

TA-A1ES

SERVICE MANUAL

Ver. 1.0 2013.10

US Model
Canadian Model
AEP Model
UK Model



SPECIFICATIONS

Amplifier section

POWER OUTPUT (US and Canadian models only)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:
With 8 ohm loads, both channels driven, from 20 - 20,000 Hz; rated
80 watts per channel minimum RMS power, with no more than 0.09 %
total harmonic distortion from 250 milliwatts to rated output.

Rated Power Output* (US and Canadian models)

80 W + 80 W
20 Hz to 20 kHz 0.15 % 8 ohms

* Measured under the following conditions:
Power requirements: 120 V AC, 60 Hz

Rated Power Output* (AEP and UK models)

80 W + 80 W
20 Hz to 20 kHz 0.09 % 8 ohms

* Measured under the following conditions:
Power requirements: 230 V AC, 50 Hz/60 Hz

Supported impedance of speakers

4 ohms or higher

Distortion

0.008 %
1 kHz 10 W 8 ohms

Frequency response

10 Hz to 100 kHz ± 3 dB (8 ohms)

Input (UNBALANCED)

Sensitivity: 150 mV
Impedance: 47 kohms
S/N ratio: 96 dB (Input short, A, 20 kHz LPF)

Input (BALANCED)

Impedance: 20 kohms / 20 kohms
S/N ratio: 96 dB (Input short, A, 20 kHz LPF)

Headphones amplifier section

Supported impedance

LOW: from 8 ohms to less than 50 ohms
MID: from 50 ohms to less than 300 ohms (+10 dB against LOW)
HI: 300 ohms or higher (+16 dB against LOW)

Distortion

0.1 % or less
20 Hz to 20 kHz
LOW (8 ohms load impedance) 500 mW + 500 mW
MID (150 ohms load impedance) 500 mW + 500 mW
HI (300 ohms load impedance) 250 mW + 250 mW

Frequency response

10 Hz to 100 kHz $+0.5/-3$ dB (at LOW mode 8 ohms load impedance)

General

Power requirements
120 V AC, 60 Hz (US and Canadian models)
230 V AC, 50 Hz/60 Hz (AEP and UK models)
Power consumption
300 W
Power consumption (during standby mode)
0.4 W
Dimensions (Approx.)
430 mm $\times$ 130 mm $\times$ 420 mm (17 in $\times$ 5 1/8 in $\times$ 16 5/8 in) (w/h/d),
including projecting parts and controls
Mass (Approx.)
18.0 kg (39 lb 11 oz)
Supplied accessories
AC power cord (mains lead) (1)
Remote control RM-AAU181 (1)
R03 (size AAA) batteries (2)
Operating Instructions (1)

Design and specifications are subject to change without notice.

INTEGRATED STEREO AMPLIFIER

9-893-882-01

2013J33-1

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Sony Corporation

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NOTES ON CHIP COMPONENT REPLACEMENT

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage.

Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

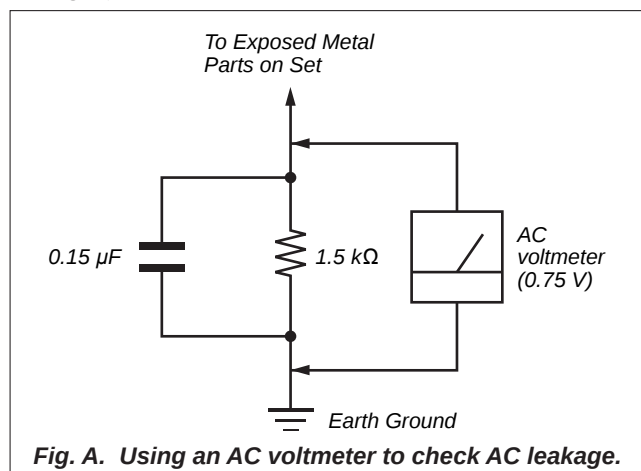


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!

COMPONENTS IDENTIFIED BY MARK $\triangle$ OR DOTTED LINE WITH MARK $\triangle$ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE $\triangle$ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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SECTION 1
SERVICING NOTES

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(**Caution:** Some printed circuit boards may not come printed with the lead free mark due to their particular size)

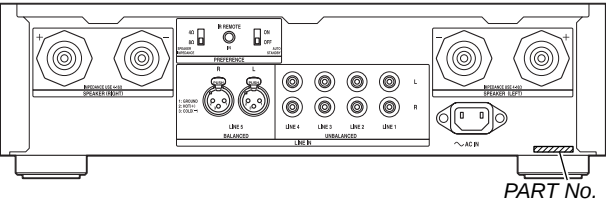
 : LEAD FREE MARK

- Unleaded solder has the following characteristics.
- Unleaded solder melts at a temperature about 40 °C higher than ordinary solder.
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
Soldering irons using a temperature regulator should be set to about 350 °C.
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
 - Strong viscosity
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
 - Usable with ordinary solder
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

DESTINATION IDENTIFICATION

Distinguish by Part No. on the rear side of a main unit.

– Rear Panel –



Destination	Part No.
US and Canadian models	4-467-226-1□
AEP and UK models	4-467-226-2□

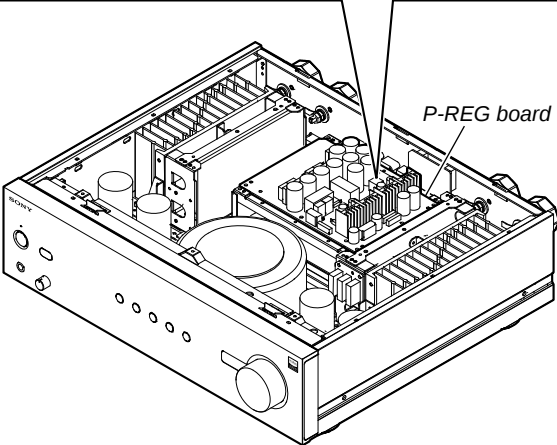
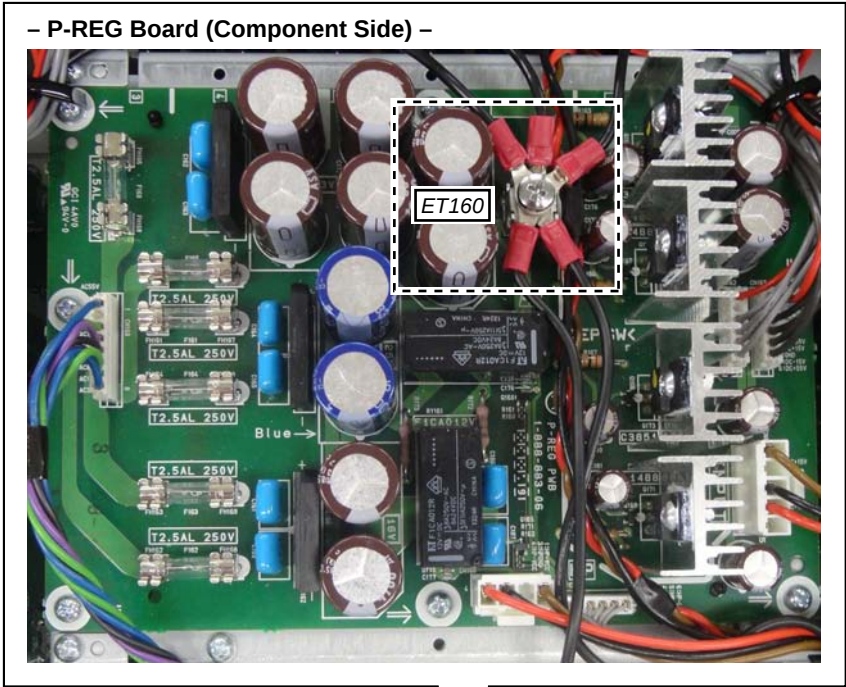
The  indicator is lit in red.

→ There is something wrong with the amplifier. It might be because of a short circuit of the speaker output, a short circuit of the headphones output, or because the ventilation holes on the top of the amplifier are blocked. Resolve the problem, then turn on the amplifier again.

NOTE OF OPERATION CHECK

When performing the operation, be sure not to remove the wire connected to the Ref No. ET160 (GND) on the P-REG board.

– P-REG Board (Component Side) –

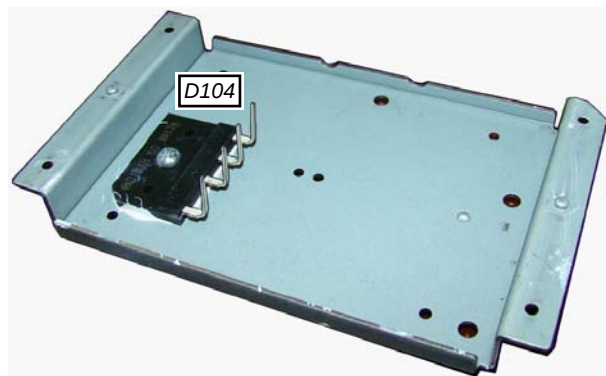


NOTE OF REPLACING THE DIODE AND TRANSISTORS

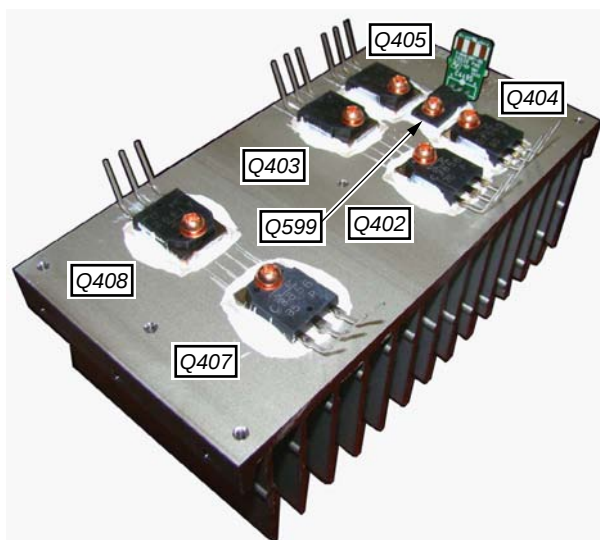
When the transistor of following table is replaced, it is necessary to spread the compound between these parts and the heat sink, bracket. Spread the compound referring to the figure below.

Connection Board	Ref No.
4-8	D104
BOOT-SRAP-L	Q402, Q403, Q404, Q405, Q407, Q408
BOOT-SRAP-R	Q602, Q603, Q604, Q605, Q607, Q608
HP-AMP	Q260, Q263, Q264, Q310, Q313, Q314
HP-POW	Q338, Q339
TO220	Q599

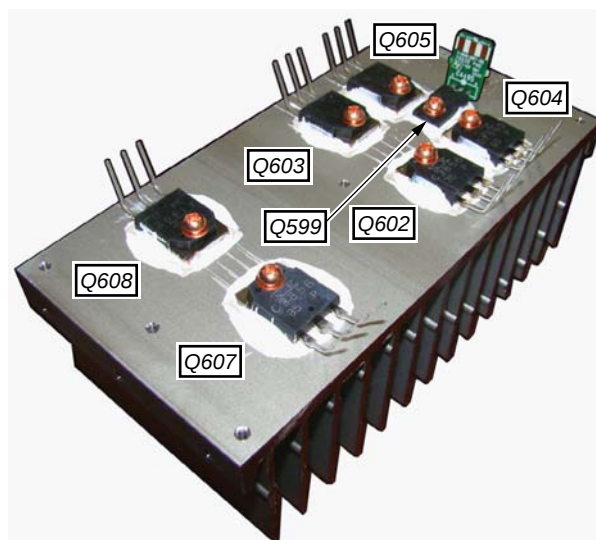
• **4-8 board connection diode**



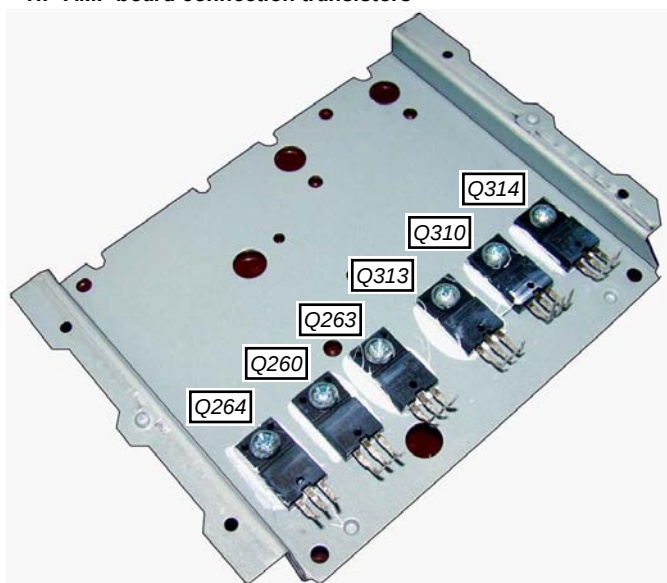
• **BOOT-STRAP-L and TO220 boards connection transistors**



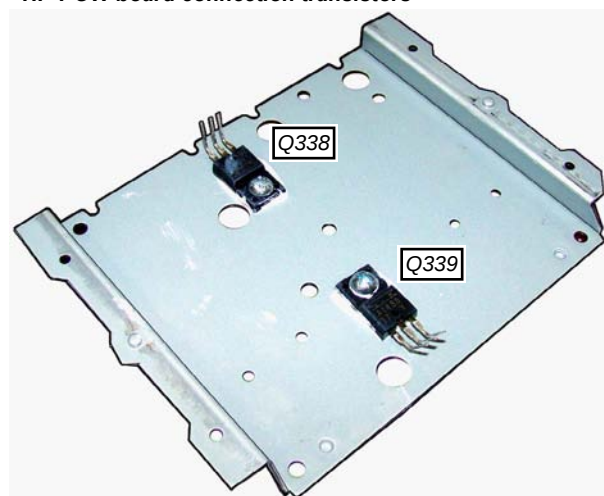
• **BOOT-STRAP-R and TO220 boards connection transistors**



• **HP-AMP board connection transistors**



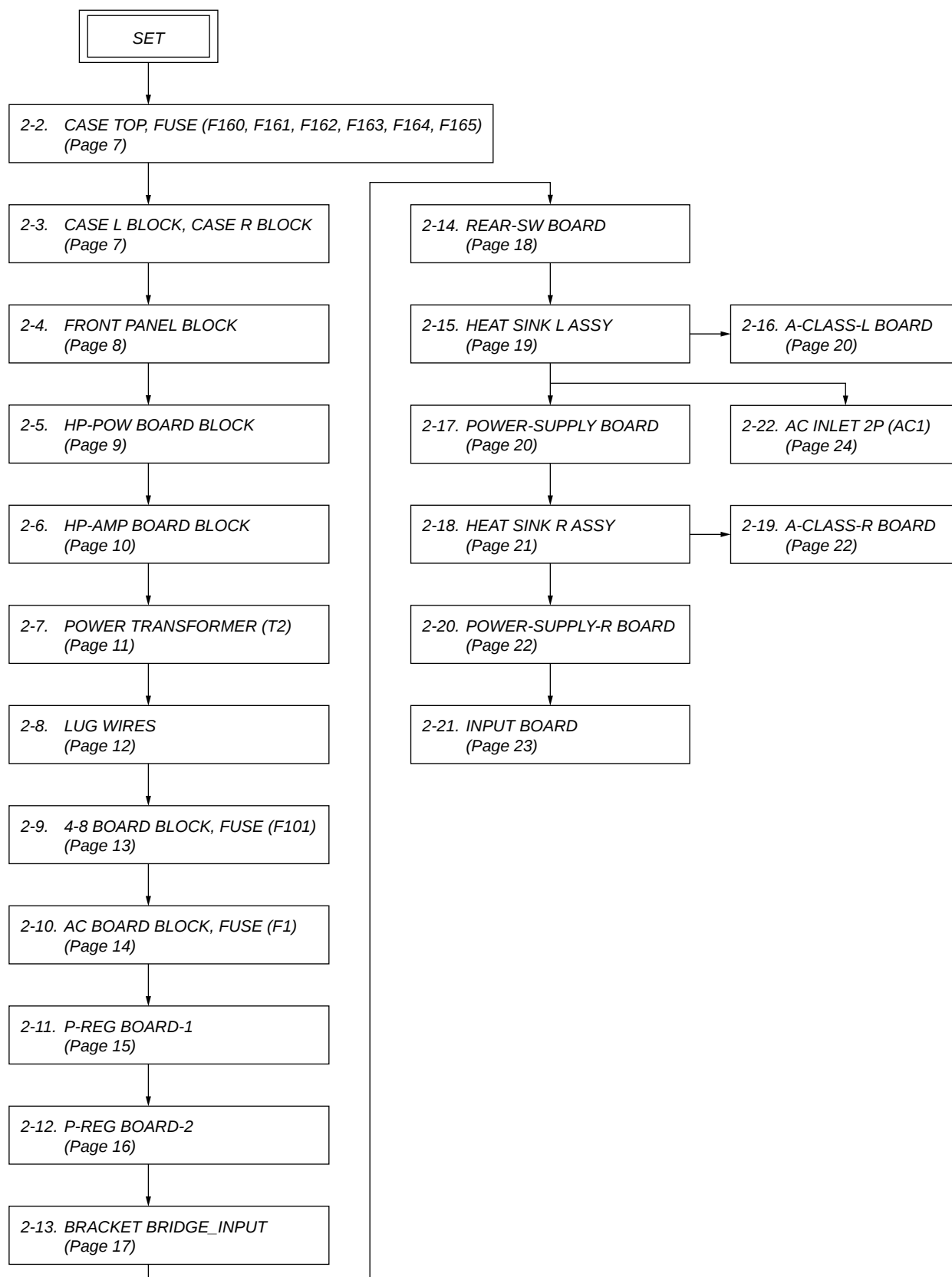
• **HP-POW board connection transistors**



SECTION 2 DISASSEMBLY

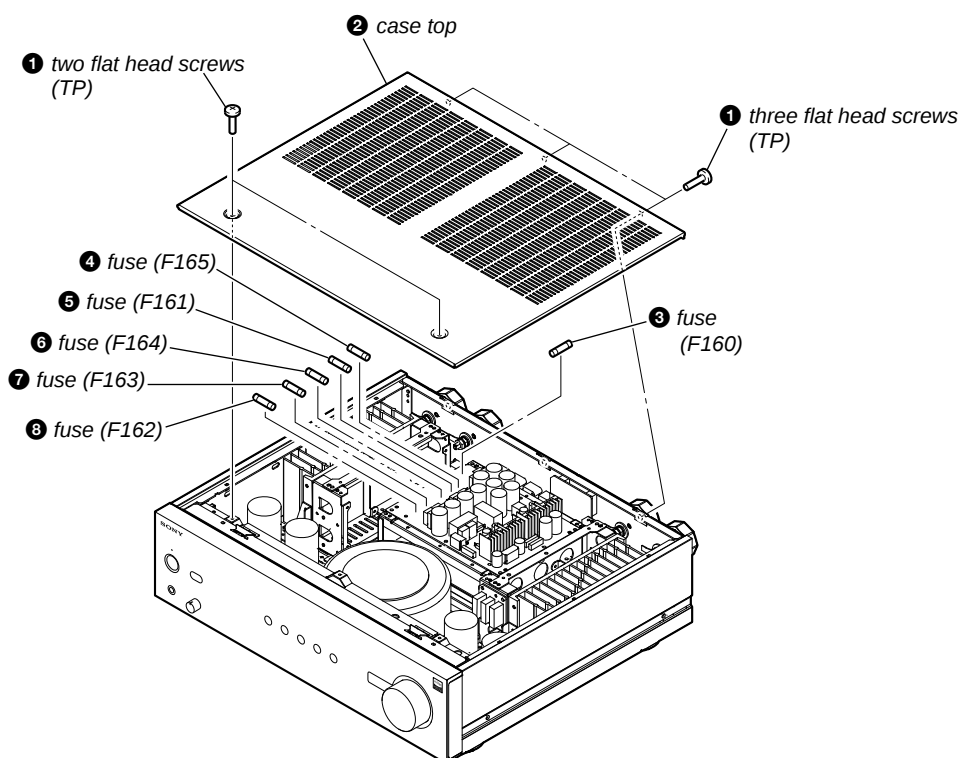
- This set can be disassembled in the order shown below.

2-1. DISASSEMBLY FLOW

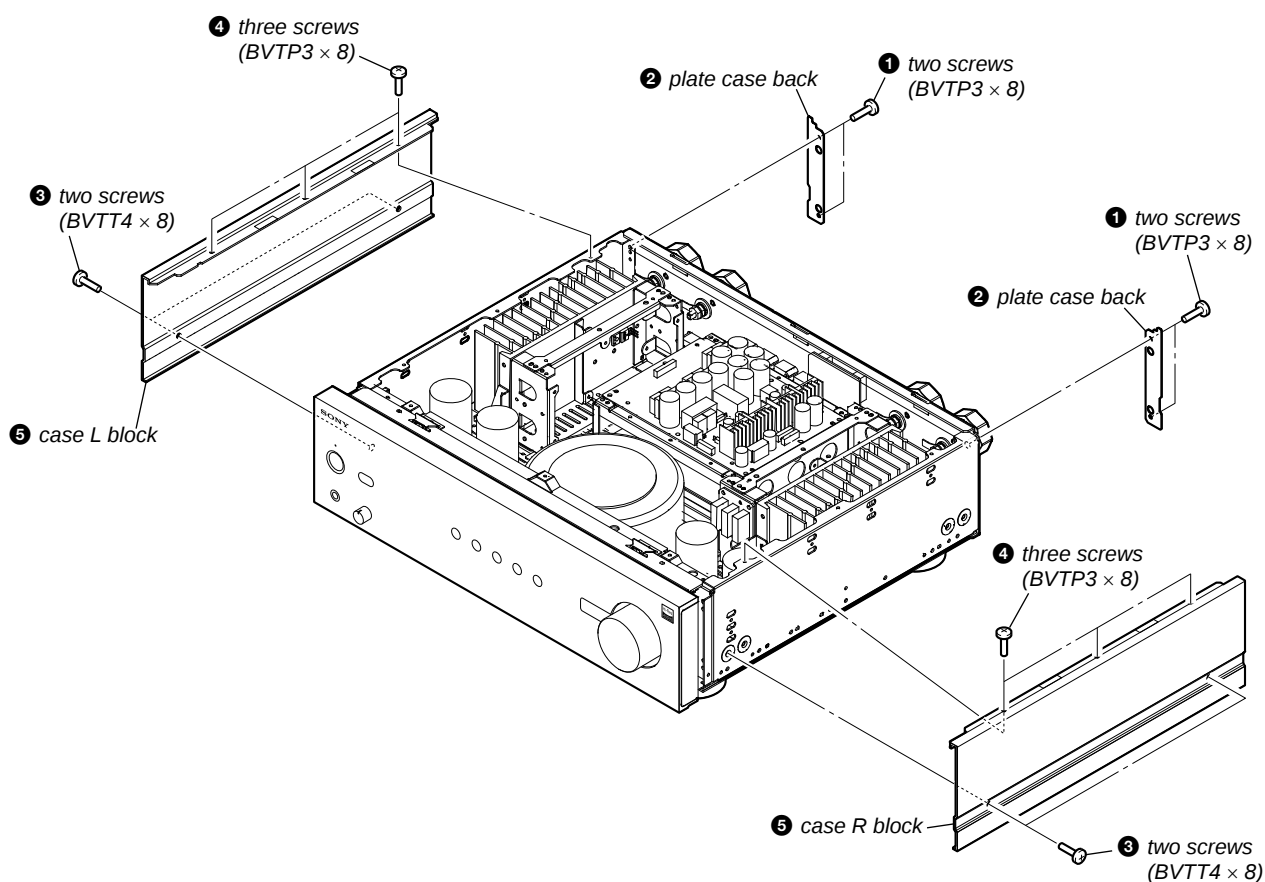


Note: Follow the disassembly procedure in the numerical order given.

2-2. CASE TOP, FUSE (F160, F161, F162, F163, F164, F165)



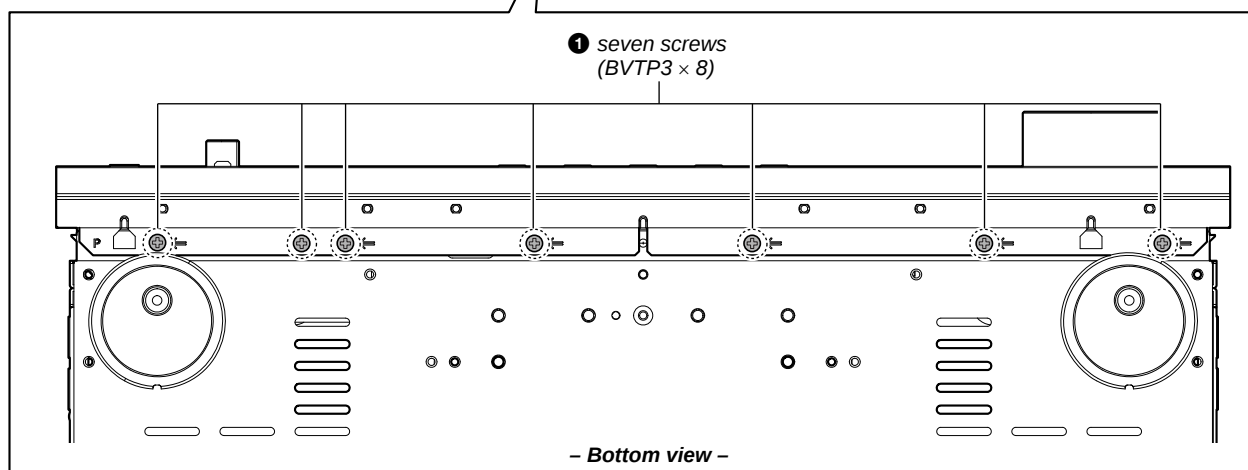
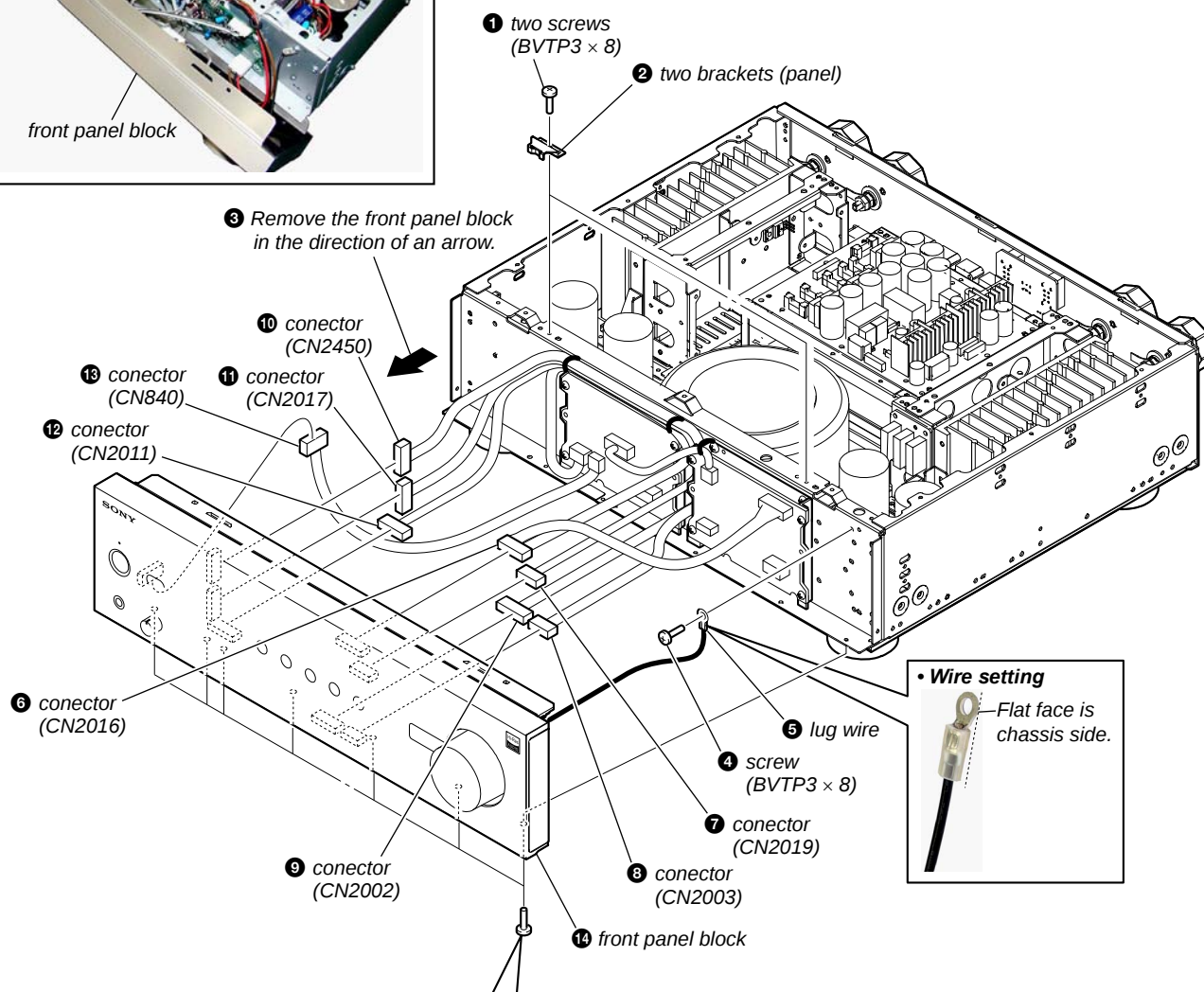
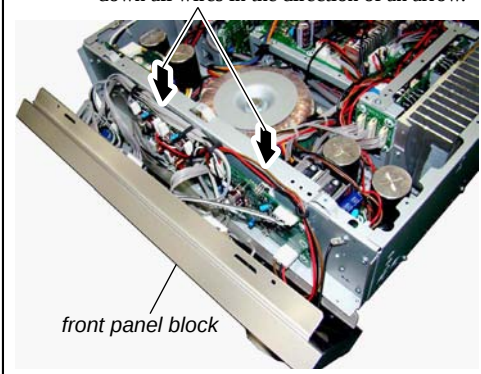
2-3. CASE L BLOCK, CASE R BLOCK



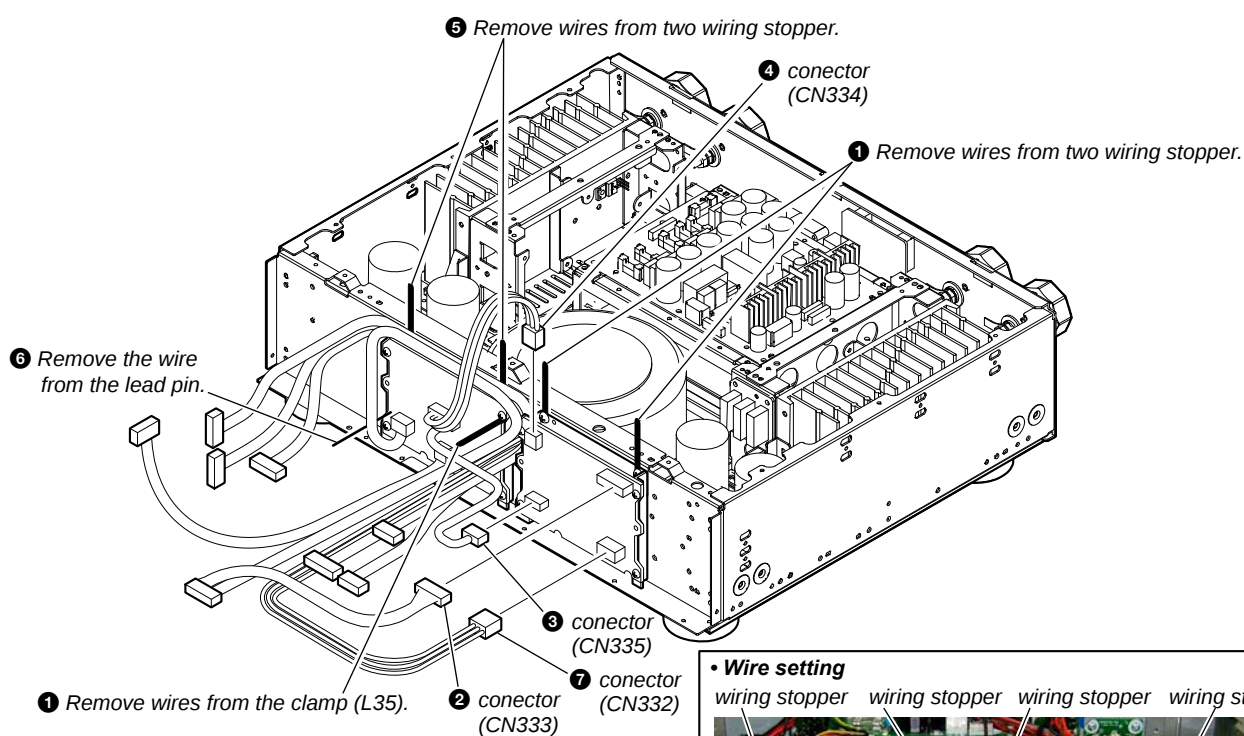
2-4. FRONT PANEL BLOCK

• Wire setting

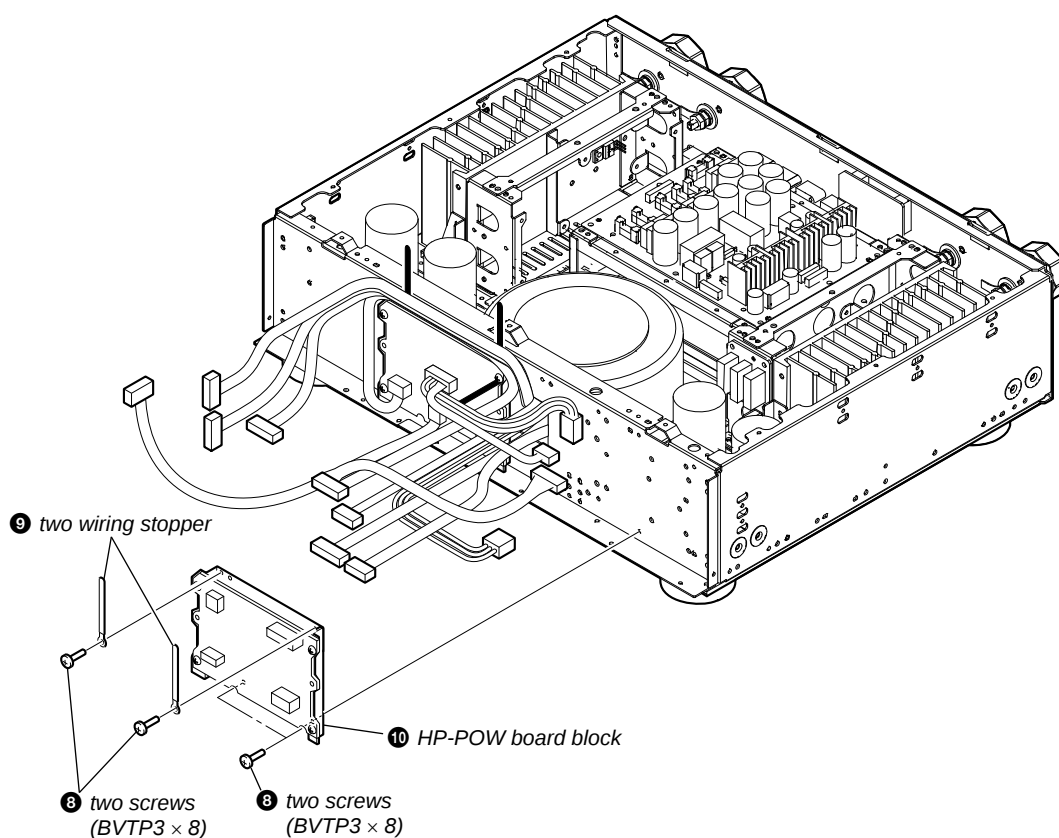
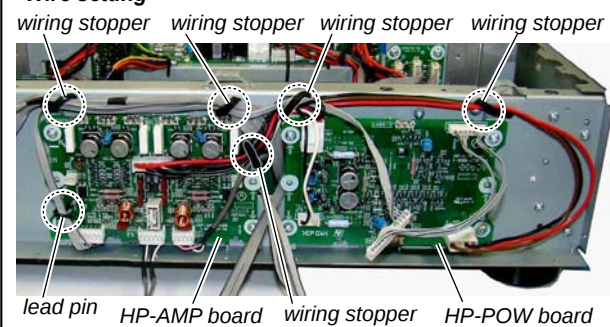
Note: When installing the front panel block, press down all wires in the direction of an arrow.



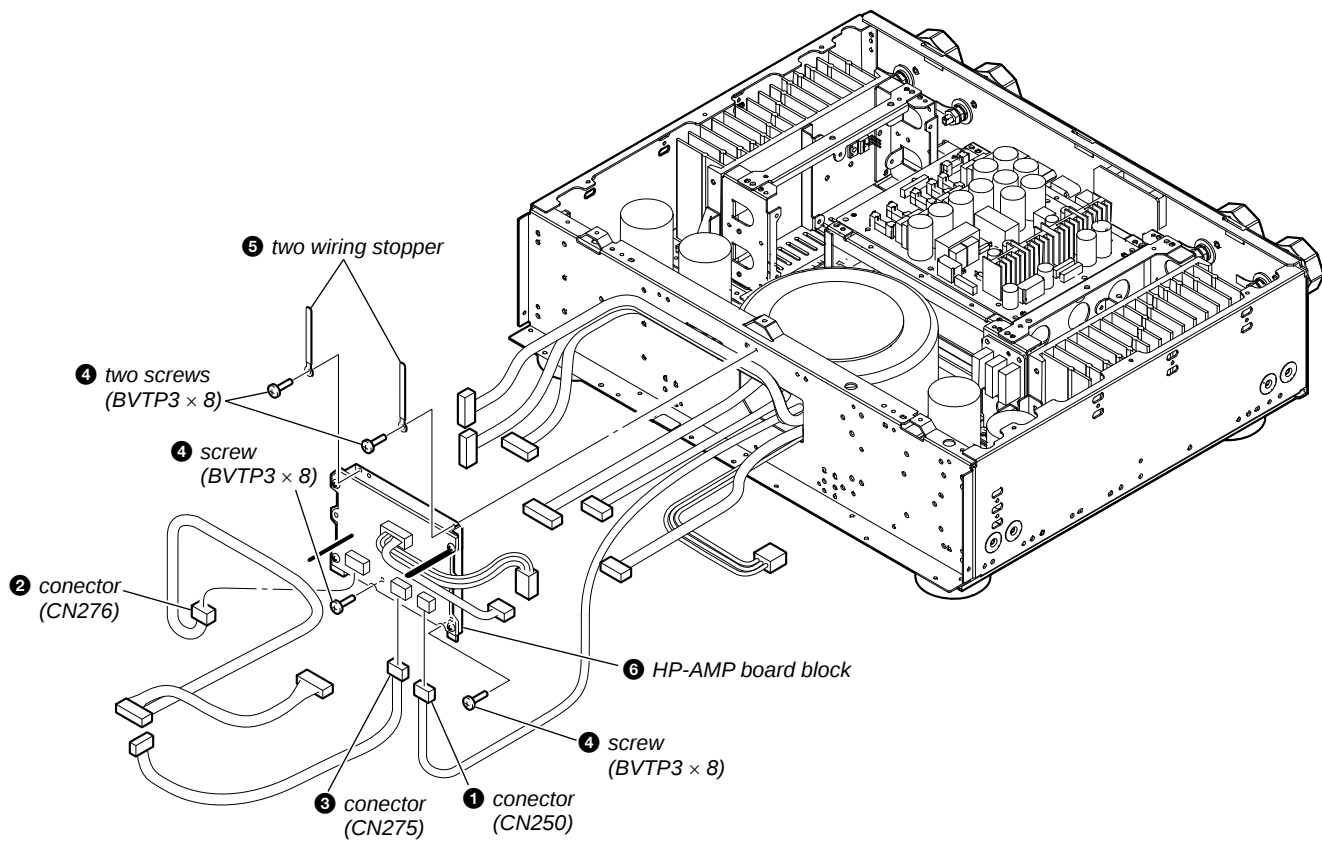
2-5. HP-POW BOARD BLOCK



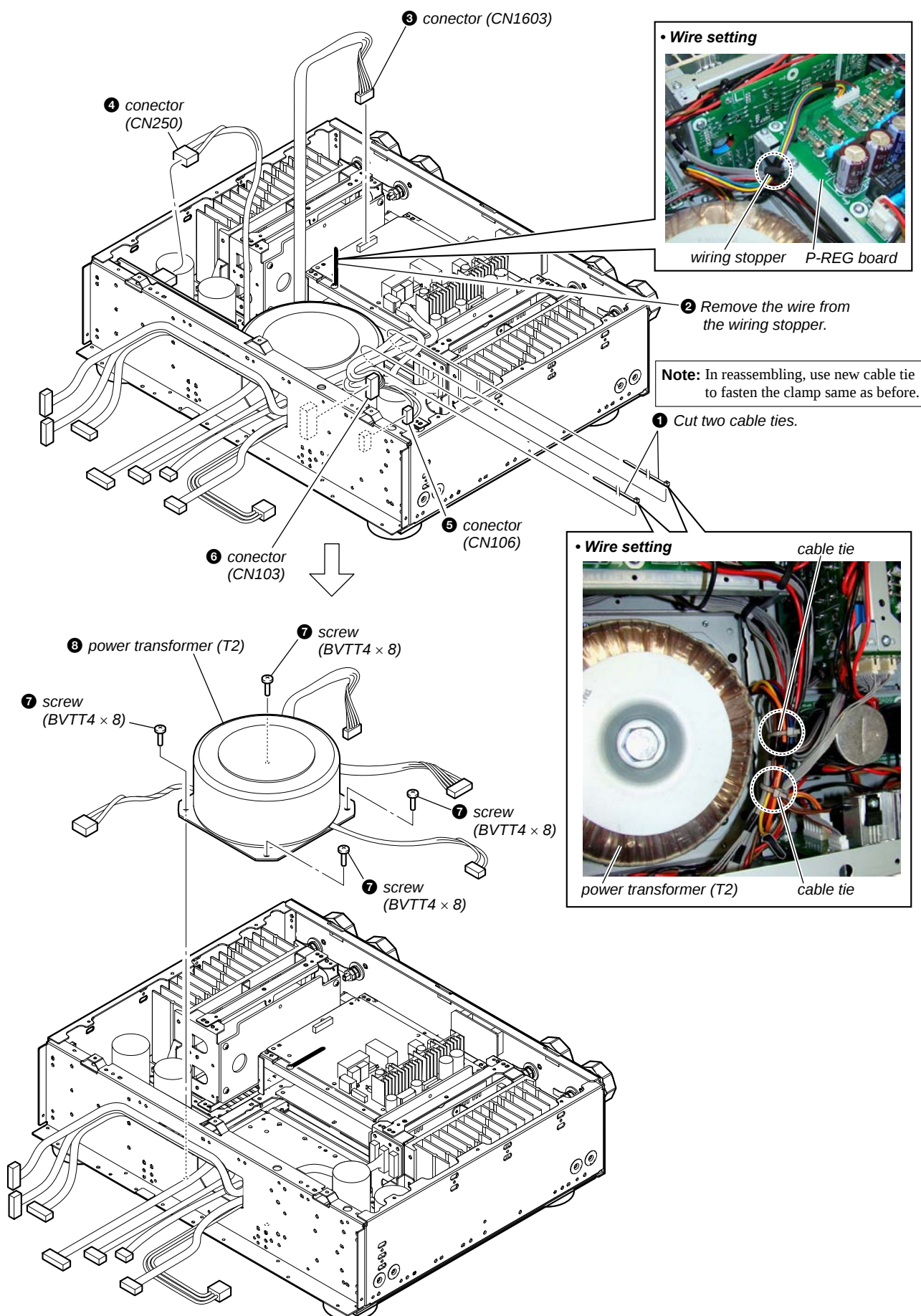
• Wire setting



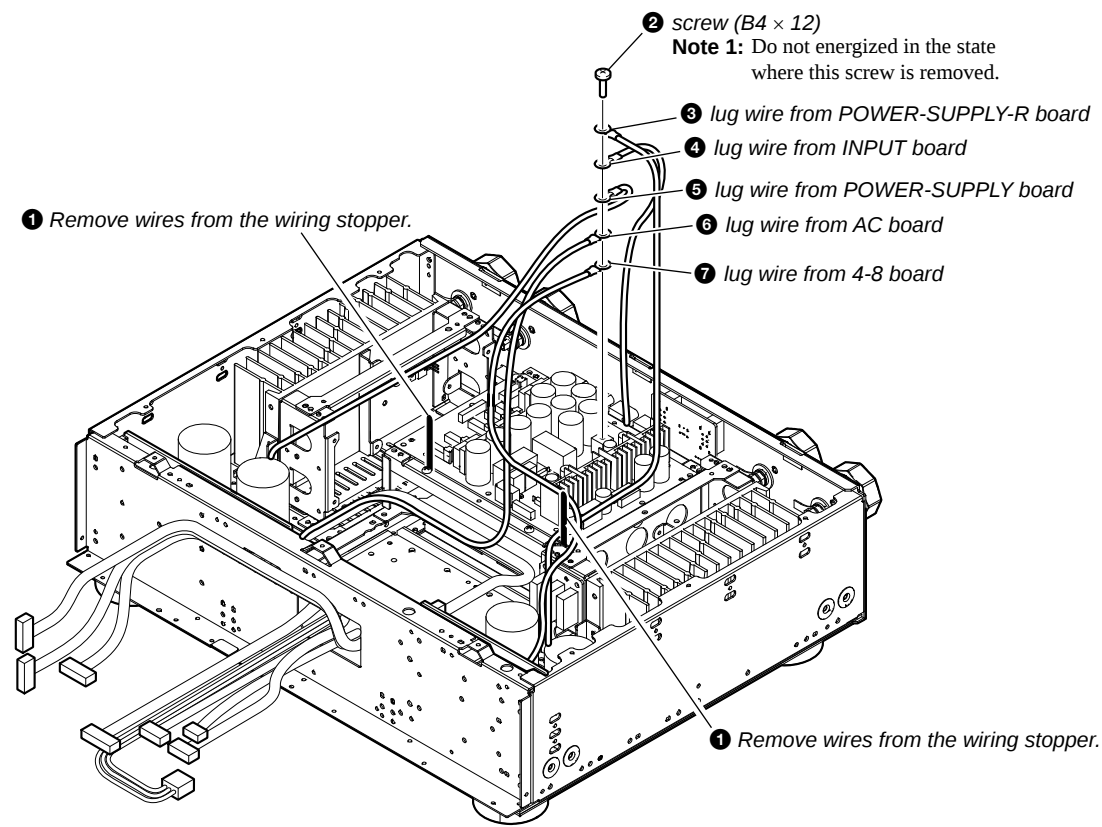
2-6. HP-AMP BOARD BLOCK



2-7. POWER TRANSFORMER (T2)

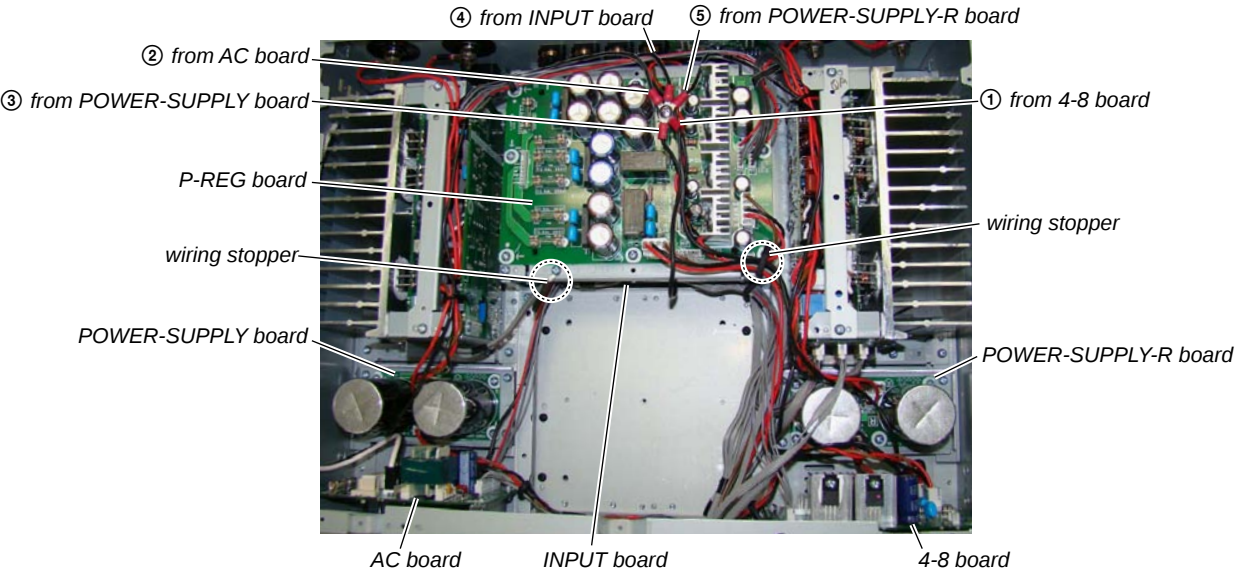


2-8. LUG WIRES

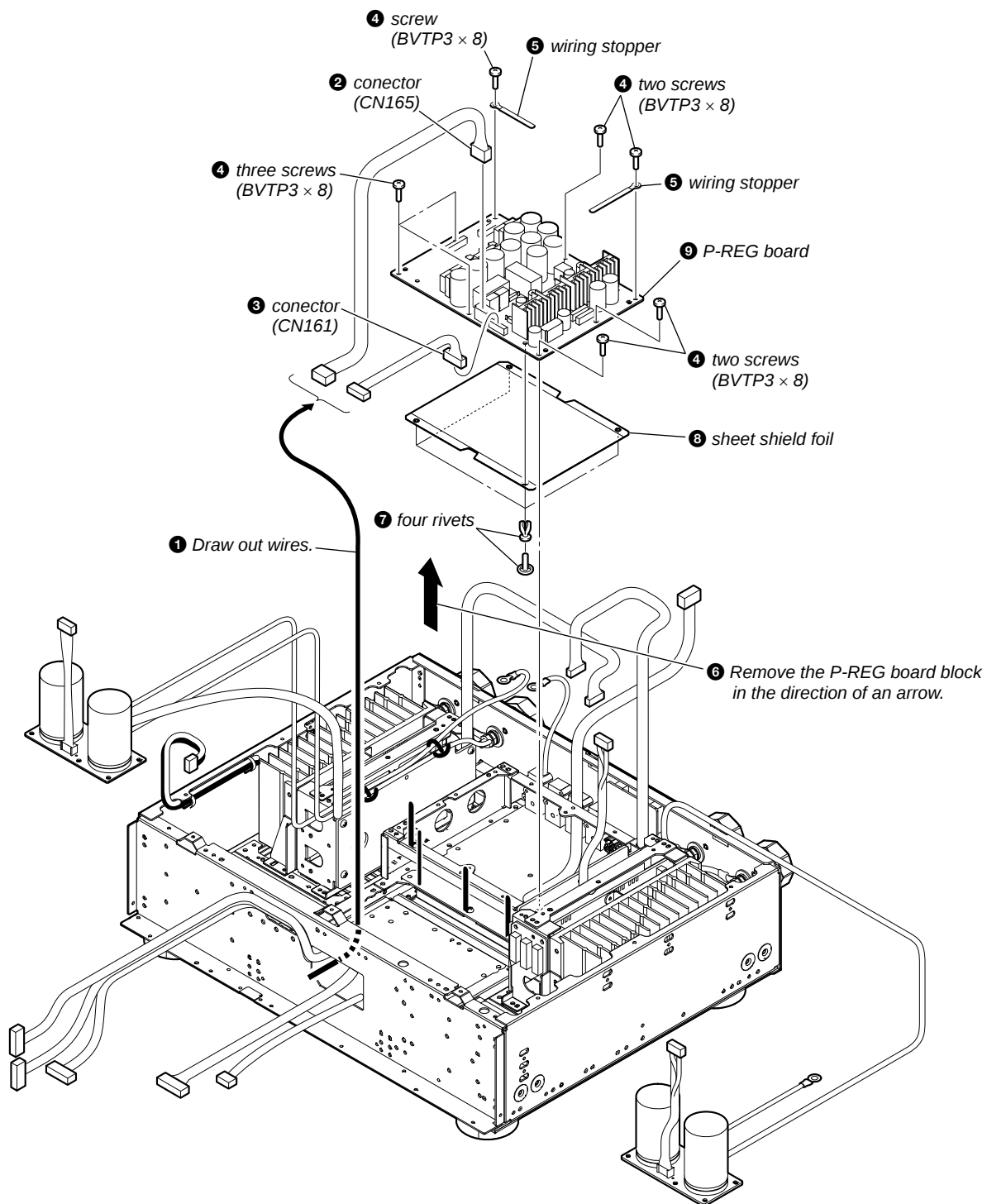


• Wire setting

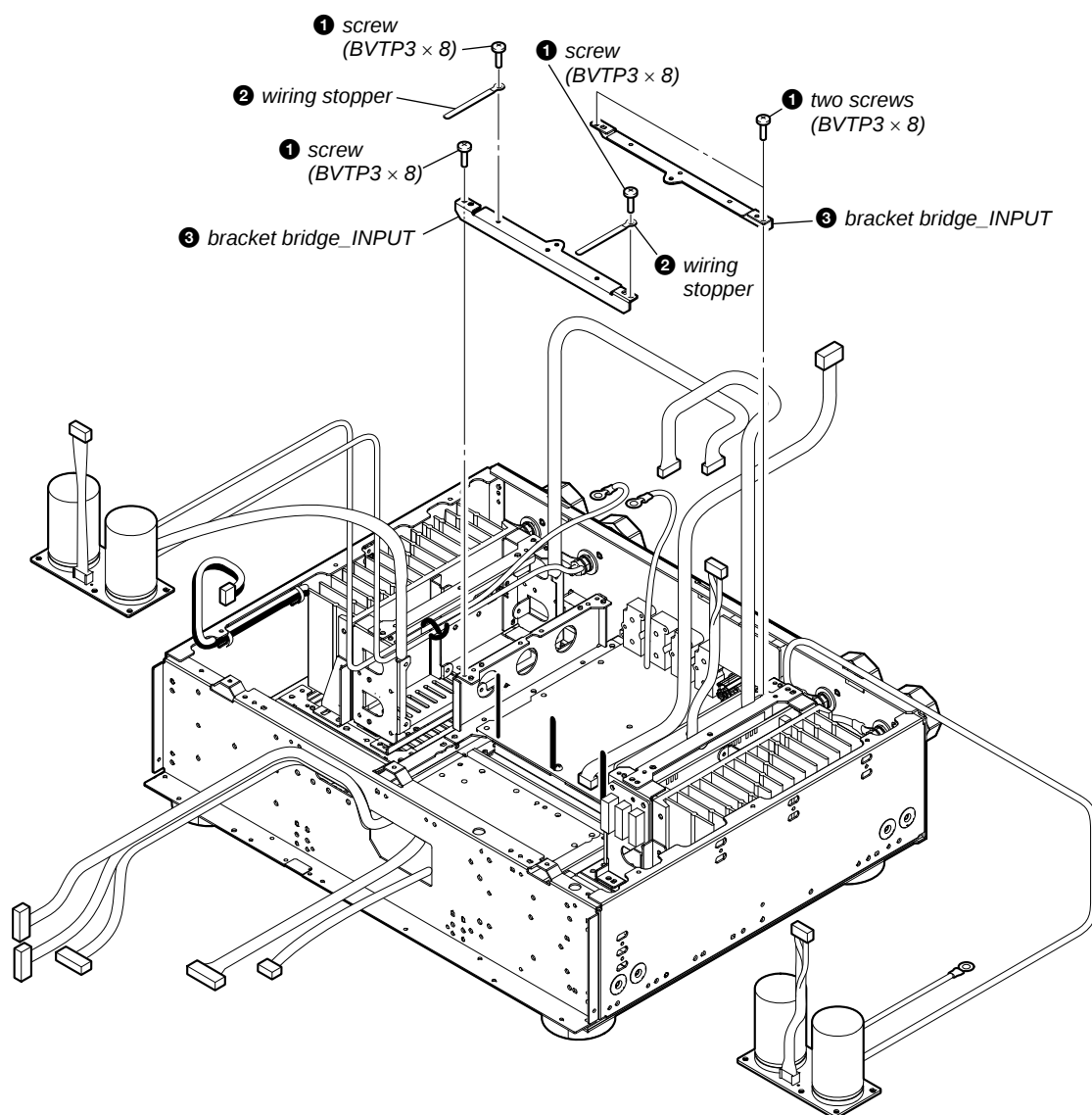
Note 2: Follow the assembly procedure in the numerical order given.



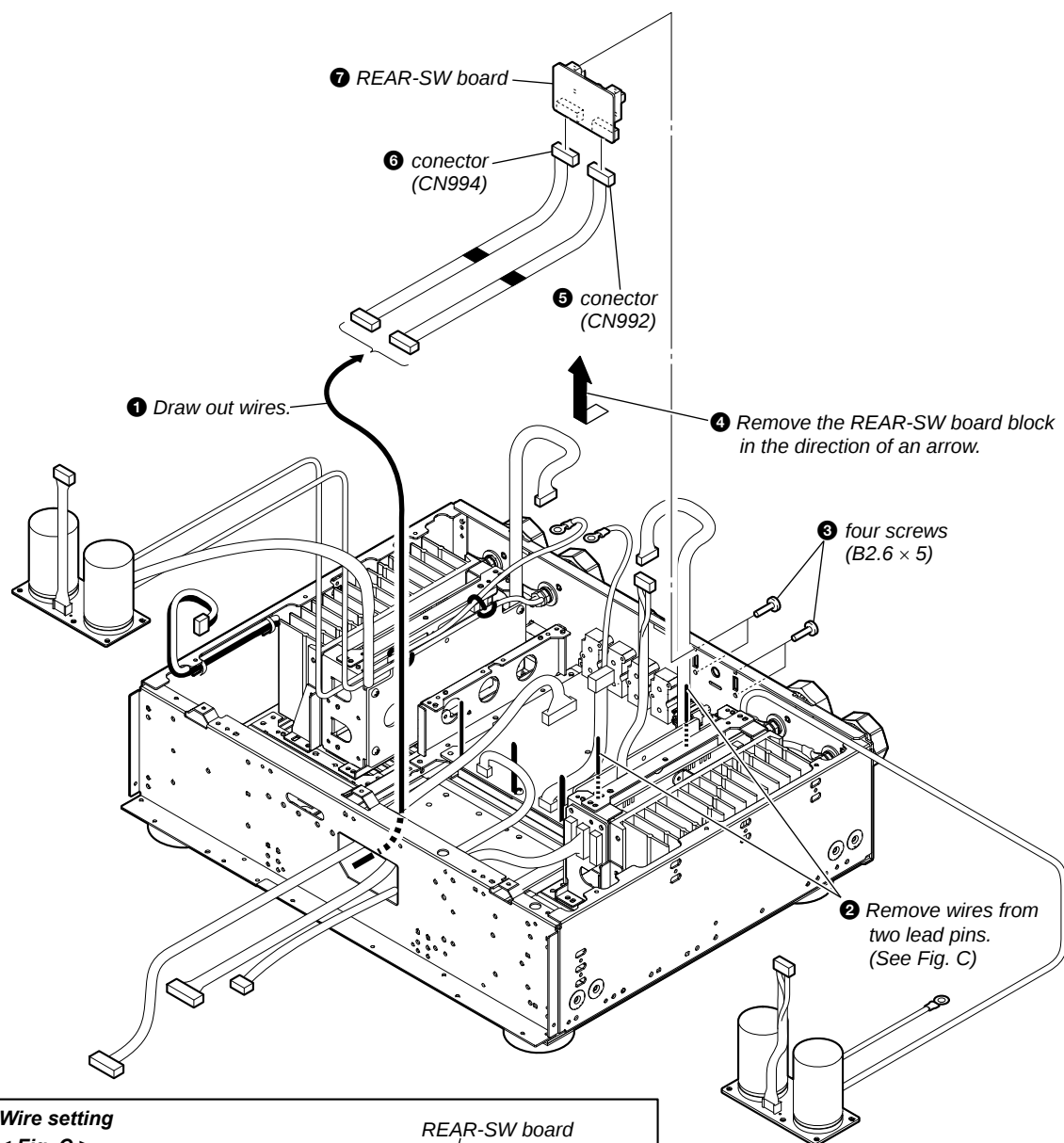
2-12. P-REG BOARD-2



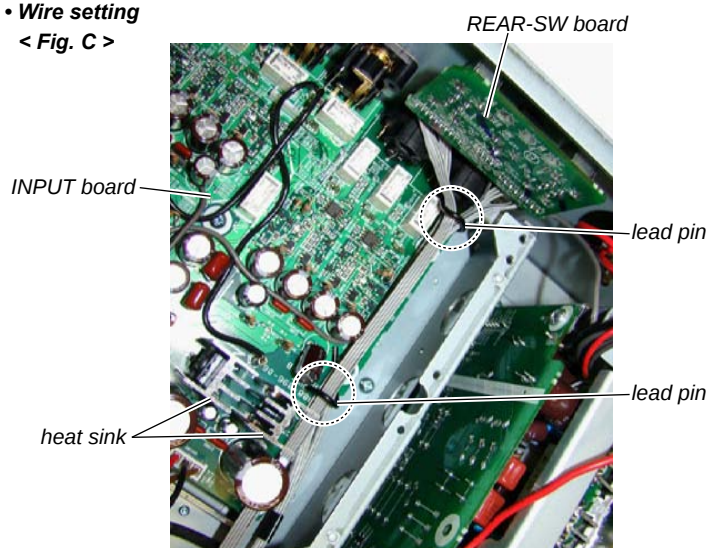
2-13. BRACKET BRIDGE_INPUT



2-14. REAR-SW BOARD

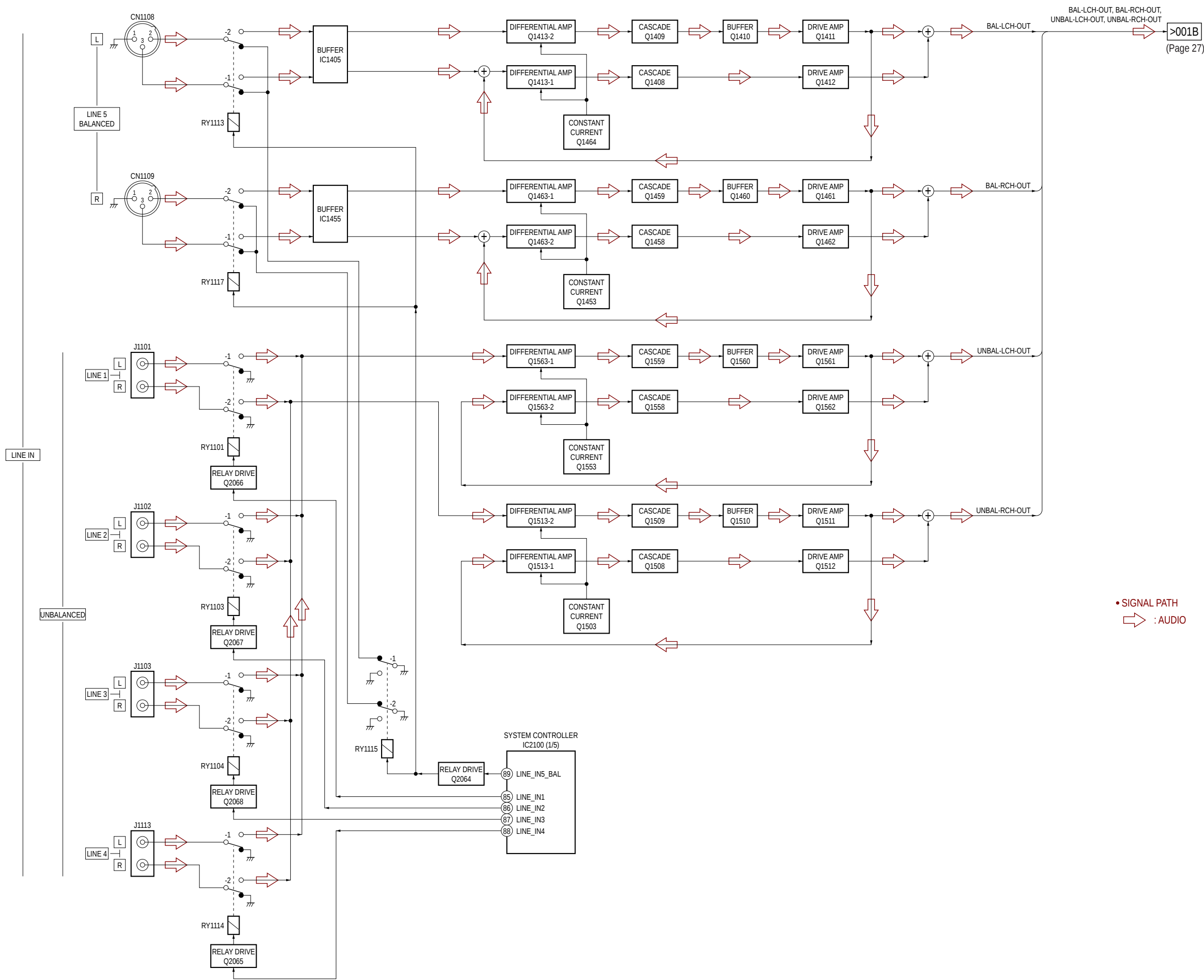


• Wire setting < Fig. C >

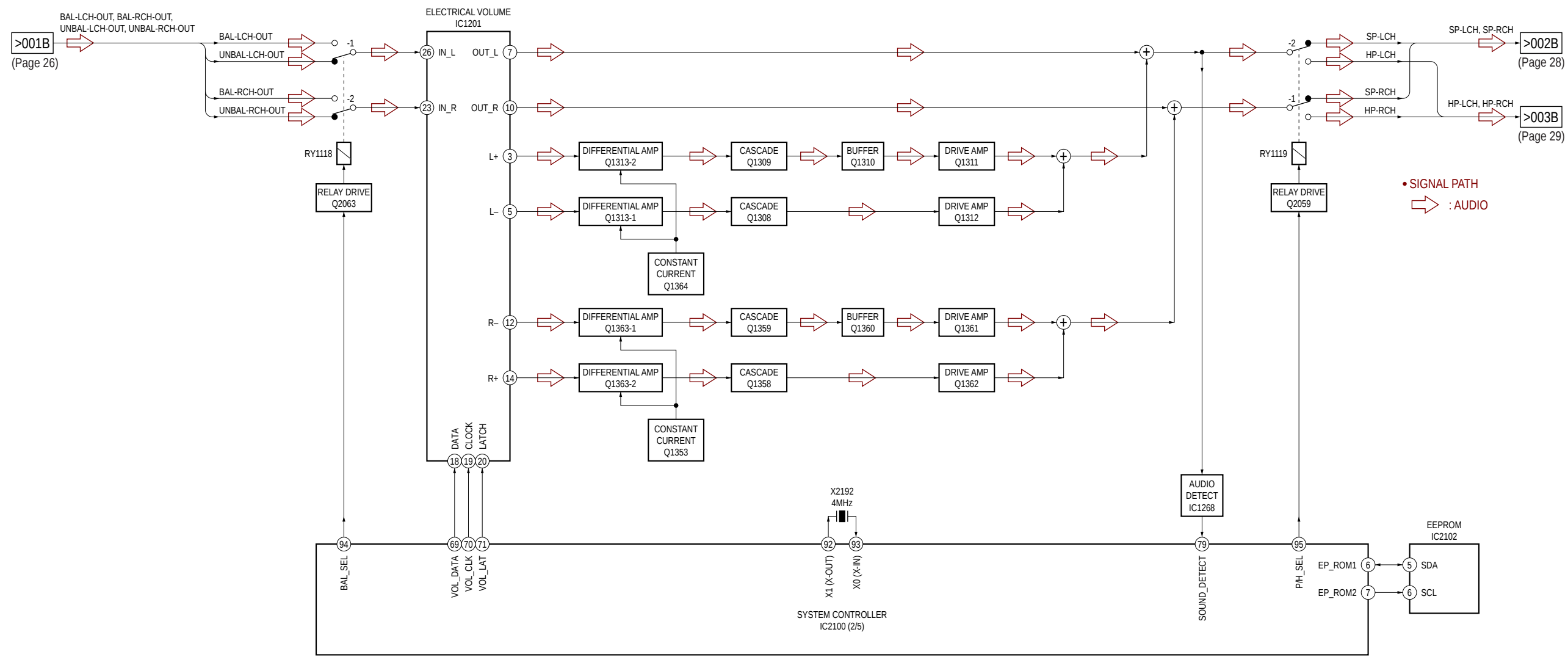


SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM - INPUT Section -



4-2. BLOCK DIAGRAM - ELECTRICAL VOLUME Section -



4-5. BLOCK DIAGRAM - POWER SUPPLY Section -

