

# POWER AMPLIFIER

# XP 1000/XP 2500/XP 3500

## SERVICE MANUAL



• XP3500



• XP2500



• XP1000

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## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground bus in the unit (heavy gauge black wires connect to this bus).

**IMPORTANT:** Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

## WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

### IMPORTANT NOTICE FOR THE UNITED KINGDOM

#### Connecting the Plug and Cord

**WARNING:** THIS APPARATUS MUST BE EARTHED  
**IMPORTANT:** The wires in this mains lead are coloured in accordance with the following code:

|                  |           |
|------------------|-----------|
| GREEN-AND-YELLOW | : EARTH   |
| BLUE             | : NEUTRAL |
| BROWN            | : LIVE    |

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  or colored GREEN or GREEN-and-YELLOW.

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

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

\* This applies only to products distributed by Yamaha-Kemble Music (U.K.) Ltd.

# SPECIFICATIONS (総合仕様)

| XP3500            |                            |                       |             | 100 V (J)     | 120 V (U,T)   | 230 V (H,B,K,O) | 240 V (A)     |
|-------------------|----------------------------|-----------------------|-------------|---------------|---------------|-----------------|---------------|
| Output Power      | 1 kHz<br>THD+N= 1 %        | 8 Ω/STEREO            | MIN         | 390 W+390 W   | 390 W+390 W   | 390 W+390 W     | 390 W+390 W   |
|                   |                            | 4 Ω/STEREO            |             | 590 W+590 W   | 590 W+590 W   | 590 W+590 W     | 590 W+590 W   |
|                   |                            | 8 Ω/BRIDGED           |             | 1180 W        | 1180 W        | 1180 W          | 1180 W        |
|                   | 20 –20 kHz<br>THD+N= 0.1 % | 8 Ω/STEREO            |             | 350 W+350 W   | 350 W+350 W   | 350 W+350 W     | 350 W+350 W   |
|                   |                            | 4 Ω/STEREO            |             | 450 W+450 W   | 450 W+450 W   | 435 W+435 W     | 450 W+450 W   |
|                   |                            | 8 Ω/BRIDGED           |             | 900 W         | 900 W         | 870 W           | 900 W         |
|                   | 1 kHz<br>20mS nonclip      | 100 V/BRIDGED RL=16 Ω |             | 625 W         | 625 W         | 625 W           | 625 W         |
|                   |                            | 2 Ω/STEREO            |             | 1000 W+1000 W | 1000 W+1000 W | 925 W+925 W     | 1000 W+1000 W |
| 4 Ω/BRIDGED       |                            | 2000 W                | 2000 W      | 1850 W        | 2000 W        |                 |               |
| SN Ratio          | 20Hz-20kHz                 | (DIN AUDIO)           | MIN         | 102 dB        |               |                 |               |
| Power Consumption | Standby / idle             |                       |             | 5 W / 30 W    |               |                 |               |
|                   | 1/8 (4 Ω/Pink noise)       |                       |             | 450 W         | 450 W         | 450 W           | 450 W         |
| XP2500            |                            |                       |             | 100 V (J)     | 120 V (U,T)   | 230 V (H,B,K,O) | 240 V (A)     |
| Output Power      | 1 kHz<br>THD+N= 1 %        | 8 Ω/STEREO            | MIN         | 275 W+275 W   | 275 W+275 W   | 275 W+275 W     | 275 W+275 W   |
|                   |                            | 4 Ω/STEREO            |             | 390 W+390 W   | 390 W+390 W   | 390 W+390 W     | 390 W+390 W   |
|                   |                            | 8 Ω/BRIDGED           |             | 780 W         | 780 W         | 780 W           | 780 W         |
|                   | 20 –20 kHz<br>THD+N= 0.1 % | 8 Ω/STEREO            |             | 250 W+250 W   | 250 W+250 W   | 250 W+250 W     | 250 W+250 W   |
|                   |                            | 4 Ω/STEREO            |             | 300 W+300 W   | 300 W+300 W   | 295 W+295 W     | 300 W+300 W   |
|                   |                            | 8 Ω/BRIDGED           |             | 600 W         | 600 W         | 590 W           | 600 W         |
|                   | 1 kHz<br>20mS nonclip      | 2 Ω/STEREO            |             | 650 W+650 W   | 650 W+650 W   | 650 W+650 W     | 650 W+650 W   |
|                   |                            | 4 Ω/BRIDGED           |             | 1300 W        | 1300 W        | 1300 W          | 1300 W        |
| SN Ratio          |                            | 20Hz-20kHz            | (DIN AUDIO) | MIN           | 100 dB        |                 |               |
| Power Consumption | Standby / idle             |                       |             | 5 W / 25 W    |               |                 |               |
|                   | 1/8 (4 Ω/Pink noise)       |                       |             | 320 W         | 320 W         | 320 W           | 320 W         |
| XP1000            |                            |                       |             | 100 V (J)     | 120 V (U,T)   | 230 V (H,B,K,O) | 240 V (A)     |
| Output Power      | 1 kHz<br>THD+N= 1 %        | 8 Ω/STEREO            | MIN         | 110 W+110 W   | 135 W+135 W   | 125 W+125 W     | 120 W+120 W   |
|                   |                            | 4 Ω/STEREO            |             | 120 W+120 W   | 165 W+165 W   | 155 W+155 W     | 155 W+155 W   |
|                   |                            | 8 Ω/BRIDGED           |             | 240 W         | 330 W         | 310 W           | 310 W         |
|                   | 20 –20 kHz<br>THD+N= 0.1 % | 8 Ω/STEREO            |             | 100 W+100 W   | 110 W+110 W   | 100 W+100 W     | 100 W+100 W   |
|                   |                            | 4 Ω/STEREO            |             | 100 W+100 W   | 125 W+125 W   | 115 W+115 W     | 110 W+110 W   |
|                   |                            | 8 Ω/BRIDGED           |             | 200 W         | 250 W         | 230 W           | 220 W         |
|                   | 1 kHz<br>20mS nonclip      | 2 Ω/STEREO            |             | 250 W+250 W   | 250 W+250 W   | 250 W+250 W     | 250 W+250 W   |
|                   |                            | 4 Ω/BRIDGED           |             | 500 W         | 500 W         | 500 W           | 500 W         |
| SN Ratio          |                            | 20 Hz-20 kHz          | (DIN AUDIO) | MIN           | 96 dB         |                 |               |
| Power Consumption | Standby / idle             |                       |             | 5 W / 20 W    |               |                 |               |
|                   | 1/8 (4 Ω/Pink noise)       |                       |             | 150 W         | 170 W         | 170 W           | 170 W         |

| All Models                 |                                                          |        |                                                                               |
|----------------------------|----------------------------------------------------------|--------|-------------------------------------------------------------------------------|
| Power Bandwidth            | Half Power, THD+N= 0.5 %                                 | MIN    | 10 Hz-40 kHz                                                                  |
| THD+N                      | 20 Hz–20 kHz, Half Power                                 | MAX    | 0.1 %                                                                         |
| Intermodulation Distortion | 60 Hz:7 kHz, 4:1, Half Power                             | MAX    | 0.1 %                                                                         |
| Frequency Response         | RL=8 Ω, Po=1 W, HPF=OFF<br>20 Hz-50 kHz                  | MAX    | 0 dB                                                                          |
|                            |                                                          | TYP    | 0 dB                                                                          |
|                            |                                                          | MIN    | -1 dB                                                                         |
| Channel Separation         | Half Power, RL=8Ω, 1 kHz,<br>Att. max, input 600 Ω shunt | MIN    | 70 dB                                                                         |
| Residual Noise             | 20 Hz–20 kHz, Att. min,<br>(DIN AUDIO)                   | MAX    | -70 dBu                                                                       |
| Damping Factor             | RL=8 Ω, 1 kHz                                            | MIN    | 200                                                                           |
| Voltage Gain               | Att. max                                                 | TYP    | Selectable from 32 dB or 26 dB (or +4 dBu input sensitivity) by select switch |
| Input Sensitivity (dBu)    | Att. max, Rated Power 8 Ω                                |        | XP3500                                                                        |
|                            | Switch Position                                          | +4 dBu | +4                                                                            |
|                            |                                                          | 26 dB  | +10.7                                                                         |
|                            |                                                          | 36 dB  | +4.7                                                                          |
| Maximum Input Voltage      |                                                          | MIN    | +22 dBu                                                                       |
| Input Impedance            |                                                          | TYP    | 20 kΩ (balanced), 10 kΩ (unbalanced)                                          |
| Controls                   | Front Panel                                              |        | POWER switch (push on/push off)                                               |
|                            |                                                          |        | attenuator (31 position) x 2                                                  |
|                            | Rear Panel                                               |        | MODE switch (STEREO/BRIDGED/PARALLEL) x 1                                     |
|                            |                                                          |        | HPF switch (20 Hz/55 Hz/OFF 12 dB/oct) x 2                                    |
|                            |                                                          |        | GAIN SELECT switch (32 dB/26 dB/+4 dBu) x 1                                   |

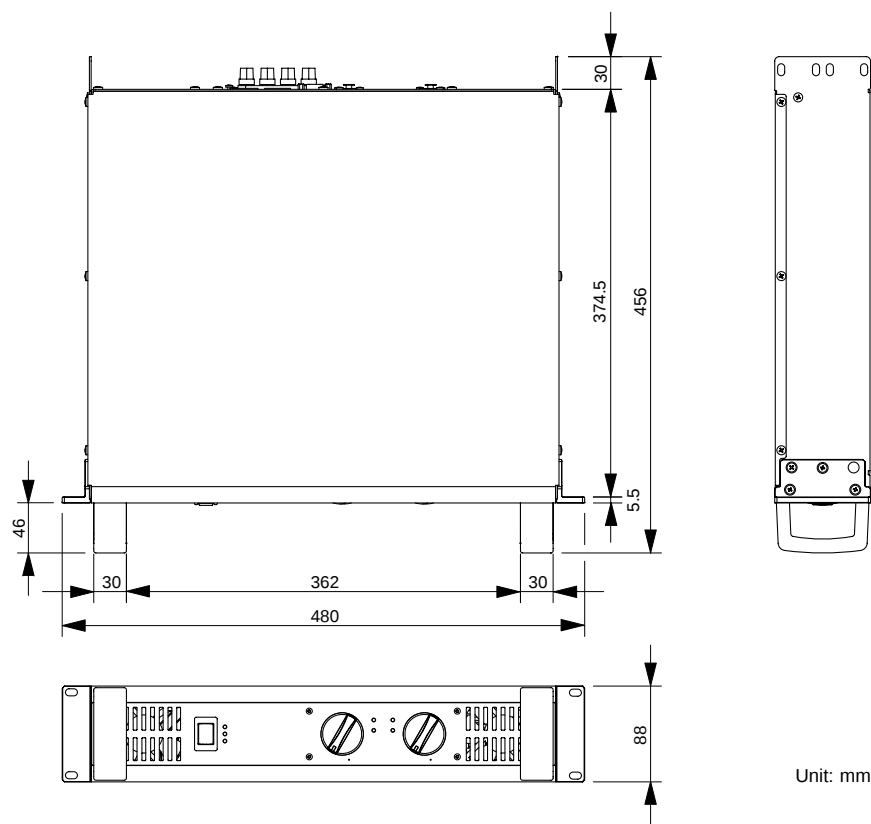
| All Models              |                 |                                                                                                                |                                    |
|-------------------------|-----------------|----------------------------------------------------------------------------------------------------------------|------------------------------------|
| Connectors              | Input           | XLR-3-31 type/ch, Euroblock connector (balanced) /ch                                                           |                                    |
|                         | Output          | SPEAKON/ch, 5 way binding post x 1                                                                             |                                    |
|                         | MONITOR/REMOTE  | Dsub 15 P x 1                                                                                                  |                                    |
| Indicators              | POWER/STANDBY   | x 1 (Green/Orange)                                                                                             |                                    |
|                         | SIGNAL          | x 2 (Green)                                                                                                    |                                    |
|                         | CLIP/LIMIT      | x 2 (Red)                                                                                                      |                                    |
|                         | PROTECTION/TEMP | x 1 (Red)<br>x 1 (Red) heatsink temp $\geq 85^{\circ}\text{C}$                                                 |                                    |
| Load Protection         |                 | POWER switch on/off mute                                                                                       |                                    |
|                         |                 | DC-fault:<br>output relay off/restored automatically.                                                          |                                    |
|                         |                 | Clip limiting : THD $\geq 0.5\%$                                                                               |                                    |
| Amplifier Protection    |                 | Thermal:<br>Cuts the output (heatsink temp $\geq 90^{\circ}\text{C}$ ) ; operation not restored automatically. |                                    |
|                         |                 | VI limiter (RL $\leq 1\ \Omega$ ): Limit the output.                                                           |                                    |
| Power Supply Protection |                 | Thermal:<br>Power supply shutdown (transformer temp $\geq 130^{\circ}\text{C}$ ) ; restored automatically.     |                                    |
| Cooling                 |                 | Variable-speed fan: x 1<br>Fan stop at heatsink temp $< 55^{\circ}\text{C}$                                    |                                    |
| Power Requirements      |                 | J: 100 V 50/60 Hz<br>UC: 120 V/60 Hz<br>HB: 230 V/50 Hz<br>A: 240 V/50 Hz                                      |                                    |
| Dimensions (W x H x D)  |                 | 480 x 88 x 456 mm                                                                                              |                                    |
| Weight                  |                 | XP3500<br>15 kg                                                                                                | XP2500<br>14 kg<br>XP1000<br>12 kg |
| Included Accessories    |                 | Security cover (with a hex wrench), Owner's Manual                                                             |                                    |

0 dBu=0.775 Vrms, Half Power=1/2 Output Power (3 dB below rated power)

## ■ MONITOR/REMOTE (接続ピン出力)

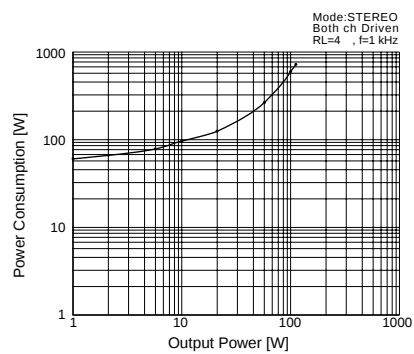
| Pin No. | Signal         |                     | Description                                                                                 |
|---------|----------------|---------------------|---------------------------------------------------------------------------------------------|
| 1       | GND            |                     |                                                                                             |
| 2       | REMOTE CONTROL | STANDBY             | STANDBY Control: Supply 5 VDC, 5 mADC                                                       |
| 3       | MONITOR        | MODEL ID            | XP3500: 1.5 k $\Omega$ , XP2500: 1.8 k $\Omega$ , XP1000: 2.2 k $\Omega$ (Impedance to GND) |
| 4       | REMOTE CONTROL | NC                  |                                                                                             |
| 5       |                | NC                  |                                                                                             |
| 6       |                | MUTE CH B           |                                                                                             |
| 7       |                | MUTE CH A           | MUTE Control: Connect to GND, +5 V, 1 mA                                                    |
| 8       | MONITOR        | NC                  |                                                                                             |
| 9       |                | NC                  |                                                                                             |
| 10      |                | PROTECT STATUS CH B | PROTECTION Off/ Output On: +5 VDC, Zo=270                                                   |
| 11      |                | PROTECT STATUS CH A | PROTECTION On/ Output Off: 0 VDC, Zo=High                                                   |
| 12      |                | NC                  |                                                                                             |
| 13      |                | NC                  |                                                                                             |
| 14      |                | OUTPUT LEVEL CH B   | XP3500, XP2500, XP1000                                                                      |
| 15      |                | OUTPUT LEVEL CH A   | +4dBu (-27.2 dB of Speaker Output Level) at 100 W/8 $\Omega$ , RL=7.5 k $\Omega$ , Zo=300   |

## ■ DIMENSIONS (寸法図)

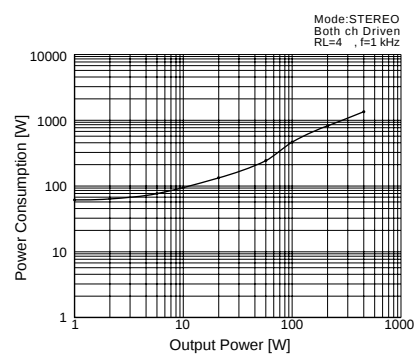


## ■ PERFORMANCE GRAPHS (特性図)

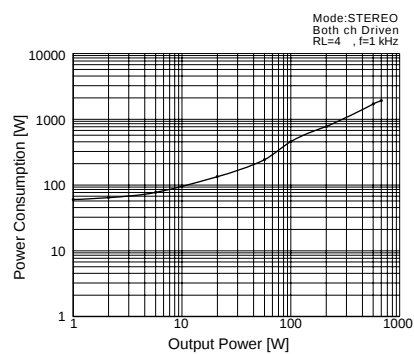
XP1000



XP2500

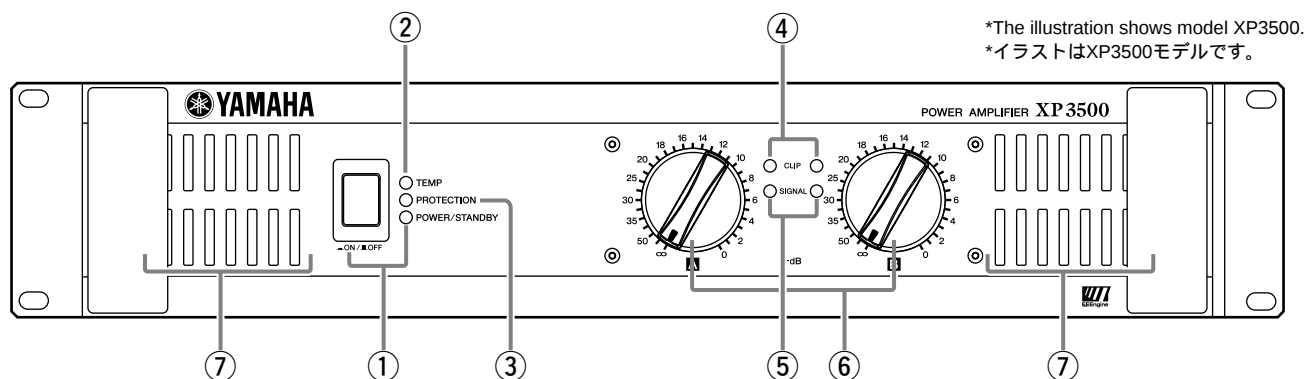


XP3500



## ■ PANEL LAYOUT (パネルレイアウト)

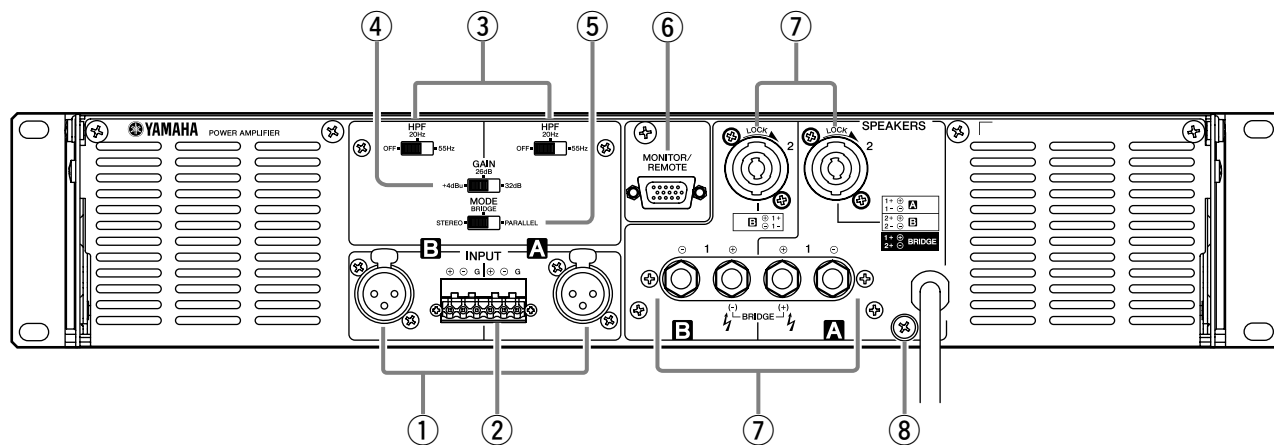
### ● Front Panel (フロントパネル)



- ① POWER switch and indicator
- ② TEMP indicator
- ③ PROTECTION indicator
- ④ CLIP indicator
- ⑤ SIGNAL indicator
- ⑥ Volume control knobs
- ⑦ Air intakes

- ① POWERスイッチ/インジケター
- ② TEMPインジケター
- ③ PROTECTIONインジケター
- ④ CLIPインジケター
- ⑤ SIGNALインジケター
- ⑥ ボリューム
- ⑦ 吸気口

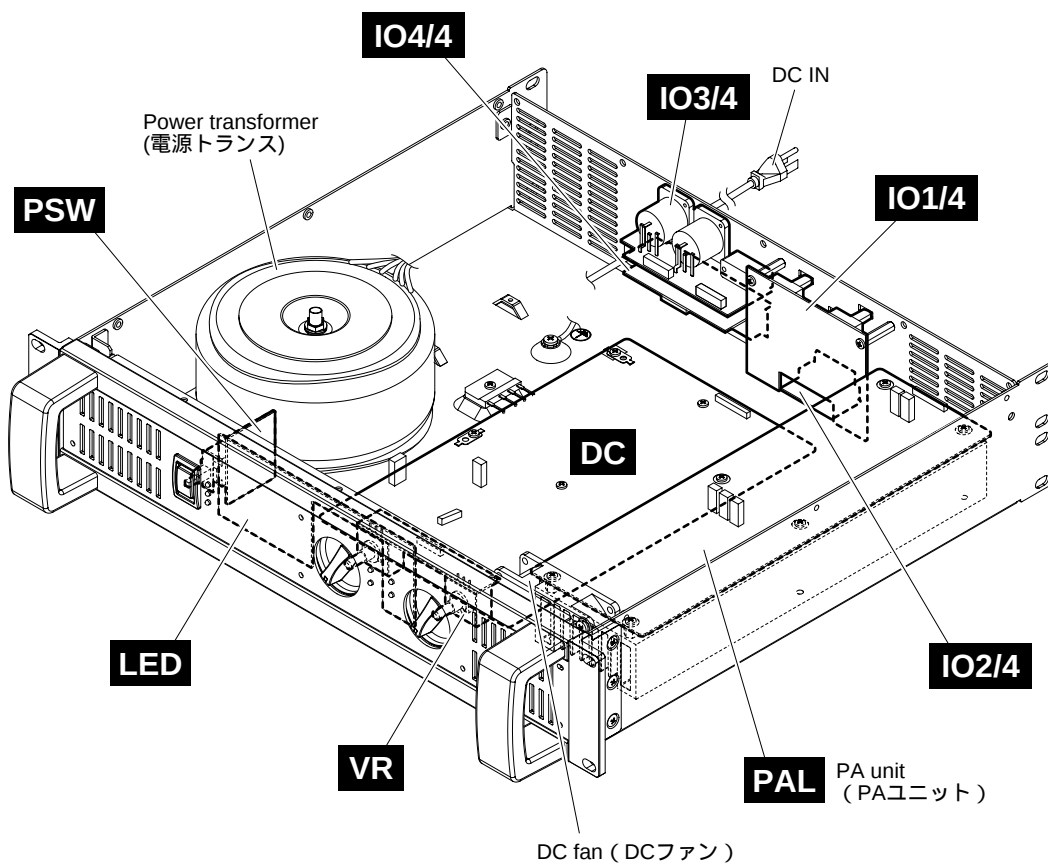
### ● Rear Panel (リアパネル)



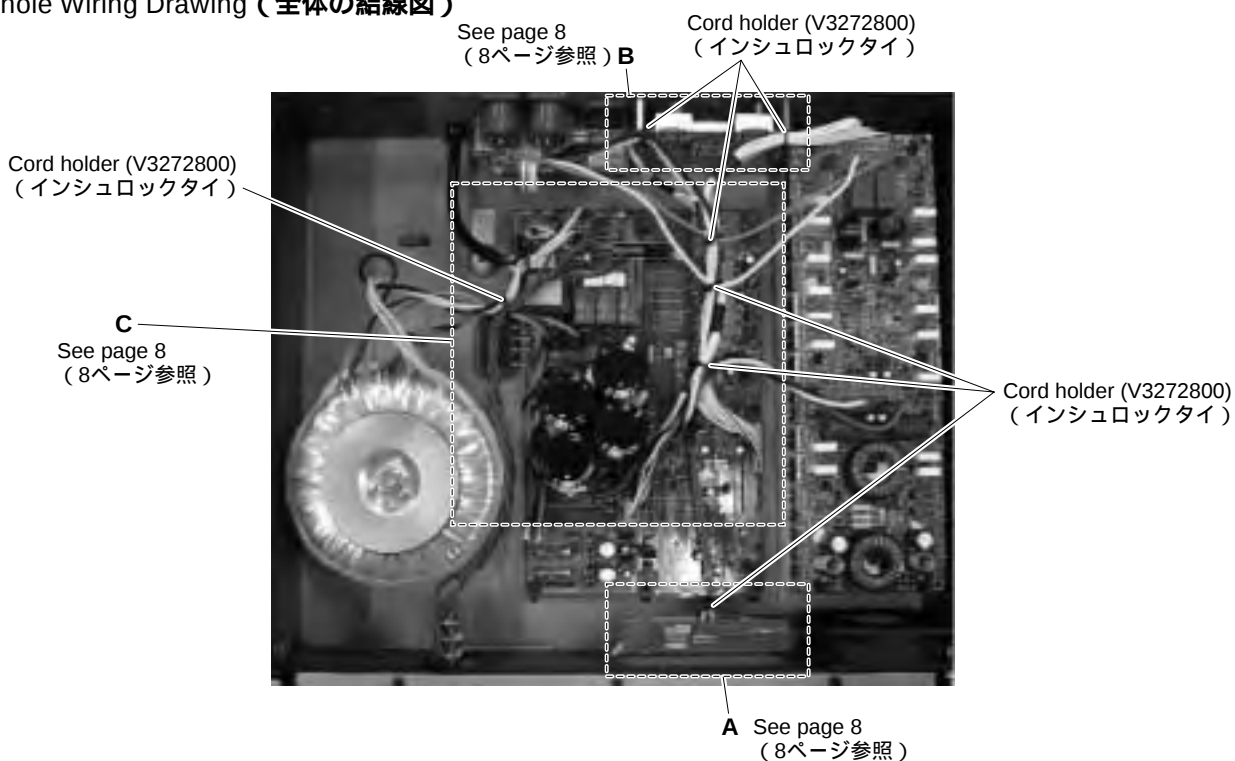
- ① XLR inputs connectors
- ② Euroblock connectors
- ③ HPF switches
- ④ GAIN switch
- ⑤ MODE switch
- ⑥ MONITOR/REMOTE terminals
- ⑦ SPEAKERS terminals
- ⑧ GND terminal

- ① XLR入力端子
- ② ユーロブロックコネクター入力端子
- ③ HPFスイッチ
- ④ GAINスイッチ
- ⑤ MODEスイッチ
- ⑥ MONITOR/REMOTE端子
- ⑦ SPEAKERS端子
- ⑧ アース用ネジ

## ■ CIRCUIT BOARD LAYOUT (ユニットレイアウト)



### ● Whole Wiring Drawing (全体の結線図)



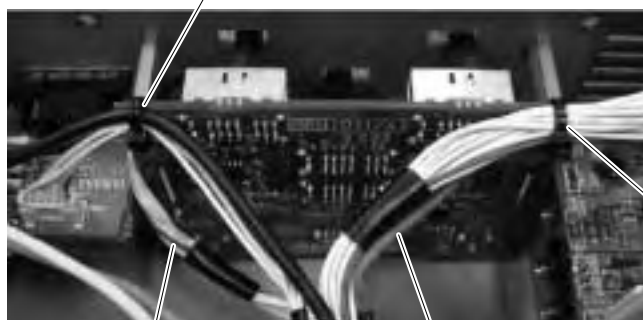
• Detail Drawing A (A部詳細)



Bundle by cord holder.  
(インシュロックタイで束ねます。)  
(WD359600, WF873000, Fan wiring)

• Detail Drawing B (B部詳細)

Bundle by cord holder. (インシュロックタイで束ねます。)  
Need pass a hole of circuit board. (シートの穴に通します。)  
(WD443300, WD361100)



WG003400

WD359600

Bundle by cord holder.  
(インシュロックタイで束ねます。)  
Need pass a hole of circuit board.  
(シートの穴に通します。)  
(WD359600, WD361700)

• Detail Drawing C (C部詳細)

Bundle by cord holder.  
(インシュロックタイで束ねます。)  
(Transformer wiring)  
(WD360600(W307, 308),  
WD360700, Transformer lead)  
\*Install W308 to XP3500 only.  
(W308はXP3500のみに実装)



Bundle by cord holder. (インシュロックタイで束ねます。)  
(WF443300, WD361100, WD361700, WD359600, WD362300)  
\*Locate WD362300 as far from IO 1/4 circuit board as possible.  
(WD362300はできるだけIO 1/4シートから離してください。)

Bundle by cord holder.  
(インシュロックタイで束ねます。)  
(WF443300, WD361100, WD361700,  
WD359600, WD362400)  
\*Locate WD362400 as far from  
WD362300 as possible.  
(WD362400はできるだけWD362300  
から離してください。)

Bundle by cord holder.  
(インシュロックタイで束ねます。)  
(WF443300, WD361100, WD361700,  
WD359600, WF361900, WD362000,  
WD362100)

Need twist of 3 rotations or more.  
(3回以上ねじります。)  
(WD360600(W307, 308), WD360700)  
\*Install W308 to XP3500 only.  
(W308はXP3500のみに実装)

Need twist of 5 rotations or more.  
(5回以上ねじります。)  
(Transformer wiring)

Need twist of 3 rotations or more.  
(3回以上ねじります。)  
(WD361900, WD362000, WD362100)



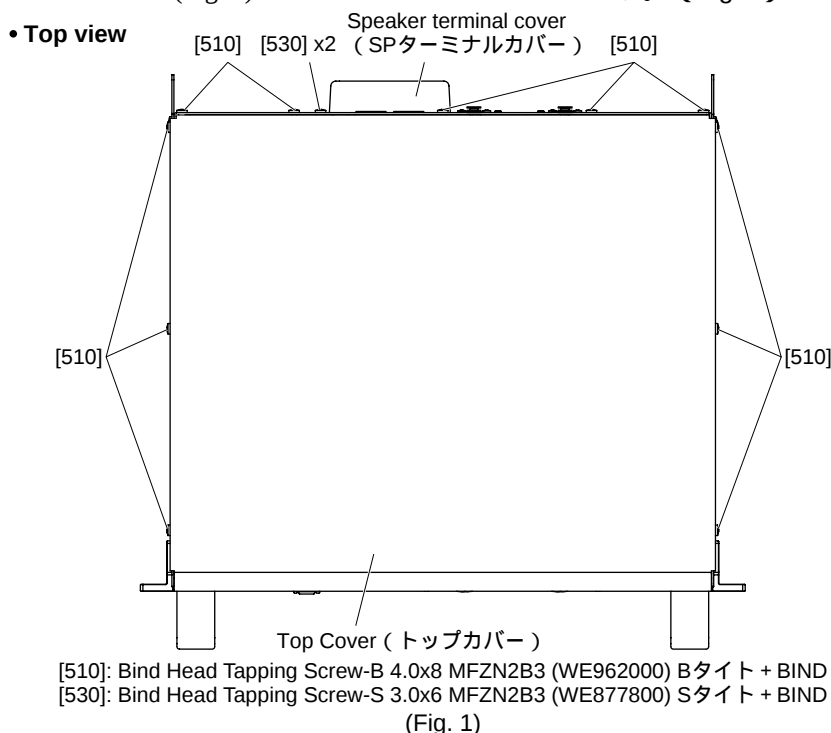
## ■ DISASSEMBLY PROCEDURE (分解手順)

### 1. Top Cover (Time Required: about 2 min)

- 1-1 Remove the eleven (11) screws marked [510]. The top cover can then be removed. (Fig. 1)

### 1. トップカバー (所要時間: 約2分)

- 1-1. [510]のネジ11本を外して、トップカバーを外します。(Fig. 1)



### 2. DC Circuit Board

(Time Required: about 4 min)

- 2-1 Remove the top cover. (See procedure 1.)  
2-2 Remove the nine (9) screws marked [90] and the screw marked [100], the DC circuit board can then be removed with the diode stack. (Fig. 2)  
2-3 Remove the diode stack (D401) soldered to the DC circuit board. (Fig. 2)  
\* The diode stack is not part of the DC circuit board. When you replace the DC circuit board, you should remove the diode stack from the DC circuit board.

### 2. DCシート (所要時間: 約4分)

- 2-1. トップカバーを外します。(1項参照)  
2-2. [90]のネジ9本と[100]のネジ1本を外して、ダイオードスタックと共にDCシートを外します。(Fig. 2)  
2-3. DCシートに半田付けされているダイオードスタック(D401)を外します。(Fig. 2)  
ダイオードスタックは、DCシートの構成部品ではありません。DCシートを交換する際は、DCシートからダイオードスタックを取り外して、新しいDCシートに取り付けてください。

### 3. Power Transformer

(Time Required: about 2 min)

- 3-1 Remove the top cover. (See procedure 1.)  
3-2 Remove the hexagonal nut marked [A], the washer marked [B] and the washer marked [C]. The power transformer can then be removed. (Fig. 2)

### 3. 電源トランス (所要時間: 約2分)

- 3-1. トップカバーを外します。(1項参照)  
3-2. [A]の六角ナット1個を外し、[B]のバネ座金1個と[C]の平座金1枚を外して、電源トランスを外します。(Fig. 2)

### 4. IO 1/4 Circuit Board and IO 2/4 Circuit Board (Time Required: about 4 min)

- 4-1 Remove the top cover. (See procedure 1.)  
4-2 Remove the four (4) screws marked [310], the two (2) screws marked [330] and the two (2) screws marked [300]. The IO 1/4 circuit board and IO 2/4 circuit board can then be removed. (Fig. 2, 3)  
\* IO 1/4 circuit board and IO 2/4 circuit board are not supplied singly. To replace these circuit boards, take out the corresponding ones from the following sets of circuit board.  
For XP3500: IO35 set of circuit boards (WF399800)  
For XP2500: IO25 set of circuit boards (WF399900)  
For XP1000: IO10 set of circuit boards (WF400000)

### 4. IO 1/4シートとIO 2/4シート (所要時間: 約4分)

- 4-1. トップカバーを外します。(1項参照)  
4-2. [310]のネジ4本と[330]のネジ2本を外します。  
[300]のネジ2本を外して、IO 1/4シートとIO 2/4シートを外します。(Fig. 2, 3)  
IO 1/4シートとIO 2/4シート単体はサービス部品ではありません。シートを交換する場合は下記のシートから取り出して使用してください。  
XP3500の場合: IO35シート(WF399800)  
XP2500の場合: IO25シート(WF399900)  
XP1000の場合: IO10シート(WF400000)

## 5. IO 3/4 Circuit Board and IO 4/4 Circuit Board (Time Required: about 4 min)

- 5-1 Remove the top cover. (See procedure 1.)
  - 5-2 Remove the two (2) screws marked [530]. the speaker terminal cover can then be removed. (Fig. 1)
  - 5-3 Remove the four (4) screws marked [350], the two (2) hexagonal locking screws marked [360] and the two (2) screws marked [340]. The IO 3/4 circuit board and IO 4/4 circuit board can then be removed. (Fig. 2)
- \* IO 3/4 circuit board and IO 4/4 circuit board are not supplied singly. To replace these circuit boards, take out the corresponding ones from the following sets of circuit board.

For XP3500: IO35 set of circuit boards (WF399800)

For XP2500: IO25 set of circuit boards (WF399900)

For XP1000: IO10 set of circuit boards (WF400000)

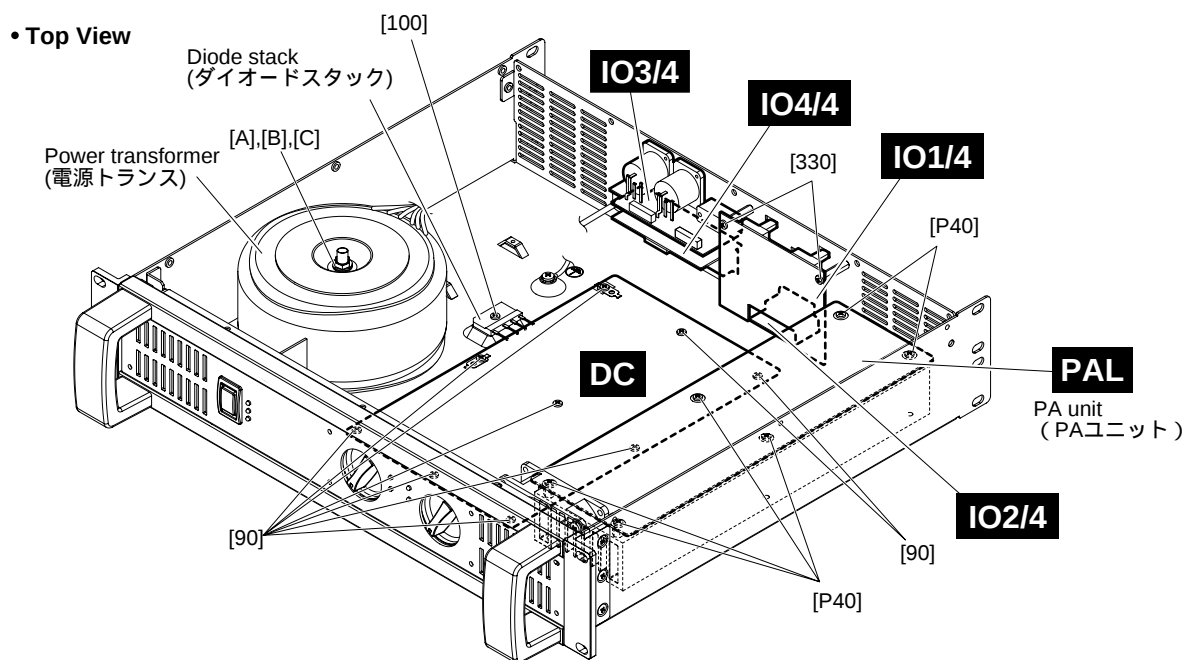
## 5. IO 3/4シートとIO 4/4シート (所要時間: 約4分)

- 5-1. トップカバーを外します。(1項参照)
  - 5-2. [530]のネジ2本を外して、SPターミナルカバーを外します。(Fig. 1)
  - 5-3. [350]のネジ4本と[360]の六角ロックネジ2本を外します。  
[340]のネジ2本を外して、IO 3/4シートとIO 4/4シートを外します。(Fig. 2)
- IO 3/4シートとIO 4/4シート単体はサービス部品ではありません。シートを交換する場合は下記のシートから取り出して使用してください。

XP3500の場合: IO35シート(WF399800)

XP2500の場合: IO25シート(WF399900)

XP1000の場合: IO10シート(WF400000)



[90]: Bind Head Tapping Screw-S 3.0x6 MFZN2W3 (WE877900) Sタイト + BIND

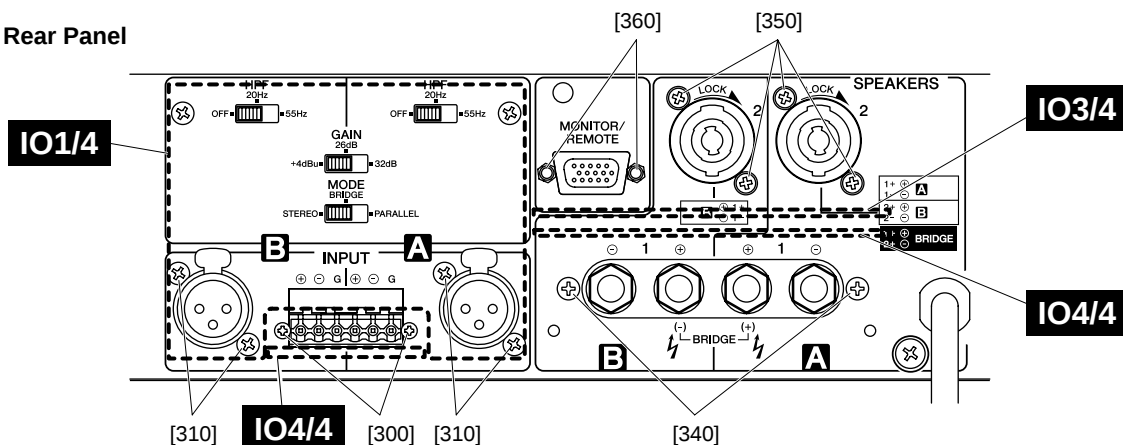
[100]: Bind Head Tapping Screw-S 3.0x8 MFZN2W3 (WE972100) Sタイト + BIND

[330]: Bind Head Tapping Screw-S 3.0x6 MFZN2W3 (WE877900) Sタイト + BIND

[P40]: Bind Head Tapping Screw-S 3.0x6 MFZN2W3 (WE877900) Sタイト + BIND

(Fig. 2)

## • Rear Panel



- [300]: Pan Head Screw 2.6x6 MFZN2B3 (WE986400) 小ネジ + PAN  
 [310]: Bonding Tapping Screw-B 3.0x10 MFZN2B3 (WE878000) Bタイト + BIND  
 [340]: Bonding Tapping Screw-B 3.0x10 MFZN2B3 (WE878000) Bタイト + BIND  
 [350]: Flat Head Tapping Screw-B 3.0x8 MFZN2B3 (WF266800) Bタイト + FLAT  
 [360]: Hex. Locking Screw HFS-4S-B1W (V6706600) 六角ロックネジ

(Fig. 3)

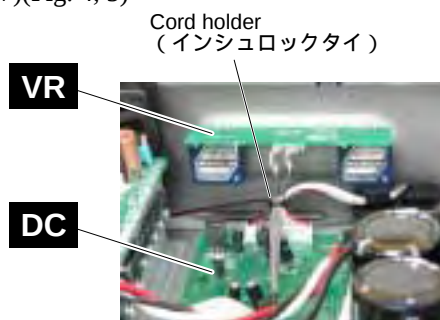
## 6. Front Panel Assembly

(Time Required: about 4 min)

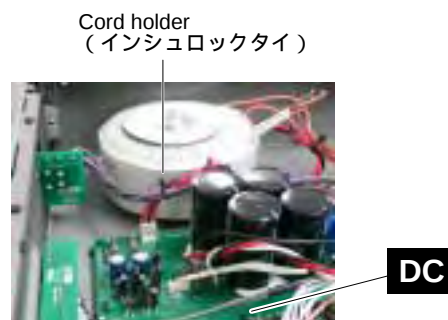
- 6-1 Remove the top cover. (See procedure 1.)  
 6-2 Remove the two (2) cord holders and disconnect the connector from the DC circuit board. (Photo. 1, 2)  
 6-3 Remove the six (6) screws marked [440] and six (6) screws marked [460]. The front panel assembly can then be removed with the left and right rack angle. (Photo. 3, 7)(Fig. 4, 5)

## 6. フロントパネルAss'y (所要時間: 約4分)

- 6-1. トップカバーを外します。(1項参照)  
 6-2. インシュロックタイ2箇所を外して、DCシートからコネクターを抜きます。(Photo. 1, 2)  
 6-3. [440]のネジ6本と[460]のネジ6本を外し、左右のラックアングルと共にフロントパネルAss'yを外します。(Photo. 3, 7)(Fig. 4, 5)

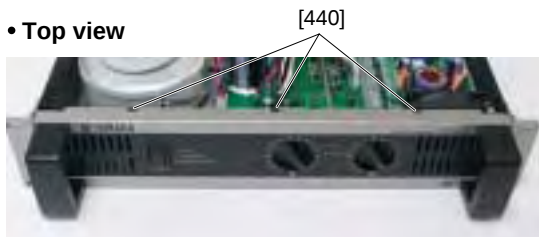


(Photo. 1)

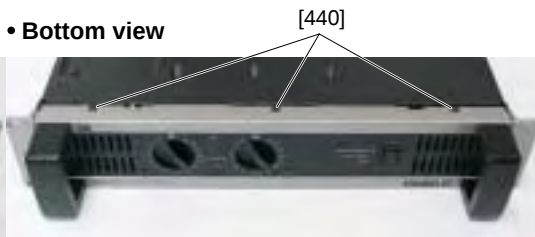


(Photo. 2)

## • Top view



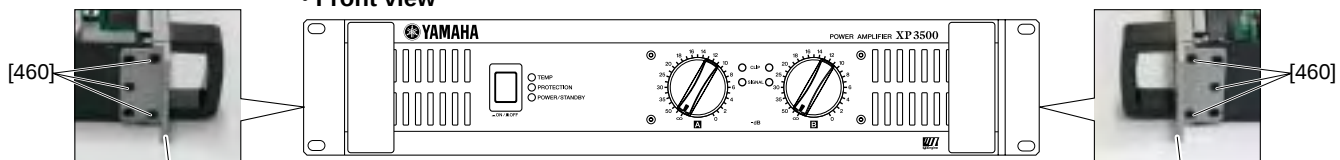
## • Bottom view



[440]: Bind Head Screw-B 4.0x8 MFZN2B3 (WE962000) 小ネジ + BIND

(Photo. 3)

## • Front view



[460]: Bind Head Screw-S 4.0x10 MFZN2B3 (WE980400) 小ネジ + BIND

(Fig. 4)

Rack angle (ラックアングル)

Rack angle (ラックアングル)

**7. VR Circuit Board**

(Time Required: about 4 min)

- 7-1 Remove the top cover. (See procedure 1.)
- 7-2 Remove the front panel assembly. (See procedure 6.)
- 7-3 Remove the two (2) attenuation knobs and the two (2) hexagonal nuts marked [D]. The VR circuit board can then be removed. (Photo. 4)

**8. DC Fan** (Time Required: about 4 min)

- 8-1 Remove the top cover. (See procedure 1.)
- 8-2 Remove the front panel assembly. (See procedure 6.)
- 8-3 Remove the two (2) screws marked [170] and the two (2) hexagonal nut. The DC fan can then be removed. (Photo. 5)

\* Removal of VR circuit board facilitates the work.

**9. LED Circuit Board** (Time Required: about 4 min)

- 9-1 Remove the top cover. (See procedure 1.)
- 9-2 Remove the front panel assembly. (See procedure 6.)
- 9-3 Remove the two (2) screws marked [270]. The LED circuit board can then be removed. (Photo. 6)

**7. VRシート (所要時間: 約4分)**

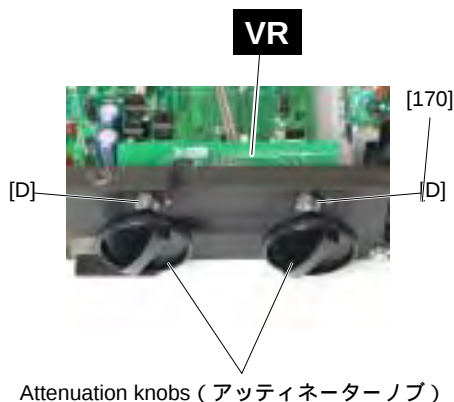
- 7-1. トップカバーを外します。(1項参照)
- 7-2. フロントパネルAss'yを外します。(6項参照)
- 7-3. アッテネーターノブ2個と[D]の六角ナット2個を外して、VRシートを外します。(Photo. 4)

**8. DCファン (所要時間: 約4分)**

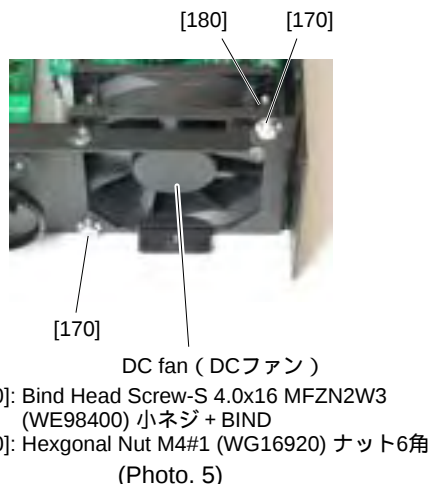
- 8-1. トップカバーを外します。(1項参照)
- 8-2. フロントパネルAss'yを外します。(6項参照)
- 8-3. [170]のネジ2本と[180]のナット6角を外して、DCファンを外します。(Photo. 5)  
VRシートを外すと楽に作業が行えます。

**9. LEDシート (所要時間: 約4分)**

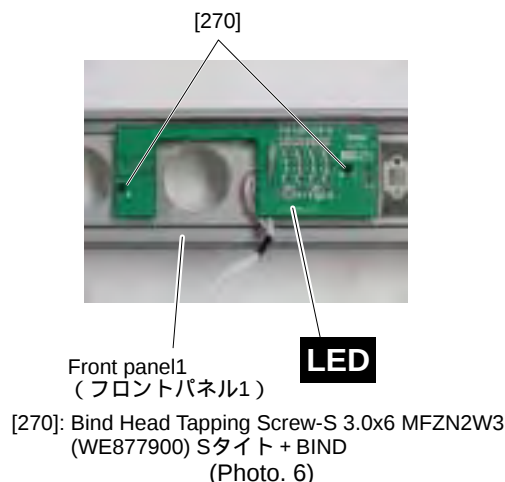
- 9-1. トップカバーを外します。(1項参照)
- 9-2. フロントパネルAss'yを外します。(6項参照)
- 9-3. [270]のネジ2本を外して、LEDシートを外します。(Photo. 6)



(Photo. 4)



(Photo. 5)



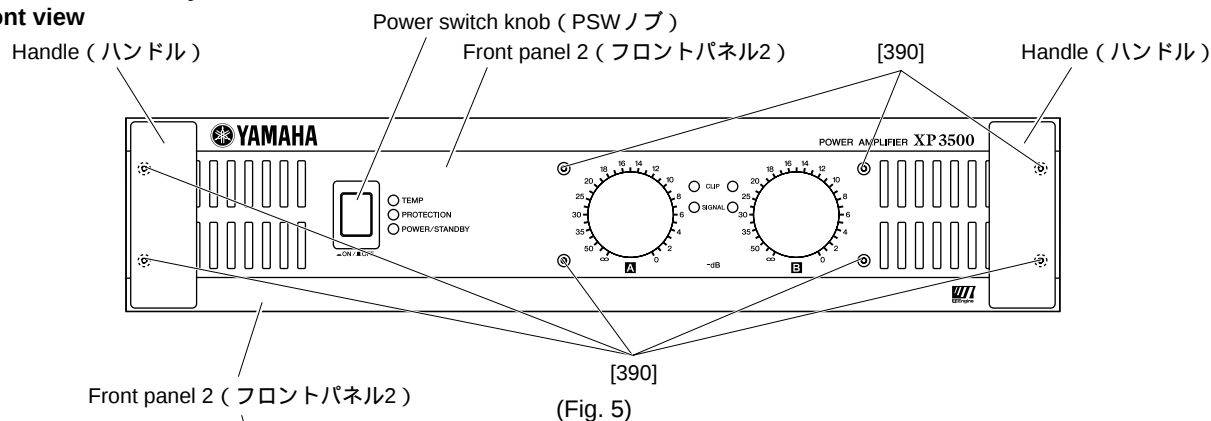
(Photo. 6)

**10. PSW Circuit Board** (Time Required: about 6 min)

- 10-1 Remove the top cover. (See procedure 1.)  
 10-2 Remove the front panel assembly. (See procedure 6.)  
 10-3 Remove the four (4) screws marked [420]. The handles and the handle angles in left and right can then be removed. (Photo. 7)  
 10-4 Remove the eight (8) screws marked [390]. The front panel 2 can then be removed. (Fig. 5)  
 10-5 Remove the two (2) screws marked [230]. The PSW circuit board can then be removed. (Photo. 8, 9)

**10. PSWシート (所要時間: 約6分)**

- 10-1. トップカバーを外します。(1項参照)  
 10-2. フロントパネルAss'yを外します。(6項参照)  
 10-3. [420]のネジ4本を外して、左右のハンドルとハンドルアングルを外します。(Photo. 7)  
 10-4. [390]のネジ8本を外して、フロントパネル2を外します。(Fig. 5)  
 10-5. PSWノブ1個と[230]のネジ2本を外して、PSWシートを外します。(Photo. 8, 9)

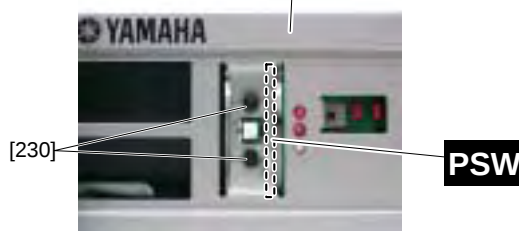
**Front Panel Assembly****• Front view****• Rear view**

[390]: Hexagonal Socket Set Screw 4.0x16 MFZN2W3 (WF419400) Sタイト六角孔付き  
 [420]: Bind Head Screw 5.0x16 MFZN2W3 (WG168300) 小ネジ + BIND

(Photo. 7)

**• Front view** (フロントパネル1)

(Photo. 8)

**• Front view** (フロントパネル1)

[230]: Bind Head Screw-S 3.0x6 MFZN2W3 (WE877900) Sタイト + BIND

(Photo. 9)

**11. PA Unit** (Time Required: about 3 min)

11-1 Remove the top cover. (See procedure 1.)

11-2 Remove the six (6) screws marked [40]. The PA unit can then be removed. (Photo. 10)

\* Six (6) washers are fitted over the screws [40] between the main chassis and PA unit. Take care not to lose these washers in removal.

**11. PAユニット** (所要時間: 約3分)

11-1. トップカバーを外します。(1項参照)

11-2. [40]のネジ6本を外して、PAユニットを外します。(Photo. 10)

メインシャーシとPAユニットの間にワッシャー6枚が[40]のネジを通して取り付けられていますので無くさないように注意してください。

**12. PAL Circuit Board** (Time Required: about 10 min)

12-1 Remove the top cover. (See procedure 1.)

12-2 Remove the PA unit. (See procedure 6.)

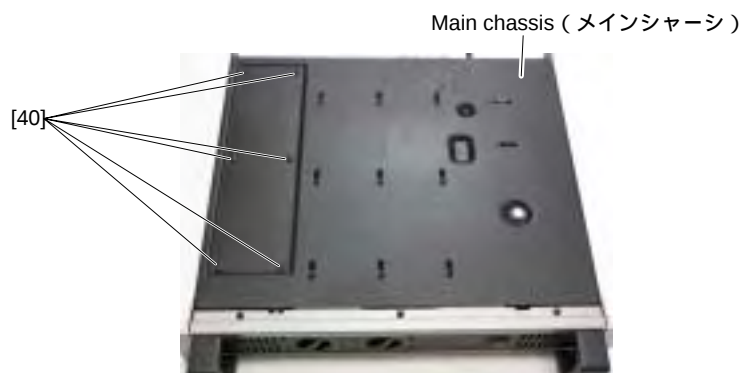
12-3 Remove the six (6) screws marked [P40] and the screws fixing the diode stack, diode, positive thermistor, transistor, FET and pair transistor marked [P70] (26 screws for XP1000, 30 screws for XP2500, 36 screws for XP3500). The PAL circuit board can then be removed. (Fig. 2, 6)

**12. PALシート** (所要時間: 約10分)

12-1. トップカバーを外します。(1項参照)

12-2. PAユニットを外します。(6項参照)

12-3. [P40]のネジ6本とダイオードスタック、ダイオード、ボジスタ、トランジスタ、FET、ペアトランジスタを止めている[P70]のネジ (XP1000: 26本、XP2500: 30本、XP3500: 36本) を外して、PALシートを外します。(Fig. 2, 6)



[40]: Bind Head Tapping Screw-B 4.0x8 MFZN2B3 (WE962000) Bタイト + BIND

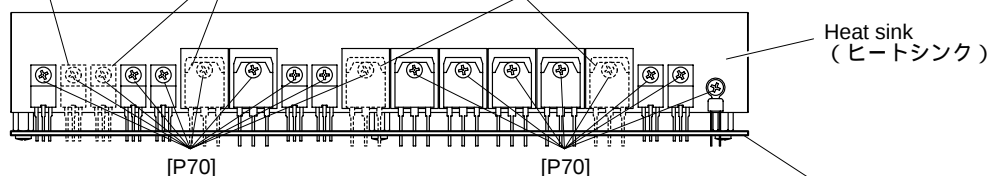
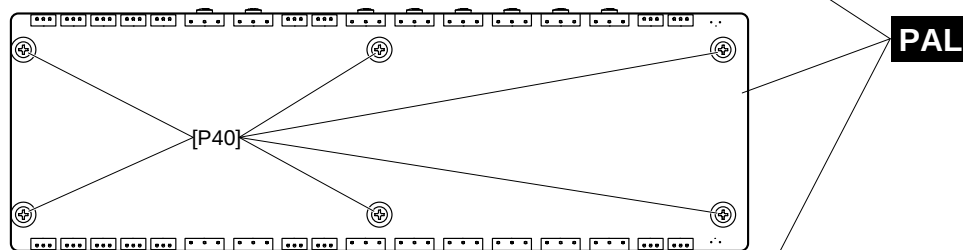
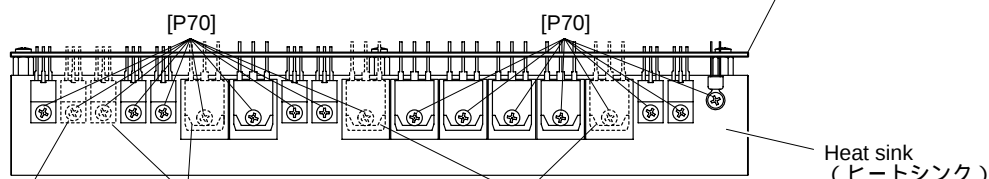
(Photo. 10)

**• PA unit (PAユニット)**

XP1000, XP2500: not installed (未実装)

XP1000: not installed (未実装)

XP1000, XP2500: not installed (未実装)

**• Left side view****• Top view****• Right side view**

XP1000, XP2500: not installed (未実装)

XP1000: not installed (未実装)

XP1000, XP2500: not installed (未実装)

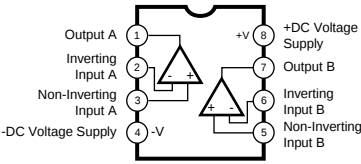
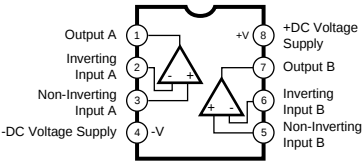
[P40]: Bind Head Tapping Screw-S 3.0x6 MFZN2W3 (WE877900) Sタイト + BIND

[P70]: Bind Head Tapping Screw-B 3.0x12 MFZN2W3 (WE877700) 小ネジ + BIND

(Fig. 6)

■ IC BLOCK DIAGRAM (IC ブロック図)

- **NJM2068D-D** (XA987A00)  
Dual Operational Amplifier  
DC: IC403,404
- **NJM2068MD-TE2** (X3505A00)  
Dual Operational Amplifier  
P1000S IO1/4: IC301—303  
P2500S/P3500S IO1/4: IC301—307



● CONTENTS (目次)

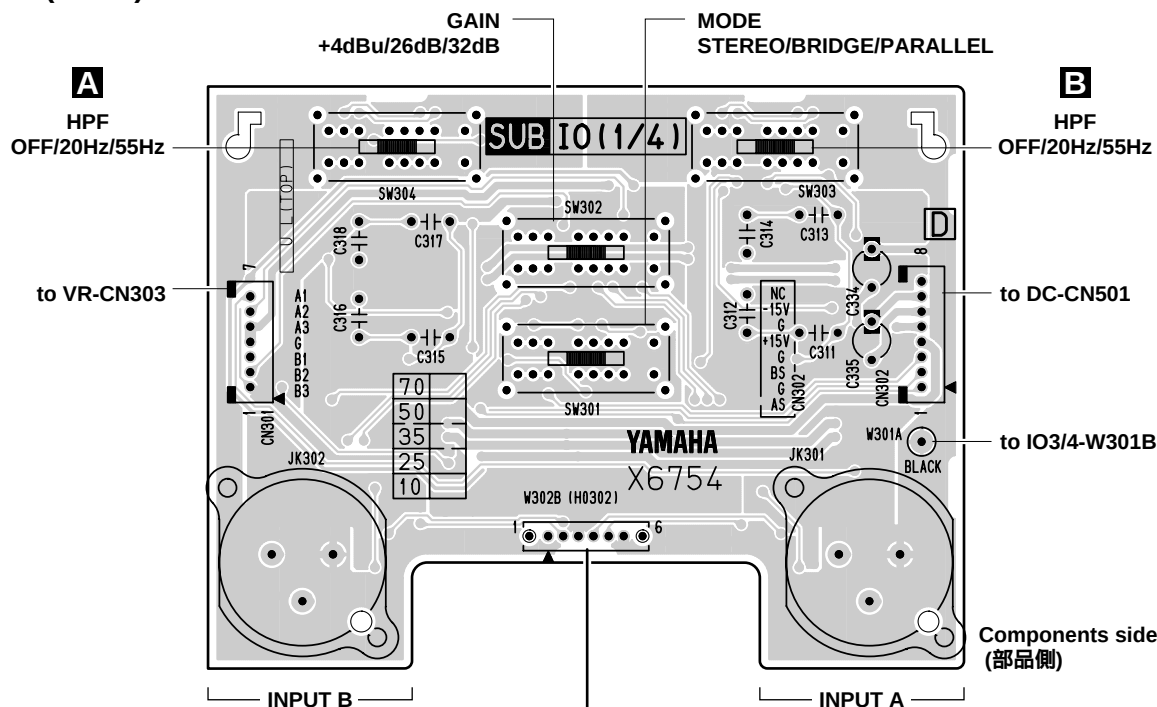
|                                                   |       |
|---------------------------------------------------|-------|
| <b>SUB (IO 1/4) Circuit Board</b> (X6754D0) ..... | 17    |
| <b>SUB (IO 2/4) Circuit Board</b> (X6754D0) ..... | 17    |
| <b>DC Circuit Board</b> (X6753B0) .....           | 18/20 |
| <b>SUB (VR) Circuit Board</b> (X6754D0) .....     | 18/19 |
| <b>PAL Circuit Board</b> (X6751B0) .....          | 22    |
| <b>SUB (IO 3/4) Circuit Board</b> (X6754D0) ..... | 24/25 |
| <b>SUB (IO 4/4) Circuit Board</b> (X6754D0) ..... | 24/25 |
| <b>SUB (LED) Circuit Board</b> (X6754D0) .....    | 24/25 |
| <b>SUB (PSW) Circuit Board</b> (X6754D0) .....    | 24/25 |

Note: See parts list for details of circuit board component parts.

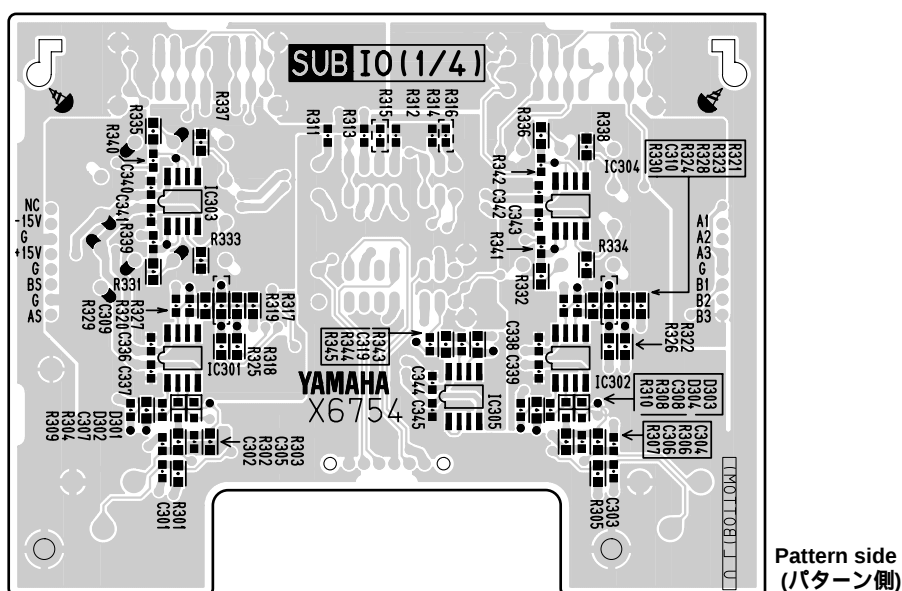
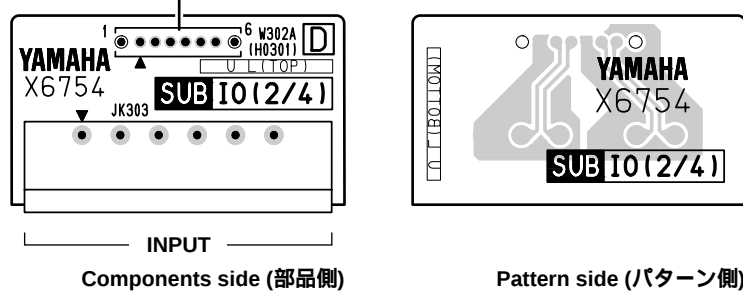
注：シートの部品詳細はパーツリストをご参照ください。

## ■ CIRCUIT BOARDS (シート基板図)

### ● SUB (IO 1/4) Circuit Board

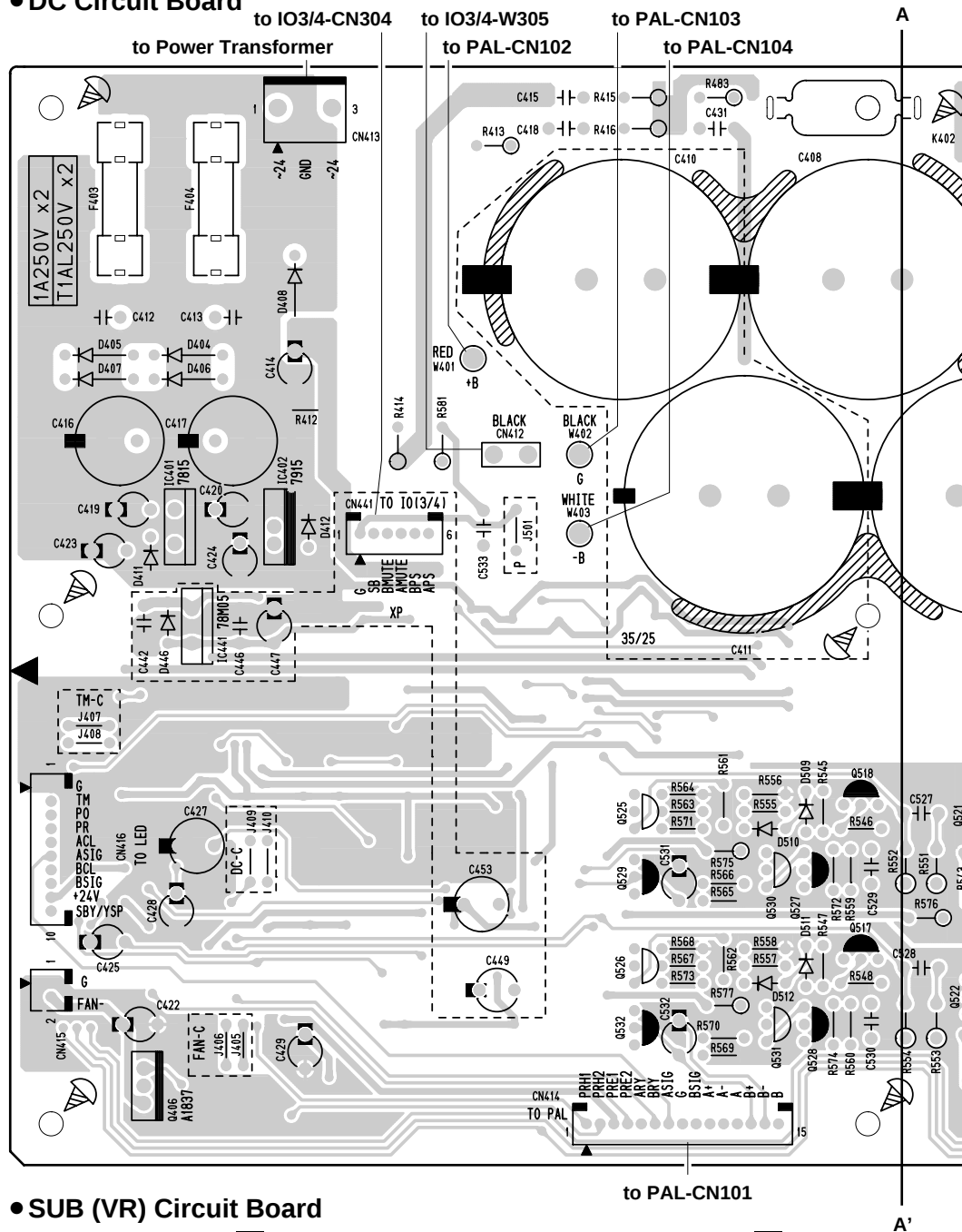


### ● SUB (IO 2/4) Circuit Board

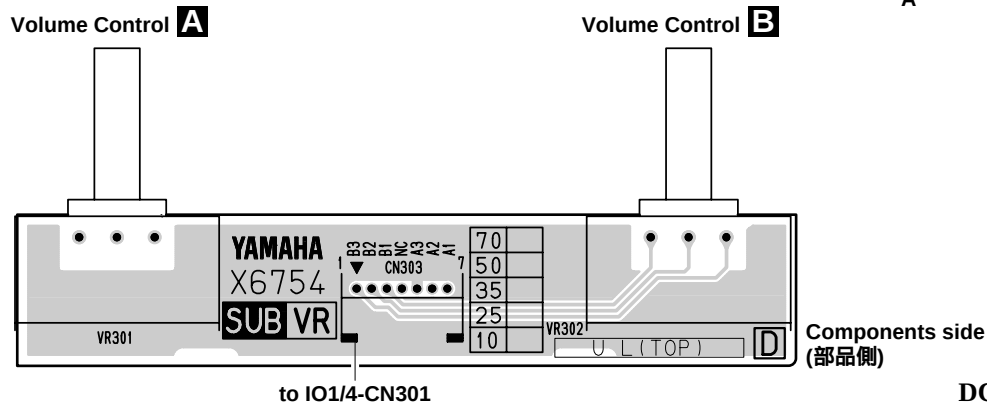


SUB (IO 1/4, 2/4): 2NA-WF39910-D010

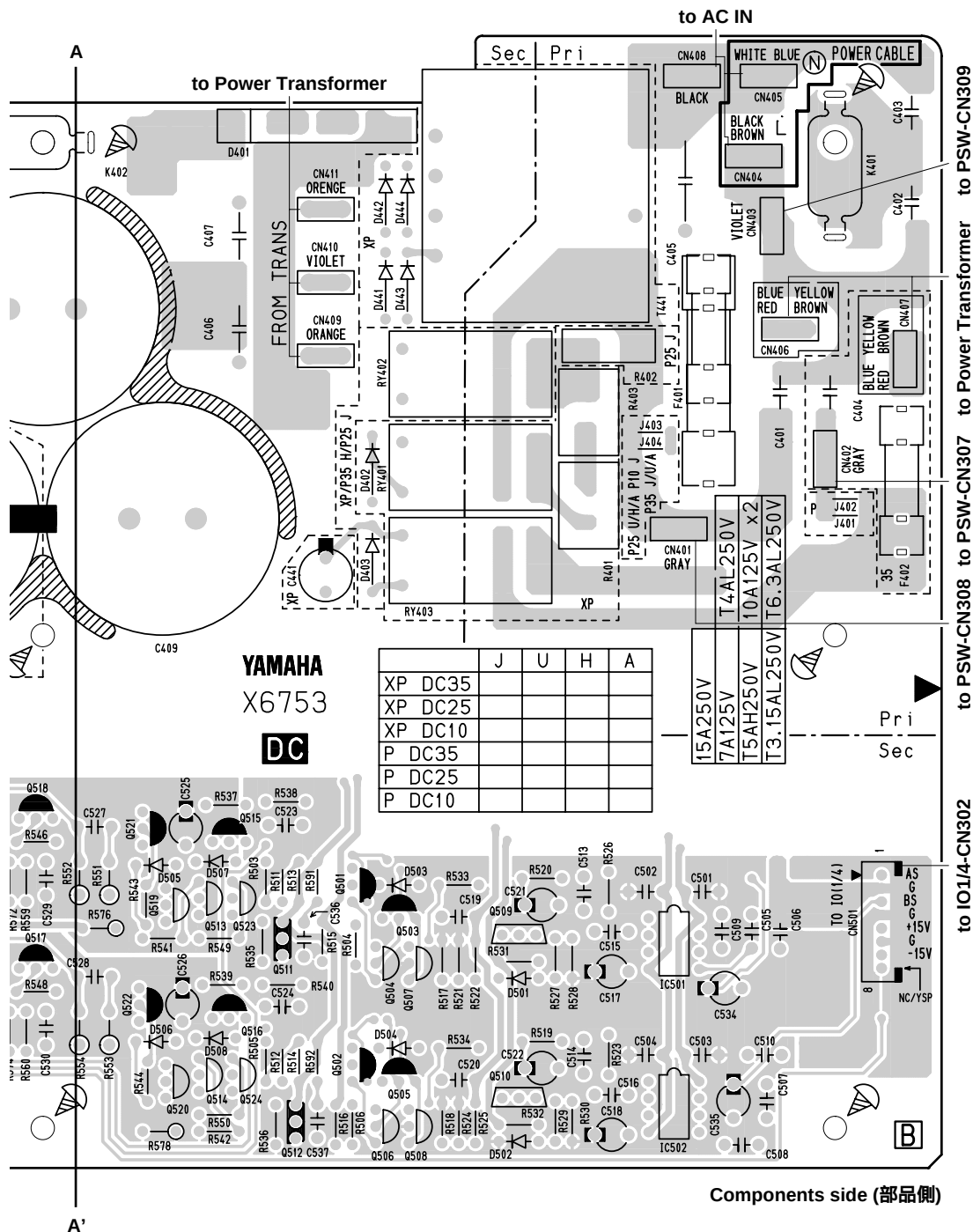
- **DC Circuit Board**



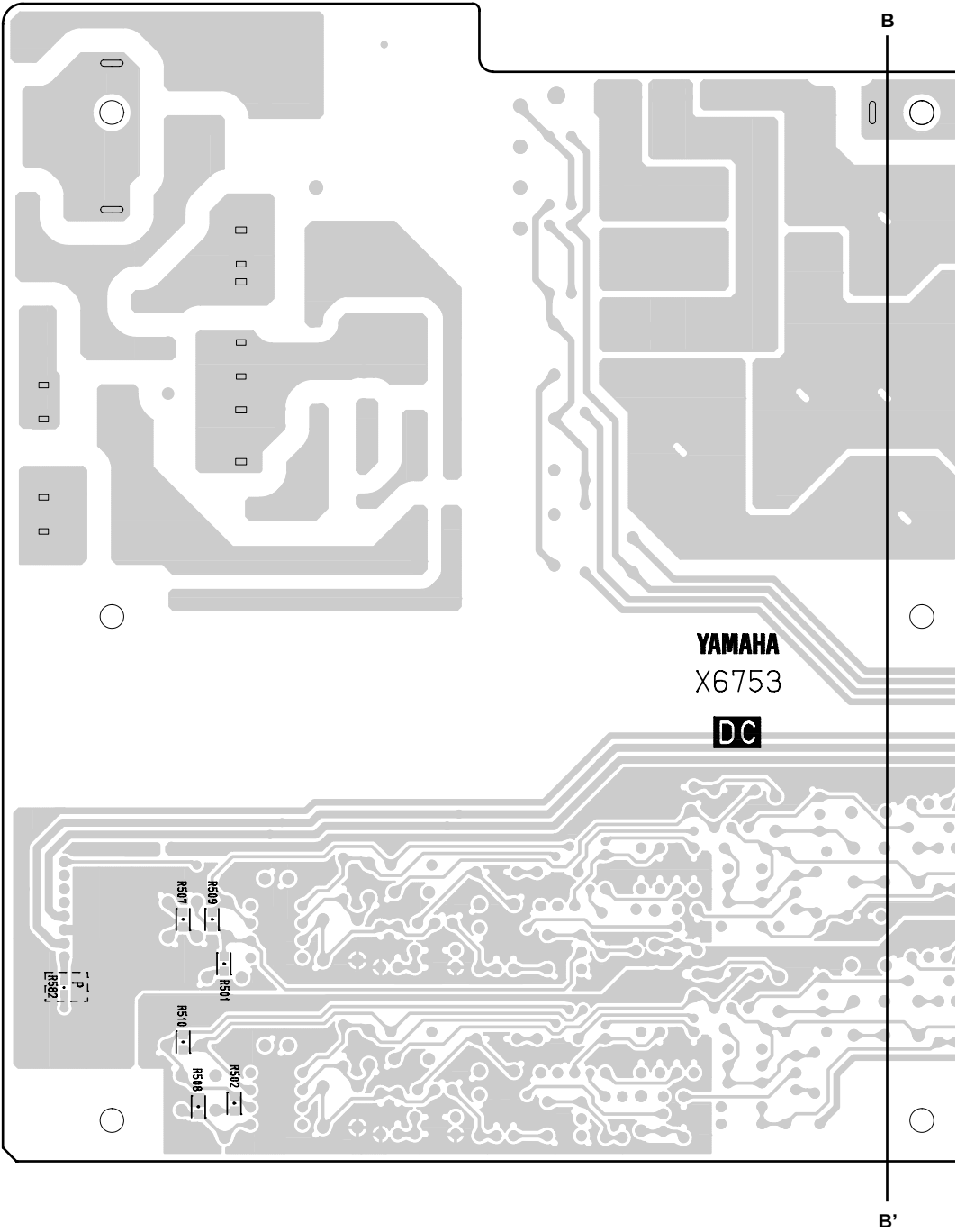
- **SUB (VR) Circuit Board**

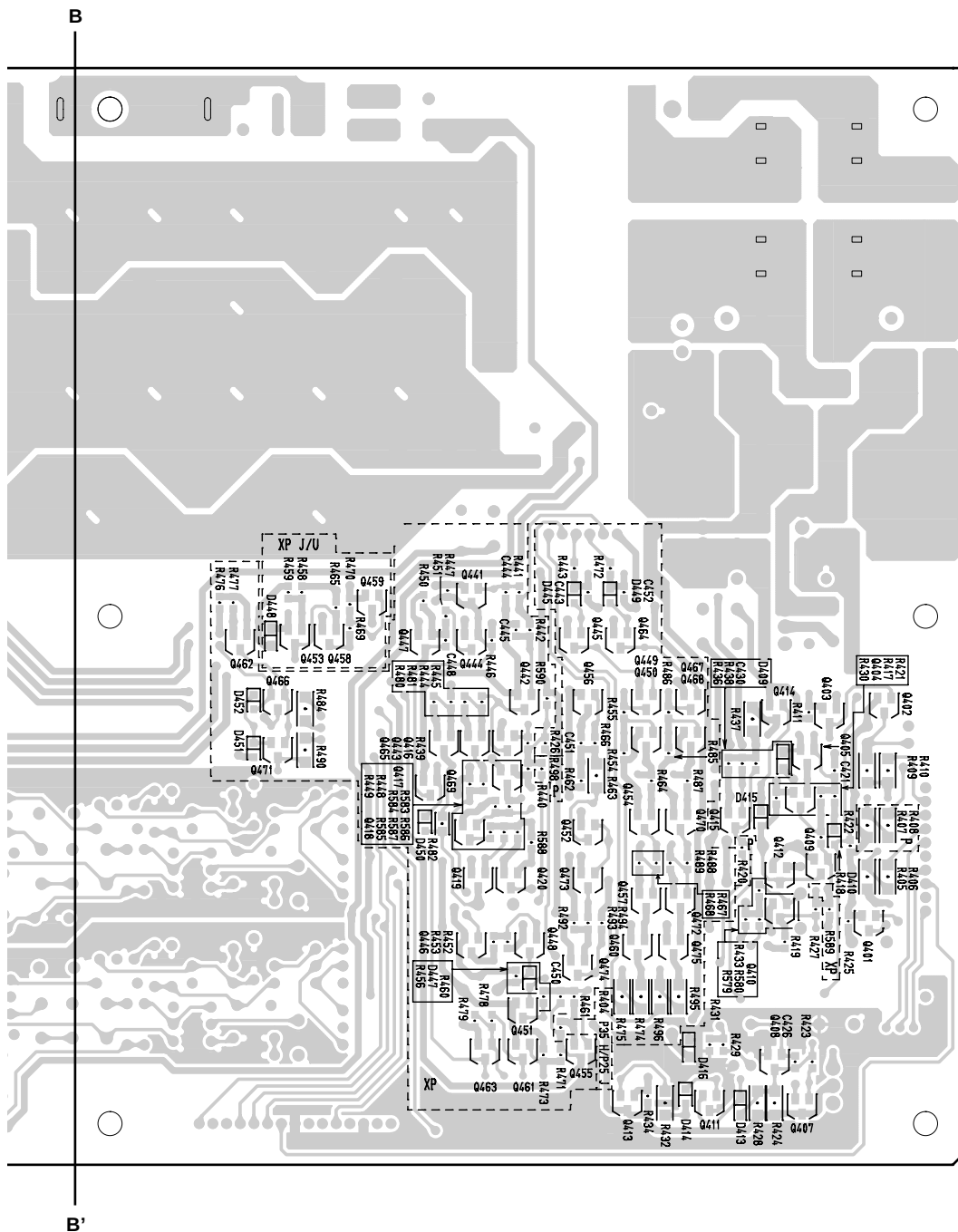


DC: 2NA-WF39790-D010  
SUB (VR): 2NA-WF39910-D010

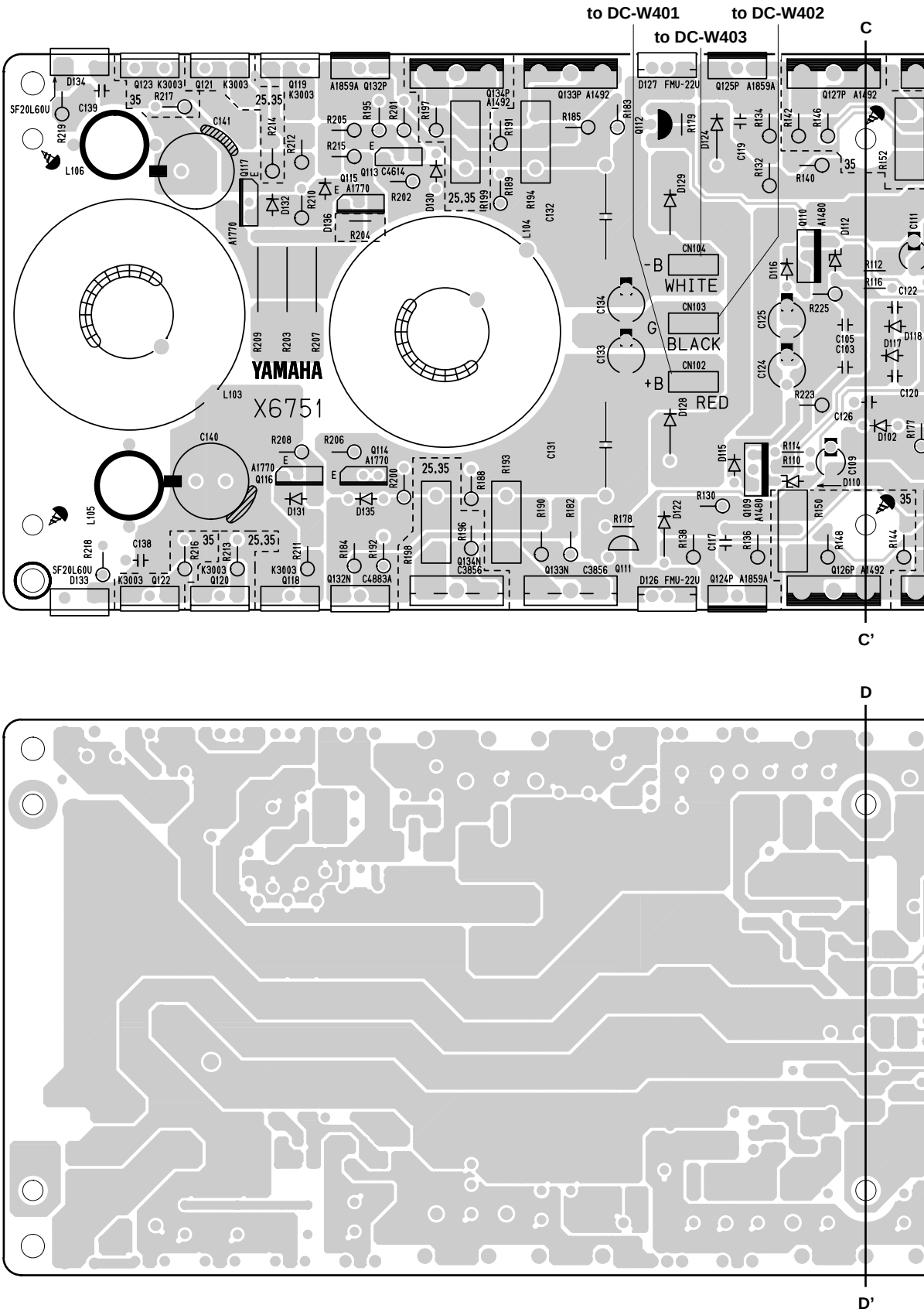


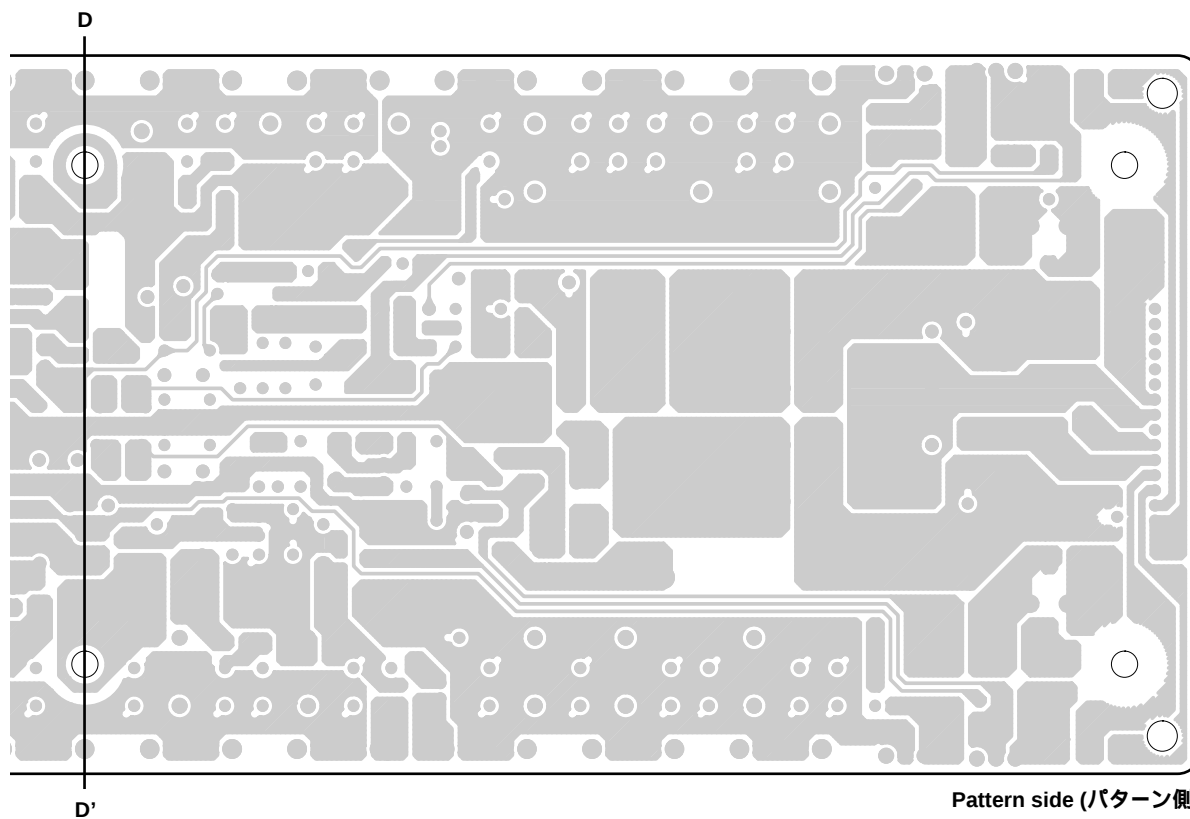
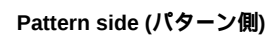
● DC Circuit Board



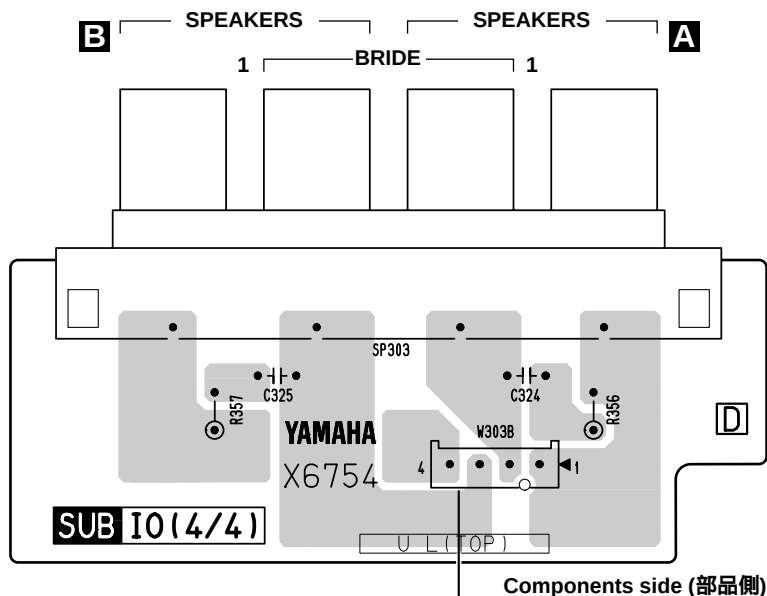


•PAL Circuit Board

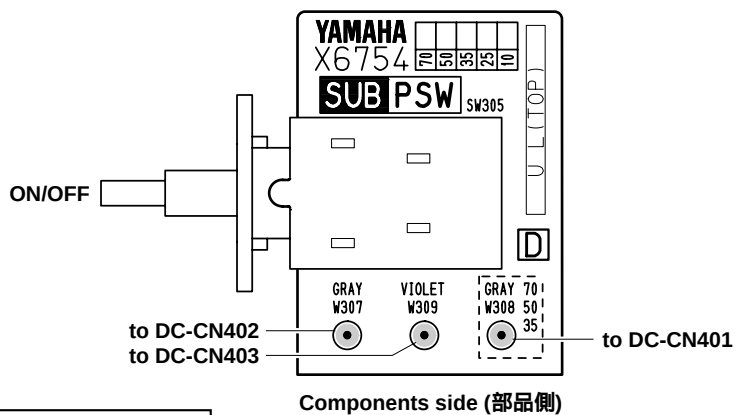




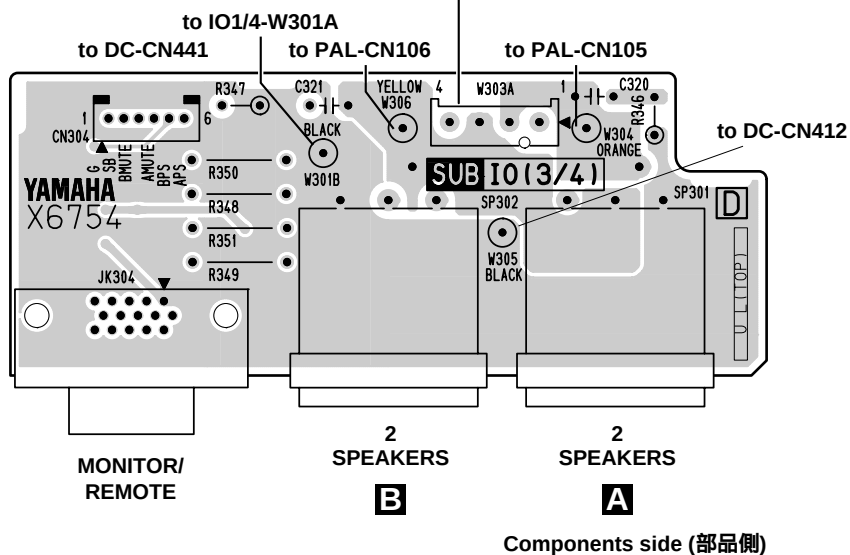
- **SUB (IO 4/4) Circuit Board**



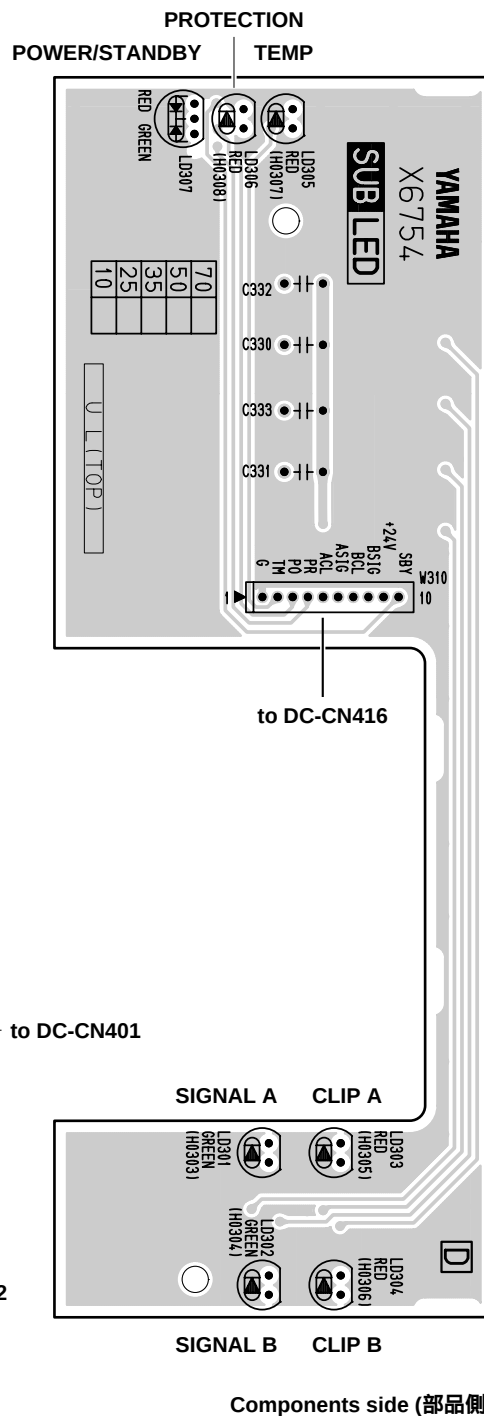
- SUB (PSW) Circuit Board



- **SUB (IO 3/4) Circuit Board**

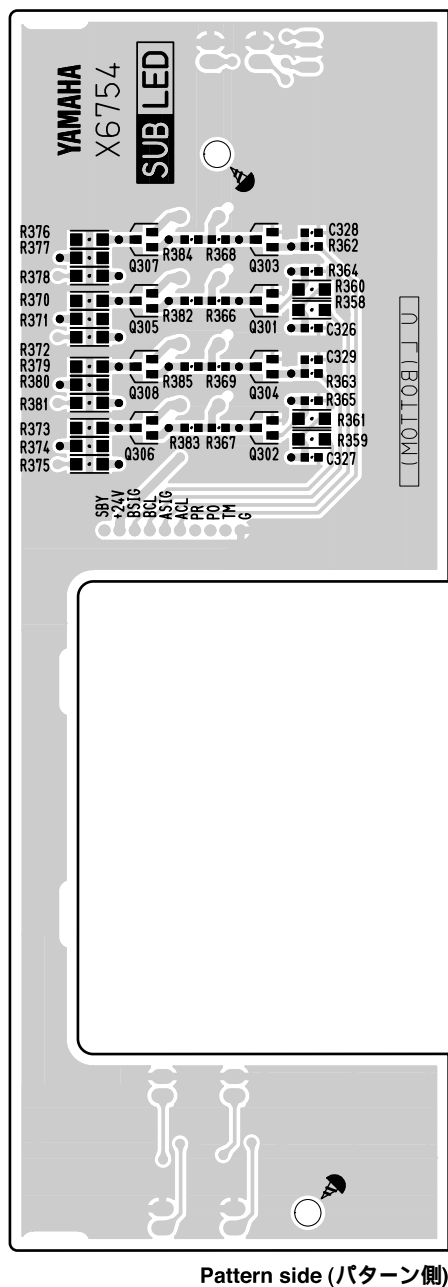


- **SUB (LED) Circuit Board**

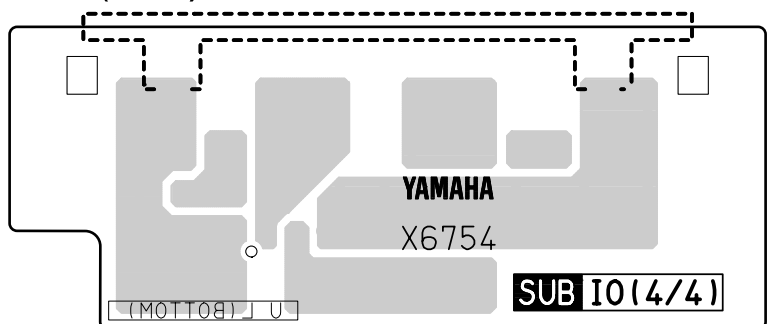


**SUB(LED):**  
**SUB(PSW):**  
**SUB(IO 3/4):**  
**SUB(IO 4/4):** } **2NA-WF39910-D010**

- **SUB (LED) Circuit Board**

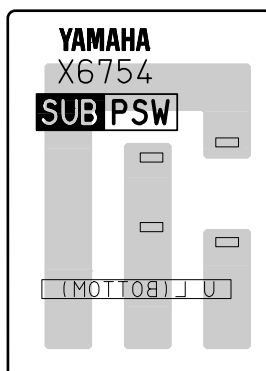


- **SUB (IO 4/4) Circuit Board**



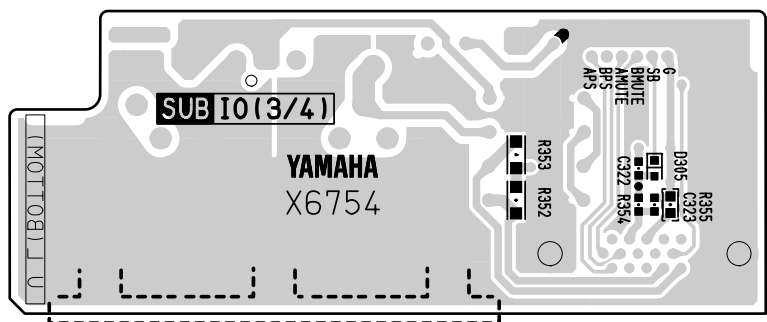
Pattern side (パターン側)

### ● SUB (PSW) Circuit Board



**Pattern side (パターン側)**

● SUB (10 3/4) Circuit Board



**Pattern side (パターン側)**