input	Input of Sub-Beam Signal (G)
C18	INH	Analog Input	Input of Sub-Beam Signal (H)
C16	MPXOUT1	Analog Output	Multiplexer Output 1 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternate function : Internal monitored signal output / General output.
C17	MPXOUT2	Analog Output	Multiplexer Output 2 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternate function : Internal monitored signal output / General output.
B17	MPXOUT3	Analog Output	Multiplexer Output 3 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternate function : Internal monitored signal output / General output.
D14	FEOSCEN	3.3V LVTTL I/O, 5V-tolerance, Slow slew, 2, 4, 6, 8 mA PDR, 75K pull-up (3.3 V)	High frequency modulation enable signal output, or LDD serial interface CLK or 12C SCL. The pin is spike-free at power-on stage.
B16	RFIN	Analog Input	Differential Input of AC Coupling RF SUM Signal (Negative)
B15	RFIN2	Analog Input	Differential Input of AC Coupling RF SUM Signal (Negative)
A16	RFIP	Analog Input	Differential Input of AC Coupling RF SUM Signal (Positive)
A15	RFIP2	Analog Input	Differential Input of AC Coupling RF SUM Signal (Positive)

2. IC301 (TPIC2050)
: 9ch motor drive with 3 beam laser diode driver
2-1. Block Diagram



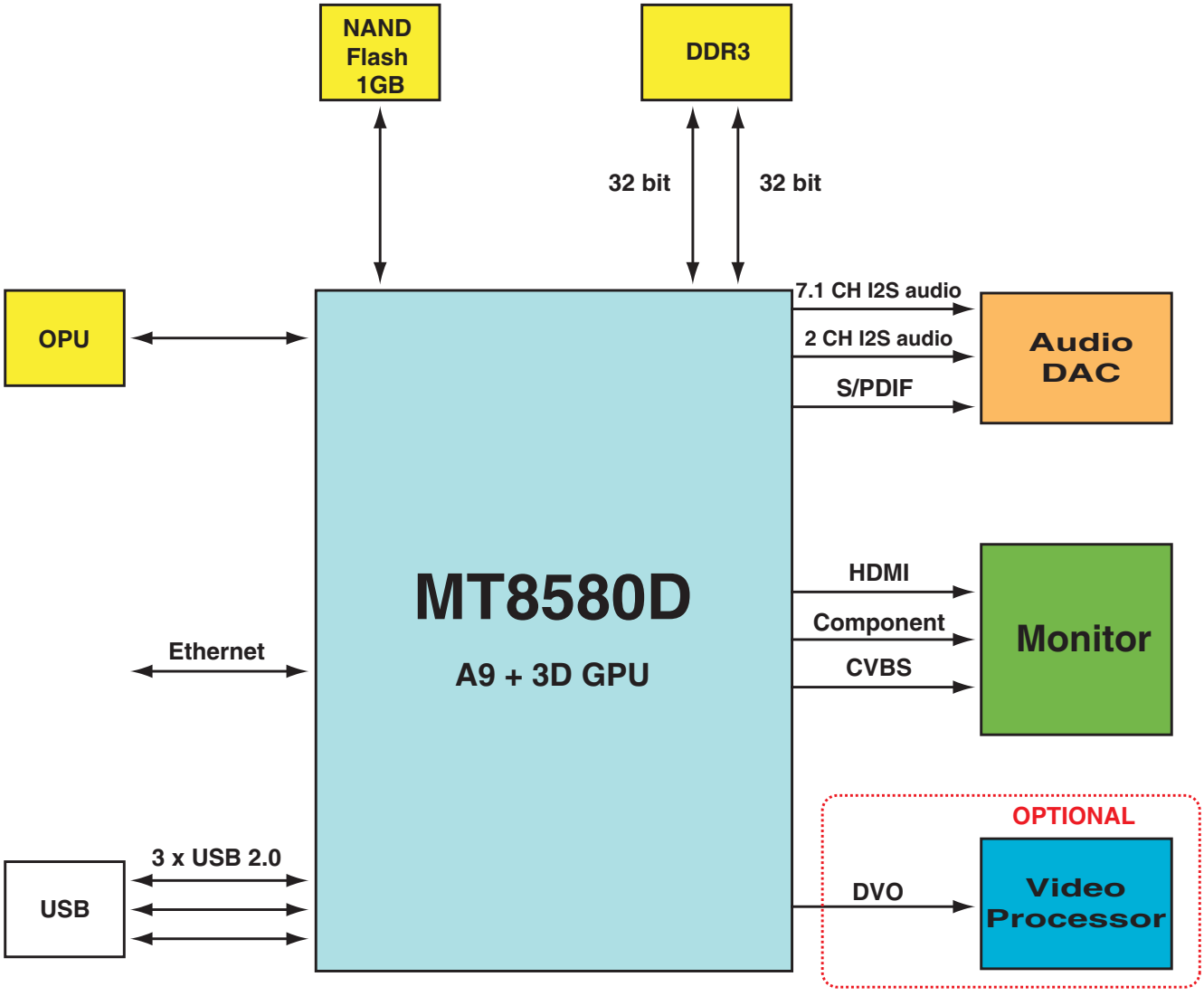
2-2. Pin Function

No.	Name	I/O	Description
1	SLED1_P	OUT	Sled1 positive output terminal
2	SLED1_N	OUT	Sled1 negative output terminal
3	P12V_3	PS	Power supply terminal for 12V drivers output
4	SLED2_P	OUT	Sled2 positive output terminal
5	SLED2_N	OUT	Sled2 negative output terminal
6	PGND_2	PS	GND terminal for 12V drivers
7	C10V	MISC	The capacitance connection terminal for internal regulator
8	CP1	MISC	Capacitance connection for Charge Pump
9	CP2	MISC	Capacitance connection for Charge Pump
10	CP3	MISC	Capacitance connection for Charge Pump
11	GPOUT	OUT	General Purpose Output (Test monitor)
12	XFG	OUT	Motor speed signal output
13	RDY	OUT	Device ready signal Internally pulled up to SIOV
14	SSZ	IN	SIO Slave Select Low active input terminal
15	SCLK	IN	SIO Serial clock input terminal
16	SIMO	IN	SIO Slave Input Master Output terminal
17	SOMI	OUT	SIO Slave Input Master Input terminal
18	SI0V	PS	Power supply terminal for Serial Port 3.3V typical
19	XRSTIN	IN	RESET input terminal to disable the driver IC
20	TEST1	MISC	Test pin. Should be open
21	VLDDIN	IN	Laser diode control analog signal input 0 to 3V terminal Required to set register when use VLDDIN input. Open in case of non use analog input.
22	CV3P3	MISC	Capacitance terminal for internal 3.3V core (typ 0.uF)
23	AGND/DGND	PS	Ground terminal for digital and analog
24	A9P5V	PS	Power supply terminal 9.5V Laser didoe for BD
25	ILDD_BD	OUT	Laser diode for BD output terminal
26	ILDD_DVD	OUT	Laser diode for DVD output terminal
27	ILDD_CD	OUT	Laser diode for CD output terminal
28	CP5V	MISC	The capacitance connection terminal for control system power supply 0.1uF or lager decoupling capacitor should be connected
29	LOAD_P	OUT	Load positive output terminal
30	LOAD_N	OUT	Load negative output terminal
31	P5V12L	PS	The power supply terminal (5V or 12V) for Load driver output stages.
32	TEST2	MISC	Test pin. Should be open
33	TEST3	MISC	Test pin. Should be connected to P5V
34	P5V_1	PS	Power supply terminal for Tilt/Fcs/Trk drivers
35	TLT_N	OUT	Tilt negative output terminal
36	TLT_P	OUT	Tilt positive output terminal
37	TRK_P	OUT	Tracking positive output terminal
38	TRK_N	OUT	Tracking negative output terminal
39	FCS_P	OUT	Focus positive output terminal
40	FCS_N	OUT	Focus negative output terminal
41	PGND_1	PS	GND terminal for Tilt/Fcs/Trk channel drivers
42	P12V_1	PS	Power supply terminal for 12V driver output stage
43	U	OUT	U phase output terminal for spindle motor
44	ICOM1	MISC	Current sense resister terminal for spindle driver
45	V	OUT	V Phase output terminal for spindle motor
46	P12V_2	PS	Power supply terminal for 12V driver output stage
47	W	OUT	W phase output terminal for spindle motor
48	ICOM2	MISC	Current sense resister terminal for spindle driver
49	MICOM	IN	Motor center tap connection
50	ISENCE	IN	Current sense resister terminal for spindle driver
51	AGND	PS	Ground terminal for internal analog
52	STIP1_P	OUT	STP1 positive output terminal for collimator
53	STIP1_N	OUT	STP1 negative output terminal for collimator
54	STP2_P	OUT	STP1 positive output terminal for collimator
55	STP2_N	OUT	STP1 negative output terminal for collimator
56	P5V_2	PS	Power supply terminal for 5V driver output

3. PICK-UP CONNECTOR TERMINAL PIN ASSIGNMENTS

PIN NO.	PIN NAME	FUNCTION	BLOCK
1	F2+	Outer Focus (+)	Actuator
2	F2-	Outer Focus (-)	
3	T+	Tracking (+)	
4	F1+	Inner Focus (+)	
5	T-	Tracking (-)	
6	F1-	Inner Focus (-)	
7	MOTOR_A-	Step Motor A-	MOTOR
8	MOTOR_B-	Step Motor B-	
9	MOTOR_A+	Step Motor A+	
10	MOTOR_B+	Step Motor B+	
11	NC	NC	NC
12	NC	NC	
13	GND	GND	
14	A	Servo Signal Part	PDIC PART (BD/DVD_CD)
15	B		
16	C		
17	D		
18	E		
19	F		
20	G		
21	H		
22	SW3	BD PD Sleep Selection	
23	RF+	BD/DVD/CD RF+	
24	RF-	BD/DVD/CD RF-	
25	SW2	BD PD Gain2	
26	SW1	BD PD Gain1	
27	VREF_2.1V	PDIC Reference 2.1V	
28	VCC_PD(5V)	PDIC Power 5V	
29	GND_PD	PDIC GND	
30	SW	DVD/CD Sleep Selection	
31	GND	LD HFM GND	LD HFM IC Monitor
32	BD_LD	LD Control BD	
33	CD_LD	LD Control CD	
34	DVD_LD	LD Control DVD	
35	GND	LD HFM GND	
36	TEMP	Thermistor	
37	HFM_VCC(5V)	HFM VCC	
38	CD/DVD_MPD	Monitor output DVD/CD	
39	BD_MPD	Monitor output BD	
40	DVD_VR	DVD Level adjust	
41	CD_VR	CD Level adjust	
42	NC	NC	
43	5V_OUT	PD Vcc Output	
44	GND	LD HFM GND	
45	BD_VR	BD Level adjust	

BLOCK DIAGRAM



MEMO

SECTION 5

WIRELESS RECEIVER PART

CONTENTS

FIRMWARE UPDATE FOR WIRELESS DEVICE

1. WIRELESS RX UPDATE METHOD

Update must be performed without interference.

1) Select "1" on test band.

- You must select a band without interference.

2) USB update

- During the software update procedure, do not turn off the unit.

2-1) Copy the update file to the USB device after rename as "WIRELESS_RX_BH9530.BIN".

2-2) Insert a USB device and perform the update.

- It is indicated "SEND xx" during transmission (xx is progress rate %.).
- "FINALIZE" indication is blinked to FLD of main set during RX MICOM writing.

* In case of connection is unstable; In case of update is no response more than 20 seconds; Update fail.

* At this time, turn off RX/TX then Wireless update will fail and the previous version of program will work.

2-3) If the update is finished, RX LED is turned off and on. Main set is power off automatically.

3) Remove the power cord. After 5 seconds, reconnect the cord and turn on TX.

4) Factory

4-1) Press PAIRING button on RX for 5 seconds.

- LED blinks yellow and red alternately to 0.5 second intervals.

Condition:

1) Wireless module update must be performed without interference.

2) You must update after switching TEST BAND.

3) After wireless module update, you must perform TX and RX FACTORY to pair them.

2. WIRELESS TX MODULE UPDATE METHOD

Update must be performed after turning off RX.

1) Insert TX module to slot.

- You must turn the power on with the TX module in the slot.

2) USB update

- During the software update procedure, do not turn off the unit.

2-1) Copy the update file to the USB device after rename as "WIRELESS_TX_BH9530.BIN".

2-2) Insert a USB device and perform the update.

- It is indicated "WRITE xx" during burning the flash rom (xx is progress rate %.).

2-3) If the update is finished, TX shall be powered off automatically.

3) Remove the power cord. After 5 seconds, reconnect the cord and turn on TX.

4) Factory

4-1) Press set "STOP" + remote control "6" during 3 seconds to perform TX FACTORY.

- "WL RESET" appears on FLD.

Condition:

1) After wireless module update, you must perform TX and RX FACTORY to pair them.

ONE POINT REPAIR GUIDE

1. NO POWER PROBLEM

No power problem occurs when you power on the unit.

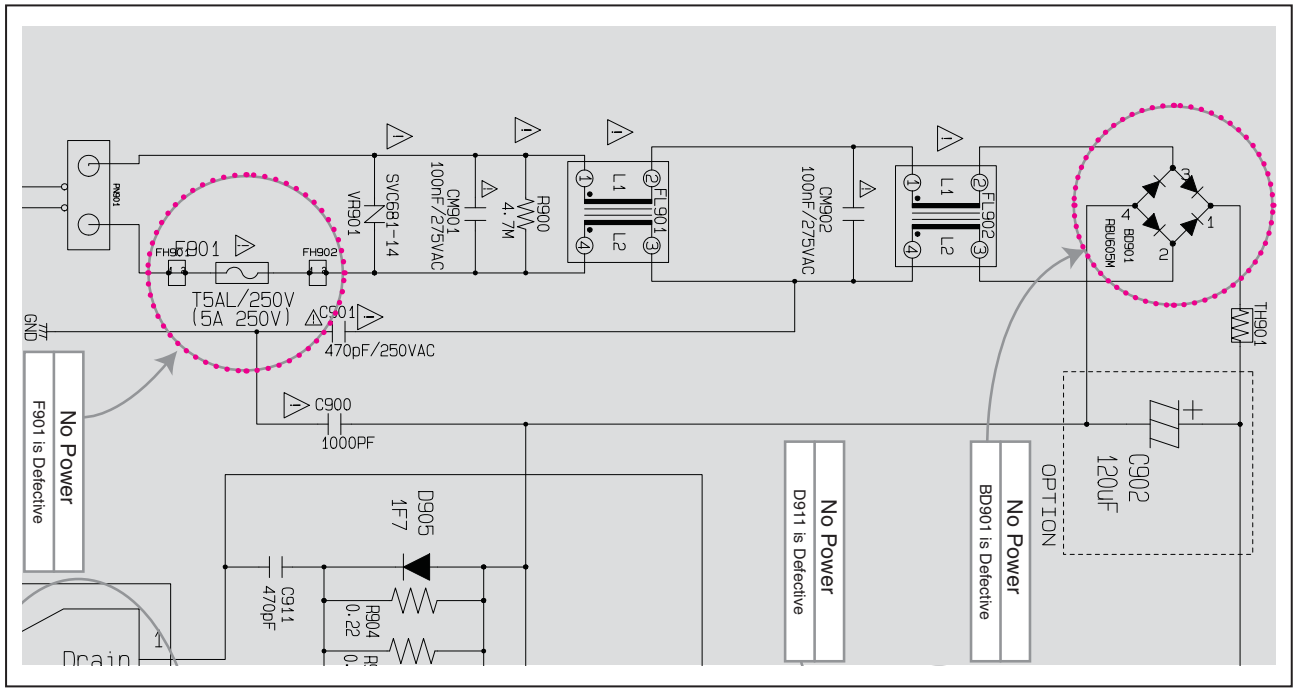
1-1. Fuse & Bridge diode

1-1-1. Solution

Replace F901, BD901 on SMPS board.

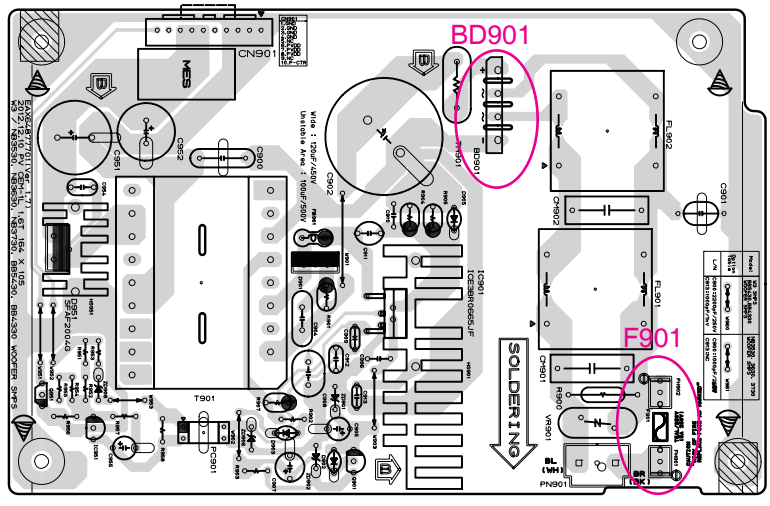
1-1-2. How to troubleshoot (Countermeasure)

1) Look at the physical of fuse F901.
2) Check the bridge diode BD901.



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

< Fuse, F901 >
Can look at physical condition.



< SMPS board top view >

ONE POINT REPAIR GUIDE

NO POWER PROBLEM

No power problem occurs when you power on the unit.

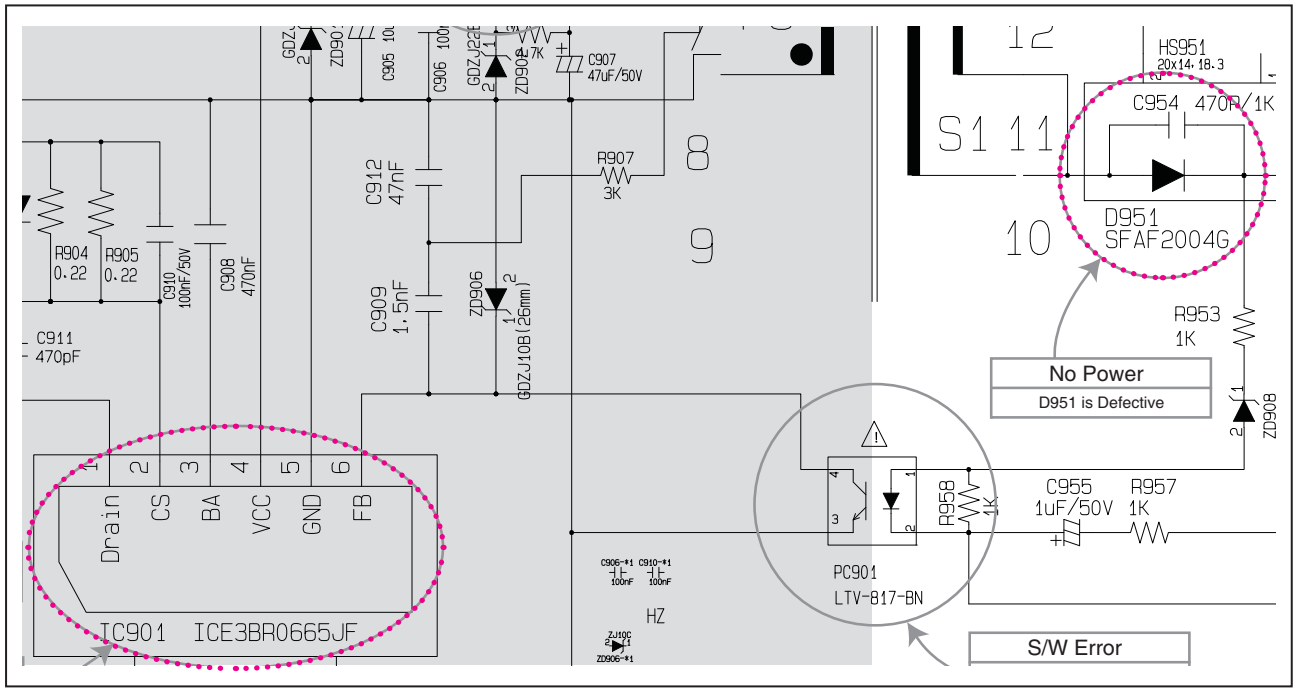
1-2. PVDD (36 V) abnormal

1-2-1. Solution

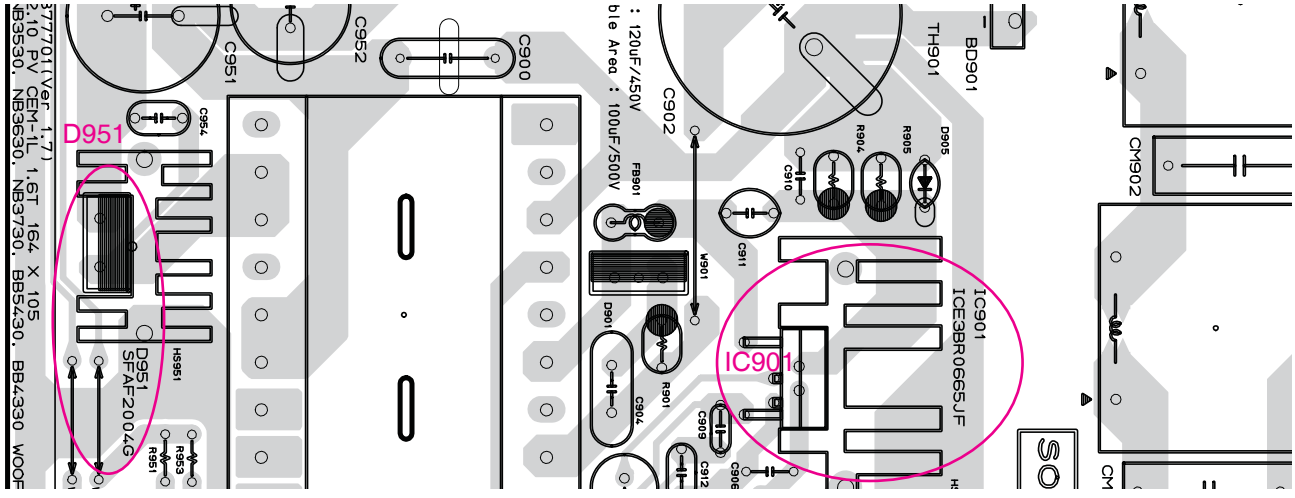
Replace D951, IC901.

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

Case 1) PVDD (36 V) abnormal: Check and replace it.
Case 2) If case 1 is not problem: Check IC901 and replace it.



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



< SMPS board top view >

ONE POINT REPAIR GUIDE

2. NO SOUND

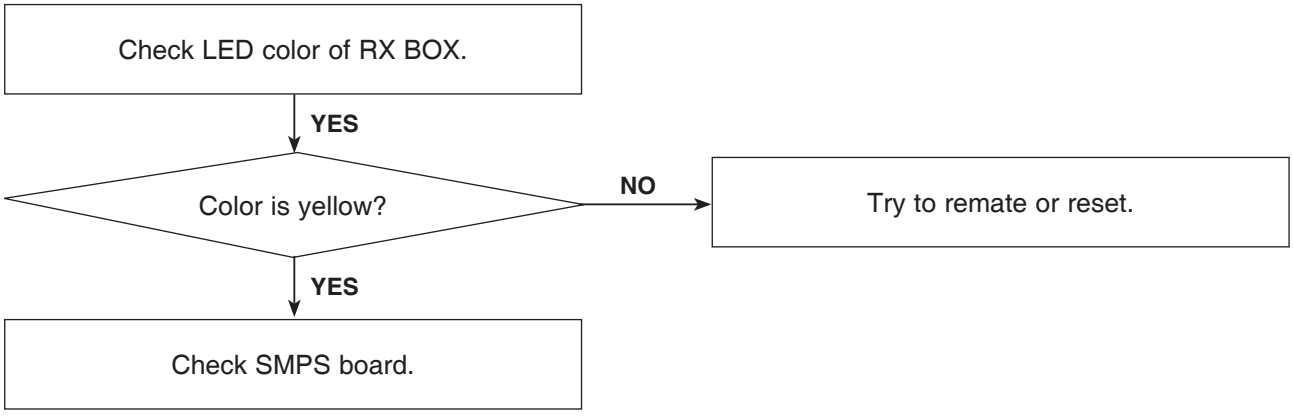
Wireless rear speaker doesn't output a sound.

2-1. SMPS Board (No PVDD)

2-1-1. Solution

Check SMPS board (No PVDD).

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



ONE POINT REPAIR GUIDE

NO SOUND

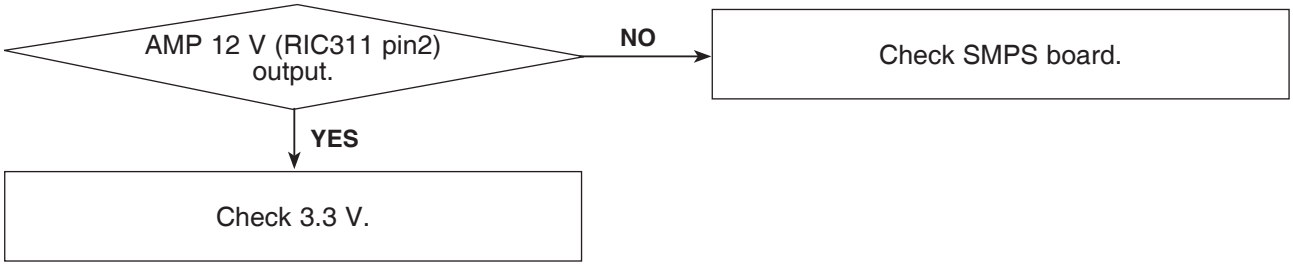
Wireless rear speaker doesn't output a sound.

2-2. RIC311 (No 12 V)

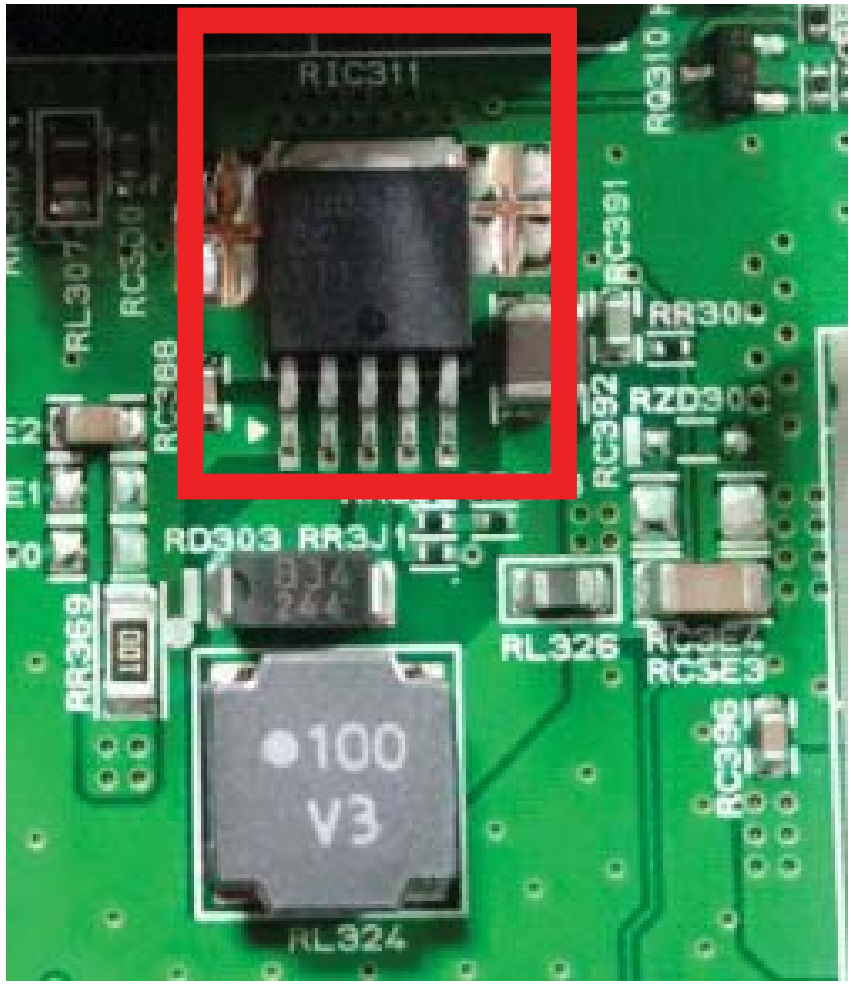
2-2-1. Solution

Replace RIC311 (No 12 V).

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



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



< AMP board top view >

ONE POINT REPAIR GUIDE

NO SOUND

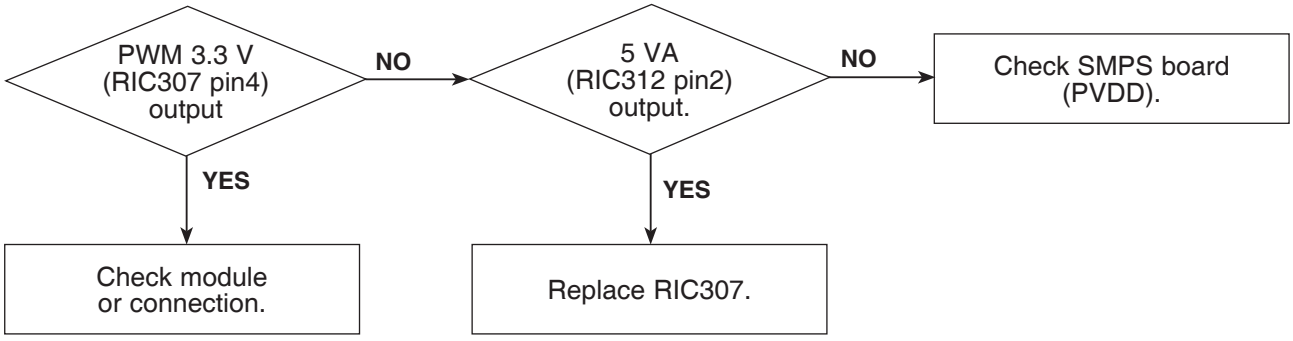
Wireless rear speaker doesn't output a sound.

2-3. RIC307 (No 3.3 V)

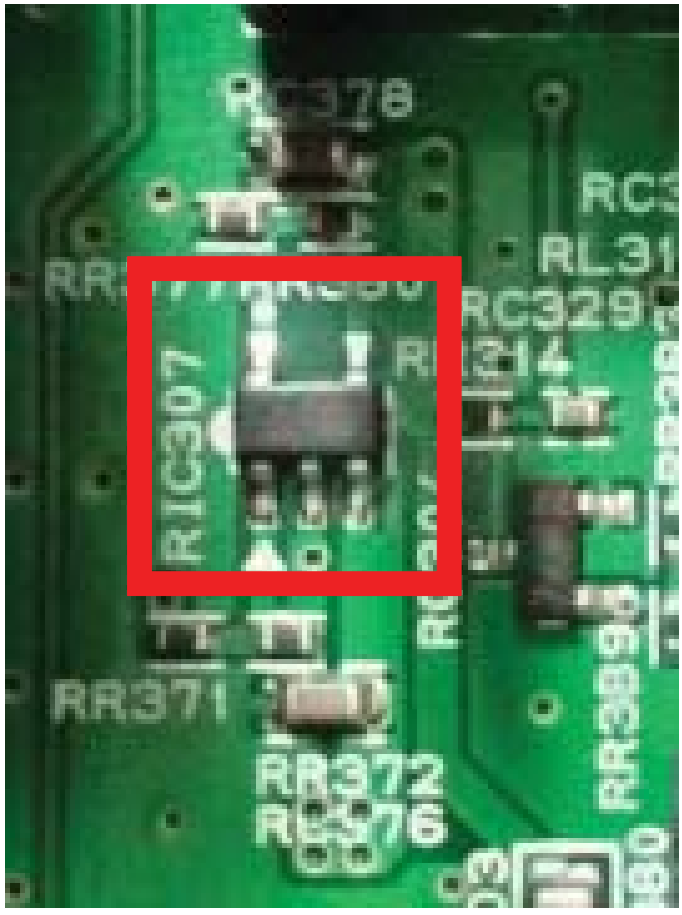
2-3-1. Solution

Replace RIC307 (No 3.3 V).

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



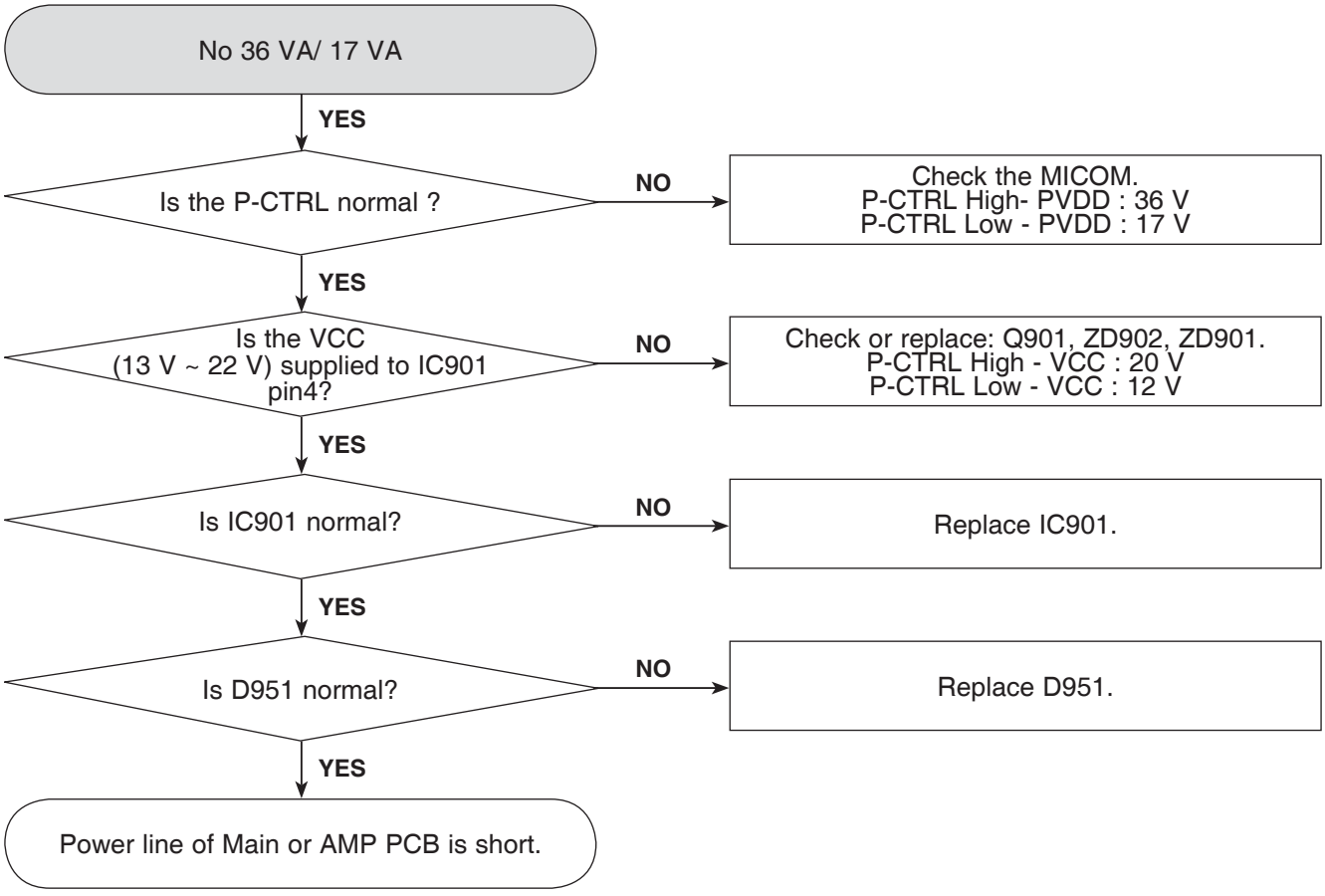
2-3-3. Service hint (Any picture / Remark)



< AMP board top view >

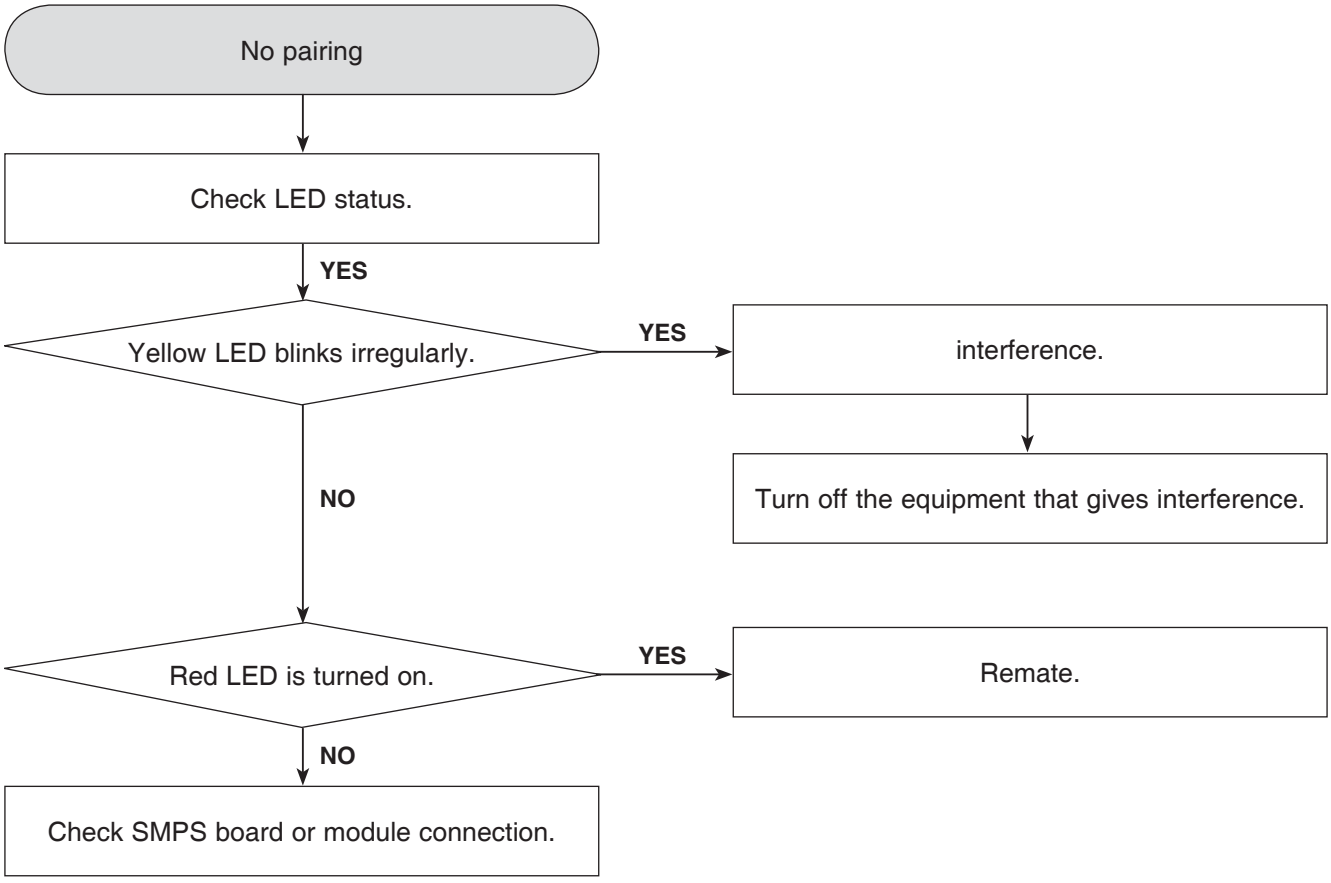
ELECTRICAL TROUBLESHOOTING GUIDE

1. POWER SUPPLY ON SMPS BOARD



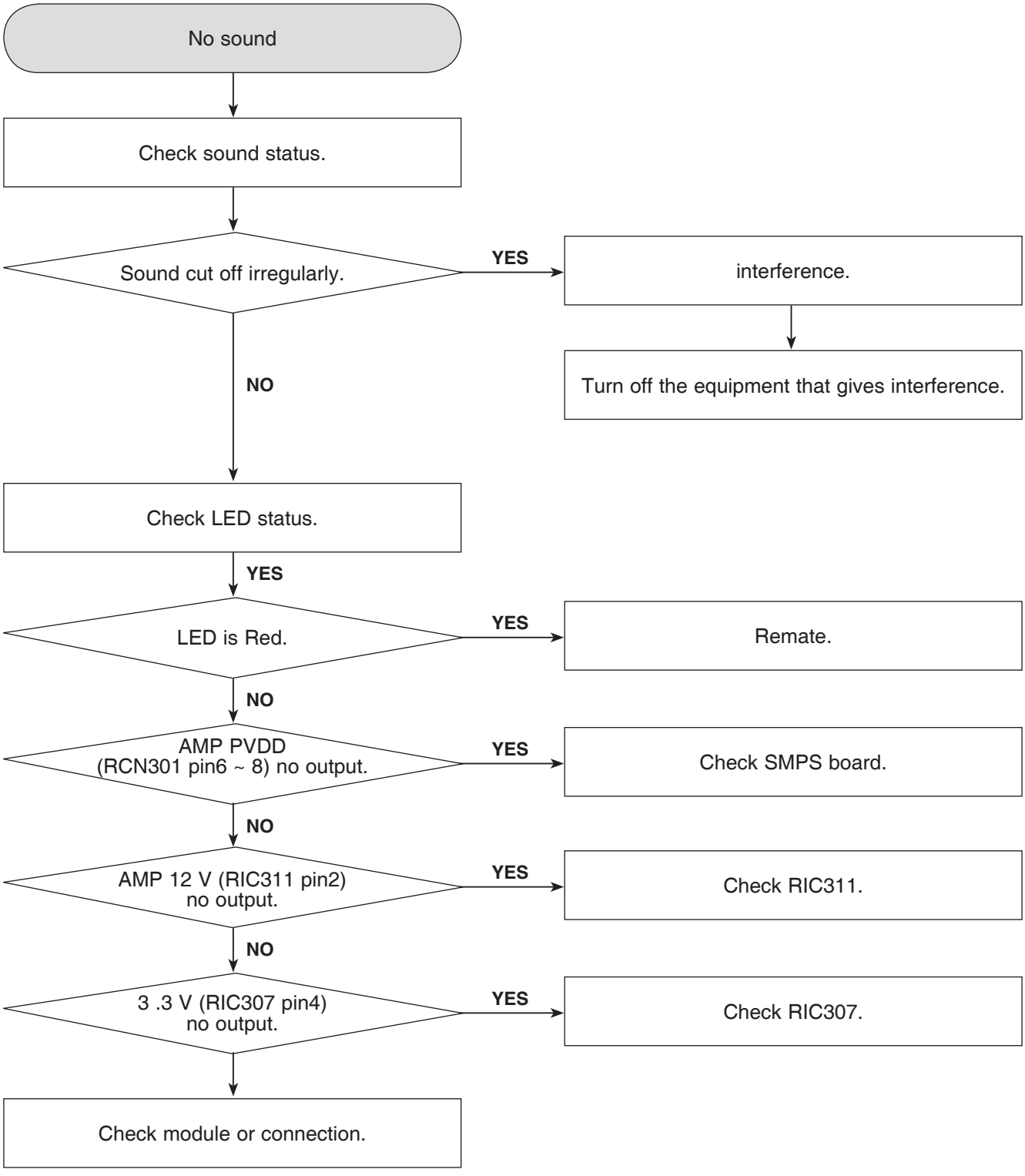
ELECTRICAL TROUBLESHOOTING GUIDE

2. NO PAIRING



ELECTRICAL TROUBLESHOOTING GUIDE

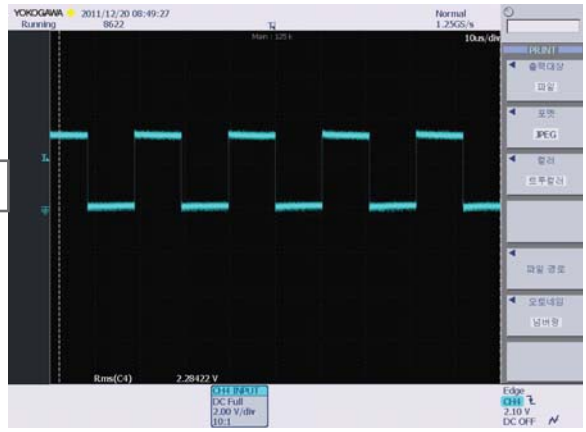
3. NO SOUND



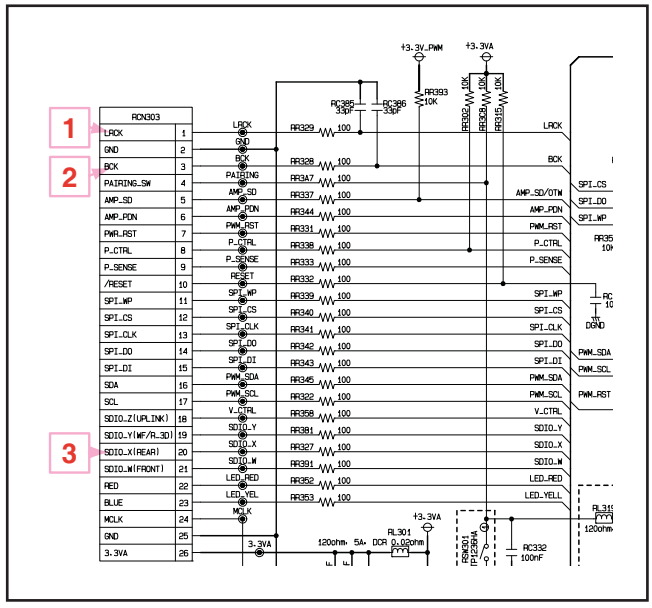
WAVEFORMS

1. AUDIO PART (I2S)

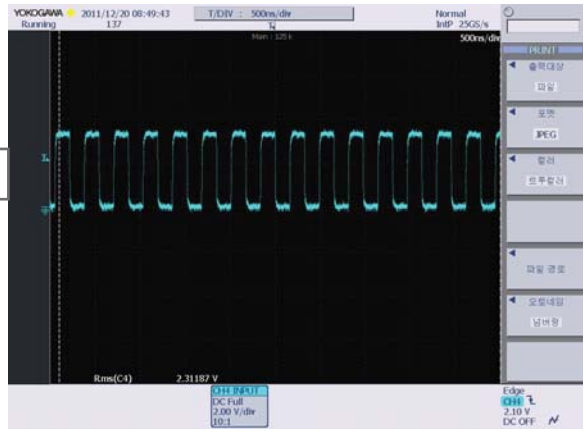
1



RCN303 pin1 : I2S LRCK

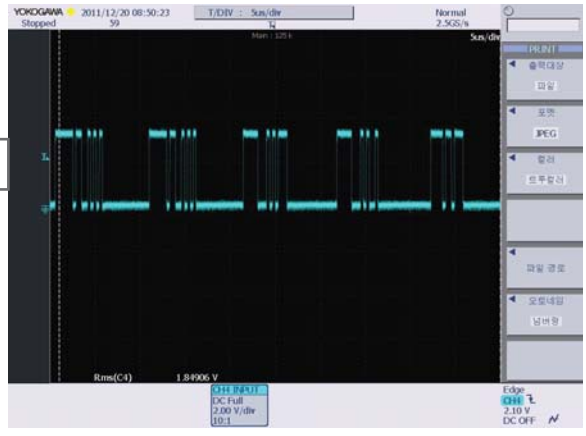


2



RCN303 pin3 : I2S BCK

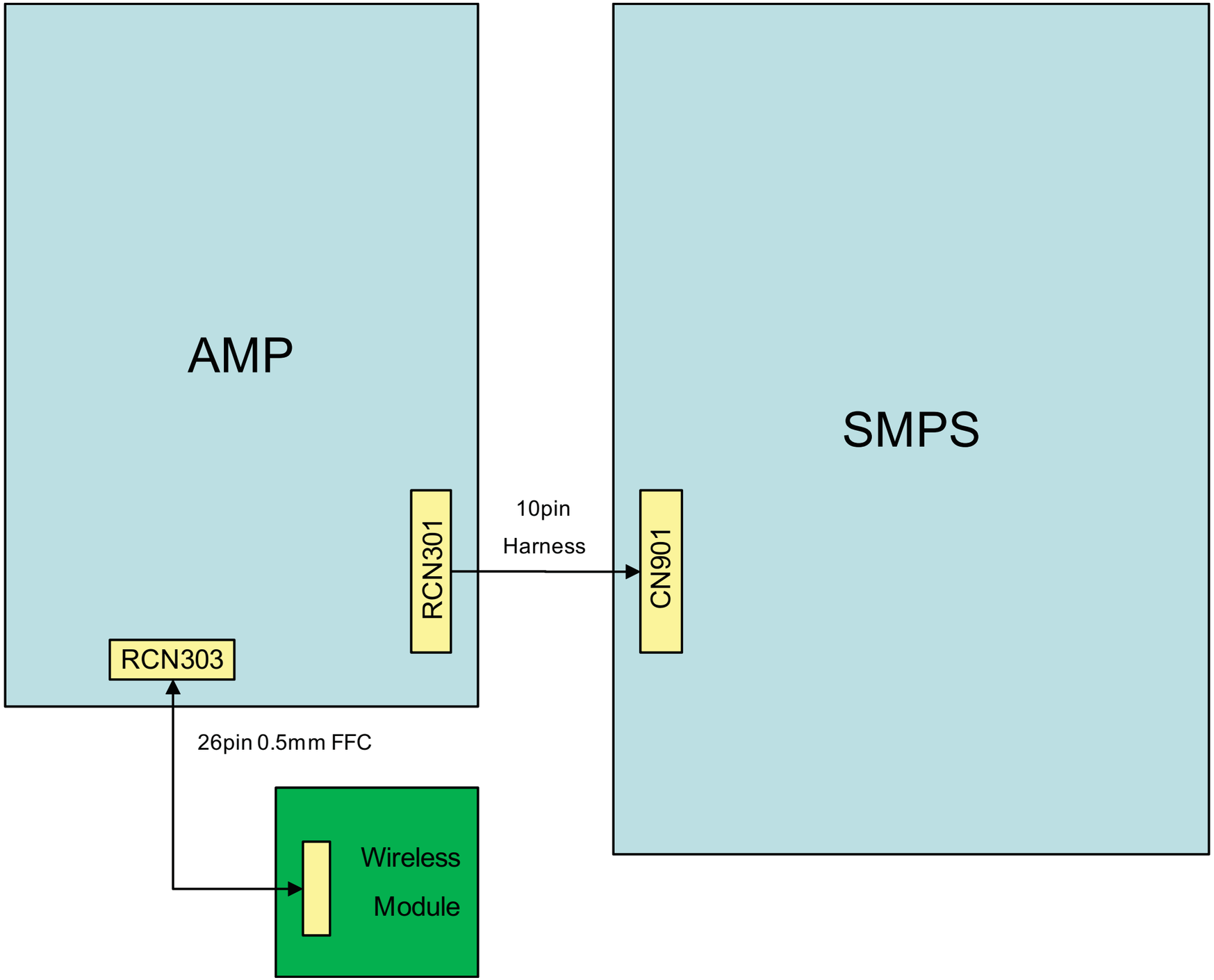
3



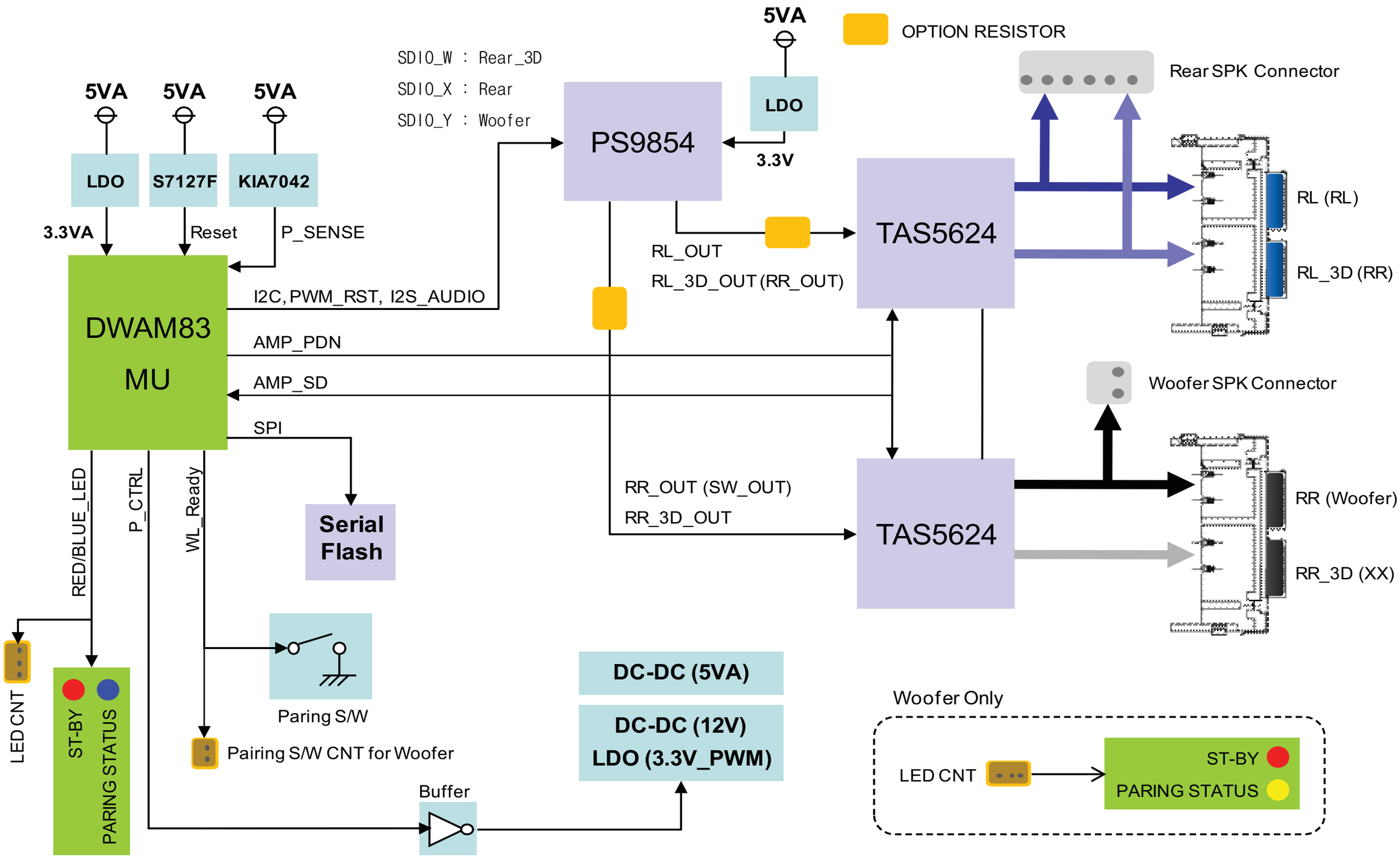
RCN303 pin20 : I2S Audio Data

MEMO

WIRING DIAGRAM



BLOCK DIAGRAM



CIRCUIT DIAGRAMS

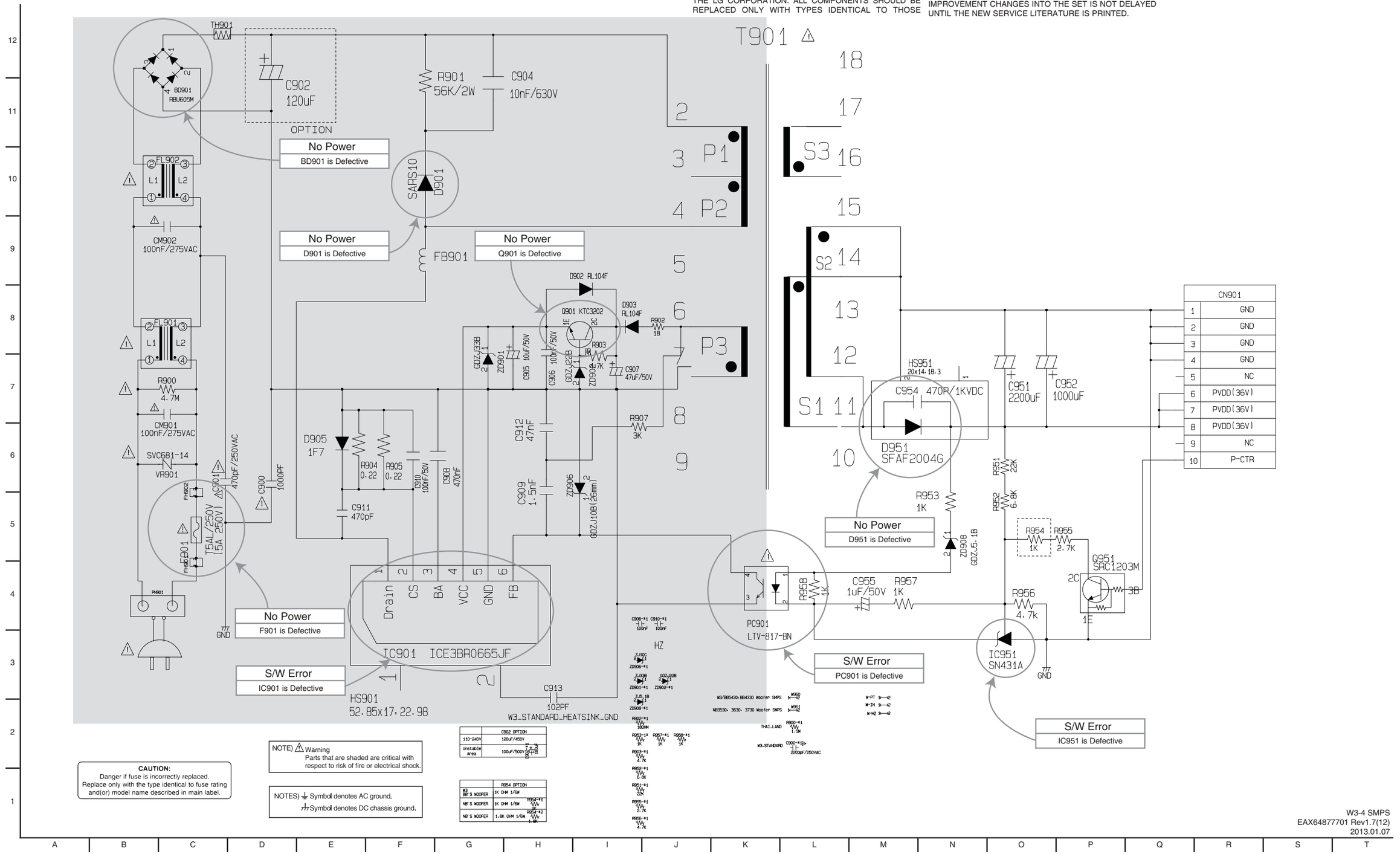
1. SMPS CIRCUIT DIAGRAM

IMPORTANT SAFETY NOTICE

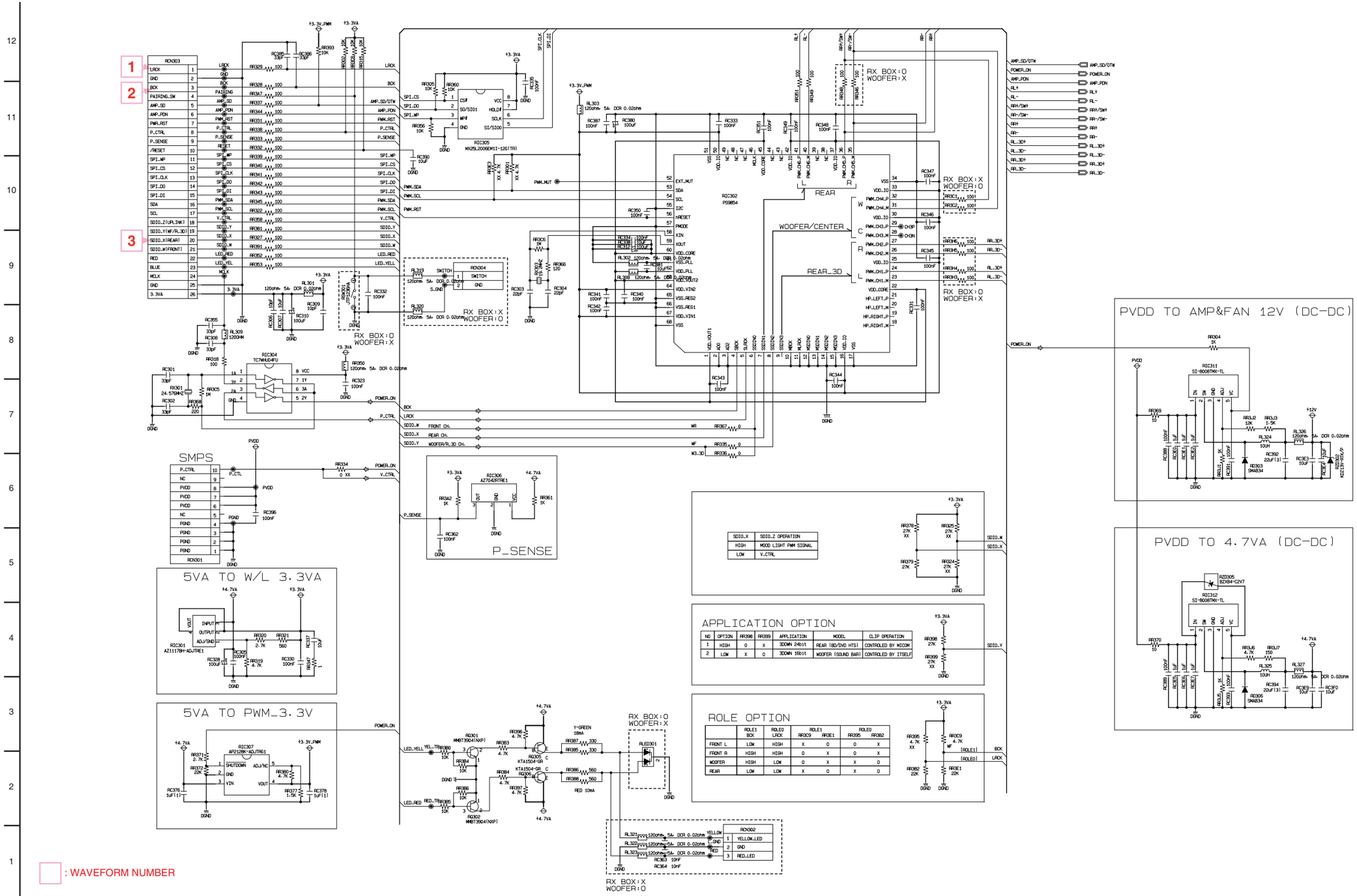
WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITH OUT PERMISSION FROM THE LG CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION. THIS CIRCUIT DIAGRAM 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.

NOTE :

1. Shaded(▩) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.



2. AMP #1 CIRCUIT DIAGRAM

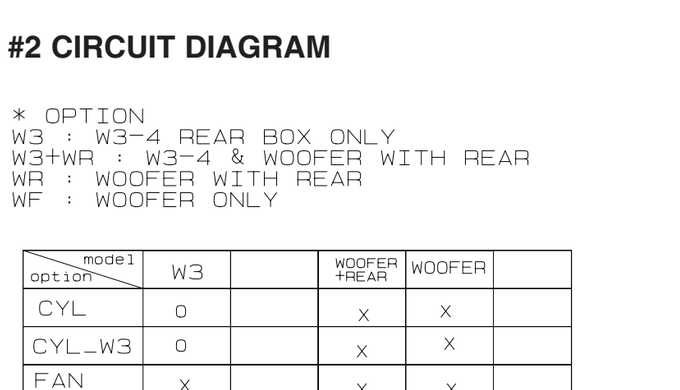


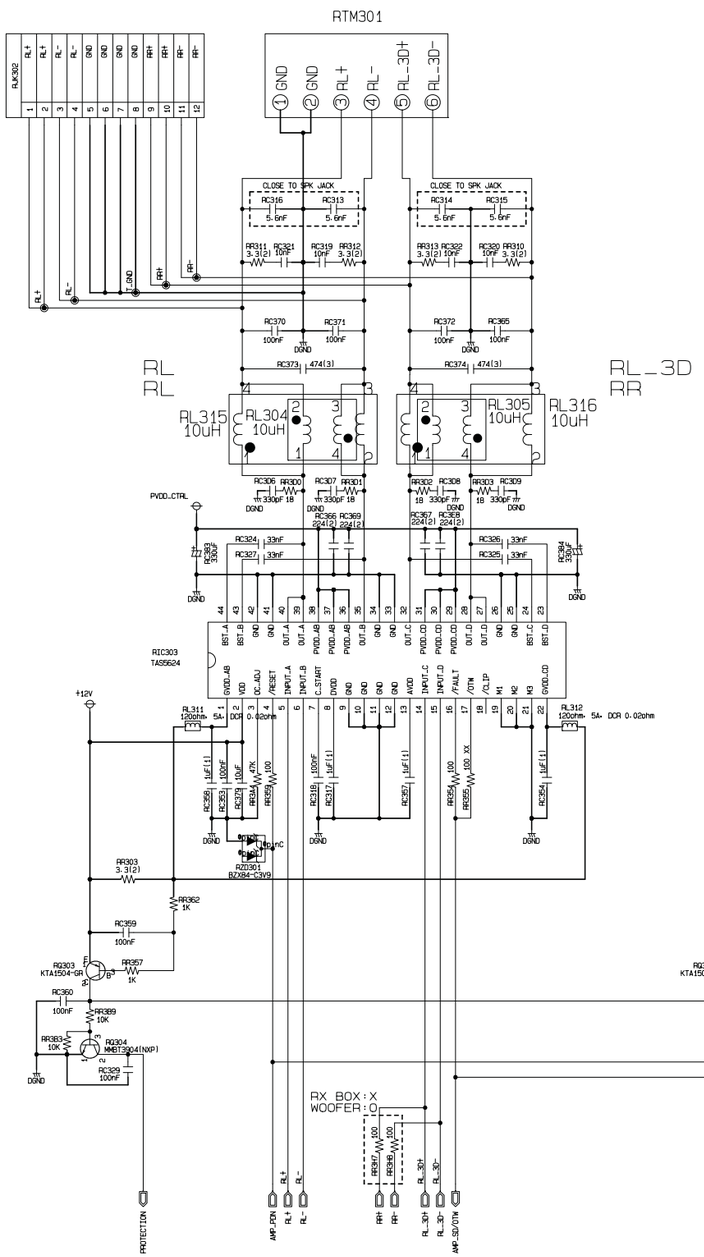
3. AMP #2 CIRCUIT DIAGRAM

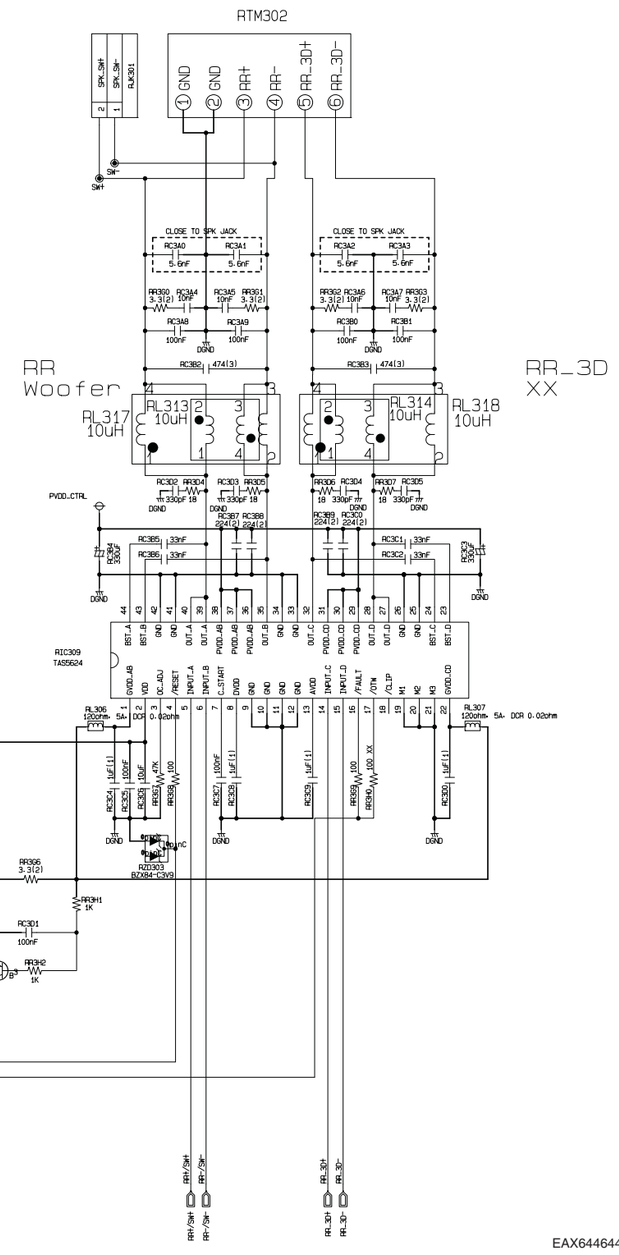
* OPTION
W3 : W3-4 REAR BOX ONLY
W3+WR : W3-4 & WOOFER WITH REAR
WR : WOOFER WITH REAR
WF : WOOFER ONLY

model / option	W3		WOOFER +REAR	WOOFER	
CYL	O		X	X	
CYL_W3	O		X	X	
FAN	X		X	X	
SQUAR	X		O	O	
SQU_W3	X		X	X	
SQW3_WR	X		O	X	
W3	O		X	X	
W3+WR	O		O	X	
W3_3D	O		X	X	
WF	X		O	O	
WR	X		O	X	
XX	X		X	X	

W3
' 13 NEW WOOFER





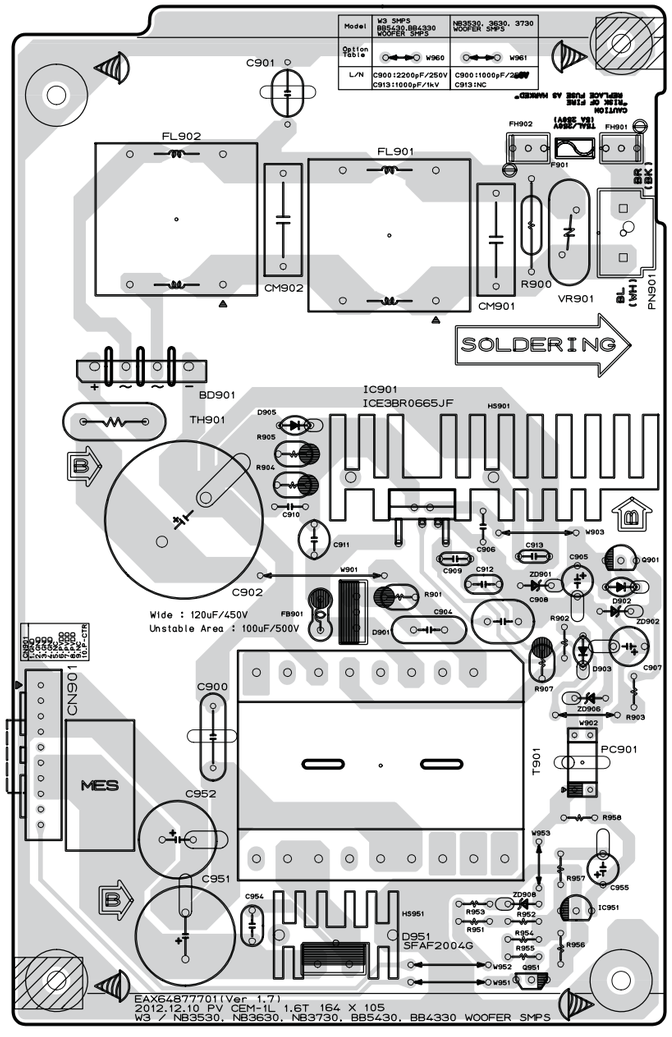


W3-4 AMP
EAX64464451(#2) Rev1.6(6)
2013.01.07

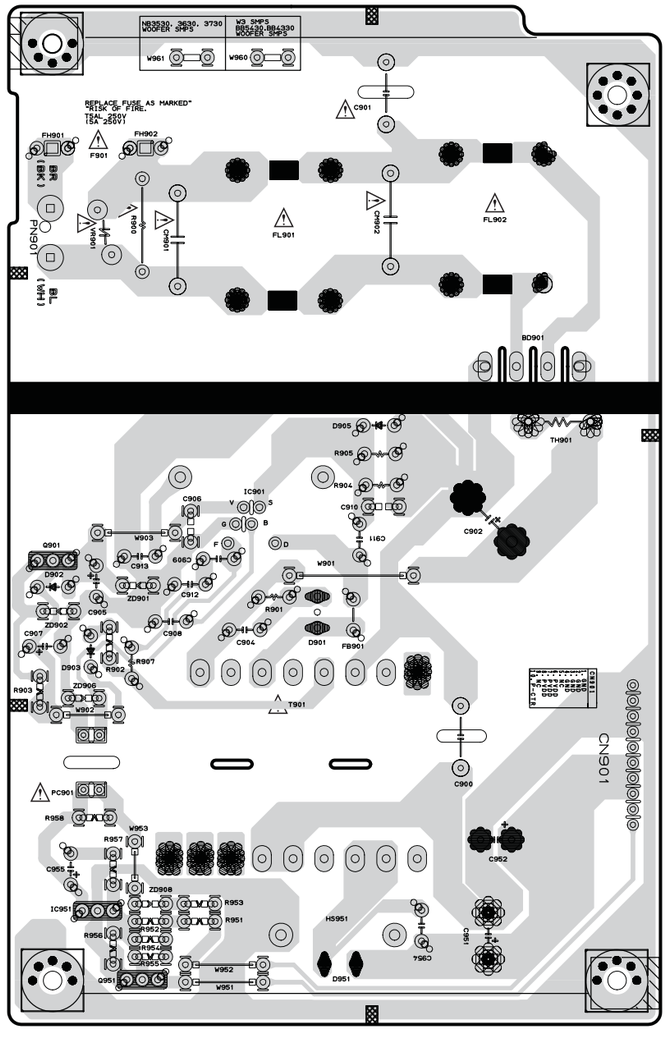
PRINTED CIRCUIT BOARD DIAGRAMS

1. SMPS P. C. BOARD

(TOP VIEW)



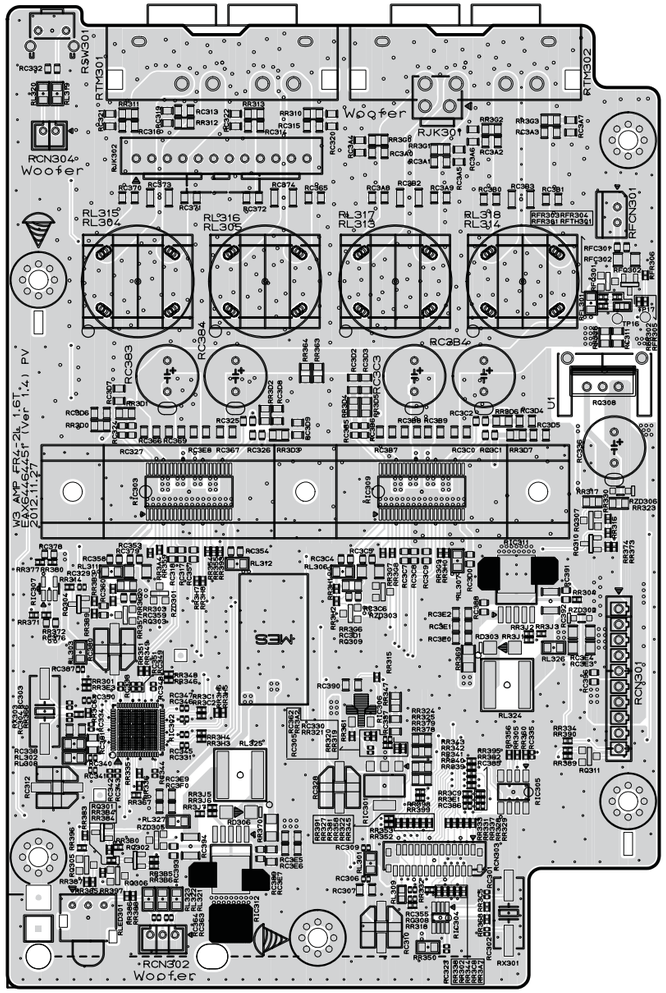
(BOTTOM VIEW)



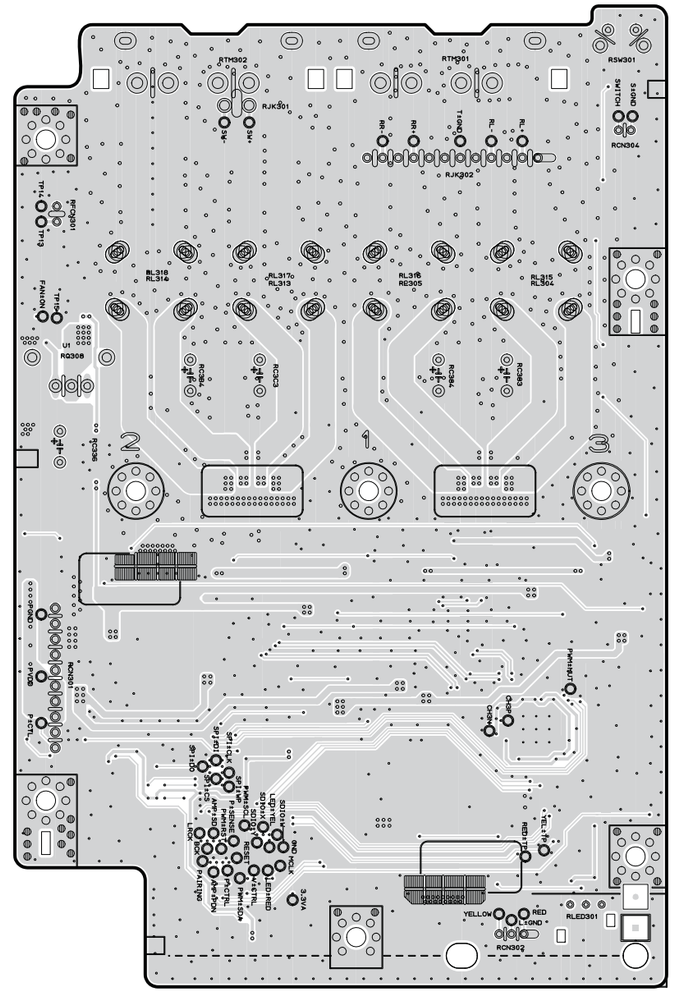
NOTE) Warning
⚠ Parts that are critical with respect to risk of fire or electrical shock.

2. AMP P. C. BOARD

(TOP VIEW)



(BOTTOM VIEW)



MEMO

MEMO