Website http://biz.lgservice.com

SERVICE MANUAL

MODEL: DP122

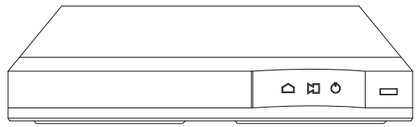
DVD-VIDEO PLAYER

SERVICE MANUAL

MODEL: DP122

CAUTION

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



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LG

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SECTION 1

SUMMARY

CONTENTS

PRODUCT SAFETY SERVICING GUIDELINES FOR DVD 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 are 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:

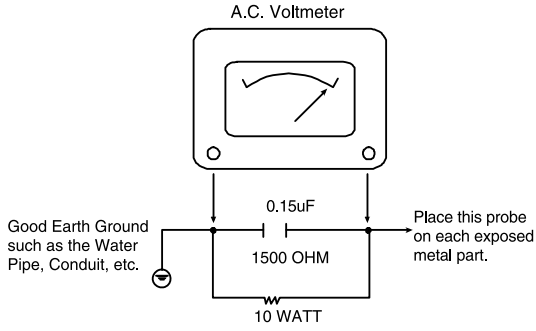
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

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.

SERVICING PRECAUTIONS

CAUTION: Before servicing the DVD covered by this service data and its supplements and addends, read and follow the SAFETY PRECAUTIONS. NOTE: if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.
Remember Safety First :

General Servicing Precautions

1. Always unplug the DVD 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 DVD 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 DVD and / or any of its electrical assemblies unless all solid state device heat sinks are correctly installed.

6. Always connect the test instrument ground lead to an appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter (500V)
to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1Mohm.
Note 1: Accessible Conductive Parts include Metal panels, Input terminals, Earphone jacks,etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.
The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate an electrical charge sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

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

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

THE PROCESS OF USB DOWNLOAD

Please follow the below process to download a program with disc

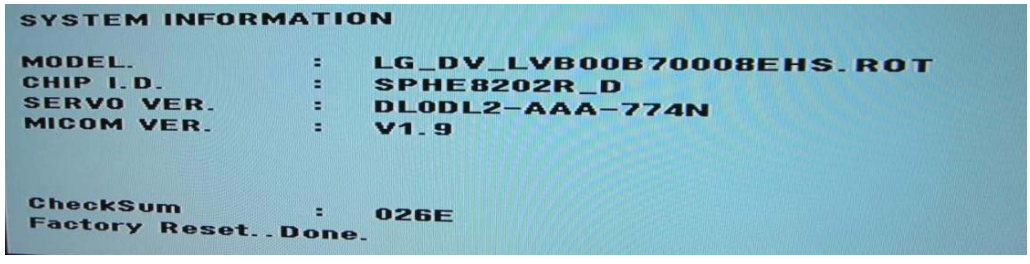
1. Turn on the DVD-player.
 Note: Be sure that there is no disc in DVD-player.

2. Press “SETUP” button on Remote control.

3. Choose a “**DISPLAY**” menu by using the cursor button and then choose a “**TV Aspect**” menu.
 And choose “**16:9**” menu.

4. Press the 1 --> 3 --> 9 --> 7 --> 1 --> 3 --> 9(Numerical button) --> Enter key on remote control to confirm the system information.

5. Remember or write the model.



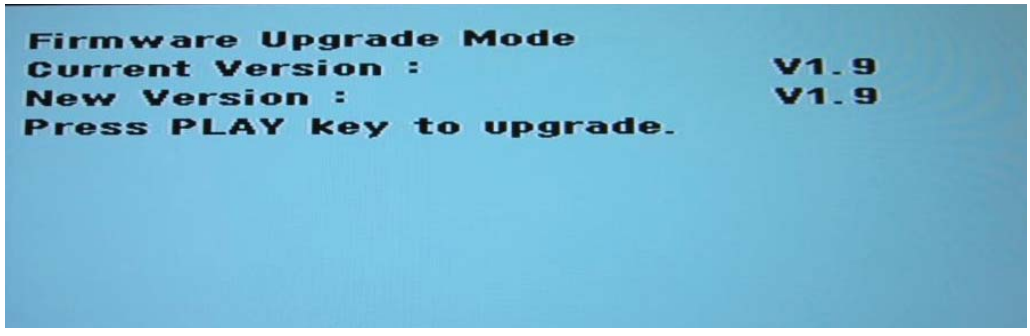
6. Change the program file name of new version to the model.
 Example:
 New ver. program file: LG_DV_LVB00B70000EHS_V1.9.ROT
 Model: LG_DV_LVB00B70008EHS.ROT
 Change New ver. program file like this ⇨ **LG_DV_LVB00B70008EHS.ROT**
 If you don’t change the file name like that,disc download isn’t be worked.

7. Copy the changed file to a USB memory stick or burn it to CD-R/RW.

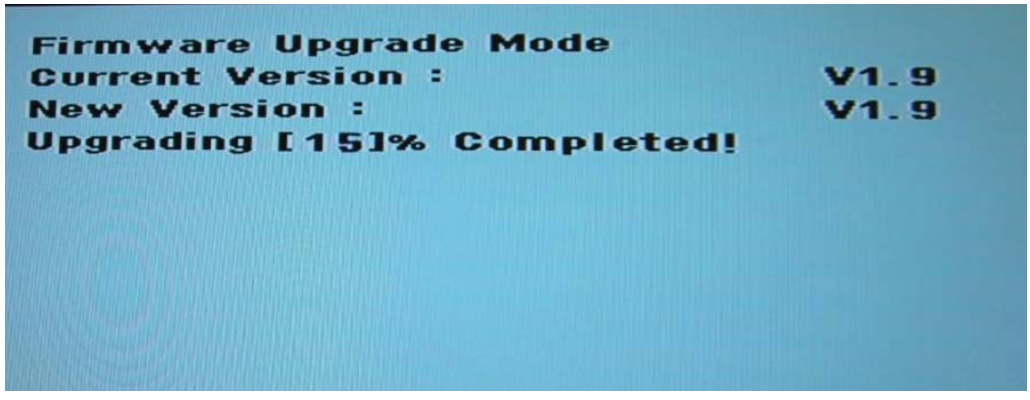
8. Insert the copied USB memory stick or Disc to DVD-player.

9. Press the RETURN button on the DVD Player. (USB only)

10. If the below picture appears on the screen. Press “PLAY” button on Remote controller.
While this menu appears, please don’t eject disc or take out USB.



11. After the below picture appears on the screen. New DVD program will download from USB
Memory stick or Disc automatically. Do not eject or take out the USB memory stick.



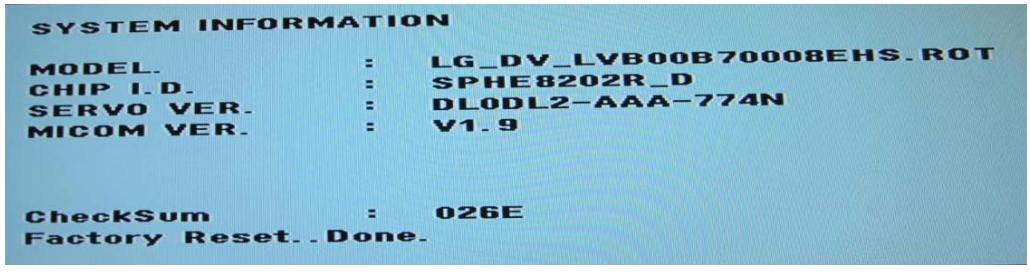
12. After USB download is completed, DVD-player displays below picture automatically.

13. Do power off of DVD-Player.

14. Remove the Disc or USB memory stick.

15. Turn on the DVD-player.
    Select the initial Language and Press “Enter” button.
    Then, Select “Enter” and Press “Enter” button.

16. Do it again the process 1, 2, 3, 4 to confirm the version.



17. Do power off of DVD-Player again.

SPECIFICATIONS

• GENERAL

Power requirements	AC 120 V, 60 Hz
Power consumption	11 W
Dimensions (Approx.)	270 x 37.5 x 203 mm (W x H x D) without foot
Net Weight (Approx.)	1.41 kg
Operating temperature	0 °C to 40 °C
Operating humidity	5 % to 90 %
Laser	Semiconductor laser
Signal system	NTSC

• INPUTS

USB IN	4 pin (USB 2.0 / 1.1 standard)

• OUTPUTS

Video Output	1.0 V (p-p), 75 Ω, sync negative, RCA jack x 1
Audio Output	2.0 Vrms (1 kHz, 0 dB), 600 Ω, RCA jack (L, R) x 2
Digital Output (Coaxial)	0.5 V (p-p), 75 Ω, RCA jack x 1

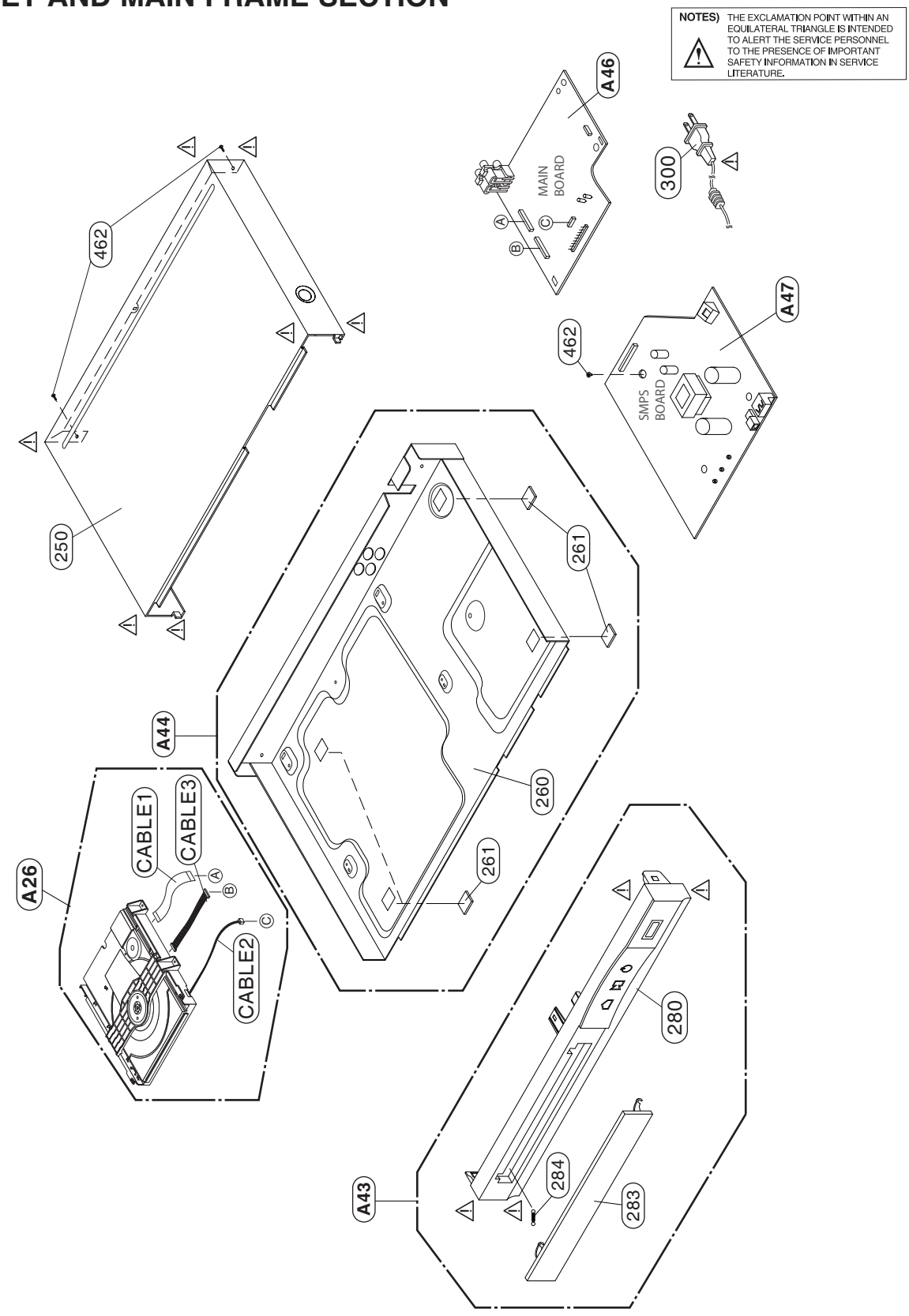
SECTION 2

CABINET & MAIN CHASSIS

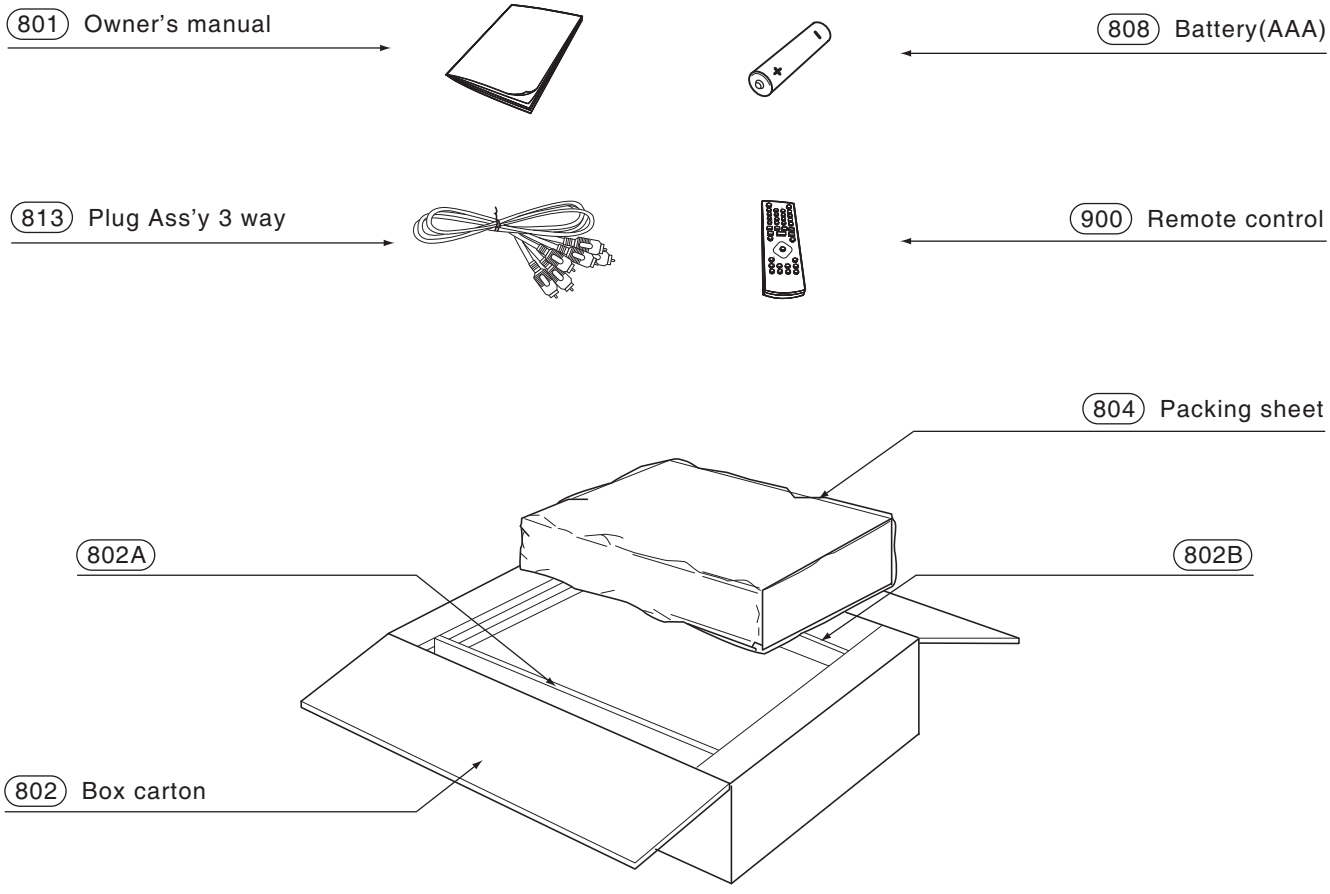
CONTENTS

EXPLODED VIEWS

1. CABINET AND MAIN FRAME SECTION



2. PACKING ACCESSORY SECTION



MEMO

SECTION 3

ELECTRICAL

CONTENTS

ONE POINT REPAIR GUIDE

1. NO BOOTING WHEN YOU TURN THE UNIT ON

When you plug power cord and turn the unit on, LED light won't turn red, the unit won't read disc nornally.

1-1. Please check every output voltage.

1) Please check if output voltage 3.3 V from main board Q4 C polarity is normal.

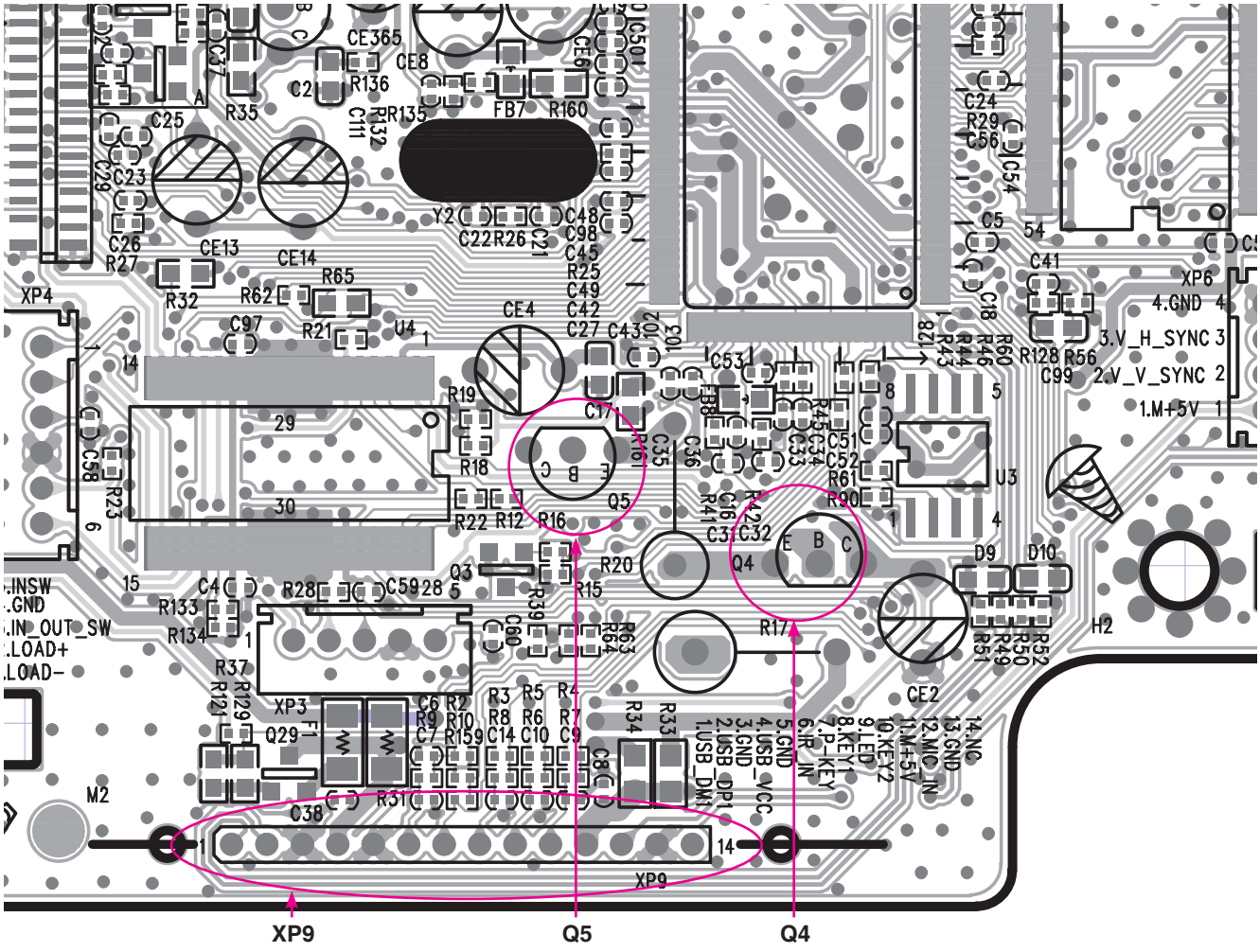
⇨ If output voltage 3.3 V is not normal, please check the working status of SMPS board.

2) Please check if output voltage 5 V from main board XP9 pin11 is normal.

⇨ If output voltage 5 V is not normal, please check the working status of SMPS board.

3) Please check if output voltage 1.2 V from main board Q5 C polarity is normal.

⇨ If output voltage 1.2 V is not normal, please check the working status of main board Q5.



< Main Board Top View >

ONE POINT REPAIR GUIDE

When you plug power cord and turn the unit on, LED light won't turn red, the unit won't read disc nornally.

1-2. Please check main board IC U1 singal and its peripheral circuit.

1) Please check if output voltage 3.3 V from U1 pin4, pin32, pin78, pin83 is normal.

⇨If output voltage 3.3 V is not normal, please check 3.3 V power circuit of main board.

2) Please check if output voltage 1.2 V from U1 pin10, pin77, pin86 is normal.

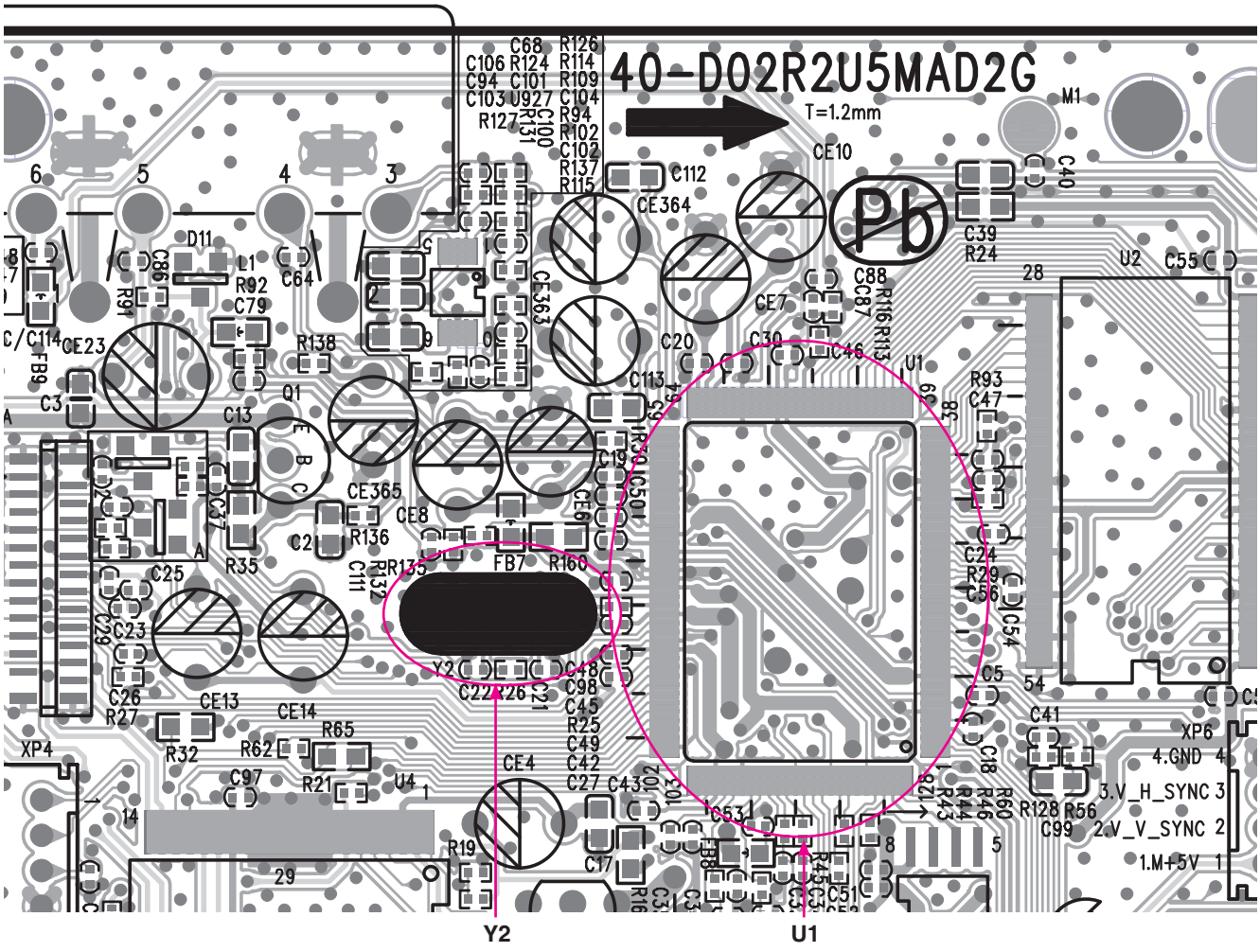
⇨If output voltage 1.2 V is not normal, please check 1.2 V power circuit of main board.

3) Please check if oscillating frequency 27 MHz of main board Y2 crystal is normal.

⇨If oscillating frequency 27 MHz is not normal, please check if Y2 and its peripheral circuit is in failure.

4) Please check if frequency 135 MHz of U1 pin31 RAM_CLK is normal.

⇨If oscillating frequency 135 MHz is not normal, please check if U1 is in failure.



< Main Board Top View >

ONE POINT REPAIR GUIDE

When you plug power cord and turn the unit on, LED light won't turn red, the unit won't read disc nornally.

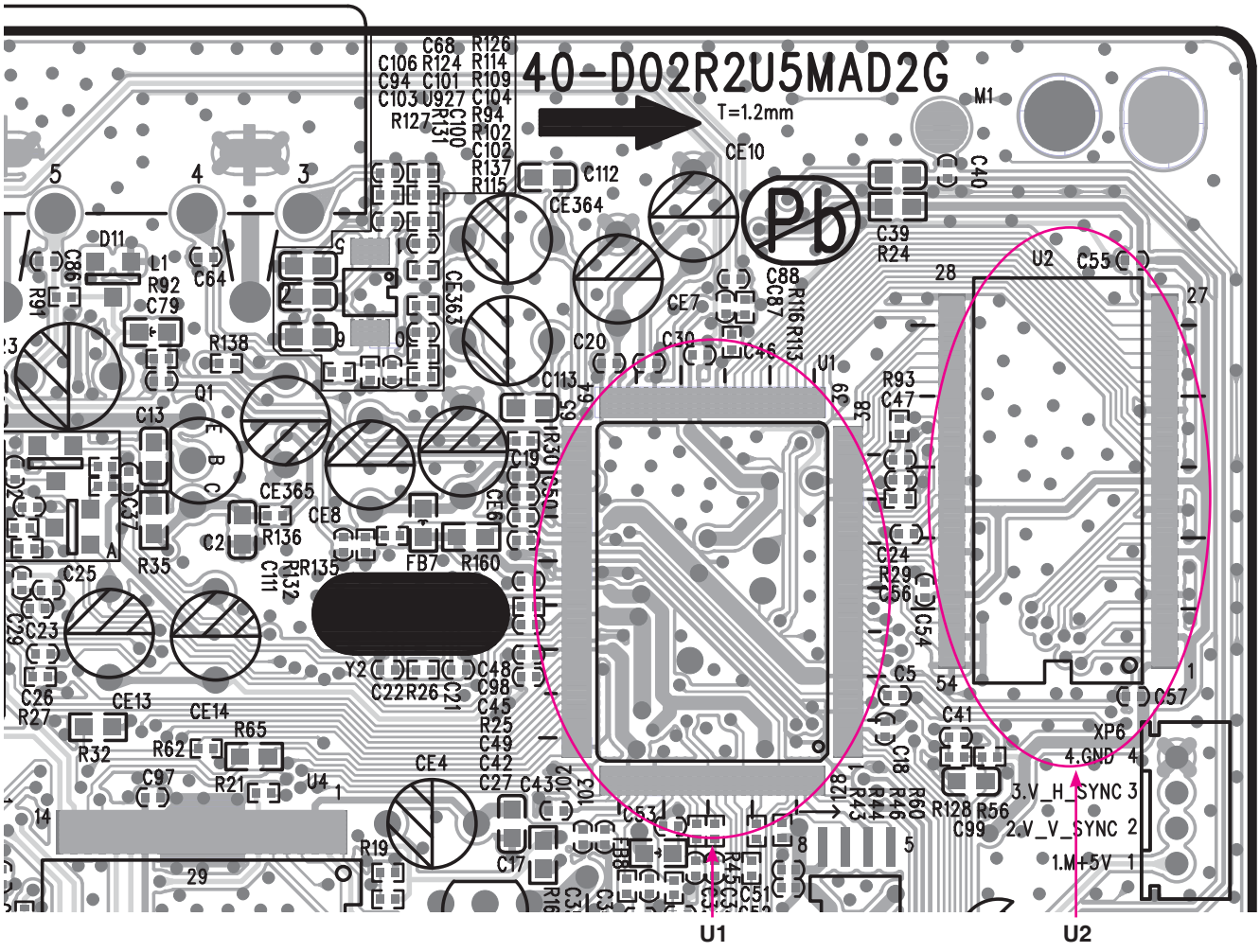
1-3. Please check main board IC U2 singal and its peripheral circuit.

1) Please check if output voltage 3.3 V from IC U2 pin1, 3, 9, 14, 27, 43, 49 is normal.

⇨If output voltage 3.3 V is not normal, please check 3.3 V power circuit of main board.

2) Please check every singal connected between IC U2 and IC U1, especially including DATA and ADDRESS signal.

⇨If DATA and ADDRESS signal is not normally output, please check if U2 is in failure.



< Main Board Top View >

ONE POINT REPAIR GUIDE

When you plug power cord and turn the unit on, LED light won't turn red, the unit won't read disc nornally.

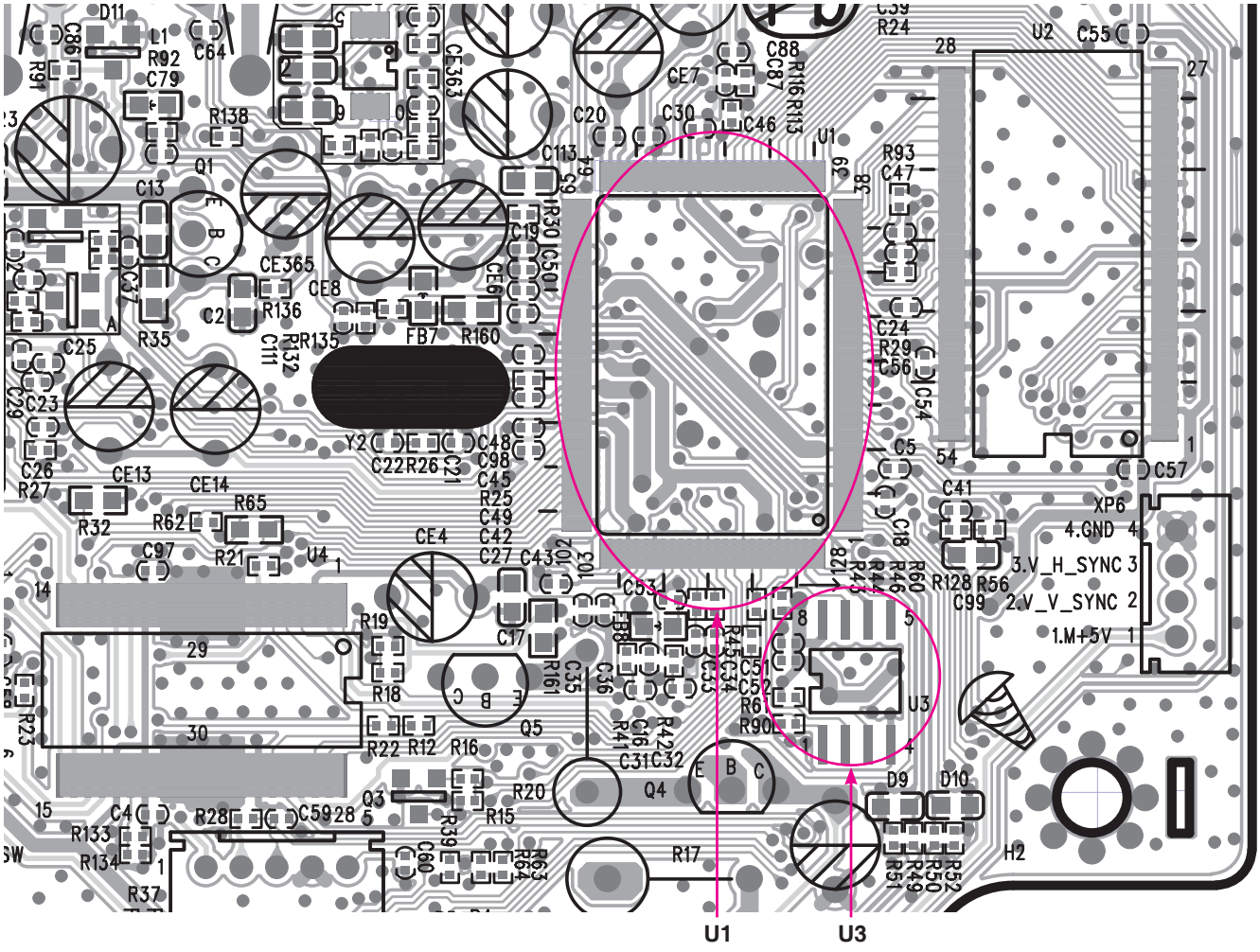
1-4. Please check main board IC U3 singal and its peripheral circuit.

1) Please check if output voltage 3.3 V from IC U3 pin8 is normal.

⇨If output voltage 3.3 V is not normal, please check 3.3 V power circuit of main board.

2) Please check every singal connected between IC U3 and IC U1, especially including CE,DATA and CLK signal.

⇨If CE, DATA and CLK signal is not normally output, please check if U3 is in failure.



< Main Board Top View >

ONE POINT REPAIR GUIDE

When you plug power cord and turn the unit on, LED light won't turn red, the unit won't read disc nornally.

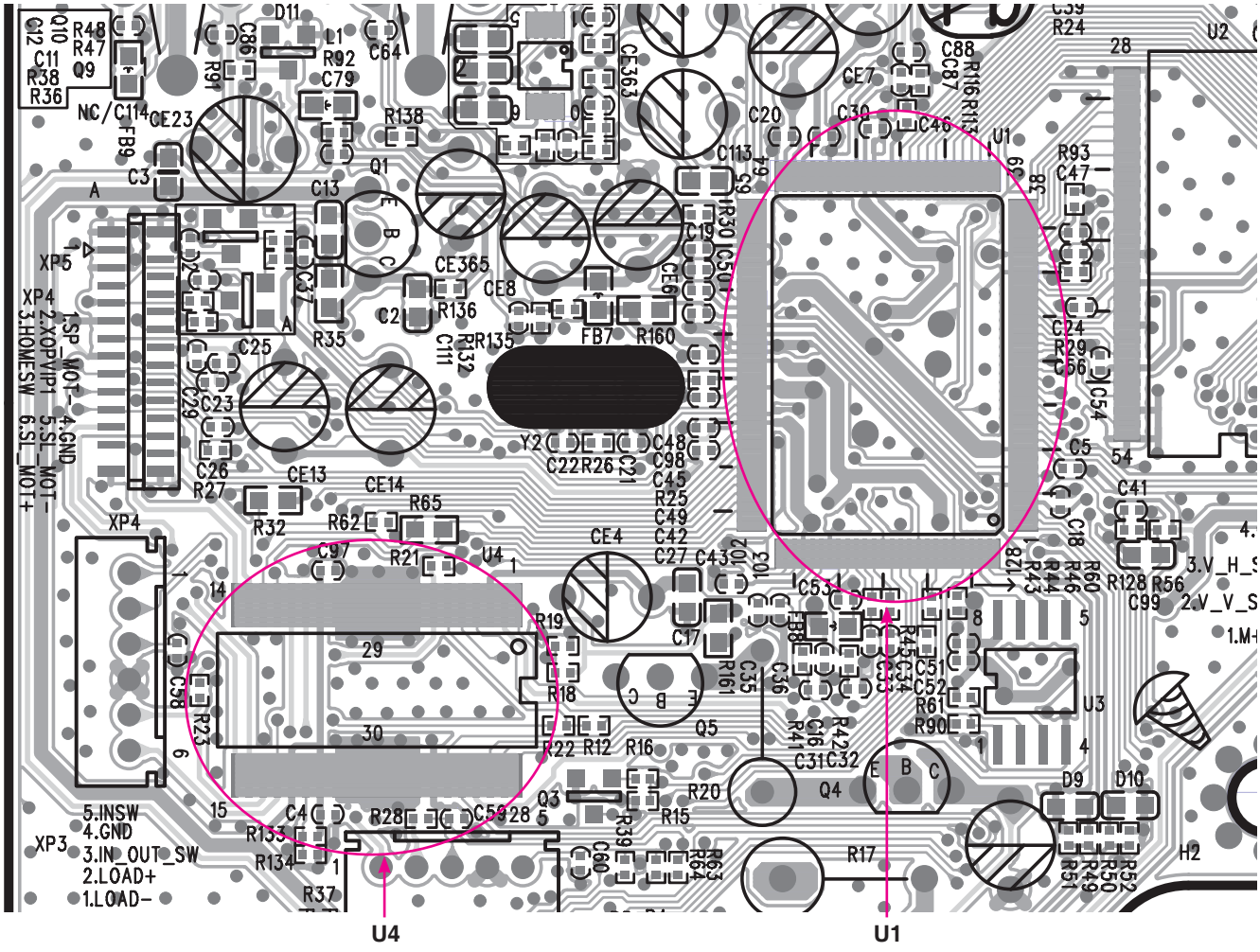
1-5. Please check main board IC U4 singal and its peripheral circuit.

1) Please check if output voltage 5 V from U4 pin8, pin19 is normal.

⇨If output voltage 5 V is not normal, please check 5 V power circuit of main board.

2) Please check every singal connected between IC U4 and IC U1, especially including F+, F-, T+, T-, SP+, SP-, SL+, SL- signal to drive MD.

⇨If F+, F-, T+, T-, SP+, SP-, SL+, SL- signal is not normally output, please check if U4 is in failure.



< Main Board Top View >

ONE POINT REPAIR GUIDE

2. NO VIDEO OUTPUT WHEN YOU TURN THE UNIT ON

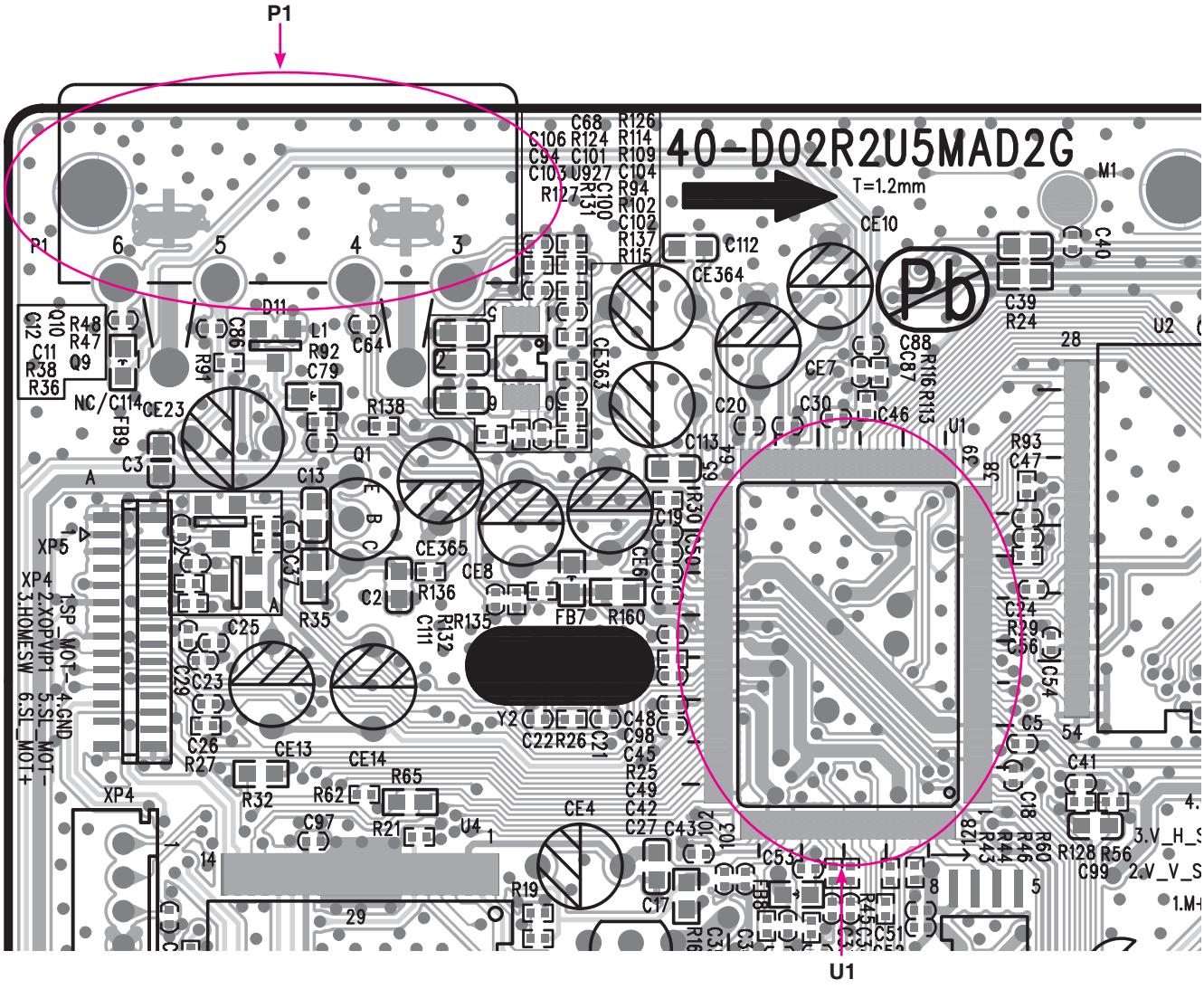
When you plug power cord and turn the unit on, LED light will turn red, the unit will read disc nornally, but it won't have video output.

2-1. Please check the solder joint status of main board connector P1.

⇨If P1 has cold solder joint, P2 pins should be oxidated, and please replace P1.

2-2. Please check CVBS signal of main board IC U1 pin69.

⇨If CVBS signal is not normally output, please check if U1 is in failure.



< Main Board Top View >

ONE POINT REPAIR GUIDE

3. NO AUDIO OUTPUT WHEN YOU TURN THE UNIT ON

When you plug power cord and turn the unit on, LED light will turn red, the unit will read disc nornally, but it won't have audio output.

3-1. Please check the solder joint status of main board connector P1.

⇨If P1 has cold solder joint, P1 pins should be oxidated, and please replace P1.

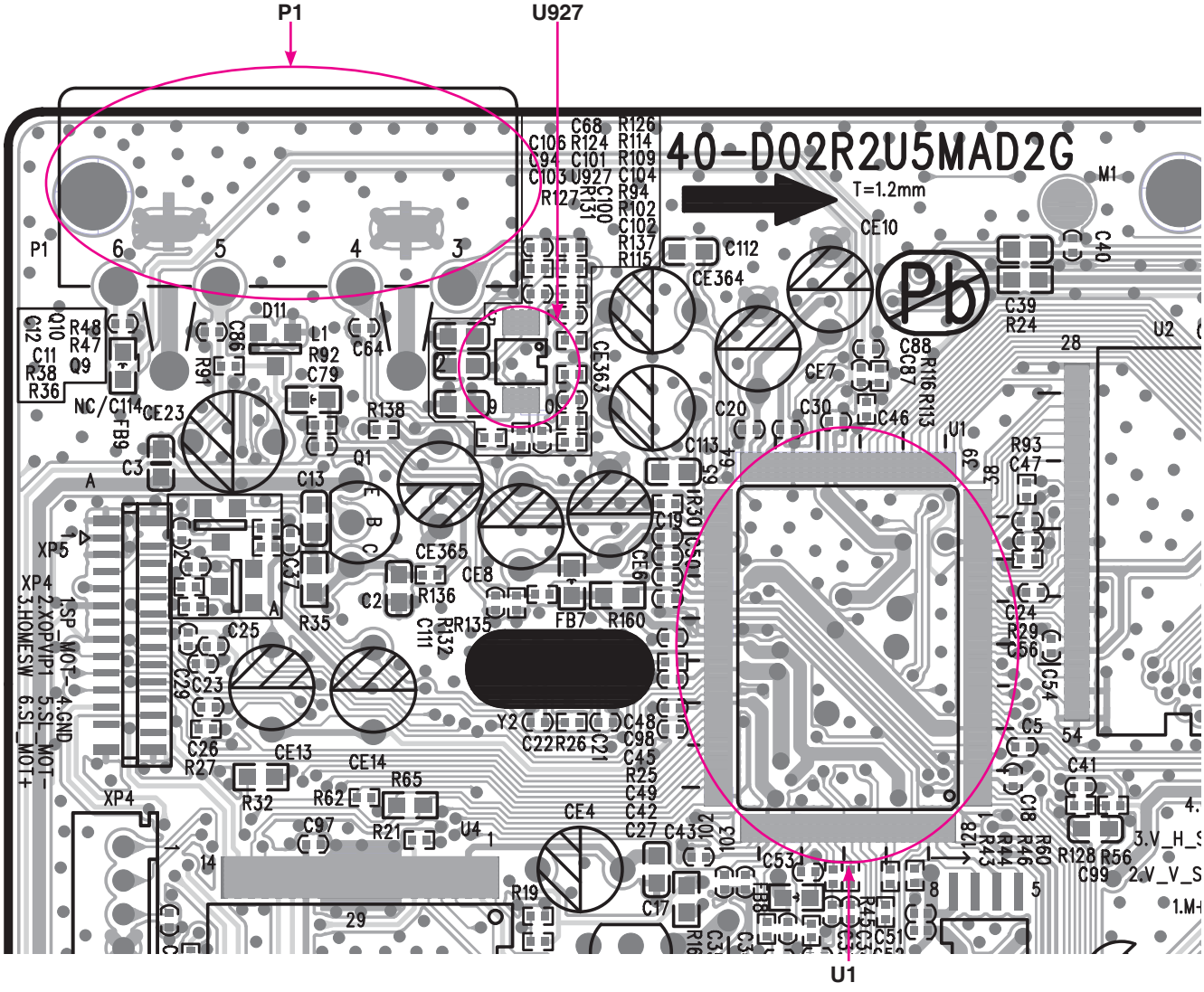
3-2. Please check the working status of main board IC U927.

⇨If output voltage 5 V from U927 pin7 is not normal, please check 5 V power circuit of main board.

⇨If AL and AR signal from U927 pin1, pin2, pin9, pin10 is not normally output, please check if U927 is in failure.

3-3. Please check the working status of main board IC U1.

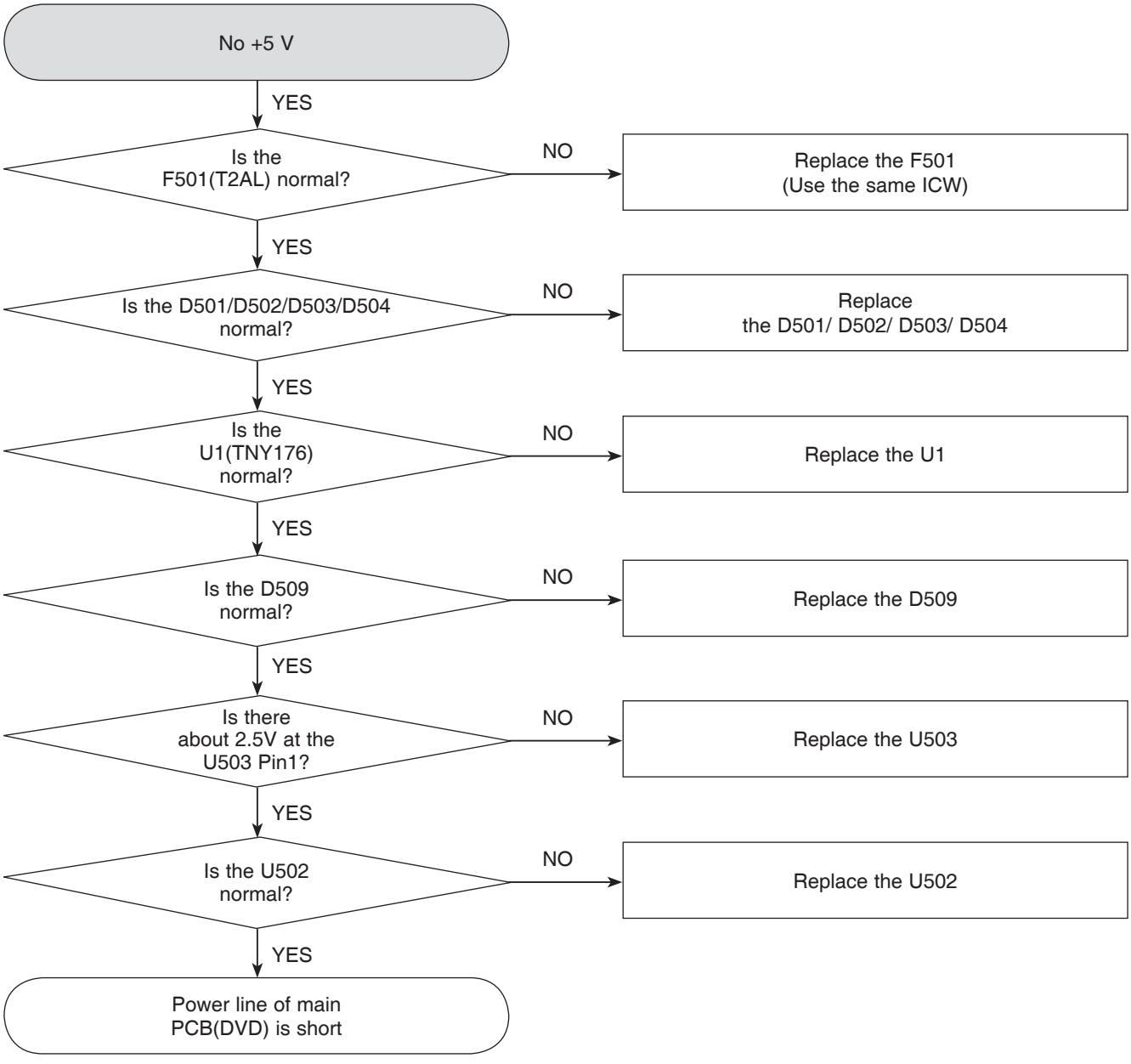
⇨If AL and AR signal from U1 pin65, pin66 is not normally output, please check if U1 is in failure.



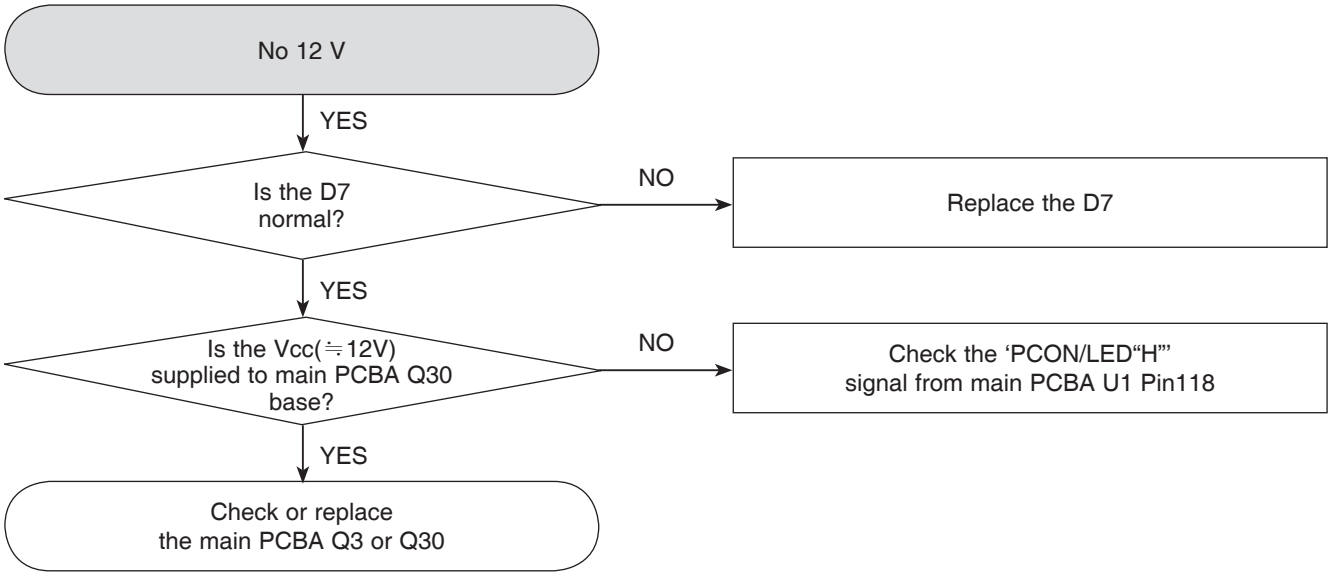
< Main Board Top View >

ELECTRICAL TROUBLESHOOTING GUIDE

1. SMPS TROUBLESHOOTING FLOW

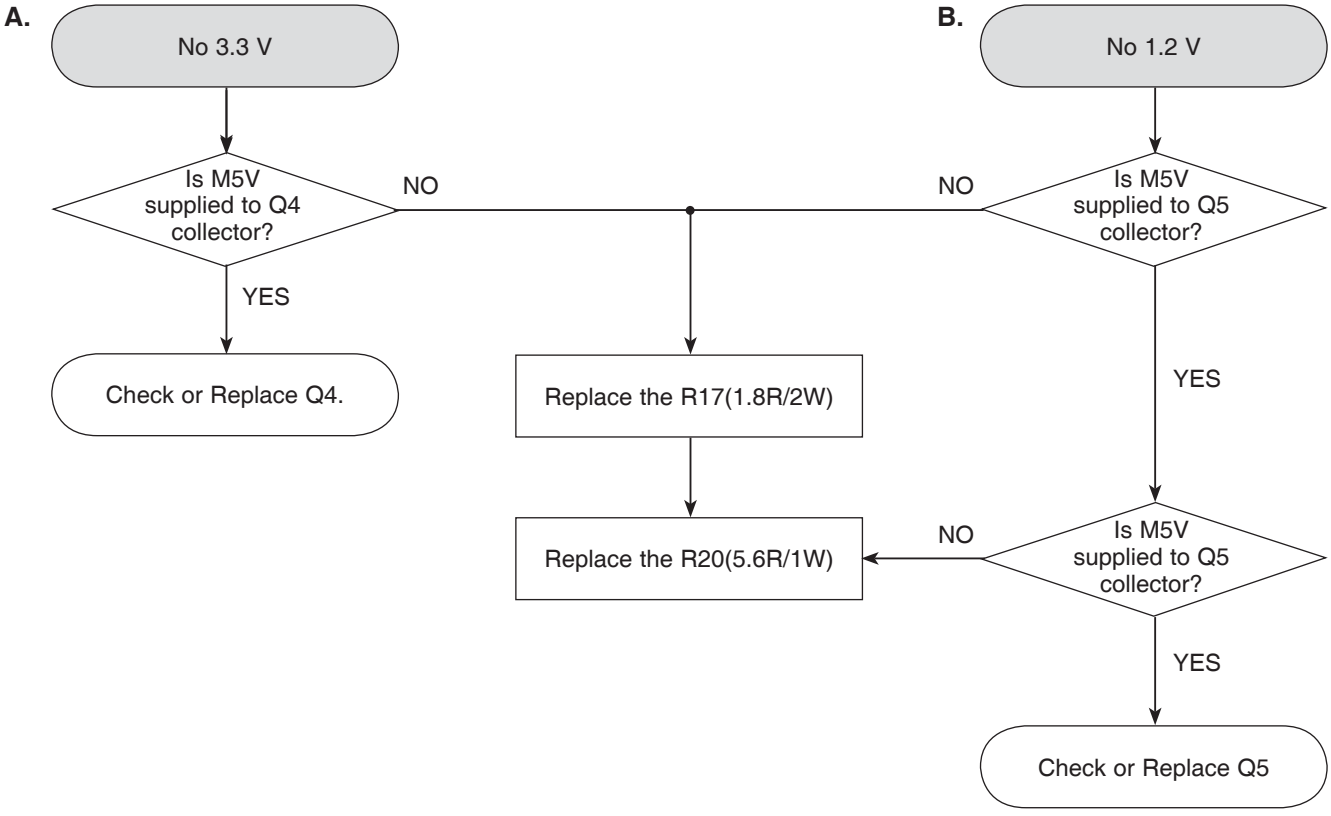


ELECTRICAL TROUBLESHOOTING GUIDE



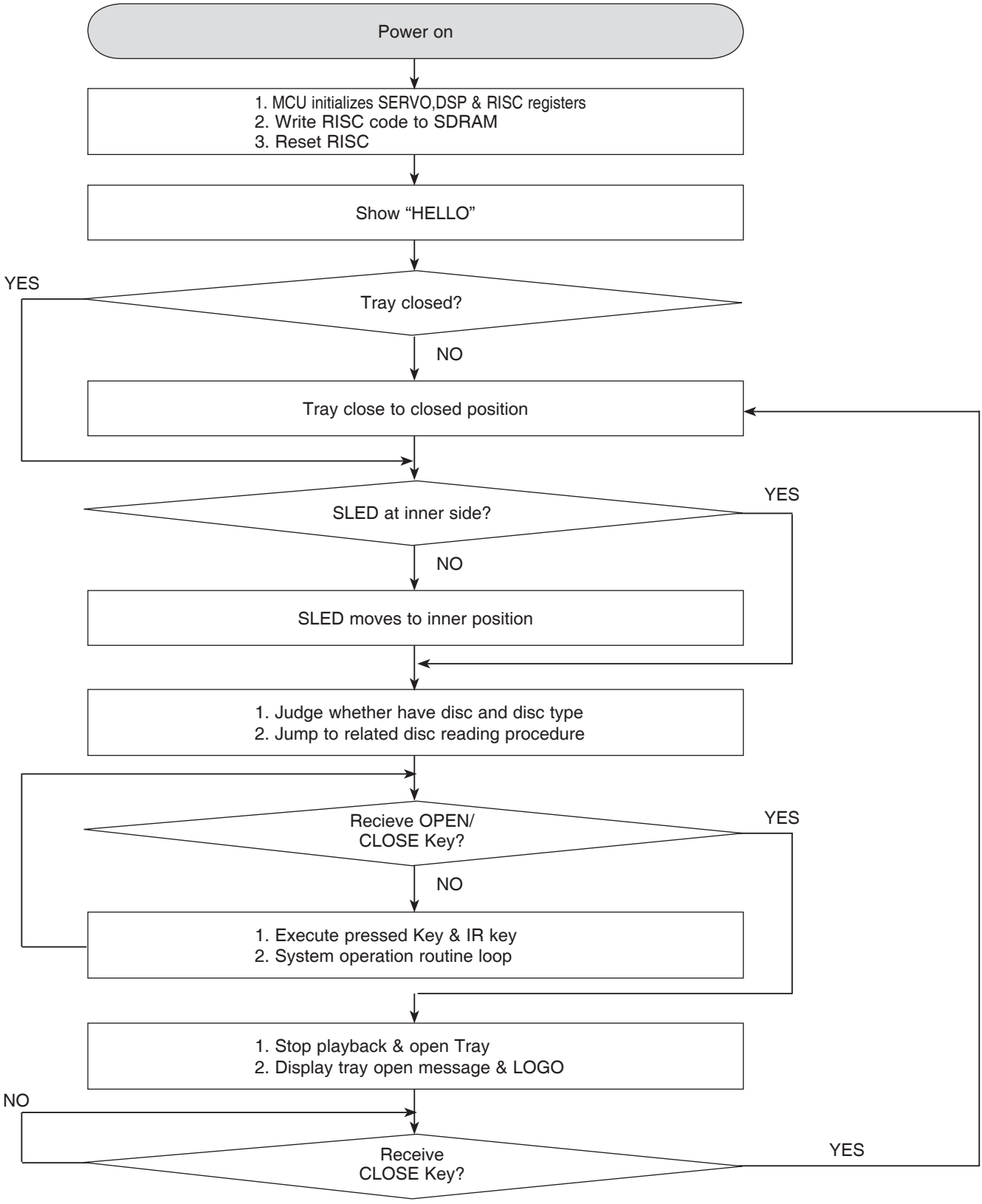
ELECTRICAL TROUBLESHOOTING GUIDE

2. POWER CHECK FLOW



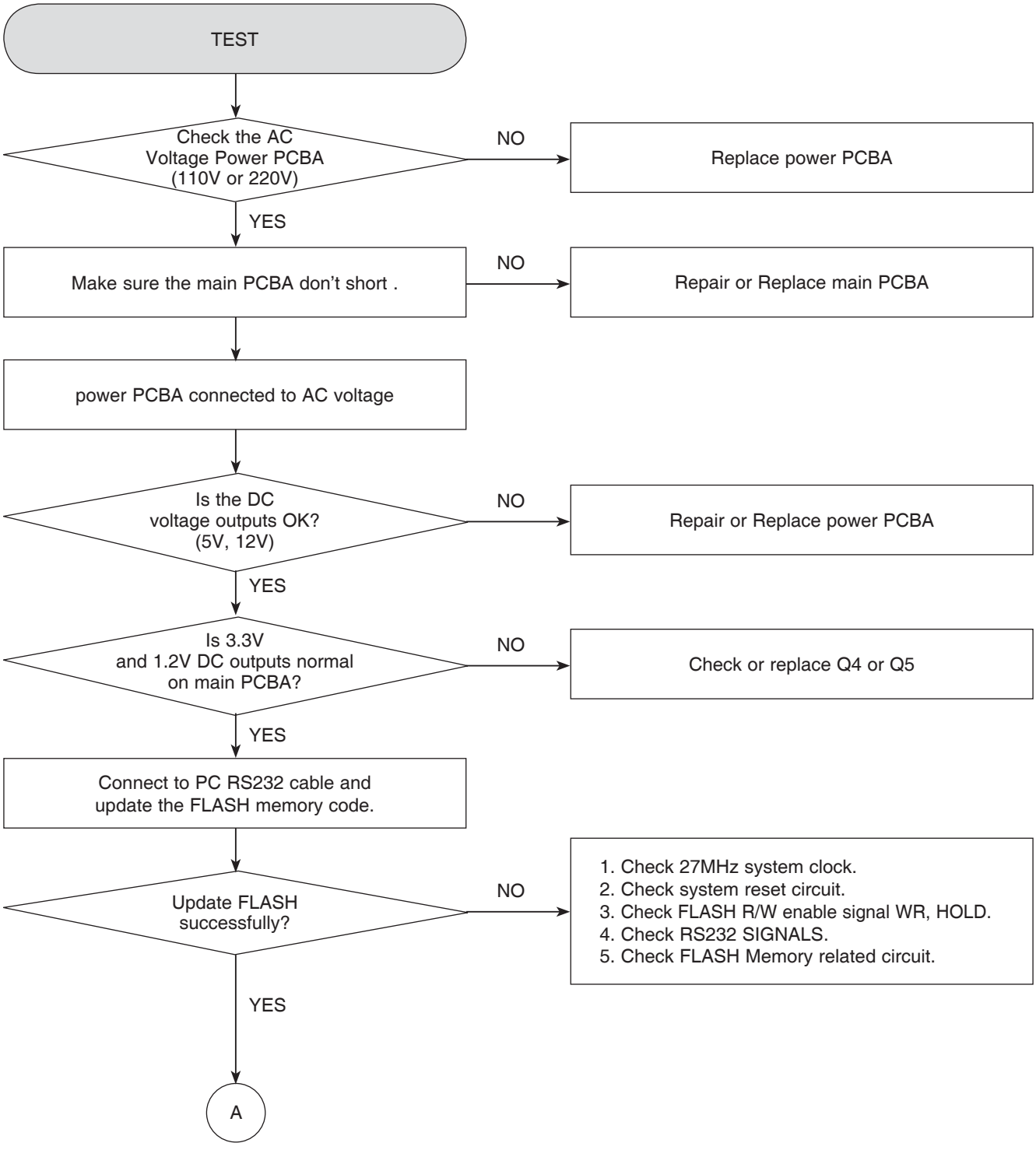
ELECTRICAL TROUBLESHOOTING GUIDE

3. SYSTEM OPERATION FLOW

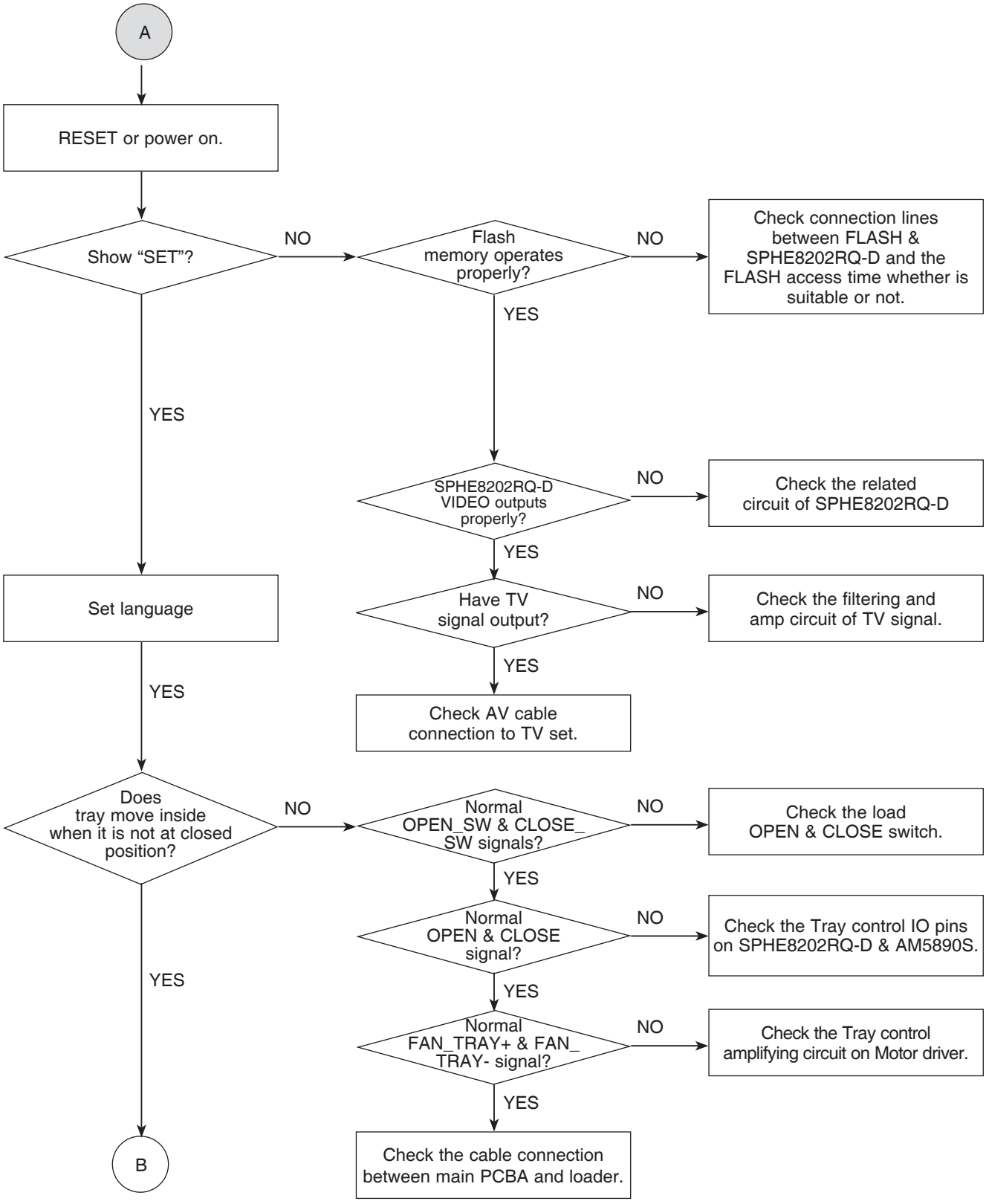


ELECTRICAL TROUBLESHOOTING GUIDE

4. SYSTEM TEST FLOW



ELECTRICAL TROUBLESHOOTING GUIDE



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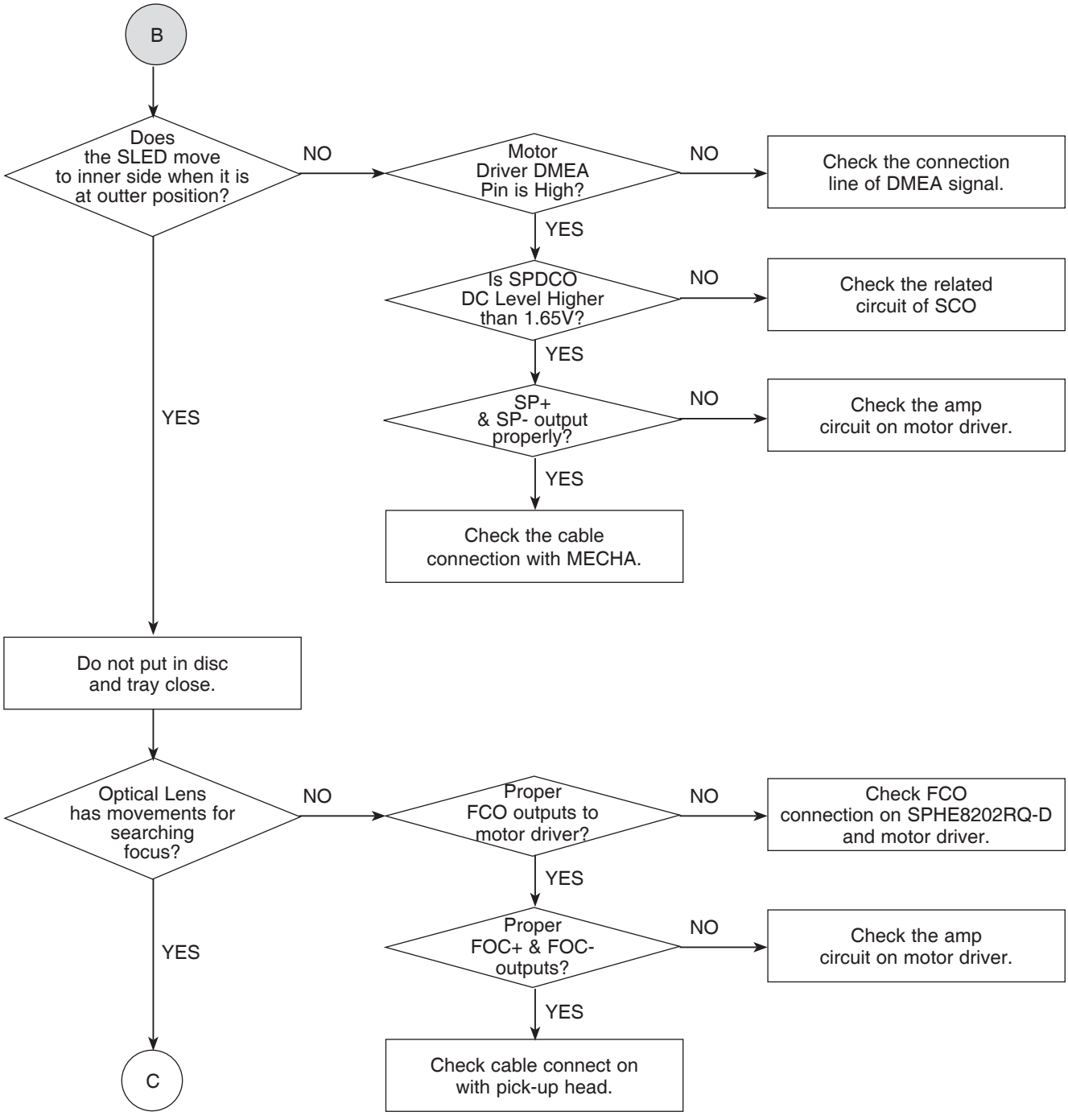

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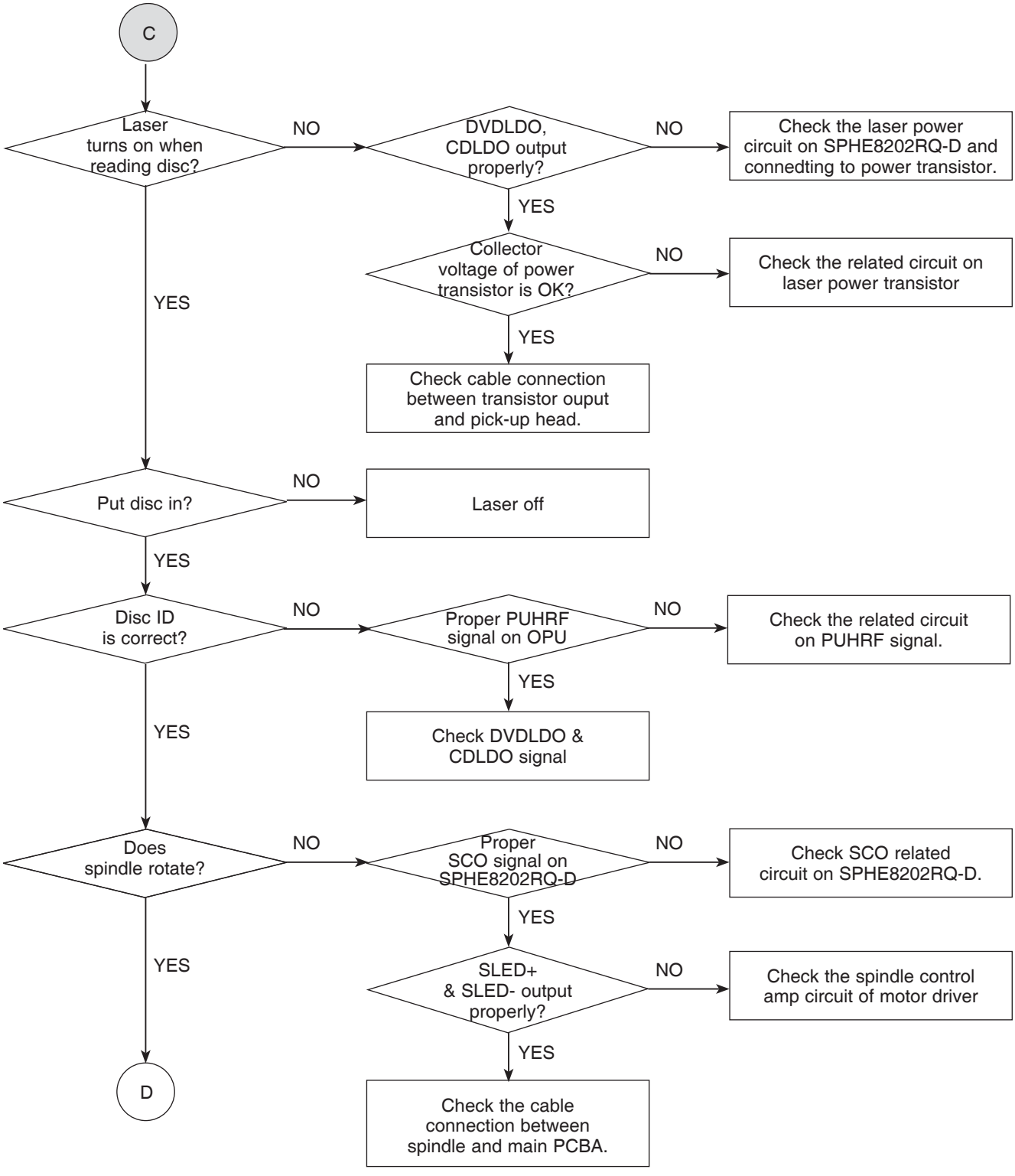

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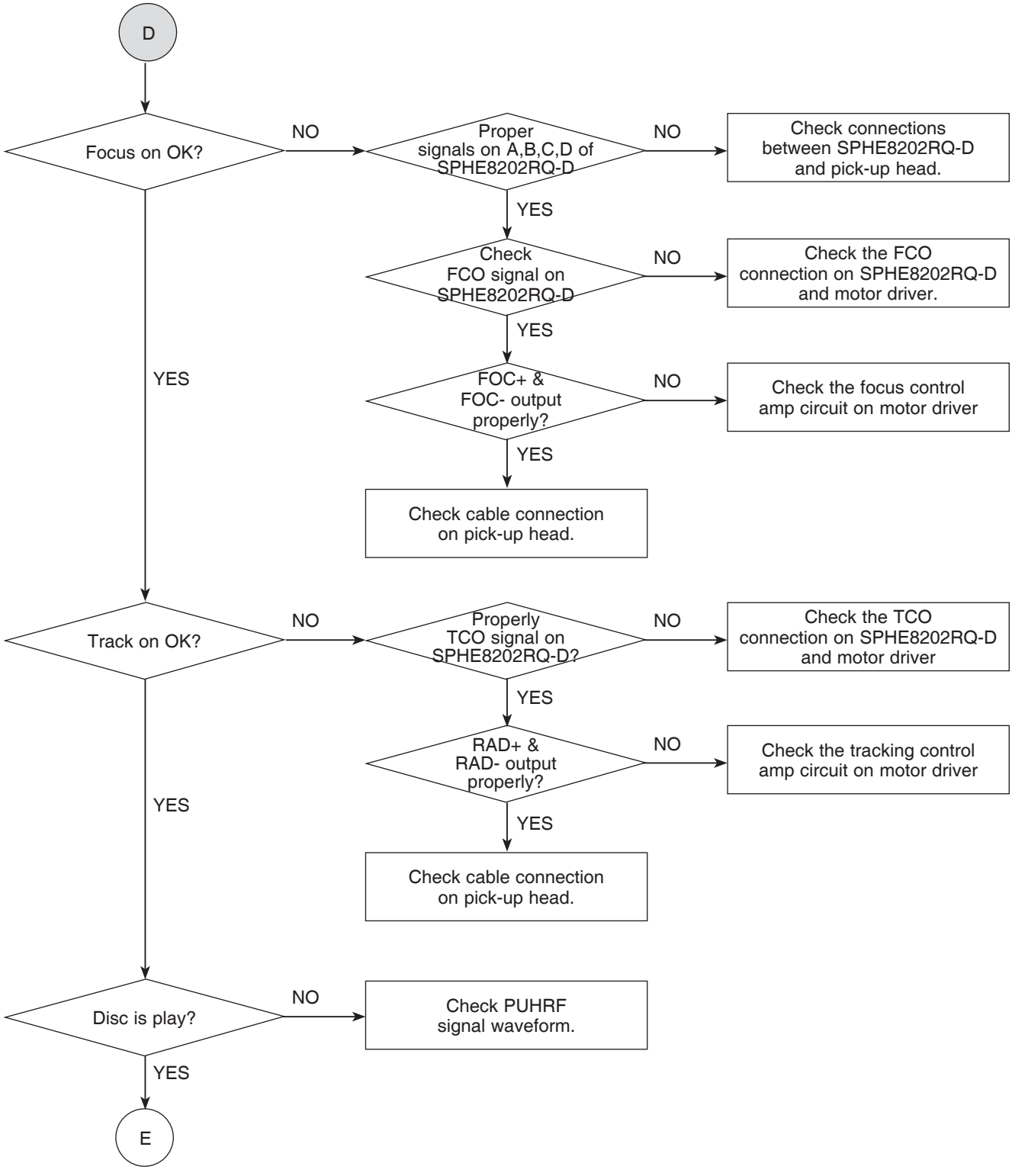
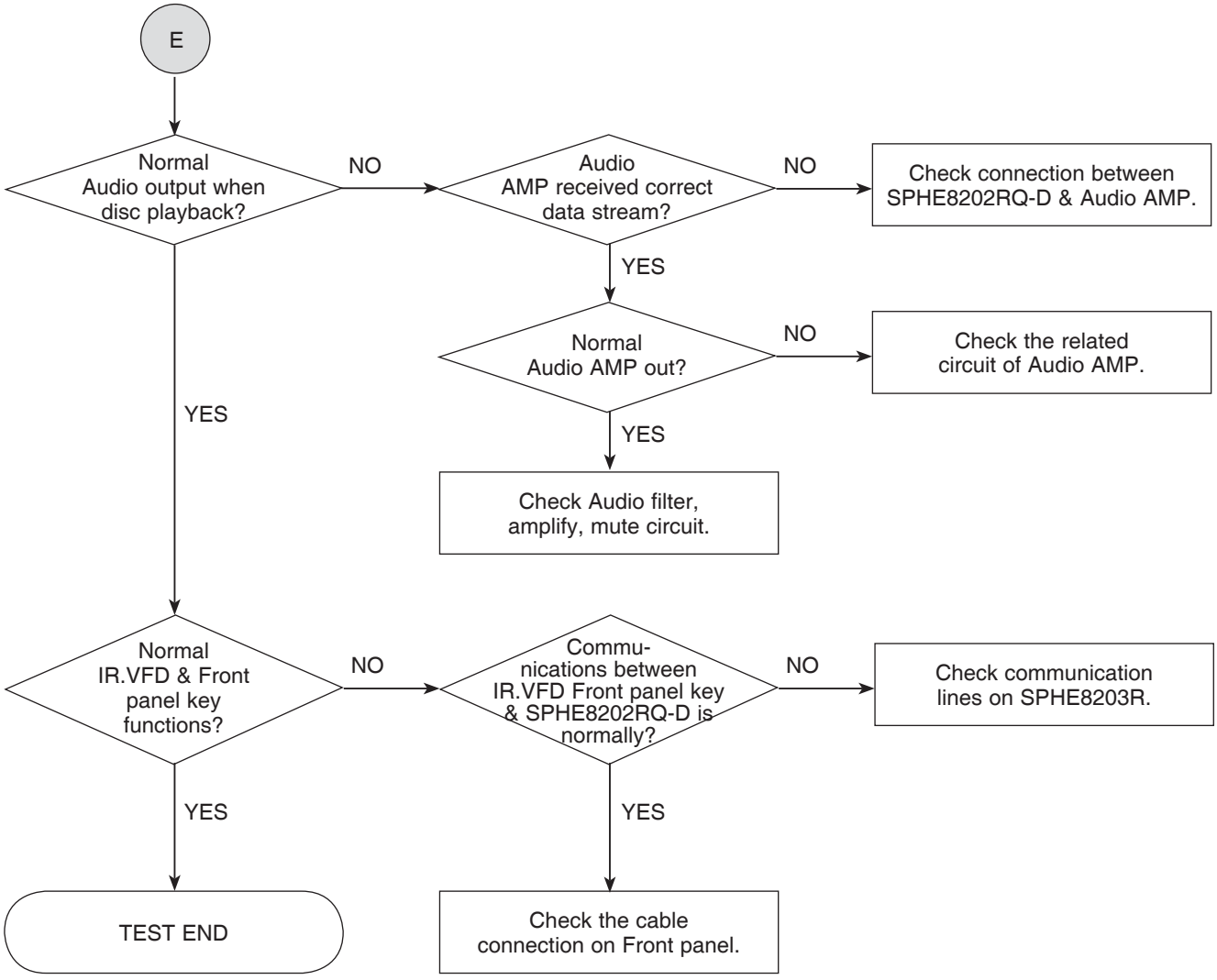


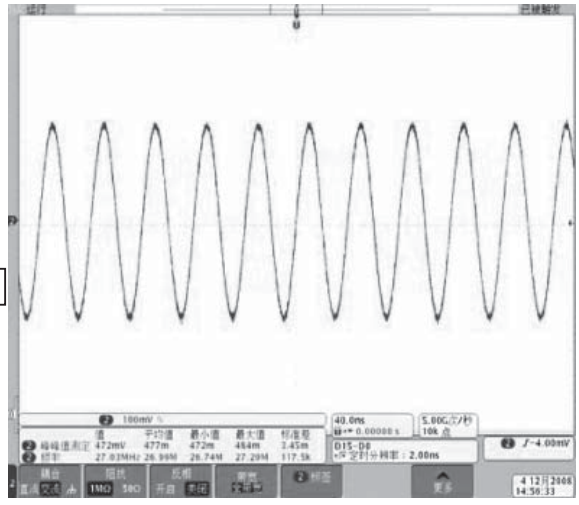
ELECTRICAL TROUBLESHOOTING GUIDE



DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING

1. SYSTEM 27MHz CLOCK, RESET, FLASH R/W SIGNAL

1) SPHE8202RQ-D main clock is at 27MHz (Y2)



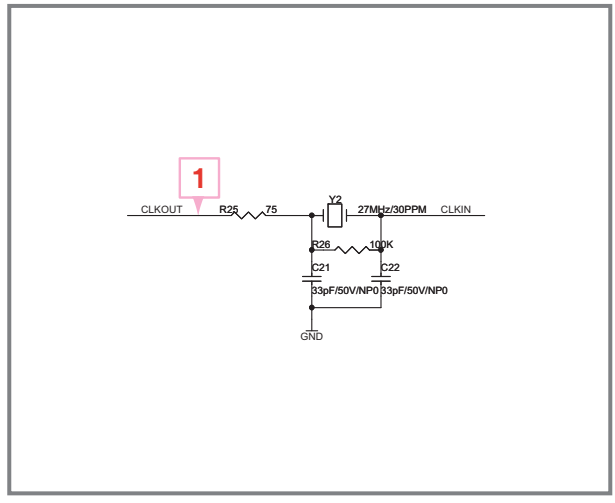
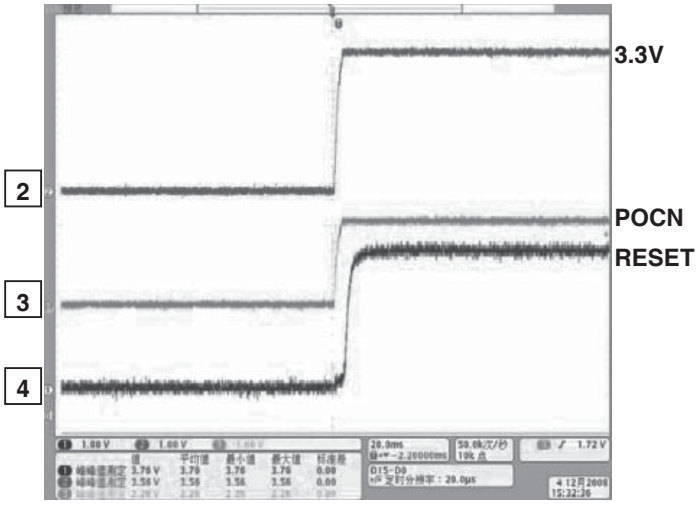


FIG 1-1

2) SPHE8202RQ-D reset is active high.



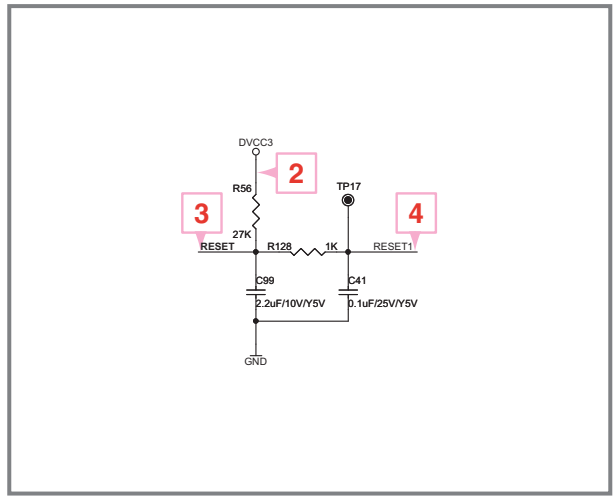
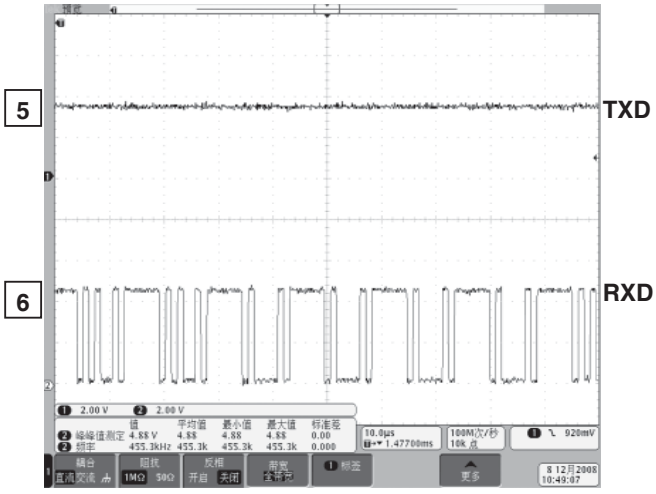


FIG 1-2

3) RS232 waveforn during procedure (Downloading)



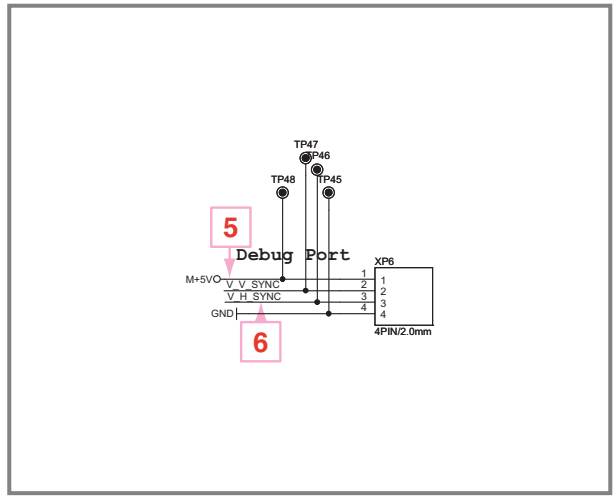
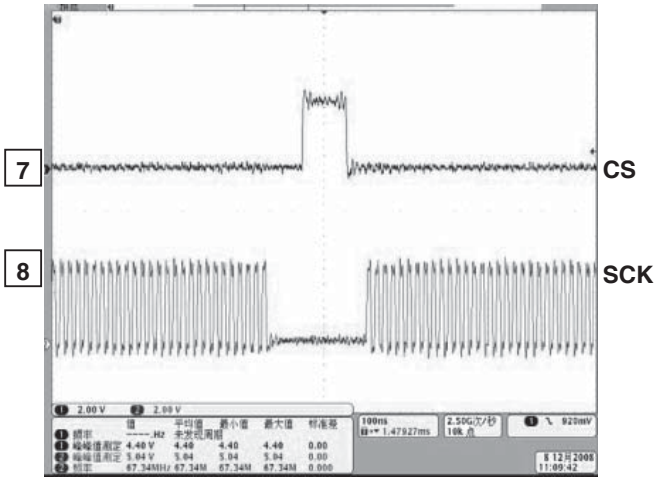


FIG 1-3

4) Flash CE# enable signal and SCK signal during Downloading



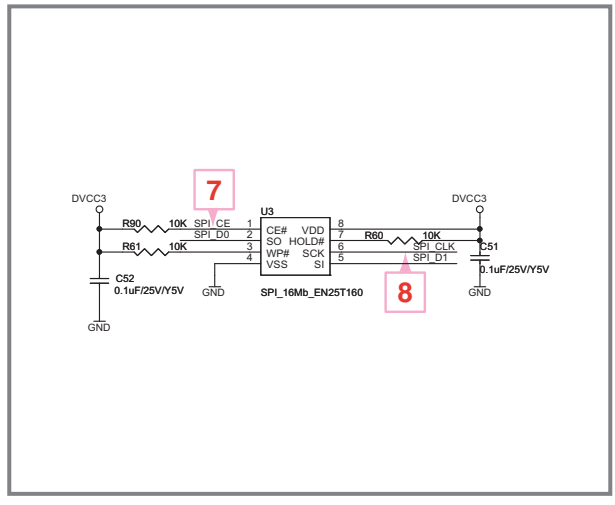
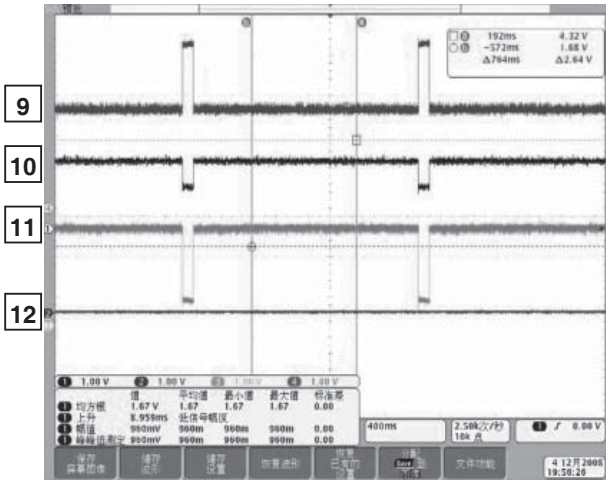


FIG 1-4

2. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)



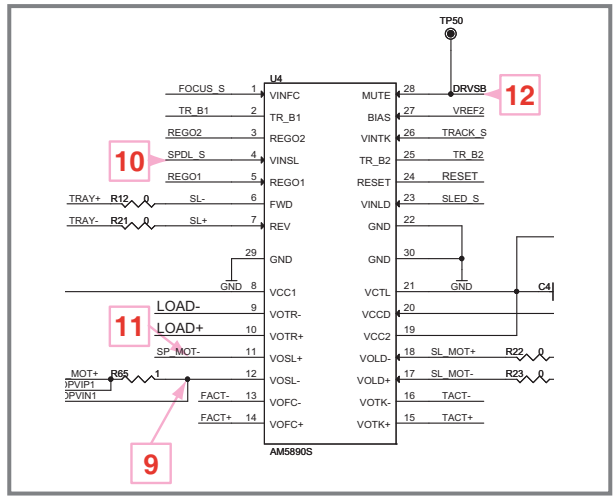
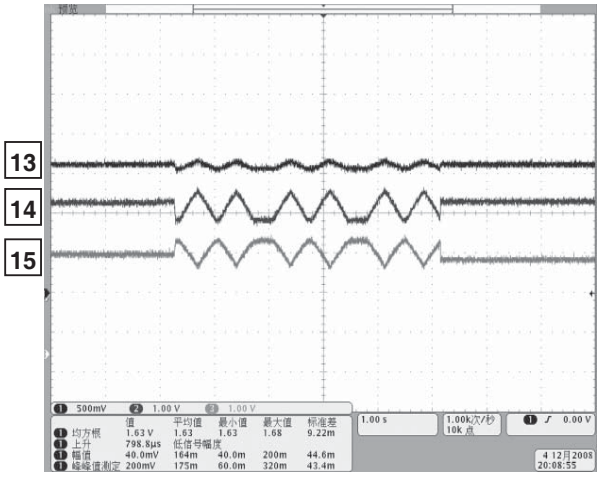


FIG 2-1

3. LENS CONTROL RELATED SIGNAL (NO DISC CONDITION)



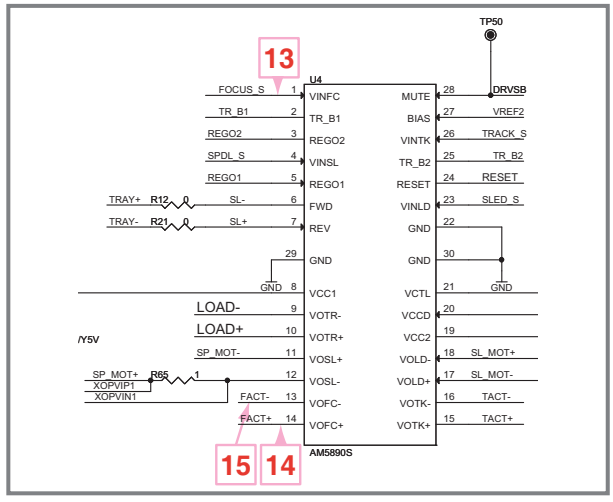


FIG 3-1

4. LASER POWER CONTROL RELATED SIGNAL

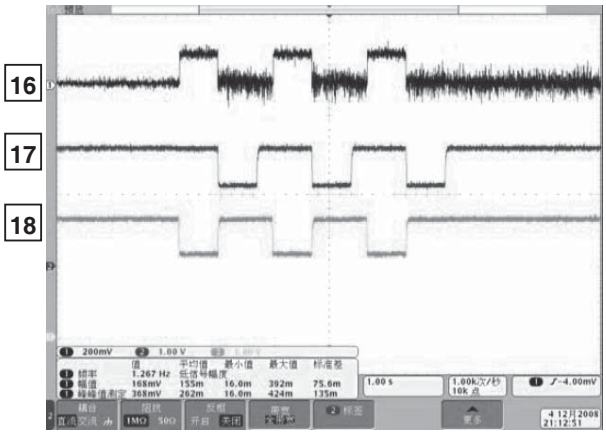


FIG 4-1 (NO DISC CONDITION)

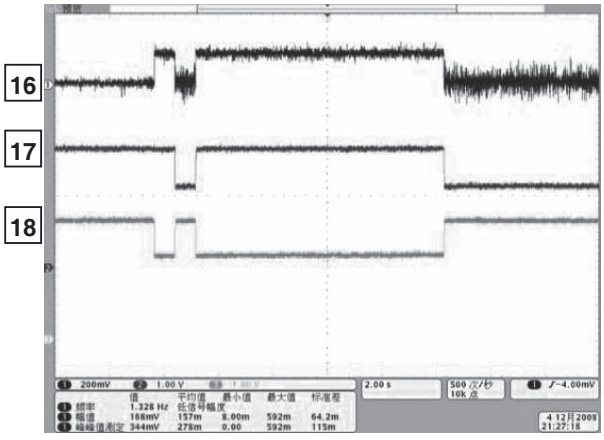


FIG 4-2 (CD)

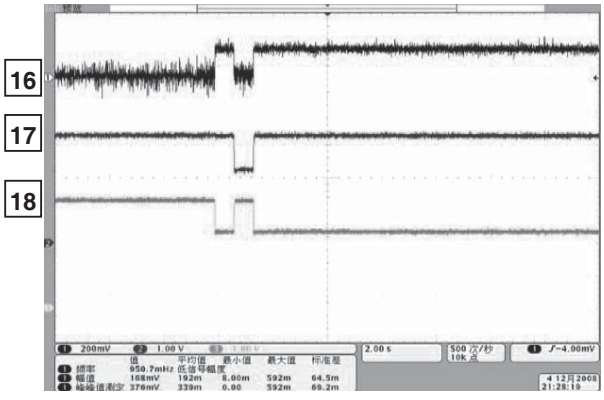
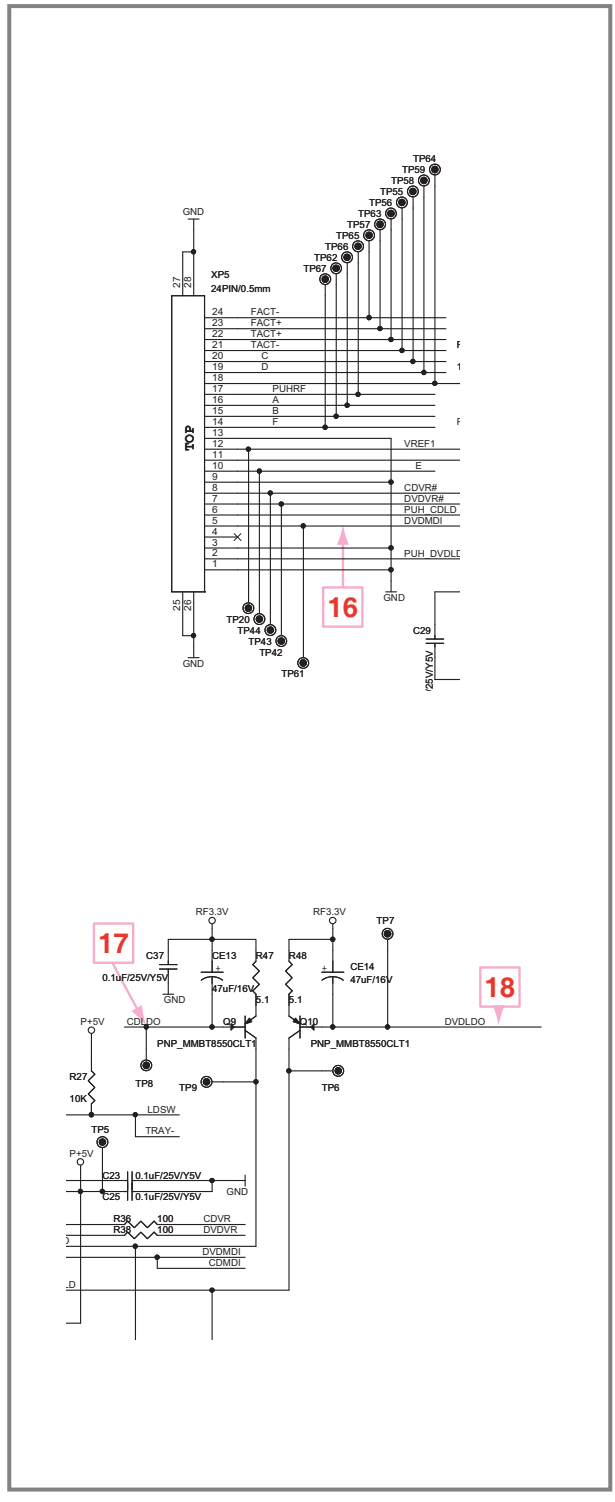
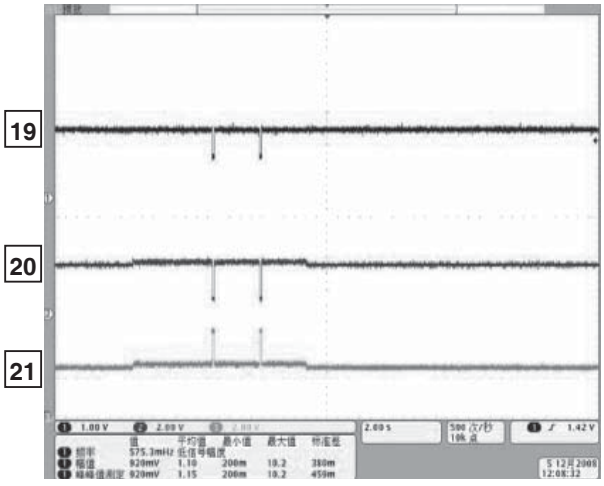


FIG 4-3 (DVD)



5. SPINDLE CONTROL WAVEFORM



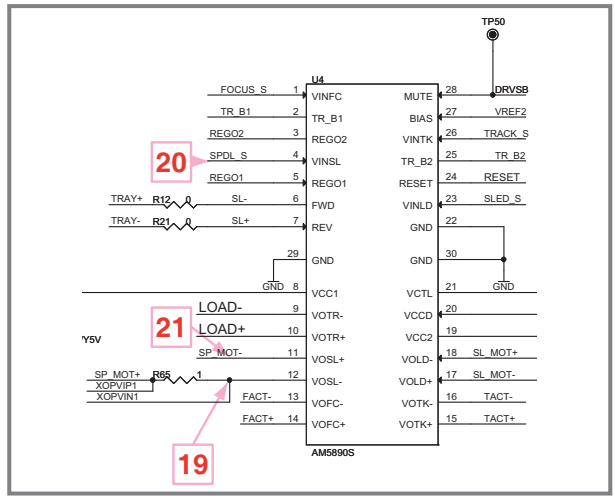


FIG 5-1

6. FOCUS ON WAVEFORM

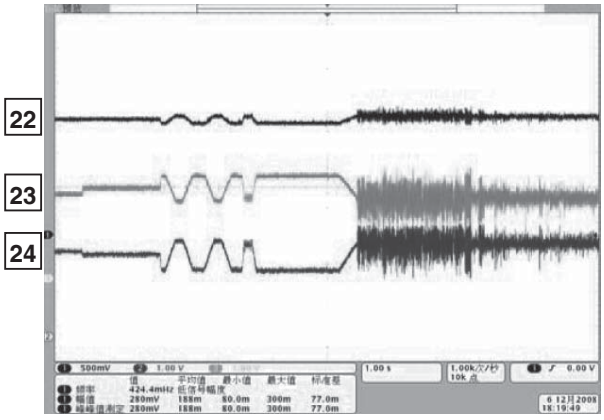


FIG 6-1 (CD)

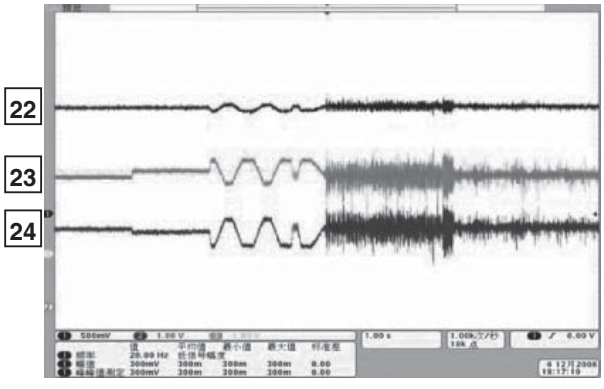
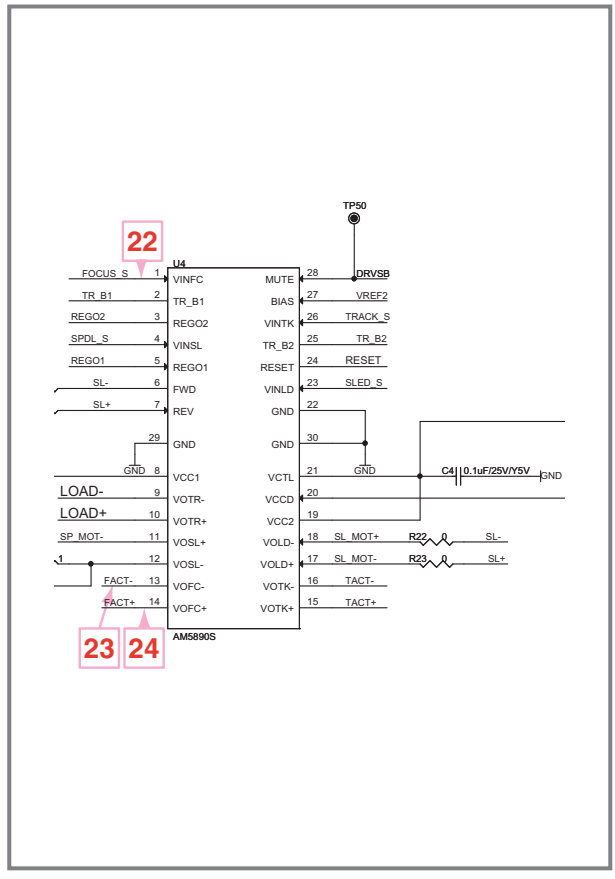


FIG 6-2 (DVD)



7. TRACKING CONTROL RELATED SIGNAL (SYSTEM CHECKING)

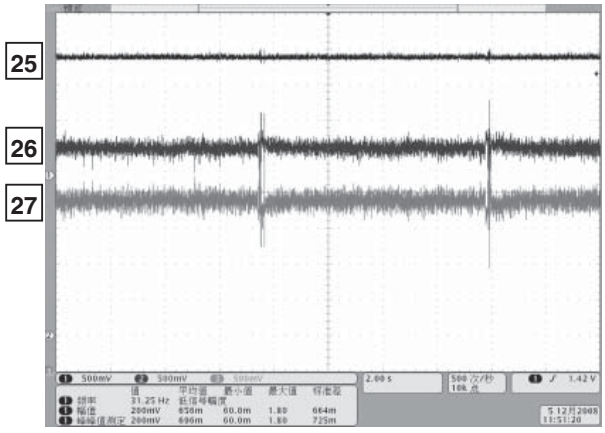


FIG 7-1 (CD)

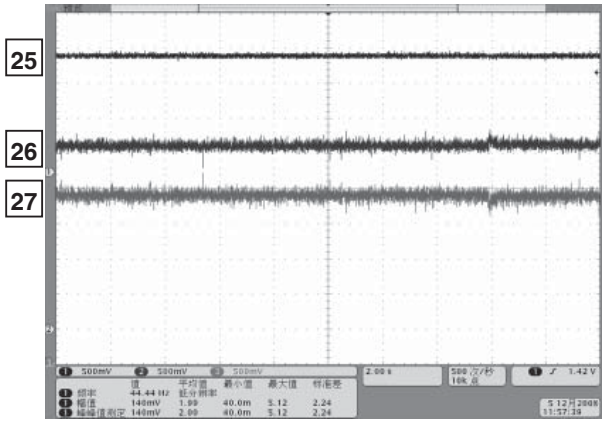
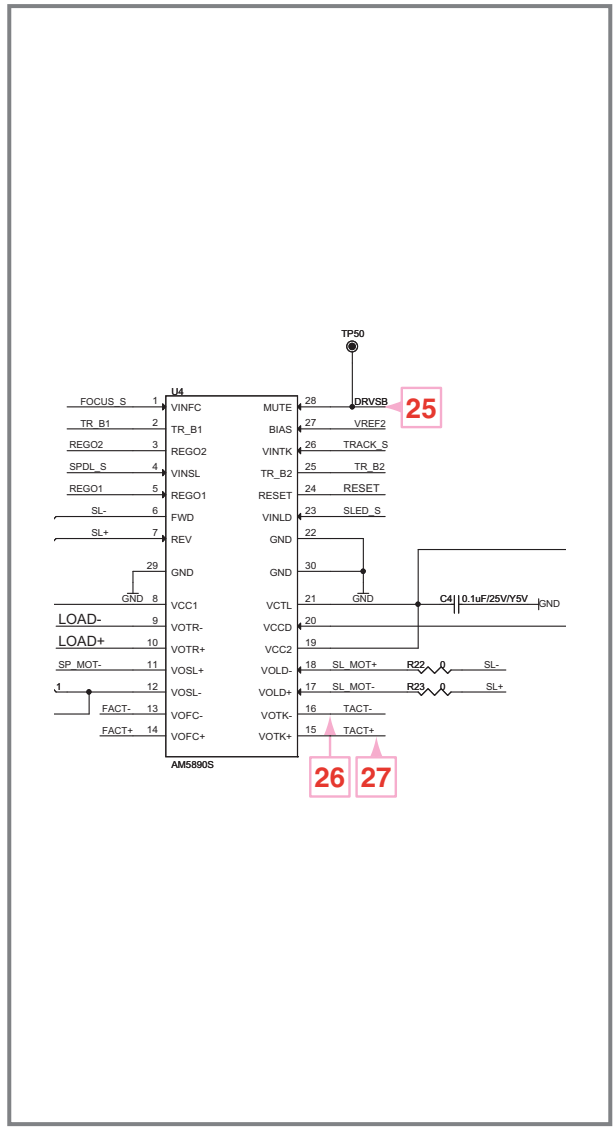
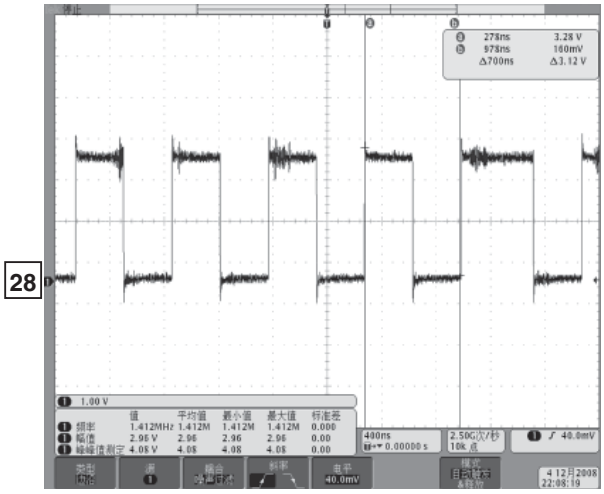


FIG 7-2 (DVD)



8. SPHE8202RQ-D AUDIO COAXIAL OUTPUT (SPDIF)



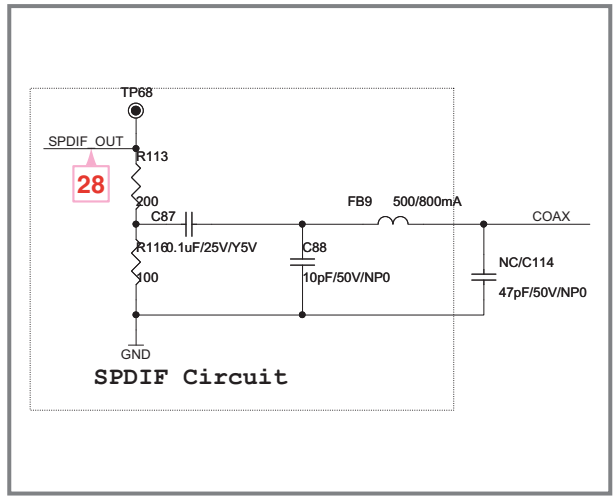


FIG 8-1

9. SPHE8202RQ-D VIDEO OUTPUT WAVEFORM

1) 100% COLOR BAR

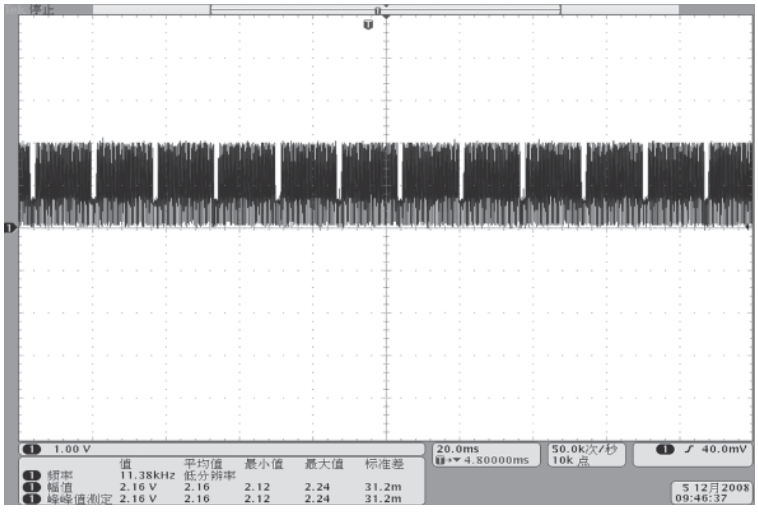


FIG 9-1

10. AUDIO OUTPUT FROM SPHE8202RQ-D/128

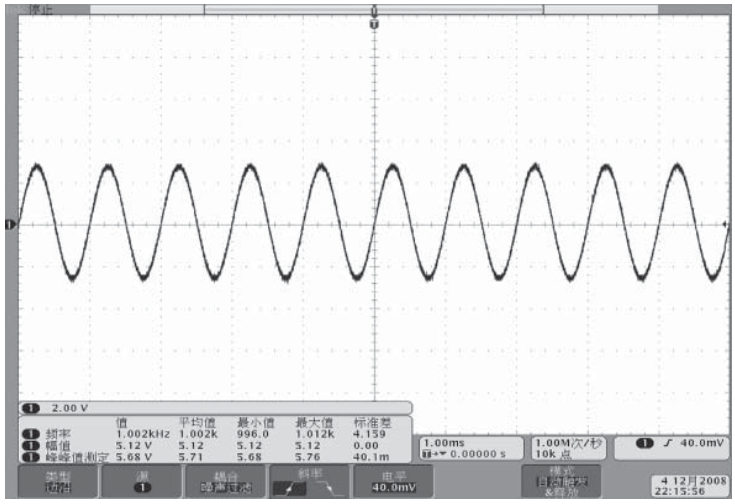
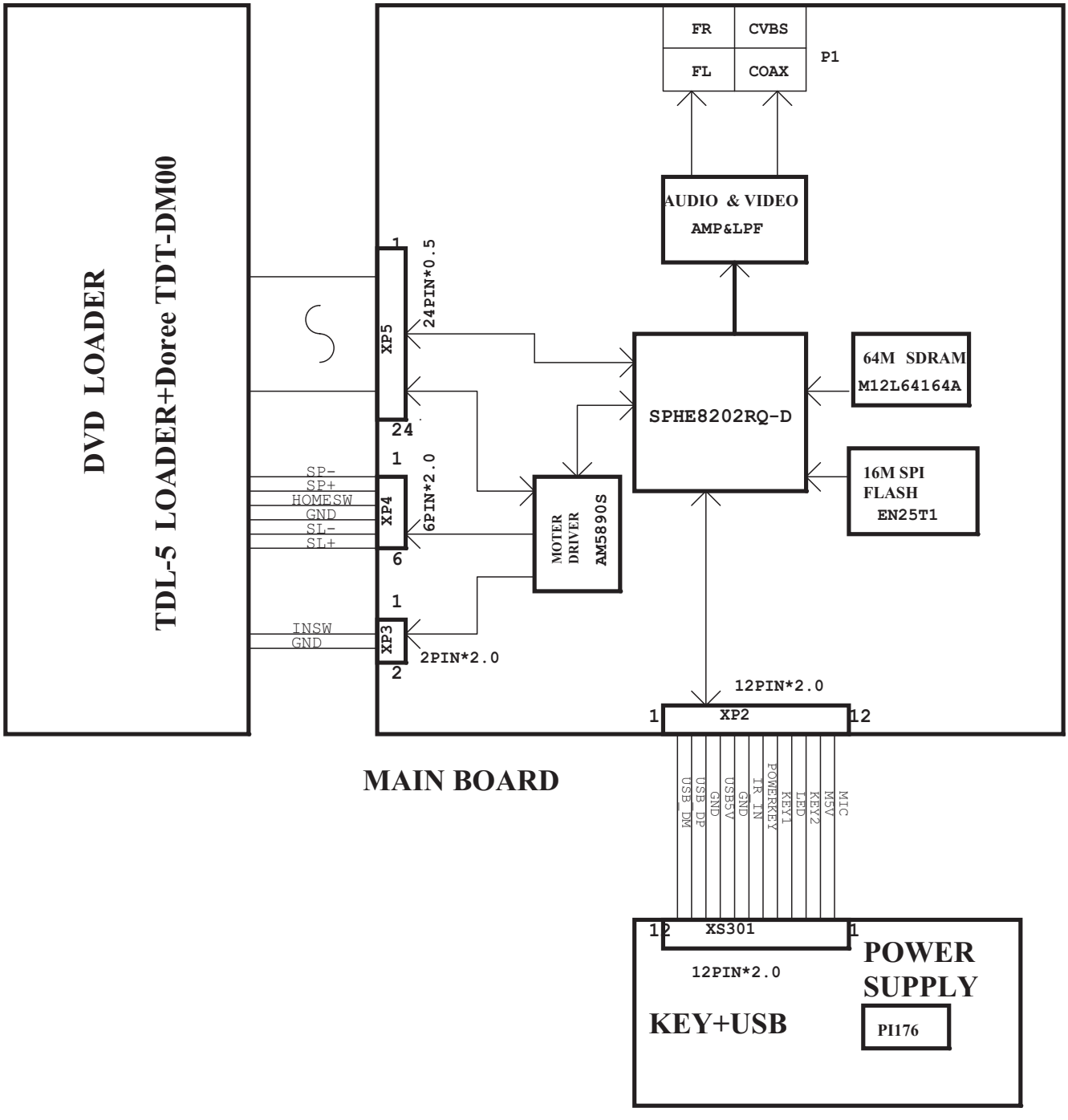


FIG 10-1

WIRING DIAGRAM



MEMO

CIRCUIT DIAGRAMS

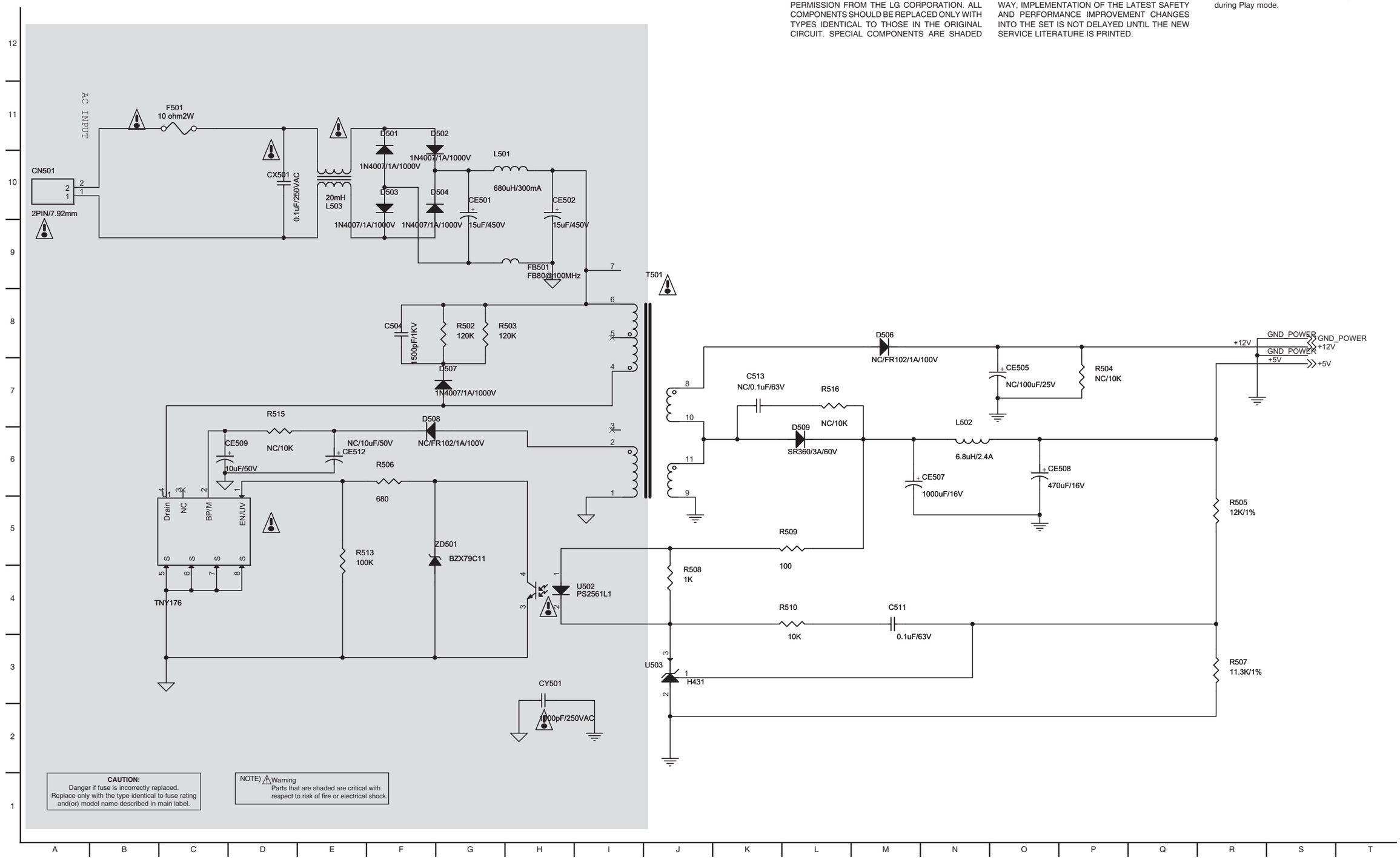
1. SMPS CIRCUIT DIAGRAM

IMPORTANT SAFETY

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT 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 :

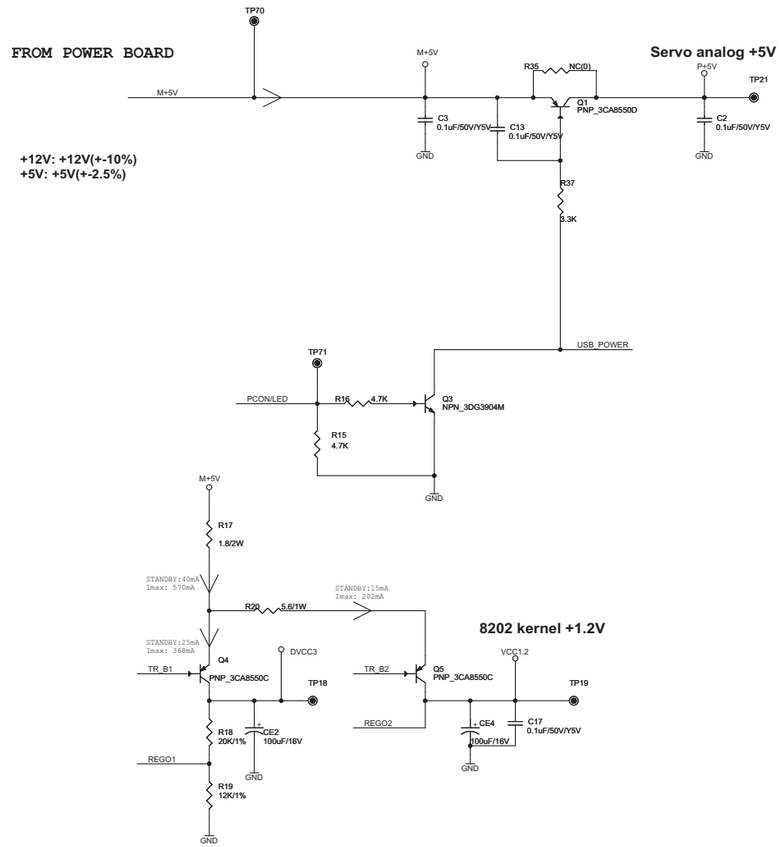
1. Shaded(▨) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.



CAUTION:
Danger if fuse is incorrectly replaced.
Replace only with the type identical to fuse rating and(or) model name described in main label.

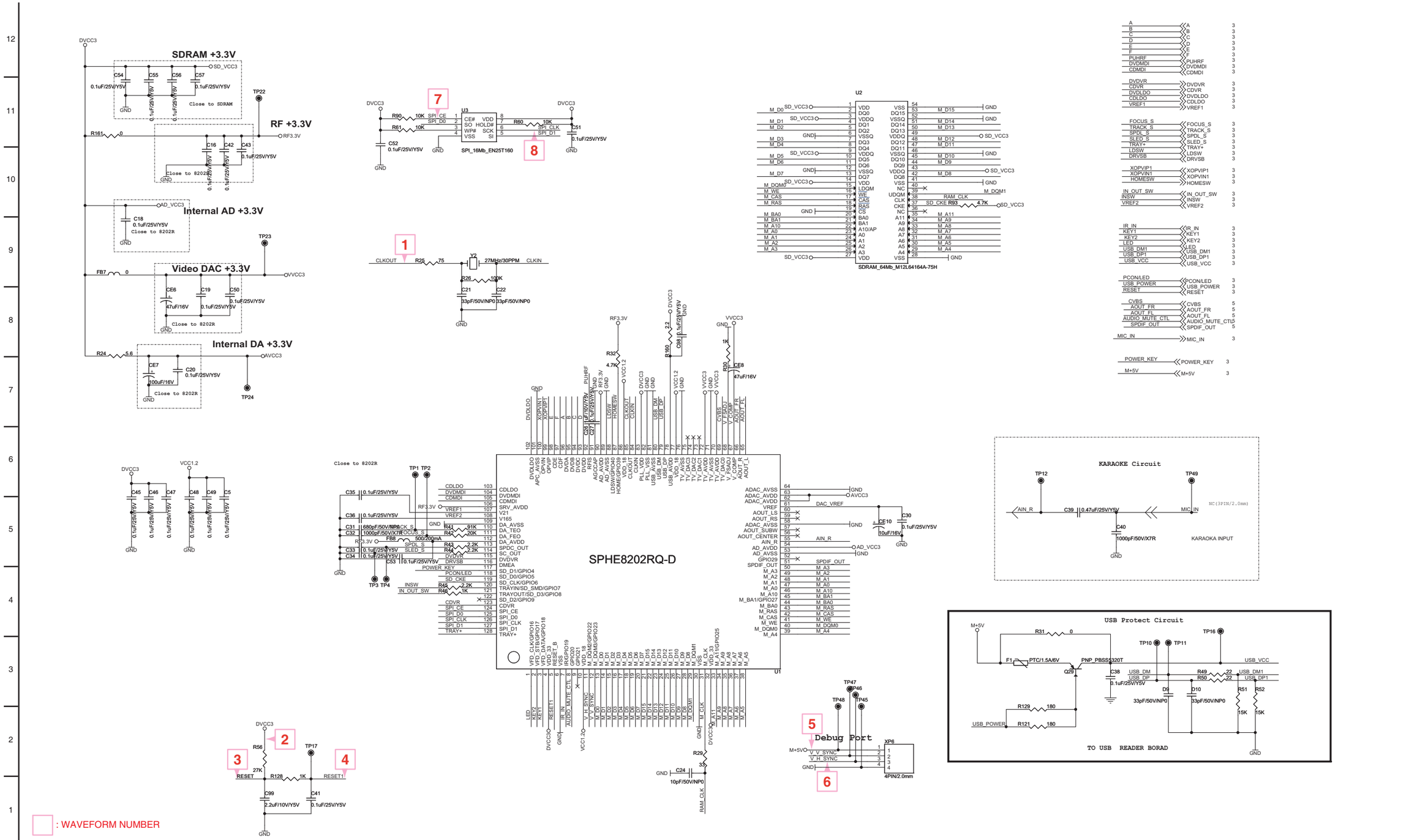
NOTE) ⚠Warning
Parts that are shaded are critical with respect to risk of fire or electrical shock.

2. POWER SUPPLY, M_DRIVER, OPU_CONNECTOR CIRCUIT DIAGRAM

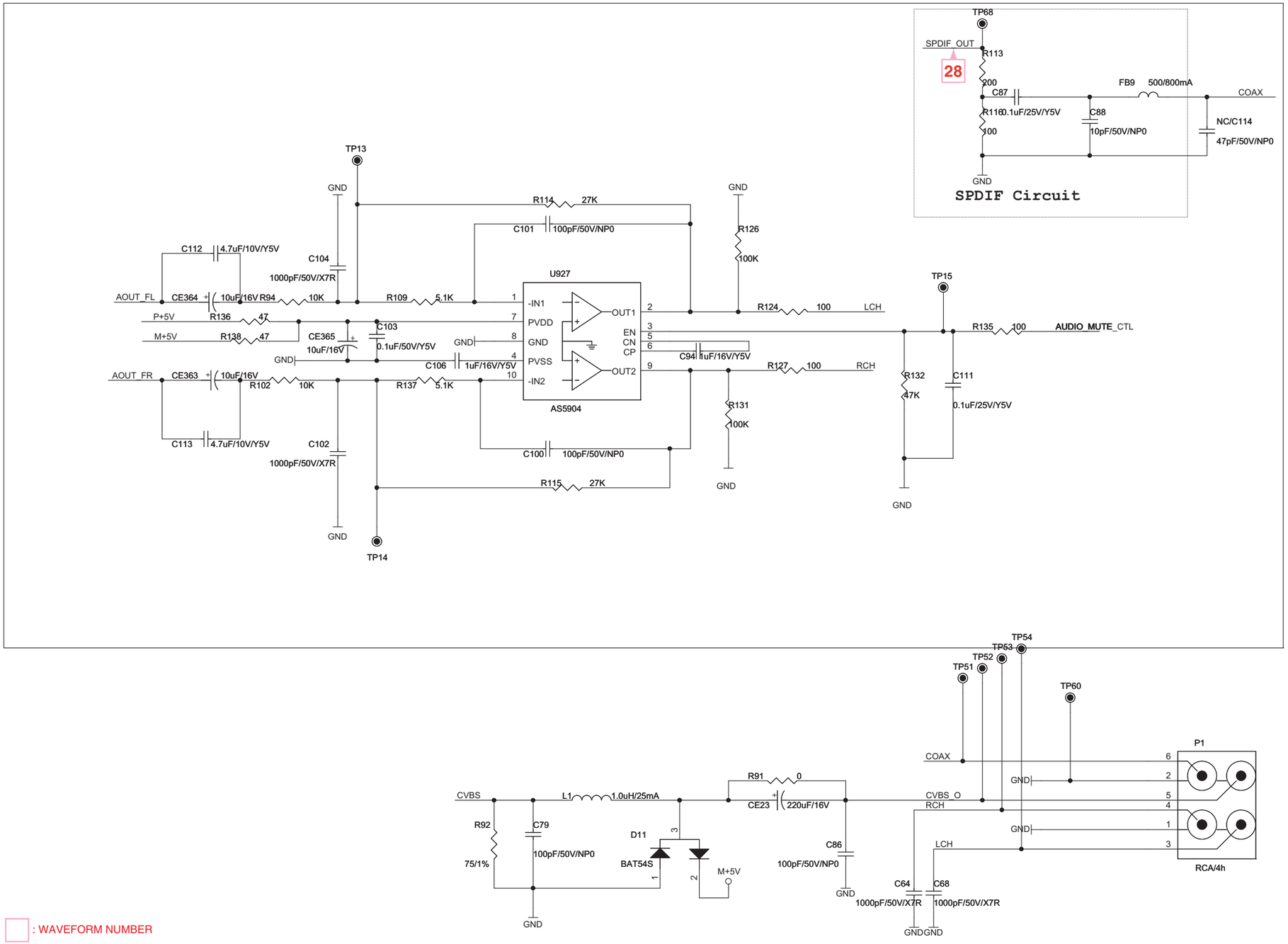


: WAVEFORM NUMBER

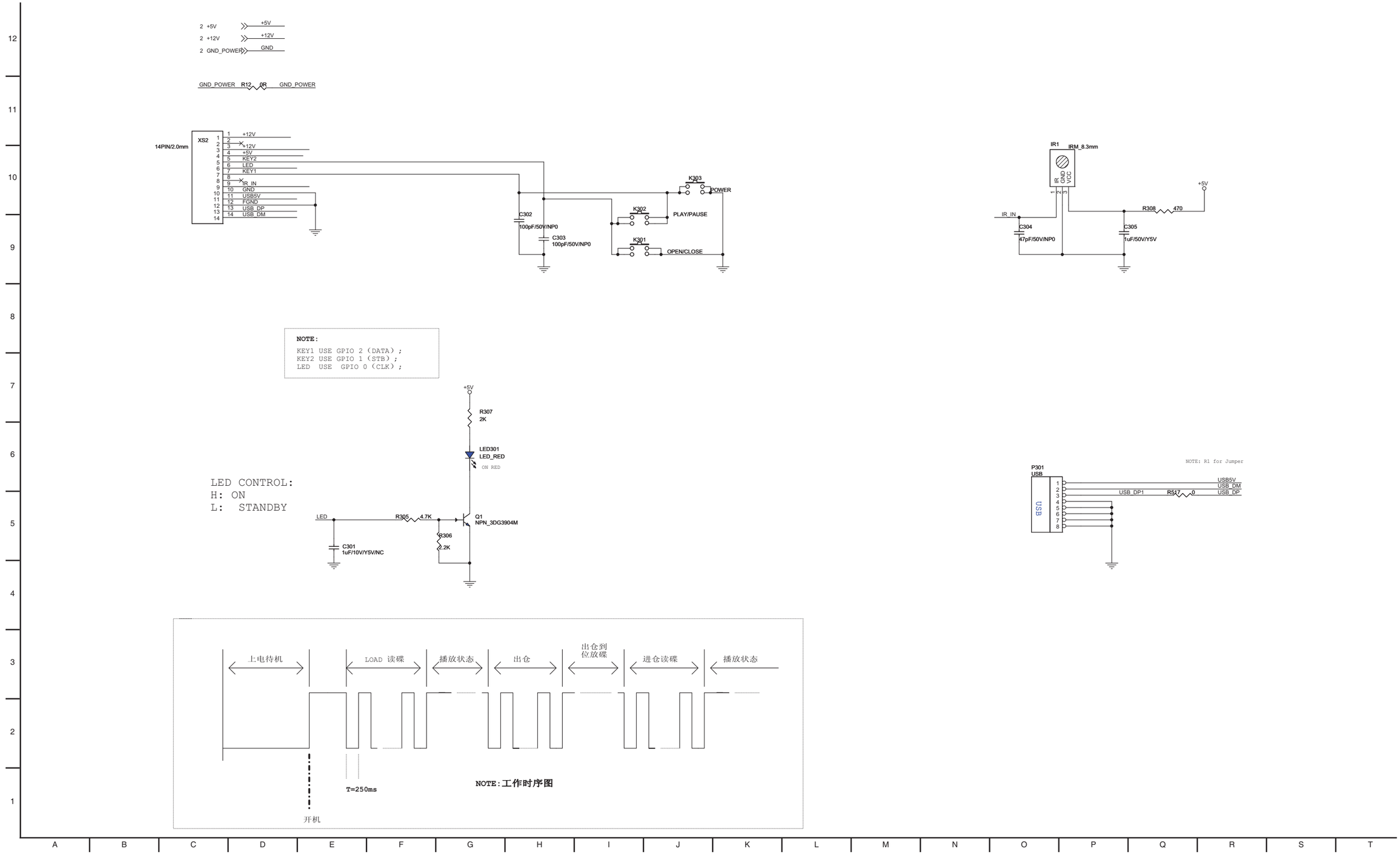
3. SPHE8202RQ, FLASH, SDRAM CIRCUIT DIAGRAM



4. AUDIO AMPLIFY, AUDIO OUTPUT, MUTE, VIDEO BUFFER, VIDEO OUTPUT CIRCUIT DIAGRAM



5. FRONT LED DISPLAY, KEY CONTROL CIRCUIT DIAGRAM



CIRCUIT VOLTAGE CHART

1. MPEG & SDRAM

Part SPEC	Location No.		STANDBY	PLAY
		SPEC(V)	Voltage	Voltage
SPHE8202RQ-D (MAIN PCB)	U1-PIN1	<3.46	0.015	3.311
	U1-PIN2	<3.46	0.015	0.023
	U1-PIN3	<3.46	3.317	3.326
	U1-PIN4	3.15-3.45	3.318	3.324
	U1-PIN5	<3.46	3.310	3.315
	U1-PIN6	0	0	0
	U1-PIN7	<3.46	3.458	3.463
	U1-PIN8	<3.46	0	0.004
	U1-PIN9	<3.46	0	0.005
	U1-PIN10	1.2-1.3	1.241	1.238
	U1-PIN11	<3.46	0.42	0.481
	U1-PIN12	<3.46	0.42	0.457
	U1-PIN13	<3.46	0	1.05
	U1-PIN14	<3.46	0	1.14
	U1-PIN15	<3.46	0	1.08
	U1-PIN16	<3.46	0	1.15
	U1-PIN17	<3.46	0	1.29
	U1-PIN18	<3.46	0	1.03
	U1-PIN19	<3.46	0	0.831
	U1-PIN20	<3.46	0	0.795
	U1-PIN21	<3.46	0.27	0.664
	U1-PIN22	<3.46	0.265	0.817
	U1-PIN23	<3.46	0.257	0.793
	U1-PIN24	<3.46	0.255	1.085
	U1-PIN25	<3.46	0.263	0.897
	U1-PIN26	<3.46	0.268	0.804
	U1-PIN27	<3.46	0.265	0.886
	U1-PIN28	<3.46	0.263	0.876
	U1-PIN29	<3.46	3.317	1.616
	U1-PIN30	0	0	0
	U1-PIN31	<3.46	1.647	1.365
	U1-PIN32	3.15-3.45	3.318	3.319
	U1-PIN33	<3.46	0	0.051
	U1-PIN34	<3.46	0	0.078
	U1-PIN35	<3.46	0	0.087
	U1-PIN36	<3.46	0	0.279
	U1-PIN37	<3.46	0	0.277
	U1-PIN38	<3.46	0	0.298
	U1-PIN39	<3.46	0	0.295
	U1-PIN40	<3.46	3.318	1.589
	U1-PIN41	<3.46	3.318	2.977
	U1-PIN42	<3.46	3.303	2.868
	U1-PIN43	<3.46	3.303	2.854
	U1-PIN44	<5.5	0	0.391
	U1-PIN45	<3.46	0	0.035
	U1-PIN46	<3.46	0	0.070
	U1-PIN47	<3.46	0	0.134
	U1-PIN48	<3.46	0	0.128
	U1-PIN49	<3.46	0	0.264
	U1-PIN50	<3.46	0	0.288
	U1-PIN51	<3.46	0	1.503
	U1-PIN52	<3.46	0	0.009
	U1-PIN53	0	0	3.319
	U1-PIN54	<3.46	3.318	1.308
	U1-PIN55	<3.46	0	1.324
	U1-PIN56	<3.46	0.009	1.31
	U1-PIN57	<3.46	0.019	1.323
	U1-PIN58	0	0	0
	U1-PIN59	<3.46	0	1.325
	U1-PIN60	<3.46	0.039	1.326
	U1-PIN61	<3.46	0	1.312
	U1-PIN62	3.15-3.45	3.317	3.060
	U1-PIN63	3.15-3.45	3.317	3.060
	U1-PIN64	0	0	0
	U1-PIN65	<3.46	0	1.347
	U1-PIN66	<3.46	0	1.345
	U1-PIN67	<3.46	1.60	1.508

Part SPEC	Location No.		STANDBY	PLAY
		SPEC(V)	Voltage	Voltage
SPHE8202RQ-D (MAIN PCB)	U1-PIN69	<3.46	0	0.359
	U1-PIN70	3.15-3.45	3.318	3.312
	U1-PIN71	0	0	0
	U1-PIN72	3.15-3.45	3.318	3.312
	U1-PIN73	<3.46	0.280	2.323
	U1-PIN74	<3.46	0.284	2.451
	U1-PIN75	<3.46	0.302	2.455
	U1-PIN76	0	0	0
	U1-PIN77	1.2-1.3	1.23	1.238
	U1-PIN78	3.15-3.45	3.307	3.286
	U1-PIN79	<3.46	0	0
	U1-PIN80	<3.46	0	0
	U1-PIN81	0	0	0
	U1-PIN82	0	0	0
	U1-PIN83	3.15-3.45	3.317	3.319
	U1-PIN84	<3.46	1.572	1.571
	U1-PIN85	<3.46	1.608	1.649
	U1-PIN86	1.2-1.3	1.241	1.239
	U1-PIN87	<3.46	3.317	3.311
	U1-PIN88	<3.46	0.015	0.020
	U1-PIN89	0	0	0
	U1-PIN90	3.15-3.45	3.318	3.314
	U1-PIN91	<3.46	0.008	1.391
	U1-PIN92	<3.46	0	2.223
	U1-PIN93	<3.46	0.471	2.355
	U1-PIN94	<3.46	0.495	0.008
	U1-PIN95	<3.46	0.490	2.374
	U1-PIN96	<3.46	0.469	2.352
	U1-PIN97	<3.46	0.067	2.255
	U1-PIN98	<3.46	0.067	2.256
	U1-PIN99	<3.46	2.517	3.024
	U1-PIN100	<3.46	2.517	3.059
	U1-PIN101	0	0	0
	U1-PIN102	<3.46	3.318	0.006
	U1-PIN103	<3.46	3.318	3.313
	U1-PIN104	<3.46	0	0.171
	U1-PIN105	<3.46	0	0.177
	U1-PIN106	3.15-3.45	3.318	3.314
	U1-PIN107	<3.46	0.620	2.231
	U1-PIN108	<3.46	0	1.673
	U1-PIN109	0	0	0
	U1-PIN110	<3.46	0.160	1.708
	U1-PIN111	<3.46	0.129	1.651
	U1-PIN112	3.15-3.45	3.317	3.313
	U1-PIN113	<3.46	0	1.543
	U1-PIN114	<3.46	0	1.713
	U1-PIN115	<3.46	0	0.006
	U1-PIN116	<3.46	0	0.006
	U1-PIN117	<3.46	0.396	0.007
	U1-PIN118	<3.46	0	0.006
	U1-PIN119	<3.46	3.317	3.317
	U1-PIN120	<3.46	3.317	3.326
	U1-PIN121	<3.46	3.317	3.327
	U1-PIN122	<3.46	0.358	0.448
	U1-PIN123	<3.46	0	0.176
	U1-PIN124	<3.46	3.318	2.691
	U1-PIN125	<3.46	0	0.487
	U1-PIN126	<3.46	0	0.459
	U1-PIN127	<3.46	0	0.018
	U1-PIN128	<3.46	0	0.007

64M SDRAM (MAIN PCB)	U3-PIN1	3.15-3.45	3.317	3.323
	U3-PIN2	<3.46	0.408	1.036
	U9-PIN3	3.15-3.45	3.317	3.323
	U9-PIN4	<3.46	0.423	1.071
	U9-PIN5	<3.46	0.410	1.124
	U9-PIN6	0	0	0
	U9-PIN7	<3.46	0.412	1.117
	U9-PIN8	<3.46	0.427	1.196
	U9-PIN9	3.15-3.45	3.317	3.323
	U9-PIN10	<3.46	0.429	1.045
	U9-PIN11	<3.46	0.403	0.692
	U9-PIN12	0	0	0
	U9-PIN13	<3.46	0.394	0.549
	U9-PIN14	3.15-3.45	3.317	3.322
	U9-PIN15	<3.46	3.317	1.652
	U9-PIN16	<3.46	3.318	2.995
	U9-PIN17	<3.46	3.303	2.865
	U9-PIN18	<3.46	3.302	2.871
	U9-PIN19	0	0	0
	U9-PIN20	<3.46	0	0.393
	U9-PIN21	<3.46	0.01	0.167
	U9-PIN22	<3.46	0	0.059
	U9-PIN23	<3.46	0	0.129
	U9-PIN24	<3.46	0	0.128
	U9-PIN25	<3.46	0	0.245
	U9-PIN26	<3.46	0	0.277
	U9-PIN27	3.15-3.45	3.317	3.322
	U9-PIN28	0	0	0
	U9-PIN29	<3.46	0	0.297
	U9-PIN30	<3.46	0	0.296
	U9-PIN31	<3.46	0	0.296
	U9-PIN32	<3.46	0	0.293
	U9-PIN33	<3.46	0	0.091
	U9-PIN34	<3.46	0	0.084
	U9-PIN35	<3.46	0	0.084
	U9-PIN36	<3.46	0	0.009
	U9-PIN37	3.15-3.45	3.317	3.318
	U9-PIN38	<3.46	1.648	1.357
	U9-PIN39	<3.46	3.317	1.647
	U9-PIN40	<3.46	0.004	0.007
	U9-PIN41	0	0	0
	U9-PIN42	<3.46	0.405	1.015
	U9-PIN43	3.15-3.45	3.318	3.323
	U9-PIN44	<3.46	0.405	1.042
	U9-PIN45	<3.46	0.404	0.852
	U9-PIN46	0	0	0
	U9-PIN47	<3.46	0.405	0.959
	U9-PIN48	<3.46	0.405	1.224
	U9-PIN49	3.15-3.45	3.318	3.323
	U9-PIN50	<3.46	0.400	0.837
	U9-PIN51	<3.46	0.396	0.925
	U9-PIN52	0	0	0
	U9-PIN53	<3.46	0.398	0.692
	U9-PIN54	0	0	0
FLASH (MAIN PCB)	U4-PIN1	<3.46	3.318	2.453
	U4-PIN2	<3.46	0	0.446
	U4-PIN3	<3.46	3.315	3.322
	U4-PIN4	0	0	0
	U4-PIN5	<3.46	0	0.019
	U4-PIN6	<3.46	0	0.512
	U4-PIN7	<3.46	3.317	3.325
	U4-PIN8	3.15-3.45	3.317	3.25

2. ICs

Part SPEC	Location No.	PLAY DVD			
		(1) Voltage	(2) Voltage	(3) Voltage	(4) Voltage
BB431BLP	U503	2.49	0	4.14	
PC123	U502	5.05	4.12	0	0.912
TNY176PN	U1	0.968	5.8	（5、6、7、8）0	293

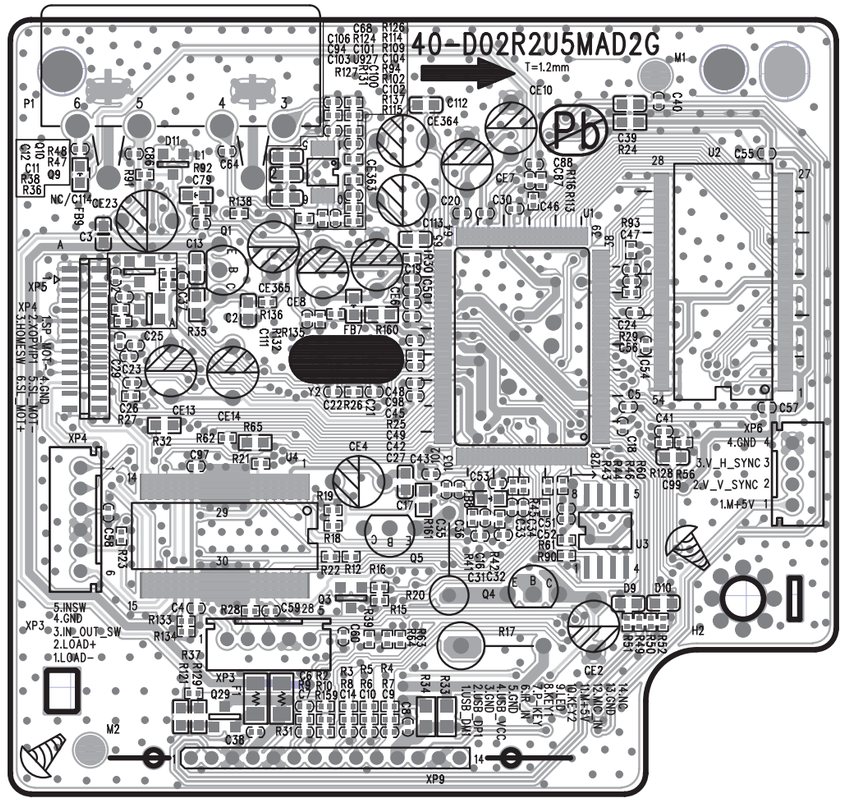
3. TRANSISTORS

Part SPEC	Location No.	DVD PLAY			NOTE
		(C) Voltage	(E) Voltage	(B) Voltage	
MMBT8550LT1	Q9 (MAIN PCB)	0	3.327	3.328	DVD
MMBT8550LT1	Q10 (MAIN PCB)	2.436	3.089	2.385	
SS8550C	Q4 (MAIN PCB)	3.343	4.02	3.301	
SS8550C	Q5 (MAIN PCB)	1.251	3.172	2.542	
MMBT3904LT1	Q1 (FRONT PCB)	0	0	0.672	LED
遥控接收头(R/C)		(1) Voltage	(2) Voltage	(3) Voltage	
AT138BV3-12	IR1	3.48	0	4.65	Remote control

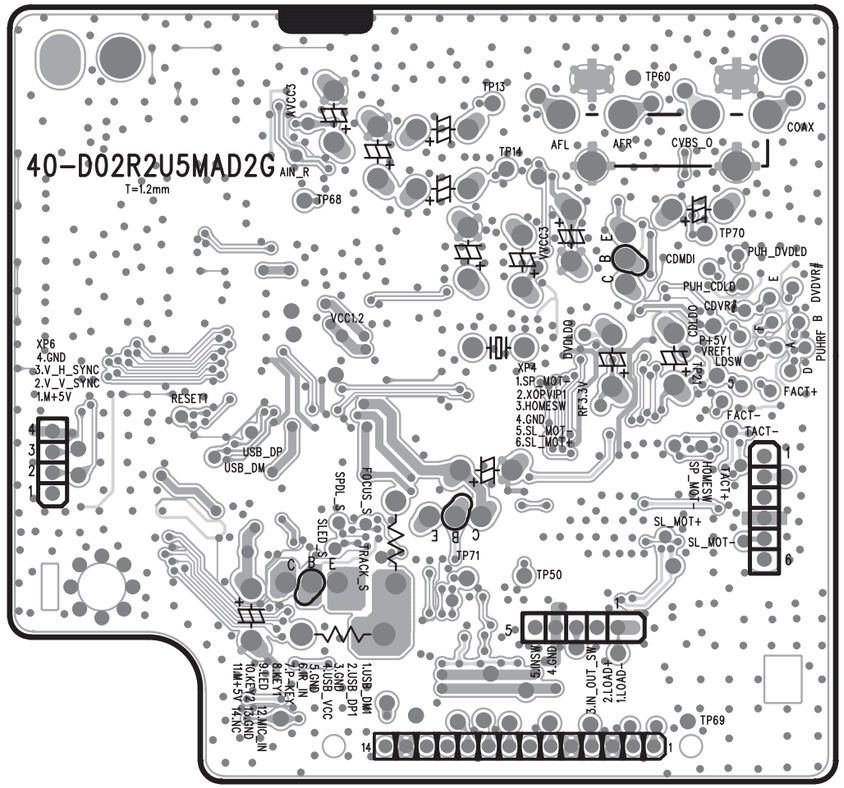
PRINTED CIRCUIT BOARD DIAGRAMS

1. MAIN P.C.BOARD

(TOP VIEW)

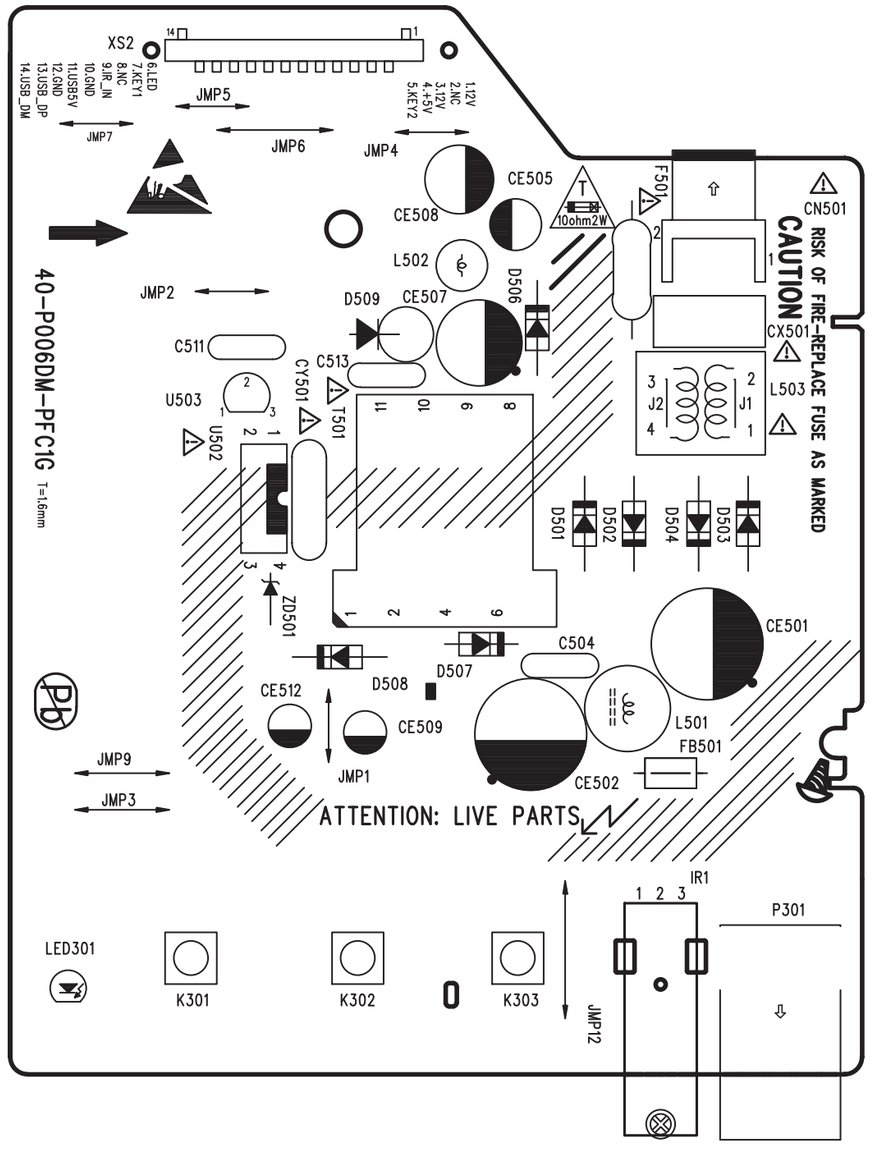


(BOTTOM VIEW)



2. SMPS P.C.BOARD

(TOP VIEW)



(BOTTOM VIEW)