

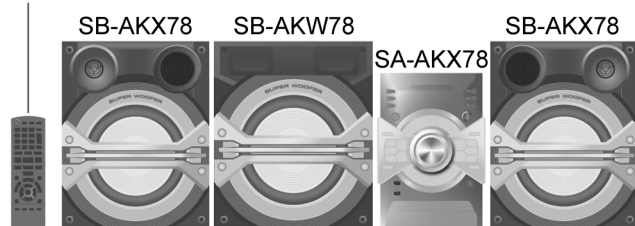
Service Manual

CD Stereo System

Model No. **SA-AKX58PH**
SA-AKX58PN
SA-AKX58GN
SA-AKX78PH
SA-AKX78PN

The illustration shows SC-AKX78.

Remote
Control



Product Color: (K)...Black Type

Please refer to the original service manual for:

- CD Mechanism Unit, Order No. PSG1303059AE
- Speaker system SB-AKX78PN-K, Order No. PSG1403012CE
- Speaker system SB-AKW78PN-K, Order No. PSG1403012CE (For AKX78)

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

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1 Safety Precautions

1.1. General Guidelines

1. IMPORTANT SAFETY NOTICE

- There are special components used in this equipment which are important for safety. These parts are marked by Δ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.
2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.
 3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
 4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
 5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between $1M\Omega$ and $5.2M\Omega$.
When the exposed metal does not have a return path to the chassis, the reading must be ∞

1.1.2. Leakage Current Hot Check

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a $1.5k\Omega$, 10 watts resistor, in parallel with a $0.15\mu F$ capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1-1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

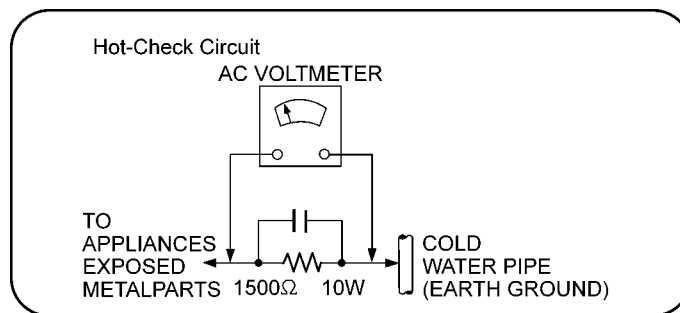


Figure 1-1

1.2. Before Use (For PH only)

Be sure to disconnect the mains cord before adjusting the voltage selector as shown in Figure 1-2.

Use a minus(-) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used.

Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries, the correct voltage is already set.)

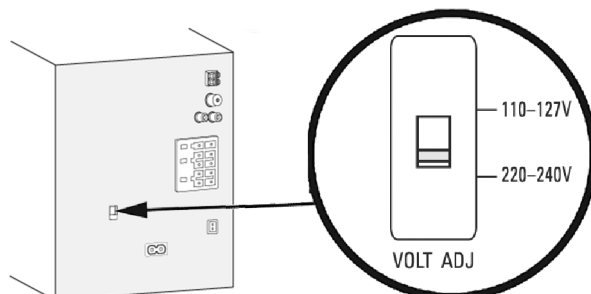


Figure 1-2

1.3. Before Repair and Adjustment

Disconnect AC power to discharge AC capacitor as indicate below diagram through a 10 Ω , 10 W resistor to ground.

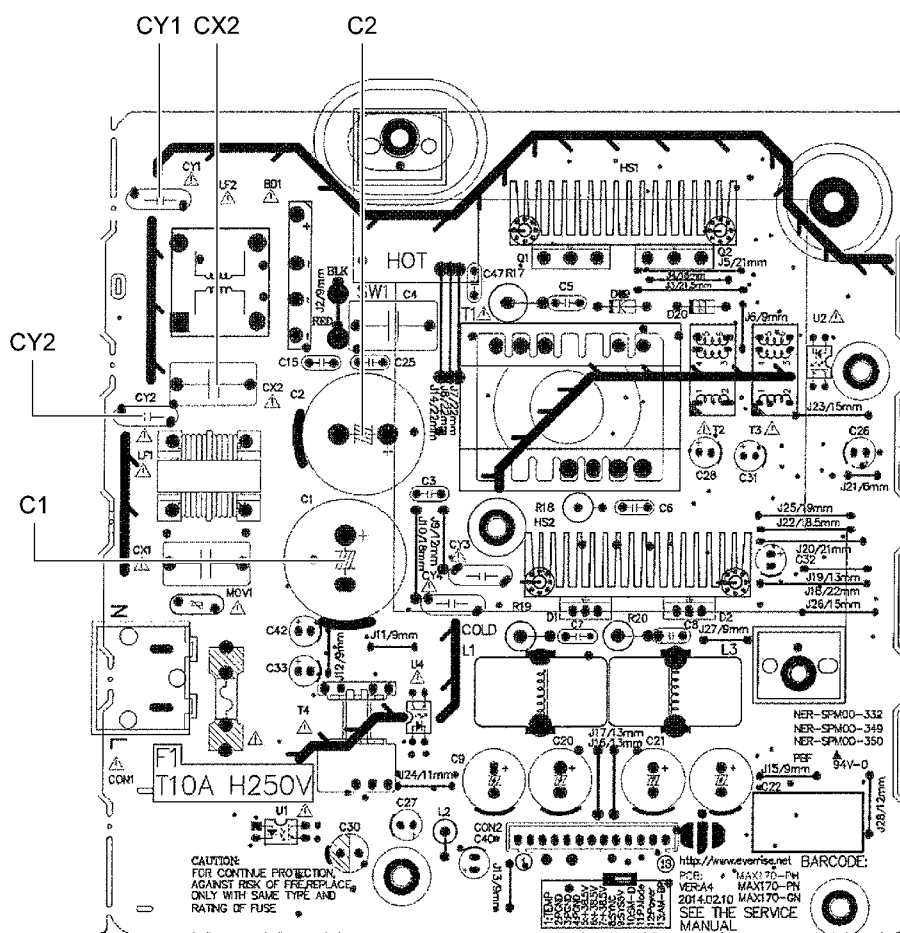


Figure 1-3

Caution:

DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may destroy solid state devices.

1.6. Safety Parts Information

Safety Parts List:

There are special components used in this equipment which are important for safety.

These parts are marked by ⚠ in the Schematic Diagrams, Exploded View & Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

Safety	Ref No.	Part No.	Part Name & Description	Remarks
⚠	13	RGR0443E-D1A	REAR PANEL	AKX78PN
⚠	13	RGR0443R-AA	REAR PANEL	AKX58PH
⚠	13	RGR0443S-AA	REAR PANEL	AKX78PH
⚠	13	RGR0443U-A1A	REAR PANEL	AKX58PN
⚠	13	RGR0443U-BA	REAR PANEL	AKX58GN
⚠	25	RKM0713-K1	TOP CABINET	
⚠	301	RAE1044Z-V	TRAVERSE UNIT	
⚠	A2	K2CB2CB00022	AC CORD	AKX58PN, AKX78PN
⚠	A2	K2CJ2YY00093	AC CORD	AKX58GN
⚠	A2	K2CQ2YY00119	AC CORD	AKX58PH, AKX78PH
⚠	A3	RQT9895-2M	O/I BOOK (En/Sp)	AKX58PH/PN, AKX78PH/PN
⚠	A3	RQT9898-L	O/I BOOK (En)	AKX58GN
⚠	A3	RQT9958-1B	O/I BOOK (En)	AKX58PH/PN, AKX78PH/PN
⚠	PCB7	N0AB2GP00001	SMPS MODULE	AKX58PN, AKX78PN
⚠	PCB7	N0AC2GP00001	SMPS MODULE	AKX58GN
⚠	PCB7	N0AD2GP00001	SMPS MODULE	AKX58PH, AKX78PH

ble cable, cut off the antistatic FFC.

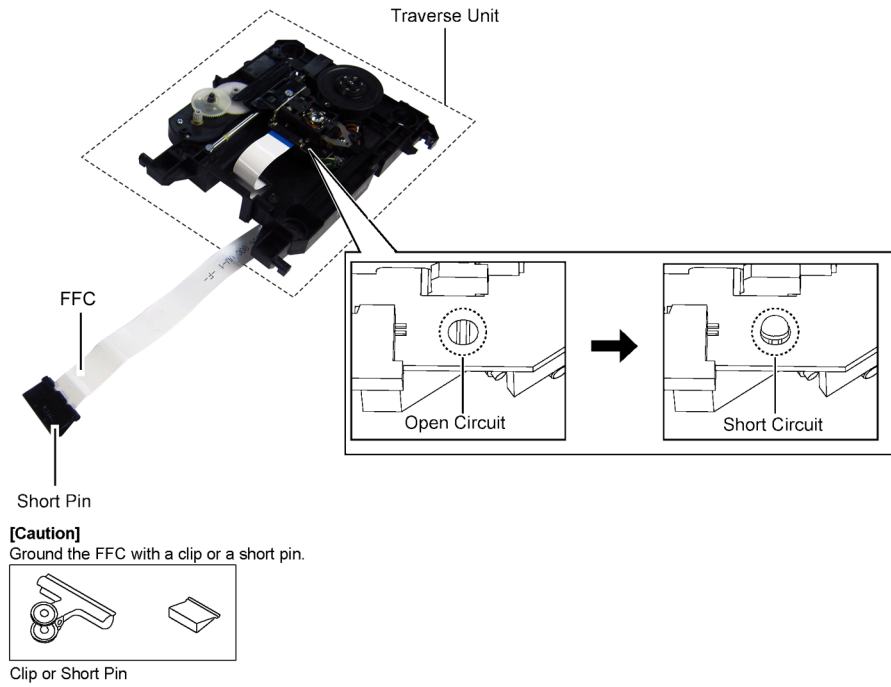


Figure 2-2

2.5. Grounding for electrostatic breakdown prevention

- As for parts that use optical pick-up (laser diode), the optical pick-up is destroyed by the static electricity of the working environment. Repair in the working environment that is grounded.

2.5.1. Worktable grounding

- Put a conductive material (sheet) or iron sheet on the area where the optical pickup is placed and ground the sheet.

2.5.2. Human body grounding

- Use the anti-static wrist strap to discharge the static electricity form your body Figure 2-3.

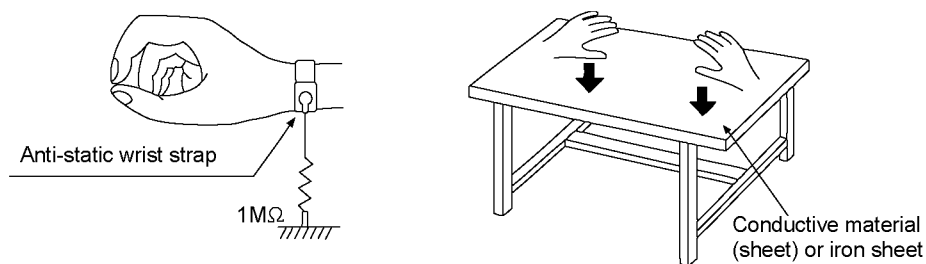


Figure 2-3

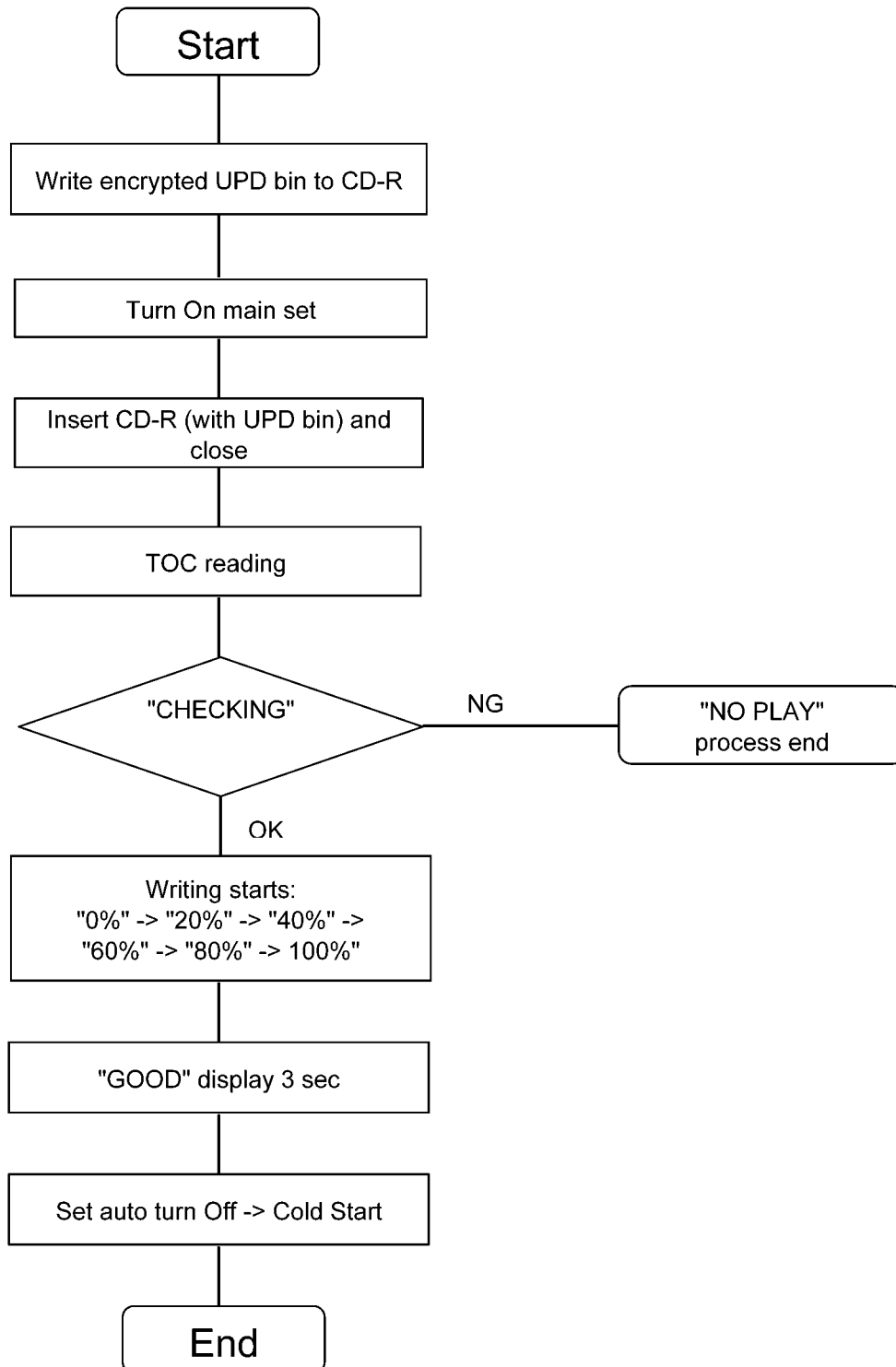
3 Service Navigation

3.1. Service Information

This service manual contains technical information which will allow service personnel's to understand and service this model. Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with original service manual.

3.1.1. Firmware Update Procedure



6 Service Mode

6.1. Cold-Start

Here is the procedure to carry out cold-start or initialize to shipping mode.

1. Unplug AC power cord
2. Press & hold [POWER] button
3. Plug AC power cord while [POWER] button being pressed
FL Display will show “-----”
4. Release [POWER] button

6.2. Sales Demonstration Lock Function

6.2.1. Entering into Sales demonstration lock mode

Here is the procedures to enter into the Sales demonstration lock mode.

Step 1: Turn on the unit.

Step 2: Select to any mode function.

Step 3: Press and hold [▲OPEN/CLOSE] and [CD] keys for 5 sec or more.

The display will show upon entering into this mode for 2 sec..



Note: [▲OPEN/CLOSE] button is invalid and the main unit displays “LOCKED” while the lock function mode is entered.

6.2.2. Cancellation of Sales demonstration lock mode

Step 1: Turn on the unit.

Step 2: Select to any mode function.

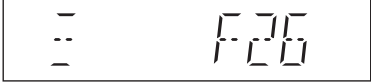
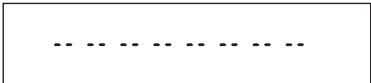
Step 3: Set volume to Vol 19.

Step 4: Press and hold [▲OPEN/CLOSE] and [CD] keys for 5 sec or more.

The display will show upon entering into this mode for 2 sec..

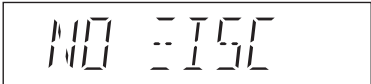
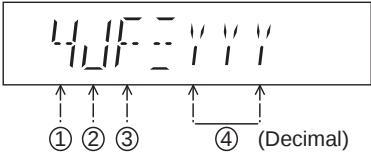
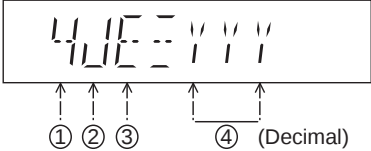
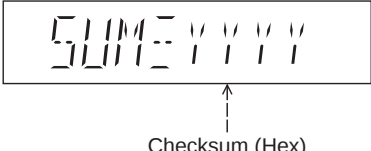
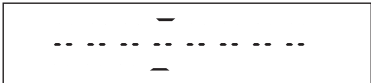


6.3. Service Mode Table

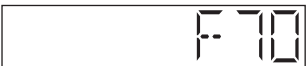
Item		FL display	Key operation										
Mode name	Description												
Service Mode	To enter into Service Mode checking.		Step 1 : Select CD mode (Ensure no disc is inserted). Step 2 : Press and hold [■] 2 seconds follow by [▶▶/▶▶] on main unit for 2 seconds.										
Error code information	System will perform a check on any unusual/error code from the memory.	Example: 	Step 1 : In service mode, Press [■] on main unit. To exit, press [⏻] on main unit or remote control.										
Delete Error code	To clear the stored in memory (EEPROM IC).		Step 1 : In service mode, Press [0] on remote control more than 5 seconds. To exit, press [⏻] on main unit or remote control.										
Cold Start	To activate cold start upon next power up. (Backup date are initialized)		Step 1 : In service mode, Press [3] on the remote control. To exit, press [⏻] on main unit or remote control.										
Opecon Version	Opecon version display	Opecon Version: <table border="1"> <thead> <tr> <th>Model name</th><th>Version display</th></tr> </thead> <tbody> <tr> <td>AKX18</td><td>4JH ≡*** _</td></tr> <tr> <td>AKX38</td><td>4JG ≡*** _</td></tr> <tr> <td>AKX58</td><td>4JF ≡*** _</td></tr> <tr> <td>AKX78</td><td>4JE ≡*** _</td></tr> </tbody> </table>	Model name	Version display	AKX18	4JH ≡*** _	AKX38	4JG ≡*** _	AKX58	4JF ≡*** _	AKX78	4JE ≡*** _	Step 1 : Enter Service Mode, Press [Display] on remote control. To exit, press [⏻] on main unit or remote control.
Model name	Version display												
AKX18	4JH ≡*** _												
AKX38	4JG ≡*** _												
AKX58	4JF ≡*** _												
AKX78	4JE ≡*** _												

6.4. Doctor Mode Table

6.4.1. Doctor Mode Table 1

Item		FL Display	Key Operation
Mode Name	Description		Front Key
Doctor Mode	To enter into Doctor Mode		In CD Mode: 1. Press [■] button on main unit follow by [4] and [7] on remote control. 2. To exit, press [DELETE] button on remote control or, press [POWER, ⏻/I] button on Main Unit
EEPROM checksum check	Displaying of 1. Year Develop. 2. Model Type. 3. ROM Type. 4. Firmware Version.	(Display 1) (For AKX58)  (Display 1) (For AKX78)  Version No. (001 ~ 999) → specific for each firmware (Display 2) 	In CD mode: 1. Enter into Doctor Mode
Cold Start	To active cold start upon next AC power up when reset start is execute the next time.		In Doctor Mode: 1. Press [SLEEP] button on the remote control.

6.6.3. Bluetooth Error Code Table

Error Code	Diagnostic Contents	Description of error	Automatic FL Display	Remarks
F70	Bluetooth Communication	Communication between Bluetooth module and micro-p abnormal		Press [■] on main unit for next error.
F77	Bluetooth Address Error	If there is no valid Bluetooth address stored in the EEPROM IC		Press [■] on main unit for next error.

7 Troubleshooting Guide

"Contents for this section is not available at time of issue"

8 Disassembly and Assembly Instructions

- Illustration is based on SA-AKX78PH-K.
- This section describes the disassembly and/or assembly procedures for all major printed circuit boards & main components for the unit. (You may refer to the section of “Main components and P.C.B Locations” as described in this service manual)
- Before carrying out the disassembly process, please ensure all the safety precautions & procedures are followed.
- During the disassembly and/or assembly process, please handle with care as there may be chassis components with sharp edges.
- Avoid touching heatsinks due to its high temperature after prolong use.
- Be sure to use proper service tools, equipments or jigs during repair.
- Select items from the following indexes when disassembly or replacement are required.
- Disassembly of Top Cabinet
- Disassembly of Front Panel Unit
- Disassembly of Panel P.C.B. and Music Port P.C.B.
- Disassembly of Bluetooth P.C.B.
- Disassembly of USB P.C.B.
- Disassembly of Rear Panel
- Disassembly of Main P.C.B.
- Disassembly of SMPS P.C.B. and Voltage Selector P.C.B.
- Disassembly of CD Mechanism Unit
- Disassembly of CD Interface P.C.B.

8.1. Type of Screws

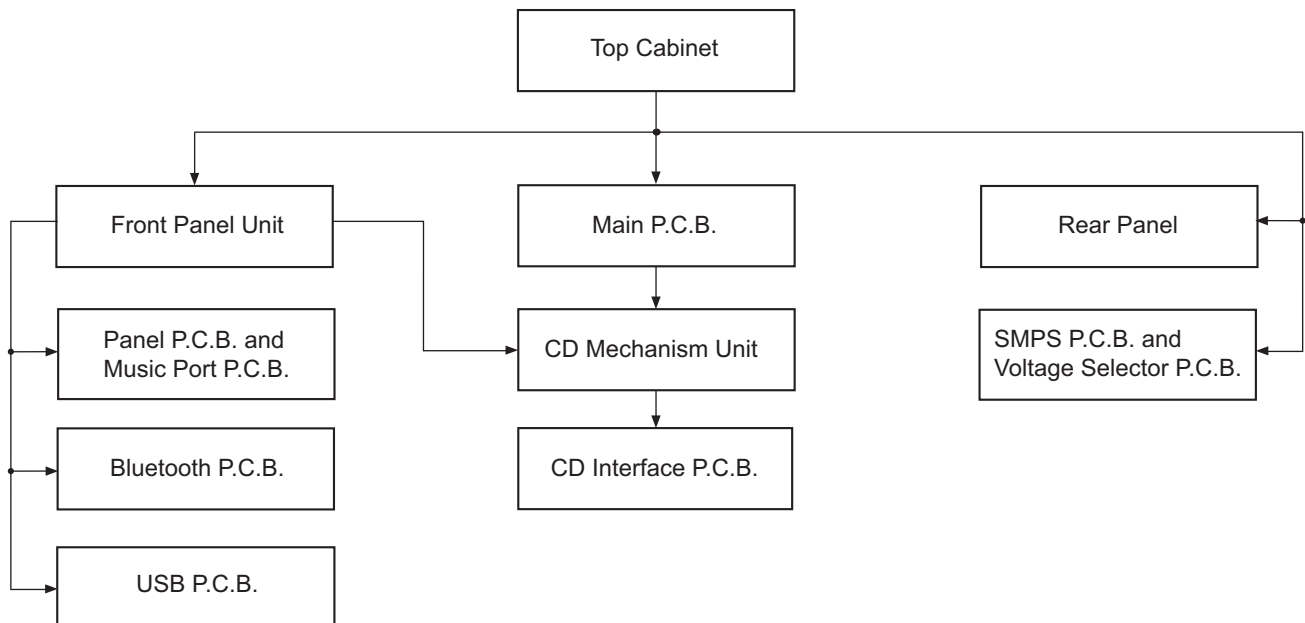
CAUTION NOTE:

Please use original screw and at correct locations.

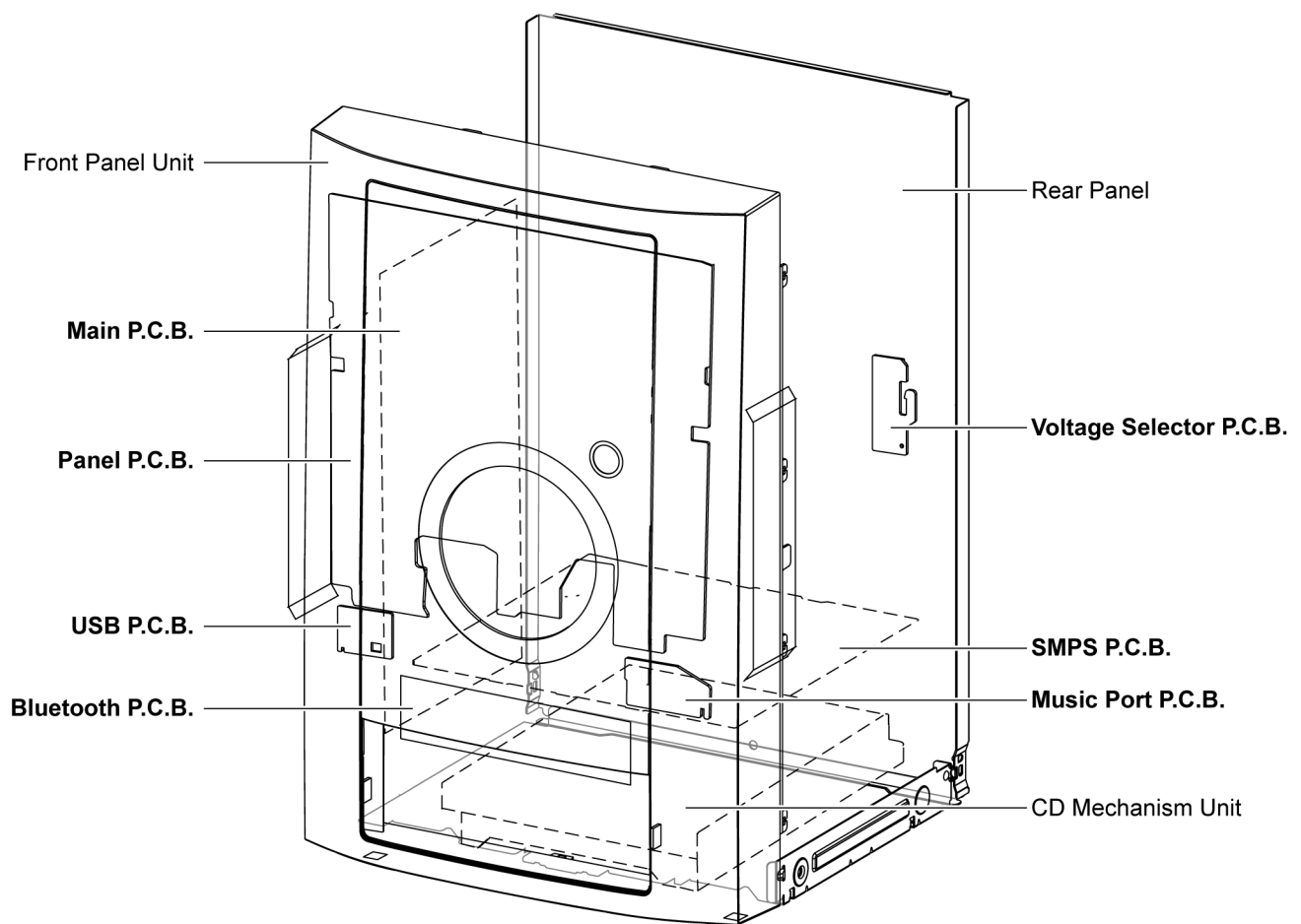
Below shown is part no. of different screw types used:

- | | |
|------------------------|----------------------|
| a :RHD30007-K2J | e :RHD26043-1 |
| b :RHD30119-S | f :RHDX031008 |
| c :RHD26046-L | g :XTN2+6GFJ |
| d :RHD30111-31 | |

8.2. Disassembly Flow Chart



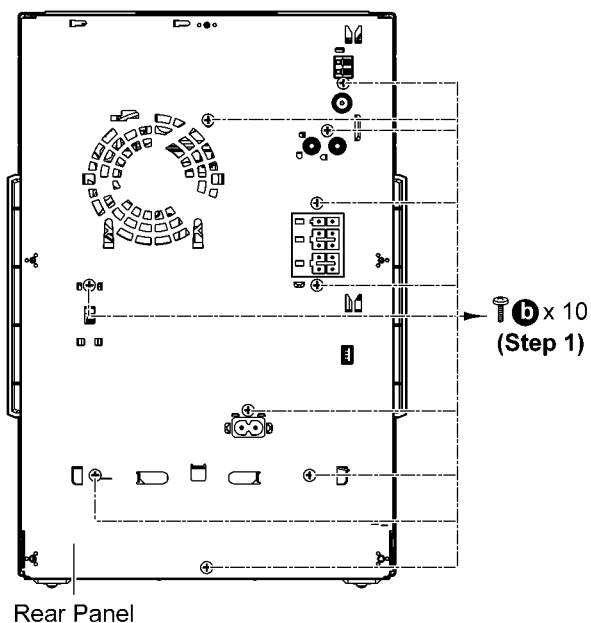
8.3. Main Components and P.C.B. Locations



8.9. Disassembly of Rear Panel.

- Refer to "Disassembly of Top Cabinet".

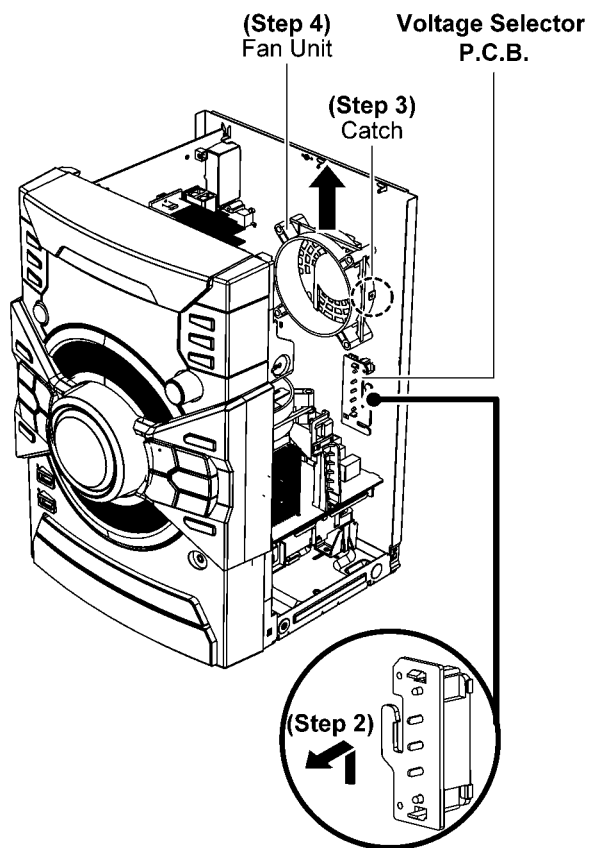
Step 1 Remove 10 screws.



Step 2 Detach Voltage Selector P.C.B..

Step 3 Release catch.

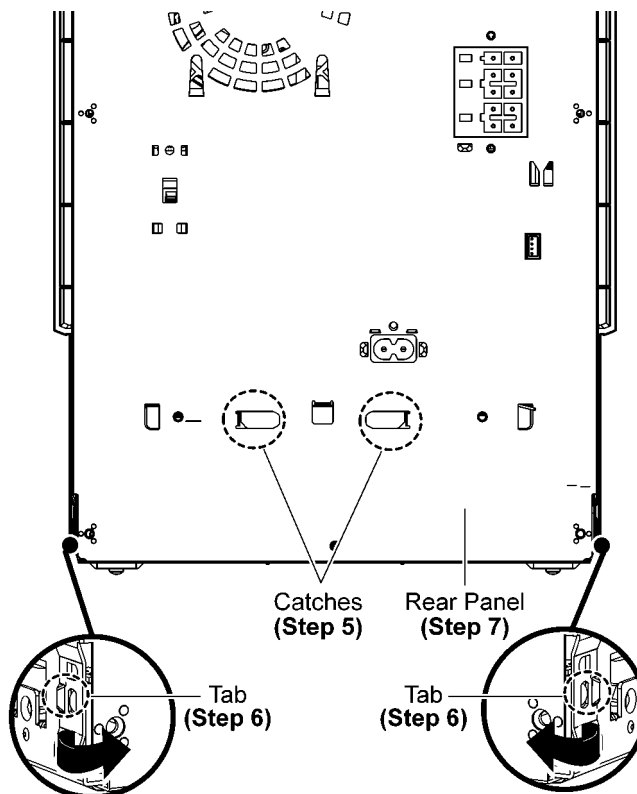
Step 4 Remove fan unit.

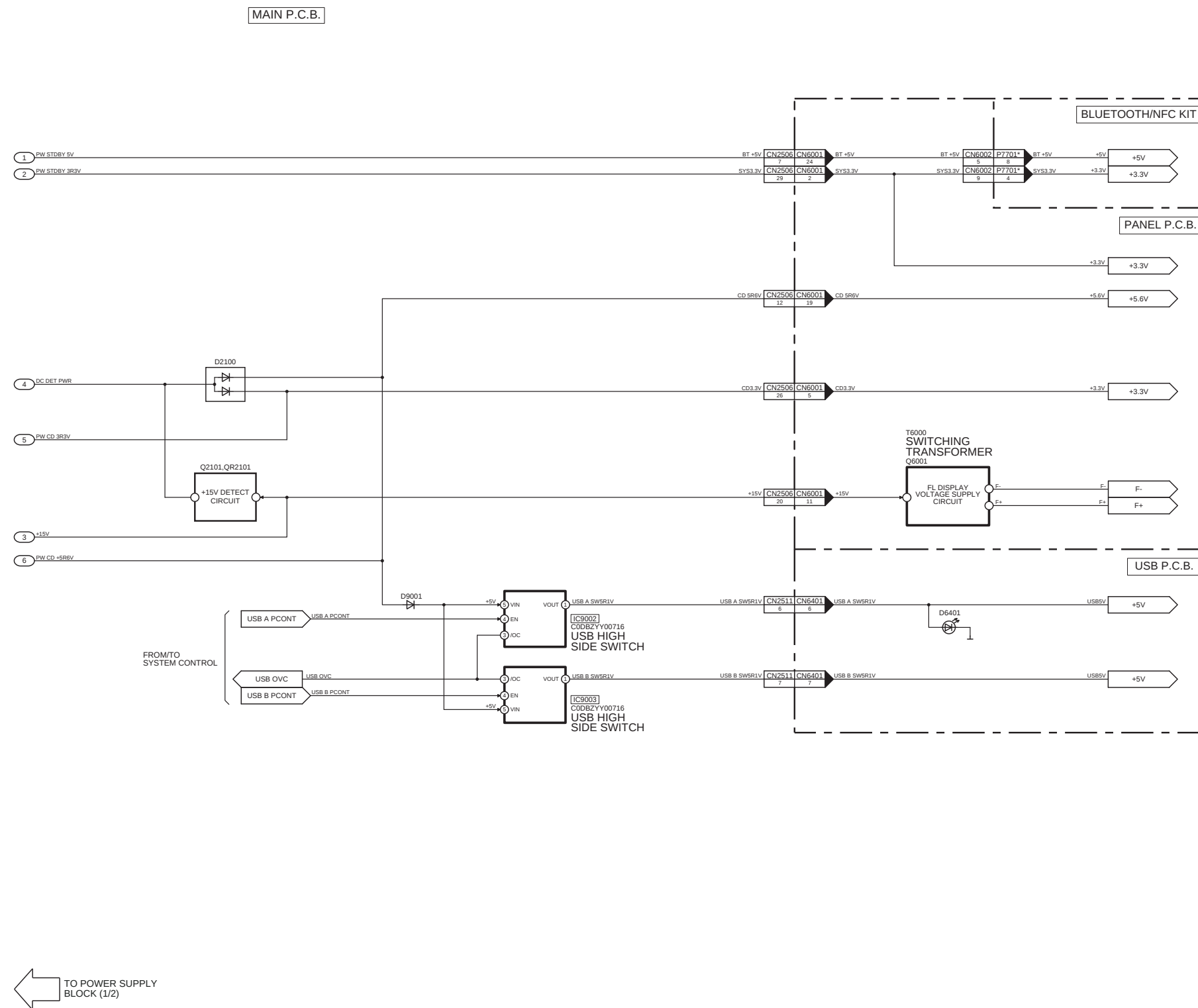


Step 5 Lift up to remove Inner Chassis Unit.

Step 6 Release tabs.

Step 7 Release to remove Rear Panel.

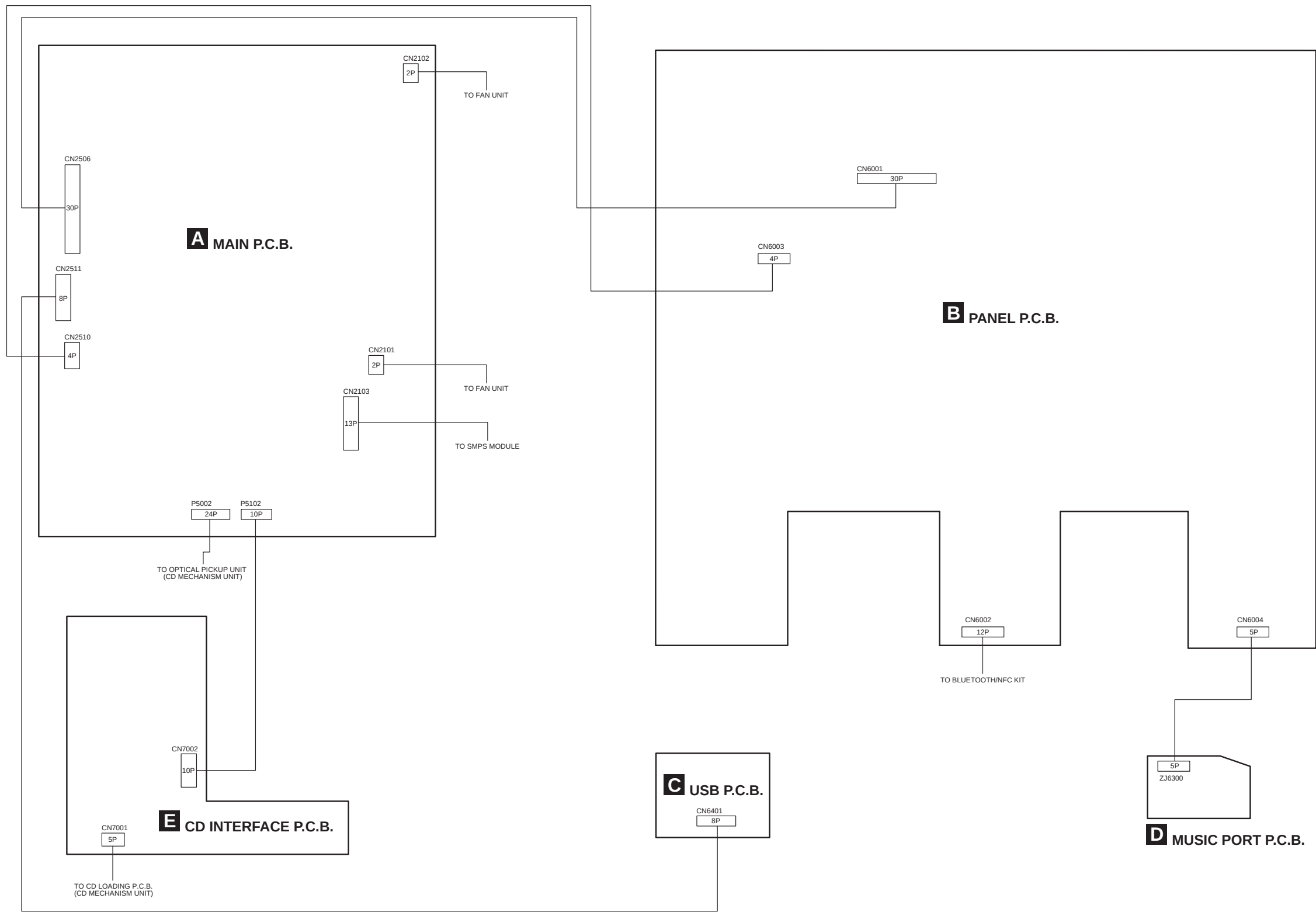




NOTE: “ * ” REF IS FOR INDICATION ONLY

SA-AKX58GN/PH/PN,SA-AKX78PH/PN POWER SUPPLY (2/2) BLOCK DIAGRAM

11 Wiring Connection Diagram



SA-AKX58GN/PH/PN, SA-AKX78PH/PN WIRING CONNECTION DIAGRAM

