LG Electronics Inc.

SERVICE MANUAL MODEL : LAC-M0510R

LG

DETACHABLE FRONT PANEL CAR CD RECEIVER

SERVICE MANUAL

CAUTION

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

MODEL : LAC-M0510R

LG Electronics Inc.

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SECTION 1. SUMMARY

❑ SERVICING PRECAUTIONS

❶ **Always disconnect the power source before:**

1) Removing or reinstalling any component, circuit board, module or any other instrument assembly.

2) Disconnecting or reconnecting any instrument electrical plug or other electrical connection.

3) Connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

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

❸ **Do not apply power to this instrument and or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.**

❹ **Always connect a test instrument's ground lead to the instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.**

1) The service precautions are indicated or printed on the cabinet, chassis or components. When servicing, follow the printed or indicated service precautions and service materials.

2) The Components used in the unit have a specified conflammability and dielectric strength. When replacing any components, use components which have the same ratings. Components marked ⚠ in the circuit diagram are important for safety or for the characteristics of the unit. Always replace with the exact components.

3) An insulation tube or tape is sometimes used and some components are raised above the printed writing board for safety. The internal wiring is sometimes clamped to prevent contact with heating components. Install them as they were.

4) After servicing always check that the removed screws, components and wiring have been installed correctly and that the portion around the service part has not been damaged. Further check the insulation between the blades of attachment plug and accessible conductive parts.

❑ ESD PRECAUTIONS

[Electrostatically Sensitive Devices (ESD)]

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such omponents 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 material).
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.

❑ SPECIFICATIONS

1. GENERAL

Power requirements ..... DC12V~15V
Ground system ..... Negative
Dimensions(W x H x D) ..... 188 x 58 x 166mm
Weight ..... Net: 1.3kg

2. RADIO SECTION

	FM	AM(MW)
Frequency range	65.0~74.0MHz(Optional), 87.5~108MHz	522~1,620kHz (Optional:530~1,710kHz/ 520~1,620kHz)
Intermediate frequency	10.8MHz	450kHz
Usable sensitivity	10dBμV	28dBμV
Signal to noise ratio	55dB	45dB

3. COMPACT DISC SECTION

Frequency response ..... 40Hz~20kHz
Channel separation ..... 50dB(1kHz)
Signal to noise ratio 60dB

4. AUDIO SECTION

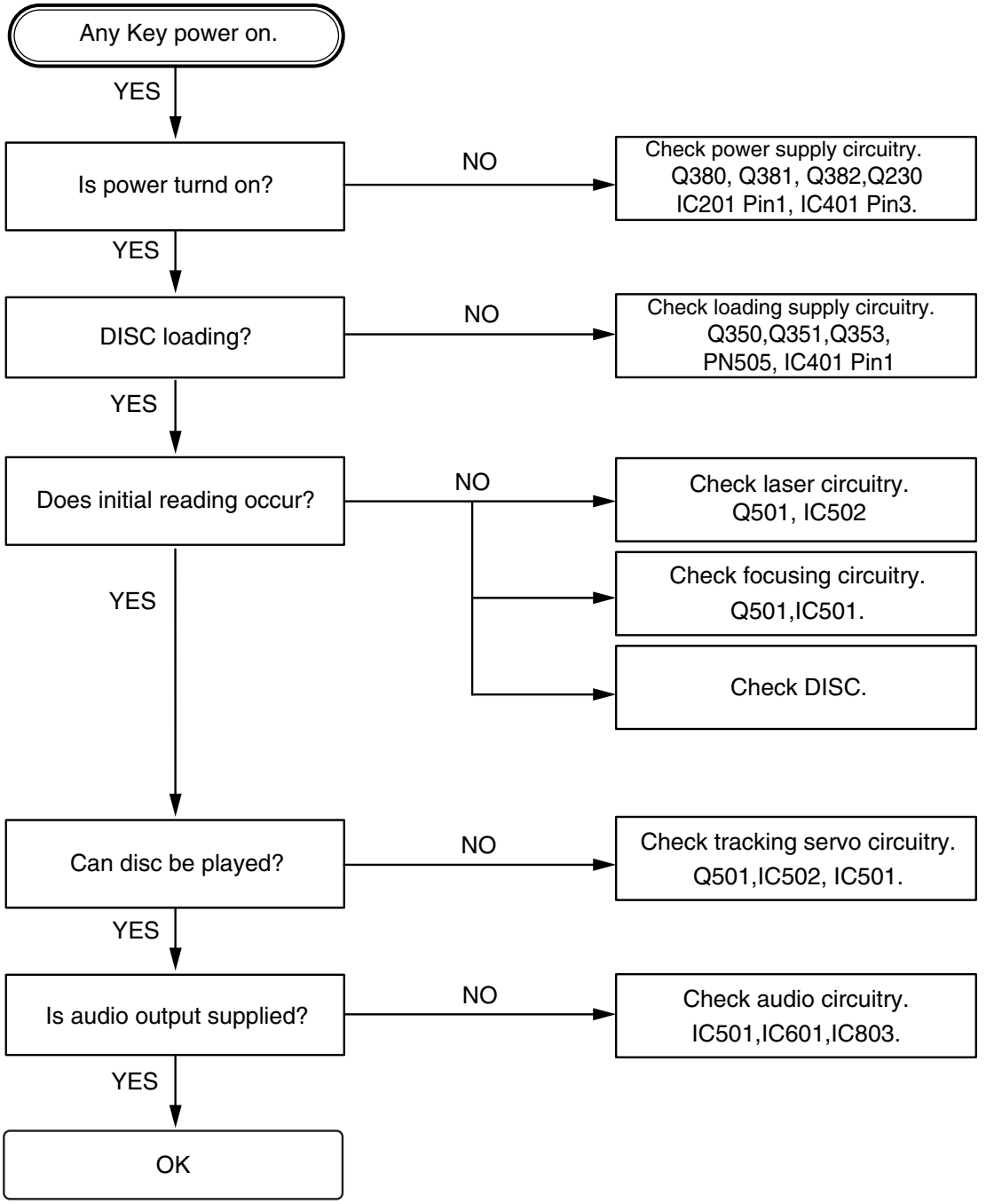
Maximum output power ..... 50W x 4
Speaker impedance ..... 4Ω x 4 or 8Ω x 4

NOTE: The design and specifications are subject to change without notice in the sourse of product improvement.

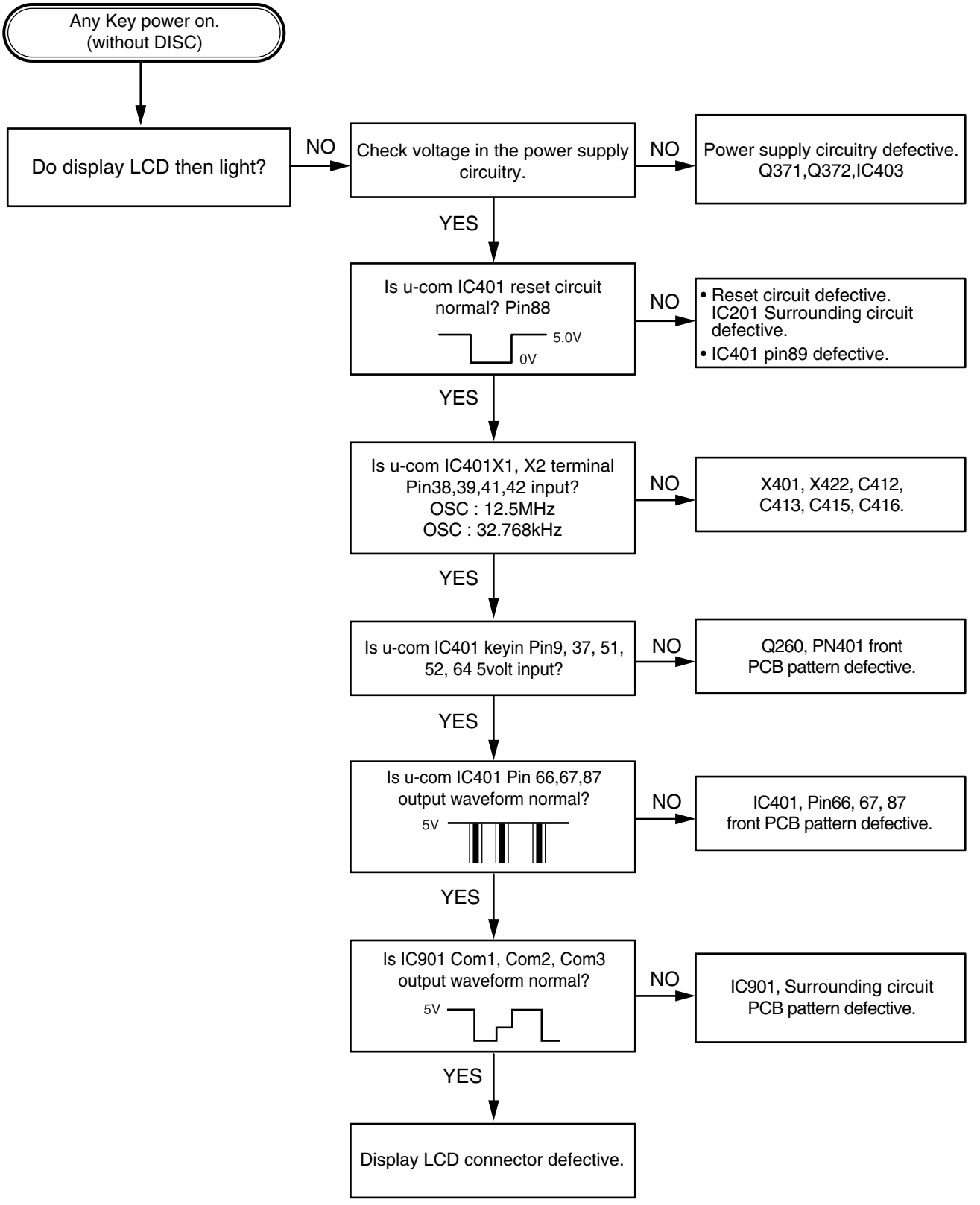
SECTION 2. ELECTRICAL

❑ ELECTRICAL TROUBLESHOOTING GUIDE

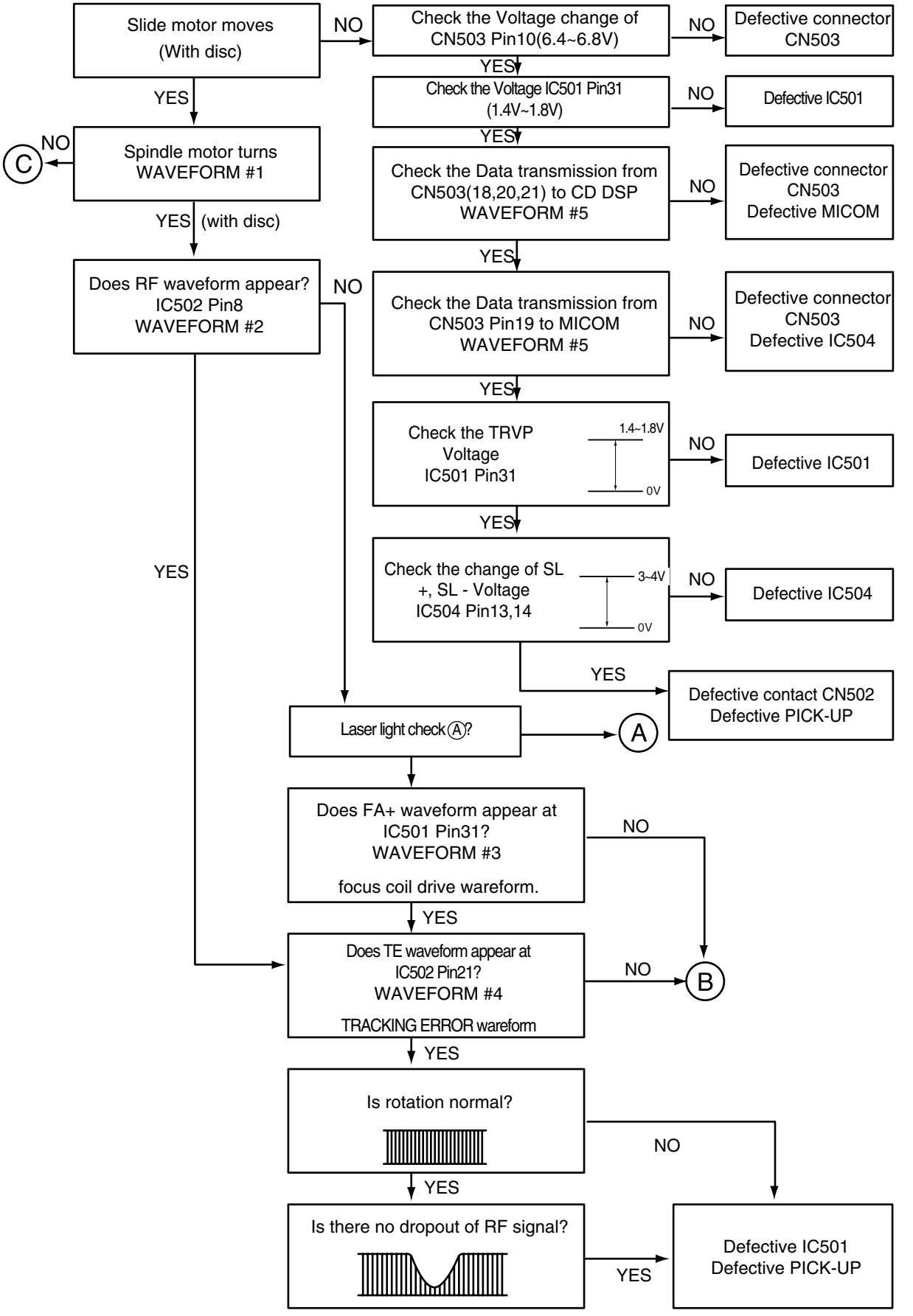
(1) No Power.



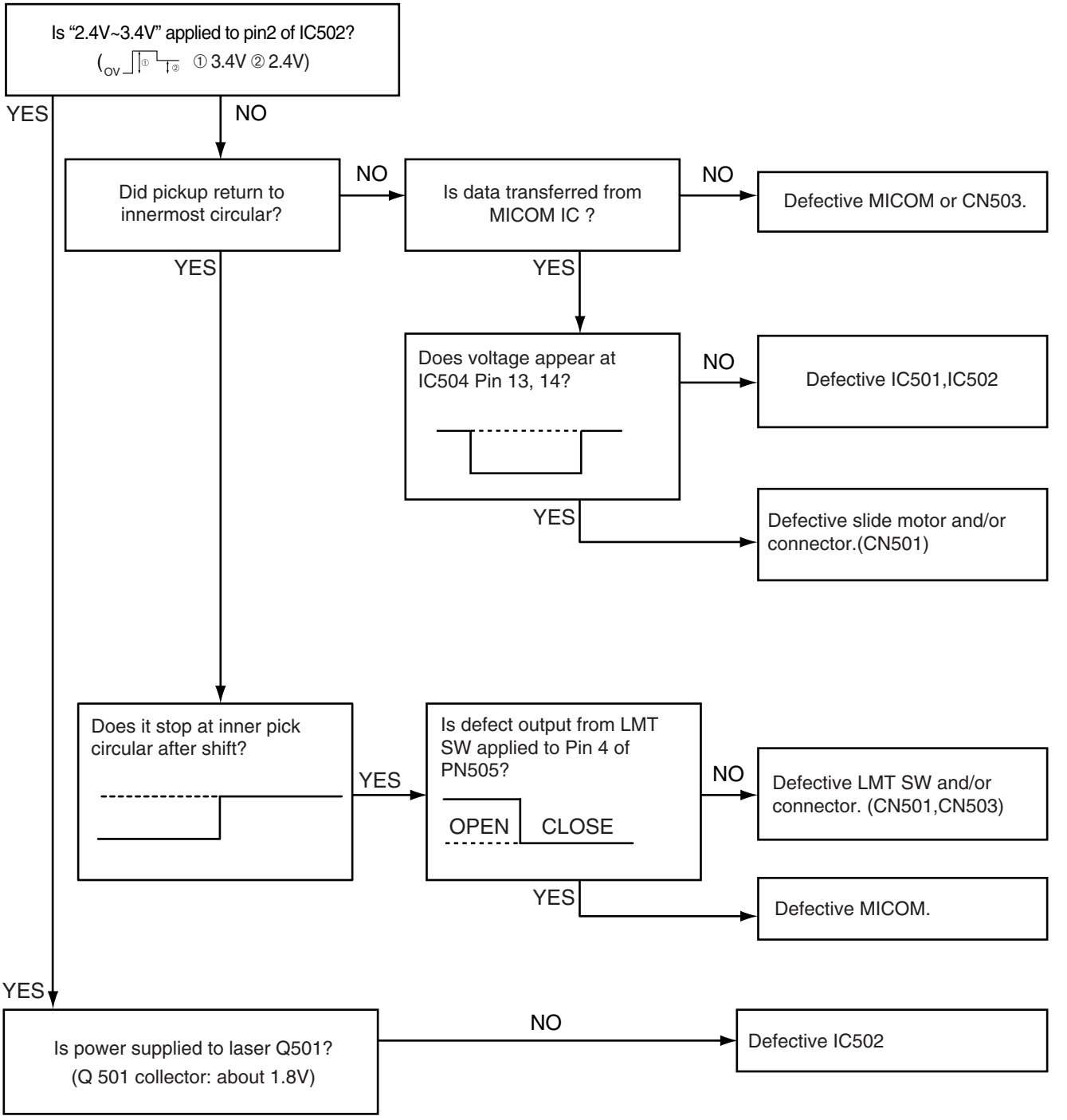
(2) LCD light abnormal.



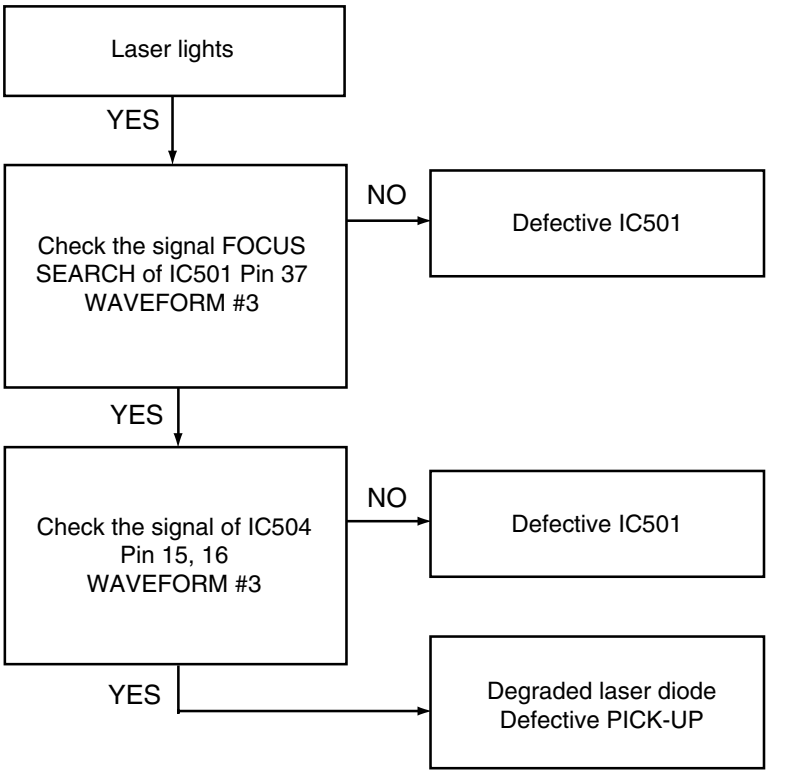
(3) Initial reading is not carried out.



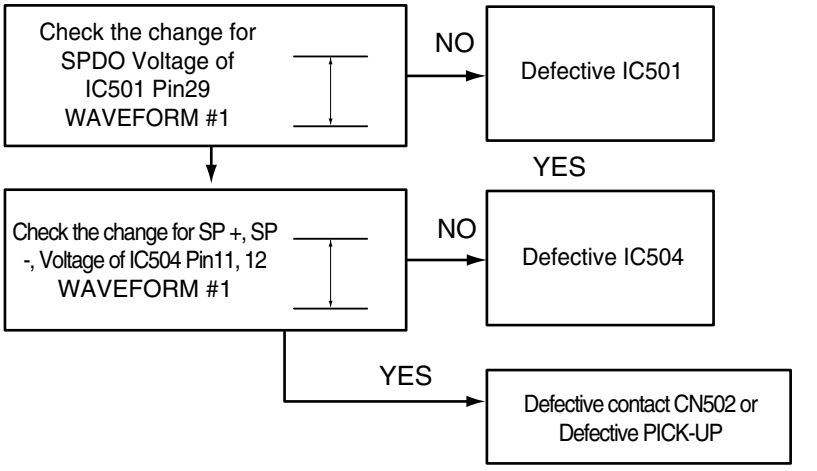
Ⓐ When laser does not light.



Ⓑ When laser light.

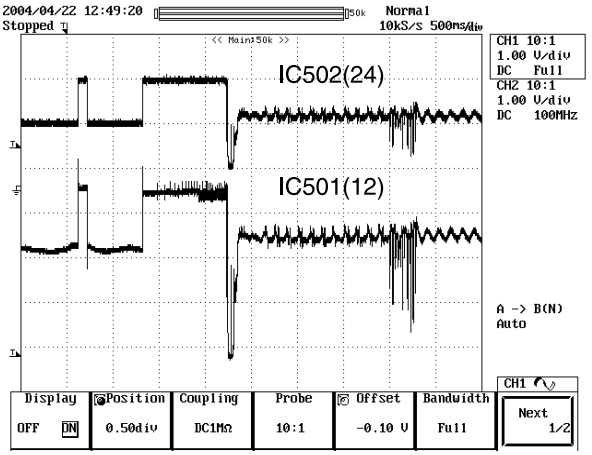


Ⓒ When SPINDLE motor dose not turn

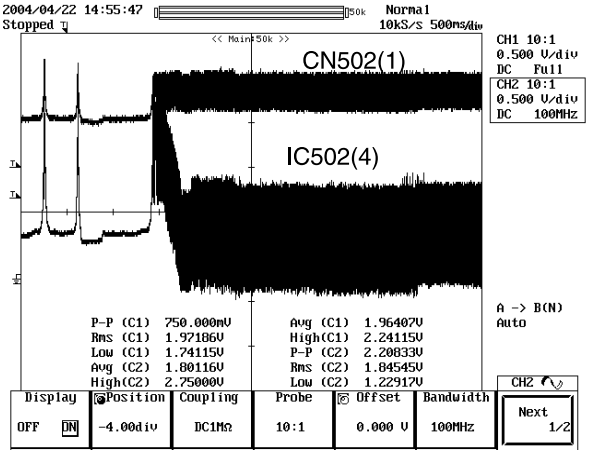


❑ WAVEFORMS OF MAJOR CHECK POINT

#1. SPINDLE DRIVE AND MOTOR WAVEFORM
IC501(29), IC544(12) when TOC reading

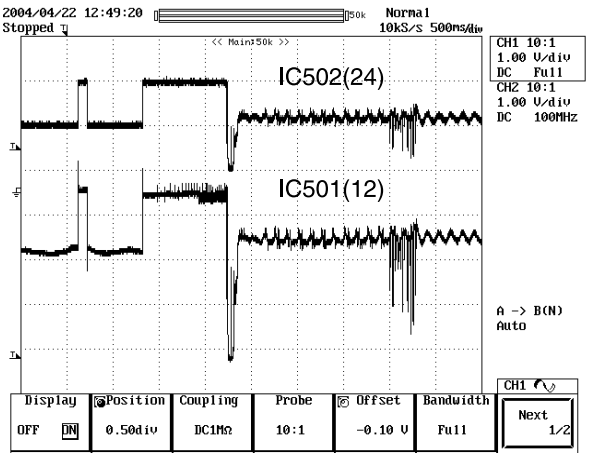


#2. RF WAVEFORM
IC502(8), IC502(3) during TOC Reading

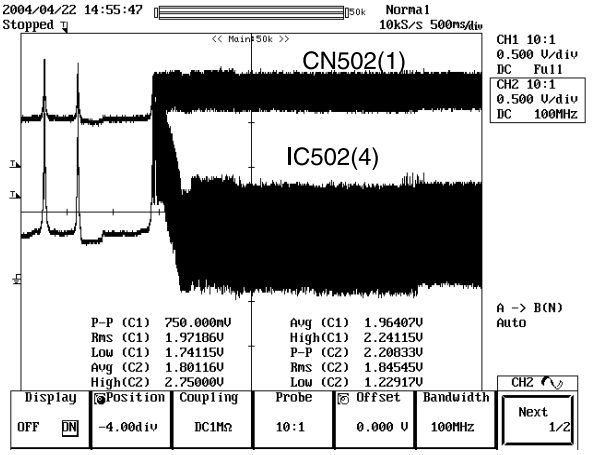


#3. FOCUS DRIVE AND MOTOR WAVEFORM
IC501(37), IC504(15)

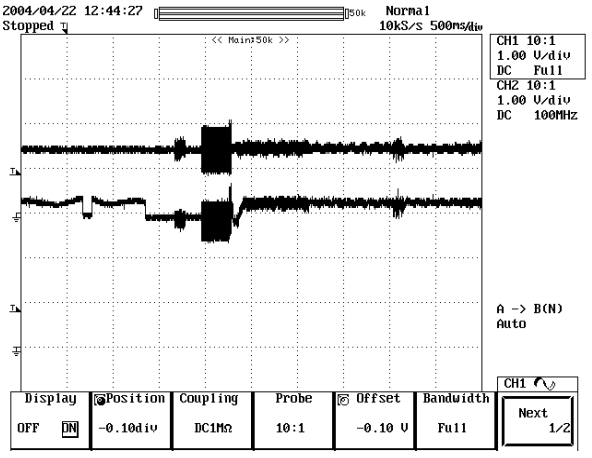
• When focus search failed or there is no disc on tray



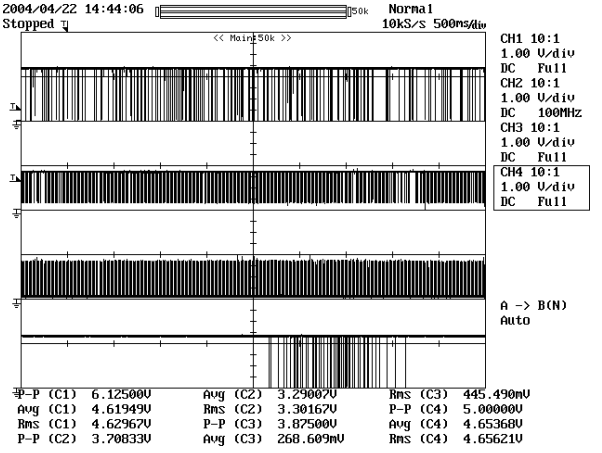
• There is disc on tray and focus search success



#4. TRACK DRIVE AND MOTOR WAVEFORM
IC504(35), IC504(17) during TOC Reading



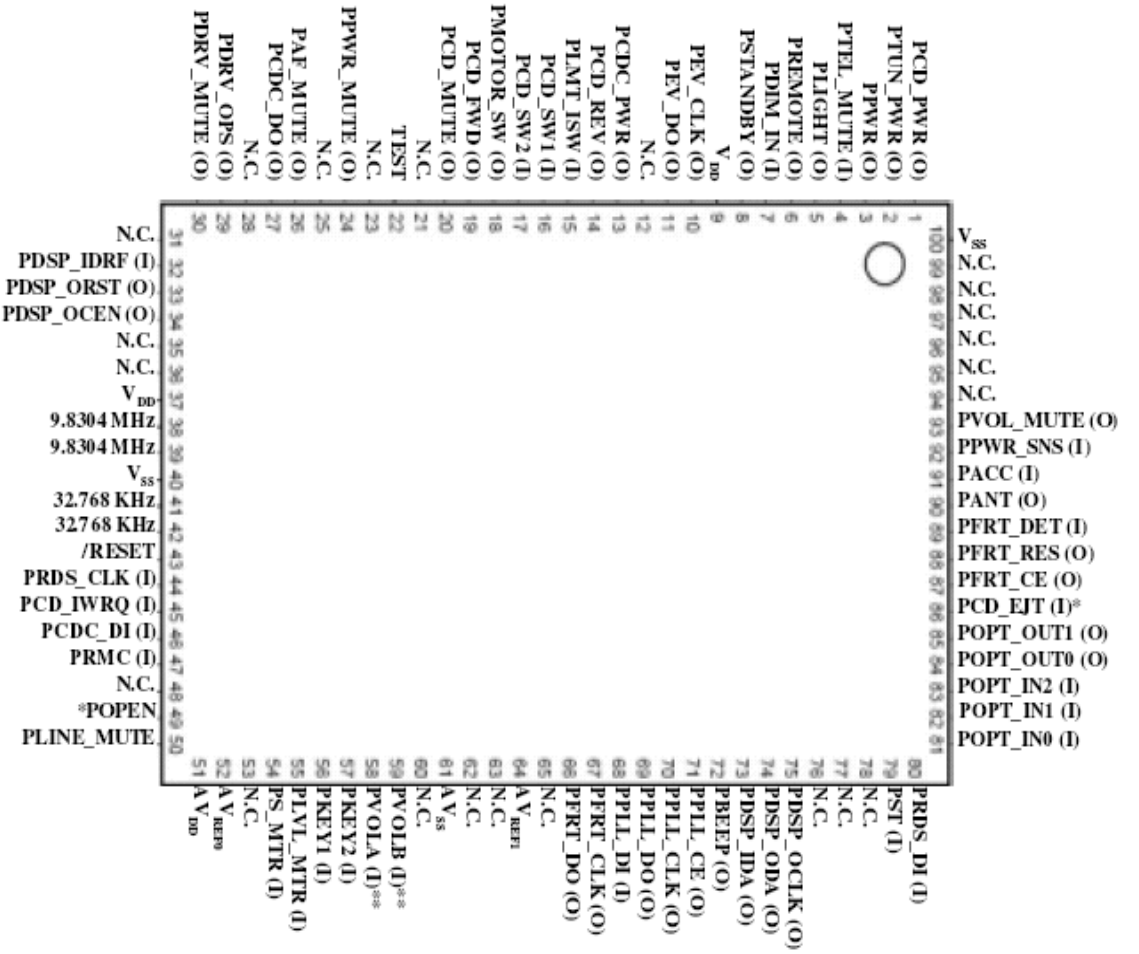
#5. MICOM INTERFACE WAVEFORM
CN503(18,19,20,21) during normal play



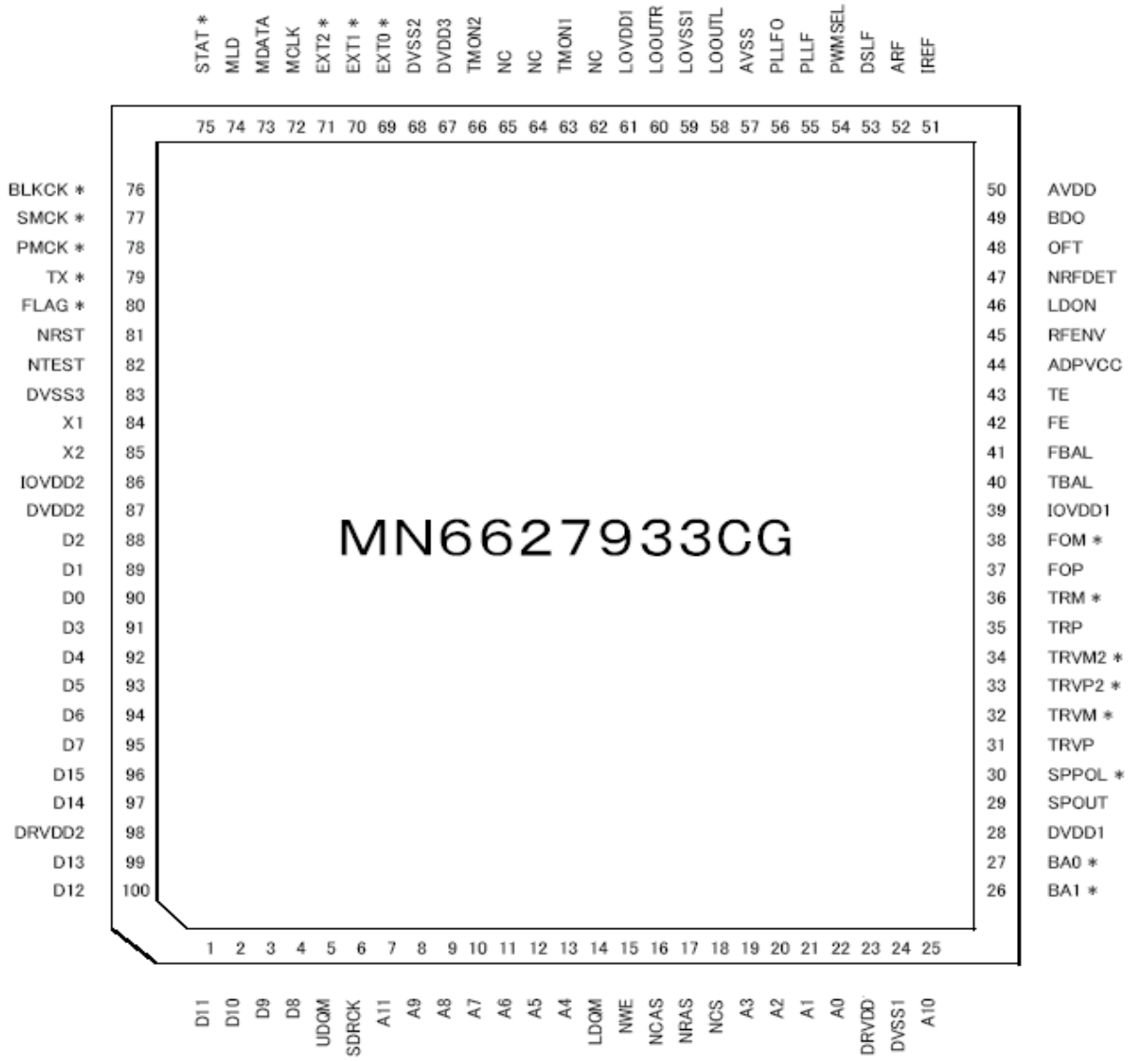
❑ INTERNAL BLOCK DIAGRAM of ICs

■ IC401PD784214A

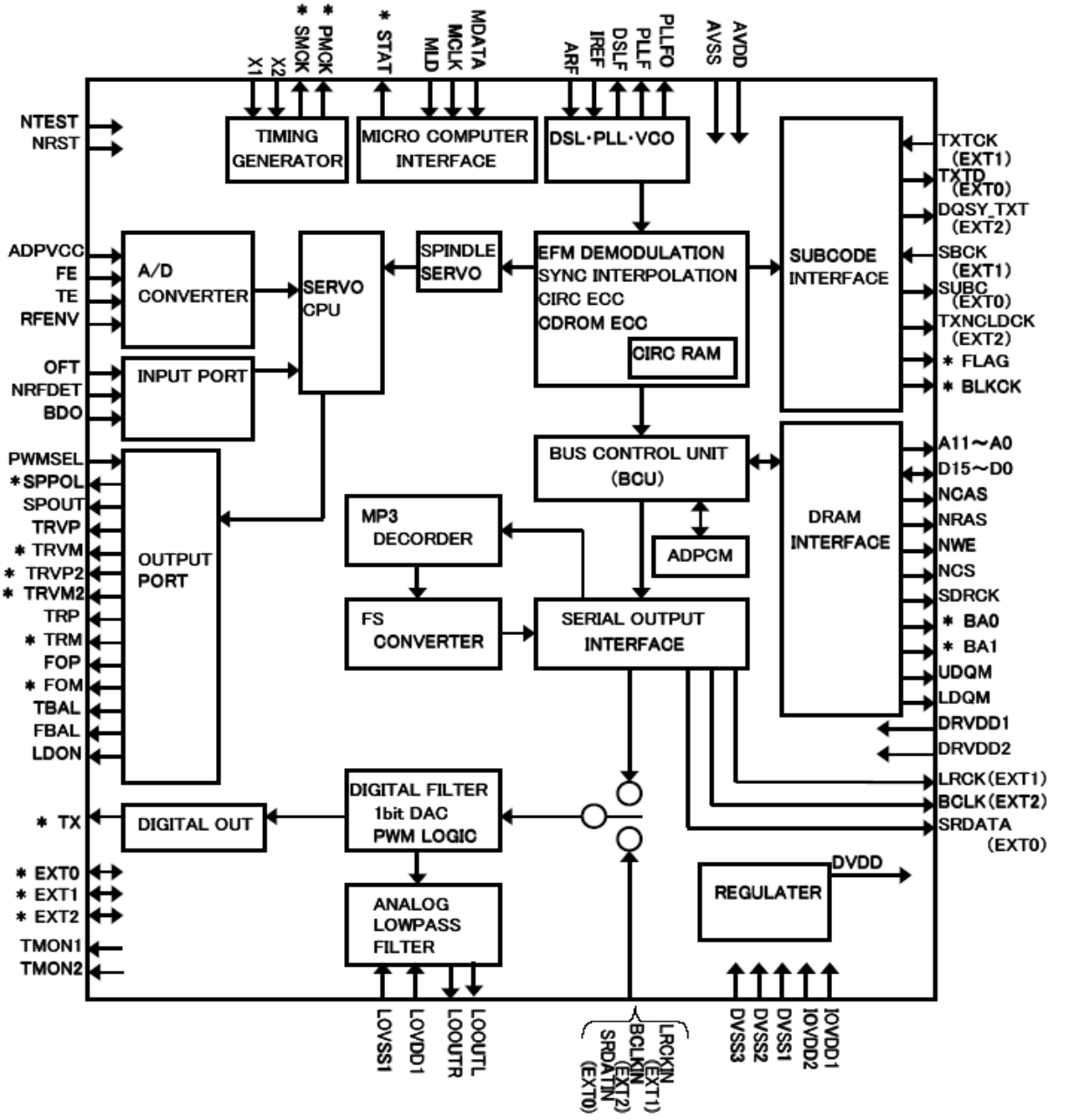
1) PORT ASSIGNMENT



■ IC501 MN6627933CG

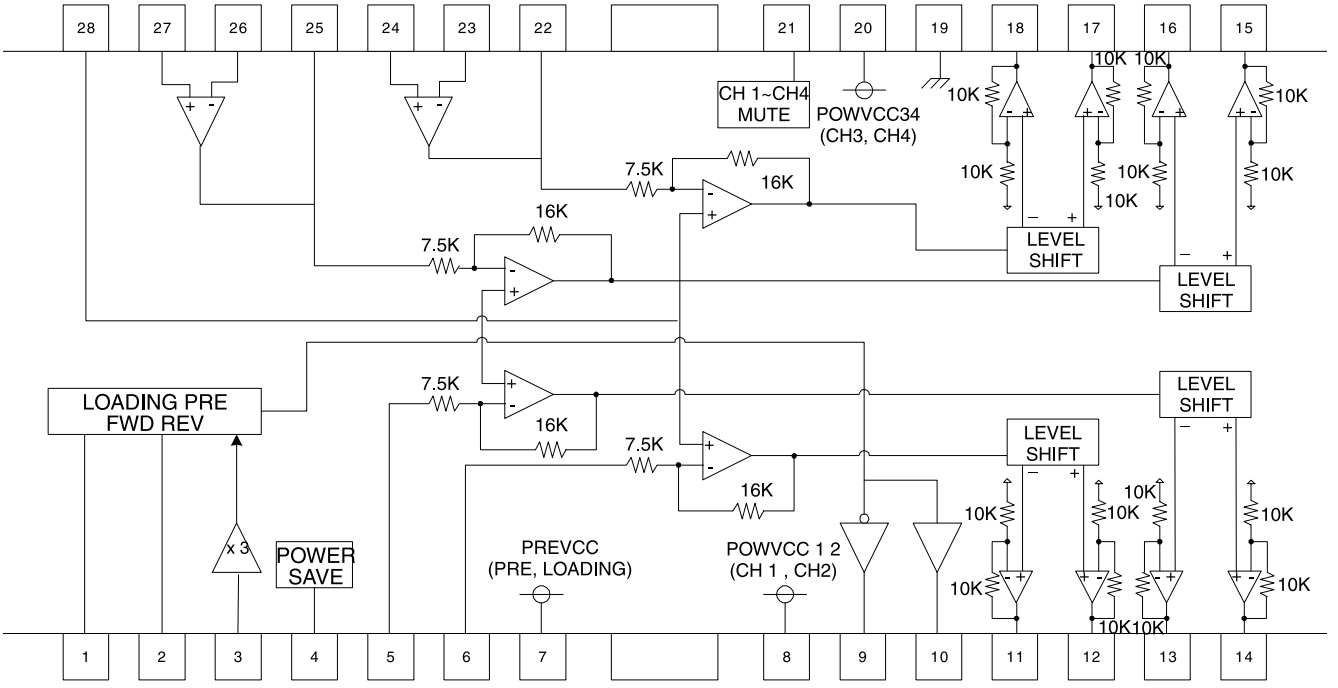


1) Block Diagram

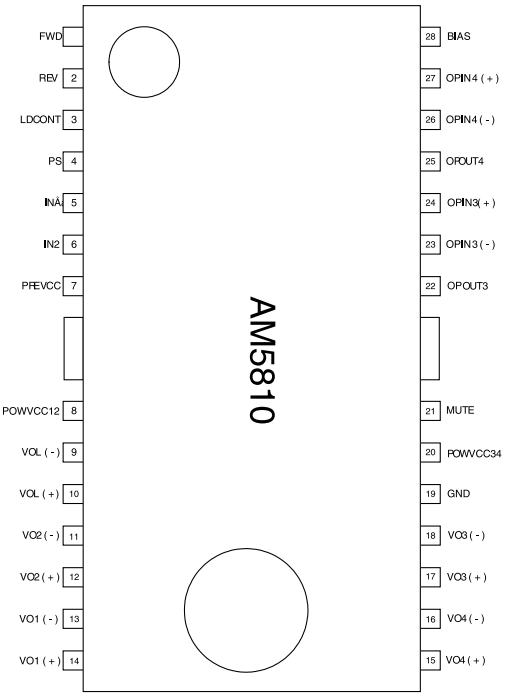


■ IC504 AM5810

1) BLOCK DIAGRAM



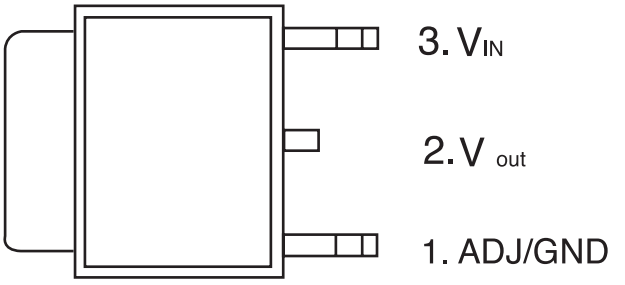
2) PIN CONFIGURATION



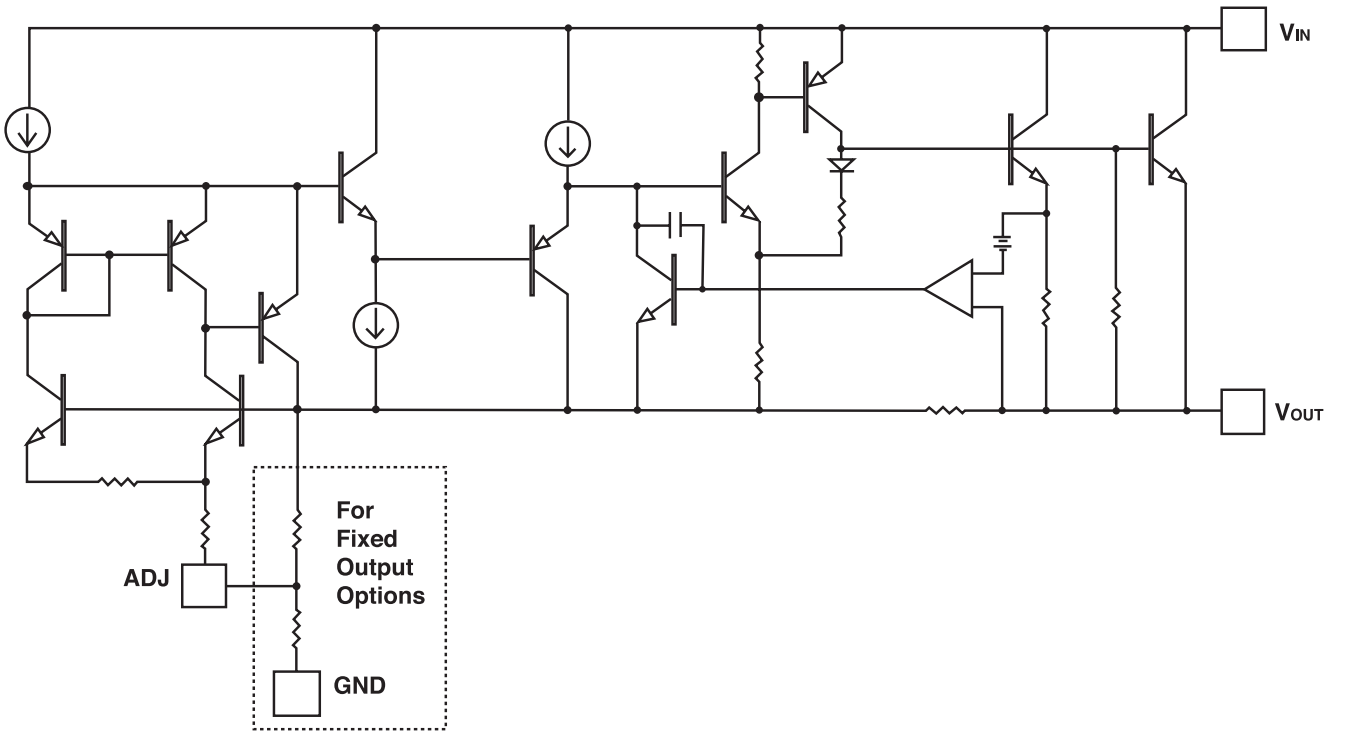
3) PIN DESCRIPTIONS

PIN No	Pin Name	Description
1	FWD	Input for loading forward
2	REV	Input for loading reverse
3	LDCONT	Output control terminal for loading
4	PS	Control terminal for power saving mode
5	IN1	Input 1 of CH1
6	IN2	Input 2 of CH2
7	PREVCC	Pre and loading unit power supply input terminal
8	POWVCC12	Power unit power supply input terminal (CH1, CH2)
9	VOL (-)	Inverted output of loading
10	VOL (+)	Not inverted output of loading
11	VO2 (-)	Inverted output of CH2
12	VO2 (+)	Not inverted output of CH2
13	VO1 (-)	Inverted output of CH1
14	VO1 (+)	Not inverted output of CH1
15	VO4 (+)	Not inverted output of CH4
16	VO4 (-)	Inverted output of CH4
17	VO3 (+)	Not inverted output of CH3
18	VO3 (-)	Inverted output of CH3
19	GND	Substrate ground
20	POWVCC34	Power unit power supply input terminal (CH3, CH4)
21	MUTE	Input for mute control
22	OPOUT3	Output of CH3 OP-ANP
23	OPIN3 (-)	Inverting input of CH3 OP-ANP
24	OPIN3 (+)	Not inverting input of CH3 OP-ANP
25	OPOUT4	Output of CH4 OP-ANP
26	OPIN4 (-)	Inverting input of CH4 OP-ANP
27	OPIN4 (+)	Not inverting input of CH4 OP-ANP
28	BIAS	Input of Bias-Amplifier

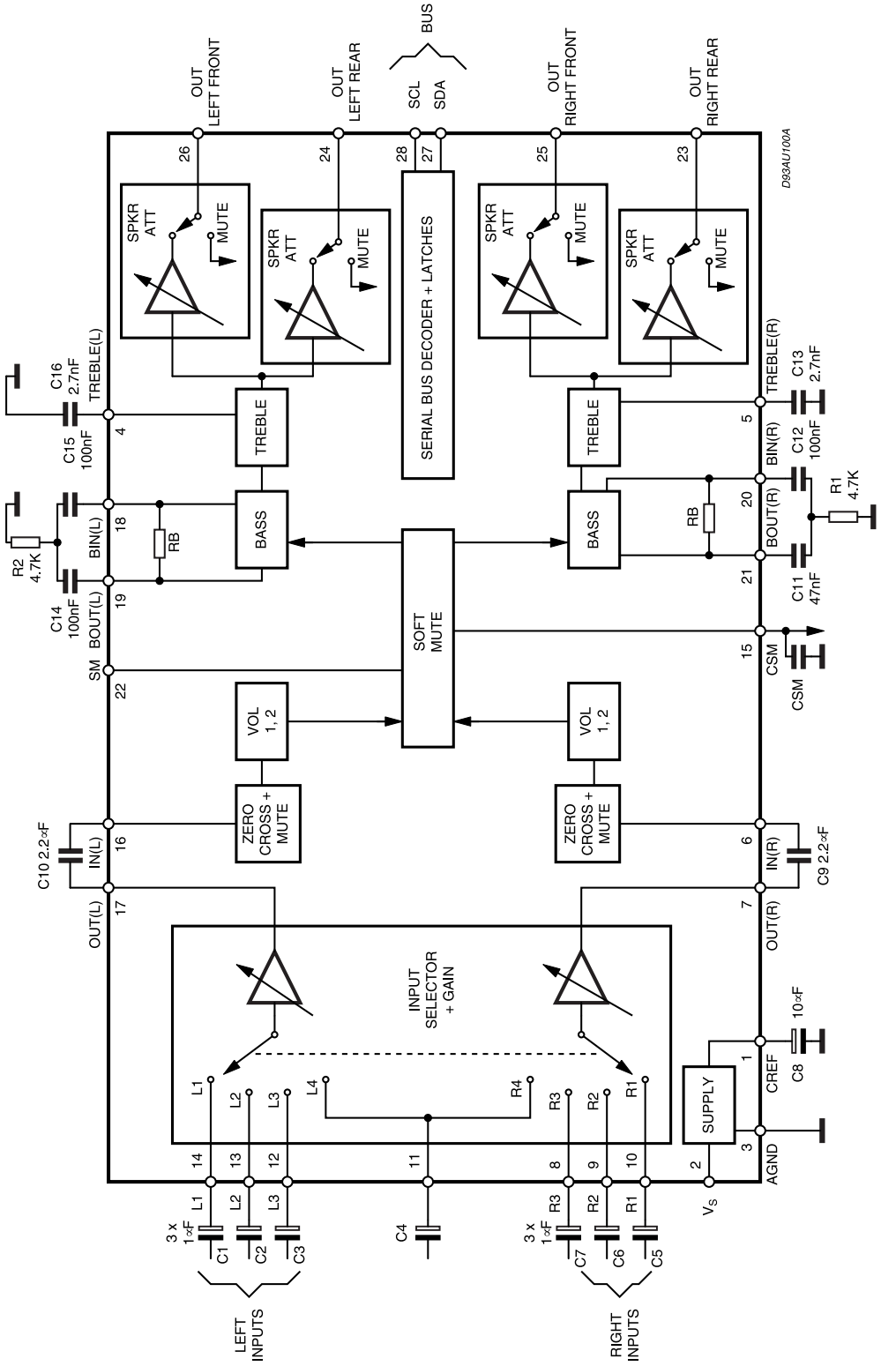
■ IC505 AMC1117



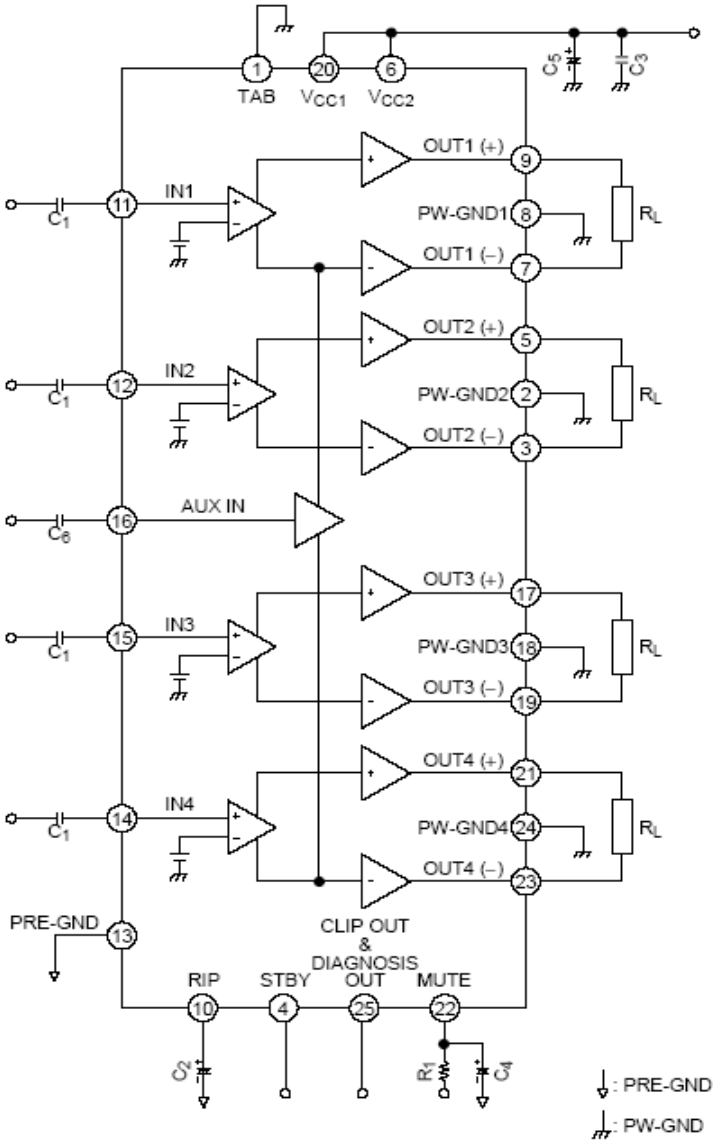
1) BLOCK DIAGRAM



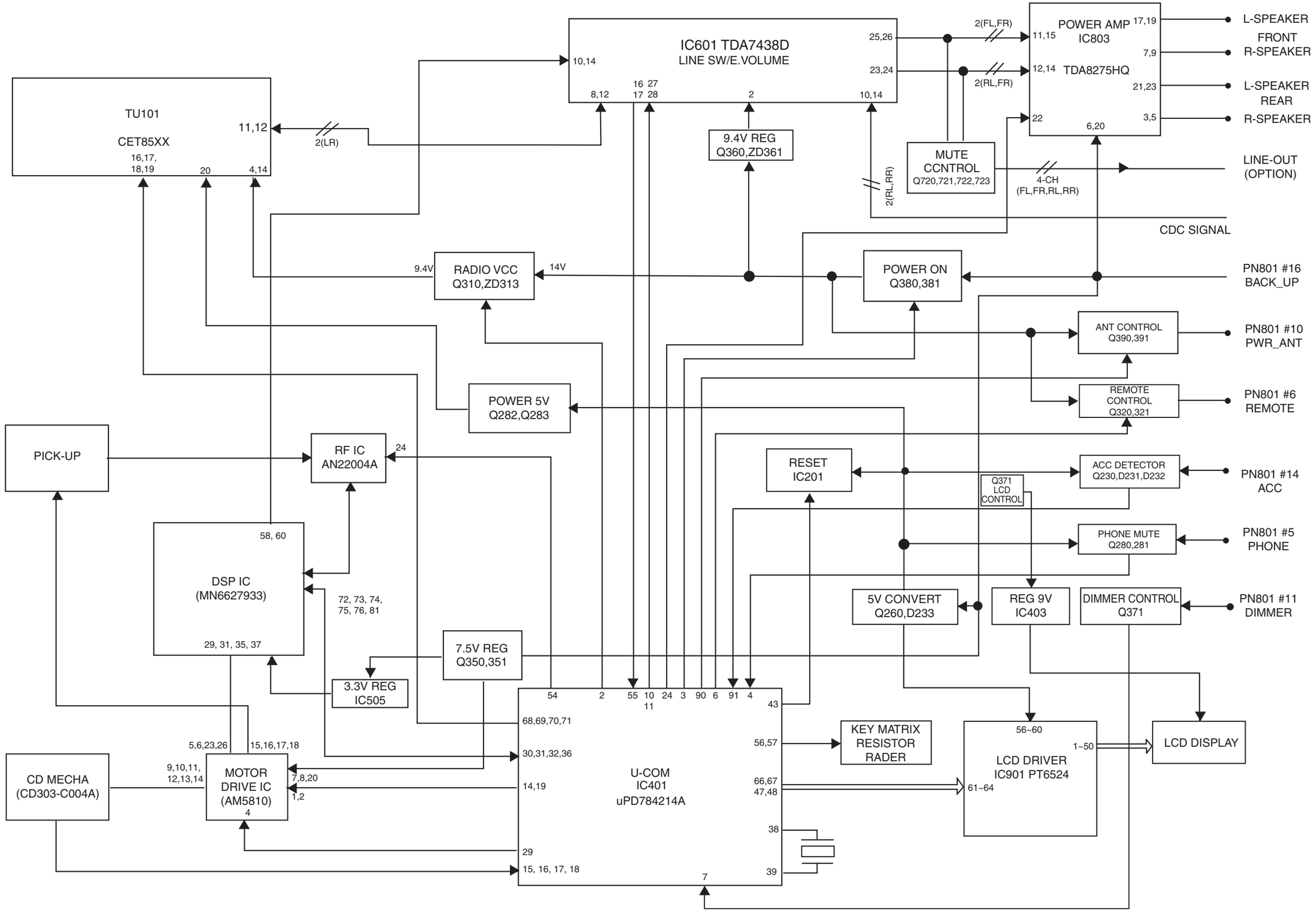
■ IC601TDA7348D



■ IC801 TA8275H

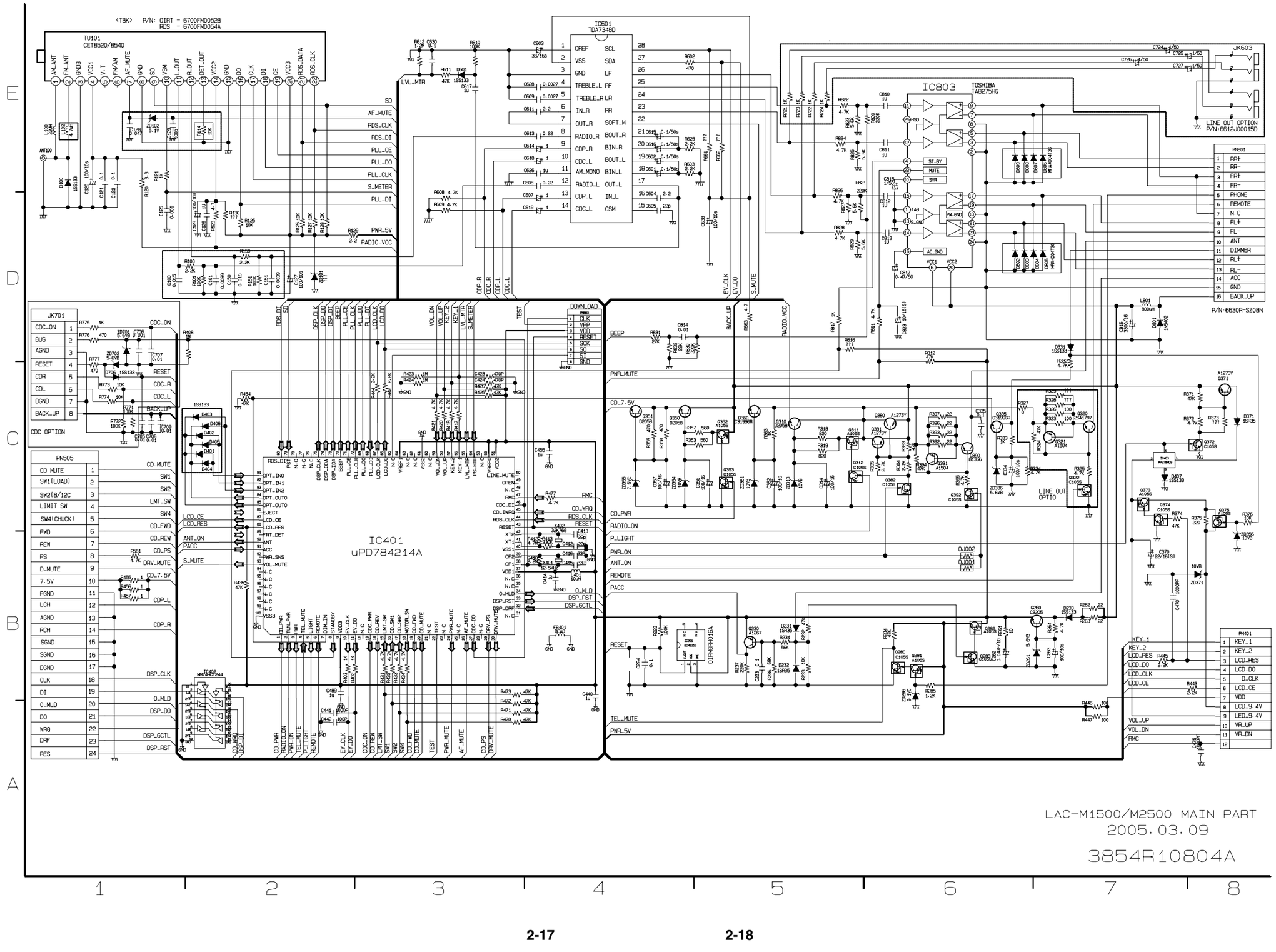


❑ BLOCK DIAGRAM

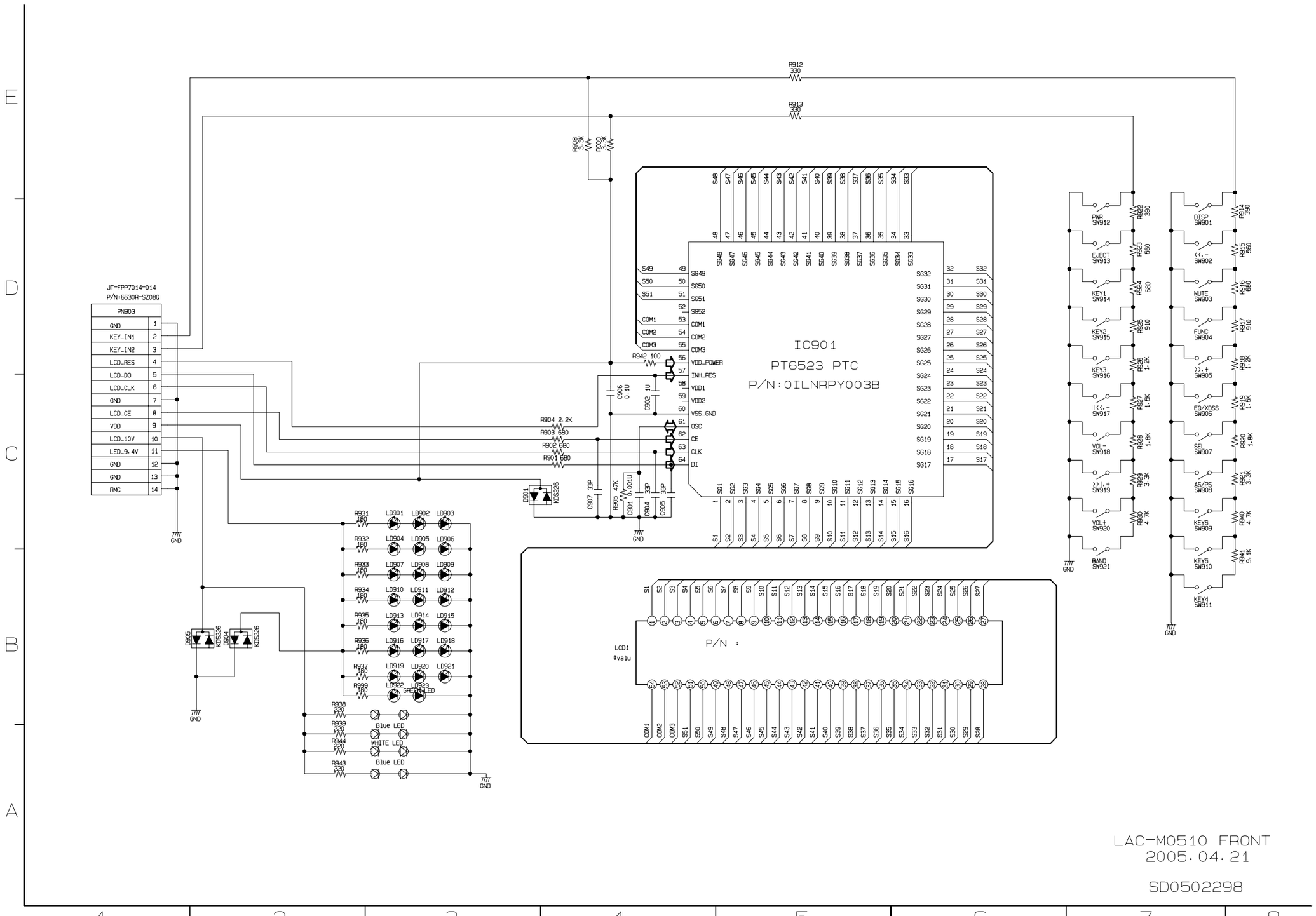


❑ SCHEMATIC DIAGRAM

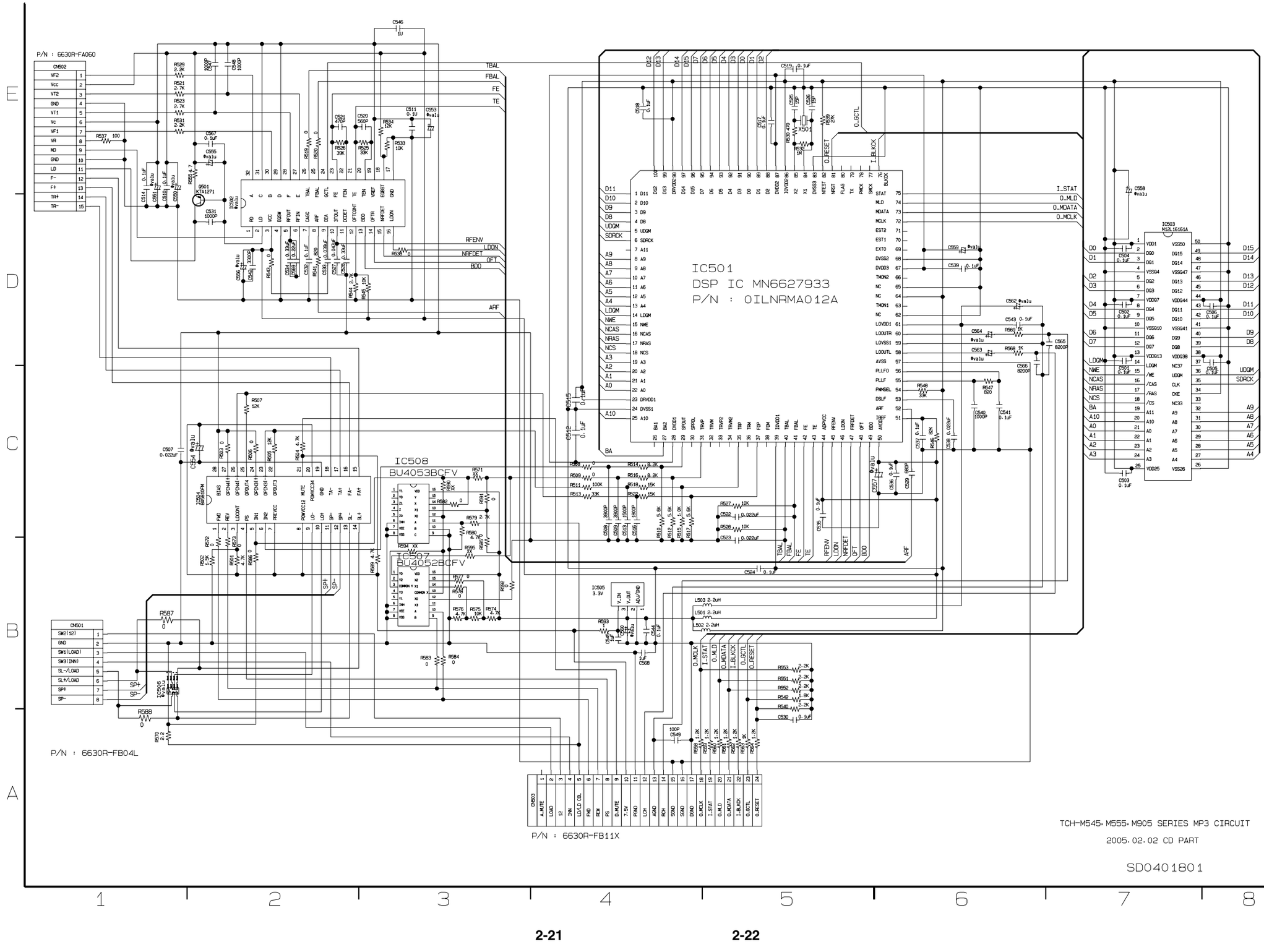
1. MAIN SCHEMATIC DIAGRAM



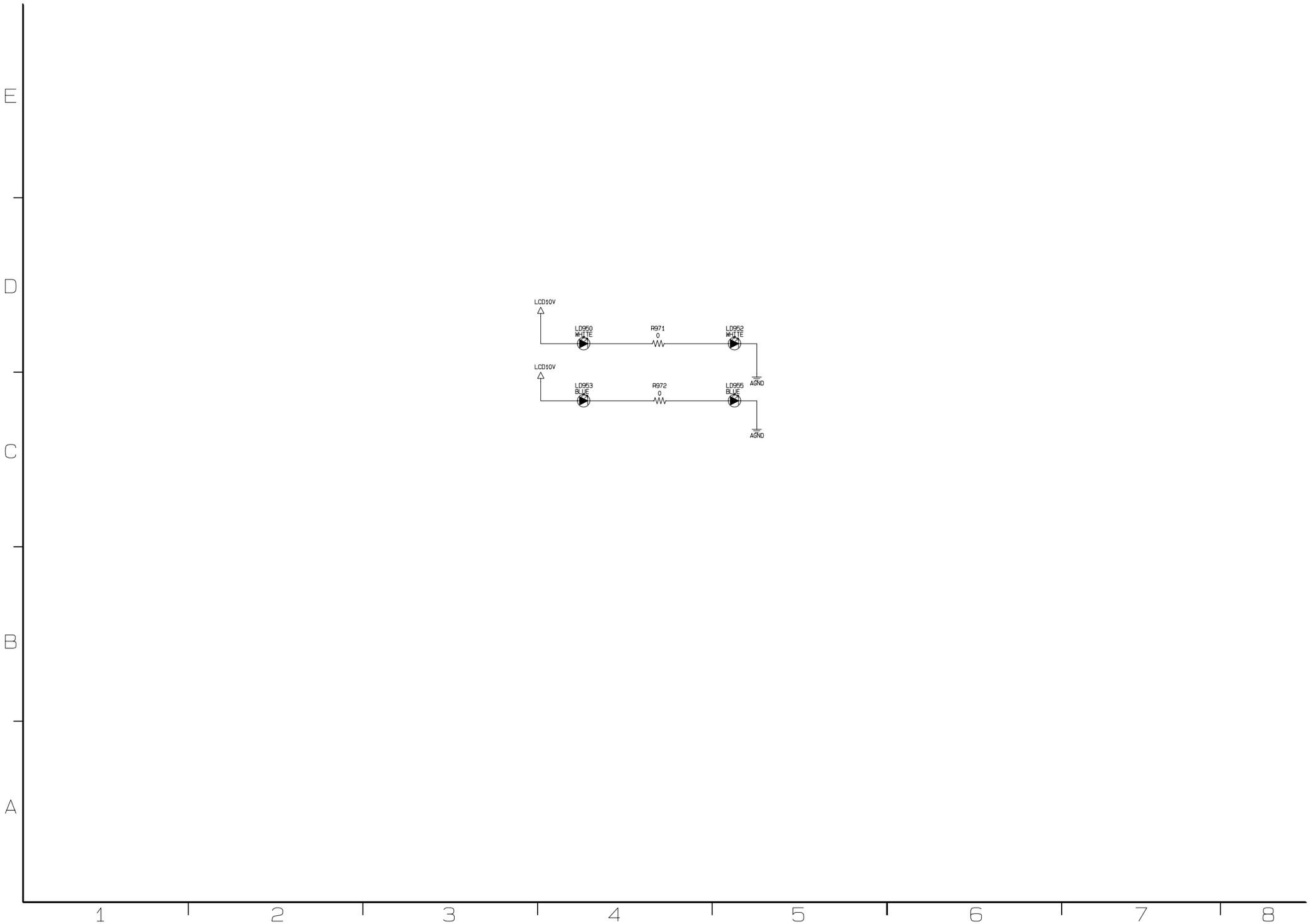
2. FRONT SCHEMATIC DIAGRAM



3. CDP SCHEMATIC DIAGRAM



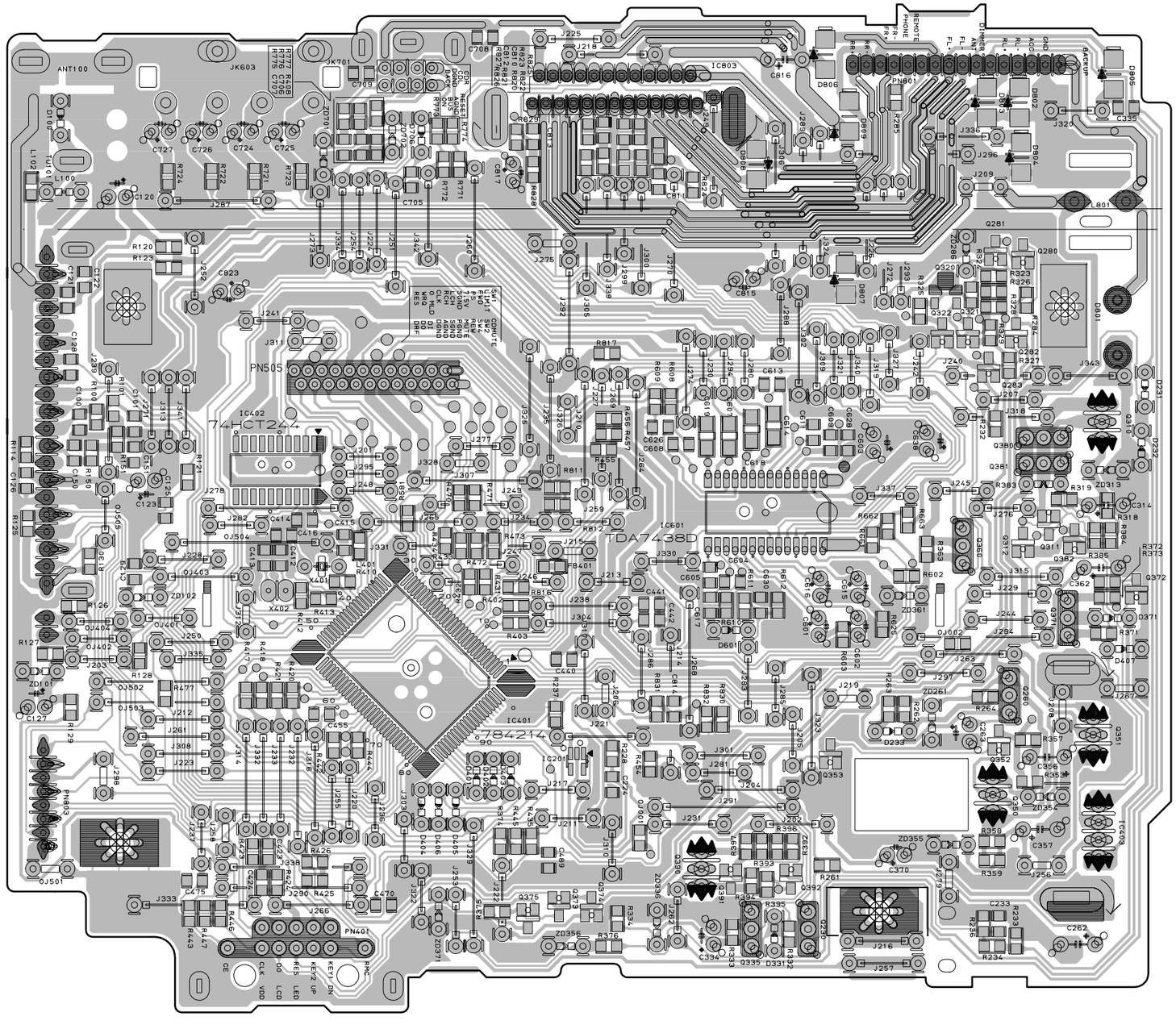
4. LIGHTIN SCHEMATIC DIAGRAM



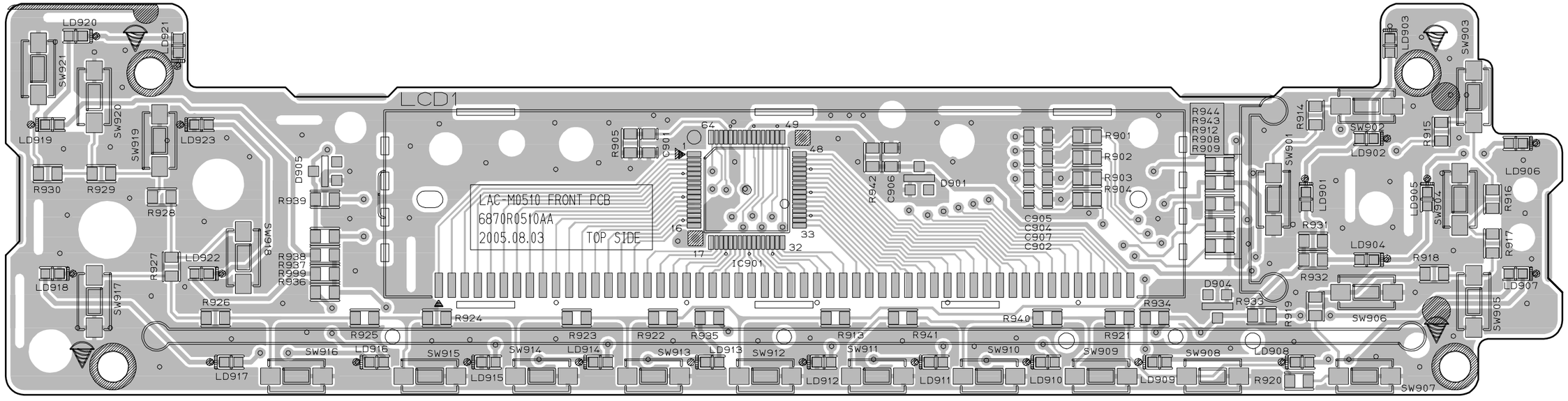
❑ PRINTED CIRCUIT DIAGRAM

1. MAIN P.C. BOARD

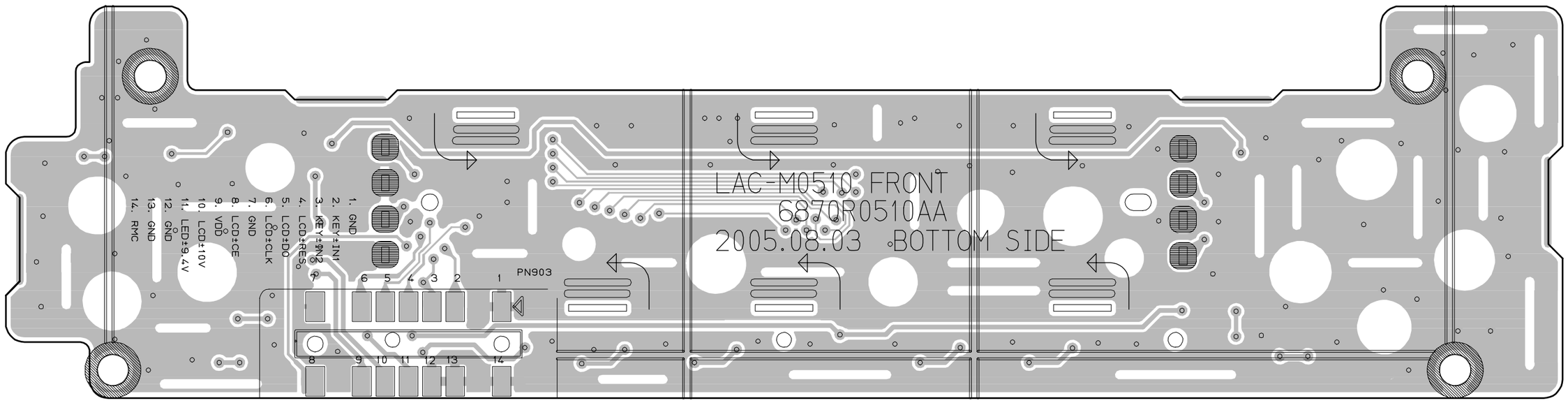
6870R5927AA
20050309-1
LAC-M1500/M2500



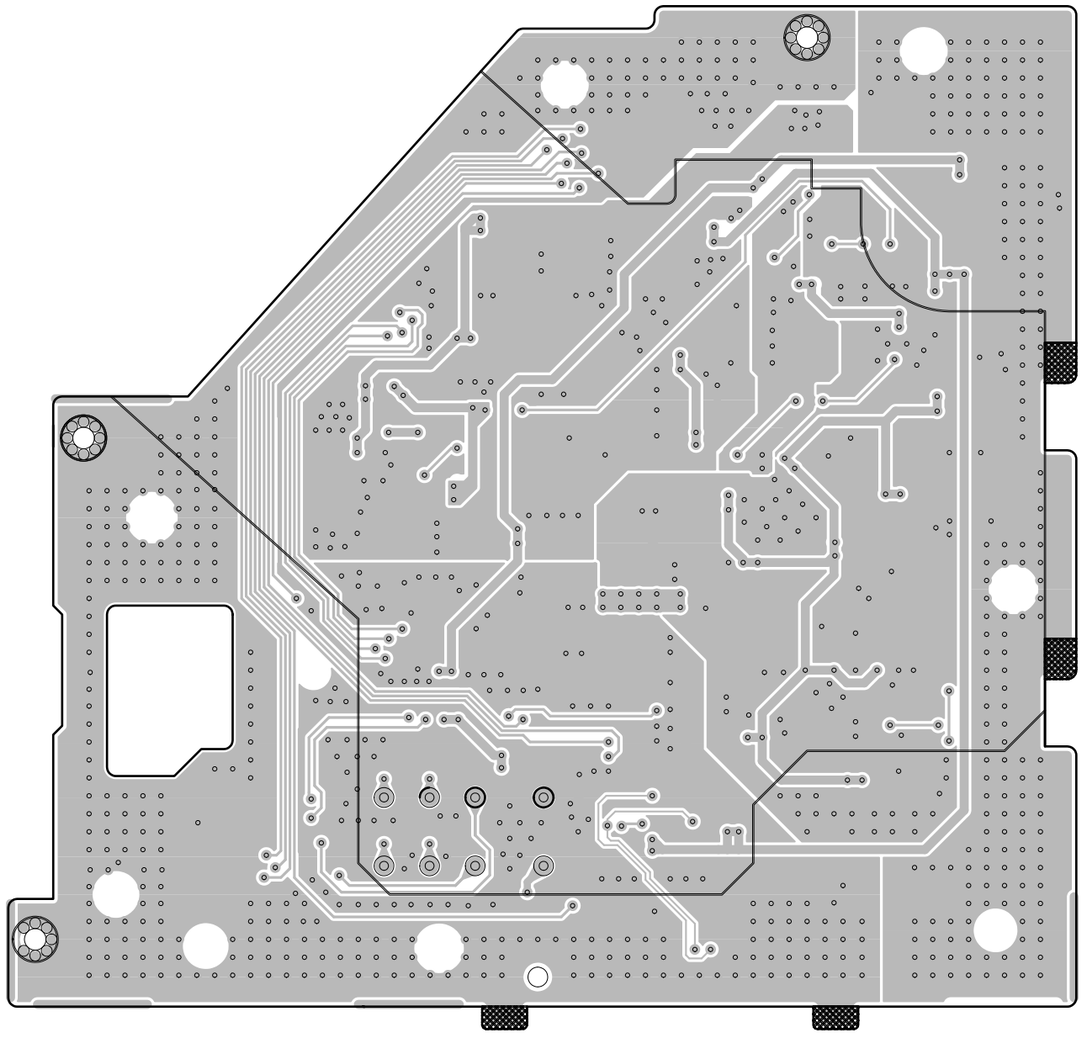
2. FRONT P.C. BOARD (TOP)



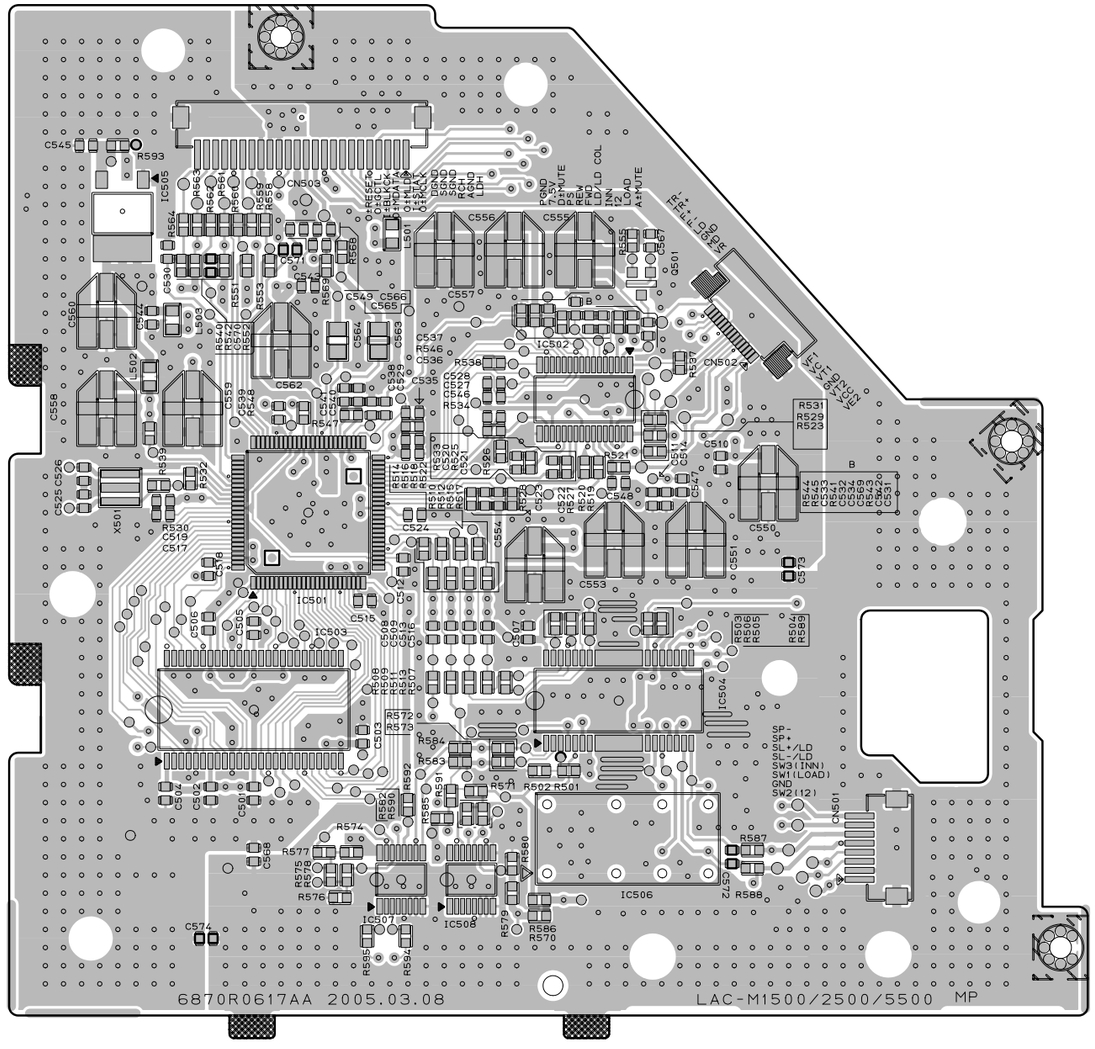
2. FRONT P.C. BOARD (BOTTOM)



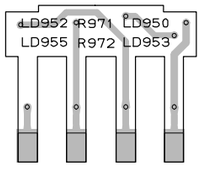
3. CDP P.C. BOARD (BOTTOM)



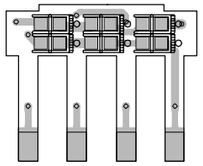
3. CDP P.C. BOARD (TOP)



4. LED P.C.BOARD (TOP)



4. LED P.C.BOARD (BOTTOM)



SECTION 3. CABINET MAINCHASSIS & MECHANISM

■ EXPLODED VIEW

NOTE) Refer to "SECTION 4 REPLACEMENT PARTS LIST" in order to look for the part number of each part.

⚠ CAUTION
Exposed blade will cause severe injury