



SERVICE MANUAL

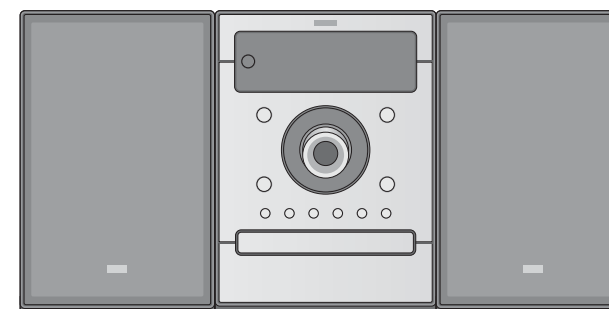
MODEL : XC102 (XCS102F)

# MICRO Hi-Fi SYSTEM

## SERVICE MANUAL

### CAUTION

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



**MODEL : XC102 (XCS102F)**



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# SECTION 1 GENERAL

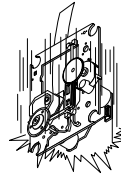
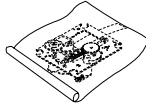
## SERVICING PRECAUTIONS

### 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.

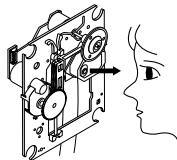
Storage in conductive bag



Drop impact

#### 2. Repair notes

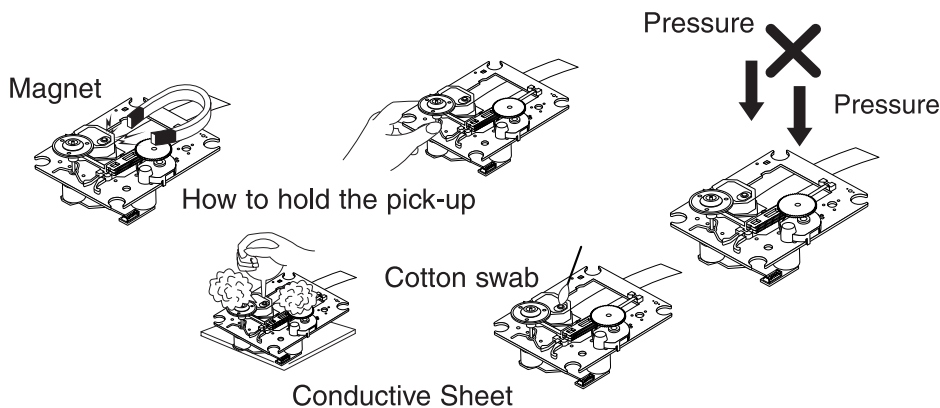
- 1) The pick-up incorporates a strong magnet, and so should never be brought close to magnetic materials.
- 2) The pick-up should always be handled correctly and carefully, taking care to avoid external pressure and impact. If it is subjected to strong pressure or impact, the result may be an operational 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 let 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.

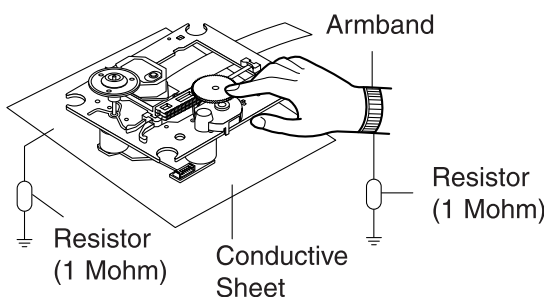
## NOTES REGARDING COMPACT DISC PLAYER REPAIRS

### 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 (1MΩ)
- 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.



### CLEARING MALFUNCTION

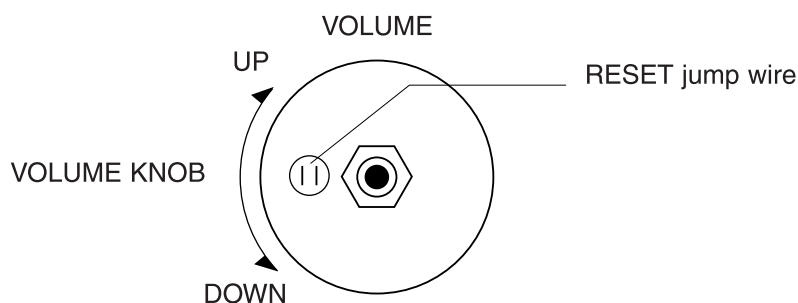
You can reset your unit to initial status if malfunction occur(button malfunction, display, etc.).

Using a pointed good conductor(such as driver), simply short the RESET jump wire on the inside of the volume knob for more than 3 seconds.

If you reset your unit, you must reenter all its settings(stations, clock, timer)

**NOTE:** 1. To operate the RESET jump wire, pull the volume rotary knob and release it.

2. If you wish to operate the RESET jump wire, it is necessary to unplug the power cord.



# ESD PRECAUTIONS

## Electrostatically Sensitive Devices (ESD)

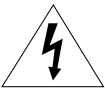
Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called electrostatically sensitive devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following 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.**

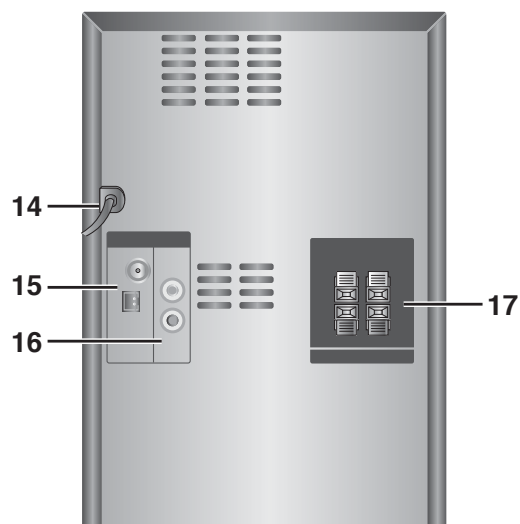
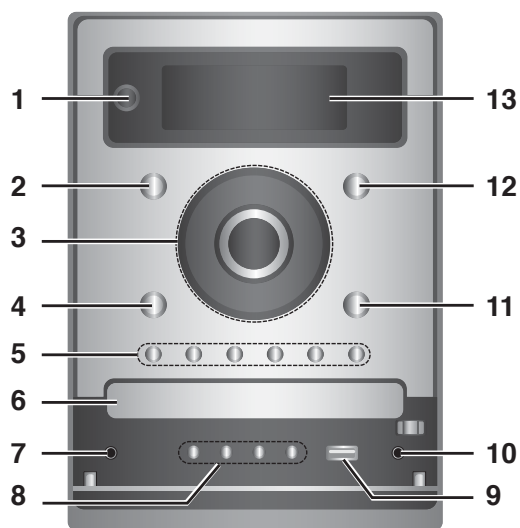
8. Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

## [CAUTION. GRAPHIC SYMBOLS]

|                                                                                     |                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | THE LIGHTNING FLASH WITH ARROWHEAD 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.                                                                               |

# LOCATION OF USERS CONTROLS

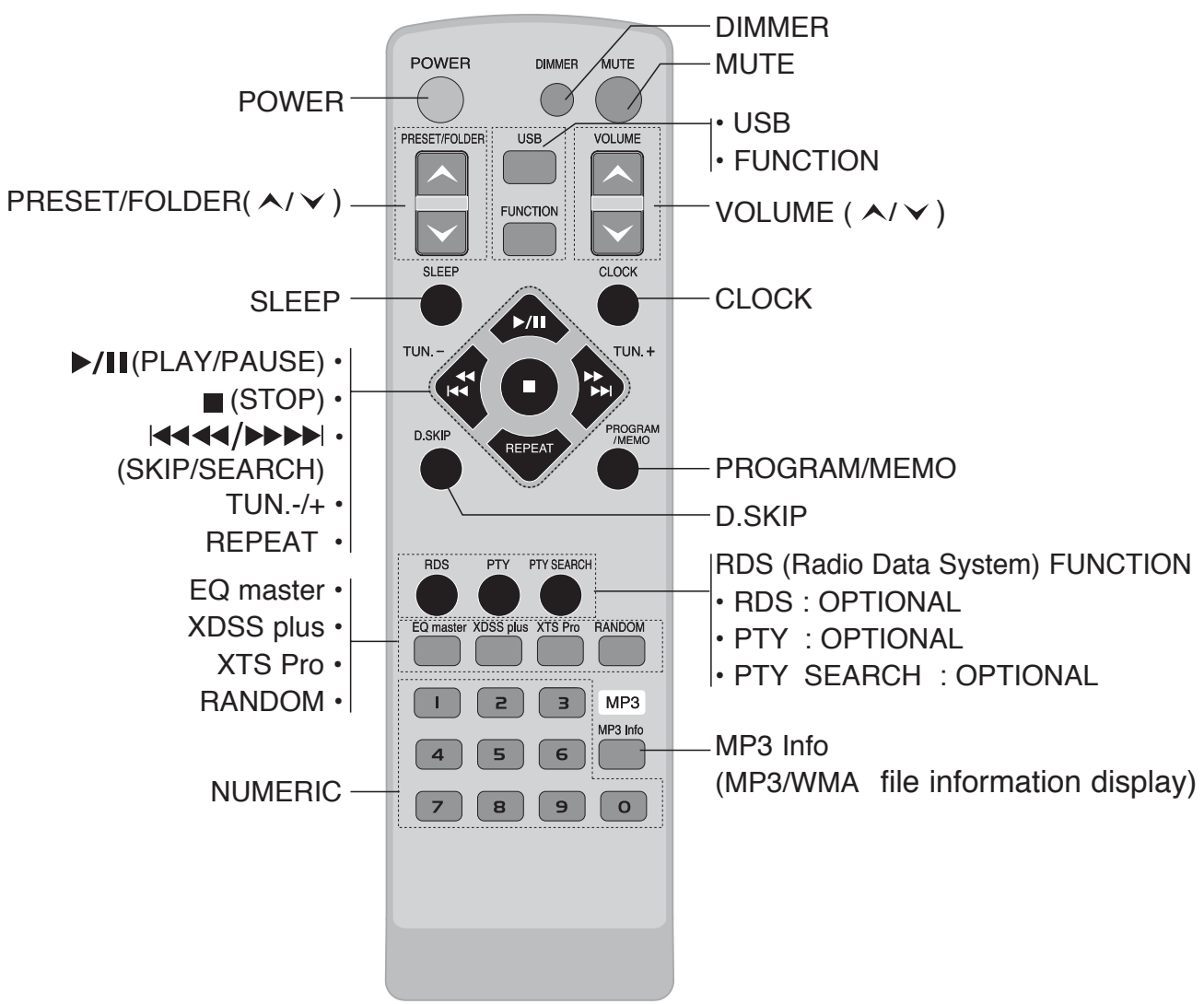
## FRONT / BACK PANEL



1. (POWER)
2. CD
3. (PLAY/PAUSE)
  - (SKIP/SEARCH)
  - TUNE.-/+
  - (STOP)
  - VOLUME CONTROL KNOB
4. USB
5. • XDSS plus
  - XTS pro
  - EQ Master
  - ST./MONO
  - PROG.
  - CD
6. DISC TRAY
7. (Headphone jack) : ø3.5mm

8. • DEMO
  - TIMER
  - CLOCK
  - SET (RDS - OPTIONAL)
9. (USB connector)
10. PORT.IN jack
11. AUX (PORTABLE)
12. TUNER
13. DISPLAY WINDOW
14. POWER IN (POWER CORD)
15. AM/FM ANTENNA TERMINAL
16. AUX IN (AUXILIARY INPUT) connector
17. SPEAKER TERMINAL

REMOTE CONTROL



# SPECIFICATIONS

## • GENERAL

|                             |                                      |
|-----------------------------|--------------------------------------|
| Power supply                | Refer to the back panel of the unit. |
| Power consumption           | Refer to the back panel of the unit. |
| Net Weight                  | 3.0kg                                |
| External dimensions (WxHxD) | 174 x 245 x 278mm                    |

## • TUNER

|           |                        |                                                |
|-----------|------------------------|------------------------------------------------|
| <b>FM</b> | Tuning Range           | 87.5 ~ 108.0MHz or 65 ~ 74MHz, 87.5 ~ 108.0MHz |
|           | Intermediate Frequency | 10.7MHz                                        |
|           | Signal to Noise Ratio  | 60/55dB                                        |
|           | Frequency Response     | 50 ~ 10000Hz                                   |
| <b>AM</b> | Tuning Range           | 522 ~ 1620kHz or 520 ~ 1720kHz                 |
|           | Intermediate Frequency | 450kHz                                         |
|           | Signal to Noise Ratio  | 30dB                                           |
|           | Frequency Response     | 140 ~ 1800Hz                                   |

## • AMPLIFIER

|                       |              |
|-----------------------|--------------|
| Output Power          | 50W + 50W    |
| T.H.D                 | 0.5%         |
| Frequency Response    | 40 ~ 20000Hz |
| Signal-to-noise ratio | 75dB         |

## • CD

|                       |              |
|-----------------------|--------------|
| Frequency response    | 40 ~ 20000Hz |
| Signal-to-noise ratio | 75dB         |
| Dynamic range         | 75dB         |

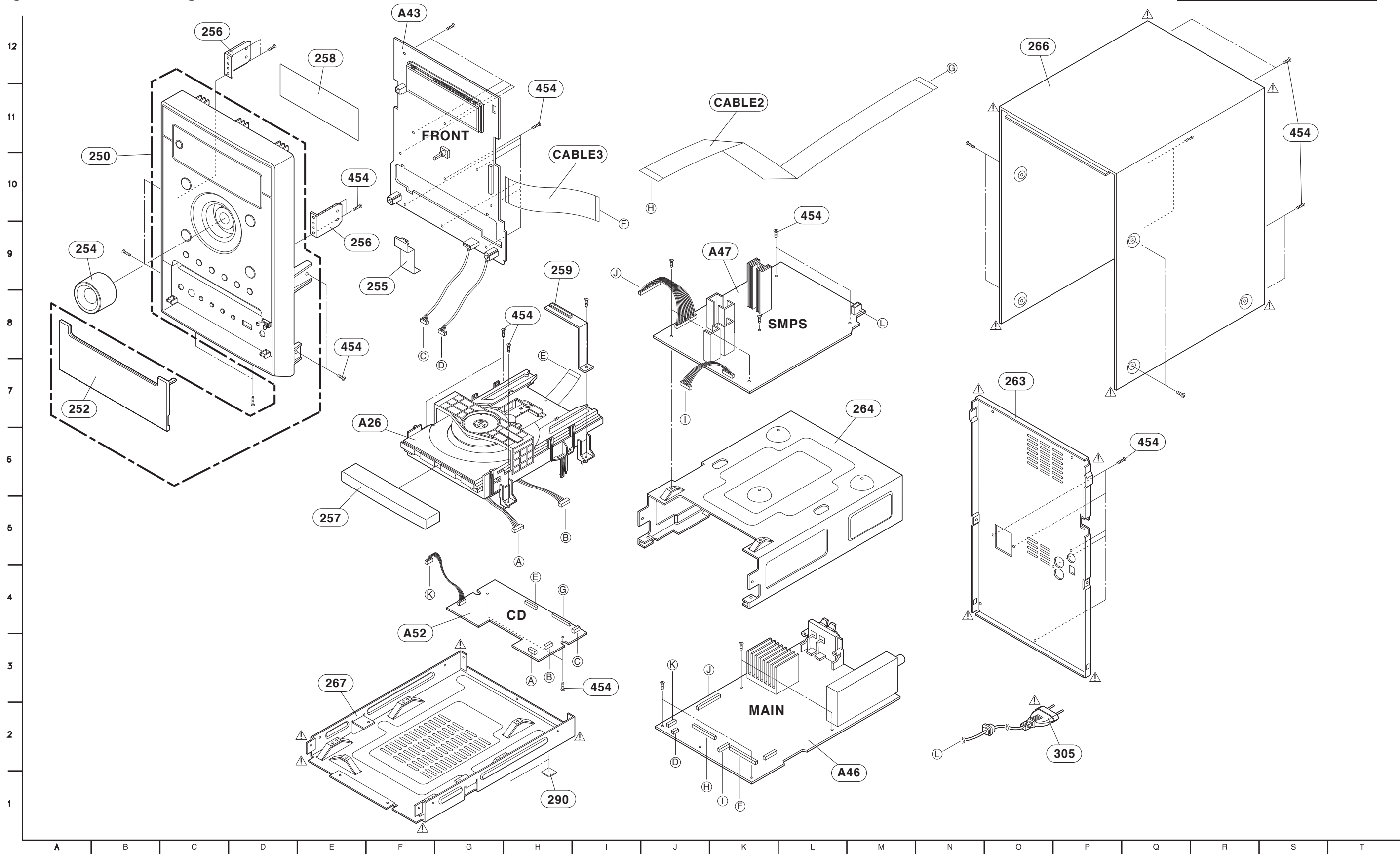
## • SPEAKERS

|                        |                   |
|------------------------|-------------------|
| Type                   | 2 Way 2 Speaker   |
| Impedance              | 4Ω                |
| Frequency Response     | 80 ~ 20000 Hz     |
| Sound Pressure Level   | 82dB/W (1m)       |
| Rated Input Power      | 50W               |
| Max. Input Power       | 100W              |
| Net Dimensions (WxHxD) | 160 x 243 x 174mm |
| Net Weight (1EA)       | 2.02kg            |

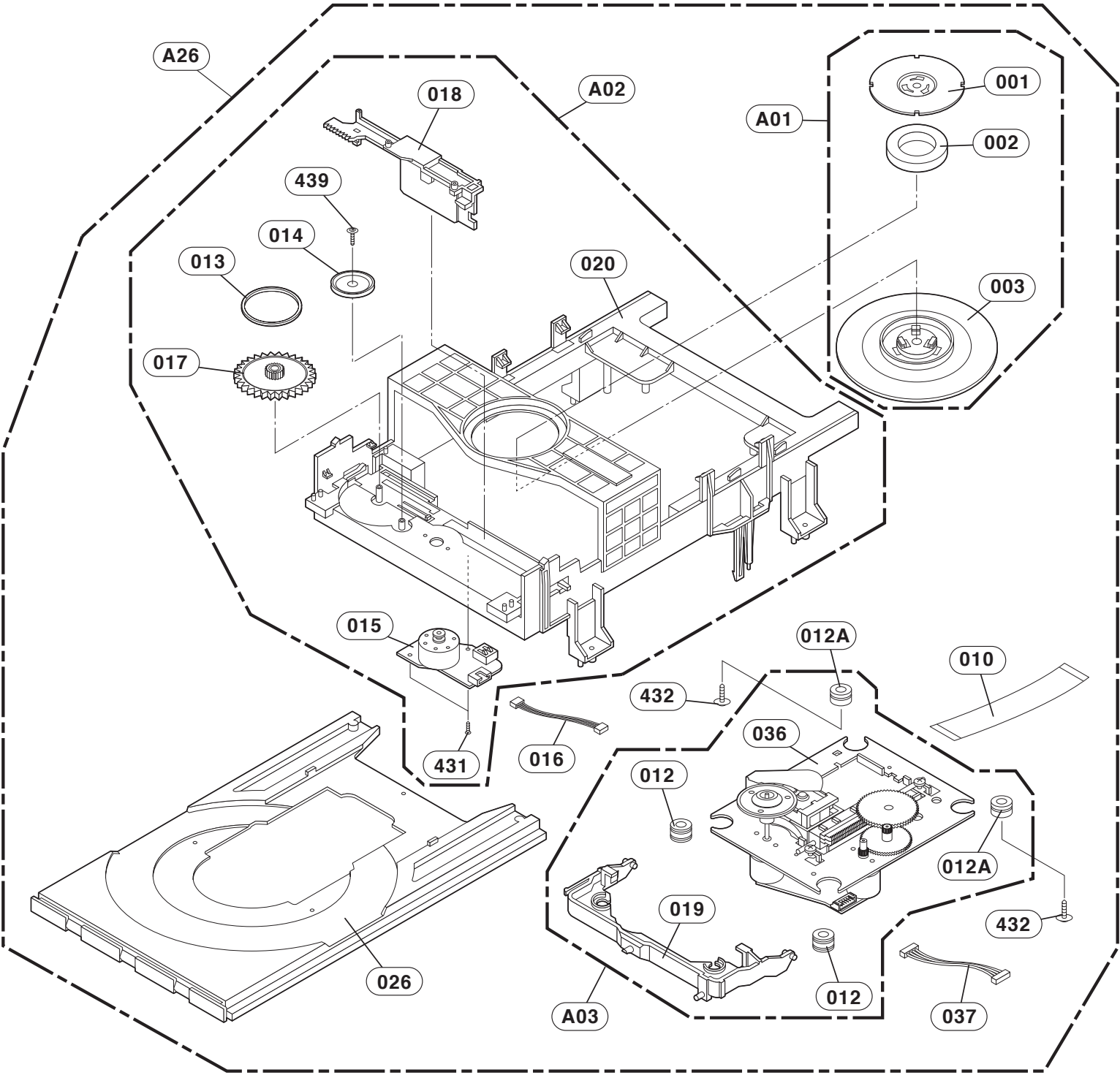
# MEMO

SECTION 2 EXPLODED VIEWS  
CABINET EXPLODED VIEW

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.

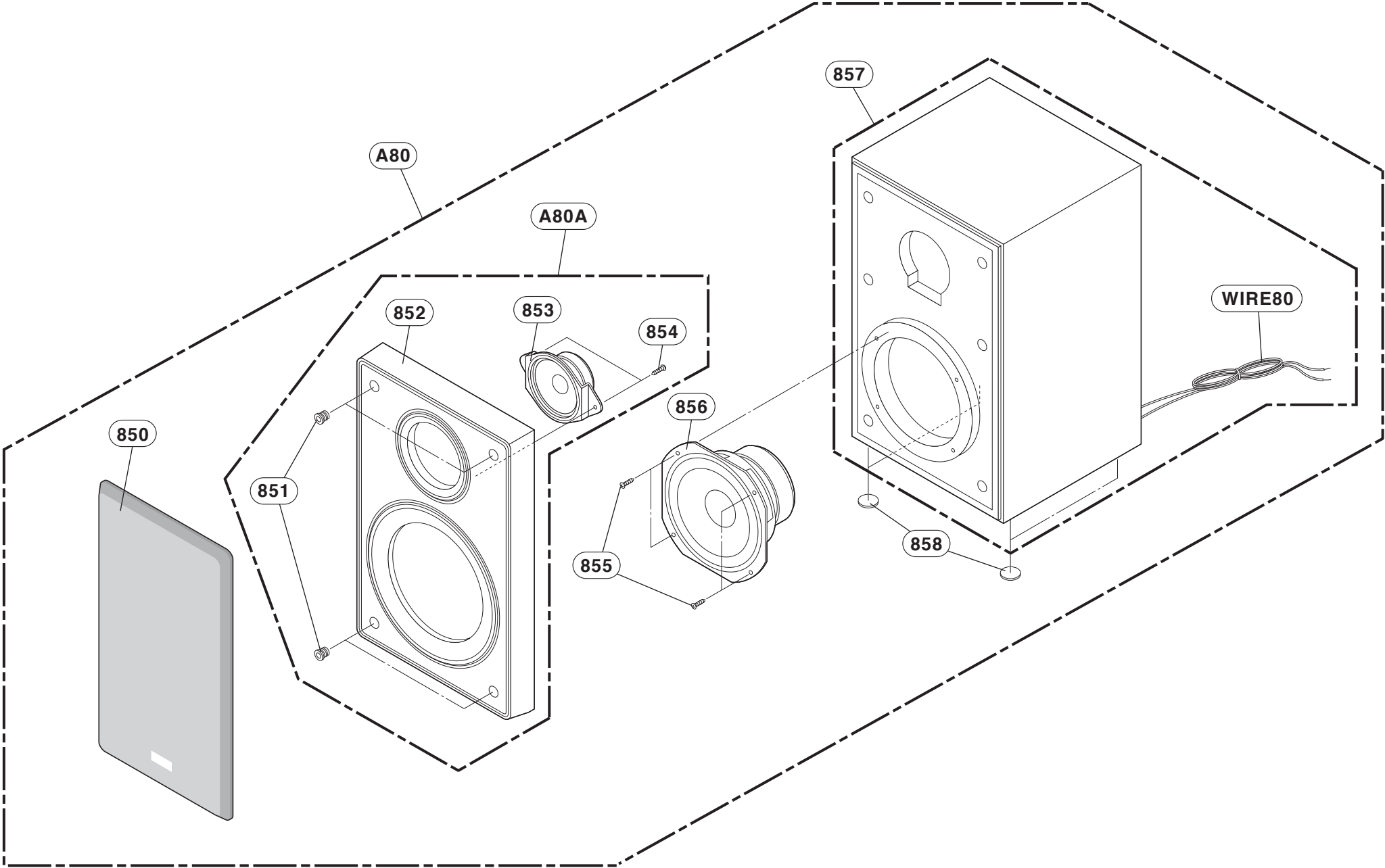


CD MECHANISM (CDM-330) EXPLODED VIEW



**SPEAKER EXPLODED VIEW**

**MODEL : XCS102F**



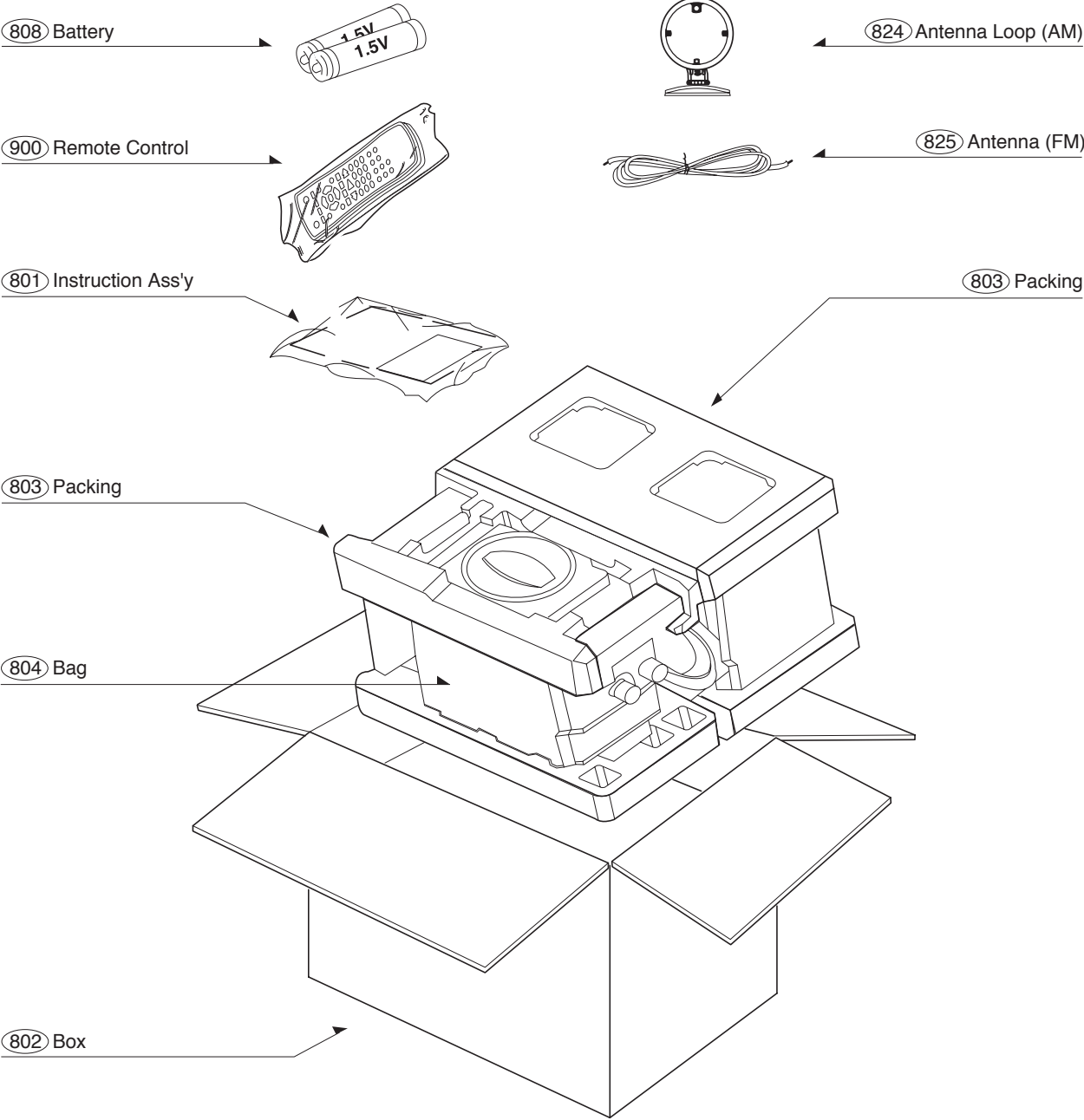
MEMO

Handwriting practice area for page 2-7, featuring 20 horizontal dotted lines.

MEMO

Handwriting practice area for page 2-8, featuring 20 horizontal dotted lines.

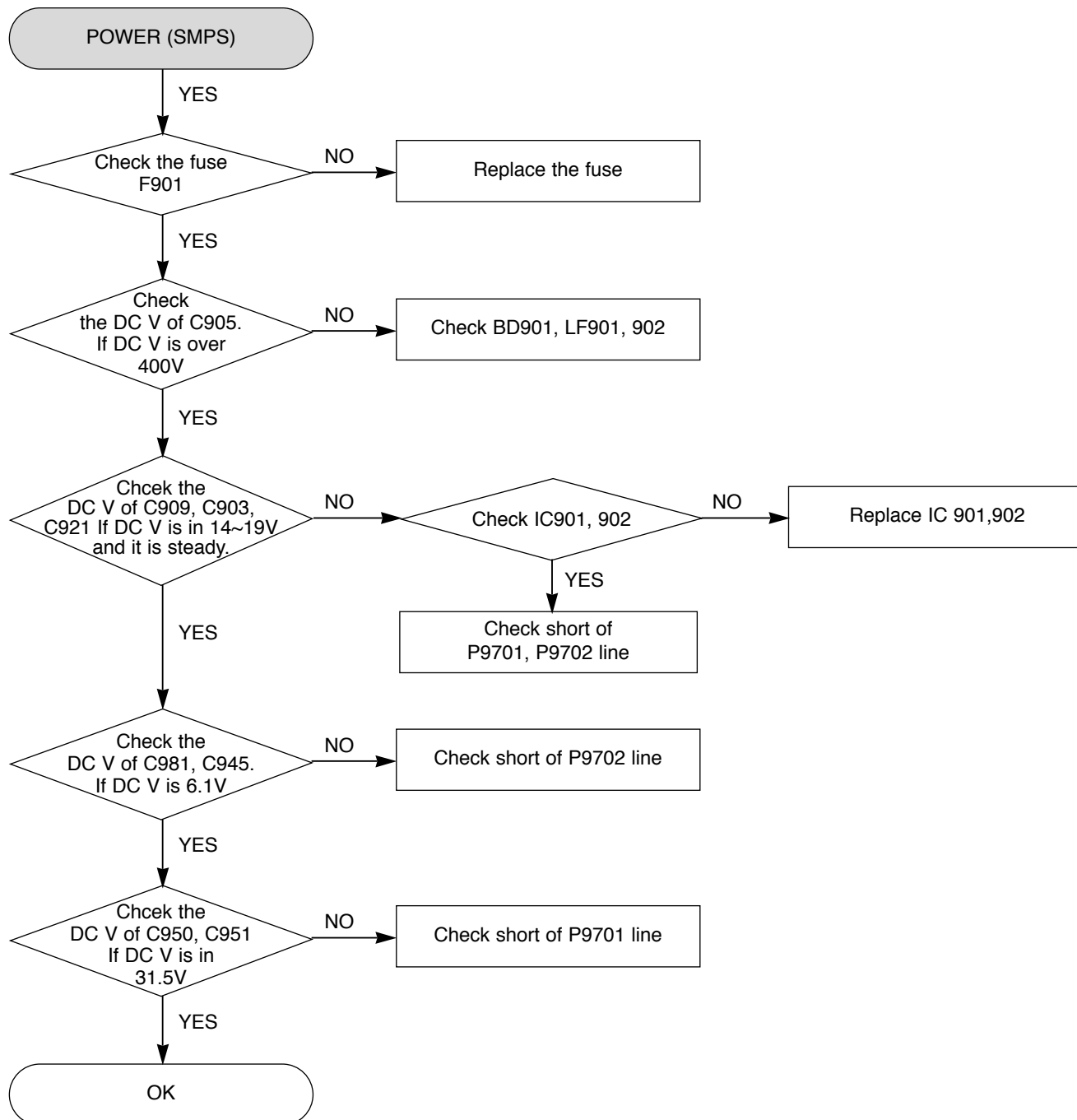
# PACKING ACCESSORY VIEW



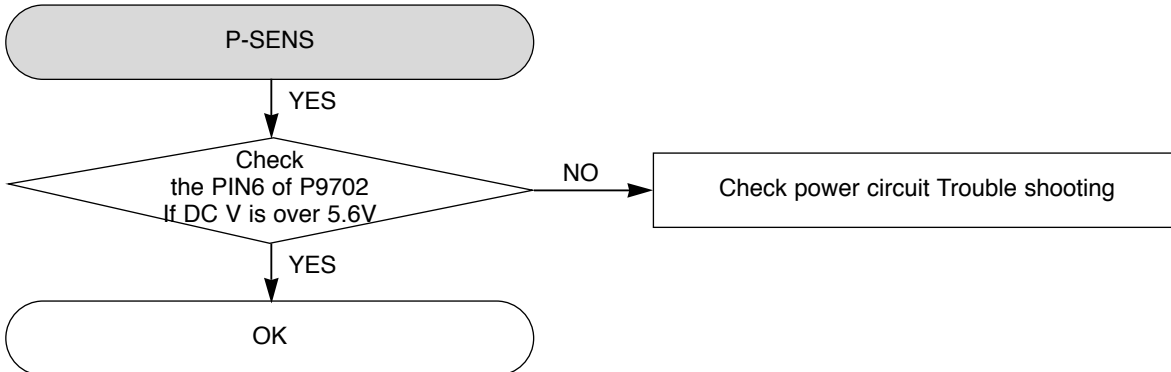
# SECTION 3 AUDIO PART ELECTRICAL

## AUDIO ELECTRICAL TROUBLESHOOTING GUIDE

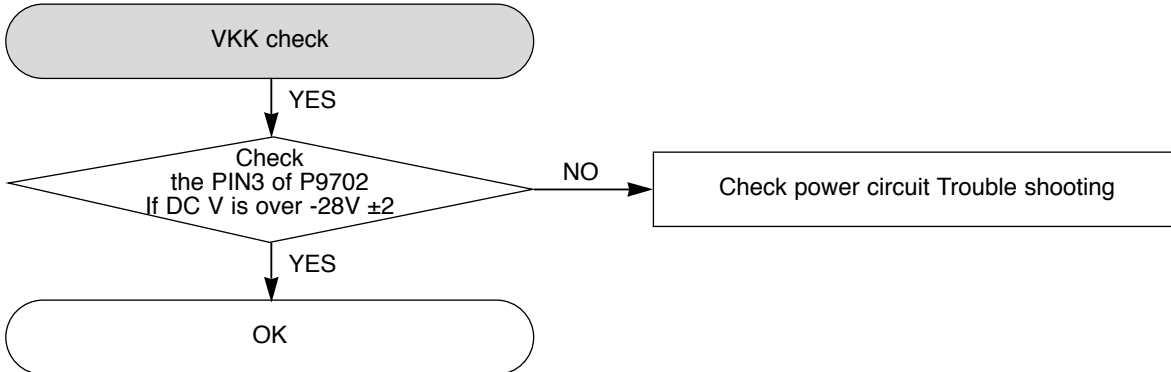
### 1. POWER (SMPS)



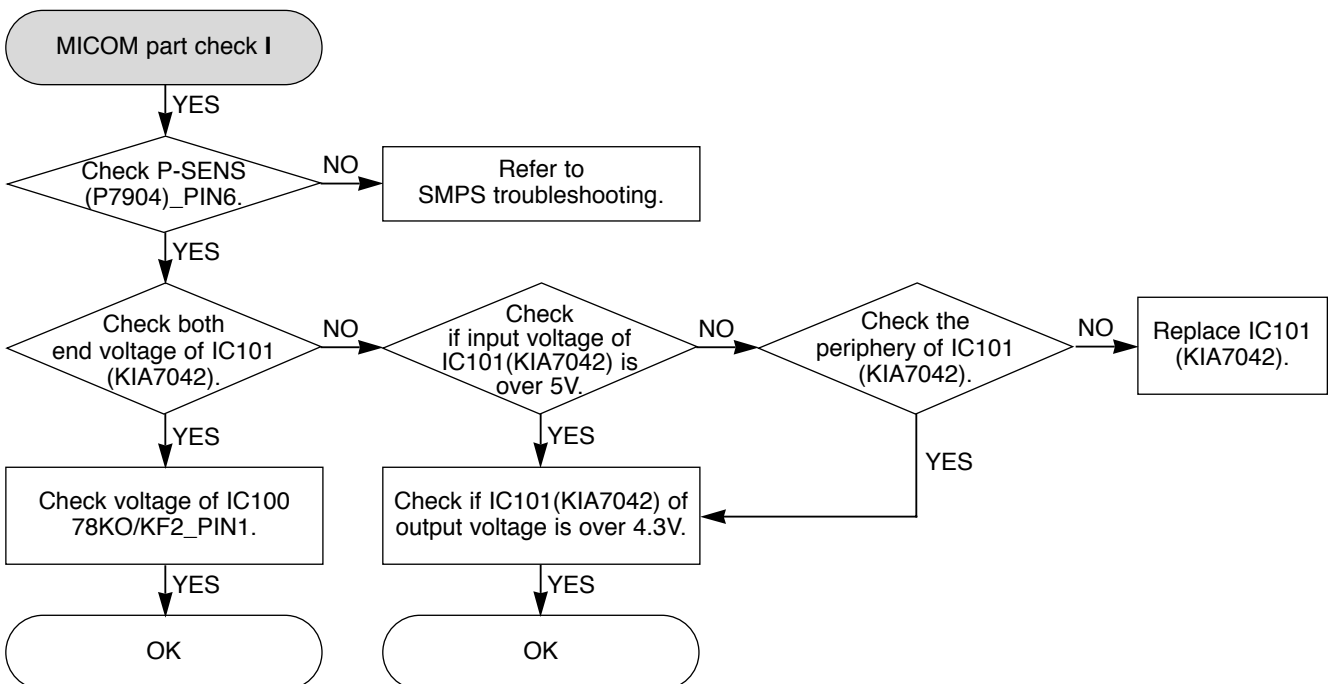
## 2. P-SENS



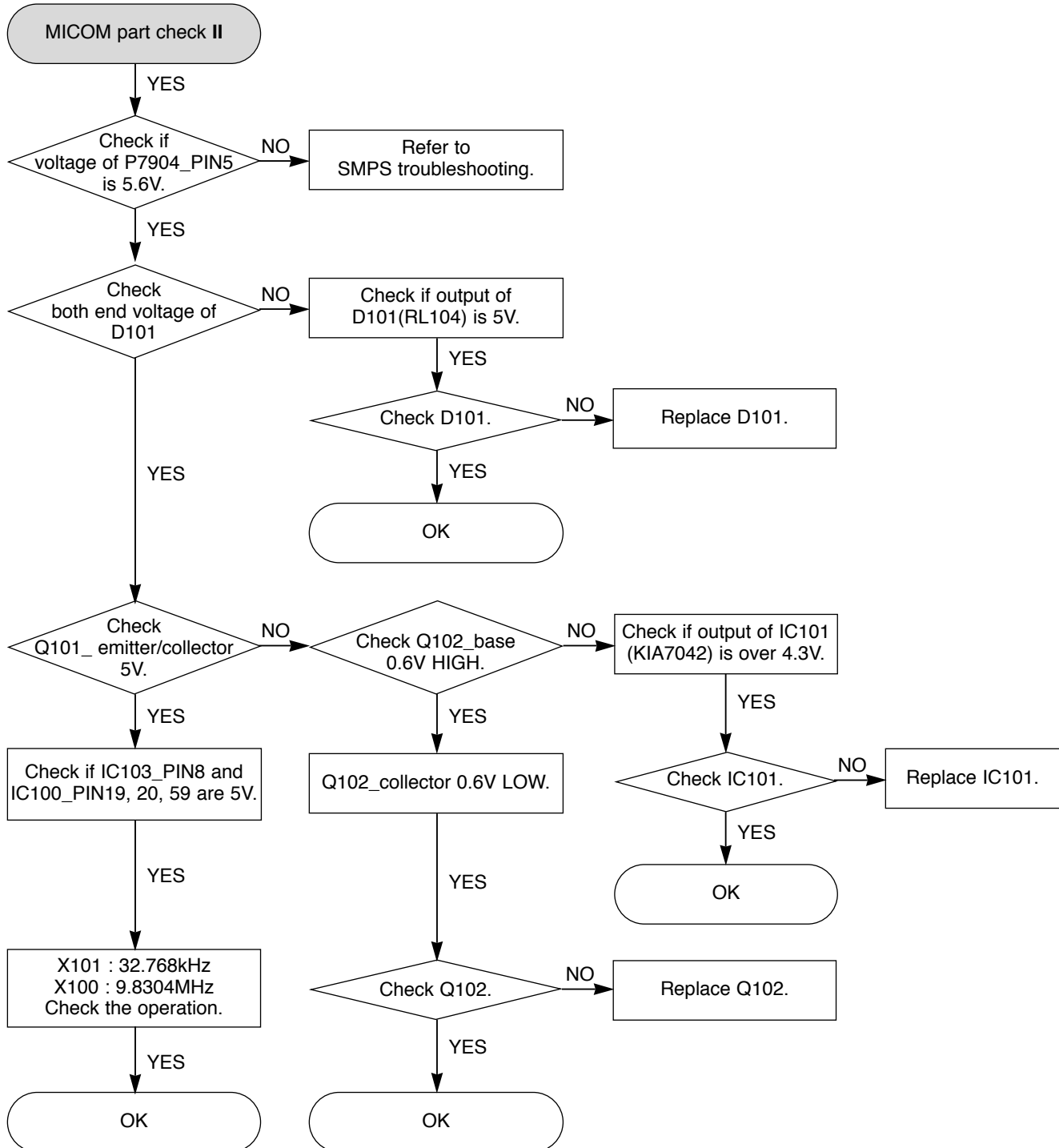
## 3. VKK CHECK



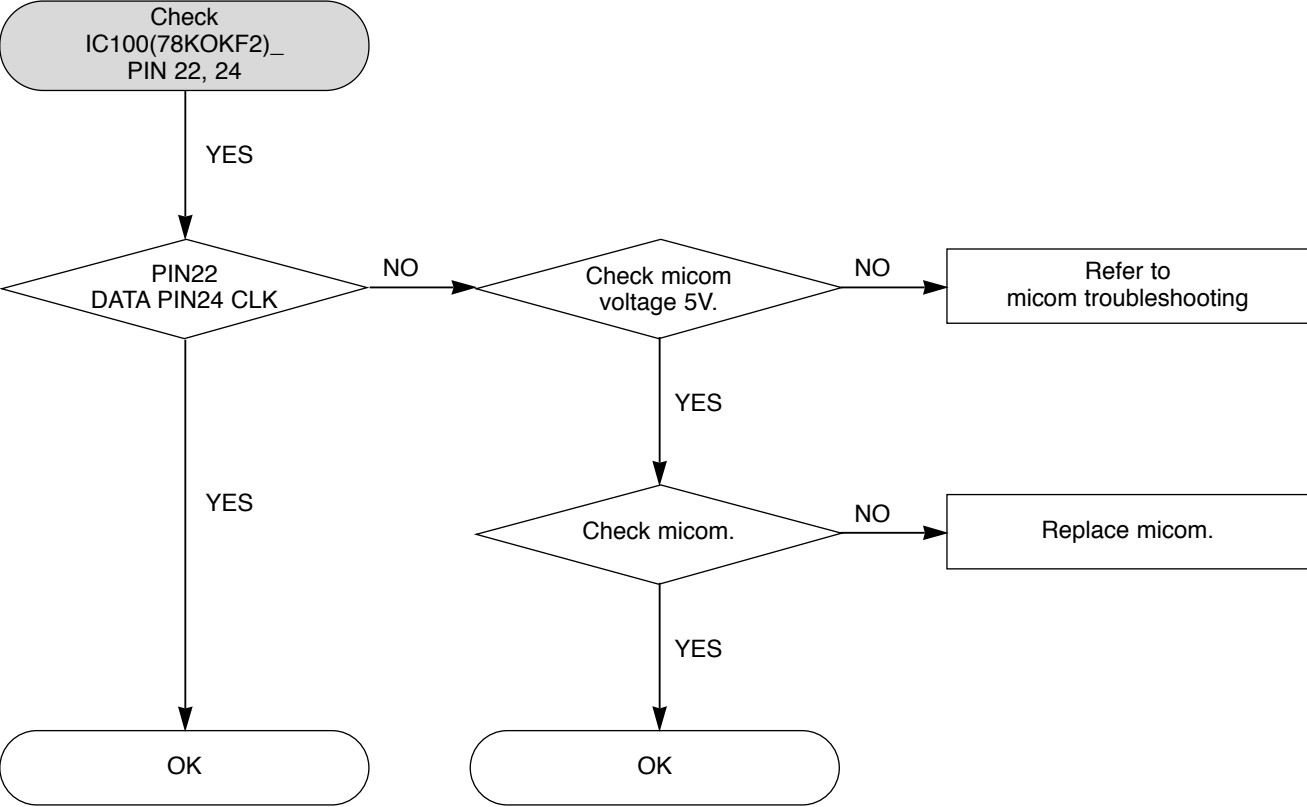
## 4. MICOM PART CHECK I



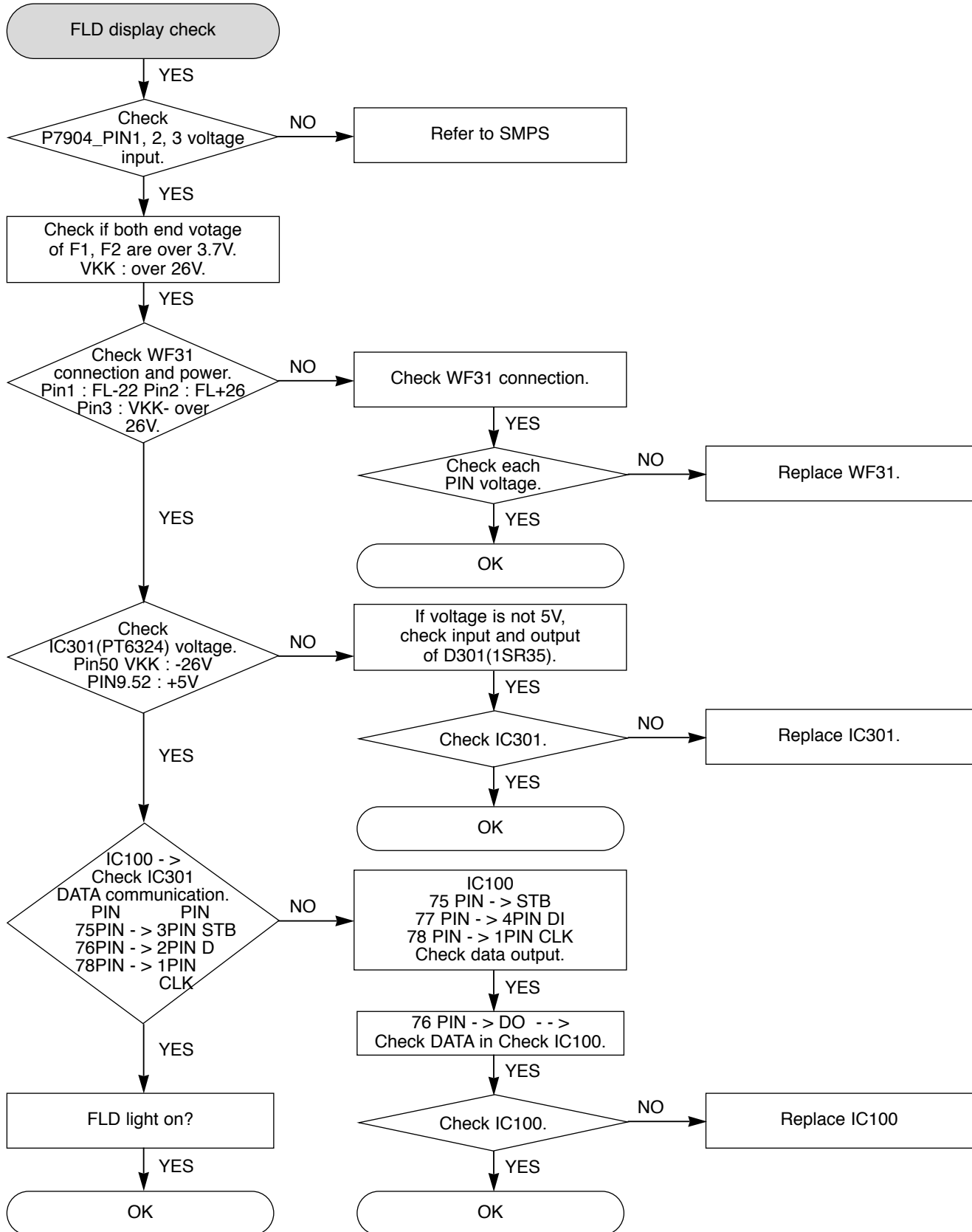
## 5. MICOM PART CHECK II



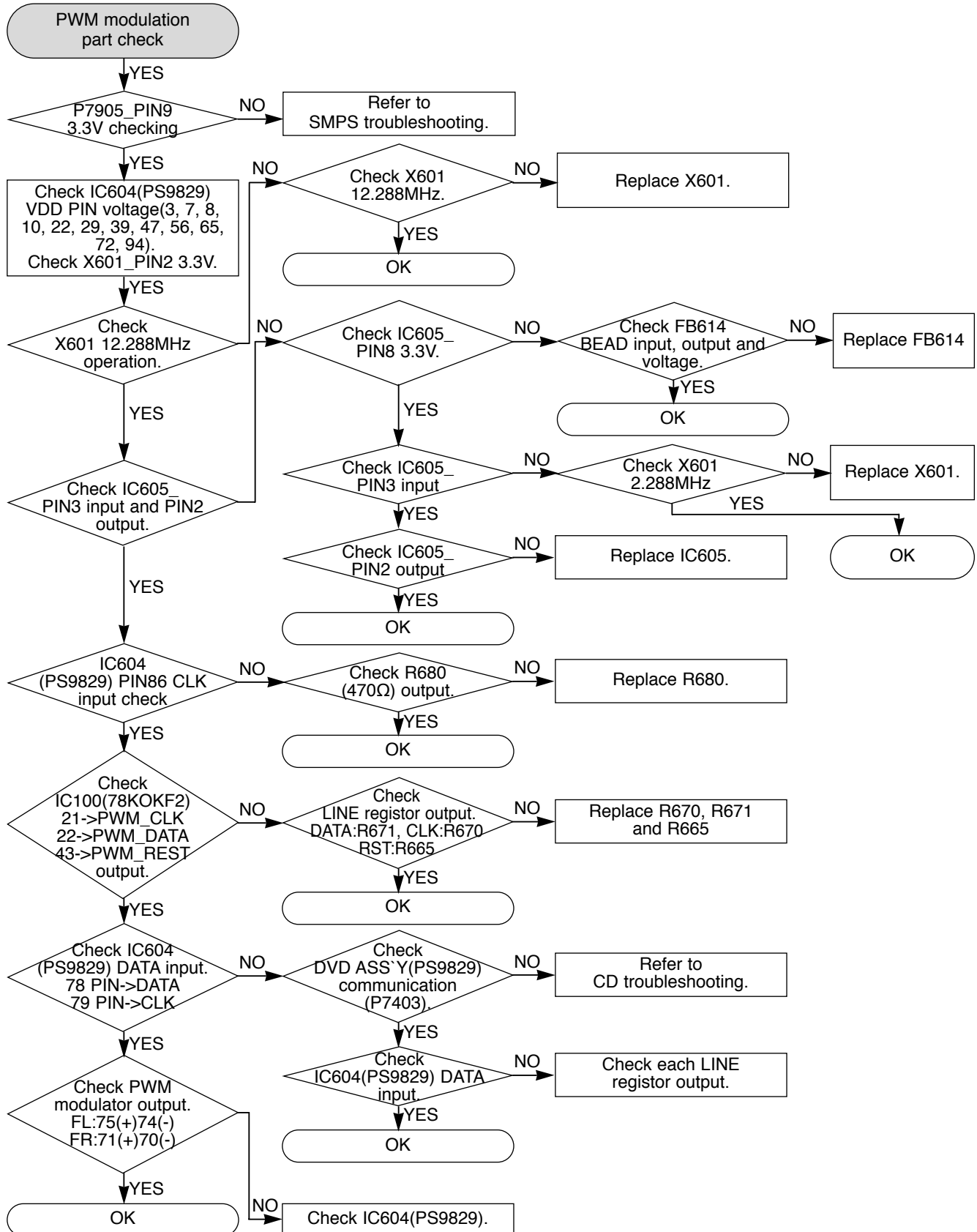
6. IC103(KS4CD21CS) CHECK



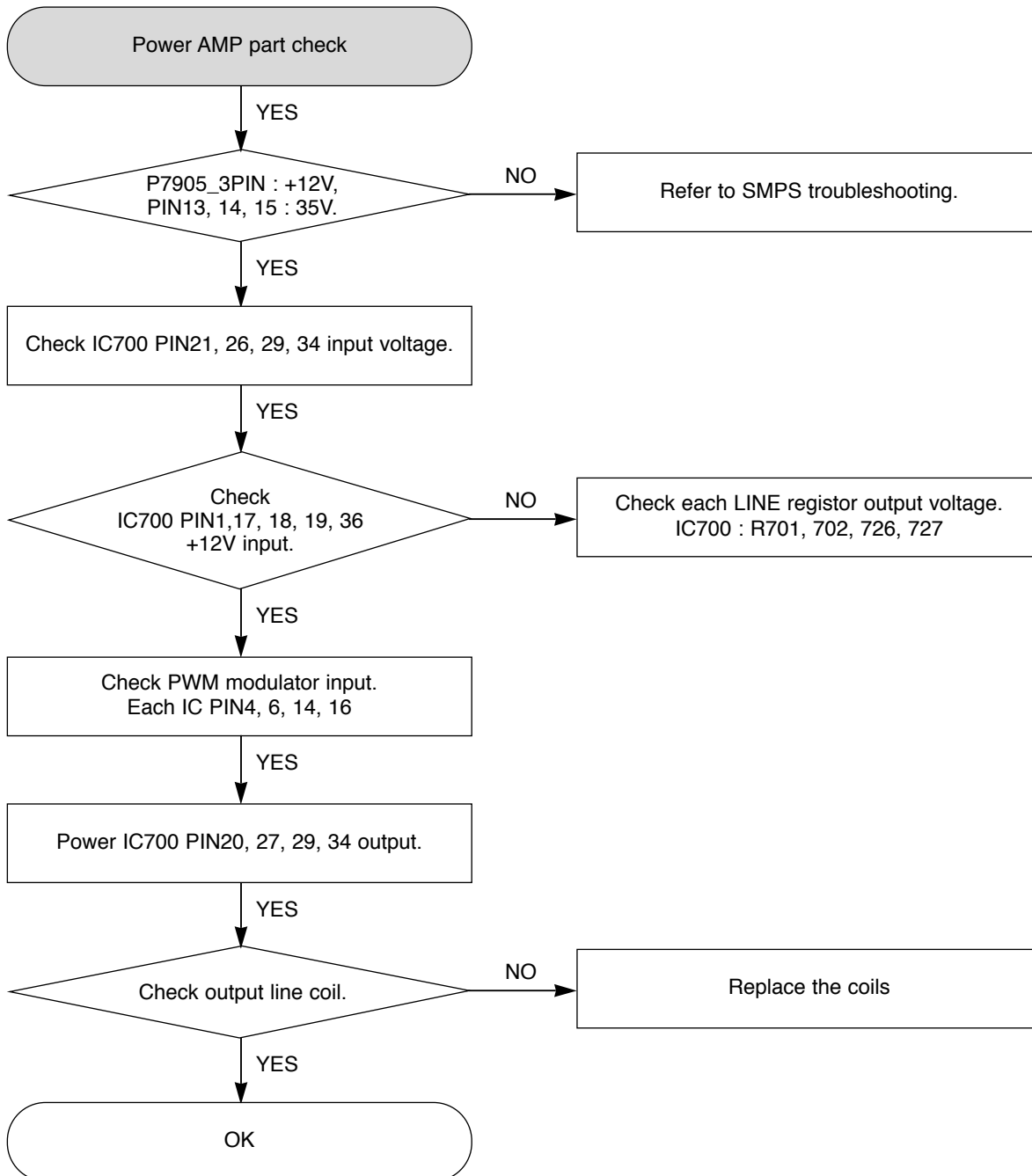
## 7. FLD DISPLAY CHECK



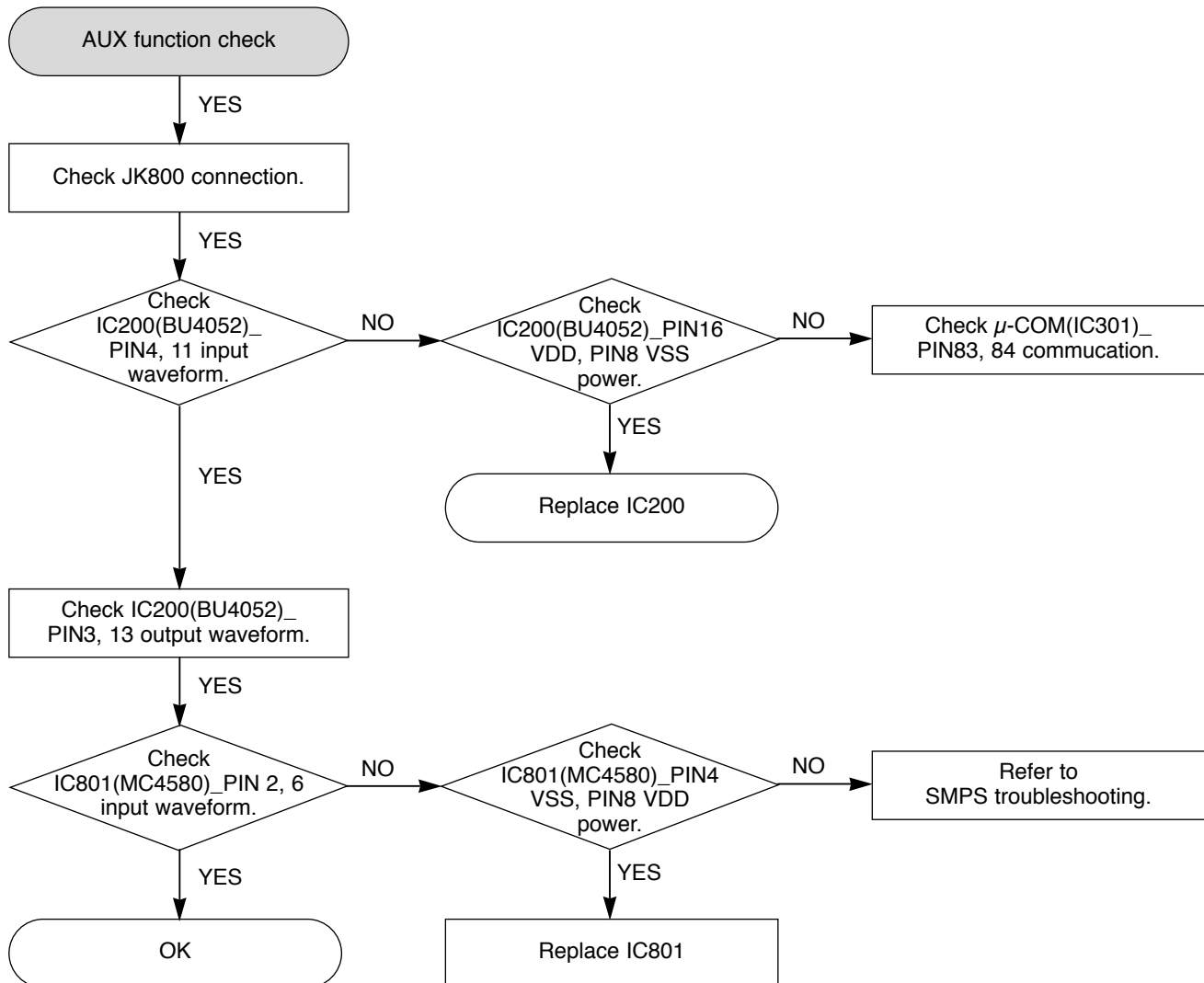
## 8. PWM MODULATION PART CHECK



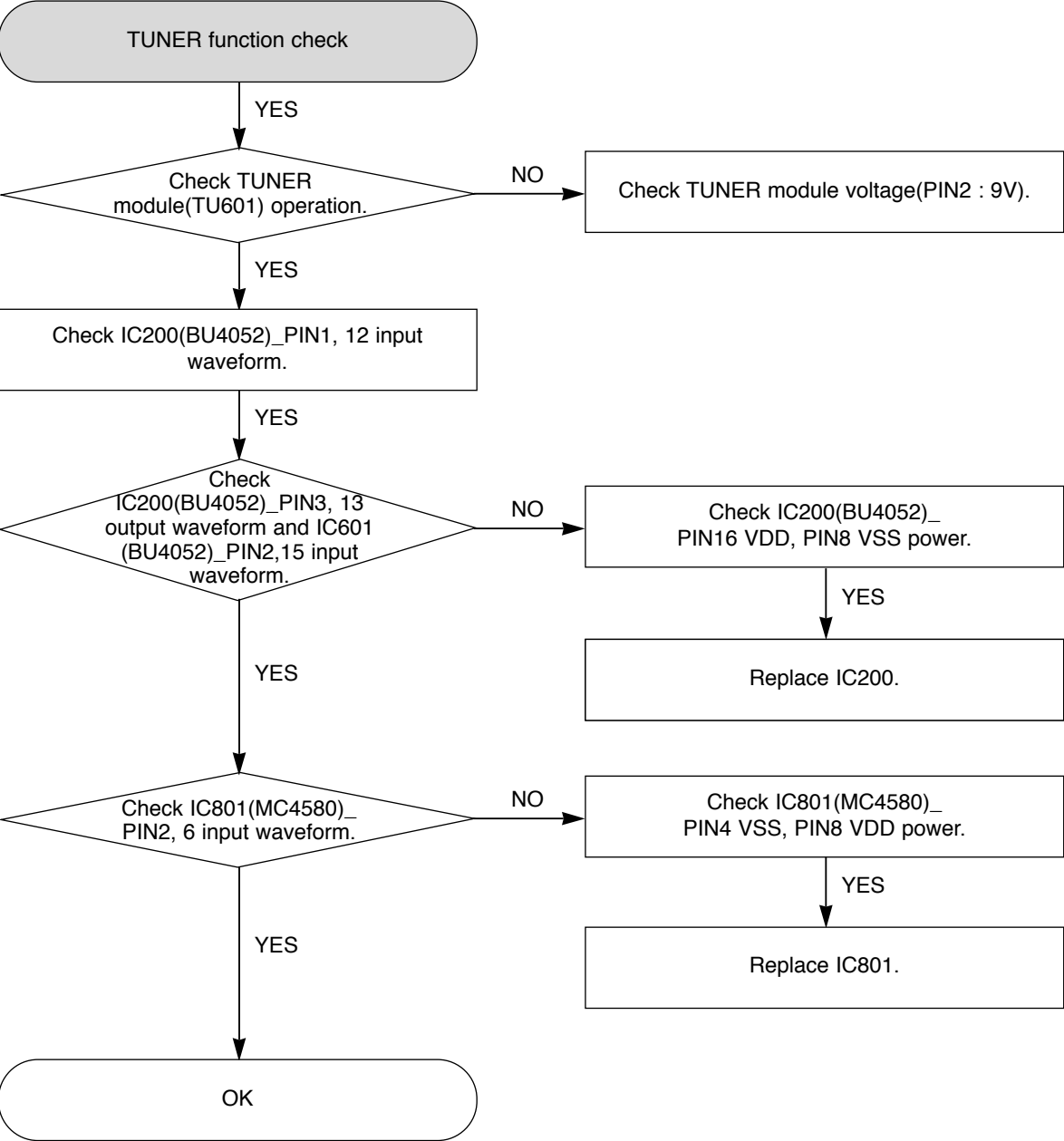
## 9. POWER AMP PART CHECK



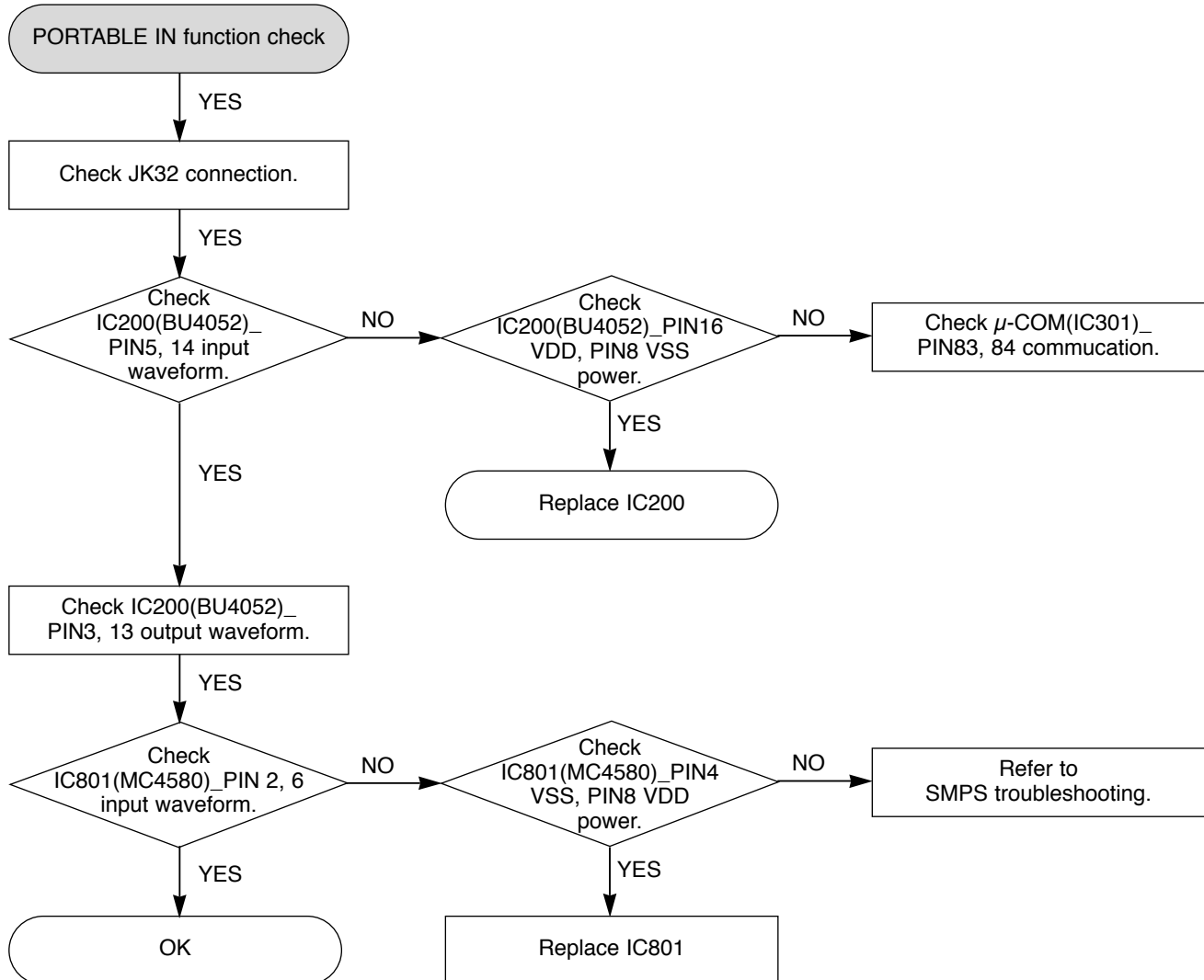
## 10. AUX FUNCTION CHECK



# 11. TUNER FUNCTION CHECK

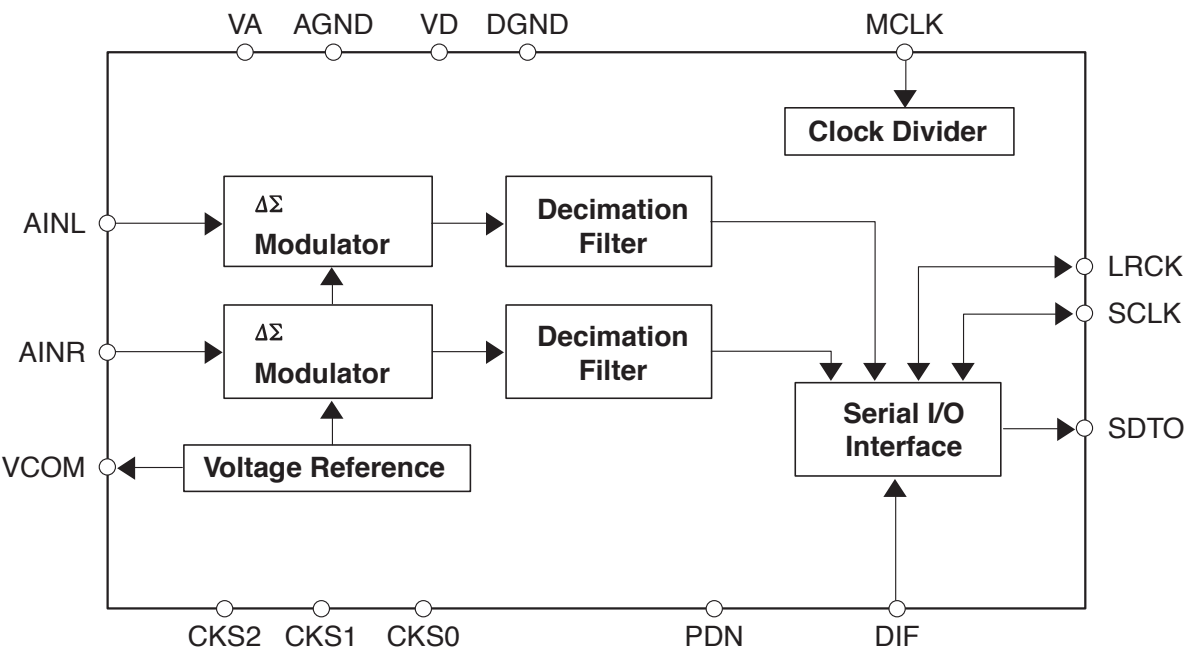


## 12. PORTABLE IN FUNCTION CHECK

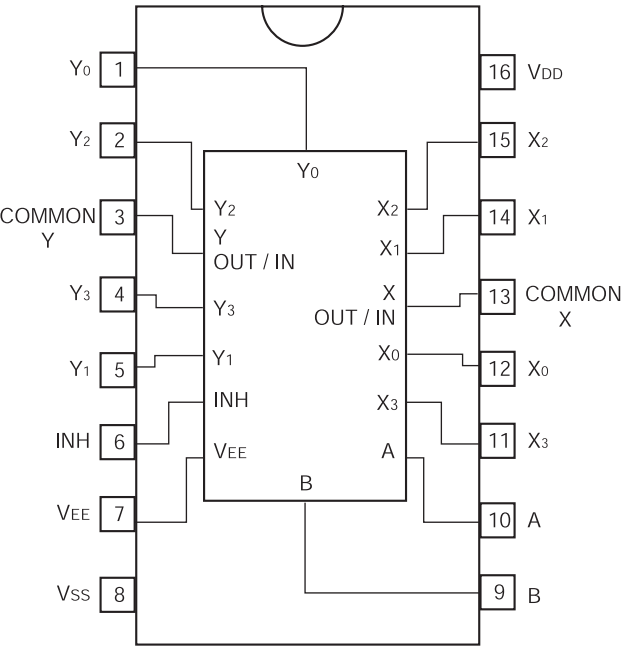


# INTERNAL BLOCK DIAGRAM OF ICs

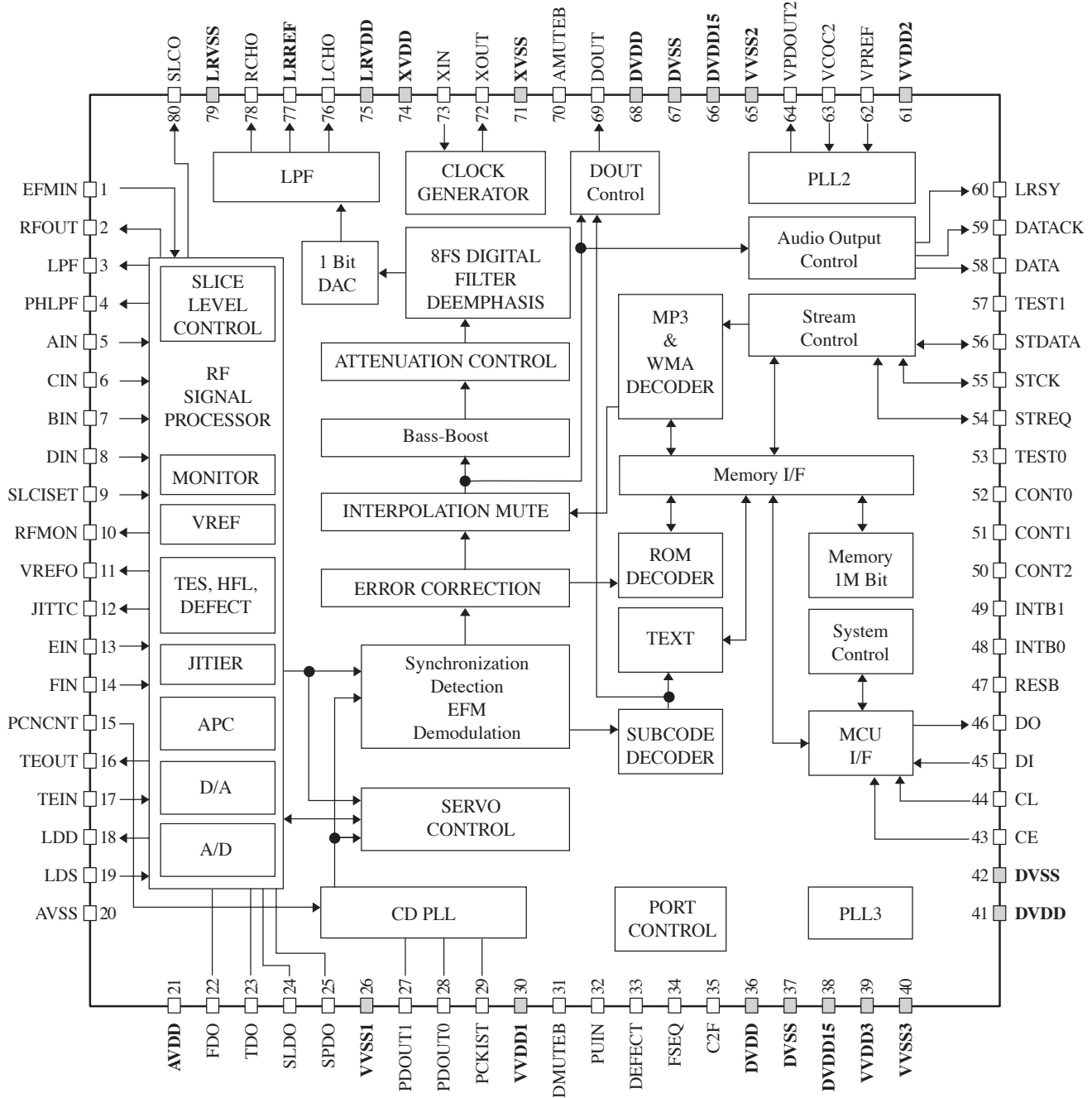
## 1. AK5358



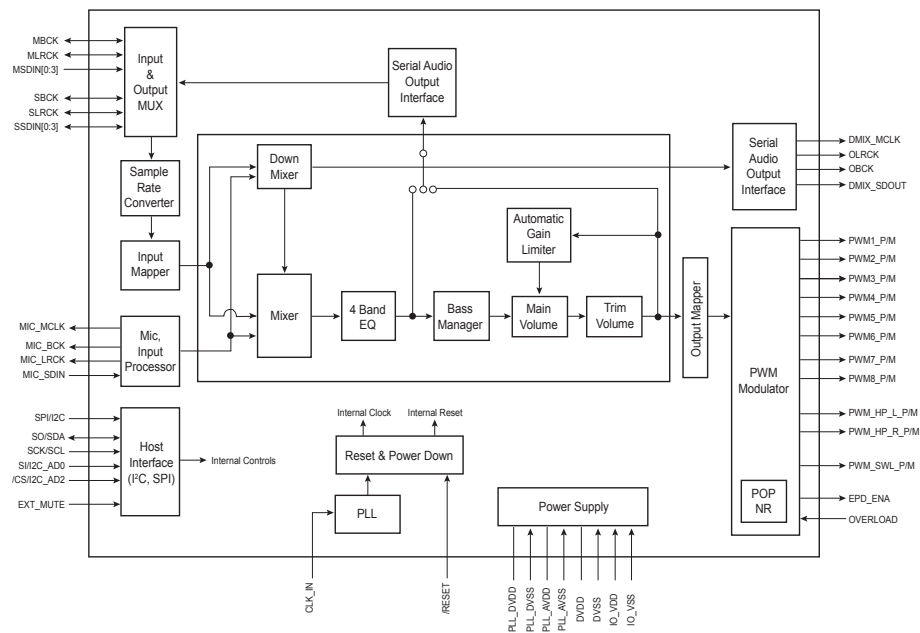
## 2. BU4052



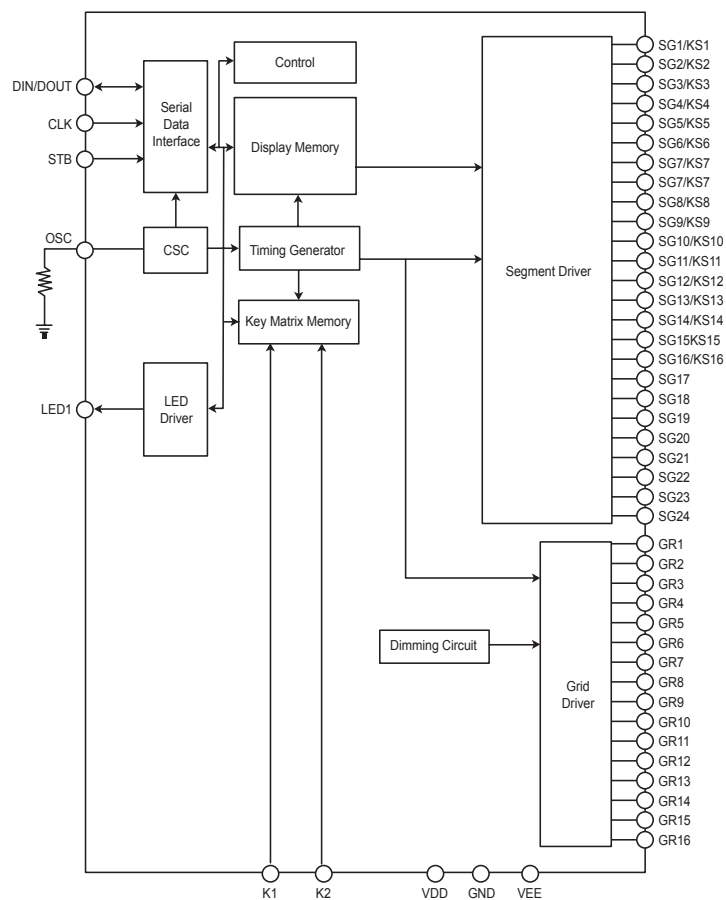
### 3. LC78692NW



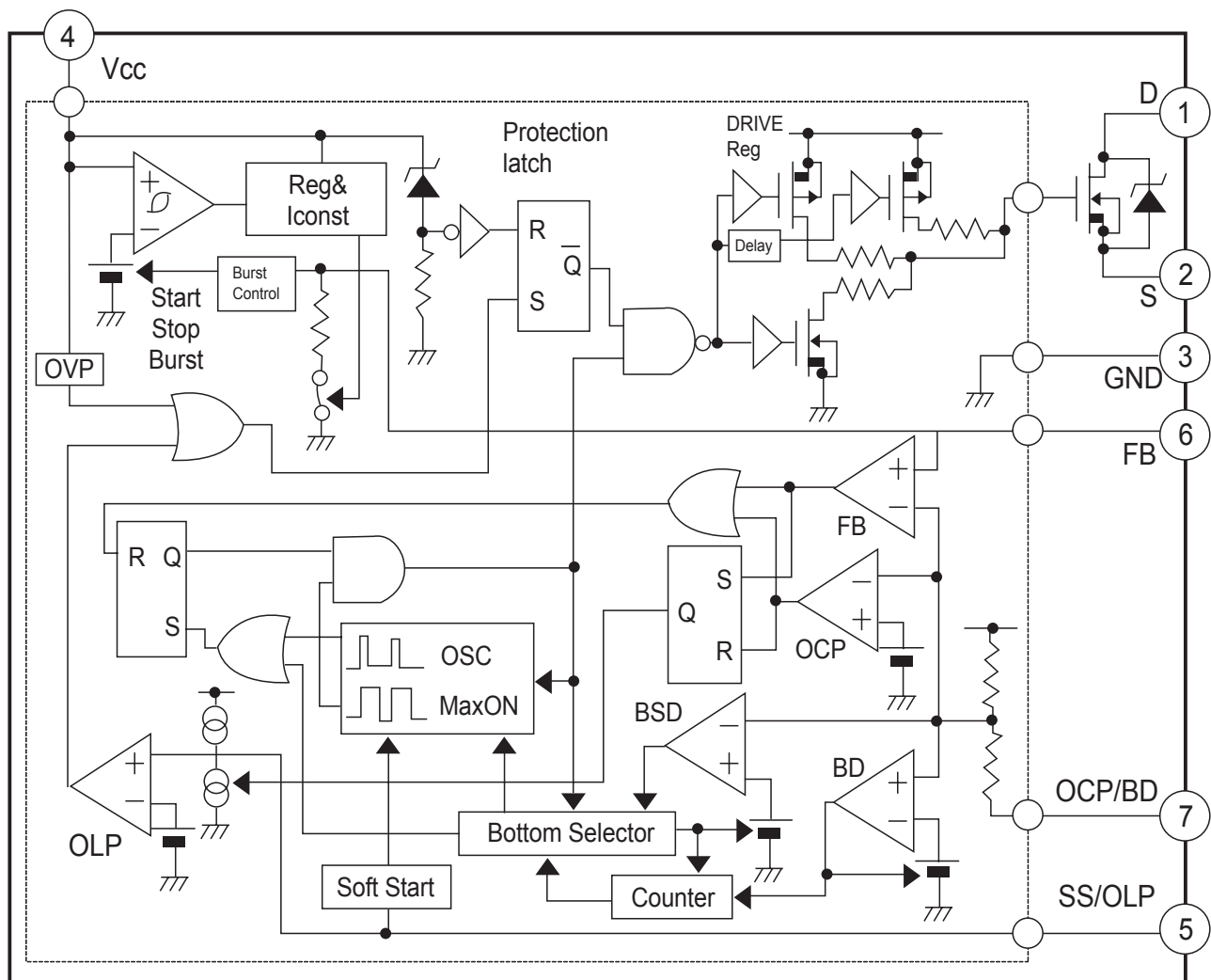
4. PS9829B



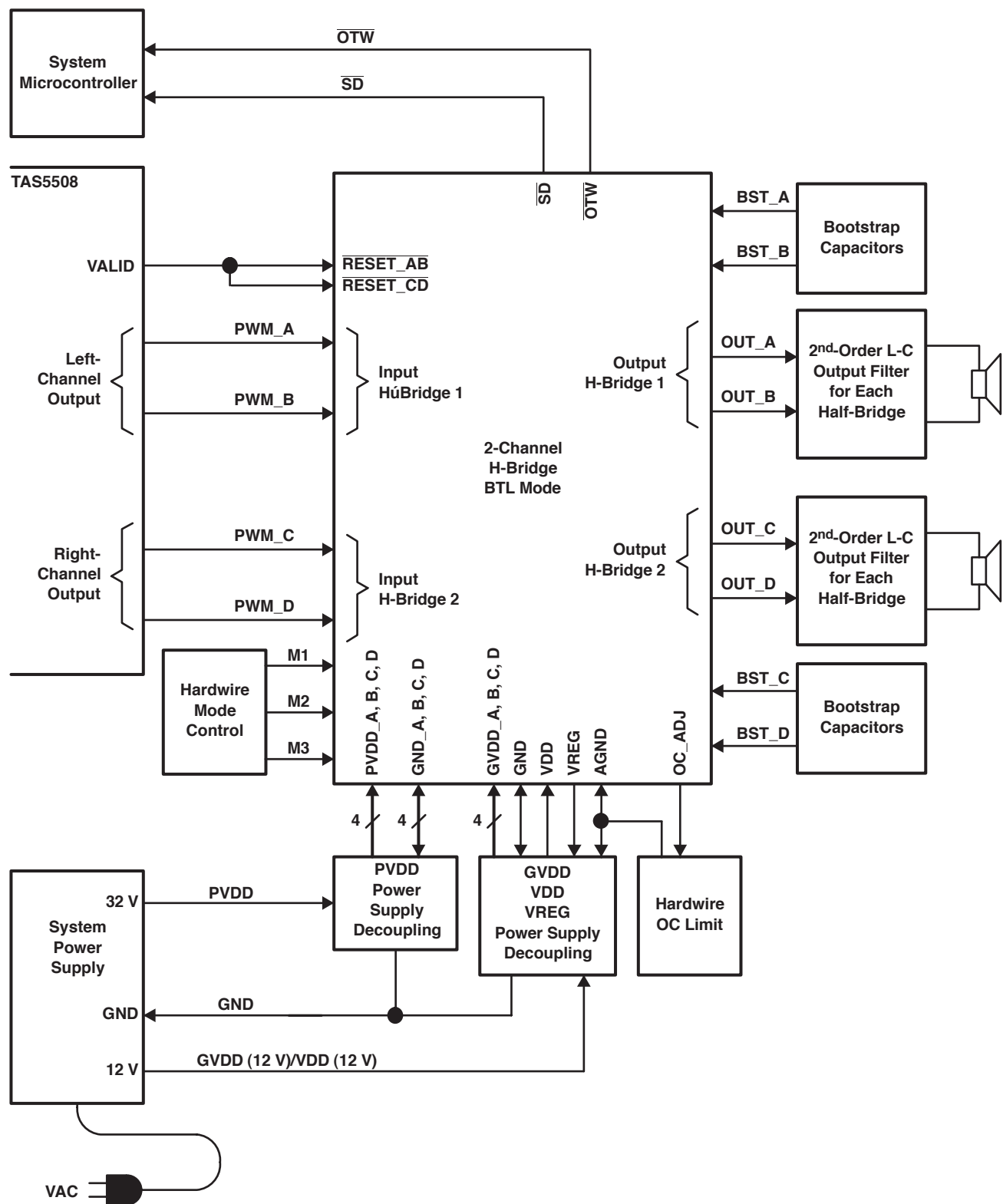
5. PT6324



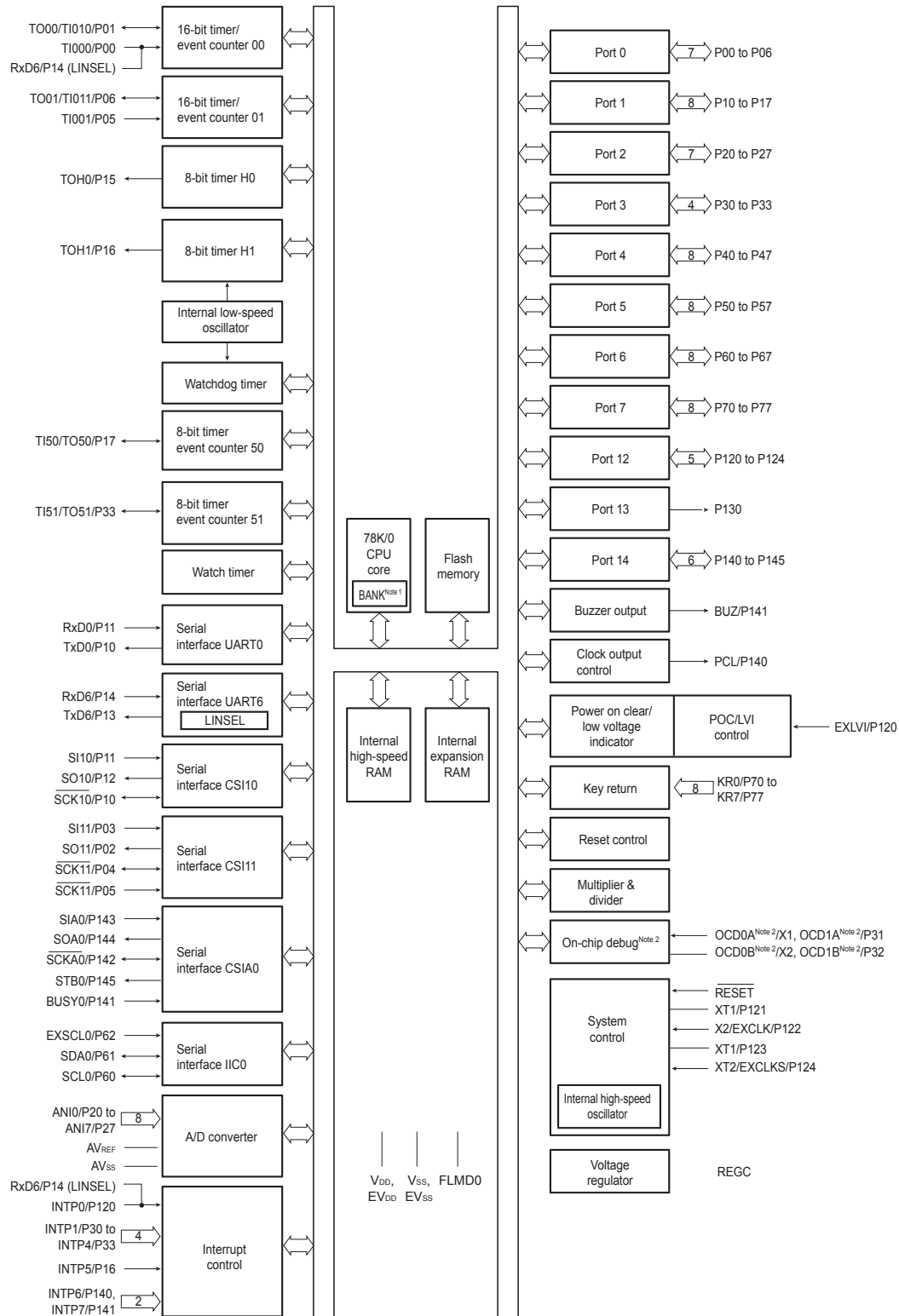
## 6. STR-W6753



7. TAS5142

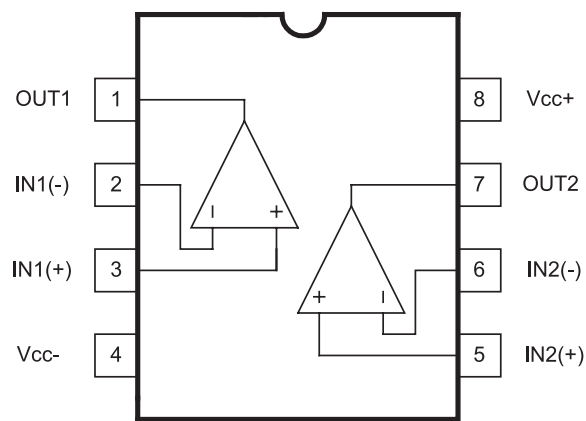


8. U1739EJ2V1UD00/KF2\_E

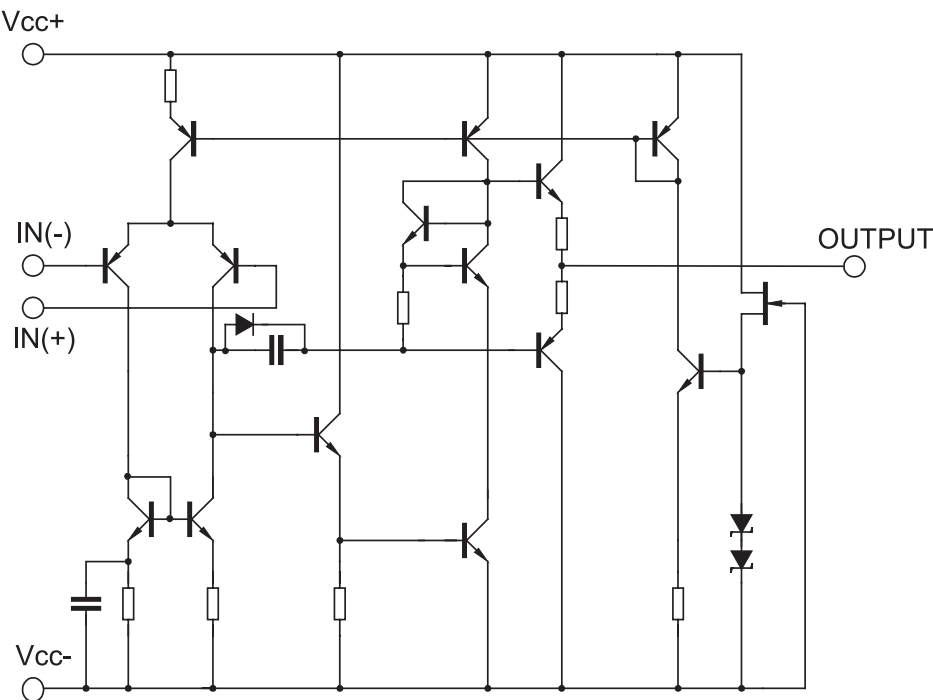


# 9. UTC MC4580

## 9-1. PIN CONFIGURATION

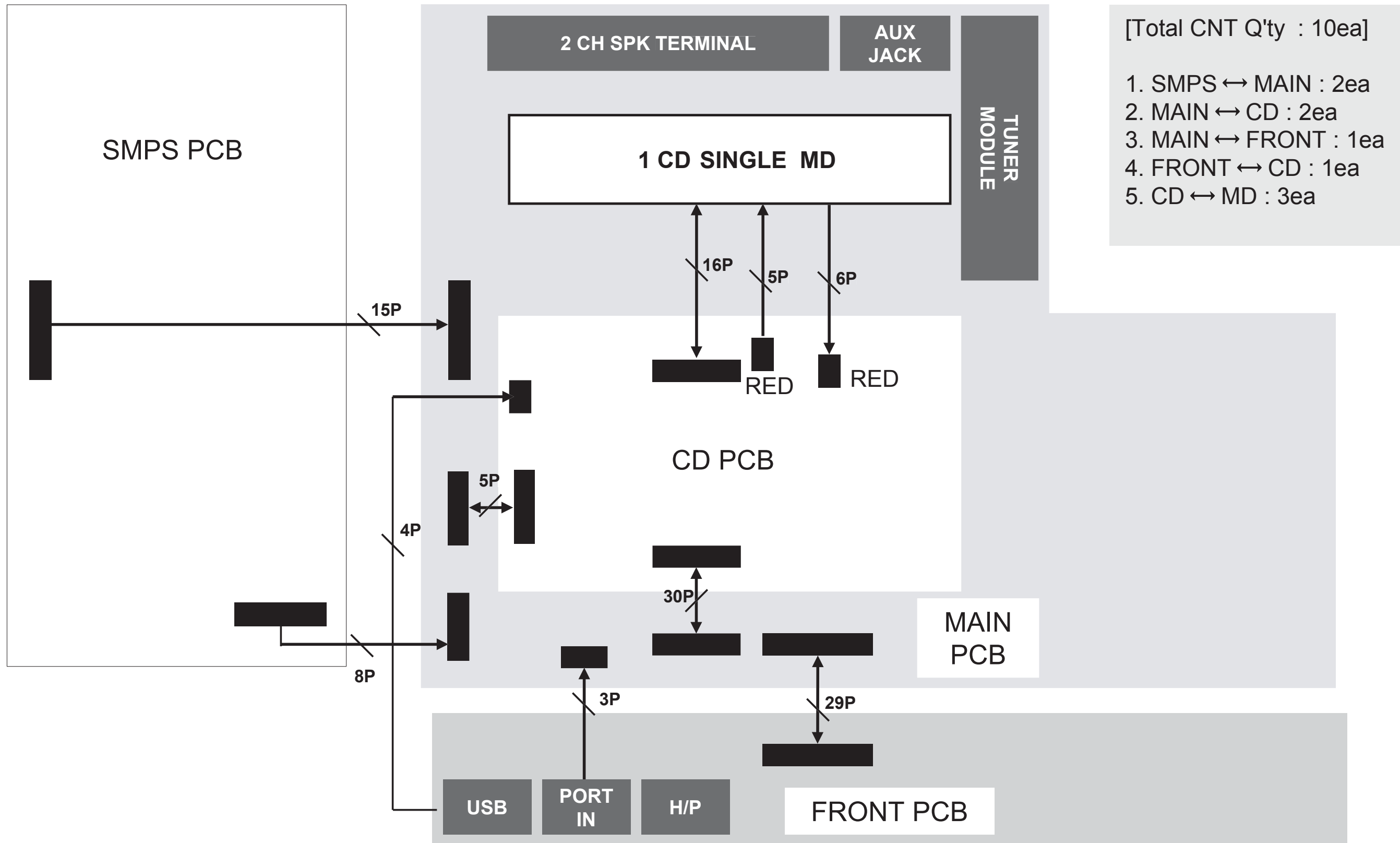


## 9-2. TEST CIRCUIT



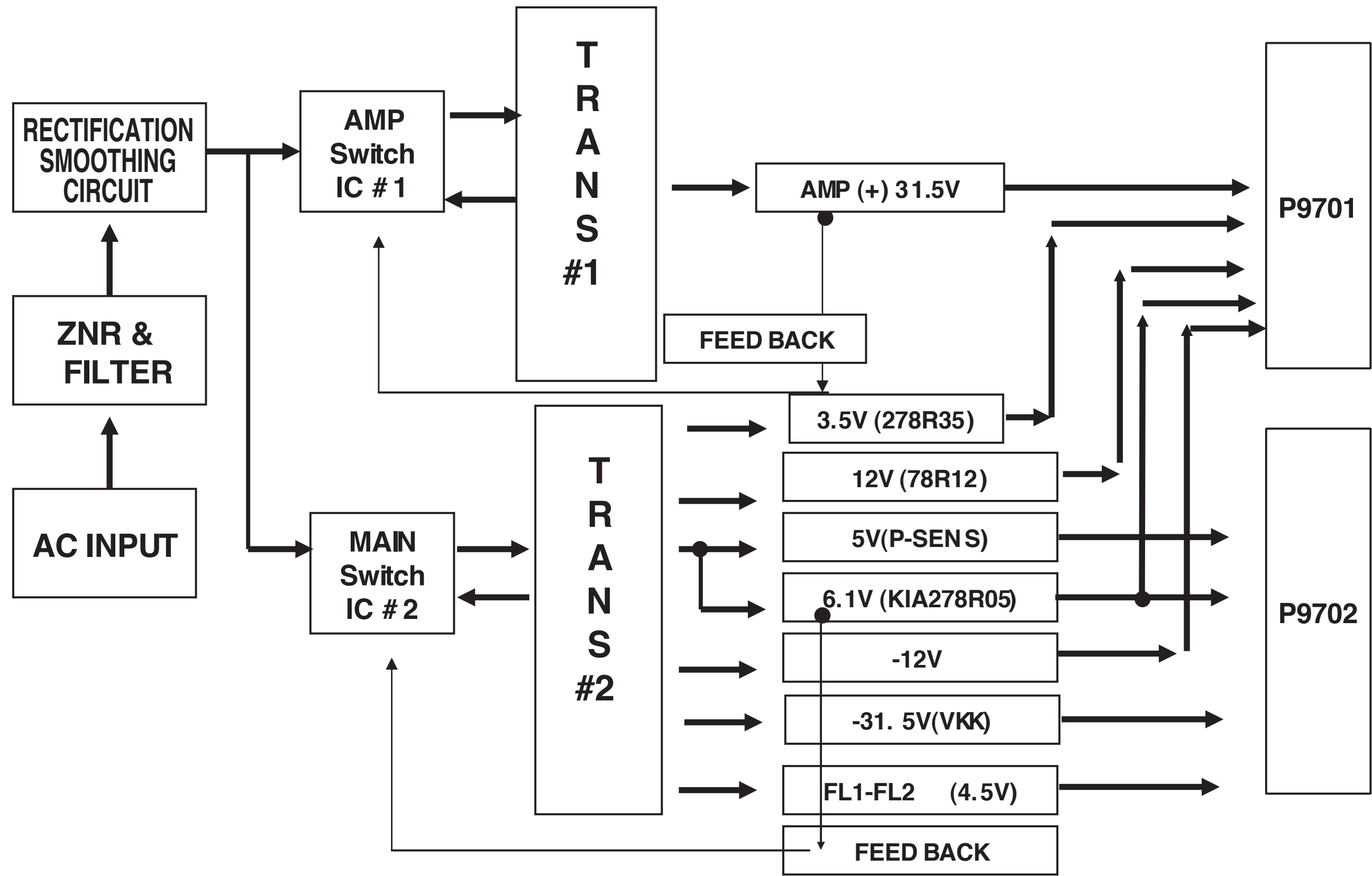
| ABSOLUTE MAXIMUM RATINGS (Ta=25 C) |                                |                                            |      |
|------------------------------------|--------------------------------|--------------------------------------------|------|
| PARAMETER                          | SYMBOL                         | RATINGS                                    | UNIT |
| Supply Voltage                     | V <sup>+</sup> /V <sup>-</sup> | ± 18                                       | V    |
| Input Voltage                      | V <sub>IC</sub>                | ± 15                                       | V    |
| Differential Input Voltage         | V <sub>ID</sub>                | ± 30                                       | V    |
| Output Current                     | I <sub>O</sub>                 | ± 50                                       | mA   |
| Power Dissipation                  | P <sub>D</sub>                 | 300 (SOP-8)<br>800 (DIP-8)<br>250(TSSOP-8) | mW   |
| Operating Temperature Range        | T <sub>opr</sub>               | -40 to+85                                  | °C   |
| Storage Temperature Range          | T <sub>stg</sub>               | -40 to +125                                | °C   |

WIRING DIAGRAM

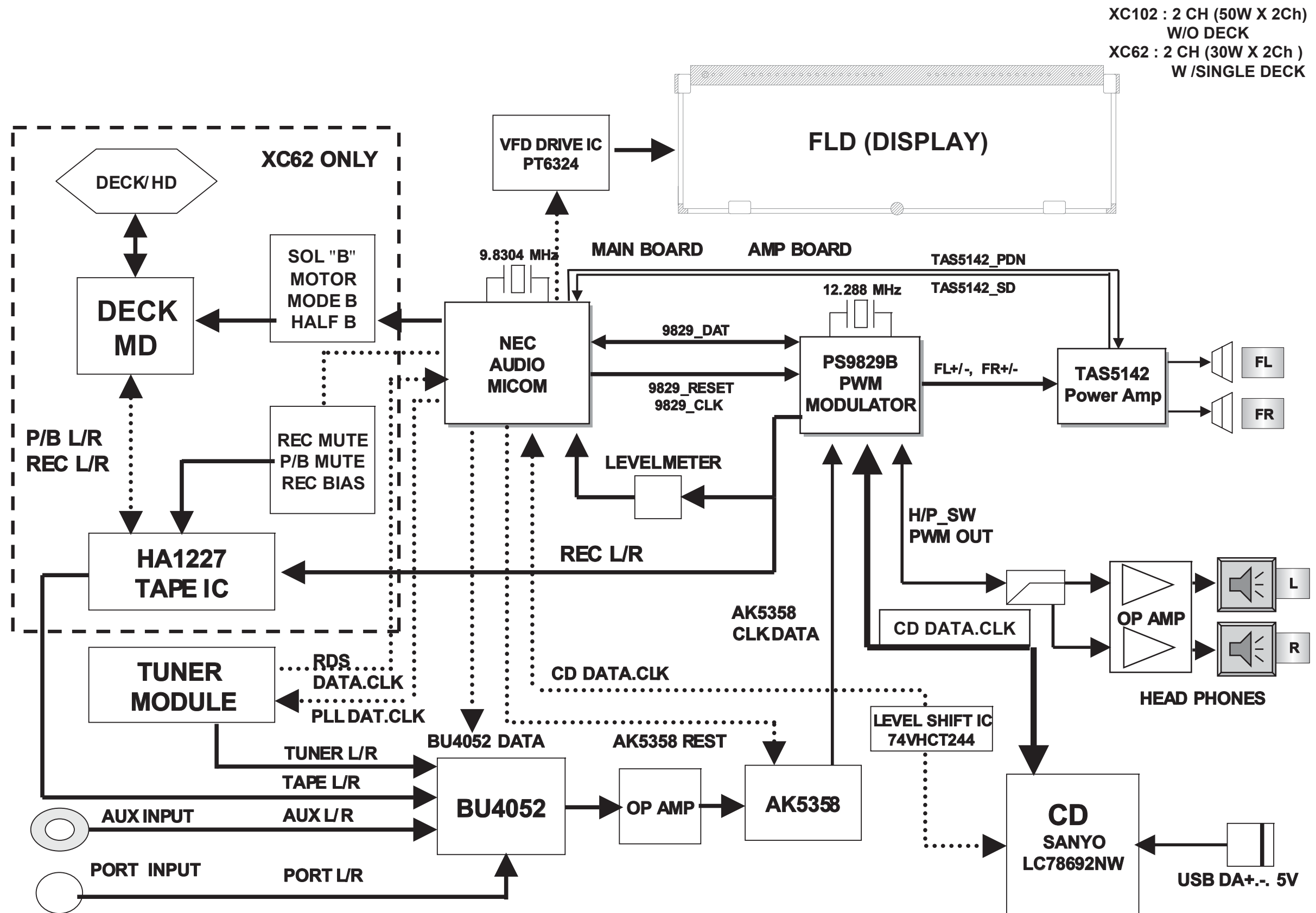


**BLOCK DIAGRAMS**

**1. SMPS BLOCK DIAGRAM**



## 2. MAIN & FRONT BLOCK DIAGRAM

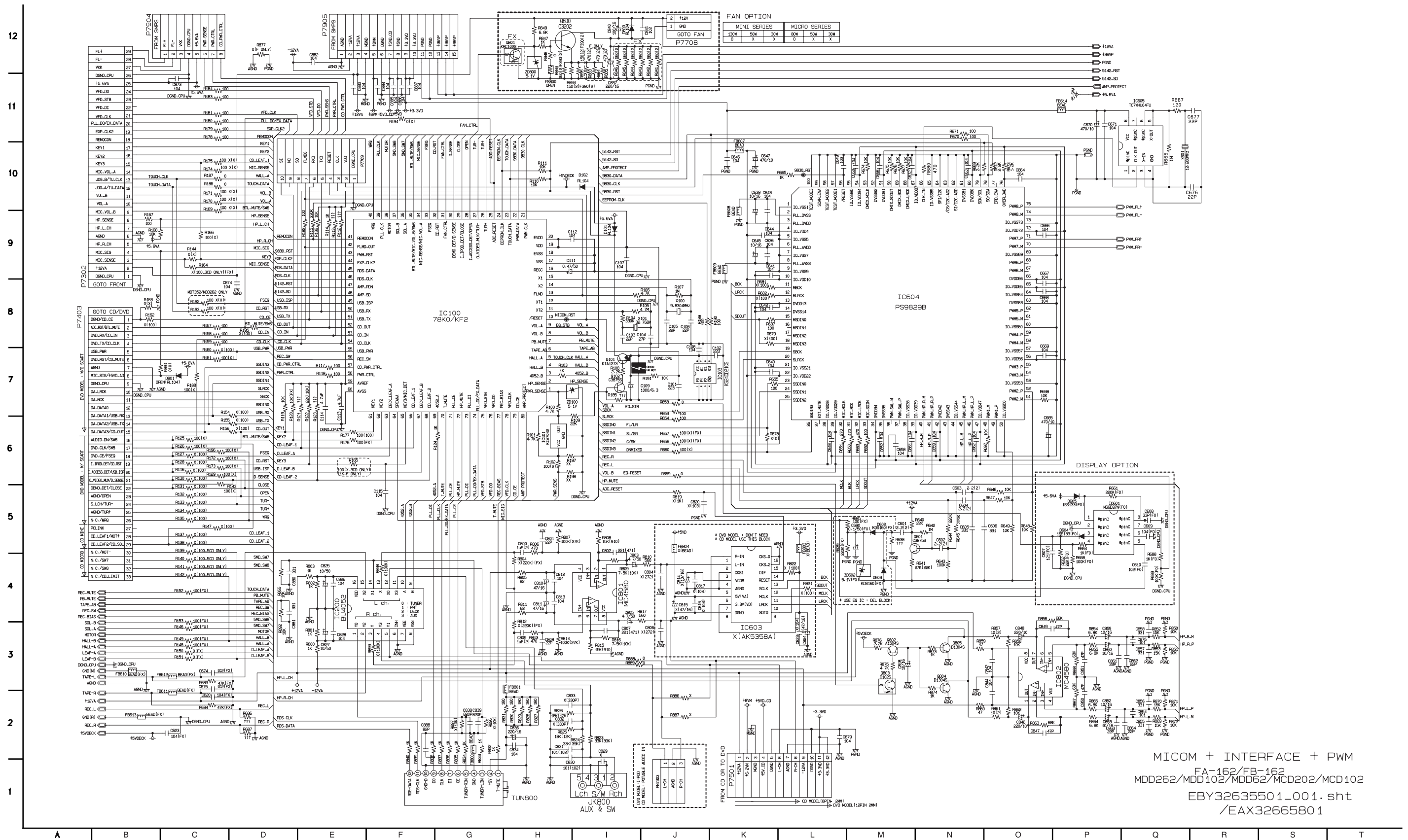


## 1. SMPS SCHEMATIC DIAGRAM

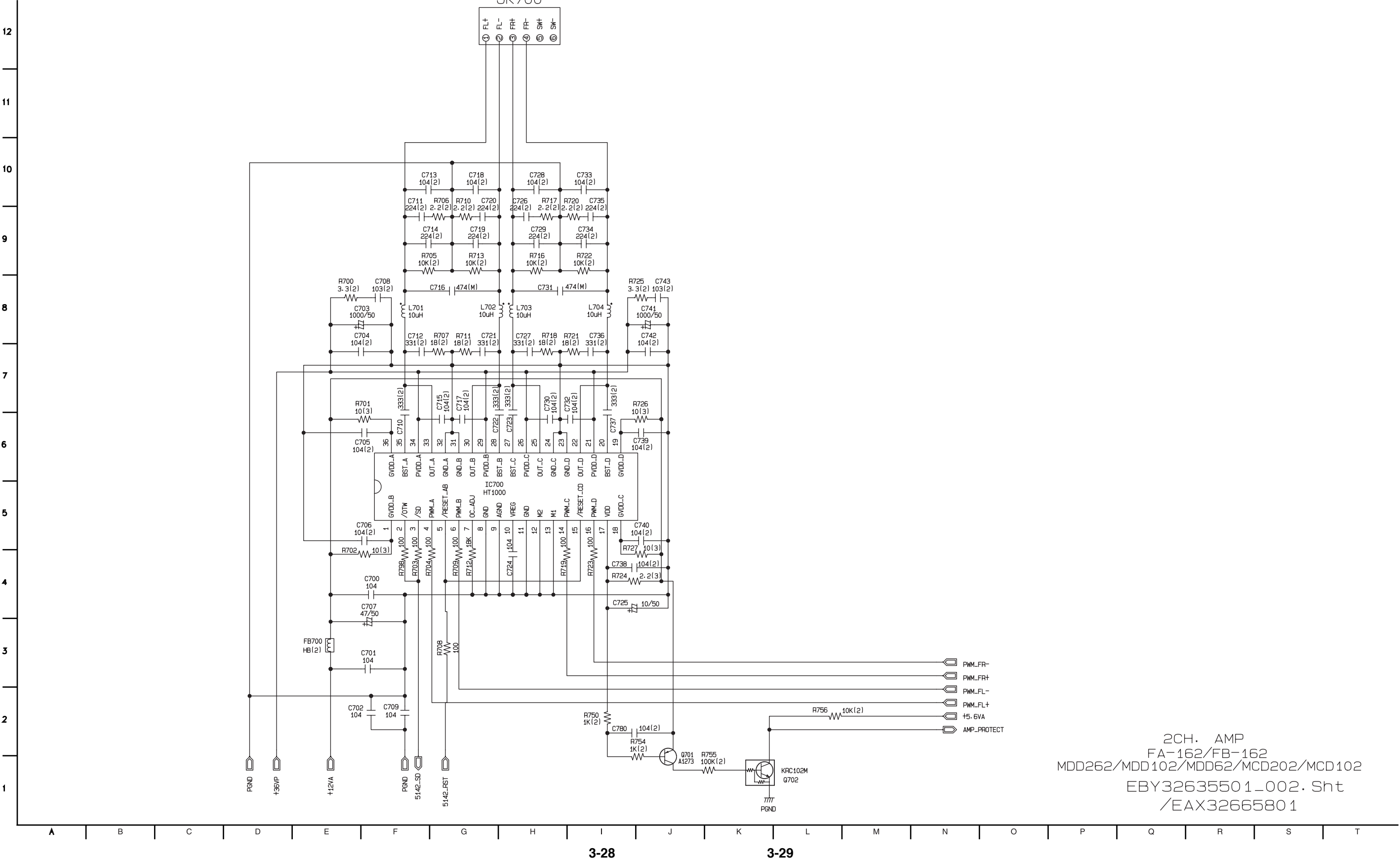
## 1. SMPS SCHEMATIC DIAGRAM



## 2. MAIN SCHEMATIC DIAGRAM

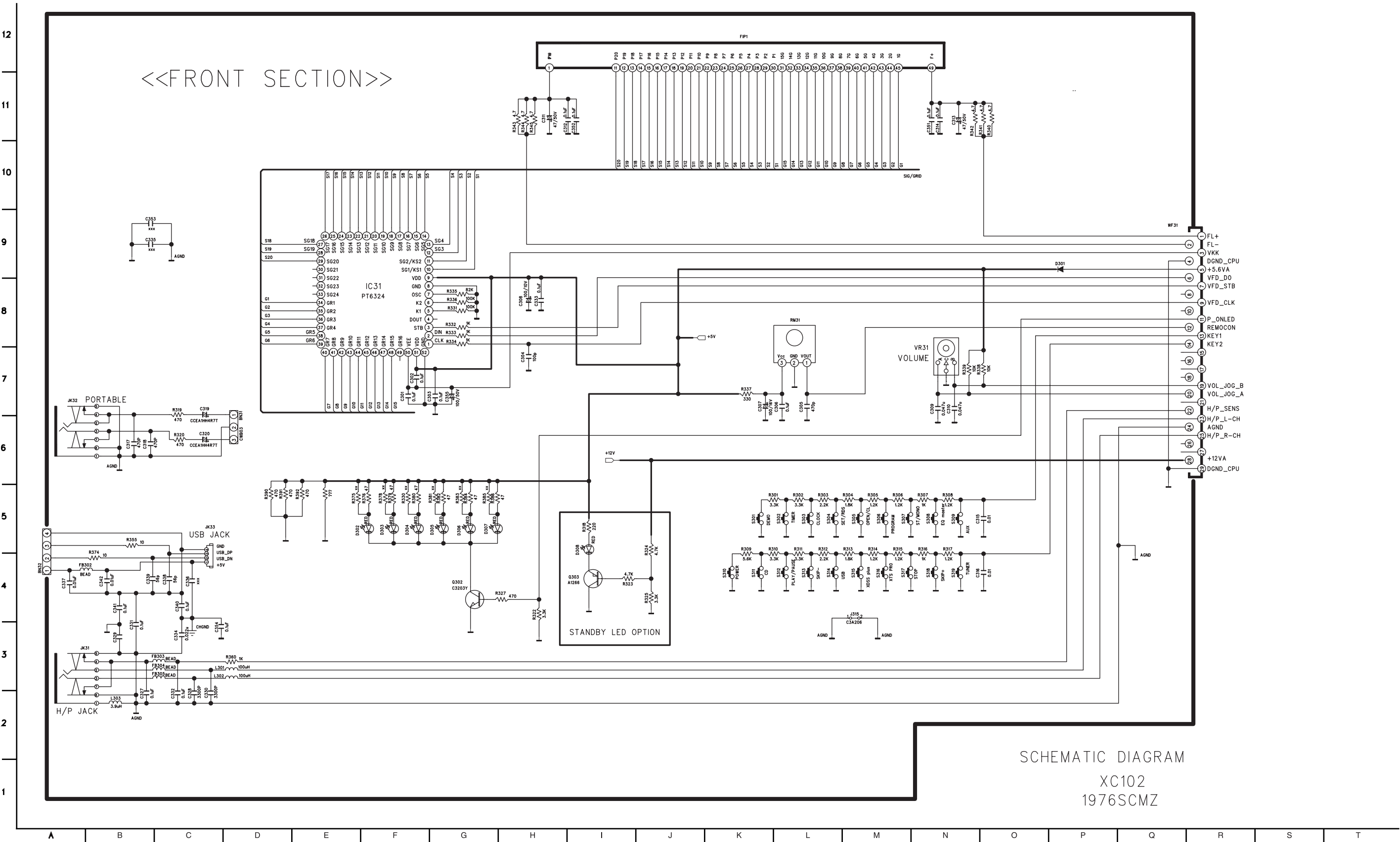


3. AMP SCHEMATIC DIAGRAM



2CH. AMP  
FA-162/FB-162  
MDD262/MDD102/MDD62/MCD202/MCD102  
EBY32635501\_002.Sht  
/EAX32665801

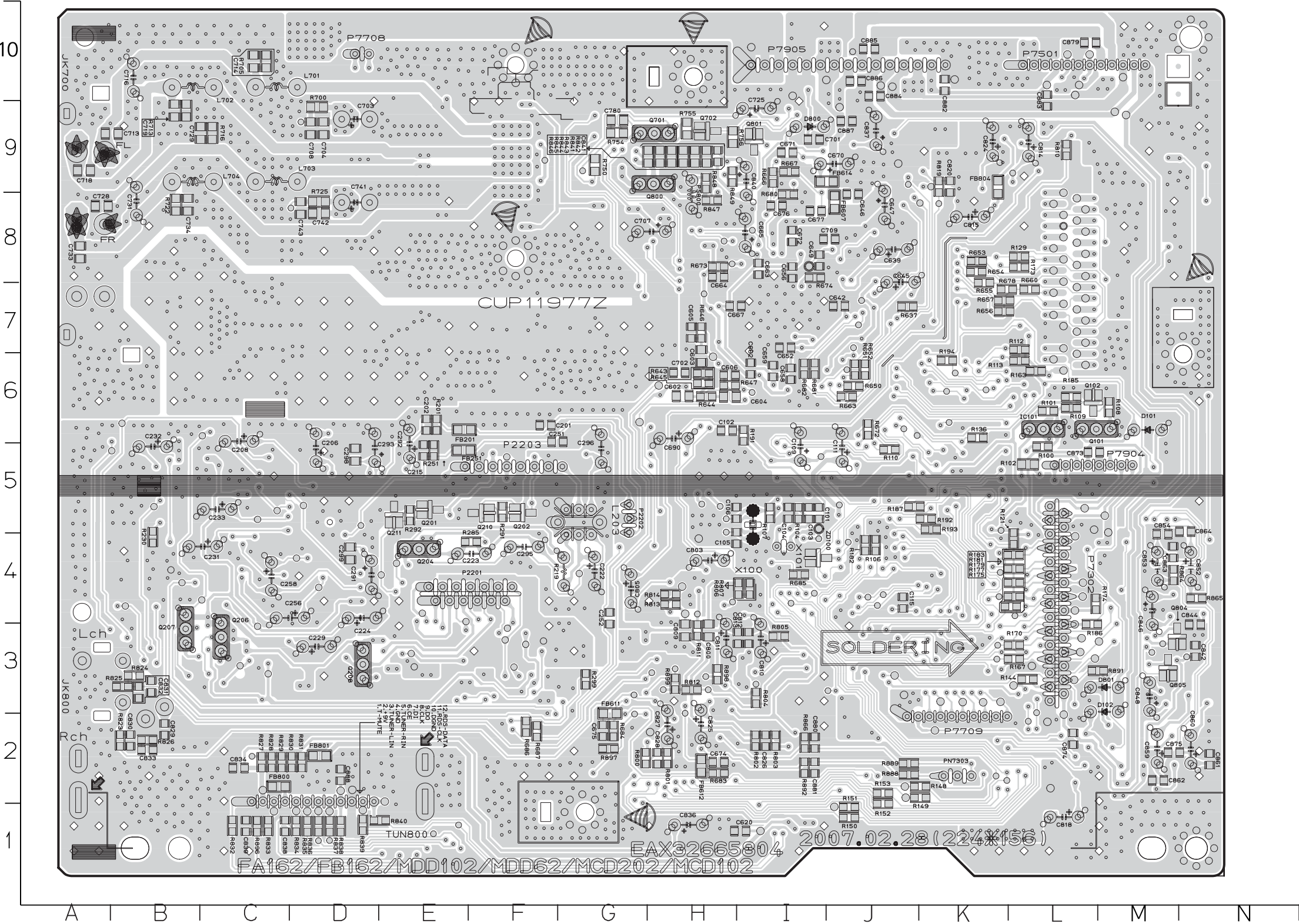
4. FRONT SCHEMATIC DIAGRAM



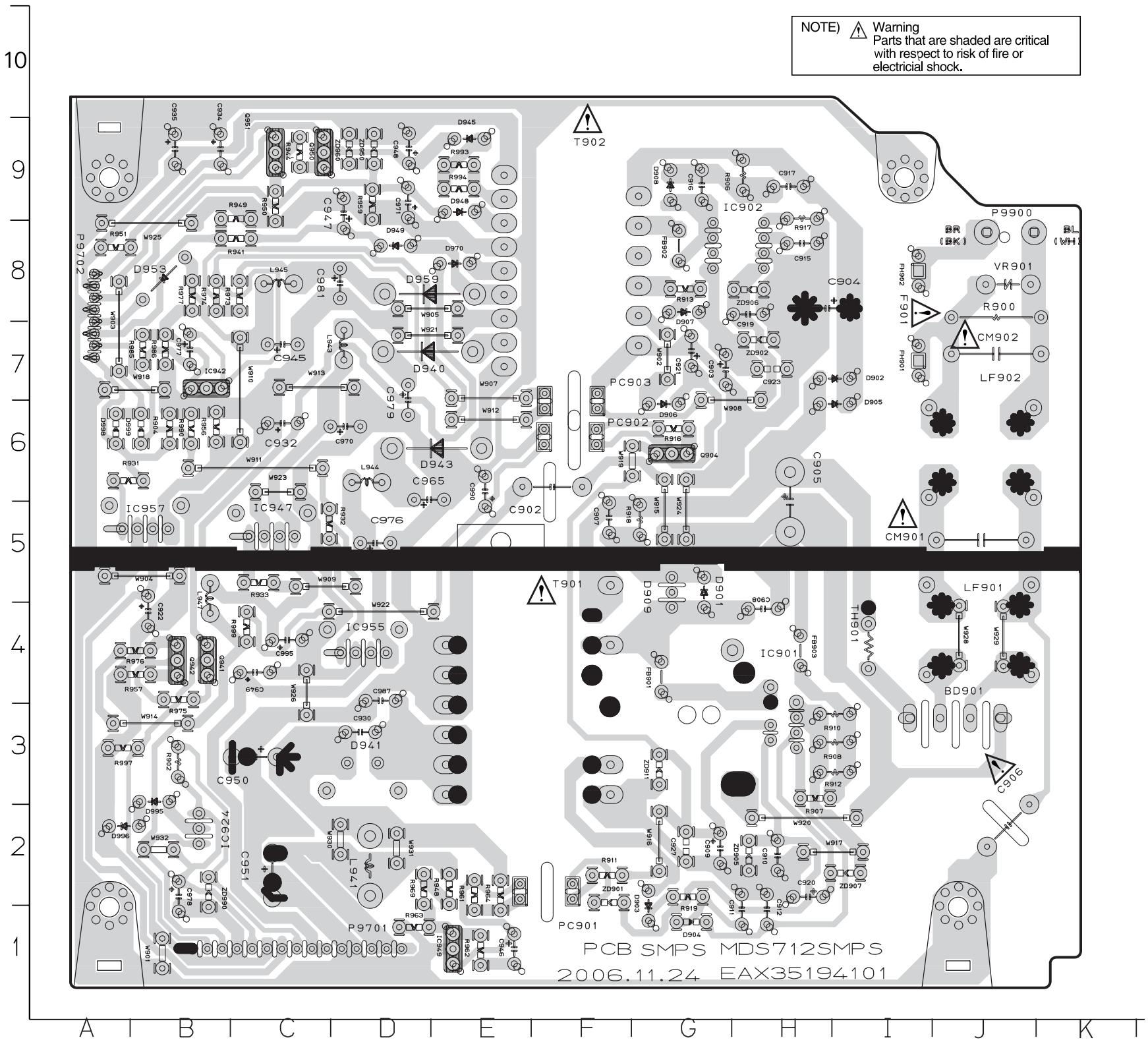
## 1. MAIN P.C.BOARD (TOP VIEW)



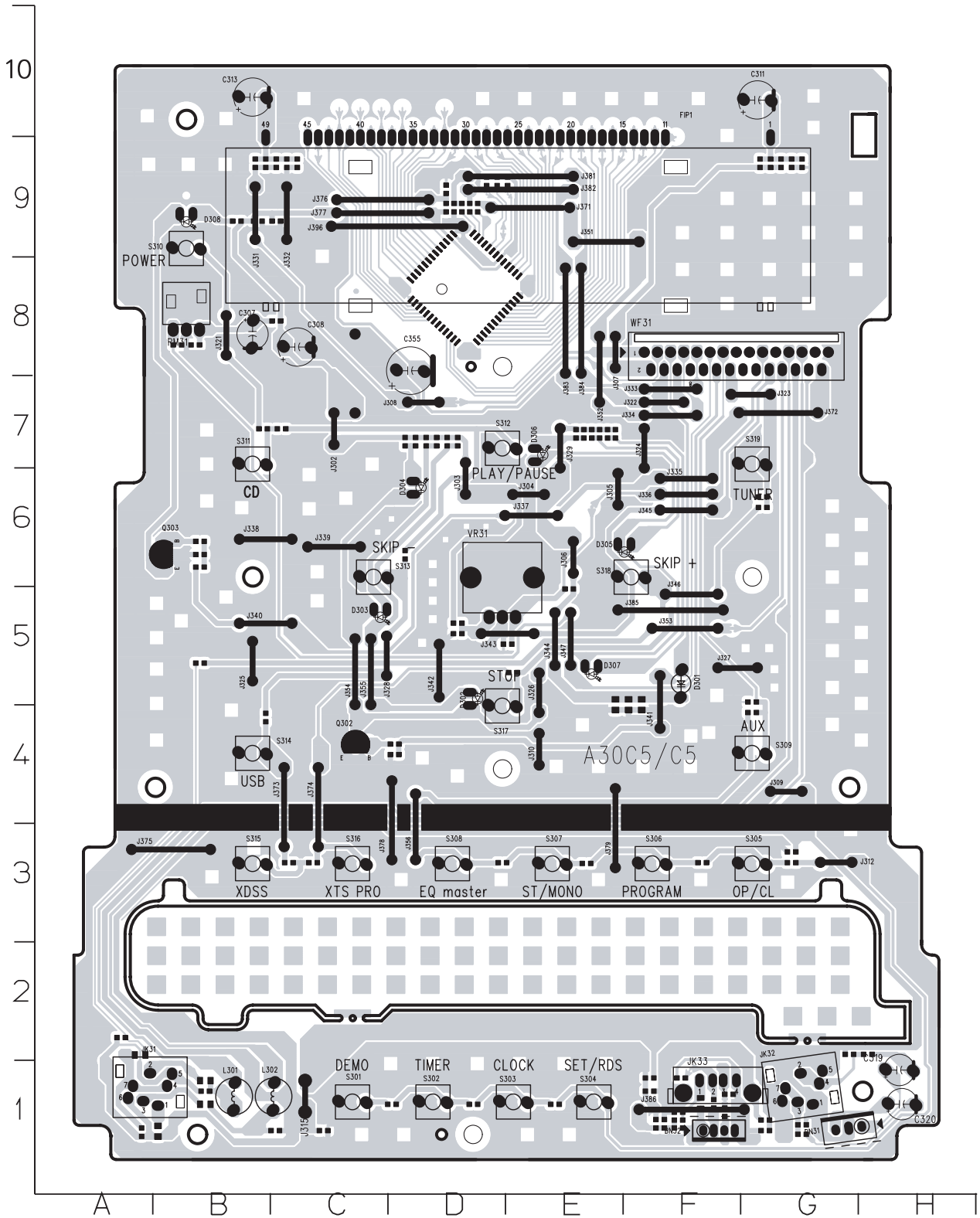
MAIN P.C.BOARD  
(BOTTOM VIEW)



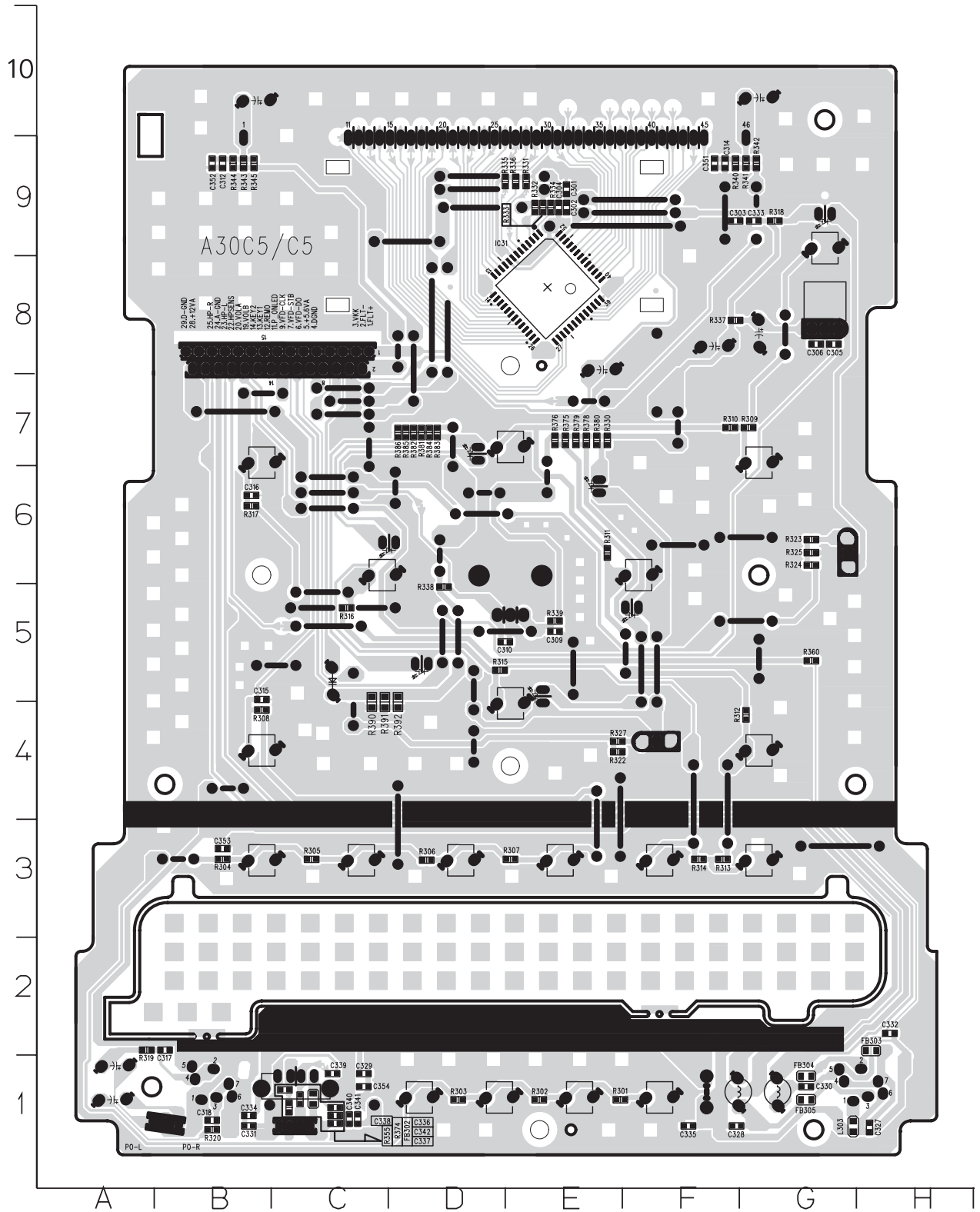
2. SMPS P.C.BOARD



### 3. FRONT P.C.BOARD (TOP VIEW)



**(BOTTOM VIEW)**



MEMO

Lined area for writing on page 3-40.

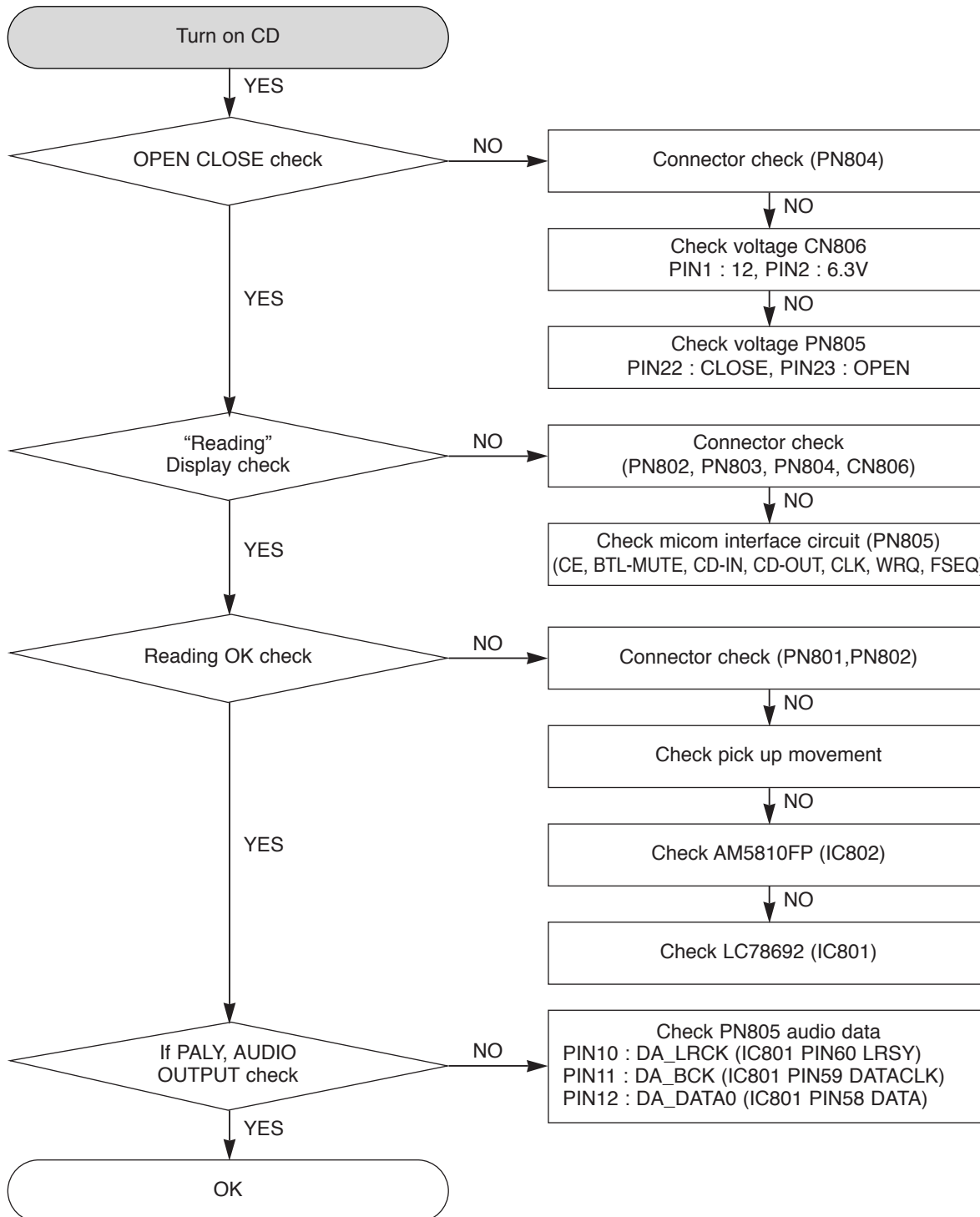
MEMO

Lined area for writing on page 3-41.

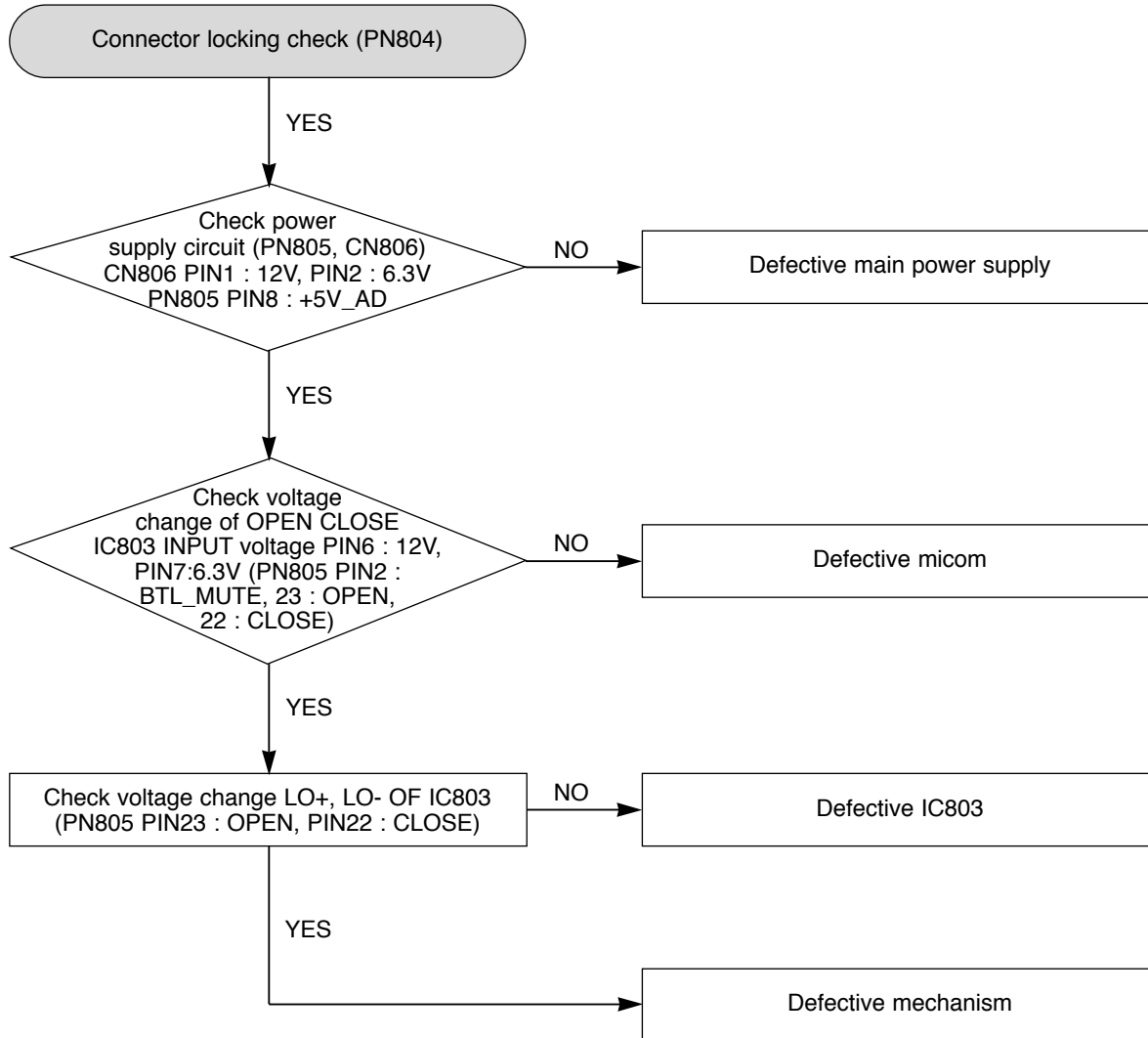
# SECTION 4 CD PART ELECTRICAL

## CD ELECTRICAL TROUBLESHOOTING GUIDE

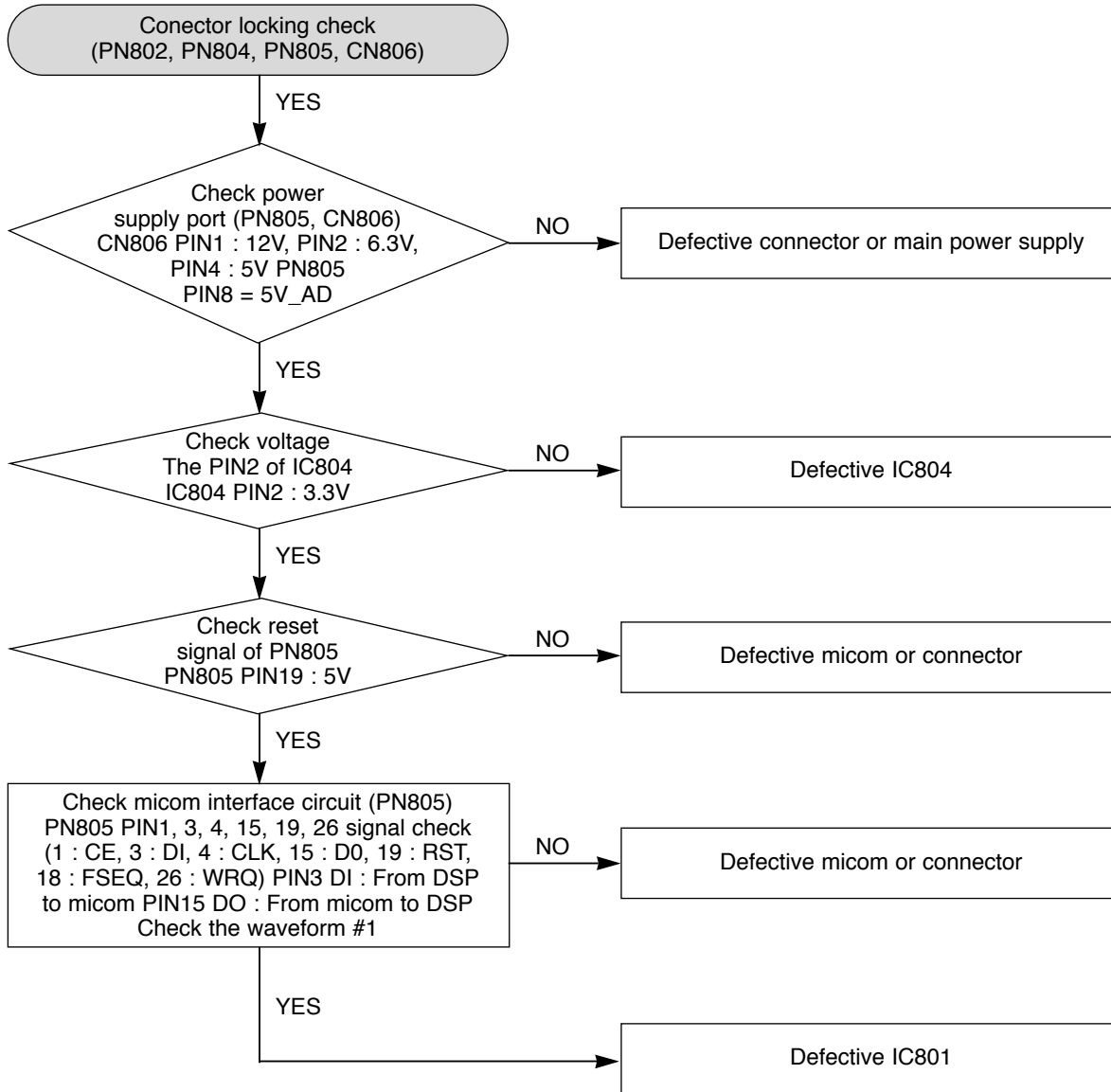
### 1. CD PART TROUBLESHOOTING



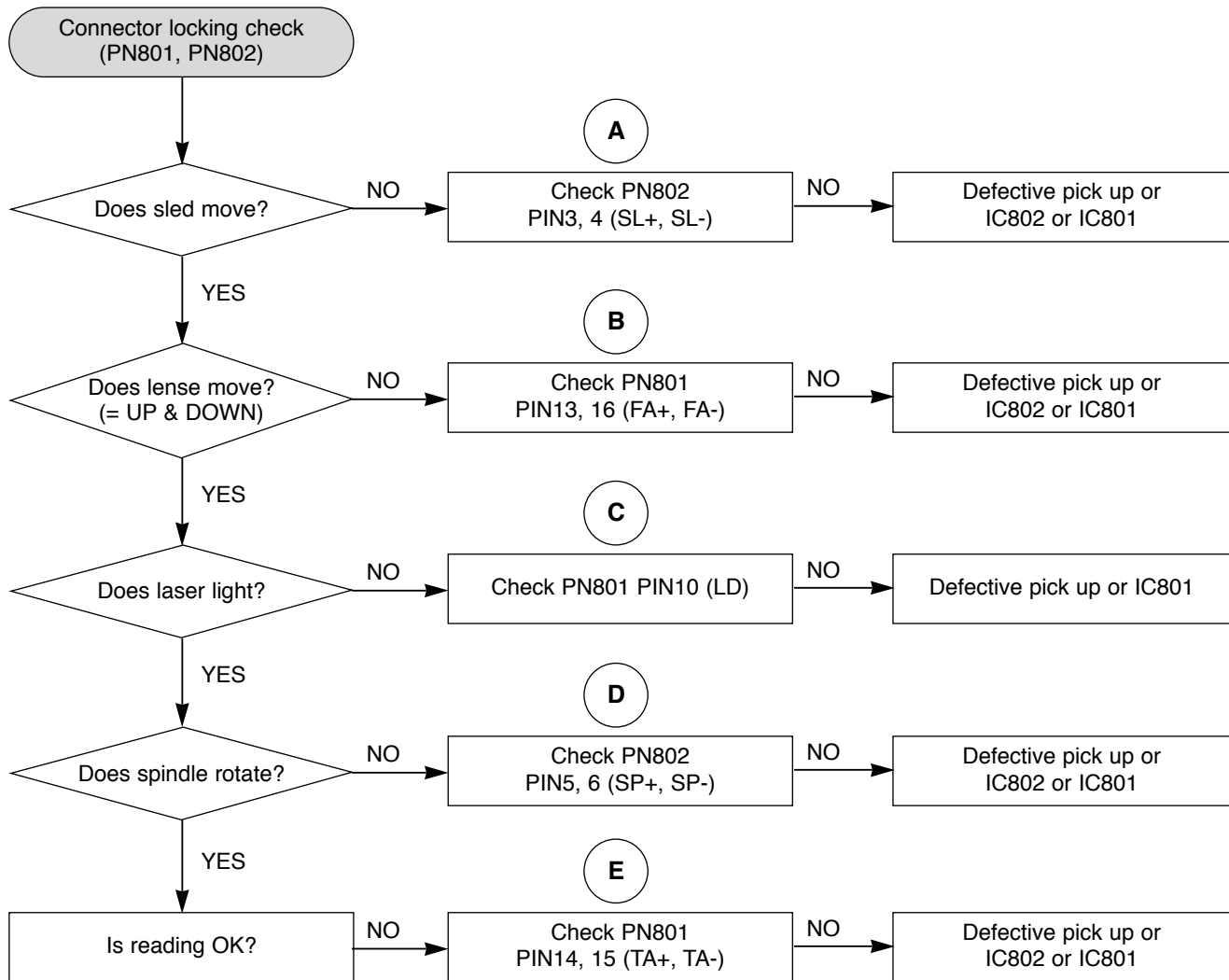
## 1-1. OPEN CLOSE NG



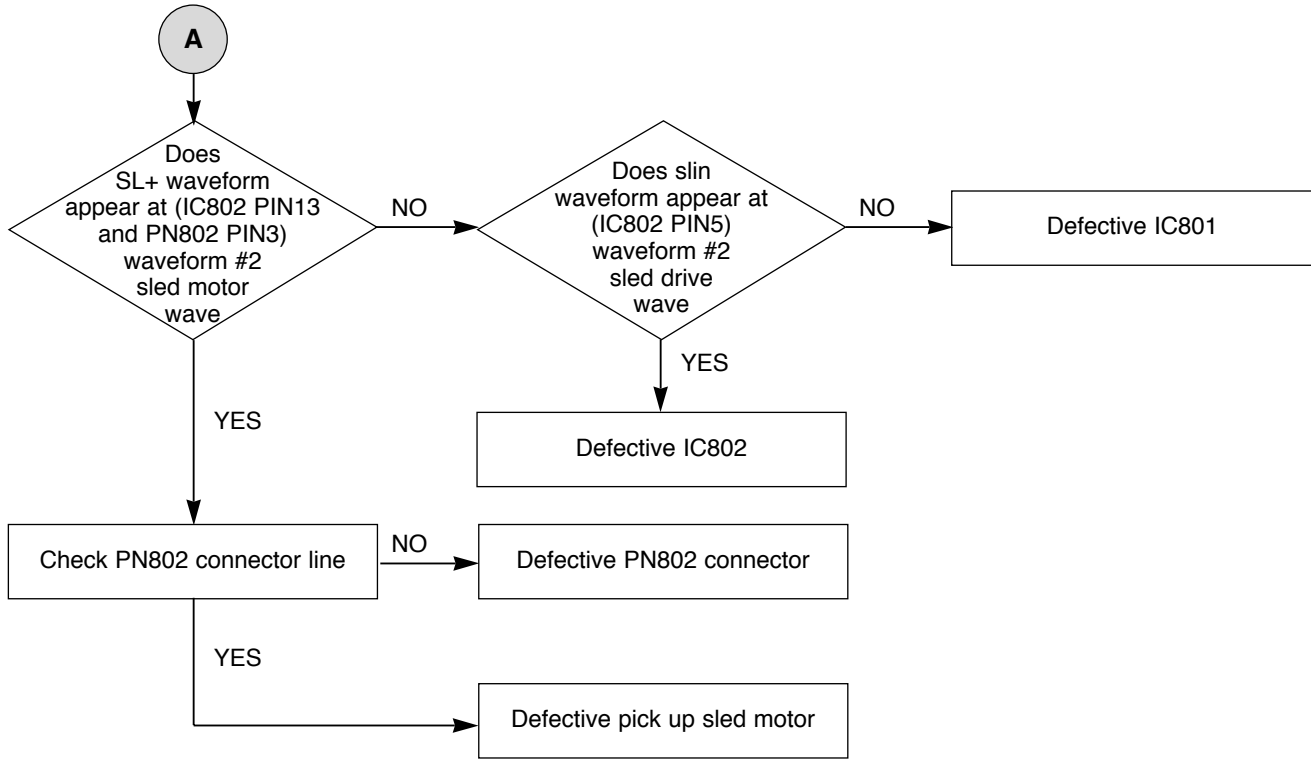
## 1-2. "READING" DISPLAY CHECK (= ONLY "CD" DISPLAY)



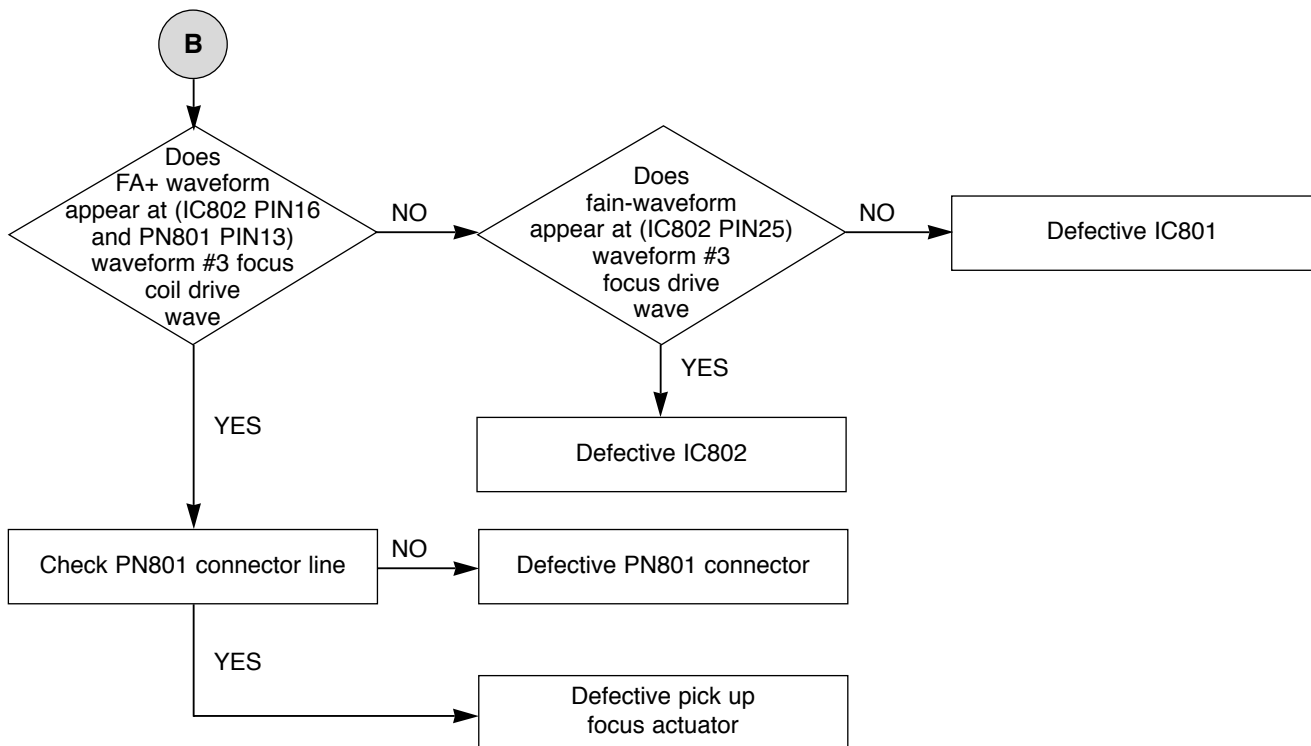
### 1-3. READING OK CHECK (= “NO DISC” DISPLAY)



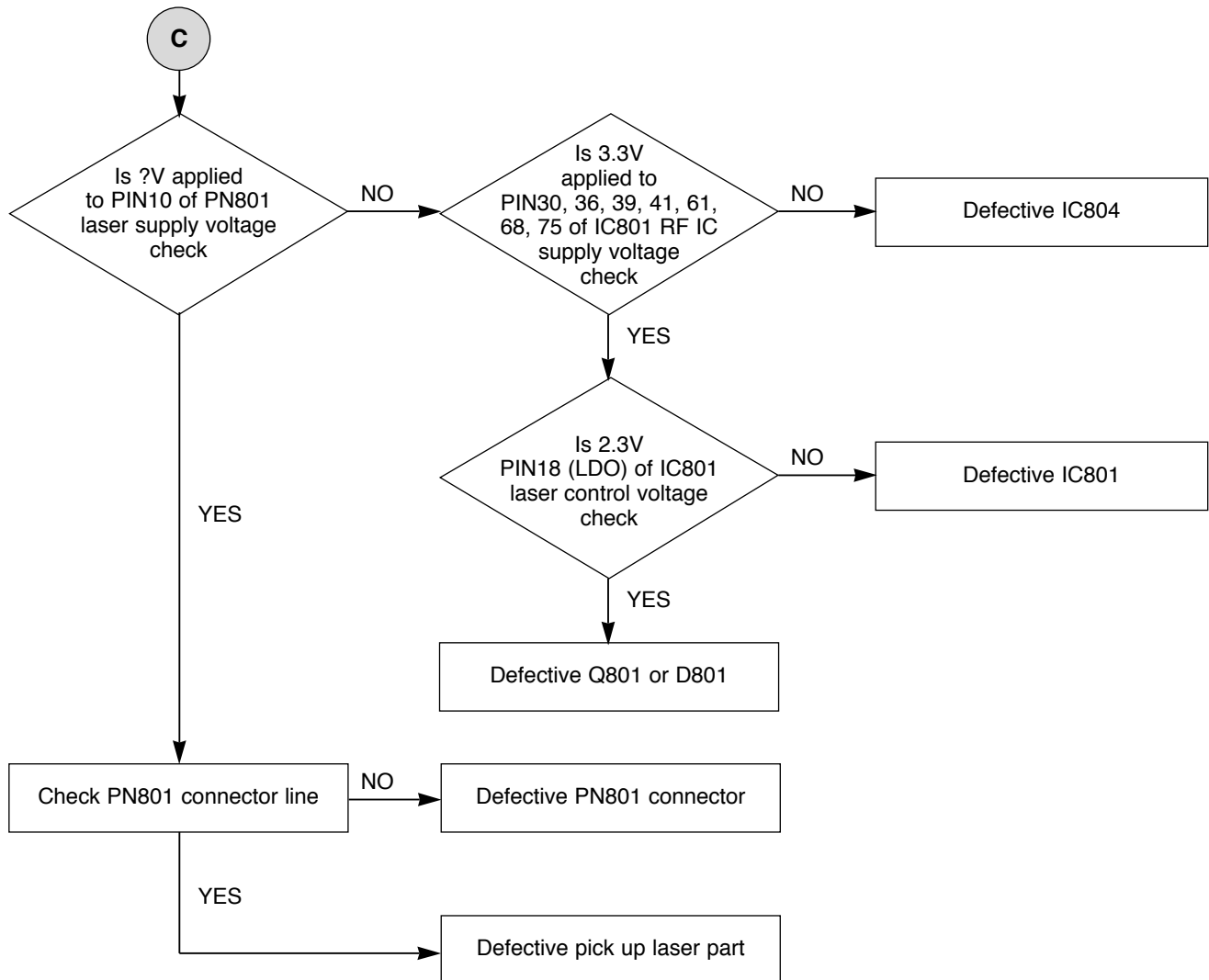
#### 1-4. READING OK CHECK #A (= “NO DISC” DISPLAY)



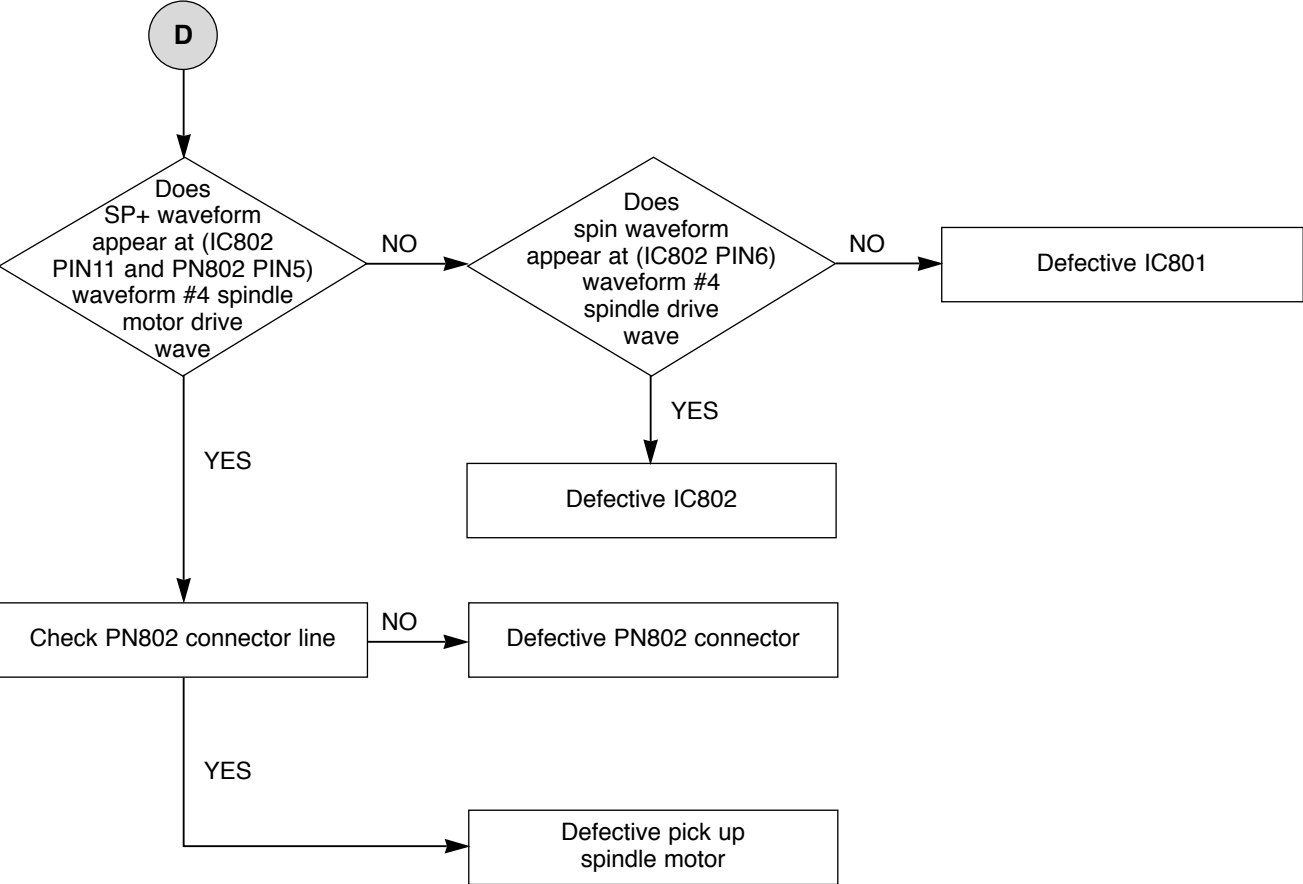
#### 1-5. READING OK CHECK #B (= “NO DISC” DISPLAY)



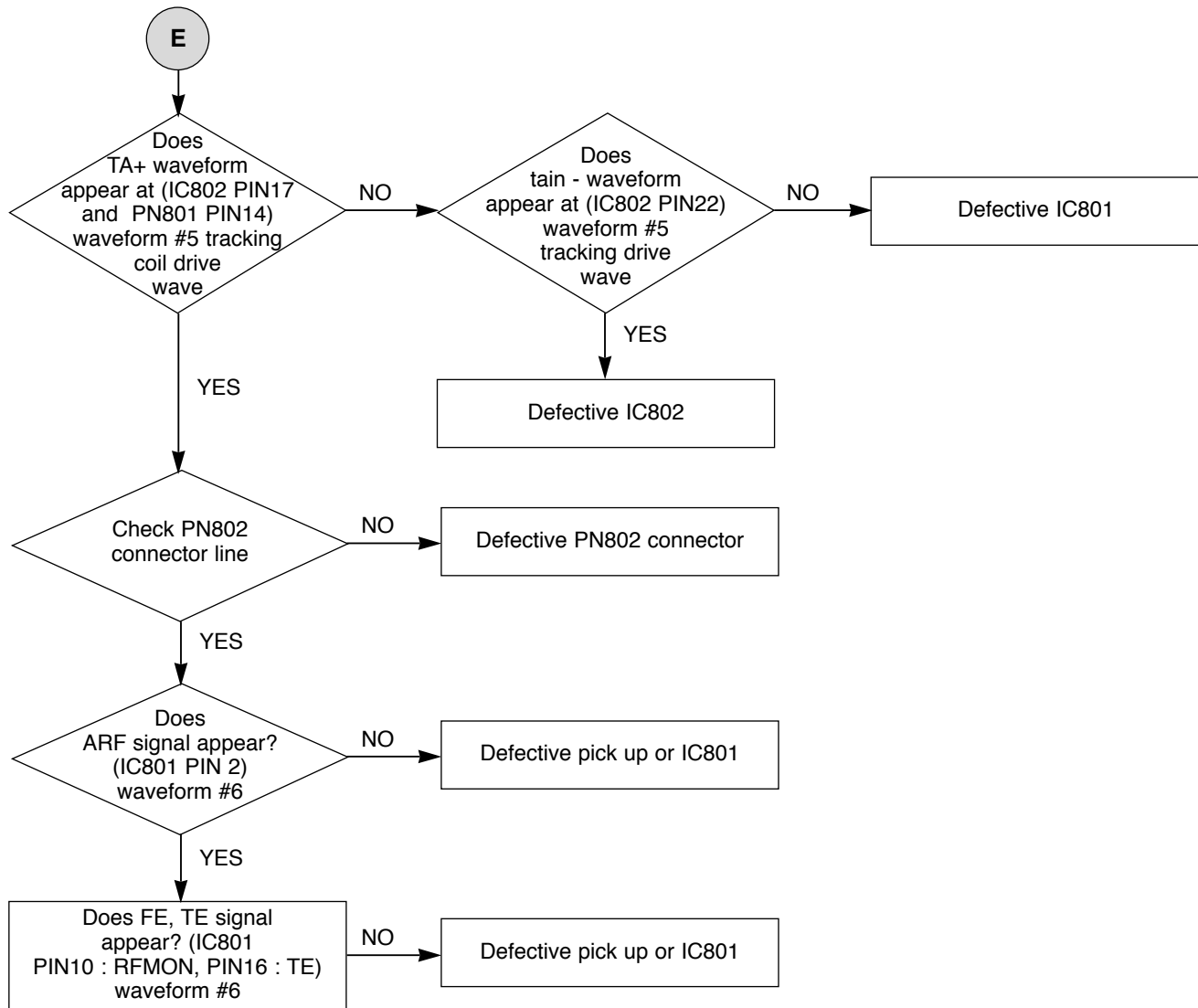
## 1-6. READING OK CHECK #C (= “NO DISC” DISPLAY)



1-7. READING OK CHECK #D (= “NO DISC” DISPLAY)

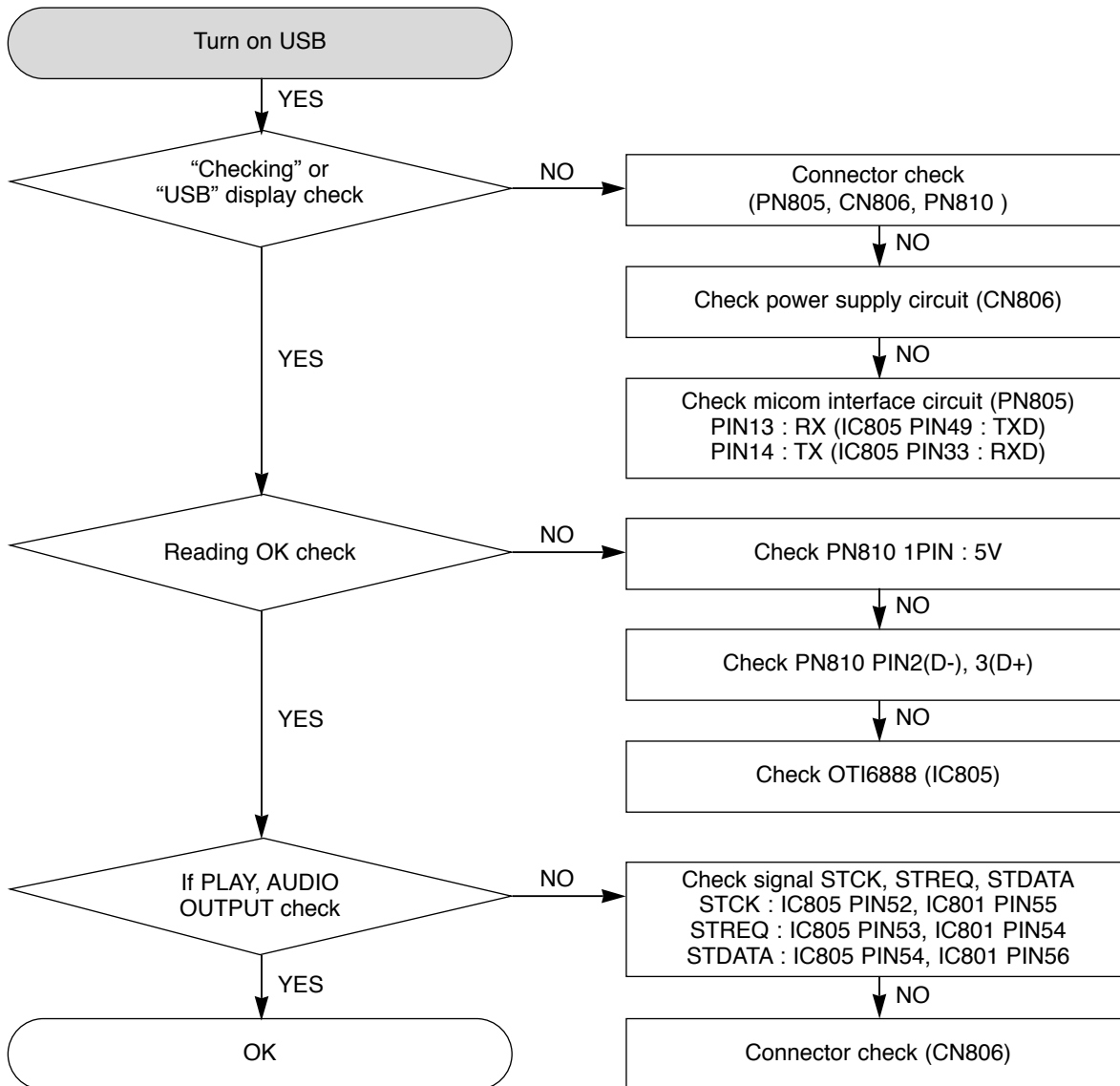


## 1-8. READING OK CHECK #E (= “NO DISC” DISPLAY)



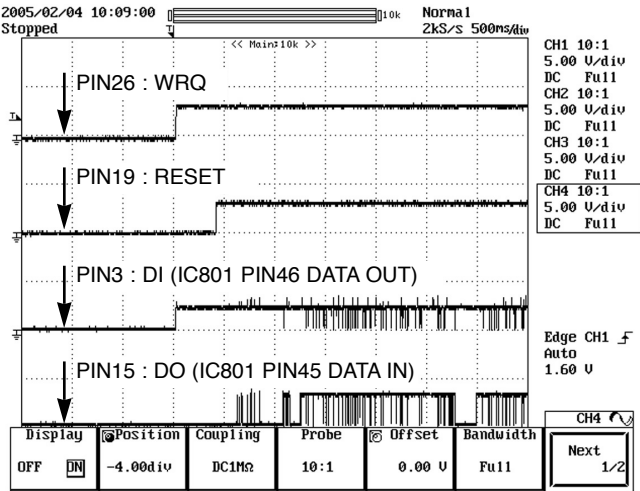
\* REMON is FE

## 2. USB PART TROUBLESHOOTING

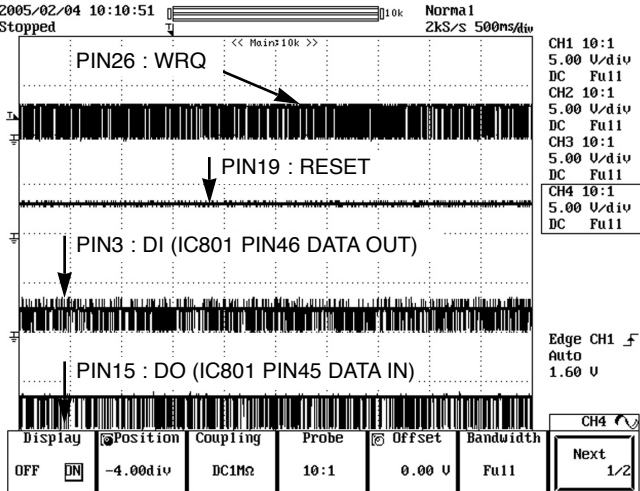


# WAVEFORMS OF MAJOR CHECK POINT

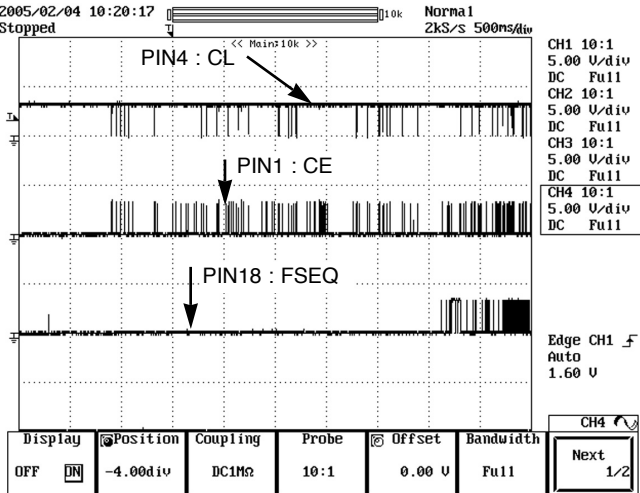
#1.MICOM INTERFACE WAVEFORM  
(PN805 PIN26, 19, 3, 15) during power on



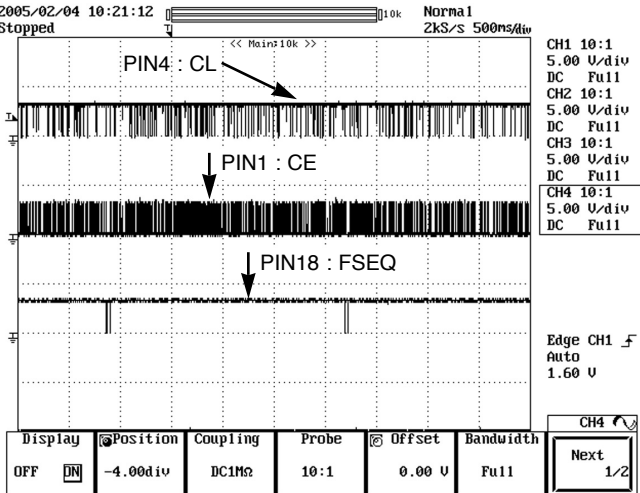
#1.MICOM INTERFACE WAVEFORM  
(PN805 PIN26, 19, 3, 15) during normal play



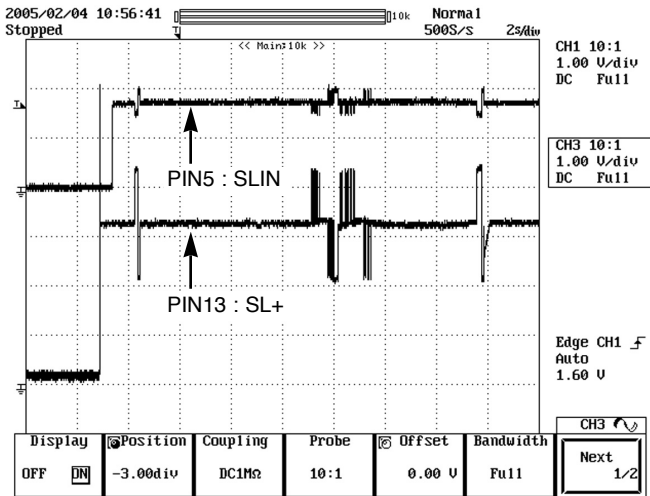
#1.MICOM INTERFACE WAVEFORM  
(PN805 PIN4, 1, 18) during power on



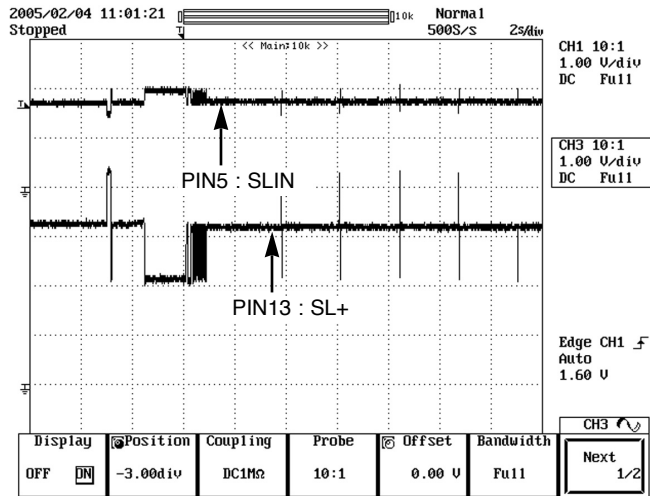
#1.MICOM INTERFACE WAVEFORM  
(PN805 PIN4, 1, 18) during normal play



### #2.SLED DRIVE AND MOTOR WAVEFORM (IC802 PIN5, 13) when focus search

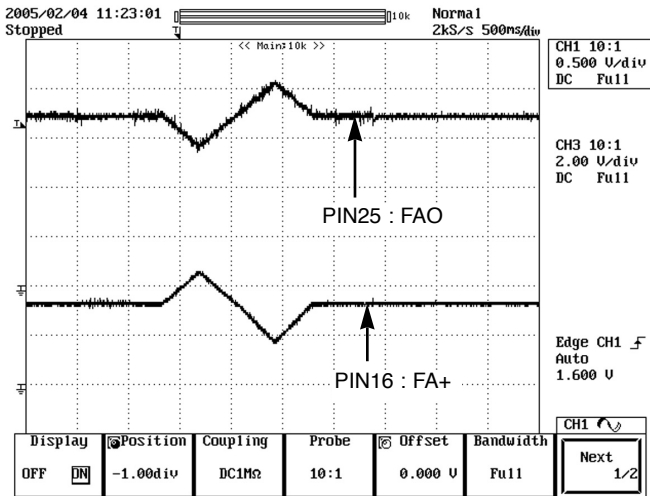


### #2.SLED DRIVE AND MOTOR WAVEFORM (IC802 PIN5, 13) during normal play



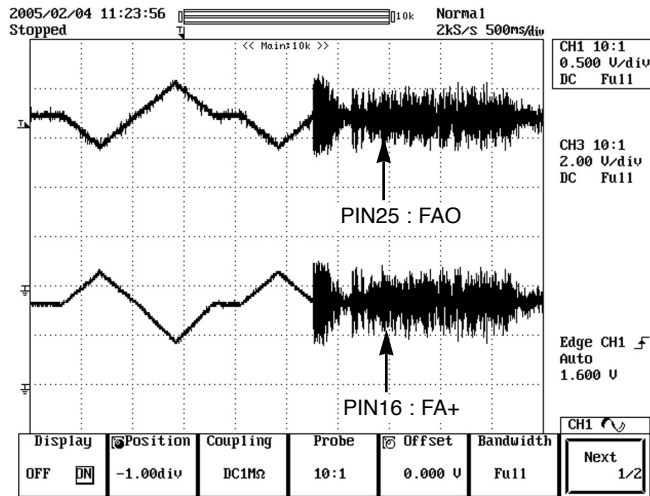
### #3.FOCUS DRIVE AND MOTOR WAVEFORM (IC802 PIN25, IC802 PIN16)

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

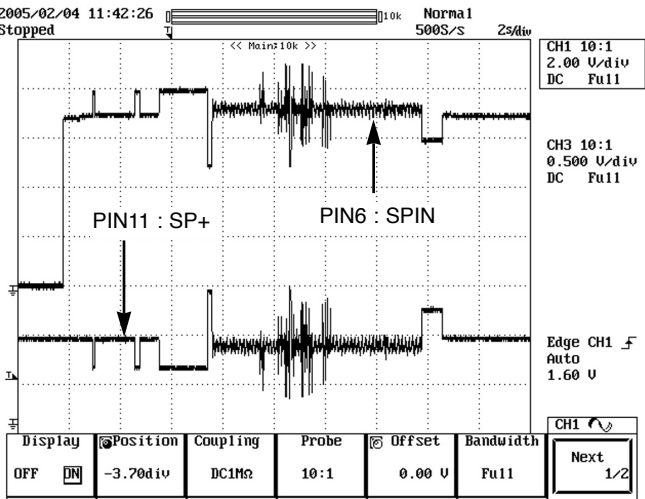


### #3.FOCUS DRIVE AND MOTOR WAVEFORM (IC802 PIN25, IC802 PIN16)

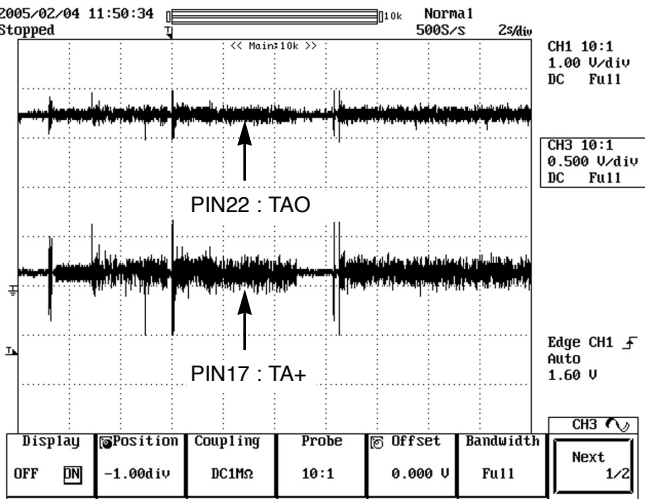
- There is disc on tray and focus search success



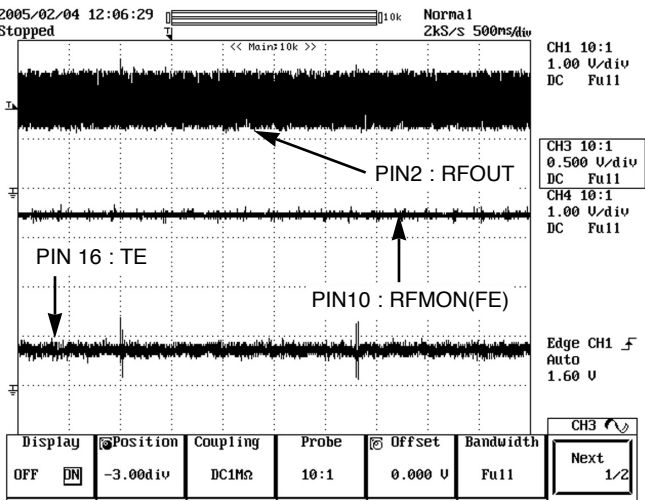
#4.SPINDLE DRIVE AND MOTOR WAVEFORM  
(IC802 PIN6, 11) when TOC reading



#5.TRACK DRIVE AND MOTOR WAVEFORM  
(IC802 PIN22, IC802 PIN17) during normal play

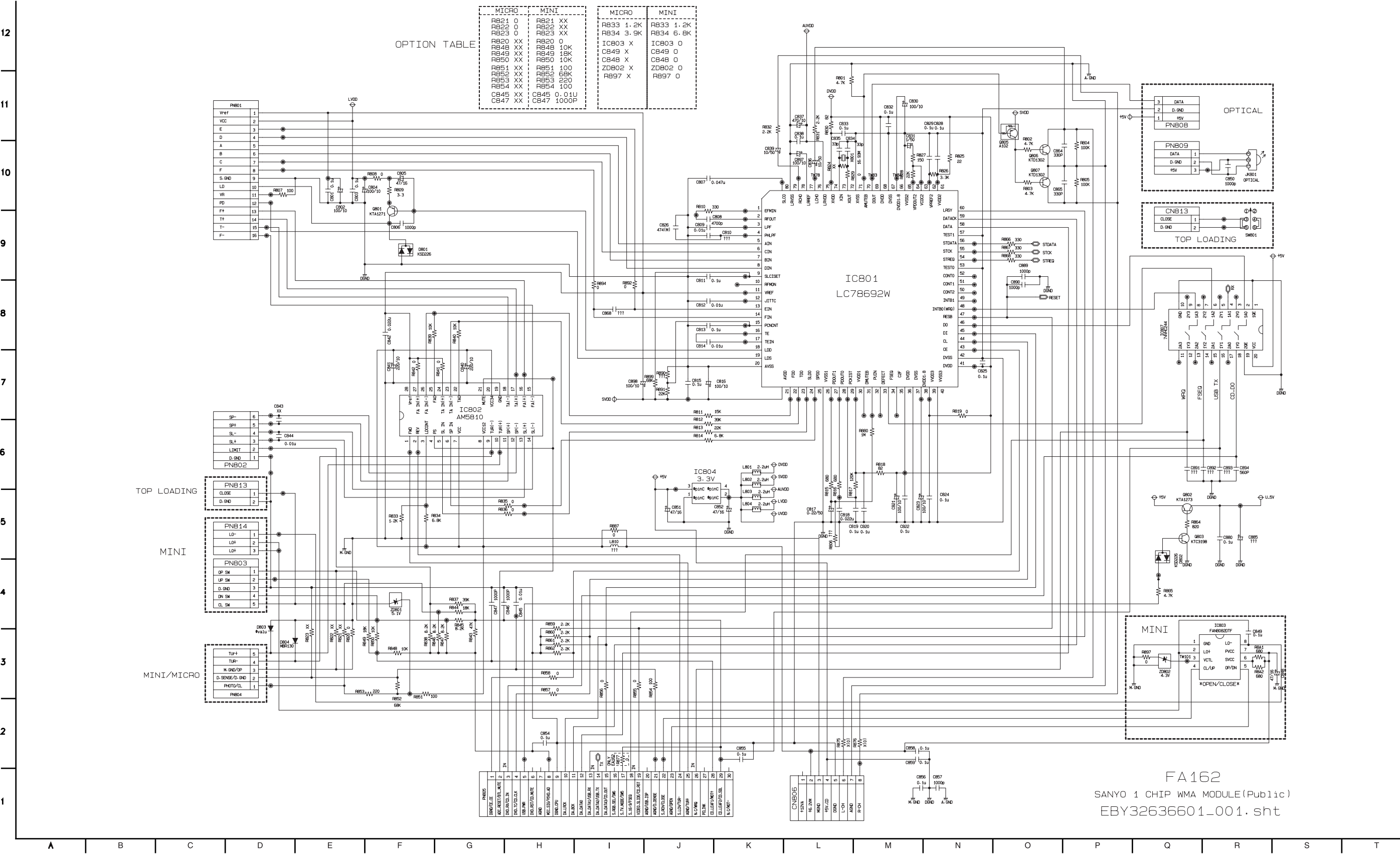


#6.RF, FOCUS AND TRACKING ERROR WAVEFORM  
(IC801 PIN2, 10, 16) during normal play

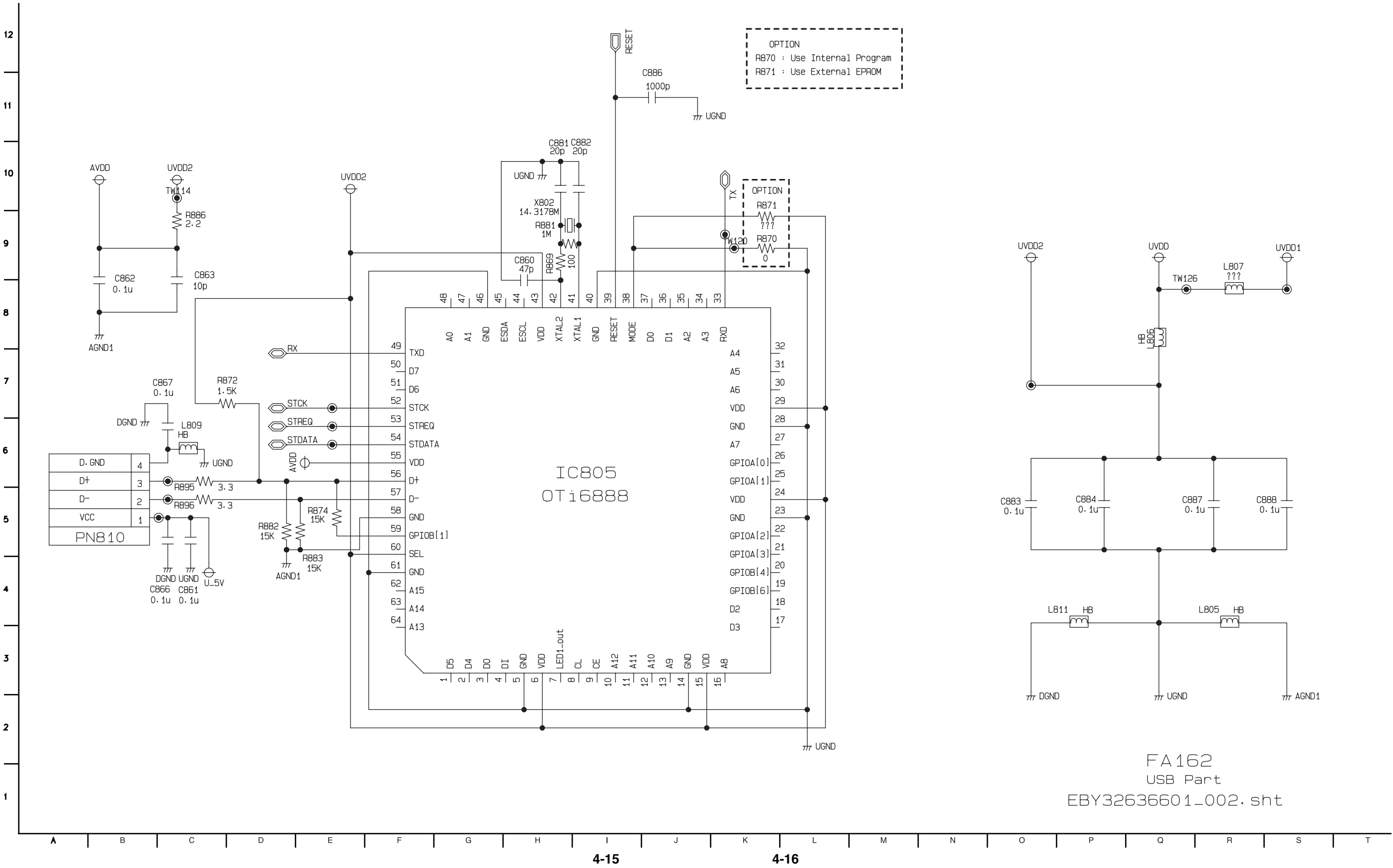


# SCHEMATIC DIAGRAMS

## 1. CD SCHEMATIC DIAGRAM

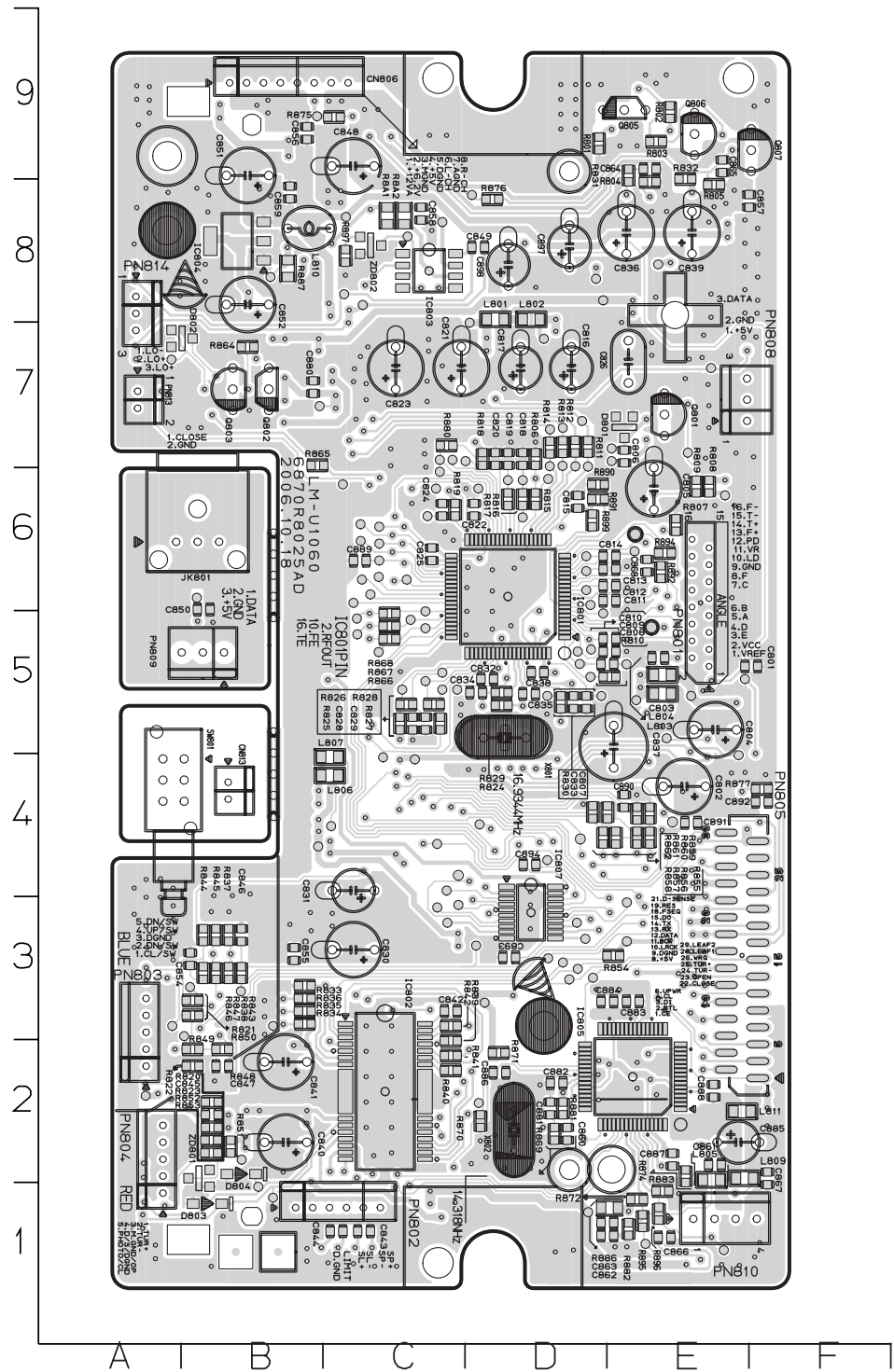


2. USB SCHEMATIC DIAGRAM

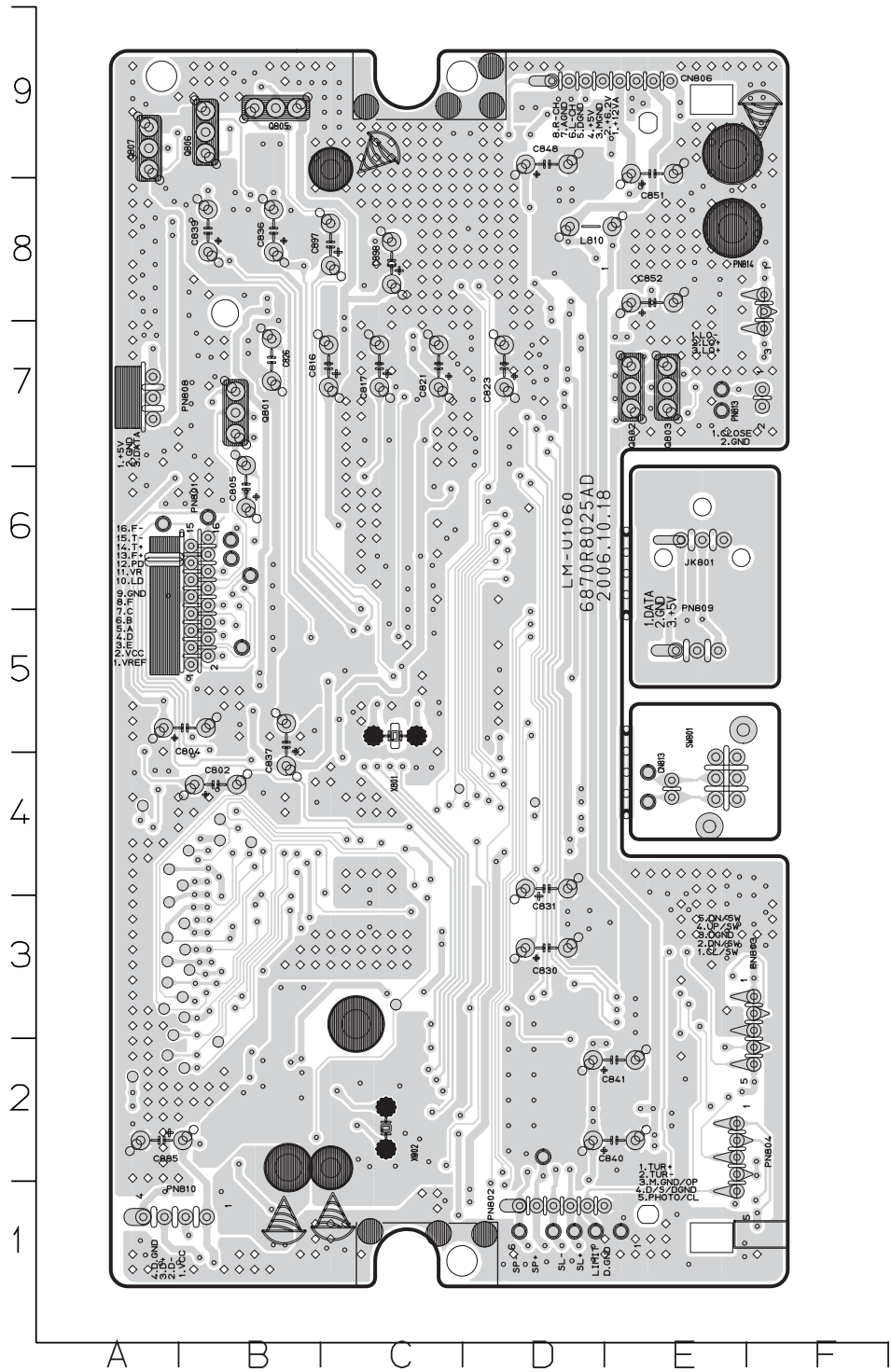


PRINTED CIRCUIT BOARD DIAGRAM

CD P.C.BOARD  
(TOP VIEW)



(BOTTOM VIEW)



MEMO

Handwriting practice area for page 4-19, featuring 20 horizontal dotted lines.

MEMO

Handwriting practice area for page 4-20, featuring 20 horizontal dotted lines.