



SERVICE MANUAL

MODEL: UBK80

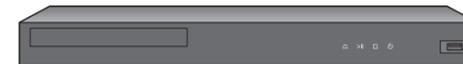


Ultra HD Blu-ray Disc™ Player **SERVICE MANUAL**

MODEL: UBK80

CAUTION

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



P/NO : AFN78082559

DECEMBER, 2020

“Any reproduction, duplication, distribution (including by way of email, facsimile or other electronic means), publication, modification, copying or transmission of this Service Manual is STRICTLY PROHIBITED unless you have obtained the prior written consent of the LG Electronics entity from which you received this Service Manual. The material covered by this prohibition includes, without limitation, any text, graphics or logos in this Service Manual.”

LG

Copyright © 2020 LG Electronics Inc. All rights reserved.
Only for training and service purposes.

CONTENTS

SECTION 1	SUMMARY
SECTION 2	CABINET & MAIN CHASSIS
SECTION 3	ELECTRICAL
SECTION 4	MECHANISM
SECTION 5	F/E LOADER PART

SECTION 1

SUMMARY

CONTENTS

PRODUCT SAFETY SERVICING GUIDELINES FOR BLU-RAY DISC / DVD PLAYER PRODUCTS	1-3
SERVICING PRECAUTIONS	1-4
• GENERAL SERVICING PRECAUTIONS	
• INSULATION CHECKING PRODEDURE	
• ELECTROSTATICALLY SENSITIVE (ES) DEVICES	
FIRMWARE UPDATE GUIDE	1-5
SPECIFICATIONS	1-7

PRODUCT SAFETY SERVICING GUIDELINES FOR BLU-RAY DISC / DVD PLAYER PRODUCTS

IMPORTANT SAFETY NOTICE

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

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

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

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

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

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

GRAPHIC SYMBOLS



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



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



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

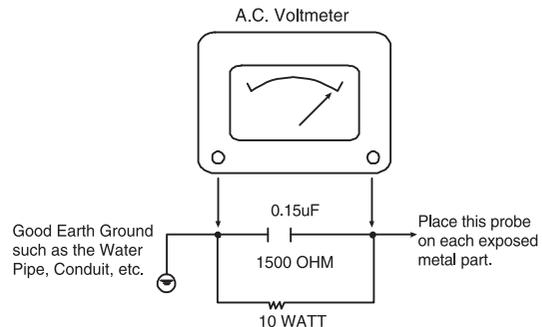
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

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

FIRE AND SHOCK HAZARD

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



TIPS ON PROPER INSTALLATION

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

SERVICING PRECAUTIONS

CAUTION: Before servicing the BLU-RAY DISC / DVD PLAYER 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 BLU-RAY DISC / DVD PLAYER 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 BLU-RAY DISC / DVD PLAYER or any of its assemblies.

3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.

Unless specified otherwise in this service data, lubrication of contacts is not required.

4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.

5. Do not apply AC power to this BLU-RAY DISC / DVD PLAYER 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.

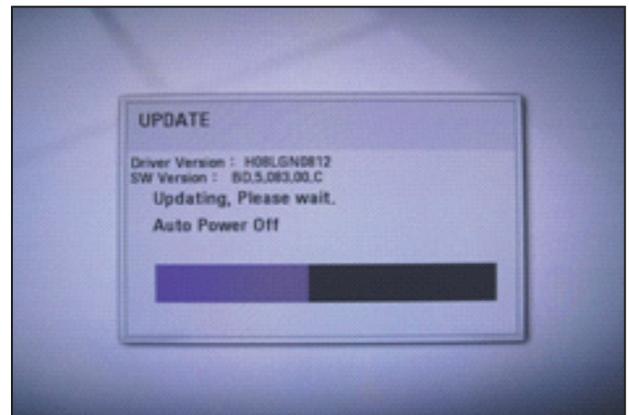
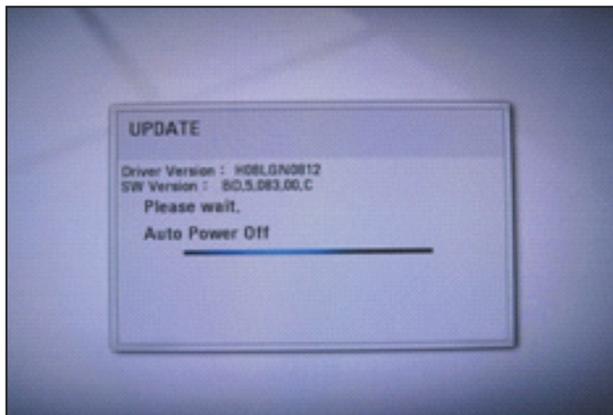
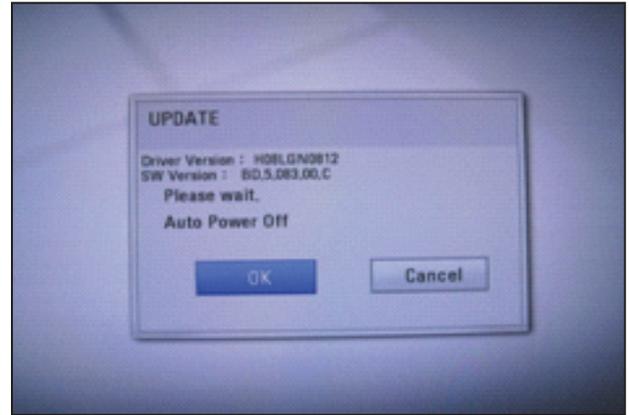
Caution: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

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.)

FIRMWARE UPDATE GUIDE

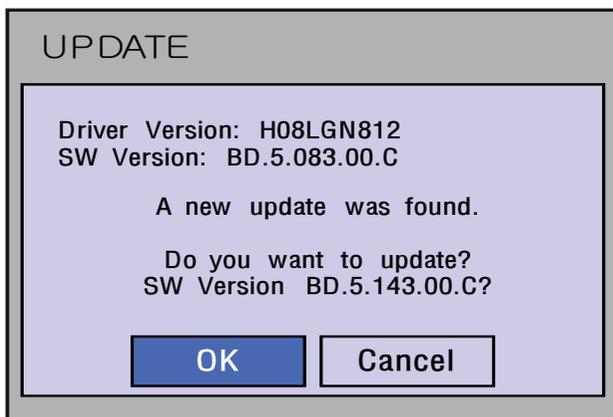
1. UPDATE FIRMWARE

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



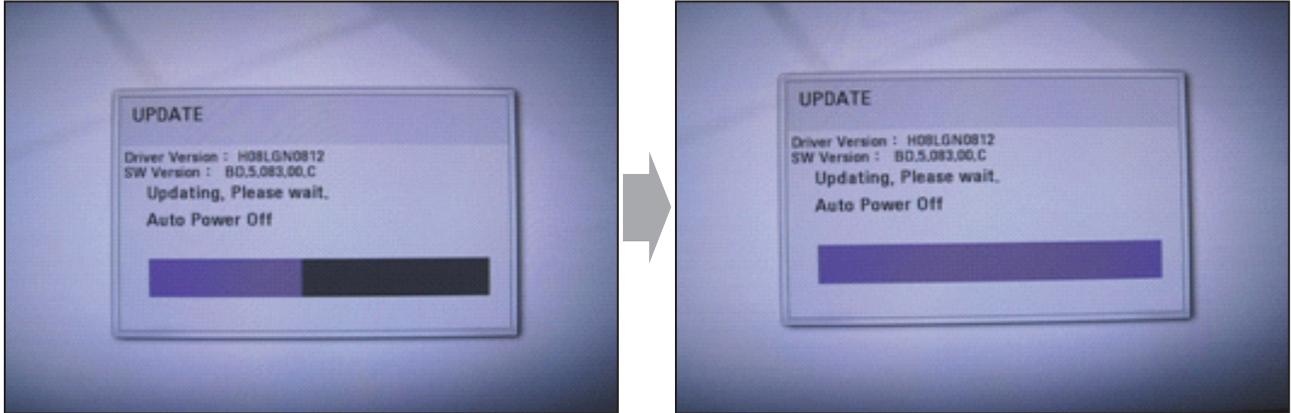
< Firmware Update OSD >

OSD contents:



2. DURING UPDATING

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



3. AFTER UPDATE COMPLETE

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

SPECIFICATIONS

Power requirements	Refer to main label.
Power consumption	Refer to main label. Networked standby : 0.5 W (If all network ports are activated.)
Dimensions (W x H x D)	Approx. 430 mm x 45.5 mm x 205 mm
Bus Power Supply (USB)	5 V $\overline{=}$ 500 mA

- Design and specifications are subject to change without notice.

MEMO

A series of horizontal dotted lines for writing.

SECTION 2

CABINET & MAIN CHASSIS

CONTENTS

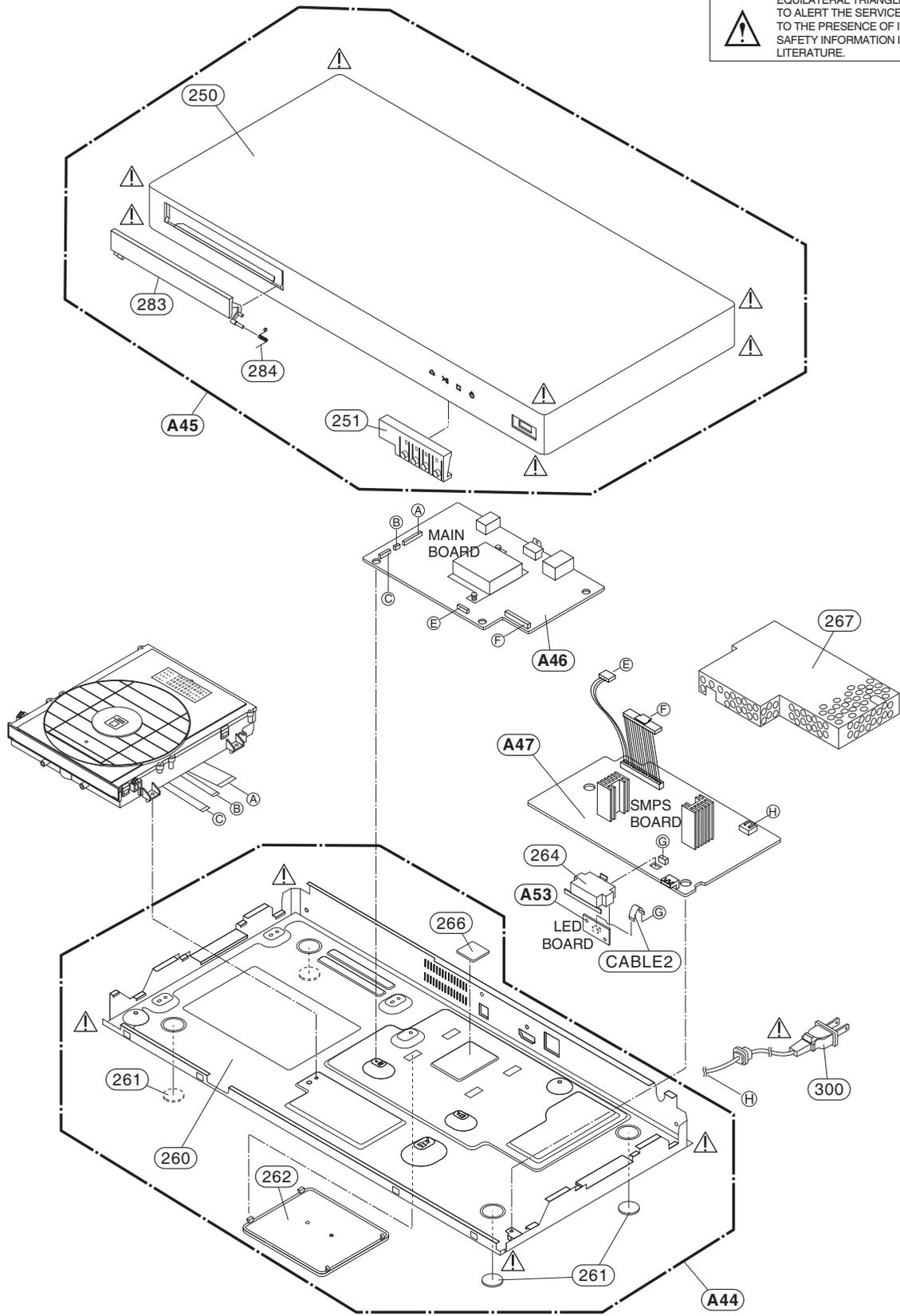
EXPLODED VIEWS 2-2

- 1. CABINET AND MAIN FRAME SECTION 2-2
- 2. DECK MECHANISM SECTION 2-4
- 3. PACKING ACCESSORY SECTION 2-6

EXPLODED VIEWS

1. CABINET AND MAIN FRAME SECTION

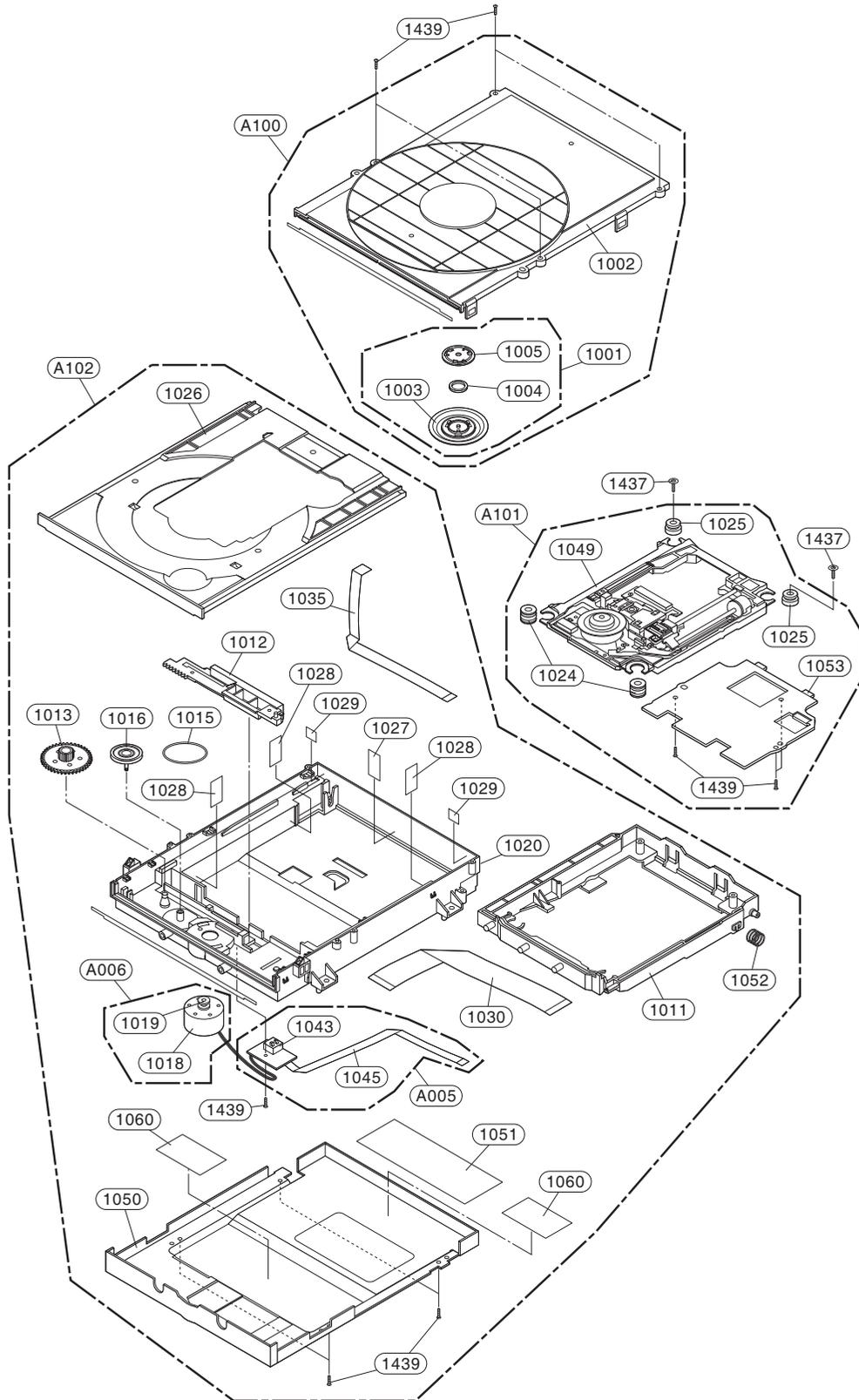
NOTES) THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.



• Cabinet and main frame parts list

S	AL	LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION	REMARKS
ASSEMBLY PARTS						
		A44	ADV76705609	Frame Assembly	BD Player UBK80 Update HDMI TM	
		A45	ABQ76642101	Case Assembly	UBK80-LGEUS -	
		A46	EBU63926011	BPR Total Assembly	UP870_BPR -	
		A47	EBR84231701	PCB Assembly,Power	UP970/870 SMPS&Front W/W -	
		A53	EBU64502101	BPR Total Assembly	UP870 LED_BPR -	
INDIVIDUAL PARTS						
		250	MBN65483901	Case	MOLD ABS UBK80 MOLD CASE TOP	
		251	MBG66246601	Button	MOLD ABS BD Player UP970 MOLD -	
		260	MBS63805919	Chassis	PRESS SECC 0.6 UBK80-WW PRESS	
		261	MDP63026803	Foot	EXTRUSION SILICON BD Player UP	
		262	MCK67389501	Cover	MOLD HIPS 60HR DVD BP325 / BP1	
		264	MEG65020901	Holder	MOLD ABS BD Player UP970 MOLD	
		266	MCQ62096408	Damper	CUTTING THERMOPLASTIC DVD BD57	
		267	ABA30039201	Bracket Assembly	BD Player UBK80/90 Bracket Ass	
		283	MCV63873901	Door	MOLD ABS BD Player UP970 MOLD	
		284	MHY63124701	Spring	EXTRUSION SWC COIL RH735 Torsi	
	△	300	EAD62501535	Power Cord	USA95N AT-H2P-1500/95-N-01-BK-	
CABLE						
		CABLE2	EAD62228008	Cable,FFC	6P100D-H2-0F01N-T-50-0-0-0-0-0	

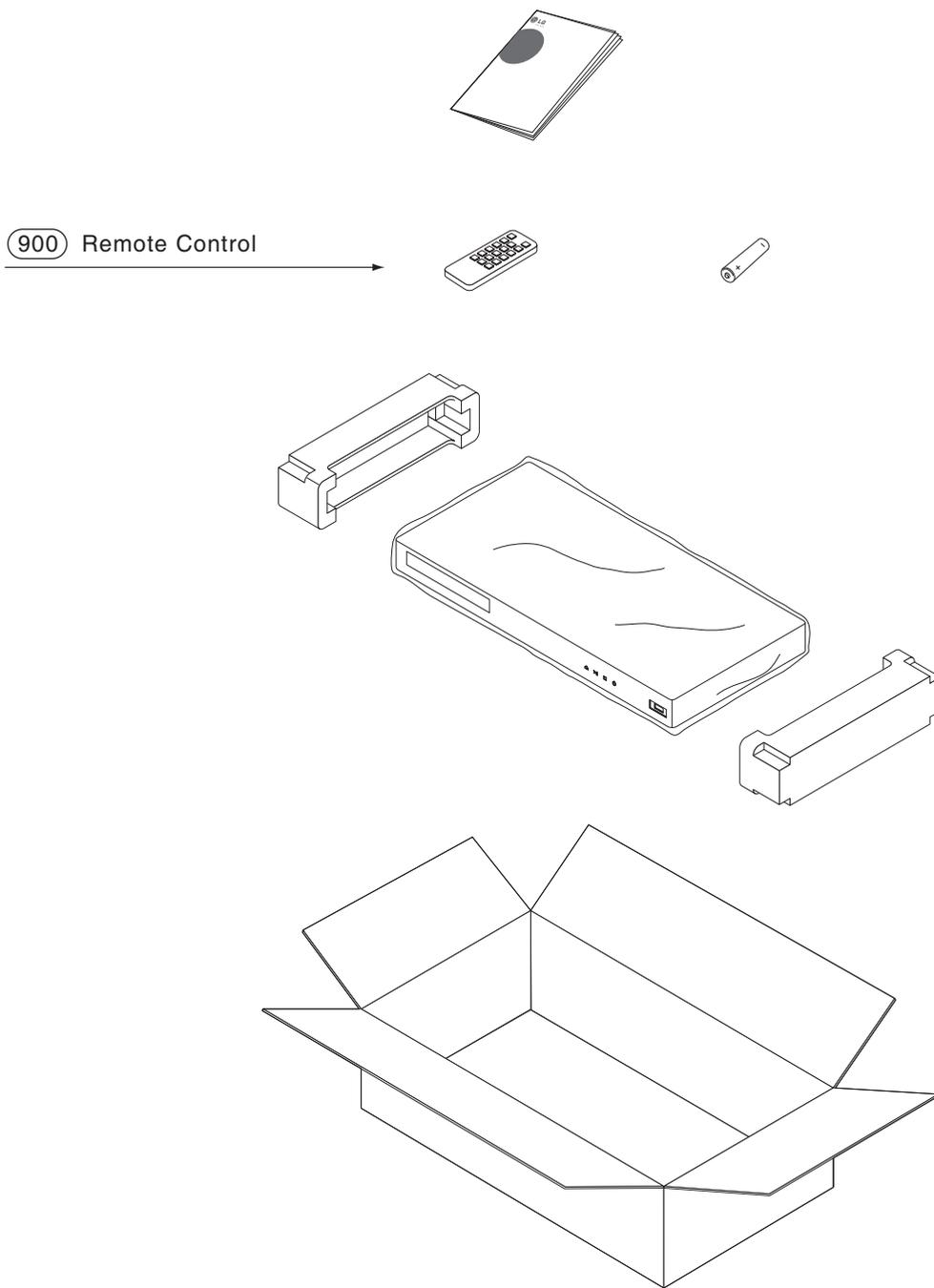
2. DECK MECHANISM SECTION



• Deck mechanism parts list

S	AL	LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION	REMARKS
COVER ASSEMBLY						
		A100	ACQ90288201	Cover Assembly	DECK/MECHA UP870 Cover Top Ass	
		1001	ACA73589401	Clamp Assembly	DECK/MECHA UP970 UHD BD Player	
		1002	MCK69432401	Cover	MOLD HIPS 60HR BD Player up970	
		1003	MBU63585501	Clamp	MOLD POM BD Player up970 MOLD	
		1004	RAB35231201	Magnet,NdFeB	ND(N33EH) 11100TO11900G 1.5T	
		1005	MGJ63182201	Plate	PRESS SECC 0.5 SBM-01AA PRESS	
		1439	1SZZH-1007B	Screw,Customized	+ D2.0 6MM SWRCH16A/ZNBK 4MM 1	
BRACKET ASSEMBLY						
		A101	ABA76688301	Bracket Assembly	DECK/MECHA UP870 Bracket TRAVS	
		1024	MCQ68986002	Damper	CUTTING BUTHYL 25 BD Player up	
		1025	MCQ68966602	Damper	CUTTING BUTHYL HR 25 BD Player	
		1049	EAZ63001101	Pick Up Assembly	KEM481AAA KEM481AAA Sony HD BD	
		1053	MAZ65527701	Bracket	PRESS SECC 2.3 BD Player up970	
		1437	FAB30840502	Screw,Customized	PWH + 2M 8M SWRCH FZY	
		1439	1SZZH-1007B	Screw,Customized	+ D2.0 6MM SWRCH16A/ZNBK 4MM 1	
BASE ASSEMBLY						
		A102	AAN76508701	Base Assembly	UP870 Base Main Assy	
		A005	EBR83858301	PCB Assembly,Deck	UP970 Loading PCB Assy UHD BD	
		A006	EAU62123301	Motor Assembly,DC	Recorder BM10 loading - HZ -	
		1011	MAM64504201	Base	MOLD ABS HF380 up970 MOLD Base	
		1012	MEA62870901	Guide	MOLD HIPS 60HR DECK/MECHA BM14	
		1013	MDT62367501	Gear	MOLD POM DECK/MECHA BM14 MOLD	
		1015	4400R-0010A	Belt	DVD DP-9 OTHER LOADING	
		1016	MDT62367401	Gear	MOLD POM DECK/MECHA BM14 MOLD	
		1018	EAU62065801	Motor,DC	JQ24-35H390L_Wire 80mm>Loading	
	OR	1018	4680R-E008A	Motor,DC	RF-300EA-1D390(80MM) 2V 90mA 2	
		1019	4560R-1016A	Pulley	MOLD POM DVD MOTOR MOLD DR-02	
	OR	1019	4560H-1005A	Pulley	MOLD POM F20.03 motor ALL 1	
		1020	MAM64464401	Base	MOLD ABS HF-380 up970 MOLD -	
		1026	MJS62671802	Tray	MOLD ABS XR-401 DECK/MECHA BM1	
		1027	MHK65808501	Sheet	CUTTING EVA EPE 25 5 0.5 Sheet	
		1028	MHK65808502	Sheet	CUTTING EVA EPE 16.5 10 1 Shee	
		1029	MHK65808506	Sheet	CUTTING EVA EPE 8.5 8.5 1 Shee	
		1030	EAD61048203	Cable,FFC	AT05045180C04 180MM 0.50MM 45P	
		1035	EAD36091013	Cable,FFC	AT10009200D01 200MM 1.00MM 9P	
		1043	6600KW3004G	Switch,Micro	JDS 2160 2C2P 5VDC 0.01A VERTI	
	OR	1043	6600HXF102A	Switch,Detector	MPU20160MLB0 2C1P 5VDC 0.7MA V	
		1045	EAD62039801	Cable,FFC	AT10005160G03 160MM 1.00MM 5P	
		1050	MCK69430801	Cover	PRESS SECC 06 DECK/MECHA up970	
		1051	MHK65808503	Sheet	CUTTING EVA EPE 87 31 0.5 Shee	
		1052	MHY64884001	Spring	CUTTING SUS304WPB COIL UP870 S	
		1060	MHK65808504	Sheet	CUTTING EVA EPE 43.5 31 0.5 Sh	

3. PACKING ACCESSORY SECTION



• **Packing accessory parts list**

S	AL	LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION	REMARKS
		900	AKB75135401	Remote Controller Assembly	U3-1 BP350 FCC	

MEMO

A series of horizontal dotted lines for writing.

SECTION 3

ELECTRICAL

CONTENTS

DIGITAL DISPLAY & MEDIA TRAINING MASTER	3-2
1. DISTORTED PICTURE.....	3-2
2. NO PICTURE	3-7
3. PICTURE COLOR.....	3-12
4. NOISE/AUDIO PROBLEMS.....	3-14
5. MISCELLANEOUS.....	3-17
6. BLU-RAY PLAYER	3-26
ONE POINT REPAIR GUIDE	3-27
1. NO POWER PROBLEM	3-27
2. NO BOOTING WHEN YOU TURN THE UNIT ON, NO GREEN LED ON FRONT PANEL	3-30
3. NO HDMI VIDEO / AUDIO OUTPUT.....	3-38
4. NO SOUND.....	3-39
5. NETWORK CONNECTION ERROR.....	3-40
6. NO DETECTION.....	3-41
ELECTRICAL TROUBLESHOOTING GUIDE.....	3-42
1. POWER SUPPLY ON SMPS BOARD.....	3-42
2. POWER SUPPLY ON MAIN BOARD.....	3-44
WAVEFORMS OF MAJOR CHECK POINT.....	3-50
1. SYSTEM PART - 1	3-50
2. SYSTEM PART - 2 (SYSTEM MEMORY).....	3-51
3. AUDIO PART (S/PDIF)	3-52
4. HDMI PART	3-53
WIRING DIAGRAM	3-54
BLOCK DIAGRAM	3-55
CIRCUIT VOLTAGE CHART.....	3-57
PRINTED CIRCUIT BOARD DIAGRAMS	3-59
1. SMPS P.C. BOARD	3-59
2. MAIN P.C. BOARD	3-61
3. LED P.C. BOARD	3-65

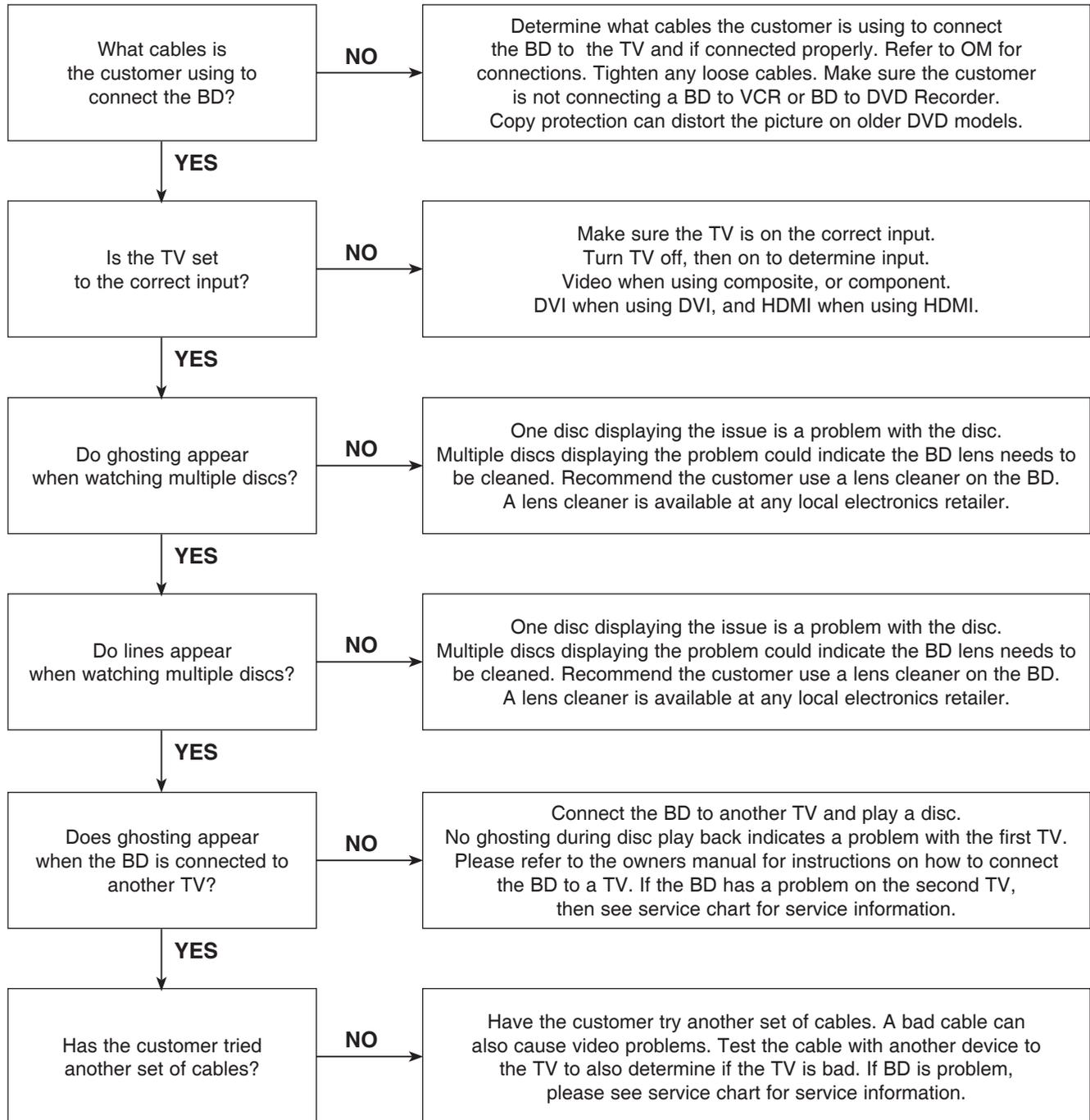
DIGITAL DISPLAY & MEDIA TRAINING MASTER

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

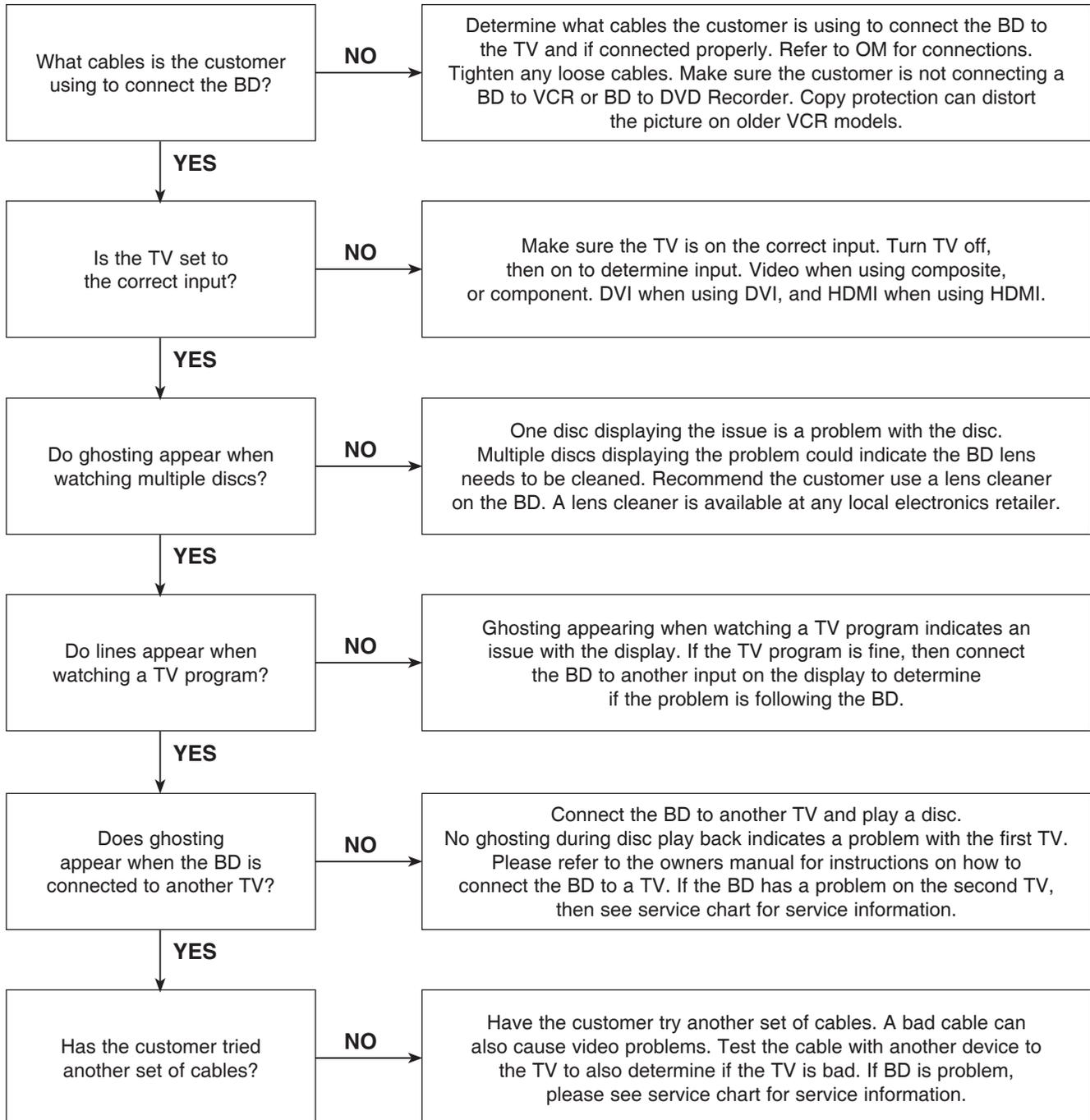
Distorted picture refers to the customer getting video, but there is a problem with the video.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

1-2. Ghost Picture

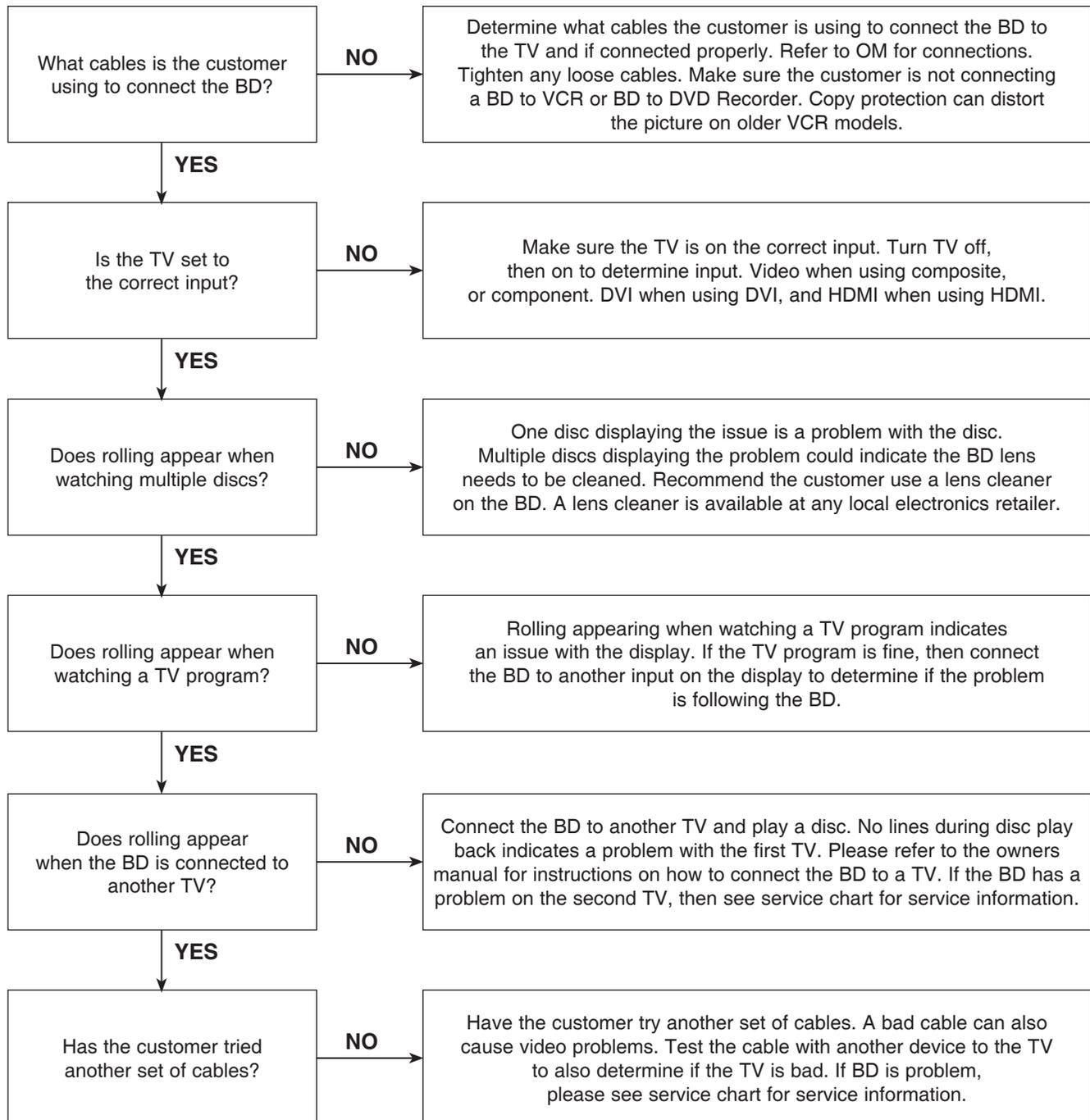
Distorted picture refers to the customer getting video, but there is a problem with the video.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

1-3. Rolling Picture

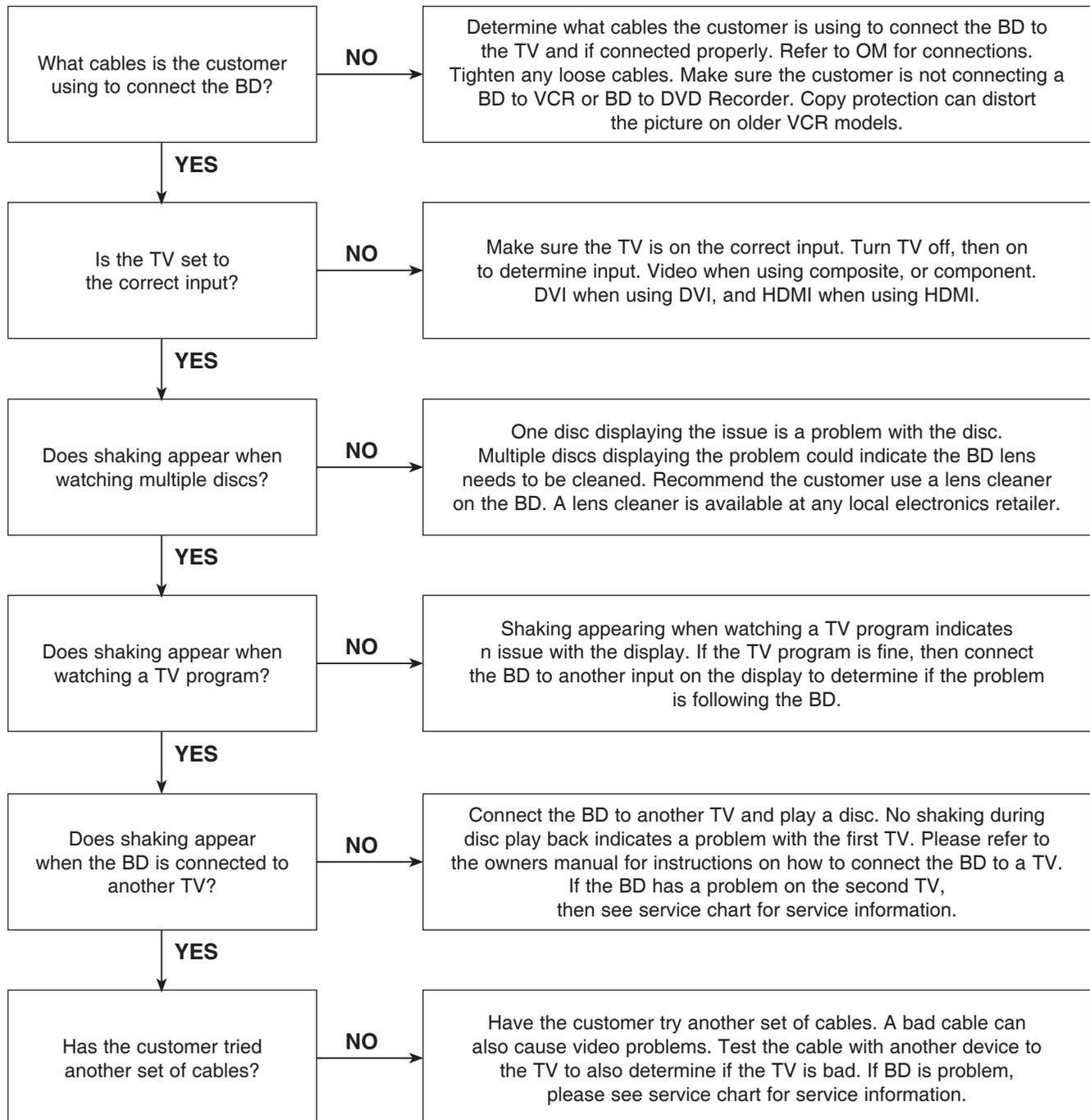
Distorted picture refers to the customer getting video, but there is a problem with the video.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

1-4. Shaky Picture

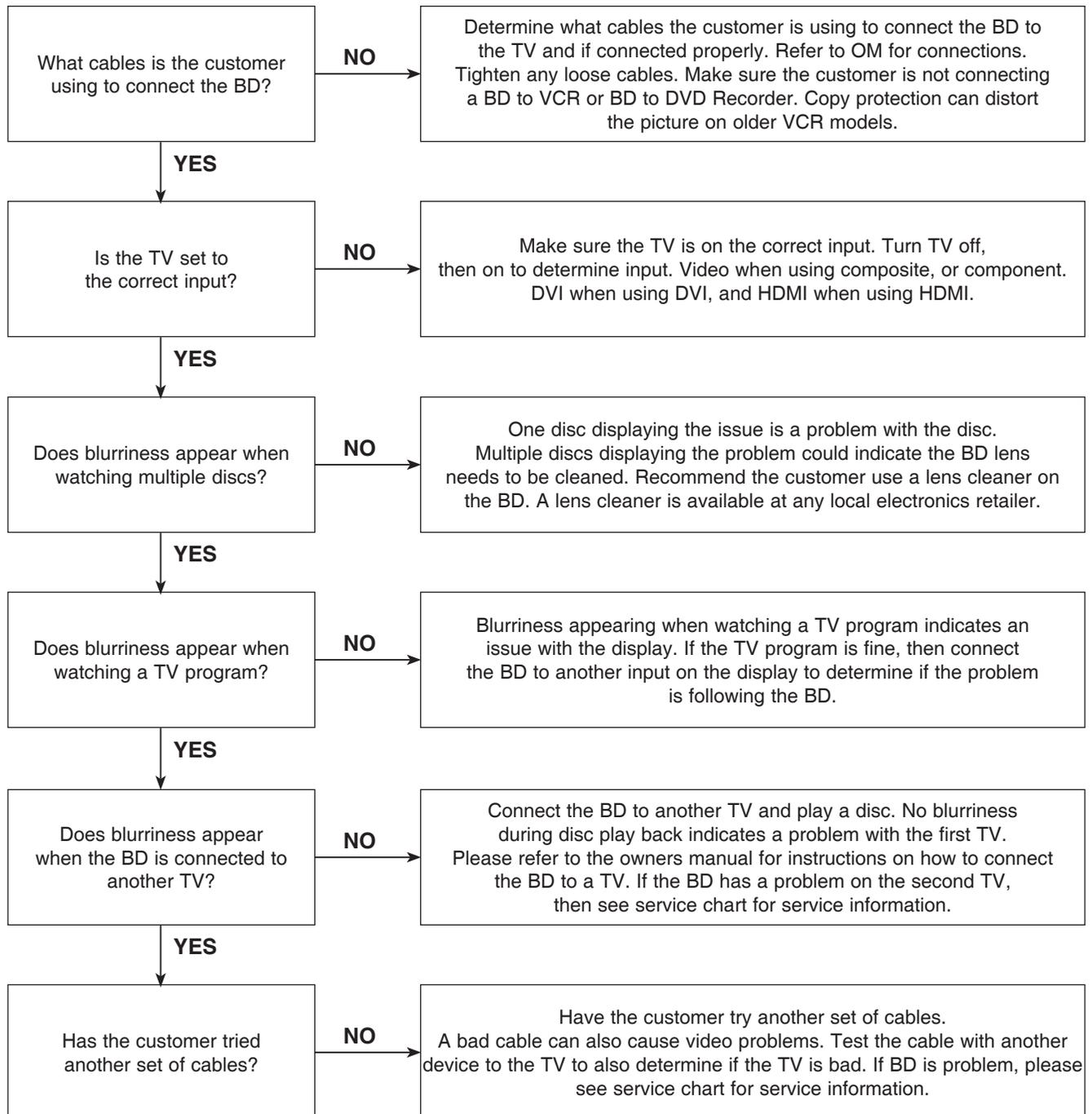
Distorted picture refers to the customer getting video, but there is a problem with the video.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

1-5. Blurry Picture

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

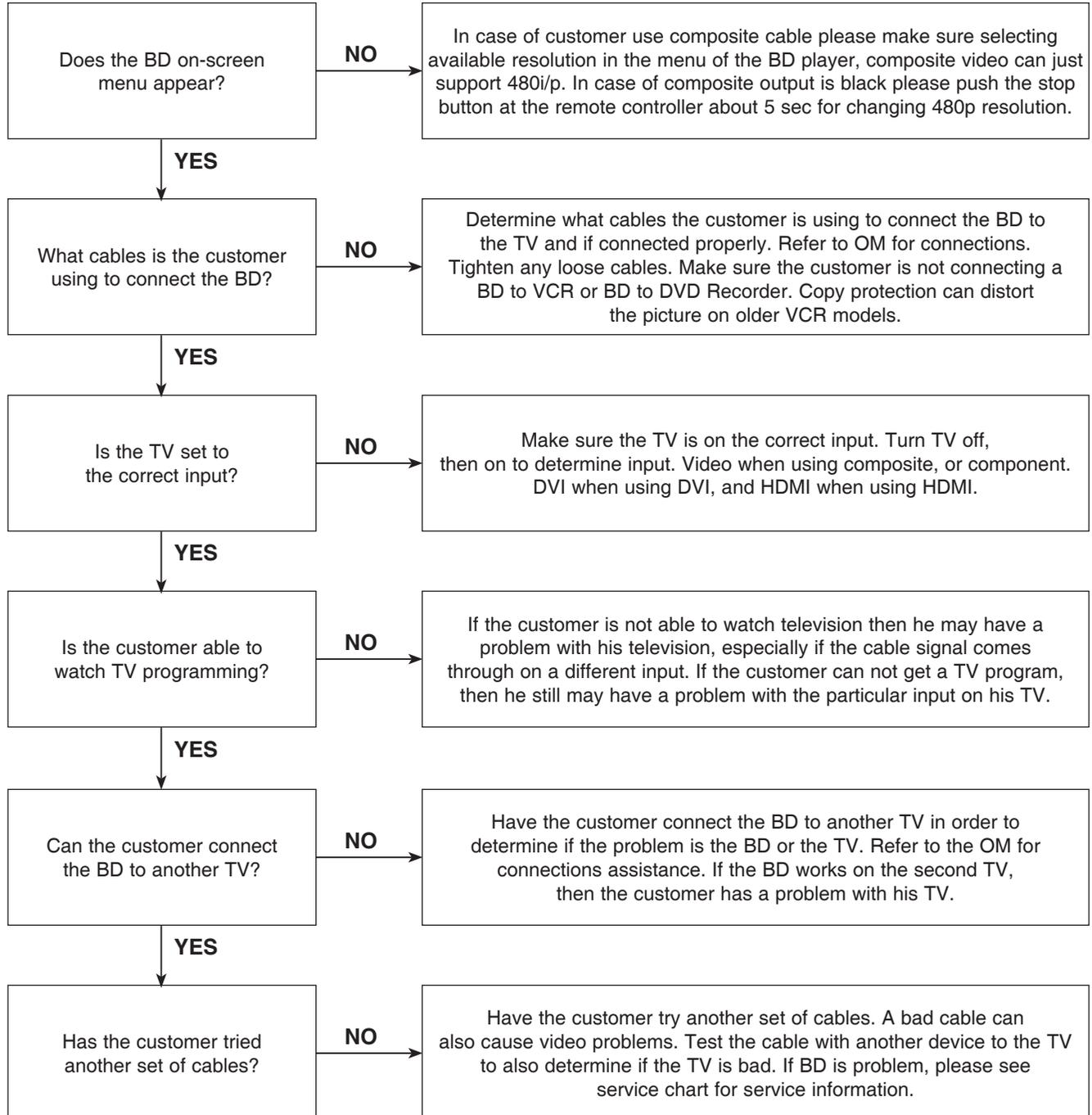


DIGITAL DISPLAY & MEDIA TRAINING MASTER

2. NO PICTURE

2-1. Black Screen

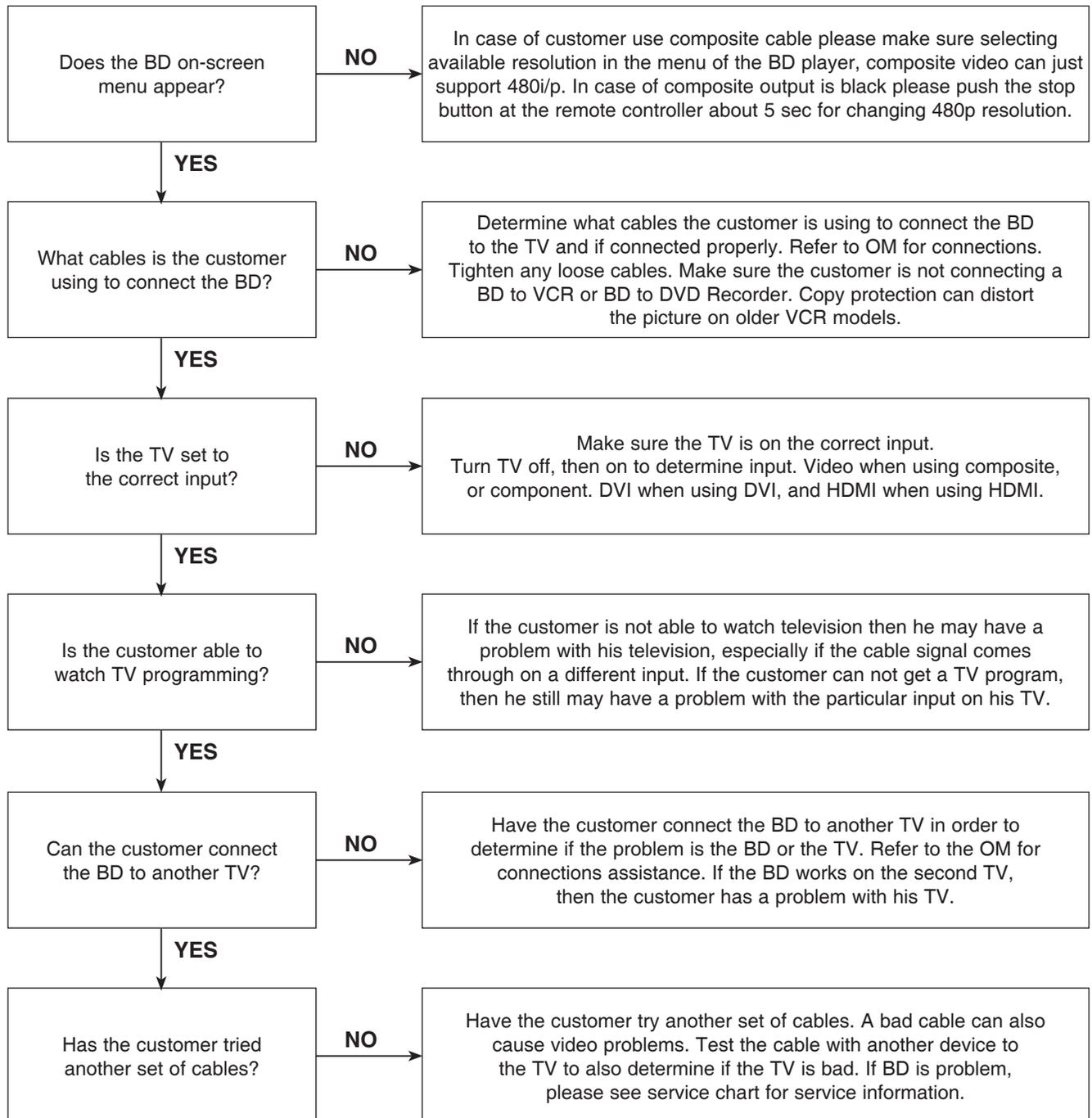
The entire screen is black.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

2-2. Blue Screen

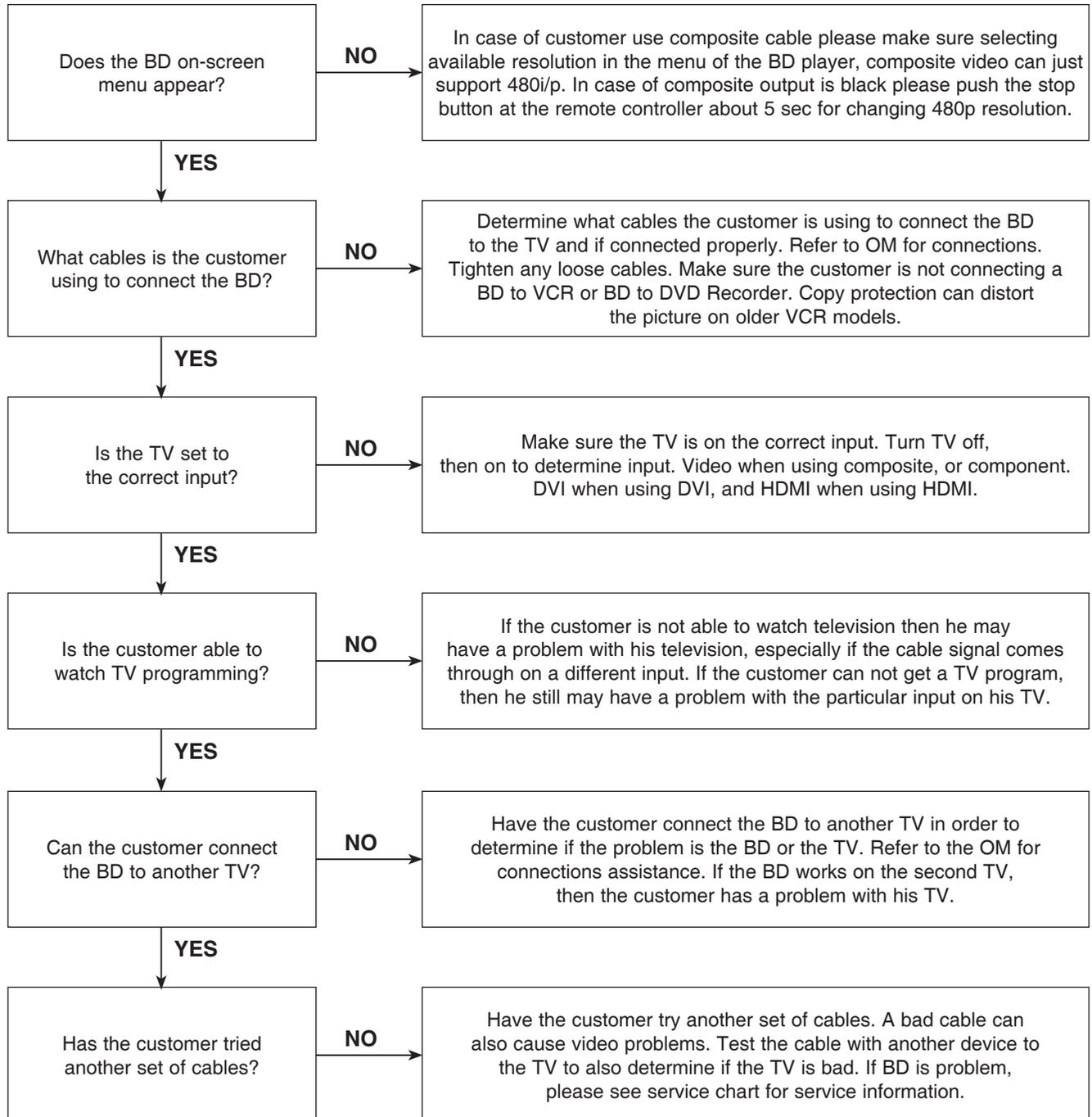
The entire screen is a solid blue color.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

2-3. Snowy Screen

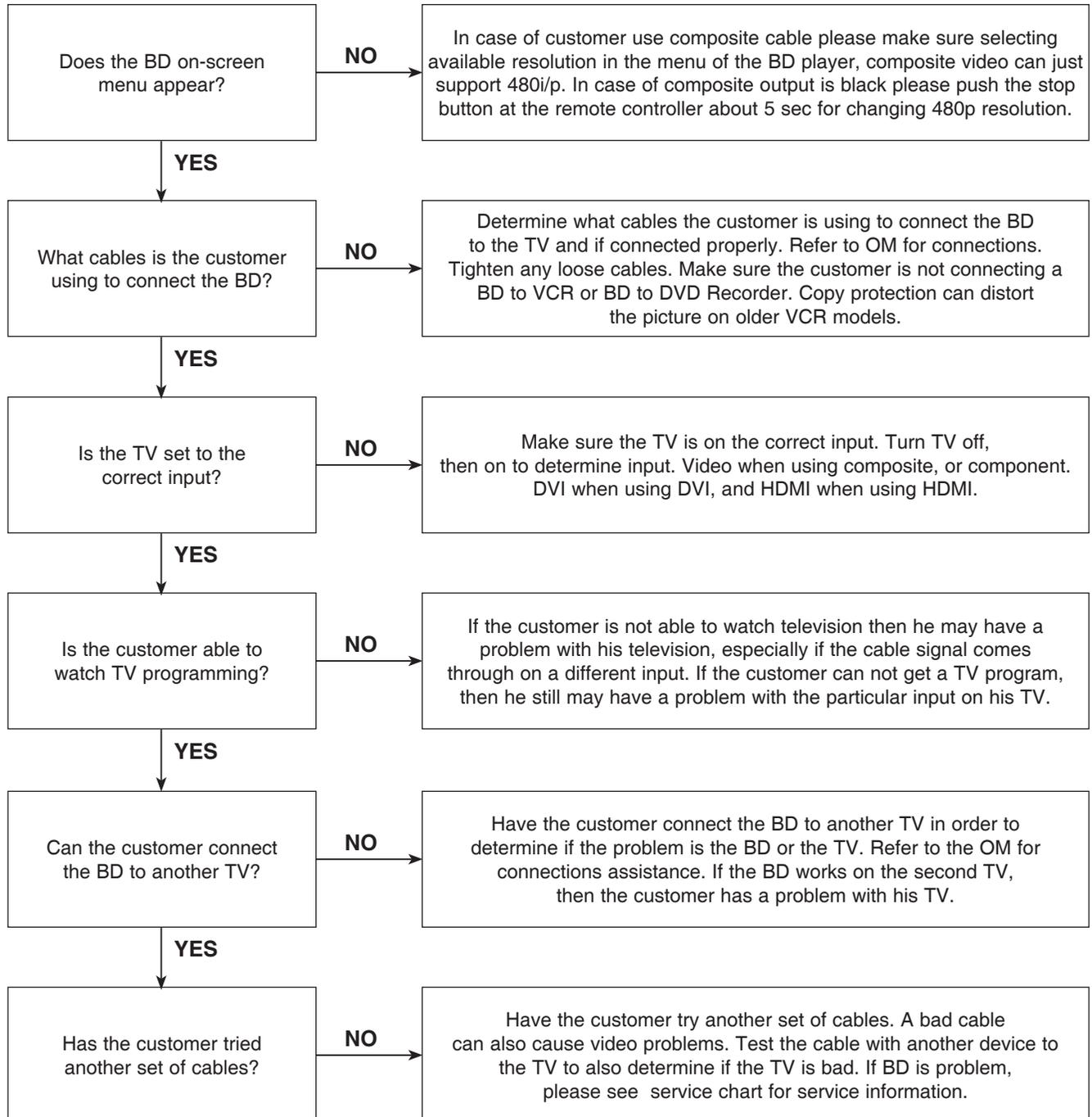
A snowy picture is when black and white dots are all over the screen.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

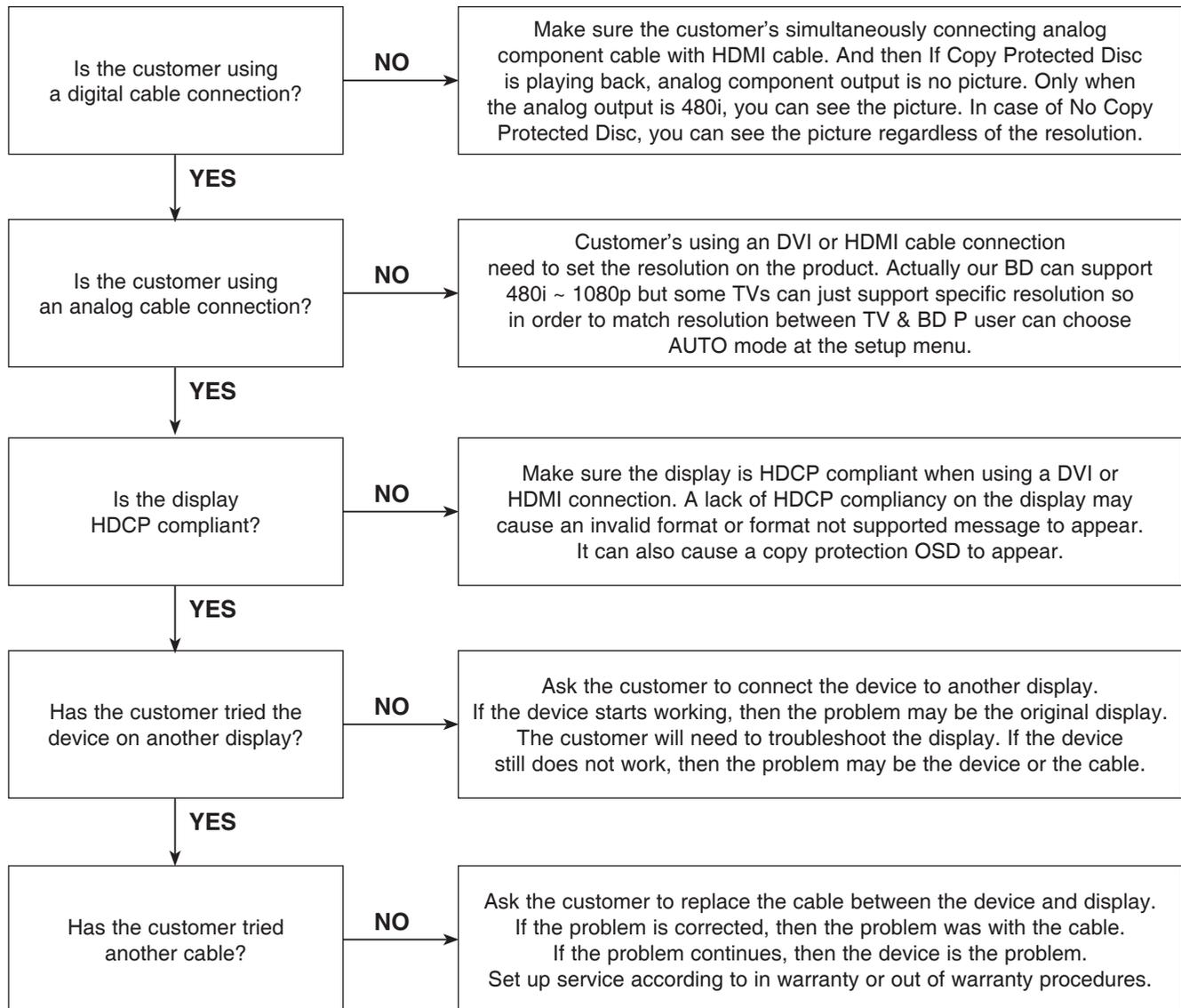
2-4. No Signal

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



DIGITAL DISPLAY & MEDIA TRAINING MASTER

2-5. Invalid Format or Format Not Supported

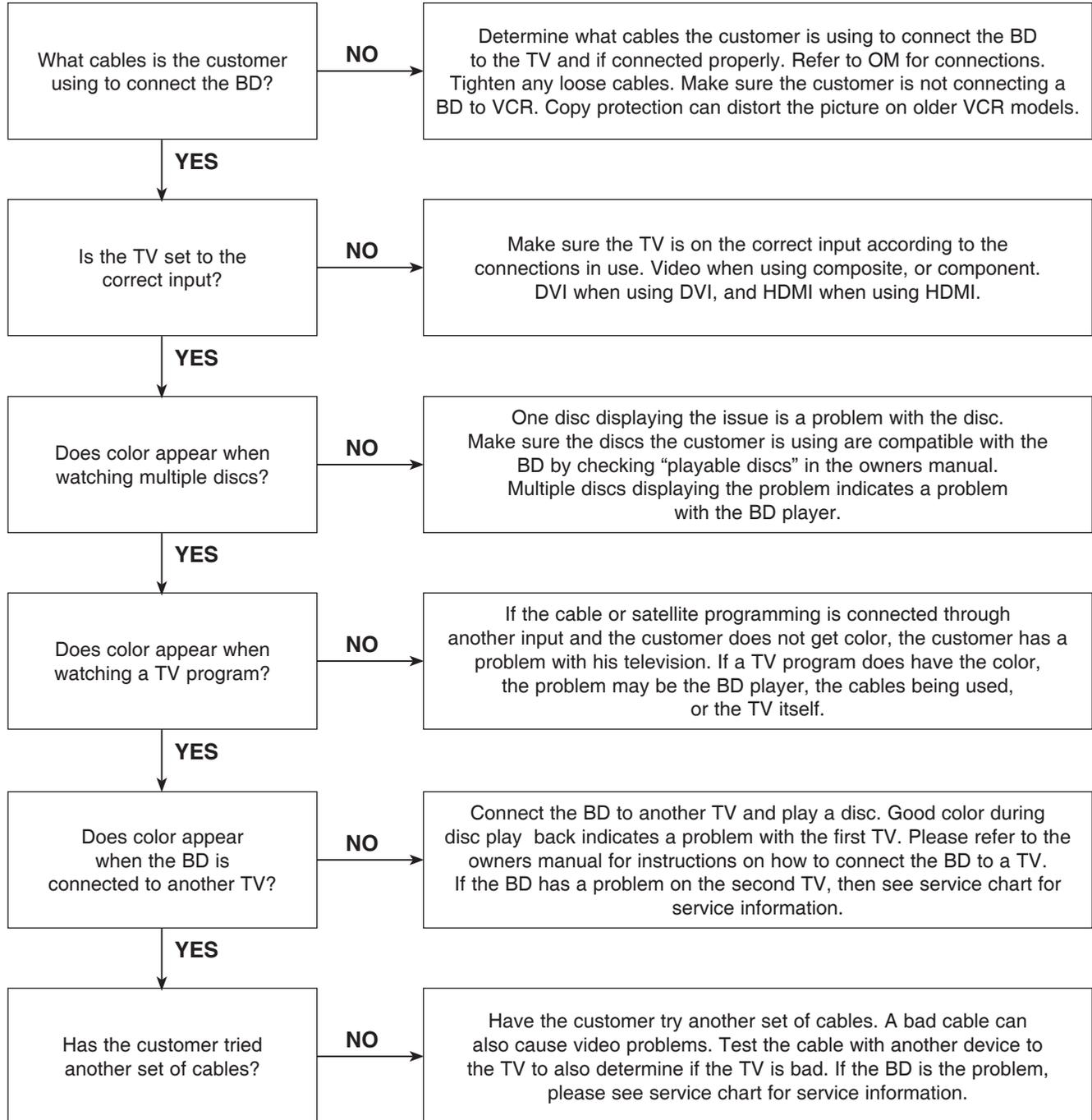


DIGITAL DISPLAY & MEDIA TRAINING MASTER

3. PICTURE COLOR

3-1. No Color

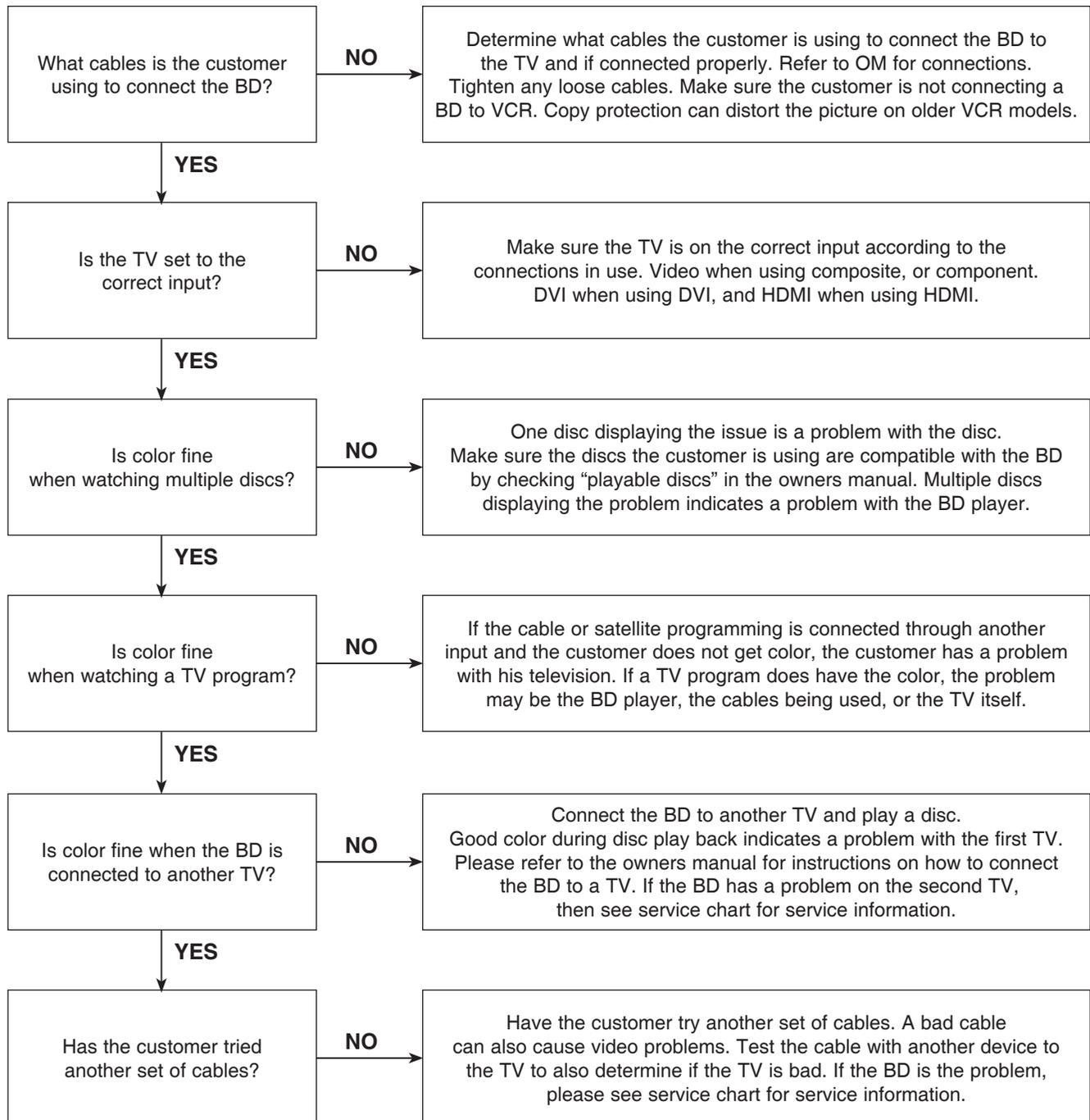
The video displays no color and only shows in black and white.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

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.

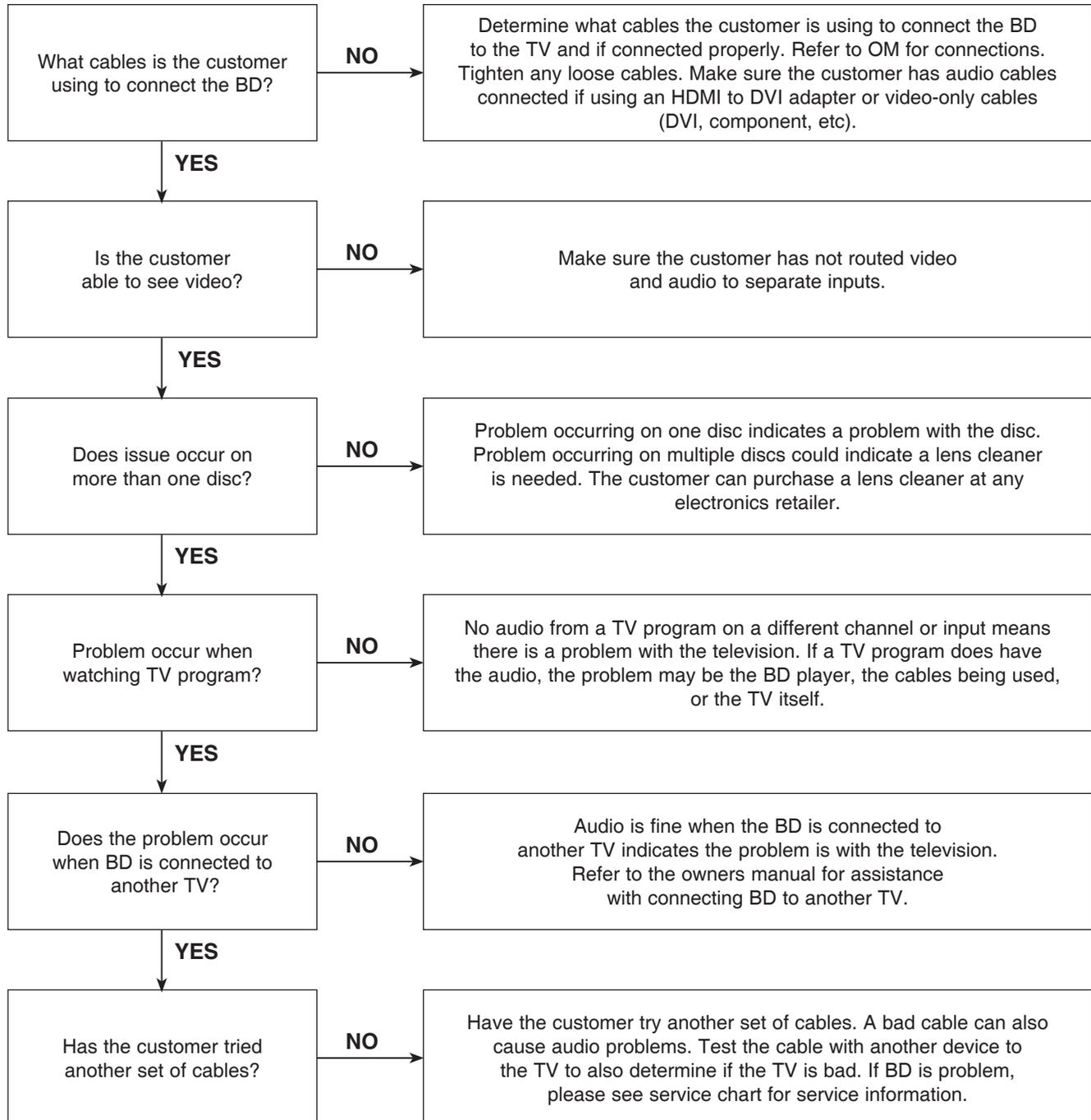


DIGITAL DISPLAY & MEDIA TRAINING MASTER

4. NOISE/AUDIO PROBLEMS

4-1. No Audio

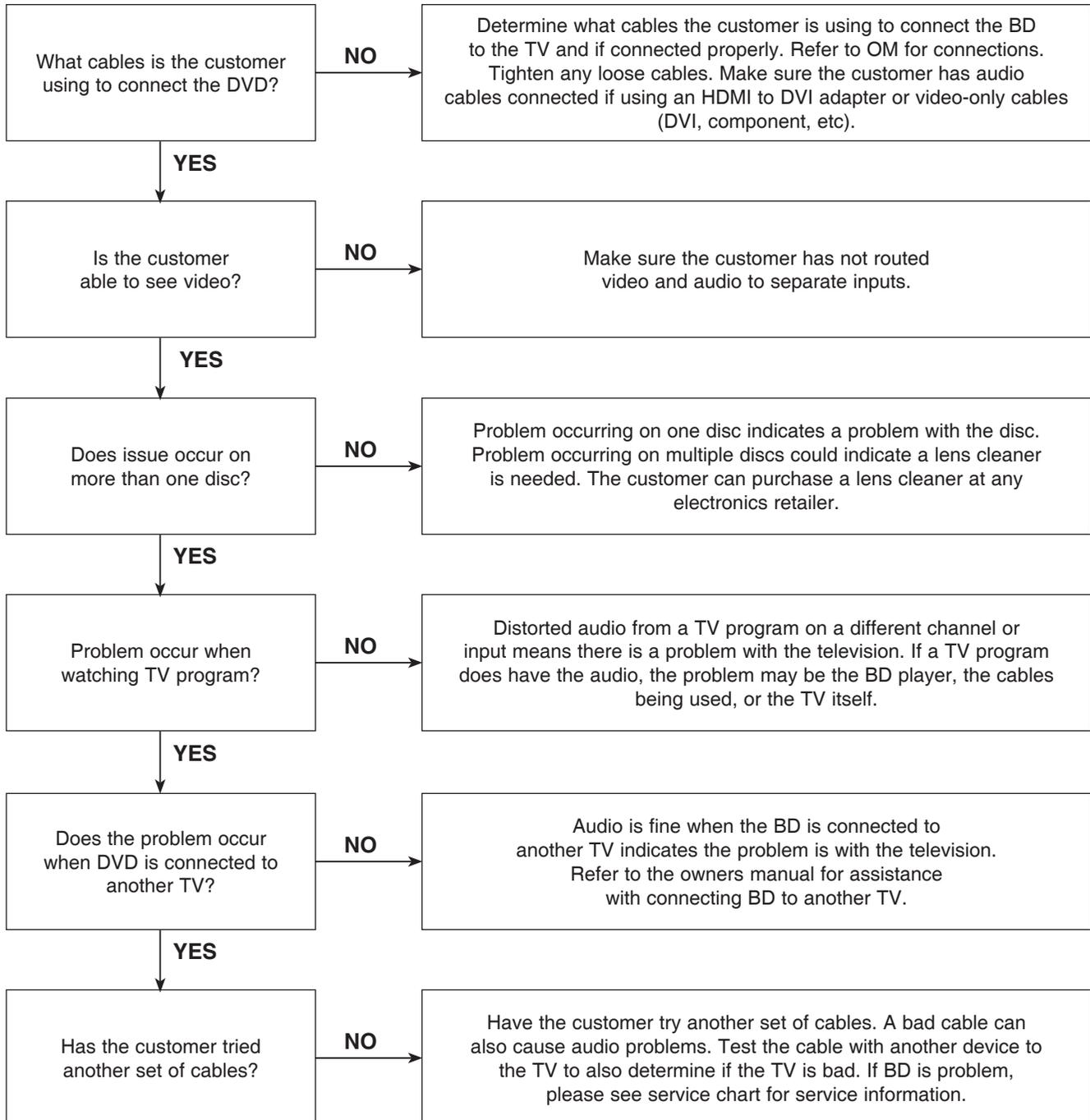
The customer is not able to get audio.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

4-2. Distorted Audio

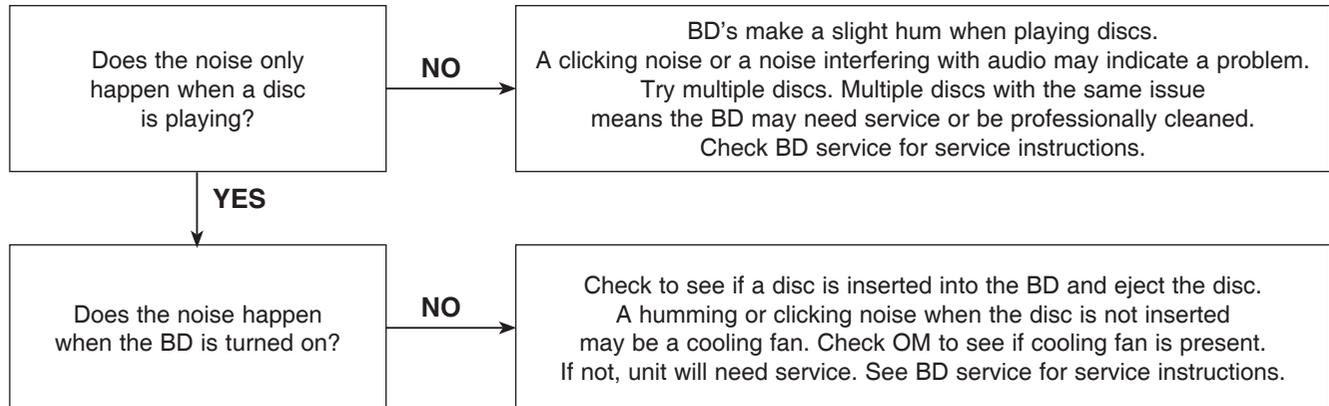
The audio sounds muffled, scratchy, or the audio skips.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

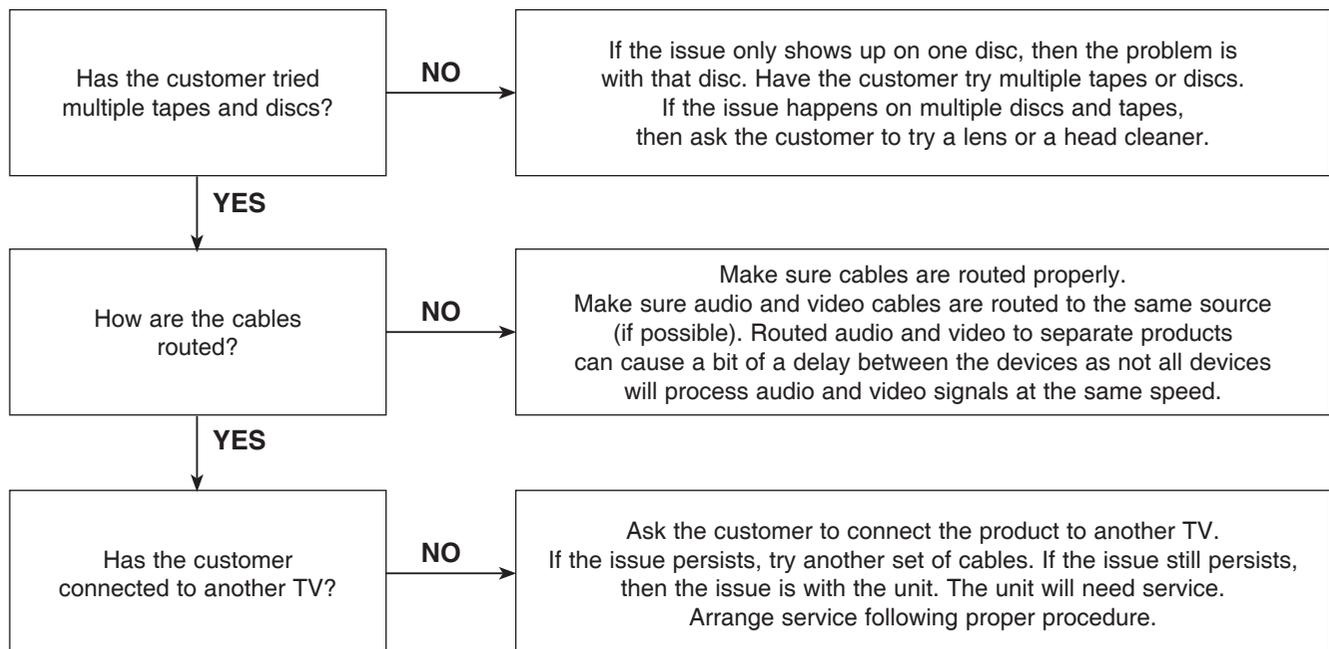
4-3. Humming/Clicking Noise

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.

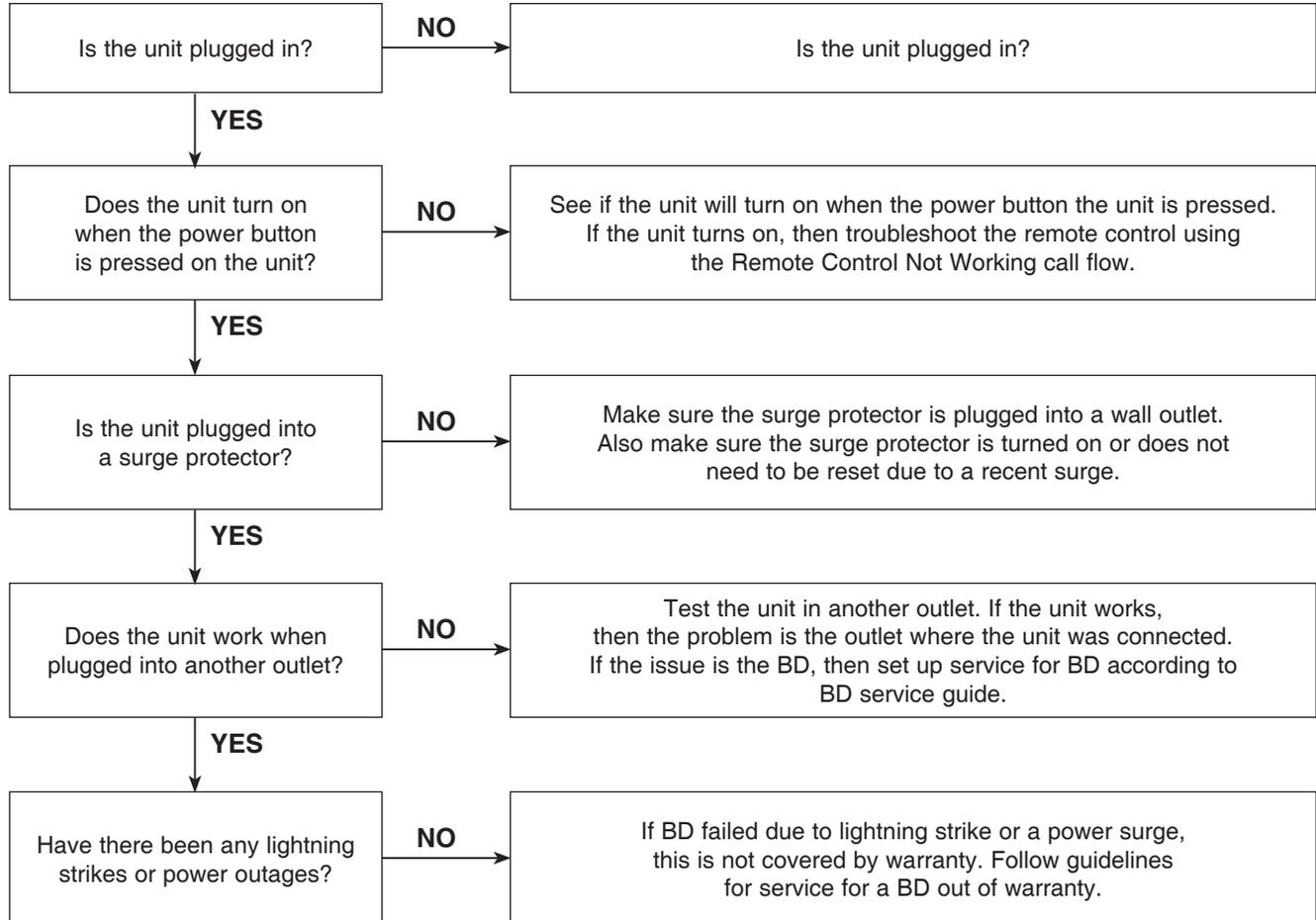


DIGITAL DISPLAY & MEDIA TRAINING MASTER

5. MISCELLANEOUS

5-1. No Power

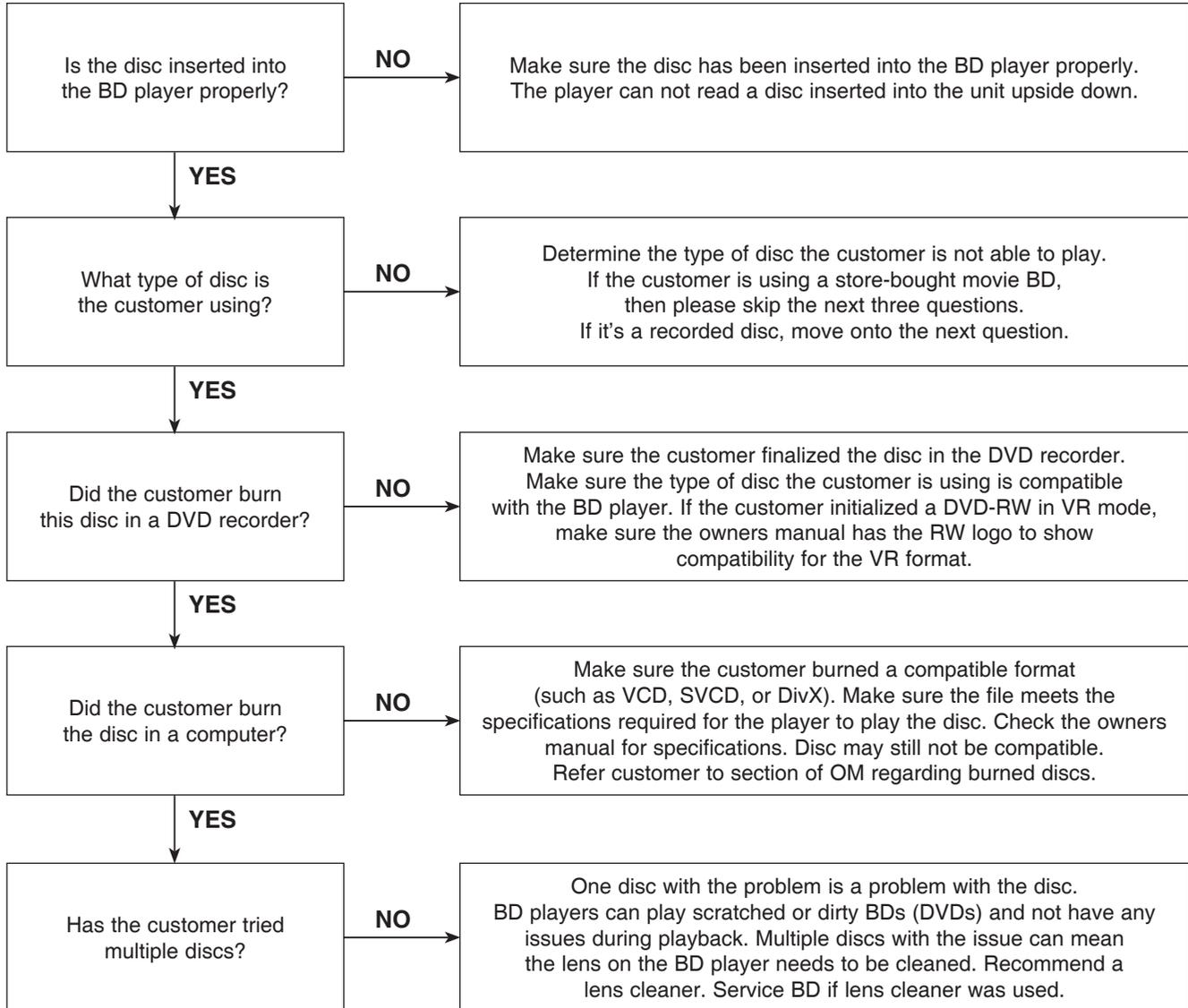
The unit will not turn on.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

5-2. Disc Error

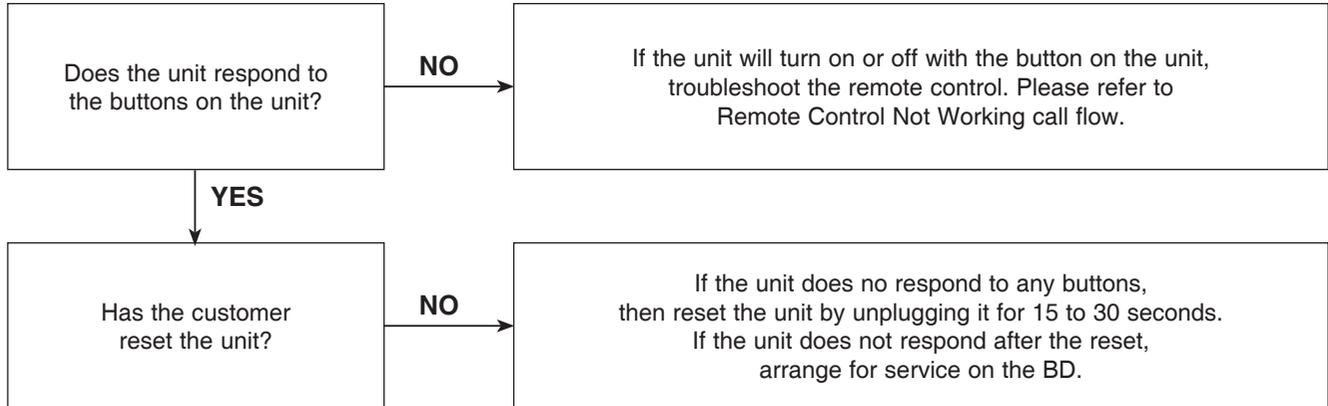
The unit displays “disc error” when a disc is inserted into the BD player.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

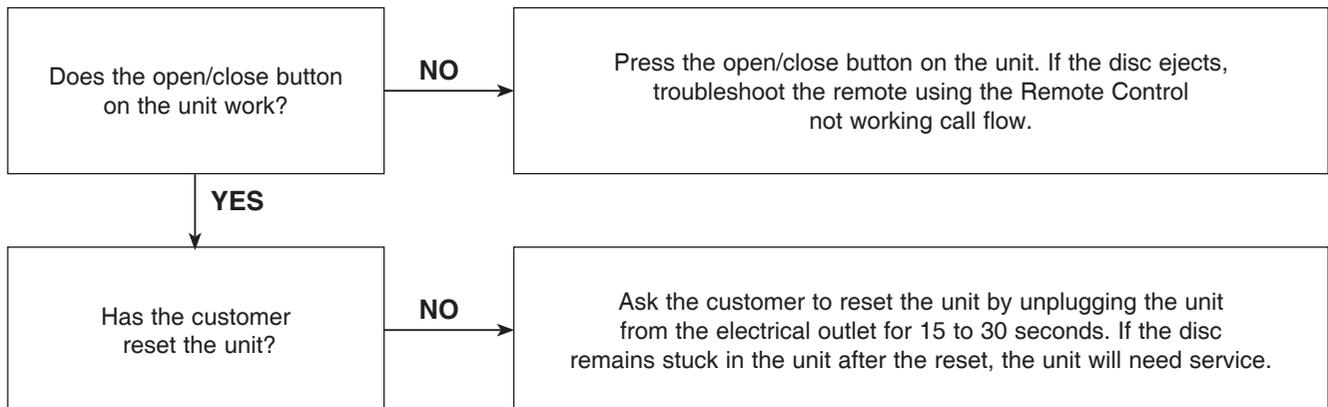
5-3. Unit Locks Up

Unit does not respond to any commands.



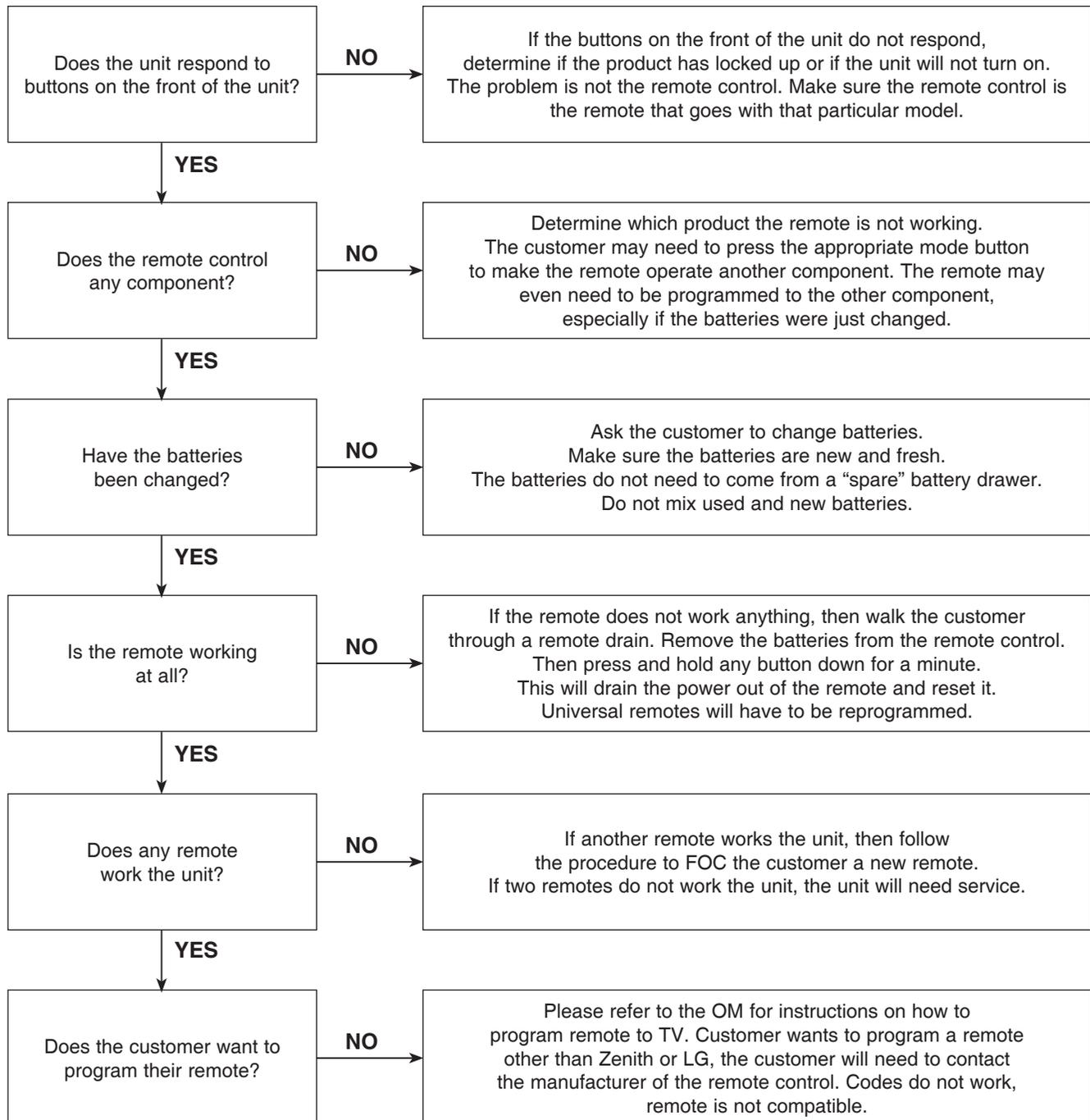
5-4. Disc Stuck

A BD disc is stuck in the unit.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

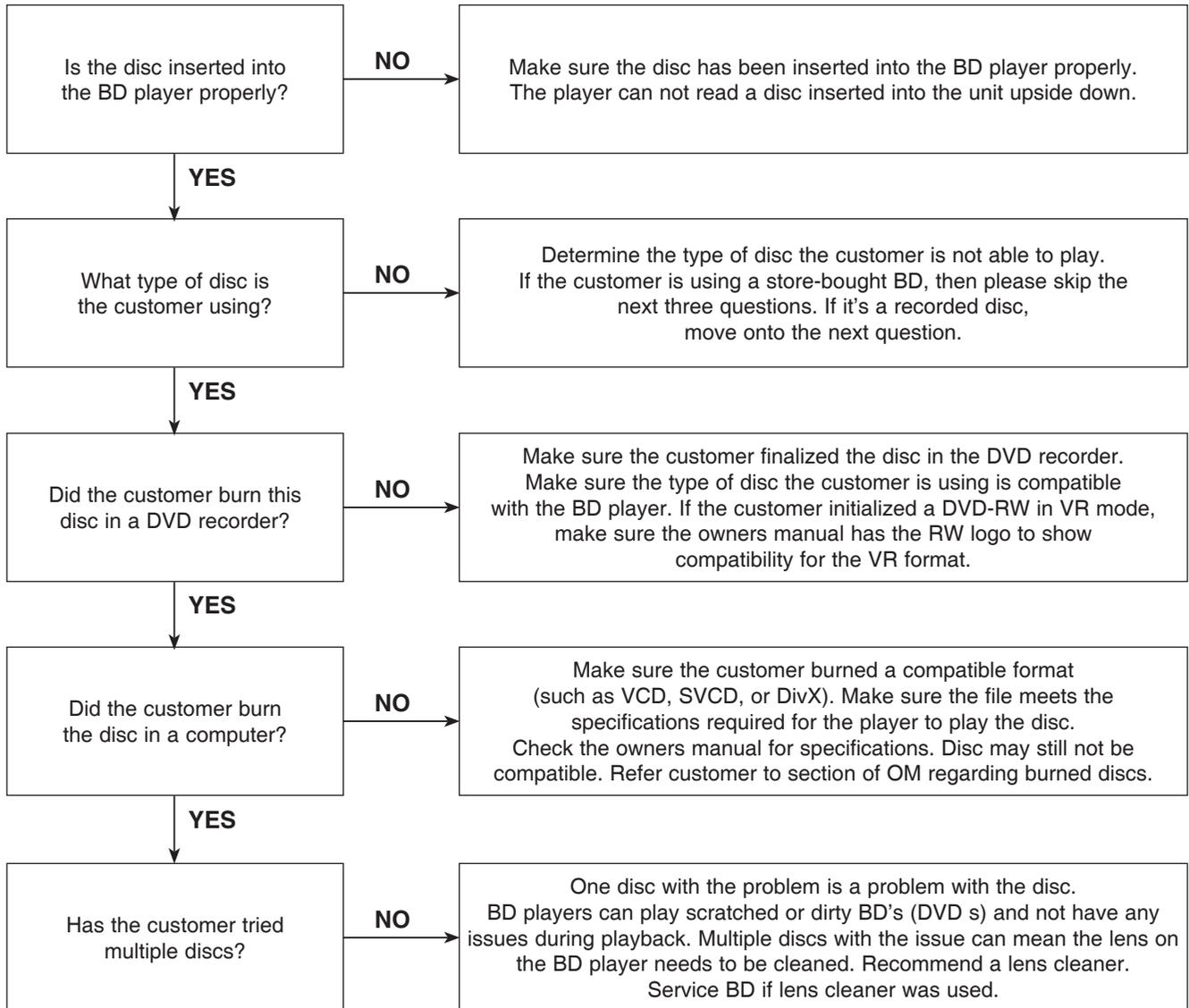
5-5. Remote Control Not Working



DIGITAL DISPLAY & MEDIA TRAINING MASTER

5-6. Will Not Play Disc

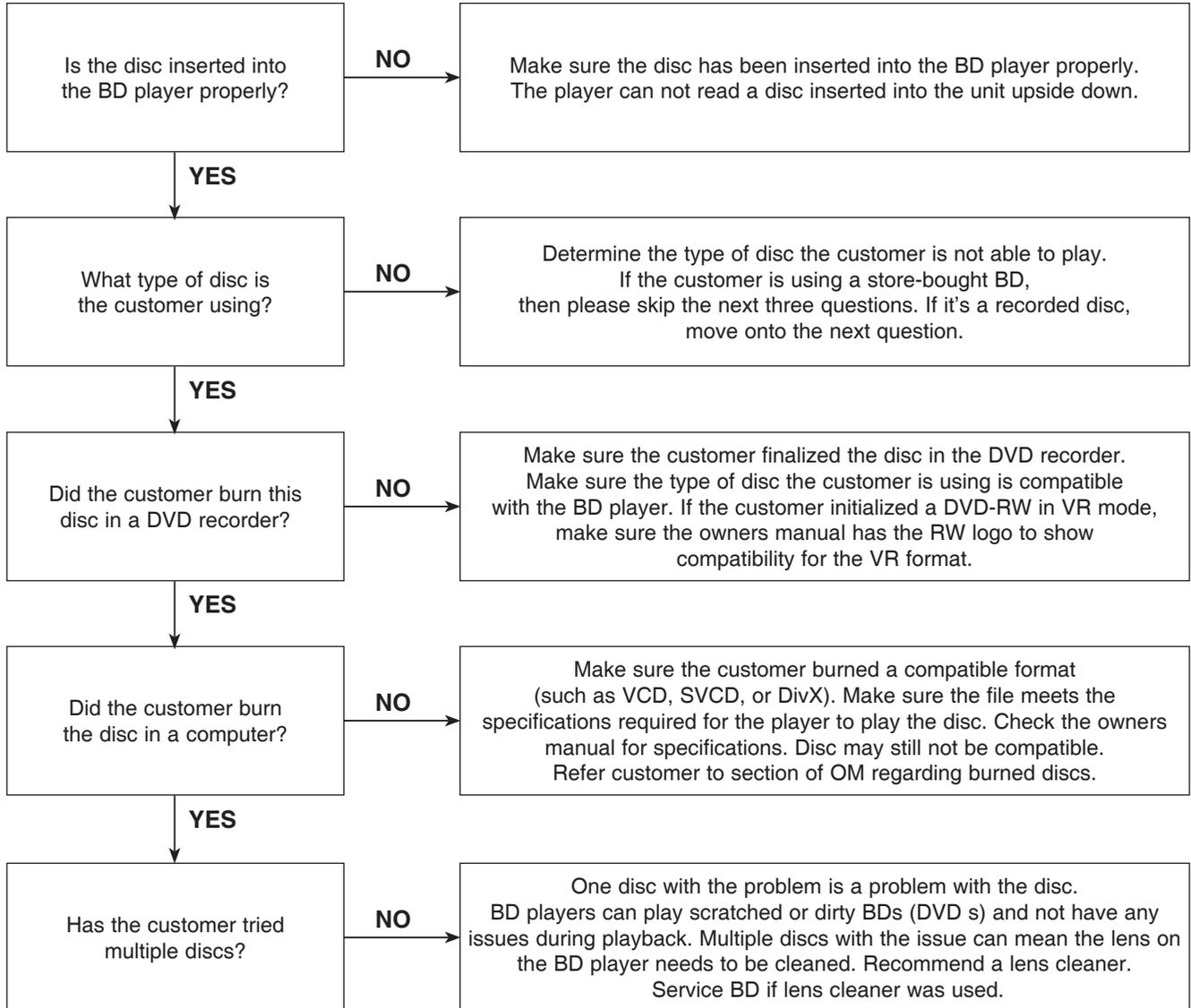
The unit will not play a disc when a disc is inserted into the player.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

5-7. Disc Freezes or Skips

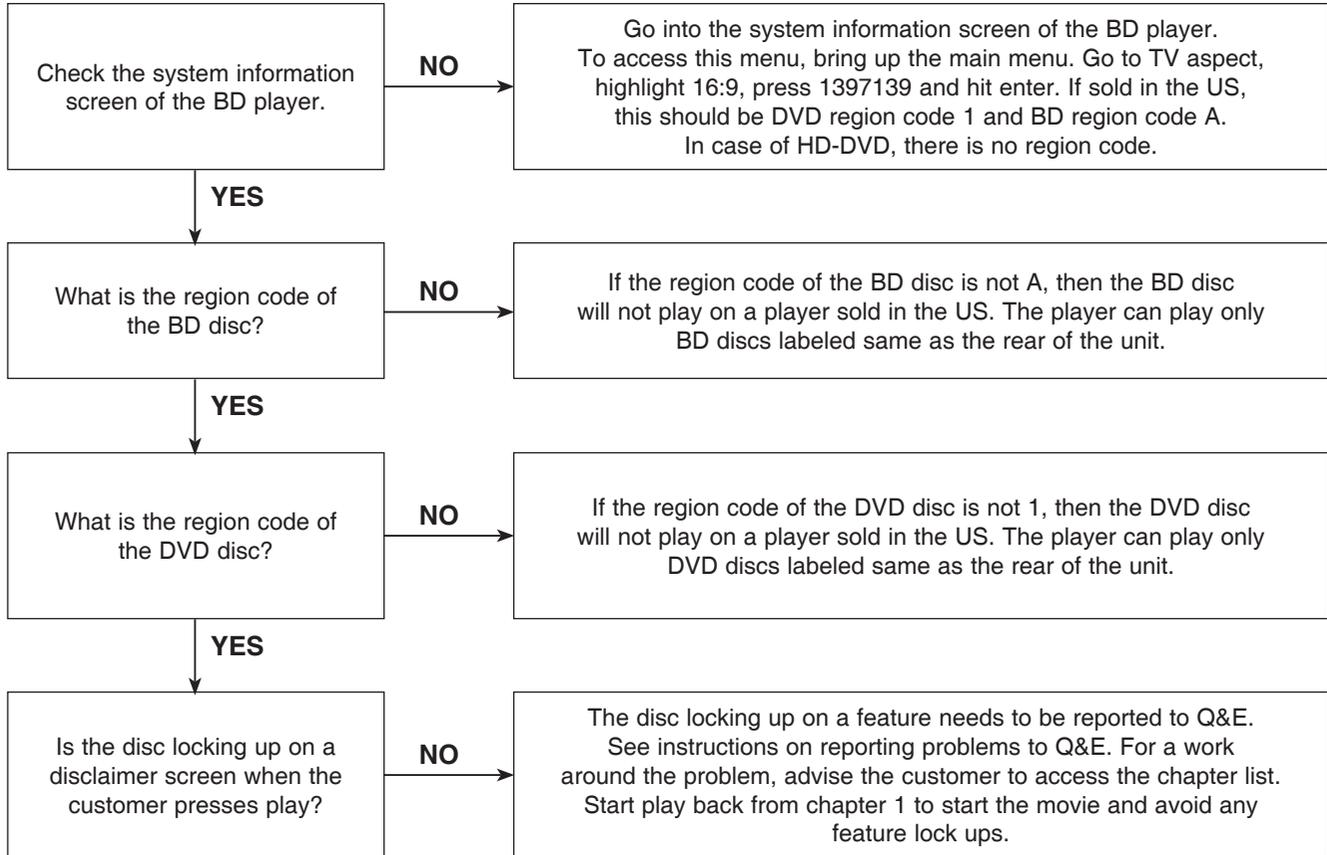
The audio and video freeze and skip during play back of a BD or DVD disc.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

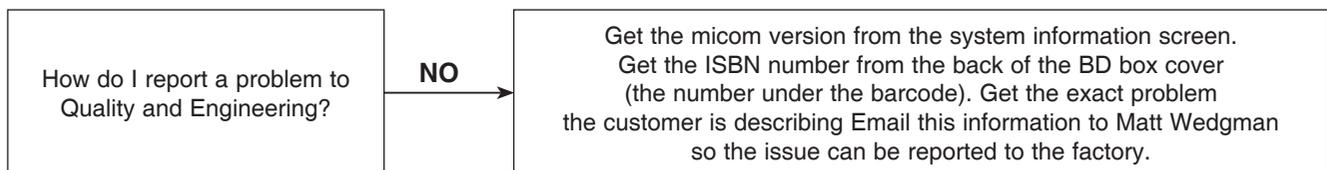
5-8. Can Access Menu, but Not Play a Movie

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



5-9. Reporting a problem to Quality & Engineering

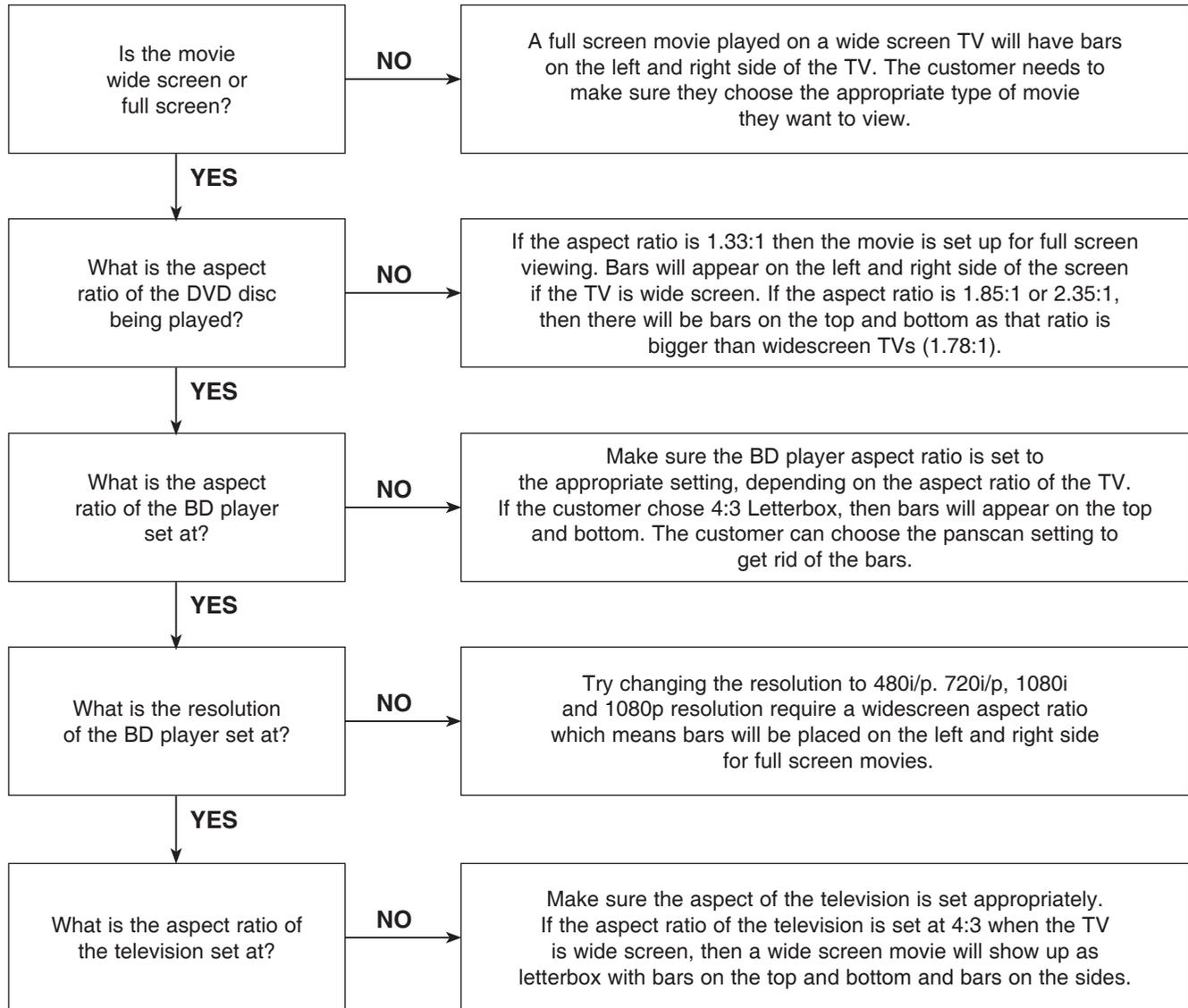
Reporting a problem that may require a firmware update to fix.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

5-10. Aspect Ratio

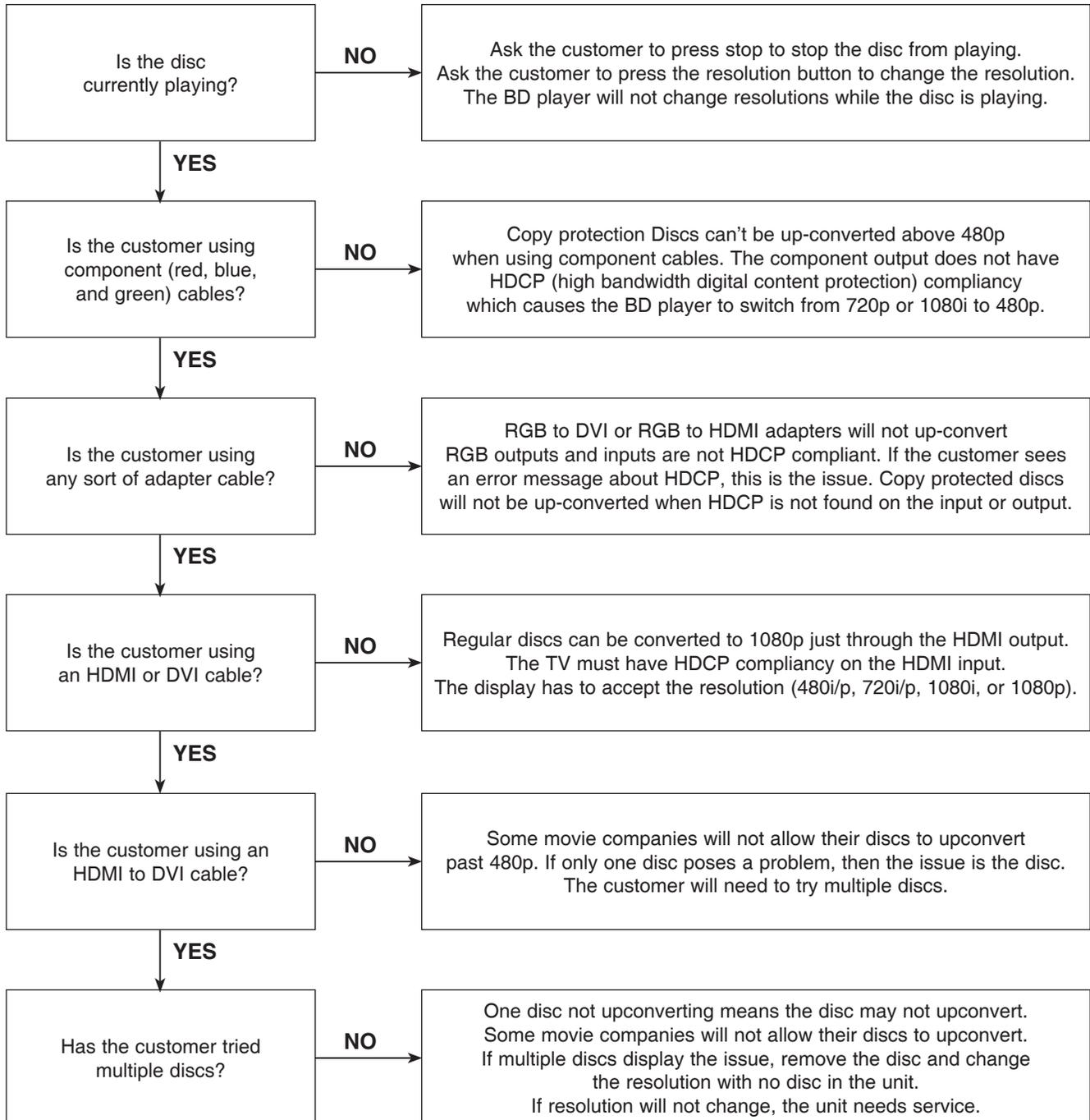
The customer has bars on the top and bottom of the screen, the left and right of the screen, or both.



DIGITAL DISPLAY & MEDIA TRAINING MASTER

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

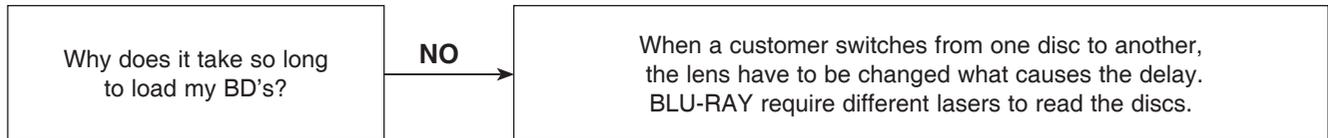
The customer has a problem with getting the unit to change resolutions to 480i/p, 720i/p, 1080i, or 1080p.



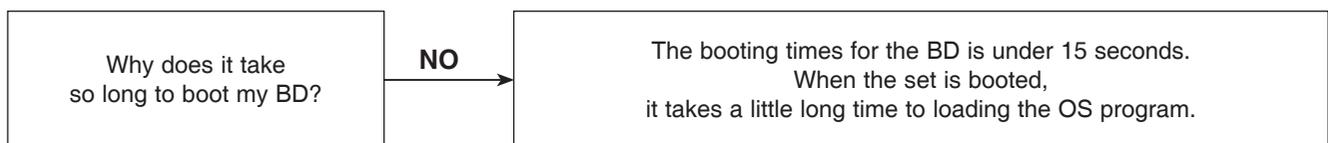
DIGITAL DISPLAY & MEDIA TRAINING MASTER

6. BLU-RAY PLAYER

6-1. Slow Loading Times for BD's



6-2. Booting Times



ONE POINT REPAIR GUIDE

1. NO POWER PROBLEM

No power problem occurs when you power on the unit.

1-1. No 12 VA (Primary side)

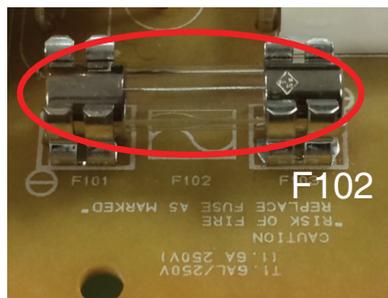
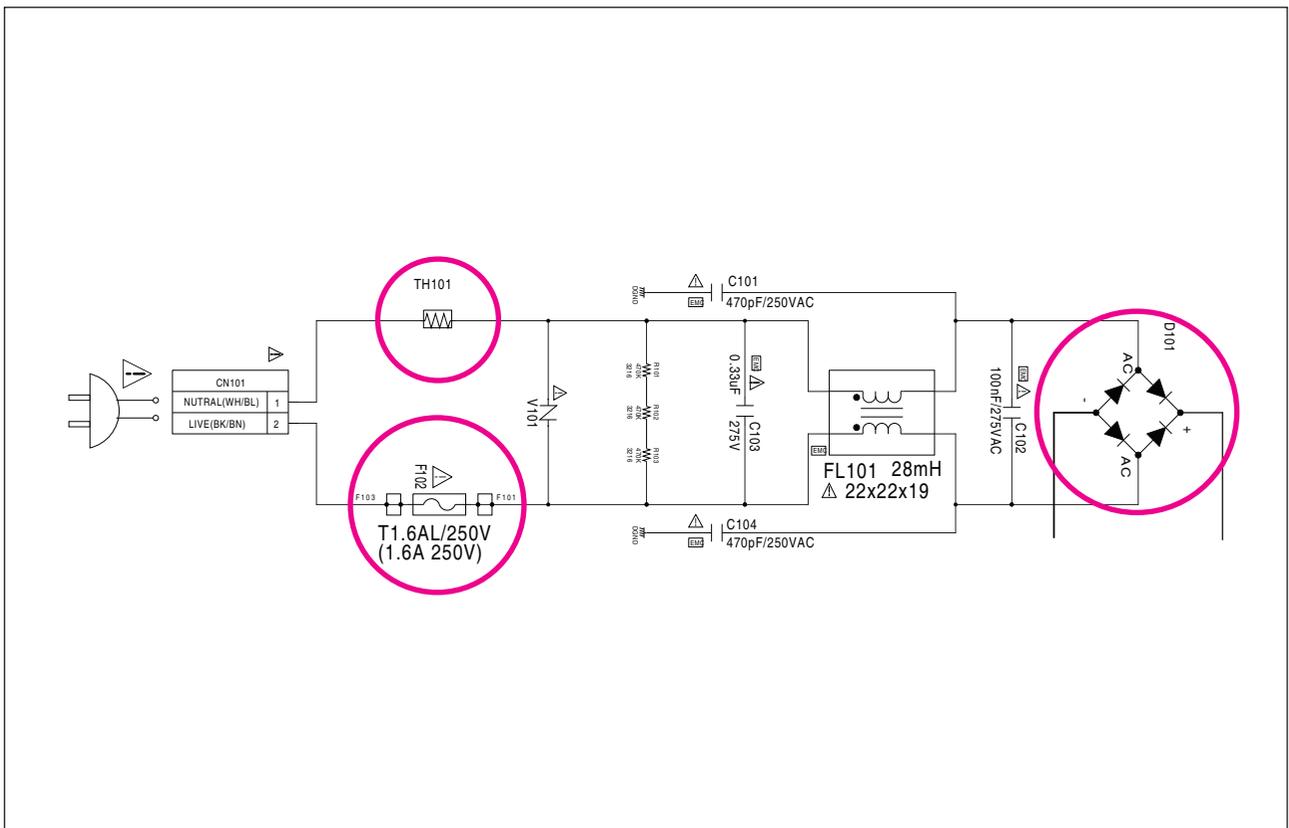
1-1-1. Solution

Replace F102, D101, TH101 on SMPS board.

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

- 1) Look at the physical of fuse F102.
- 2) Check the bridge diode D101.
- 3) Check the TH101 short or open.

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



< SMPS board top view >

ONE POINT REPAIR GUIDE

NO POWER PROBLEM

No power problem occurs when you power on the unit.

1-2. No 12 VA (Primary side)

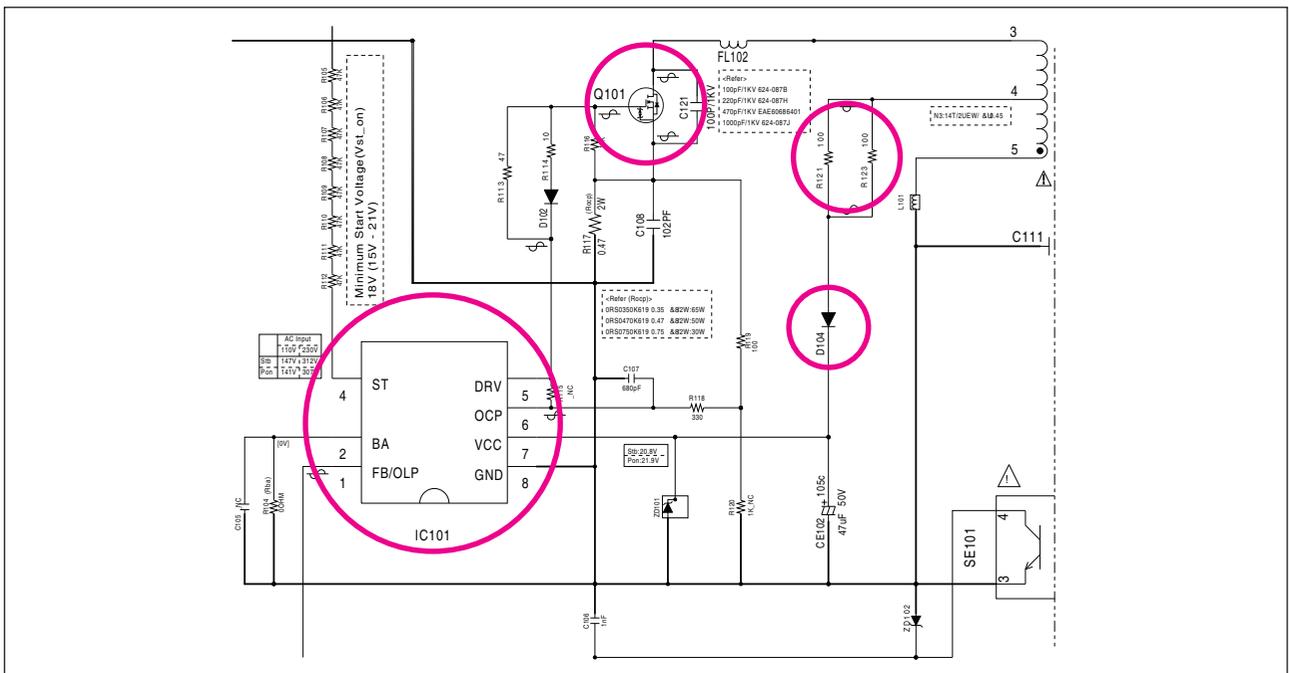
1-2-1. Solution

Replace Q101, D104, R121, R123, IC101 on SMPS board.

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

- 1) Check FET Q101 (Impedance between source and drain) and replace it.
- 2) Check D104, R121, R123 short or open and replace it.
- 3) Check IC101 and replace it.

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



ONE POINT REPAIR GUIDE

NO POWER PROBLEM

No power problem occurs when you power on the unit.

1-3. No 12 VA (Secondary side)

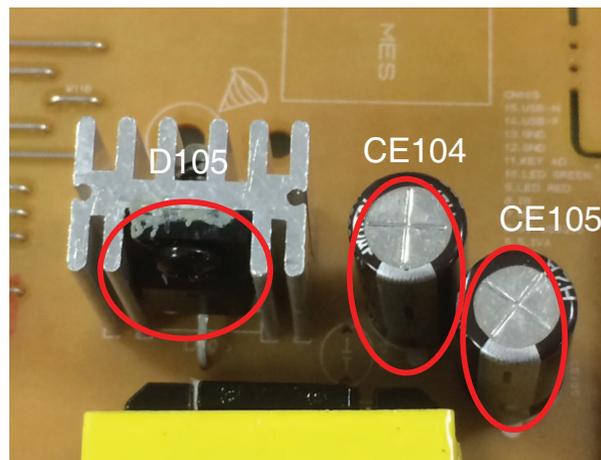
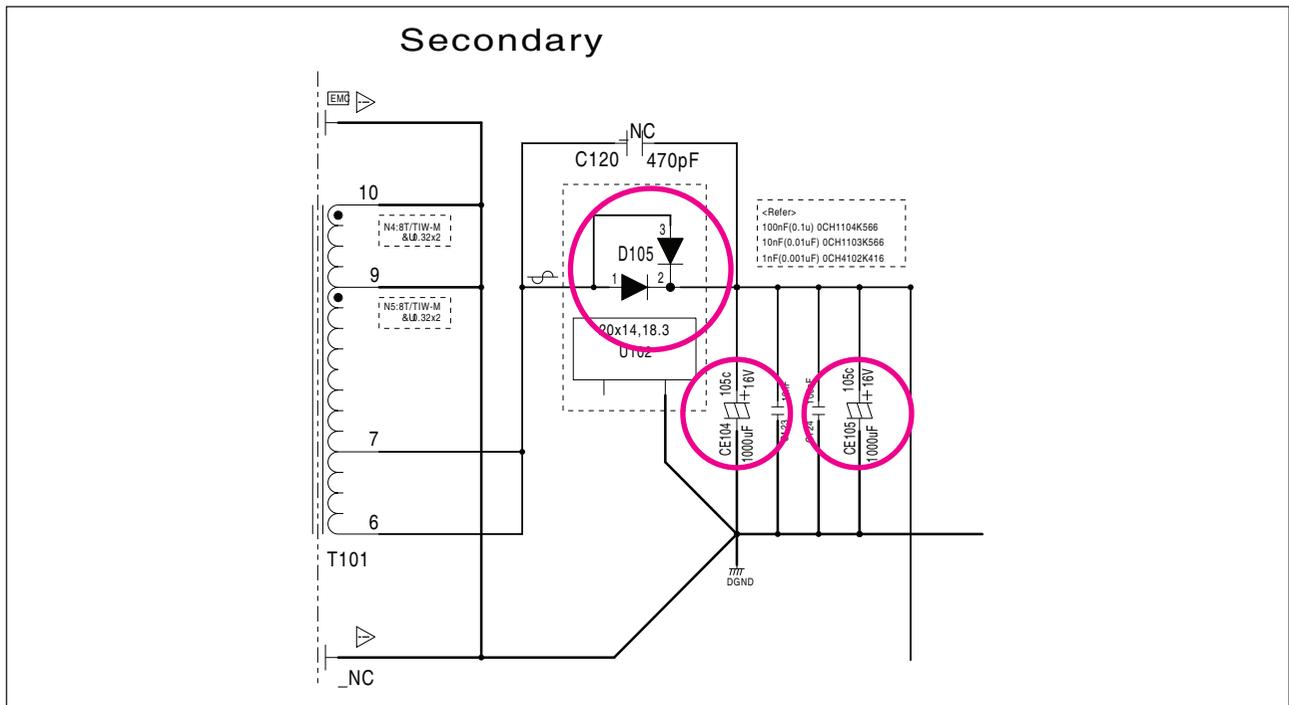
1-3-1. Solution

Replace D105, CE104, CE105 on SMPS board

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

- 1) Check D105 and replace it.
- 2) Check CE104, CE105 and replace it.

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



< SMPS board top view >

ONE POINT REPAIR GUIDE

2. NO BOOTING WHEN YOU TURN THE UNIT ON, NO GREEN LED ON FRONT PANEL

When you turn on your set, Green LED doesn't work, it will not boot-up.

2-1. IC201 System 5.1 VA (No 5.1 VA)

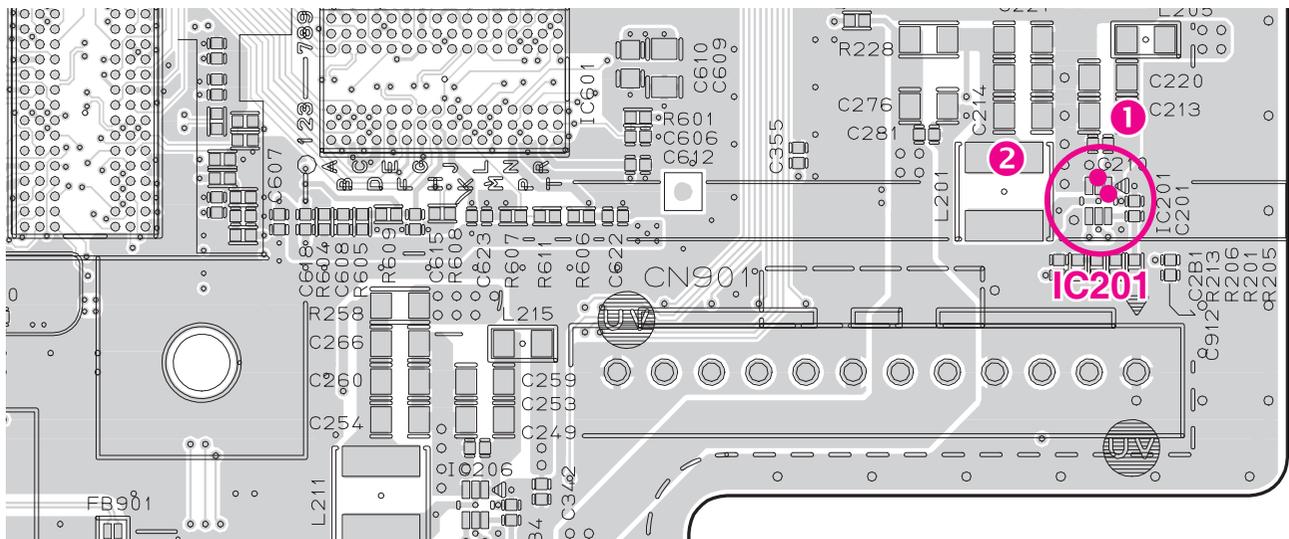
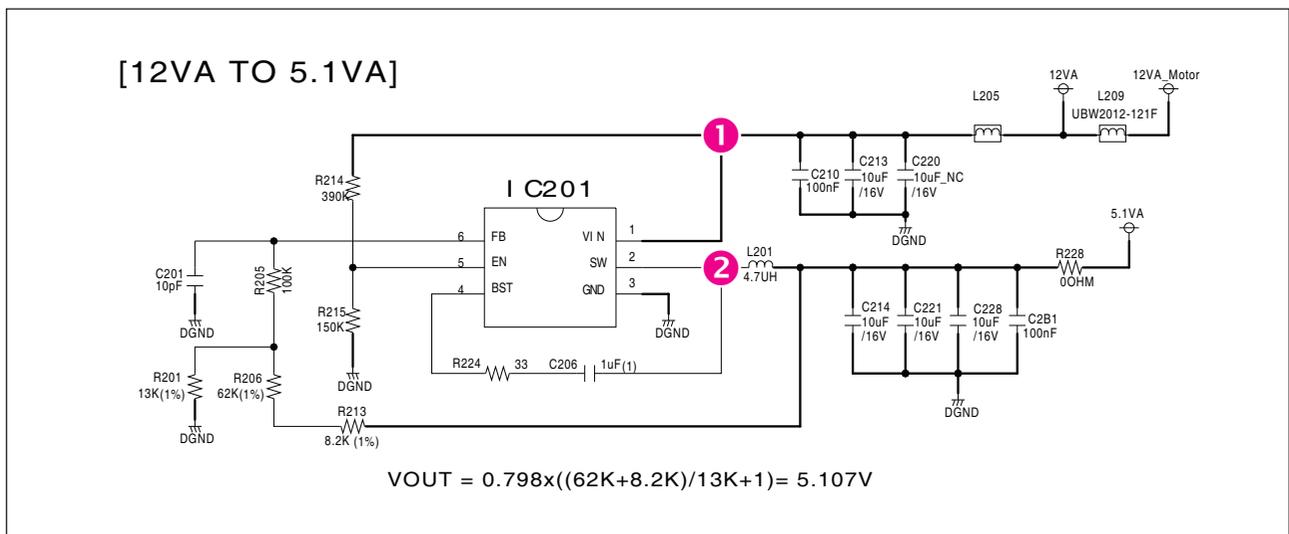
2-1-1. Solution

Replace MAIN board.

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

- 1) Please check 12 VA of IC201 pin1 (VIN).
- 2) If 12 VA is abnormal, please check SMPS.
- 3) If 12 VA is OK, but 5.1 VA is abnormal pin2 of IC201(VOUT), replace MAIN board.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO GREEN LED ON FRONT PANEL

When you turn on your set, Green LED doesn't work, it will not boot-up.

2-3. IC203 System 1.8 V (No 1.8 V)

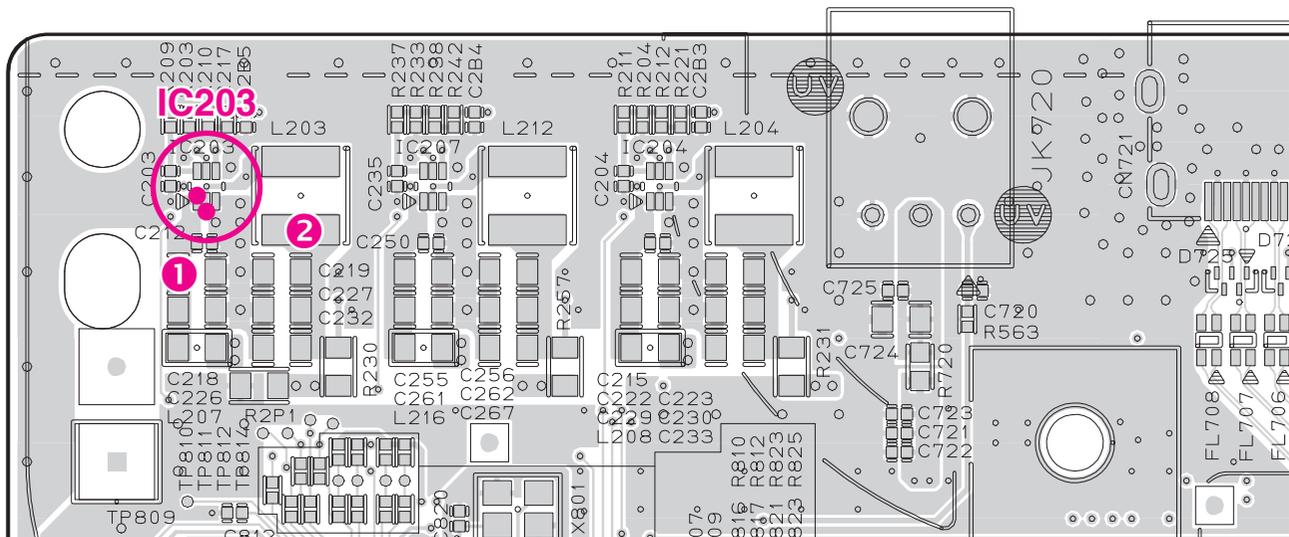
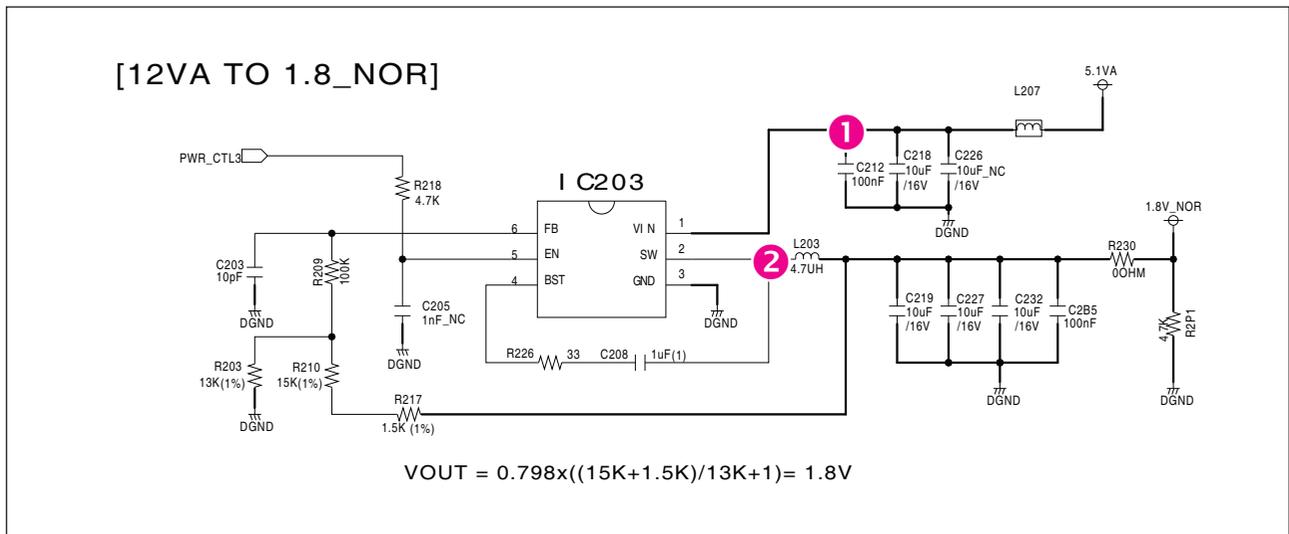
2-3-1. Solution

Replace MAIN board.

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

- 1) Please check 5.1 VA of IC203 pin1 (VIN).
- 2) If 5.1 VA is abnormal, please check IC201.
- 3) If 5.1 VA is OK, but 1.8 V is abnormal pin2 of IC203(VOUT), replace MAIN board.

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



ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO GREEN LED ON FRONT PANEL

When you turn on your set, Green LED doesn't work, it will not boot-up.

2-4. IC204 System 1.8 VA (No 1.8 VA)

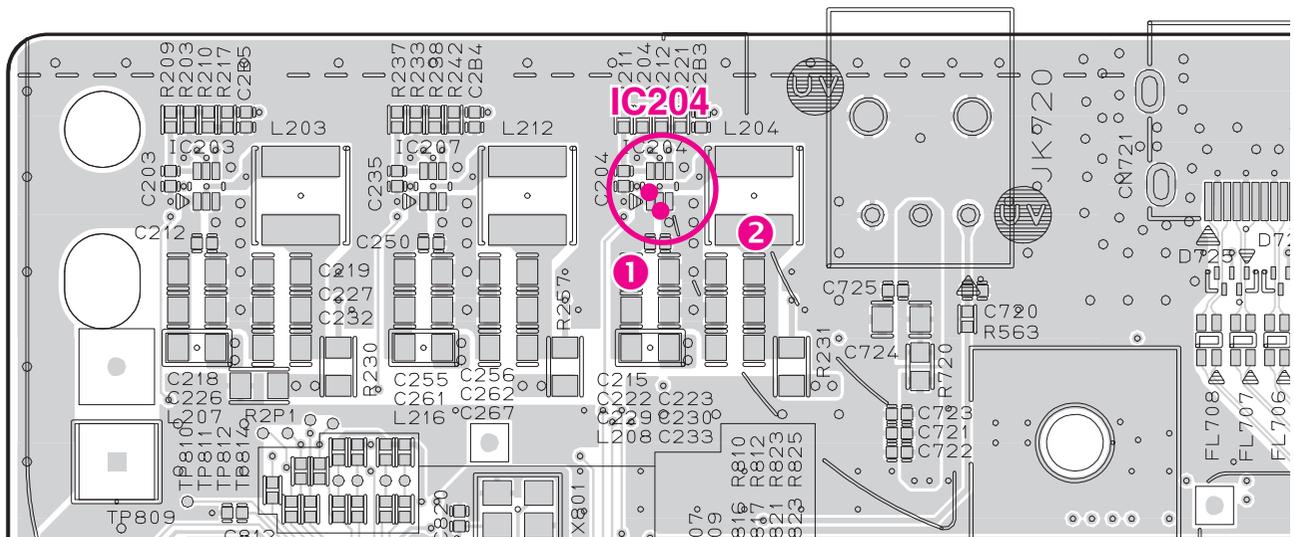
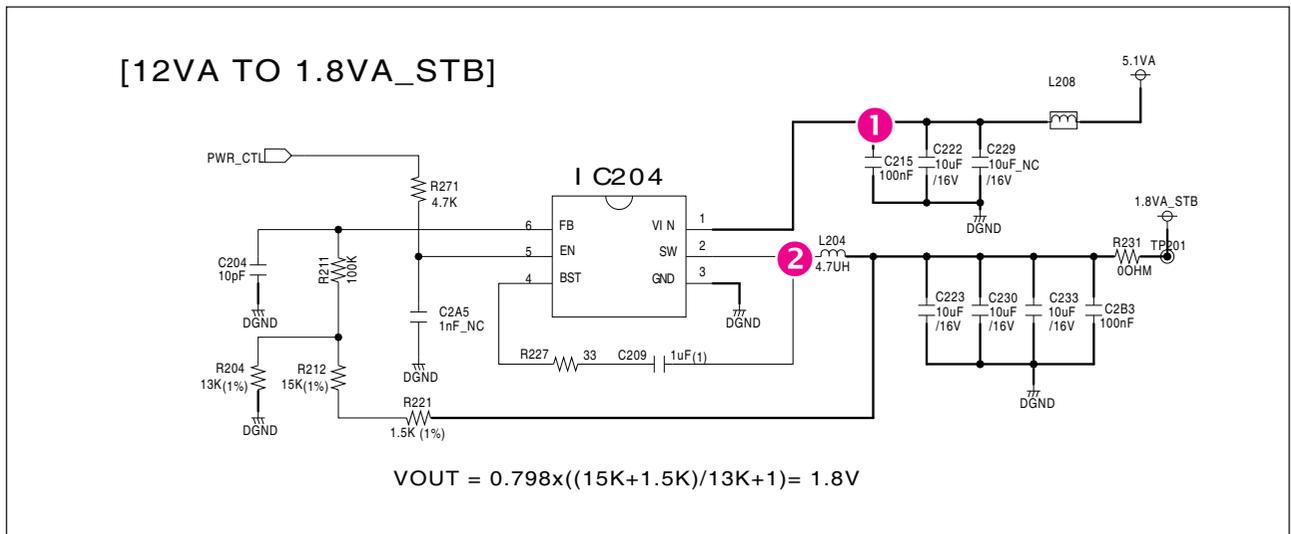
2-4-1. Solution

Replace MAIN board.

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

- 1) Please check 5.1 VA of IC204 pin1 (VIN).
- 2) If 5.1 VA is abnormal, please check IC201.
- 3) If 5.1 VA is OK, but 1.8 VA is abnormal pin2 of IC204(VOUT), replace MAIN board.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO GREEN LED ON FRONT PANEL

When you turn on your set, Green LED doesn't work, it will not boot-up.

2-5. IC205 System 1.0 V (No 1.0 V)

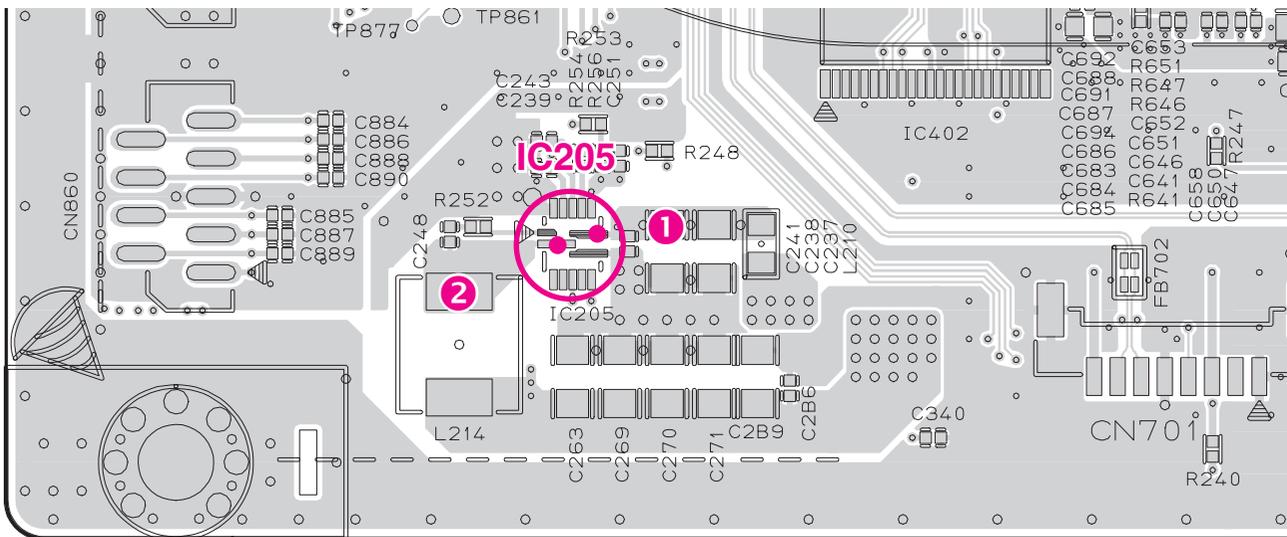
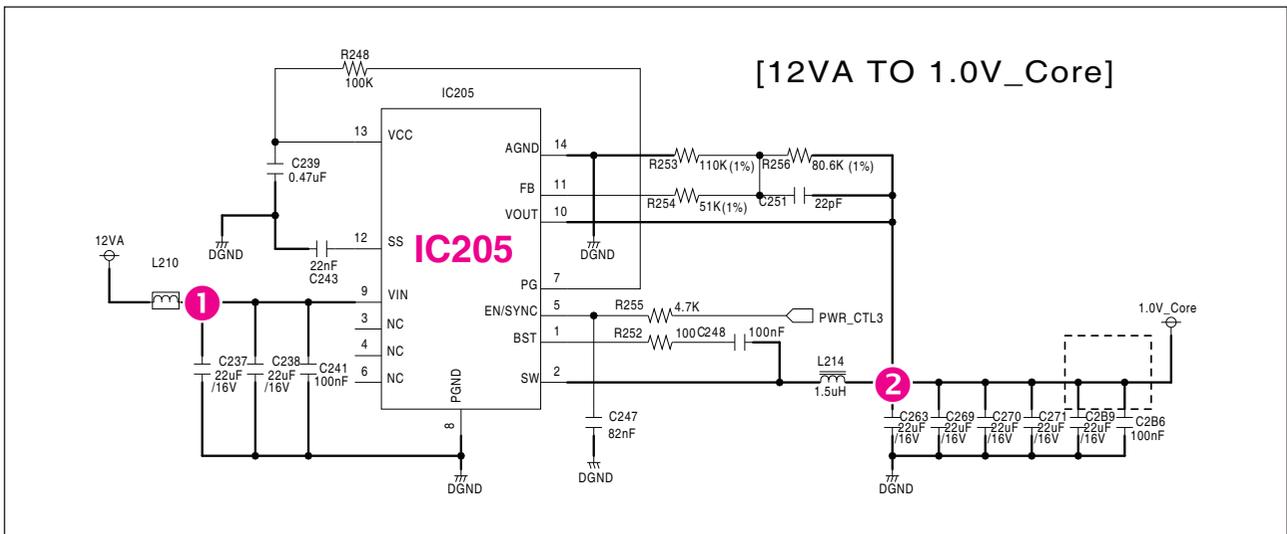
2-5-1. Solution

Replace MAIN board.

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

- 1) Please check 12 VA of IC205 pin9 (VIN).
- 2) If 12 VA is abnormal, please check SMPS.
- 3) If 12 VA is OK, but 1.0 V is abnormal pin2 of IC205(VOUT), replace MAIN board.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO GREEN LED ON FRONT PANEL

When you turn on your set, Green LED doesn't work, it will not boot-up.

2-6. IC206 System 1.5 V_DDR (No 1.5 V)

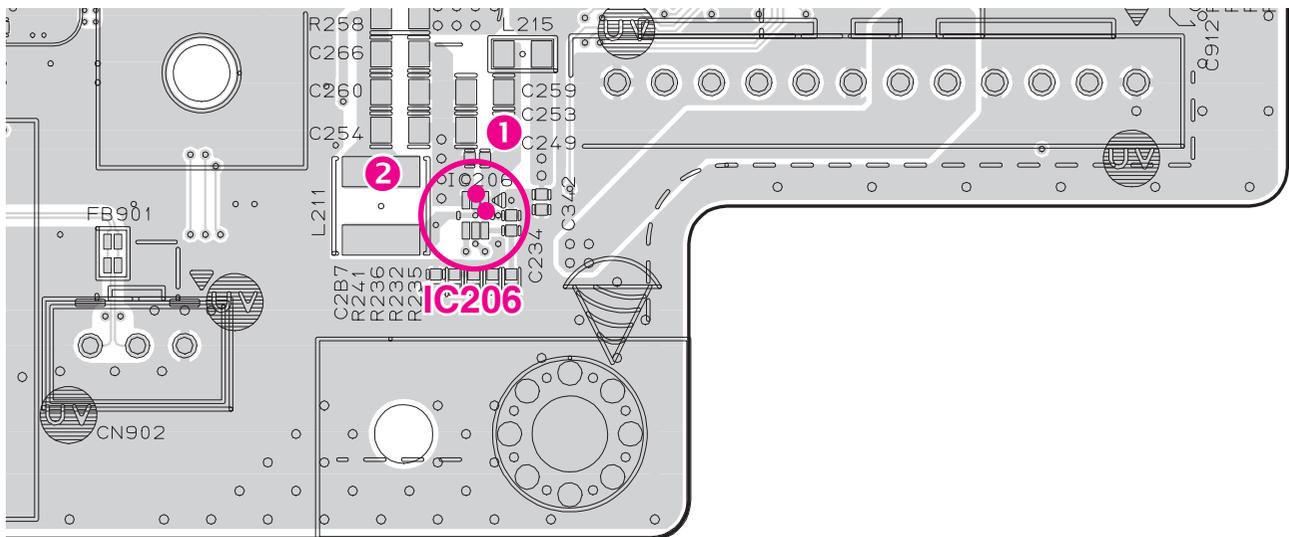
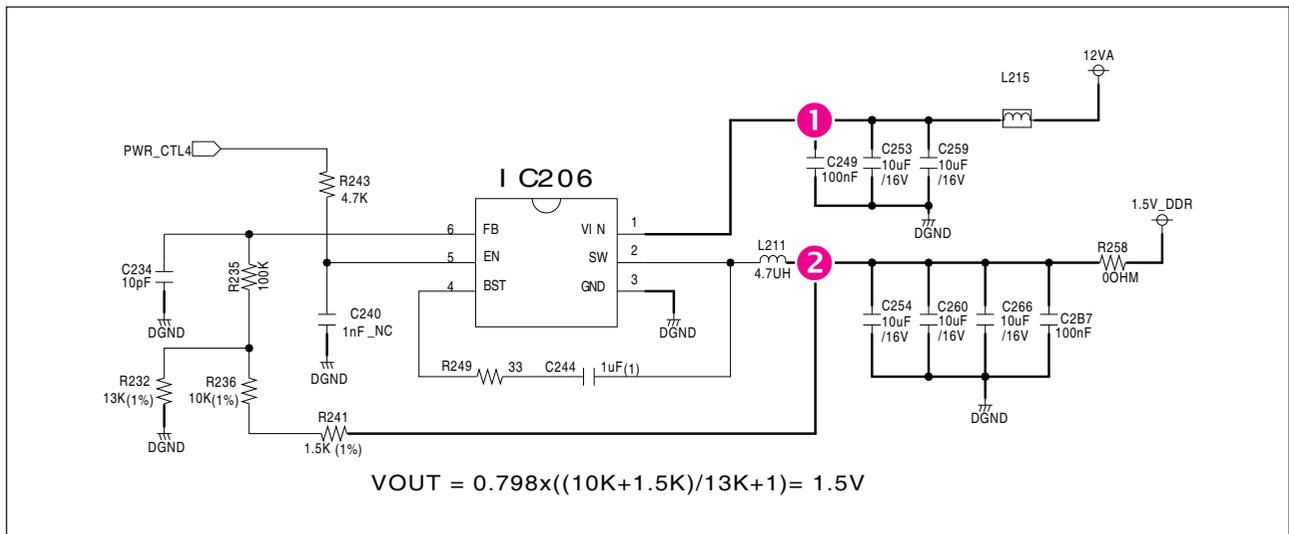
2-6-1. Solution

Replace MAIN board.

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

- 1) Please check 12 VA of IC206 pin1 (VIN).
- 2) If 12 VA is abnormal, please check SMPS.
- 3) If 12 VA is OK, but 1.5 V is abnormal pin2 of IC206(VOUT), replace MAIN board.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO GREEN LED ON FRONT PANEL

When you turn on your set, Green LED doesn't work, it will not boot-up.

2-7. IC207 System 1.05 VA (No 1.05 VA)

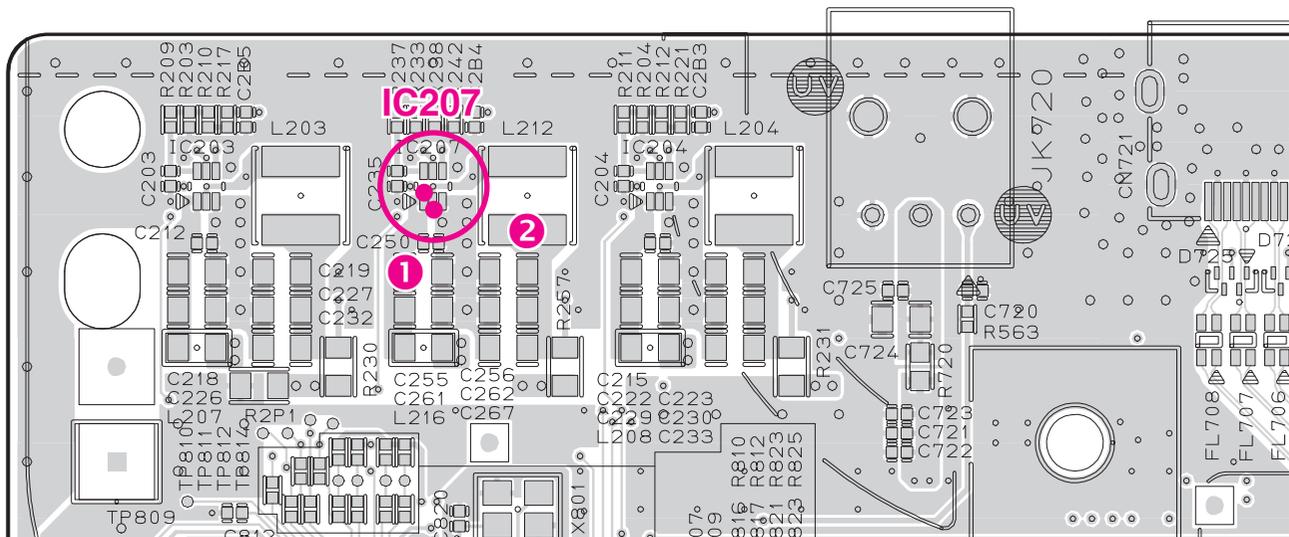
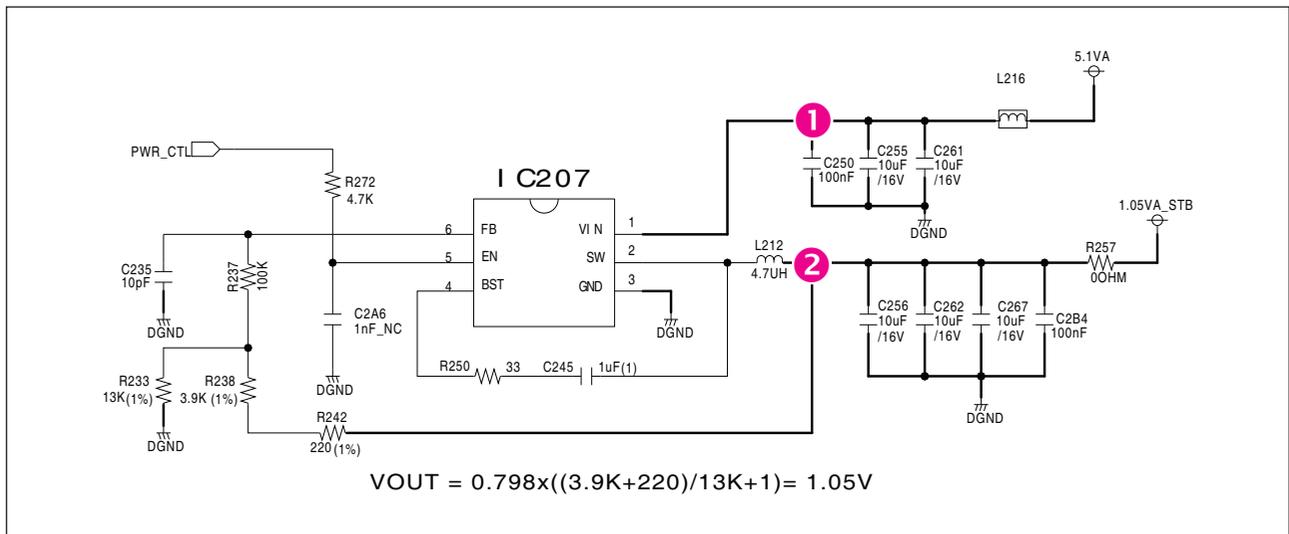
2-7-1. Solution

Replace MAIN board.

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

- 1) Please check 5.1 VA of IC207 pin1 (VIN).
- 2) If 5.1 VA is abnormal, please check IC201.
- 3) If 5.1 VA is OK, but 1.05 VA is abnormal pin2 of IC207(VOUT), replace MAIN board.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON, NO GREEN LED ON FRONT PANEL

When you turn on your set, Green LED doesn't work, it will not boot-up.

2-8. IC208 System 8V_LD (No 8 V)

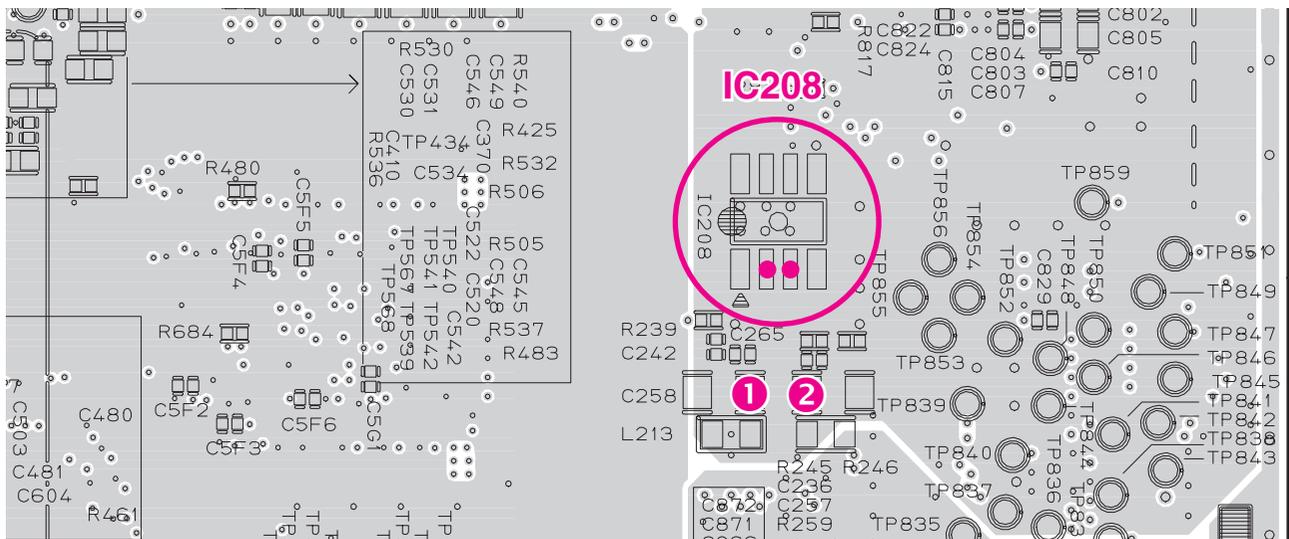
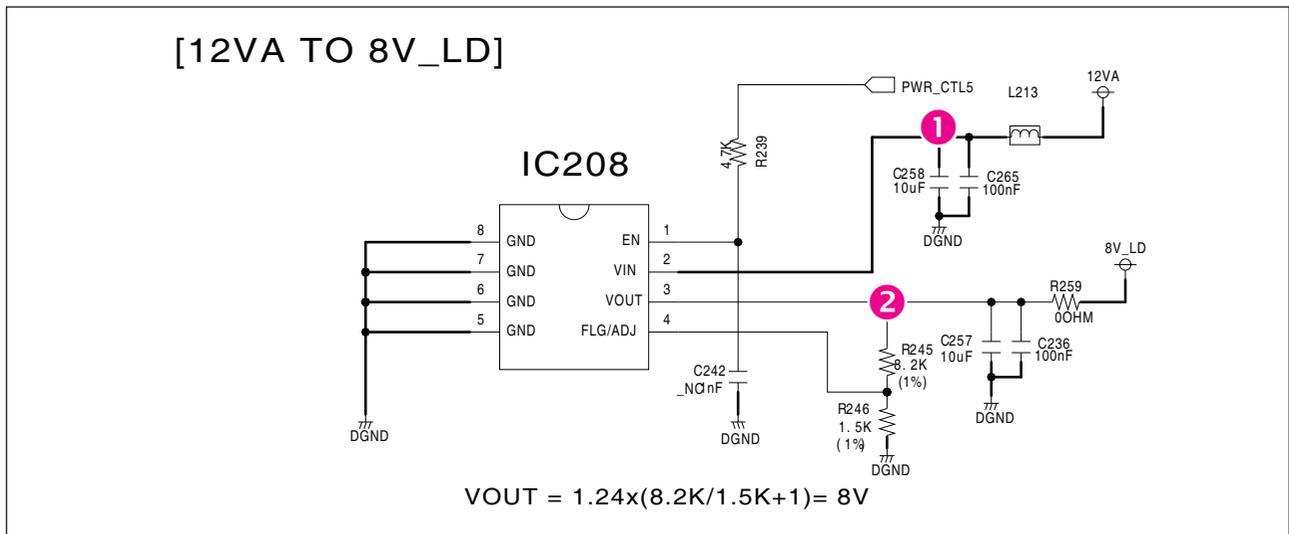
2-8-1. Solution

Replace MAIN board.

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

- 1) Please check 12 VA of IC208 pin2 (VIN).
- 2) If 12 VA is abnormal, please check SMPS.
- 3) If 12 VA is OK, but 8 V is abnormal pin3 of IC208(VOUT), replace MAIN board.

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



< MAIN board bottom view >

ONE POINT REPAIR GUIDE

3. NO 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.

3-1. HDMI

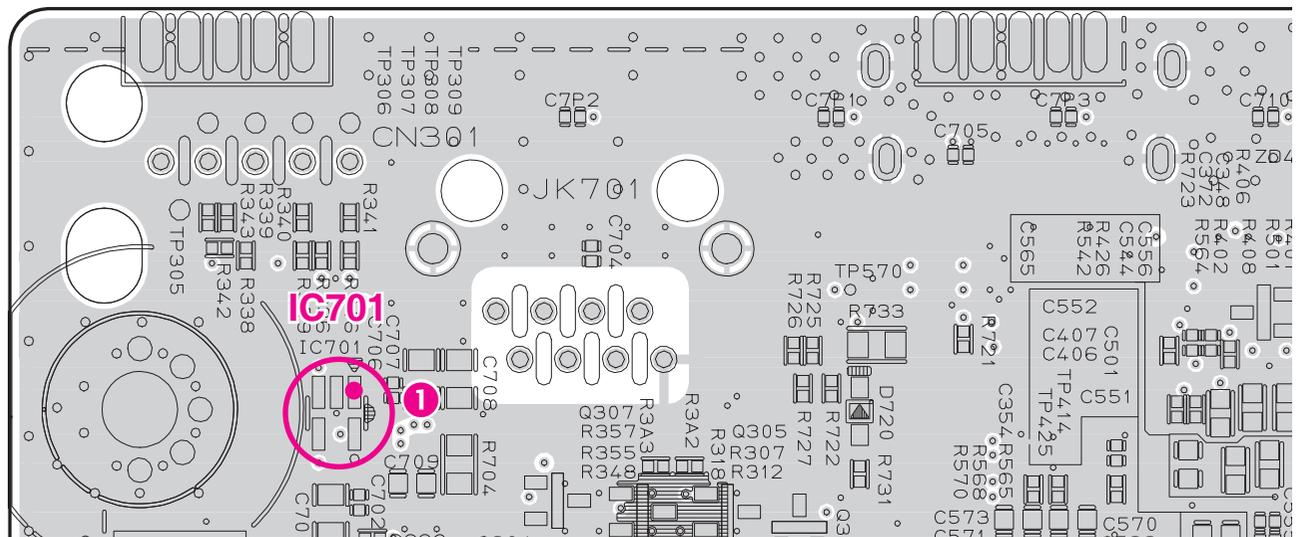
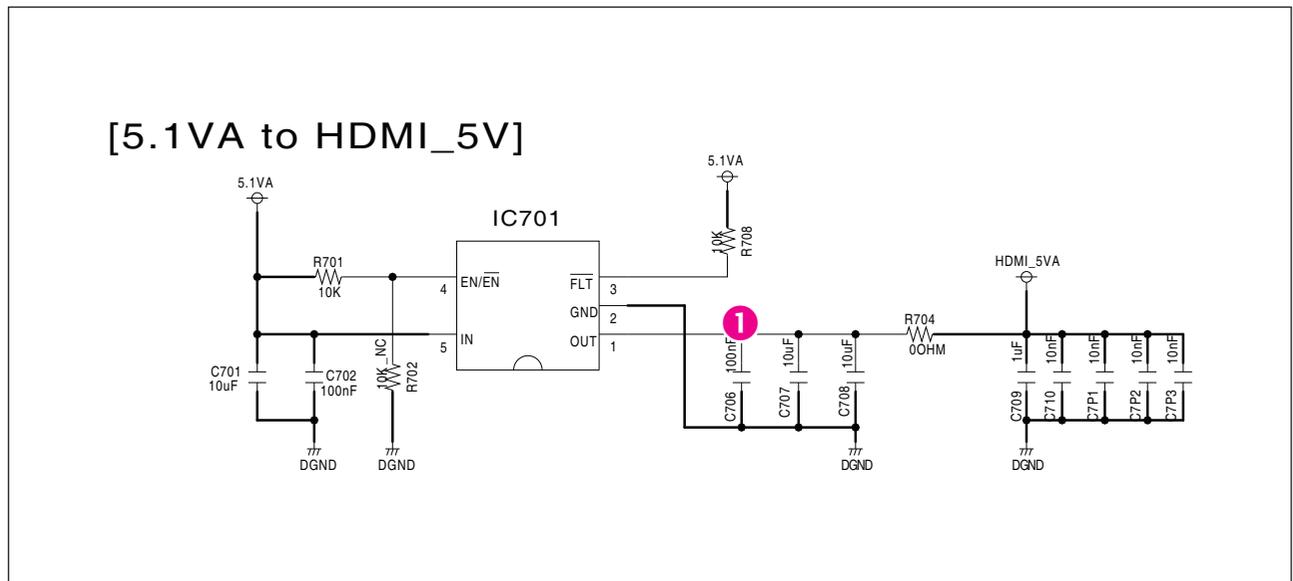
3-1-1. Solution

Replace MAIN board.

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

- 1) Please check soldering status of HDMI jack and check HDMI 5.1 VA at IC701 pin1.
- 2) If soldering status and 5.1 VA are abnormal, replace MAIN board.

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



ONE POINT REPAIR GUIDE

4. NO SOUND

4-1. OPTICAL

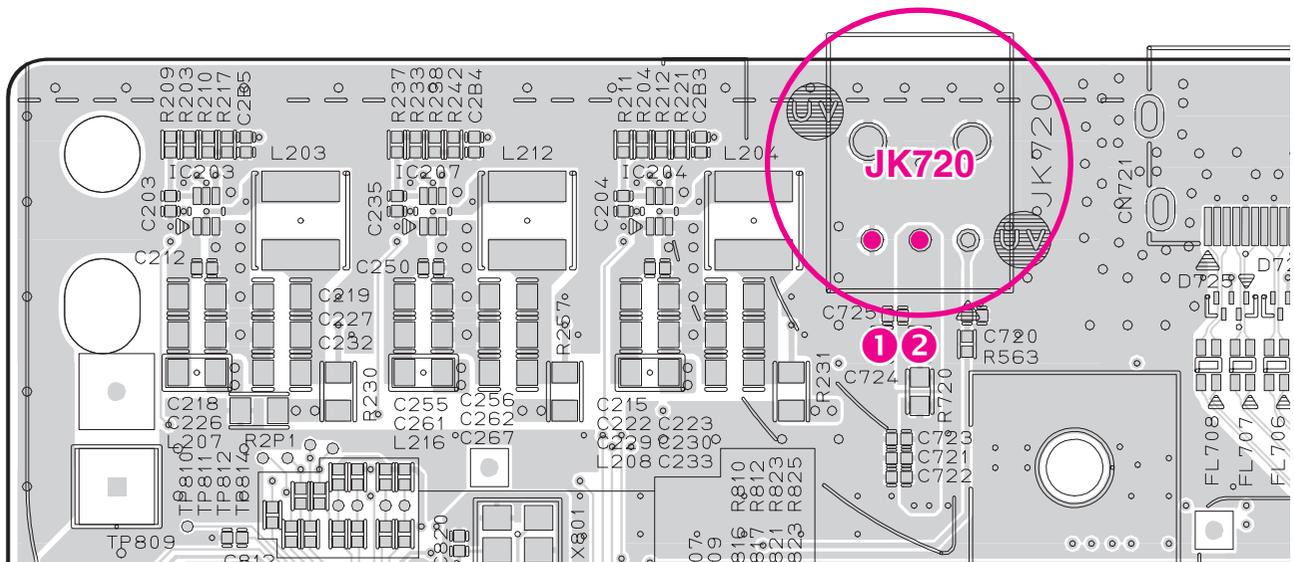
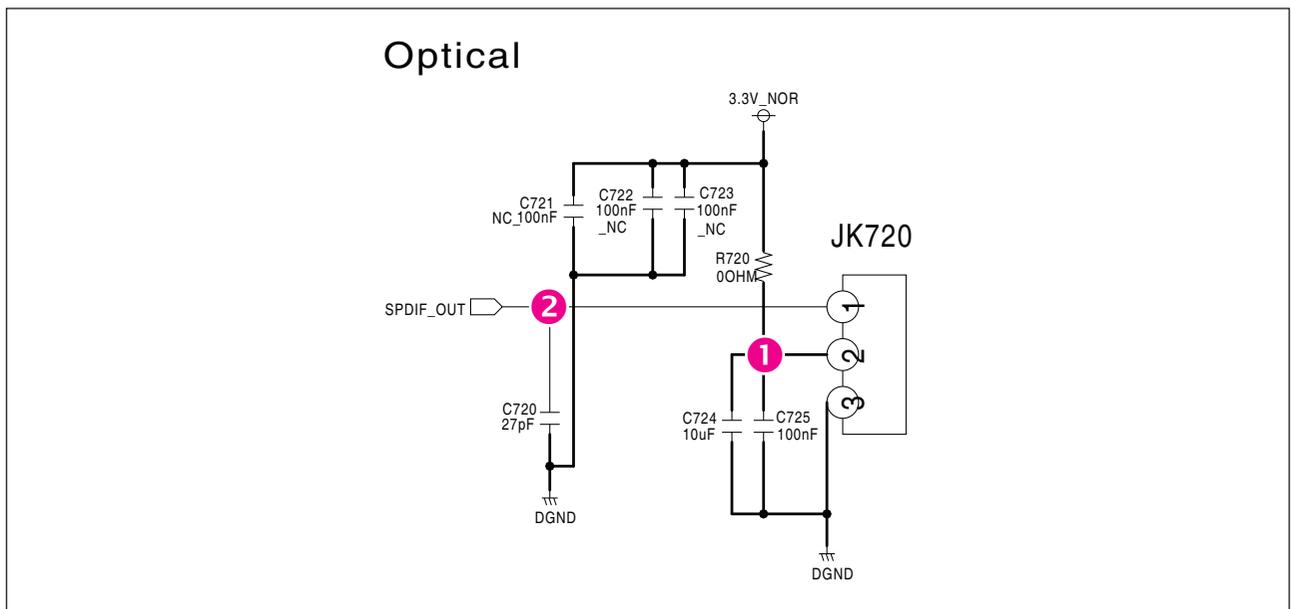
4-1-1. Solution

Replace MAIN board.

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

- 1) Please check 3.3 VA at C724.
- 2) If 3.3 VA is ok, please check SPDIF_OUT signal(C720) when optical mode.
- 3) If signal is abnormal, replace MAIN board.

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



5. NETWORK CONNECTION ERROR

When you connect online service, “no connection” message appears.

5-1. WIRED NETWORK

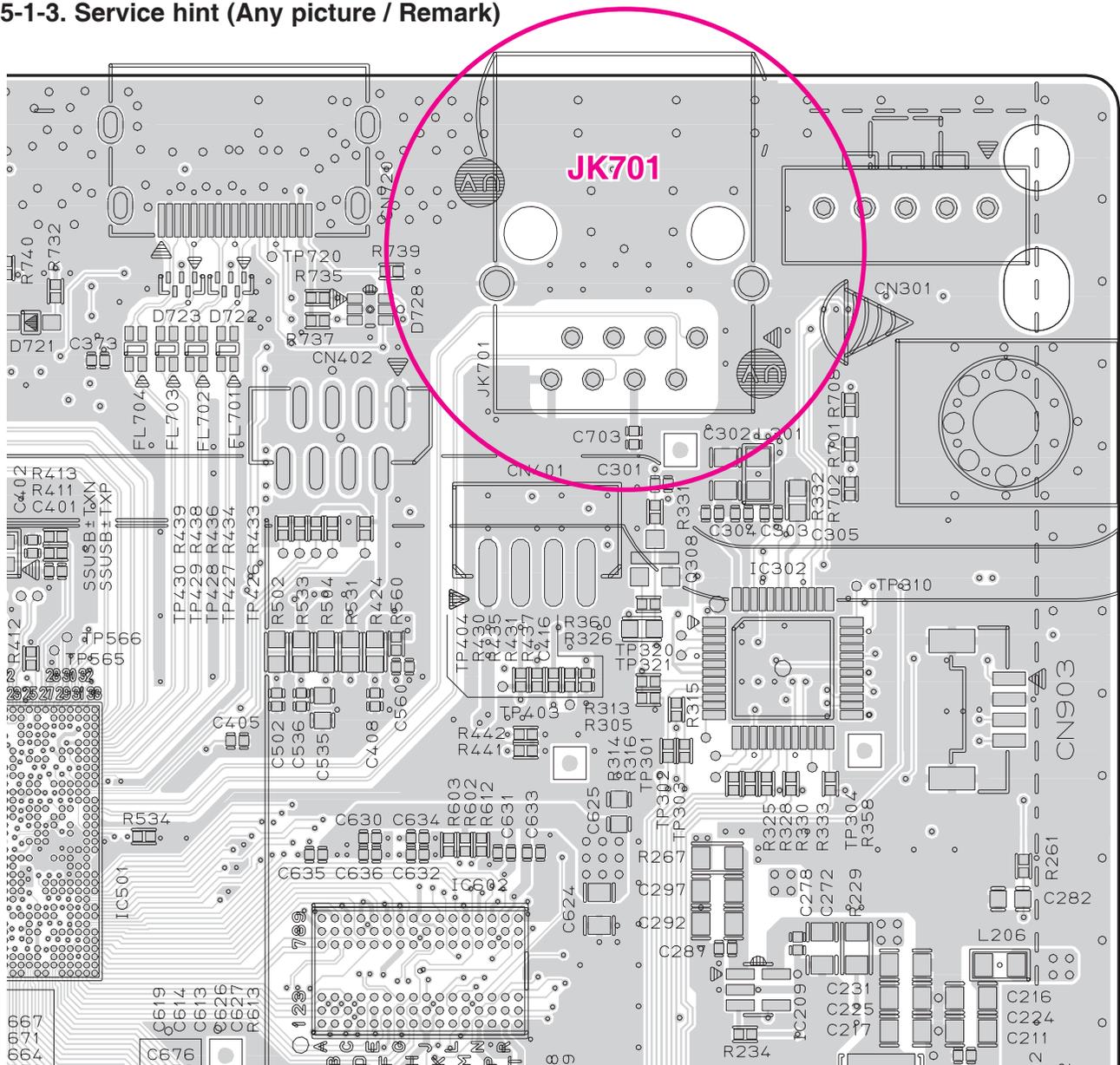
5-1-1. Solution

Replace MAIN board.

5-1-2. 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 (JK701).
- 3) If there is soldering problem, please re-soldering pin JK701.
- 4) If problem still occurs, replace MAIN board.

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



< MAIN board top view >

ONE POINT REPAIR GUIDE

6. NO DETECTION

6-1. USB

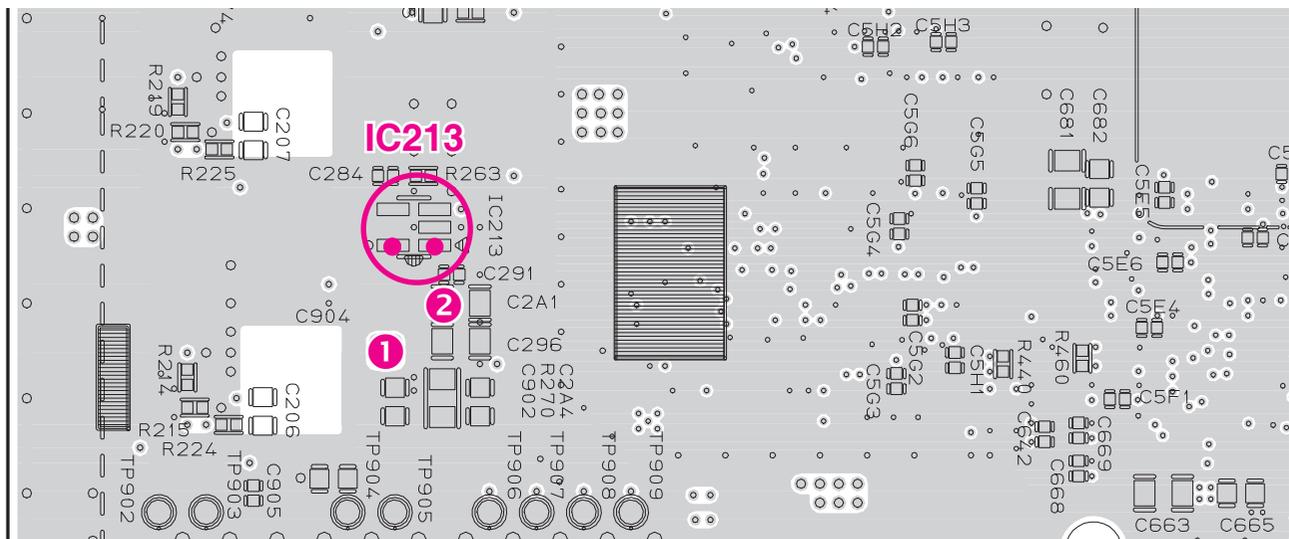
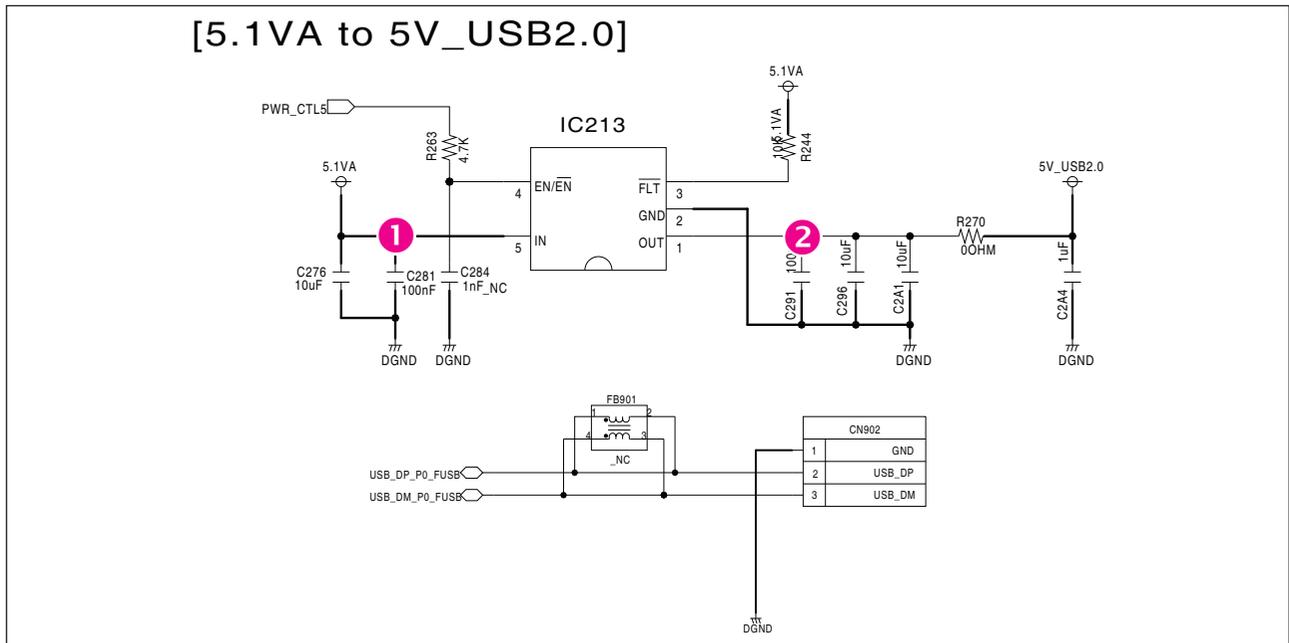
6-1-1. Solution

Replace MAIN board.

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

- 1) Please check USB Jack, FB901 soldering status. And check 5 V IC213 pin1, pin5.
- 2) If soldering status and voltage is abnormal status, replace MAIN board.

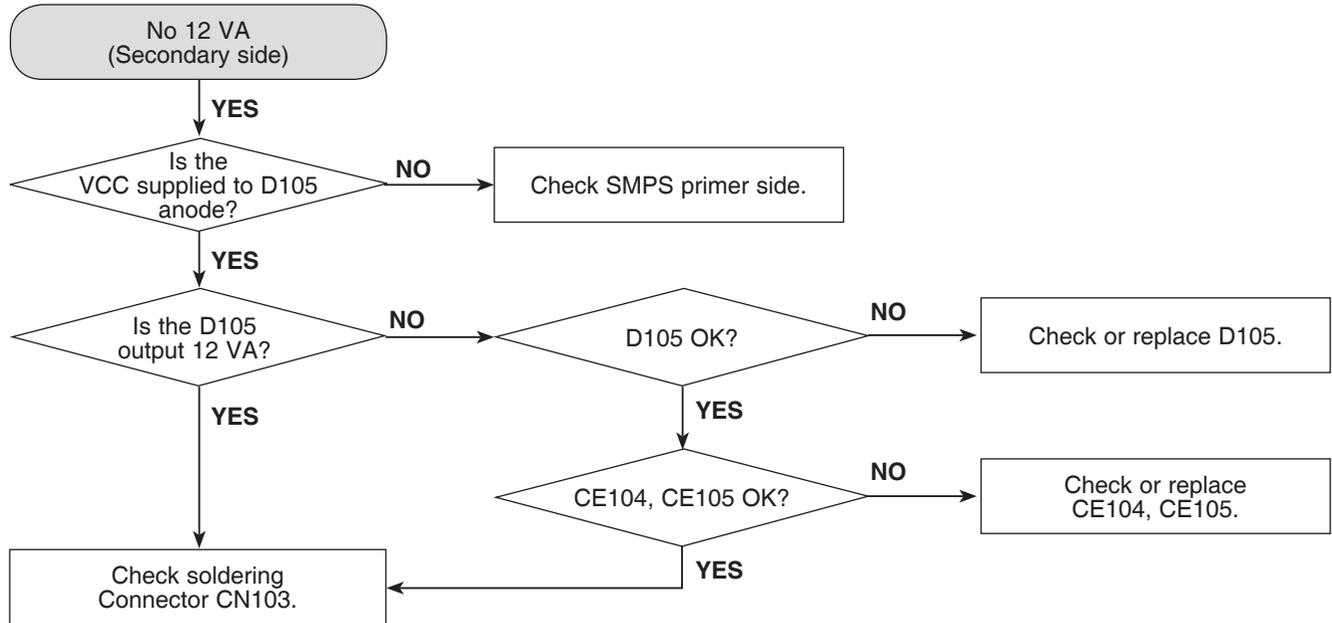
6-1-3. Service hint (Any picture / Remark)



< MAIN board bottom view >

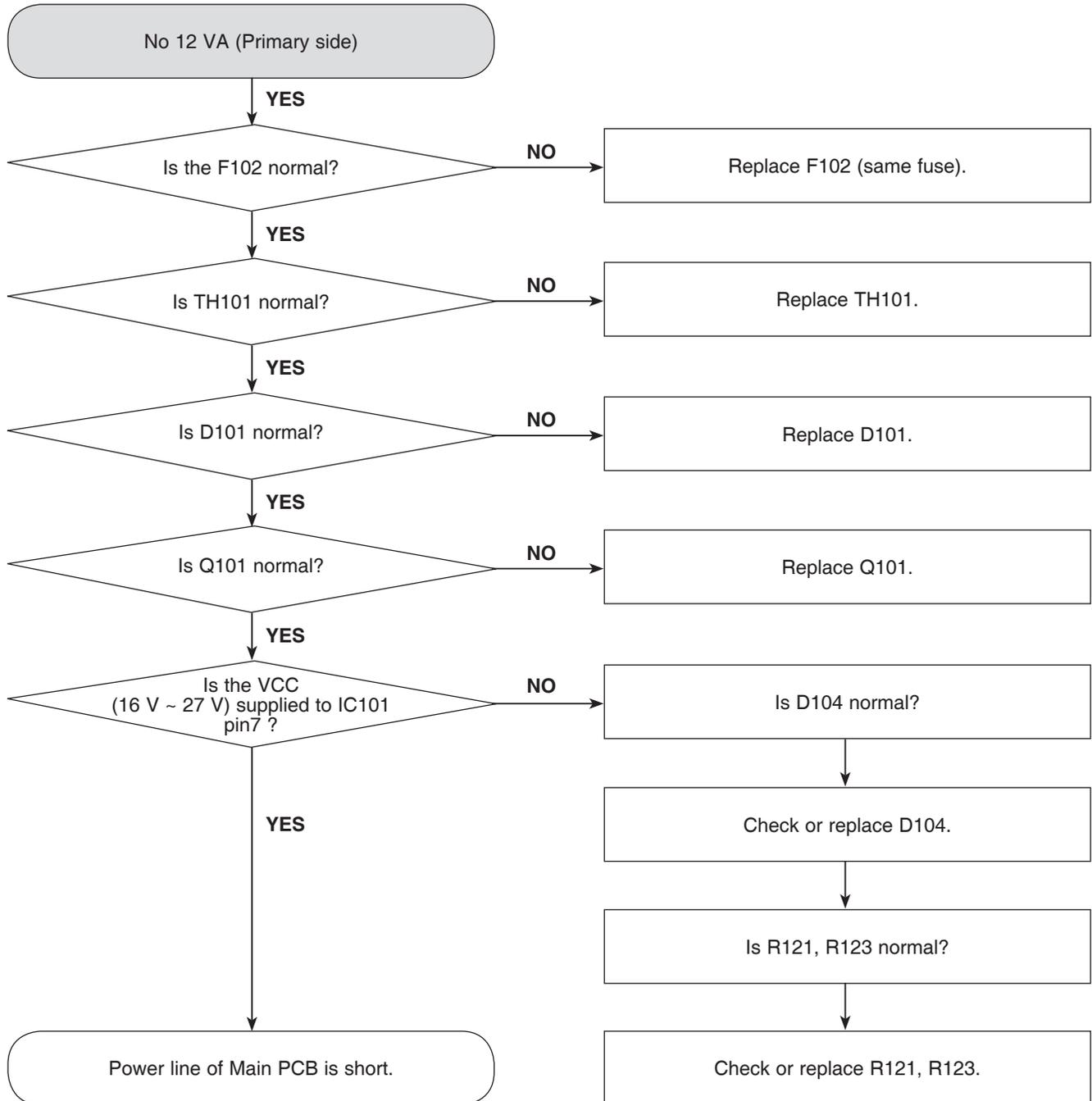
ELECTRICAL TROUBLESHOOTING GUIDE

1. POWER SUPPLY ON SMPS BOARD



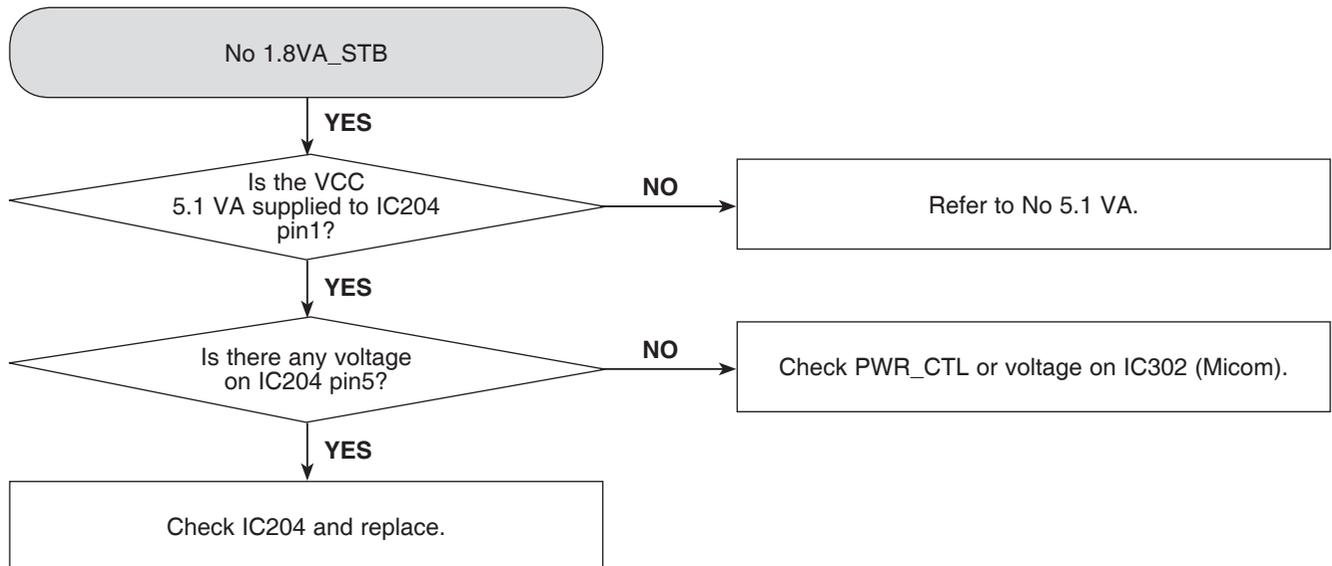
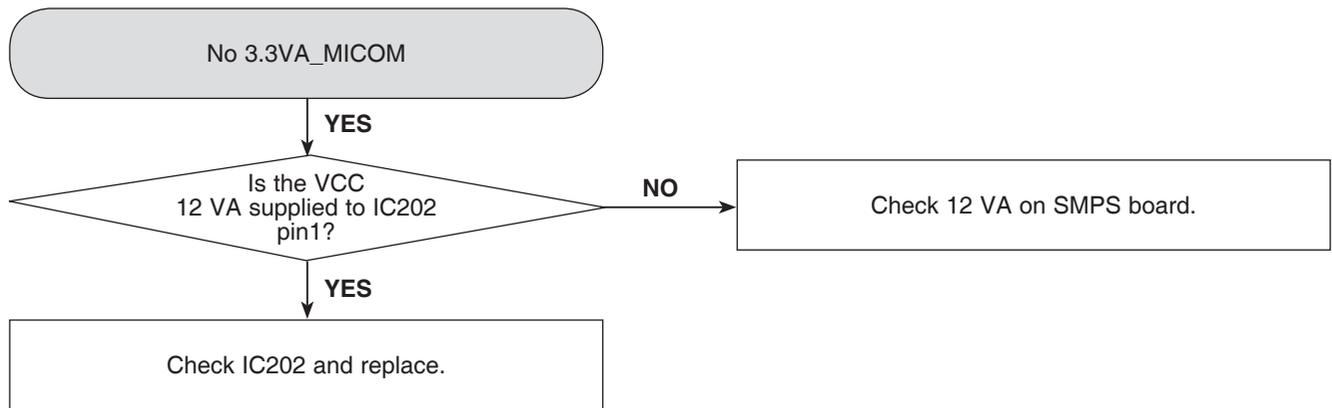
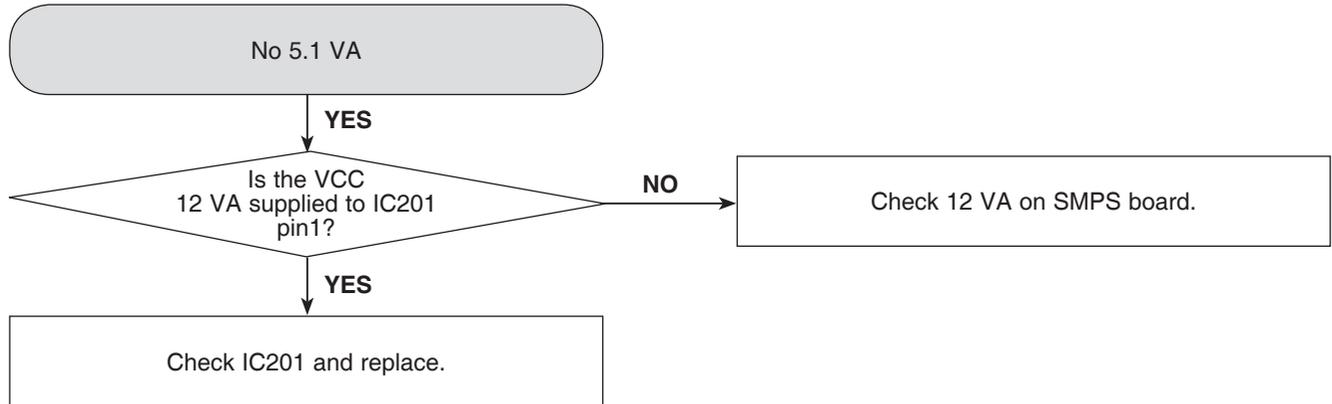
ELECTRICAL TROUBLESHOOTING GUIDE

POWER SUPPLY ON SMPS BOARD



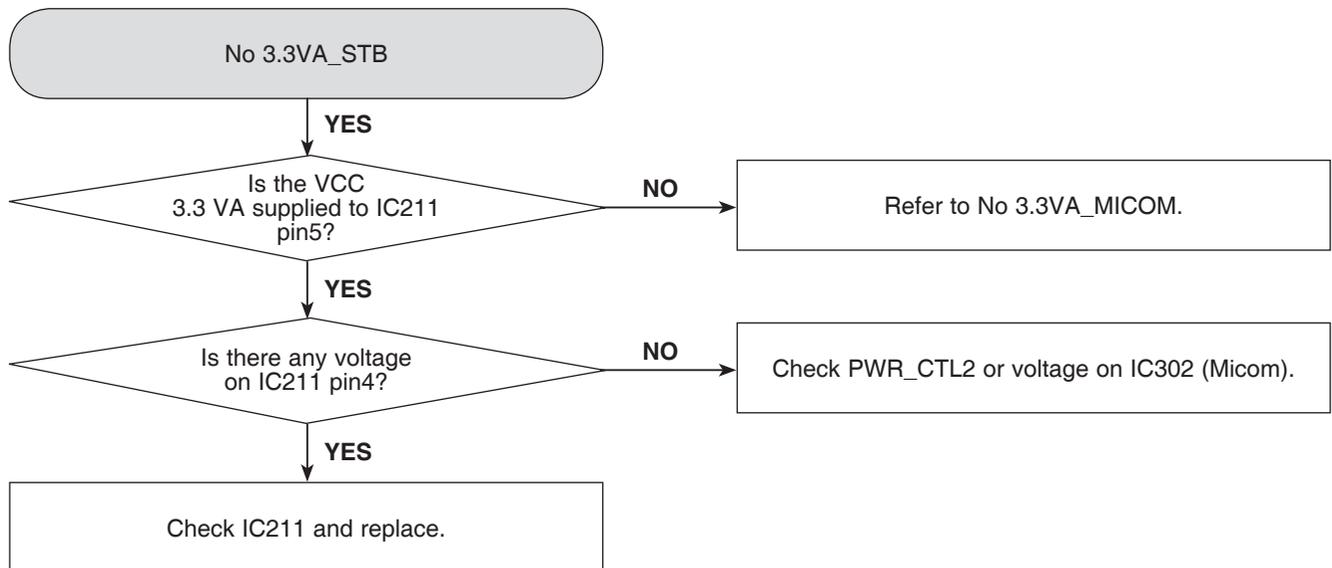
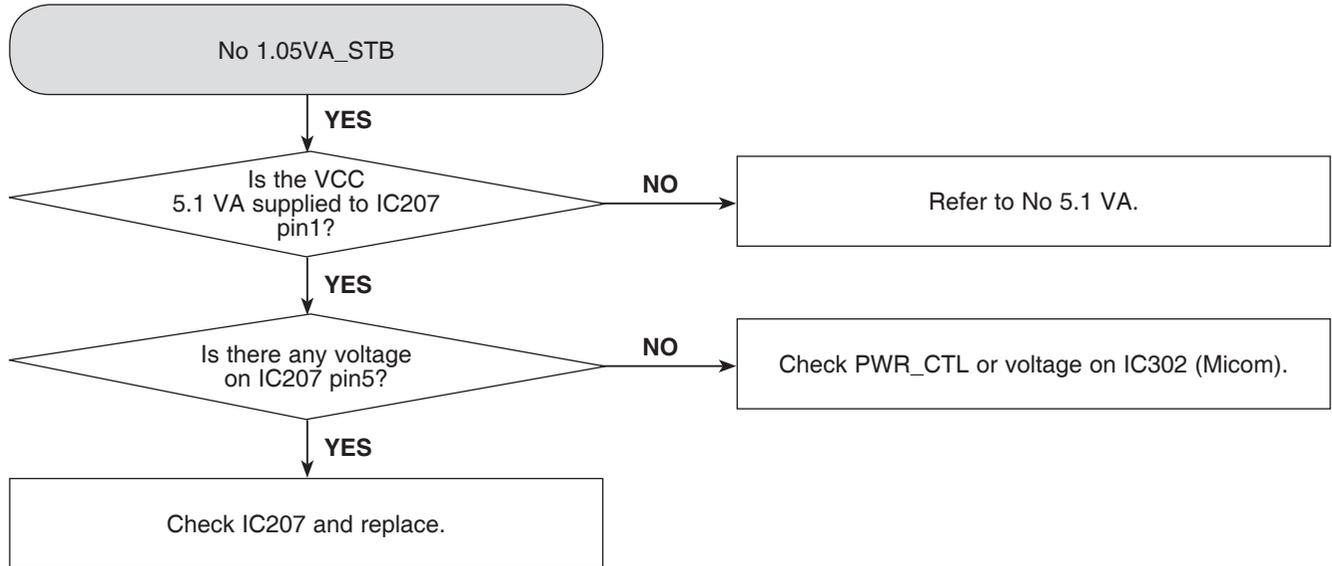
ELECTRICAL TROUBLESHOOTING GUIDE

2. POWER SUPPLY ON MAIN BOARD



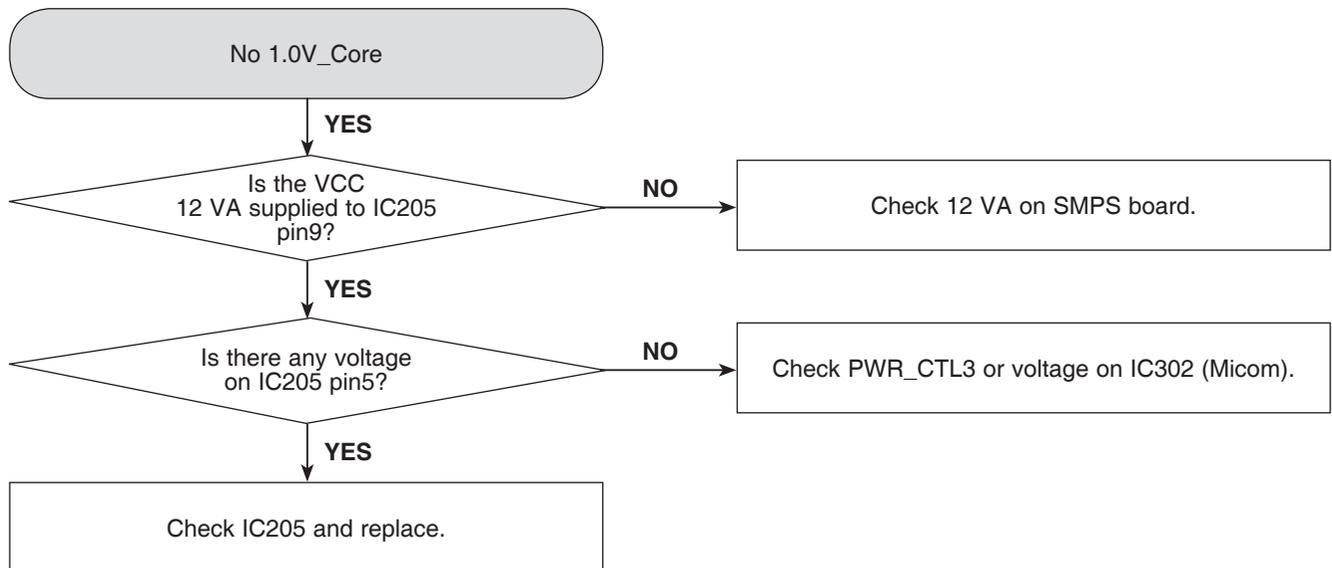
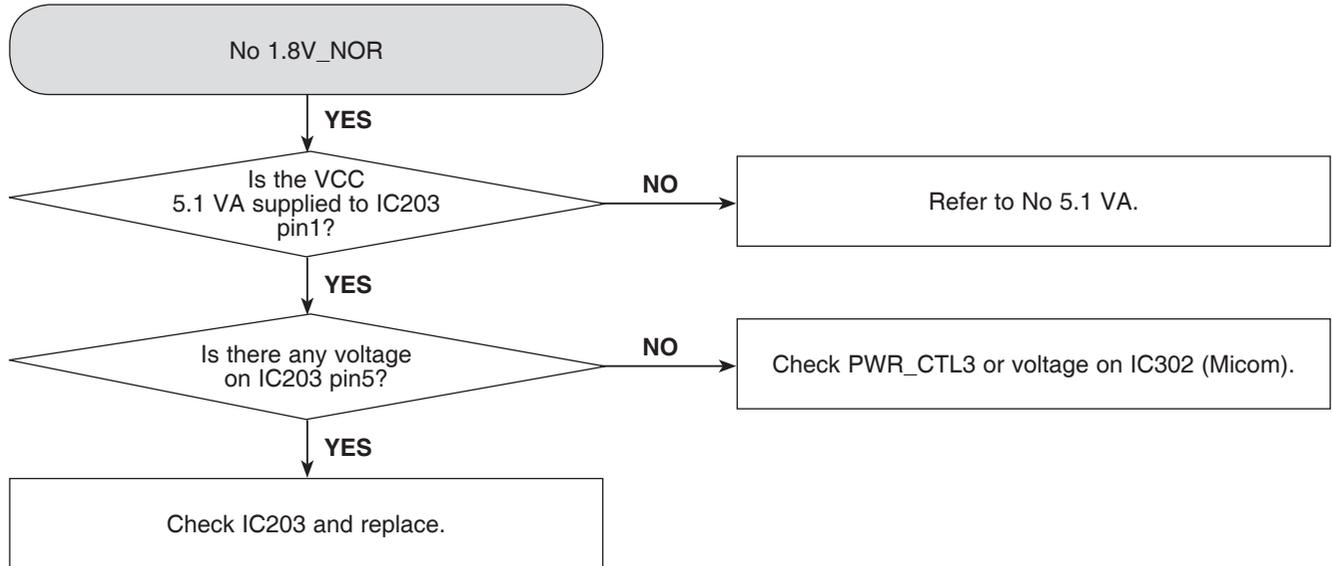
ELECTRICAL TROUBLESHOOTING GUIDE

POWER SUPPLY ON MAIN BOARD



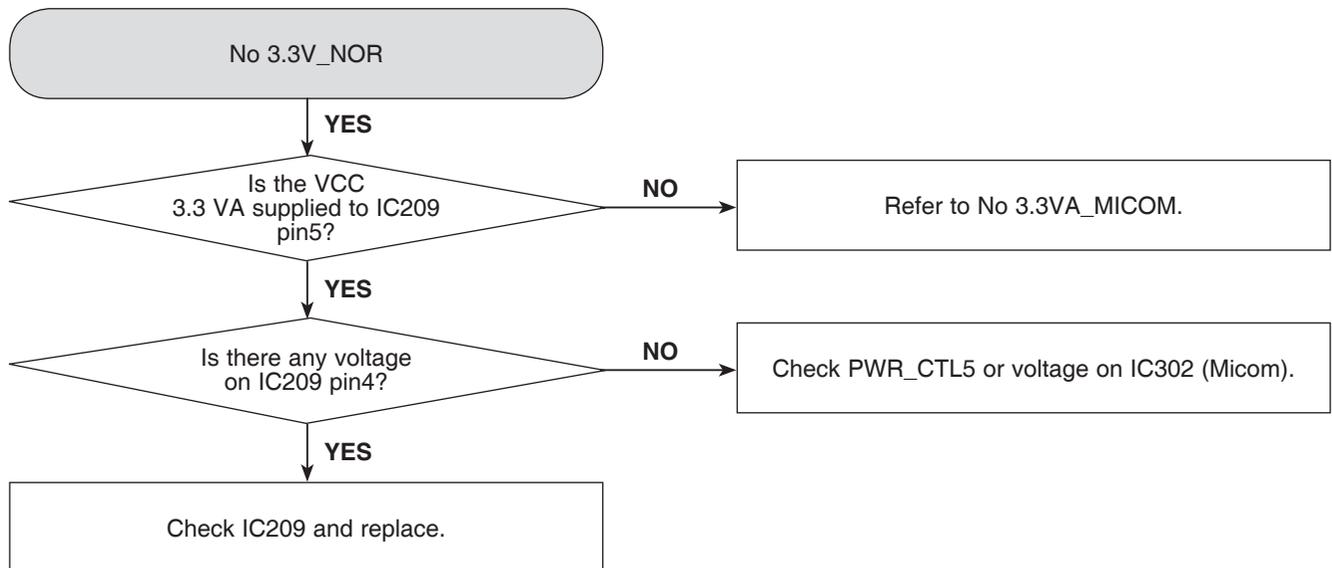
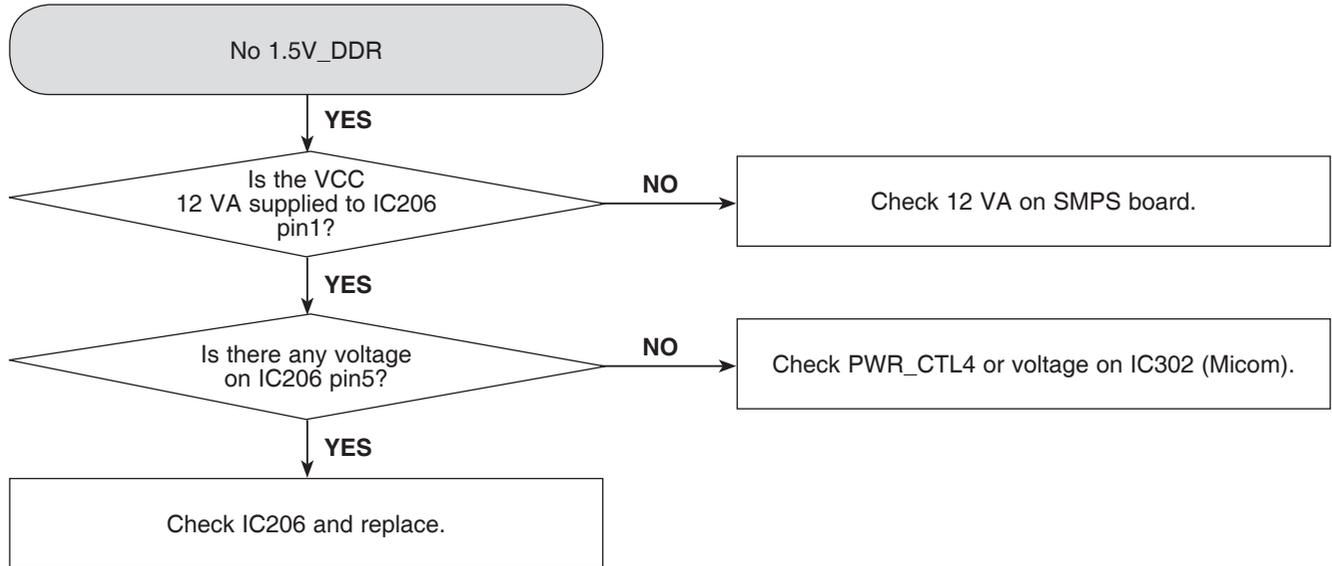
ELECTRICAL TROUBLESHOOTING GUIDE

POWER SUPPLY ON MAIN BOARD



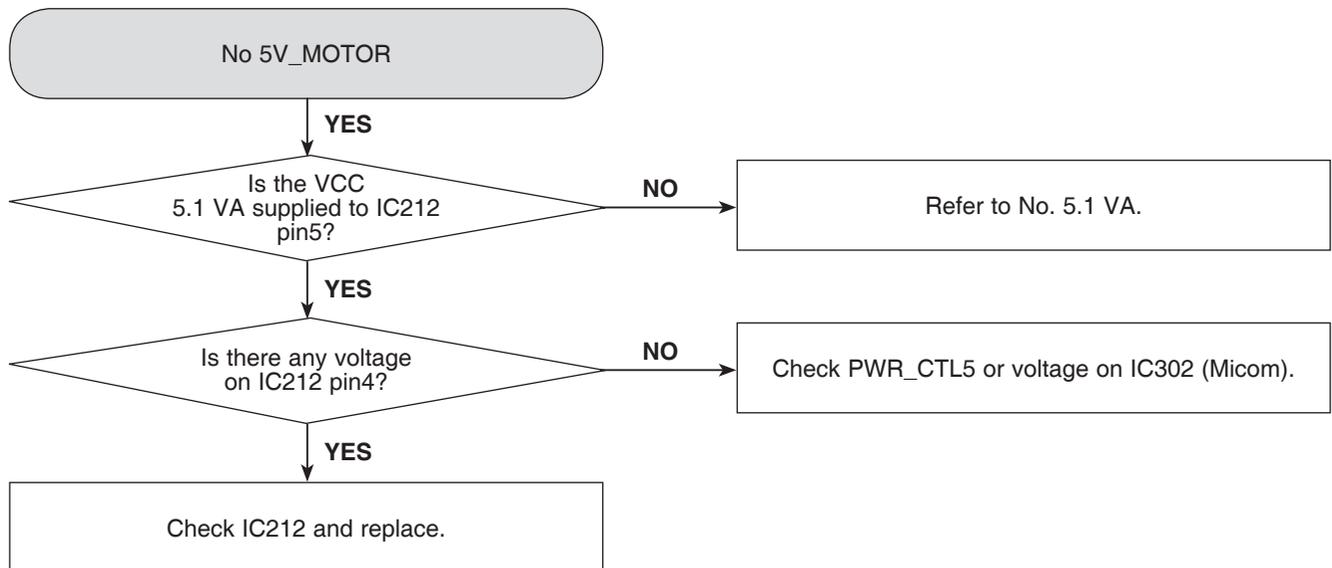
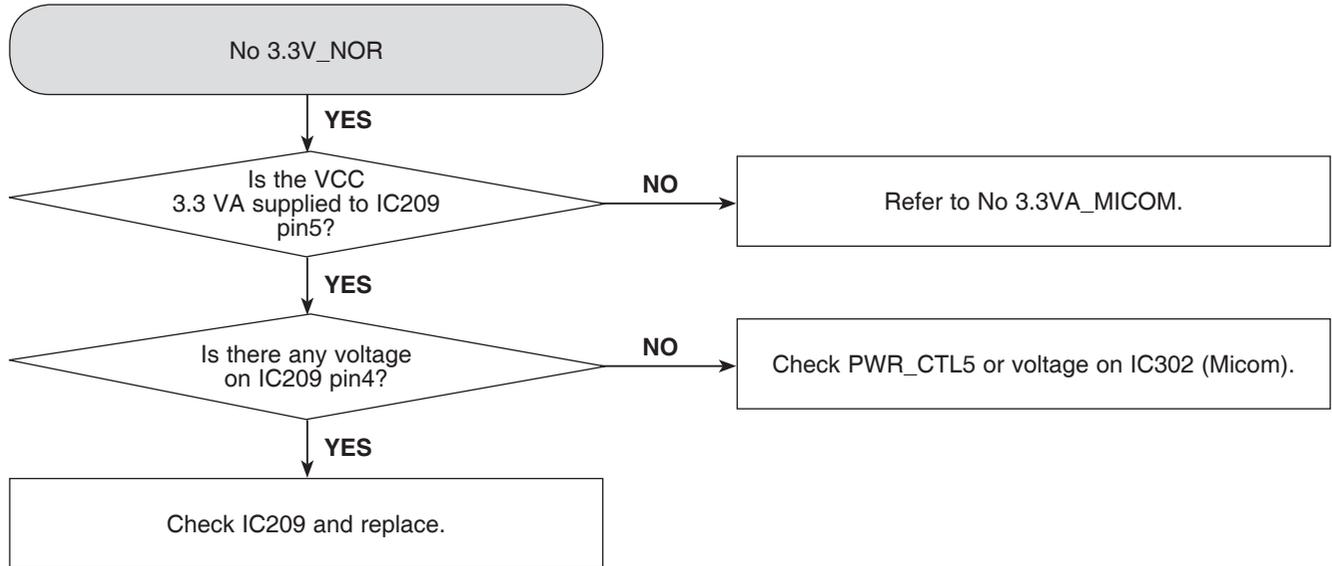
ELECTRICAL TROUBLESHOOTING GUIDE

POWER SUPPLY ON MAIN BOARD



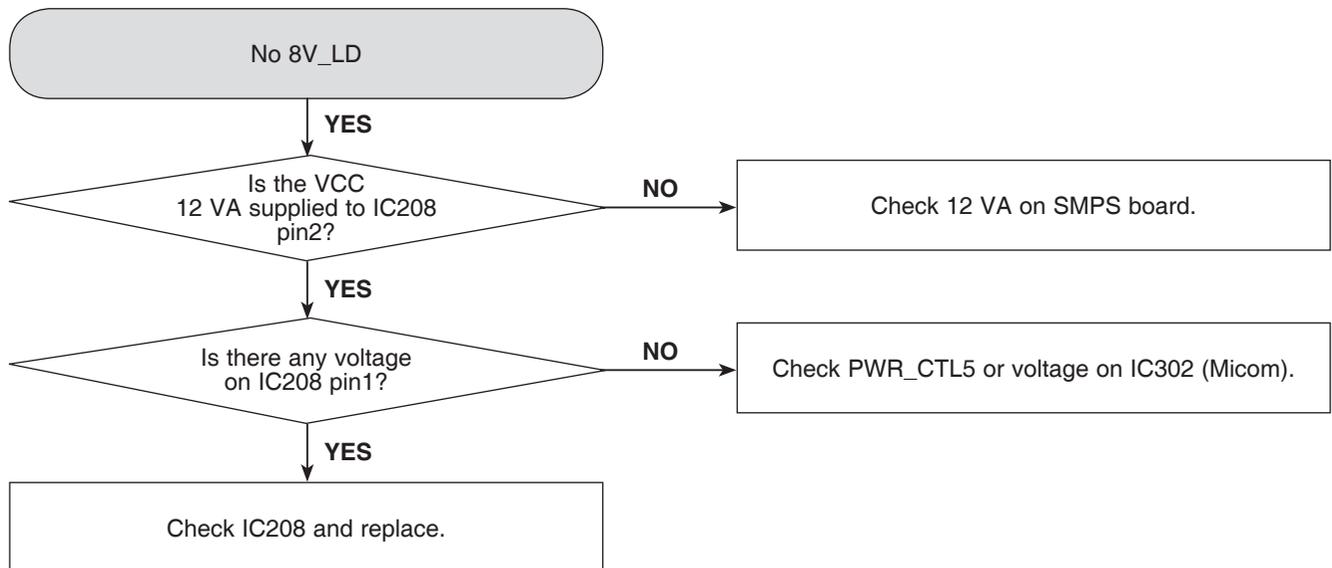
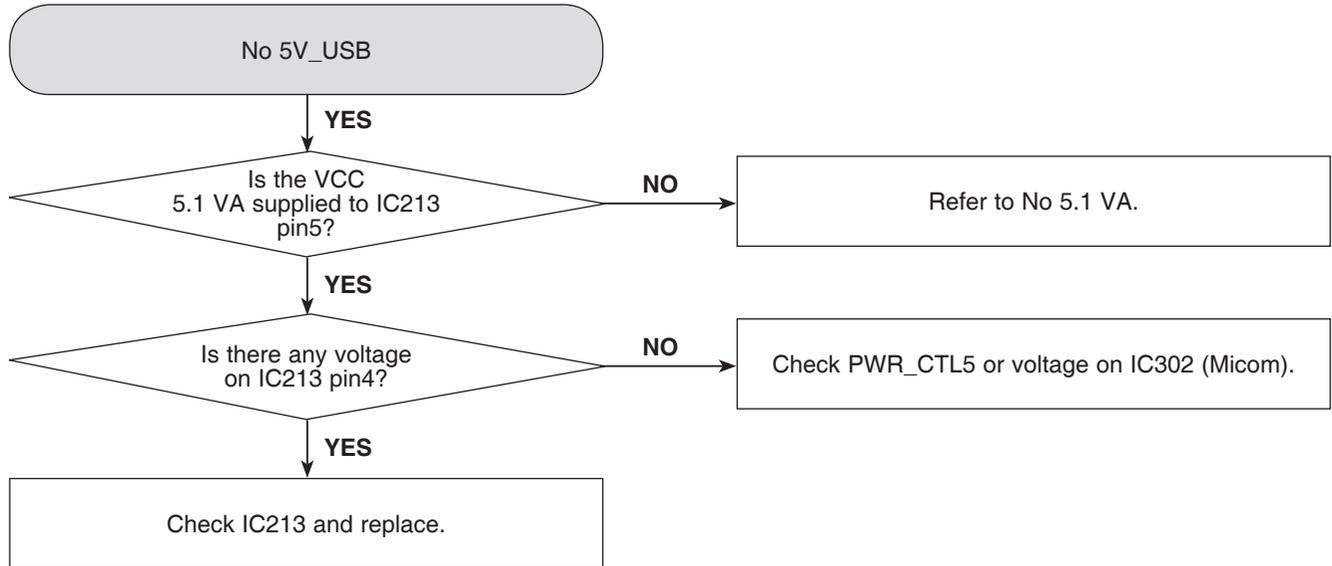
ELECTRICAL TROUBLESHOOTING GUIDE

POWER SUPPLY ON MAIN BOARD



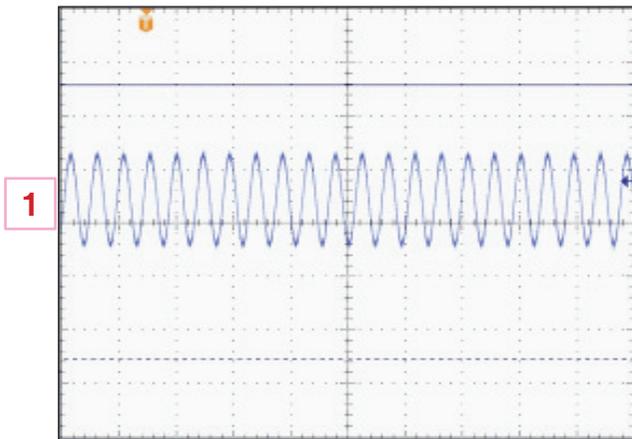
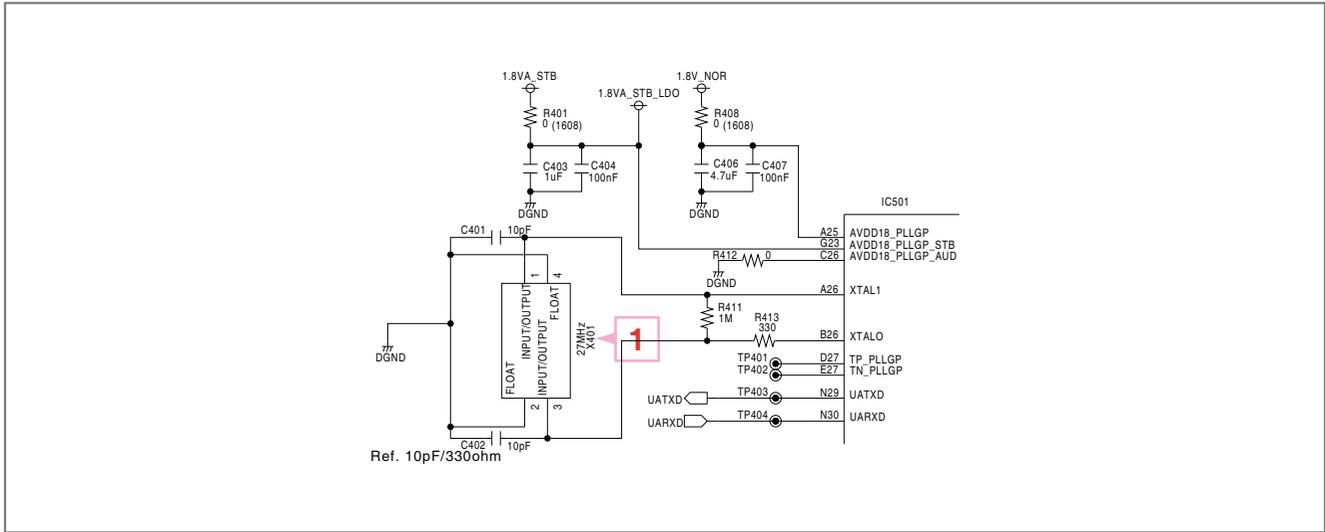
ELECTRICAL TROUBLESHOOTING GUIDE

POWER SUPPLY ON MAIN BOARD



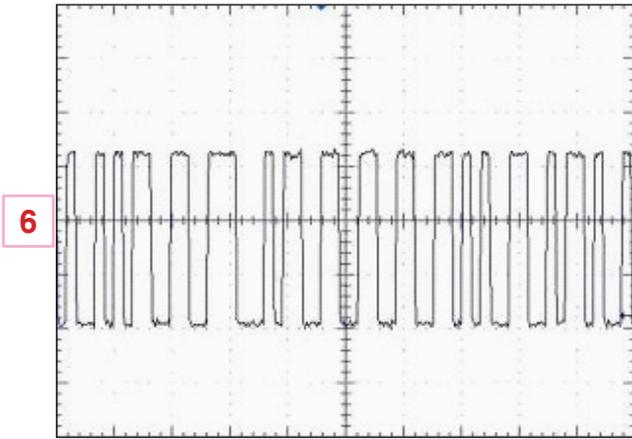
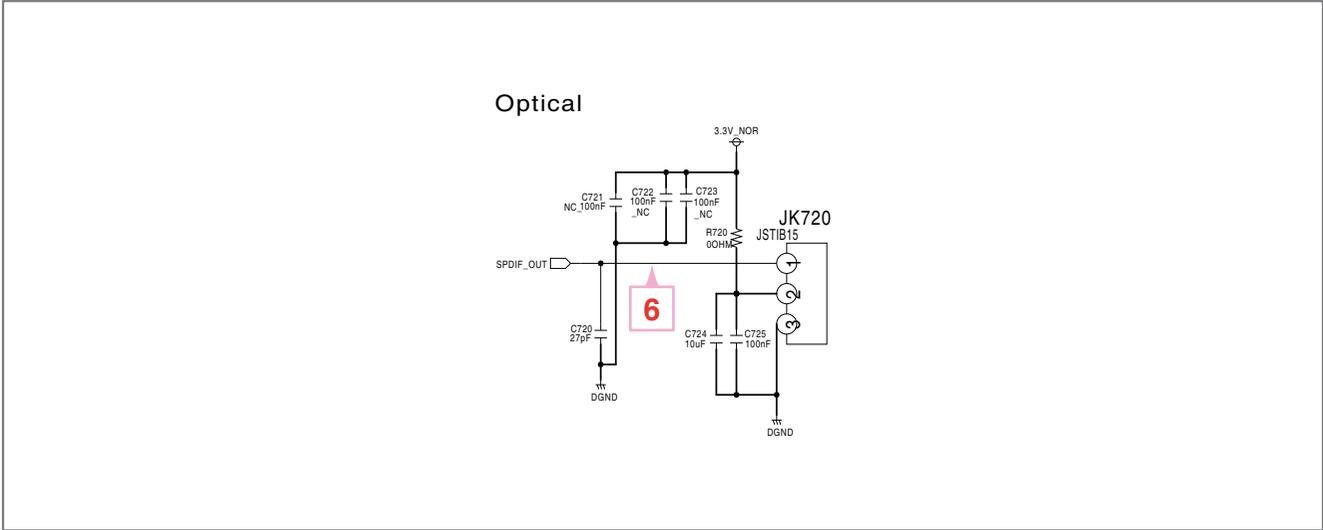
WAVEFORMS OF MAJOR CHECK POINT

1. SYSTEM PART - 1



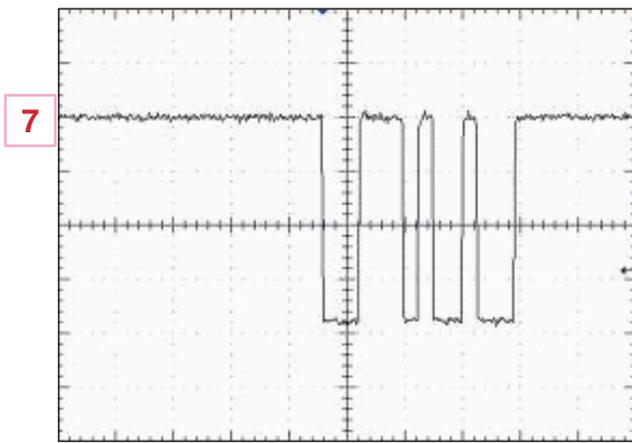
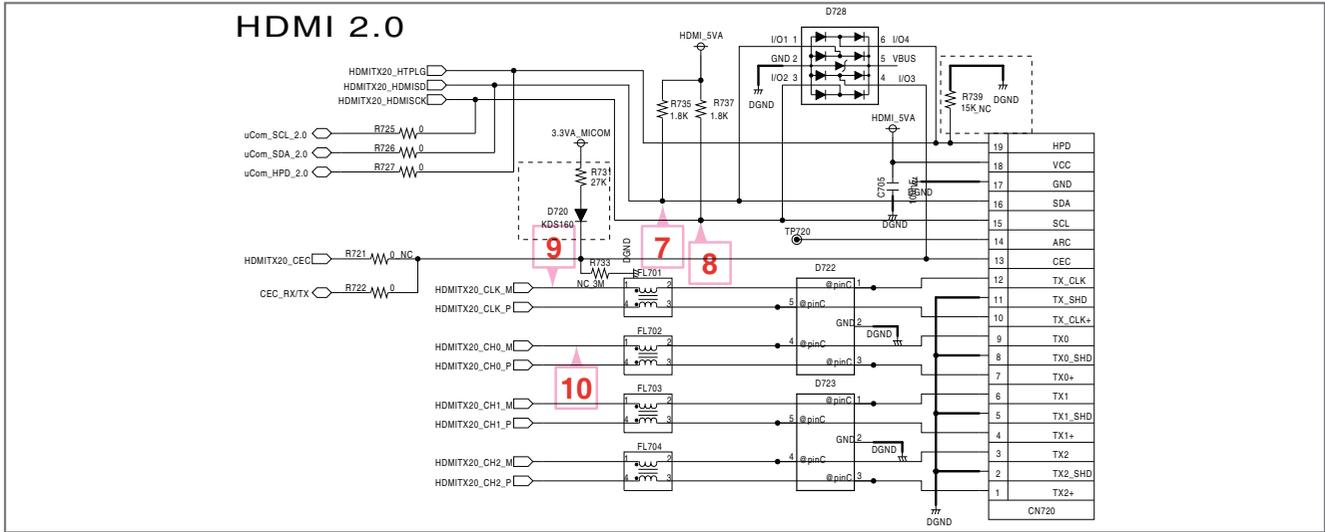
IC501 MT8581 X-TAL 27 MHz

3. AUDIO PART (S/PDIF)

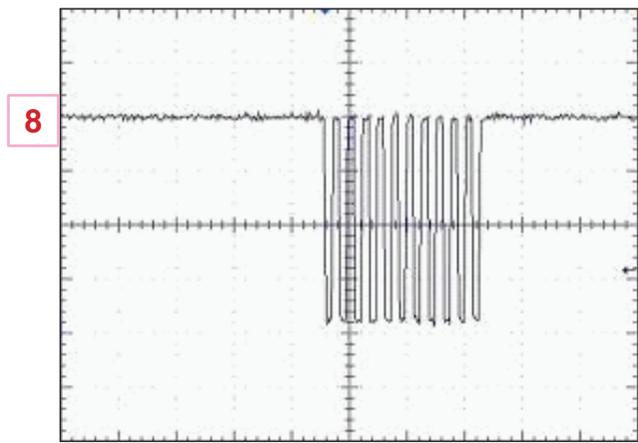


MT8581_AUDIO_SPDIF

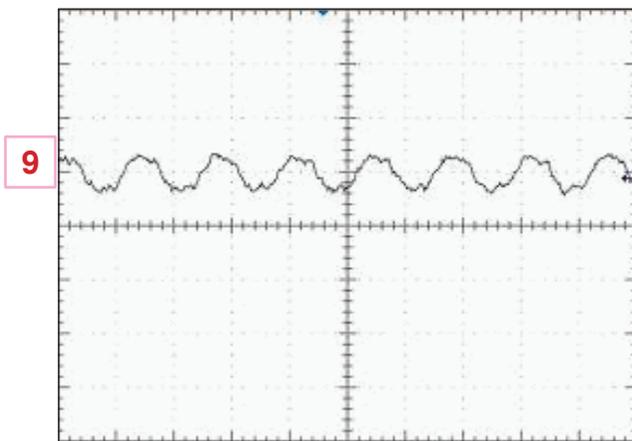
4. HDMI PART



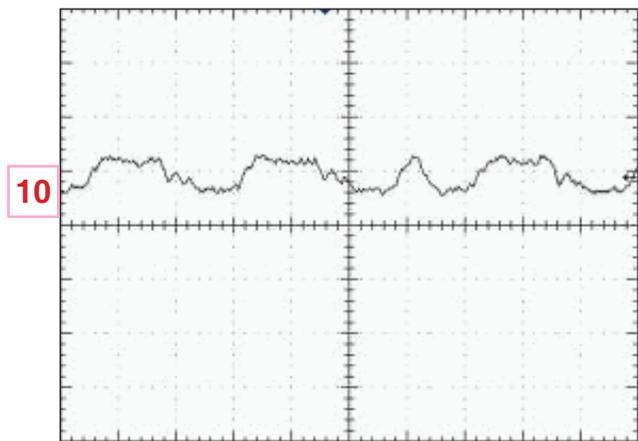
H_SDA



H_SCL



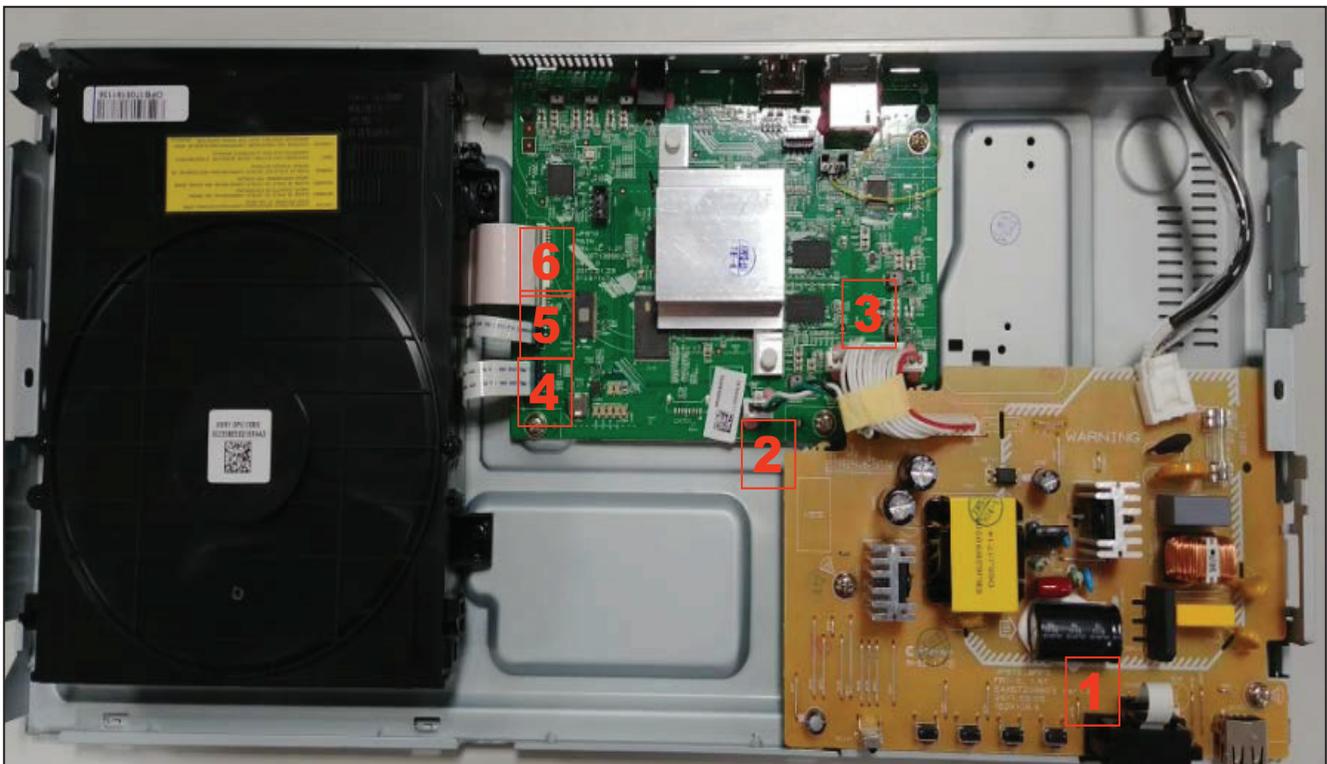
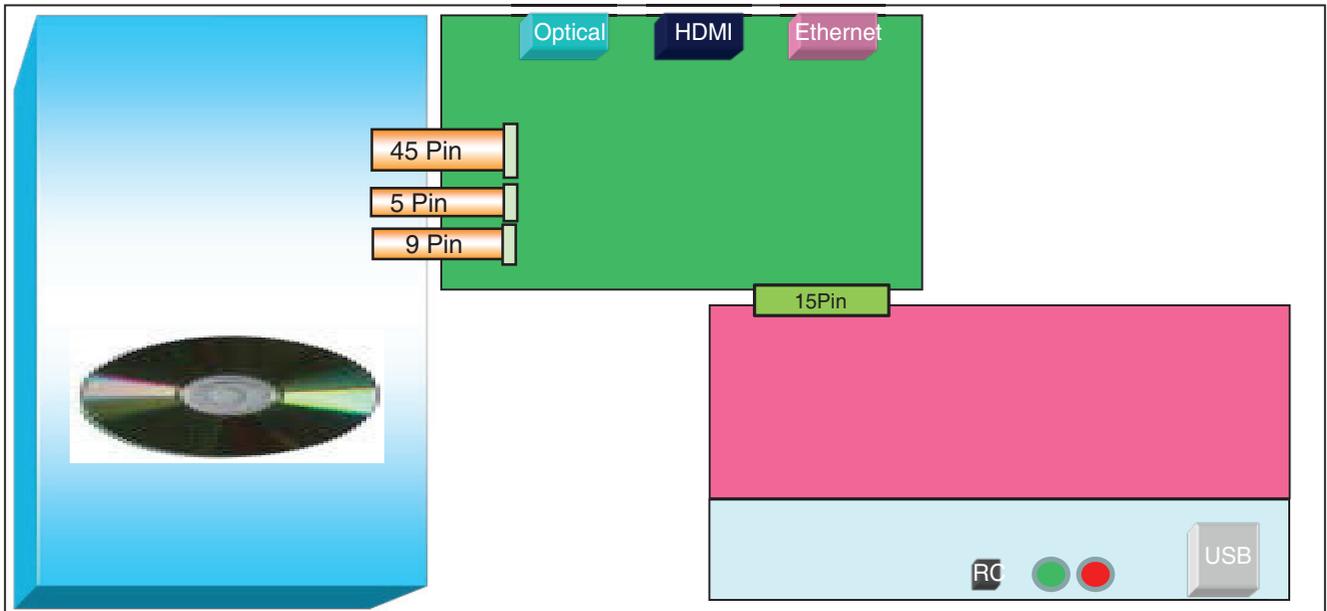
HDMI_CLK_N



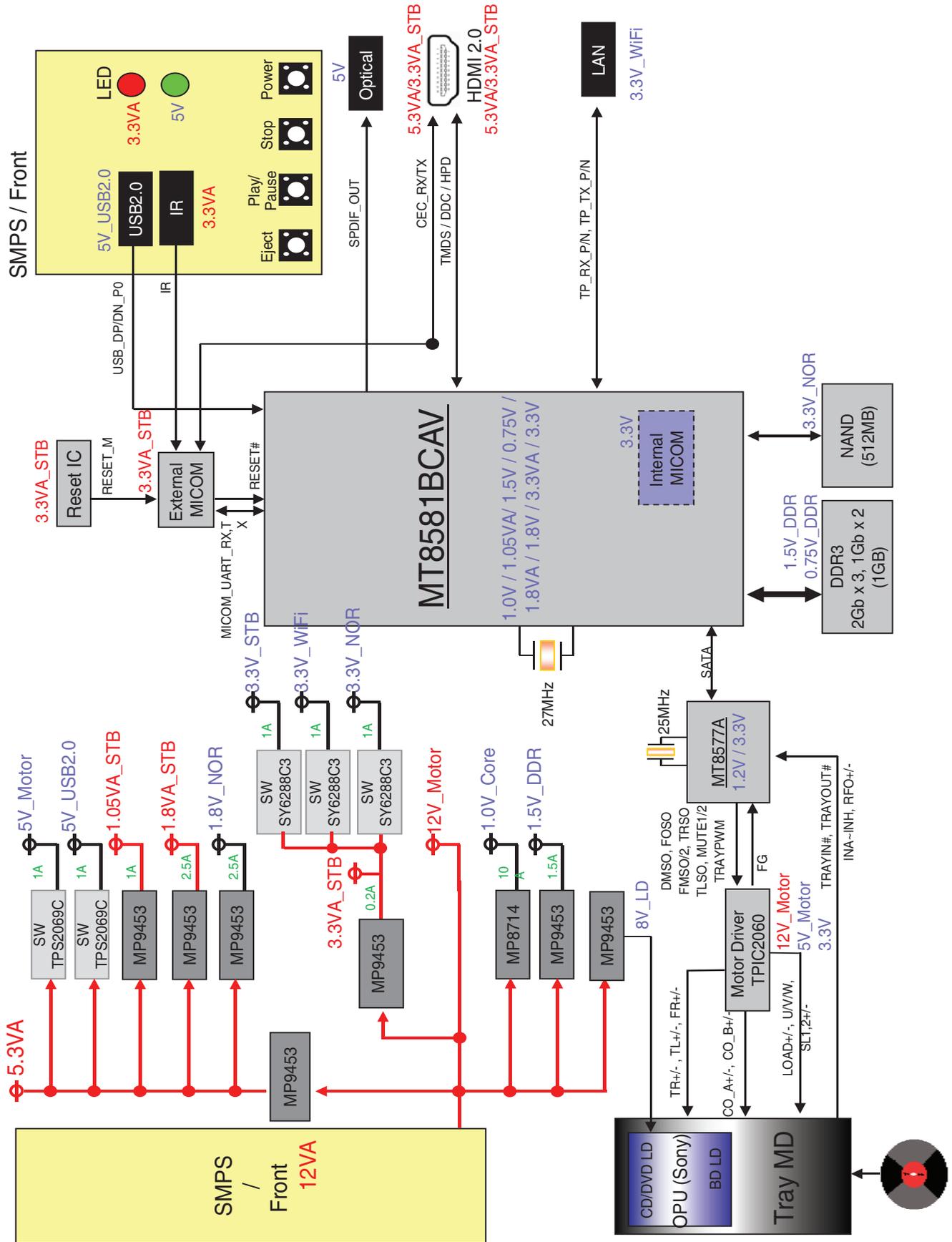
HDMI_0_N

WIRING DIAGRAM

[X pin] : Harness
[X pin] : FFC



BLOCK DIAGRAM



MEMO

A series of horizontal dotted lines for writing.

CIRCUIT VOLTAGE CHART

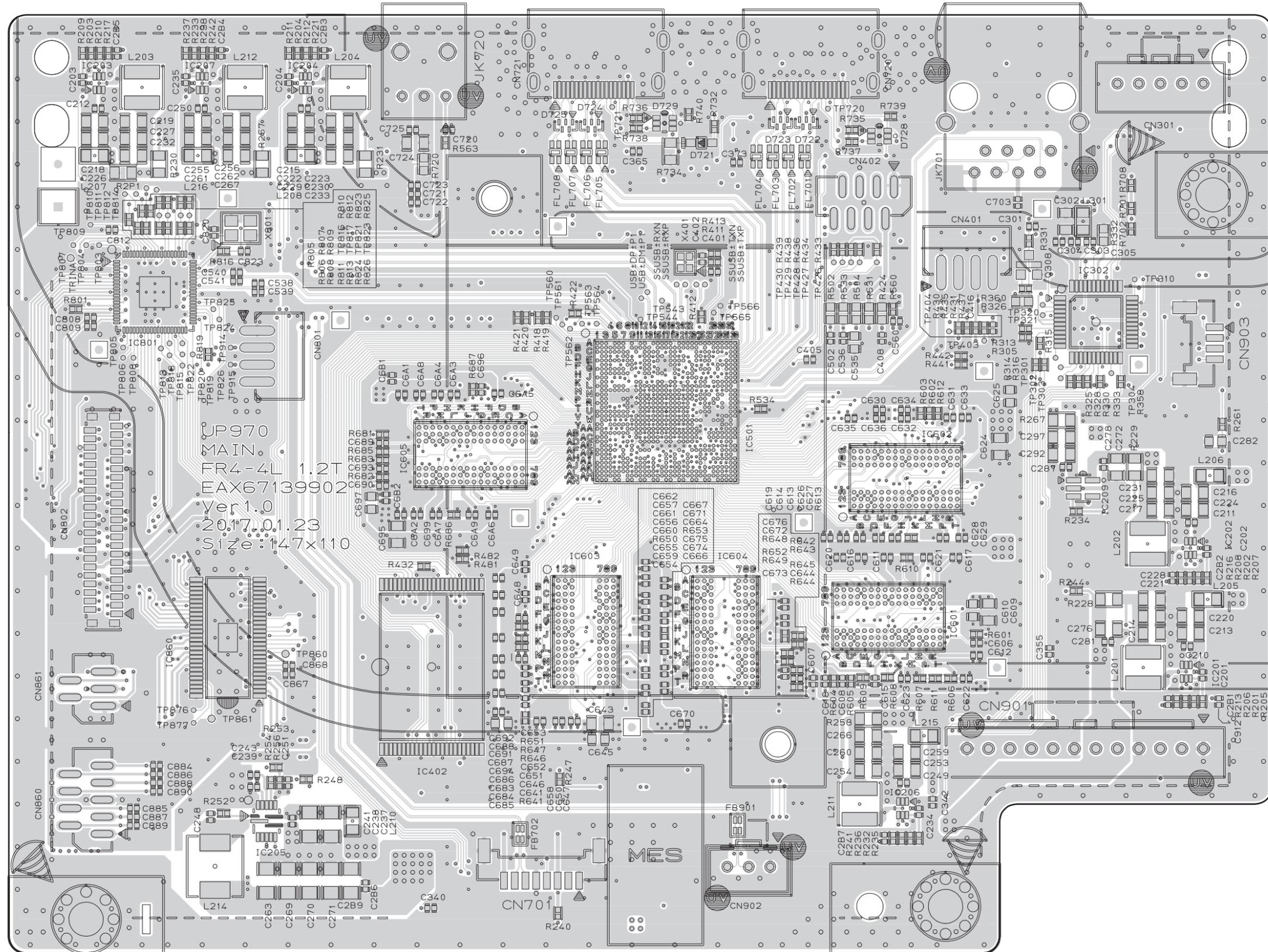
● IC VOLTAGE

Location No.	Vcc/Vdd
IC201 DC-DC Stepdown Converter	<ul style="list-style-type: none"> • Spec: VIN : 4.2 ~ 17 V Vout : 0.8 ~ VIN*DV • Measured Voltage: VIN : 12.05 V Vout : 5.14 V
IC202 DC-DC Stepdown Converter	<ul style="list-style-type: none"> • Spec: VIN : 4.2 ~ 17 V Vout : 0.8 ~ VIN*DV • Measured Voltage: VIN : 12.05 V Vout : 3.42 V
IC203 DC-DC Stepdown Converter	<ul style="list-style-type: none"> • Spec: VIN : 4.2 ~ 17 V Vout : 0.8 ~ VIN*DV • Measured Voltage: VIN : 5.16 V Vout : 1.829 V
IC204 DC-DC Stepdown Converter	<ul style="list-style-type: none"> • Spec: VIN : 4.2 ~ 17 V Vout : 0.8 ~ VIN*DV • Measured Voltage: VIN : 5.17 V Vout : 1.834 V
IC205 DC-DC Stepdown Converter	<ul style="list-style-type: none"> • Spec: VIN : 4.5 ~ 17 V Vout : 0.6 ~ VIN*DV • Measured Voltage: VIN : 12.07 V Vout : 1.035 V
IC206 DC-DC Stepdown Converter	<ul style="list-style-type: none"> • Spec: VIN : 4.2 ~ 17 V Vout : 0.8 ~ VIN*DV • Measured Voltage: VIN : 12.05 V Vout : 1.52 V
IC207 DC-DC Stepdown Converter	<ul style="list-style-type: none"> • Spec: VIN : 4.5 ~ 17 V Vout : 0.6 ~ VIN*DV • Measured Voltage: VIN : 5.17 V Vout : 1.067 V

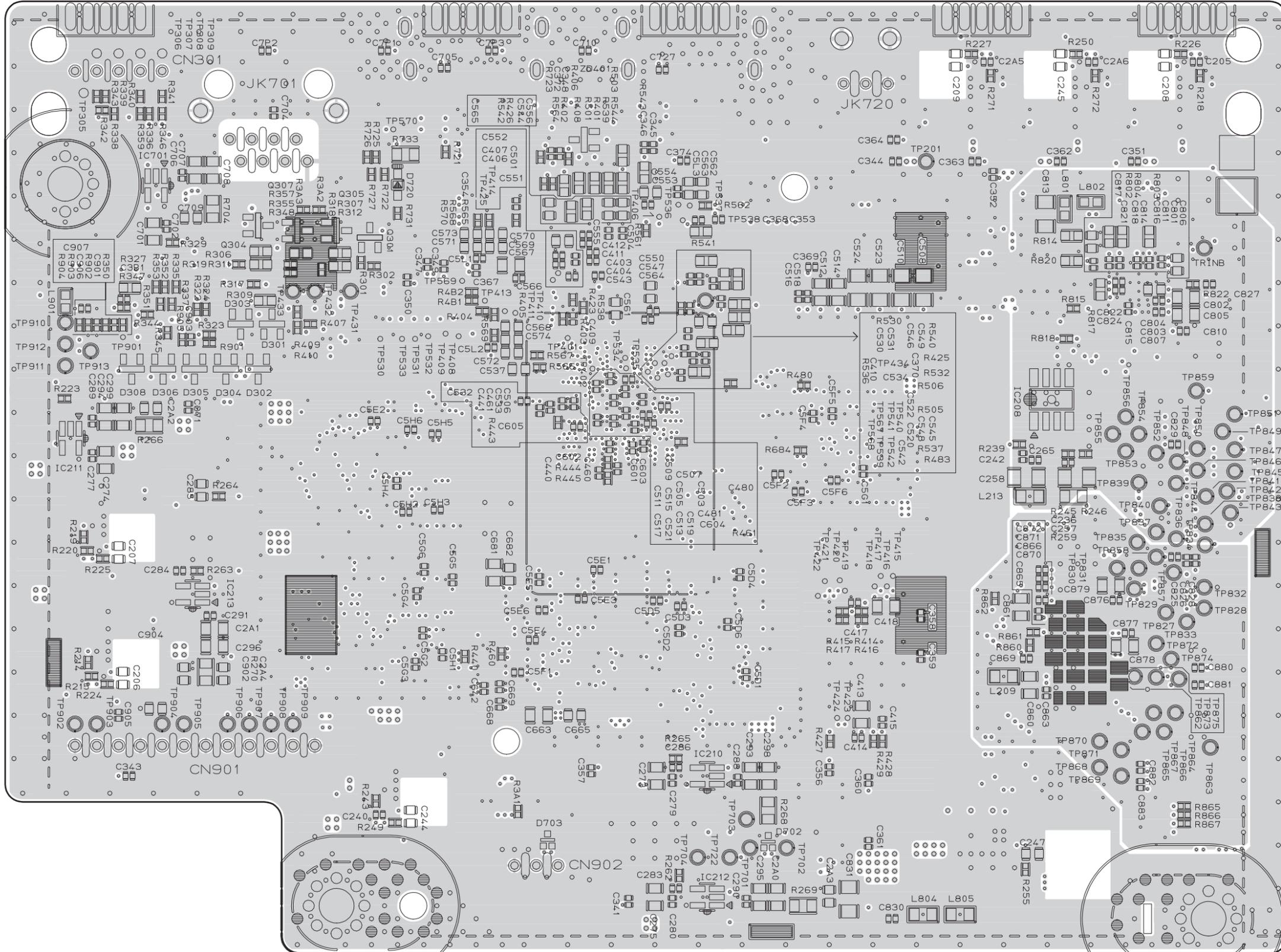
Location No.	Vcc/Vdd
IC208 Low Voltage Low Dropout Regulator	<ul style="list-style-type: none"> • Spec: VIN : 2.5 ~ 16 V Vout : $V_{out} + 1 \leq V_{in} \leq 16$ V • Measured Voltage: VIN : 12.05 V Vout : 8.12 V
IC209 Swich IC	<ul style="list-style-type: none"> • Spec: VIN : 2.5 ~ 5.5 V Vout : VIN • Measured Voltage: VIN : 3.435 V Vout : 3.424 V
IC210 Swich IC	<ul style="list-style-type: none"> • Spec: VIN : 2.5 ~ 5.5 V Vout : VIN • Measured Voltage: VIN : 3.437 V Vout : 3.436 V
IC211 Swich IC	<ul style="list-style-type: none"> • Spec: VIN : 2.5 ~ 5.5 V Vout : VIN • Measured Voltage: VIN : 3.435 V Vout : 3.43 V
IC212 Swich IC	<ul style="list-style-type: none"> • Spec: VIN : 4.5 ~ 5.5 V Vout : VIN • Measured Voltage: VIN : 5.16 V Vout : 5.15 V
IC213 Swich IC	<ul style="list-style-type: none"> • Spec: VIN : 4.5 ~ 5.5 V Vout : VIN • Measured Voltage: VIN : 5.16 V Vout : 5.15 V
IC302 MICOM	<ul style="list-style-type: none"> • Spec: VDD : 1.6 ~ 5.5 V • Measured Voltage: VDD : 3.435 V
IC402 Nand Flash	<ul style="list-style-type: none"> • Spec: 3.3 V : 2.7 ~ 3.6 V • Measured Voltage: 3.3 V : 3.38 V

Location No.	Vcc/Vdd
IC501 MPEG	<ul style="list-style-type: none"> • Spec: VCC33IO : 3.15 ~ 3.46 V VCC18IO : 1.71 ~ 1.89 V DVDD_CORE : 0.95 ~ 1.05 V DDRV : 1.425 ~ 1.575 V AVDD105 : 0.99 ~ 1.1 V • Measured Voltage: VCC33IO : 3.392 V VCC18IO : 1.839 V DVDD_CORE : 1.02 V DDRV : 1.52 V AVDD105 : 1.065 V
IC601 ~ IC605 DDR3 SDRAM	<ul style="list-style-type: none"> • Spec: VDD : 1.425 ~ 1.575 V • Measured Voltage: VDD : 1.527 V
IC801 RF IC	<ul style="list-style-type: none"> • Spec: VDD12 : 1.14 ~ 1.26 V VDD33 : 3.13 ~ 3.47 V VIN33 : 0 ~ 5.25 V • Measured Voltage: VDD12 : 1.208 V VDD33 : 3.4 V VIN33 : 3.41 V
IC860 Motor Drive	<ul style="list-style-type: none"> • Spec: P5V : 4.5 ~ 5.5 V P12V : 10.8 ~ 13.2 V • Measured Voltage: P5V : 5.13 V P12V : 12.1 V

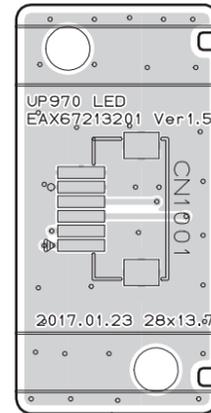
2. MAIN P.C. BOARD (TOP VIEW)



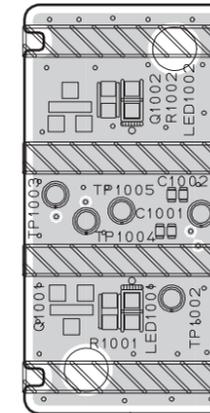
**MAIN P.C. BOARD
(BOTTOM VIEW)**



3. LED P.C. BOARD (TOP VIEW)



(BOTTOM VIEW)



SECTION 4

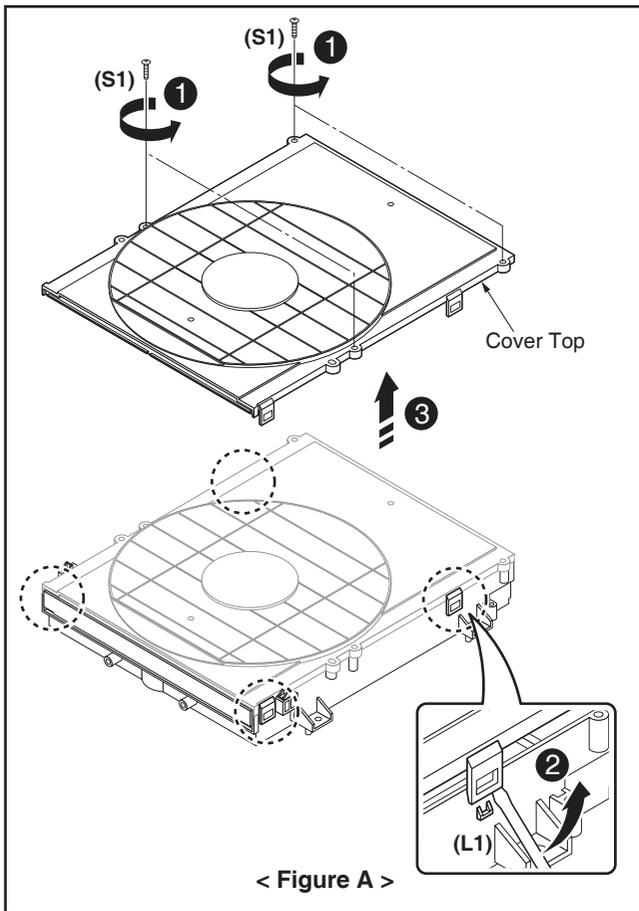
MECHANISM

CONTENTS

DECK MECHANISM DISASSEMBLY

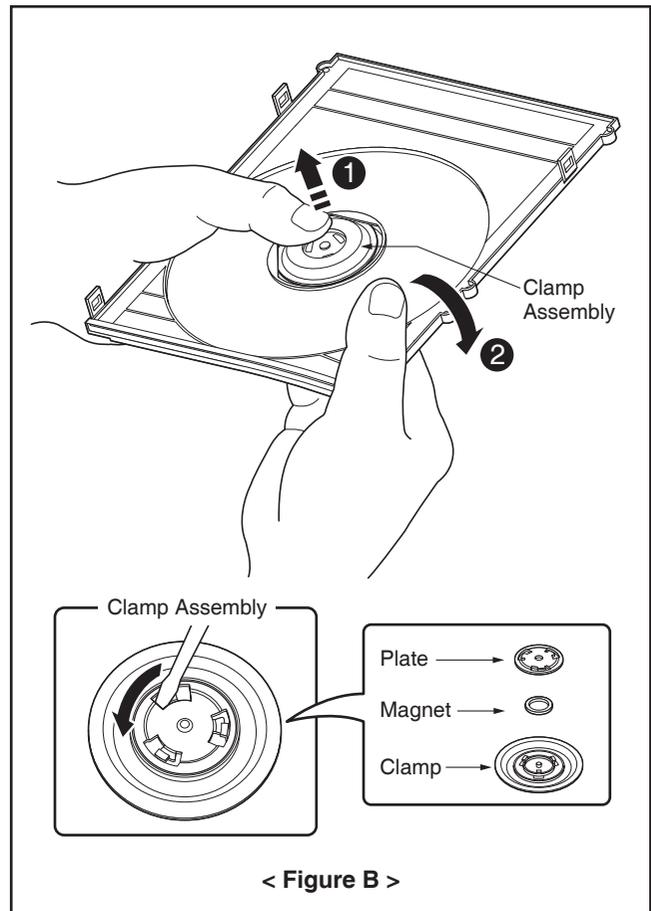
1. Cover Top	4-2
2. Clamp Assembly	4-2
2-1. Plate	4-2
2-2. Magnet	4-2
2-3. Clamp	4-2
3. Tray Disc	4-3
4. Pick Up Assembly	4-4
5. Base Up/Down	4-4
6. Belt Loading	4-5
7. Gear Pulley	4-5
8. Gear Loading	4-5
9. Guide	4-5
10. Deck PCB Assembly	4-5
11. Motor Assembly	4-5
12. FFC Cable	4-5

DECK MECHANISM DISASSEMBLY



1. Cover Top

- 1) Remove the 2 screws (S1).
- 2) Unhook the 4 Locking Tabs (L1) by using a flat-head screwdriver.
- 3) Remove the Cover Top.



2. Clamp Assembly

- 1) Place the Clamp Assembly as **Figure B**.
- 2) Bending the Cover Top in direction of arrow (2) as **Figure B**.
- 3) Separate the Clamp Assembly from the Cover Top.

2-1. Plate

- 1) Turn the Plate to a counterclockwise direction and then lift up the Plate.
- 2) Remove the Plate.

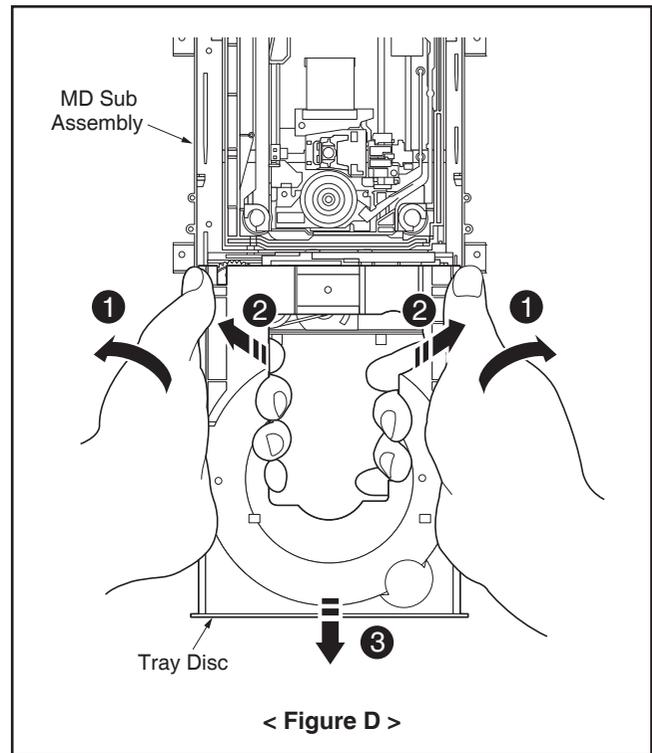
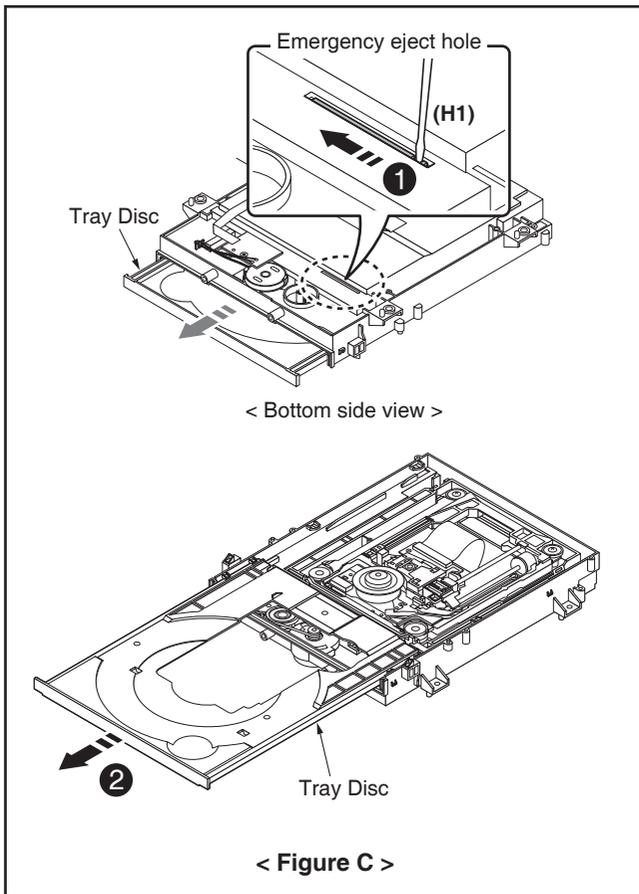
2-2. Magnet

Remove the Magnet.

2-3. Clamp

Remove the Clamp.

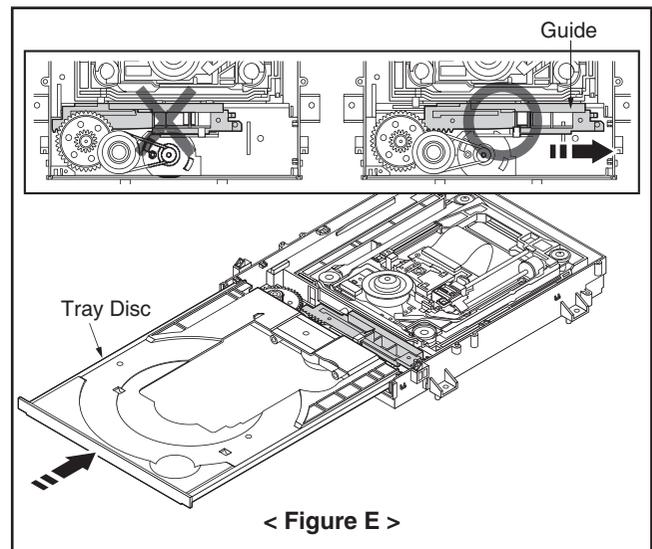
DECK MECHANISM DISASSEMBLY



3) Grasp the both sides of the Tray Disc and lift it up as **Figure D**, and then pull the Tray Disc until it is separated from the MD Sub Assembly completely.

3. Tray Disc

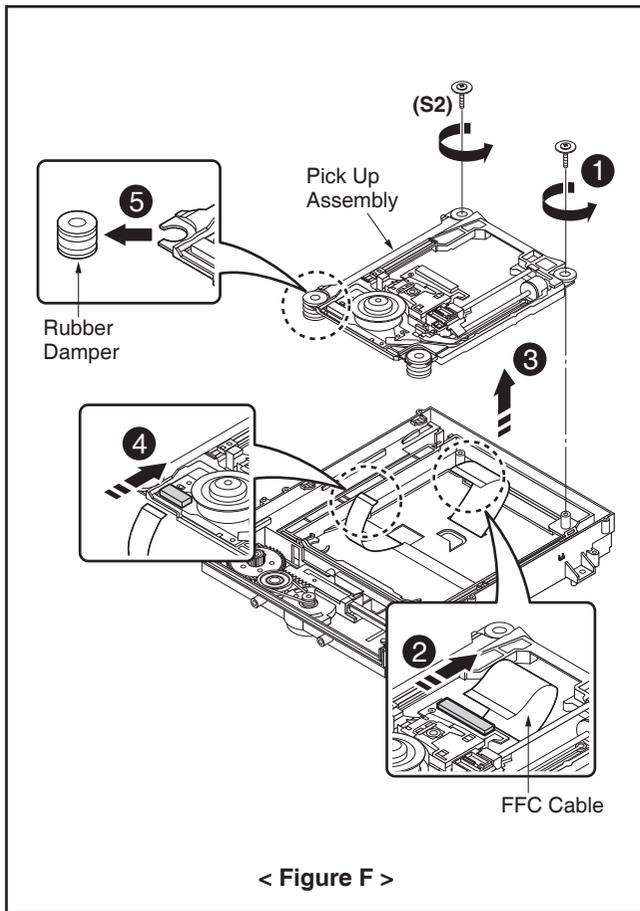
- 1) Insert and push a flat-head screwdriver in the Emergency eject hole (H1) at the right side, so that the Tray Disc is ejected about 15 ~ 20 mm.
- 2) Pull the Tray Disc until it is locked.



Note

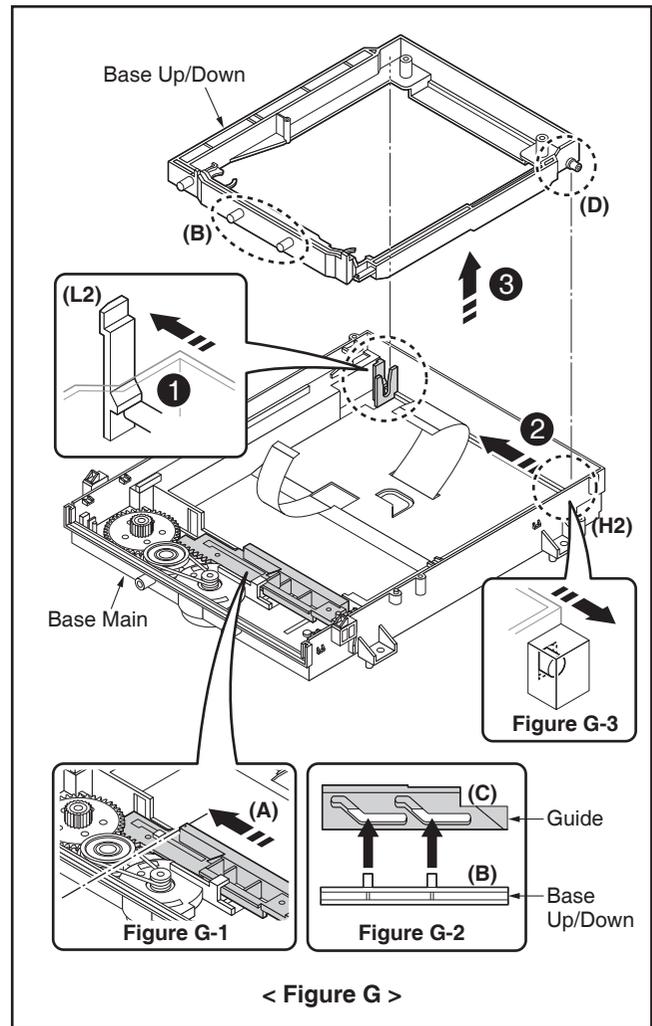
- When reassembling place the Guide as **Figure E**.

DECK MECHANISM DISASSEMBLY



4. Pick Up Assembly

- 1) Detach the Gasket Tape.
- 2) Disconnect the wires (BLK, RED, BRN, ORN) from the Deck PCB Assembly by desoldering.
- 3) Remove the 4 screws (S2).
- 4) Disconnect the FFC Cable from the Pick Up Assembly.
- 5) Remove the 4 Rubber Dampers.



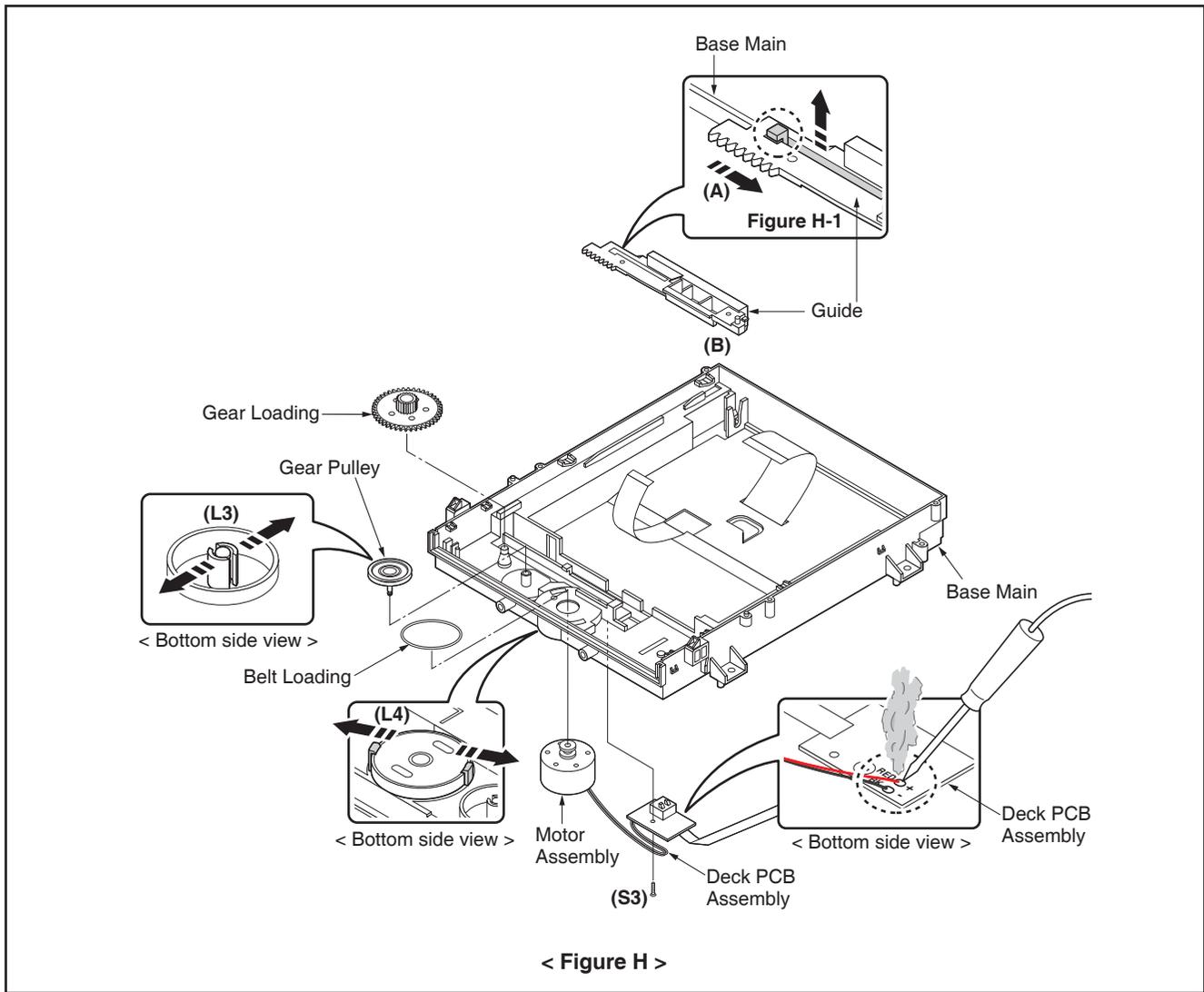
5. Base Up/Down

Unlock the Locking Tab (L2) in direction of arrow and then lift up the Base Up/Down to separate it from the Base Main.

Note

- When reassembling move the Guide in direction of arrow (A) until it is positioned as **Figure G-1**.
- When reassembling insert the (B) portion of the Base Up/Down in the (C) portion of the Guide as **Figure G-2**.
- When reassembling insert the (D) portion of the Base Up/Down in the Hole (H2) of the Base Main as **Figure G-3**.

DECK MECHANISM DISASSEMBLY



6. Belt Loading

Remove the Belt Loading.

7. Gear Pulley

Unlock the Locking Tab (L3) in direction of arrow and then separate the Gear Pulley from the Base Main.

8. Gear Loading

Remove the Gear Loading.

9. Guide

- 1) Move the Guide in direction of arrow (A) as **Figure H-1**.
- 2) Separate the Guide from the Base Main.

10. Deck PCB Assembly

- 1) Disconnect the wires (RED, BK) from the Deck PCB Assembly by desoldering.
- 2) Remove the 1 screw (S3).
- 3) Separate the Deck PCB Assembly from the Base Main.

11. Motor Assembly

Unlock the Locking Tab (L4) in direction of arrow and then separate the Motor Assembly from the Base Main.

12. FFC Cable

Remove the FFC Cable.

MEMO

A series of horizontal dotted lines for writing.

SECTION 5

F/E LOADER PART

CONTENTS

LD CHECK GUIDE	5-2
1. PURPOSE.....	5-2
2. LD CHECK PROCEDURE	5-2
BARCODE SCAN GUIDE	5-3
1. PURPOSE.....	5-3
2. REQUIRED TO INSERT NEW BARCODE VALUE.....	5-3
3. METHOD.....	5-3
4. PROCEDURE	5-3

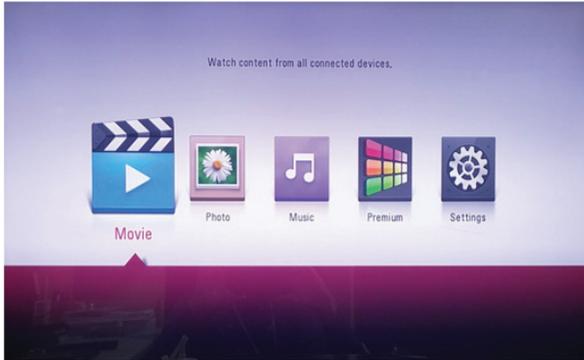
LD CHECK GUIDE

1. PURPOSE

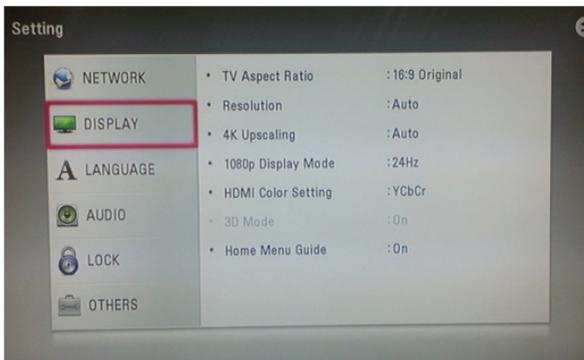
If LD (Laser Diode) have problem, disc reading problem can happen. So it is needed to check LD status.

2. LD CHECK PROCEDURE

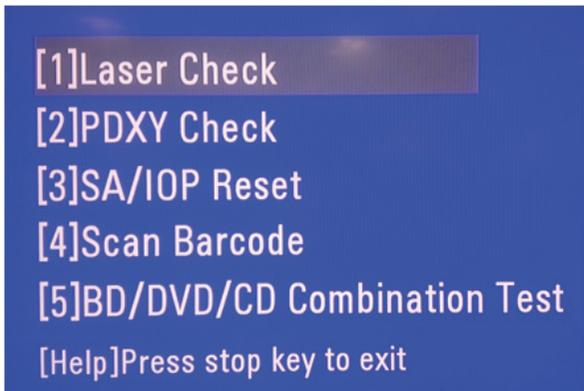
1) Power on the set.



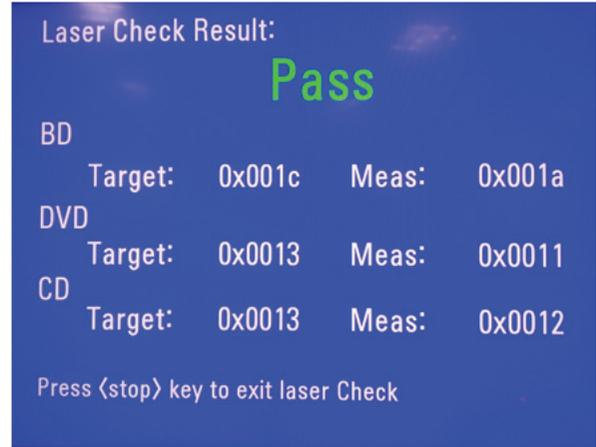
2) Press Settings.



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 **[1]Laser Check** and click.



4) Check result is shown automatically. If you will see **"PASS"**, BD/DVD/CD LD status is OK.



BARCODE SCAN GUIDE

1. PURPOSE

We have to scan barcode of SONY OPU and save barcode information into main PCB to read disc well because this barcode includes different optimal value according to OPU. So we have to use matched barcode.

2. REQUIRED TO INSERT NEW BARCODE VALUE

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

3. METHOD

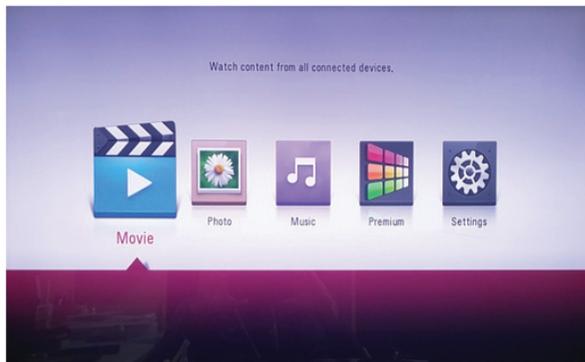
There are 2 ways to save barcode information.

- 1) Use 2D barcode scanner. (If there is 2D barcode scanner, use this method.)
- 2) Save default barcode information into USB.

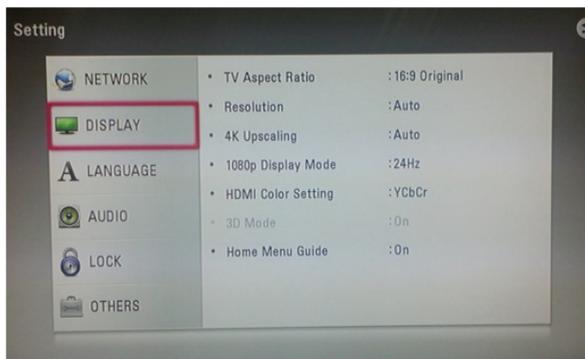
4. PROCEDURE

4-1. Use 2D barcode scanner

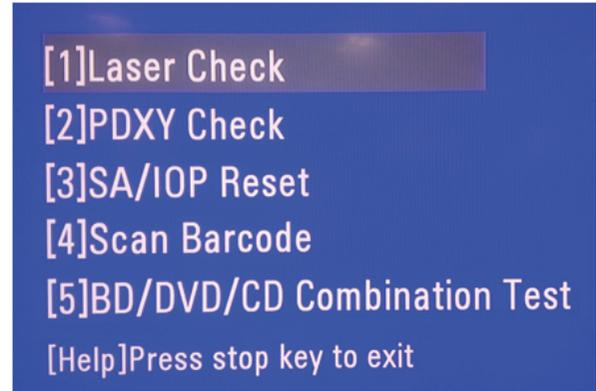
- 1) Power on the set.



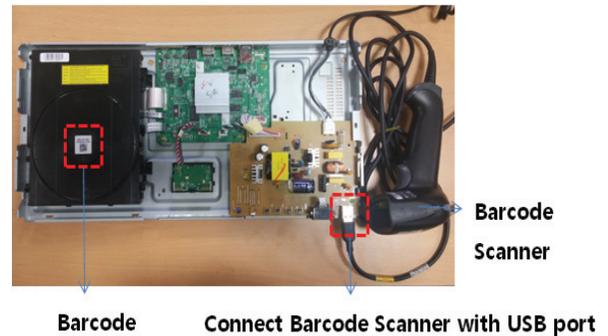
- 2) Press settings



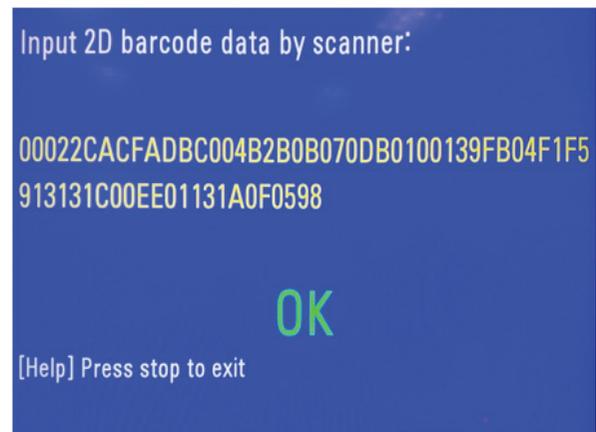
- 3) Under DISPLAY highlighted condition, **press '5'**
 ➔ '1' ➔ '7' ➔ '7' ➔ '7' ➔ '7' ➔ '7' ➔ '7' ➔ **Enter** on the remote controller to display special mode. Move to the [4]Scan Barcode and click.



- 4) Connect Barcode Scanner with USB port and read barcode.

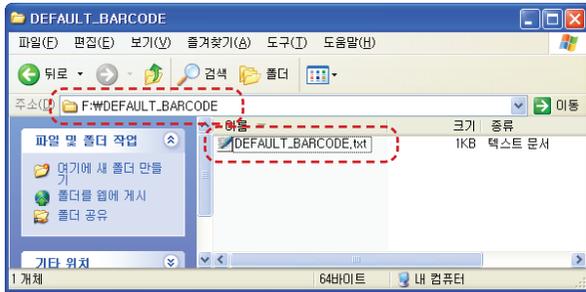


- 5) If barcode scan result is OK, it is shown as below.

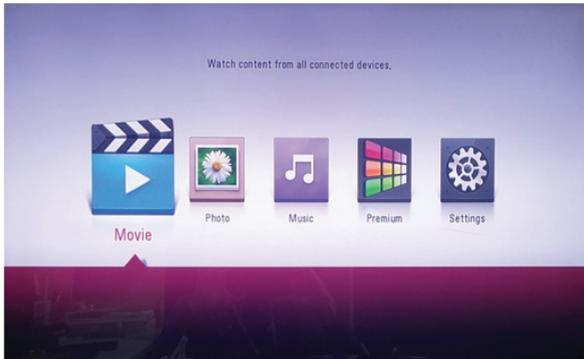


4-2. Use USB

- 1) Copy DEFAULT_BARCODE Folder into USB.
The folder include txt file as below.



- 2) Power on the set.



- 3) Insert USB with the set and If USB is recognized, barcode is downloaded automatically.

