

STEREO AMPLIFIER

A-S1000

SERVICE MANUAL

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 any 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 specifications 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 buss in the unit (heavy gauge black wires connect to this buss).

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

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This Service Manual uses recycled paper.



■ TO SERVICE PERSONNEL

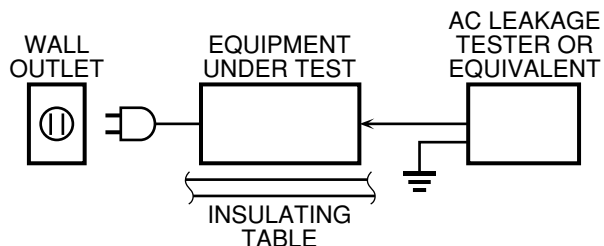
1. Critical Components Information

Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.

2. Leakage Current Measurement (For 120V Models Only)

When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohms shunted by 0.15 μ F.



- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



For U model

“CAUTION”

“F1: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 10A, 125V FUSE.”

For C model

CAUTION

F1: REPLACE WITH SAME TYPE 10A, 125V FUSE.

ATTENTION

F1: UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE 10A, 125V.

WARNING: CHEMICAL CONTENT NOTICE!

This product contains chemicals known to the State of California to cause cancer, or birth defects or other reproductive harm.

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

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.

About lead free solder / 無鉛ハンダについて

All of the P.C.B.s installed in this unit and solder joints are soldered using the lead free solder.

Among some types of lead free solder currently available, it is recommended to use one of the following types for the repair work.

- Sn + Ag + Cu (tin + silver + copper)
- Sn + Cu (tin + copper)
- Sn + Zn + Bi (tin + zinc + bismuth)

Caution:

As the melting point temperature of the lead free solder is about 30°C to 40°C (50°F to 70°F) higher than that of the lead solder, be sure to use a soldering iron suitable to each solder.

本機に搭載されているすべての基板およびハンダ付けによる接合部は無鉛ハンダでハンダ付けされています。

無鉛ハンダにはいくつかの種類がありますが、修理時には下記のような無鉛ハンダの使用を推奨します。

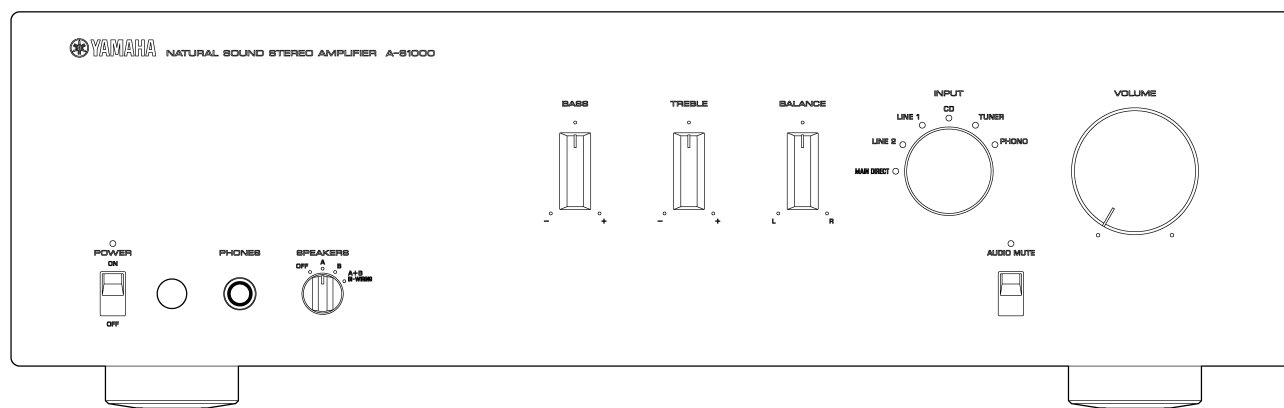
- Sn+Ag+Cu(錫+銀+銅)
- Sn+Cu(錫+銅)
- Sn+Zn+Bi(錫+亜鉛+ビスマス)

注意：

無鉛ハンダの融点温度は通常の鉛入りハンダに比べ30～40℃程度高くなっていますので、それぞれのハンダに合ったハンダごてをご使用ください。

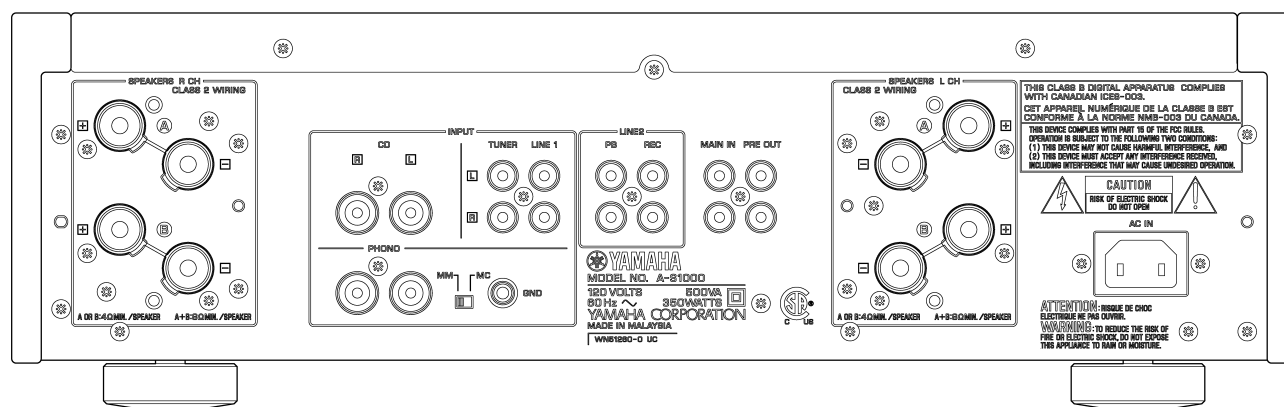
FRONT PANEL

A-S1000 (U, C, R, T, K, A, B, G, L, J models)

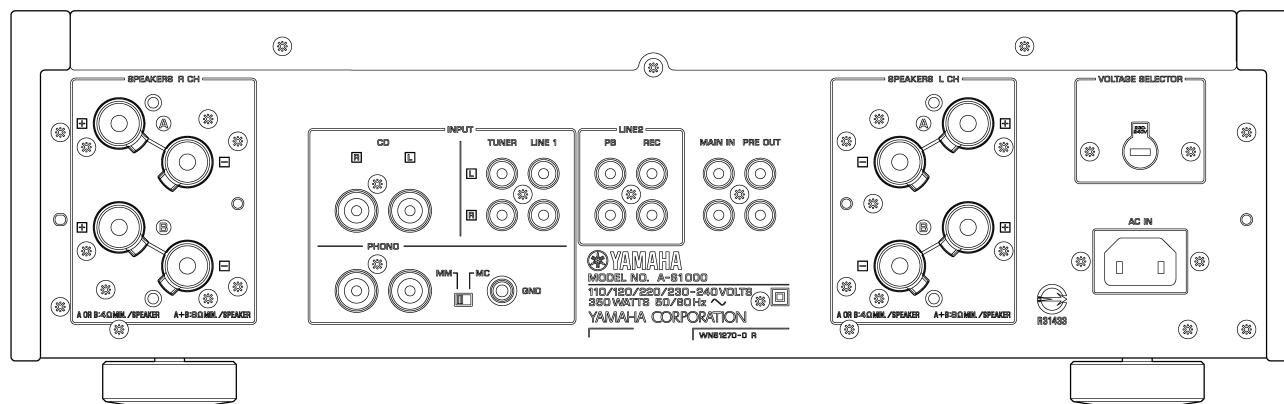


REAR PANELS

A-S1000 (U, C models)

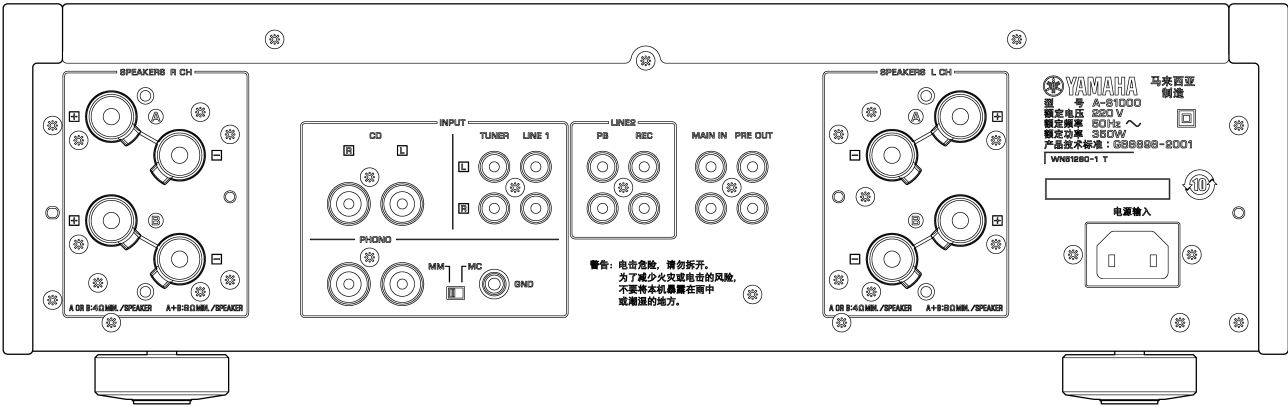


A-S1000 (R model)

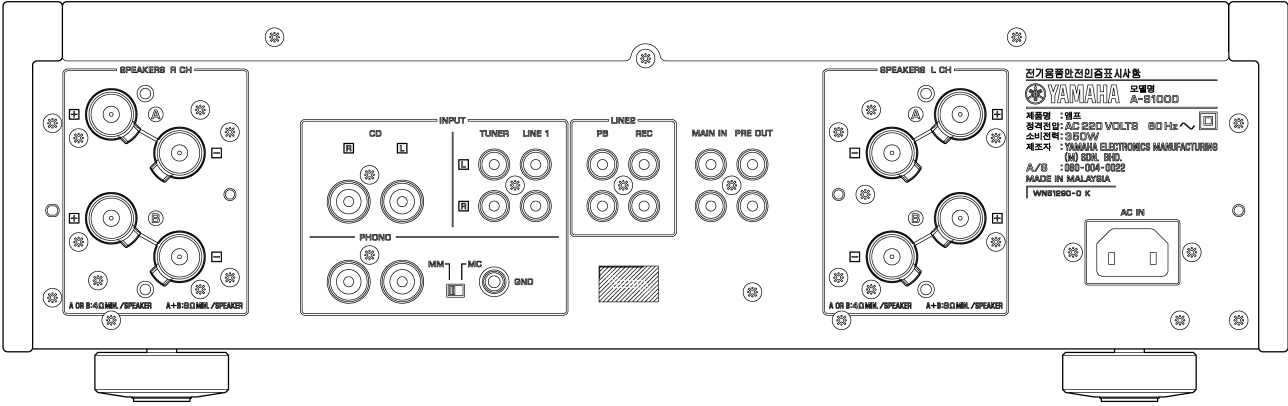


A-S1000

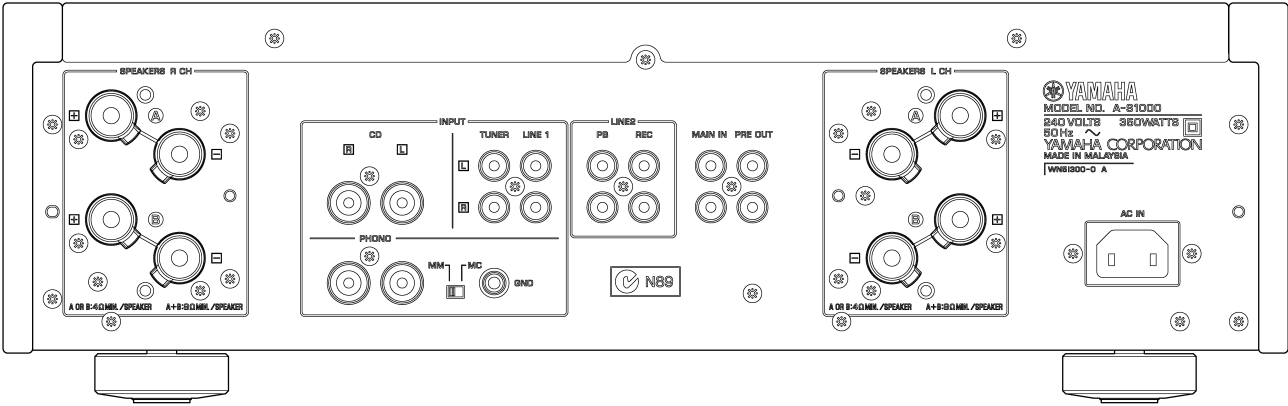
A-S1000 (T model)



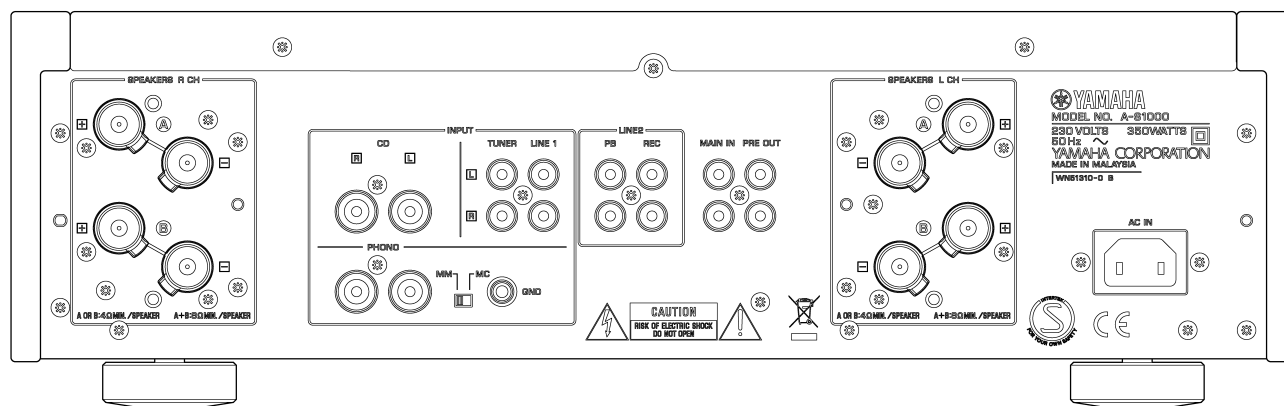
A-S1000 (K model)



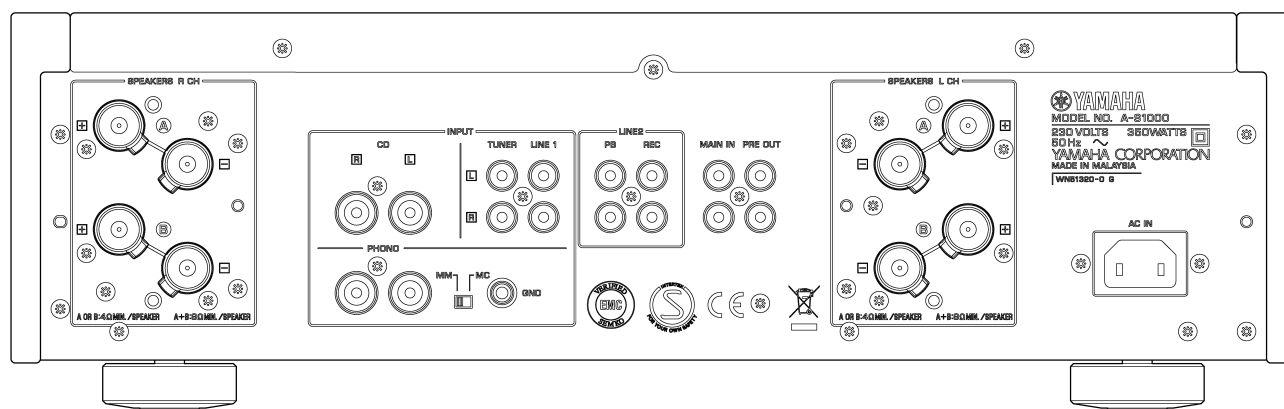
A-S1000 (A model)



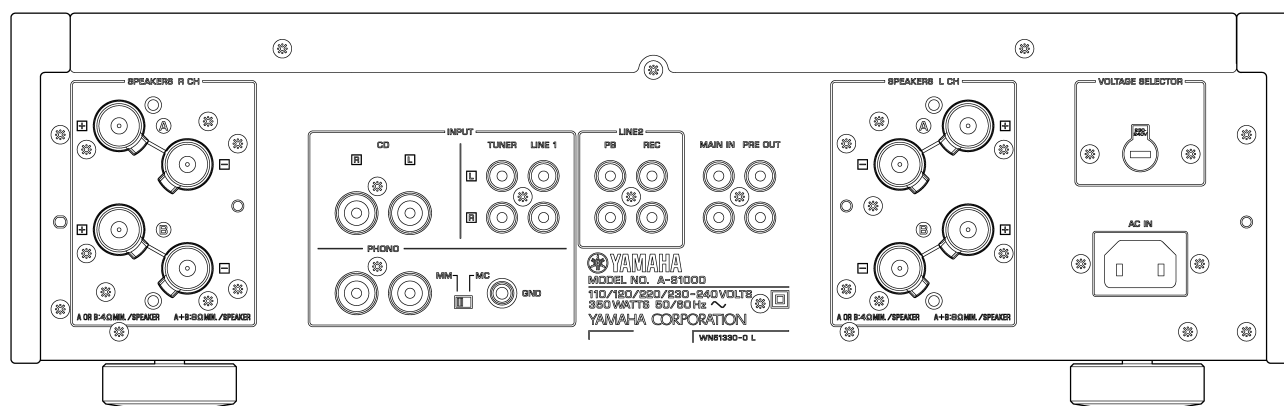
A-S1000 (B model)



A-S1000 (G model)

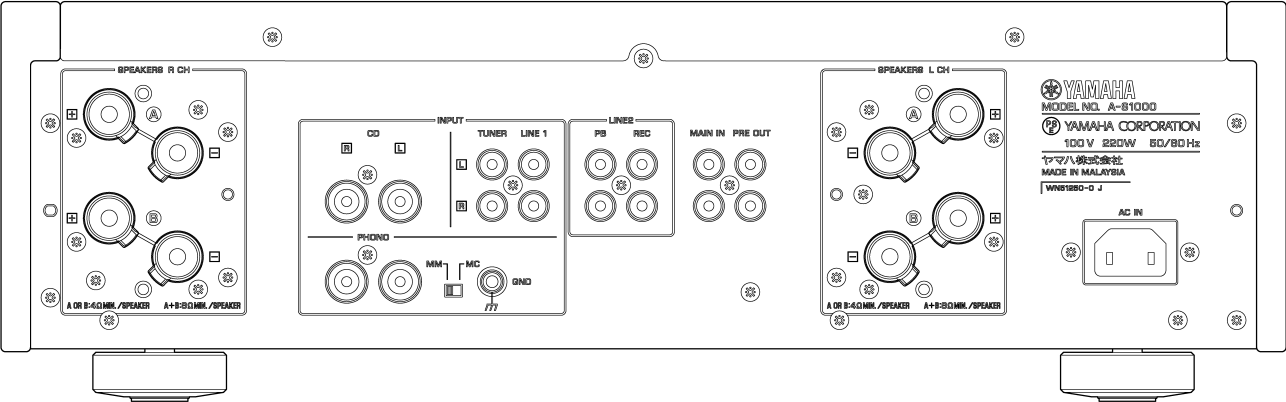


A-S1000 (L model)



A-S1000

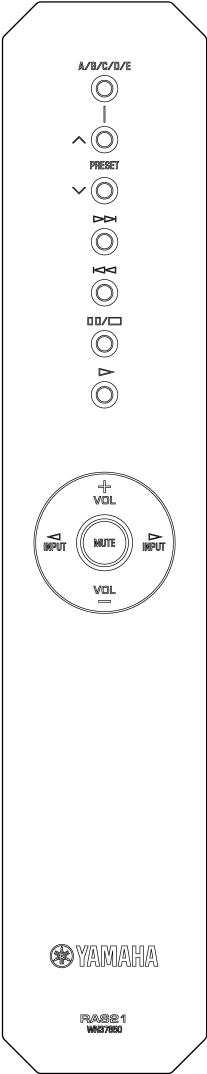
A-S1000 (J model)



■ REMOTE CONTROL PANELS

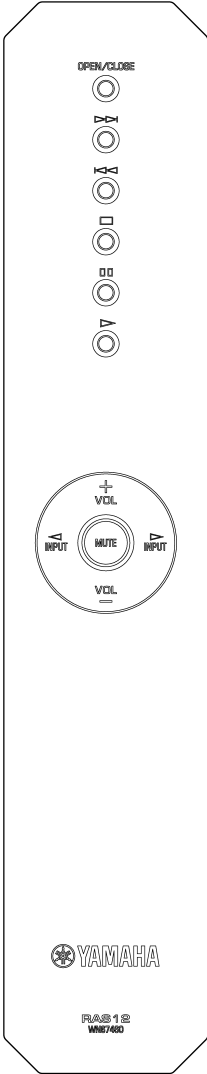
RAS21

(U, C, R, T, A, B, G, L models)



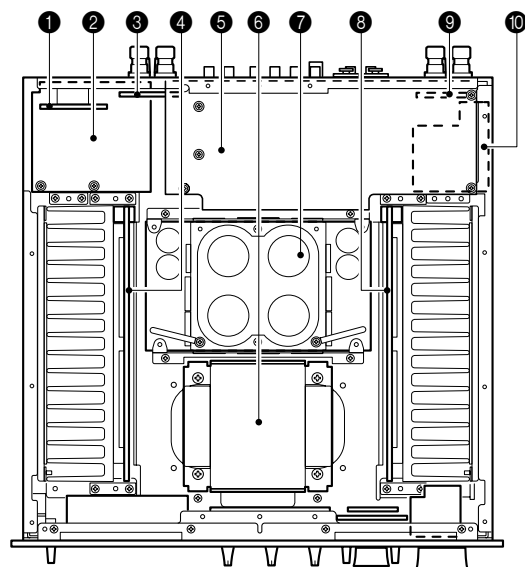
RAS12

(K, J models)



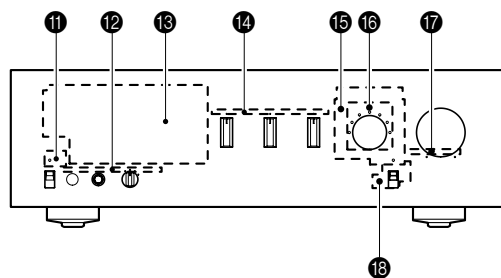
INTERNAL VIEW

Top view

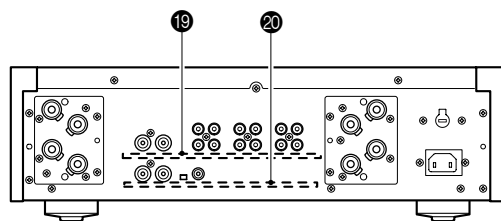


- ① FRONT (14) P.C.B. (R, L models)
- ② FUNCTION (3) P.C.B.
- ③ FRONT (13) P.C.B.
- ④ MAIN (2) P.C.B.
- ⑤ FUNCTION (2) P.C.B.
- ⑥ POWER TRANSFORMER
- ⑦ MAIN (3) P.C.B.
- ⑧ MAIN (1) P.C.B.
- ⑨ FRONT (12) P.C.B.
- ⑩ FRONT (11) P.C.B.
- ⑪ FRONT (9) P.C.B.
- ⑫ FRONT (2) P.C.B.
- ⑬ FRONT (1) P.C.B.
- ⑭ FRONT (3) P.C.B.
- ⑮ FRONT (6) P.C.B.
- ⑯ FRONT (5) P.C.B.
- ⑰ FRONT (4) P.C.B.
- ⑱ FRONT (7) P.C.B.
- ⑲ FUNCTION (1) P.C.B.
- ⑳ FRONT (10) P.C.B.

Front view



Rear view



4. Removal of Front Frame Ass'y

- a. Remove 4 screws (⑦) to remove the frame top. (Fig. 3)
- b. Remove 8 screws (⑧). (Fig. 3)
- c. Remove CB501, CB504, CB517, CB519, CB521 and SW1-2. (Fig. 3)
- d. Remove the front frame ass'y. (Fig. 3)

4. フロントフレームASSYの外し方

- a. ⑦のネジ4本を外し、フレームトップを取り外します。(Fig. 3)
- b. ⑧のネジ8本を外します。(Fig. 3)
- c. CB501、CB504、CB517、CB519、CB521、SW1-2を外します。(Fig. 3)
- d. フロントフレームASSYを取り外します。(Fig. 3)

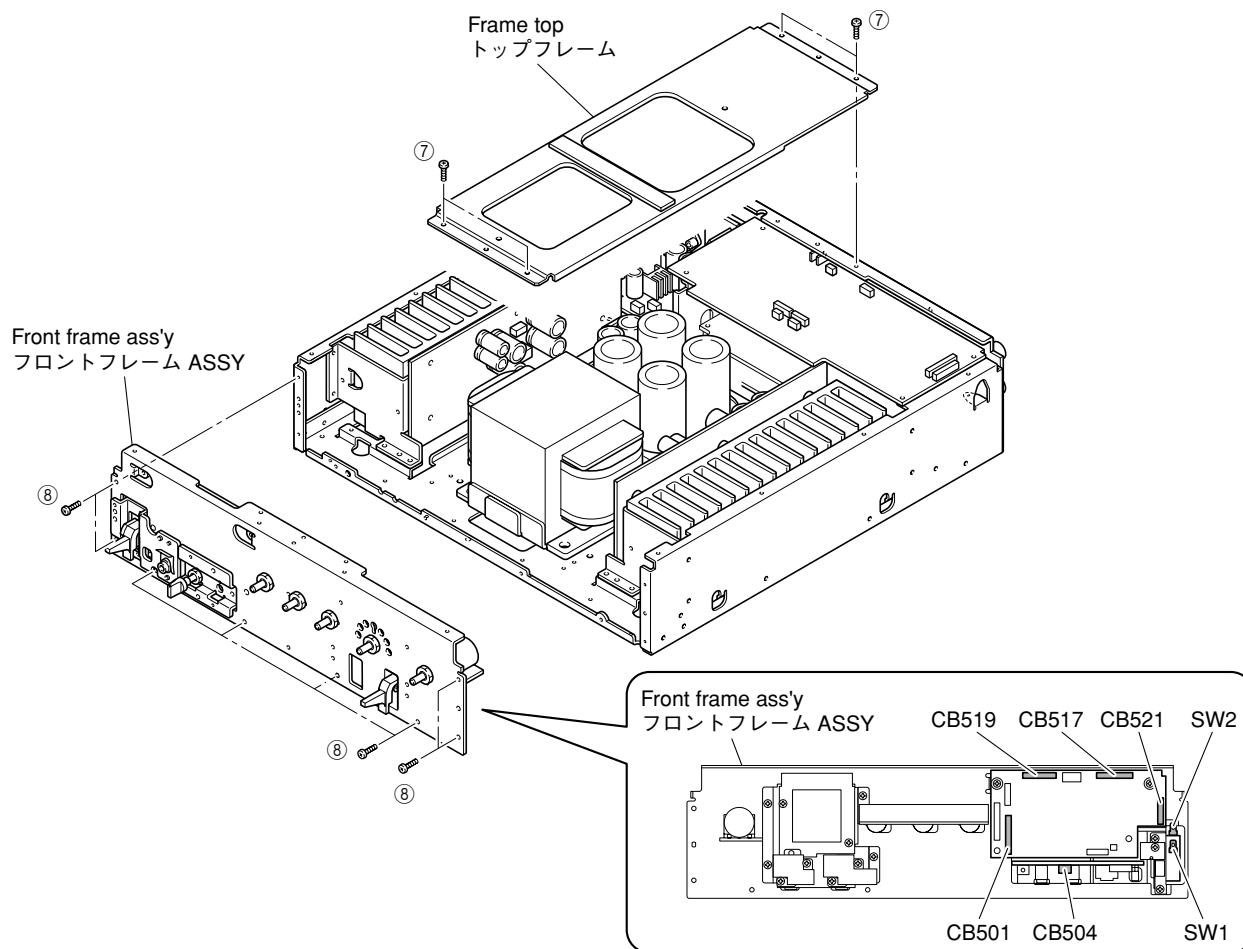


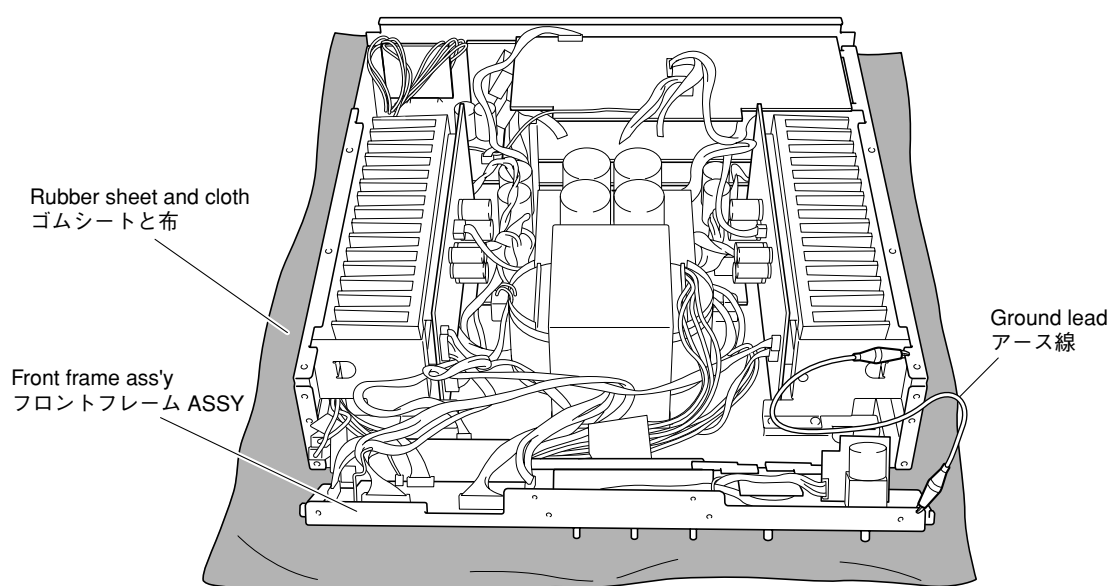
Fig. 3

When checking the P.C.B.:

- Put the rubber sheet and cloth over this unit. Then place the P.C.B.s upside down on the cloth and check it. (Fig. 4)
- Reconnect all cables (connectors) that have been disconnected.
- In this unit, the ground of the front frame ass'y is connected to the chassis. When the front frame ass'y is removed from the chassis, connect the ground point to the chassis, using a ground lead wire or the like. (Fig. 4)

P.C.B.をチェックをする場合には：

- 本機の上にゴムシートと布を敷き、その上にP.C.B.を裏返しに置いてチェックします。(Fig. 4)
- 外したケーブル(コネクター)をすべて接続します。
- 本機ではフロントフレームASSYのアースがシャーシに接続されています。フロントフレームASSYをシャーシより取り外した場合は、アース線等でシャーシに接続してください。(Fig. 4)

**Fig. 4**

● When installing the power unit:

When installing the power unit, be very careful not to cause any damage to the cable at the bottom with the end of the screw. (Fig. 6)

● パワーユニットを取り付ける場合：

パワーユニットを取り付ける場合、ネジの先端で底面のケーブルにキズ等付けないよう十分注意してください。(Fig. 6)

Bottom view

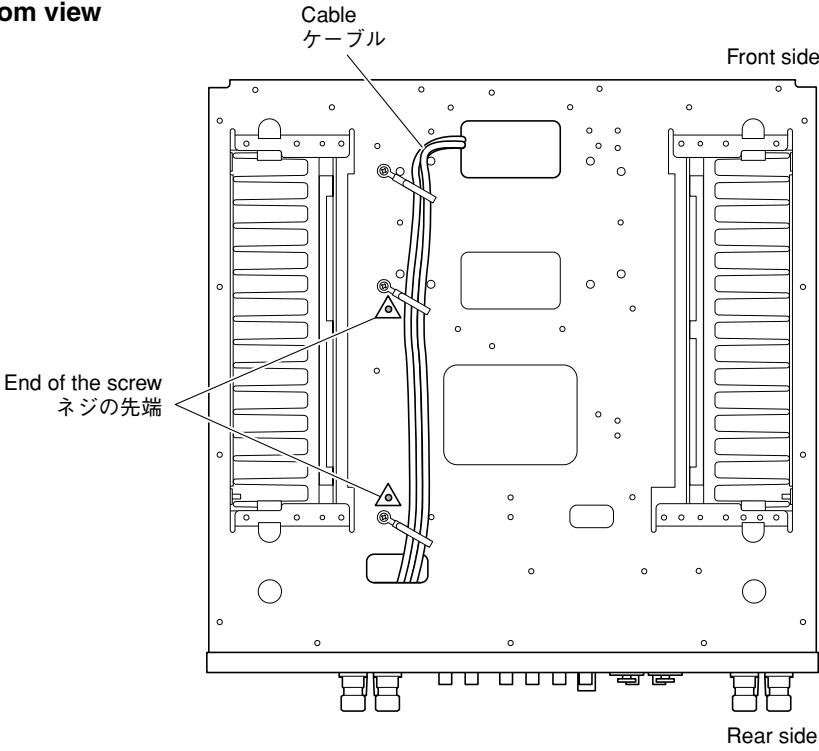


Fig. 6

7. Removal of FUNCTION (2) P.C.B.

- Remove 4 screws (16) and screw (17). (Fig. 8)
- Remove CB401-404, CB407 and CB408. (Fig. 8)
- Remove the connector TR. (Fig. 8)
- Disconnect the cable (W4004) from the bottom. (Fig. 9)
- Remove FUNCTION (2) P.C.B.. (Fig. 8)

7. FUNCTION (2) P.C.B.の外し方

- ⑬のネジ4本、⑭のネジ1本を外します。(Fig. 8)
- CB401-404、CB407、CB408を外します。(Fig. 8)
- TRコネクターを外します。(Fig. 8)
- 底面のケーブル(W4004)を外します。(Fig. 9)
- FUNCTION(2)P.C.B.を取り外します。(Fig. 8)

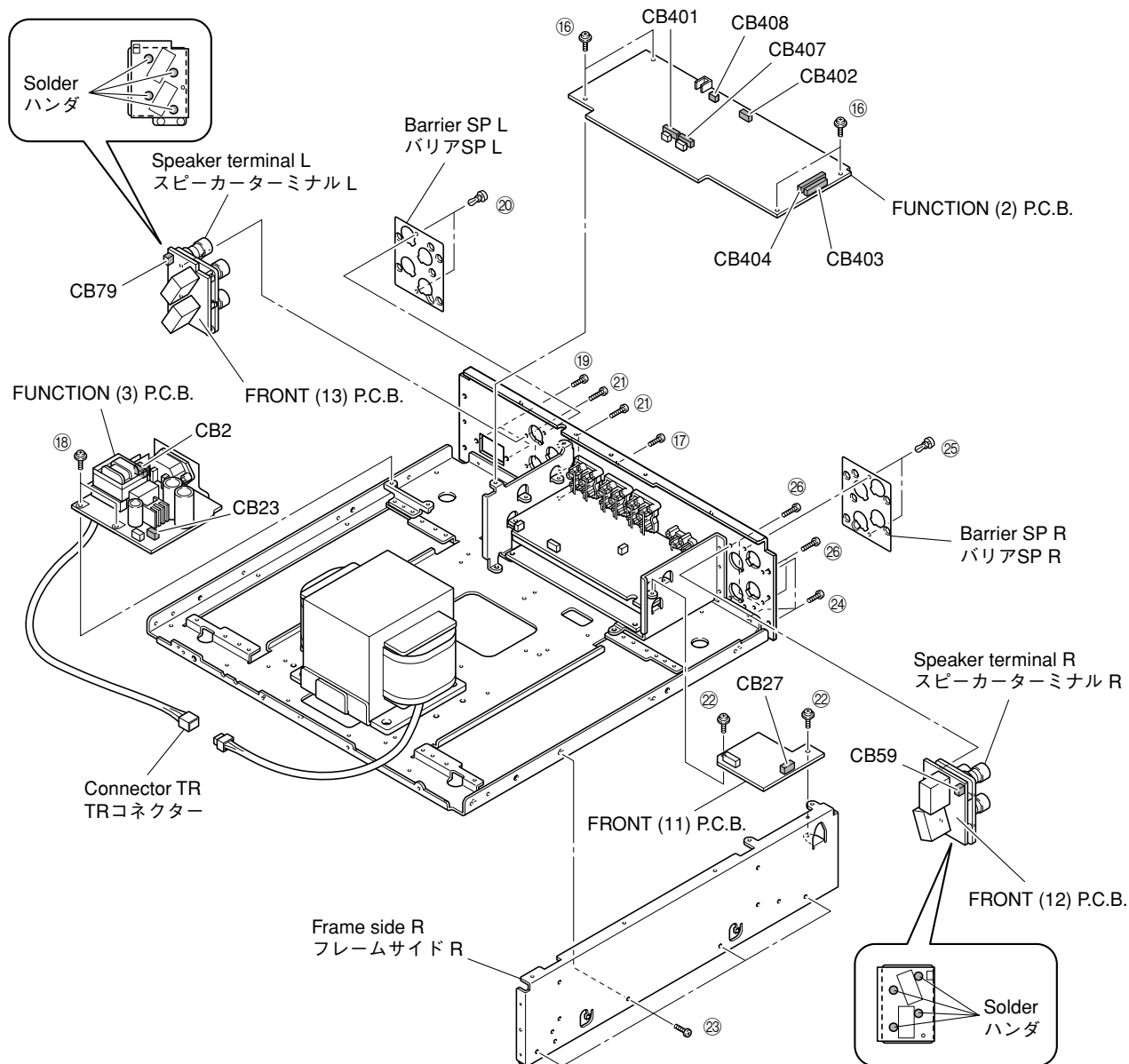


Fig. 8

9. Removal of FUNCTION (1) P.C.B. and FRONT (10) P.C.B.

- Remove 9 screws (27), a screw (28), and 2 screws (29). (Fig. 10)
- Remove CB302 and CB305. (Fig. 10)
- Remove the cable (W3004) from the bottom. (Fig. 11)
- Remove FUNCTION (1) P.C.B and FRONT (10) P.C.B. together with the support PRE L/R. (Fig. 10)

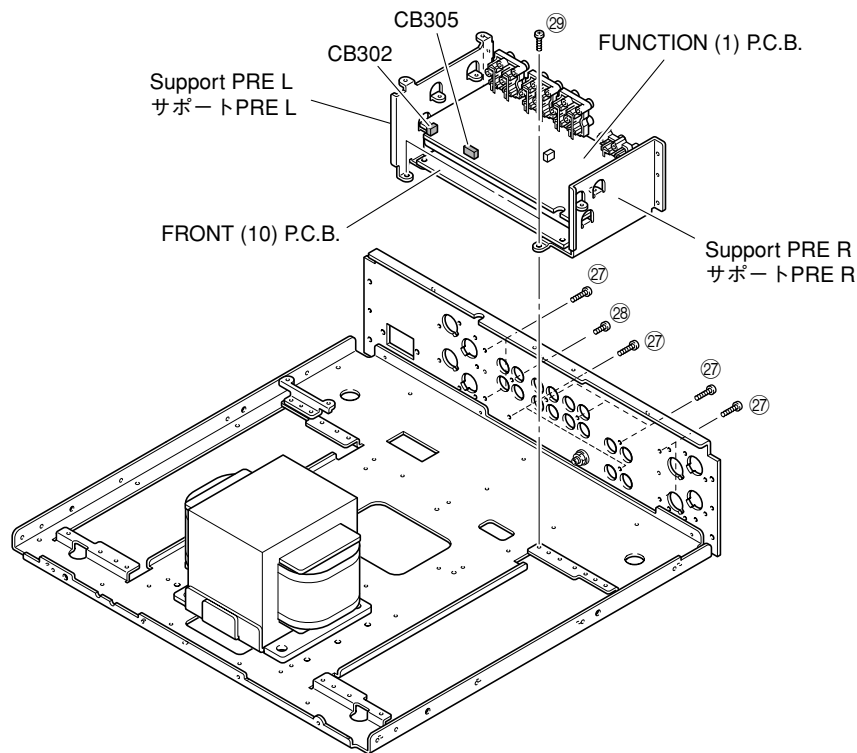


Fig. 10

9. FUNCTION (1) P.C.B.およびFRONT (10) P.C.B.の外し方

- 27のネジ9本、28のネジ1本、29のネジ2本を外します。(Fig. 10)
- CB302、CB305を外します。(Fig. 10)
- 底面のケーブル(W3004)を外します。(Fig. 11)
- FUNCTION (1) P.C.B.およびFRONT (10) P.C.B.をサポートPRE L/Rと一緒に取り外します。(Fig. 10)

Bottom view

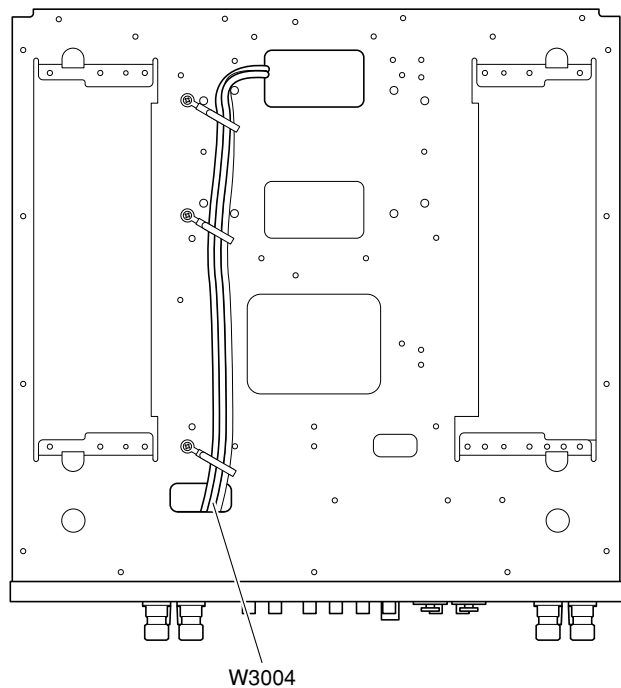


Fig. 11

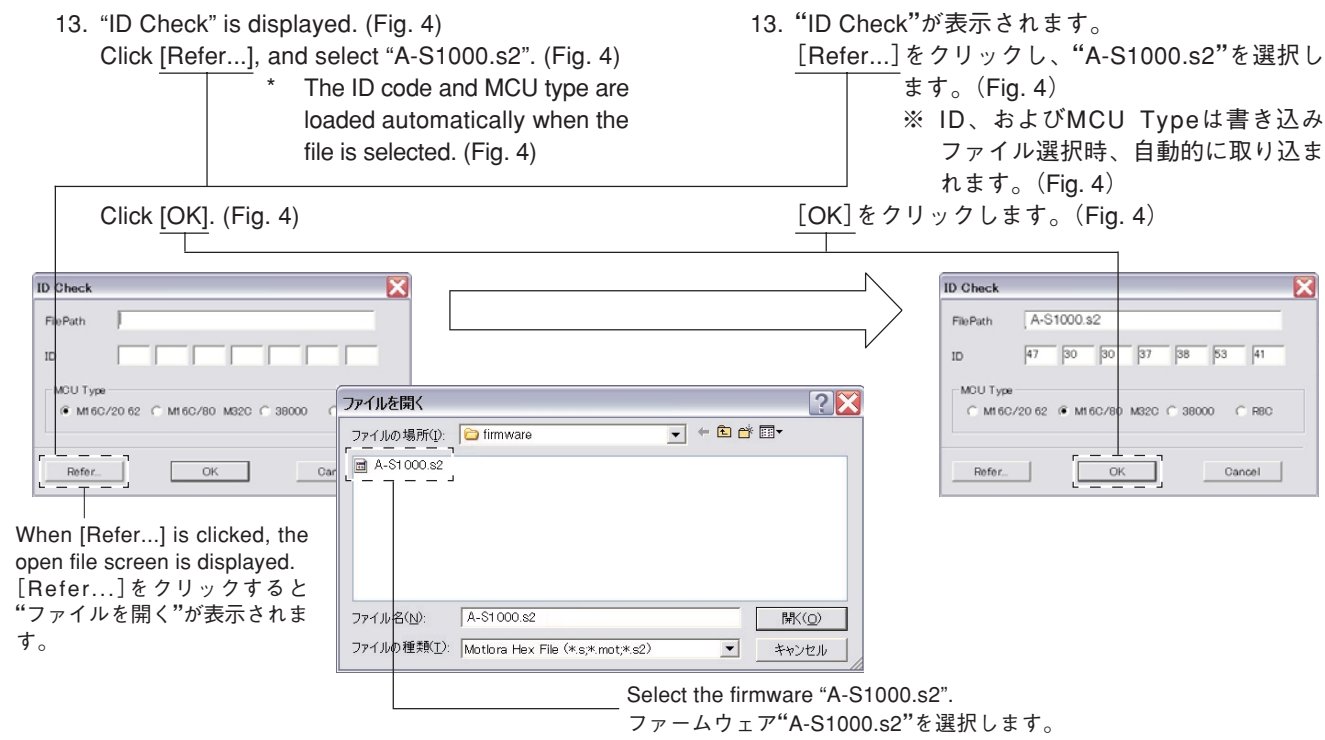


Fig. 4

● Factory Reset

Set back to the factory setting (INPUT: CD).

1. Turn the "BALANCE" knob clockwise fully and then while pressing down the "AUDIO MUTE" switch, set the "POWER ON/OFF" switch to the ON position. (Fig. 7)
2. The INPUT selector LED "CD" will light up and the normal operation will be restored. (Fig. 7)
3. Set the POWER ON/OFF switch to the OFF position to end.

● ファクトリーリセット

工場出荷時の設定 (INPUT: CD) に戻します。

1. "BALANCE"ノブを右いっぱいに戻し、"AUDIO MUTE"スイッチを押し下げながら"POWER ON/OFF"スイッチをONにします。(Fig. 7)
2. INPUTセクターLED"CD"が点灯し、通常動作に戻ります。(Fig. 7)
3. "POWER ON/OFF"スイッチをOFFにして終了します。

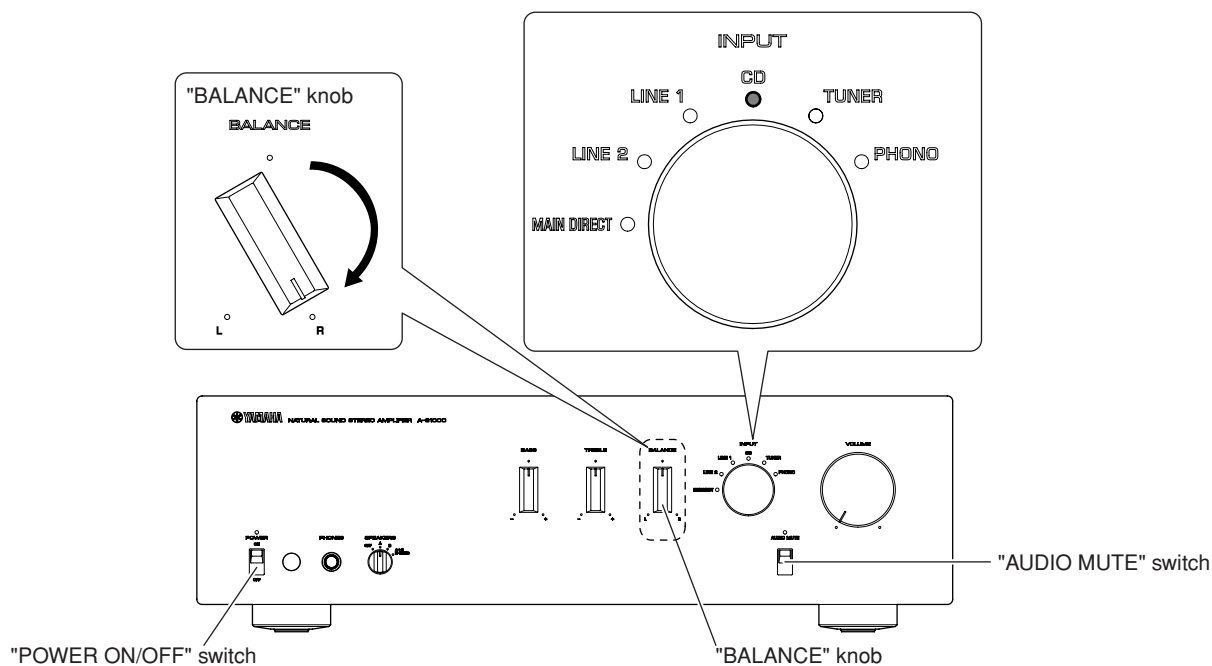
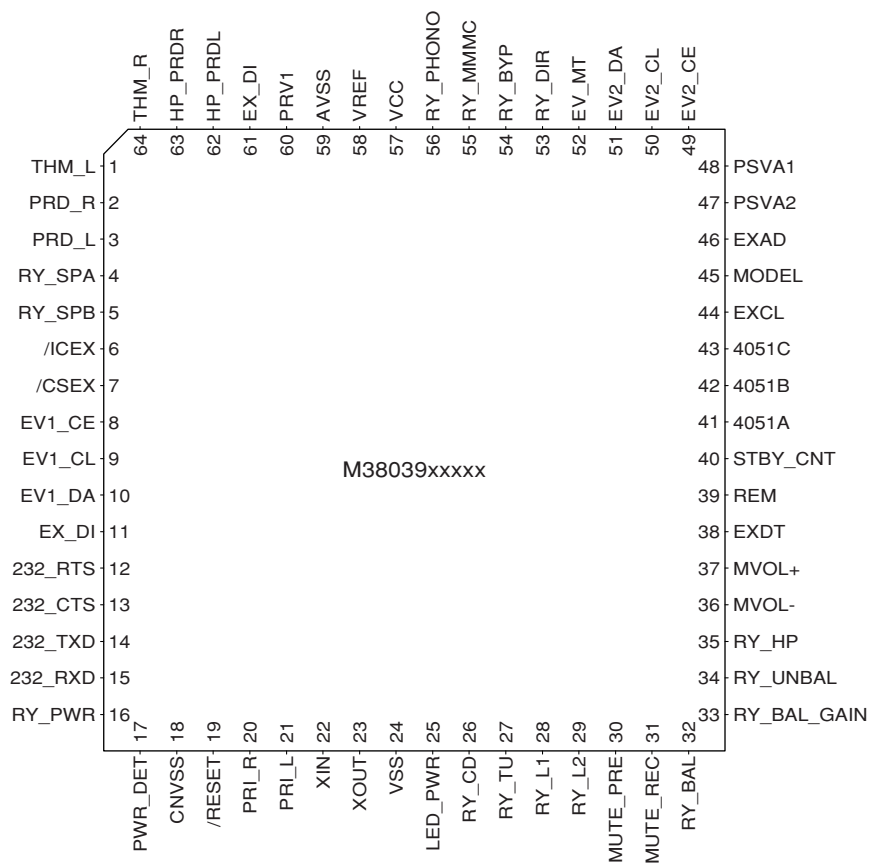
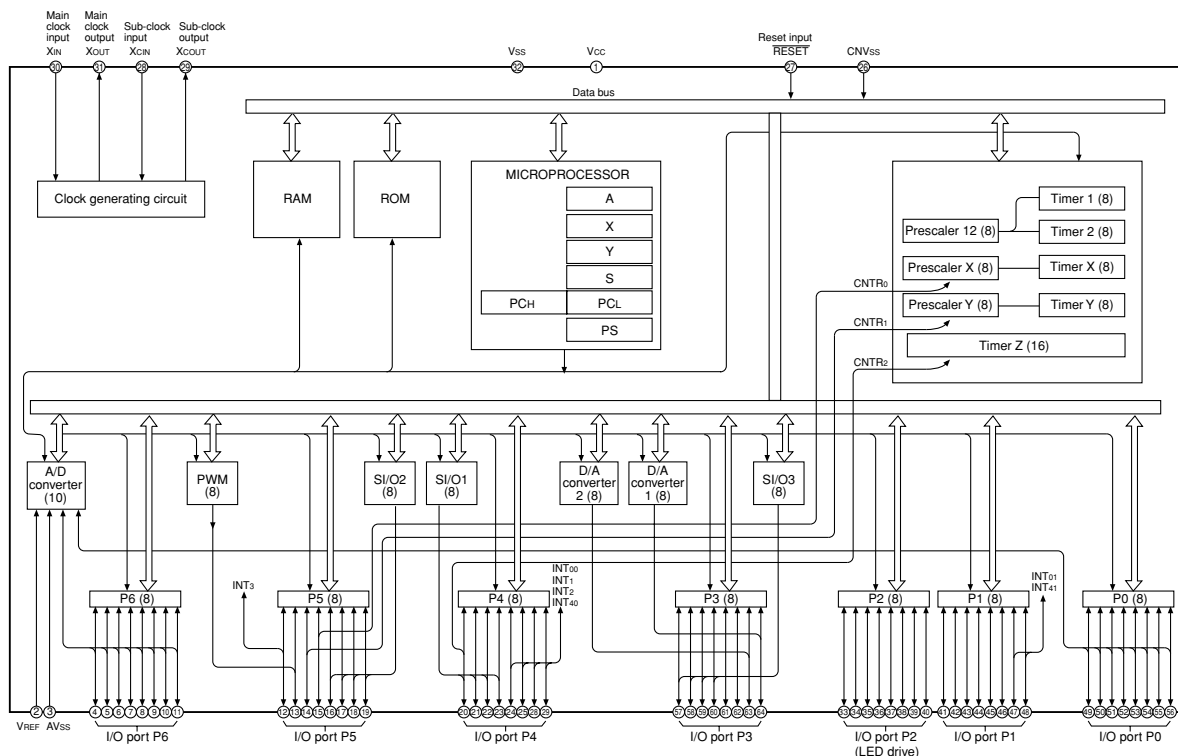


Fig. 7

IC DATA

IC502: M38039xxxxx (FRONT P.C.B.)

Single chip 8-bit microprocessor



Pin No.	Port Name	Function Name (P.C.B.)	I/O	Detail of Function
45	P0-3/AN11	MODEL	AD	MODEL discrimination, so that this port becomes Low when resetting / Hi / [Pull-down]
46	P0-2/AN10	EXAD	AD	COM input of AD MUX
47	P0-1P/AN9	PSVA2	O	Power amp power supply protection_1 (L)
48	P0-0/AN8	PSVA1	O	Power amp power supply protection_2 (R)
49	P3-7/SRDY3	EV2_CE	O	Chip enable for VOLUME IC
50	P3-6/SCLK3	EV2_CL	O	Clock for VOLUME IC
51	P3-5/TXD3	EV2_DA	O	Data out for VOLUME IC
52	P3-4/RXD3	EV_MT	O	Mute for VOLUME IC 1, 2
53	P3-3 (open drain)	RY_DIR	O	Select main direct or other / [Pull-up]
54	P3-2 (open drain)	RY_BYP	O	Hi: Tone bypass, Low: Through tone circuit / [Pull-up]
55	P3-1/DA2	RY_MMMC	O	Control relay for MM/MC
56	P3-0/DA1	RY_PHONO	DA	Input PHONO select relay control
57	VCC	VCC	MCU	
58	VREF	VREF	MCU	
59	AVSS	AVSS	MCU	
60	P6-7/AN7	PRV1	AD	Power amp DC protect detect
61	P6-6/AN6	EX_DI	SI	Data in for extend IC / LC709004A / Max 2MHz when using VDD=4.5 to 6V
62	P6-5/AN5	HP_PRDL	AD	Head phone DC protect detect
63	P6-4/AN4	HP_PRDR	AD	Head phone DC protect detect
64	P6-3/AN3	THM_R	AD	Detect thermometer IC / [Pull-up]

IC504: LC709004A (FRONT P.C.B.)

Serial parameter extension

Pin No.	Port Name	Function Name (P.C.B.)	I/O	Detail of Function
24	P00	LED_CD	O	FUNCTION LED CD
23	P01	LED_TU	O	FUNCTION LED TUNER
22	P02	LED_L1	O	FUNCTION LED LINE1
21	P03	LED_L2	O	FUNCTION LED LINE2
20	P04	LED_BAL	O	FUNCTION LED BALANCE
19	P05	LED_PHONO	O	FUNCTION LED PHONO
18	P06	LED_MDIR	O	FUNCTION LED MAIN_DIRECT
17	P07	LED_MUTE	O	LED MUTE
16	VDDP1	VDDP	O	
15	P10	SW_TRE	O	Treble control
14	P11	SW_BAS	O	Bass control
13	P12	0	O	Initial clear extended IC
12	P13	0	I	—
11	P14	I_HP	I	Detect head phone insert, H: HP non inserted / L: HP inserted
10	P15	I_SW_BAL_GAIN	I	Balance gain select SW
9	P16	I_MUTE	I	Detect switch for MUTE
8	P17	I_MMMC	I	Detect switch MMMC, Hi: MC / Low: MM
7	VSS	VSS		
6	RES#	/RES		
5	VDD	VDD		
4	CS#	/CS		
3	CLK#	/CLK		
2	DIN	DIN		
1	DOUT	DOUT		

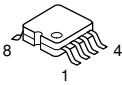
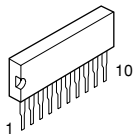
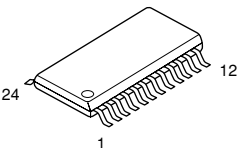
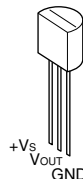
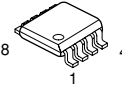
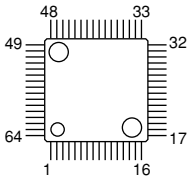
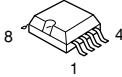
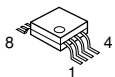
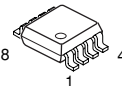
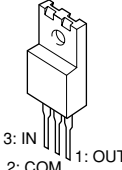
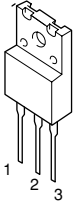
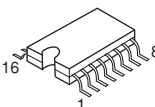
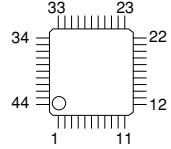
IC501: TC74HC4051AFEL (FRONT P.C.B.)

8-channel analog multiplexer/demultiplexer

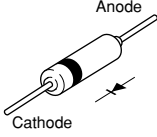
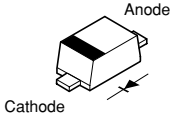
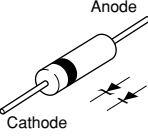
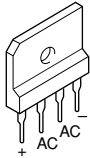
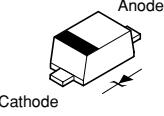
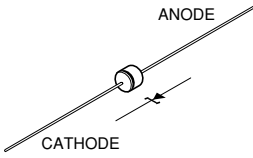
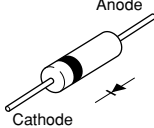
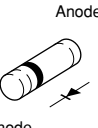
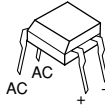
Pin No.	Port Name	Function Name (P.C.B.)	I/O	Detail of Function
16	VCC	+5STBY	O	
15	2	SP_AB	I	SP_AB rotary SW
14	1	HPTRIM	I	HP_TRIM rotary SW
13	0	CNTR_TAP	I	TREBLE, BASS, L/R BALANCE reference of center TAP
12	3	LRBAL	I	LR_BALANCE volume AD
11	A	4051A	I	
10	B	4051B	I	
9	C	4051C	I	
8	GND	MG	I	
7	VEE	MG		
6	INH	MG		
5	5	TONE_BAS		BASS volume AD
4	7	TONE_TRE		TREBLE volume AD
3	COM	EXAD		COM out
2	6	I_SEL		Function selector rotary SW AD
1	4	I_VOL		MAIN VOLUME AD

PIN CONNECTION DIAGRAMS

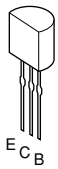
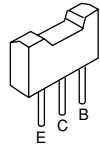
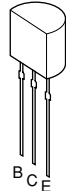
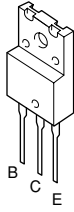
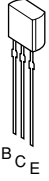
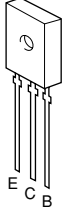
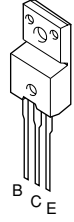
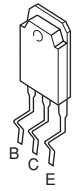
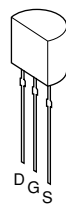
ICs

BA15218F 	LB1641 	LC709004A-TLM-E 	LM61CIZ 	LME49723MA 
M38039xxxx 	NE5532DR 	NJM2068MD-TE2 	NJM2082M-TE1 	NJM7812FA 
NJM7912FA 	RH5RE58AA-T1-FA 	TC74HC4051AFEL 	TC94A81UG 	

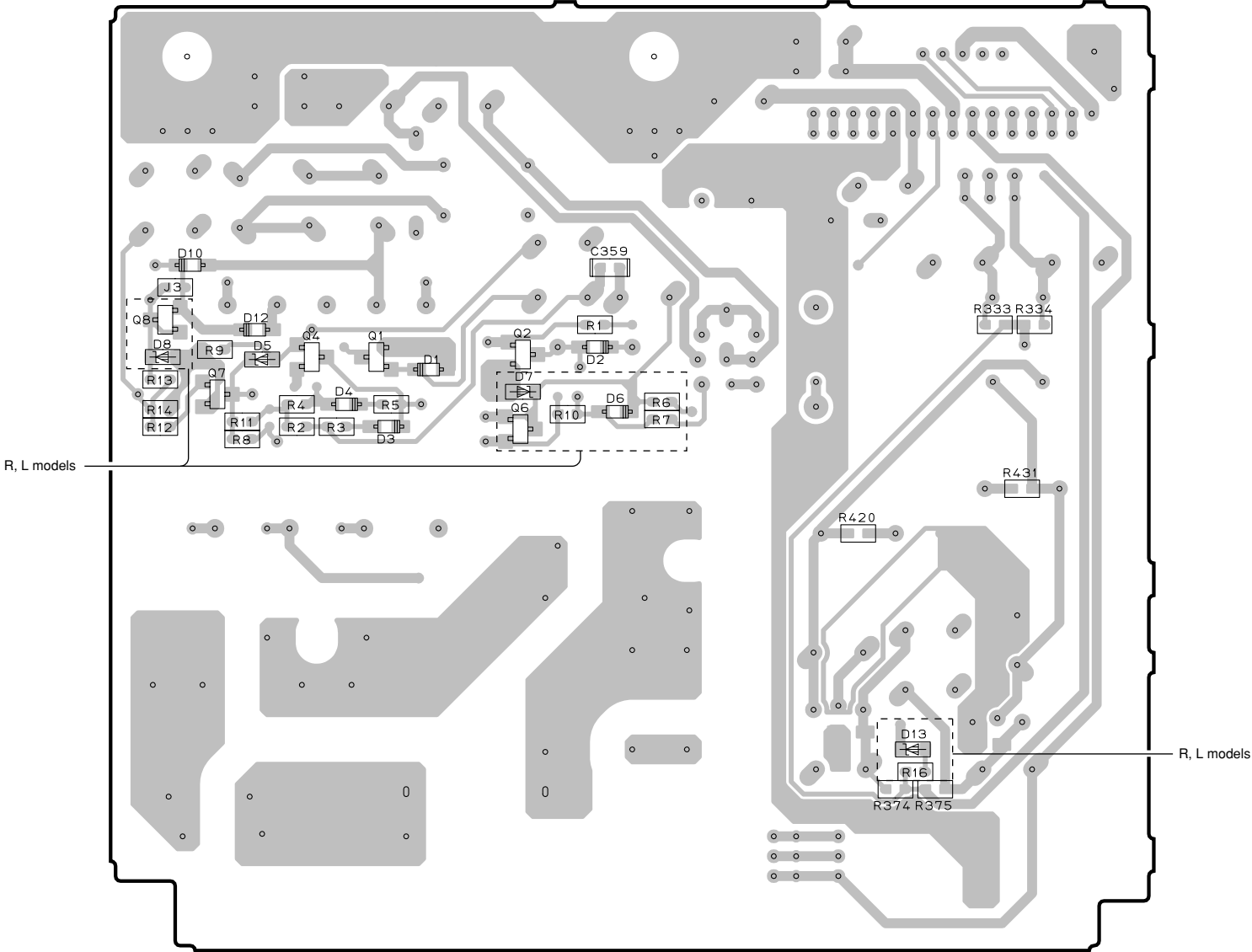
Diodes

1N4002S 1SS244 	1SS355 1SS380 	1T2 	D15XB20-7001 RS603M-B-C-J80 
MA8024 2.4V MA8030-L 2.9V MA8051-L 5.0V MA8051-M 5.1V MA8056 5.6V MA8062-L 6.0V MA8062-M 6.2V	MA8091-L 8.8V MA8100-H 10.3V MA8100-M 10.0V MA8120 12.0V MA8120-L 11.7V MA8120-M 12.0V MA8082-H 8.5V	MA8200-M 20.0V MA8240-H 25.0V MA8300-M 30.0V 	HZS6C1 6.0V 
RB441Q-40 	RLS245 	S1NB60 1.0A 600V 	

• Transistors

2SA970 2SC2240 2SC2878 	2SA1036K 2SD1938F 2SA1312-GR,BL 	2SA1037K 	2SA1708 2SC4488 	2SA1145 2SC2705 
2SA2168 2SC5291 	2SA2180 ST 2SC6081 ST 	2SC1740S 	2SC1846 S 	2SC2412K 
2SC3324-GR,BL 	2SC3852 	2SC4468 O,P,Y 	2SK208-Y 	2SK209 
2SK369 	5HP01C-TB-E 	DTA144EKA DTC114EKA DTC144EKA  1: GND 2: IN 3: OUT	KRA104S-RTK KRC104S-RTK 	

FUNCTION (3) P.C.B. (Side B)



• Semiconductor Location

Ref no.	Location
D1	E4
D2	E4
D3	E4
D4	D4
D5	D4
D6	E4
D7	E4
D8	D4
D10	D3
D12	D4
D13	G5
Q1	E4
Q2	E4
Q4	D4
Q6	E4
Q7	D4
Q8	D4

