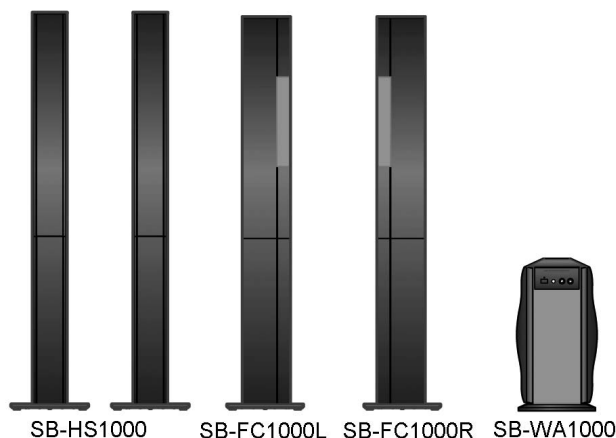


# Service Manual

## Speaker System



SB-HS1000

SB-FC1000L

SB-FC1000R

SB-WA1000

**SB-FS1000E**  
**SB-FC1000LE**  
**SB-FC1000RE**  
**SB-HS1000E**  
**SB-WA1000E**  
**SB-TP1000E**

Colour

(K)... Black Type

### Specification

**SB-FC1000L [For front speaker (left)]**

**SB-FC1000R [For front speaker (right)]**

Front speaker section

Type 3 way 4 speaker system Bass-reflex type

Speaker

Woofer (1 & 2) 8 cm cone type x 2

Tweeter (1) 2.5 cm dome type x 1

Super tweeter 1.2 cm dome type x 1

Impedance 6  $\Omega$

Input power (IEC) 200 W (Max), 100 W (RATED)

Sound pressure level 82.5 dB/W (1.0 m)

Crossover frequency 2.5 kHz, 20 kHz

Frequency range 65 Hz - 100 kHz (at -16 dB)

75 Hz - 90 kHz (at -10 dB)

Center speaker section

Type 3 way 3 speaker system Bass-reflex type

Speakers

Woofer (3) 8 cm cone type x 1

Midrange 6.5 cm cone type x 1

Tweeter (2) 2.5 cm dome type x 1

Impedance 12  $\Omega$

Input power (IEC) 100 W (Max), 50 W (RATED)

Sound pressure level 80 dB/W (1.0 m)

Crossover frequency

800 Hz, 3 kHz

Frequency range

65 Hz - 50 kHz (at -16 dB)

75 Hz - 40 kHz (at -10 dB)

General

Dimensions (W x H x D)

279 mm x 1298 mm x 279 mm  
(with the stand)

175 mm x 802 mm x 102 mm (For  
wall-mounting)

Mass

Approx. 12.6 kg (with the stand)

Approx. 5.4 kg (For wall-mounting)

**SB-HS1000E (For surround speakers)**

Type

2 way 3 speaker system Bass-reflex type

Speakers

Woofer (1 & 2) 8 cm cone type x 2

Tweeter 2.5 cm dome type x 1

Impedance 6  $\Omega$

Input power (IEC) 200 W (Max), 100 W (RATED)

Sound pressure level 82.5 dB/W (1.0 m)

Crossover frequency 2.5 kHz

Frequency range 65 Hz - 50 kHz (at -16 dB)

75 Hz - 40 kHz (at -10 dB)

Dimensions (W x H x D)

279 mm x 1298 mm x 279 mm  
(with the stand)

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125 mm x 802 mm x 87 mm (For wall-mounting)  
 Mass Approx. 9.3 kg (with the stand)  
 Approx. 3.7 kg (For wall-mounting)

Phase switching NORMAL/REVERSE  
 Low pass filter 50 Hz - 200 Hz Variable

## SB-WA1000E [For Active Subwoofer]

### ■ SPEAKER SECTION

Type 1 way 2 speaker system  
 Bass-reflex type

Speaker

Woofer (1 & 2) 17 cm cone type x 2

Sound pressure level 83 dB/W (1.0 m)

Frequency range (with amp) 28 Hz - 300 Hz (at -16 dB)  
 32 Hz - 240 Hz (at -10 dB)

### ■ GENERAL

Power supply AC 230 V - 240 V, 50Hz

Power consumption 140 W

Dimensions (W x H x D) 254 mm x 496 mm x 500 mm

Mass Approx. 22 kg

Power consumption in input standby condition: 1.5 W

### ■ Speaker System : SB-TP1000E-K

Front speaker (L) : SB-FC1000LE-K  
 Front speaker (R) : SB-FC1000RE-K  
 Surround speaker : SB-HS1000E-K  
 Active subwoofer : SB-WA1000E-K

### ■ AMPLIFIER SECTION

Output power 100 W (6  $\Omega$ ) x 2 (THD 0.9%)

Input sensitivity / Input Impedance 300 mV/33 k $\Omega$  (RCA jack)

### Notes :

Specifications are subject to change without notice.

## 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.

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# 1 Safety Precautions

## 1.1. General Guidelines

1. 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.
2. After servicing, ensure that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, check for leakage current checks to prevent 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. Using an ohmmeter measure the resistance value, 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  $5.2\Omega$ .

When the exposed metal does not have a return path to the chassis, the reading must be  $\infty$ .

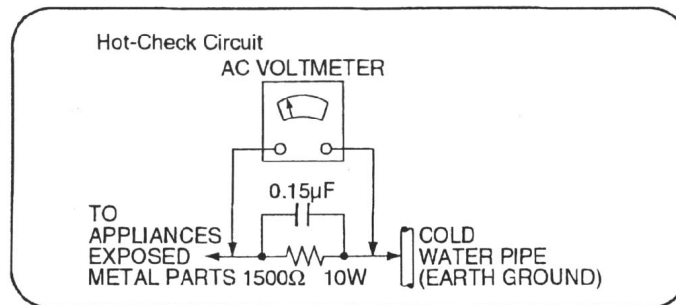


Figure 1

### 1.1.2. Leakage Current Hot Check (See Figure 1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 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. should the measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and re-checked before it is returned to the customer.

## 1.2. Caution for AC Cord



(For “EB” area code model only.)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local dealer.

### CAUTION!

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OFF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted, please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

### IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:


Blue: Neutral

Brown: Live

As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.

The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

**WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL  OR COLOURED GREEN OR GREEN/YELLOW.**

**THIS PLUG IS NOT WATERPROOF—KEEP DRY.**

### Before use

Remove the connector cover.

### How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.

Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.

Figure A

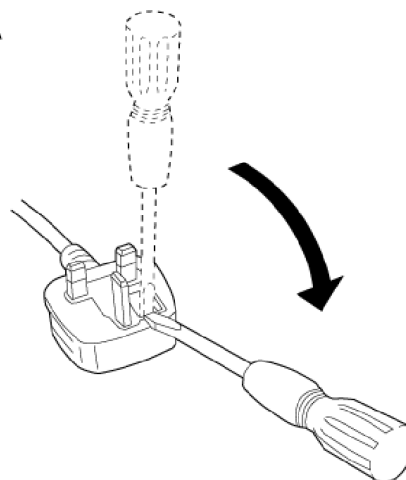
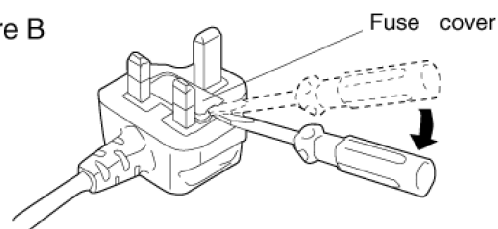


Figure B



2. Replace the fuse and close or attach the fuse cover.

Figure A

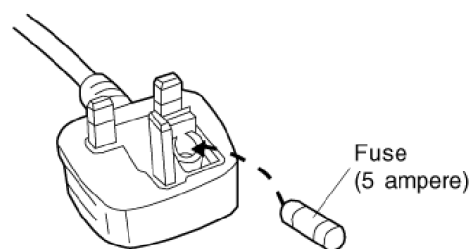
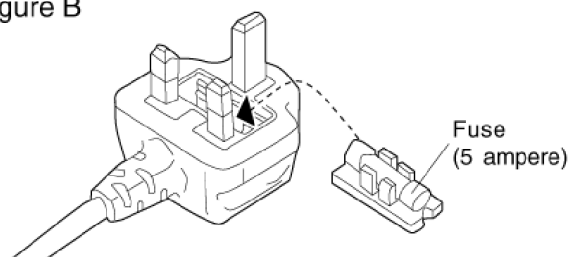


Figure B



### 1.3. Before Repair and Adjustment (For SB-WA1000E-K)

Disconnect AC power, discharge Power Supply Capacitors C508 & C703 through a 10 $\Omega$ , 1W resistor to ground.  
DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may destroy solid state devices.  
After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

- Current consumption at AC 230 V - 240 V, 50 Hz (NO SIGNAL mode) should be 200~700 mA.

### 1.4. Protection Circuitry

The protection circuitry may have operated if either of the following conditions are noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlines below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

### 1.5. Safety Part Information

#### Safety Parts List:

There are special components used in this equipment which are important for safety. These parts are marked by  $\triangle$  in the Schematic Diagrams & 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.

Table 1

Reference No.	Part No.	Part Name & Description	Remarks
28	RGR0352G-E	REAR PANEL	[M] $\triangle$
T701	G4C8AGH00004	POWER TRANSFORMER	[M] $\triangle$
T702	G4C2CAK00001	BACK-UP TRANSFORMER	[M] $\triangle$
Z702	ERZV10V511CS	ZENER	[M] $\triangle$
RLY601	K6B2AHA00014	RELAY	[M] $\triangle$
RLY701	K6B1AEA00003	RELAY	[M] $\triangle$
F1	K5D252BLA013	FUSE	[M] $\triangle$
F2	K5D202BK0005	FUSE	[M] $\triangle$
JK701	K2AA2B000011	AC INLET	[M] $\triangle$
W1	REE1205-1	BROWN WIRE	[M] $\triangle$
W2	REE1204-1	BLUE WIRE	[M] $\triangle$
C508	ECKWRS102MBC	100pF	[M] $\triangle$
C703	ECKWRS102MBC	100pF	[M] $\triangle$
A11	K2CJ2DA00010	AC CORD	[M] $\triangle$ (GN)
A11	K2CQ2CA00006	AC CORD	[M] $\triangle$ (E/EE)
A11	K2CT3CA00004	AC CORD	[M] $\triangle$ (EB)
PCB4	REP0128C	TRANSFORMER P.C.B.	[M] $\triangle$ (RTL)

## 2 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by 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 electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, 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 aluminium foil, to prevent electrostatic charge build up 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 remover device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges 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, aluminium 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 body motions when handling unpackaged replacement ES 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 (ESD) sufficient to damage an ES device).

### IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  $\triangle$  in the schematic 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.

## 3 About Lead-Free Solder (PbF)

### 3.1. Service caution based on legal restrictions

#### 3.1.1. General description about Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.

The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and Copper (Cu), and the melting point of the lead free solder is higher approx.30 degrees C (86°F) more than that of the normal solder.

#### Definition of PCB Lead Free Solder being used

The letter of "PbF" is printed either foil side or components side on the PCB using the lead free solder. (See right figure)	PbF
---	-----

#### Service caution for repair work using Lead Free Solder (PbF)

- The lead free solder has to be used when repairing the equipment for which the lead free solder is used.  
(Definition: The letter of "PbF" is printed on the PCB using the lead free solder.)
- To put lead free solder, it should be well molten and mixed with the original lead free solder.
- Remove the remaining lead free solder on the PCB cleanly for soldering of the new IC.
- Since the melting point of the lead free solder is higher than that of the normal lead solder, it takes the longer time to melt the lead free solder.
- Use the soldering iron (more than 70W) equipped with the temperature control after setting the temperature at 350±30 degrees C (662±86°F).

#### Recommended Lead Free Solder (Service Parts Route.)

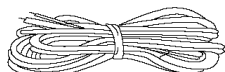
- The following 3 types of lead free solder are available through the service parts route.  
RFKZ03D01K----- (0.3mm 100g Reel)  
RFKZ06D01K----- (0.6mm 100g Reel)  
RFKZ10D01K----- (1.0mm 100g Reel)

#### Note

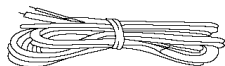
\* Ingredient: tin (Sn), 96.5%, silver (Ag) 3.0%, Copper (Cu) 0.5%, Cobalt (Co) / Germanium (Ge) 0.1 to 0.3%

## 4 Accessories

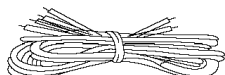
### SB-FS1000E-K



Speaker cables (long: 10m).... 2 pcs



Speaker cables (short: 6m).... 2 pcs



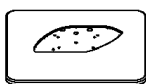
Center speaker cable (approx. 6m)....  
1 pc



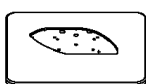
Stand base mounting screws .... 8 pcs



Stand mounting screws.... 4 pcs



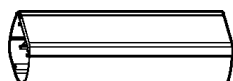
Front L stand base.... 1 pc



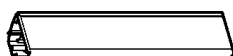
Front R stand base 1 pc



Surround stand bases.... 2 pcs



Front speaker stands.... 2 pcs



Surround speaker stands.... 2 pcs



Spacers.... 16 pcs

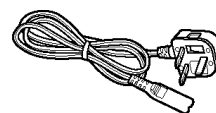


Nylon clamp.... 6 pcs



Screw for nylon clamp.... 6 pcs

### SB-WA1000E-K



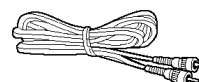
AC mains lead.... 1 pc (EB)



AC mains lead.... 1 pc (GN)



AC mains lead.... 1 pc (E/EE)

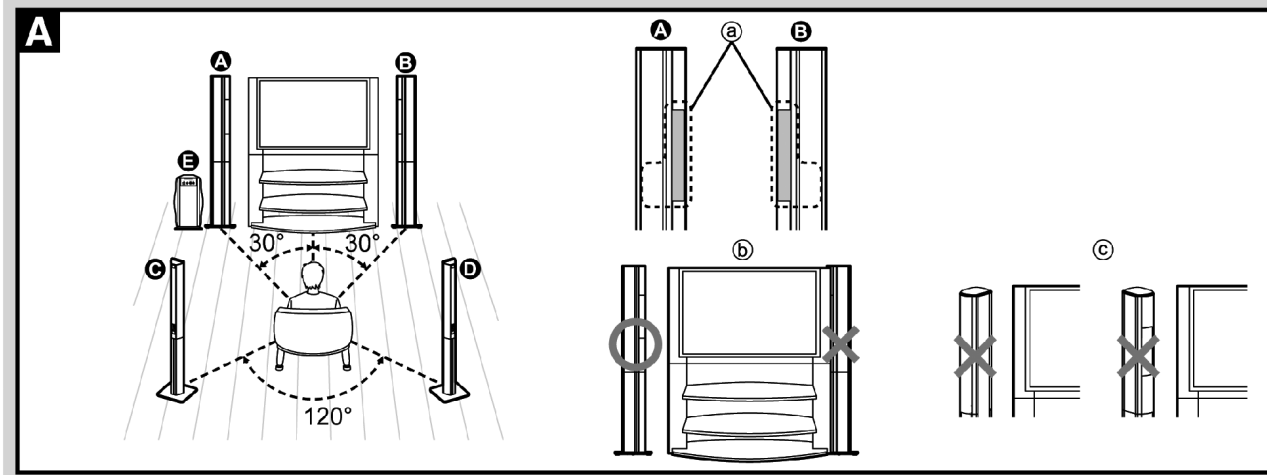


Monaural connection cable (5m).... 1 pc



## 5 Operating Instructions Procedures

### 5.1. Location



#### A Location

The front and surround speakers should be placed at approximately the same distance from the listening position. The angles in the diagram are approximate.

**Front speaker (including center channel)** (A left: **SB-FC1000L**, B right: **SB-FC1000R**)

- Put the front speakers on either side of the television. This system incorporates a center speaker in each of its front speakers. (a)
- Using a unique system from Panasonic that reflects the principles of auditory psychology, the sound seems to come from within the TV screen, letting you enjoy sound and images with a heightened sense of integration even if you are not seated directly in front of the TV set.
- It may be hard for the intended effect to be achieved under some listening and viewing conditions and with some of the playback sources.
- The effect will not be satisfactorily yielded if the left front speaker is installed on the right and the right front speaker on the left.
- The sound quality will not be satisfactorily yielded if the center speakers are hidden from the listener's view. (b)
- Do not position the front speakers so that they face outward or overly inward. Place them so that they are facing more or less straight ahead. (c)

**Surround speakers** (C left, D right: **SB-HS1000**)

- Put the surround speakers to the side of or slightly behind the seating area.

**Active subwoofer** (E : **SB-WA1000**)

- Place it at least 5 cm from the wall as it has a bass reflex port in the rear.
- Depending on speaker location, the low-range frequency characteristics will vary. When placed in the corner of a room, the volume will increase accordingly.

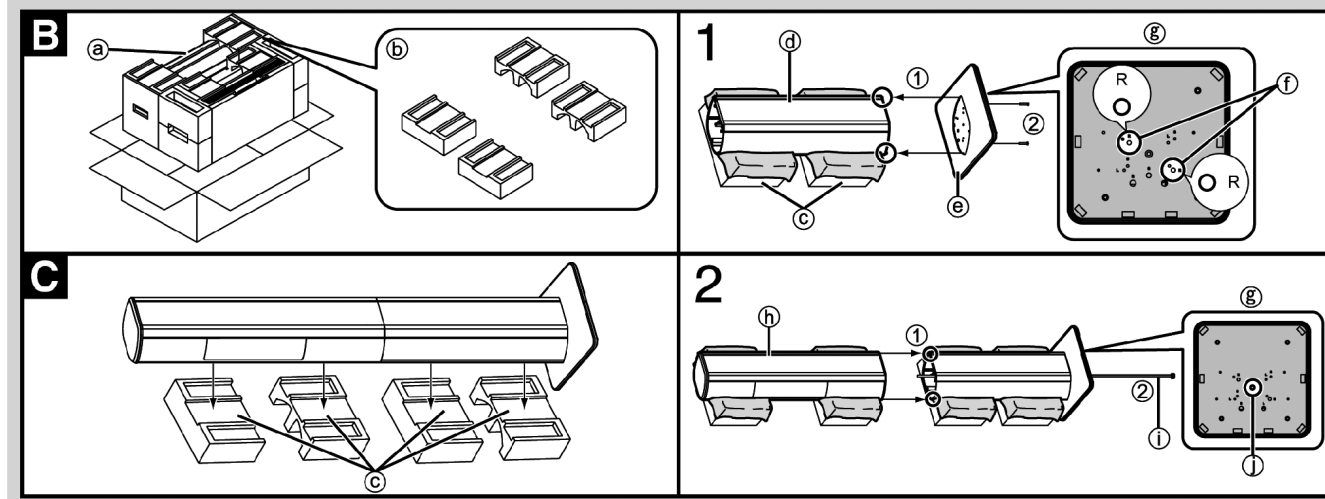
#### CAUTION

Do not attach the subwoofer to walls or ceilings.

How you set up your speakers can affect the bass and the sound field. Note the following points.

- Place them on a flat, level secure surface. Use spacers or similar items to stop them from rocking.
- Placing speakers too close to walls, and corners can result in excessive bass.
- Cover walls and windows with a thick curtain.
- Do not place anything on top of the subwoofer.

## 5.2. Assembly and Installation



### Assembly and Installation

#### Assembling the front speakers as stand types

- Do not apply an unreasonable force to the net at the front of the speaker unit. You cannot remove the front net.
- You can carry out assembly work stably by placing the cushions in the packing case beneath the speaker. Place the net sides of the speaker units face up.

#### B Cushions used

- Ⓐ Speaker units.
- Ⓑ Use the four cushions at the very top of the SB-FS1000.

#### C Method of setting cushions

- Ⓒ Place these surfaces face up.

Be sure to spread a cloth, for example, on the cushion to protect it from damage.

- After each task, tighten the screws securely.

#### 1. Fit the stand bases onto the front speaker stands.

- ① Align the two projections in one of the front speaker stands Ⓓ (provided) with the two holes in the front R stand base Ⓔ (provided), and fit together.

- The packing bag for the front R stand base and the packing bag for the front center speaker R are held in place by tape of the same color. Assemble the base and speaker with the same color tape.
- Similarly, the packing bag for the front L stand base and the packing bag for the front center speaker L are held in place by tape of the same color.

- ② Attach the stand base using the two stand base mounting screws (provided).

- Use the two screw holes marked "R" to attach the base. Ⓕ
- Align the positions of the holes marked "R" with the positions of the screw holes in the stand. If the positions do not line up, change the direction of the stand. (The base can be fitted onto the top or bottom of the stand.)
- When assembling front speaker L, use the screw holes marked "L" and fit.
- Tighten the screws alternately, and finally tighten them hard.
- Ⓖ Reverse side of stand base

#### 2. Fit the stand onto front speaker R.

- ① Align the two projections in the assembled stand with the two holes in front speaker R Ⓗ, and fit together.
- ② Attach the stand using the stand mounting screw Ⓘ (provided). Use the center screw hole to fit the stand on to the speaker. Ⓙ

#### 3. Connect the speaker cables (provided) to the terminals.

Before connection, pass the speaker cords through the hole marked "R" in the back of the stand base. Ⓚ

(Use the hole marked "L" for the left front speaker.)

Center speaker cable Ⓛ (approx. 6 m, provided)

Silver (cable) Ⓝ : Connect this to the "CENTER" black negative (–) terminal.

Copper (cable) Ⓞ : Connect this to the "CENTER" red positive (+) terminal.

Connect the other center speaker cable to the front speaker L terminal. Ⓟ

Speaker cables Ⓜ (short: 6 m, provided)

Silver (cable) Ⓟ : Connect this to the "LF" black negative (–) terminal.

Copper (cable) Ⓠ : Connect this to the "HF" red positive (+) terminal.

Do not remove the shorting bars. Ⓡ

- ① Turn the thumb nut in the loosening direction until the hole in the terminal becomes visible.
- ② Insert the conductor into the hole, and tighten the thumb nut.

#### CAUTION

Never short-circuit positive (+) and negative (–) speaker wires. Ⓢ

#### 4. Fix the speaker cables.

Press the speaker cables into the cable groove provided in the stand. The speaker cables must have a thickness of 2.8 mm or less to fit into the cable groove.

Ⓡ Cable groove

**When using speaker cables that are thicker than 2.8 mm, attach nylon clampers to the speakers and use them to fix the cables.**

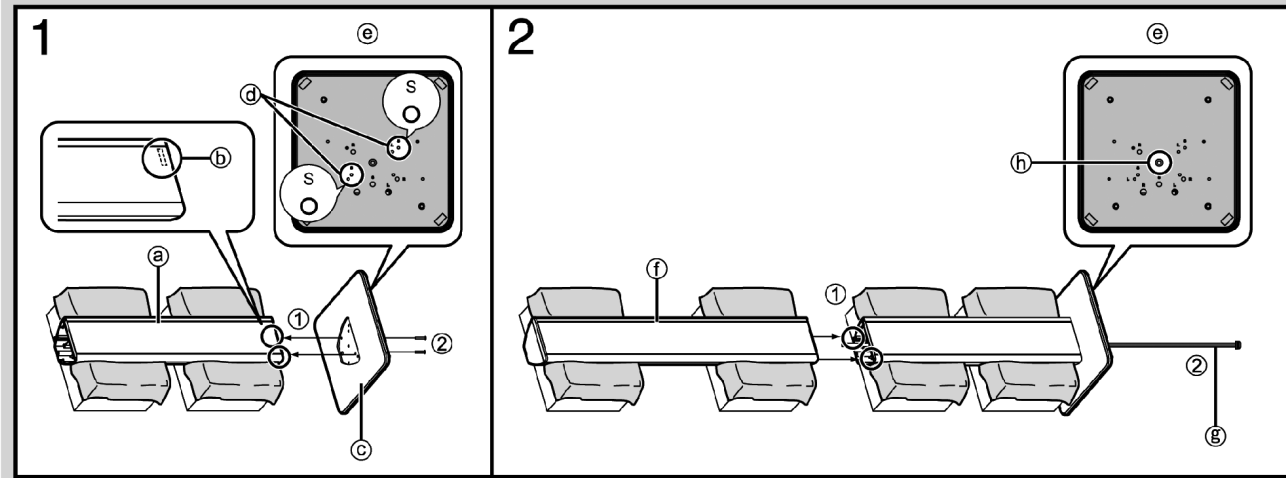
Example

Ⓣ Nylon clamp (provided)

Ⓡ Screw for nylon clamp (provided)

Ⓢ Speaker cables

Repeat steps 1 to 4 and assemble front speaker L.



## Assembly and Installation

### Assembling the surround speakers as stand types

- Do not apply an unreasonable force to the net at the front of the speaker unit. You cannot remove the front net.
- You can carry out assembly work stably by placing the cushions in the packing case beneath each speaker. Place the net sides of the speaker units face up. Use the same cushions as used for the front speakers.
- Be sure to spread a cloth, for example, on the cushion to protect it from damage.
- After each task, tighten the screws securely.

#### 1. Fit the stand bases onto the surround speaker stands.

- Align the two projections in one of the surround speaker stands (a) (provided) with the two holes in one of the surround stand bases (c) (provided), and fit together.  
Install the stand base at the end where the sticker has been adhered on the inside. (b)
- Attach the stand base using the two stand base mounting screws (provided).  
Use the two screw holes marked "S" to attach the base. (d)  
(e) Reverse side of stand base

#### 2. Fit the stands onto the surround speakers.

- Align the two projections in the assembled stand with the two holes in the surround speaker (f), and fit together.
- Attach the stand using the stand mounting screw (g) (provided).  
Use the center screw hole to fit the stand on to the speaker. (h)

#### 3. Connect the speaker cables (provided) to the terminals

Before connection, pass the speaker cords through the hole marked "S" in the back of the stand base. (i)

Speaker cables (j) (long: 10 m, provided)

Silver (cable) (k) : Connect this to the black negative (-) terminal.

Copper (cable) (l) : Connect this to the red positive (+) terminal.

#### **CAUTION**

Never short-circuit positive (+) and negative (-) speaker wires.

#### 4. Fix the speaker cables.

Press the speaker cables into the cable groove provided in the stand.

The speaker cables must have a thickness of 2.8 mm or less to fit into the cable groove.

(m) Cable groove

**When using speaker cables that are thicker than 2.8 mm, attach nylon clamps to the speakers and use them to fix the cables.**

Example

(x) Nylon clamp (provided)

(y) Screw for nylon clamp (provided)

(z) Speaker cables

Repeat steps 1 to 4 and assemble the other surround speaker.

#### **D Attaching a stabilizing wire**

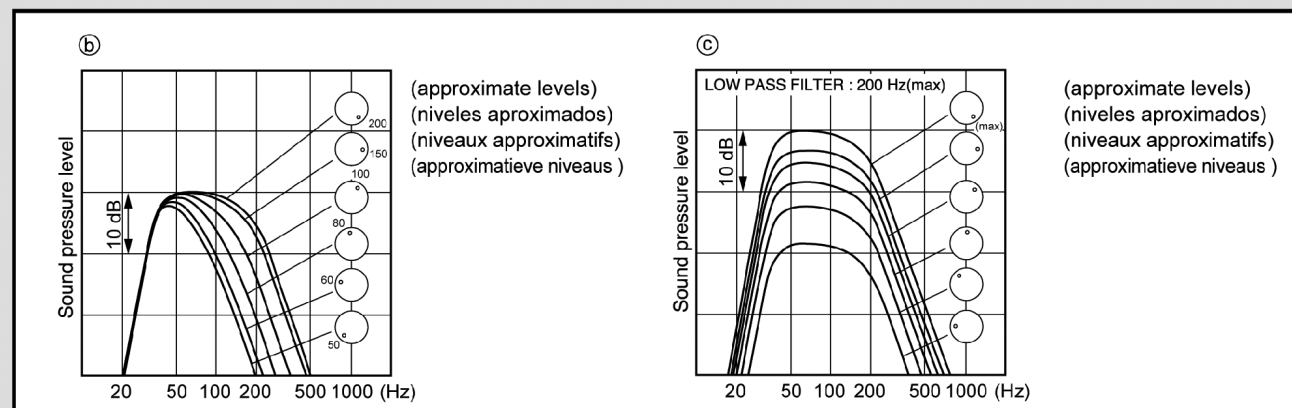
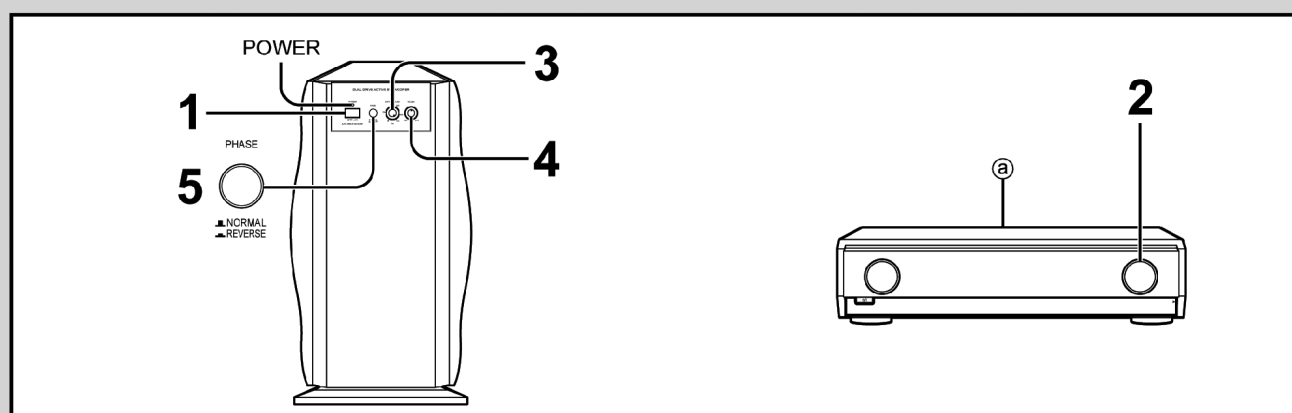
Example (A) Remove the cover. (B) Wire (not included)

(C) Ring (not included) (D) Screw (not included)

The wall on which the speakers are to be mounted and the screws (D) (not included) used for installing the speakers must be strong enough to support a weight of at least 65 kg for the front speakers and 50 kg for the surround speakers. Consult the contractor in charge of the work.

※ A screw which is at least 35 mm long is used when installing the speaker on a wooden post or pillar. In all other cases, use a screw which is strong enough to support a weight of at least 65 kg or 50 kg.

## 5.3. Subwoofer operation



### Subwoofer operation

The active subwoofer reproduces very low frequency sound monaurally, making use of the fact that the human ear does not sense direction in the low frequency region. You can emphasize low frequencies by combining the active subwoofer with the speaker system.

#### 1. Set [POWER] to "■ON".

The indicator turns green.

#### 2. Output sound from the receiver or amplifier <sup>(a)</sup> and adjust the volume to a suitable level.

See the operating instructions for the other equipment for details.

- Do not adjust the bass as this can cause distortion.
- If the volume control on the amplifier is left in the minimum position or there is no signal from the amplifier for more than 10 minutes, the active subwoofer will automatically switch to standby and the power lamp will turn red. If you turn up the volume control on the amplifier or if a signal enters the subwoofer from the amplifier, the subwoofer will automatically switch to the operation mode and the power lamp will turn green.

Note, however, that the subwoofer may sometimes fail to switch to standby due to noise emitted by the amplifier to which it is connected.

#### 3. Set [LOW PASS FILTER].

- Refer to "Frequency response by LOW PASS FILTER setting" <sup>(b)</sup>.
- When you adjust the frequency domain of subwoofer with your receiver or amplifier, set [LOW PASS FILTER] to 200 Hz.

#### 4. Adjust [VOLUME] to a suitable level.

- Gradually turn up the volume control from the minimum position and set it in a position where the output from the subwoofer is balanced with the front speakers and also there is no distortion in the low frequency region.
- Refer to "Level change according to volume control setting" <sup>(c)</sup>.

#### 5. Play something, then set [PHASE] to "■NORMAL" or "■REVERSE" so the sound is normal.

The subwoofer and speakers cancel each other out (causing unusual, muffled sound) if the phase setting is incorrect.

#### ■ Set [POWER] to "■OFF".

The indicator turns off.

#### When you wish to reproduce 2-channel stereo music

The output in the low range sometimes may be excessively high depending on the setting of the amplifier and the active subwoofer when you are reproducing a multi-channel movie source.

#### Reduce the subwoofer level at the amplifier side.

Also, note that you may be able to obtain more natural sound quality by reducing the frequency of the "low-pass filter" on the active subwoofer.

#### Note

If the volume output is too loud, this unit's amplifier can be clipped, causing output to sound unusual. Reduce the volume of the receiver or amplifier or the volume of this unit if this occurs.

#### When settings are complete

The only operation you should have to perform daily is press [POWER] to turn the unit ON/OFF.

If you reposition the system and the acoustics change, reset the unit as necessary.

#### Protection circuitry (SB-WA1000)

This speaker is provided with a protection circuit. If trouble develops inside the speaker because the speaker is being used in an abnormally hot location or because excessively high input signals are supplied, the protection circuit may be triggered, shutting down the output. It could take approximately an hour for the protection circuitry to reset.

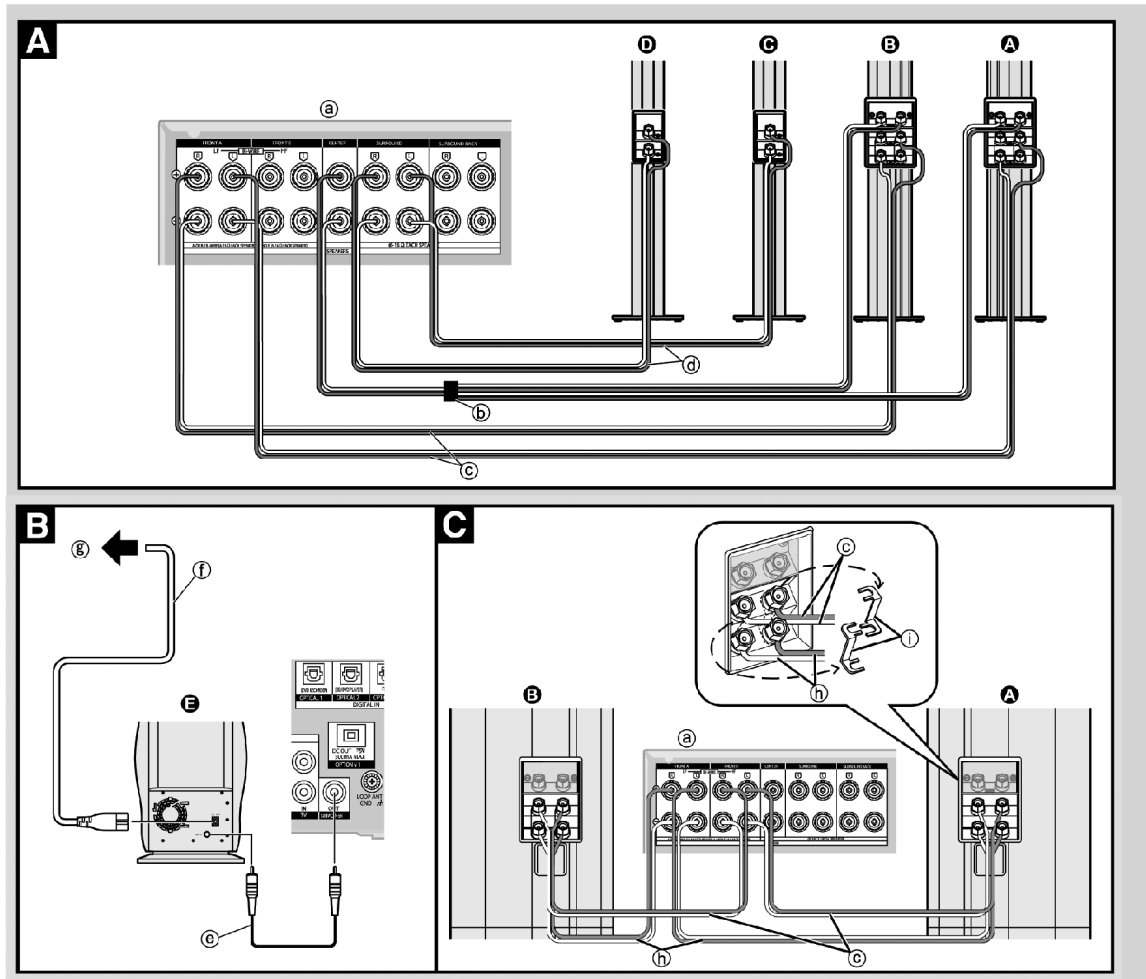
#### If sound is interrupted during play...

1. Reduce the volume level from the receiver or amplifier.
2. Press [POWER] to turn the unit off.
3. Check the temperature and connections for problems.
4. Remove the cause of any problems discovered. Press [POWER] to turn the unit on.

#### Should the unit still not function properly...

Pull out the plug and consult your dealer.

### 5.3.1. Connection of the Speaker Cables



## Connections

Connect to a receiver or amplifier (a) with 6-Ω impedance for the front and surround speakers, and a pin-type output terminal for an active subwoofer. You cannot connect these speakers to any equipment other than this amplifier.

### Before connection

Turn off the other equipment.

Do not connect the AC mains lead until all other cables and cords are connected.

### A Front and surround speakers

With the front speakers (A) and (B), connect their center speaker cables (b) (approx. 6 meters) to the center terminals on the amplifier, and connect the speaker cables (c) (short: 6 meters) to the front terminals. With the surround speakers (C) and (D), connect the speaker cables (d) (long: 10 meters) to the surround terminals.

Be sure to connect the (+) ends of the speaker cables to the positive (+) terminals of the amplifier and connect their (-) ends to its negative (-) terminals.

### CAUTION

Never short-circuit positive (+) and negative (-) speaker wires.

### B Subwoofer

1. Connect using the included monaural connection cable (e) to the receiver or amplifier's subwoofer output terminal.

For the United Kingdom:

**BE SURE TO READ THE CAUTION FOR THE AC MAINS LEAD ON PAGE 3 BEFORE CONNECTION.**

2. Connect the AC mains lead (f) to the household AC outlet (g).

The included AC mains lead is for use with this unit only.

Do not use it with other equipment.

### C Bi-wiring connections

The front speakers come with separate mid/high-range (HF) and low-range (LF) terminals. If your amplifier comes with two sets of speaker terminals marked A and B, for instance, you can enjoy a more expansive sound field and a greater depth in the sound by connecting the speaker terminals to the terminals A and B on the amplifier.

- Remove the shorting bars (i) (but be sure to keep them in a safe place).
- Use the speaker cables (h) (not provided) to connect both the HF and LF terminals on the amplifier to the front speakers.
- Set the speaker selector switch on the amplifier to A/B (both A and B). (For further details, refer to the operating instructions of the amplifier.)

### Note

- Do not move the speaker while the speaker cables are connected. This may cause a short circuit.
- Make sure to bundle the speaker cable with a string etc. when re-locating the speaker cables.

## 6 Assembling and Disassembling

### “ATTENTION SERVICER”

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

1. This section describes procedures for checking the operation and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures.

Special reassembly procedures are described only when required.

3. Select items from the following index when checks or replacement are required.
4. Refer to the Parts No. on the page of “Parts Location and Replacement Parts List” (Section 6), if necessary.

### Below is the list of disassembly sections

#### • For SB-FC1000LE / SB-FC1000RE-K (Front speakers)

Disassembly of Stand base  
 Disassembly of Main net frame assembly  
 Disassembly of Front woofer speaker 1 (SP3)  
 Disassembly of Super tweeter speaker (SP5)  
 Disassembly of Tweeter speaker 1 (SP1)  
 Disassembly of Center speaker (SP4)  
 Disassembly of Front woofer speaker 2 (SP3)  
 Disassembly of Net assembly  
 Disassembly of Tweeter speaker 2 (SP1)  
 Disassembly of Mid-range speaker (SP2)  
 Disassembly of Bottom cover  
 Disassembly of Network assembly (PCB1)

#### • For SB-HS1000E-K (Surround speaker)

Disassembly of Stand base  
 Disassembly of Main net frame assembly  
 Disassembly of Front woofer speaker 1 (SP2)  
 Disassembly of Tweeter speaker (SP1)  
 Disassembly of Front woofer speaker 2 (SP2)  
 Disassembly of Bottom cover

#### • For SB-WA1000E-K (Woofer speaker)

Disassembly of Front net frame assembly  
 Disassembly of Woofer unit 1 (SP1)  
 Disassembly of Rear net frame unit  
 Disassembly of Woofer unit 2 (SP1)  
 Disassembly of Panel P.C.B. and LED P.C.B.  
 Disassembly of Stand base  
 Disassembly of AMP unit  
 Disassembly of Rear panel assembly  
 Disassembly of Fan unit  
 Disassembly of Power P.C.B., Main P.C.B. and Transformer P.C.B.

**CAUTION NOTE:**

Please use original screw and at correct locations.

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

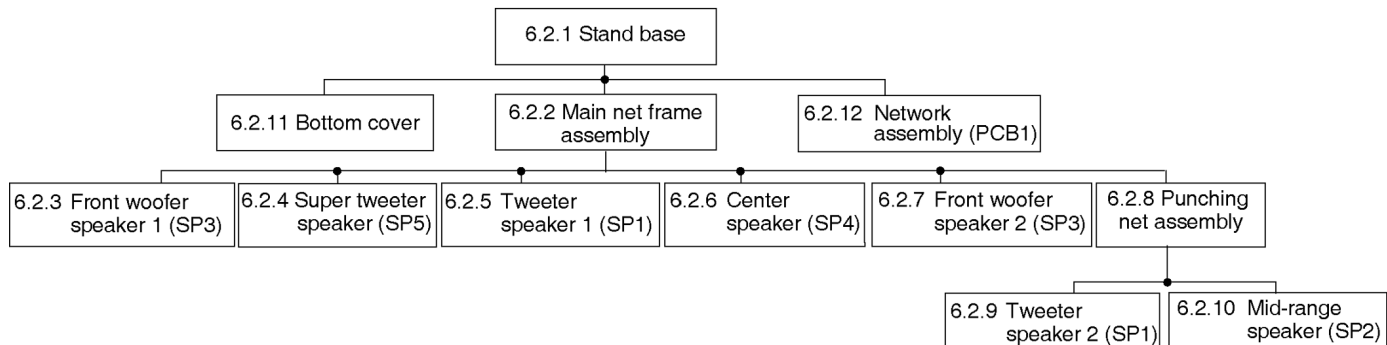
- a** :XSB4+20FJK
- b** :RXQ1497
- c** :RHD30145
- d** :XTB3+12JFJK
- e** :XTB3+8JFJ
- f** :XTS3+14JFJK
- g** :RHD30144
- h** :XTB4+16AFJK
- i** :RHD26050
- j** :RHD26045-L
- k** :XST5+30FN
- l** :XTS4+20JFJ
- m** :XTB3+16AFJK
- n** :RHD30119-K
- o** :RHD30092-1
- p** :XTB3+20JFJ
- q** :RHD30119-S
- r** :XTW3+15TFJ

## 6.1. Disassembly flow chart

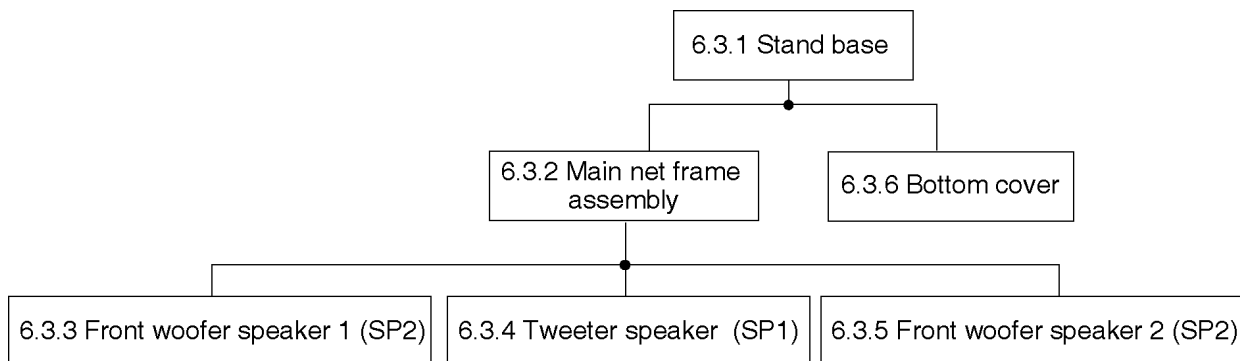
The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.

To assemble the unit, reverse the steps shown in the chart as below.

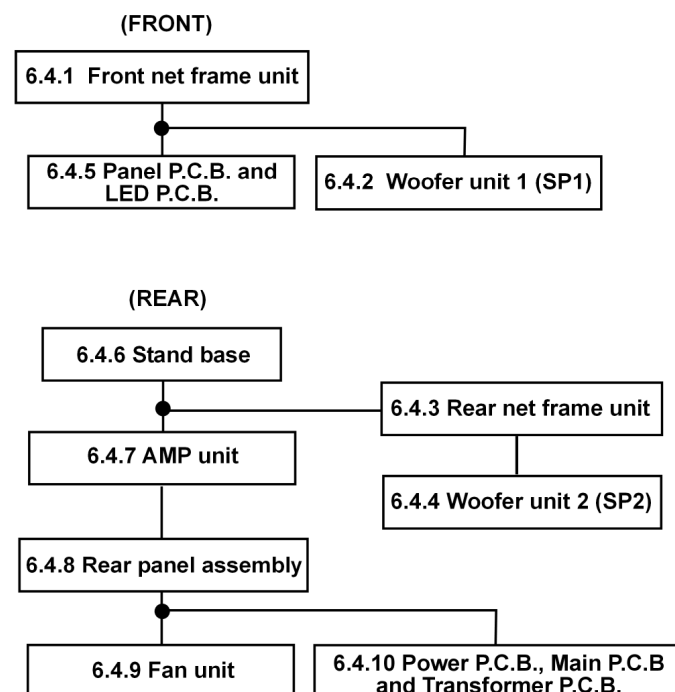
### 6.1.1. SB-FC1000LE-K / SB-FC1000RE-K (Front speakers)



### 6.1.2. SB-HS1000E-K (Surround speaker)



### 6.1.3. SB-WA1000E-K (Active subwoofer)



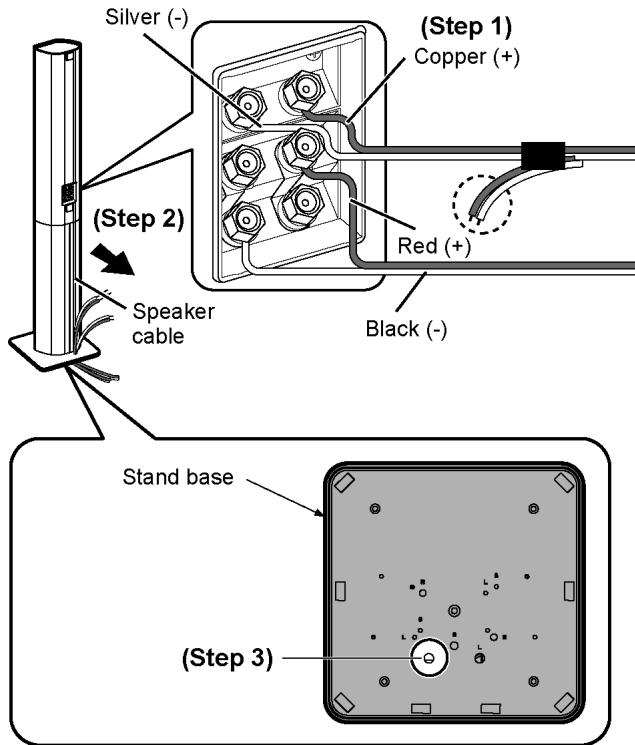


## 6.2. SB-FC1000LE-K/SB-FC1000RE-K (For Front Speakers)

### 6.2.1. Disassembly of Stand base

The illustration shows disassembly for both left and right front speakers.

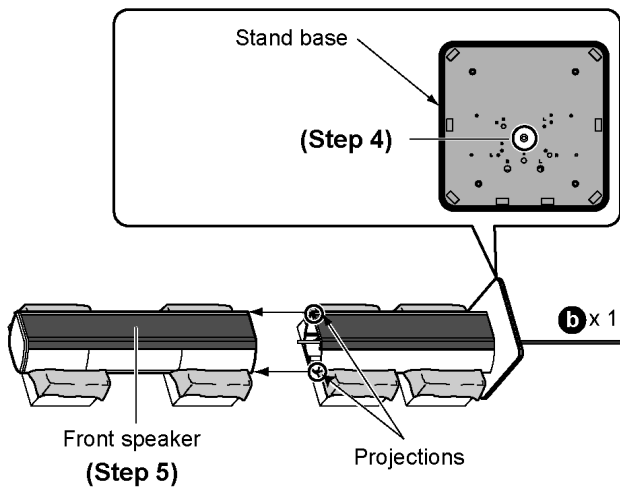
Note: This section is applicable if the complete speaker is sent in together during repairs.



**Step 1:** Disconnect the speaker cables from the terminal.

**Step 2:** Pull out the speaker cable from the groove.

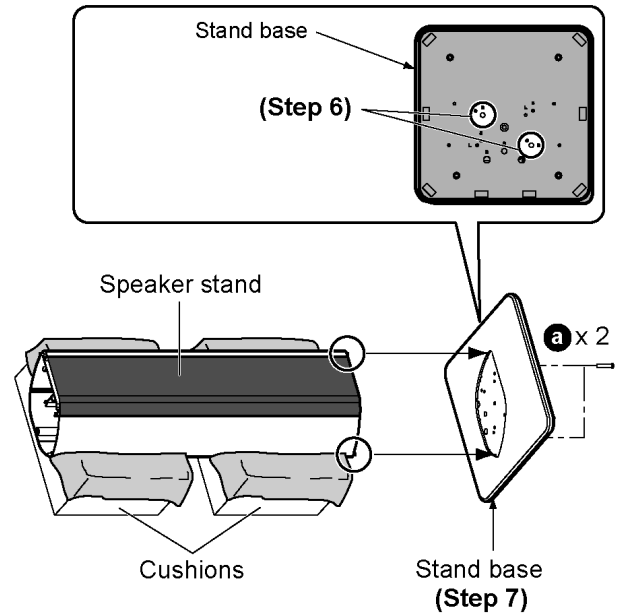
**Step 3:** Pull out the speaker cable from the hole marked in the back of the stand base.



**Step 4:** Remove the screw from the hole marked in the back of

the stand base.

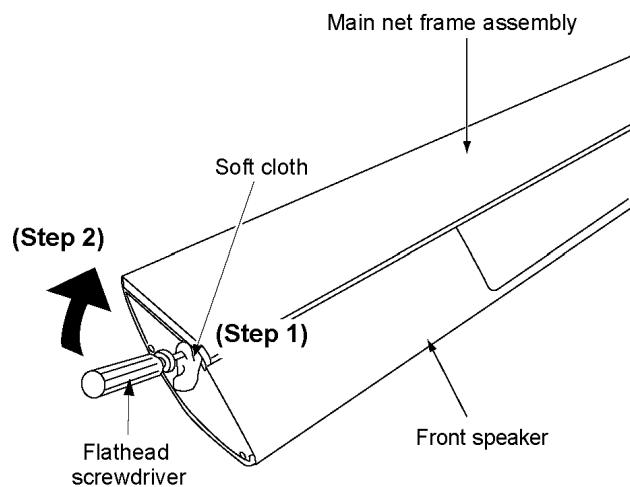
**Step 5:** Remove front speaker from 2 projections of the speaker stand.



**Step 6:** Remove 2 screws from the holes marked in the back of the stand base.

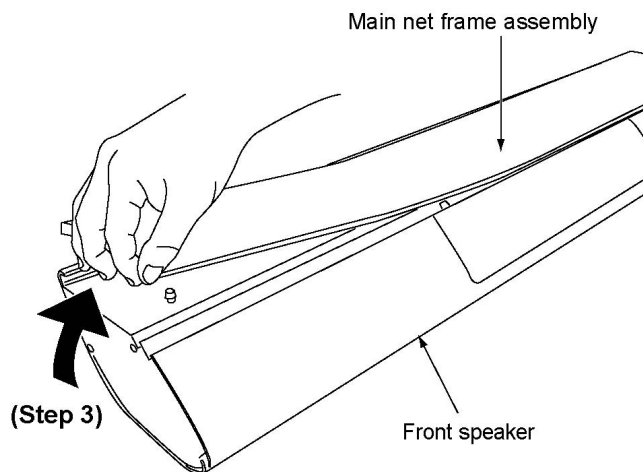
**Step 7:** Remove the stand base.

## 6.2.2. Disassembly of Main net frame assembly

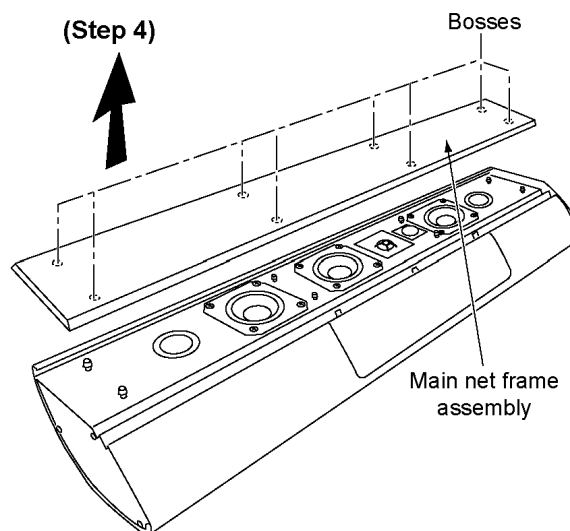


**Step 1:** Insert flathead screwdriver into the gap between front speaker and main net frame assembly.

**Step 2:** Push up the main net frame assembly slightly as arrow shown.



**Step 3:** Lift up main net frame assembly as arrow shown.



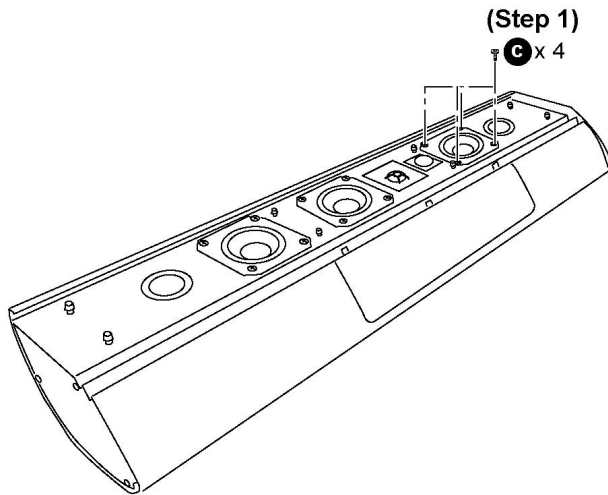
**Step 4:** Remove main net frame assembly.

### Caution:

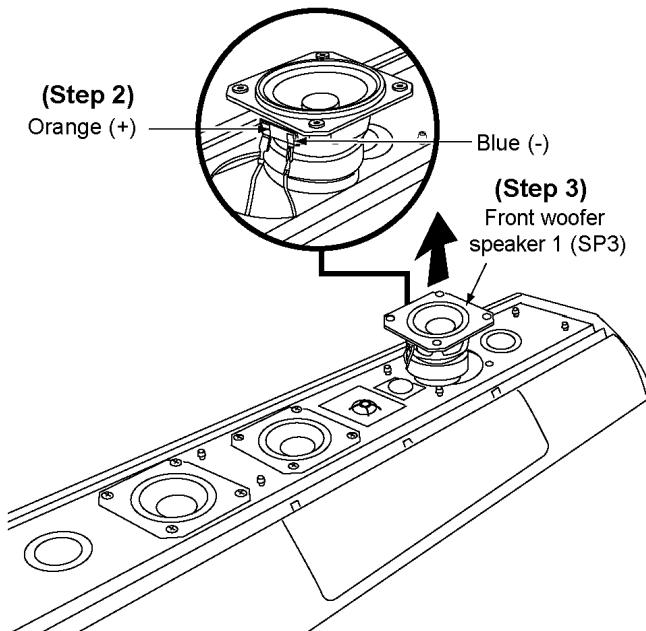
Do not exert strong force as it may damage the main net frame assembly.

### 6.2.3. Disassembly of Front woofer speaker 1 (SP3)

Follow (step 1) to (step 4) in Item 6.2.2.



**Step 1:** Remove 4 screws.

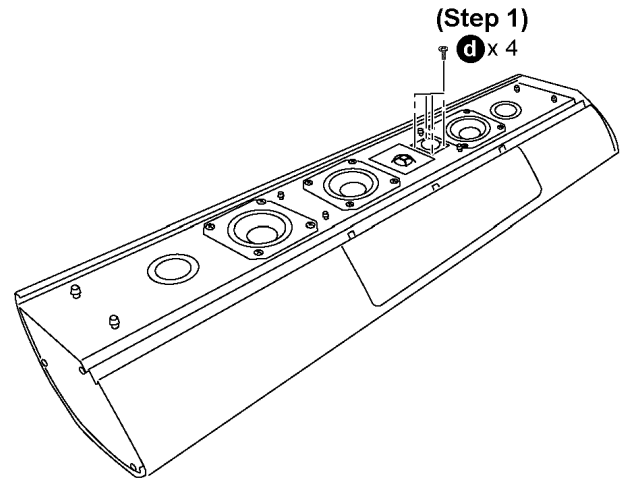


**Step 2:** Detach orange (+) and blue (-) wires.

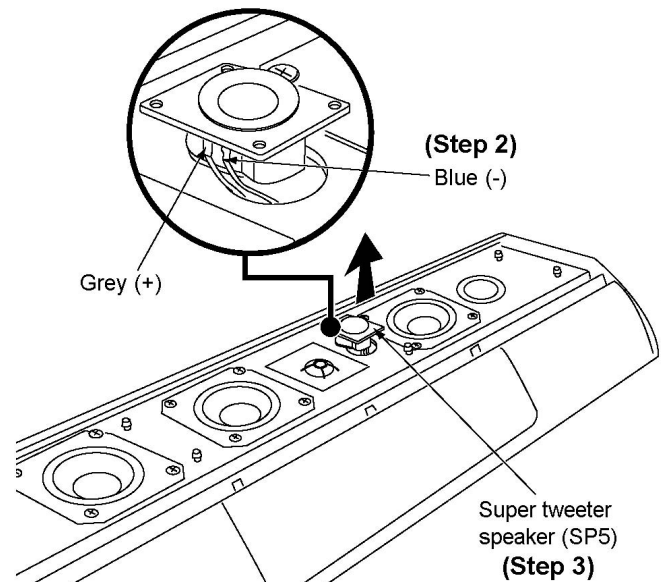
**Step 3:** Remove front woofer speaker 1 (SP3).

### 6.2.4. Disassembly of Super tweeter speaker (SP5)

Follow (step 1) to (step 4) in Item 6.2.2.



**Step 1:** Remove 4 screws.

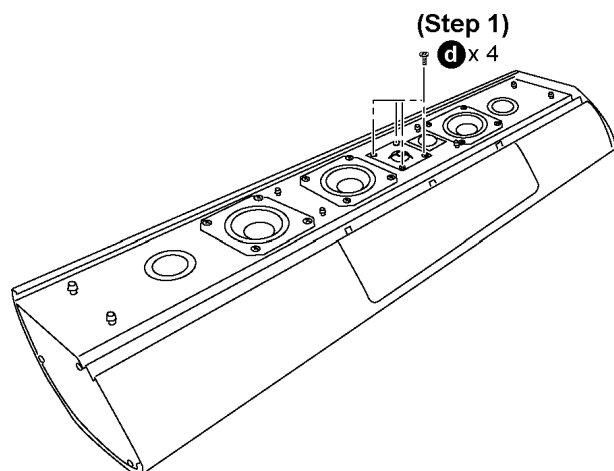


**Step 2:** Detach grey (+) and blue (-) wires.

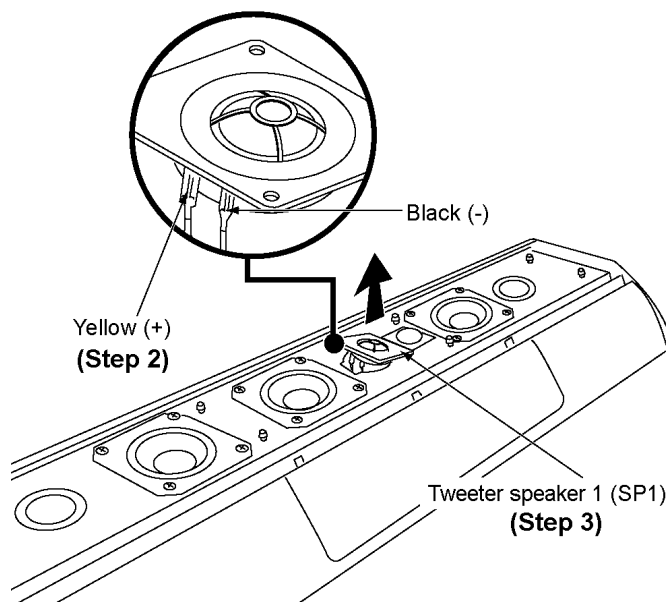
**Step 3:** Remove super tweeter speaker (SP5).

## 6.2.5. Disassembly of Tweeter speaker 1 (SP1)

Follow (step 1) to (step 4) in Item 6.2.2.



**Step 1:** Remove 4 screws.

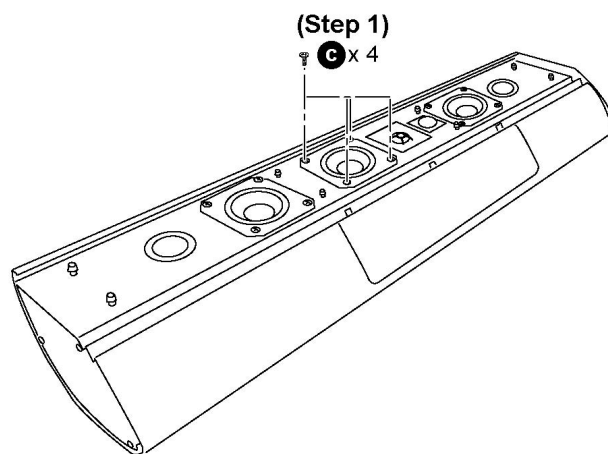


**Step 2:** Detach yellow (+) and black (-) wires.

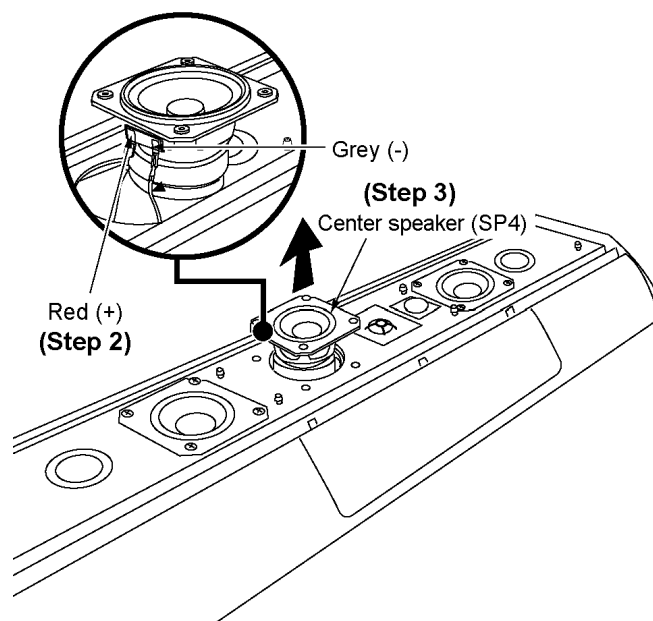
**Step 3:** Remove tweeter speaker 1 (SP1).

## 6.2.6. Disassembly of Center speaker (SP4)

Follow (step 1) to (step 4) in Item 6.2.2.



**Step 1:** Remove 4 screws.

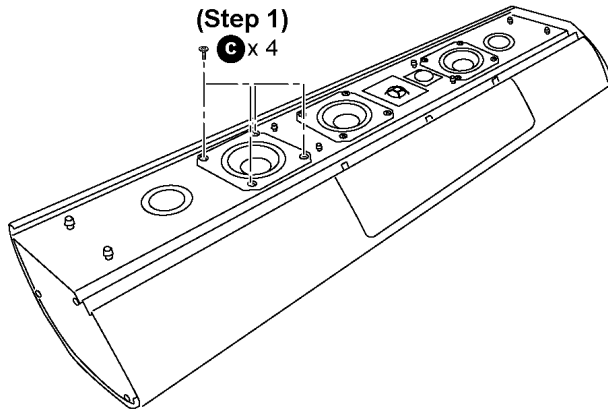


**Step 2:** Detach red (+) and grey (-) wires.

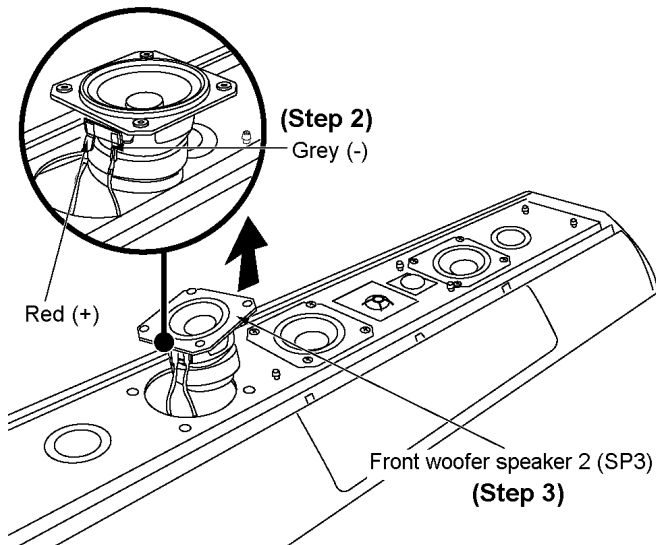
**Step 3:** Remove center speaker (SP4).

### 6.2.7. Disassembly of Front woofer speaker 2 (SP3)

Follow (step 1) to (step 4) in Item 6.2.2.



**Step 1:** Remove 4 screws.

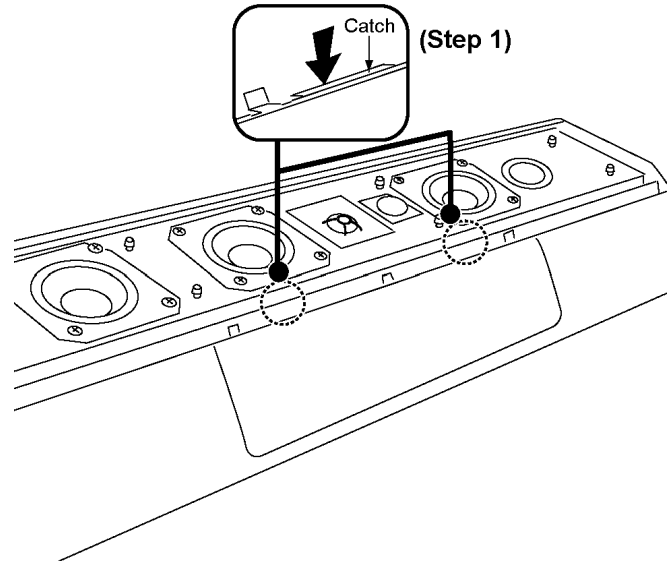


**Step 2:** Detach red (+) and grey (-) wires.

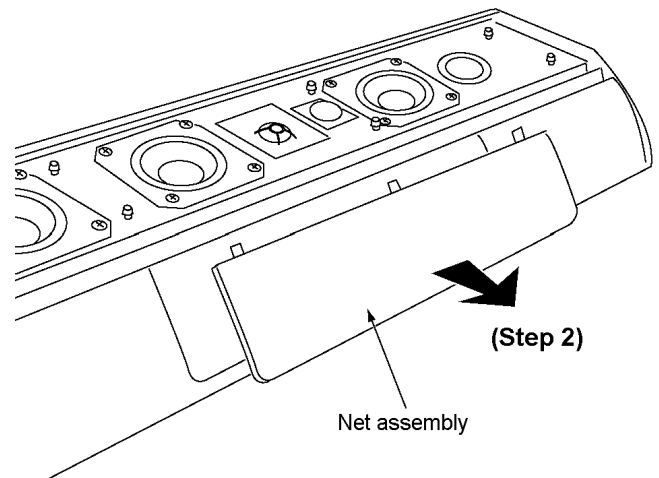
**Step 3:** Remove front woofer speaker 2 (SP3).

### 6.2.8. Disassembly of Net assembly

Follow (step 1) to (step 4) in Item 6.2.2.



**Step 1:** Press 2 catches.

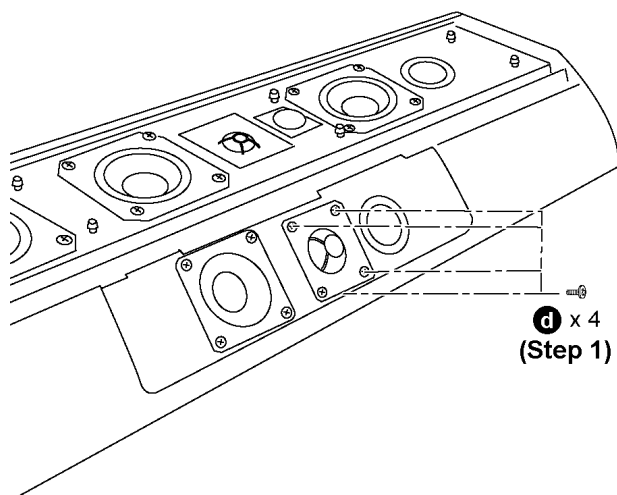


**Step 2:** Remove Net assembly.

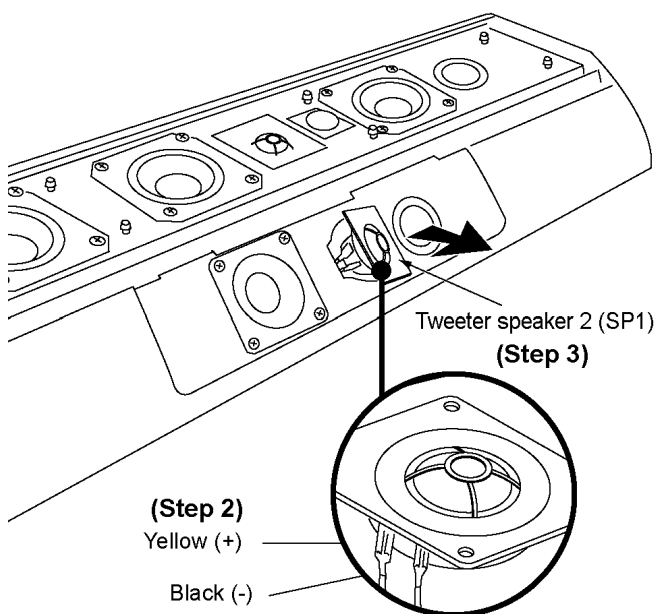
## 6.2.9. Disassembly of Tweeter speaker 2 (SP1)

Follow (step 1) to (step 4) in Item 6.2.2.

Follow (step 1) to (step 2) in Item 6.2.8.



**Step 1:** Remove 4 screws.



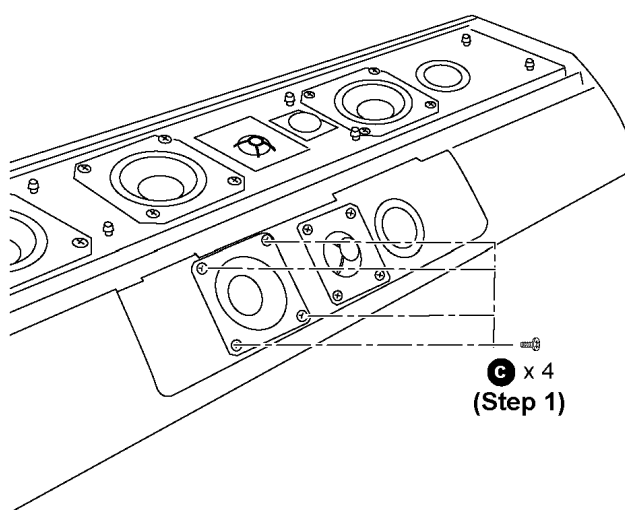
**Step 2:** Detach yellow (+) and black (-) wires.

**Step 3:** Remove tweeter speaker 2 (SP1).

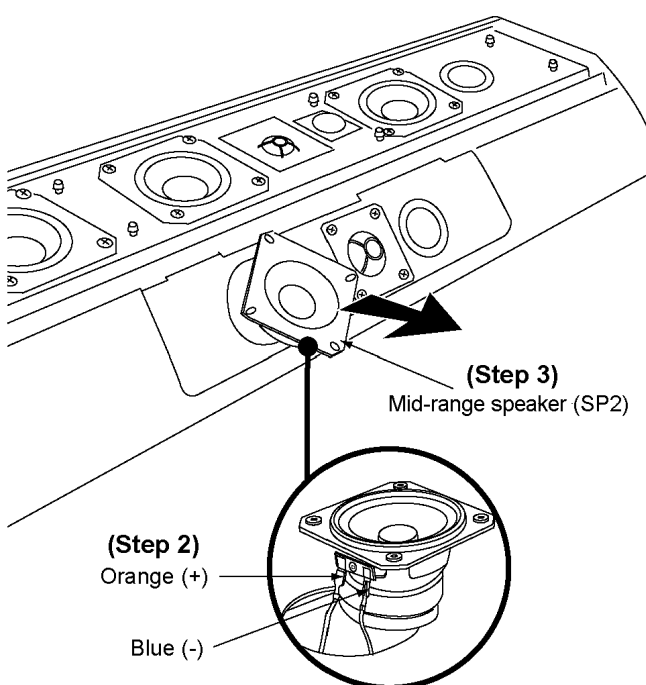
## 6.2.10. Disassembly of Mid-range speaker (SP2)

Follow (step 1) to (step 4) in Item 6.2.2.

Follow (step 1) to (step 2) in Item 6.2.8.



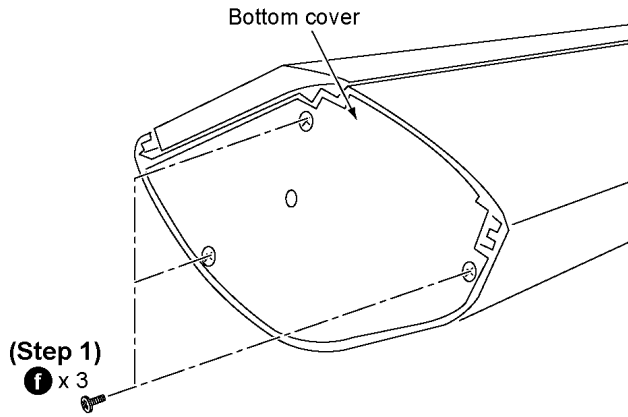
**Step 1:** Remove 4 screws.



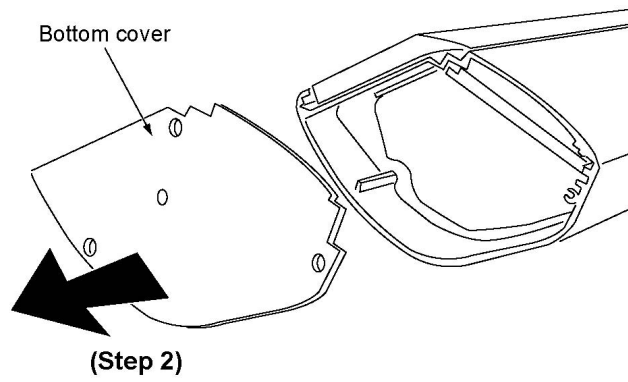
**Step 2:** Detach orange (+) and blue (-) wires.

**Step 3:** Remove mid-range speaker (SP2).

### 6.2.11. Disassembly of Bottom cover

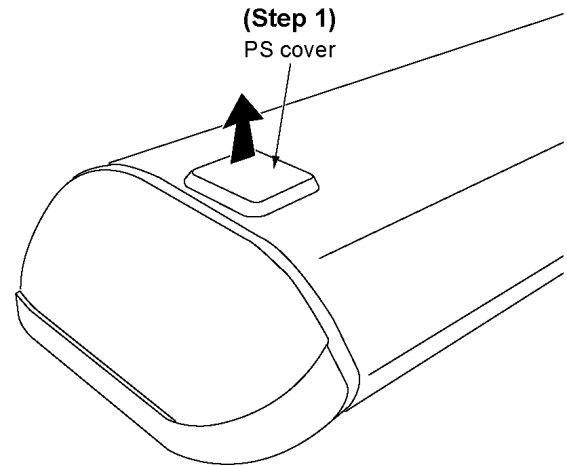


**Step 1:** Remove 3 screws.

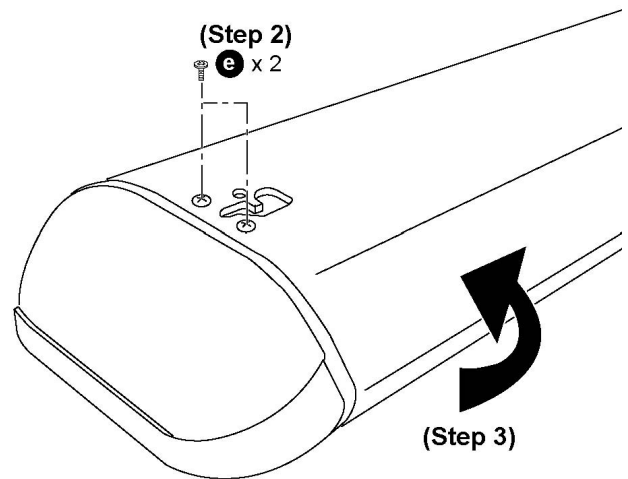


**Step 2:** Remove bottom cover.

### 6.2.12. Disassembly of Network assembly (PCB1)

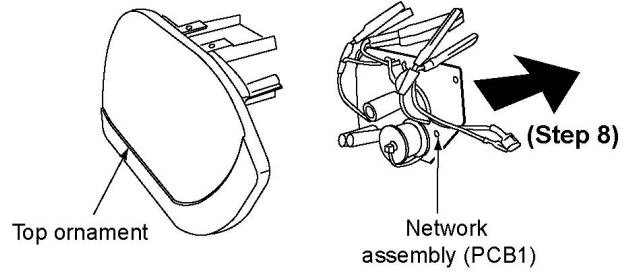
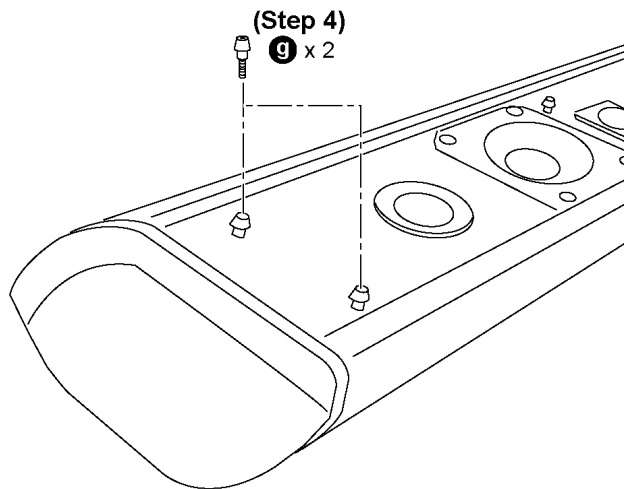


**Step 1:** Remove PS cover.



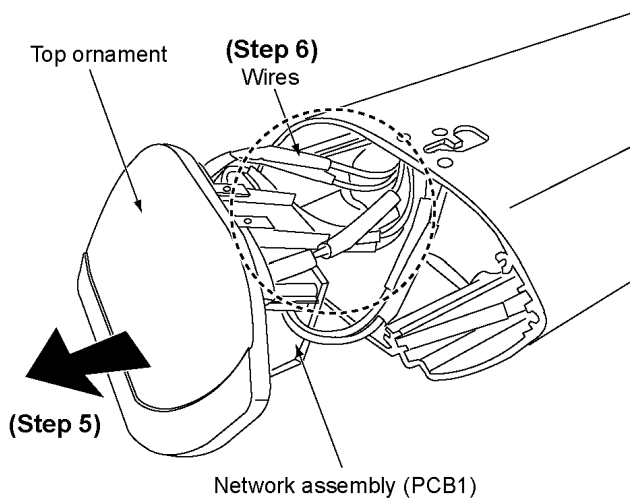
**Step 2:** Remove 2 screws.

**Step 3:** Flip over the front speaker as arrow shown.



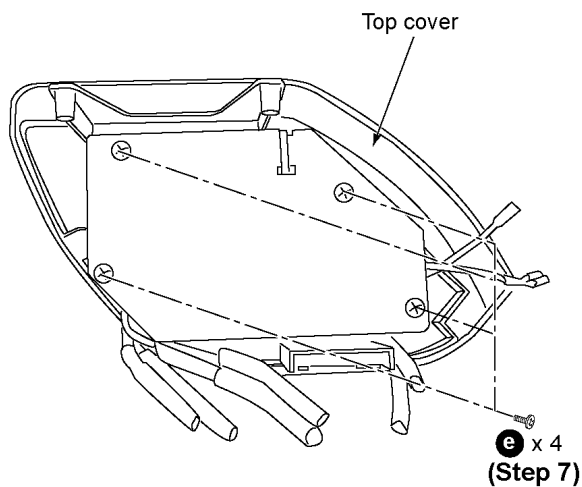
**Step 8:** Remove the network assembly (PCB1).

**Step 4:** Remove 2 screws.



**Step 5:** Pull out the network assembly (PCB1) slightly as arrow shown.

**Step 6:** Detach all wires.



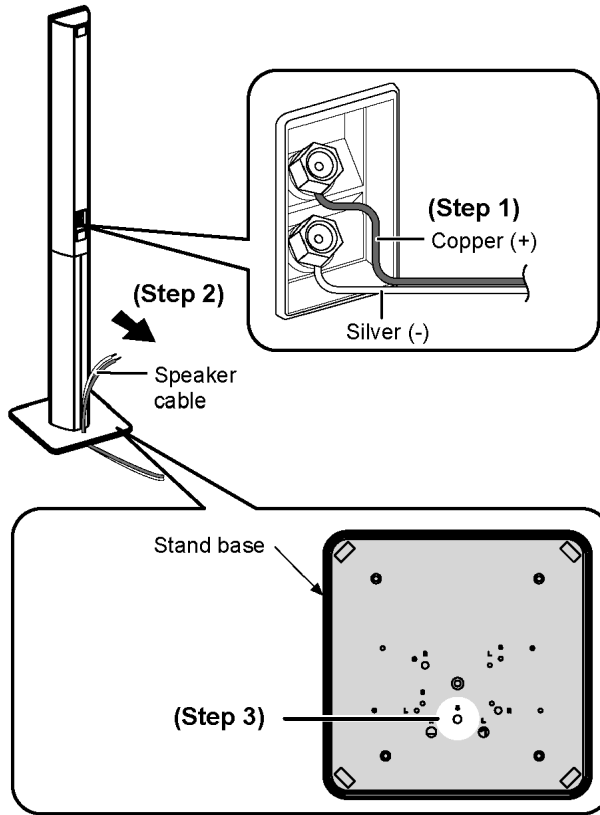
**Step 7:** Remove 4 screws.



## 6.3. SB-HS1000E-K (For surround speaker)

### 6.3.1. Disassembly of Stand base

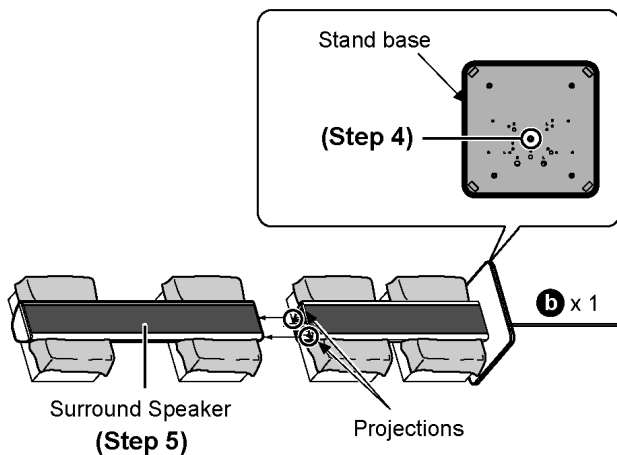
Note: This section is applicable if the complete speaker is sent in together during repairs.



**Step 1:** Disconnect the speaker cable from the speaker terminal.

**Step 2:** Pull out the speaker cable from the groove.

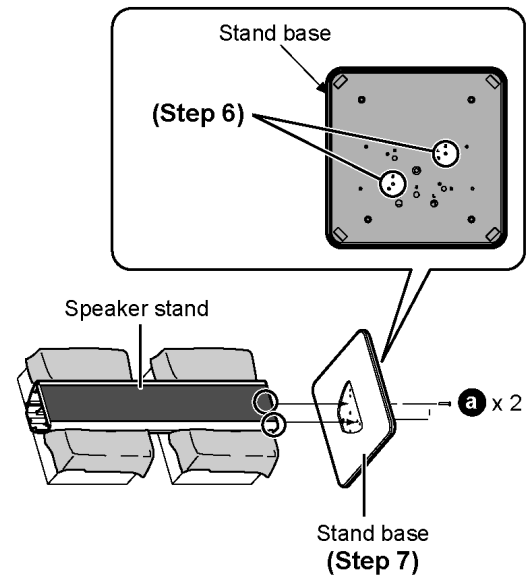
**Step 3:** Pull out the speaker cable from the hole marked in the back of the stand base.



**Step 4:** Remove the screw at the hole marked in the back of

the stand base.

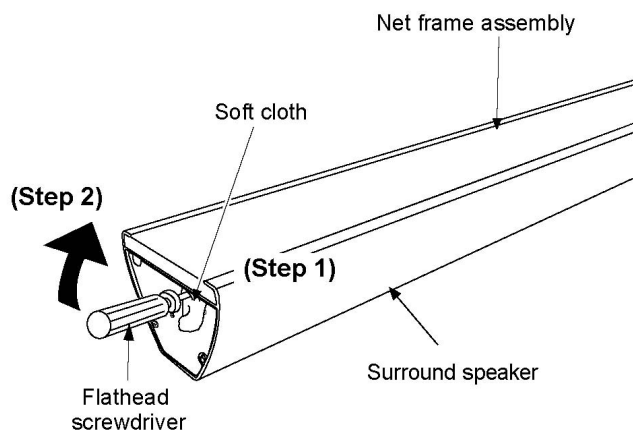
**Step 5:** Remove the surround speaker from 2 projections of the speaker stand.



**Step 6:** Remove 2 screws at the holes marked in the back of the stand base as shown.

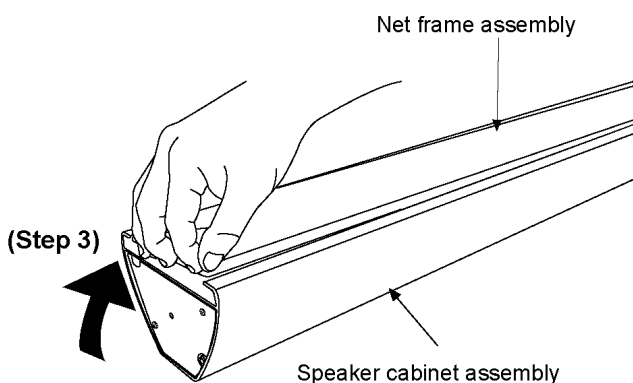
**Step 7:** Remove the stand base.

### 6.3.2. Disassembly of Main net frame assembly

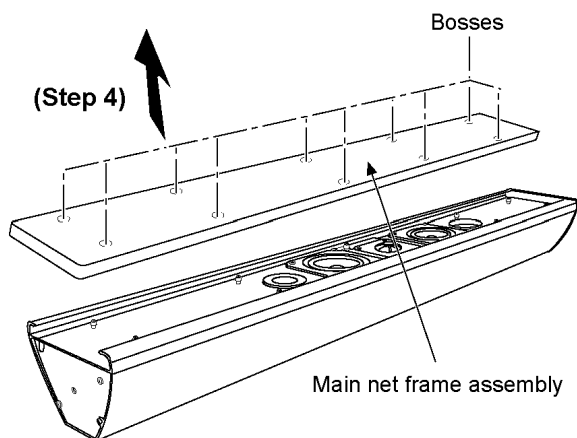


**Step 1:** Insert flathead screwdriver into the gap between surround speaker and main net frame assembly.

**Step 2:** Push up the main net frame assembly slightly as arrow shown.



**Step 3:** Lift up the main net frame assembly as arrow shown.

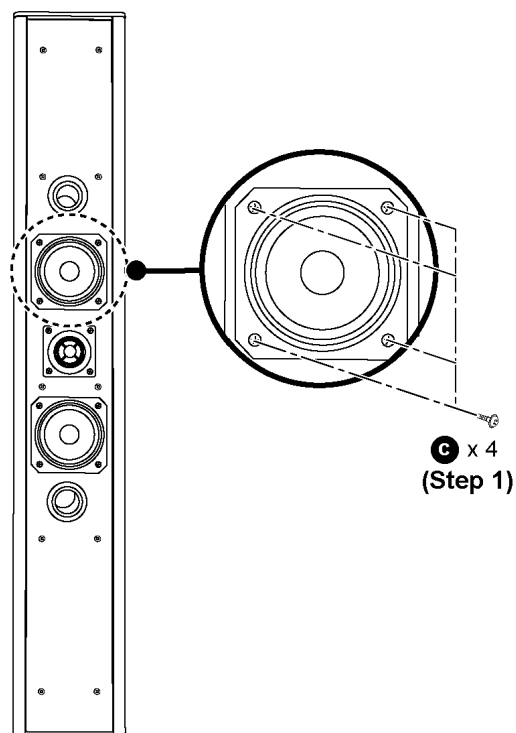


**Step 4:** Remove main net frame assembly.

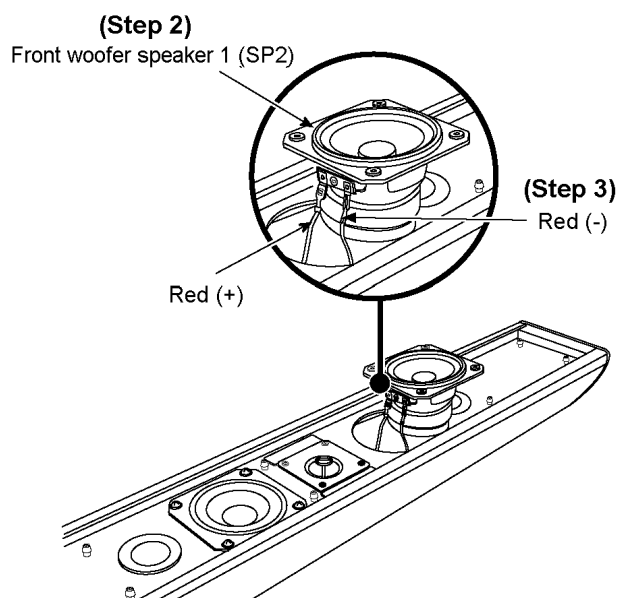
Do not exert strong force as it may damage the main net frame assembly.

### 6.3.3. Disassembly of Front woofer speaker 1 (SP2)

Follow (step 1) to (step 4) in Item 6.3.2.



**Step 1:** Remove 4 screws.

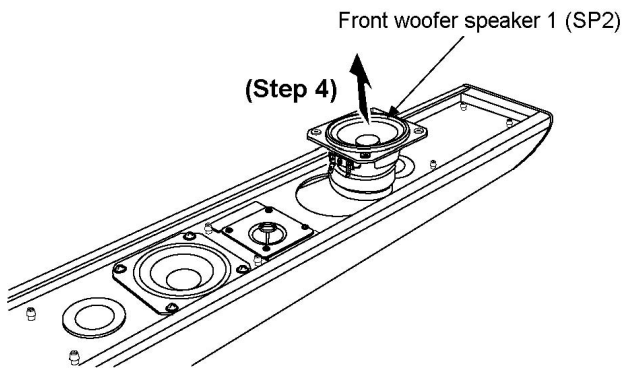


**Step 2:** Lift up the front woofer speaker 1 (SP2).

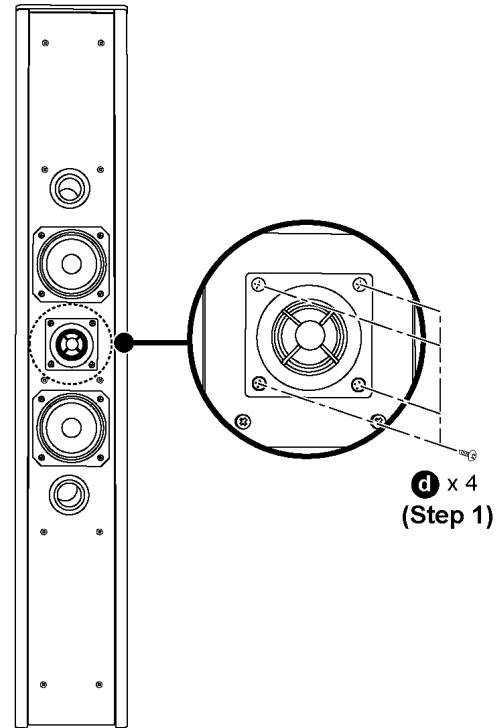
**Step 3:** Detach the (+) red and (-) red wires.

### 6.3.4. Disassembly of Tweeter speaker (SP1)

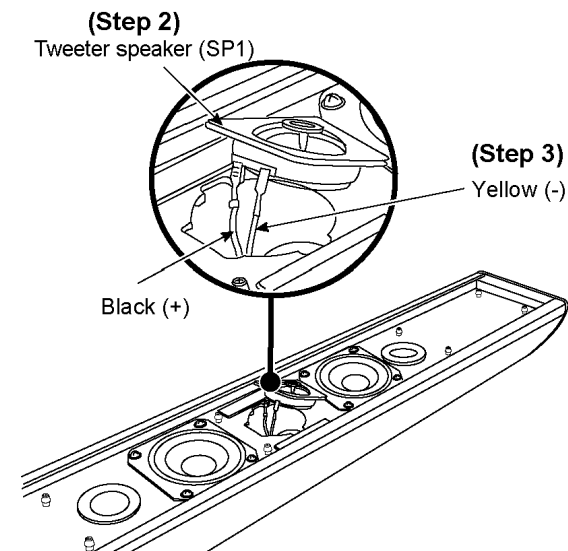
Follow (step 1) to (step 4) in Item 6.3.2.



**Step 4:** Remove the front woofer speaker 1(SP2).



**Step 1:** Remove 4 screws.

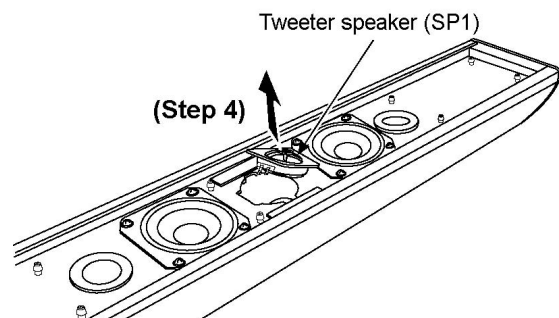


**Step 2:** Lift up the tweeter speaker (SP1).

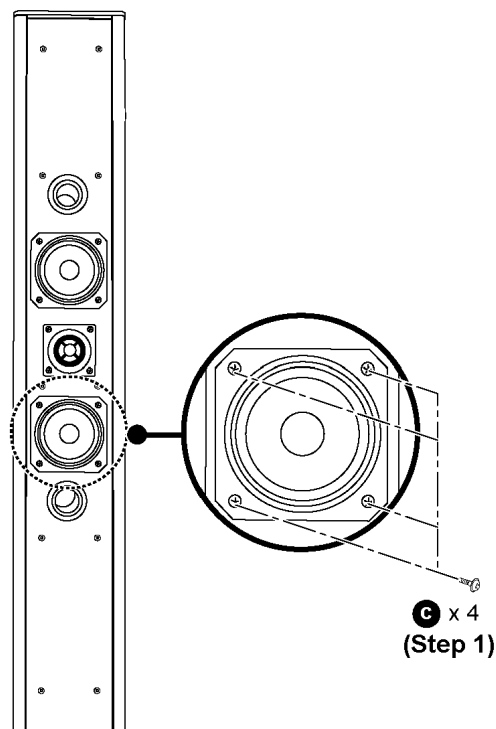
**Step 3:** Detach the (+) black and (-) yellow wires.

### 6.3.5. Disassembly of Front woofer speaker 2 (SP2)

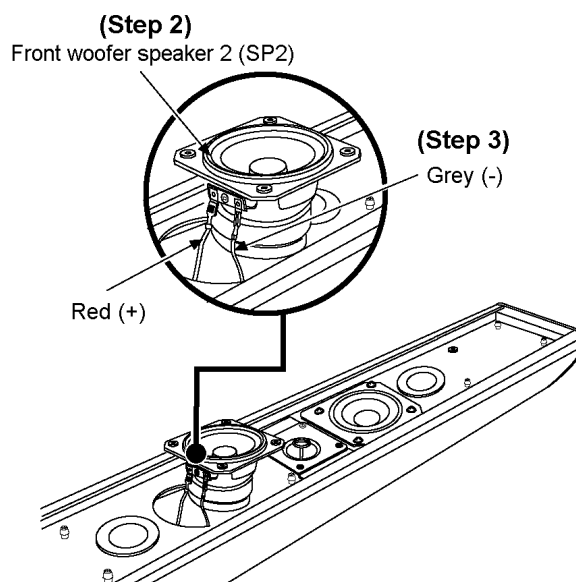
Follow (step 1) to (step 4) in Item 6.3.2.



**Step 4:** Remove tweeter speaker (SP1).



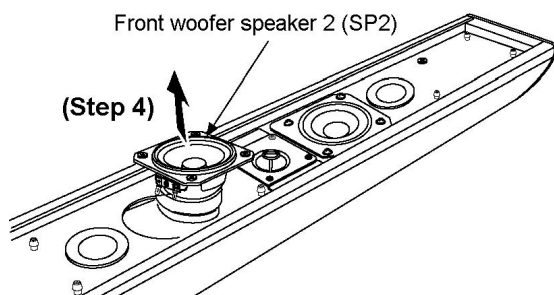
**Step 1:** Remove 4 screws.



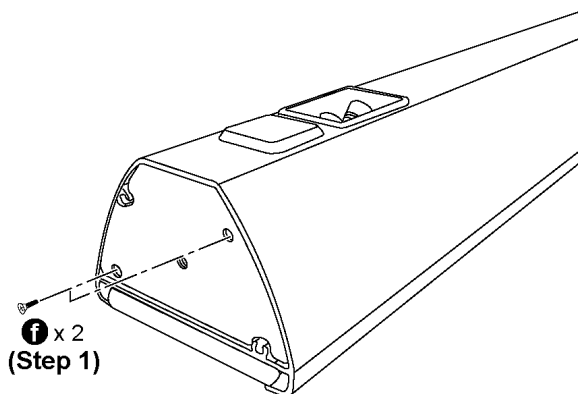
**Step 2:** Lift up the front woofer speaker 2 (SP2).

**Step 3:** Detach the (+) red and (-) gray wires.

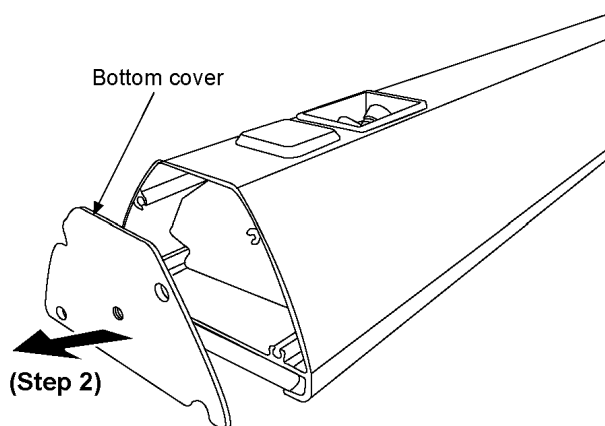
### 6.3.6. Disassembly of Bottom cover



**Step 4:** Remove front woofer speaker 2 (SP2).



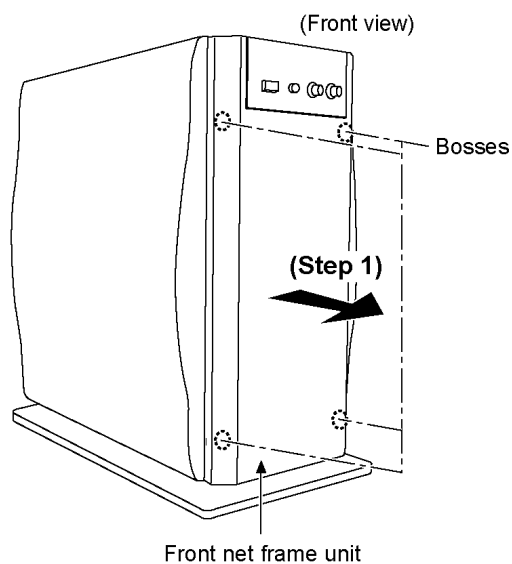
**Step 1:** Remove 2 screws.



**Step 2:** Remove the bottom cover.

## 6.4. SB-WA1000E-K (For Active subwoofer)

### 6.4.1. Disassembly of Front net frame unit



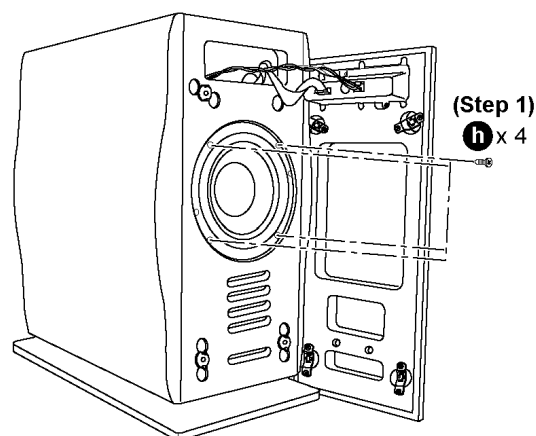
**Step 1:** Detach the front net frame unit.

**Caution:**

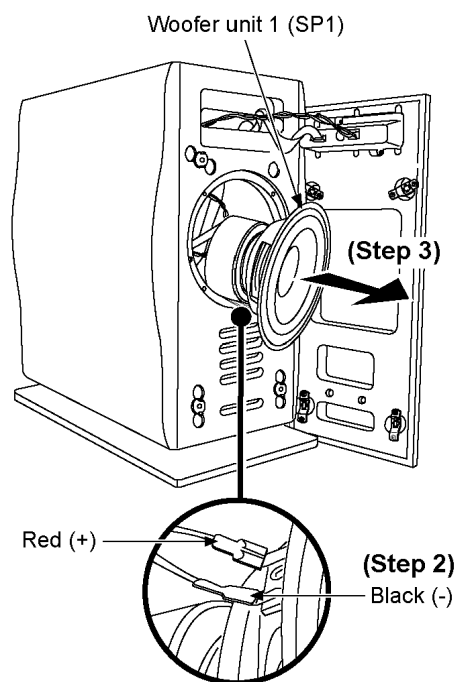
Do not exert strong force on the bosses at the unit.

### 6.4.2. Disassembly of Woofer unit 1 (SP1)

Follow (step 1) in item 6.4.1.



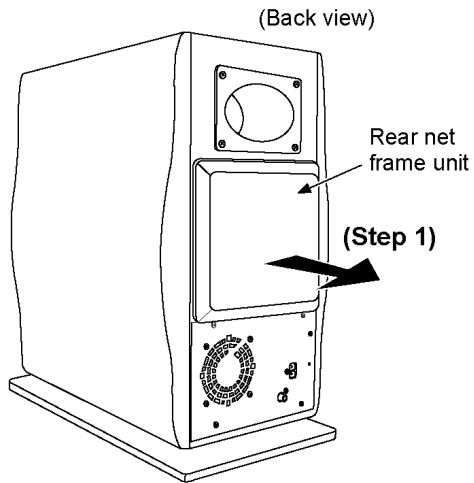
**Step 1:** Remove 4 screws.



**Step 2:** Detach the (+) red and (-) black wires.

**Step 3:** Remove woofer unit 1 (SP1).

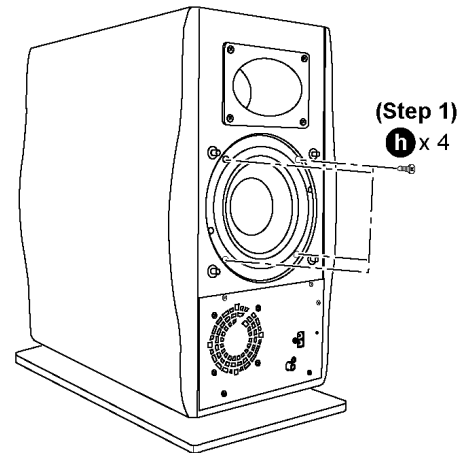
### 6.4.3. Disassembly of Rear net frame unit



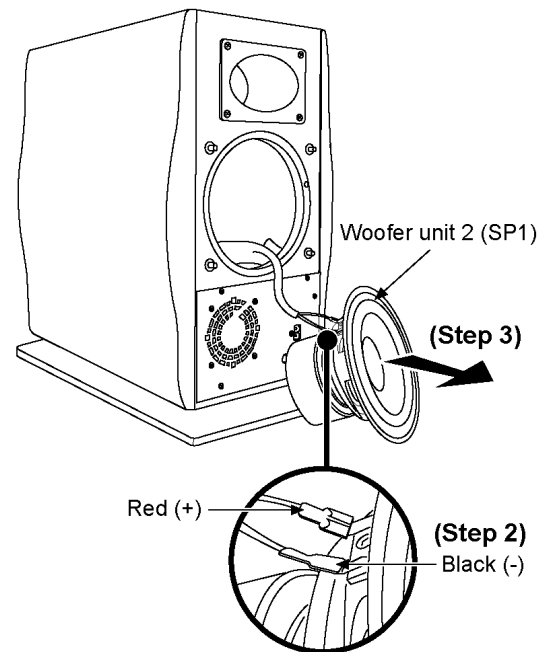
**Step 1:** Remove the rear net frame unit.

### 6.4.4. Disassembly of Woofer unit 2 (SP1)

Follow (step 1) in item 6.4.3.



**Step 1 :** Remove 4 screws.

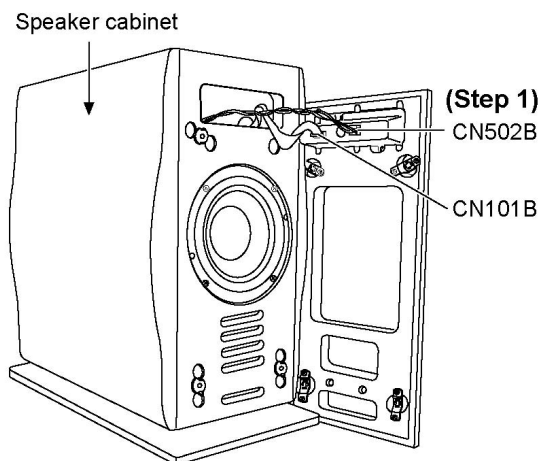


**Step 2:** Detach the (+) red and (-) black wires.

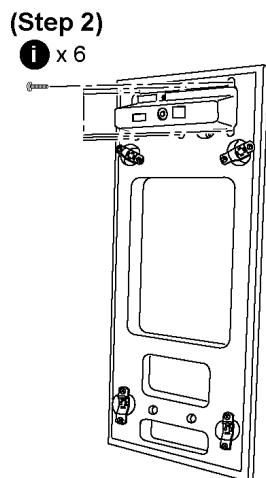
**Step 3:** Remove woofer unit 2 (SP1).

## 6.4.5. Disassembly and checking of Panel P.C.B and LED P.C.B.

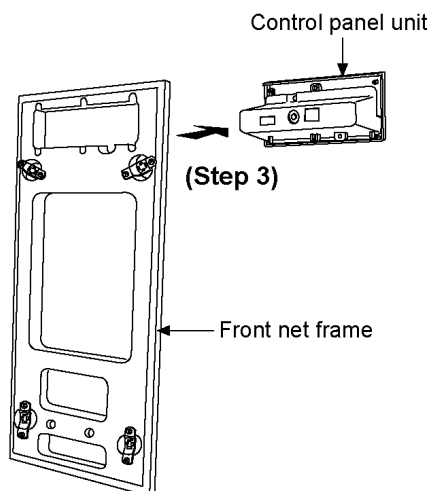
Follow (step 1) in item 6.4.1.



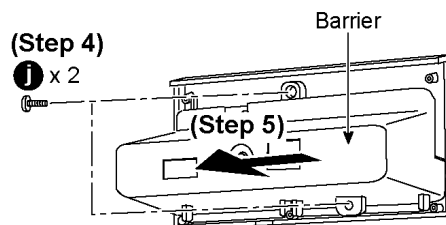
**Step 1:** Detach the connectors CN502B and CN101B.



**Step 2:** Remove 6 screws.

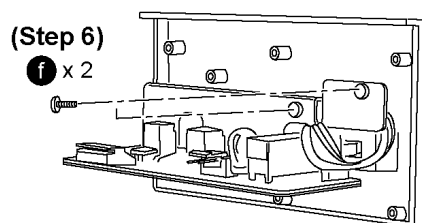


**Step 3:** Remove the control panel unit from the front net frame as arrow shown.

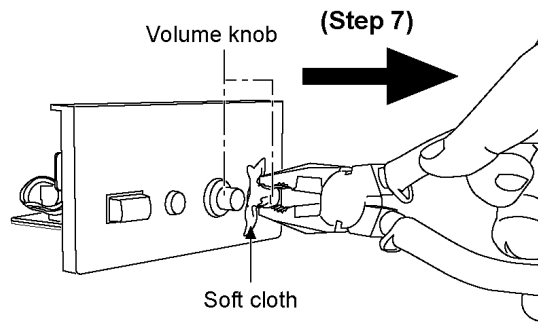


**Step 4:** Remove 2 screws.

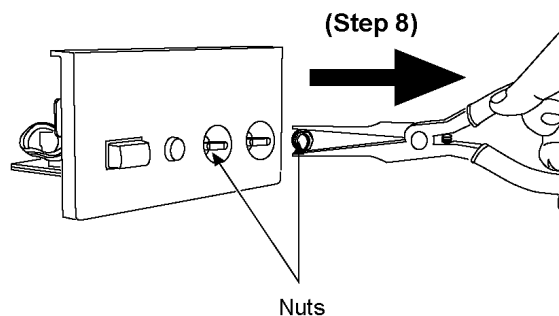
**Step 5:** Remove the barrier .



**Step 6:** Remove 2 screws.

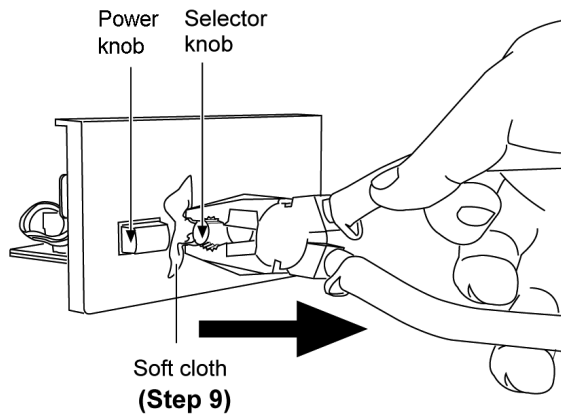


**Step 7:** Cover with a soft cloth and pull out the 2 volume knobs as arrow shown.

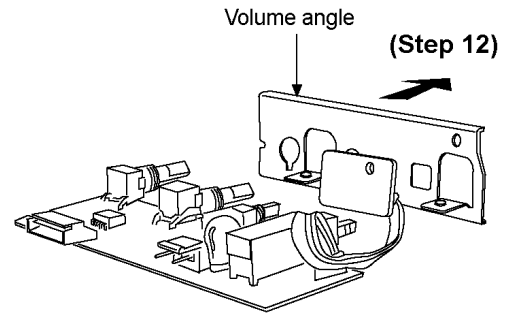


**Step 8:** Use the longnose piler to turn and pull out the 2 nuts as arrow shown.

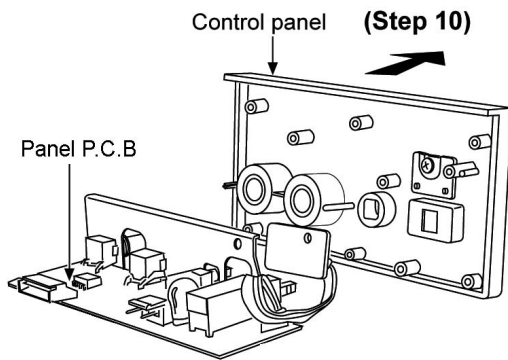




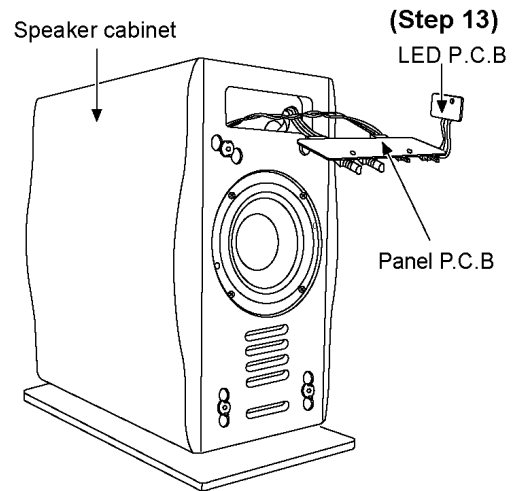
**Step 9:** Cover with a soft cloth and pull out the selector knob and power knob as arrow shown.



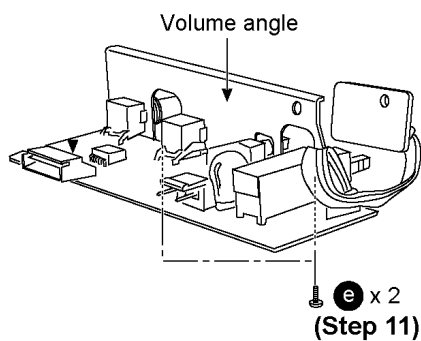
**Step 12:** Remove the volume angle as arrow shown.



**Step 10:** Pull out the control panel.

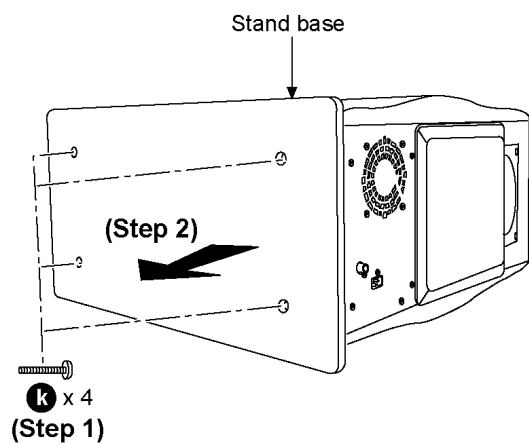


**Step 13:** Reconnect the connectors CN502B and CN101B to check LED P.C.B. and Panel P.C.B.



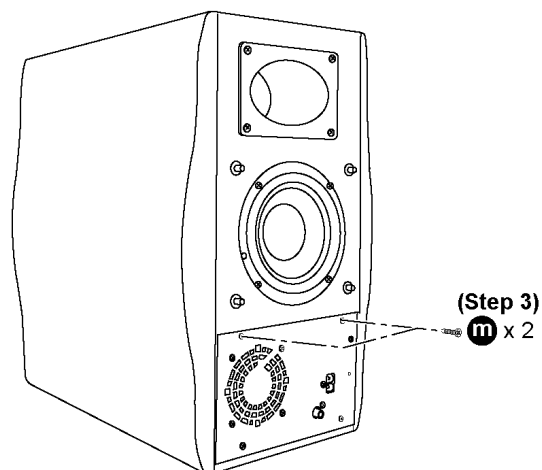
**Step 11:** Remove 2 screws.

## 6.4.6. Disassembly of the Stand base



**Step 1:** Remove 4 screws.

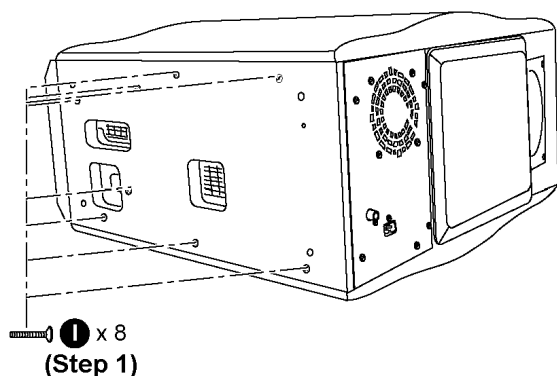
**Step 2:** Remove the stand base.



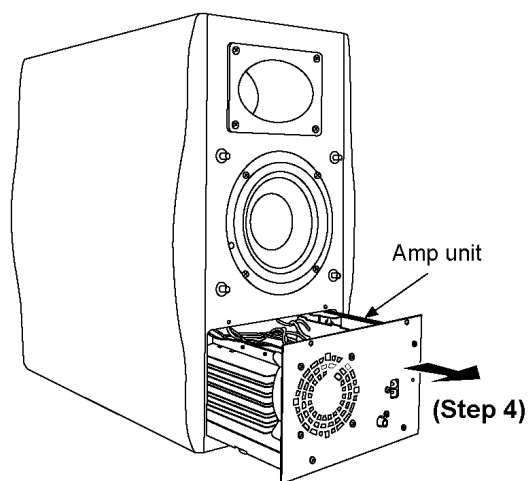
**Step 3 :** Remove 2 screws.

## 6.4.7. Disassembly of Amp unit

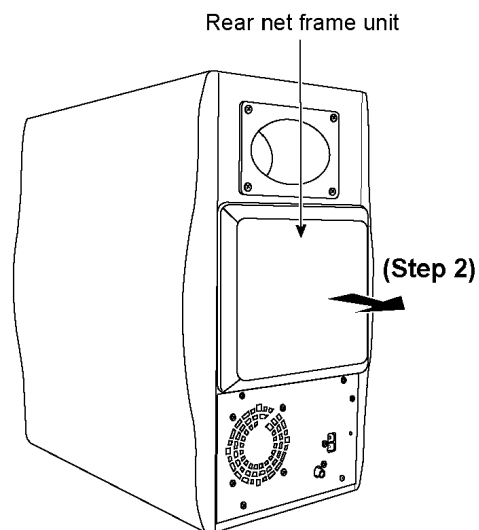
Follow (step 1) to (step 2) in item 6.4.6.



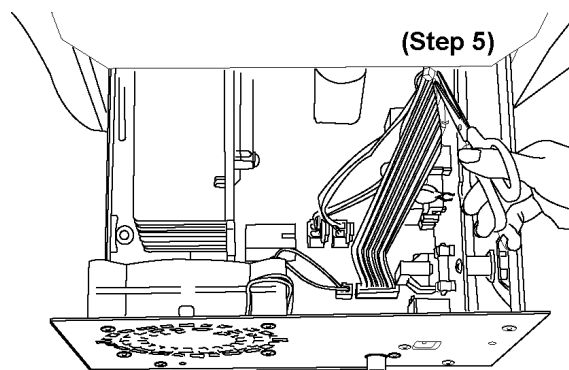
**Step 1:** Remove 8 screws.



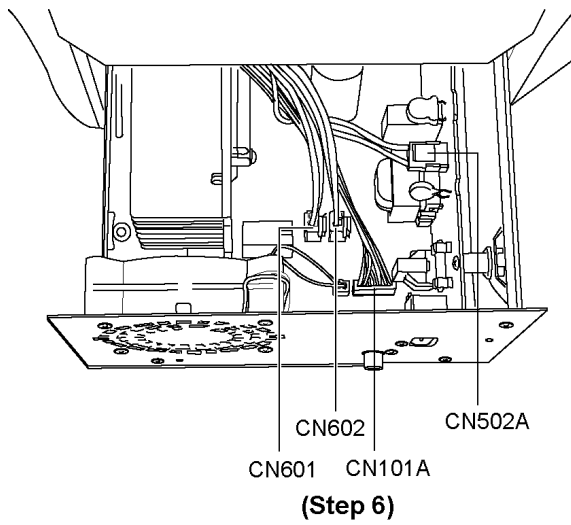
**Step 4 :** Slightly pull out the Amp unit as arrow shown.  
Take note of the attached connectors.



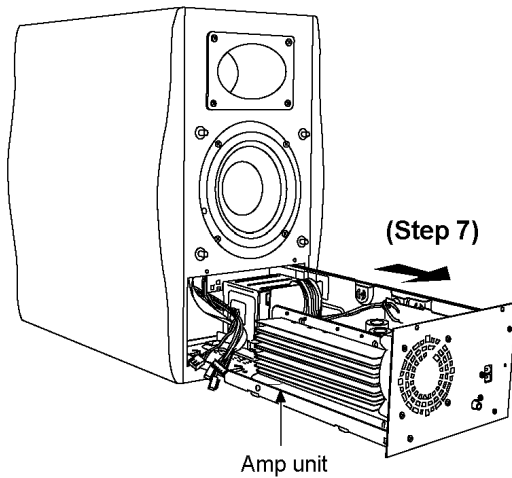
**Step 2 :** Remove the rear net frame unit.



**Step 5 :** Cut the 2 lead clammers to release the wires.



**Step 6 :** Disconnect the connectors CN601, CN602, CN502A and CN101A.

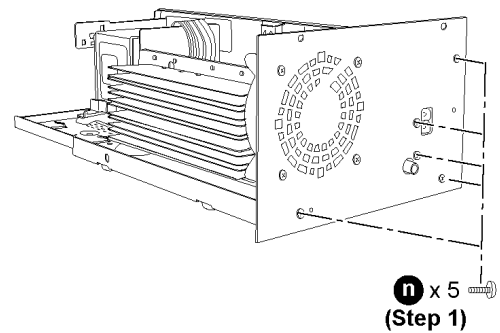


**Step 7 :** Pull out the entire Amp unit.

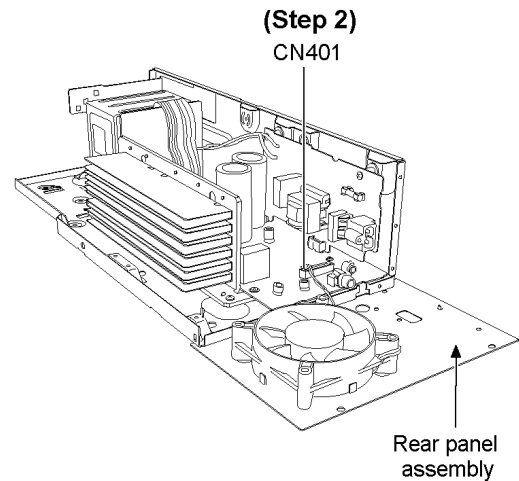
### 6.4.8. Disassembly of Rear panel assembly

Follow (step 1) to (step 2) in item 6.4.6.

Follow (step 1) to (step 7) in item 6.4.7.



**Step 1:** Remove 5 screws.



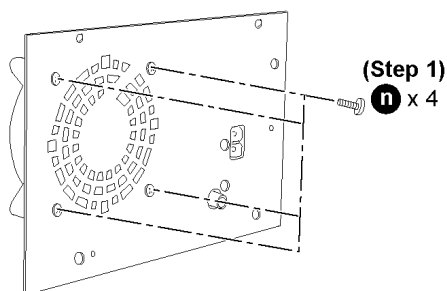
**Step 2:** Disconnect the connector CN401 and remove the rear panel assembly.

### 6.4.9. Disassembly of Fan unit

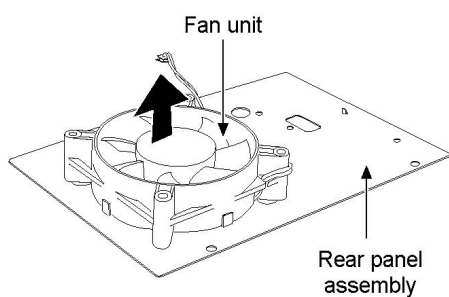
Follow (step 1) to (step 2) in item 6.4.6.

Follow (step 1) to (step 7) in item 6.4.7.

Follow (step 1) to (step 2) in item 6.4.8.



**Step 1:** Remove 4 screws.



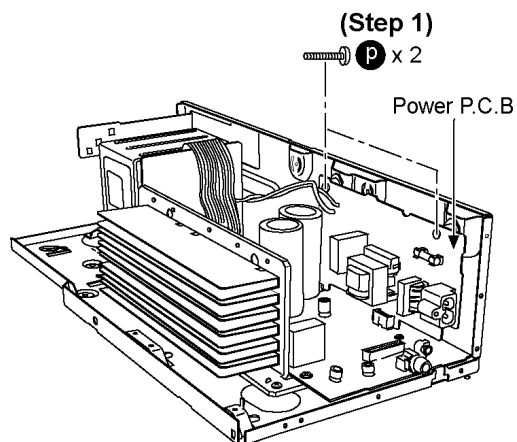
**Step 2:** Remove the fan unit from the rear panel assembly.

### 6.4.10. Disassembly and checking of Power P.C.B, Main P.C.B and Transformer P.C.B.

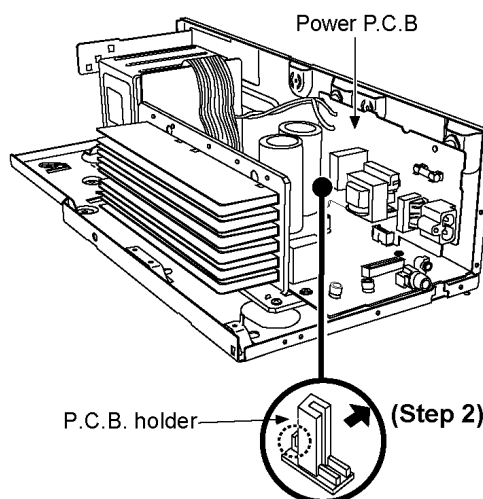
Follow (step 1) to (step 2) in item 6.4.6.

Follow (step 1) to (step 7) in item 6.4.7.

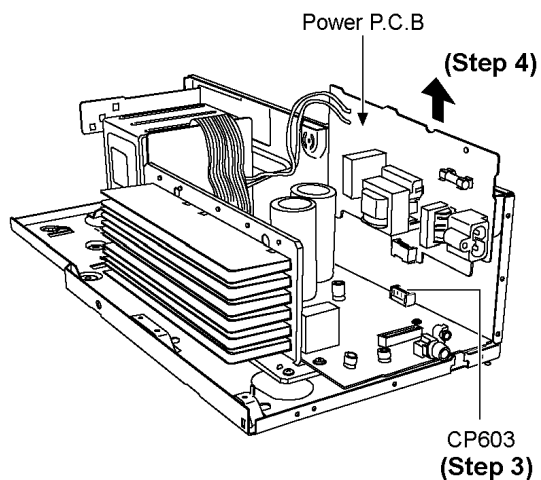
Follow (step 1) to (step 2) in item 6.4.8.



**Step 1:** Remove 2 screws.

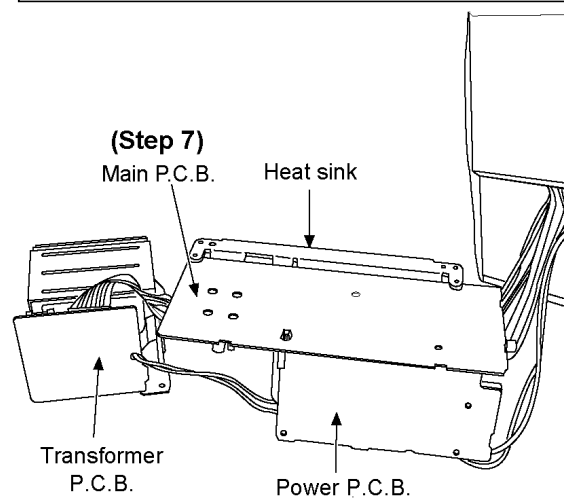


**Step 2:** Release P.C.B. holder.

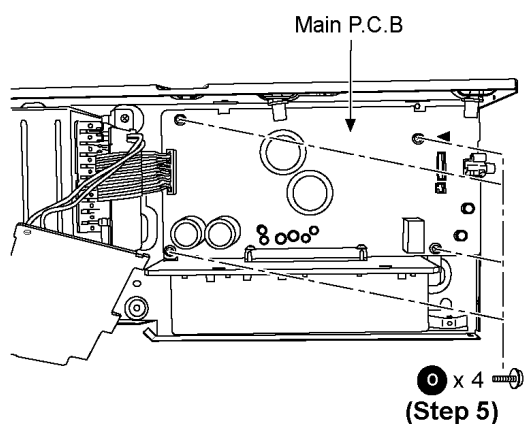


**Step 3:** Detach the connector CP603.

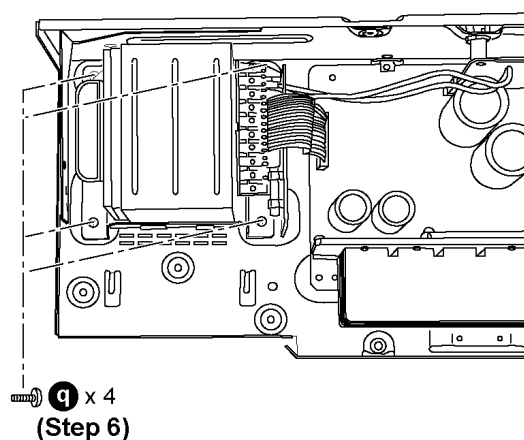
**Step 4:** Pull out the power P.C.B. as arrow shown.



**Step 7:** Reconnect the main P.C.B., transformer P.C.B. and power P.C.B. for checking.



**Step 5:** Remove 2 screws.



**Step 6:** Remove 4 screws.

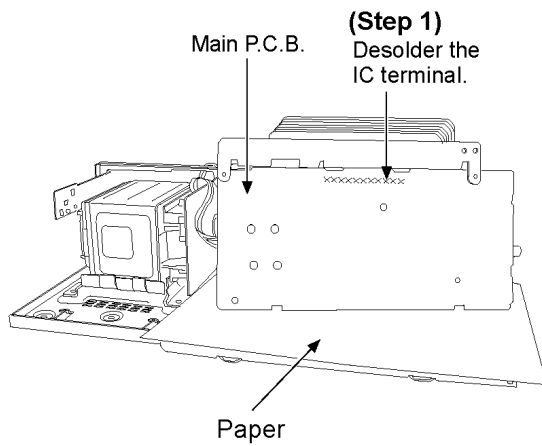
### 6.4.11. Replacement of the Power IC

Follow (step 1) to (step 2) in item 6.4.6.

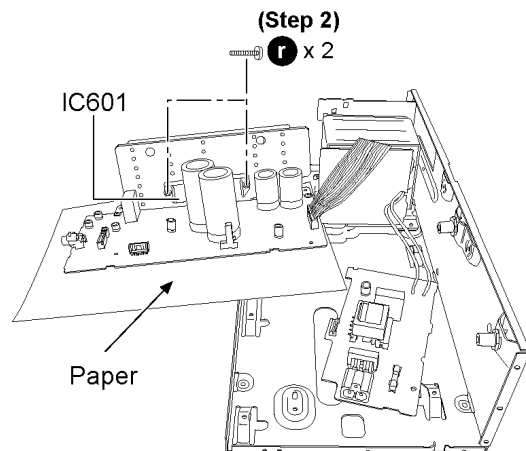
Follow (step 1) to (step 7) in item 6.4.7.

Follow (step 1) to (step 2) in item 6.4.8.

Follow (step 1) to (step 5) in item 6.4.10.



**Step 1:** Desolder the IC terminal.



**Step 2:** Remove 2 screws.

# 7 Voltage Measurement and Waveform Chart

## Note:

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
- Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
- Circuit voltage and waveform described herein shall be regarded as reference information when probing defect point because it may differ from actual measuring value due to difference of Measuring instrument and its measuring condition and product itself.

## 7.1. Voltage Measurement

### 7.1.1. MAIN P.C.B.

MAIN P.C.B.																				
Ref No.	IC101																			
MODE	1	2	3	4	5	6	7	8												
TUNER	0	0	0	-10.7	0	0	0	11.0												
STANDBY																				
Ref No.	IC201																			
MODE	1	2	3	4	5	6	7	8												
TUNER	7.2	4.0	7.6	0	3.9	4.0	3.9	8.0												
STANDBY																				
Ref No.	IC301																			
MODE	1	2	3	4	5	6	7	8												
TUNER	0	0	0	-10.7	0	0	0	11.0												
STANDBY																				
Ref No.	IC601																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
TUNER	57.4	-57.2	0	26.0	-26.0	0	0	0	-12.4	0	-12.5	-0.2	11.8	-9.3	-9.5	-0.6	-0.5	56.9	-56.3	0
STANDBY																				
Ref No.	IC601																			
MODE	21	22																		
TUNER	0	0																		
STANDBY																				
Ref No.	Q201					Q202					Q301					Q302				
MODE	E	C	B			E	C	B			E	C	B			E	C	B		
TUNER	5.8	11.0	6.4			0	-11.3	-0.5			11.0	13.8	11.7			-10.7	-18.4	-11.4		
STANDBY																				
Ref No.	Q402					Q403					Q404					Q405				
MODE	E	C	B			E	C	B			E	C	B			E	C	B		
TUNER	0	0	0.2			0	0.7	0			0	12.2	0			0	0.7	-0.5		
STANDBY																				
Ref No.	Q407					Q408					Q409					Q501				
MODE	E	C	B			E	C	B			E	C	B			E	C	B		
TUNER	0	11.2	0			0	11.2	0			12.2	15.8	12.9			5.8	0	5.7		
STANDBY																				
Ref No.	Q601					Q602					Q603									
MODE	E	C	B			E	C	B			E	C	B							
TUNER	0	-0.1	-9.5			0	0.1	0.8			0	0.7	0							
STANDBY																				

SB-WA1000E-K MAIN P.C.B.

### 7.1.2. Panel P.C.B.

PANEL P.C.B.																				
Ref No.	IC502																			
MODE	1	2	3	4	5	6	7	8												
TUNER	0	0	0	-10.7	0	0	0	11.0												
STANDBY																				
Ref No.	Q501					Q502														
MODE	E	C	B			E	C	B												
TUNER	5.8	0	5.7			5.8	5.7	0.1												
STANDBY																				

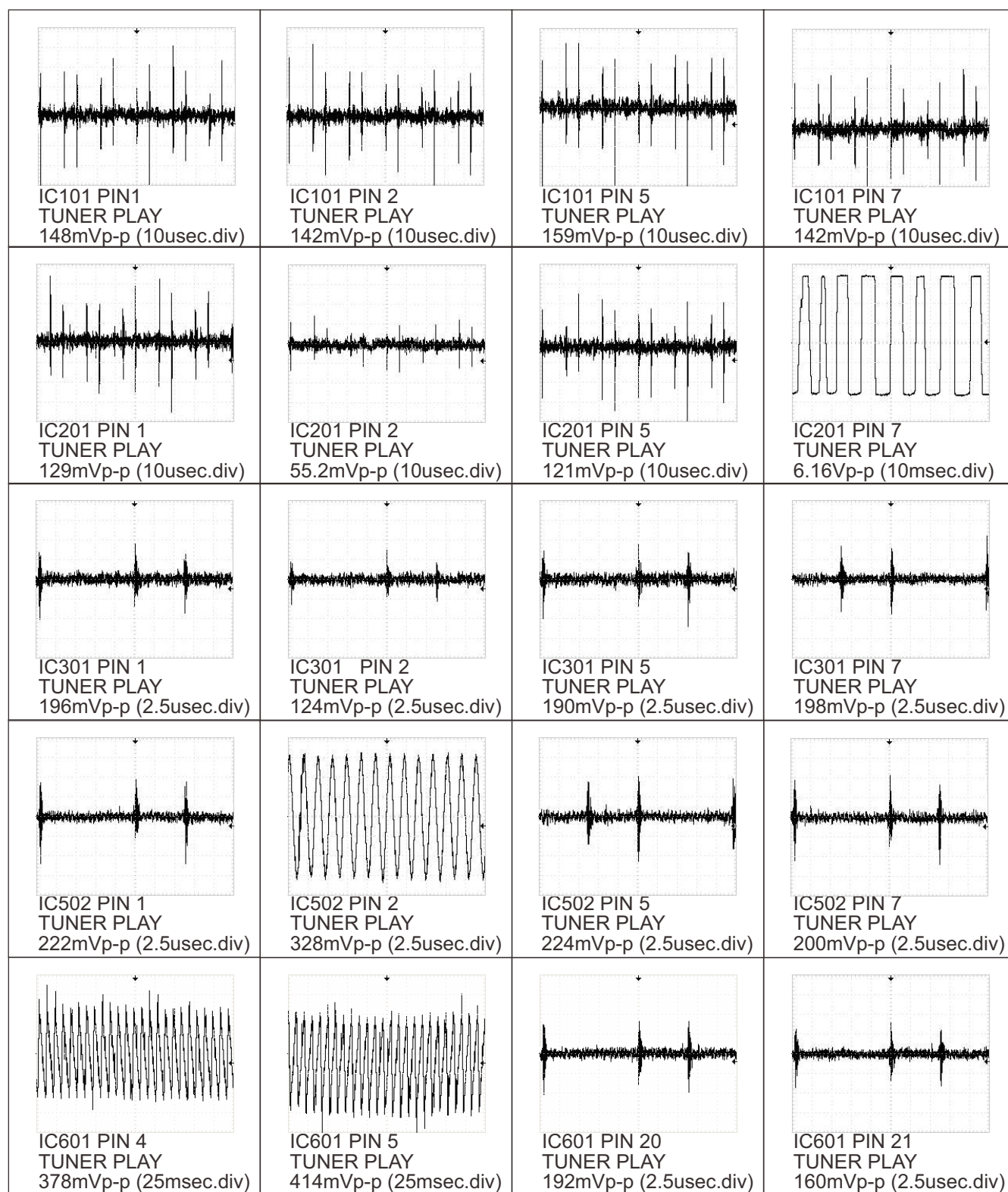
SB-WA1000E-K PANEL P.C.B.

7.1.3. Power P.C.B.

POWER P.C.B.																		
Ref No.	Q701				Q702				Q703				Q704					
	E	C	B		E	C	B		E	C	B		E	C	B			
TUNER	5.8	11.0	6.4		0	-11.3	-0.5		11.0	13.8	11.7		-10.7	-18.4	-11.4			
STANDBY																		
SB-WA1000E-K POWER P.C.B.																		

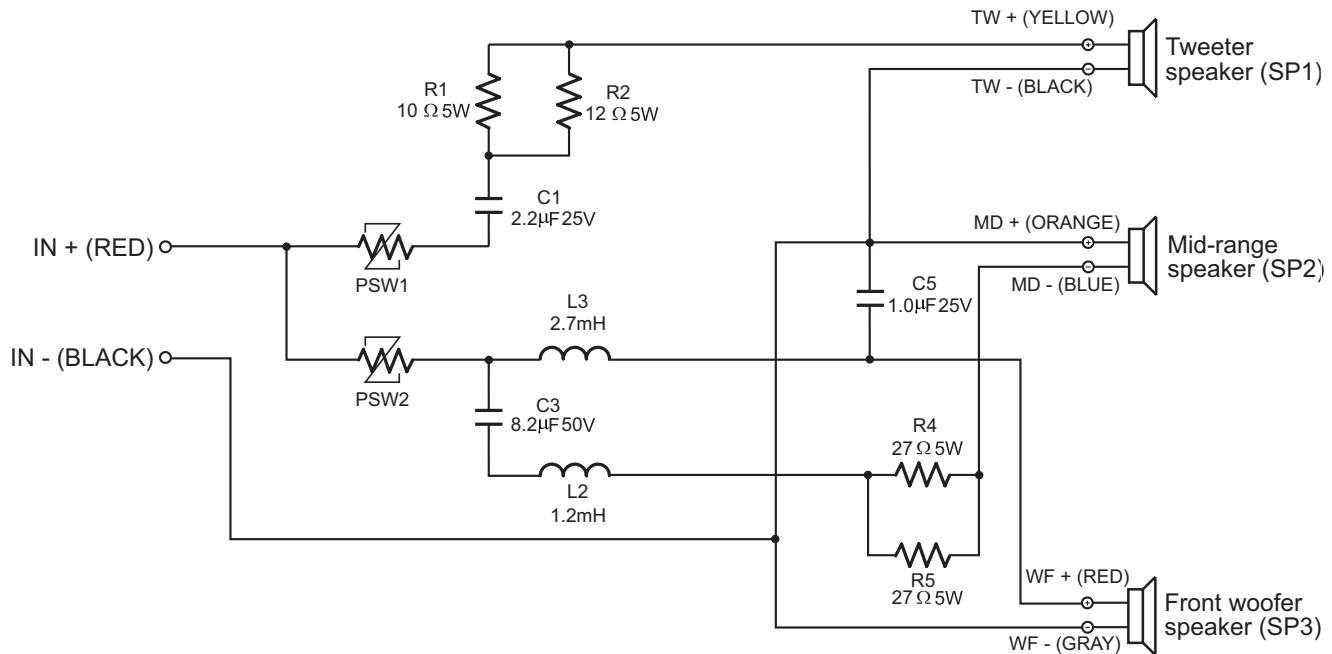


## 7.2. Waveform Chart

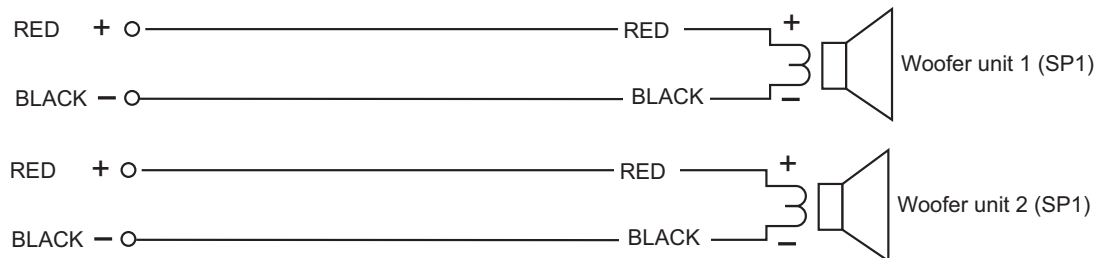


## 8 Connection of Speaker wiring

### 8.1. SB-FC1000LE-K/SB-FC1000RE-K (Front speakers)

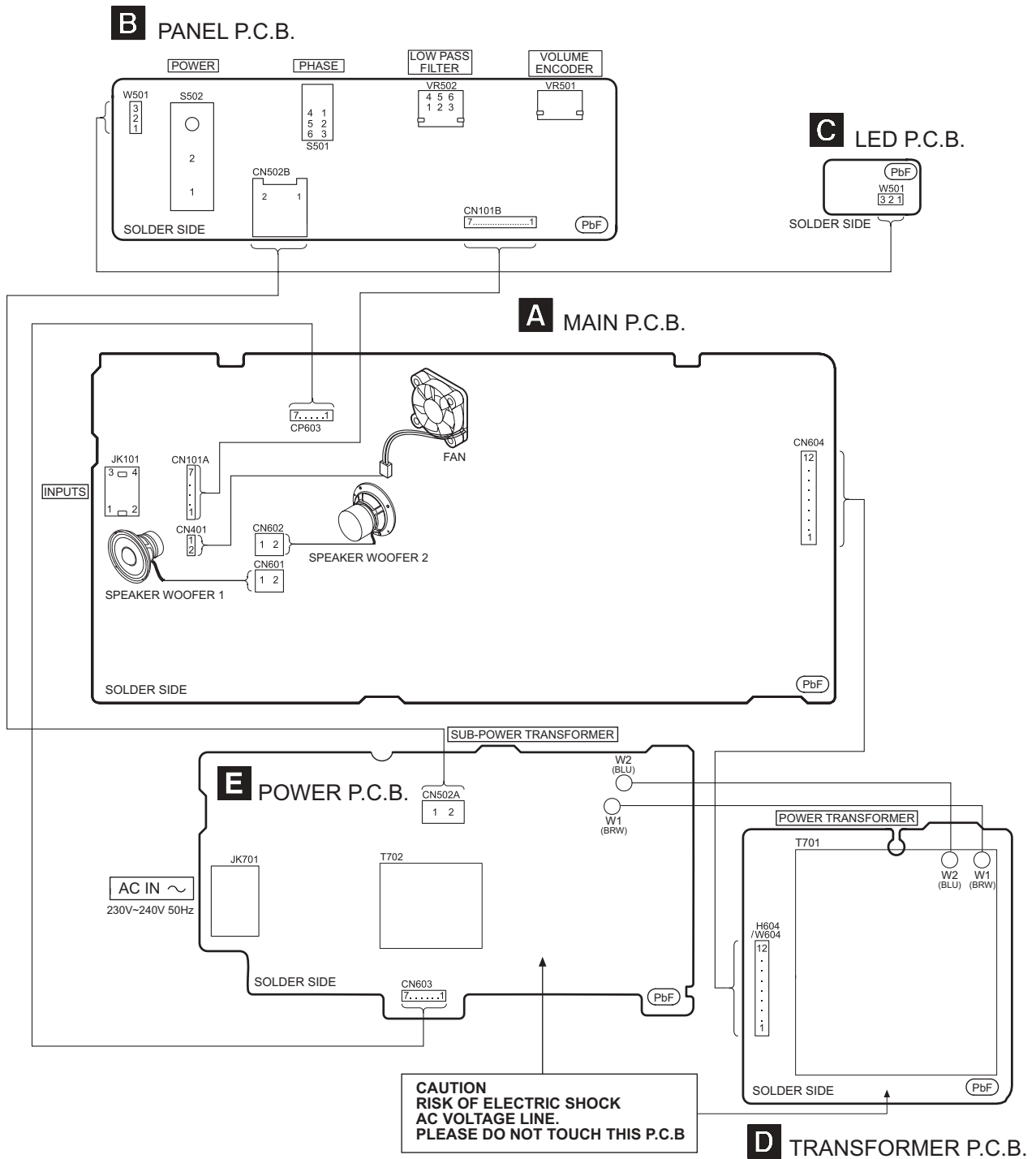


### 8.2. SB-WA1000E-K (Active subwoofer)



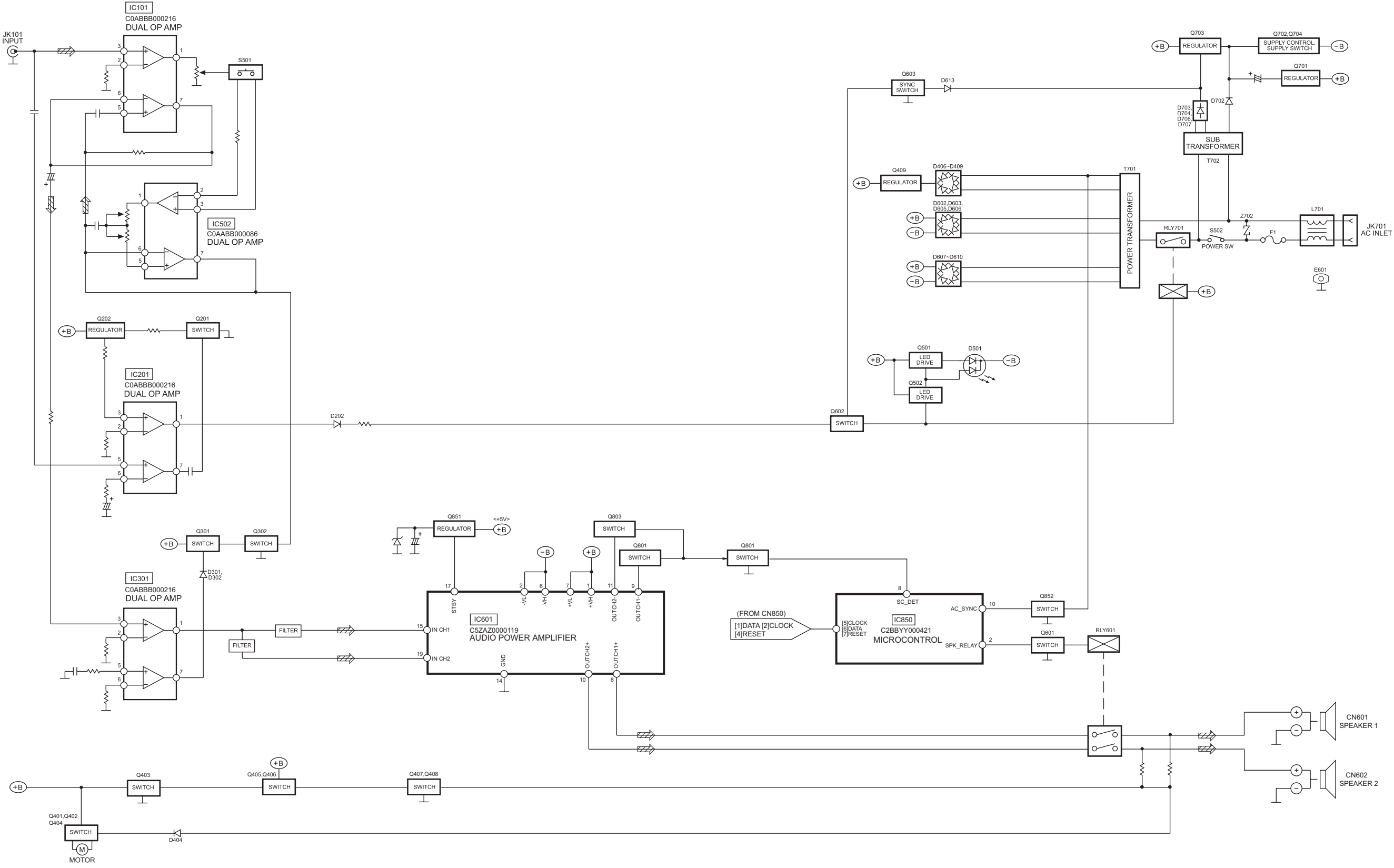
# 9 Wiring Connection Diagram

## 9.1. SB-WA1000E-K





10 Block Diagram



SIGNAL LINES

MAIN SIGNAL LINE

( ) indicates Pin No. of Right Channel





NOTE: Signal Lines are applicable to the Left Channel Only




# 11 Notes Of Schematic Diagram

(All schematic diagrams may be modified at any time with the development of new technology)

## Notes:

- S501** : Phase Switch (  NORMAL  
 REVERSE)  
**S502** : Power Switch (  OFF  ON)  
**VR501** : Volume Encoder  
**VR502** : Low Pass Filter

### • Importance safety notice :

Components identified by  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- In case of **AC rated voltage Capacitor**, the part no and values will be indicated in the Schematic Diagram.




AC rated voltage capacitor:

C508, C703

- Capacitor values are in microfarad( $\mu\text{F}$ ) unless specified otherwise, F=Farad, pF=Pico-Farad

Resistance values are in ohm( $\Omega$ ), unless specified otherwise, 1K=1,000 $\Omega$ , 1M=1,000K $\Omega$

- Voltage and Signal lines:

-  : +B Signal line  
 : -B Signal line  
 : Main signal line

**CAUTION:** FOR CONTINUED PROTECTION  
 AGAINST FIRE HAZARD,  
 REPLACE ONLY WITH SAME  
 TYPE F1 2.5AL, 250V FUSE.  
 TYPE F2 2A, 250V FUSE



RISK OF FIRE-REPLACE FUSE AS MARKED.

### FUSE CAUTION



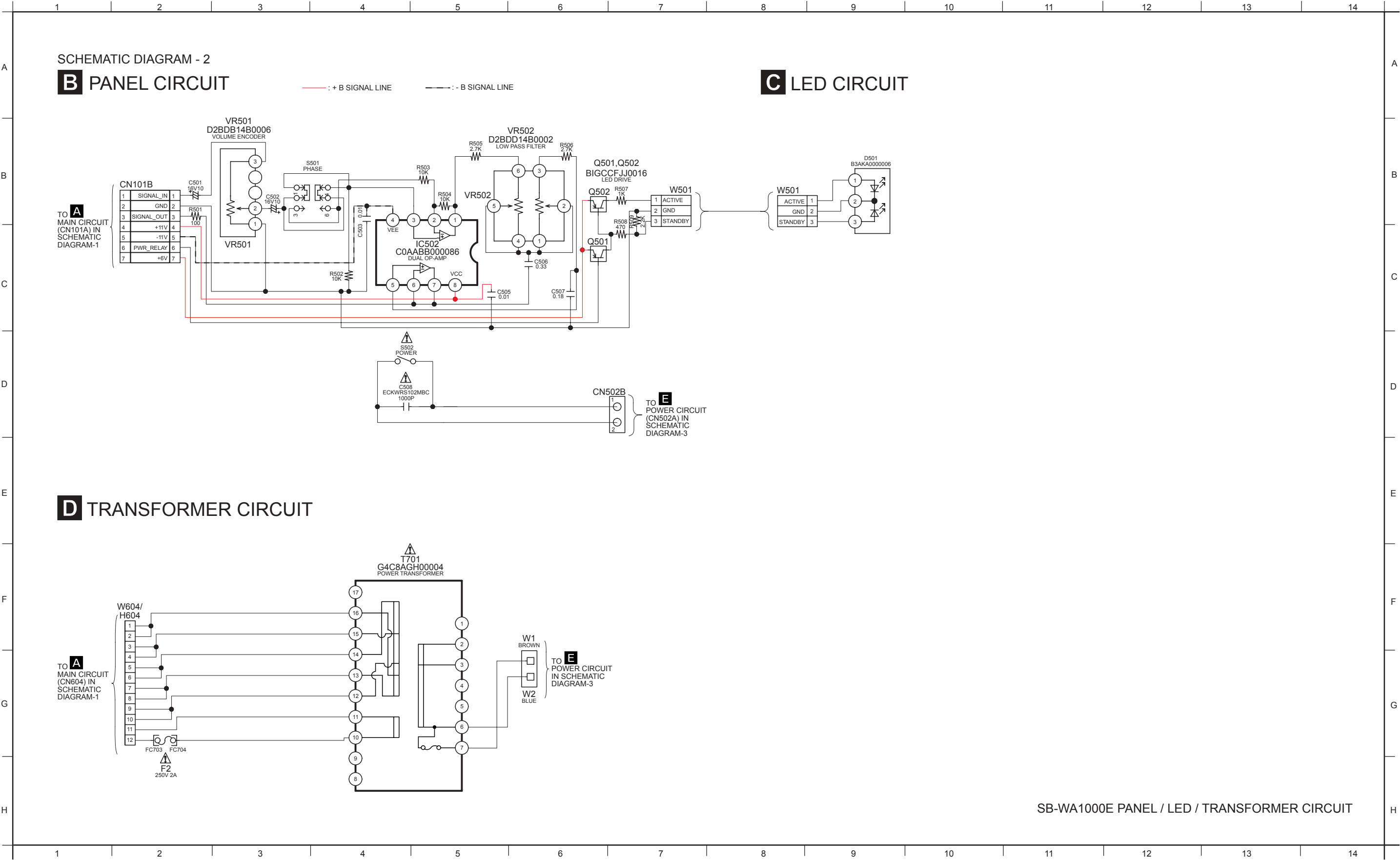
These symbols located near the fuse indicates that the fuse used is a fast operating type. For continued protection against fire hazard, replace with the same type fuse. For fuse rating, refer to the marking adjacent to the symbol.



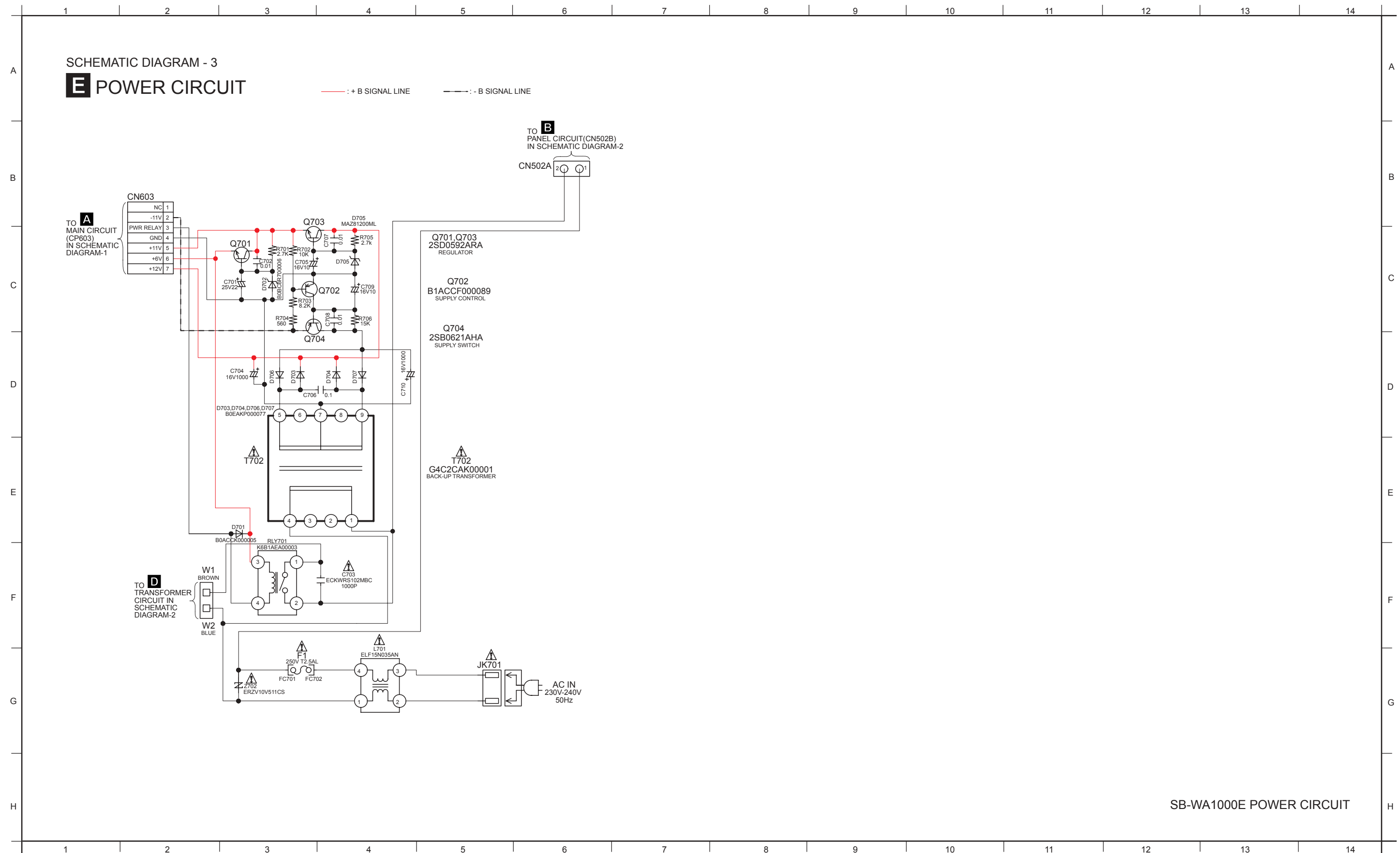




12.2. Panel Circuit, LED Circuit and Transformer Circuit



### 12.3. Power Circuit

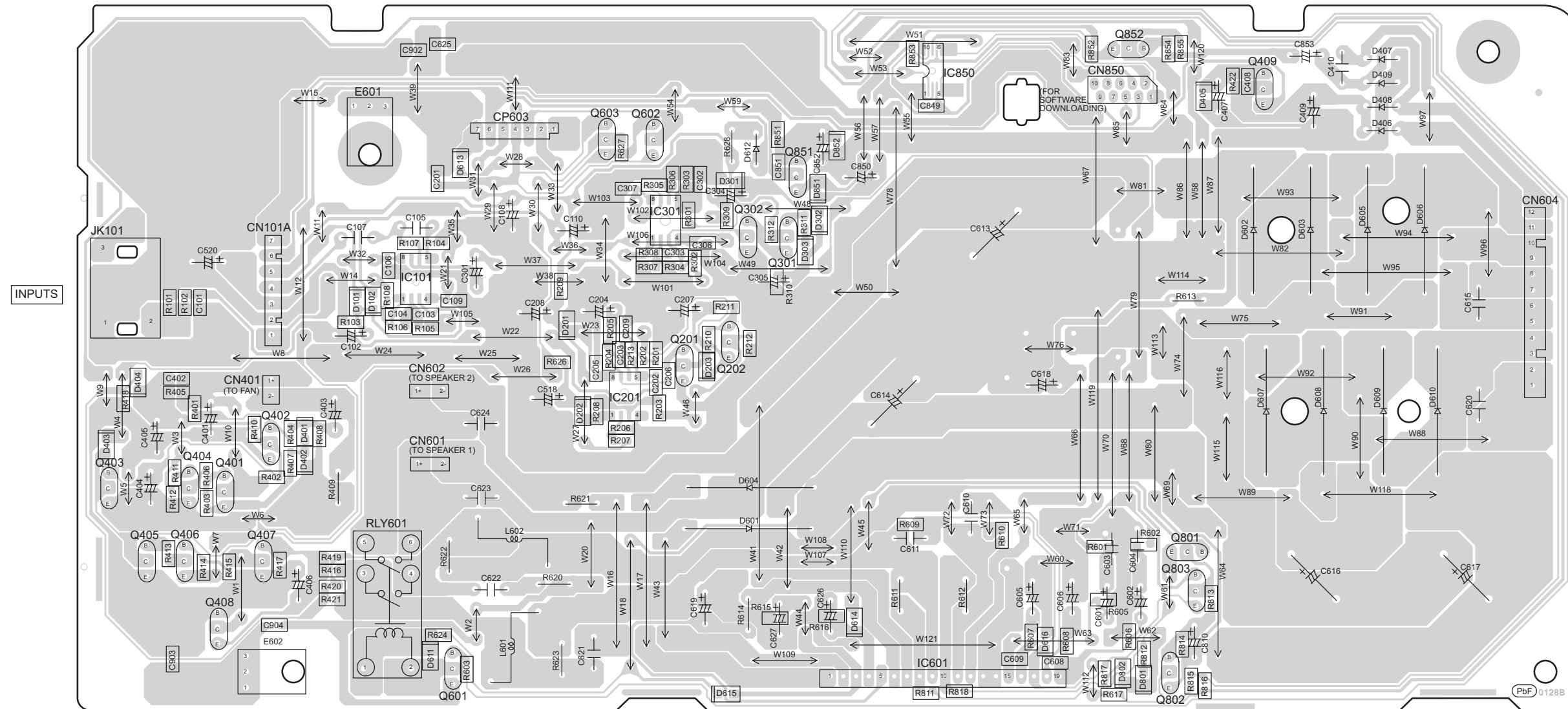




# 13 Printed Circuit Board

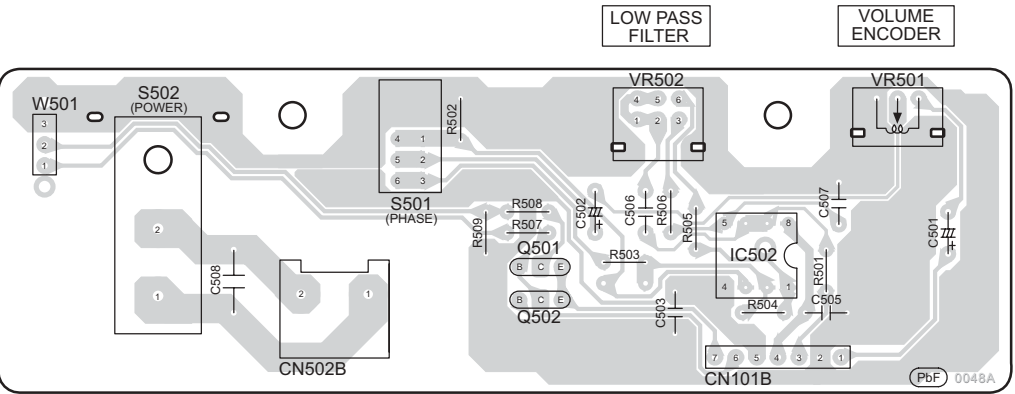
## 13.1. Main P.C.B.

### A MAIN P.C.B (REPV0128C)

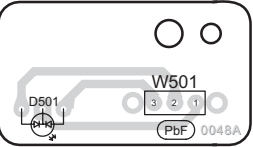


13.2. PANEL/ LED/ TRANSFORMER/ POWER P.C.B.

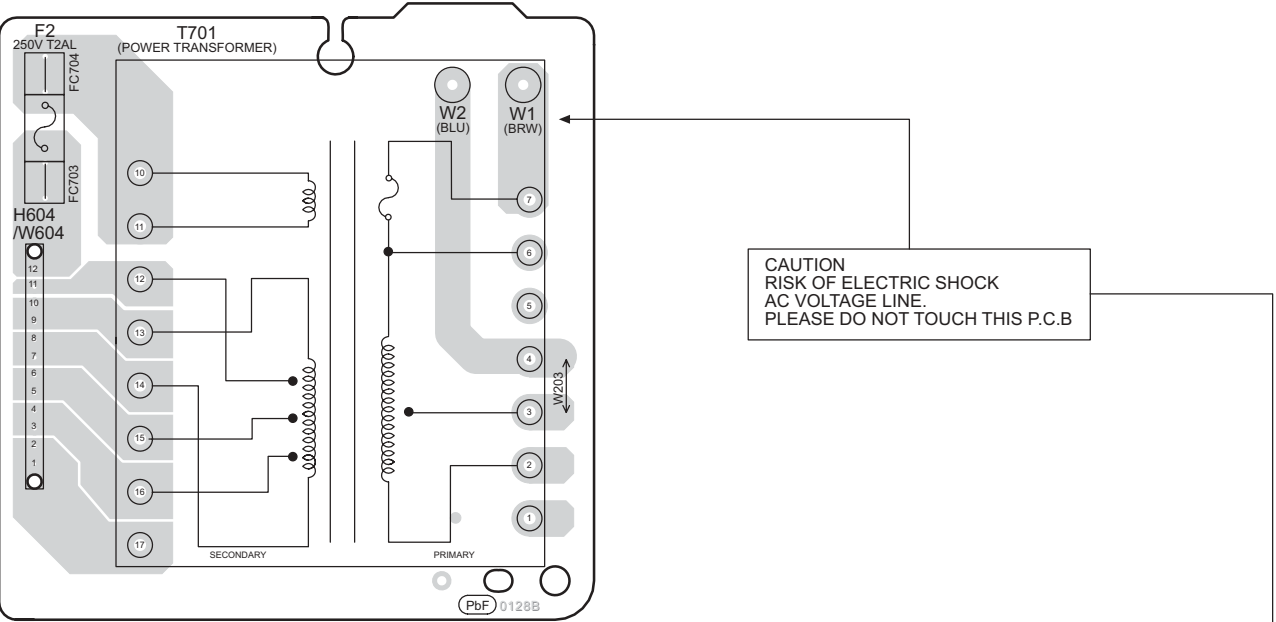
**B** PANEL P.C.B (REPV0048A)



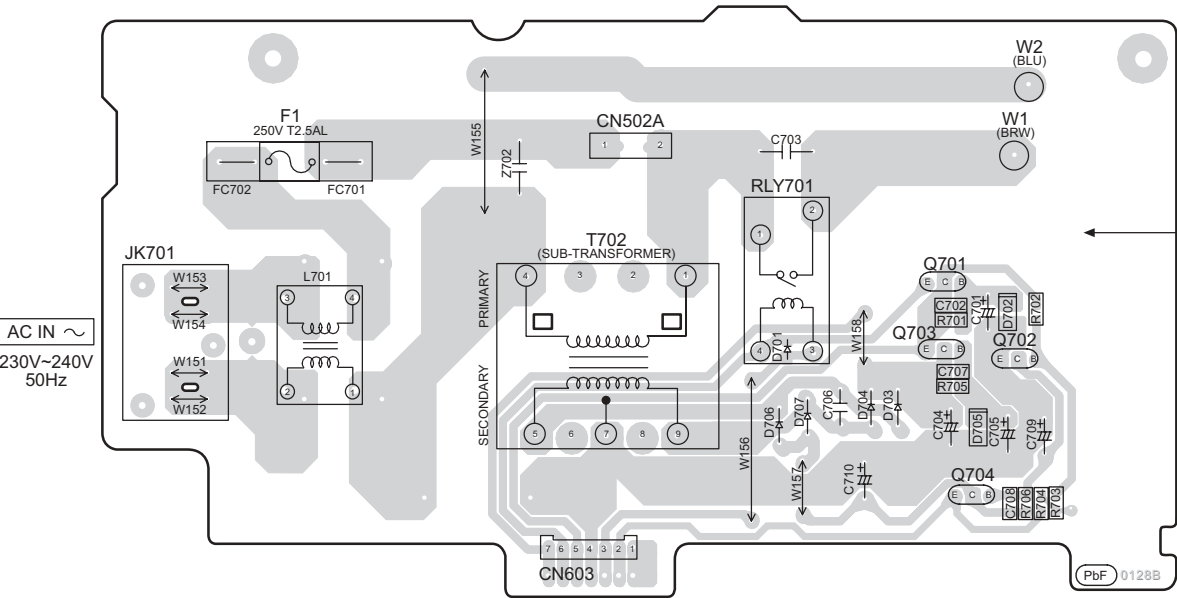
**C** LED P.C.B (REPV0048A)



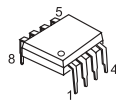
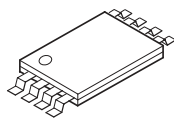
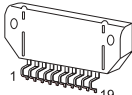
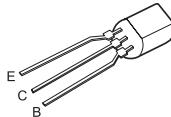
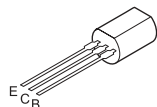
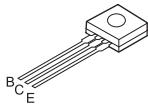
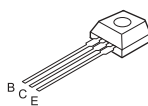
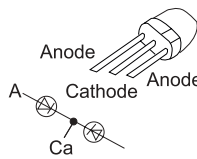
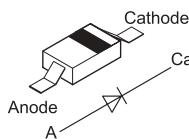
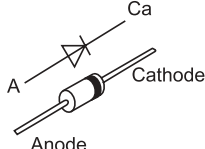
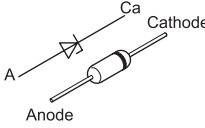
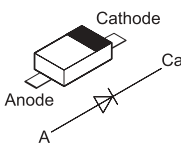
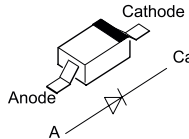
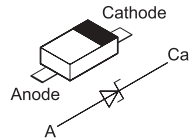
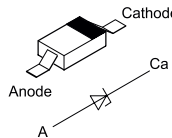
**D** TRANSFORMER P.C.B (REPV0128C)



**E** POWER P.C.B (REPV0128C)



# 14 Illustration of IC's, Transistors and Diodes

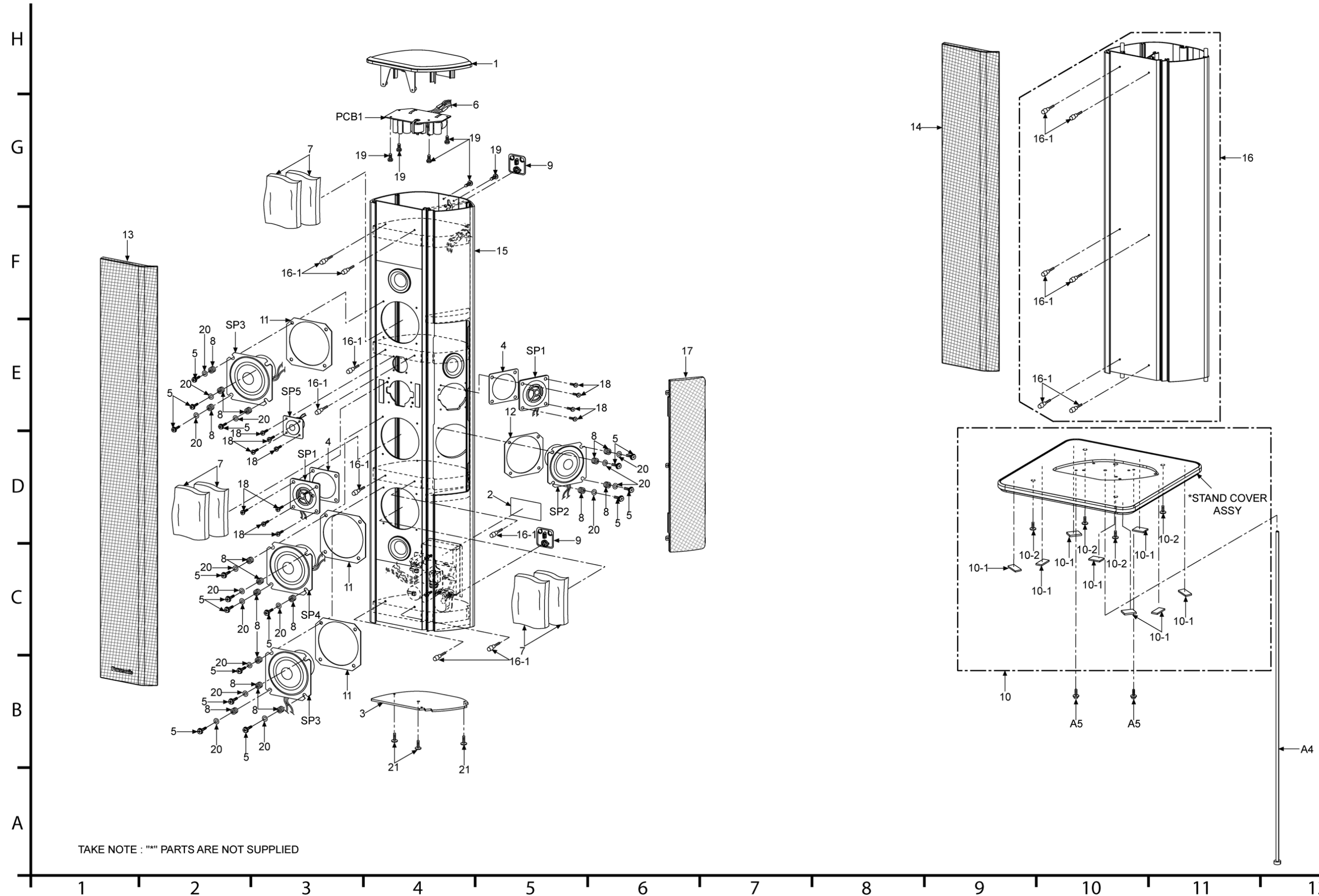
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B1ACCF000089	B1GACFJJ0018 B1AACF000117 B1GCCFJJ0016	B3AKA0000006	B0ACCK000005	B0EAMM000038
				
B0BC5R600003	B0EAKP000077	B0BC6R700006 MA2J72800L	B0BC01700015 B0BC3R400001 MAZ81200ML MAZ81300ML B0BC01600013	
				
B0BC8R100004				
				





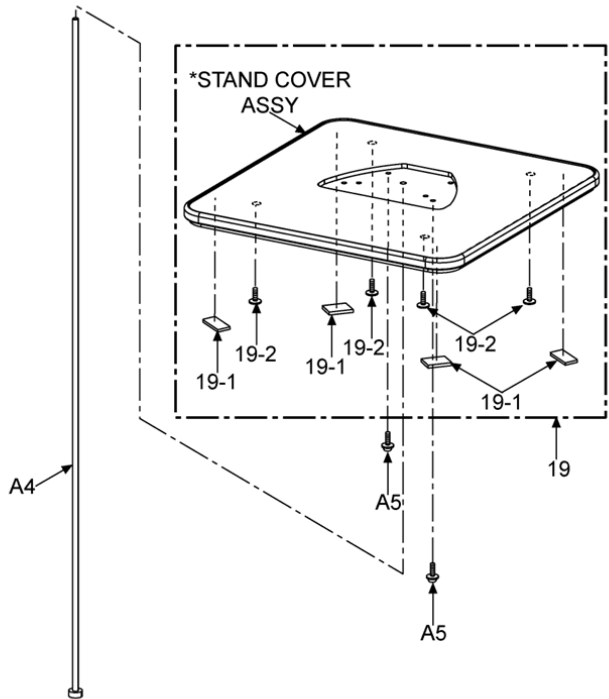
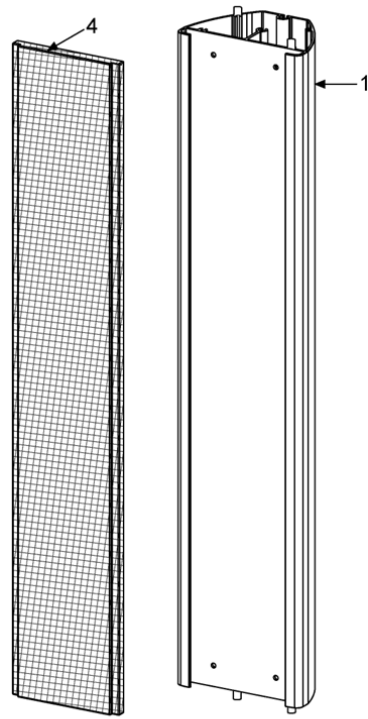
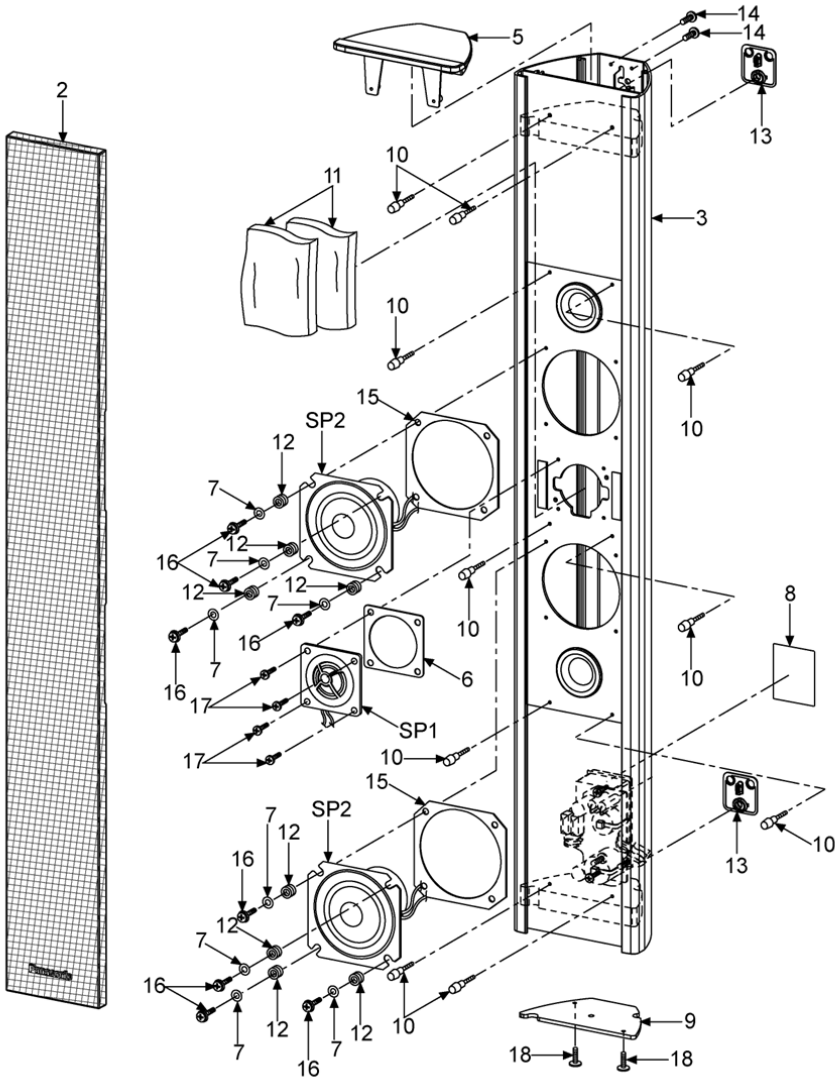
# 15 Exploded view

## 15.1. Cabinet Parts Location (SB-FC1000LE-K/SB-FC1000RE-K) (Front speakers)



15.2. Cabinet Parts Location (SB-HS1000E-K) (Surround speaker)

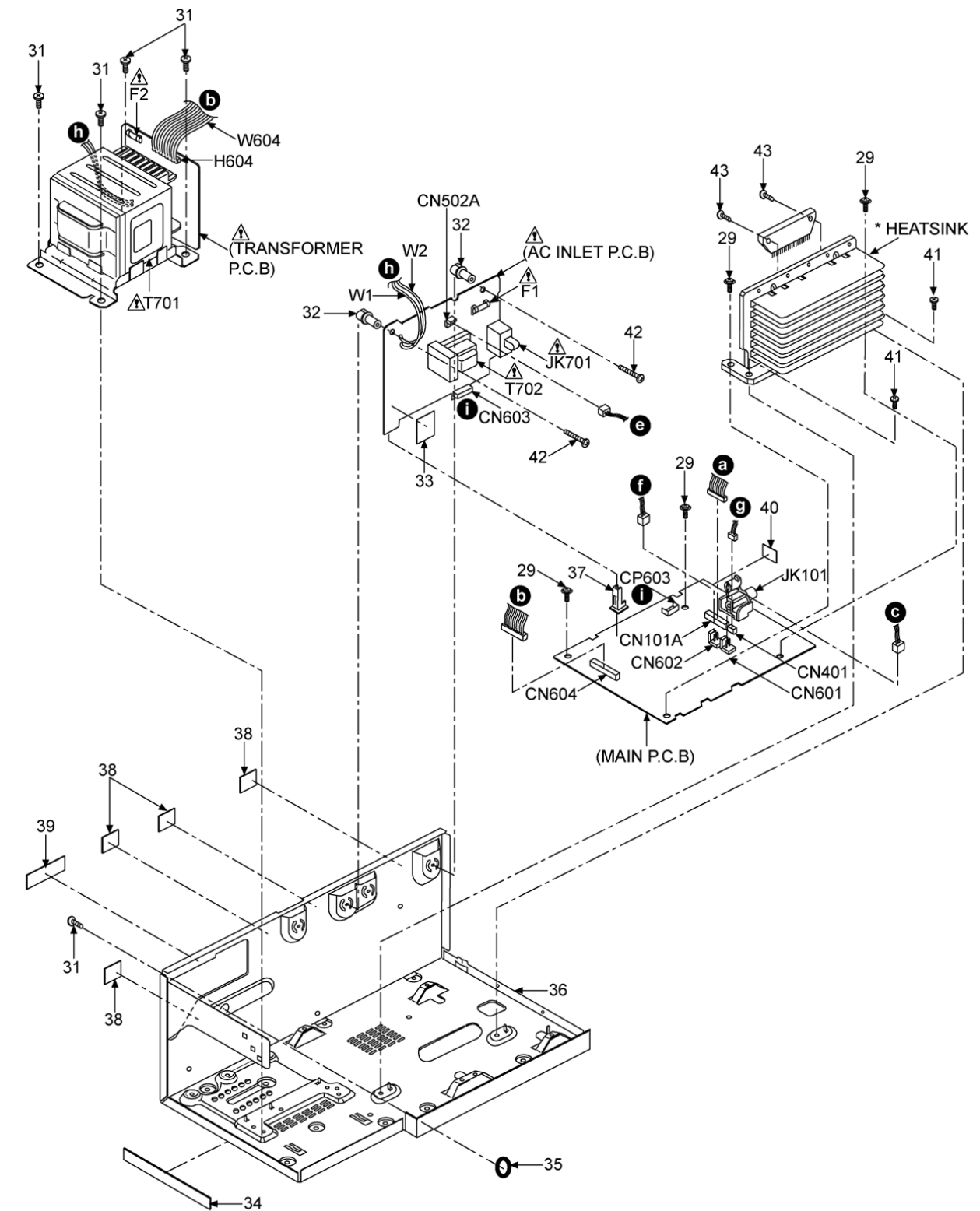
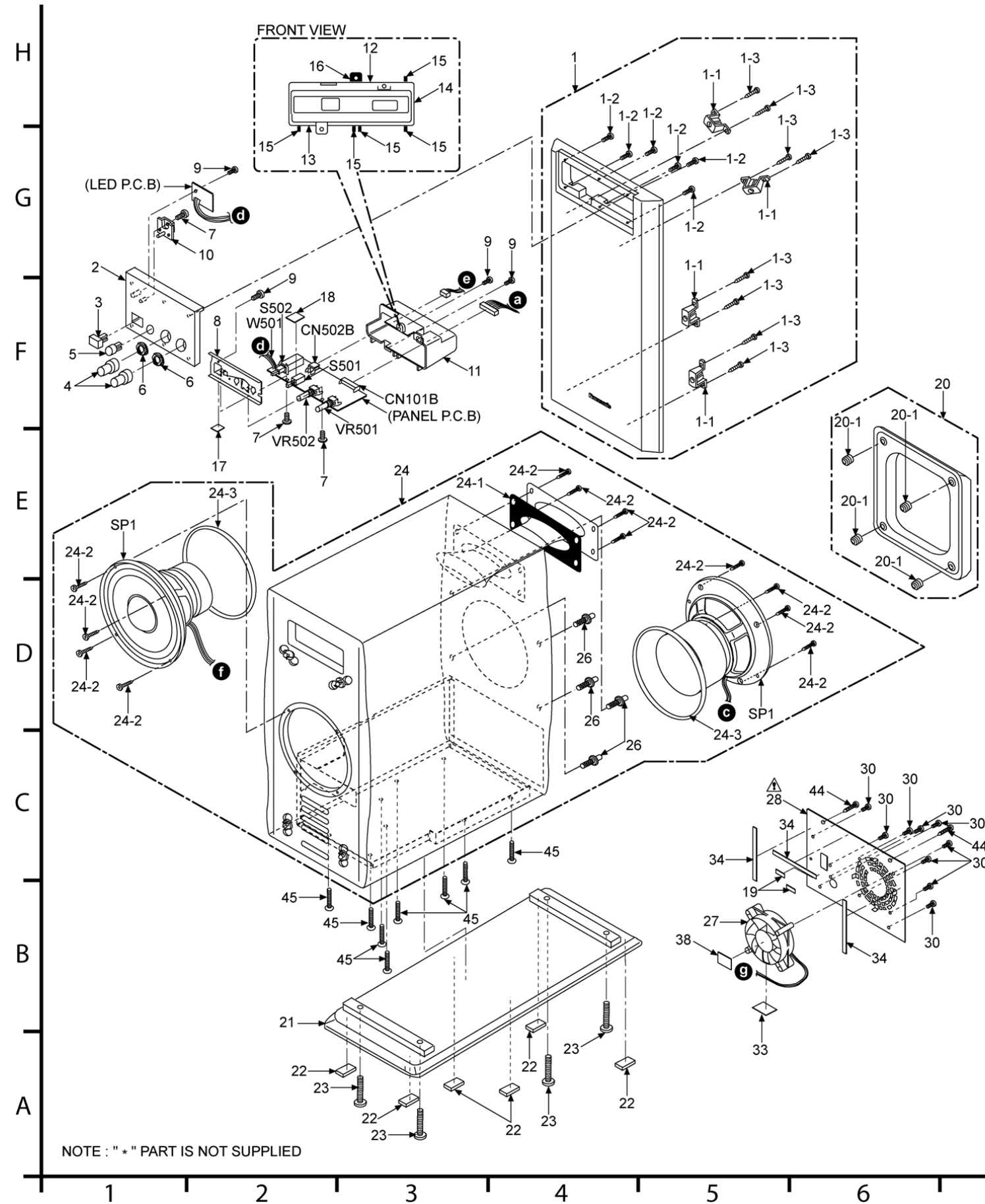
H  
G  
F  
E  
D  
C  
B  
A



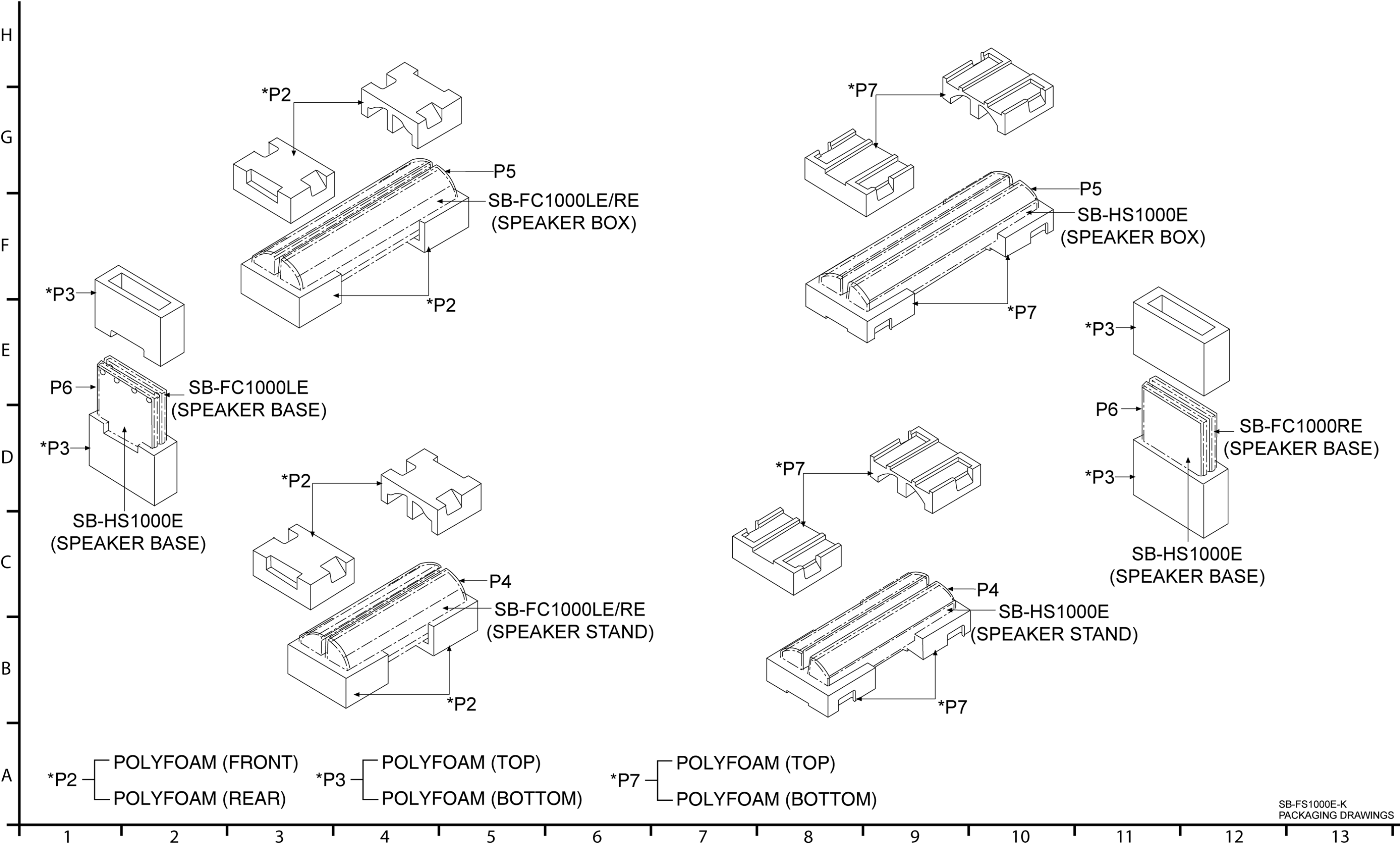
TAKE NOTE : "" PARTS ARE NOT SUPPLIED

SB-HS1000E-K  
CABINET DRAWINGS

### 15.3. Cabinet Parts Location (SB-WA1000E-K) (Active subwoofer)

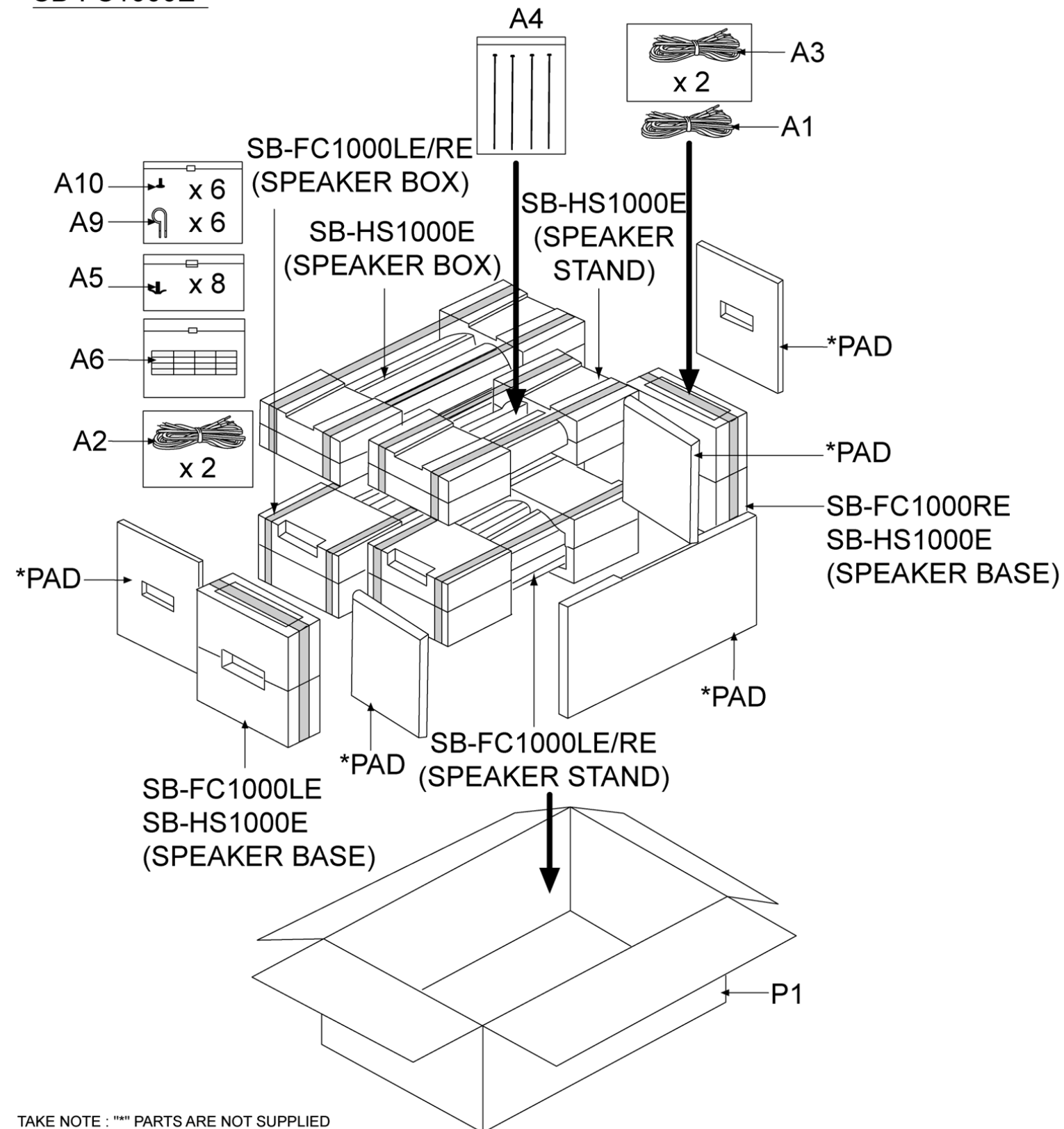


15.4. Packaging (SB-FS1000E-K)

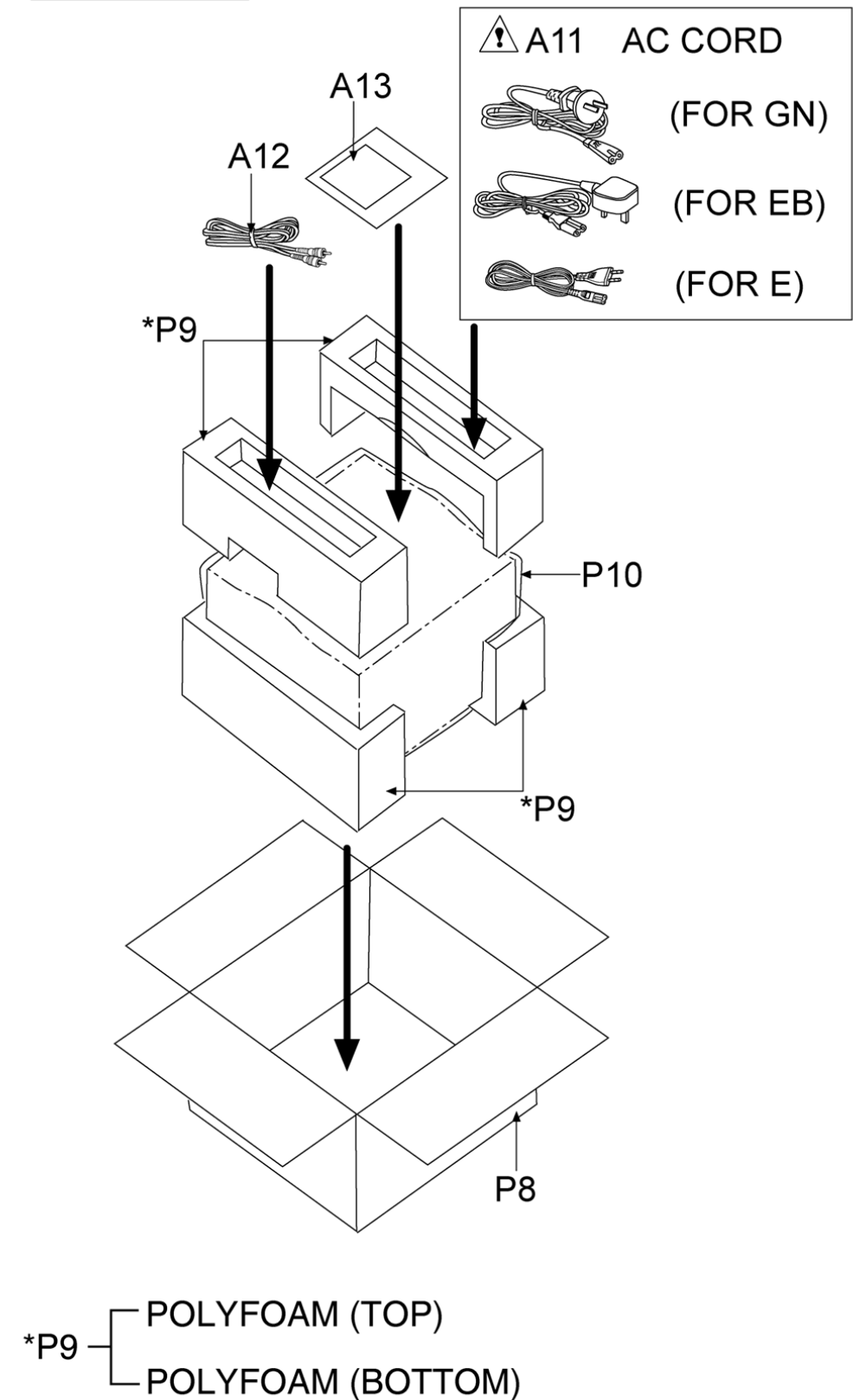


## 15.5. Packaging (SB-FS1000E-K and SB-WA1000E-K)

### SB-FS1000E



### SB-WA1000E





# 16 Replacement Parts List

## Notes:

- Important safety notice:

Components identified by  $\triangle$  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc are used.

When replacing any of these components, be sure to use only manufacturer's specified parts shown in the parts list.

- The parenthesized indications in the Remarks columns specify the areas or colour. (Refer to the cover page for area or colour)  
Parts without these indications can be used for all areas.
- Capacitor values are in microfarads ( $\mu$ F) unless specified otherwise, P= Pico-farads (pF), F= Farads.
- Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM).
- The marking (RTL) indicates that the Retention Time is limited for this items. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of a availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- [M] Indicates in the Remarks columns indicates parts supplied by PAVCSG.
- Reference for O/I book languages are as follows:

Ar:	Arabic	Du:	Dutch	It:	Italian	Sp:	Spanish
Cf:	Canadian French	En:	English	Ko:	Korean	Sw:	Swedish
Cz:	Czech	Fr:	French	Po:	Polish	Co:	Traditional Chinese
Da:	Danish	Ge:	German	Ru:	Russian	Cn:	Simplified Chinese
Pe:	Persian	Ur:	Ukraine				

## 16.1. SB-FC1000LE-K/SB-FC1000RE-K (Front speakers)

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
PCB1	REP4175A	NETWORK ASS'Y	[M]
1	RYQ0617A-K1	PREPARED TOP ORNAMENT ASS'Y (FL)	[M] FC1000LE-K
1	RYQ0617-K1	PREPARED TOP ORNAMENT ASS'Y (FR)	[M] FC1000RE-K
2	RGN2912-K	SPEC LABEL	[M] FC1000LE-K
2	RGN2912A-K	SPEC LABEL	[M] FC1000RE-K
3	RGQ0467-K	BOTTOM COVER	[M] FC1000LE-K
3	RGQ0467A-K	BOTTOM COVER	[M] FC1000RE-K
4	RMQ1143	GASKET (FOR TWEETER)	[M]
5	RHD30145	SCREW	[M]
6	REE1392	WIRE ASS'Y	[M]
7	RMF0245	ABSORBER	[M]
8	RMG0606-K	FAN INSULATOR	[M]
9	RMG0700-K	REAR HOLE COVER	[M]
10	RYQ0607-K1	PREPARED STAND BASE (FL)	[M] FC1000LE-K
10	RYQ0607A-K1	PREPARED STAND BASE (FR)	[M] FC1000RE-K
10-1	RKA0181-K	LEG CUSHION	[M]
10-2	XTW3+12JFJK	SCREW	[M]
11	RMQ1550	HIMELON (FOR WOOFER)	[M]
12	RMQ1577	HIMELON (FOR MID SPKR)	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
13	RYB0345H-1	MAIN NET FRAME ASSY (FL)	[M] FC1000LE-K
13	RYB0345J-1	MAIN NET FRAME ASSY (FR)	[M] FC1000RE-K
14	RYB0346D	STAND NET FRAME	[M]
15	RYK1506D-K	PREPARED AL CABINET ASSY (FL)	[M] FC1000LE-K
15	RYK1506E-K	PREPARED AL CABINET ASSY (FR)	[M] FC1000RE-K
16	RYQ0609A-K1	PREPARED AL STAND PIPE (FC)	[M]
16-1	RHD30144	NET CATCH SCREW	[M]
17	RYQ0625A-K	NET ASSY	[M]
18	XTB3+12JFJK	SCREW	[M]
19	XTB3+8JFJK	SCREW	[M]
20	RMR1799-X	PC SHEET	[M]
21	XTS3+14JFJK	SCREW	[M]
		SWITCHES	
PSW1	D4FAR500A003	SW POLY (0.5A)	[M]
PSW2	D4FA1R10A003	SW POLY (1.1A)	[M]
		COILS AND TRANSFORMERS	
L1	SLCSA561KE	CHOKE COIL (0.56mH)	[M]
L2	SLCSA122KE	CHOKE COIL (1.2mH)	[M]
L3	SLCSA272KE	CHOKE COIL (2.7mH)	[M]
		PACKING MATERIALS	
P1	RPG8597	PACKING CASE	[M]
P2	RPN1917	POLYFOAM (FRONT)	[M]
P3	RPN1921	POLYFOAM (BASE)	[M]
P4	RPF0447	MIRAMAT (STAND)	[M]
P5	RPF0448	MIRAMAT (BOX)	[M]
P6	RPF0349	MIRAMAT (BASE)	[M]
		ACCESSORIES	

Ref. No.	Part No.	Part Name & Description	Remarks
A6	RKA0191-K	WALL SPACER	[M]
A9	RMR1503-K	NYLON CLAMPER	[M]
A10	XTW3+10JFJK	SCREW	[M]
		RESISTORS	
R1	ERX5SJ100	10 5W	[M]
R2	ERX5SJ120	12 5W	[M]
R4	ERX5SJ270	27 5W	[M]
R5	ERX5SJ270	27 5W	[M]
		CAPACITOR	
C1	ECQE1225KF	2.2uF 25V	[M]
C3	ECA1HPYS8R2	8.2uF 50V	[M]
C5	ECQE1105JF	1.0uF 25V	[M]
		SPEAKERS	
SP1	EAS25KH76A	TWEETER SPEAKER	[M]
SP2	EAS65PM134A	MID-RANGE SPEAKER	[M]
SP3	EAS8PL205A	FRONT WOOFER SPEAKER	[M]
SP4	EAS8PL206A	CENTER WOOFER SPEAKER	[M]
SP5	EAS3FP01B6	SUPER TWEETER SPEAKER	[M]

## 16.2. SB-HS1000E (Surround speaker)

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RYQ0610A-K	PREPARED STAND PIPE	[M]
2	RYB0347C	MAIN NET FRAME	[M]
3	RYK1507A-K	PREPARED AL CABINET ASSY (HS)	[M]
4	RYB0348C	STAND NET FRAME	[M]
5	RYQ0632-K	PREPARED TOP ORNAMENT (HS)	[M]
6	RMQ1143	GASKET (FOR TWEETER)	[M]
7	RMR1799-X	PC SHEET	[M]
8	RGN2914-K	SPEC LABEL	[M]
9	RGQ0468-K	BOTTOM COVER	[M]
10	RHD30144	NET CATCH SCREW	[M]
11	RMF0245	ABSORBER	[M]
12	RMG0606-K	FAN INSULATOR	[M]
13	RMG0700-K	REAR HOLE COVER	[M]
14	XTB3+8JFJ	SCREW	[M]
15	RMQ1550	HIMELON (FOR WOOFER)	[M]
16	RHD30145	SCREW	[M]
17	XTB3+12JFJK	SCREW	[M]
18	XTS3+14JFJK	SCREW	[M]
19	RYQ0608-K	PREPARED STAND BASE (HS)	[M]
19-1	RKA0181-K	LEG CUSHION	[M]
19-2	XTW3+W10P	SCREW	[M]
		PACKING MATERIALS	
P7	RPN1918	POLYFOAM(S/SPEAKER)	[M]
		ACCESSORIES	
A1	REE1393C	SPEAKER CORD (6M)	[M]
A2	REE1397	SPEAKER CORD (10M)	[M]
A3	REE1397D	FRONT SPEAKER CORD (6M)	[M]
A4	RXQ1497	SCREW ASS'Y	[M]
A5	XSB4+20FJK	SCREW	[M]
		SPEAKERS	
SP1	EAS25KH76A	TWEETER SPEAKER	[M]
SP2	EAS8PL205A	FRONT WOOFER SPEAKER	[M]

## 16.3. SB-WA1000E (Active subwoofer)

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RYB0349A-1	FRONT NET FRAME ASS'Y	[M]
1-1	RMN0802	CATCHER	[M]
1-2	RHD26050	SCREW	[M]
1-3	XTB3+16AFJK	SCREW	[M]
2	RGP1299B-K	CONTROL PANEL	[M]
3	RGU2182A-K1	POWER KNOB	[M]
4	RGW0397C-K	VOLUME KNOB	[M]
5	RGU2183A-K	SELECTOR KNOB	[M]
6	RHN90001-1	M9 NUT	[M]
7	XTB3+8JFJ	SCREW	[M]
8	RMA1881	VOLUME ANGLE	[M]
9	RHD26045-L	SCREW	[M]
10	RGL0630-Q	LIGHT GUIDE	[M]
11	RMN0803	BARRIER	[M]
12	RMF0370	HIMERON B	[M]
13	RMF0371	HIMERON C	[M]
14	RMF0372	HIMERON D	[M]
15	RMF0381	HIMELON	[M]
16	RMF0382	HIMELON	[M]
17	RMF0385	HIMELON	[M]
18	RMF0386	HIMELON	[M]
19	RMF0387	HIMELON	[M]
20	RYB0350	REAR NET FRAME UNIT	[M]
20-1	RMG0520-K	NET HOLDER	[M]
21	RKA0188-K	FOOT BASE ASSY	[M]
22	RAKV0029-K	LEG CUSHION	[M]
23	XST5+30FN	SCREW	[M]
24	RKP0075-K1	SPEAKER CABINET ASS'Y	[M]
24-1	RMQ1399	EVA PACKING	[M]
24-2	XTB4+16AFJK	SCREW	[M]
24-3	RMF0375	WOOFER GASKET	[M]
26	RMQ1086A	NET CATCH PIN	[M]
27	REM0072-4	FAN	[M]
28	RGR0352G-E	REAR PANEL	[M] △
29	RHD30092-1	SCREW	[M]
30	RHD30119-K	SCREW	[M]
31	RHD30119-S	SCREW	[M]
32	RKQ0089A	PCB SUPPORT	[M]
33	RMFX0030	HIMELON	[M]
34	RMFX0031	HIMELON	[M]
35	RMG0623-K	TRANS RUBBER	[M]
36	RMKX0091A-A2	L CHASSIS	[M]
37	RMN0203	PCB HOLDER	[M]
38	RMQX0098	EVA PACKING	[M]
39	RMQX0099	EVA PACKING	[M]
40	RMVX0082	PC SHEET	[M]
41	XTB3+10JFJ	SCREW	[M]
42	XTB3+20JFJ	SCREW	[M]
43	XTW3+15TFJ	SCREW	[M]
44	XTB3+16AFJK	SCREW (REAR PANEL)	[M]
45	XTS4+20JFJ	SCREW (CHASSIS)	[M]
		PACKING MATERIALS	
P8	RP8598	PACKING CASE	[M]
P9	RPN1922-1	POLYFOAM	[M]
P10	RPH0253	PROTECTION CLOTH	[M]
		ACCESSORIES	
A11	K2CJ2DA00010	AC CORD	[M] GN △
A11	K2CQ2CA00006	AC CORD	[M] E/EE △
A11	K2CT3CA00004	AC CORD	[M] EB △



Ref. No.	Part No.	Part Name & Description	Remarks
A12	RJLV1P001B50	MONAURAL CONNECTION CABLE	[M]
A13	RQT9219-E	O/I BOOK	[M]
		PRINTED CIRCUIT BOARDS	
PCB1	REPV0128C	Main P.C.B	[M] (RTL)
PCB2	REPV0048A	PANEL P.C.B	[M] (RTL)
PCB3	REPV0048A	LED P.C.B	[M] (RTL)
PCB4	REPV0128C	TRANSFORMER P.C.B	[M] △ (RTL)
PCB5	REPV0128C	POWER P.C.B	[M] (RTL)
		INTEGRATED CIRCUITS	
IC101	C0ABBB000216	IC	[M]
IC201	C0ABBB000216	IC	[M]
IC301	C0ABBB000216	IC	[M]
IC502	C0AABB000086	IC	[M]
IC601	C5ZAZ0000119	IC	[M]
IC850	C2BBY000421	IC	[M]
		TRANSISTORS	
Q201	B1GACFJJ0018	TRANSISTOR	[M]
Q202	B1ACCF000089	TRANSISTOR	[M]
Q301	B1AACF000117	TRANSISTOR	[M]
Q302	B1AACF000117	TRANSISTOR	[M]
Q401	2SB0621AHA	TRANSISTOR	[M]
Q402	B1AACF000117	TRANSISTOR	[M]
Q403	B1AACF000117	TRANSISTOR	[M]
Q404	B1AACF000117	TRANSISTOR	[M]
Q405	B1AACF000117	TRANSISTOR	[M]
Q406	B1ACCF000089	TRANSISTOR	[M]
Q407	B1AACF000117	TRANSISTOR	[M]
Q408	B1AACF000117	TRANSISTOR	[M]
Q409	2SC3940ARA	TRANSISTOR	[M]
Q501	B1GCCFJJ0016	TRANSISTOR	[M]
Q502	B1GCCFJJ0016	TRANSISTOR	[M]
Q601	B1AACF000117	TRANSISTOR	[M]
Q602	B1AACF000117	TRANSISTOR	[M]
Q603	B1GACFJJ0018	TRANSISTOR	[M]
Q701	2SD0592ARA	TRANSISTOR	[M]
Q702	B1ACCF000089	TRANSISTOR	[M]
Q703	2SD0592ARA	TRANSISTOR	[M]
Q704	2SB0621AHA	TRANSISTOR	[M]
Q801	B1ACCF000089	TRANSISTOR	[M]
Q802	2SD0592ARA	TRANSISTOR	[M]
Q803	B1ACCF000089	TRANSISTOR	[M]
Q851	2SC3940ARA	TRANSISTOR	[M]
Q852	B1GACFJJ0018	TRANSISTOR	[M]
		DIODES	
D101	B0ACCK000005	DIODE	[M]
D102	B0ACCK000005	DIODE	[M]
D201	B0BC8R100004	DIODE	[M]
D202	B0ACCK000005	DIODE	[M]
D203	B0ACCK000005	DIODE	[M]
D301	B0ACCK000005	DIODE	[M]
D302	B0ACCK000005	DIODE	[M]
D303	MA2J72800L	DIODE	[M]
D401	MA2J72800L	DIODE	[M]
D402	MA2J72800L	DIODE	[M]
D403	B0ACCK000005	DIODE	[M]
D404	B0ACCK000005	DIODE	[M]
D405	MAZ81300ML	DIODE	[M]
D406	B0EAKP000077	DIODE	[M]
D407	B0EAKP000077	DIODE	[M]
D408	B0EAKP000077	DIODE	[M]
D409	B0EAKP000077	DIODE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
D501	B3AKA0000006	DIODE	[M]
D601	B0EAMM000038	DIODE	[M]
D602	B0EAMM000038	DIODE	[M]
D603	B0EAMM000038	DIODE	[M]
D604	B0EAMM000038	DIODE	[M]
D605	B0EAMM000038	DIODE	[M]
D606	B0EAMM000038	DIODE	[M]
D607	B0EAMM000038	DIODE	[M]
D608	B0EAMM000038	DIODE	[M]
D609	B0EAMM000038	DIODE	[M]
D610	B0EAMM000038	DIODE	[M]
D611	B0ACCK000005	DIODE	[M]
D612	B0EAKP000077	DIODE	[M]
D613	B0BC01700015	DIODE	[M]
D614	B0BC01600013	DIODE	[M]
D615	B0BC01600013	DIODE	[M]
D616	B0BC3R400001	DIODE	[M]
D701	B0ACCK000005	DIODE	[M]
D702	B0BC6R700006	DIODE	[M]
D703	B0EAKP000077	DIODE	[M]
D704	B0EAKP000077	DIODE	[M]
D705	MAZ81200ML	DIODE	[M]
D706	B0EAKP000077	DIODE	[M]
D707	B0EAKP000077	DIODE	[M]
D801	B0ACCK000005	DIODE	[M]
D802	B0ACCK000005	DIODE	[M]
D851	B0ACCK000005	DIODE	[M]
D852	B0BC5R600003	DIODE	[M]
		VARIABLE RESISTORS	
VR501	D2BDB14B0006	VOLUME ENCODER	[M]
VR502	D2BDD14B0002	ENCODER	[M]
		SWITCHES	
S501	K0F124A00054	SW	[M]
S502	ESB92S21B	SW POWER	[M]
		CONNECTORS	
CN401	K1KA02AA0186	2P CONNECTOR (FAN)	[M]
CN601	K1KA02A00592	2P CONNECTOR	[M]
CN602	K1KA02A00592	2P CONNECTOR	[M]
CN603	K1KB07B00020	7P CONNECTOR	[M]
CN604	K1KA12AA0185	12P CONNECTOR	[M]
CN850	K1MN10AA0003	10P CONNECTOR	[M]
CN101A	K1KA07AA0186	7P CONNECTOR	[M]
CN101B	K1KA07BA0125	7P CONNECTOR	[M]
CN502A	K1KA02A00593	2P CONNECTOR	[M]
CN502B	K1KA02B00248	2P CONNECTOR	[M]
CP603	K1KA07AA0297	7P CONNECTOR	[M]
		COILS & INDUCTORS	
L601	RLQYR73MW-B	COIL	[M]
L602	RLQYR73MW-B	COIL	[M]
L701	ELF15N035AN	LINE FILTER	[M] △
		TRANSFORMERS	
T701	G4C8AGH00004	POWER TRANSFORMER	[M] △
T702	G4C2CAK00001	BACK-UP TRANSFORMER	[M] △
		COMPONENT COMBINATION	
Z702	ERZV10V511CS	ZENER	[M] △
		RELAY	
RLY601	K6B2AHA00014	RELAY	[M] △
RLY701	K6B1AEA00003	RELAY	[M] △

Ref. No.	Part No.	Part Name & Description	Remarks
		HOLDERS	
H604	K1YF12000002	12P WIRE HOLDER	[M]
		FUSE	
F1	K5D252BLA013	FUSE	[M] △
F2	K5D202BK0005	FUSE	[M] △
		FUSE HOLDERS	
FC701	EYF52BCY	FUSE HOLDER	[M]
FC702	EYF52BCY	FUSE HOLDER	[M]
FC703	EYF52BCY	FUSE HOLDER	[M]
FC704	EYF52BCY	FUSE HOLDER	[M]
		JACKS	
JK101	K4BK01H00005	SPEAKER	[M]
JK701	K2AA2B000011	AC INLET	[M] △
		EARTH TERMINALS	
E601	K9ZZ00001279	EARTH PLATE	[M]
E602	K9ZZ00001279	EARTH PLATE	[M]
		WIRES	
W1	REE1205-1	WIRE BROWN	[M]
W2	REE1204-1	WIRE BLUE	[M]
W501	RWJ1803090SS	3P WIRE	[M]
W604	REX1260	12P WIRE	[M]
		RESISTORS	
R101	D0GB104JA007	100K 1/10W	[M]
R102	D0GB222JA007	2.2K 1/10W	[M]
R103	D0GB473JA007	47K 1/10W	[M]
R104	D0GB683JA007	68K 1/10W	[M]
R105	D0GB472JA007	4.7K 1/10W	[M]
R106	D0GB472JA007	4.7K 1/10W	[M]
R107	D0GB332JA007	3.3K 1/10W	[M]
R108	D0GB101JA007	100 1/10W	[M]
R201	ERJ3GEYJ103V	10K 1/10W	[M]
R202	ERJ3GEYJ103V	10K 1/10W	[M]
R203	D0GB104JA007	100K 1/10W	[M]
R204	D0GB474JA041	470K 1/10W	[M]
R205	D0GB101JA007	100 1/10W	[M]
R206	ERJ3GEYJ103V	10K 1/10W	[M]
R207	ERJ3GEYJ103V	10K 1/10W	[M]
R208	D0GB224JA007	220K 1/10W	[M]
R209	D0GB331JA007	330 1/10W	[M]
R210	D0GB224JA007	220K 1/10W	[M]
R211	D0GB105JA007	1M 1/10W	[M]
R212	D0GB104JA007	100K 1/10W	[M]
R213	D0GB683JA007	68K 1/10W	[M]
R301	ERJ3GEYJ103V	10K 1/10W	[M]
R302	ERJ3GEYJ822V	8.2K 1/10W	[M]
R303	ERJ3GEYJ103V	10K 1/10W	[M]
R304	ERJ3GEYJ102V	1K 1/10W	[M]
R305	D0GB334JA007	330K 1/10W	[M]
R306	D0GB683JA007	68K 1/10W	[M]
R307	D0GB182JA007	1.8K 1/10W	[M]
R308	D0GB332JA007	3.3K 1/10W	[M]
R309	ERJ3GEYJ103V	10K 1/10W	[M]
R310	D0GB224JA007	220K 1/10W	[M]
R311	ERJ3GEYJ103V	10K 1/10W	[M]
R312	ERJ3GEYJ103V	10K 1/10W	[M]
R401	ERJ3GEYJ103V	10K 1/10W	[M]
R402	D0GB563JA007	56K 1/10W	[M]
R403	D0GB472JA007	4.7K 1/10W	[M]
R404	D0GB101JA007	100 1/10W	[M]
R405	ERJ3GEYJ824V	820K 1/10W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R406	D0GB562JA007	5.6K 1/10W	[M]
R407	ERJ3GEYJ103V	10K 1/10W	[M]
R408	D0GB224JA007	220K 1/10W	[M]
R409	D0AF180JA039	18 1/2W	[M]
R410	D0GB563JA007	56K 1/10W	[M]
R411	ERJ3GEYJ103V	10K 1/10W	[M]
R412	ERJ3GEYJ824V	820K 1/10W	[M]
R413	D0GB473JA007	47K 1/10W	[M]
R414	D0GB224JA007	220K 1/10W	[M]
R415	D0GB474JA041	470K 1/10W	[M]
R416	D0GB124JA007	120K 1/10W	[M]
R417	D0GB223JA007	22K 1/10W	[M]
R418	D0GB562JA007	5.6K 1/10W	[M]
R419	D0GB124JA007	120K 1/10W	[M]
R420	D0GB223JA007	22K 1/10W	[M]
R421	D0GB223JA007	22K 1/10W	[M]
R422	D0GB222JA007	2.2K 1/10W	[M]
R501	D0AE101JA048	100 1/4W	[M]
R502	D0AE103JA048	10K 1/4W	[M]
R503	D0AE103JA048	10K 1/4W	[M]
R504	D0AE103JA048	10K 1/4W	[M]
R505	D0AE272JA048	2.7K 1/4W	[M]
R506	D0AE272JA048	2.7K 1/4W	[M]
R507	D0AE102JA048	1K 1/4W	[M]
R508	D0AE471JA048	470 1/4W	[M]
R509	D0AE222JA048	2.2K 1/4W	[M]
R601	ERJ3GEYJ102V	1K 1/10W	[M]
R602	ERJ3GEYJ102V	1K 1/10W	[M]
R603	ERJ3GEYJ102V	1K 1/10W	[M]
R605	D0GB563JA007	56K 1/10W	[M]
R606	D0GB563JA007	56K 1/10W	[M]
R607	D0GB561JA007	560 1/10W	[M]
R608	D0GB561JA007	560 1/10W	[M]
R609	D0GB563JA007	56K 1/10W	[M]
R610	D0GB563JA007	56K 1/10W	[M]
R611	ERF5TKR22	0.22 5W	[M]
R612	ERF5TKR22	0.22 5W	[M]
R613	D0AF101JA039	100 1/2W	[M]
R614	D0AF101JA039	100 1/2W	[M]
R615	ERJ6GEYJ152V	1.5K 1/8W	[M]
R616	ERJ6GEYJ152V	1.5K 1/8W	[M]
R617	ERJ3GEYJ102V	1K 1/10W	[M]
R620	D0C14R7JA020	4.7 1W	[M]
R621	D0C14R7JA020	4.7 1W	[M]
R622	D0C14R7JA020	4.7 1W	[M]
R623	D0C14R7JA020	4.7 1W	[M]
R624	ERJ6GEYJ221V	220 1/8W	[M]
R626	D0GB562JA007	5.6K 1/10W	[M]
R627	D0GB472JA007	4.7K 1/10W	[M]
R628	D0AF220JA039	22 1/2W	[M]
R701	D0GB272JA007	2.7K 1/10W	[M]
R702	ERJ3GEYJ103V	10K 1/10W	[M]
R703	ERJ3GEYJ822V	8.2K 1/10W	[M]
R704	D0GB561JA007	560 1/10W	[M]
R705	D0GB272JA007	2.7K 1/10W	[M]
R706	D0GB153JA007	15K 1/10W	[M]
R811	ERJ3GEYJ682V	6.8K 1/10W	[M]
R812	D0GB563JA007	56K 1/10W	[M]
R813	D0GB563JA007	56K 1/10W	[M]
R814	ERJ3GEYJ103V	10K 1/10W	[M]
R815	D0GB223JA007	22K 1/10W	[M]
R816	ERJ3GEYJ103V	10K 1/10W	[M]
R817	D0GB563JA007	56K 1/10W	[M]
R818	ERJ3GEYJ682V	6.8K 1/10W	[M]
R851	D0GB222JA007	2.2K 1/10W	[M]
R852	ERJ3GEYJ102V	1K 1/10W	[M]
R853	D0GB473JA007	47K 1/10W	[M]
R854	D0GB222JA007	2.2K 1/10W	[M]
R855	D0GB222JA007	2.2K 1/10W	[M]
		CAPACITORS	
C101	F1H1H223A219	0.022uF 50V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C102	ECA1HAK010XB	1uF 50V	[M]
C103	F1H1H221A748	220pF 50V	[M]
C104	F1H1H221A748	220pF 50V	[M]
C105	ECQV1H334JL3	0.33uF 50V	[M]
C106	F1H1H101A230	100pF 50V	[M]
C107	ECQV1H334JL3	0.33uF 50V	[M]
C108	ECA1CAM471XB	470uF 16V	[M]
C109	F1H1H101A230	100pF 50V	[M]
C110	ECA1CAM471XB	470uF 16V	[M]
C201	F1H1H103A219	0.01uF 50V	[M]
C202	F1H1H473A748	0.047uF 50V	[M]
C203	F1H1H102A219	1000pF 50V	[M]
C204	ECA1EAK220XB	22uF 25V	[M]
C205	F1H1C105A097	1uF 16V	[M]
C206	F1H1H104A013	0.1uF 50V	[M]
C207	ECA1CAM331XB	330uF 16V	[M]
C208	ECA1CAM471XB	470uF 16V	[M]
C209	F1H1C105A097	1uF 16V	[M]
C301	ECA1CAK100XB	10uF 16V	[M]
C302	F1H1H103A219	0.01uF 50V	[M]
C303	F1H1H101A230	100pF 50V	[M]
C304	ECA1CAK100XB	10uF 16V	[M]
C305	ECA1CAK100XB	10uF 16V	[M]
C306	F1H1H103A219	0.01uF 50V	[M]
C307	F1H1H103A219	0.01uF 50V	[M]
C401	ECA1CAK330XB	33uF 16V	[M]
C402	F1H1H104A013	0.1uF 50V	[M]
C403	ECA1AAK221XB	220uF 10V	[M]
C404	ECA1AAK221XB	220uF 10V	[M]
C405	ECA1HAK2R2XB	2.2uF 50V	[M]
C406	ECA1AAK221XB	220uF 10V	[M]
C407	ECA1CAK470XB	47uF 16V	[M]
C408	F1H1H103A219	0.01uF 50V	[M]
C409	ECA1EAM331XB	330uF 25V	[M]
C410	ECQE1104KF3	0.1uF 10V	[M]
C501	ECA1CAK100XB	10uF 16V	[M]
C502	ECA1CAK100XB	10uF 16V	[M]
C503	F1D1H101A012	100pF 50V	[M]
C505	F1D1H101A012	100pF 50V	[M]
C506	ECQV1H334JL3	0.33uF 50V	[M]
C507	ECQV1H184JL3	0.18uF 50V	[M]
C508	ECKWRS102MBC	100pF	[M]
C518	ECA1EAK220XB	22uF 25V	[M]
C520	ECA1HAK2R2XB	2.2uF 50V	[M]
C601	ECA1HAK2R2XB	2.2uF 50V	[M]
C602	ECA1HAK2R2XB	2.2uF 50V	[M]
C603	F1A1H471A020	470pF 50V	[M]
C604	F1A1H471A020	470pF 50V	[M]
C605	ECA1AAK220XB	22uF 10V	[M]
C606	ECA1AAK220XB	22uF 10V	[M]
C608	F1H1H101A230	100pF 50V	[M]
C609	F1H1H101A230	100pF 50V	[M]
C610	F1A1H3R0A025	3.0pF 50V	[M]
C611	F1A1H3R0A025	3.0pF 50V	[M]
C613	ECES1JV103UN	0.01uF 63V	[M]
C614	ECES1JV103UN	0.01uF 63V	[M]
C615	ECQE1104KF3	0.1uF 10V	[M]
C616	ECES1VV562FN	5600pF 35V	[M]
C617	ECES1VV562FN	5600pF 35V	[M]
C618	ECA2AM101B	100uF 100V	[M]
C619	ECA2AM101B	100uF 100V	[M]
C620	ECQE1104KF3	0.1uF 10V	[M]
C621	ECQE1104KF3	0.1uF 10V	[M]
C622	ECQE1104KF3	0.1uF 10V	[M]
C623	ECQB1H223JF3	0.022uF 50V	[M]
C624	ECQB1H223JF3	0.022uF 50V	[M]
C625	F1H1H103A219	0.01uF 50V	[M]
C626	ECA1VAM101XB	100uF 35V	[M]
C627	ECA1VAM101XB	100uF 35V	[M]
C701	ECA1EAK220XB	22uF 25V	[M]
C702	F1H1H103A219	0.01uF 50V	[M]
C703	ECKWRS102MBC	100pF	[M]
C704	ECA1CAM102XB	1000uF 16V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C705	ECA1CAK100XB	10uF 16V	[M]
C706	ECQE1104KF3	0.1uF 10V	[M]
C707	F1H1H103A219	0.01uF 50V	[M]
C708	F1H1H103A219	0.01uF 50V	[M]
C709	ECA1CAK100XB	10uF 16V	[M]
C710	ECA1CAM102XB	1000uF 16V	[M]
C810	ECA1JAM330XB	33uF 63V	[M]
C849	F1H1H104A013	0.1uF 50V	[M]
C850	ECA1CAM221XB	220uF 16V	[M]
C851	F1H1H103A219	0.01uF 50V	[M]
C852	ECA1CAK470XB	47uF 16V	[M]
C853	ECA1CAK470XB	47uF 16V	[M]
C902	F1H1H101A230	100pF 50V	[M]
C903	F1H1H101A230	100pF 50V	[M]
C904	F1H1H104A013	0.1uF 50V	[M]
		SPEAKERS	
SP1	EAS17PL07A	WOOFER UNIT	[M]