



SERVICE MANUAL

MODEL : MDD64K (MDS64V)

DVD Mini Hi-Fi System

SERVICE MANUAL

CAUTION

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



MODEL : MDD64K (MDS64V)



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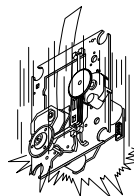
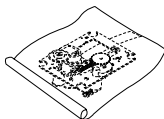
SECTION 1. GENERAL SERVICING PRECAUTIONS

NOTES REGARDING HANDLING OF THE PICK-UP

1. Notes for transport and storage

- 1) The pick-up should always be left in its conductive bag until immediately prior to use.
- 2) The pick-up should never be subjected to external pressure or impact.

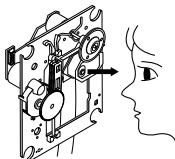
Storage in conductive bag



Drop impact

2. Repair notes

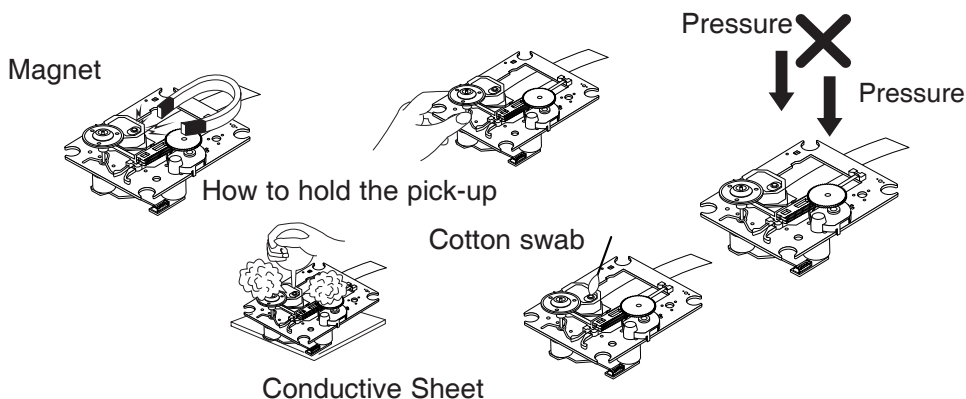
- 1) The pick-up incorporates a strong magnet, and so should never be brought close to magnetic materials.
- 2) The pick-up should always be handled correctly and carefully, taking care to avoid external pressure and impact. If it is subjected to strong pressure or impact, the result may be an operational malfunction and/or damage to the printed-circuit board.
- 3) Each and every pick-up is already individually adjusted to a high degree of precision, and for that reason the adjustment point and installation screws should absolutely never be touched.
- 4) Laser beams may damage the eyes!
Absolutely never permit laser beams to enter the eyes!
Also NEVER switch ON the power to the laser output part (lens, etc.) of the pick-up if it is damaged.



NEVER look directly at the laser beam, and don't allow contact fingers or other exposed skin.

5) Cleaning the lens surface

If there is dust on the lens surface, the dust should be cleaned away by using an air bush (such as used for camera lens). The lens is held by a delicate spring. When cleaning the lens surface, therefore, a cotton swab should be used, taking care not to distort this.



6) Never attempt to disassemble the pick-up.

Spring by excess pressure. If the lens is extremely dirty, apply isopropyl alcohol to the cotton swab. (Do not use any other liquid cleaners, because they will damage the lens.) Take care not to use too much of this alcohol on the swab, and do not allow the alcohol to get inside the pick-up.

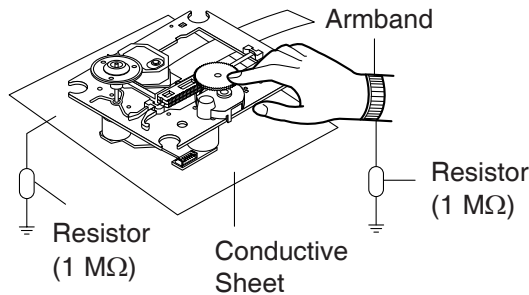
NOTES REGARDING COMPACT DISC PLAYER REPAIRS

1. Preparations

- 1) Compact disc players incorporate a great many ICs as well as the pick-up (laser diode). These components are sensitive to, and easily affected by, static electricity. If such static electricity is high voltage, components can be damaged, and for that reason components should be handled with care.
- 2) The pick-up is composed of many optical components and other high-precision components. Care must be taken, therefore, to avoid repair or storage where the temperature of humidity is high, where strong magnetism is present, or where there is excessive dust.

2. Notes for repair

- 1) Before replacing a component part, first disconnect the power supply lead wire from the unit
- 2) All equipment, measuring instruments and tools must be grounded.
- 3) The workbench should be covered with a conductive sheet and grounded.
When removing the laser pick-up from its conductive bag, do not place the pick-up on the bag. (This is because there is the possibility of damage by static electricity.)
- 4) To prevent AC leakage, the metal part of the soldering iron should be grounded.
- 5) Workers should be grounded by an armband (1M Ω)
- 6) Care should be taken not to permit the laser pick-up to come in contact with clothing, in order to prevent static electricity changes in the clothing to escape from the armband.
- 7) The laser beam from the pick-up should NEVER be directly facing the eyes or bare skin.



SAFETY PRECAUTIONS

Electrostatically Sensitive Devices (ESD)



Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD 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 ESD 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 ESD 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 ESD devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

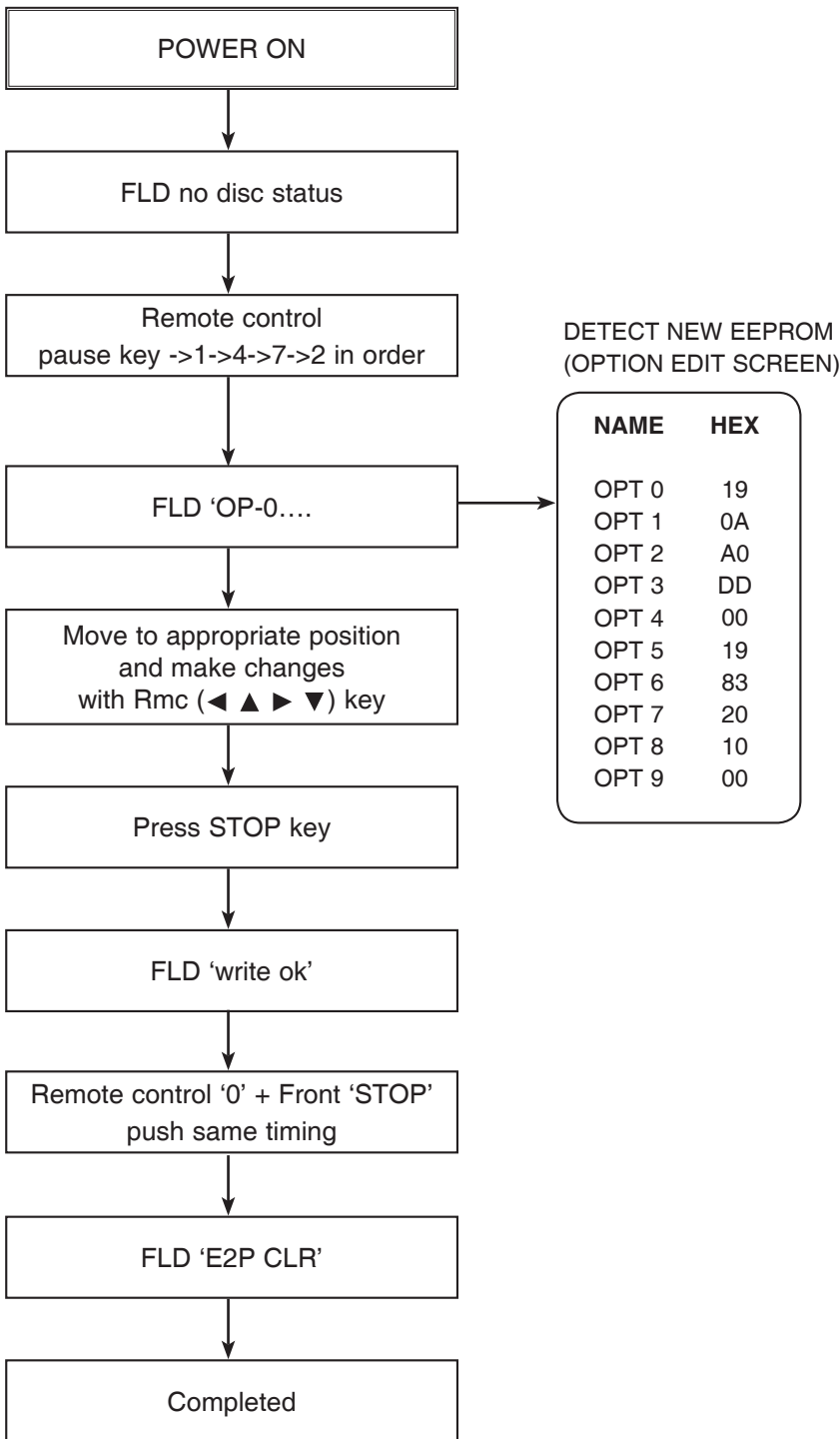
CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

8. Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise 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 ESD device).

CAUTION. GRAPHIC SYMBOLS

	THE LIGHTNING FLASH WITH APROWHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.
	THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

SERVICE INFORMATION FOR EEPROM



PROGRAM DOWNLOAD GUIDE

Caution) Do not perform any other work such as disconnecting USB device, switching to the Function and turning off the power while downloading it to the set.

The USB device should be disconnected after completing the download.

• AUDIO USB DOWNLOAD GUIDE

1. When the USB device is inserted on the USB function, is displayed on the screen after a while.
“File : MDT354_YymmddX.HEX” * x: version.
2. The message “Upgrade” is displayed while downloading.
3. The power is automatically turned off when downloading is completed.

• DVD USB DOWNLOAD GUIDE

The program file to download should be named as **LG_MDS714XXX_YymmddX.rom**.

- The downloaded file should be modified as **LG_MDS714XXX_YymmddX.rom**.

- After safely storing **LG_MDS714XXX_YymmddX.rom** at the USB device, perform the following steps.

1. When the USB device is inserted at the USB function, the screen is changed into downloading screen.
2. When downloading is completed, the message “Completed” is displayed at the top left on the screen.
3. Turn on the power, press the SETUP button of the remote controller on the USB FUNCTION. When the SETUP window is displayed on the screen, move down once to select the DISPLAY menu. Go to the TV Aspect on the right menu, move to “16:9”, enter “1397139” by using the numeric key of the remote controller, and press the Enter key.
Then, the System Information screen is displayed. If not, retry the steps at the above.
4. When Step 3 is completed, press the Pause key of the remote controller.
5. Disconnect the power cord, and reconnect it after 5 seconds to complete downloading.
6. When the power is turned on, the language selection menu is initially displayed.
After selecting the desired language, press the SELECT/ENTER.

SPECIFICATIONS

General

Power supply	Refer to main label.
Power consumption	Refer to main label.
Net Weight	5.4 kg
External dimensions (W x H x D)	274 x 334 x 344 mm
Operating conditions	Temperature: 5°C to 35°C, Operation status: Horizontal
Operating humidity	5% to 85%

Tuner

FM Tuning Range	87.5 ~ 108.0 MHz or 87.50 ~ 108.00 MHz
Intermediate Frequency	128 MHz
AM Tuning Range	522 ~ 1,620 KHz or 520 ~ 1,710 KHz or 522 ~ 1,710 KHz
Intermediate Frequency	45 KHz

Amplifier

Output Power	30 W + 30 W (4 Ω , THD 10 %)
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DVD / CD player

Frequency response (audio)	40 ~ 20,000 Hz
Signal-to-noise ratio (audio)	More than 75 dB (1 KHz)
Signal-to-noise ratio (video)	More than 55 dB (1 KHz)
Dynamic range (audio)	More than 80 dB
Video output	1.0 V (p-p), 75 Ω
Component Video output	(Y) 1.0 V (p-p), 75 Ω (Pb)/(Pr) 0.7 V (p-p), 75 Ω

Cassette tape player

F. F / REW Time	120 sec (C-60)
Frequency Response	250 ~ 8000 Hz
Signal to Noise Ratio	43 dB
Channel Separation	50 dB (P/B) / 45 dB (R/P)
Erase Ratio	55 dB (MTT- 5511)

Speakers

	MDS64V
	Front Speaker
Type	2 Way 2 Speaker
Impedance	4 Ω
Rated Input Power	30 W
Max. Input Power	60 W
Net Dimensions(W x H x D)	220 x 333 x 253 mm
Net Weight	3.1 kg

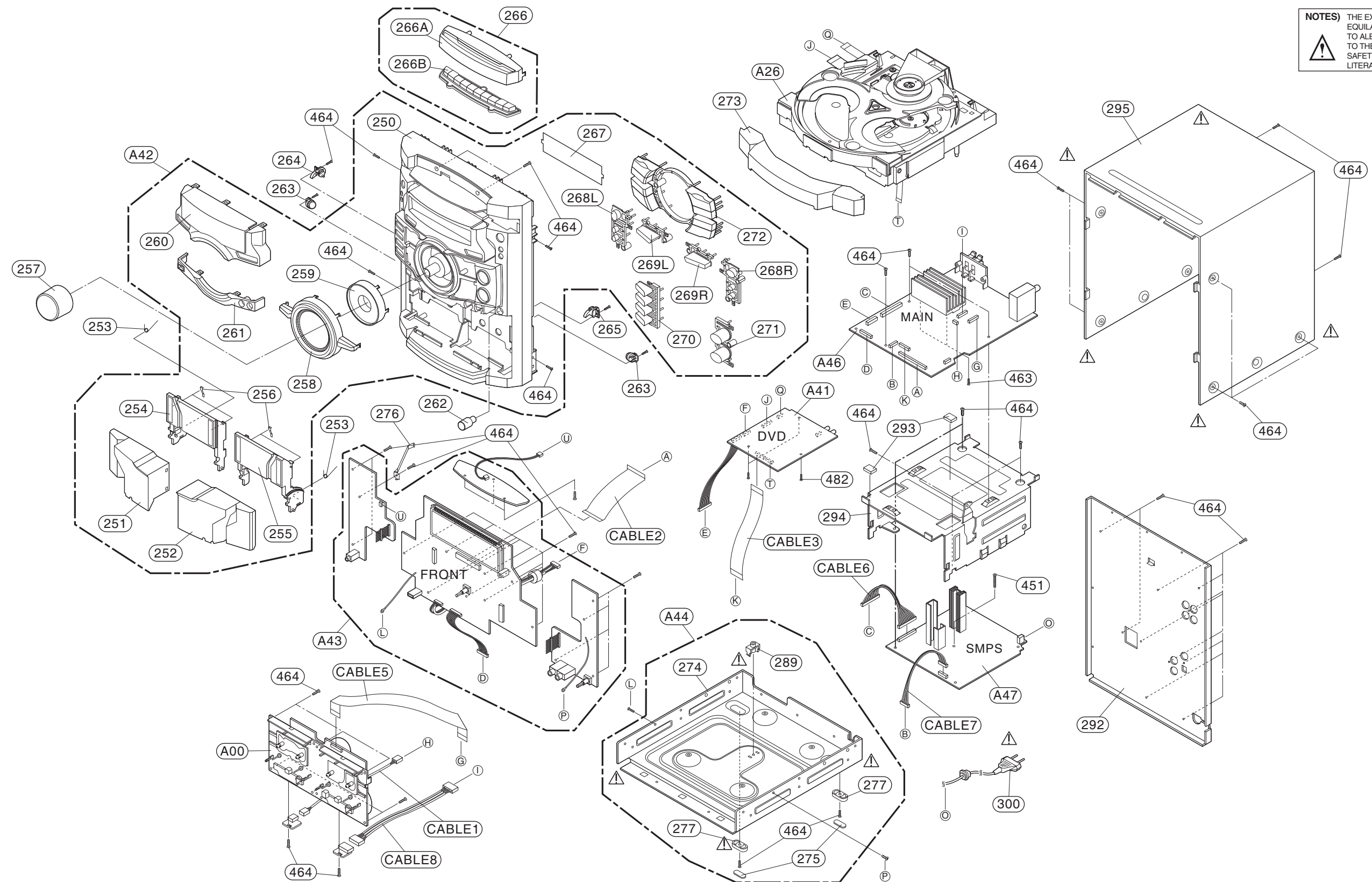
Designs and specifications are subject to change without prior notice.

MEMO

A series of horizontal dotted lines for writing a memo.

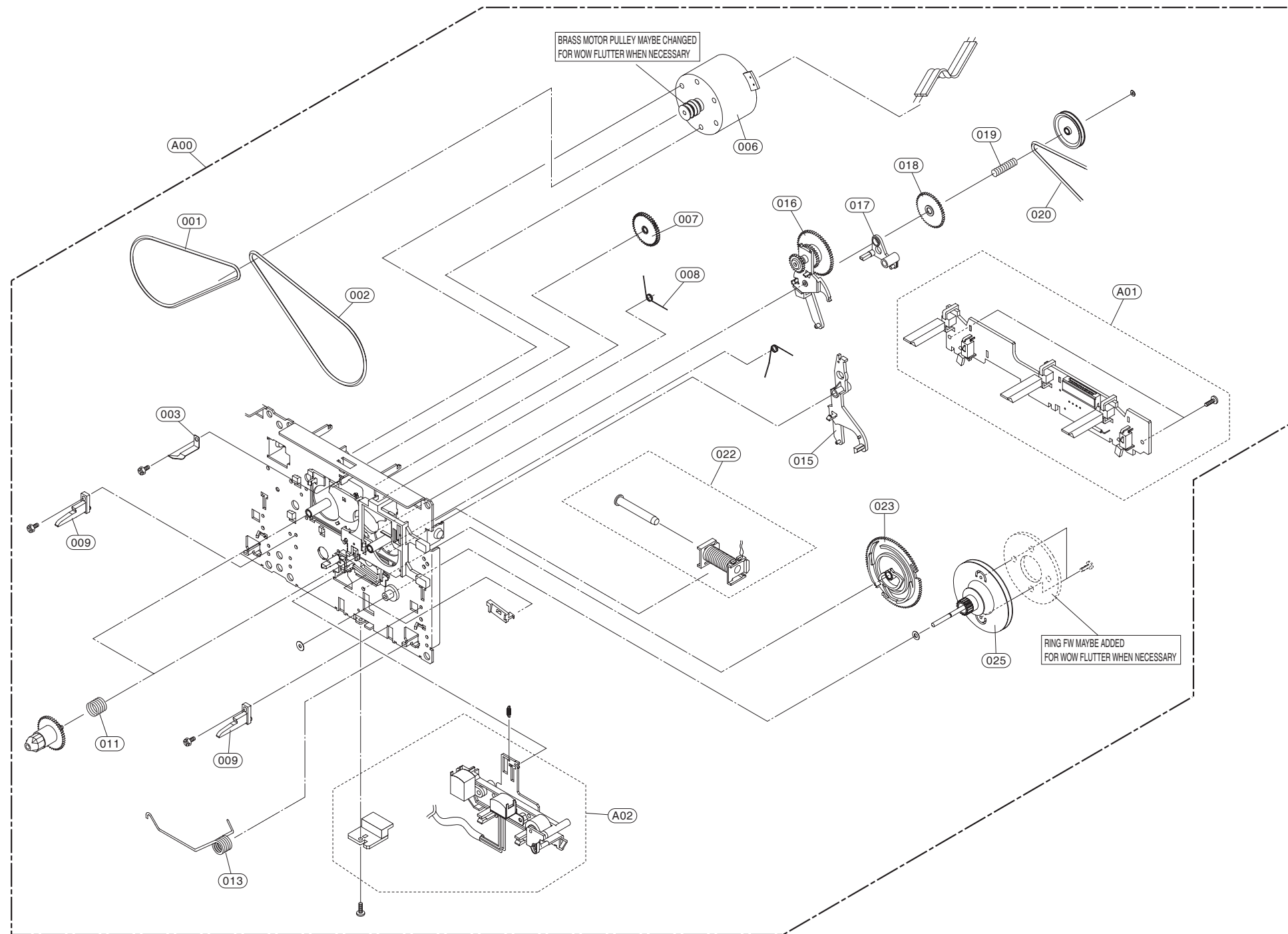
SECTION 2. EXPLODED VIEWS

1. CABINET AND MAIN FRAME SECTION (MDD64)

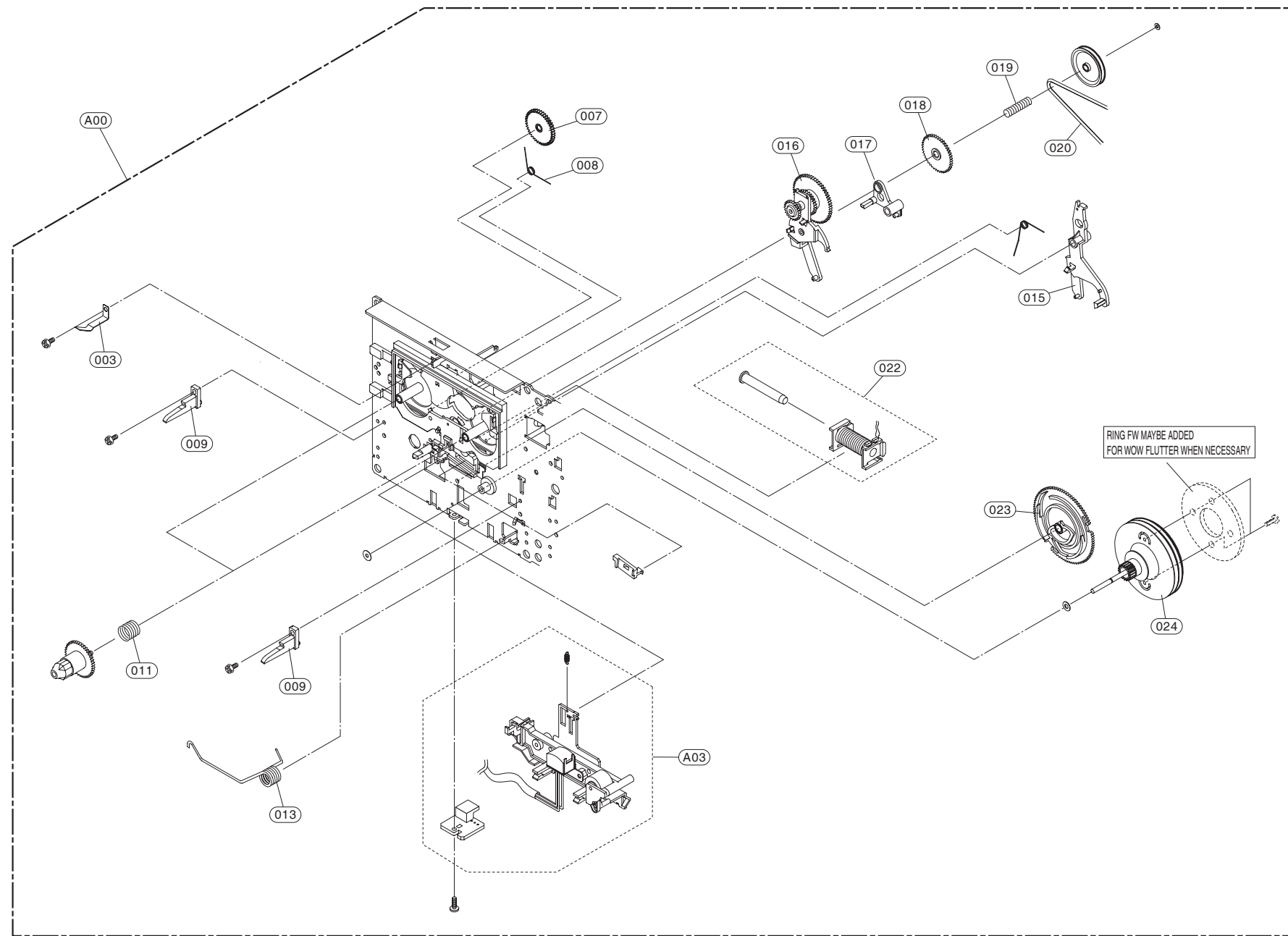


NOTES) THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

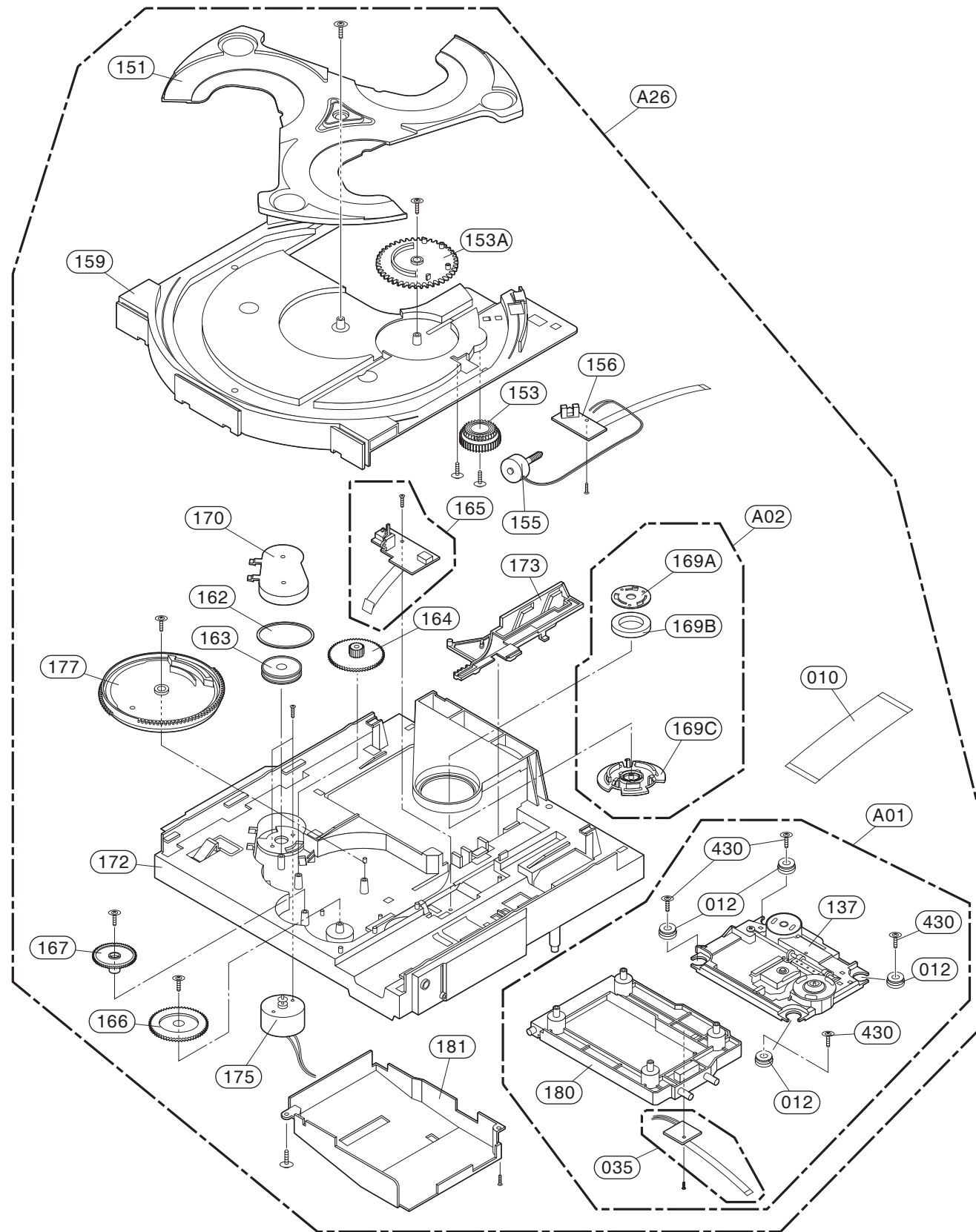
2. TAPE DECK MECHANISM EXPLODED VIEW
(1) TAPE DECK MECHANISM (A/S & A/S : RIGHT A/S DECK)



(2) TAPE DECK MECHANISM (A/S & A/S : LEFT A/S DECK)

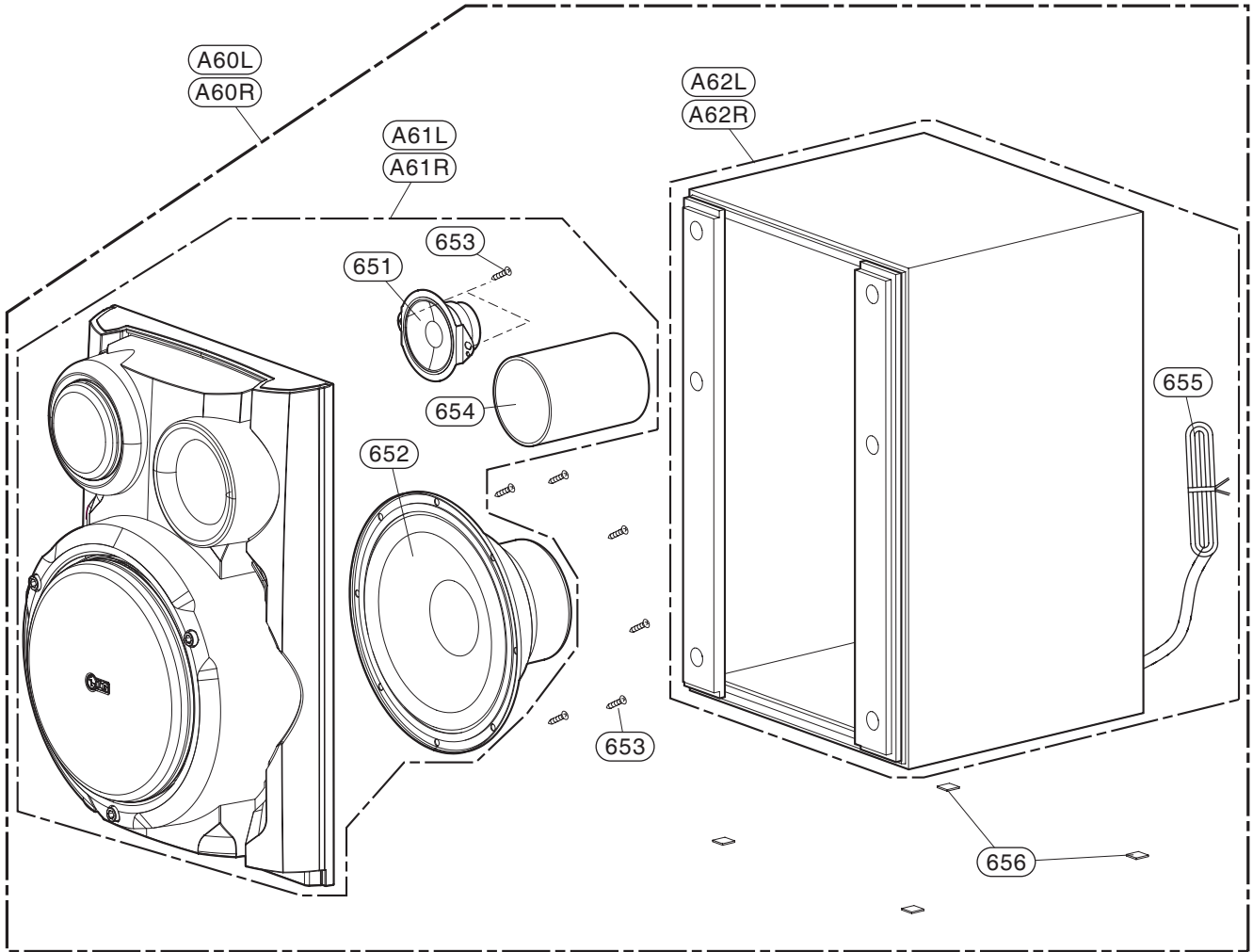


3. MECHANISM DECK EXPLODED VIEW (DVM-H1713)

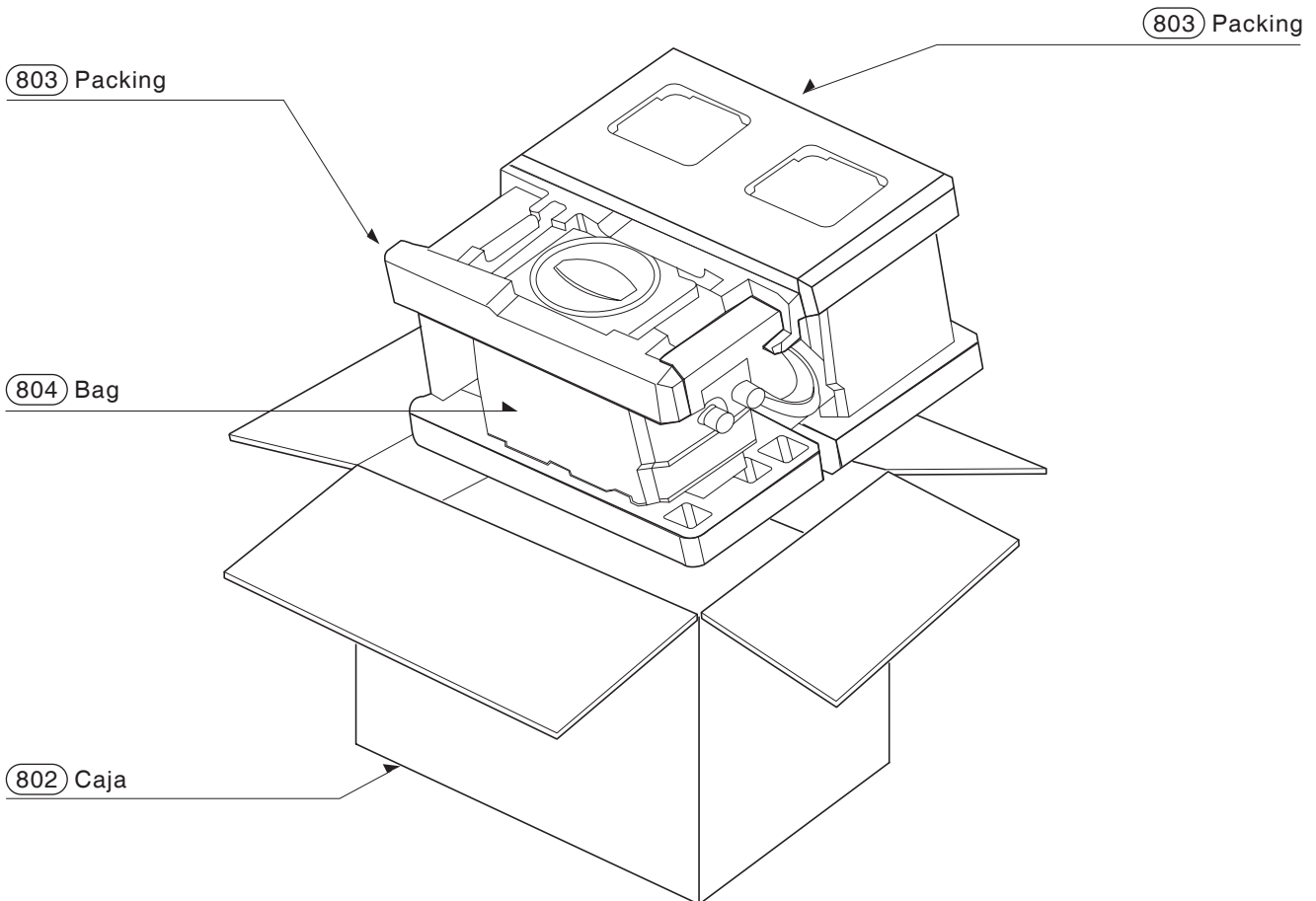
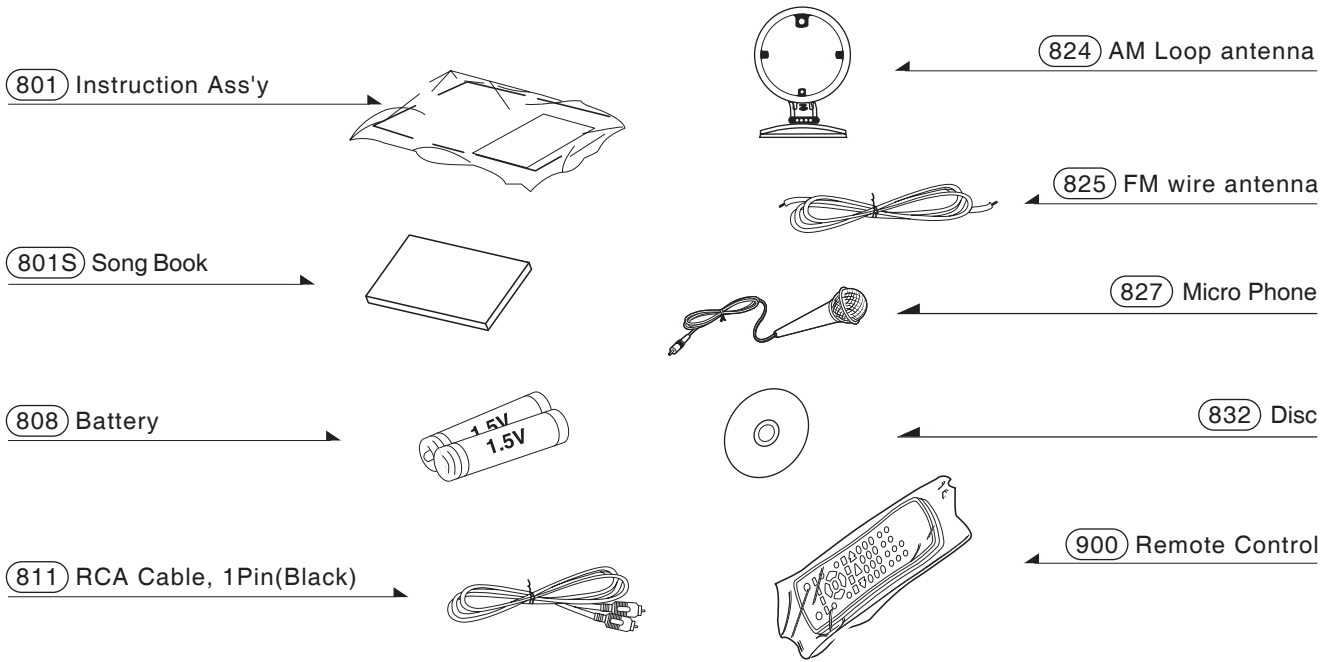


4. SPEAKER EXPLODED VIEW

• FRONT SPEAKER (MDS64V)



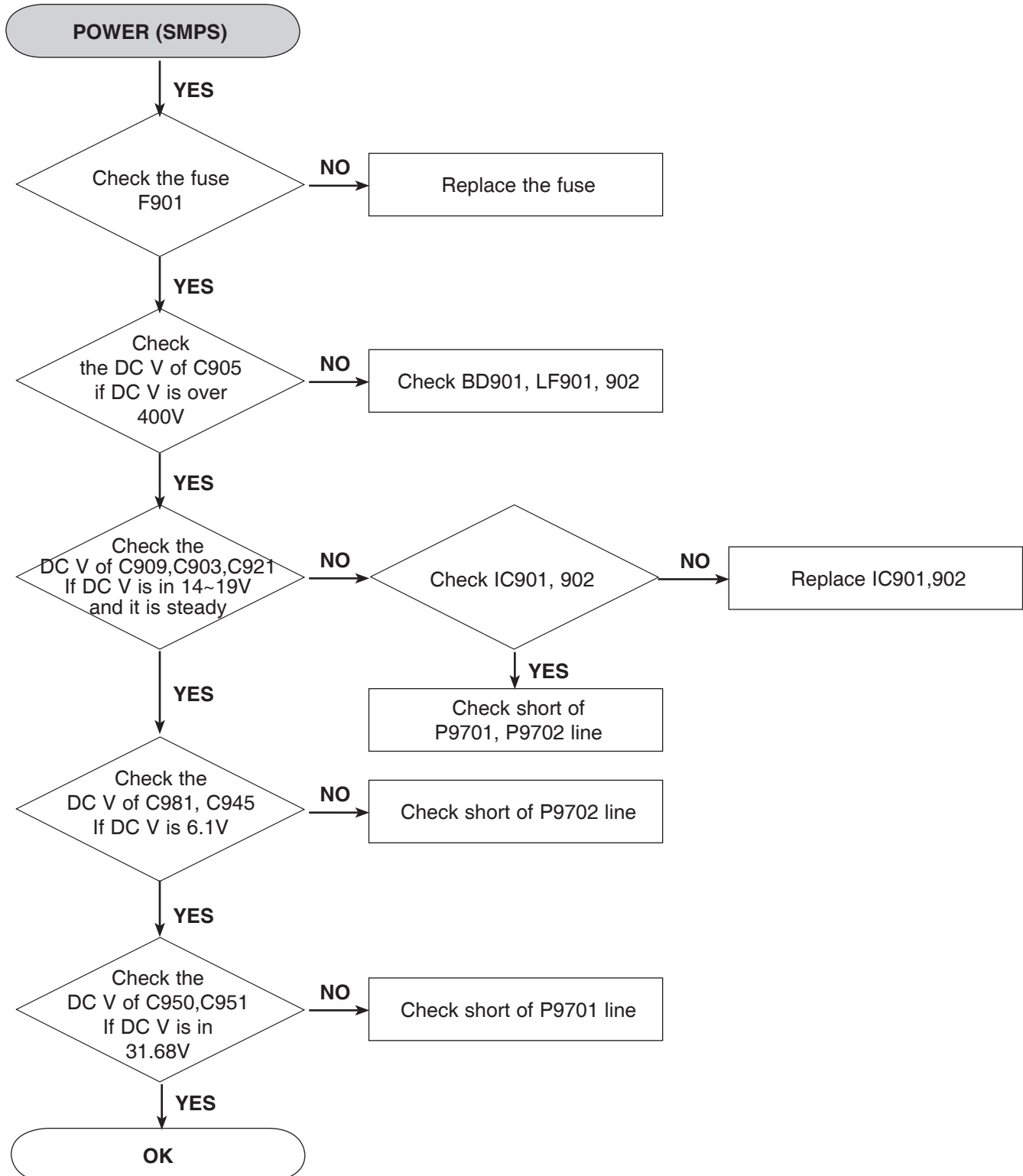
5. PACKING ACCESSORY VIEW



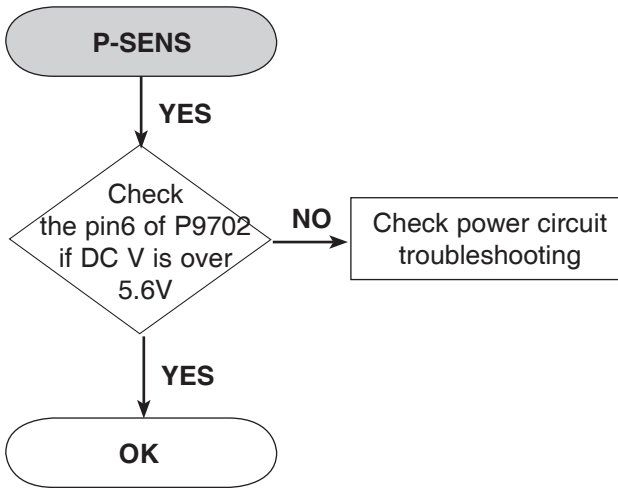
SECTION 3. ELECTRICAL PART

AUDIO ELECTRICAL TROUBLESHOOTING GUIDE

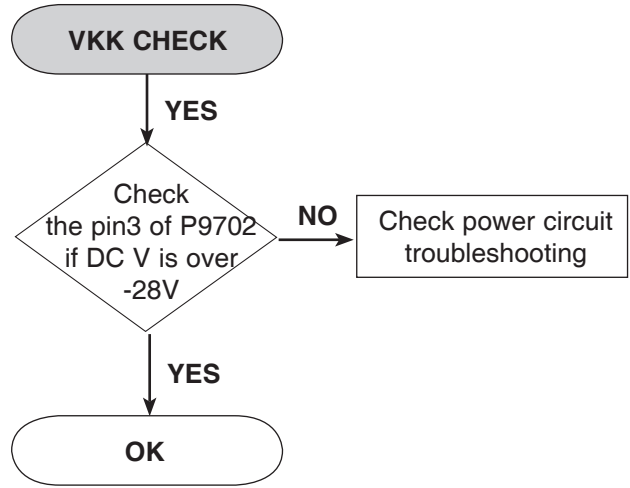
1. POWER (SMPS)



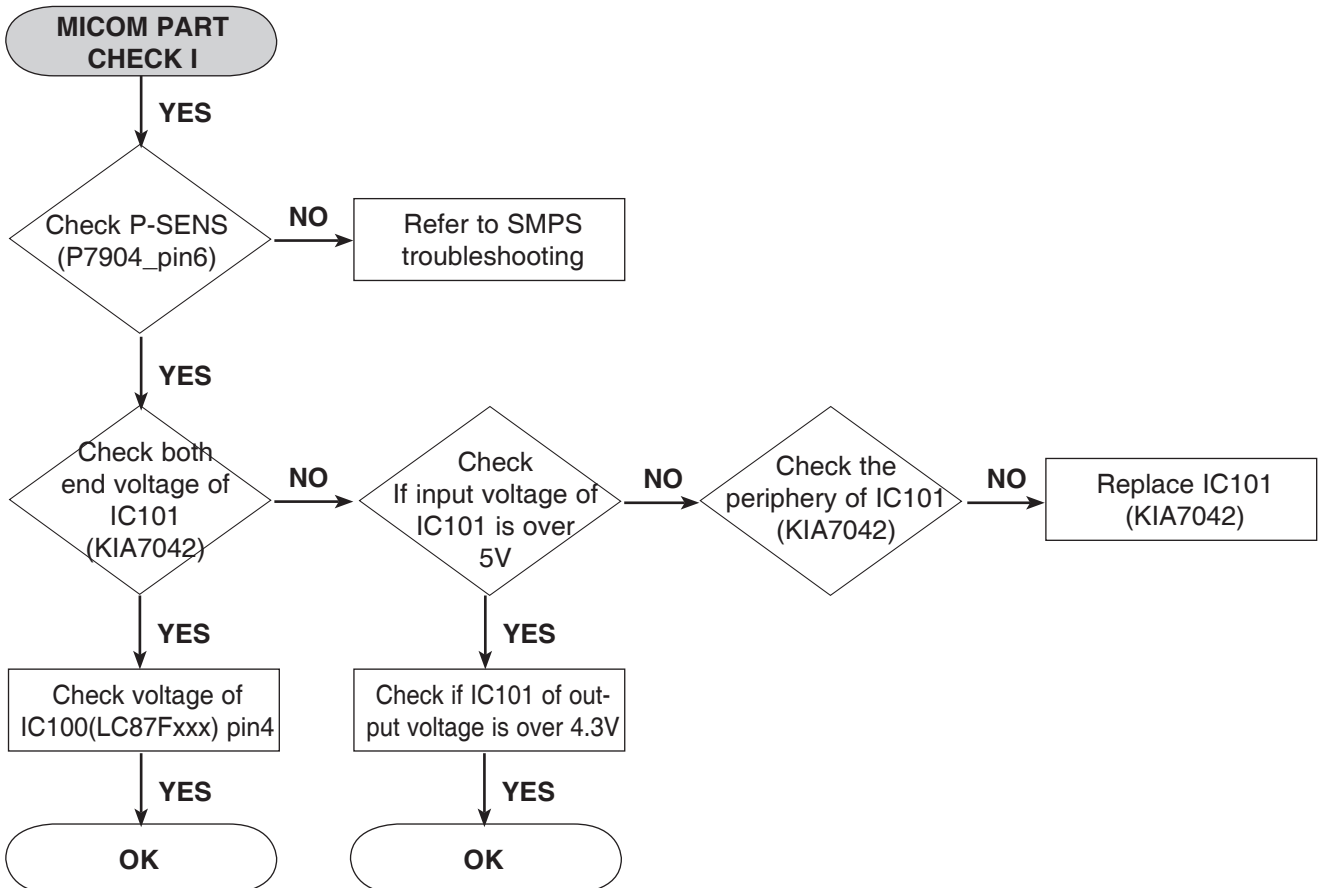
2. P-SENS



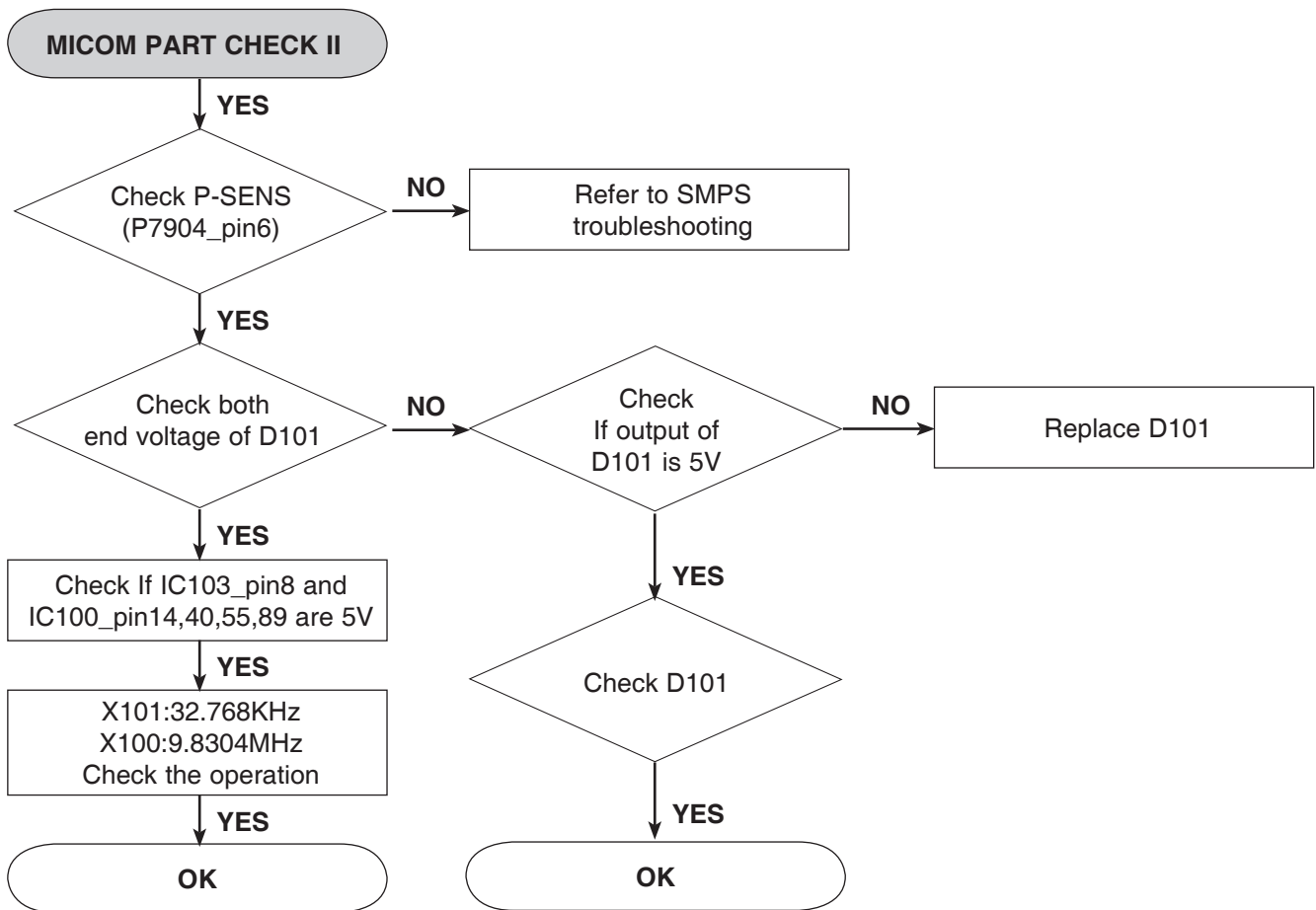
3. VKK PART CHECK



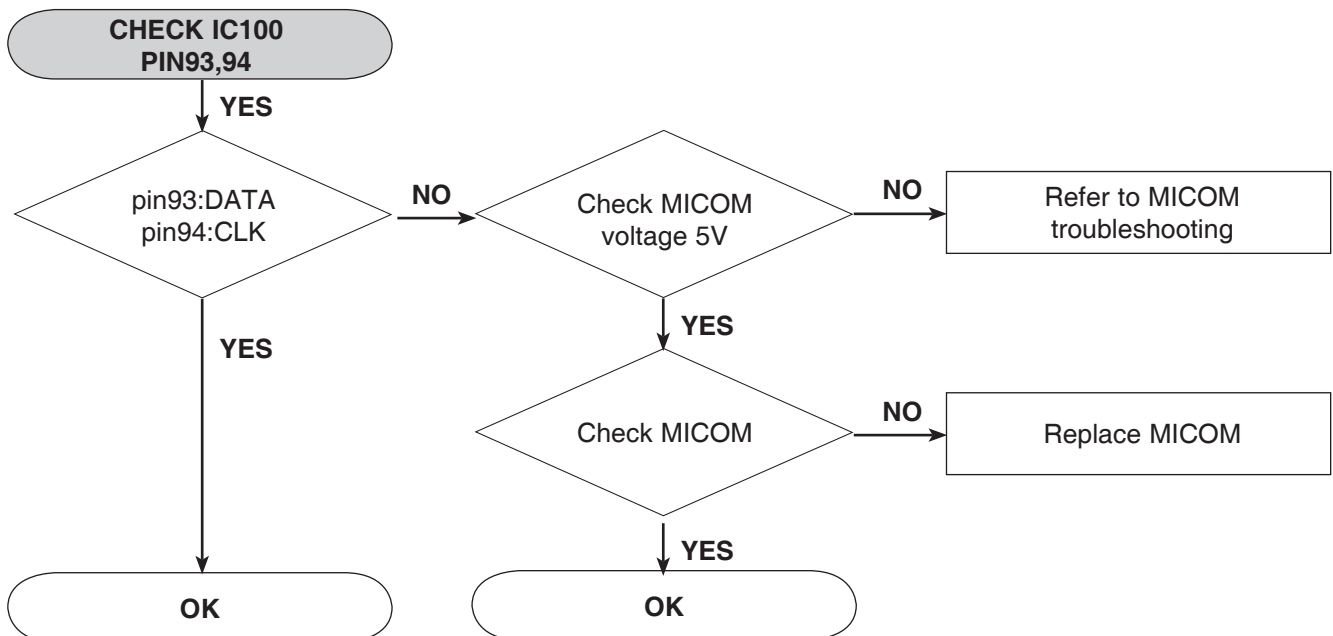
4. MICOM PART CHECK I



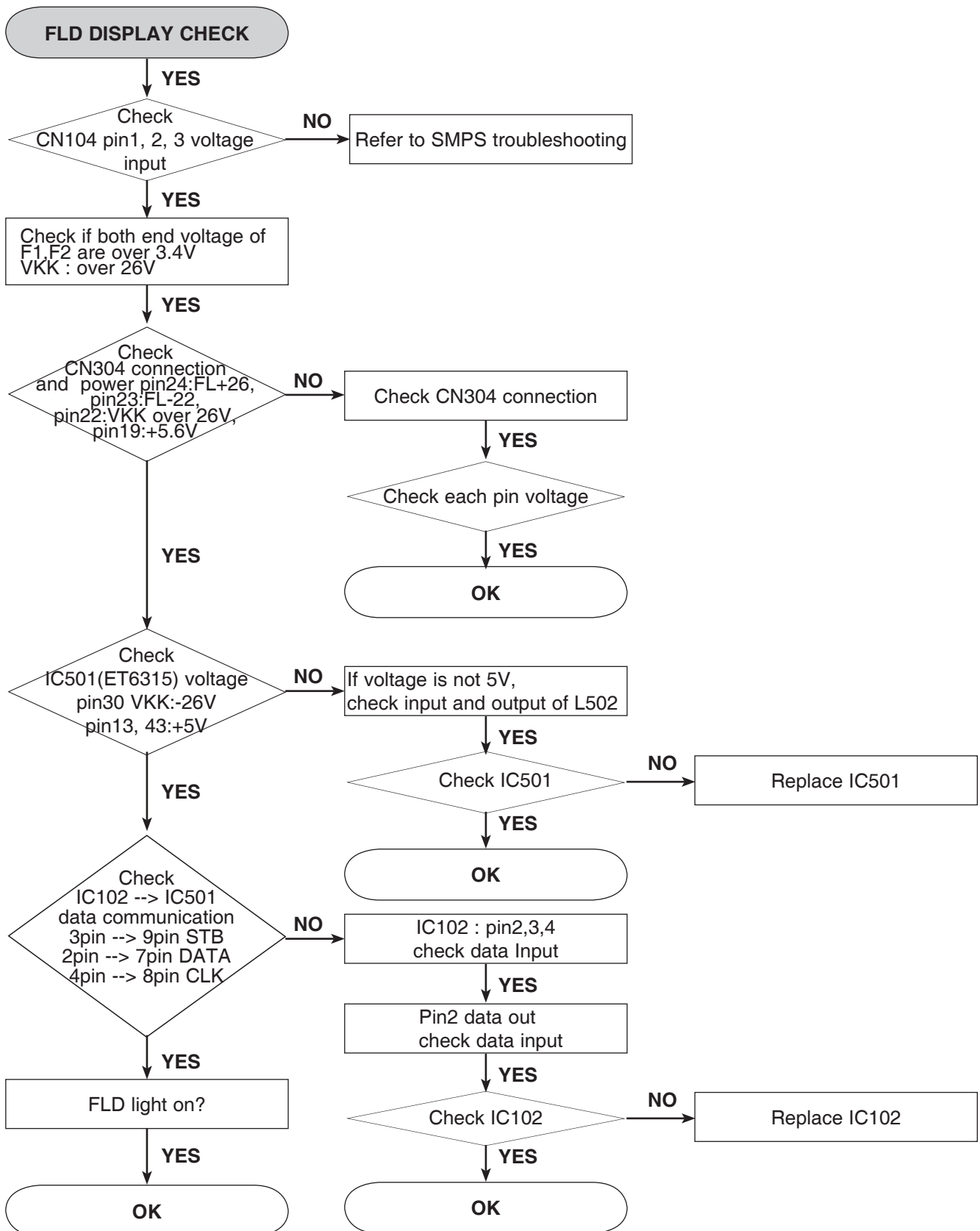
5. MICOM PART CHECK II



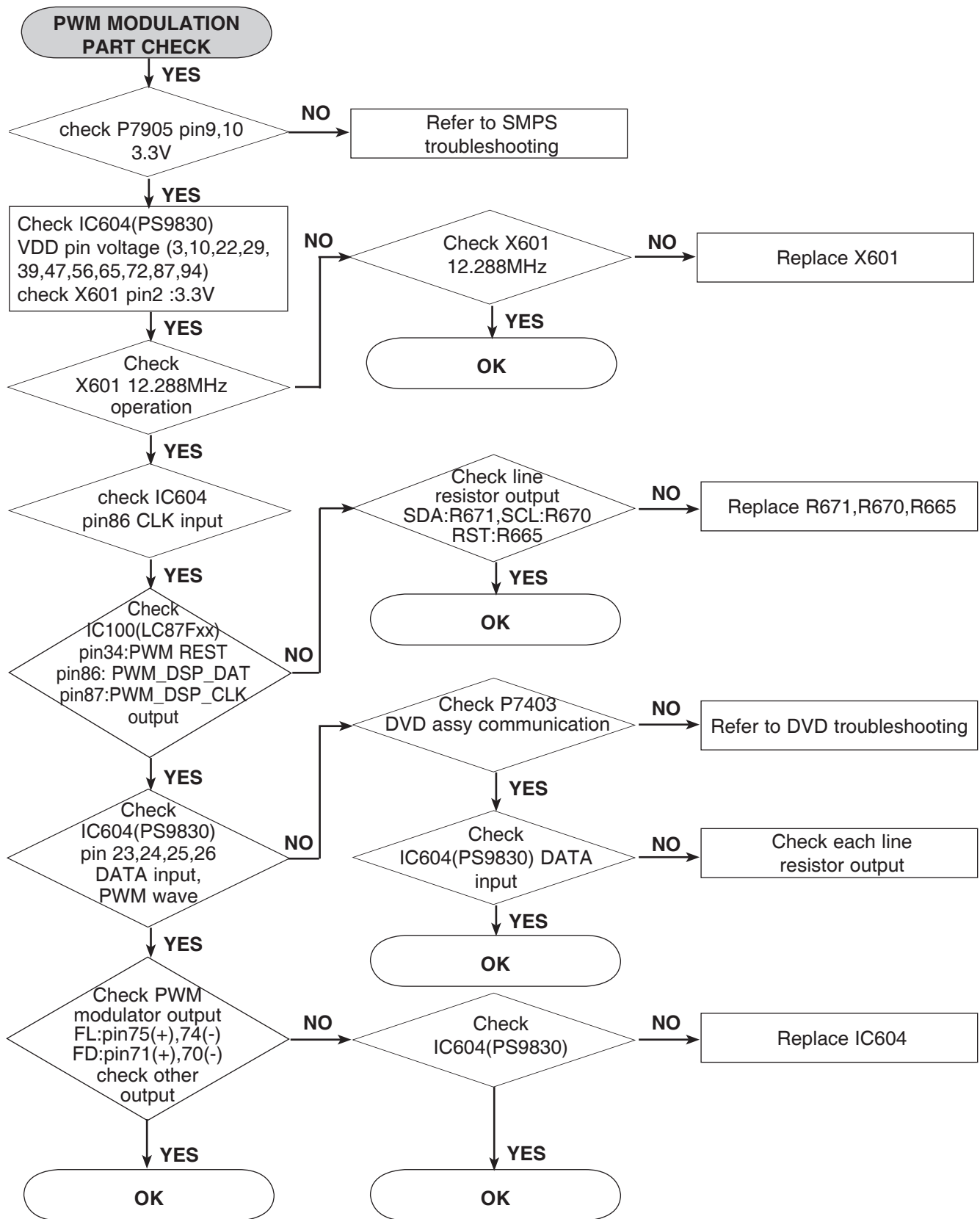
6. IC103(S24CS16A01) PART CHECK



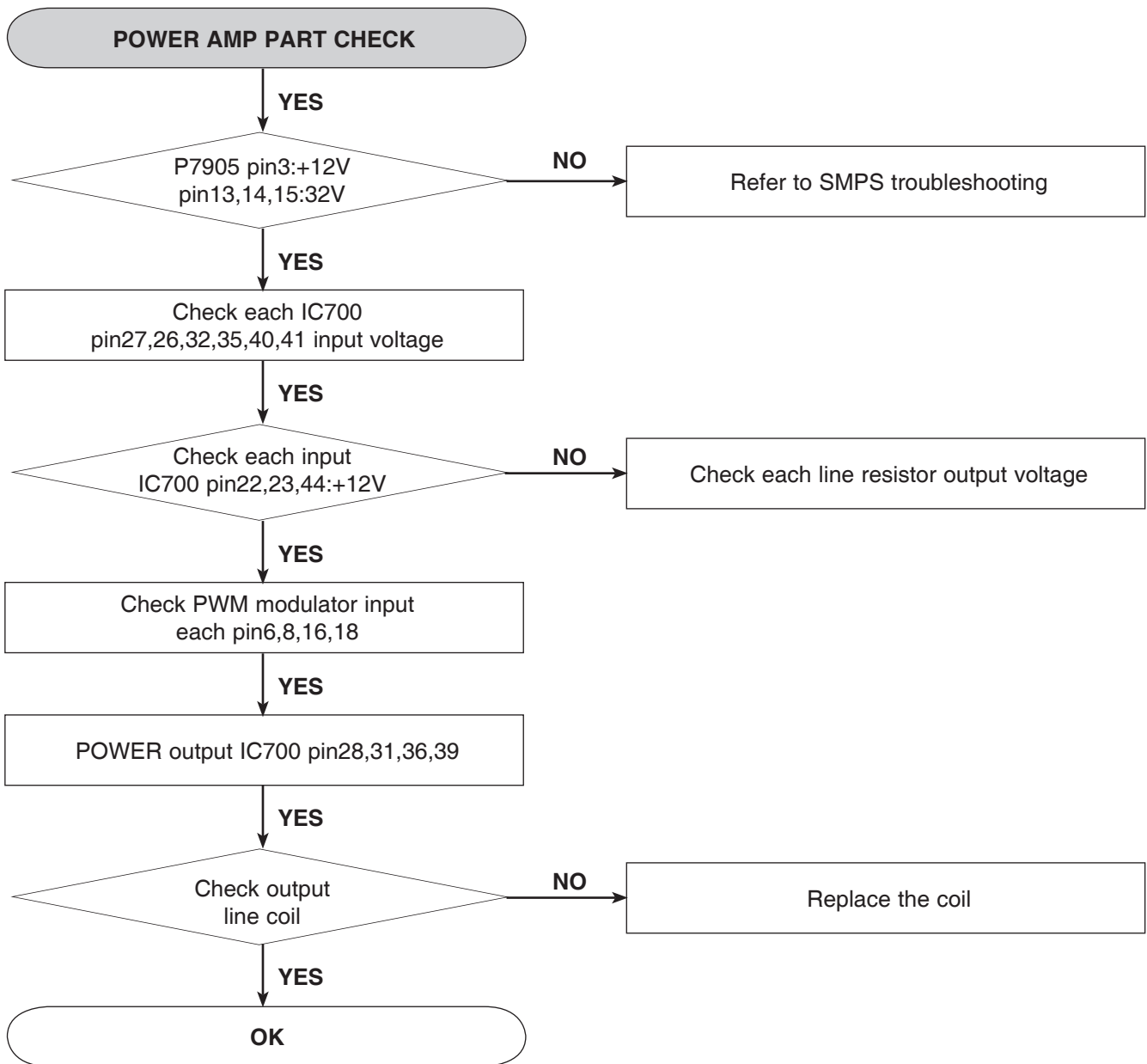
7. FLD DISPLAY CHECK



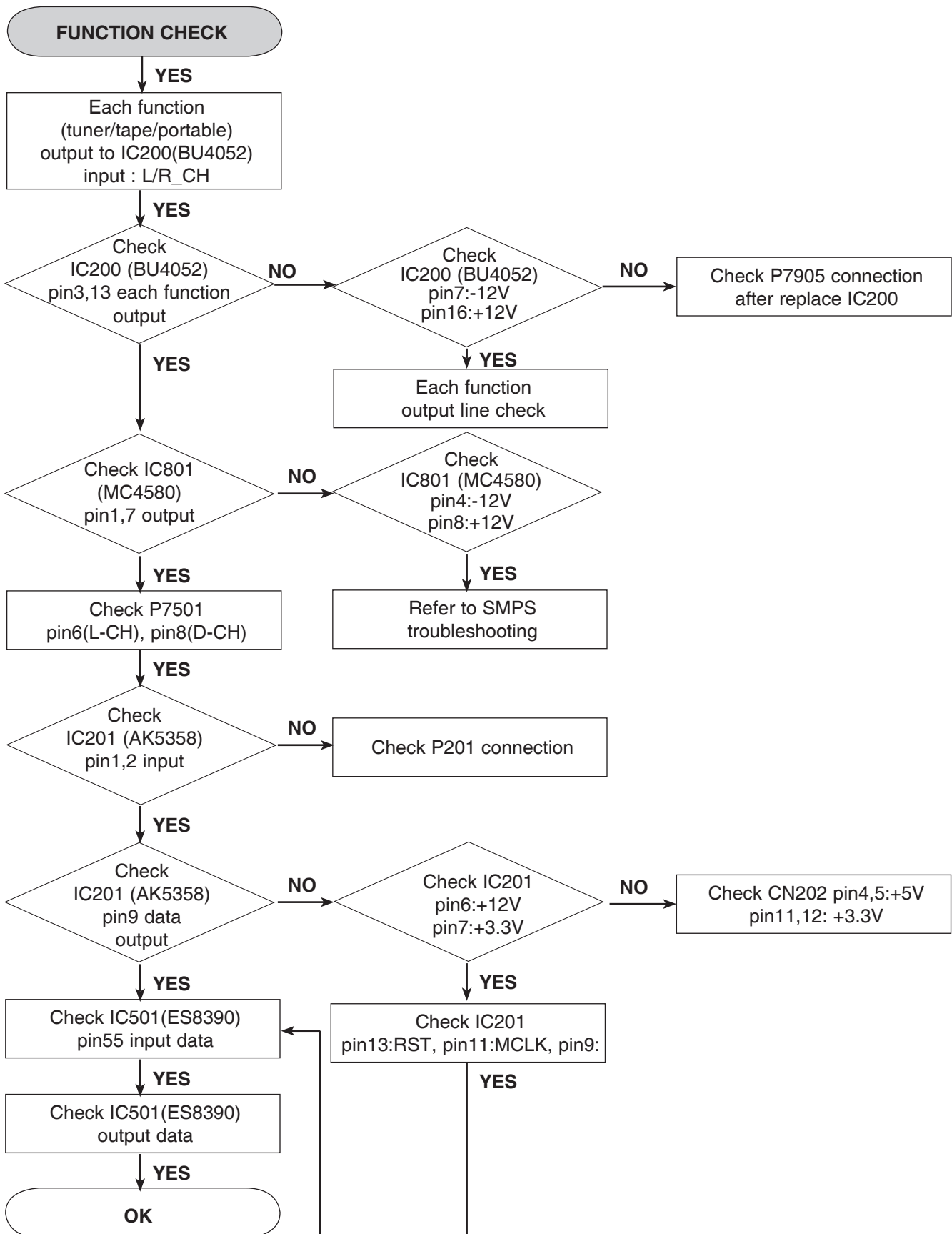
8. PWM MODULATION PART CHECK



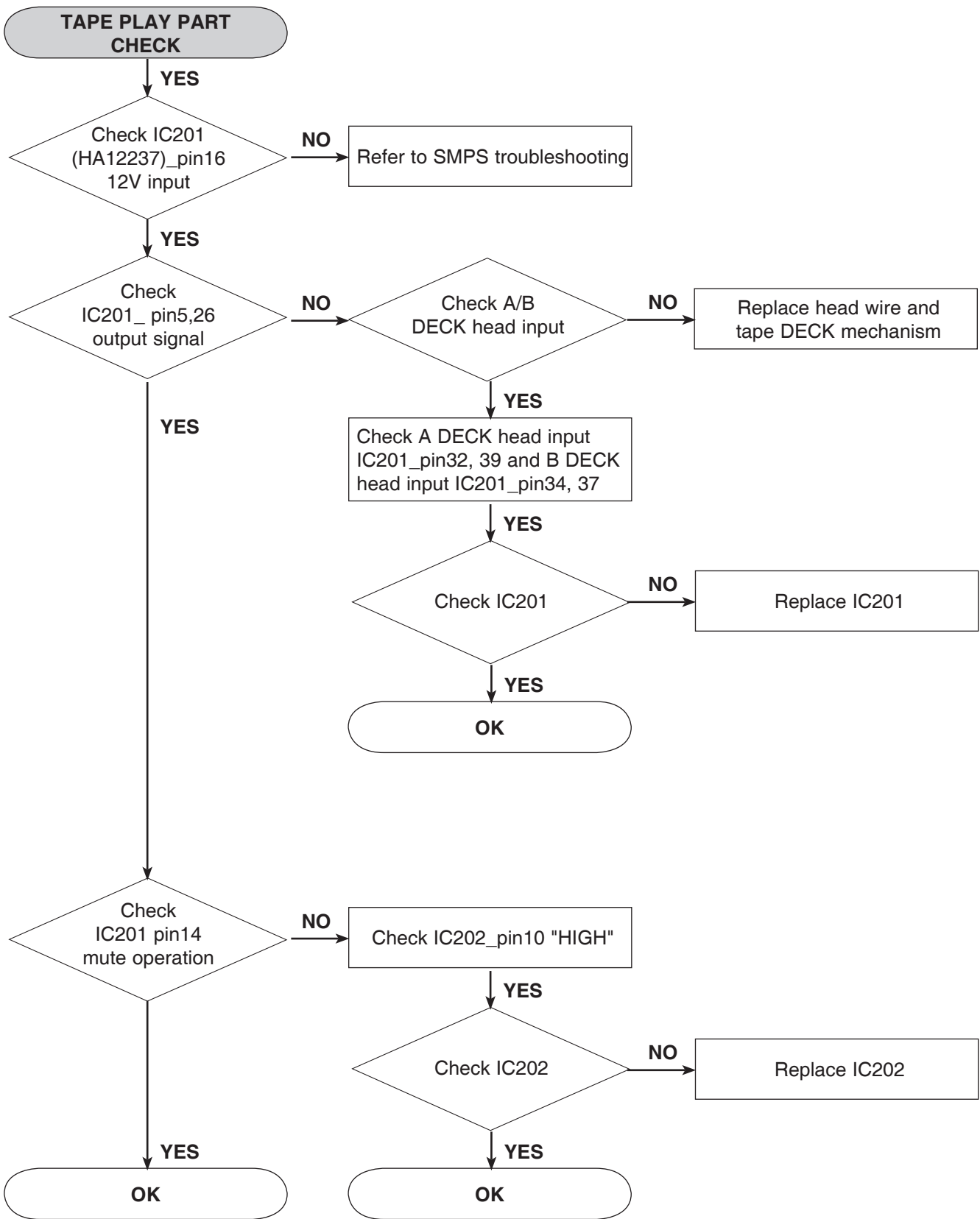
9. POWER AMP PART CHECK



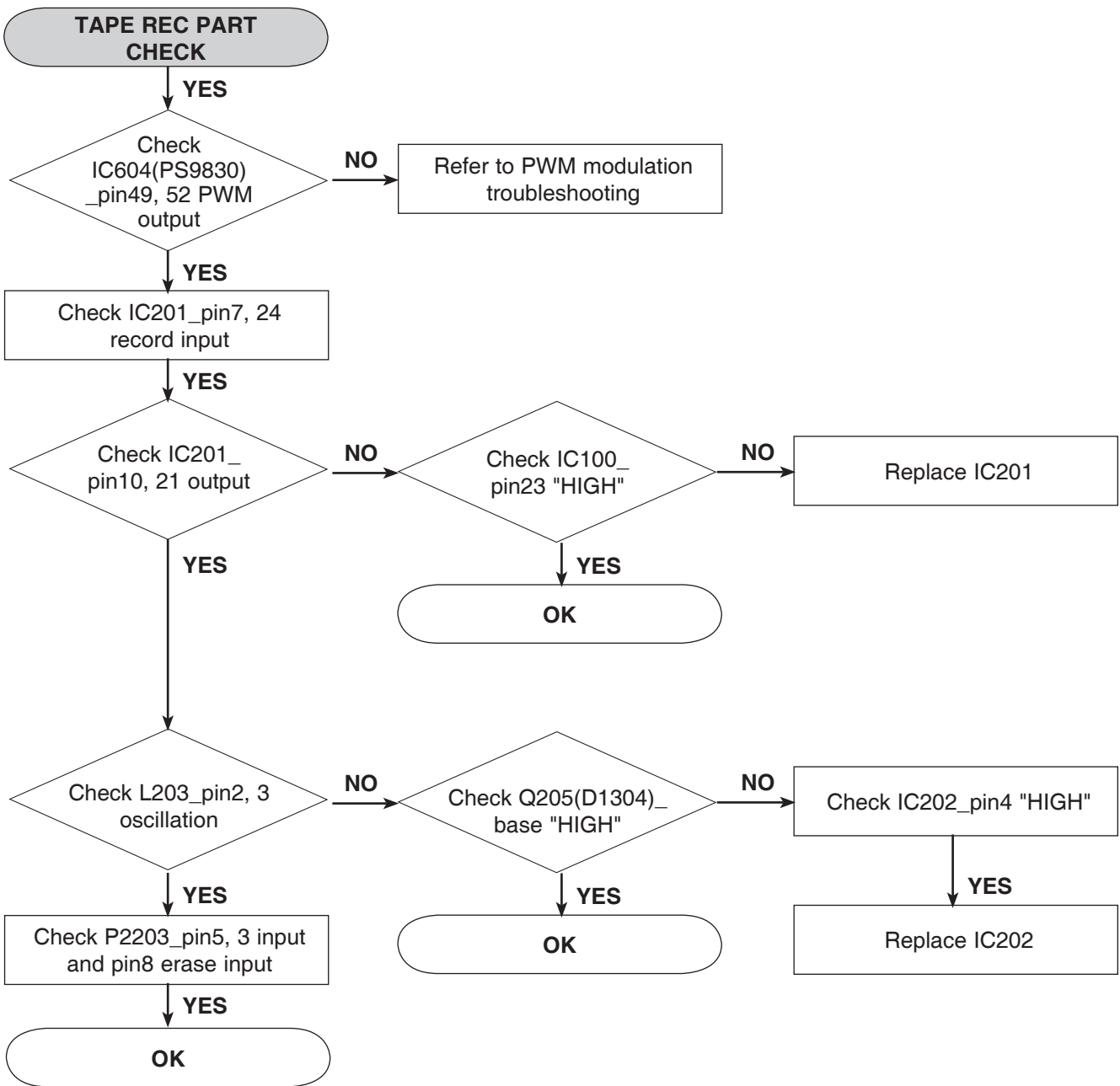
10. AUX FUNCTION PART CHECK



11. TUNER/TAPE/PORTABLE FUNCTION PART CHECK

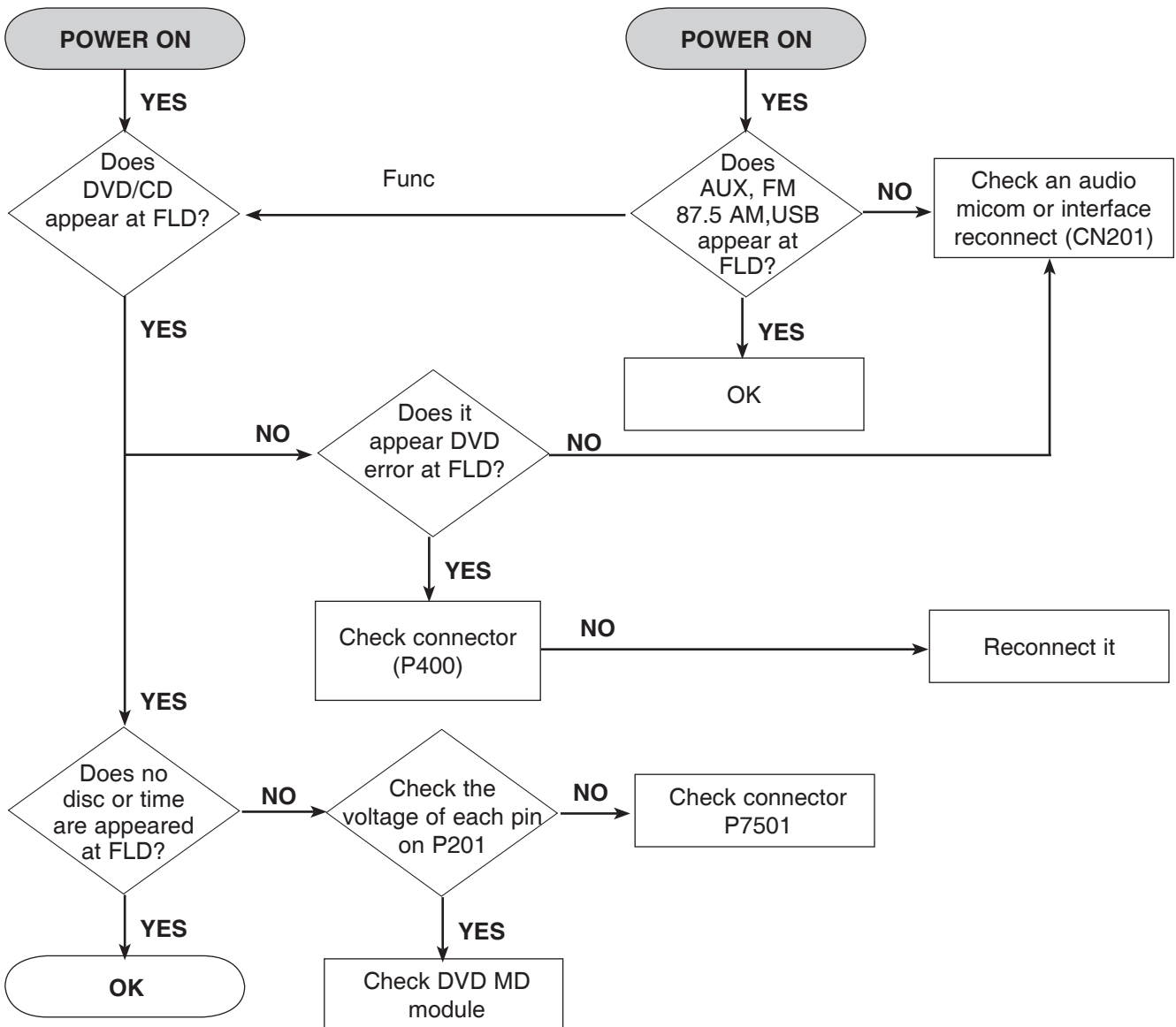


12. TAPE PLAY PART CHECK

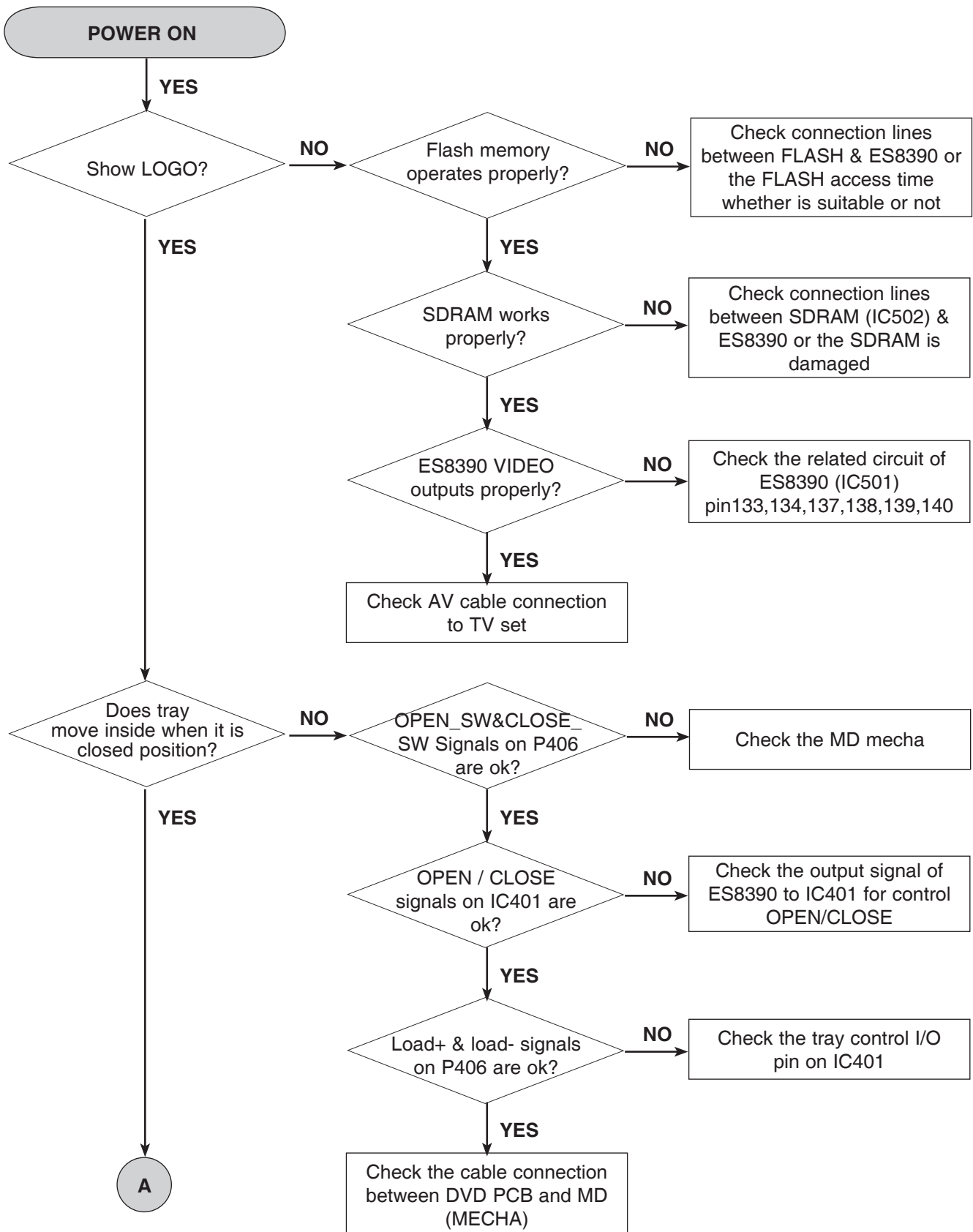


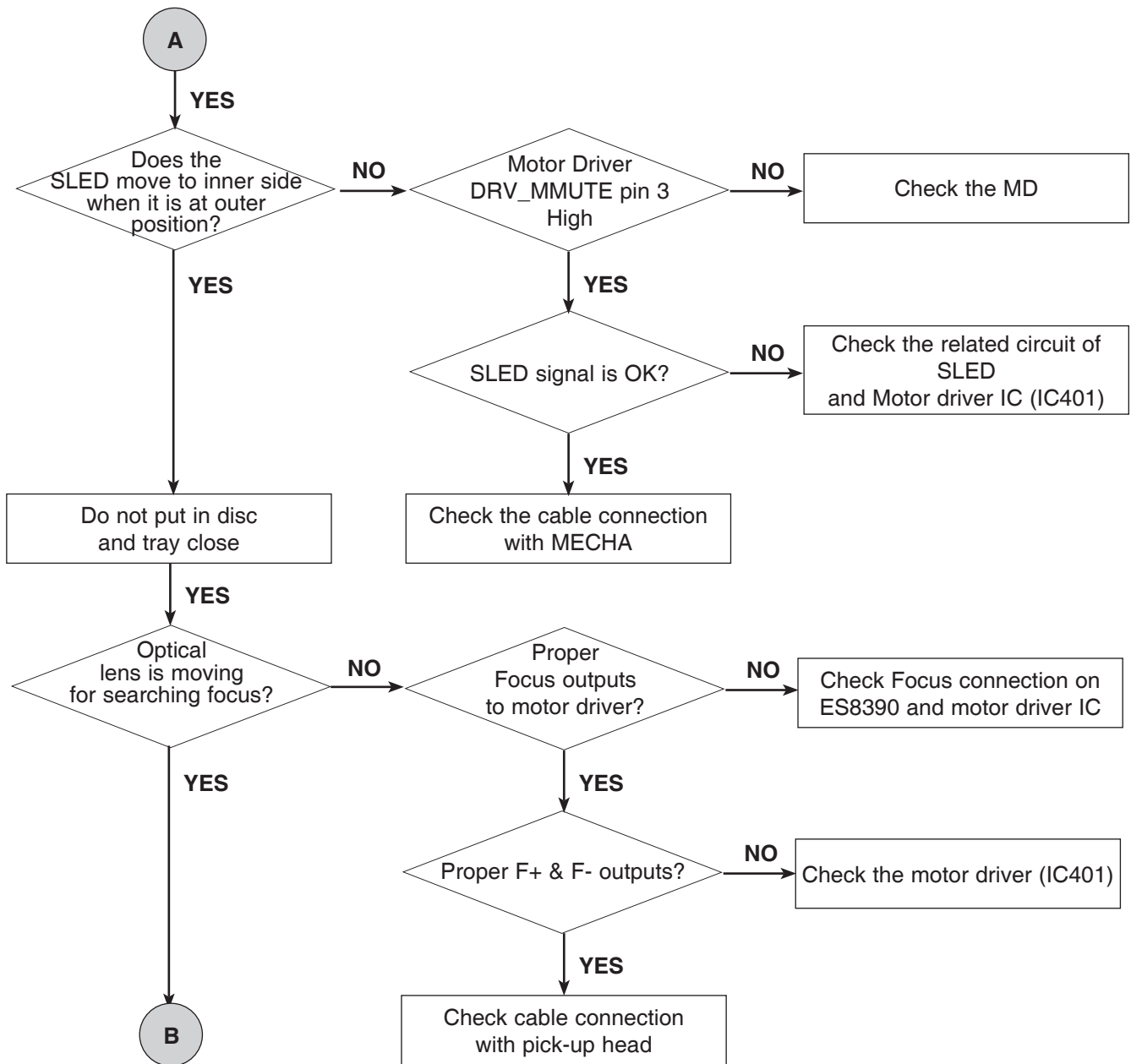
DVD ELECTRICAL TROUBLESHOOTING GUIDE

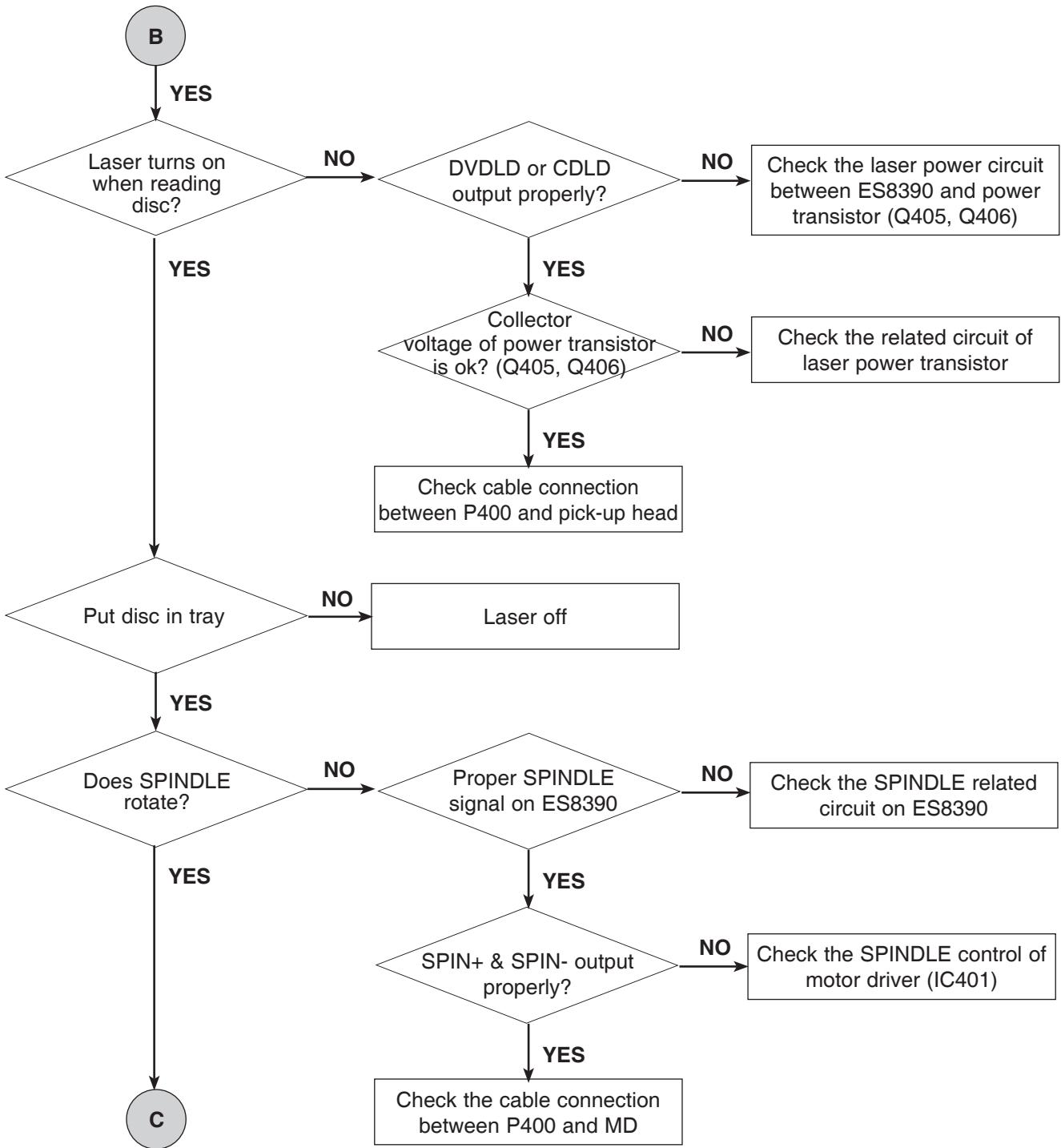
1. POWER PART CHECK GUIDE

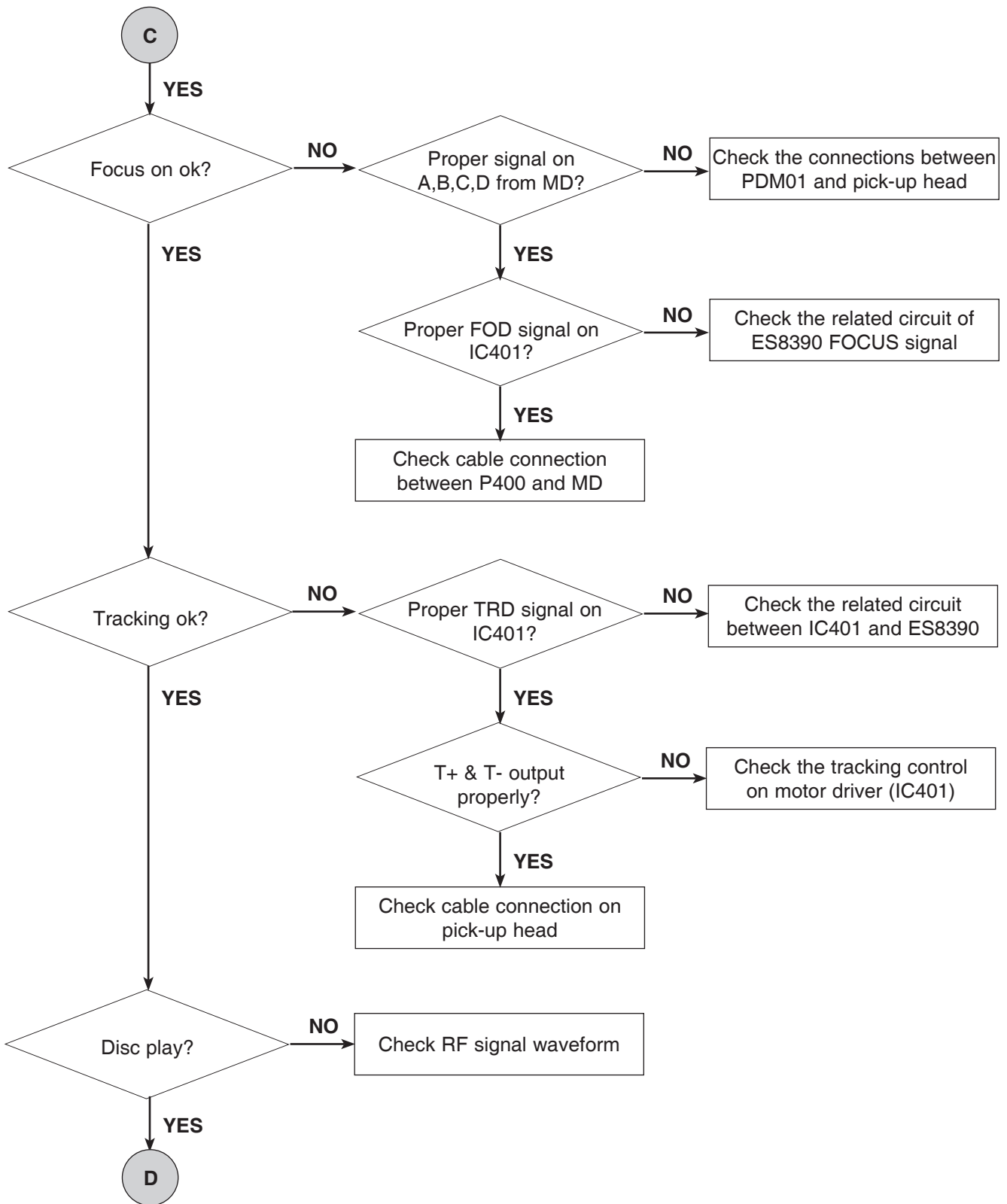


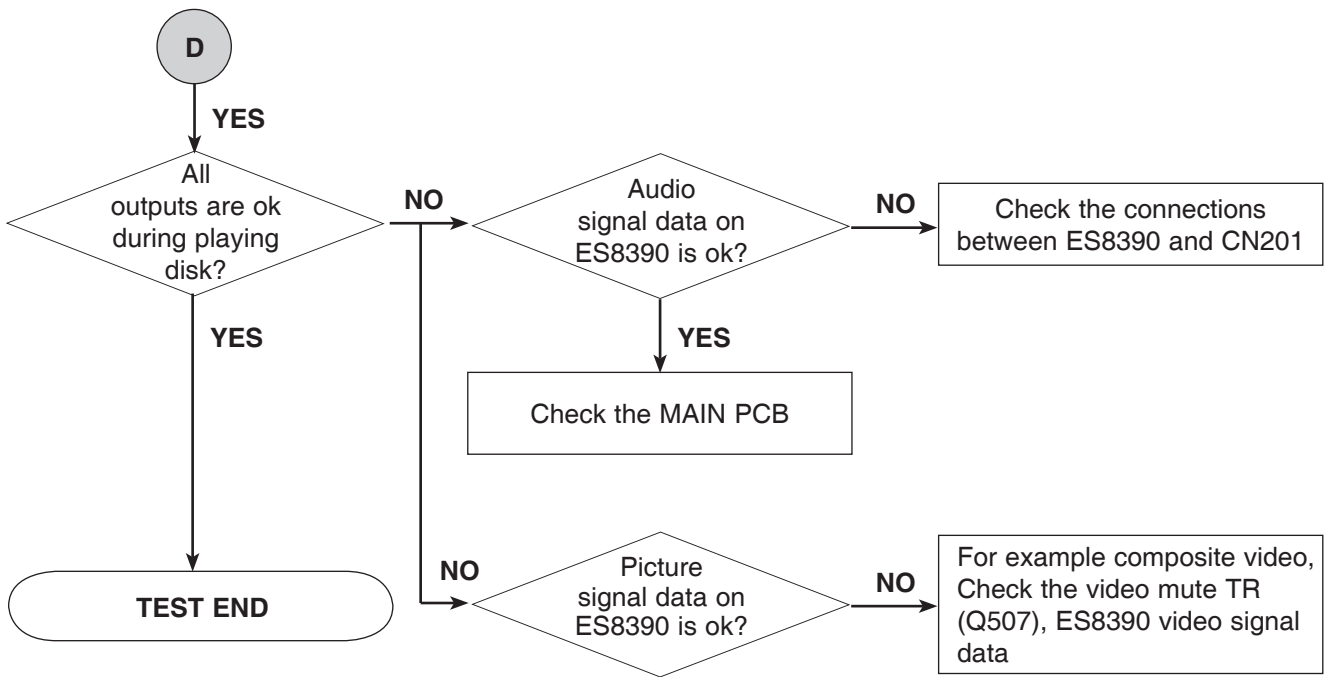
2. TEST & DEBUG FLOW



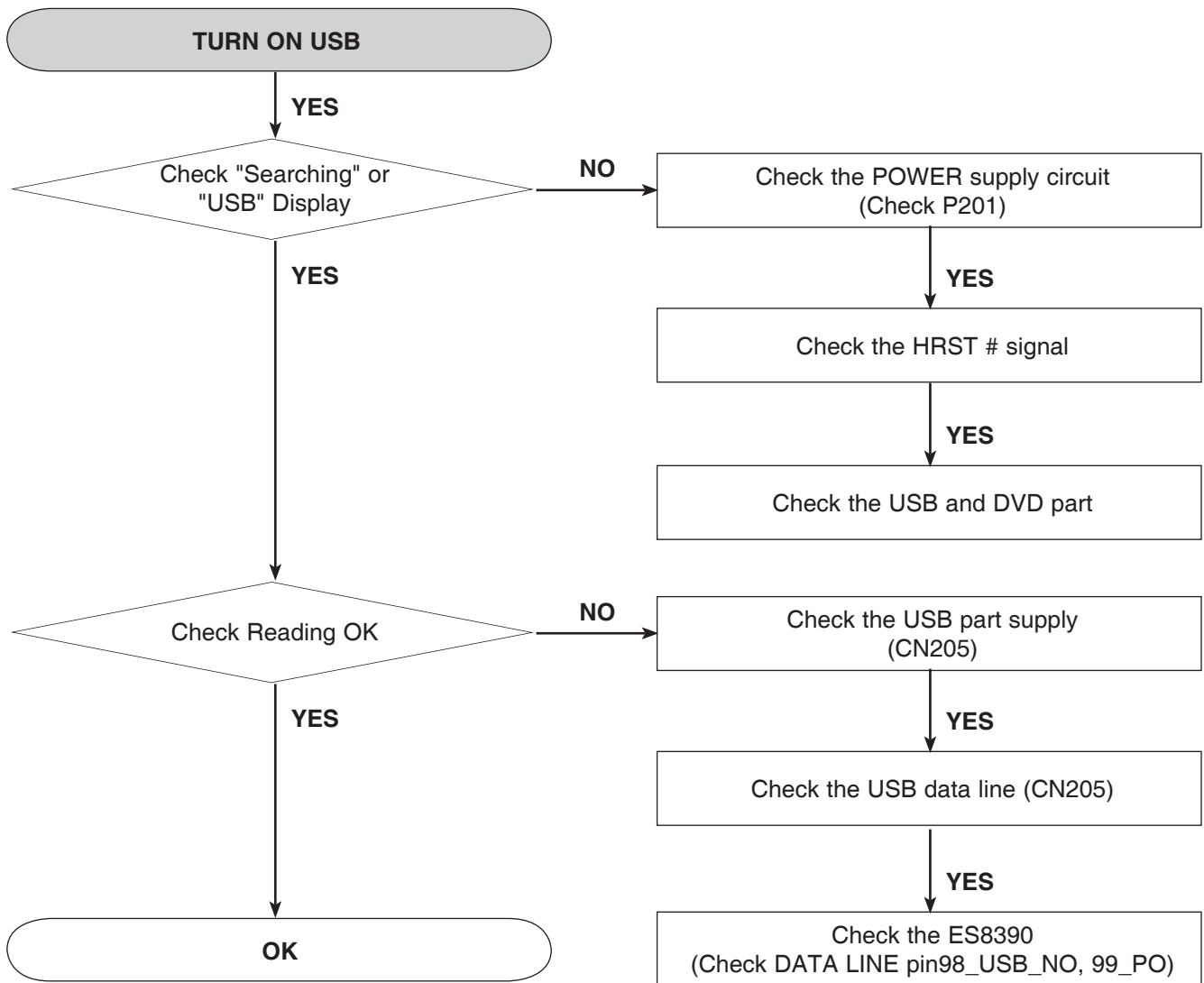






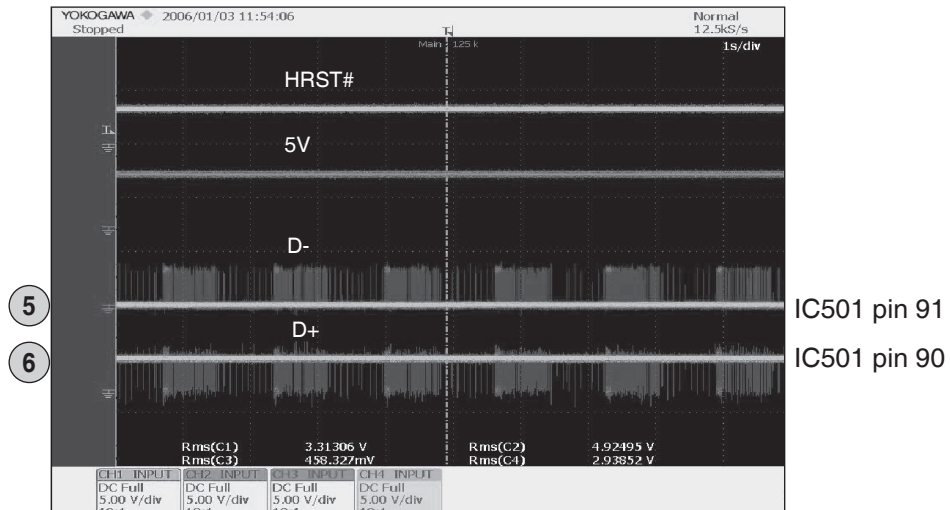
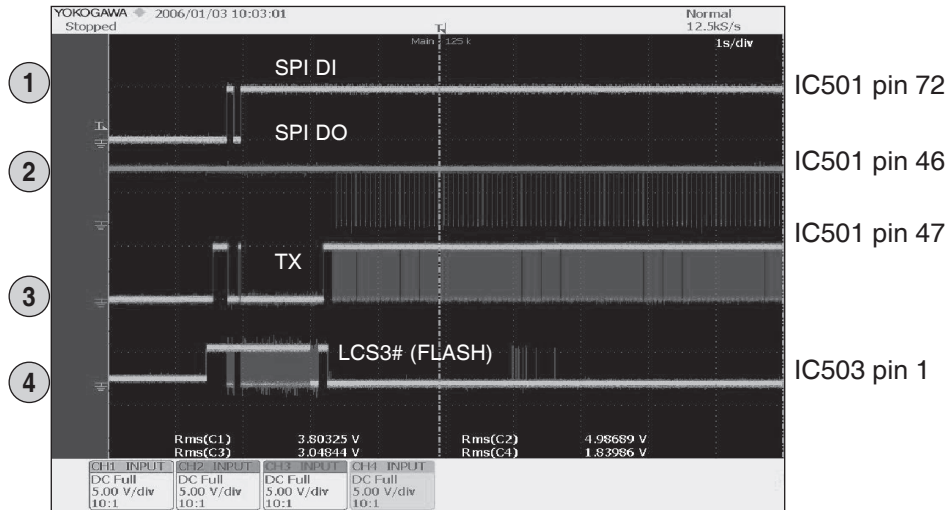


3. USB PART

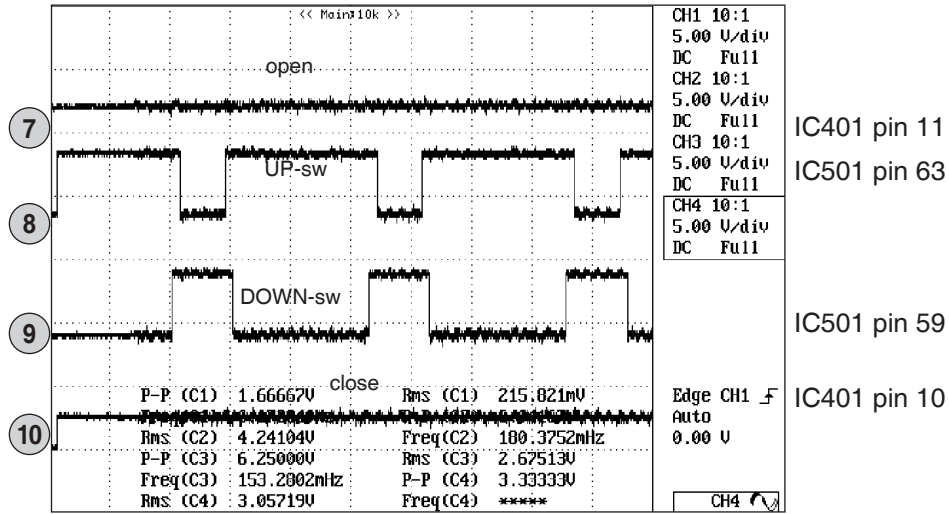


WAVEFORMS OF MAJOR CHECK POINT

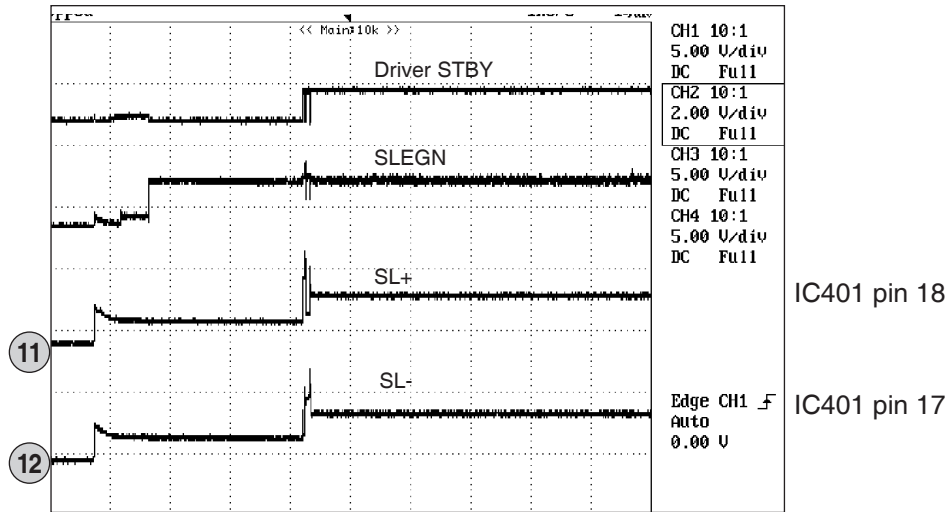
1. WHEN POWER ON, RESET & DATA ETC WAVEFORM



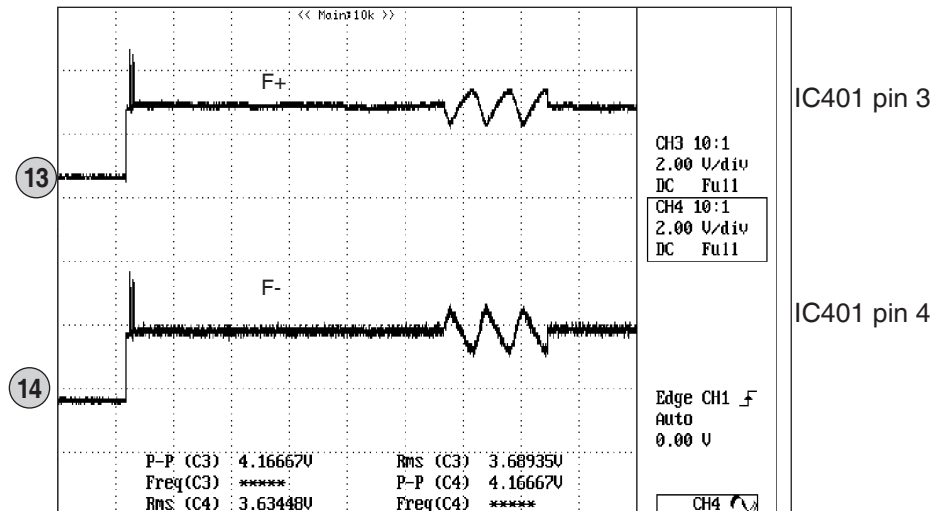
2. OPEN/CLOSE WAVEFORM AT POWER ON



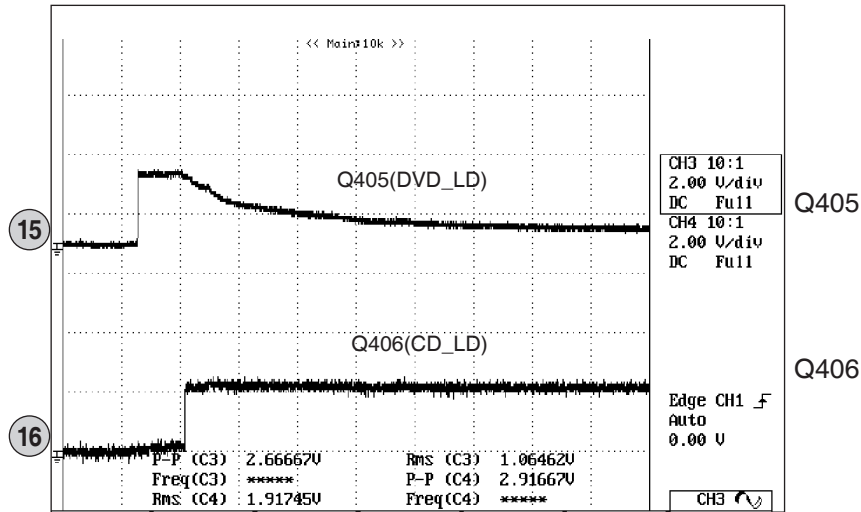
3. STARTING ACTION WAVEFORM IN MD DEVICE



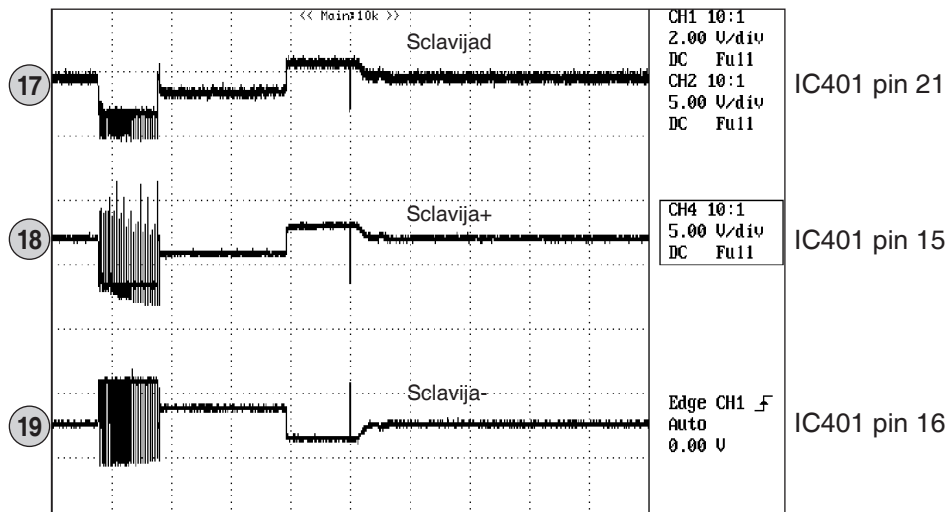
4. FOCUS WAVEFORM (AT CD)



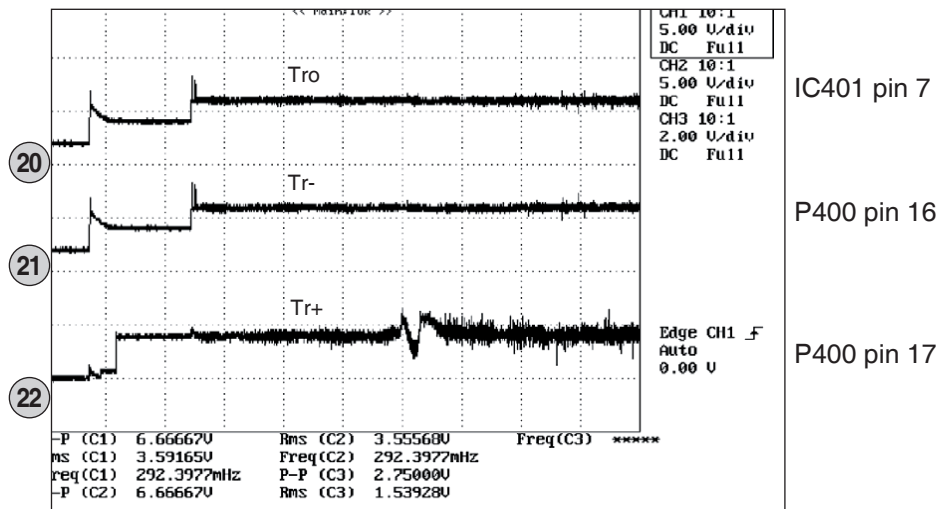
5. FOCUS WAVEFORM (AT DVD)



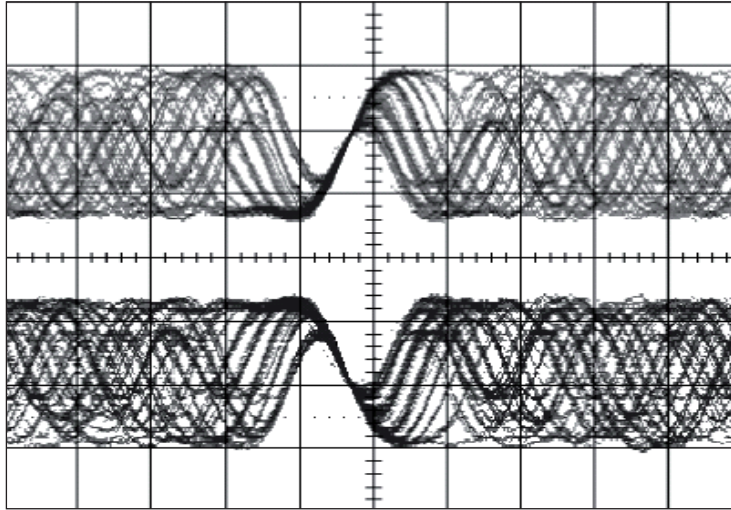
6. AT POWER ON , SPINDLE SIGNAL AT MD DECK



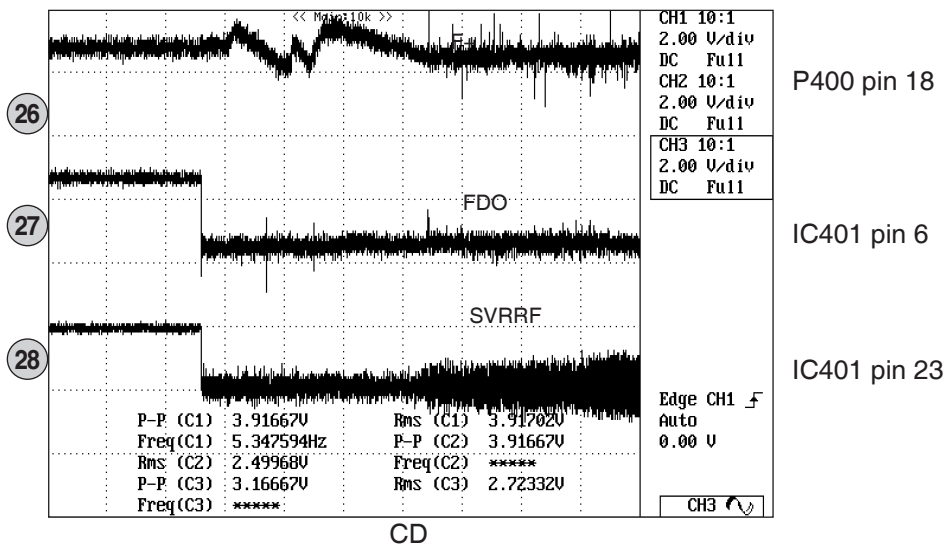
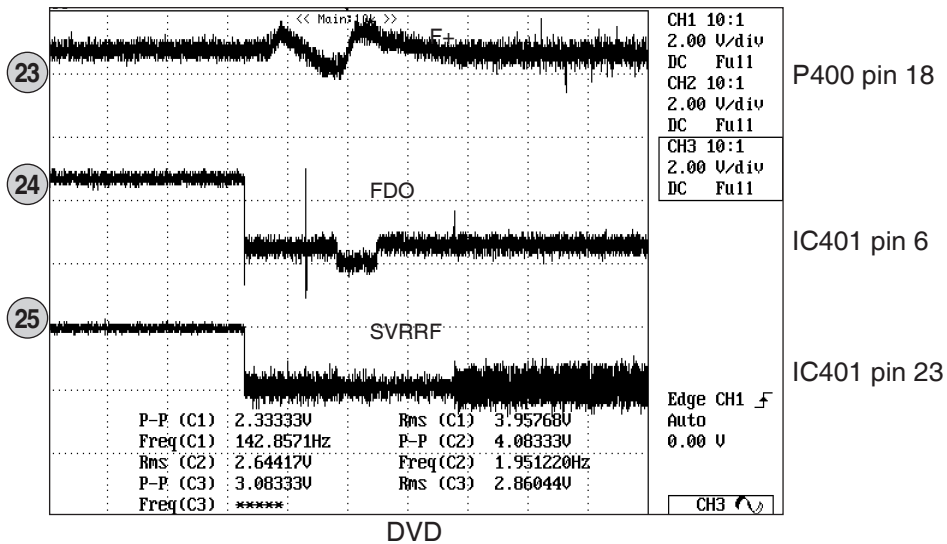
7. TRACKING SIGNAL



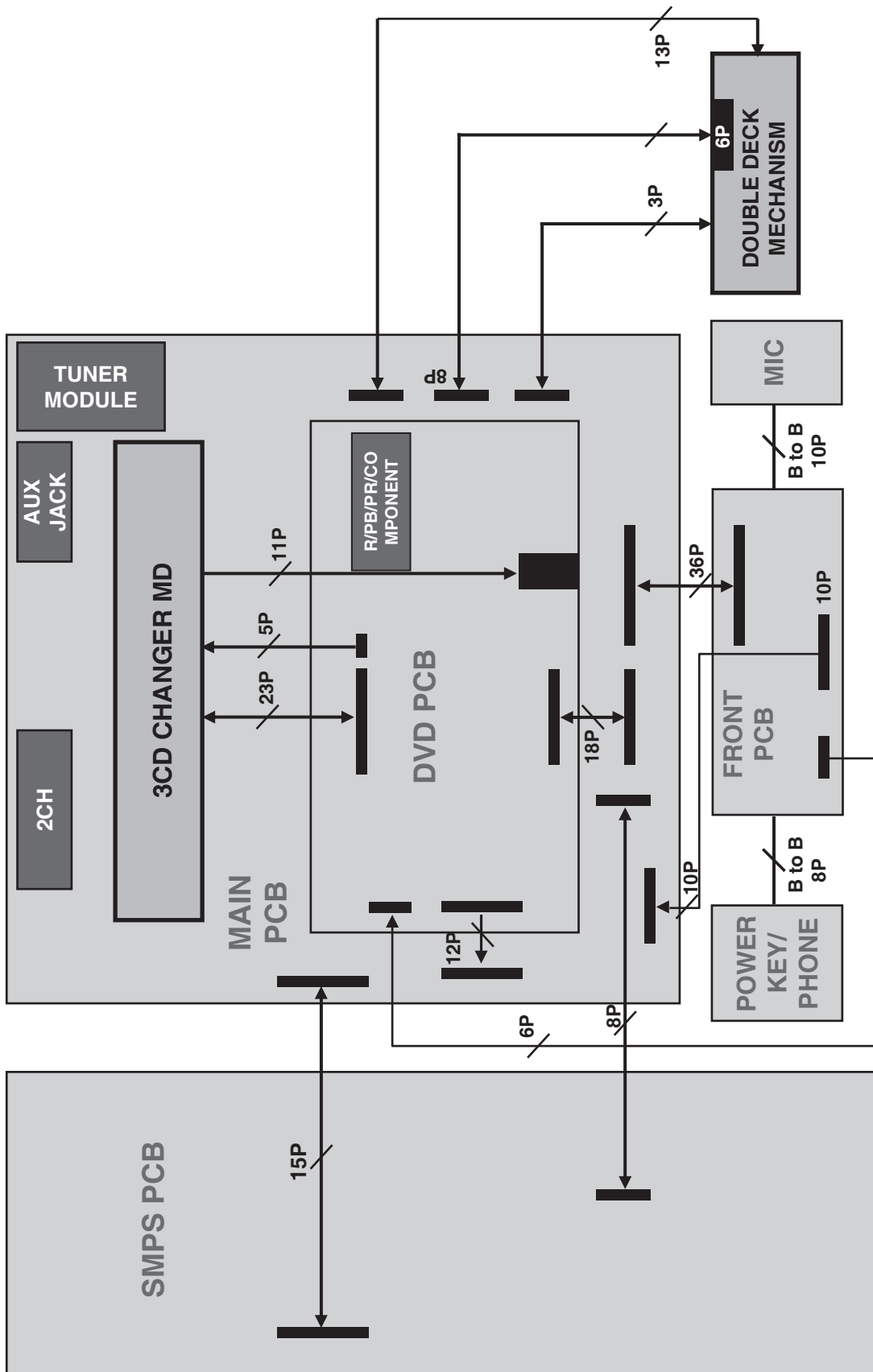
8. RF WAVEFORM



9. DISK TYPE JUGEMENT WAVEFORM

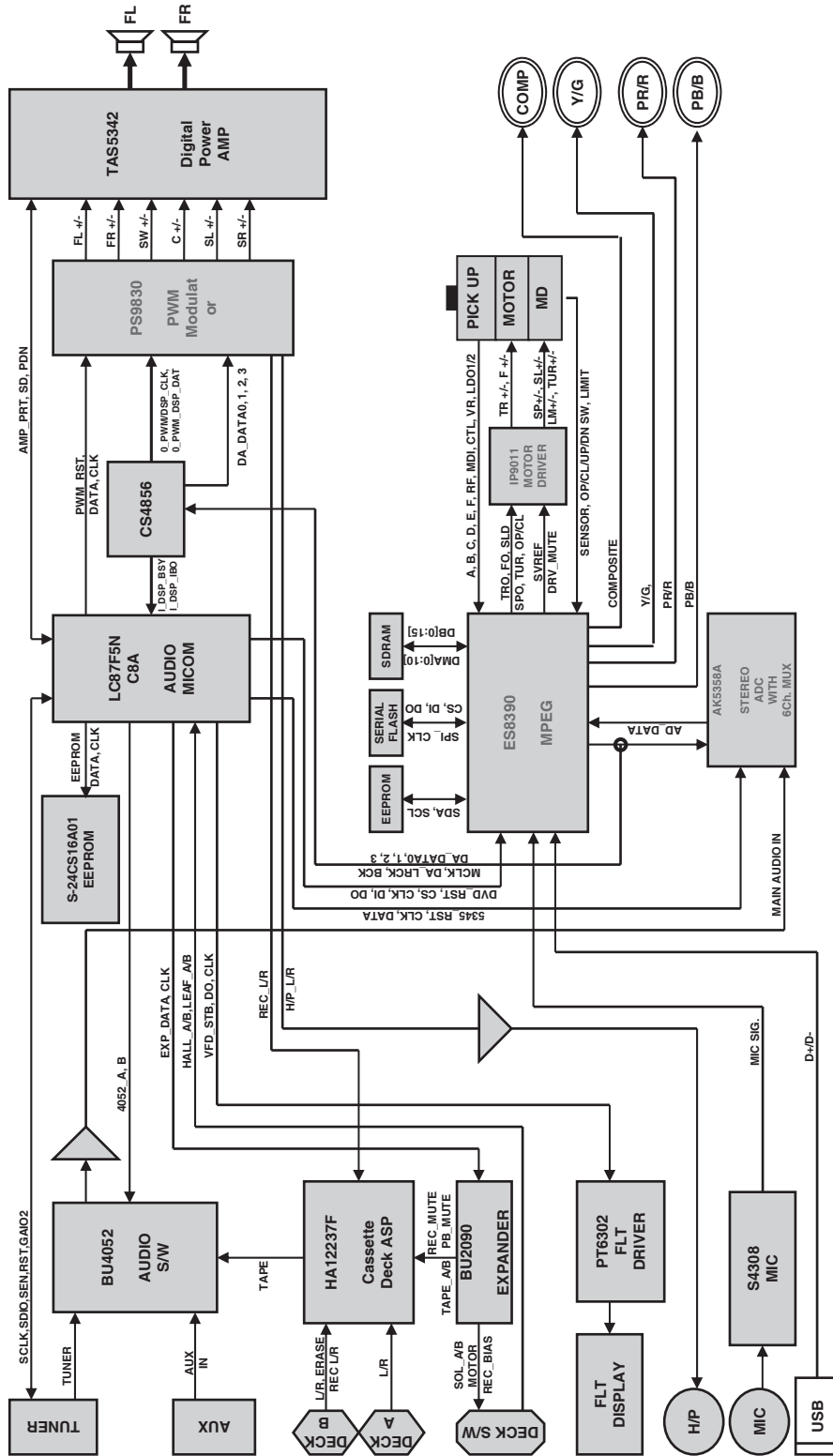


WIRING DIAGRAM

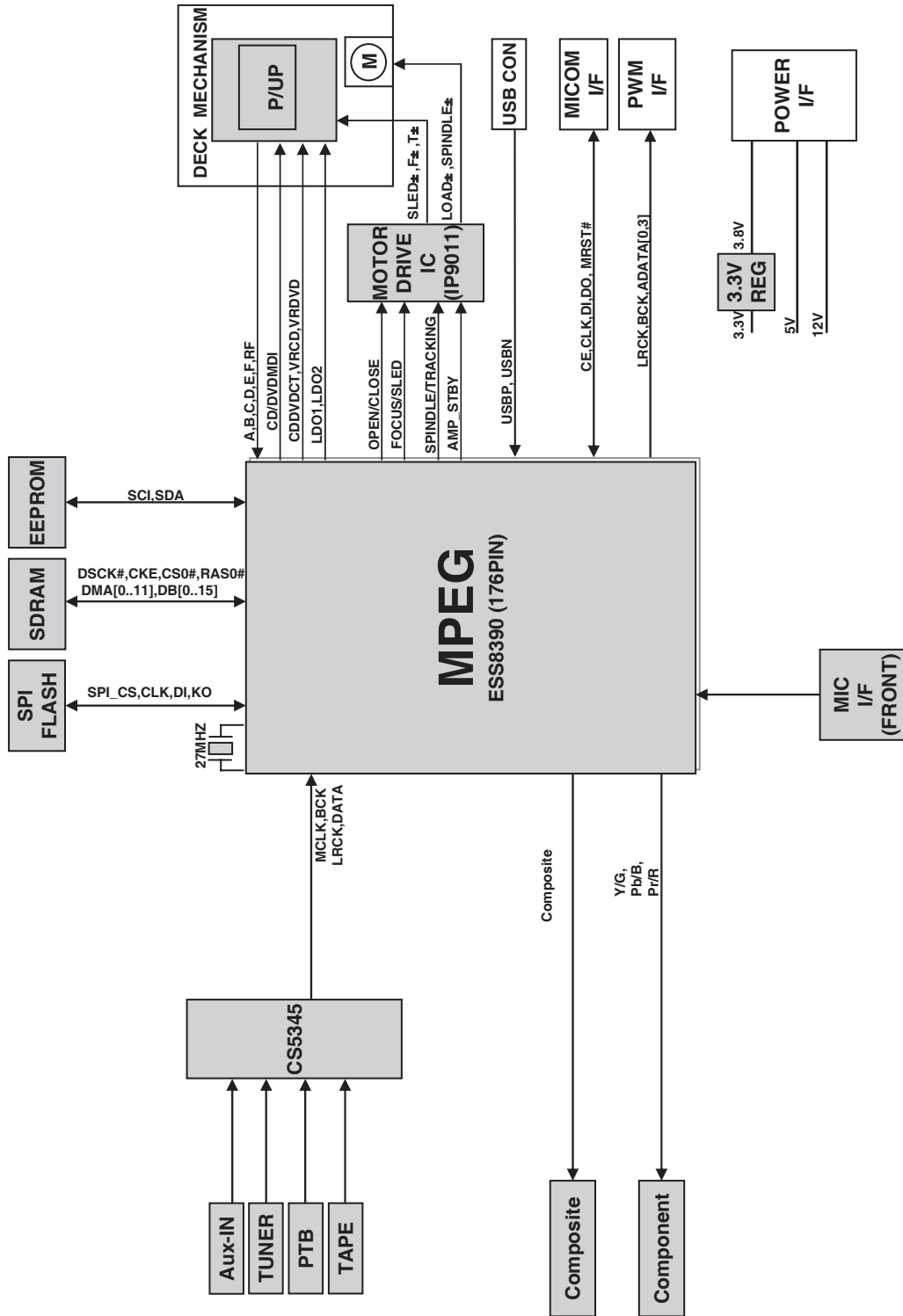


BLOCK DIAGRAMS

1. MAIN BLOCK DIAGRAM



2. DVD BLOCK DIAGRAM

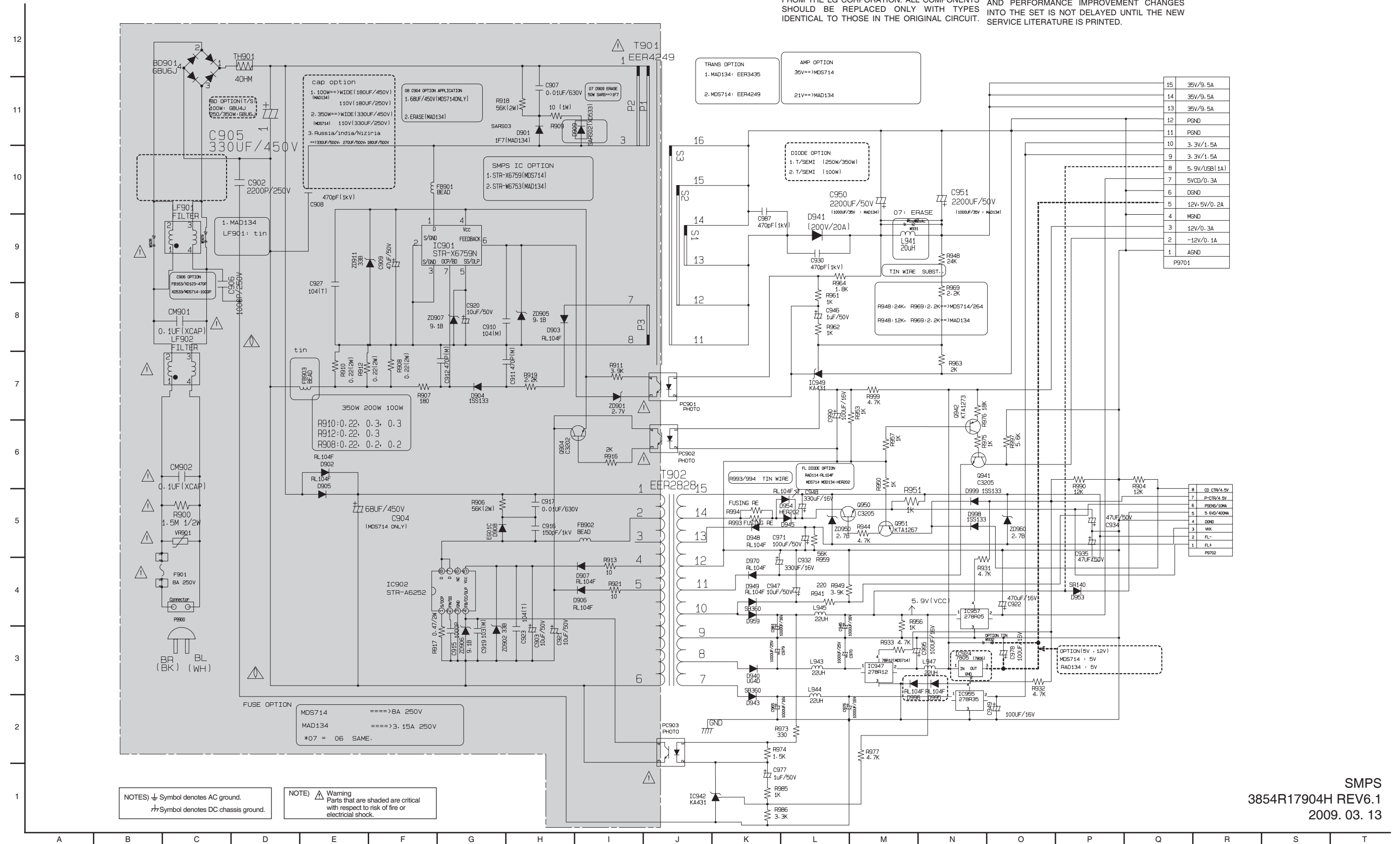


MEMO

A series of horizontal dotted lines for writing.

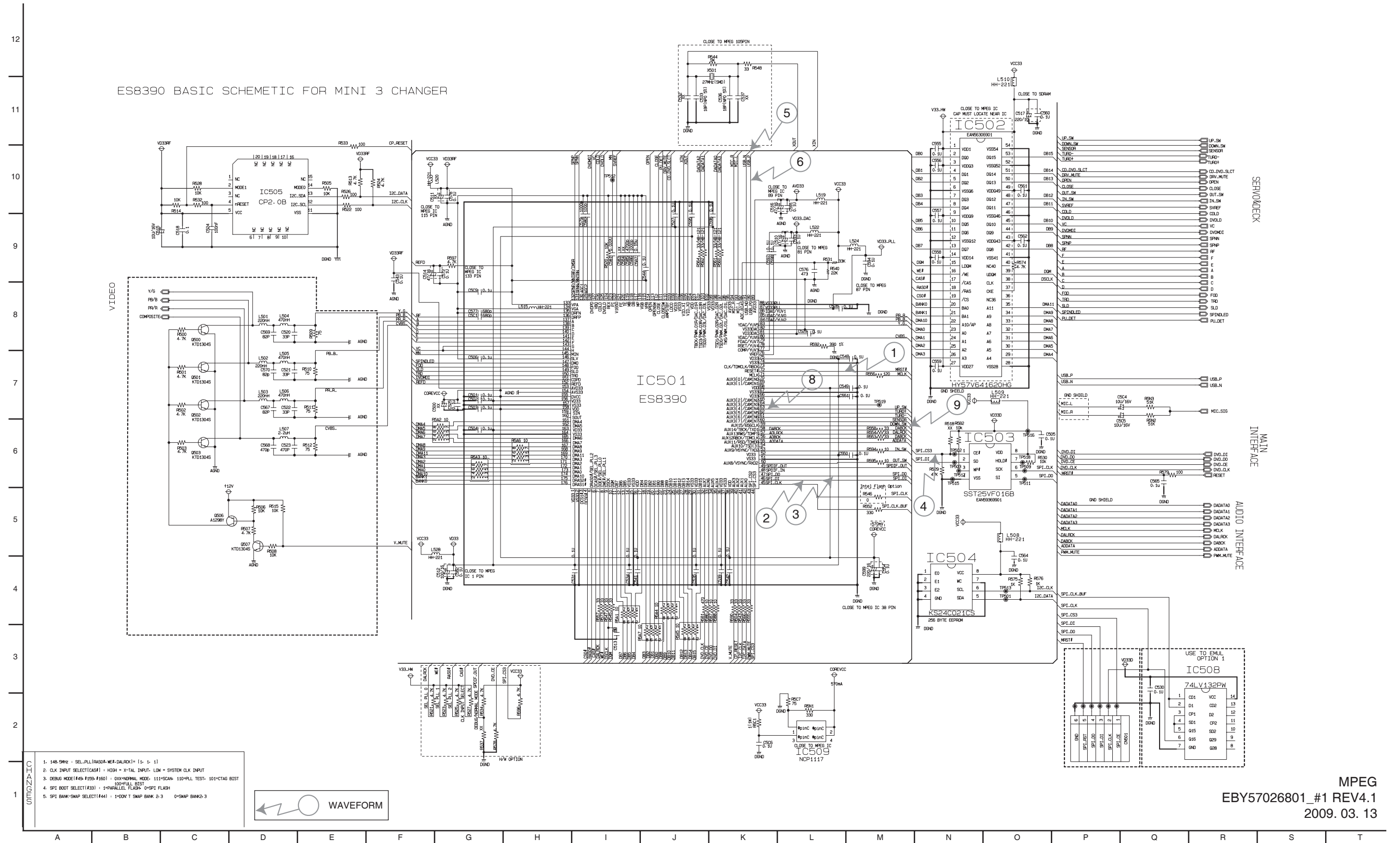
CIRCUIT DIAGRAMS

1. SMPS(POWER) CIRCUIT DIAGRAM



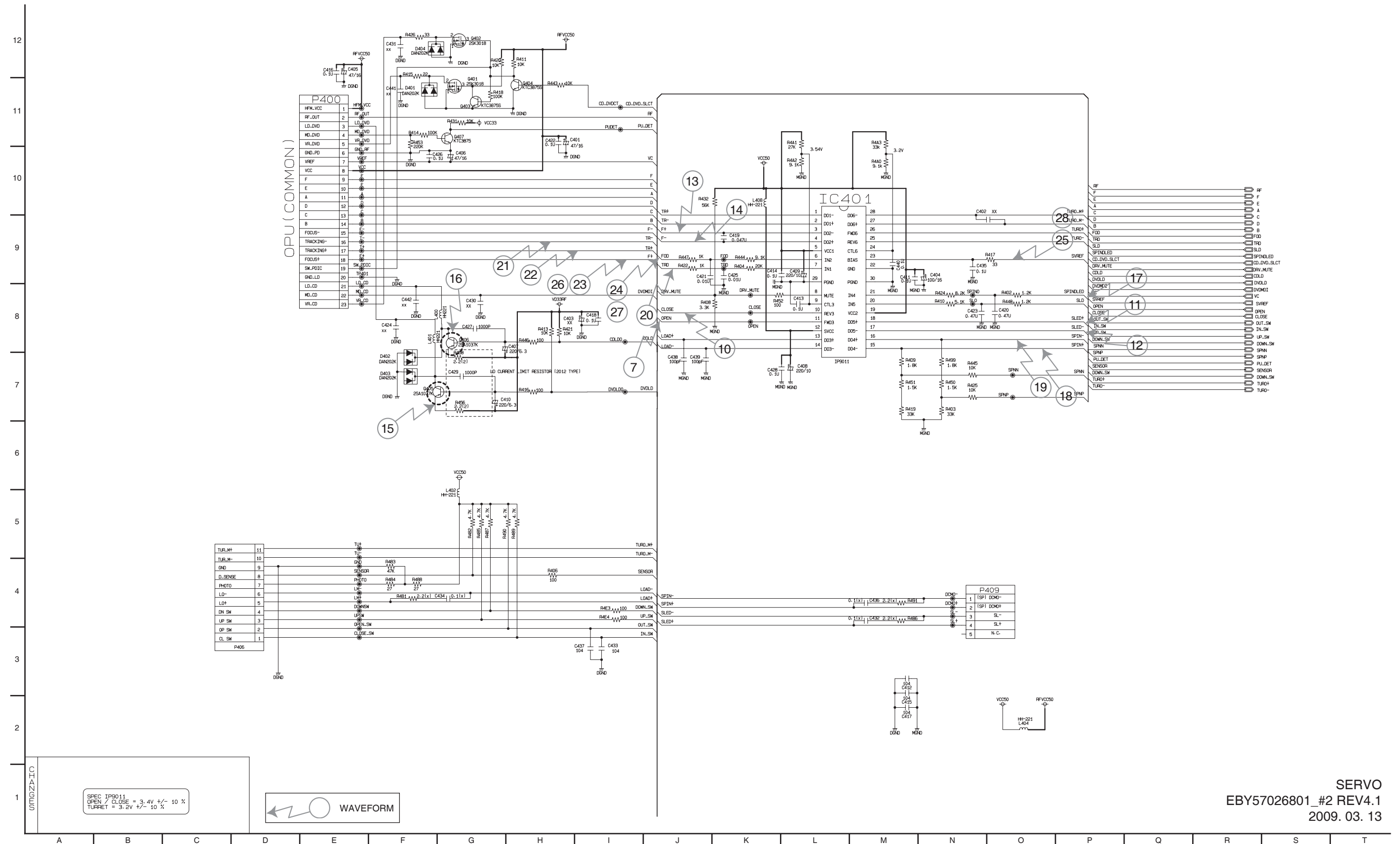
SMPS
3854R17904H REV.6.1
2009. 03. 13

2. MPEG CIRCUIT DIAGRAM



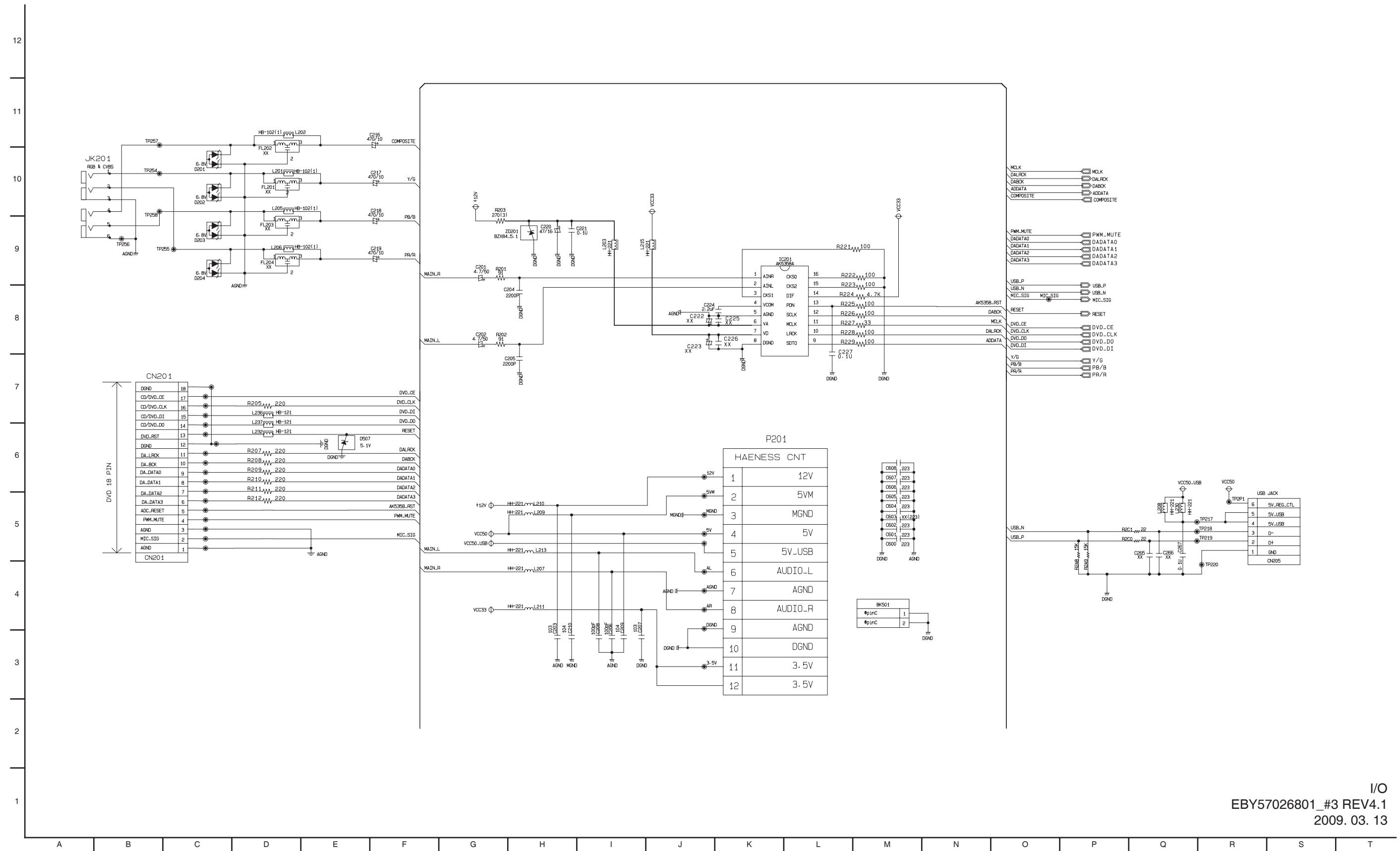
MPEG
EY57026801_#1 REV4.1
2009. 03. 13

3. SERVO CIRCUIT DIAGRAM



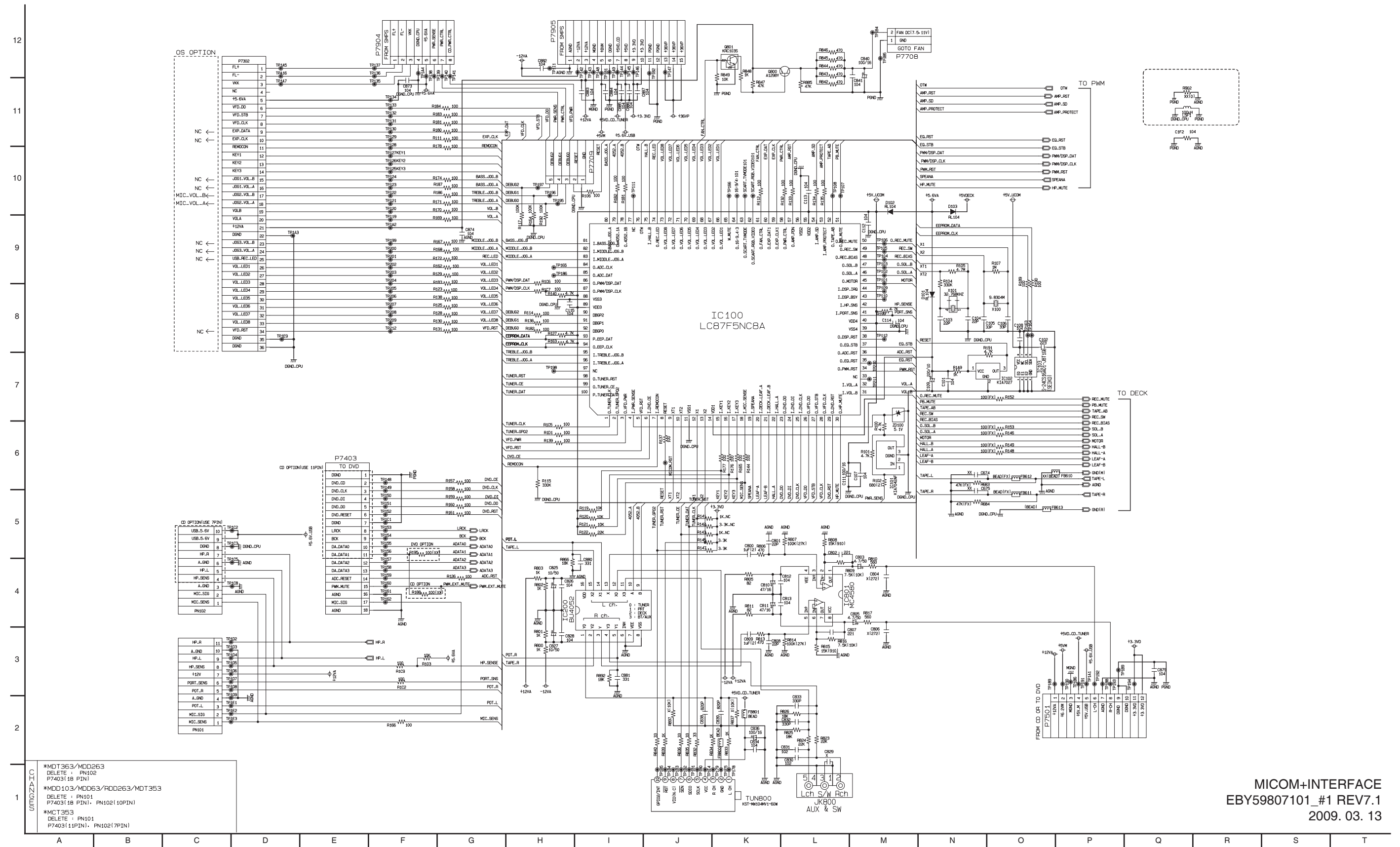
SERVO
EBY57026801_#2 REV4.1
2009. 03. 13

4. I/O CIRCUIT DIAGRAM



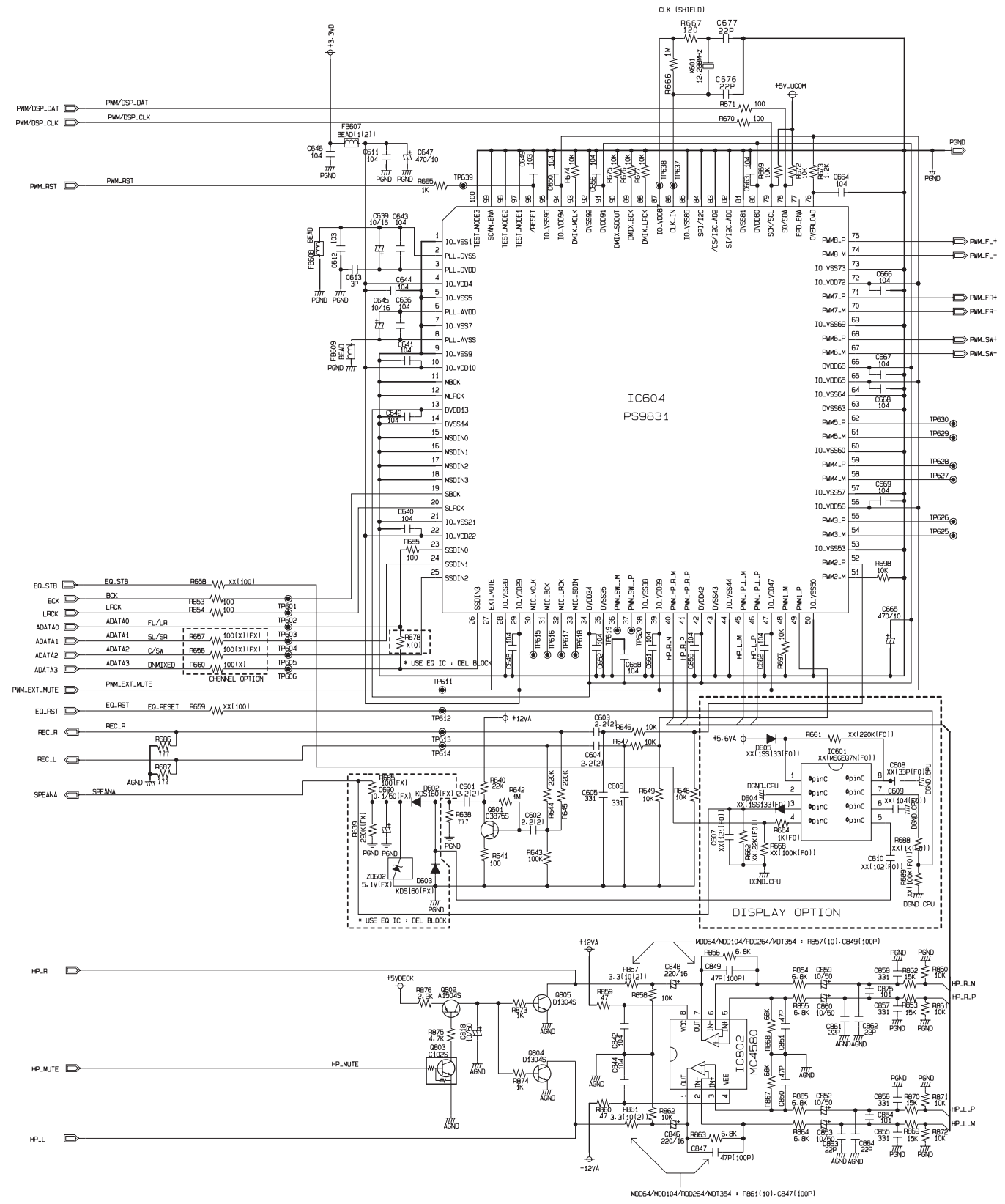
I/O
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 2009. 03. 13

5. MICOM+INTERFACE CIRCUIT DIAGRAM



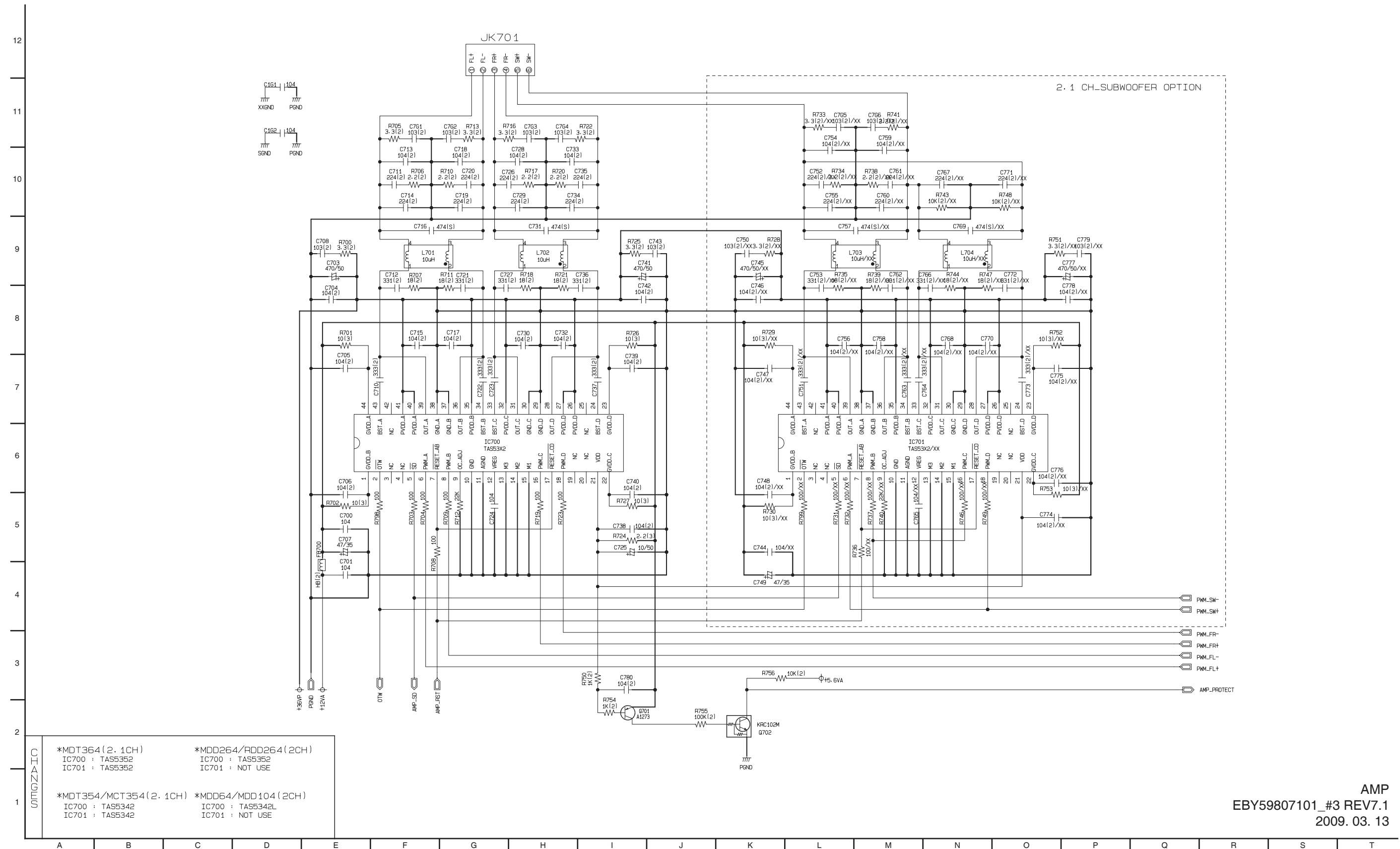
MICOM+INTERFACE
 EBY59807101_#1 REV.1
 2009. 03. 13

6. PWM CIRCUIT DIAGRAM

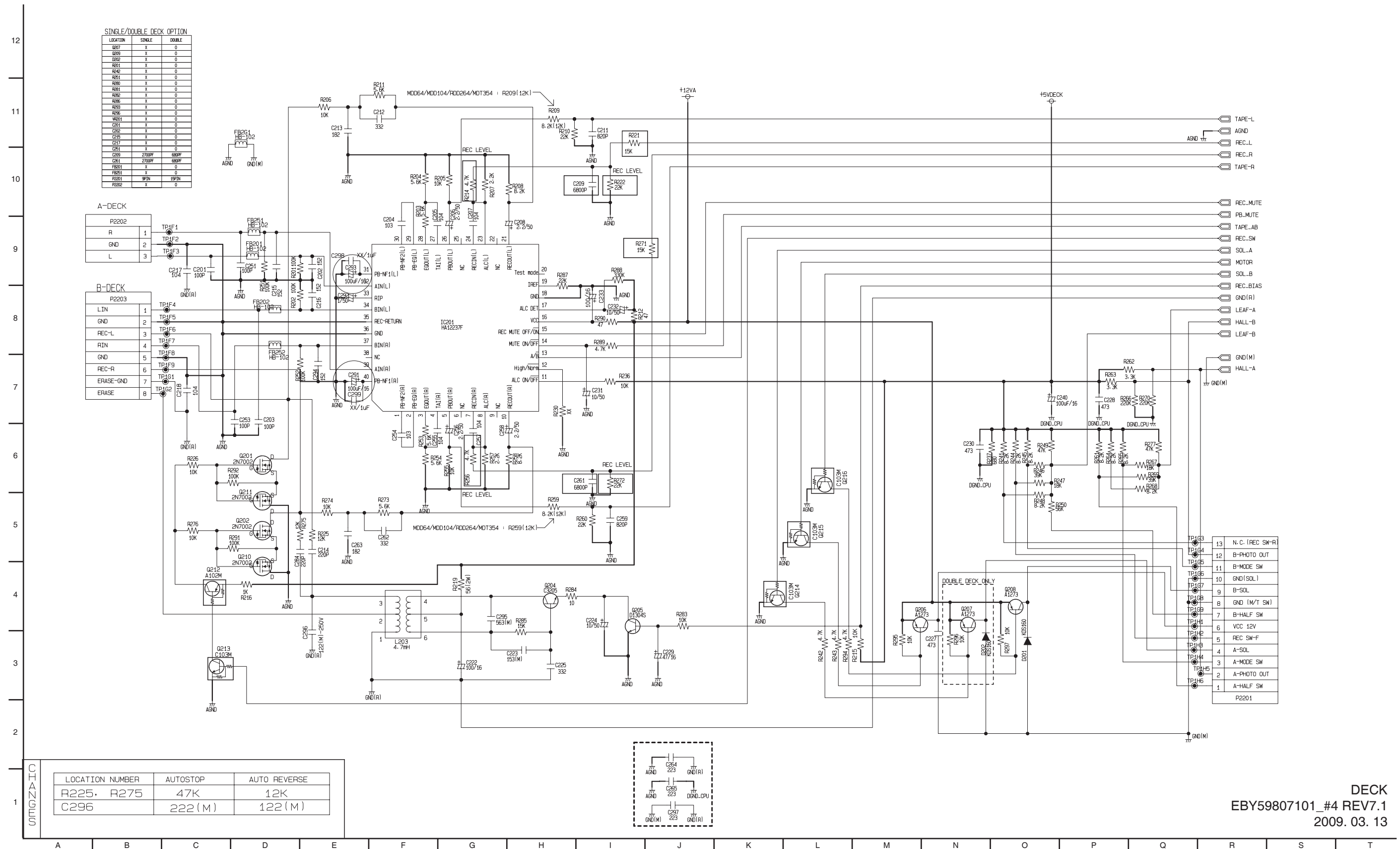


PWM
 EBY59807101_#2 REV7.1
 2009. 03. 13

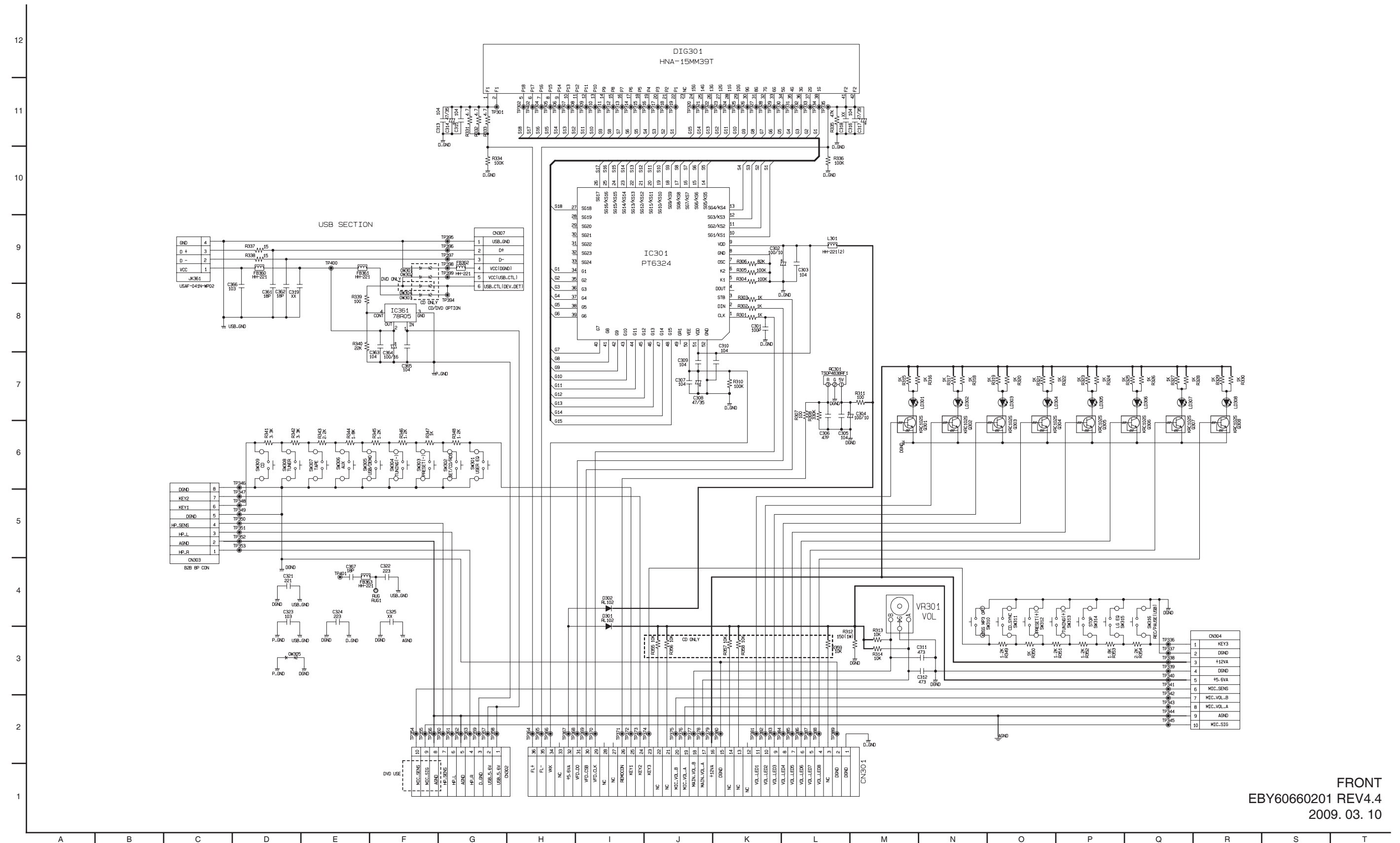
7. AMP CIRCUIT DIAGRAM



8. DECK CIRCUIT DIAGRAM

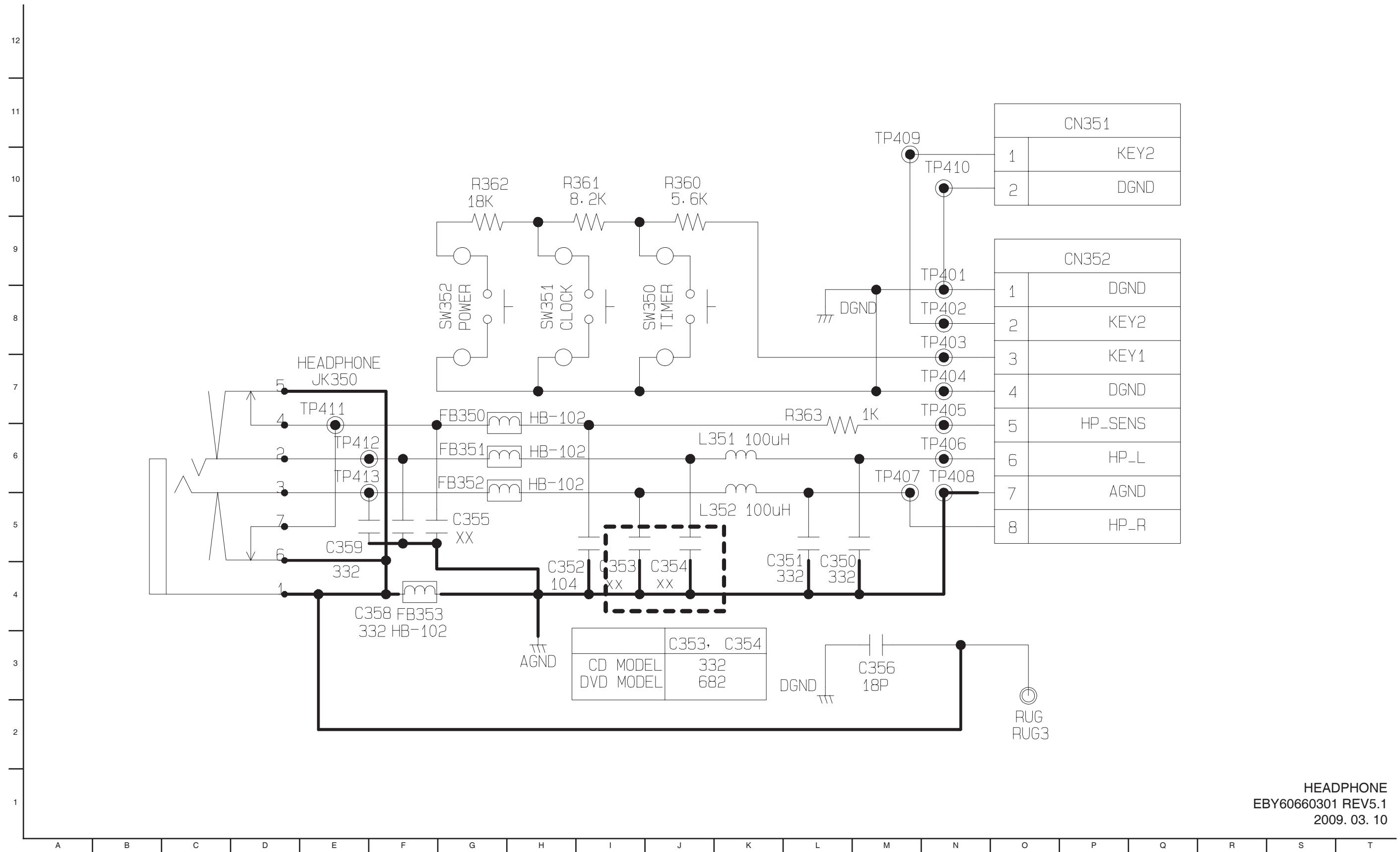


9. FRONT CIRCUIT DIAGRAM



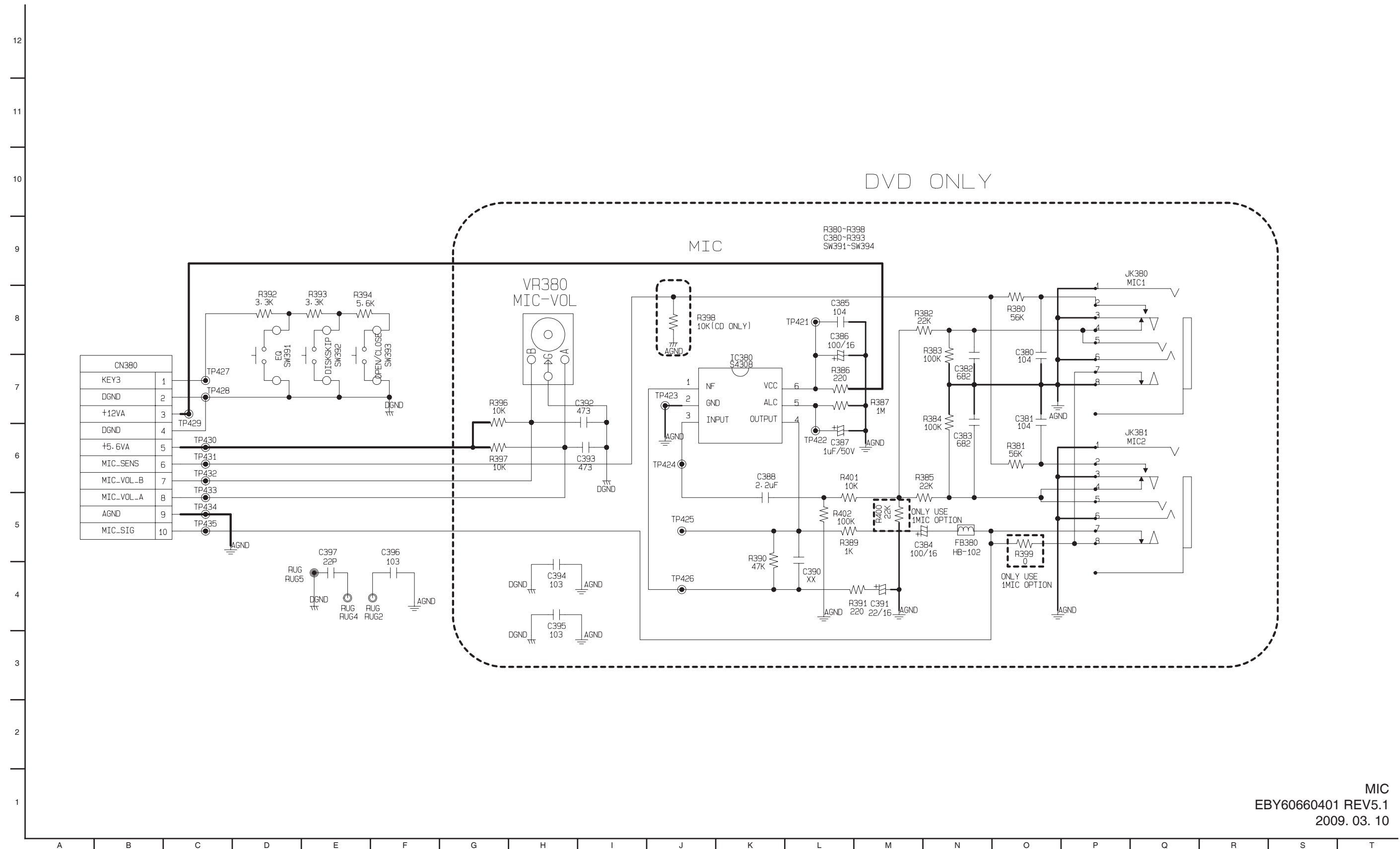
FRONT
EBY60660201 REV4.4
2009. 03. 10

10. HEADPHONE CIRCUIT DIAGRAM



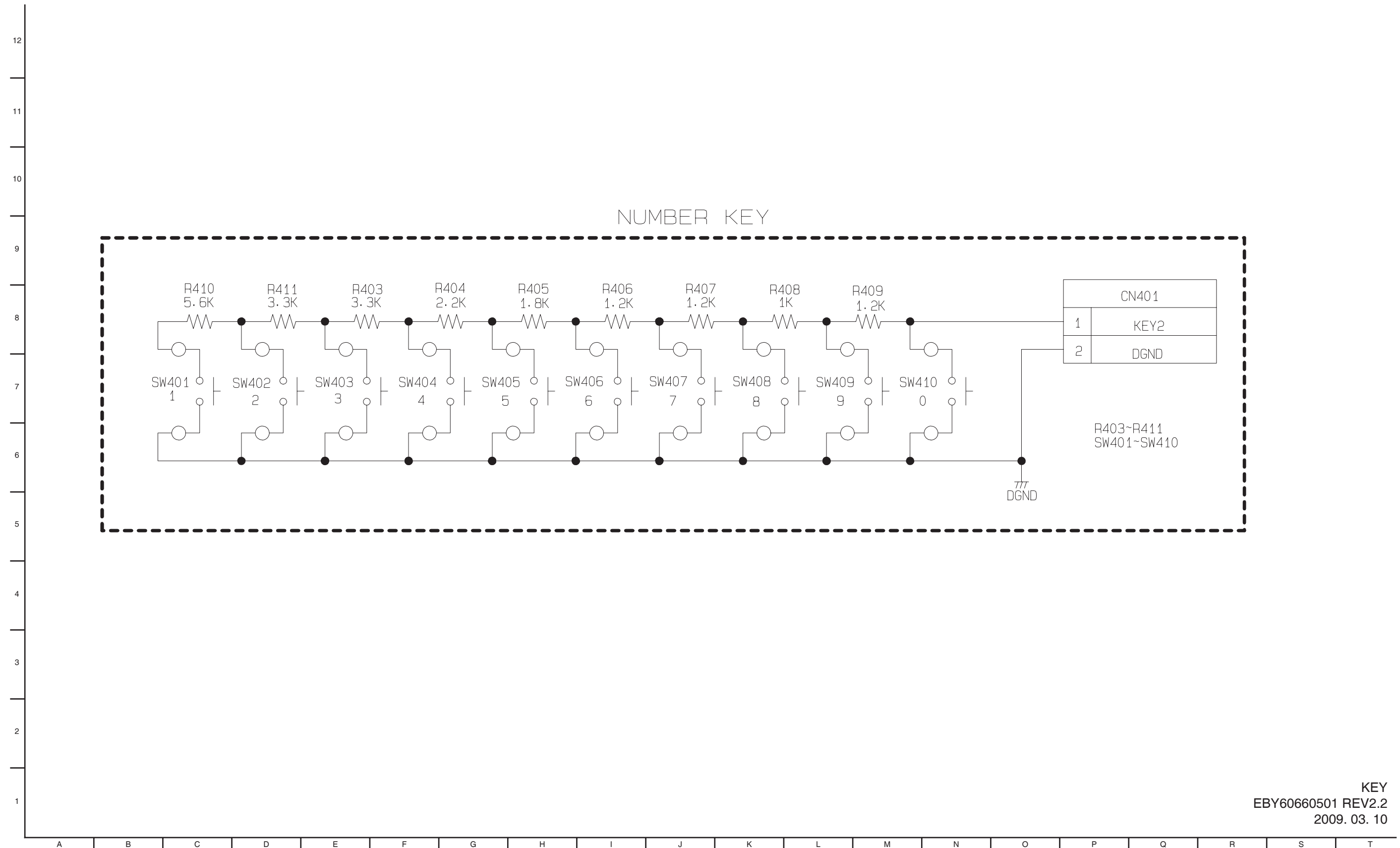
HEADPHONE
EBY60660301 REV5.1
2009. 03. 10

11. MIC CIRCUIT DIAGRAM



MIC
EBY60660401 REV5.1
2009. 03. 10

12. KEY CIRCUIT DIAGRAM



KEY
 EBY60660501 REV2.2
 2009. 03. 10

CIRCUIT VOLTAGE CHART

PIN NO.	VOLT
MAIN	
IC100 (MICOM LC87F5NC8A)	
1	0.65
2	2.52
3	3.99
4	4.15
5	5.05
6	0.27
7	4.3
8	5.02
9	2.34
10	2.56
11	0
12	2.45
13	2.54
14	5.05
15	5.03
16	5.1
17	5.1
18	5.1
19	0.2
20	5.05
21	5.05
22	4.97
23	1.17
24	1.06
25	3.34
26	0.1
27	1.73
28	4.73
29	4.82
30	4.95
31	0
32	0
33	0
34	5.04
35	0
36	4.57
37	0
38	0
39	0
40	5.04
41	5.04
42	0.57
43	0.57
44	0.57
45	0
46	0
47	0
48	0
49	5.04
50	0
51	0
52	0
53	5.57
54	3.28
55	5.04
56	0
57	0
58	3.97
59	0

PIN NO.	VOLT
60	0
61	0
62	0
63	0
64	0
65	0
66	5.04
67	5.03
68	5.03
69	5.03
70	5.03
71	5.04
72	5.04
73	5.04
74	5.04
75	4.98
76	3.28
77	0.5
78	0
79	0
80	5.05
81	0
82	0
83	5.06
84	0
85	0
86	5.04
87	0
88	0
89	5.05
90	0
91	0
92	0
93	5.04
94	5.04
95	5.04
96	5.04
97	0
98	2.48
99	1.33
100	0.15
IC 604 (PS9831)	
1	0.001
2	0.001
3	1.93
4	3.46
5	0.001
6	1.95
7	0.001
8	0.001
9	0.001
10	3.44
11	1.79
12	1.8
13	1.9
14	0.001
15	0.03
16	1.69
17	1.68
18	1.76
19	1.68

PIN NO.	VOLT
20	1.71
21	0.001
22	3.44
23	0.02
24	0.02
25	0.02
26	0.02
27	0.001
28	0.001
29	3.44
30	1.67
31	1.71
32	1.71
33	0.01
34	1.9
35	0.001
36	1.71
37	1.71
38	0.001
39	3.44
40	1.71
41	1.71
42	1.9
43	0.001
44	0.001
45	1.71
46	1.71
47	3.44
48	1.71
49	1.71
50	0.001
51	1.71
52	1.71
53	0.001
54	1.71
55	1.71
56	3.44
57	0.001
58	1.71
59	1.71
60	0.001
61	1.71
62	1.71
63	0.002
64	0.001
65	3.44
66	1.9
67	1.71
68	1.71
69	0.001
70	1.71
71	1.71
72	3.44
73	0.001
74	1.71
75	1.71
76	3.37
77	3.44
78	4.98
79	4.98
80	1.9

PIN NO.	VOLT
81	0.002
82	0.002
83	0.002
84	0.002
85	0.002
86	1.71
87	1.76
88	1.69
89	1.68
90	1.68
91	1.9
92	0.002
93	1.66
94	3.44
95	0.002
96	5.01
97	0.002
98	0.002
99	0.002
100	0.002
PIN NO.	EE Mode (V)
IC 200 (BU4052)	
1	0.01
2	0.01
3	0.01
4	0.01
5	0.01
6	0.01
7	-6.29
8	0.01
9	0.01
10	0.01
11	0.01
12	0.01
13	0.01
14	0.01
15	0.01
16	5.96
IC801 (MC4580)	
1	0.06
2	0.04
3	0.04
4	-12.23
5	0.04
6	0.06
7	0.06
8	11.58
IC802 (MC4580)	
1	0.01
2	0.01
3	0.03
4	-11.28
5	0.03
6	0.02
7	0.01
8	11.26
IC103 (M24C16)	
1	0.01
2	0.01
3	0.01
4	0.01

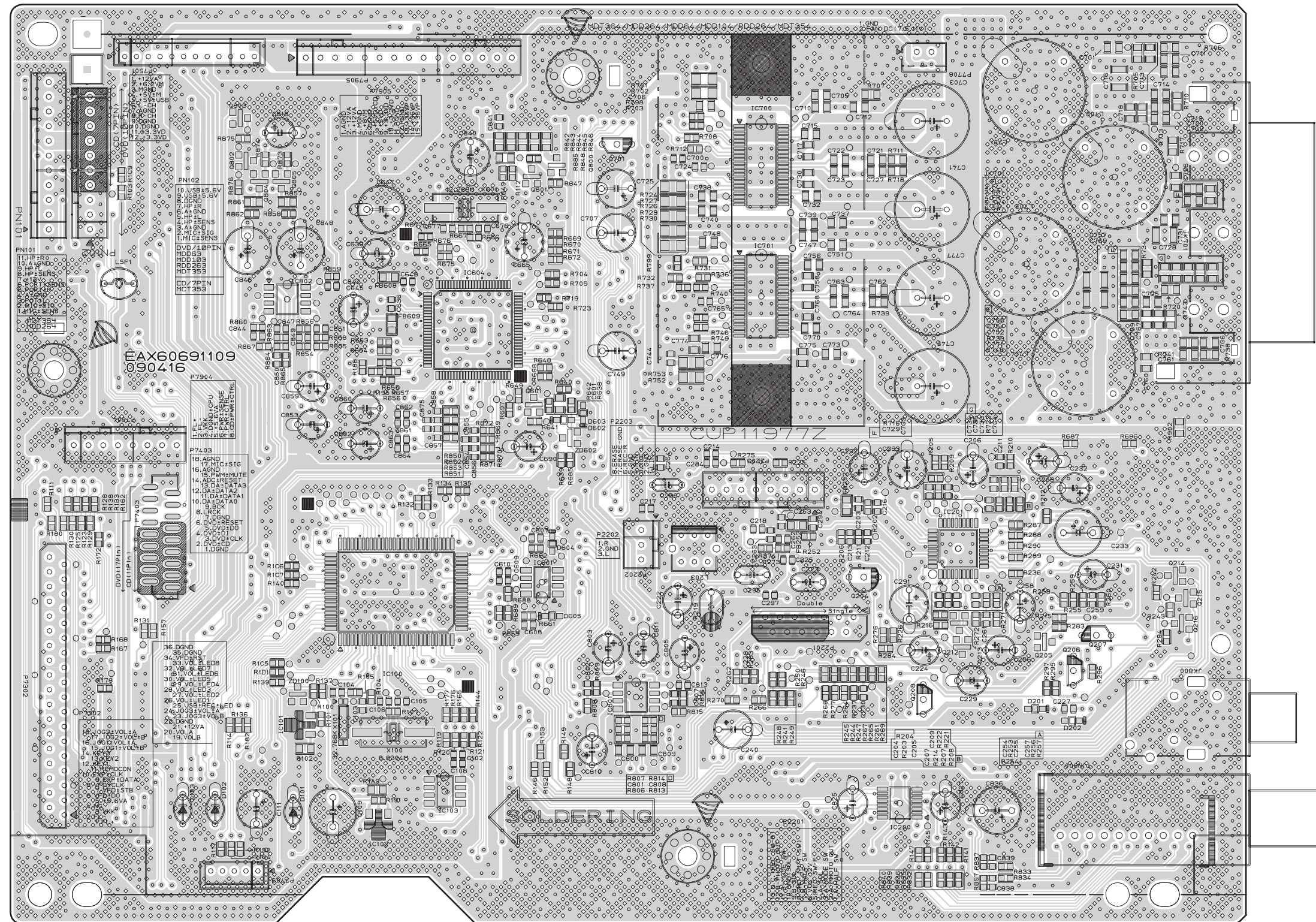
PIN NO.	VOLT
5	5.04
6	5.04
7	0.01
8	5.04
IC102 (KIA7027)	
1	5.04
2	0.01
3	5.03
IC101 (KIA7042)	
1	5.23
2	0.01
3	4.08
DVD	
IC201 (AK5358)	
1	2.6
2	2.6
3	0
4	2.6
5	0
6	5.24
7	3.36
8	0
9	1.28
10	1.7
11	1.64
12	1.64
13	4.15
14	3.37
15	0
16	0
IC 501 Mpeg (ES8390)	
1	3.37
2	0
3	0.22
4	3.26
5	3.2
6	3.3
7	3.46
8	0
9	1.45
10	0.02
11	0.92
12	0.94
13	0.86
14	3.35
15	0
16	1.5
17	0.71
18	0.91
19	0.71
20	0.71
21	0.6
22	0.83
23	0.89
24	0.77
25	0.76
26	0.68
27	0.87
28	0.95
29	0
30	3.35

PIN NO.	EE Mode (V)
31	1.11
32	3.35
33	1.17
34	0.42
35	0.29
36	3.35
37	0.02
38	1.5
39	0.04
40	1.19
41	3.4
42	3.4
43	3.19
44	3.19
45	3.29
46	0.96
47	0.65
48	3.4
49	0.09
50	4.08
51	0.01
52	3.35
53	4.87
54	3.37
55	1.69
56	1.65
57	1.7
58	1.65
59	3.38
60	3.38
61	0.01
62	3.38
63	3.38
64	1.36
65	3.38
66	3.38
67	0.01
68	1.5
69	3.37
70	3.38
71	1.65
72	4.29
73	1.8
74	0.01
75	3.35
76	0.02
77	2.36
78	1.31
79	3.38
80	0.94
81	3.35
82	0
83	0.93
84	0.9
85	0.76
86	3.36
87	3.4
88	0.01
89	3.4
90	0.02
91	0.02

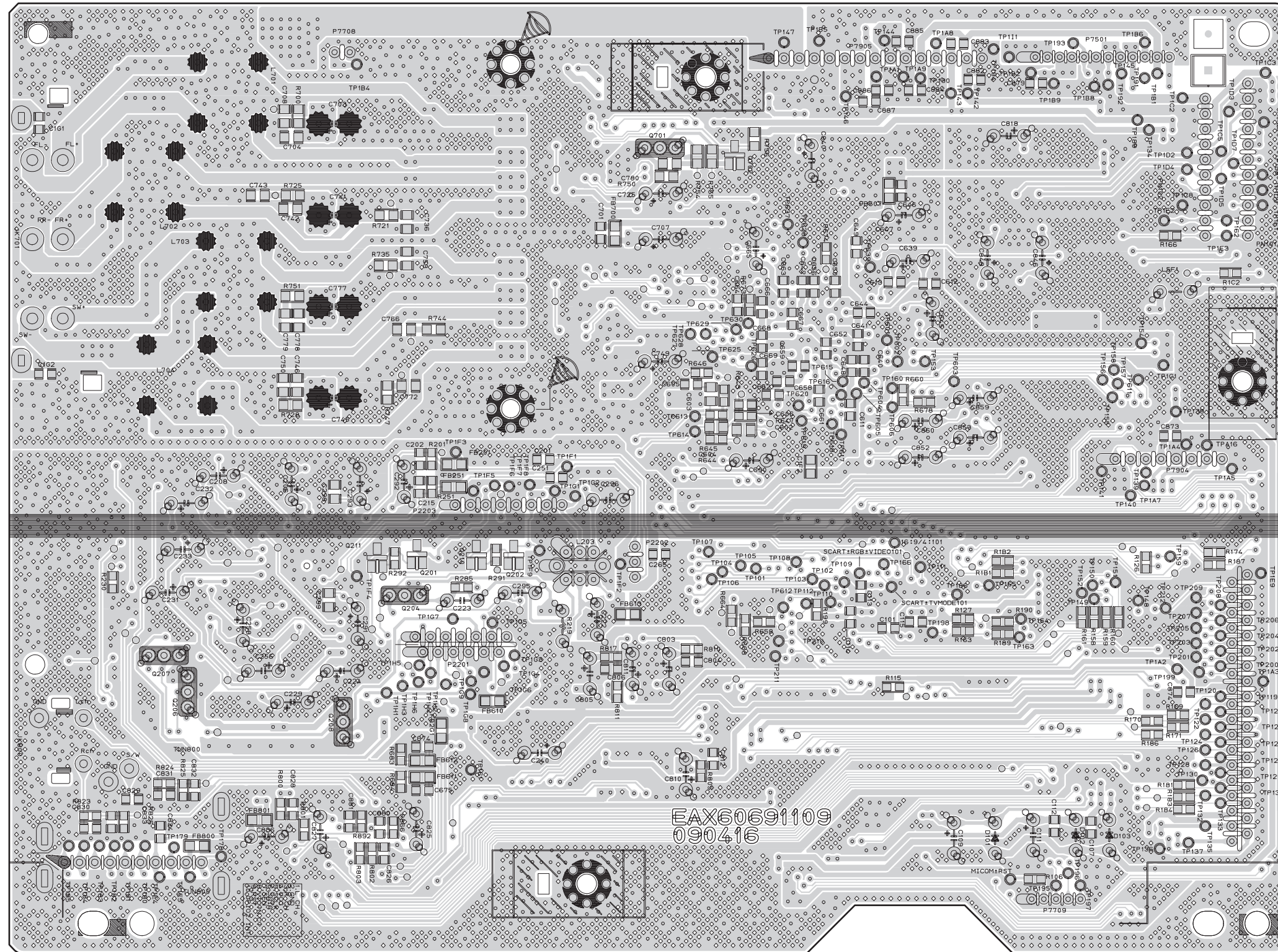
EE Mode (V)	EE Mode (V)
92	0.59
93	1.08
94	1.09
95	0
96	1.69
97	0.02
98	0.02
99	3.37
100	0.01
101	0.02
102	0.02
103	1.68
104	1.5
105	1.81
106	1.75
107	0.01
108	3.35
109	0.01
110	0.02
111	3.37
112	0.01
113	3.38
114	0.01
115	3.36
116	0.01
117	0.63
118	0.56
119	1.97
120	1.65
121	1.95
122	1.7
123	0.08
124	1.29
125	3.4
126	3.41
127	2.14
128	1.54
129	0.59
130	3.29
131	0.09
132	0.5
133	3.37
134	0.02
135	1.7
136	1.7
137	1.88
138	1.88
139	1.88
140	1.88
141	1.84
142	1.84
143	2.13
144	2.14
145	1.65
146	0.02
147	1.71
148	1.71
149	1.71
150	1.73
151	1.35
152	3.37

PRINTED CIRCUIT BOARD DIAGRAMS

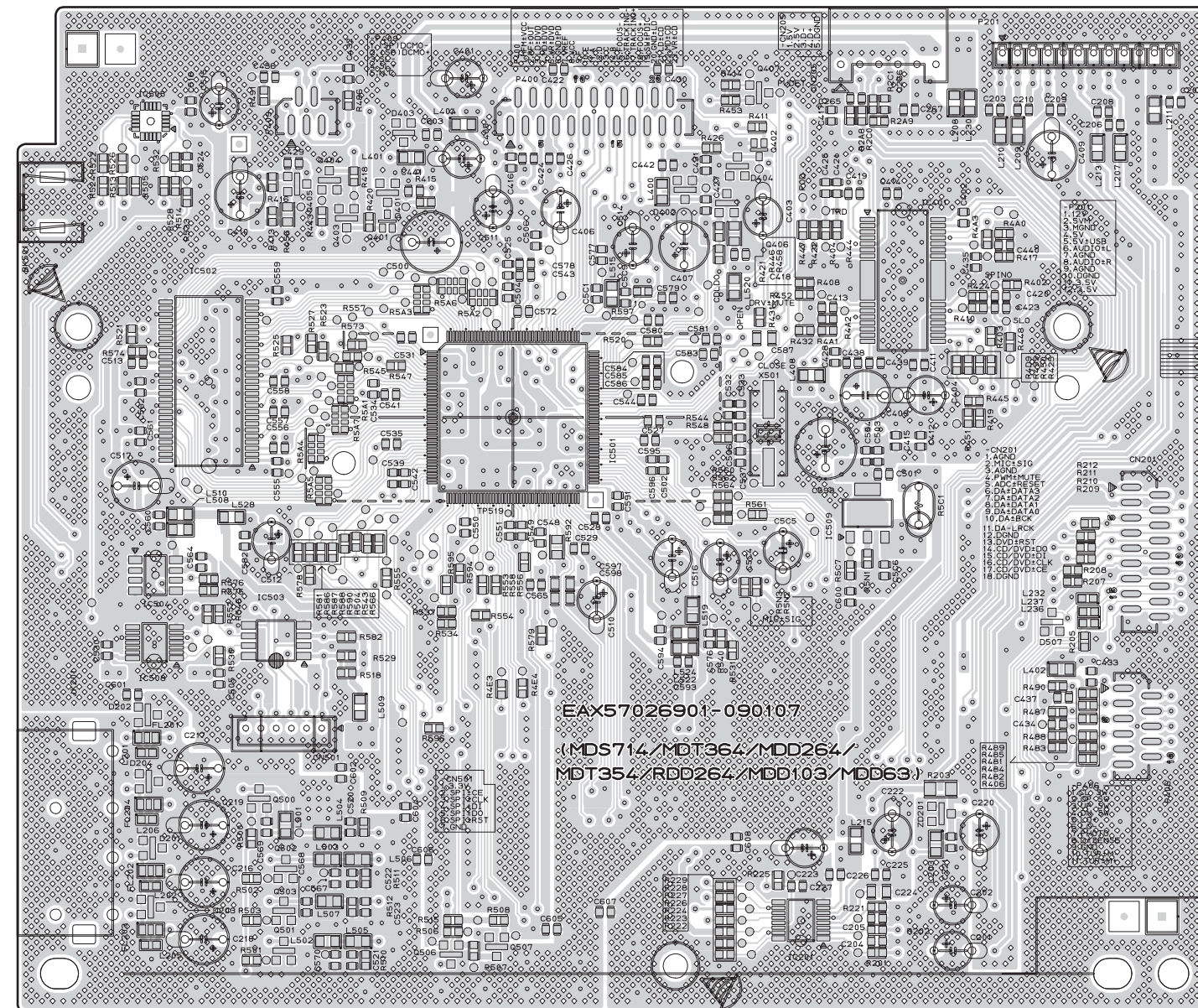
1-1. MAIN P.C. BOARD DIAGRAM (TOP VIEW)



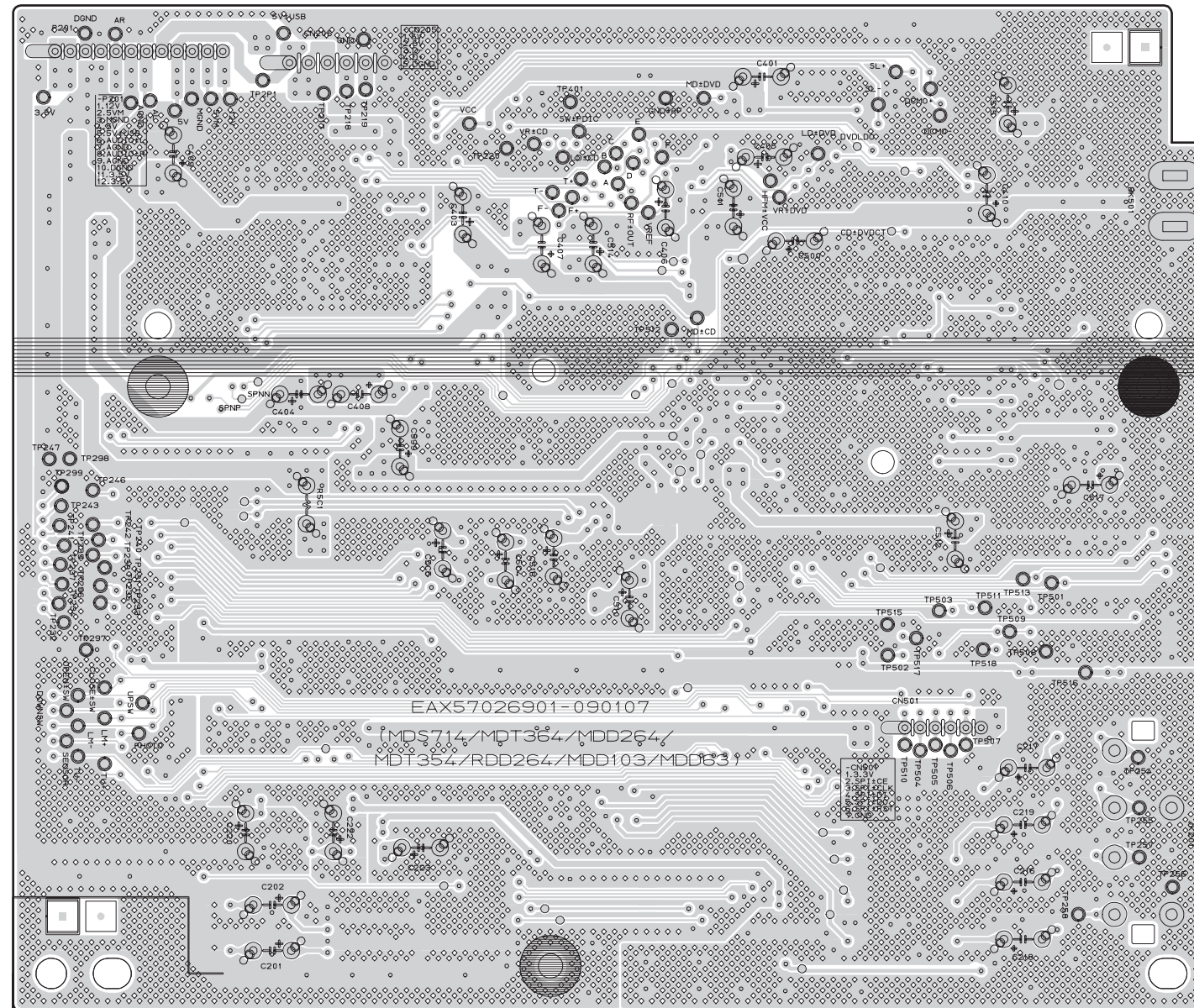
1-2. MAIN P.C. BOARD DIAGRAM (BOTTOM VIEW)




2-1. DVD P.C. BOARD DIAGRAM (TOP VIEW)

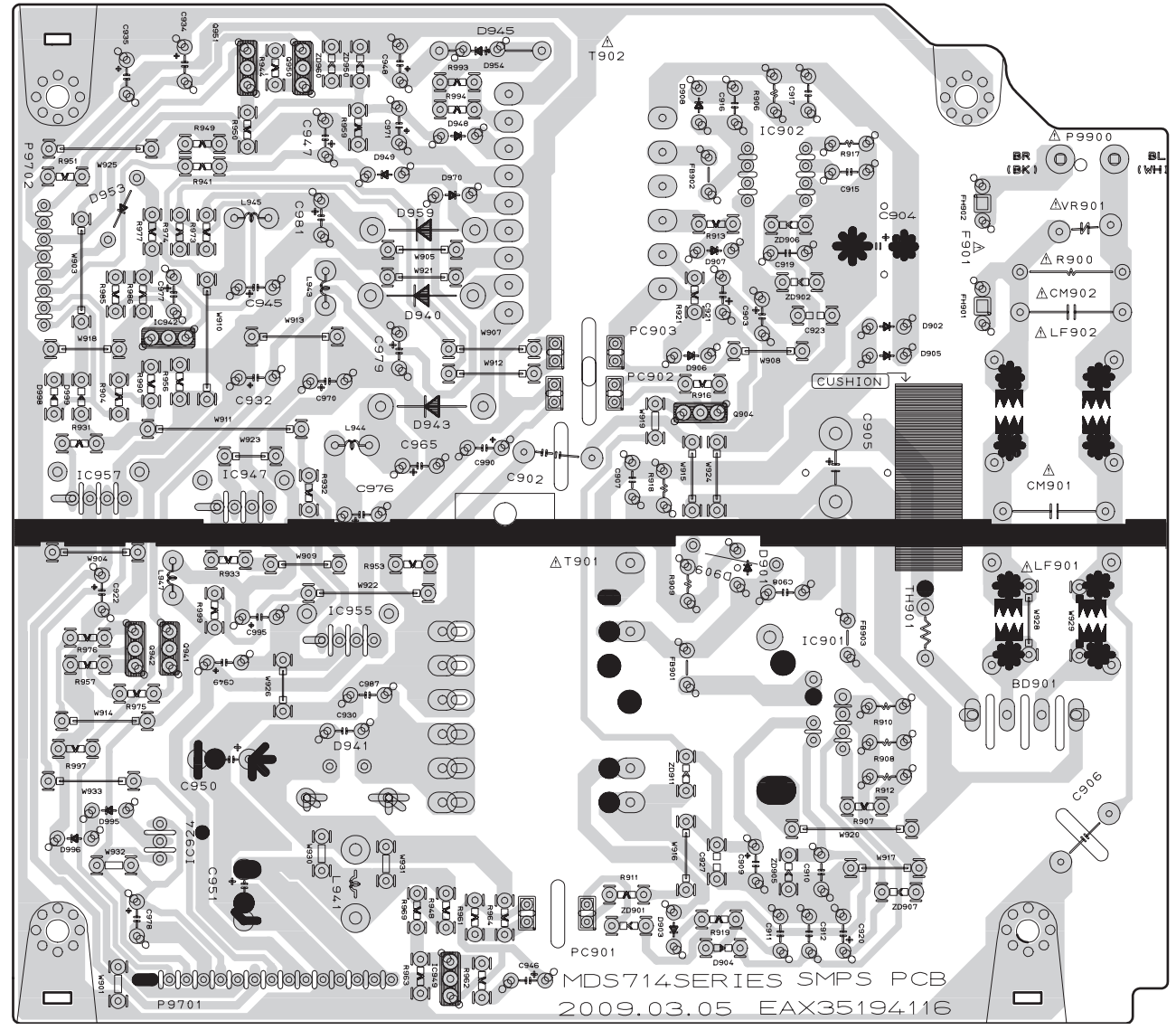


2-2. DVD P.C. BOARD DIAGRAM (BOTTOM VIEW)

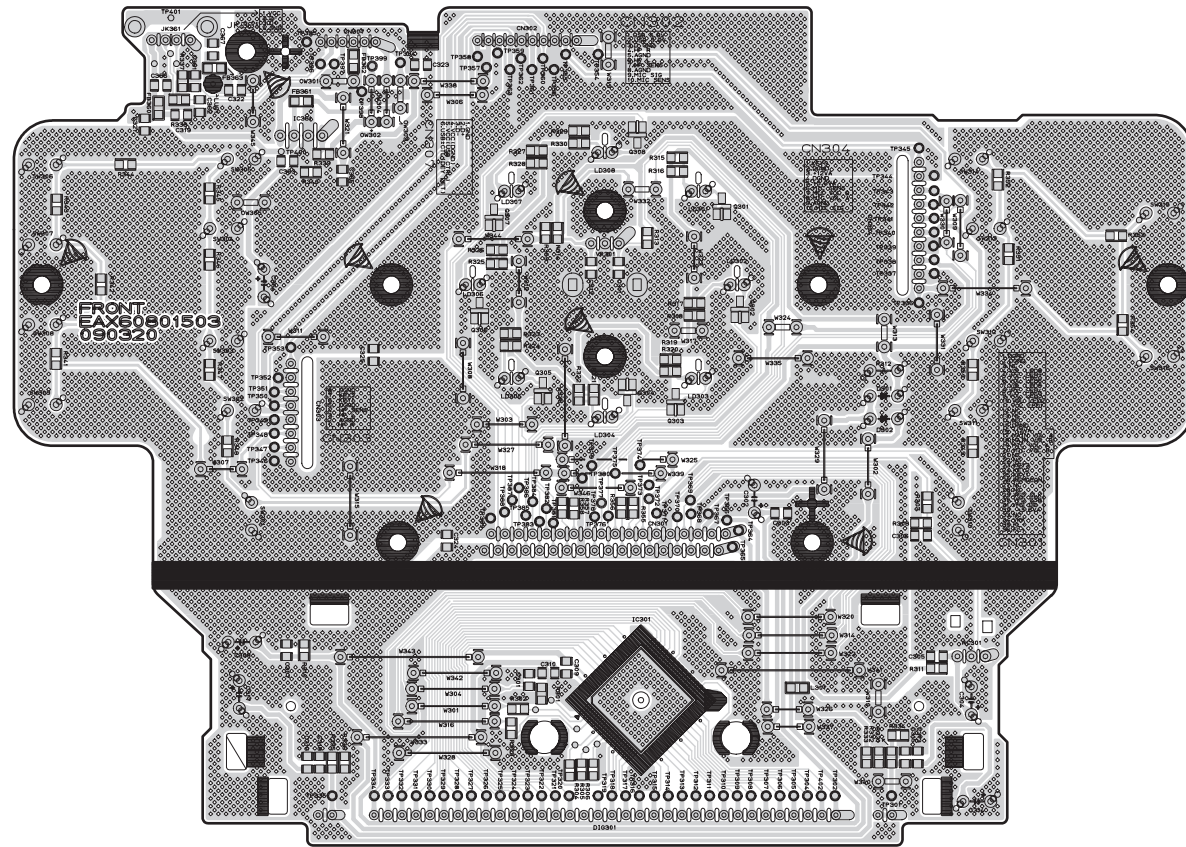


3. SMPS P.C. BOARD DIAGRAM

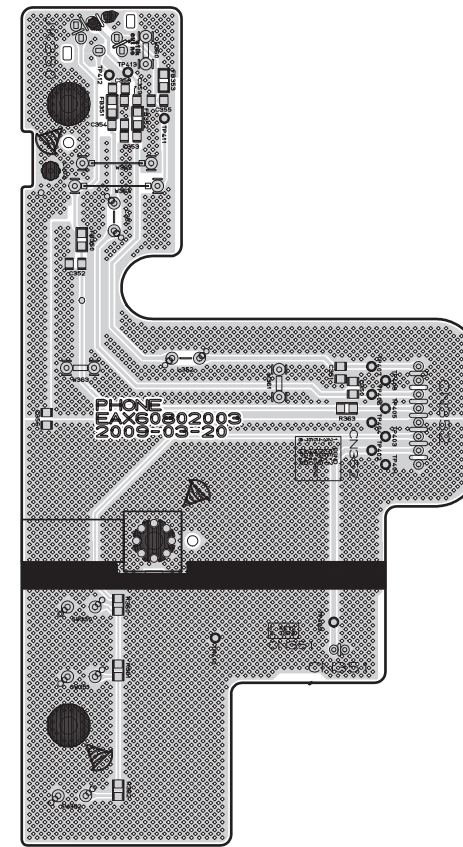
NOTE: Warning
 Parts that are shaded are critical With respect to risk of fire or electrical shock.



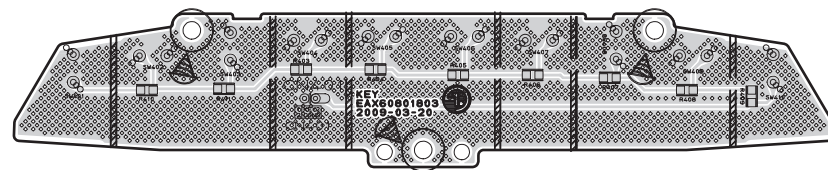
4. FRONT P.C. BOARD DIAGRAM



5. HEADPHONE P.C. BOARD DIAGRAM



6. KEY P.C. BOARD DIAGRAM (OPTIONAL PART)



7. MIC P.C. BOARD DIAGRAM

