Website http://biz.lgservice.com

LG

DVD-VIDEO PLAYER

SERVICE MANUAL

MODEL: DP432H

CAUTION

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

P/NO : AFN75734197

JANUARY, 2013

SERVICE MANUAL

MODEL: DP432H

LG

CONTENTS

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:

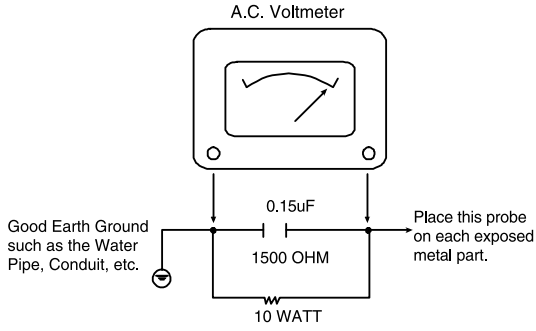
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

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.)

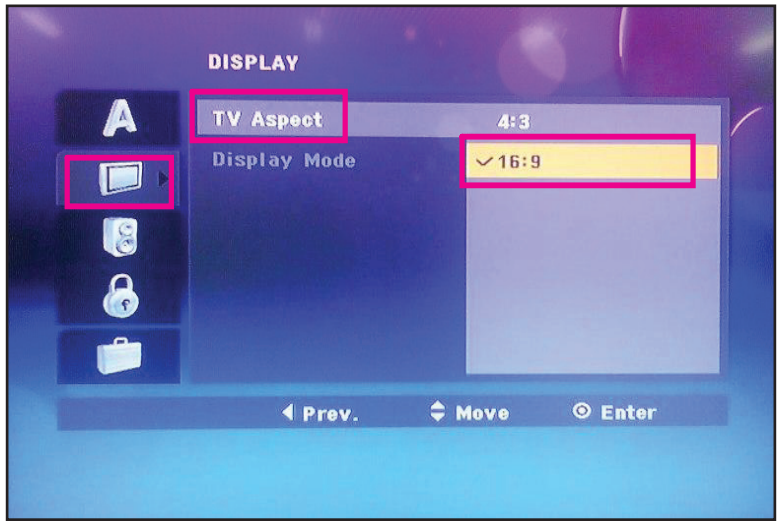
THE PROCESS OF DISC / USB DOWNLOAD

METHOD 1) 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)

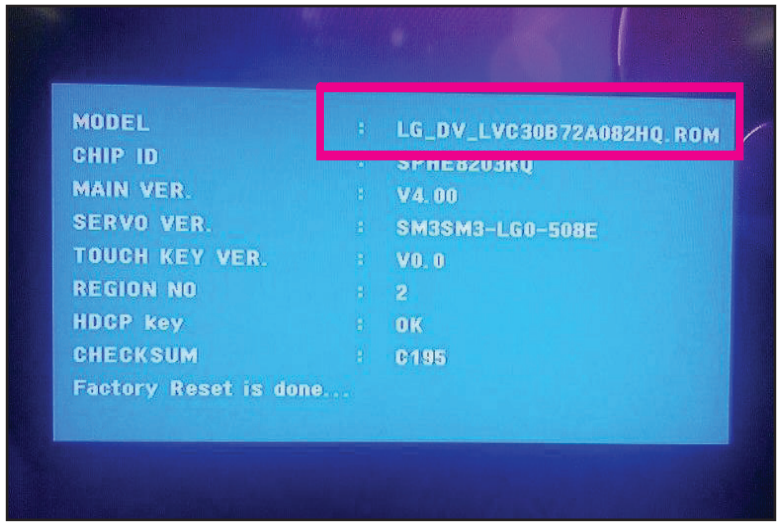
2. Press “SETUP” button on Remote control.

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 name**.

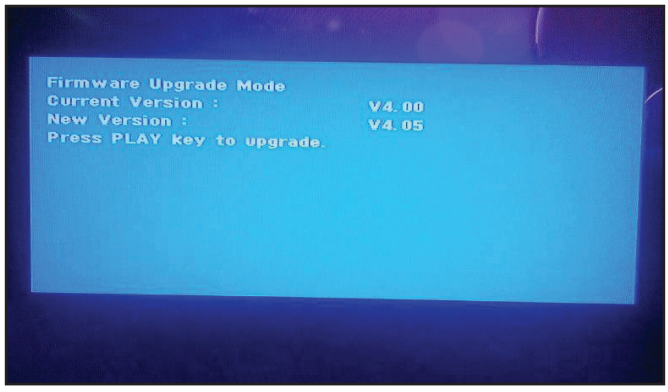


6. Change the program file name of new version (rename) to the model name.
   Model name : LG_DV_LVC30B72A082HQ
   Ex> New ver. program file --> LG_DV_LVA10F73208CHE_V4.05.ROM
   Rename : LG_DV_LVA10F73208CHE_V4.05.ROM --> LG_DV_LVC30B72A082HQ.ROM

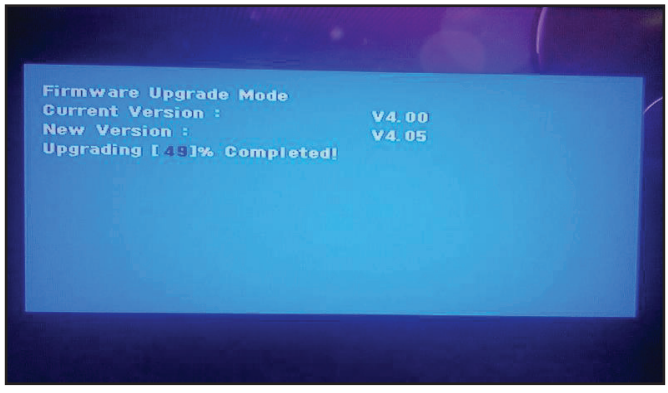
7. Burn the changed file into disc.

8. Open tray, insert disc and close tray.

9. The below picture will appears on the screen.

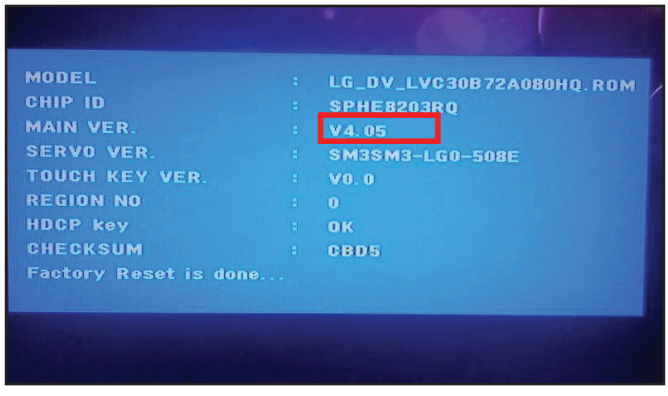


10. Tray will open automatically. Take off the disc and press PLAY to upgrade.



11. After download process completed. DVD player will turn-off and turn on automatically.

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



METHOD 2) Please follow the below process to download a program with USB.

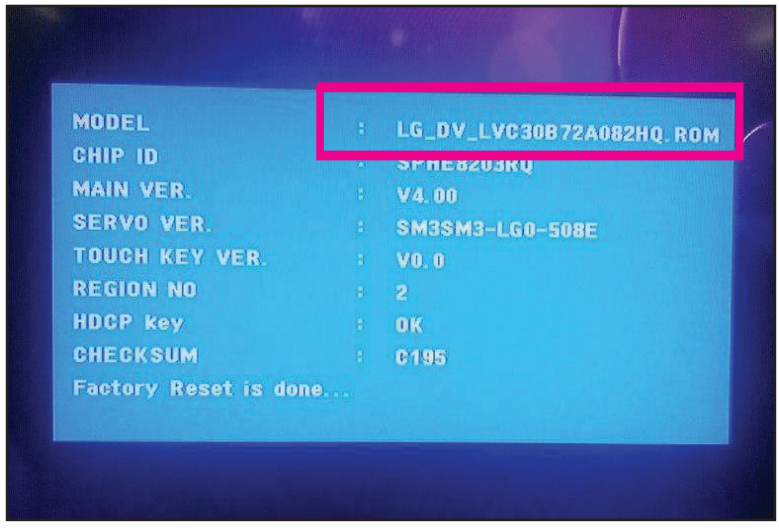
1. Turn on the DVD-player.
   (Note. Be sure that there is no disc in DVD-player)

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.

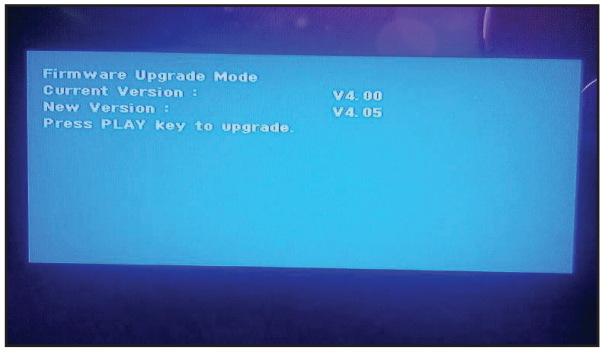
5. Remember or write the **model name**.



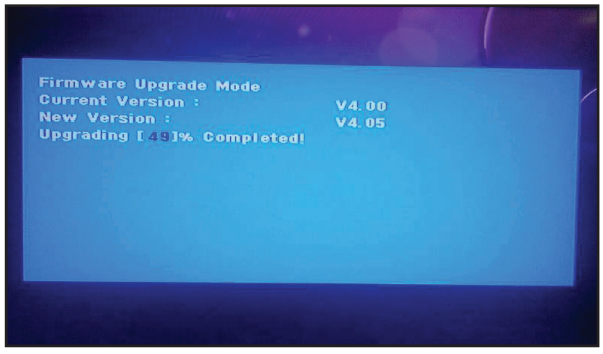
6. Change the program file name of new version (rename) to the model name.
   Model name : LG_DV_LVC30B72A082HQ
   Ex> New ver. program file --> LG_DV_LVA10F73208CHE_V4.05.ROM
   Rename : LG_DV_LVA10F73208CHE_V4.05.ROM --> LG_DV_LVC30B72A082HQ.ROM

7. Save or Copy the changed file into USB Flashdisk on root directory
8. Make sure the isn't anything inserted on the set and Plug in the USB Flashdisk
   As the return icon displays, press the Return button on remote control

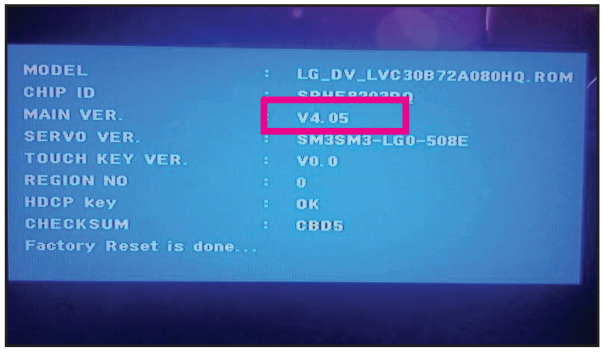
9. The below picture will appears on the screen.



10. Take off the USB and press PLAY to upgrade.



11. After download process completed. DVD player will turn-off and turn on automatically.
12. Do it again the process 1, 2, 3, 4 to confirm the **version**.



SPECIFICATIONS

• GENERAL

Power requirements	AC 200 ~ 240 V, 50/60 Hz
Power consumption	9 W
Dimensions (Approx.)	360 x 35 x 195mm (W x H x D)
Net weight (Approx.)	1.4 kg
Operating temperature	5 °C to 35 °C
Operating humidity	5 % to 90 %
Laser	Semiconductor laser
Signal system	PAL / 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 (L, R) x 1
Component Video Output	(Y) 1.0 V(p-p), 75 Ω, sync negative, RCA jack x 1 (Pb)/(Pr) 0.7 V(p-p), 75 Ω, RCA jack x 2
HDMI Video/Audio Output	19 pin(HDMI standard, Type A)
Audio Output	2.0 Vrms (1 kHz, 0 dB), 600 Ω, RCA jack (L, R) x 1
Digital Output (Coaxial)	0.5 V(p-p), 75 Ω, RCA jack x 1
Digital Output (Optical)	3 V(p-p), Optical jack x 1

MEMO

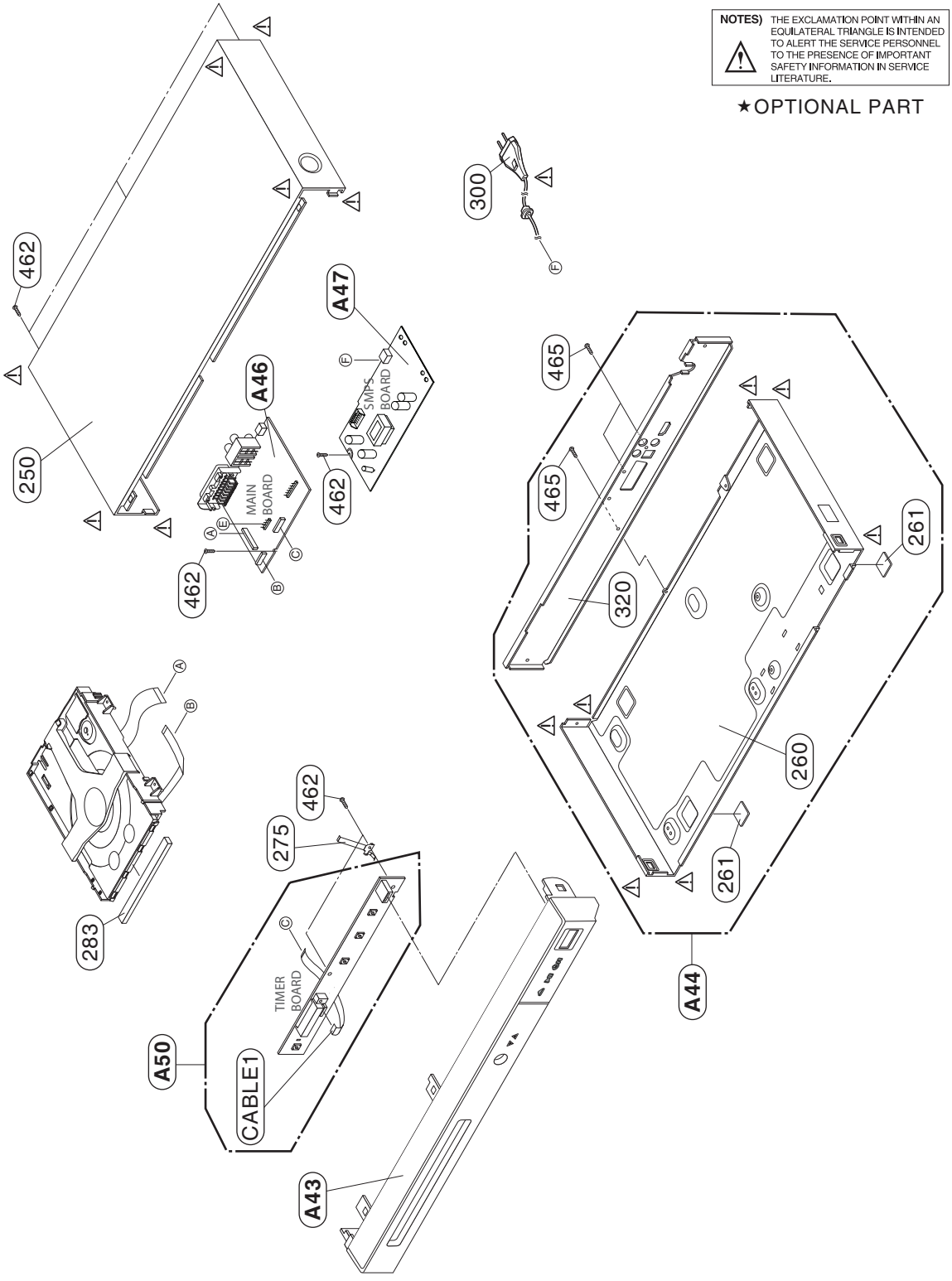
SECTION 2

CABINET & MAIN CHASSIS

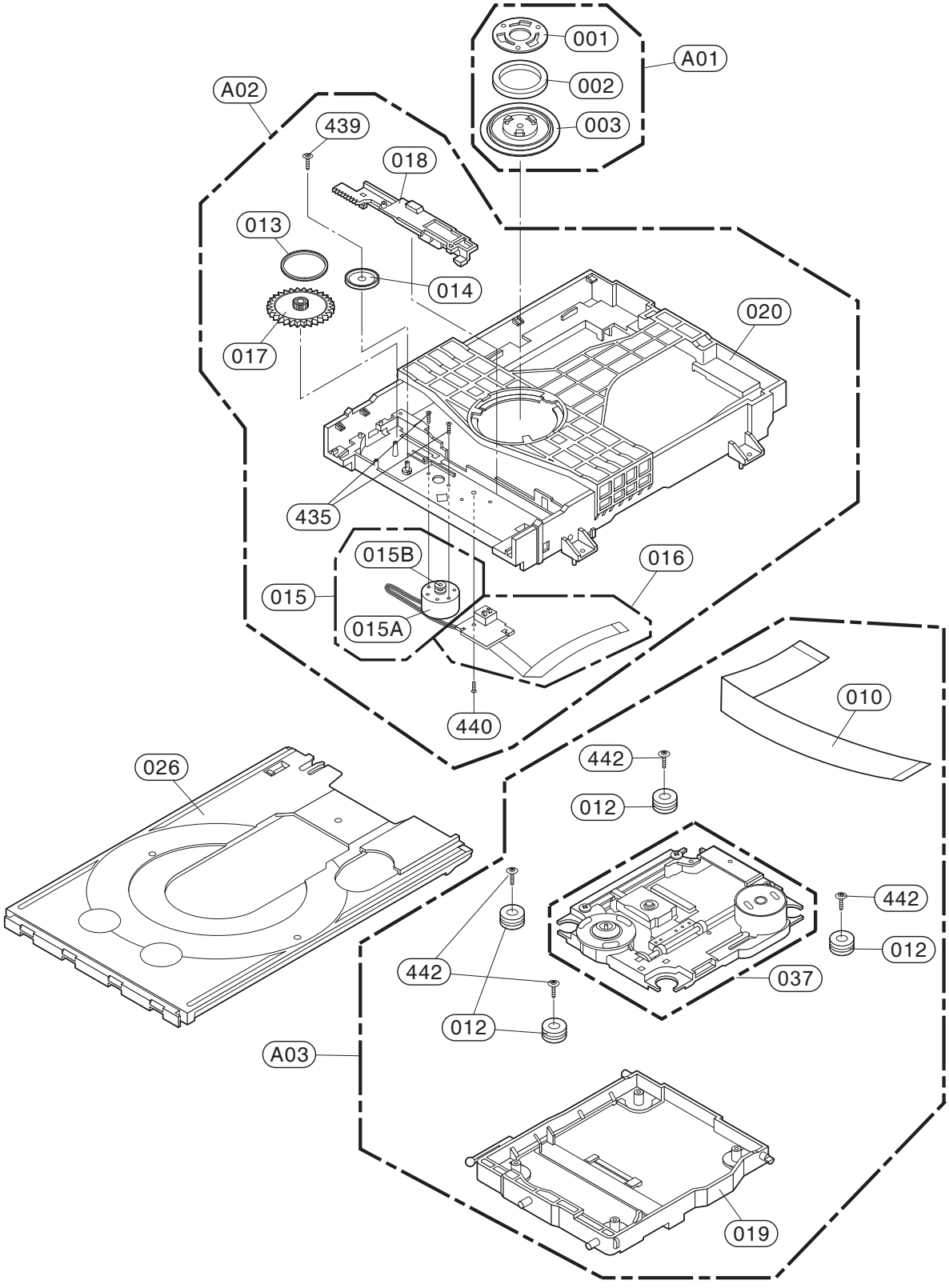
CONTENTS

EXPLODED VIEWS

1. CABINET AND MAIN FRAME SECTION



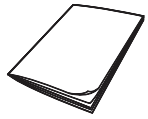
2. DECK MECHANISM SECTION (DP-12)

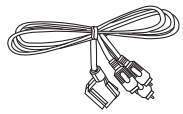


3. PACKING ACCESSORY SECTION

★OPTIONAL PART

(801) Owner's manual

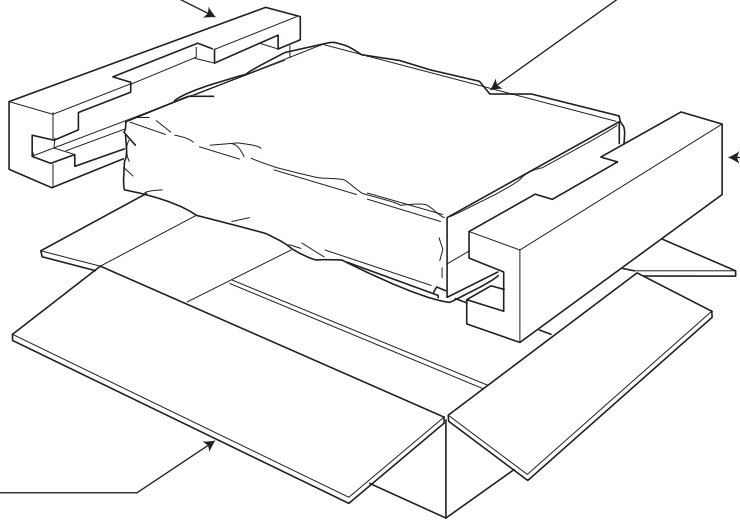




★(822) RCA to SCART cable

(808) Battery

(900) Remote control



SECTION 3

ELECTRICAL

CONTENTS

COMPONENT REPAIR GUIDE

1. NO BOOTING WHEN YOU TURN THE UNIT ON

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

1-1. Please check every output voltage

1) Please check if output voltage 3.3 VA on MAIN board CN602 pin6 is normal.

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

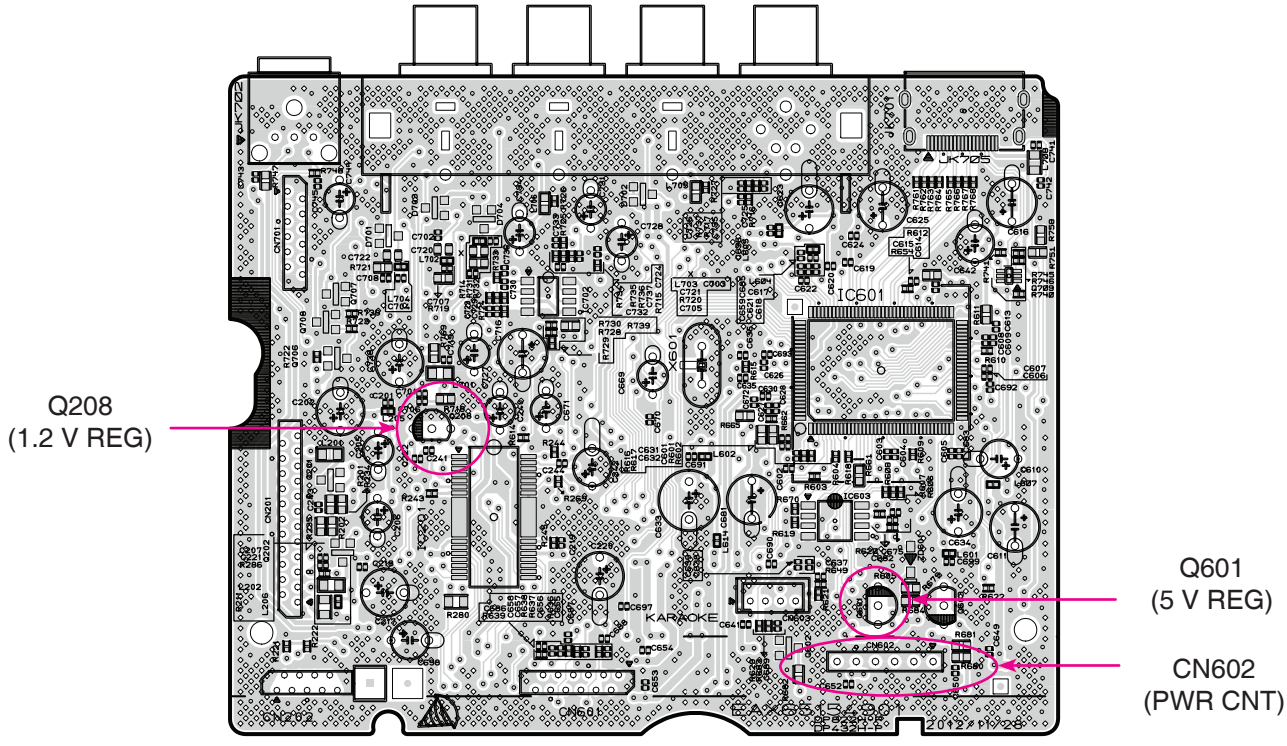
2) Please check if output voltage 5 V on MAIN board of Q601 emitter is normal.

⇨If output voltage 5 V of Q601 is not normal, please check 5 VA of CN602 pin3 the working status

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

3) Please check if output voltage 1.8 VA from MAIN board Q208 collector pin is normal.

⇨If output voltage 1.8 V is not normal, please check the working status of MAIN board Q208.



< MAIN board top view >

COMPONENT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON

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

1-2. Please check MAIN board IC601 signal and its peripheral circuit

1) Please check if output voltage 3.3 V from IC601 pin21, pin38, pin53, pin122, pin123 is normal.

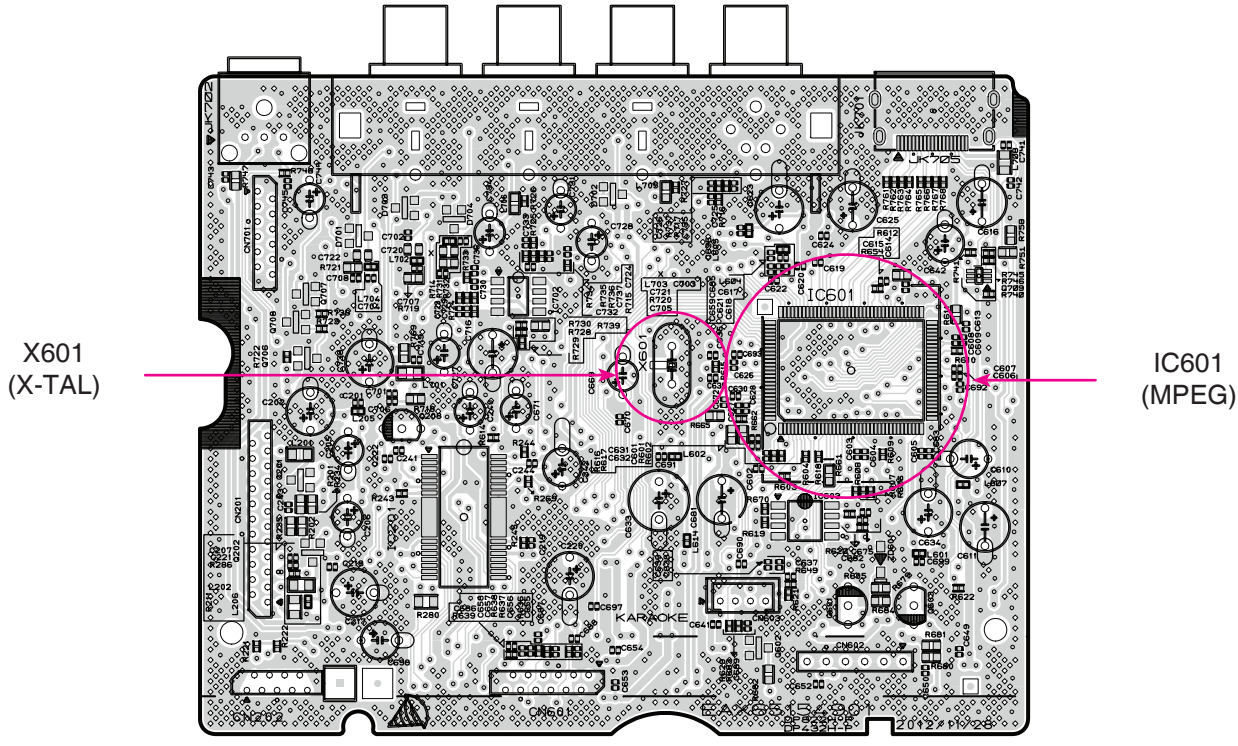
⇨If output voltage 3.3 V is not normal, please check 3.3 VA power line of the MAIN board.

2) Please check if output voltage 1.2 V from IC601 pin20, pin52, pin124 is normal.

⇨If output voltage 1.2 V is not normal, please check 1.2 V power line of the MAIN board.

3) Please check oscillating frequency 27 MHz of MAIN board X601crystal is normal.

⇨If oscillating frequency 27 MHz is not normal, please check if X601 and its peripheral circuit is in failure.



< MAIN board top view >

COMPONENT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON

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

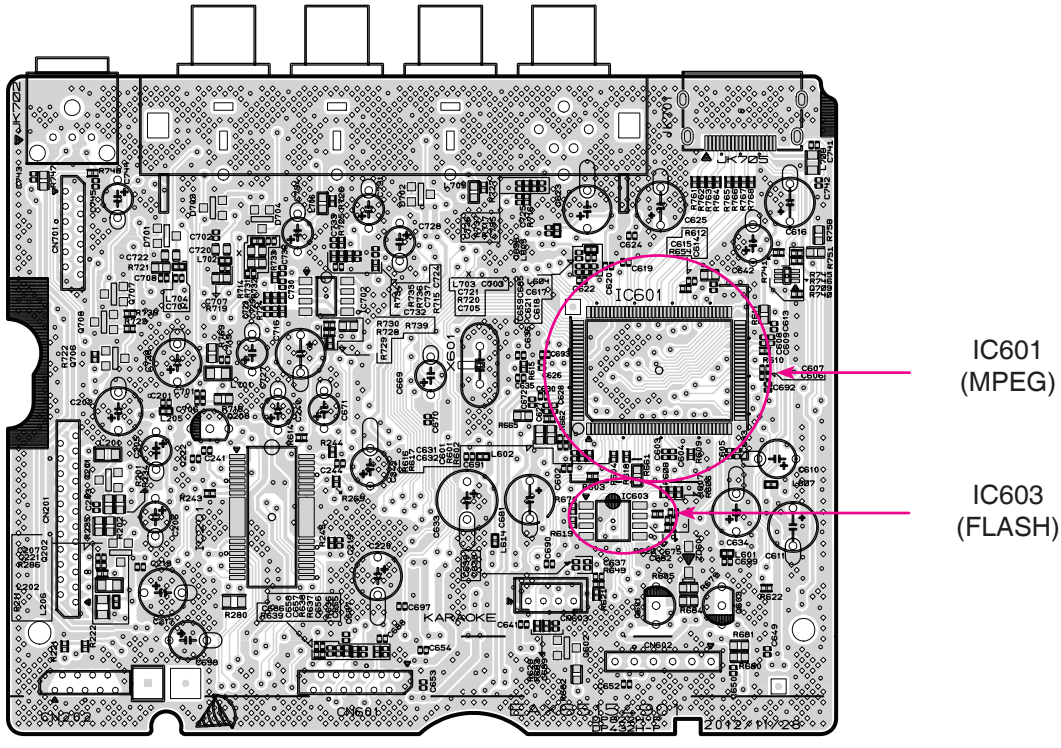
1-3. Please check MAIN board IC IC603 signal and its peripheral circuit

1) Please check if output voltage 3.3 V from IC603 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 signal connected between IC603 and IC601, especially including CE, DATA and CLK signal.

⇨If CE, DATA and CLK signal is not normally output, please check if IC603 is in failure.



< MAIN board top view >

COMPONENT REPAIR GUIDE

NO BOOTING WHEN YOU TURN THE UNIT ON

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

1-4. Please check MAIN board IC201 signal and its peripheral circuit

1) Please check if output voltage 5 V from IC201 pin8, pin19 is normal.

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

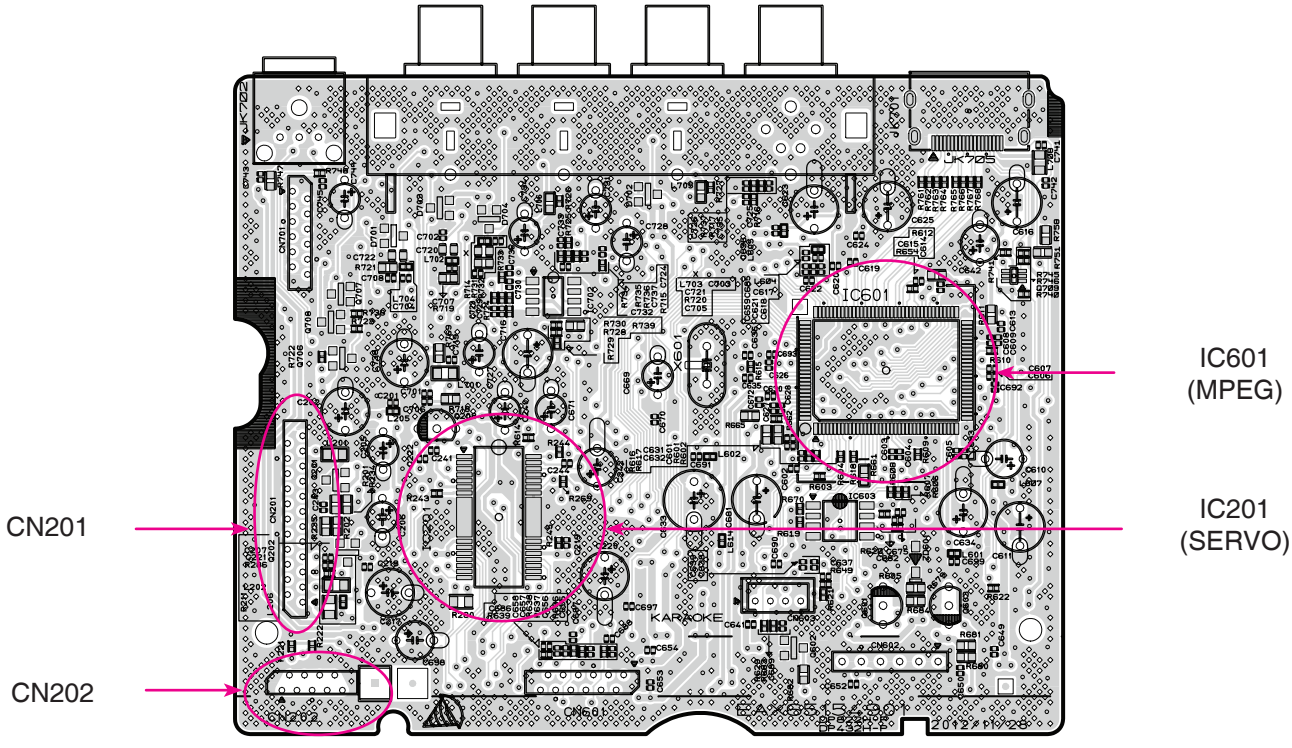
2) Please check every signal connected between IC201 and IC601, especially including F+, F-,T+, T-, SP+, SP-, SL+, SL- signal to drive MD.

⇨If F+, F-, T+, T-, SP+, SP-, SL+, SL- signal is not normally output, please check if IC201 is in failure.

⇨If IC201 signal is not normally output, please check connection MD of CN202 to MD if is in failure.

2) Please check every signal connected between MD to IC601, especially including RFA, RFB, RFC, RFD, RFE, RFF signal from MD.

⇨If RFA, RFB, RFC, RFD, RFE, RFF signal on IC601 pin1 ~ 6 is not normally output, please check connection MD of CN201to MD if is in failure.



< MAIN board top view >

COMPONENT REPAIR GUIDE

2. NO VIDEO OUTPUT WHEN YOU TURN THE UNIT ON

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

2-1. Please check the solder joint status of MAIN board connector JK701.

⇨If JK701 has cold solder joint, JK701 pins should be oxidized, and please replace JK701.

2-2. Please check CVBS signal of MAIN board IC601 pin99.

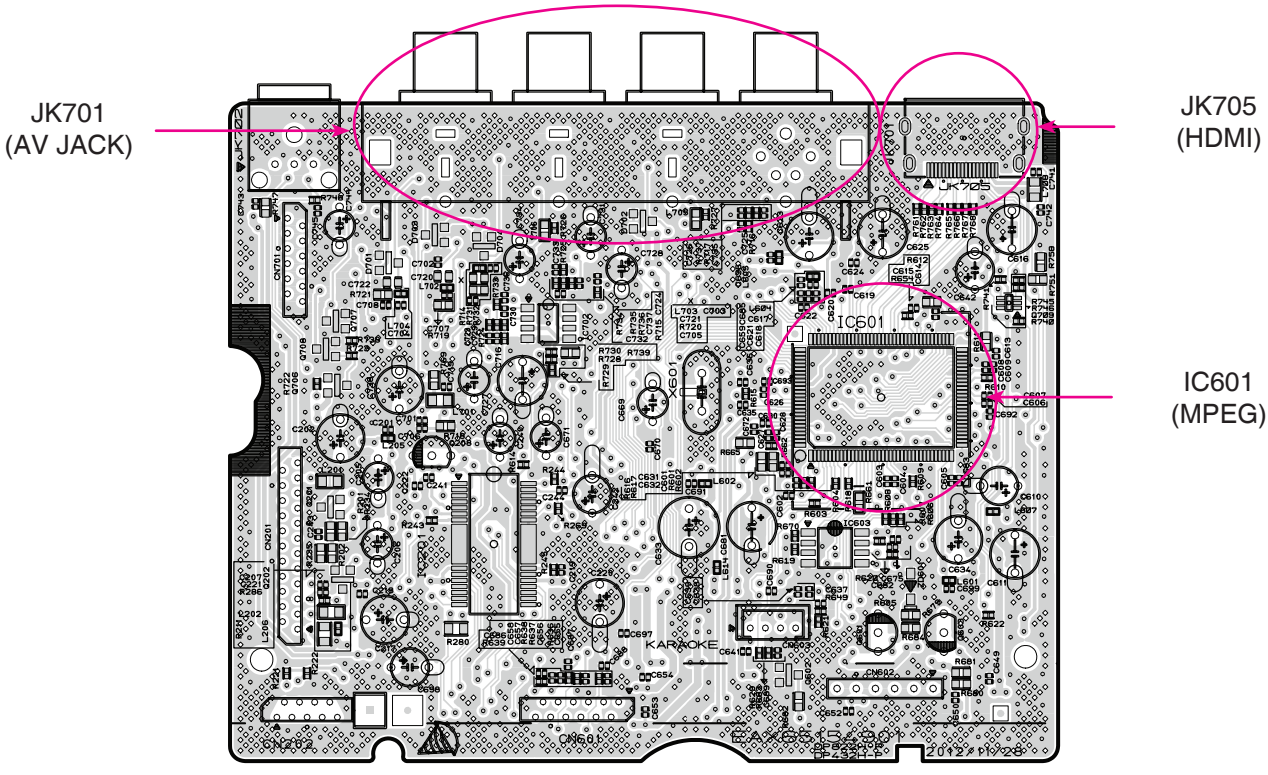
⇨If the CVBS signal is not normally output, please check if IC601 is in failure.

2-3. Please check Component Out signal of MAIN board IC601 pin102 ~ pin104.

⇨If Y/Pb/Pr signal is not normally output, please check if IC601 is in failure.

2-4. Please check HDMI Out TX signal of MAIN board IC601 pin80 ~ pin90 to JK705.

⇨If TX data signal is not normally output, please check if IC601 is in failure.



< MAIN board top view >

COMPONENT REPAIR GUIDE

3. NO AUDIO OUTPUT WHEN YOU TURN THE UNIT ON

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

3-1. Please check the solder joint status of MAIN board connector JK701.

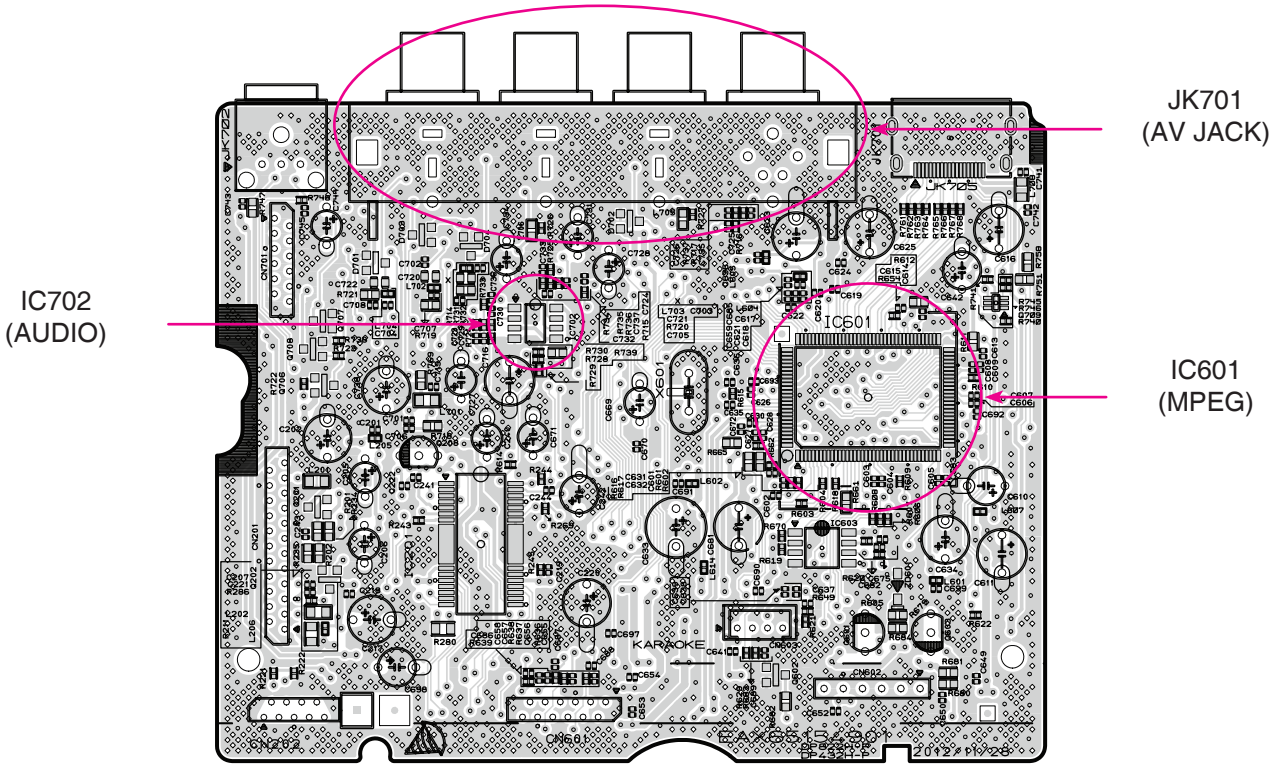
⇨If JK701 has cold solder joint, JK701 pins should be oxidized, and please replace JK701.

3-2. Please check the working status of MAIN board IC702.

⇨If output voltage 12 V on IC702 pin8 is not normal, please check 12 V power circuit of MAIN board.
⇨If AL and AR signal from IC702 pin1, 2, 6, 7 is not normally output, please check if IC702 is in failure.

3-3. Please check the working status of MAIN board IC601.

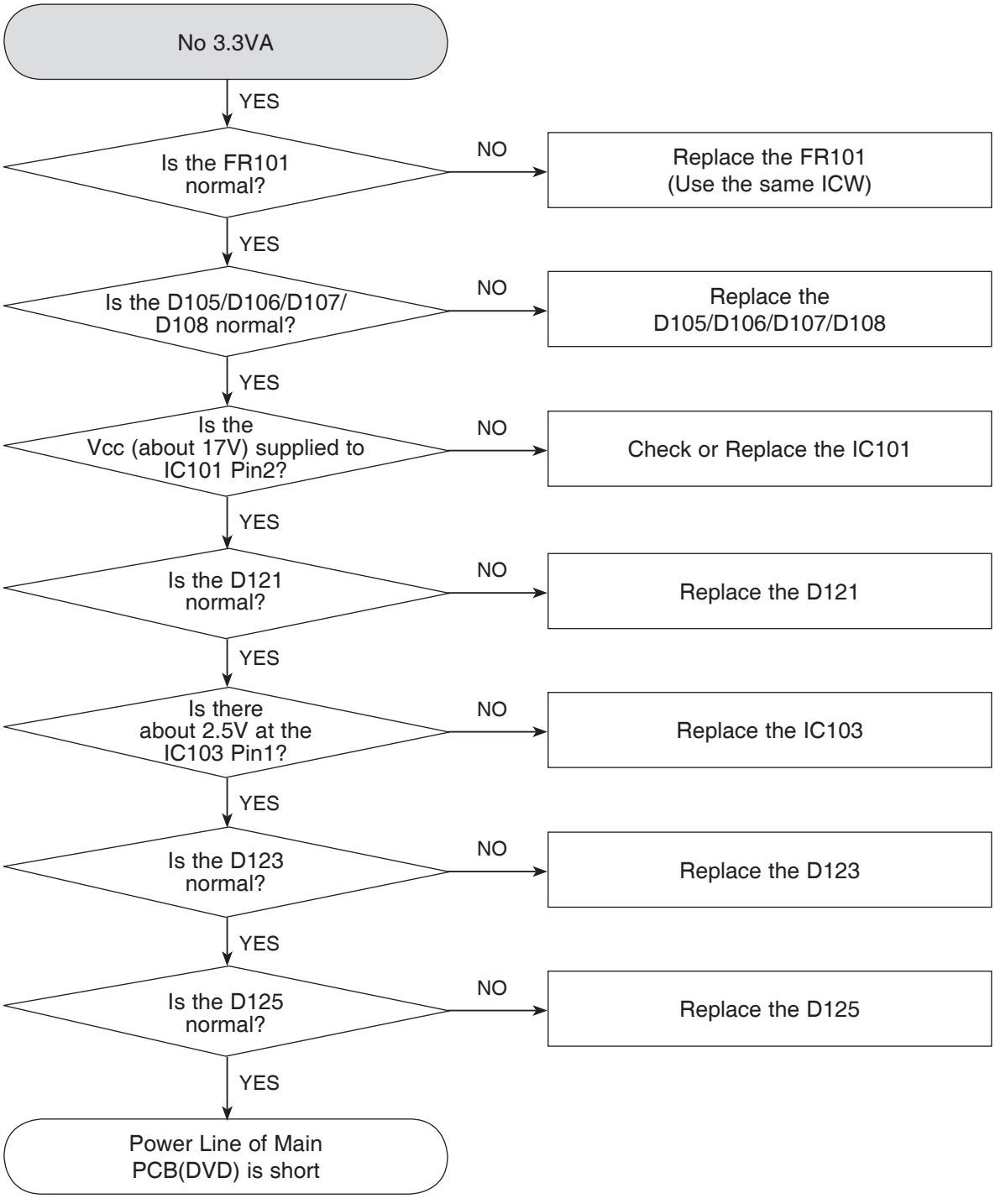
⇨If AL and AR signal from IC601 pin76, pin77 is not normally output, please check if IC601 is in failure.



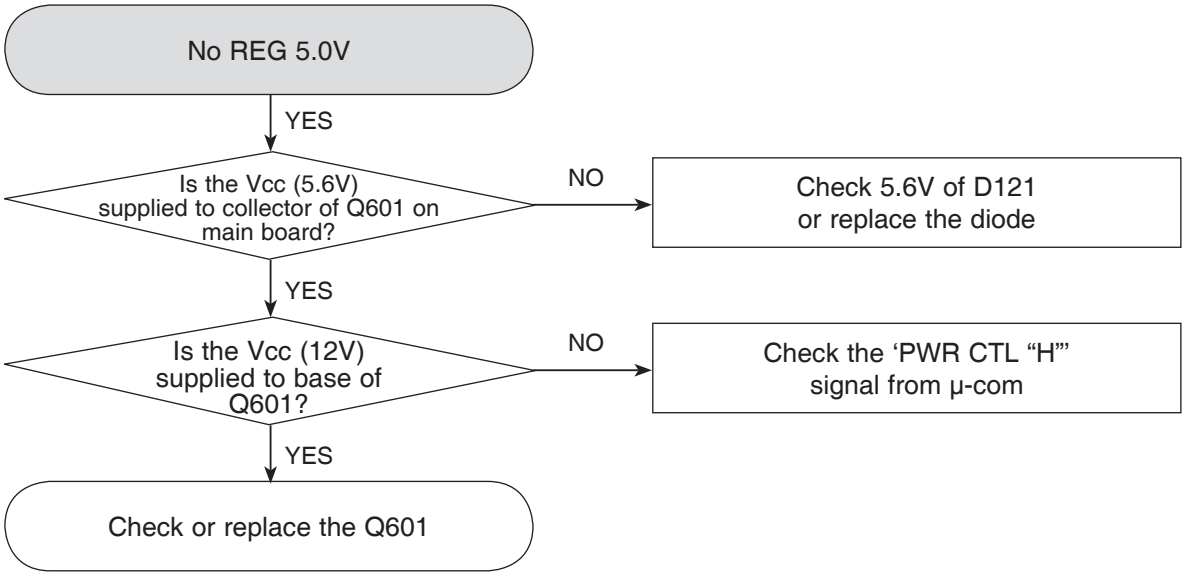
< MAIN board top view >

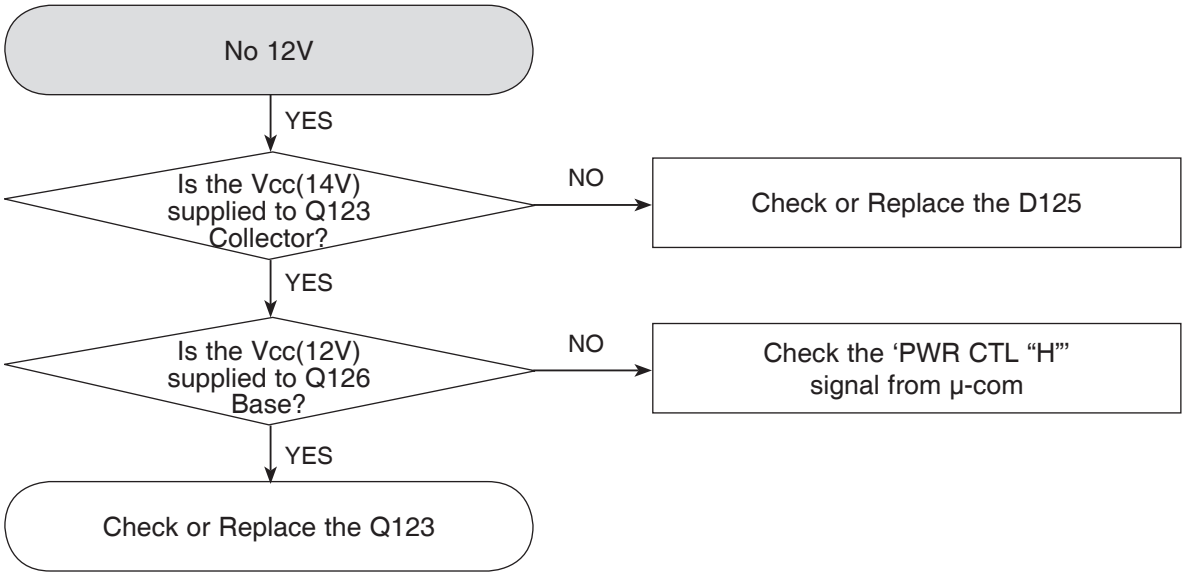
ELECTRICAL TROUBLESHOOTING GUIDE

1. SMPS TROUBLESHOOTING FLOW



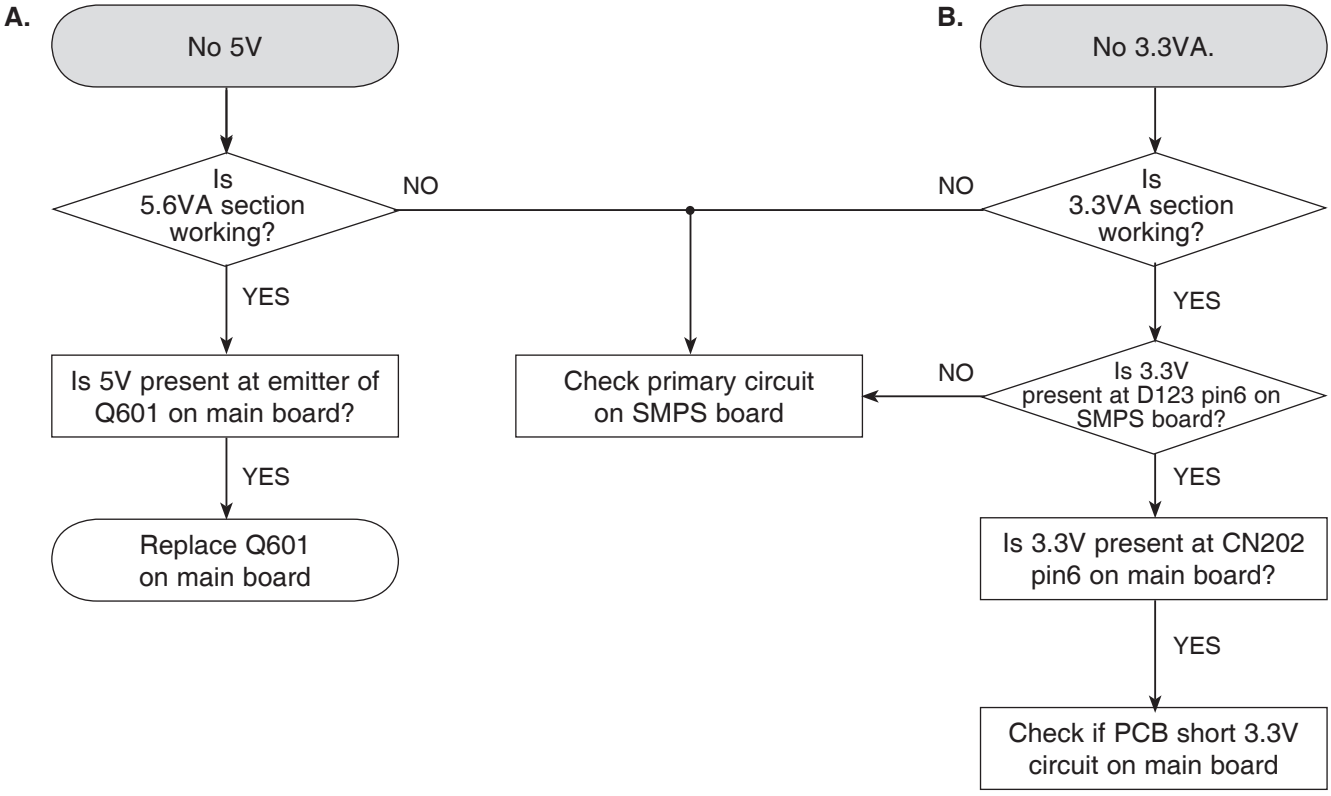
ELECTRICAL TROUBLESHOOTING GUIDE





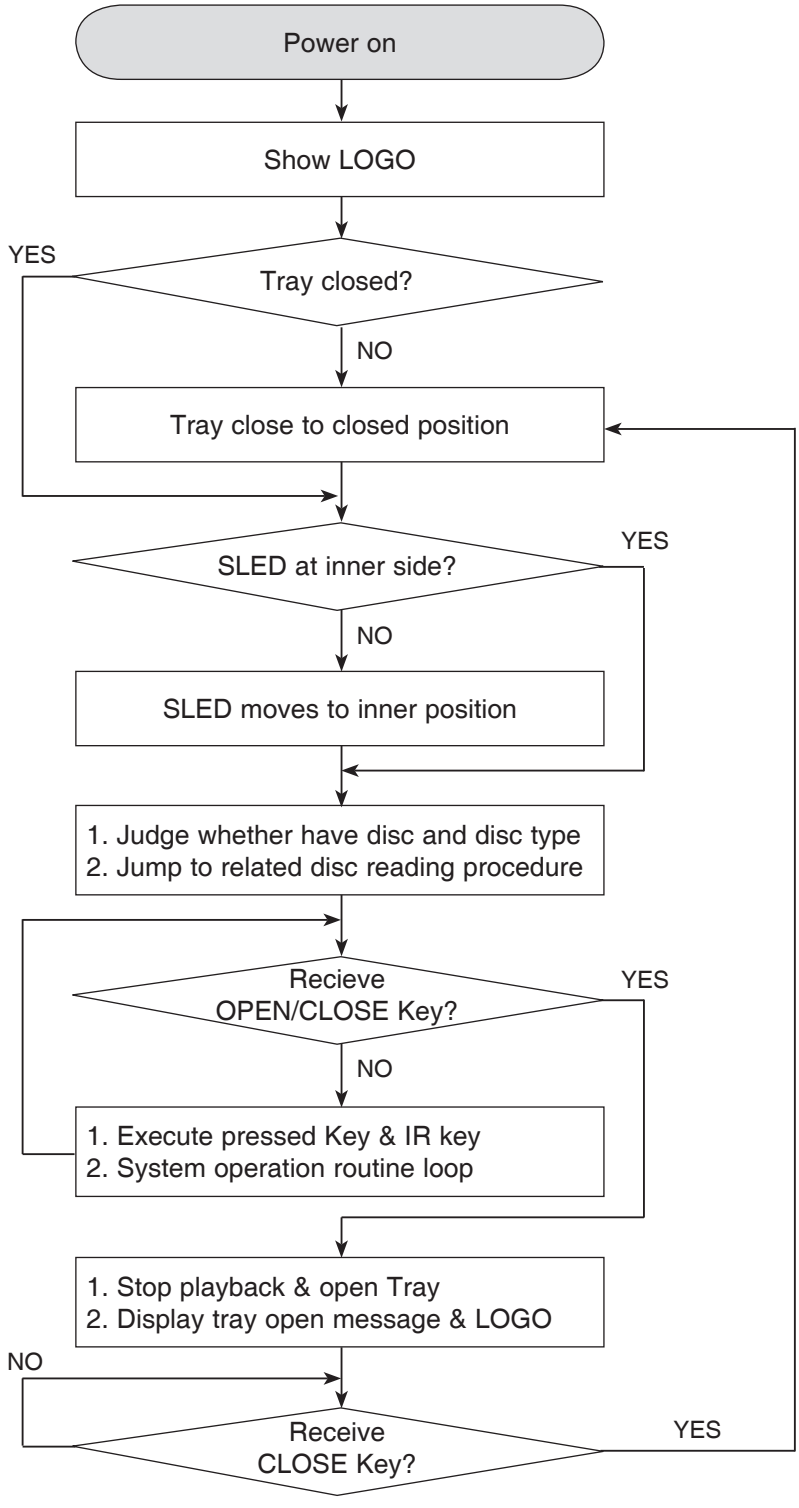
ELECTRICAL TROUBLESHOOTING GUIDE

2. POWER CHECK FLOW



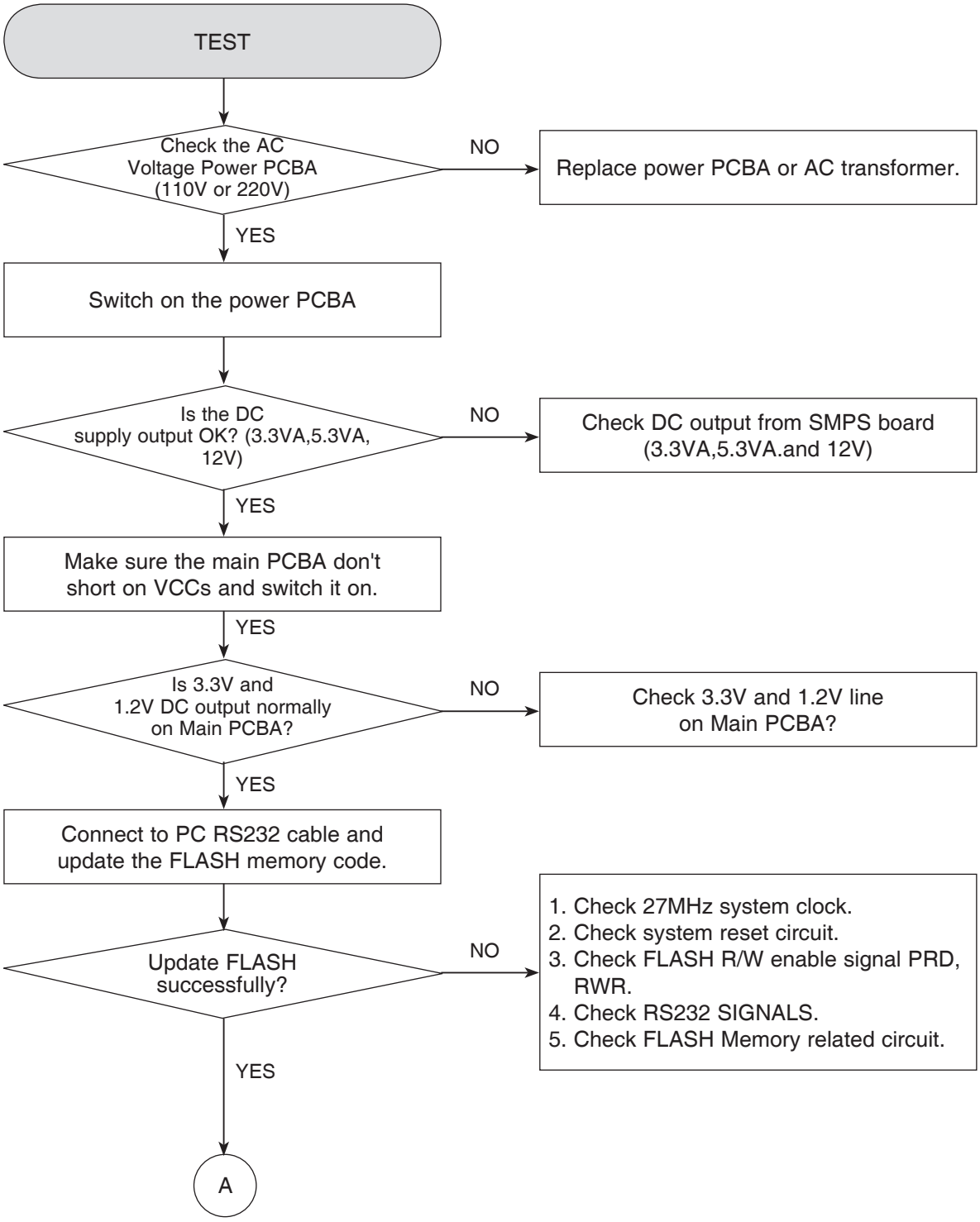
ELECTRICAL TROUBLESHOOTING GUIDE

3. SYSTEM OPERATION FLOW

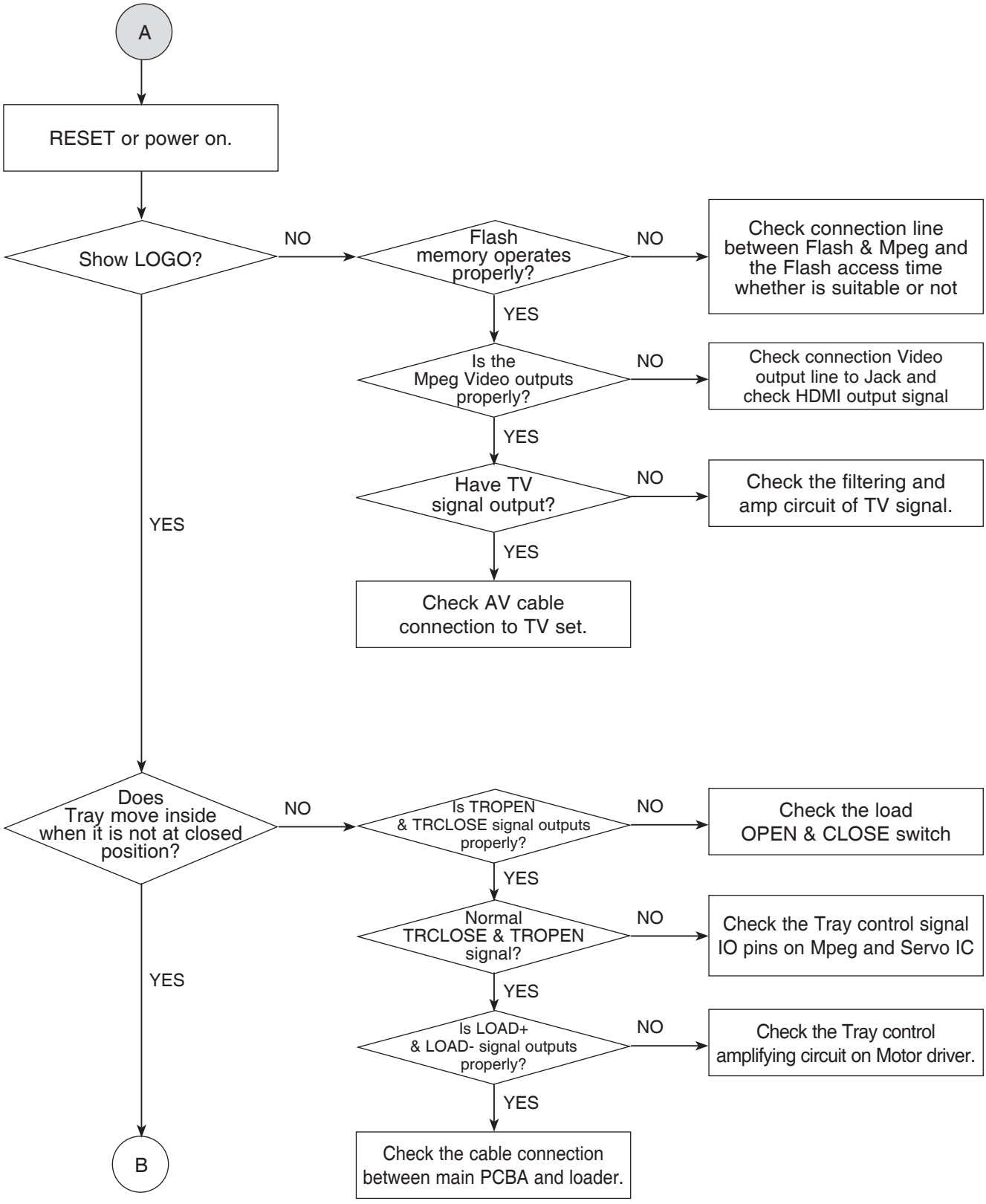


ELECTRICAL TROUBLESHOOTING GUIDE

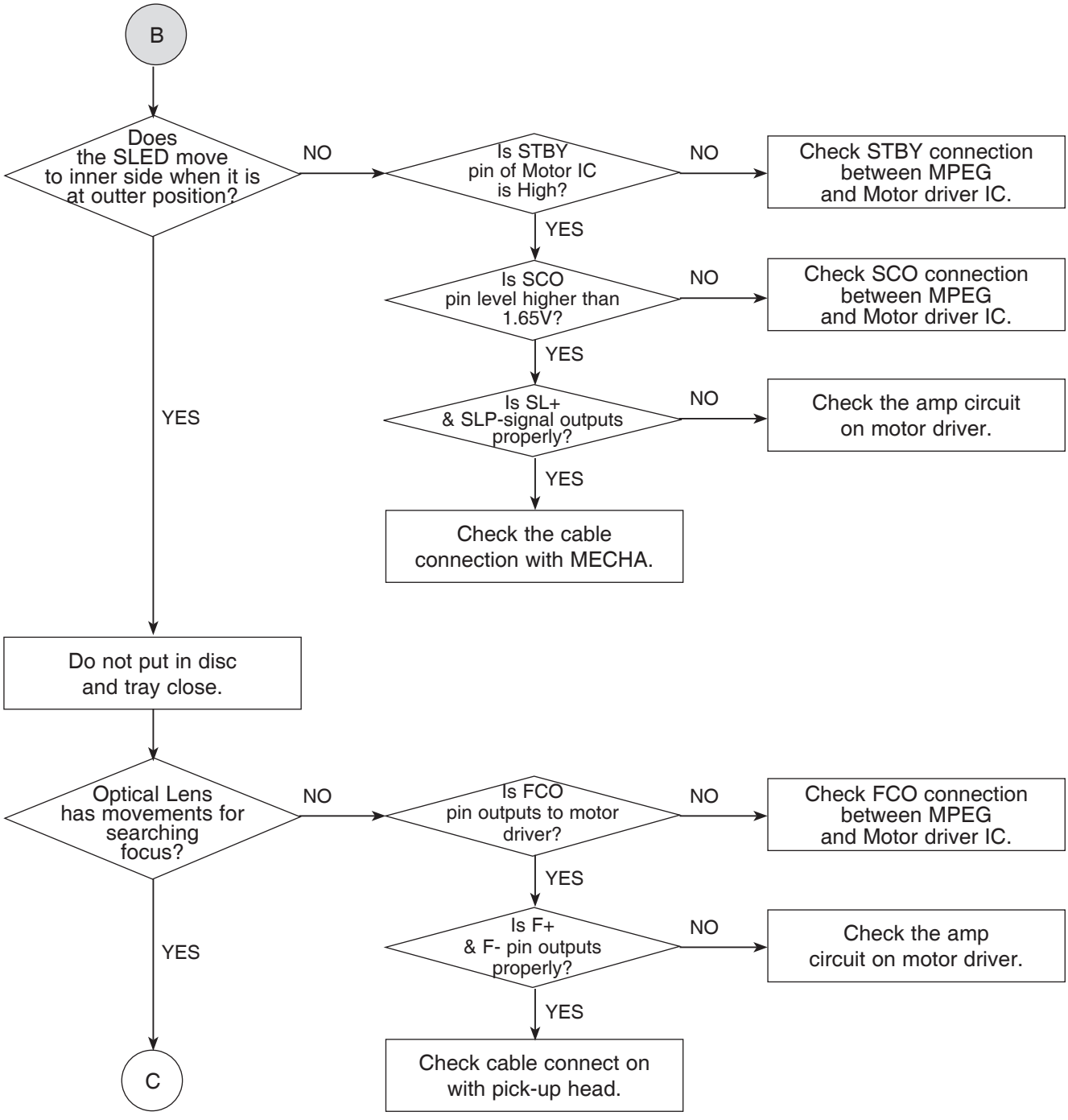
4. SYSTEM TEST FLOW



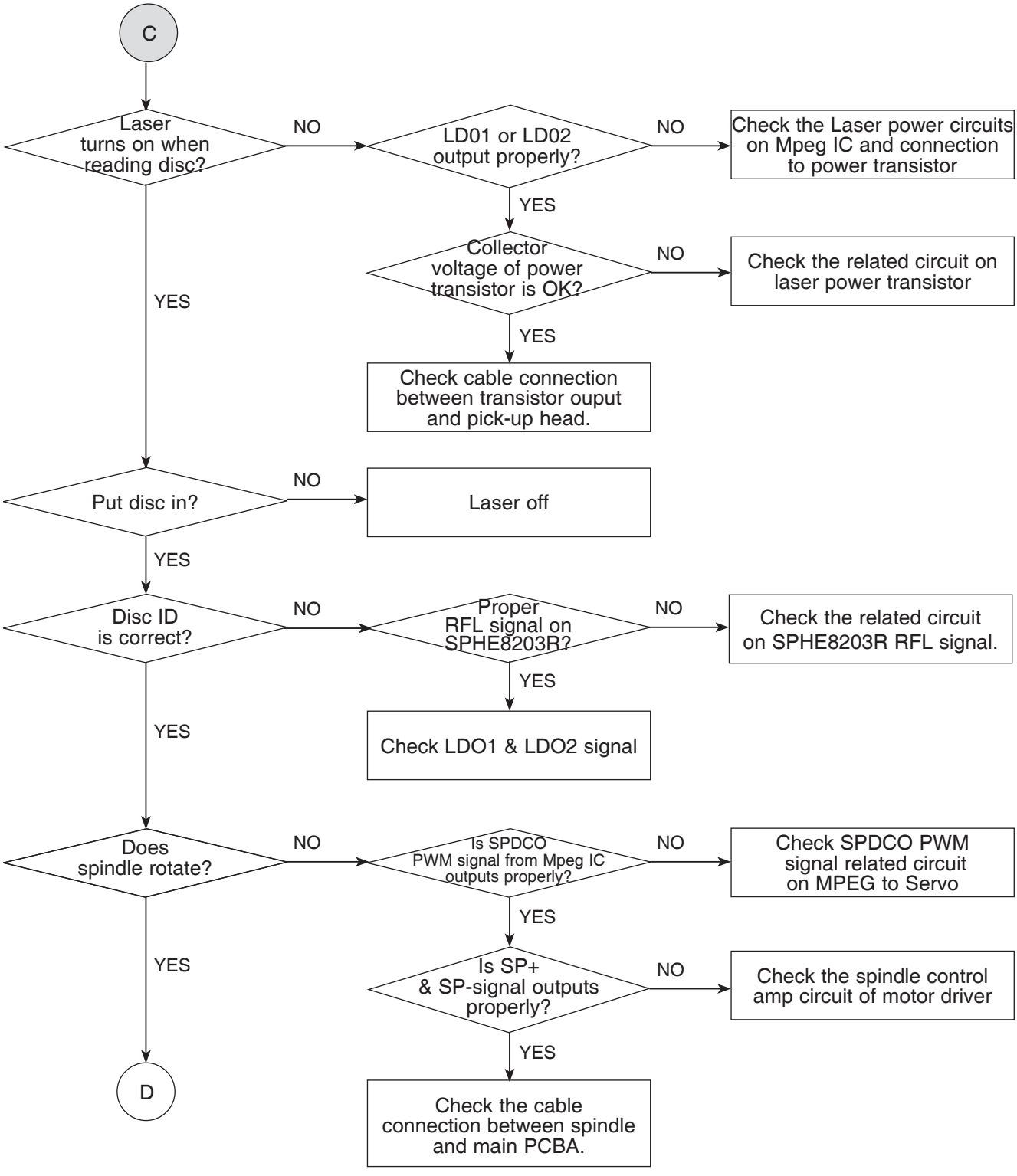
ELECTRICAL TROUBLESHOOTING GUIDE



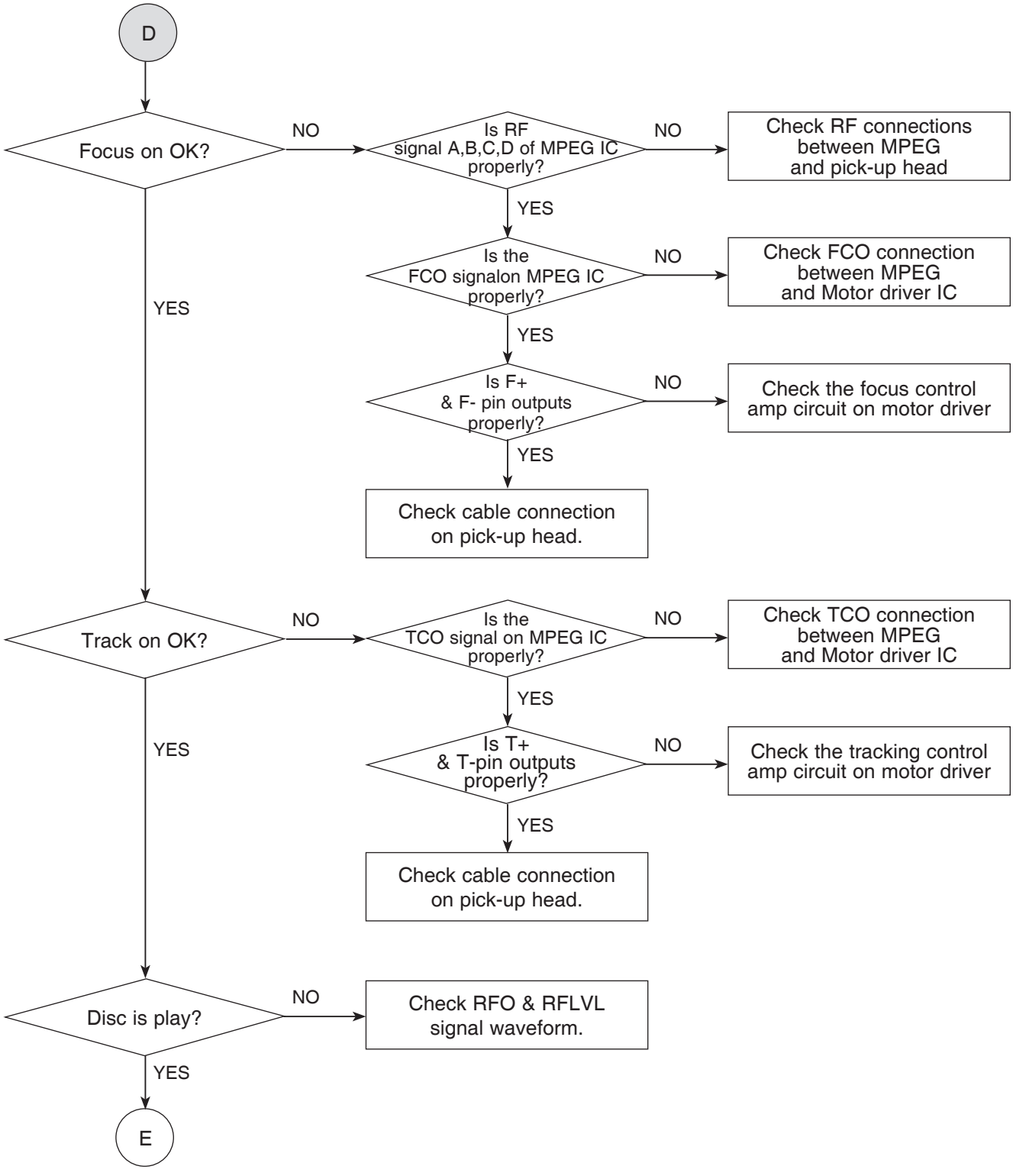
ELECTRICAL TROUBLESHOOTING GUIDE



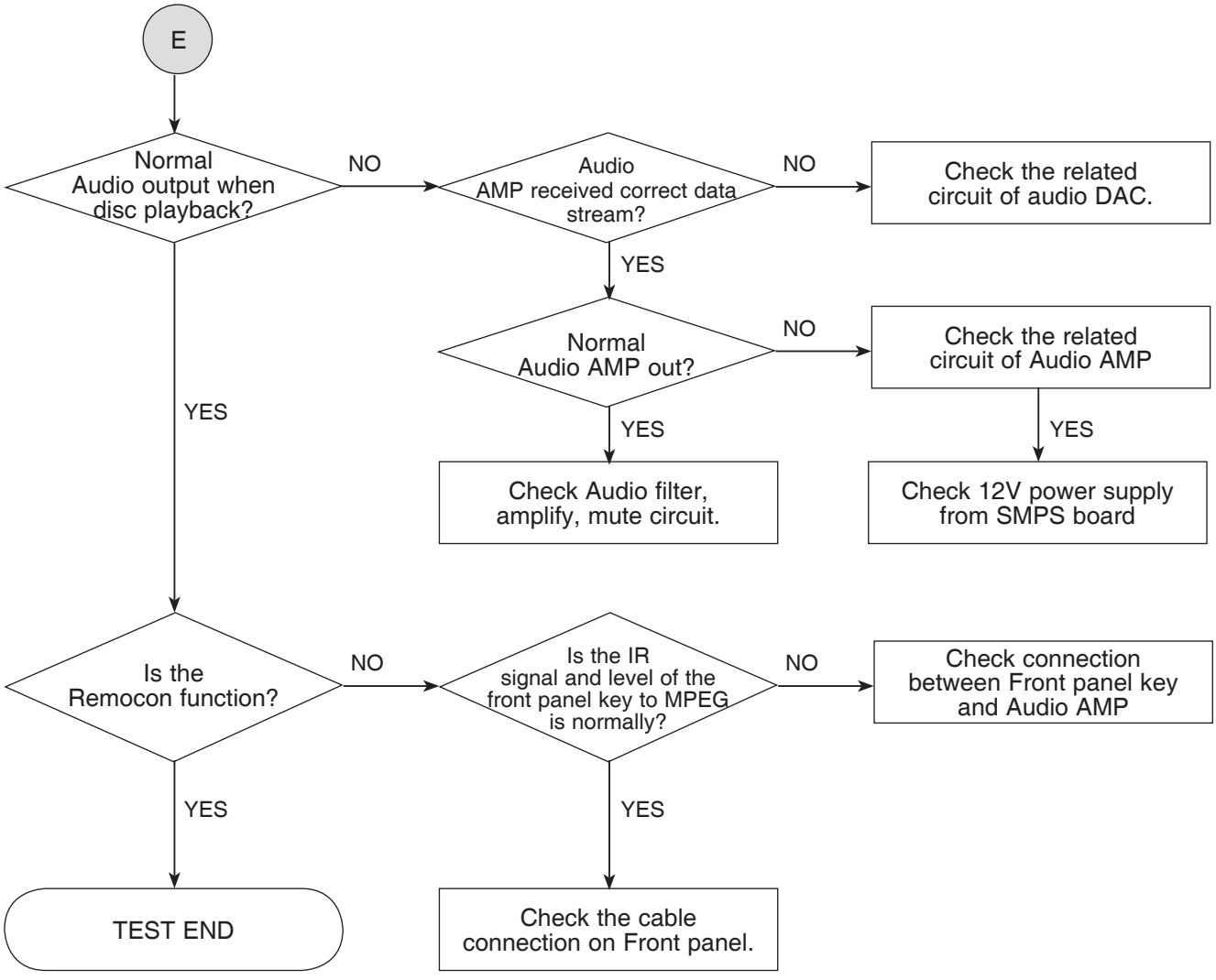
ELECTRICAL TROUBLESHOOTING GUIDE



ELECTRICAL TROUBLESHOOTING GUIDE



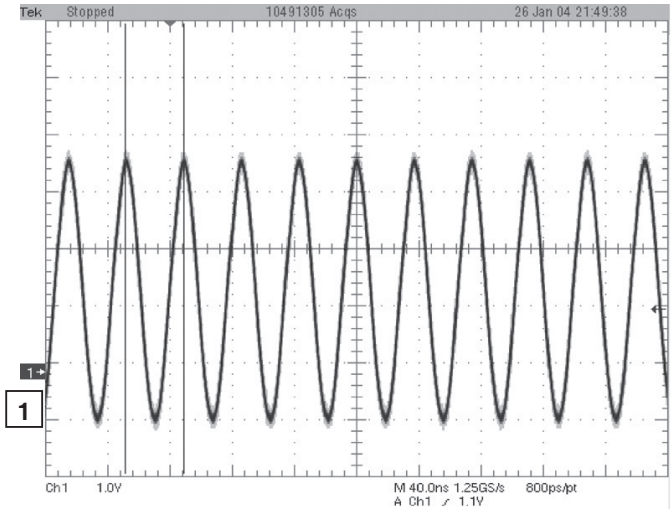
ELECTRICAL TROUBLESHOOTING GUIDE



DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING

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

1) SPHE8203R main clock is at 27MHz (X601)



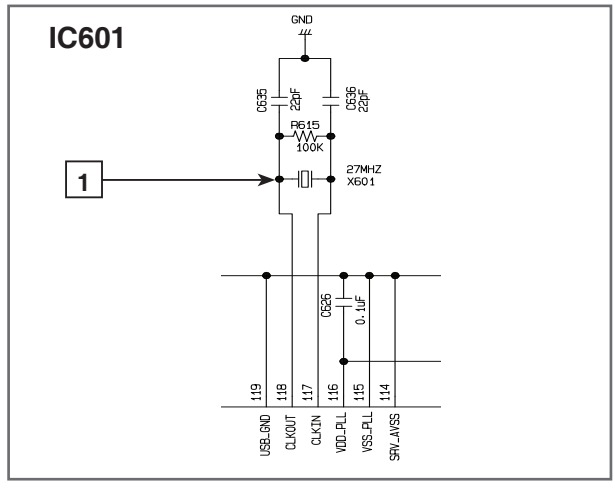
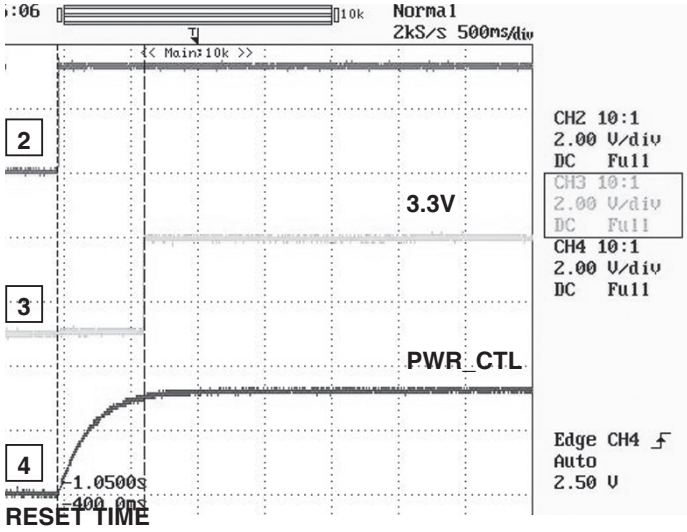


FIG 1-1

2) SPHE8203R reset is low active



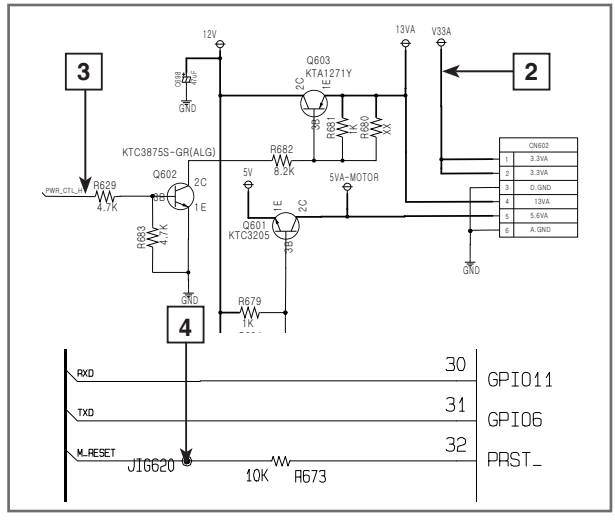
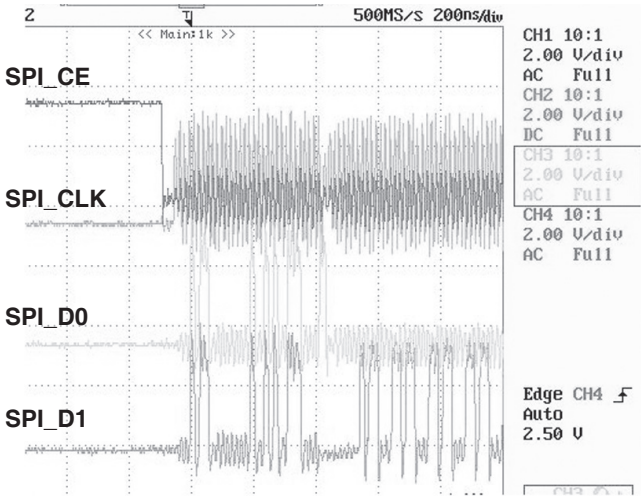


FIG 1-2

2. COMMUNICATION DATA MPEG IC

1) Flash memory control



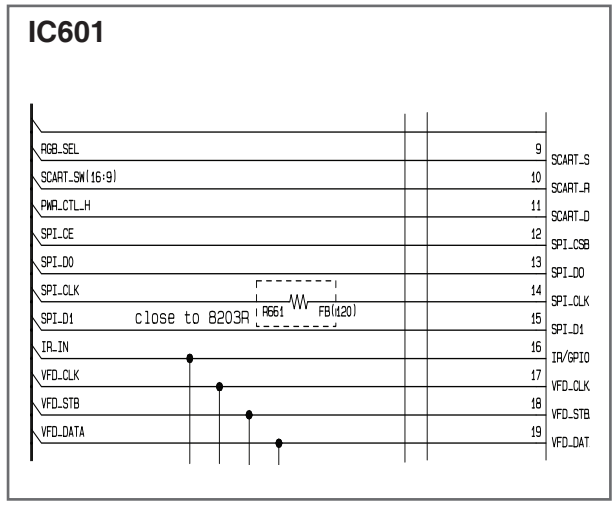


FIG 2-1

2) VFD control

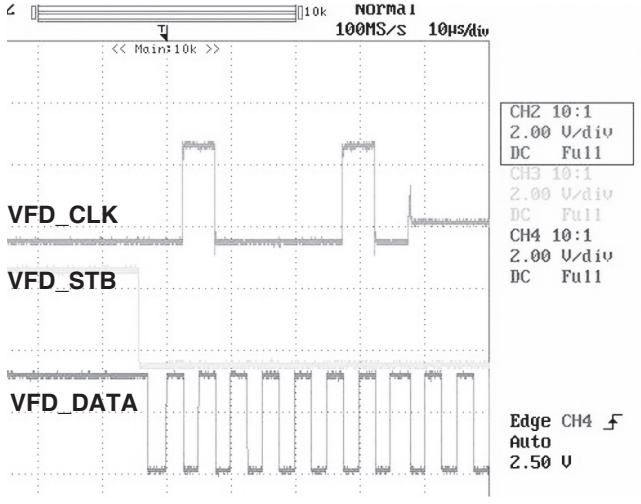
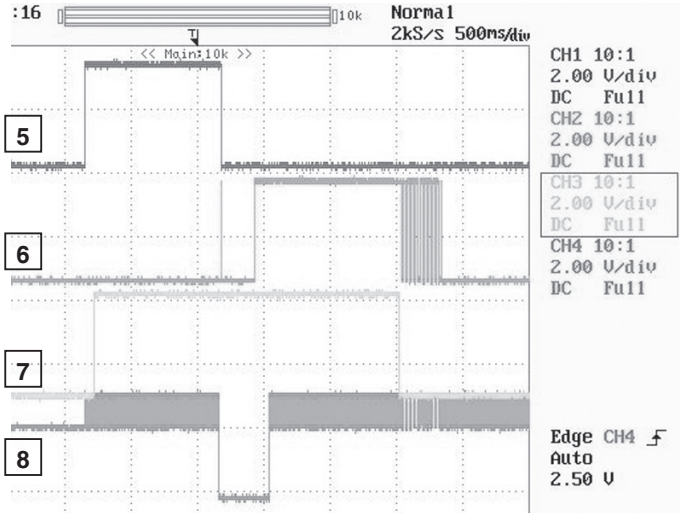


FIG 2-2

3. TRAY OPEN/CLOSE SIGNAL



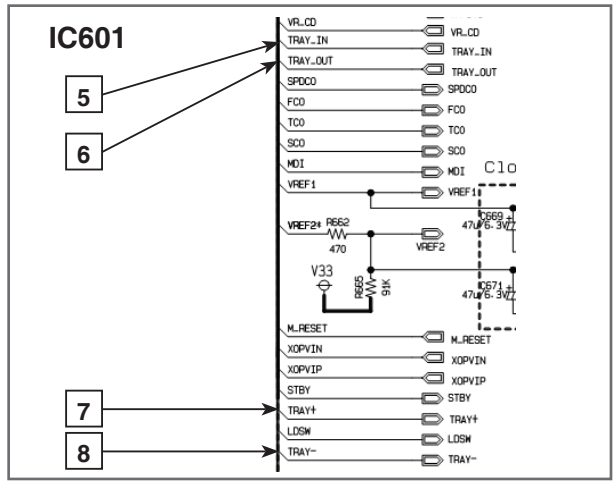
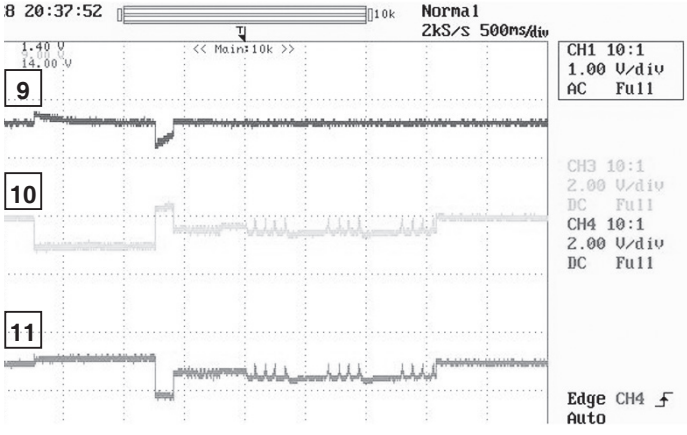


FIG 3-1

4. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)



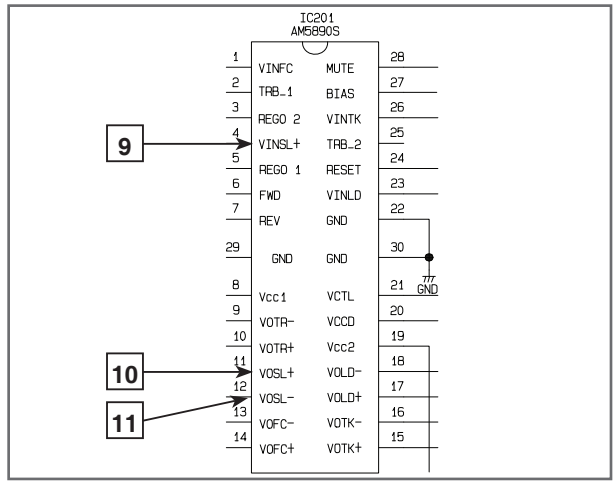


FIG 4-1

5. LENS CONTROL RELATED SIGNAL (NO DISC CONDITION)

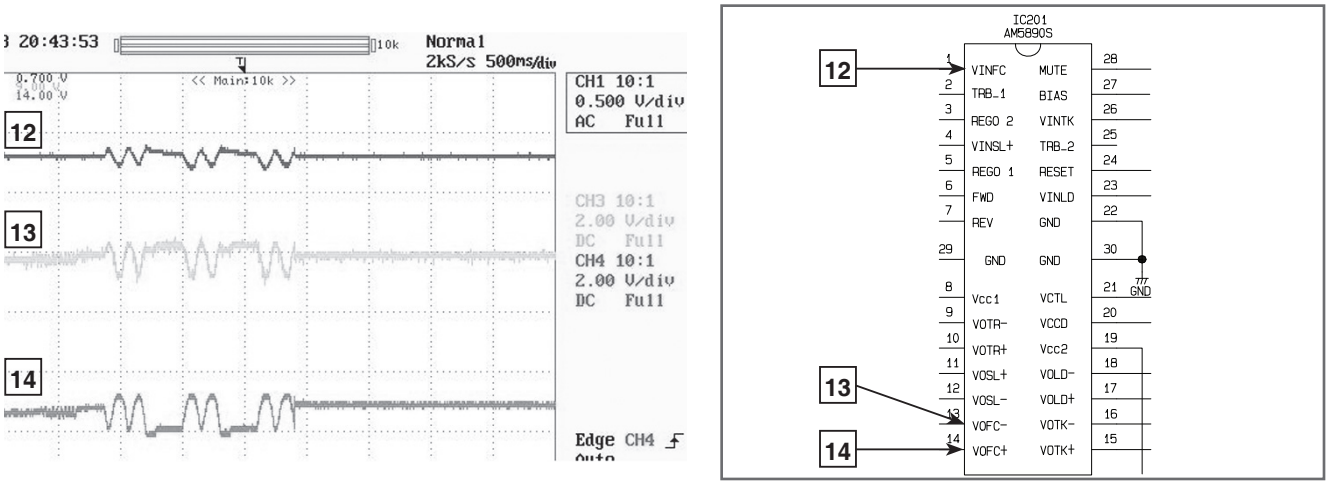


FIG 5-1

6. LASER POWER CONTROL RELATED SIGNAL (NO DISC CONDITION)

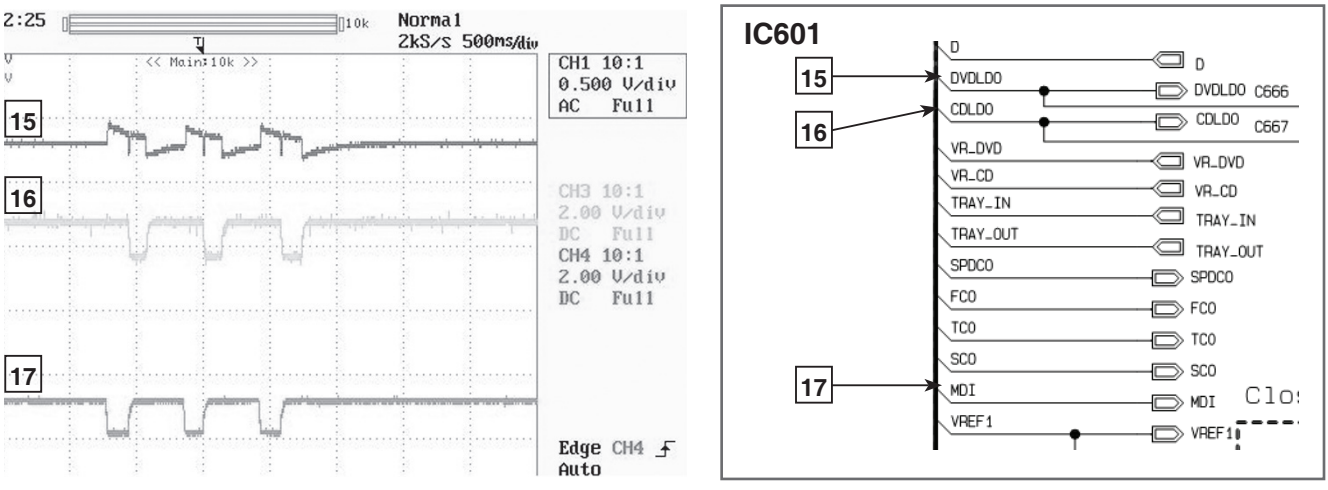


FIG 6-1

7. FOCUS ON WAVEFORM

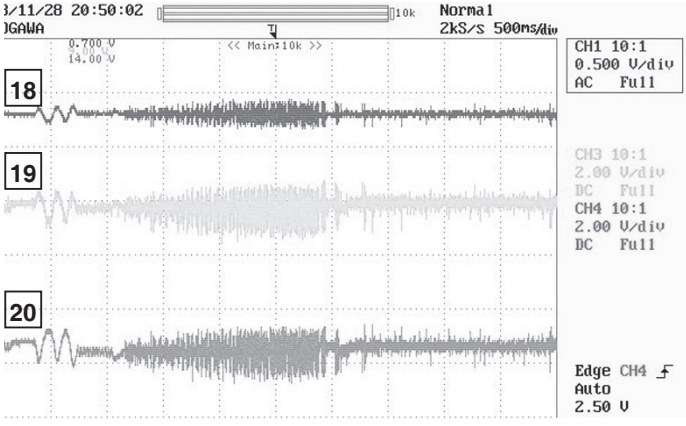


FIG 7-1 (CD)

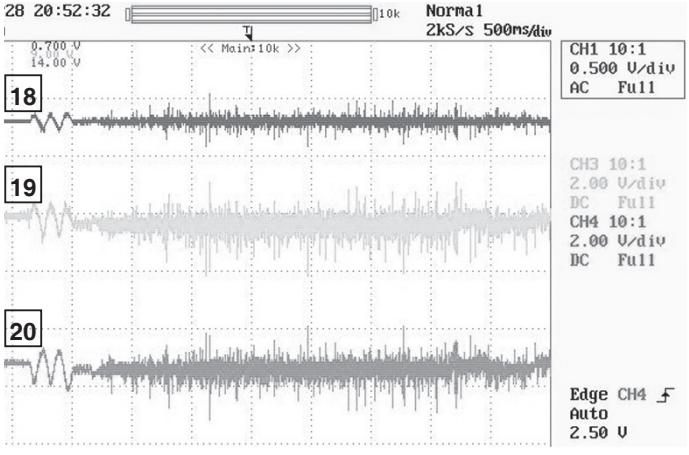
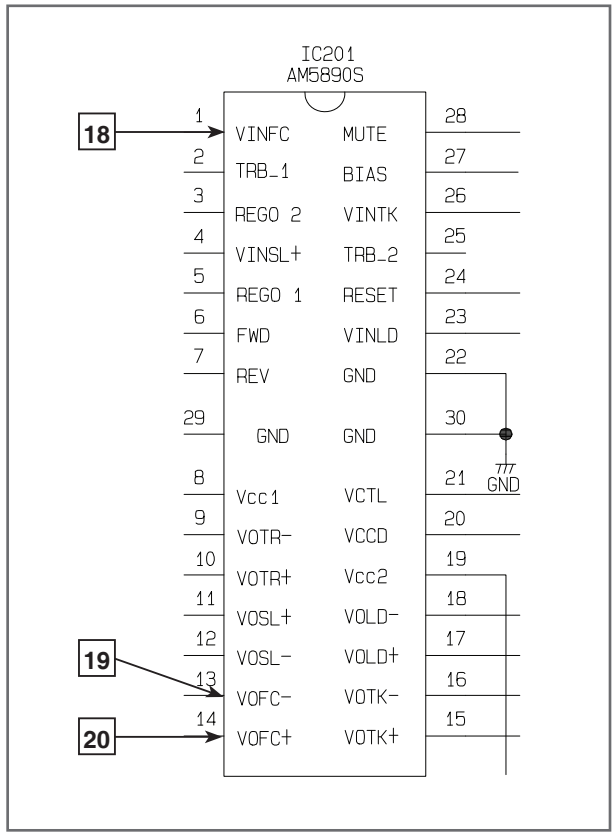
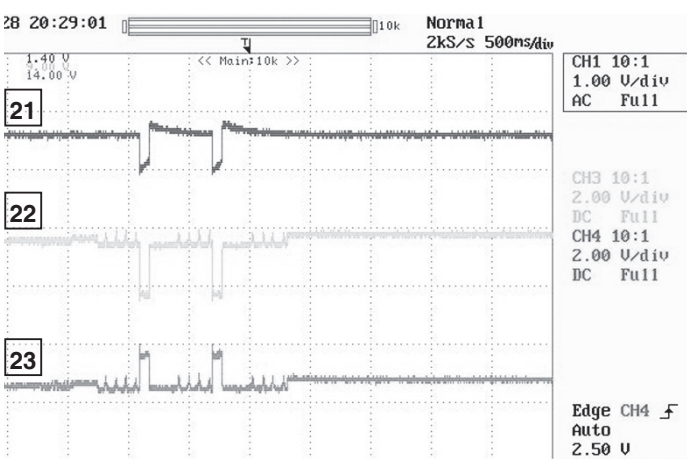


FIG 7-2 (DVD)



8. SPINDLE CONTROL WAVEFORM (NO DISC CONDITION)



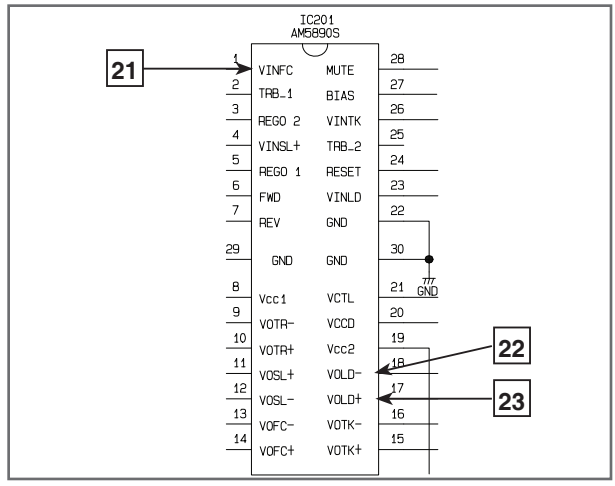
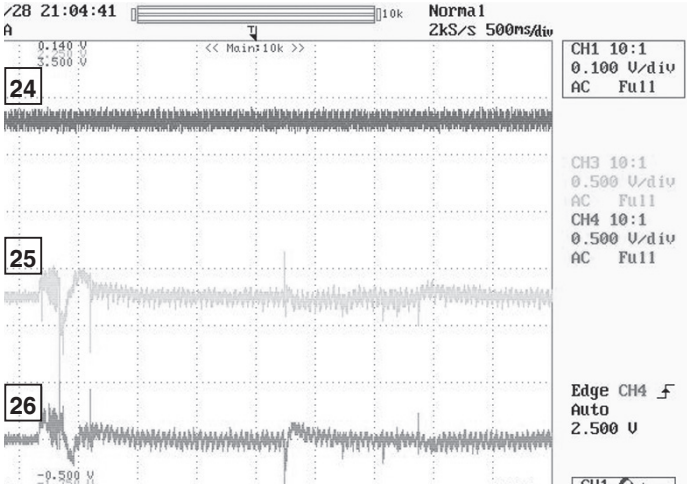


FIG 8-1

9. TRACKING CONTROL RELATED SIGNAL (SYSTEM CHECKING)



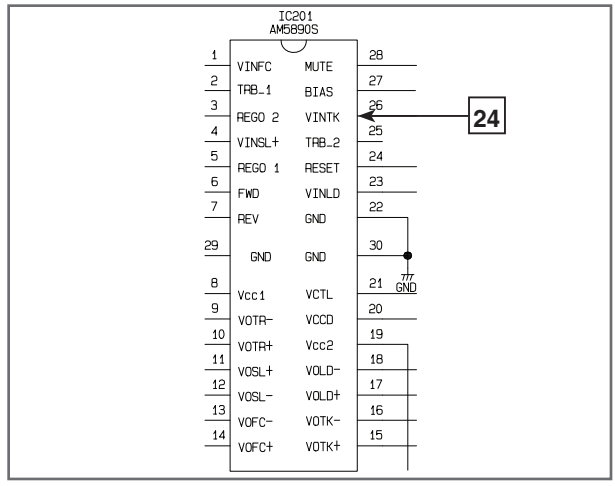
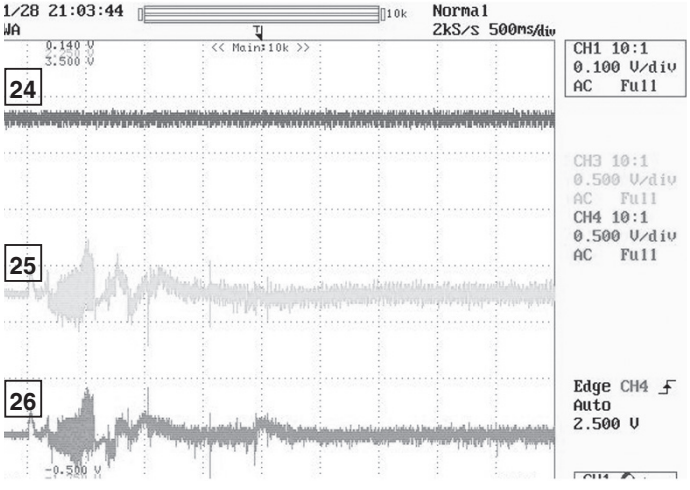


FIG 9-1 (CD)



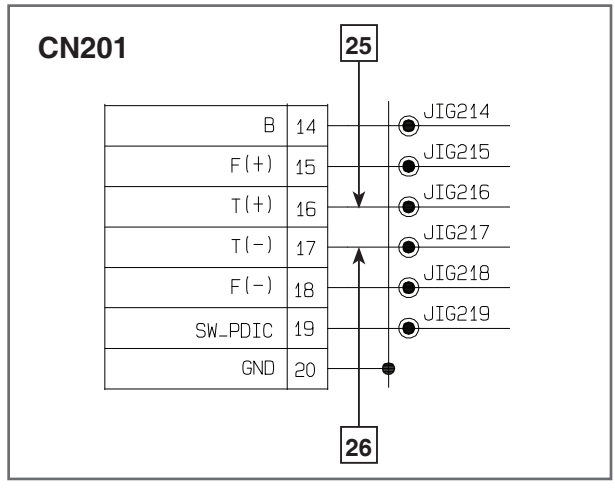
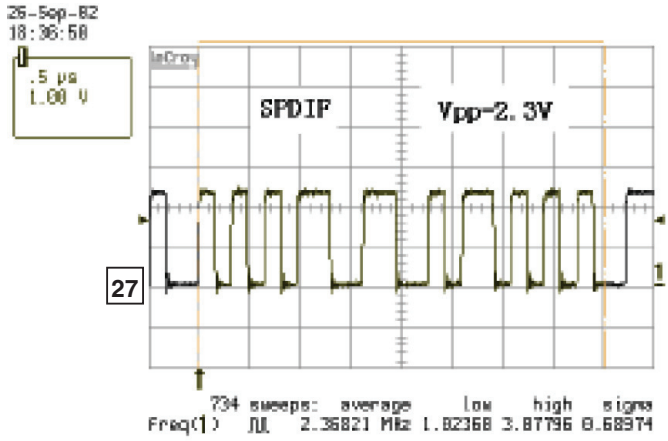


FIG 9-2 (DVD)

10. SPHE8203R AUDIO OPTICAL OUTPUT (SPDIF)



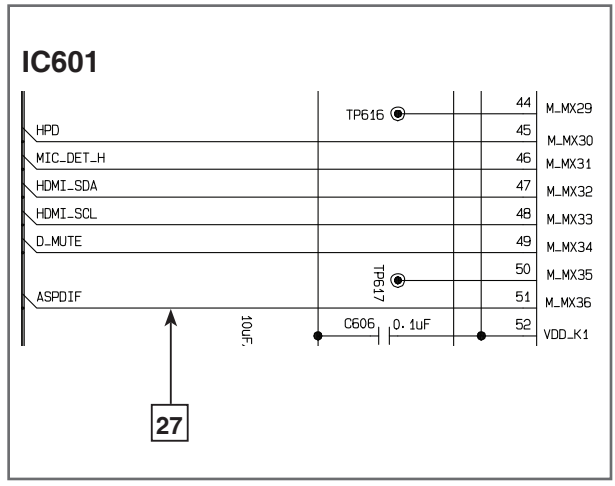
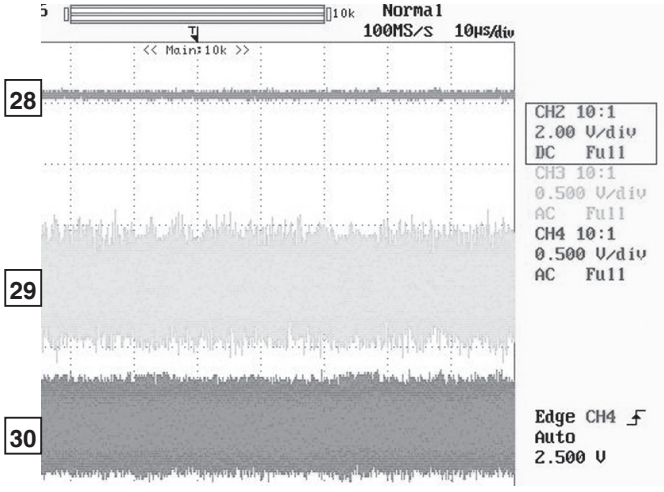


FIG 10-1

11. SPHE8203R HDMI CONTROL



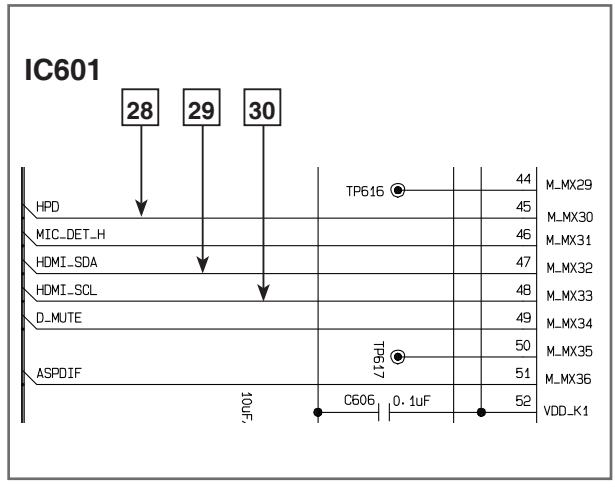
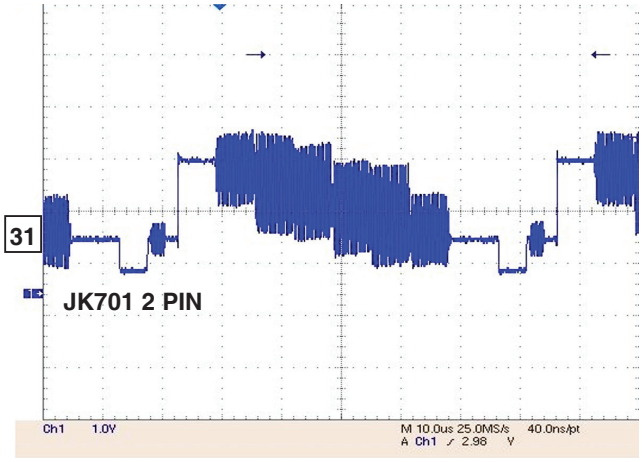


FIG 11-1

12. SPHE8203R VIDEO OUTPUT WAVEFORM

1) Full colorbar signal (CVBS)



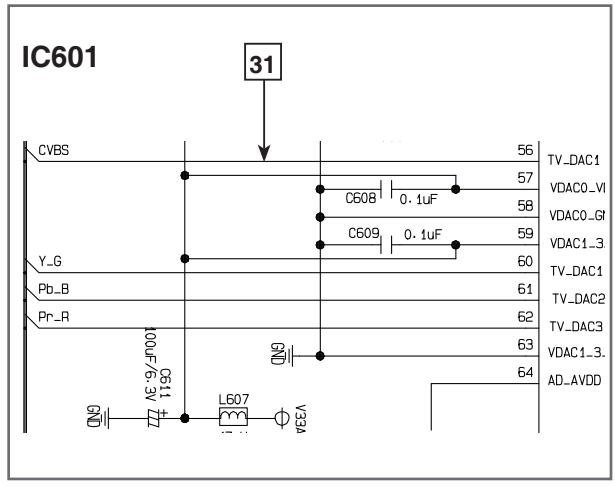
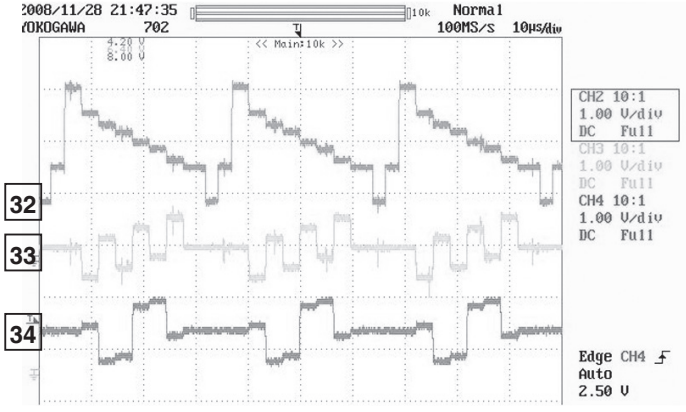


FIG 12-1

2) Full Component signals (Y, Pr, Pb)



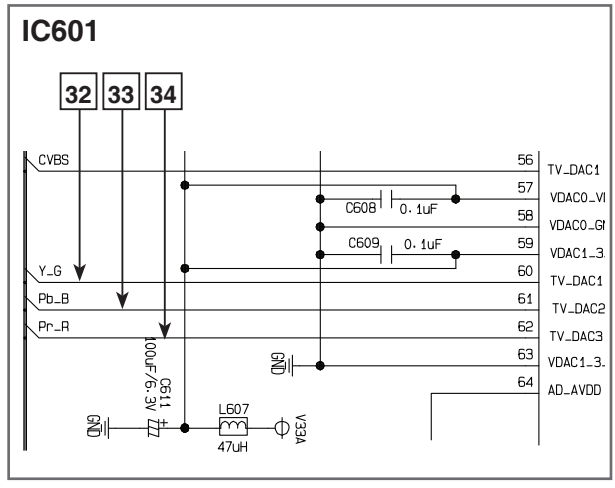


FIG 12-2

13. AUDIO OUTPUT FROM SPHE8203R

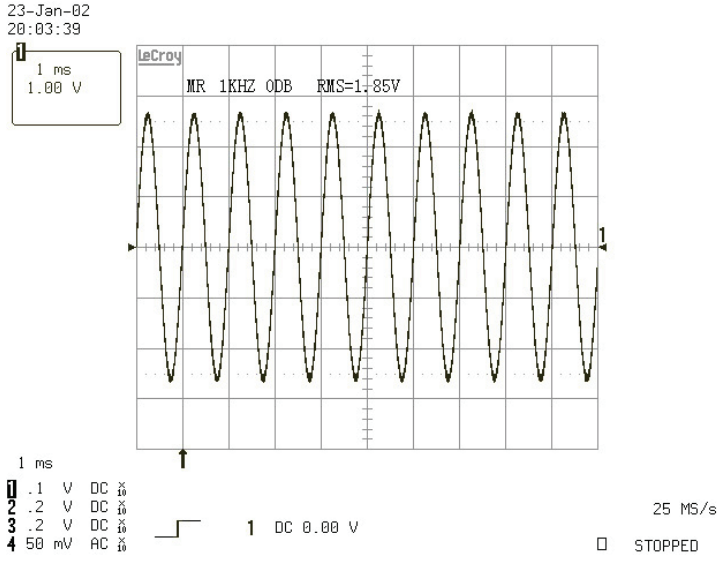
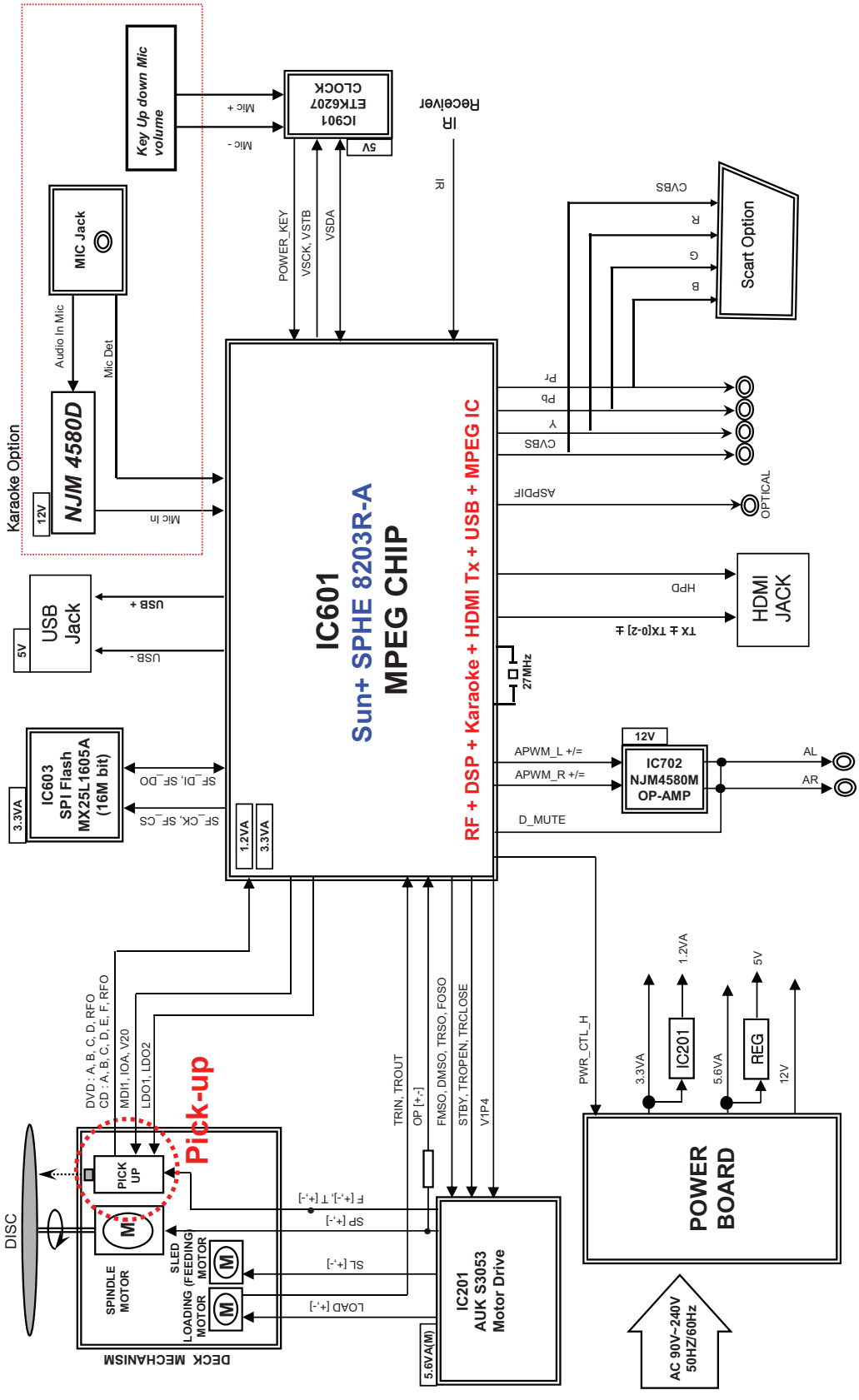


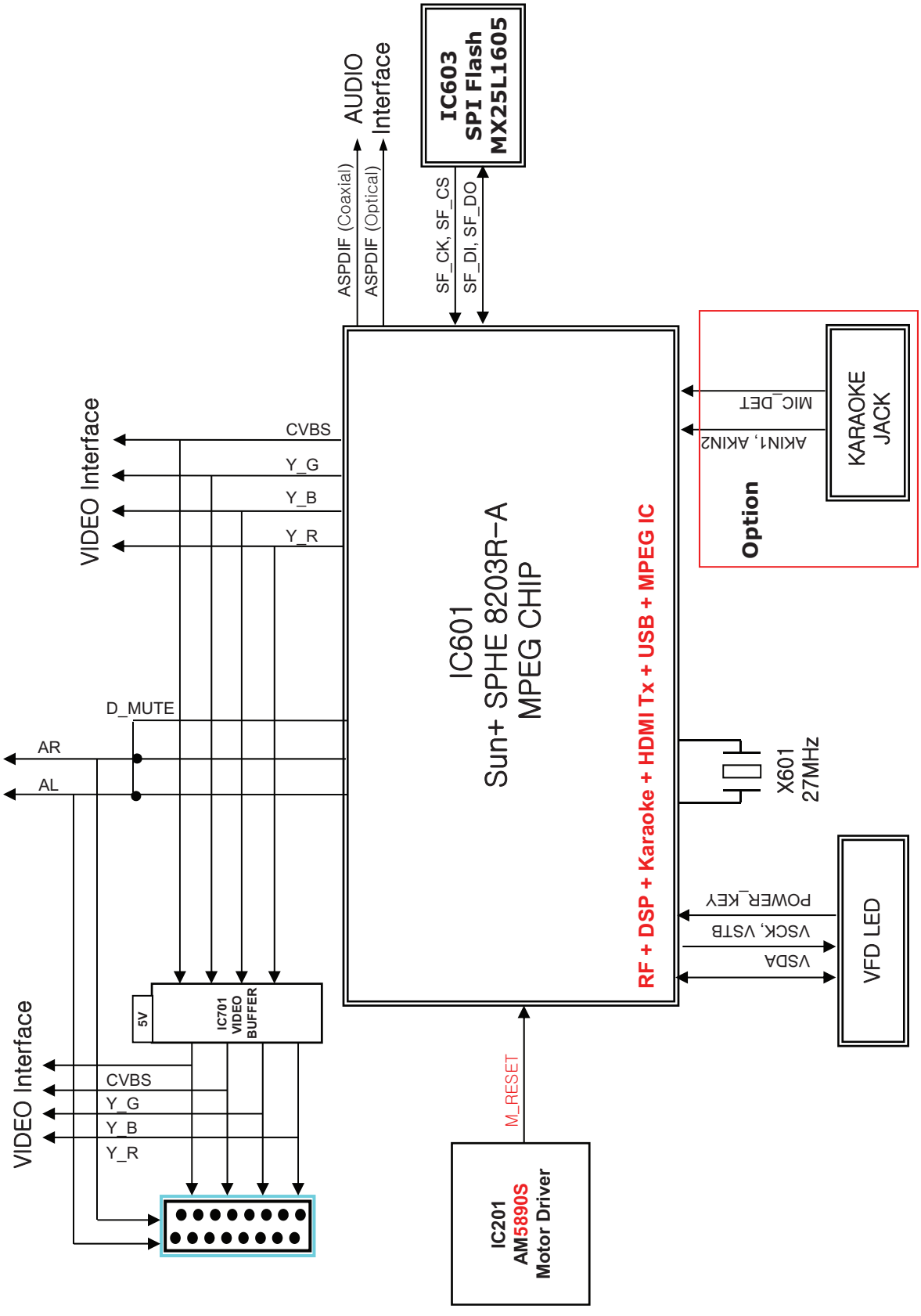
FIG 13-1

BLOCK DIAGRAMS

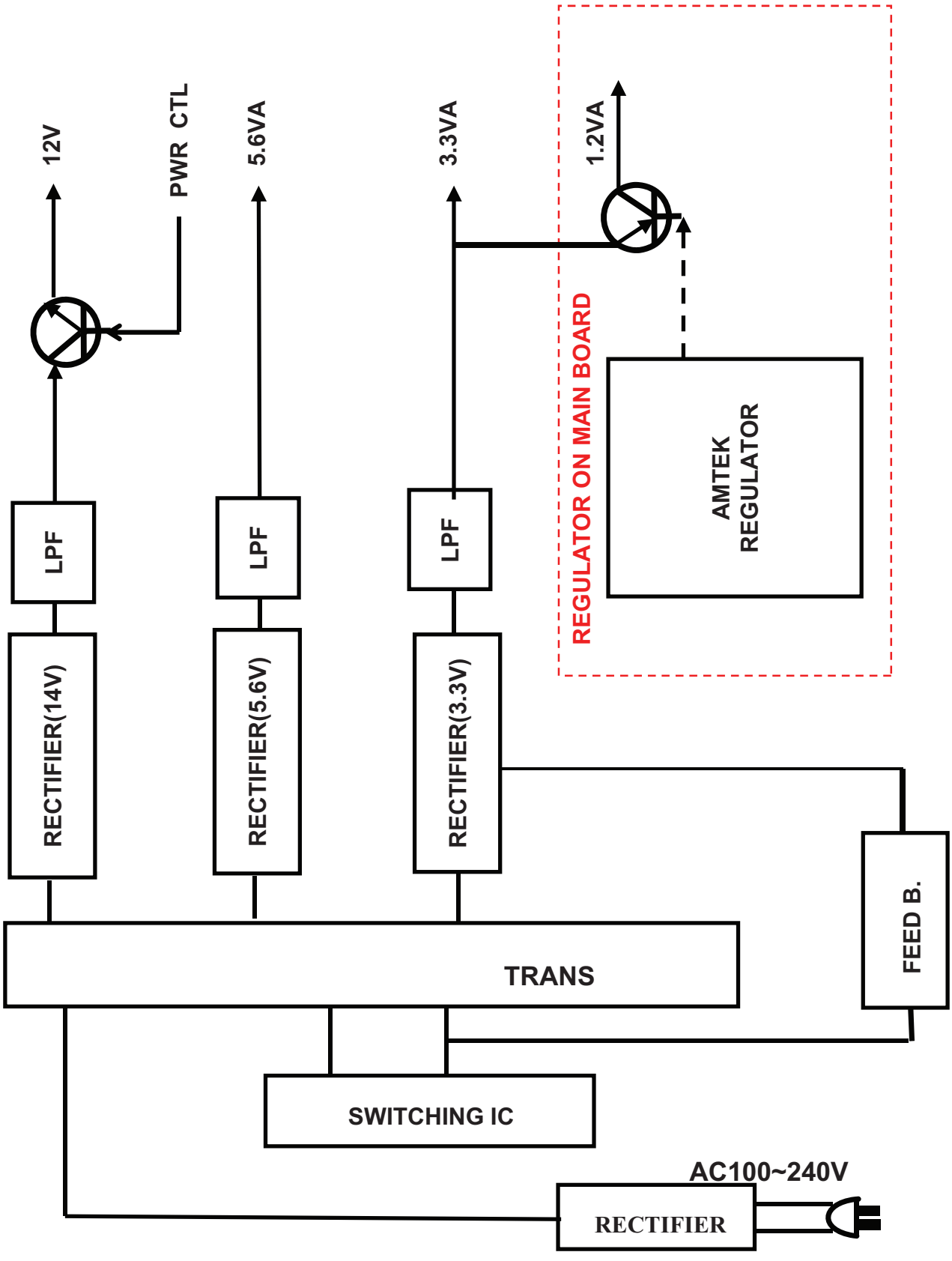
1. OVERALL BLOCK DIAGRAM



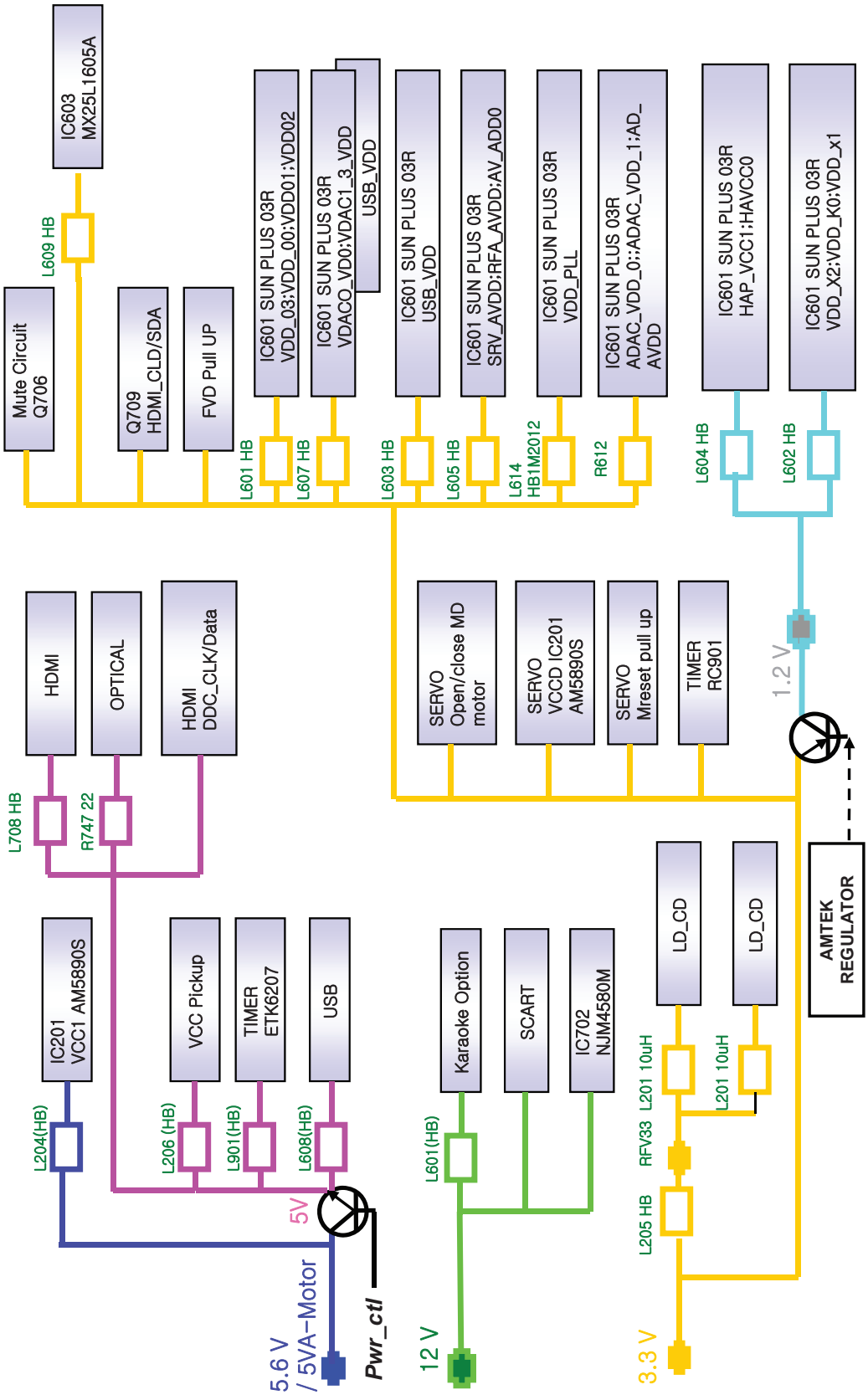
2. SYSTEM BLOCK DIAGRAM



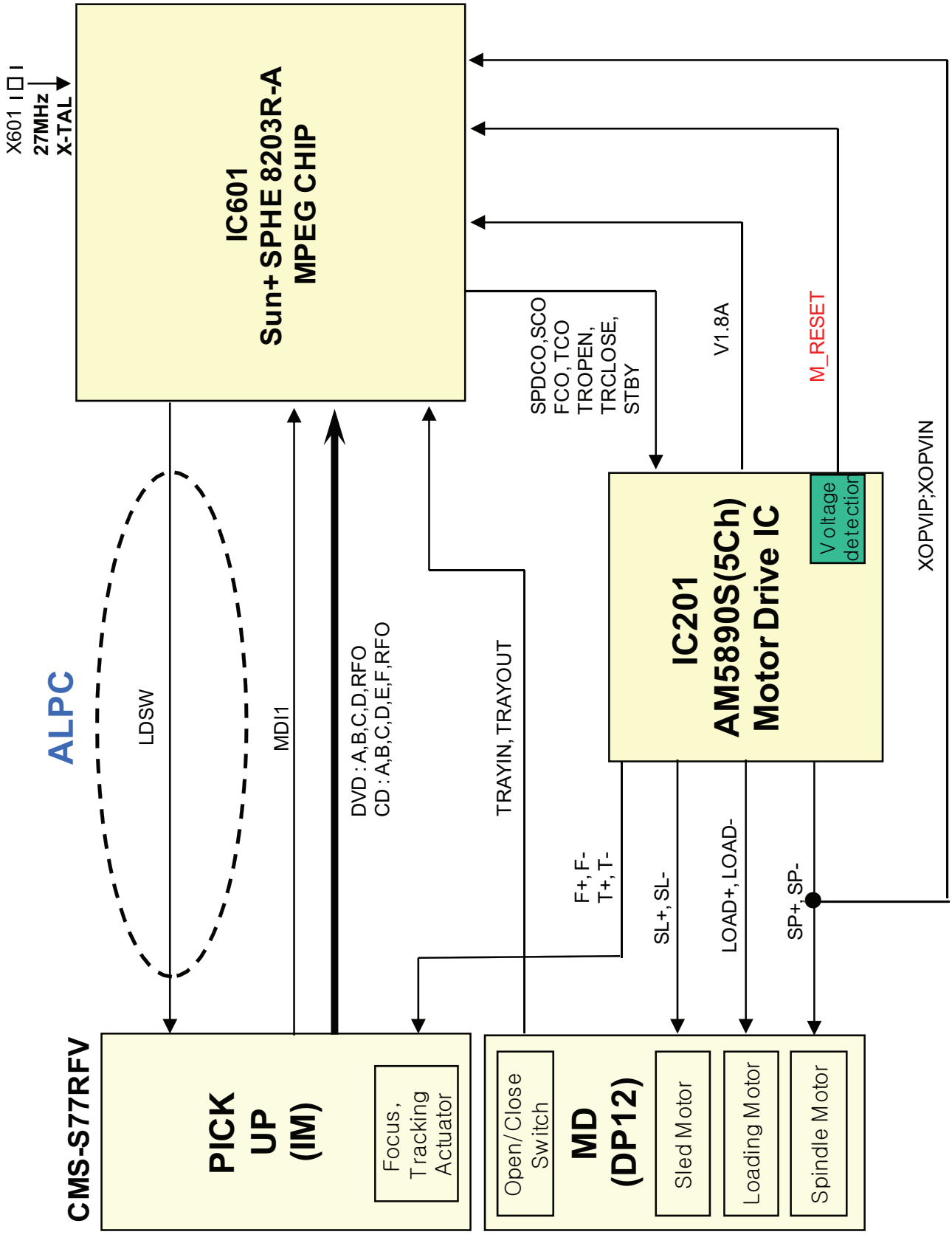
3. POWER(SMPS) BLOCK DIAGRAM



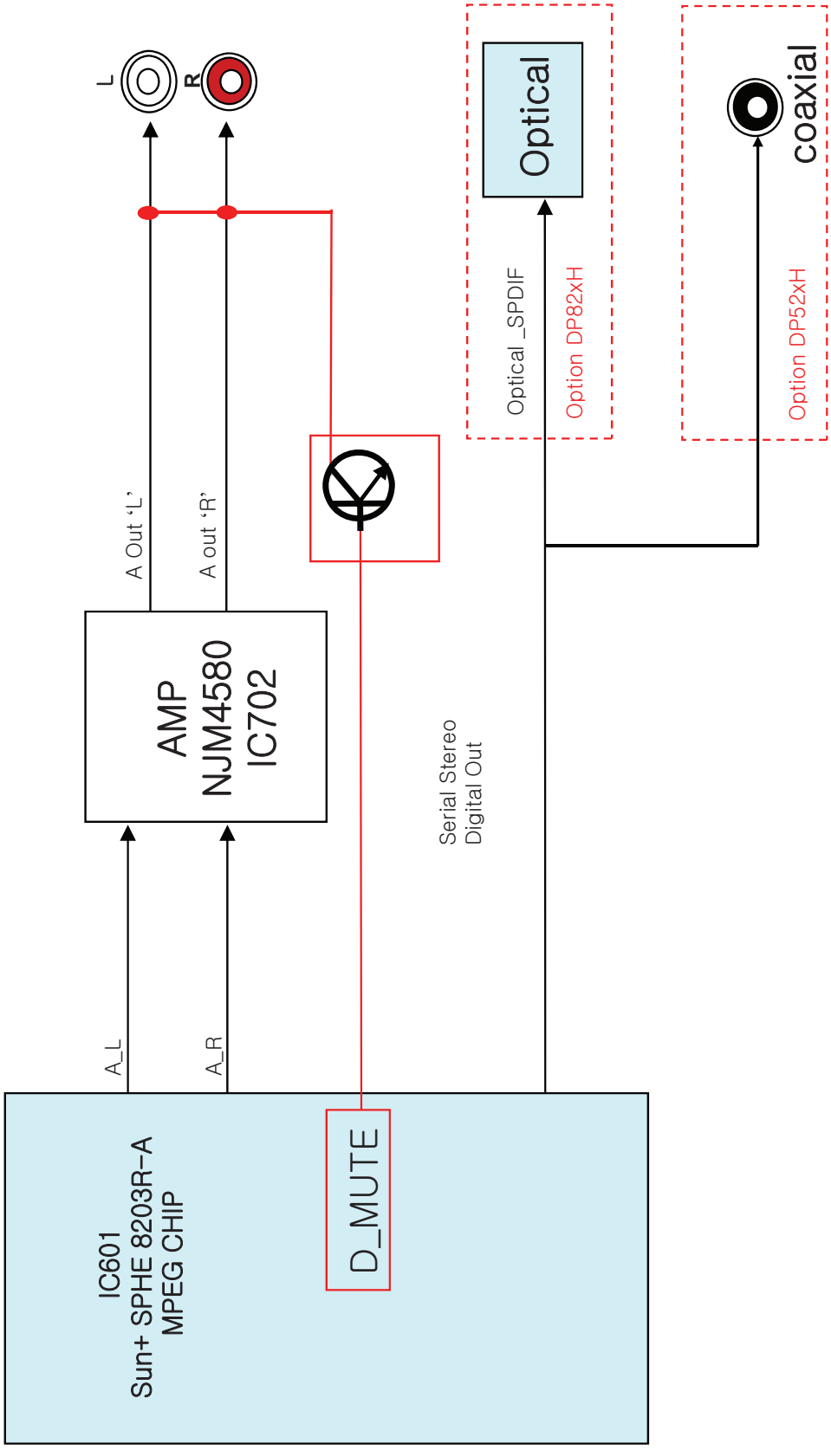
4. POWER PATH DIAGRAM



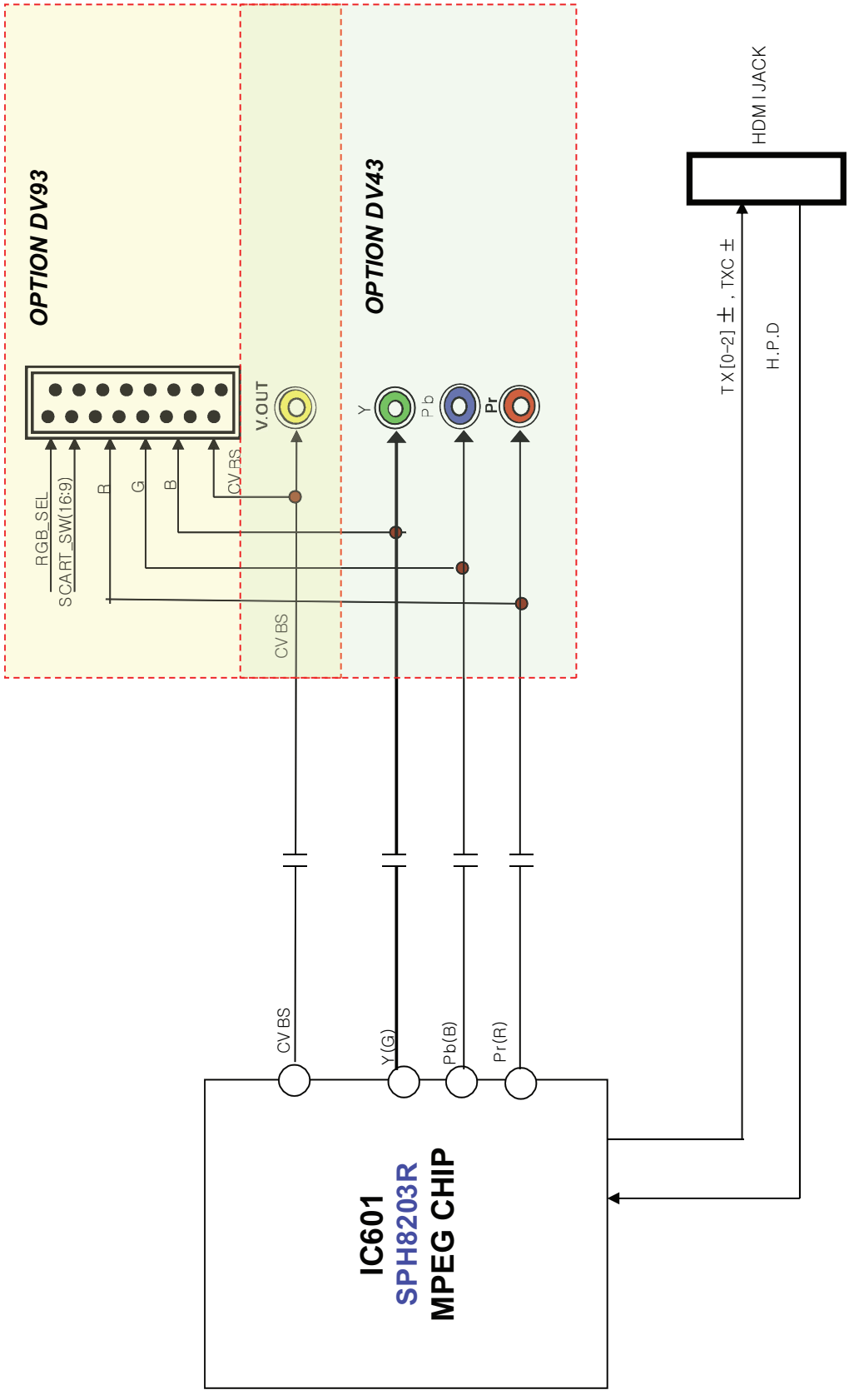
5. SERVO BLOCK DIAGRAM



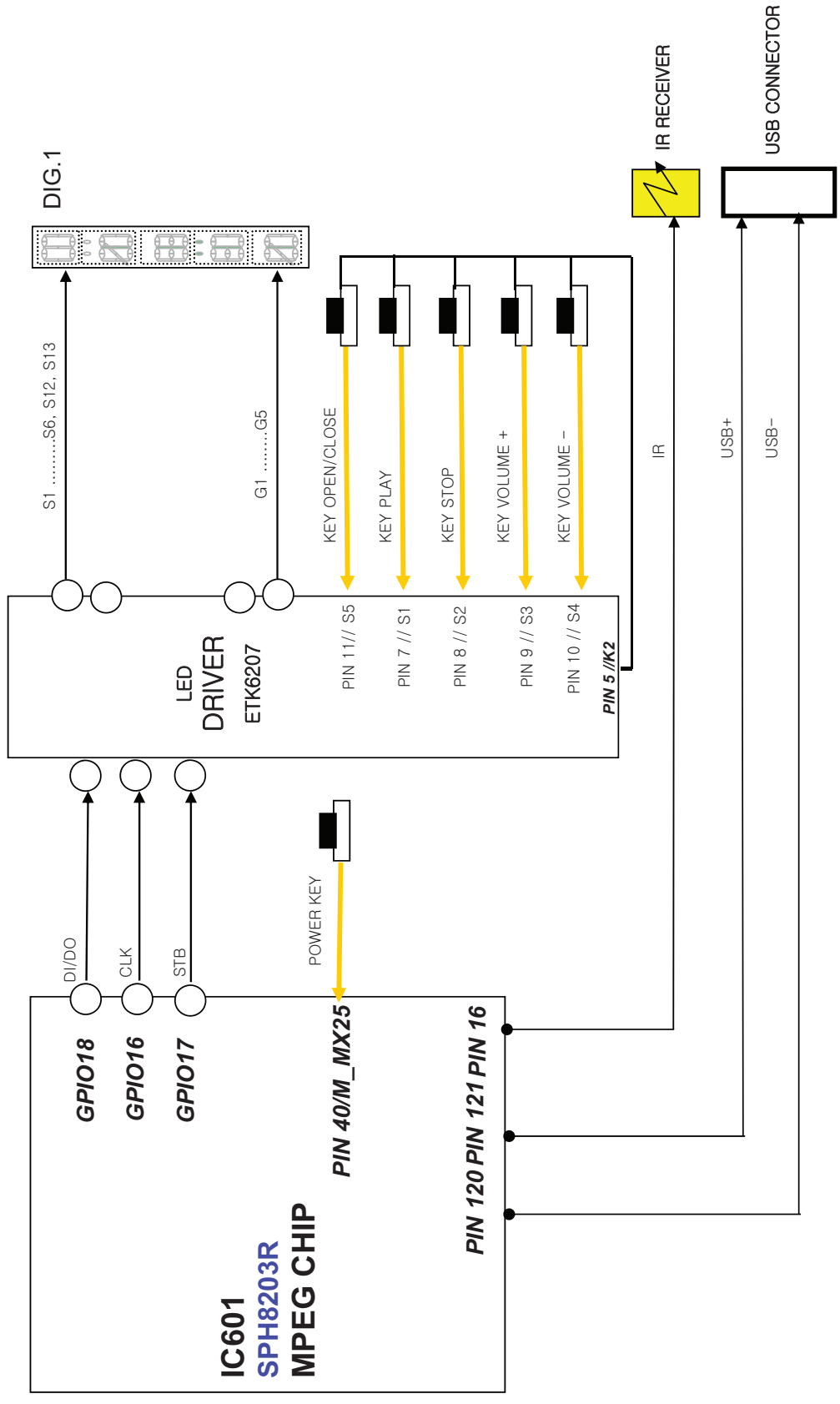
6. AUDIO BLOCK DIAGRAM



7. VIDEO BLOCK DIAGRAM



8. TIMER/ KEY BLOCK DIAGRAM



MEMO

CIRCUIT DIAGRAMS

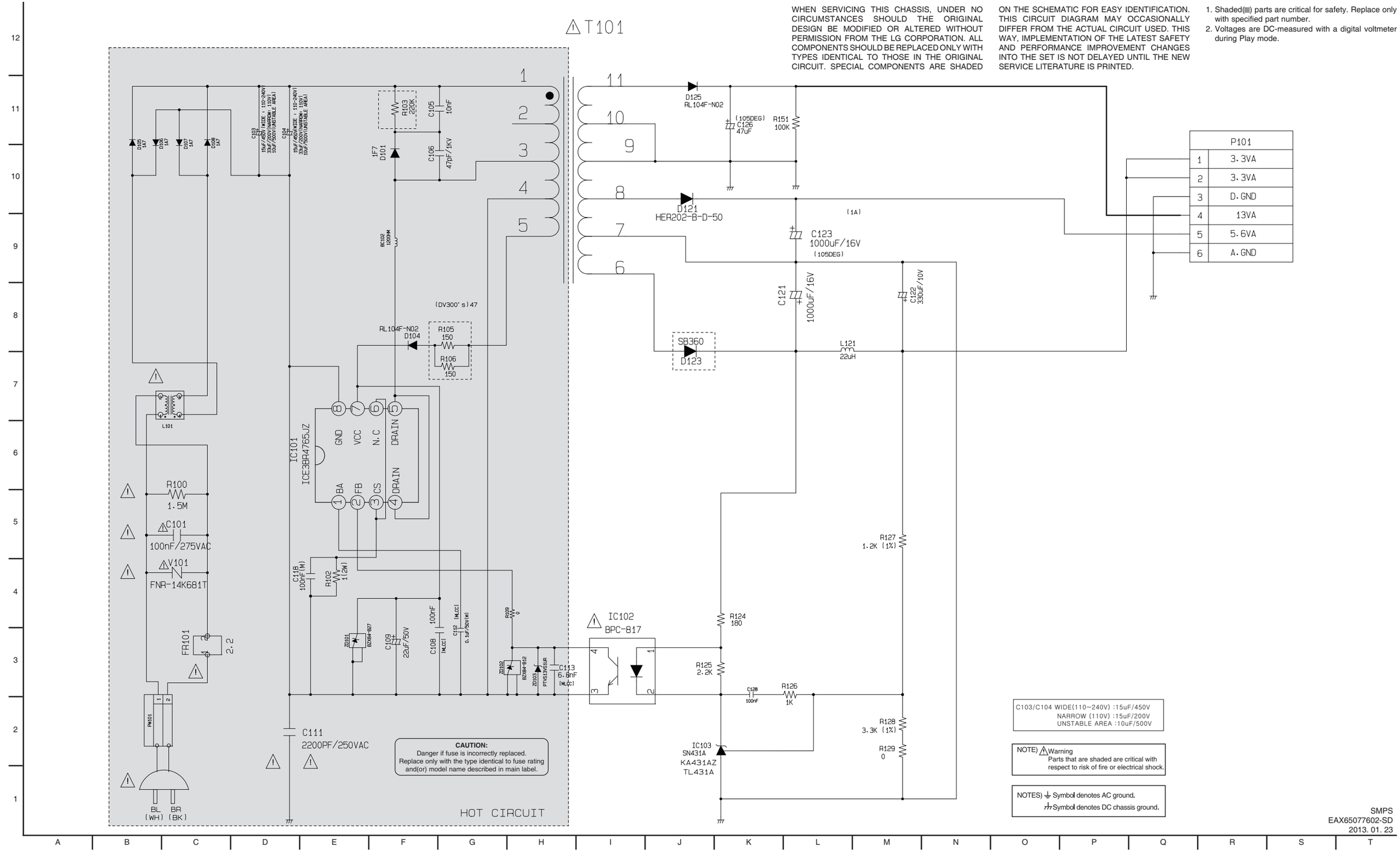
1. SMPS CIRCUIT DIAGRAM

IMPORTANT SAFETY

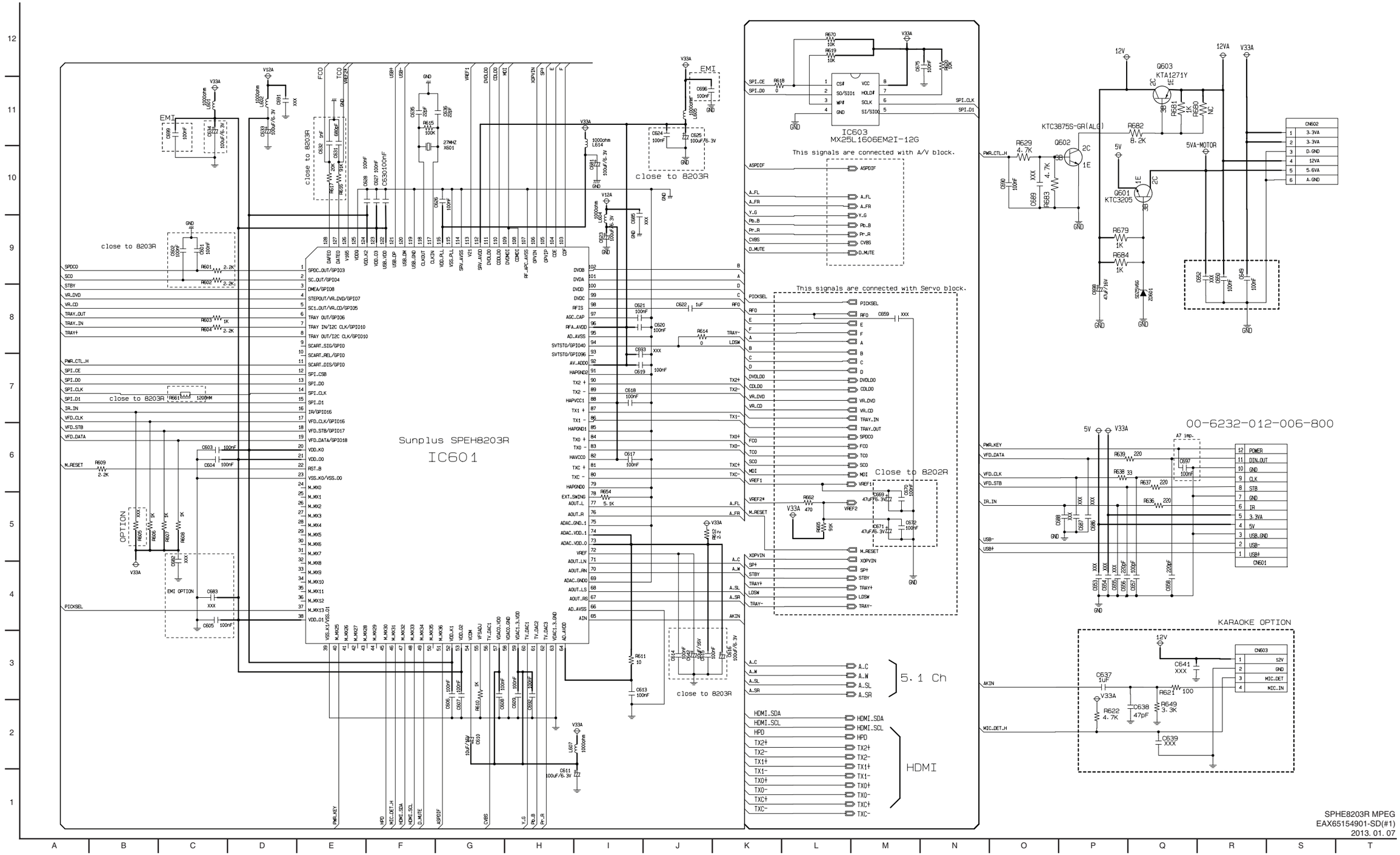
WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE LG CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION. 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.

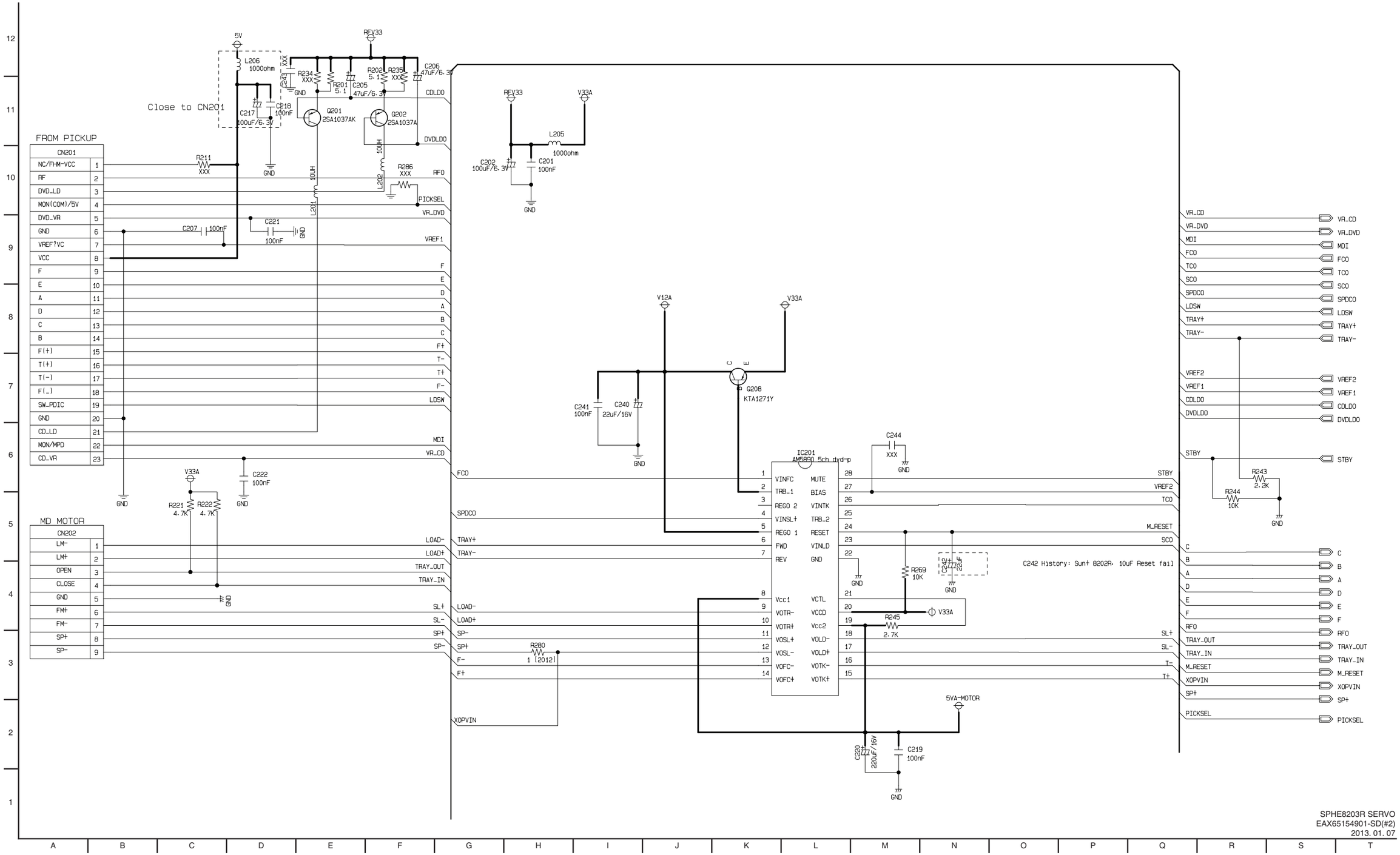


2. MAIN-MPEG CIRCUIT DIAGRAM



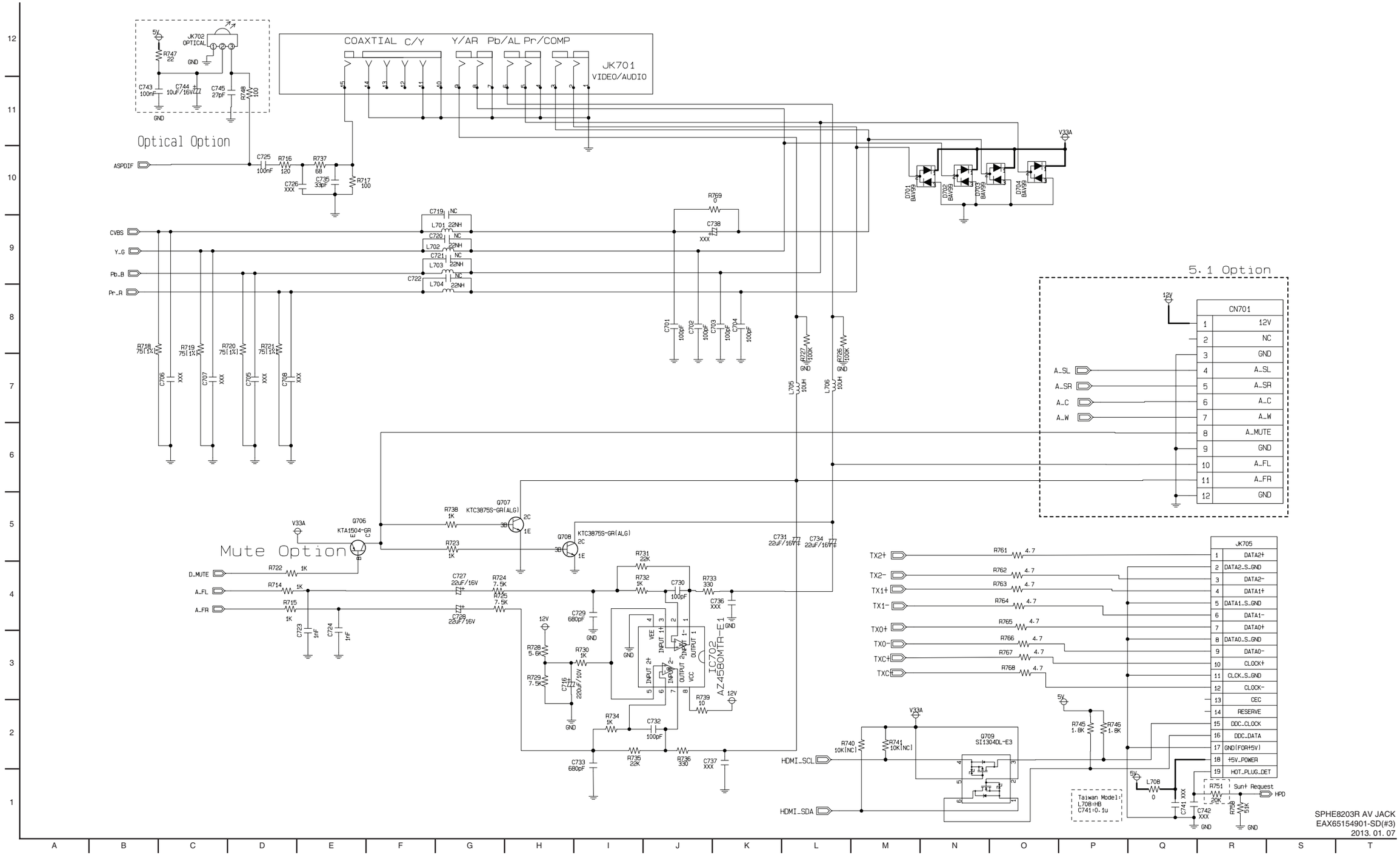
SPHE8203R MPEG
EAX65154901-SD(#1)
2013. 01. 07

3. MAIN-SERVO CIRCUIT DIAGRAM



SPHE8203R SERVO
EAX65154901-SD(#2)
2013. 01. 07

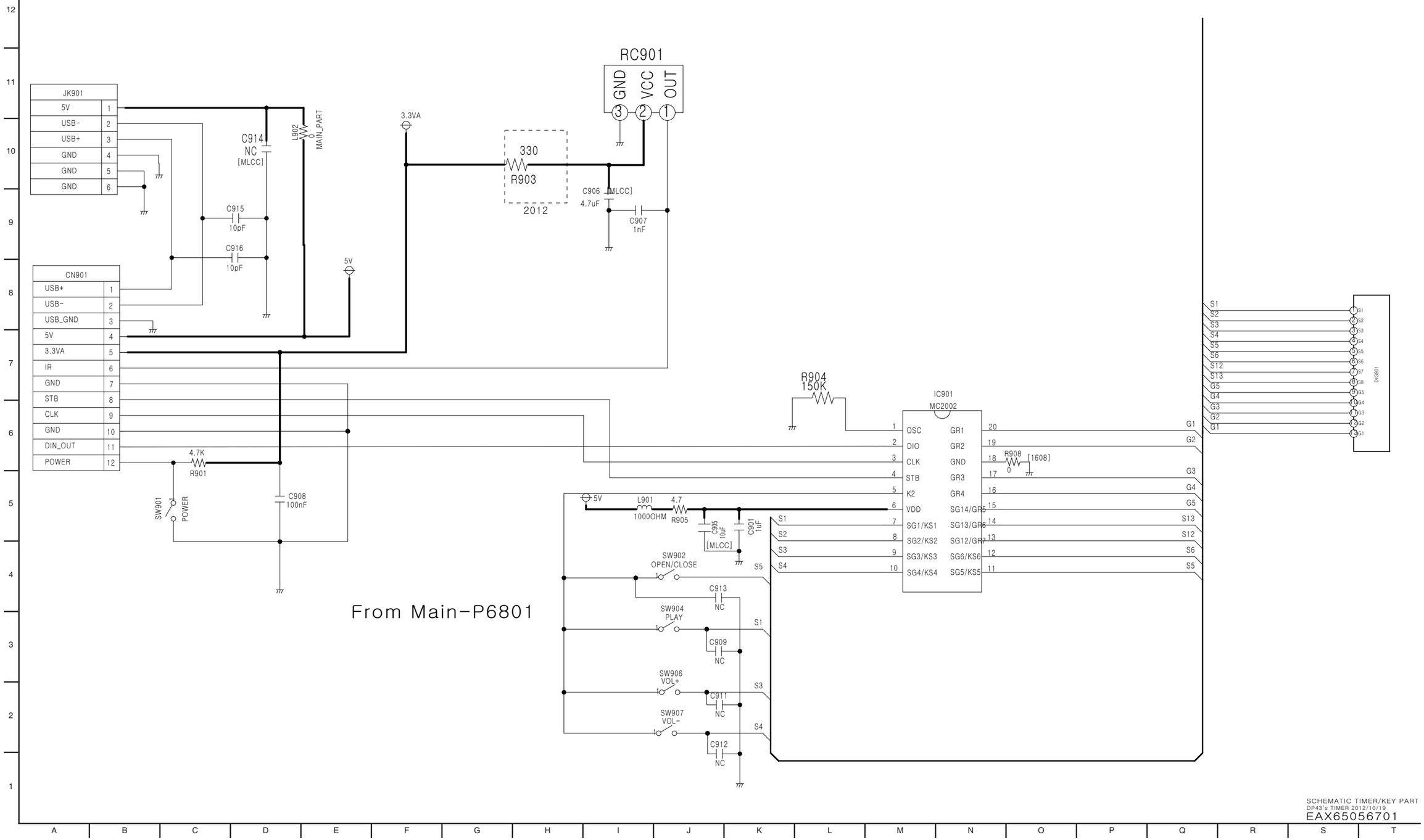
4. MAIN-AV JACK CIRCUIT DIAGRAM



SPHE8203R AV JACK
EAX65154901-SD(#3)
2013. 01. 07

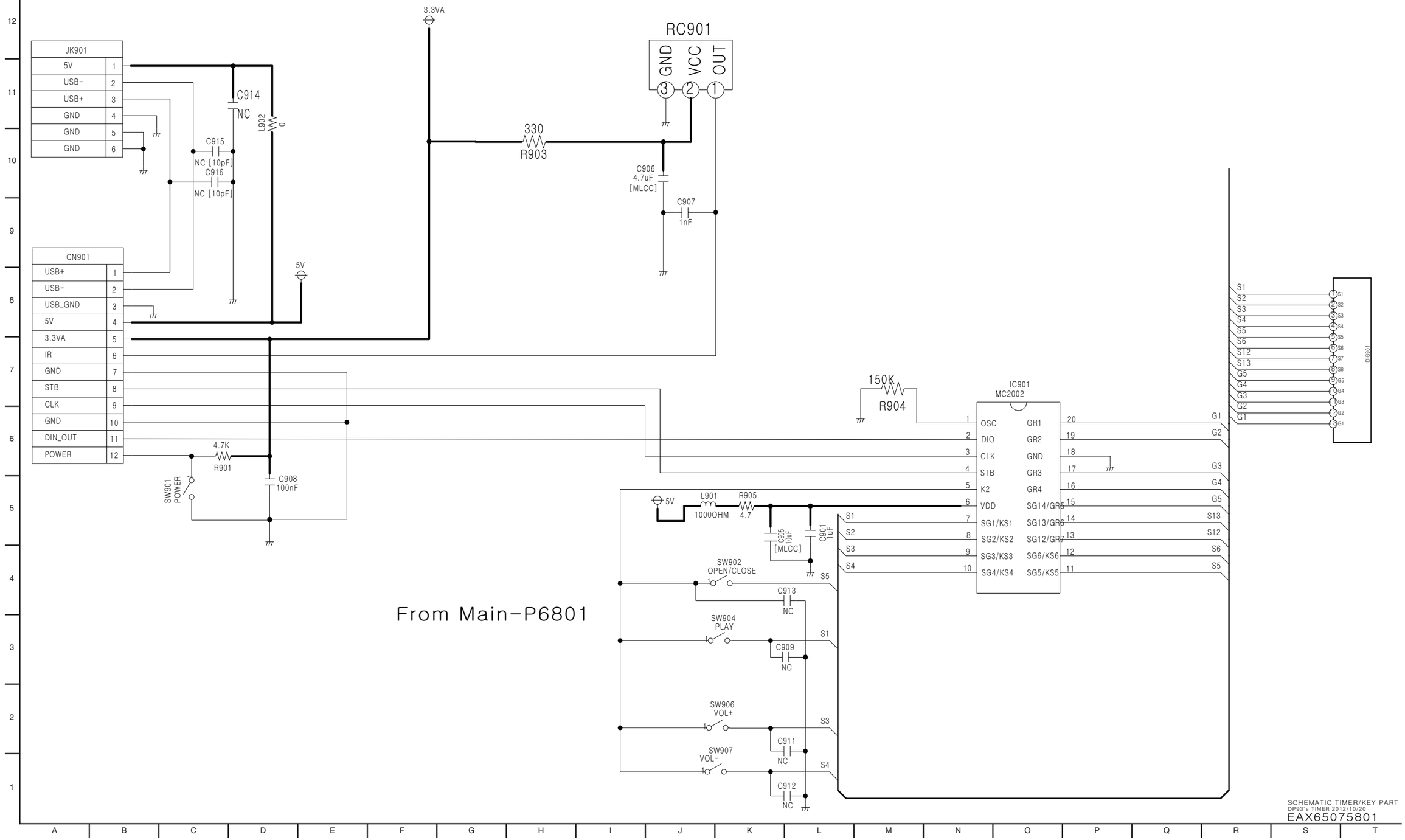
5. TIMER CIRCUIT DIAGRAM

5-1. 4 TOOL TIMER CIRCUIT DIAGRAM



SCHEMATIC TIMER/KEY PART
DP43's TIMER 2012/10/19
EAX65056701

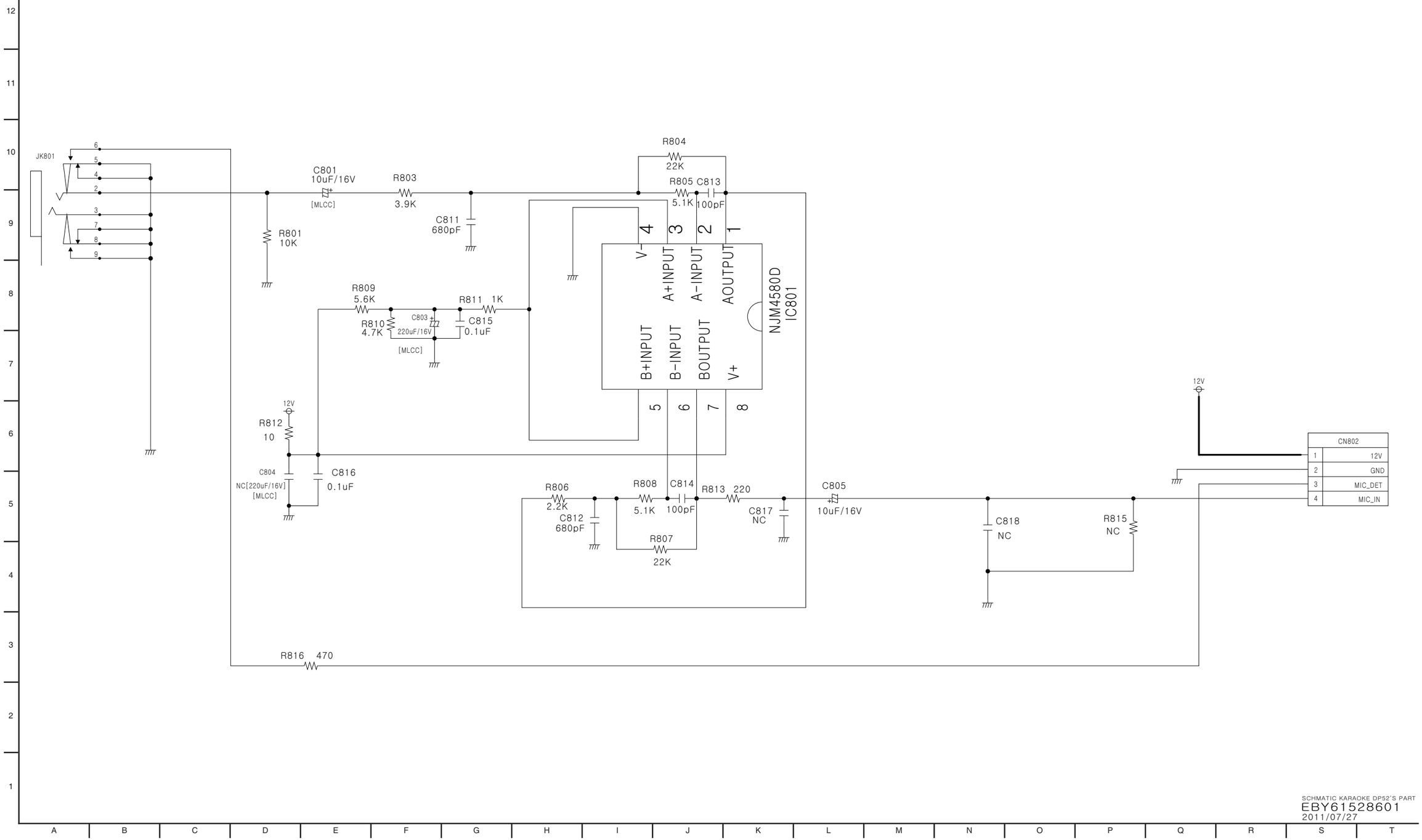
5-2. 9 TOOL TIMER CIRCUIT DIAGRAM



SCHEMATIC TIMER/KEY PART
DP93's TIMER 2012/10/20
EAX65075801

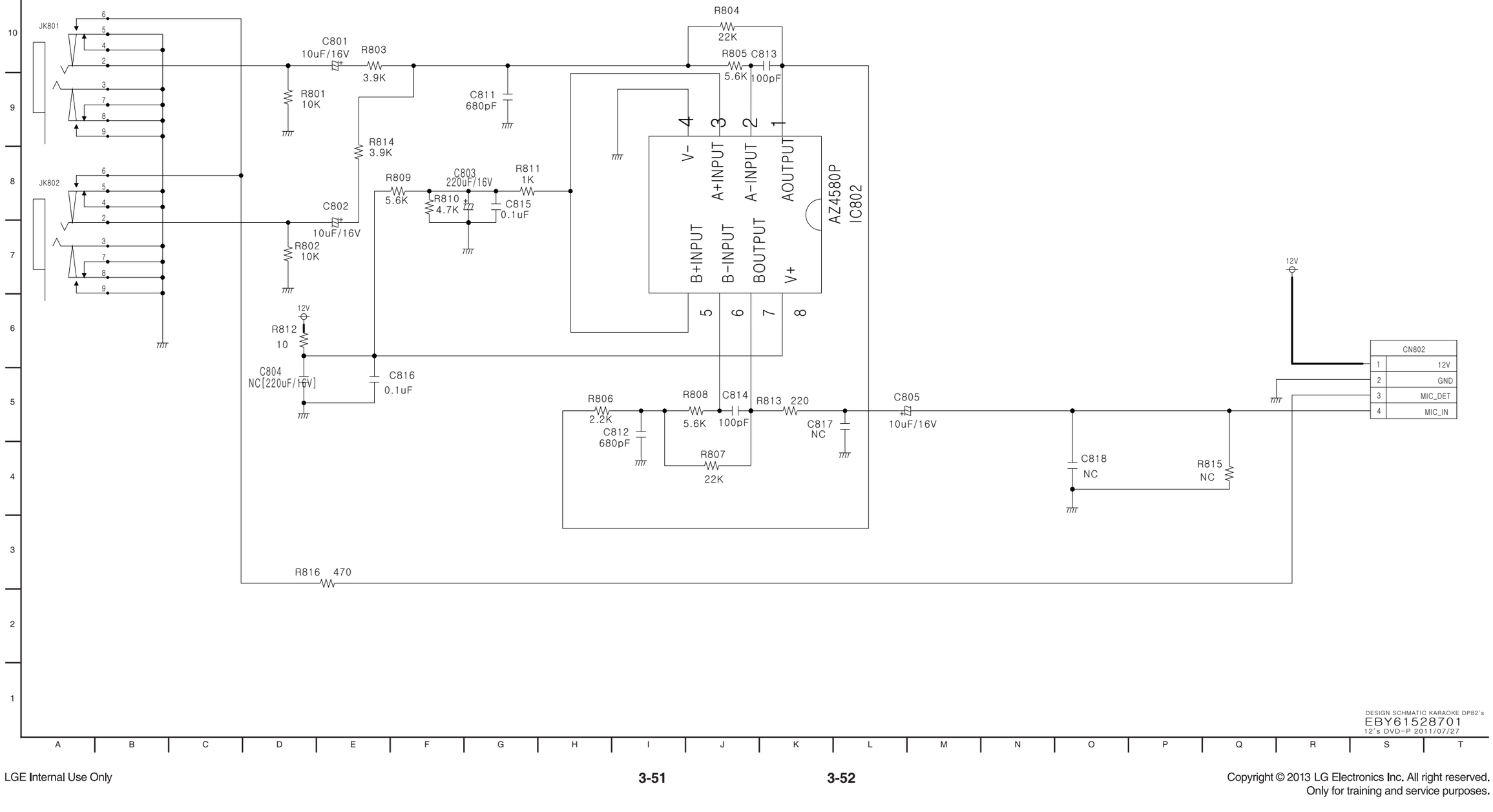
6. KARAOKE CIRCUIT DIAGRAM (OPTIONAL PART)

6-1. 4 TOOL KARAOKE CIRCUIT DIAGRAM



SCHMATIC KARAOKE DP52'S PART
EBY61528601
2011/07/27

6-2. 9 TOOL KARAOKE CIRCUIT DIAGRAM



DESIGN SCHMATIC KARAOKE DP82's
EBY61528701
12's DVD-P 2011/07/27

CIRCUIT VOLTAGE CHART

1. ICs

PIN NO.	NO DISC	PLAY
IC201(SERVO)		
1	1.599	1.614
2	2.530	2.535
3	3.077	3.107
4	1.591	1.488
5	1.253	1.255
6	3.203	3.193
7	3.138	3.128
8	5.653	5.507
9	0.000	0.010
10	0.000	0.010
11	3.118	2.197
12	3.117	3.262
13	3.117	2.546
14	3.117	2.918
15	3.120	2.787
16	3.121	2.695
17	3.122	2.626
18	3.123	2.834
19	6.194	5.512
20	3.309	3.223
21	6.193	5.500
22	0.000	0.000
23	2.824	1.559
24	3.308	3.230
25	6.171	5.488
26	0.131	1.594
27	0.021	1.589
28	0.015	3.182
IC601(MPEG)		
1	1.590	1.475
2	1.592	1.530
3	0.015	3.183
4	0.016	0.173
5	0.016	0.021
6	0.087	0.089
7	0.000	0.000
8	3.200	3.192
9	3.109	3.101
10	0.017	0.019
11	3.194	3.184
12	3.299	1.197
13	0.000	0.017
14	0.143	0.750
15	0.015	0.017

PIN NO.	NO DISC	PLAY
16	2.954	2.945
17	3.179	3.137
18	3.152	3.093
19	0.134	0.748
20	1.216	1.222
21	3.217	3.210
22	3.259	3.232
23	0.000	0.000
24	0.646	0.755
25	0.619	0.852
26	0.550	0.677
27	0.555	0.725
28	0.402	0.727
29	0.406	0.734
30	0.386	0.747
31	0.374	0.698
32	0.364	0.593
33	0.446	0.656
34	0.362	0.654
35	0.356	0.723
36	0.347	0.716
37	0.367	0.740
38	3.215	3.210
39	0.000	0.000
40	3.224	3.222
41	3.211	3.208
42	3.210	3.207
43	0.616	0.927
44	0.790	0.937
45	0.000	0.013
46	3.324	3.266
47	2.419	2.661
48	2.412	2.620
49	0.094	2.616
50	0.340	0.986
51	1.585	1.582
52	1.203	1.222
53	3.213	3.211
54	1.396	1.385
55	0.611	0.613
56	0.336	0.496
57	3.166	3.162
58	0.000	0.000
59	3.163	3.157
60	0.337	0.499

PIN NO.	NO DISC	PLAY
61	0.734	0.752
62	0.726	0.739
63	0.000	0.000
64	3.174	3.170
65	1.344	1.343
66	0.000	0.000
67	1.352	1.350
68	1.351	1.350
69	0.000	0.000
70	1.351	1.347
71	1.351	1.349
72	1.347	1.345
73	3.143	3.139
74	3.143	3.139
75	0.000	0.000
76	1.351	1.352
77	1.350	1.352
78	0.000	0.000
79	0.000	0.000
80	0.012	0.161
81	0.012	0.154
82	1.254	1.269
83	0.013	1.297
84	0.015	1.127
85	0.000	0.000
86	0.028	0.047
87	0.029	0.046
88	1.255	1.268
89	0.035	0.046
90	0.035	0.042
91	0.000	0.000
92	3.186	3.182
93	3.170	3.167
94	3.131	3.126
95	0.000	0.000
96	3.185	3.183
97	1.382	1.389
98	2.215	2.216
99	2.228	2.300
100	2.226	2.327
101	2.226	2.326
102	0.223	2.299
103	0.538	2.357
104	0.541	2.360
105	0.056	0.050

PIN NO.	NO DISC	PLAY
106	0.037	3.362
107	0.000	0.000
108	0.015	0.172
109	0.015	0.172
110	3.187	2.098
111	3.187	3.182
112	3.187	3.184
113	2.223	2.222
114	0.000	0.000
115	0.000	0.000
116	3.214	3.212
117	1.543	1.544
118	1.557	1.555
119	0.000	0.000
120	0.000	0.025
121	0.000	0.025
122	3.231	3.229
123	3.213	3.206
124	1.208	1.222
125	0.000	0.000
126	1.596	1.593
127	1.602	1.643
128	1.607	1.665
IC603(FLASH)		
1	3.209	1.250
2	0.017	0.017
3	3.226	3.221
4	0.000	0.000
5	0.000	0.017
6	0.142	0.894
7	3.324	3.220
8	3.327	3.224
IC604(EEPROM)		
1	0.000	0.000
2	0.000	0.000
3	0.000	0.000
4	0.000	0.000
5	3.215	3.209
6	3.214	3.208
7	0.000	0.000
8	3.326	3.268
IC605(78R05)		
1	5.654	5.534
2	5.025	5.029
3	0.000	0.000

PIN NO.	NO DISC	PLAY
4	3.193	3.184
IC701(BUFFER)		
1	0.340	0.340
2	0.000	0.000
3	0.680	0.680
4	0.680	0.680
5	3.330	3.280
6	3.330	3.280
IC702 (OP AMP)		
1	5.553	5.573
2	5.564	5.584
3	5.563	5.582
4	0.000	0.000
5	5.566	5.582
6	5.570	5.583
7	5.562	5.573
8	12.110	12.137

2. TRs

MODE / PIN NO.	STOP	PLAY
Q201		
Emitter	3.325	2.86
Collector	1.861	1.863
Base	3.186	2.105
Q202		
Emitter	3.325	3.245
Collector	0	0.034
Base	3.186	3.189
Q208		
Emitter	3.214	3.211
Collector	2.03	2.031
Base	2.534	2.534
Q601		
Emitter	5.81	5.62
Collector	5.1	4.96
Base	5.5	5.43
Q602		
Emitter	0	0
Collector	0.01	0.01
Base	0.67	0.67
Q603		
Emitter	12.6	12.47
Collector	12.58	12.48
Base	12.2	11.55
Q705		
Emitter	0	0
Collector	0.01	0.01
Base	0.736	0.74
Q706		
Emitter	3.217	3.22
Collector	3.191	0.45
Base	2.494	2.692
Q707		
Emitter	0	0
Collector	0	0
Base	0.73	0.457
Q708		
Emitter	0	0
Collector	0	-0.065
Base	0.729	0.42

3. CAPACITORS

LOCATION	SPEC	STOP		PLAY	
		+	-	+	-
C202	100u/6.3V	3.22	0	3.2	0
C205	47u/6.3v	3.22	3.19	3.21	3.19
C206	47u/6.3v	3.22	3.19	3.21	2.24
C217	100u/6.3v	4.82	0	4.81	0
C220	220u/16V	5.68	0	5.19	0
C240	22u/16V	1.23	0	1.23	0
C242	22u/16V	3.23	0	3.22	0
C610	10u/16V	3.22	1.59	3.22	1.59
C611	100u/6.3v	3.22	0	3.22	0
C616	100u/6.3v	3.27	0	3.16	0
C623	100u/6.3V	1.23	0	1.23	0
C625	100u/6.3v	3.2	0	3.19	0
C633	100u/6.3V	1.23	0	1.2	0
C634	100u/6.3V	3.22	0	3.24	0
C642	10u/16V	1.35	0	1.35	0
C669	47u/6.3v	2.07	0	2.07	0
C671	47u/6.3v	1.6	0	1.6	0
C681	100u/6.3v	3.22	0	3.21	0
C716	47u/16V	5.27	0	5.29	0
C727	22u/16V	5.27	1.35	5.29	1.35
C728	22u/16V	5.26	1.35	5.29	1.35
C731	22u/16V	5.26	0	5.28	0
C734	22u/16V	5.26	0	5.28	0
C738	220u/6.3V	1.57	0	1.8	0
C739	220u/6.3V	1.57	0	1.8	0
C744	10u/16V	4.72	0	4.71	0

4. CONNECTORS

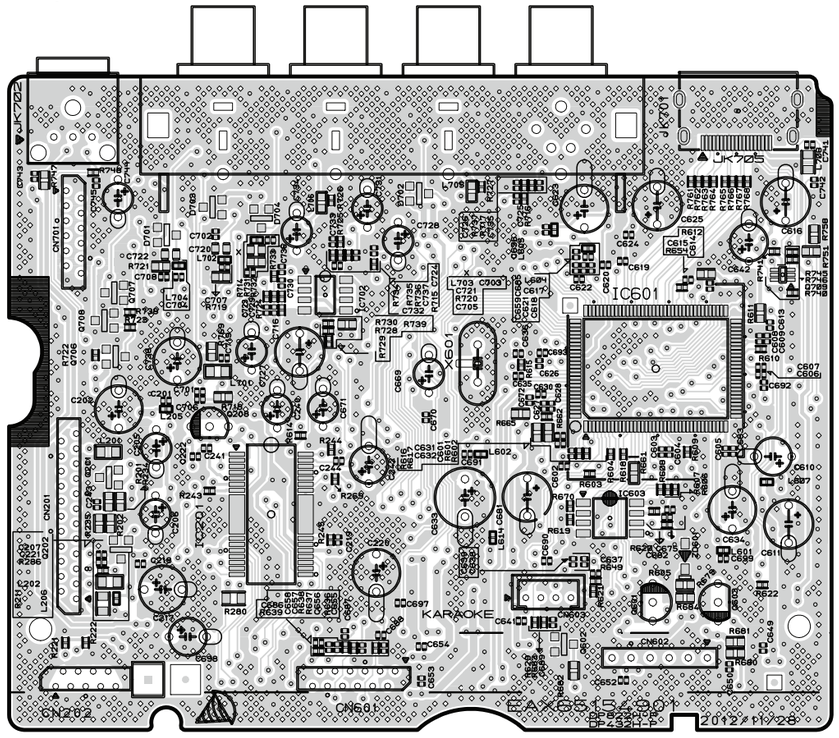
Pin No.	PIN name Functional	STOP	PLAY
CN201			
1	HFM-Vcc(N.C) LD	4.97	4.97
2	RF	1.41	1.68
3	DVD-LD	0.47	2.32
4	(N.C) _PICK SEL	3.92	4.09
5	DVD-VR	0.071	0.096
6	GND	0	0
7	Vc	0.32	0.11
8	Vcc	4.97	4.97
9	F	2.03	2.07
10	E	2.03	2.08
11	A	2.03	2.08
12	D	2.03	2.07
13	C	2.03	2.07
14	B	2.03	2.08
15	F+	2.87	2.77
16	T-	2.85	2.65
17	T+	2.85	2.69
18	F-	2.85	2.58
19	SW	0.024	0.024
20	LD-GND	0	0
21	CD-LD	0.68	0
22	MPD	0.007	0.018
23	CD-VR	0.007	0.018
CN202			
1	LM-	0	1.88
2	LM+	0	1.76
3	OPEN	2.78	2.82
4	CLOSE	0.03	0
5	GND	0	0
6	FM+	2.89	2.8
7	FM-	2.88	2.5
8	SP+	1.31	3.6
9	SP-	1.31	1.82
CN601			
1	USB+	0.007	0.008
2	USB-	0.007	0.008
3	USB GND	0	0
4	5V	4.97	4.9
5	3.3VA	3.29	3.28
6	IR	2.95	2.94
7	GND	0	0
8	STB	3.19	3.11

Pin No.	PIN name Functional	STOP	PLAY
9	CLK	3.24	3.21
10	GND	0	0
11	DIN_OUT	0.008	0.01
12	POWER	3.1	3.09
CN602			
1	3.3VA	3.33	3.33
2	3.3VA	3.33	3.33
3	D.GND	0	0
4	12VA	13.2	12.92
5	5.6VA	6.02	5.52
6	A.GND	0	0
CN603			
1	12V	13.3	12.9
2	GND	0	
3	MIC_DET	3.26	0.3
4	MIC_IN	4.05	3.53

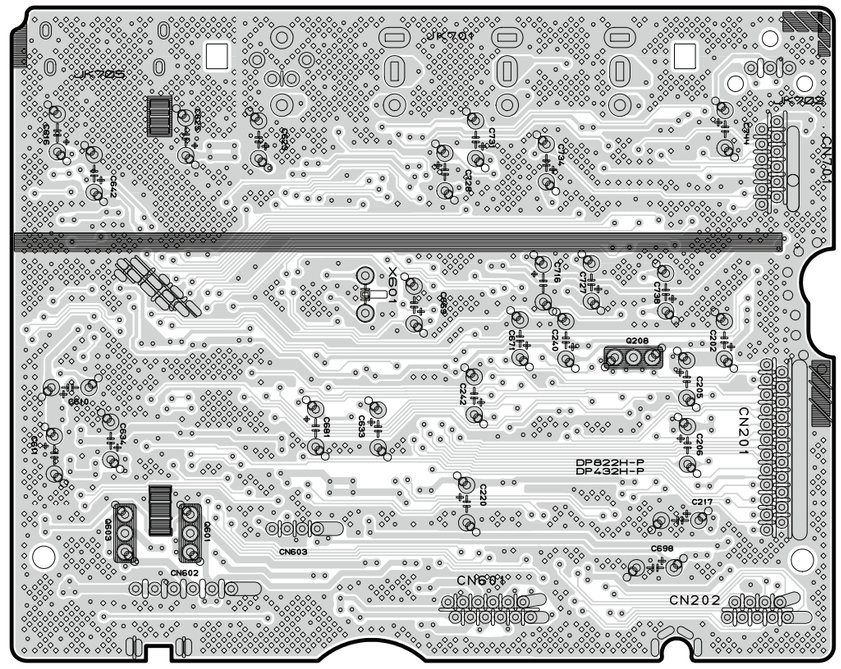
PRINTED CIRCUIT BOARD DIAGRAMS

1. MAIN P.C.BOARD

(TOP VIEW)

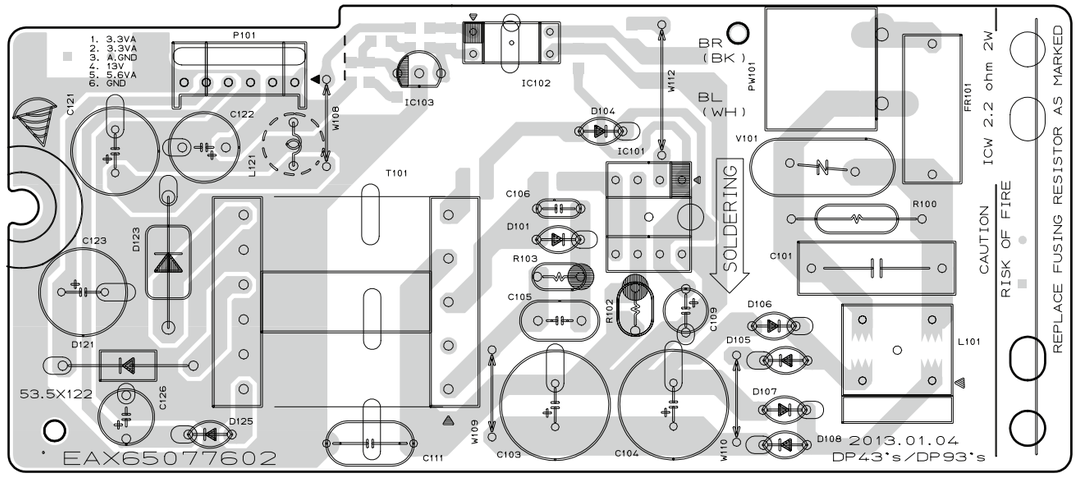


(BOTTOM VIEW)



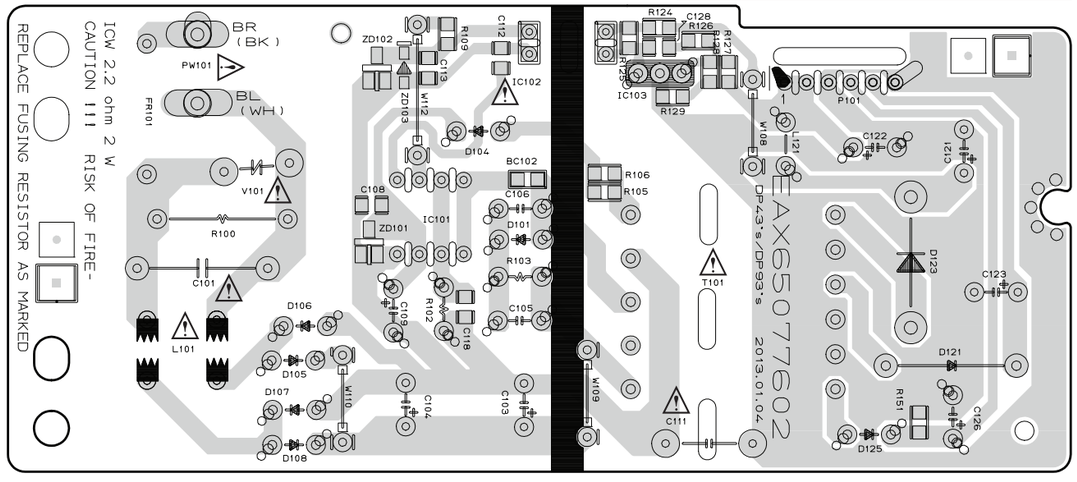
2. SMPS P.C.BOARD

(TOP VIEW)



(BOTTOM VIEW)

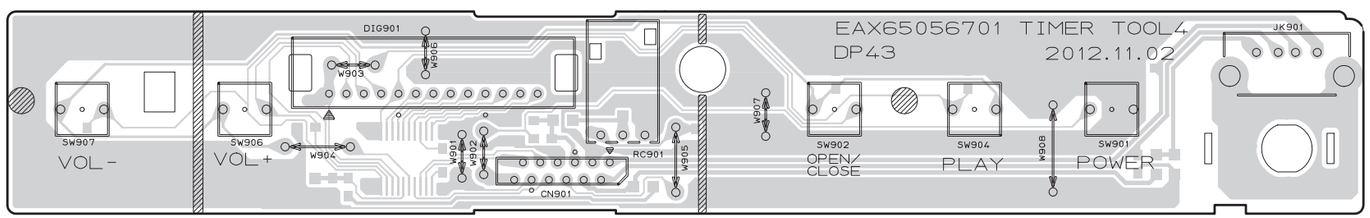
NOTE) Warning
⚠ Parts that are critical with respect to risk of fire or electrical shock.



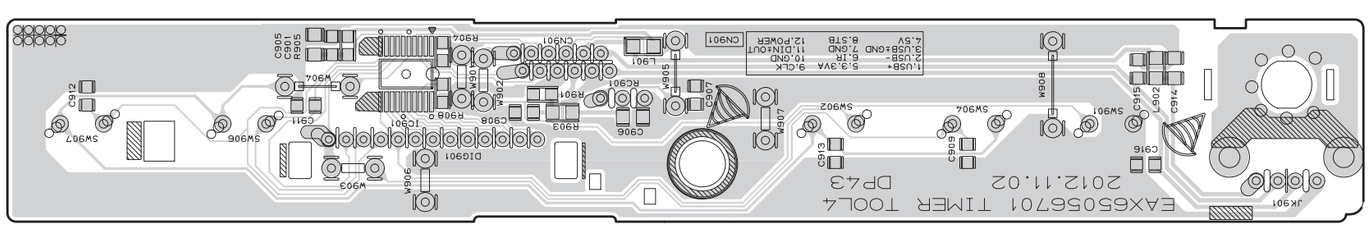
3. TIMER P.C.BOARD

3-1. 4 TOOL

(TOP VIEW)

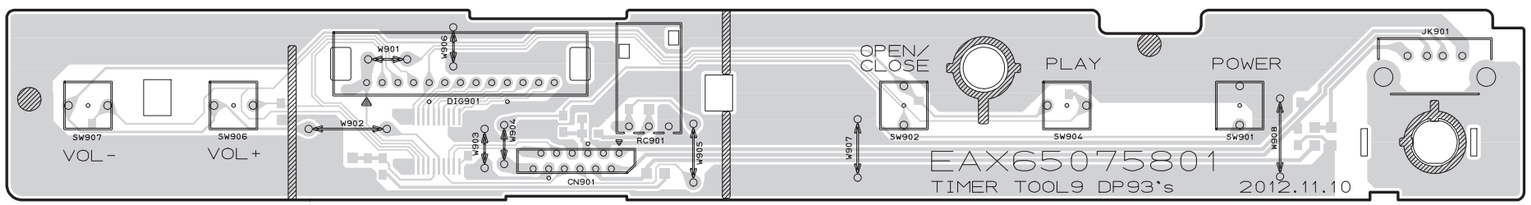


(BOTTOM VIEW)

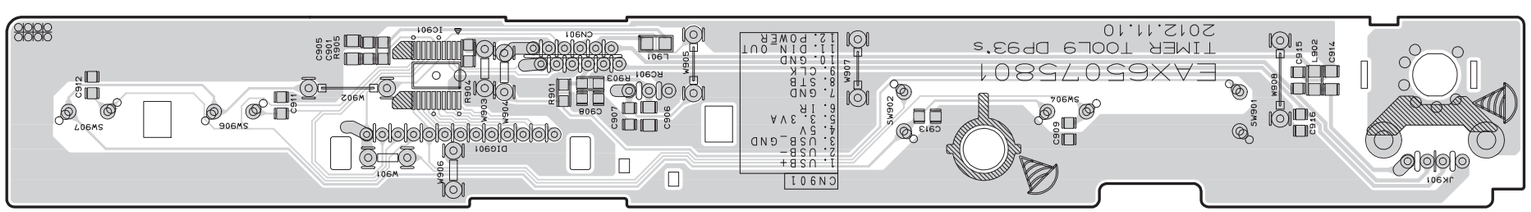


3-2. 9 TOOL

(TOP VIEW)



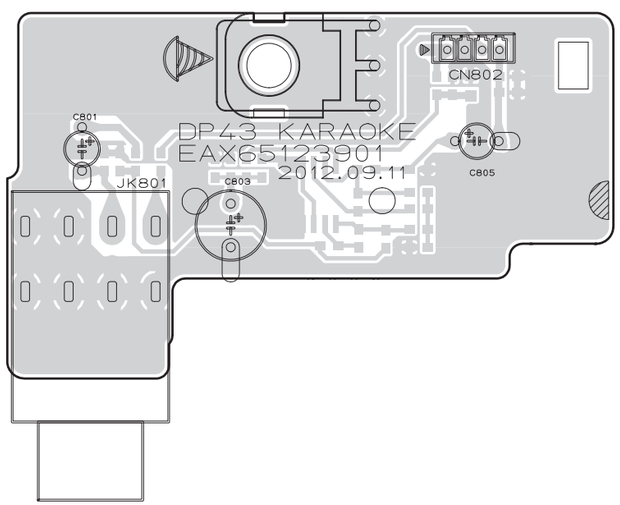
(BOTTOM VIEW)

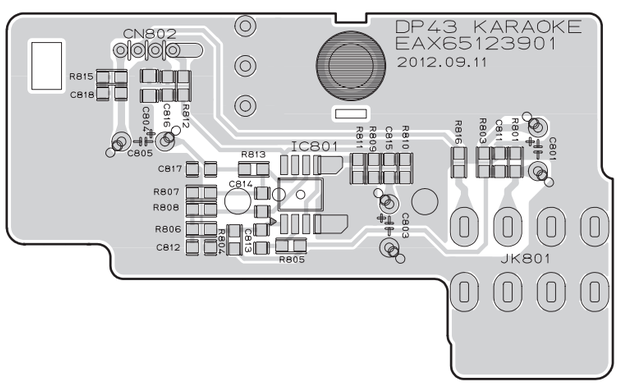


4. KARAOKE P.C.BOARD (OPTIONAL PART)

4-1. 4 TOOL

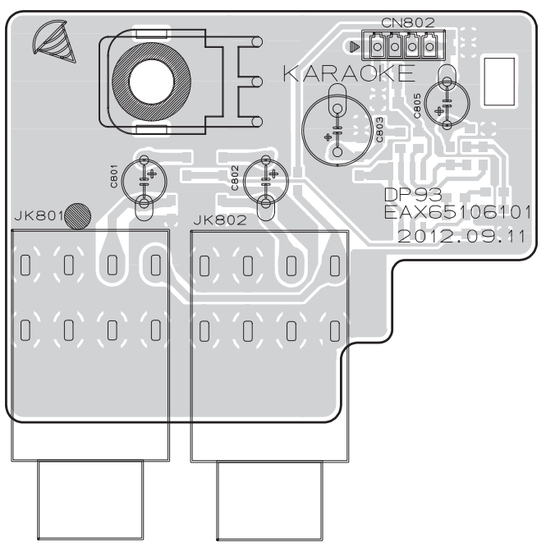
(TOP VIEW)

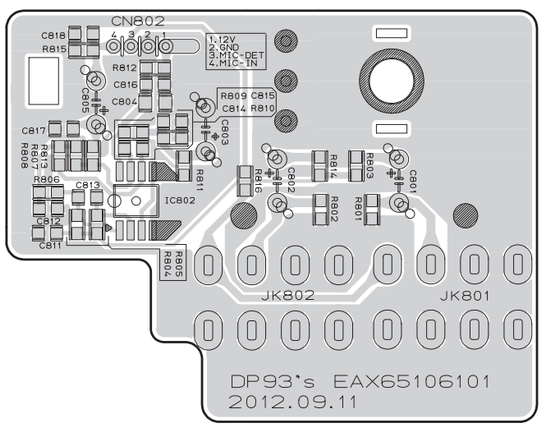




4-2. 9 TOOL

(TOP VIEW)





MEMO

MEMO

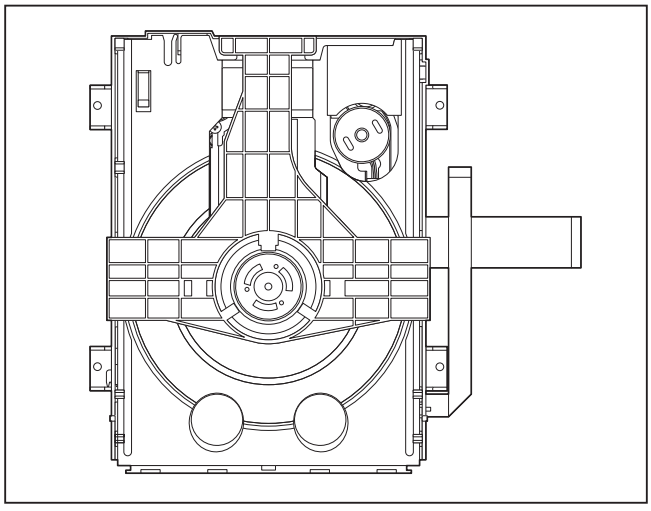
SECTION 4

MECHANISM (DP-12)

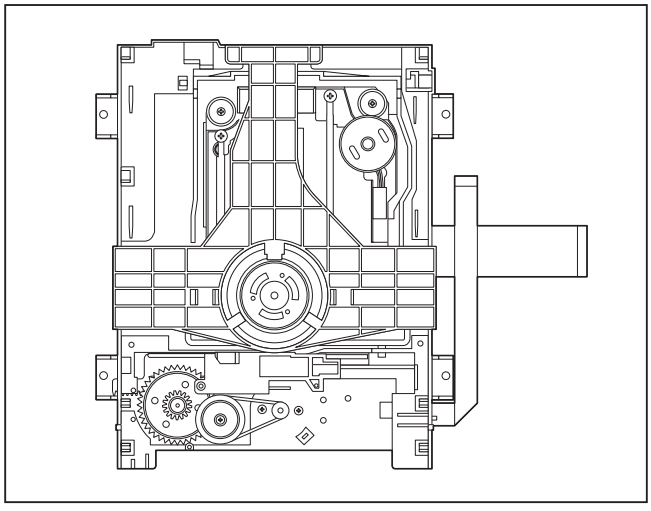
CONTENTS

DECK MECHANISM PARTS LOCATION

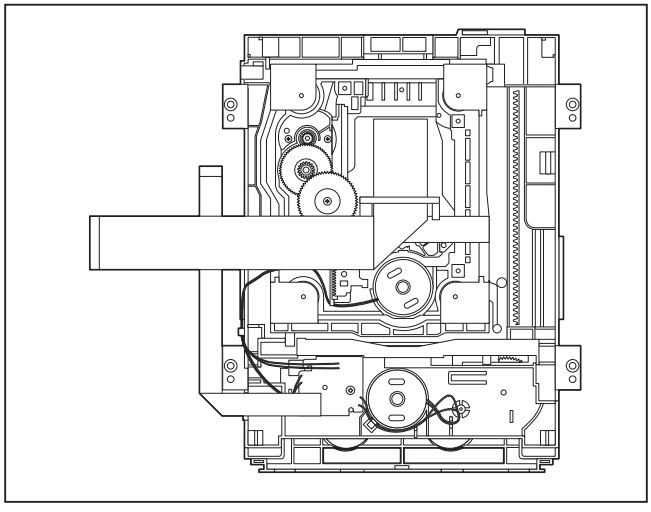
• TOP VIEW (WITHOUT TRAY)



• TOP VIEW (WITH TRAY)



• BOTTOM VIEW



Procedure Starting No.		Parts	Fixing Type	Disassembly	Figure
	1	Main Base			4-1
1	2	Clamp Assembly Disc			4-1
1, 2	3	Plate Clamp			4-1
1, 2, 3	4	Magnet Clamp			4-1
1, 2, 3, 4	5	Clamp Upper			4-1
1	6	Tray Disc			4-2
1, 6	7	Base Assembly Sled			4-3
1, 2, 6	8	Gear Feed	4 Screws, 1 Connector 1 Locking Tabs		4-3
1, 2, 6, 8	9	Gear Middle			
1, 2, 6, 8, 9	10	Gear Rack	1 Screw		4-3
1, 2, 7	11	Rubber Rear			4-3
1, 2, 7	12	Frame Assembly Up/Down	1 Screw	Bottom	4-4
1, 2	13	Belt Loading	1 Locking Tab		4-4
1, 2 ,13	14	Gear Pulley			4-4
1, 2, 13, 14	15	Gear Loading	1 Locking Tab		4-4
1, 2, 7, 12, 13, 14	16	Guide Up/Down			4-4
1, 2, 13	17	PWB Assembly Loading	1 Locking Tab 1 Hook 2 Screw	Bottom	4-4
1, 2, 7, 12, 13, 14, 15, 16, 17	18	Base Main	2 Locking Tabs		4-4

Note
When reassembling, perform the procedure in reverse order.
The “Bottom” on Disassembly column of above Table indicates the part should be disassembled at the Bottom side.

DECK MECHANISM DISASSEMBLY

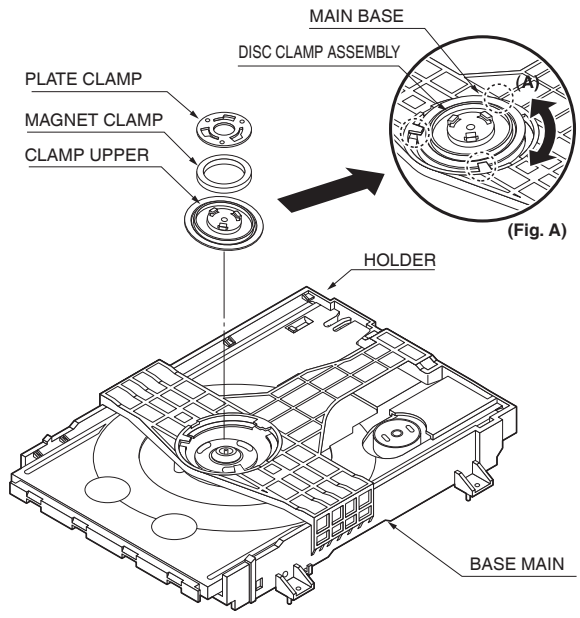


FIG. 4-1

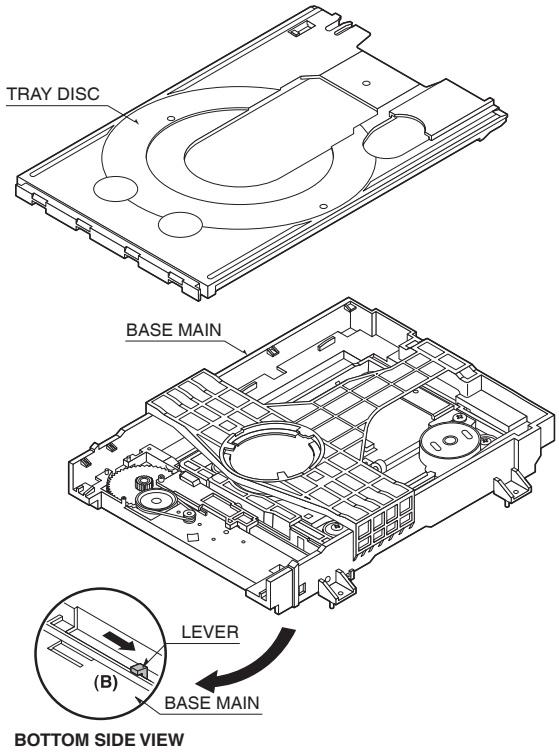


FIG. 4-2

1. MAIN BASE (FIG. 4-1)

1-1. Clamp Assembly Disc

1) Place the Clamp Assembly Disc as Fig. (A)
2) Lift up the Clamp Assembly Disc in direction of arrow(A).
3) Separate the Clamp Assembly Disc from the Holder Clamp.

1-1-1. Plate Clamp

1) Turn the Plate Clamp to counterclockwise direction and then lift up the Plate Clamp.

1-1-2. Magnet Clamp

1-1-3. Clamp Upper

2. TRAY DISC (FIG. 4-2)

1) Insert and push a Driver in the emergency eject hole(A) at the right side, or put the Driver on the Lever(B) of the Gear Emergency and pull the Lever(B) in direction of arrow so that the Tray Disc is ejected about 15~20mm.
2) Pull the Tray Disc until it is separated from the Base Main completely.

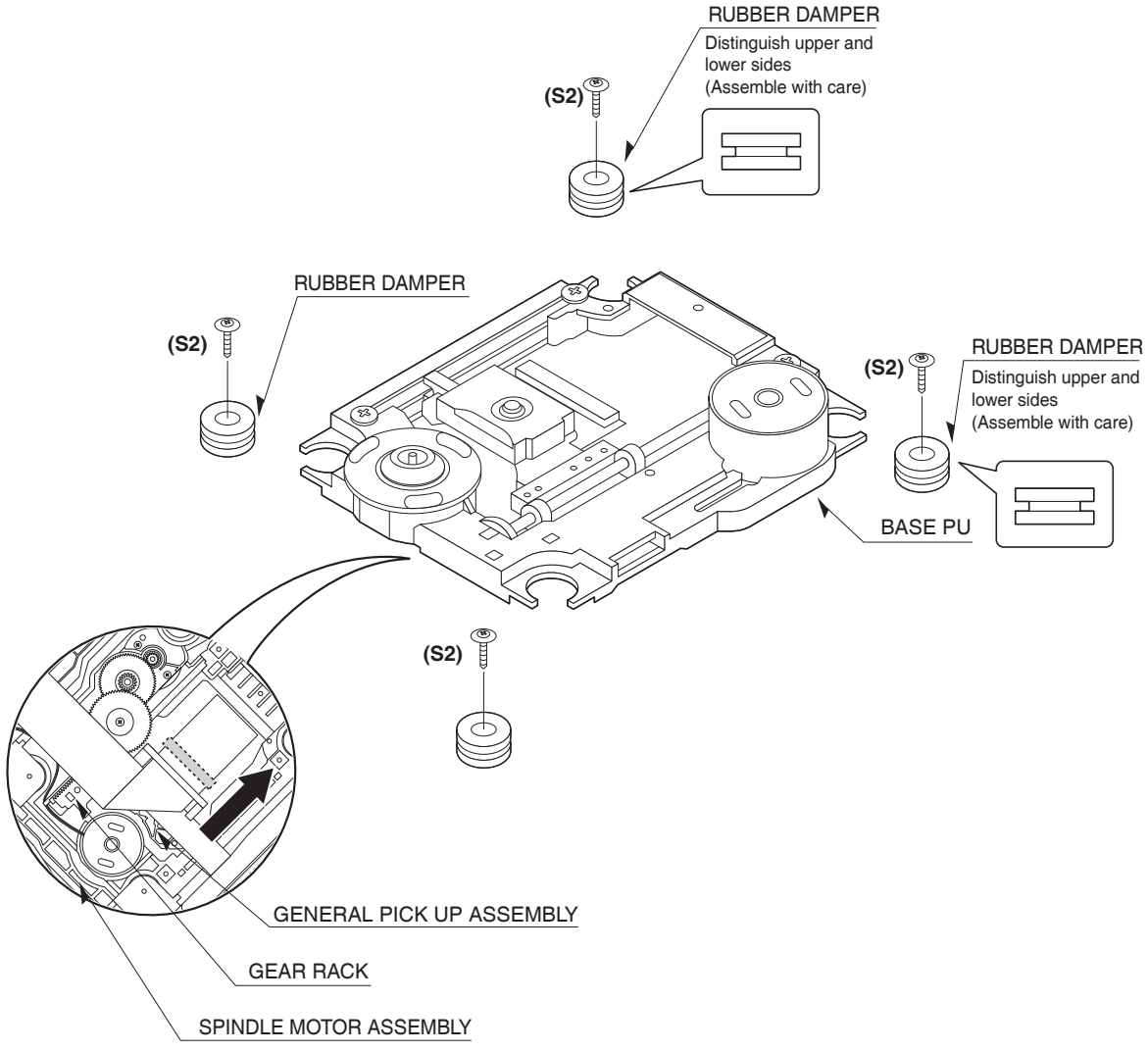


FIG. 4-3

3. BASE ASSEMBLY SLED (FIG. 4-3)

1) Release 4 Screw (S2).
2) Disconnect the FFC Connector (C1)

3-1. Gear Feed

3-2. Gear Middle

3-3. Gear Rack

1) Release the Scerw (S3)

4. RUBBER REAR (FIG. 4-3)

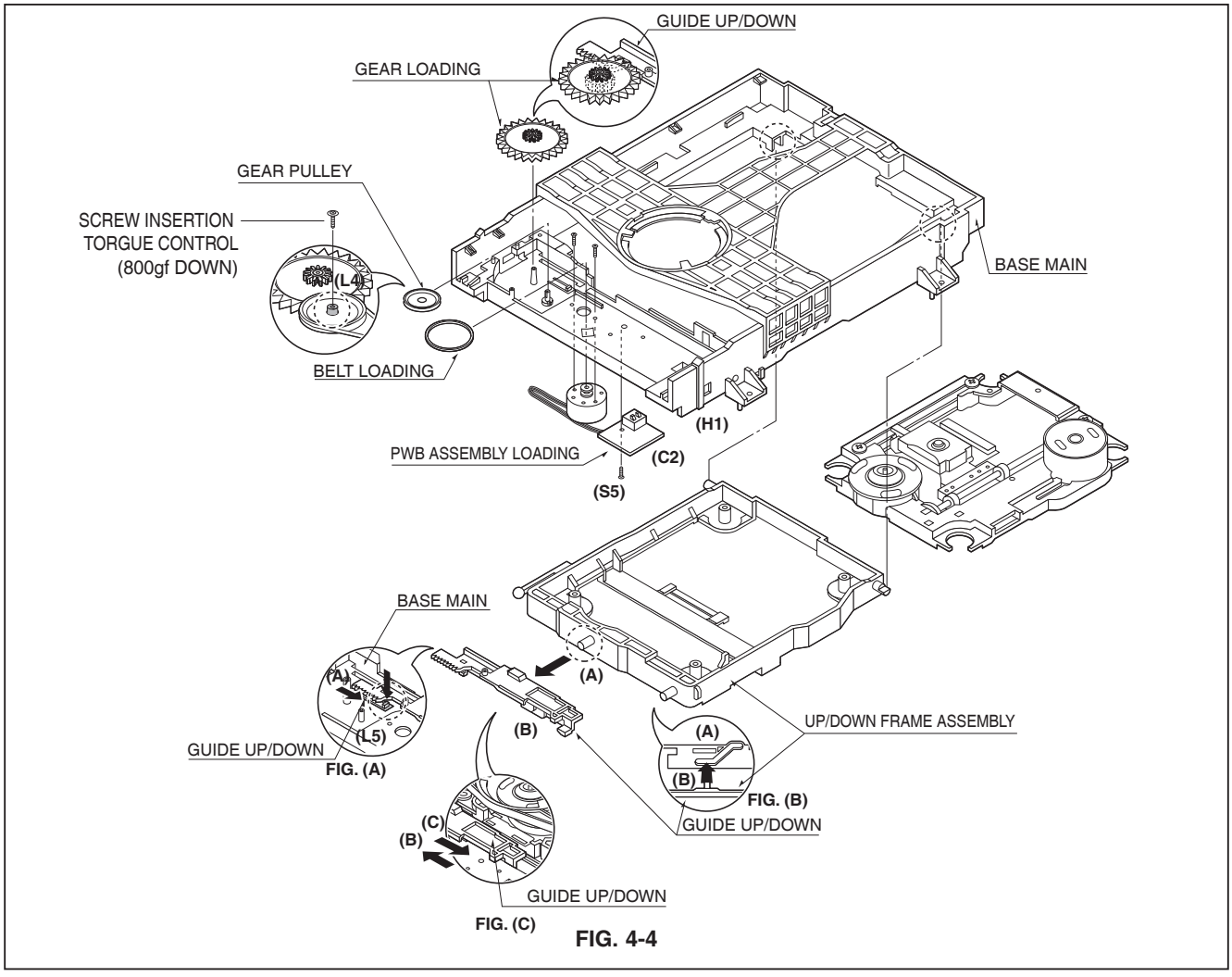


FIG. 4-4

5. FRAME ASSEMBLY UP/DOWN (FIG. 4-4)

Note

Put the Base Main face down (Bottom Side)

1) Release the screw (S4)
2) Unlock the Locking Tab (L3) in direction of arrow and then lift up the Frame Assembly Up/Down to separate it from the Base Main.

Note

- When reassembling move the Guide Up/Down in direction of arrow(C) until it is positioned as Fig. (C).
- When reassembling insert (A) portion of the Frame Assembly Up/Down in the (B) portion of the Guide Up/Down as Fig.(B)

6. BELT LOADING(FIG. 4-4)

Note

Put the Base Main on original position(Top Side)

7. GEAR PULLEY (FIG. 4-4)

1) Unlock the Locking Tab(L4) in direction of arrow(B) and then separate the Gear Pulley from the Base Main

8. GEAR LOADING (FIG. 4-4)

9. GUIDE UP/DOWN (FIG. 4-4)

1) Move the Guide Up/Down in direction of arrow(A) as Fig.(A)
2) Push the Locking Tab(L5) down and then lift up the Guide Up/Down to separate it from the Base Main.

Note

When reassembling place the Guide Up/Down as Fig. (C) and move it in direction arrow(B) until it is locked by the Locking Tab(L5). And confirm the Guide Up/Down as Fig.(A)

10. PWB ASSEMBLY LOADING (FIG. 4-4)

Note

Put the Base Main face down(Bottom Side)

1) Release 1 Screws(S5)
2) Unlock the Loading Motor (C2) from the Hook (H1) on the Base Main.
3) Unlock 2 Locking Tabs(L6) and separate the PWB Assembly Loading from the Base Main.

11. BASE MAIN (FIG. 4-4)

EXPLODED VIEW

1. DECK MECHANISM EXPLODED VIEW (DP-12)