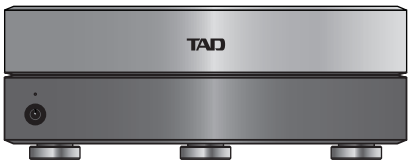
TAD

Service Manual



TAD-M4300

ORDER NO.
CRT4592

POWER AMPLIFIER

TAD-M4300
TAD-M2500

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
TAD-M4300	U	AC 120 V	
TAD-M4300	YS8	AC 220 V to 230 V	
TAD-M4300	L	AC 220 V to 230 V	
TAD-M2500	U	AC 120 V	
TAD-M2500	YS8	AC 220 V to 230 V	
TAD-M2500	L	AC 220 V to 230 V	

For details, refer to "Important Check Points for good servicing".

PIONEER CORPORATION 1-1, Shin-ogura, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0031, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2010**

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SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product may contain a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

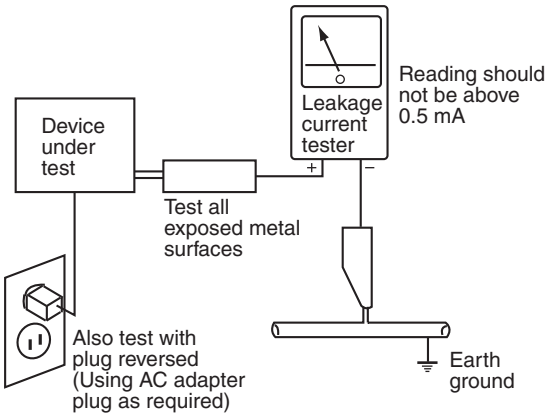
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

1. SERVICE PRECAUTIONS

1.1 NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.
  Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.

- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 ºC.
  Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 ºC in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Do NOT use a soldering iron whose tip temperature cannot be controlled.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:
- Parts numbers of lead-free solder:
  GYP1006 1.0 in dia.
  GYP1007 0.6 in dia.
  GYP1008 0.3 in dia.

2. SPECIFICATIONS
2.1 SPECIFICATIONS

■ Amplifier Section

Power output
- TAD-M4300 ..... 300 W (4 channels simultaneously driven, 20 Hz to 20 kHz, T.H.D., 1.0 %, 4 Ω)
- TAD-M2500 ..... 500 W (2 channels simultaneously driven, 20 Hz to 20 kHz, T.H.D., 1.0 %, 4 Ω)

Rated distortion
- TAD-M4300 ..... Less than 0.05 % (20 Hz to 20 kHz, 150 W, 4 Ω)
- TAD-M2500 ..... Less than 0.05 % (20 Hz to 20 kHz, 250 W, 4 Ω)

Signal-to-Noise Ratio (IHF, short circuited, A network) ..... 112 dB or higher

Frequency response ..... 5 Hz to 50 kHz, –3 dB

Gain (Balance) ..... 29.5 dB

Input terminal (Sensitivity/ Impedance)
- TAD-M4300 ..... 1.16 V/220 kΩ (Balance)
  0.58 V/47 kΩ (Unbalance)
- TAD-M2500 ..... 1.5 V/220 kΩ (Balance)
  0.75 V/47 kΩ (Unbalance)

■ Power section/miscellaneous

Power requirements
- U.S. model ..... AC 120 V, 60 Hz
- Europe, Russia model ..... AC 220 V to 230 V, 50 Hz /60 Hz
- Asia model ..... AC 220 V to 230 V, 50 Hz

Power consumption
- TAD-M4300 ..... 300 W
- TAD-M2500 ..... 250 W

Power consumption in standby ..... 0.5 W or less

Dimensions ..... 440 mm (W) × 170 mm (H) × 467 mm (D)
(17-5/16 in. (W) x 6-5/8 in. (H) x 18-3/8 in. (D))

Weight ..... 43 kg (94.8 lb)

■ Accessories

Power cord 1

Operating Instructions (this document) 1

Note

● Specifications and the design are subject to possible modifications without notice, due to improvements.

To ensure long product life, avoid installing this unit in the following locations:

- Locations exposed to direct sunlight.
- Humid or poorly ventilated areas.
- Areas of extreme temperatures.
- Areas with vibration.
- Dusty or smoky areas.
- Areas exposed to grease fumes, steam or heat (such as a kitchen).

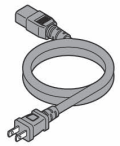
Maintenance

Use a dry polishing cloth to wipe off dust and dirt. If the surface is extremely dirty, wipe with a soft cloth dipped in neutral cleanser diluted five to six times with water and wrung out well. Do not use volatile chemicals such as paint thinner or benzenes, as these may corrode the surface of the panels. Do not use sprays such as insecticides around the unit. If you plan on using a chemical cleaning cloth, read the precautionary statements of the chemical cleaning cloth before using.

Checking what's in the box

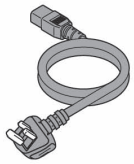
Please check that you have received the following supplied accessories in the accessory box.

● Power cord x 1 (U.S. model)



● Power cord x 1 (Europe, Russia model)

● Power cord x 1 (Asia model)



● Operating Instructions (this document)

2.2 PANEL FACILITIES

Front panel

1. Power indicator

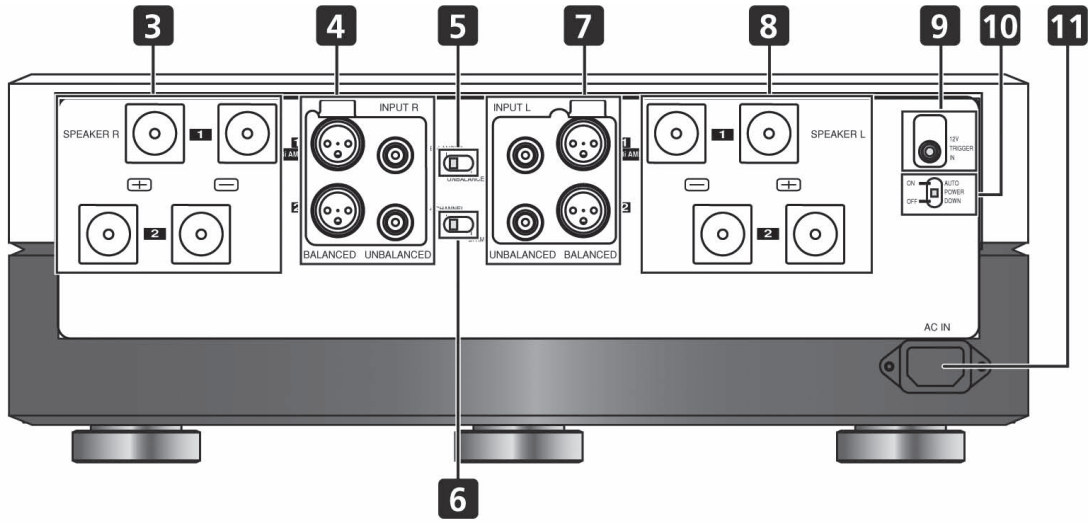
Indicates the unit's power status.
Lighted yellow: unit ready for operation
Lighted red: standby
Flashing yellow: power on processing
Flashing red: malfunction
If the power indicator changes from lighted yellow to flashing red, it indicates the power protection circuit has operated. In this event, disconnect the power cord; for details, consult the section *"Protection circuit"* . If the trouble is still not resolved, consult your dealer.

2. Power switch

Press to turn the power on/standby.

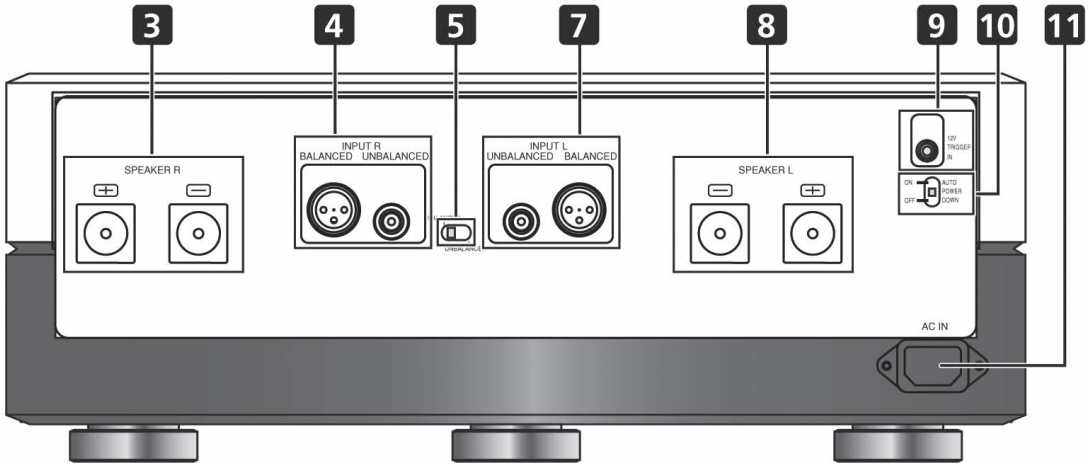
TAD-M4300

Rear panel



TAD-M2500

Rear panel



3. SPEAKER R terminals

Connect speakers with rated impedance of 4 Ω to 16 Ω.

4. INPUT R terminals (BALANCED/UNBALANCED)

Connect to Pre-Amplifier.

5. BALANCED/UNBALANCED input connector selector switch

In accordance with the type of output connectors for the Pre-Amplifier to be connected, set this selector switch to either BALANCED (XLR-3-31) or UNBALANCED (RCA pin jack).

6. Bi-AMP selector switch (4 CHANNEL/Bi AMP) (TAD-M4300 only)

Use this switch when four power amplifiers are connected in two sets for Bi-AMP connection.

7. INPUT L terminals (BALANCED/UNBALANCED)

Connect to Pre-Amplifier.

8. SPEAKER L terminals

Connect speakers with impedance of 4 Ω to 16 Ω.

9. 12V TRIGGER IN connector

This terminal can be used to switch unit power on/standby from an external component.
Input connector: Ø 3.5 mm monaural mini-jack
Operating specifications:

When in the standby mode, if the input signal voltage changes from L to H.....power on mode
When in power on mode, if the input signal voltage changes from H to L.....standby mode
When H level signal is being input to the 12V TRIGGER INPUT connector, the main unit's power switch cannot be used to turn the power off.

10. AUTO POWER DOWN switch (ON/OFF)

When this switch is set to ON, the unit will automatically enter the standby mode after about three hours. When set to OFF, the function is disabled.

11. AC IN connector

Connect the accessory power cord here.

3. BASIC ITEMS FOR SERVICE
3.1 CHECK POINTS AFTER SERVICING

Items to be checked after servicing

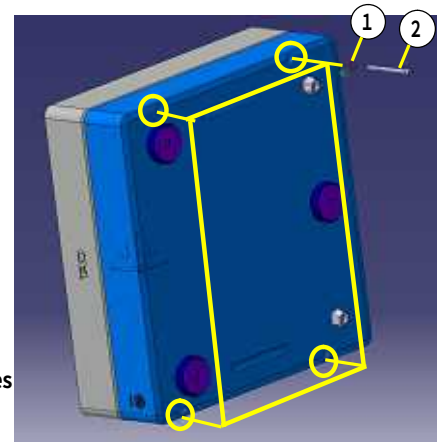
To keep the product quality after servicing, confirm recommended check points shown below.

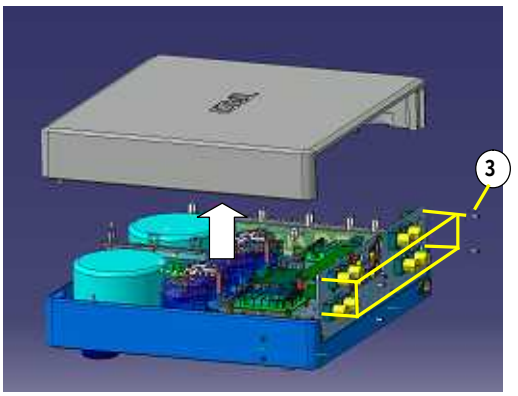
No.	Procedures	Check points
1	Confirm whether the customer complain has been solved.	The customer complain must not be reappeared. Audio and operations must be normal.
2	Check the analog audio playback. (Make the analog connections with a CD player via a preamplifier/ attenuator.	Each channel audio and operations must be normal.
3	Check the appearance of the product.	No scratches or dirt on its appearance after receiving it for service.

See the table below for the items to be checked regarding audio.

Item to be checked regarding audio
Distortion
Noise
Volume too low
Volume too high
Volume fluctuating
Sound interrupted

フクゴウ基板診断
Diagnosis　Complex Unit (CWX3924)





[外装部を外す]
CASE(CLA4944)を外す
Disassemble Case(Cl [Outer Case]

製品を立てて、
①BOLT(CLA4948)を　4本外す。
②WG50FCCを　4個取る。
③リア部ビス (PMH30P100FNI) を4本外す

Put up a product
①Remove Bolts(CLA4948) 4 pieces
②Remove washer(WG50FCC) 4 pieces
③Remove Screws(PMH30P100FNI) 4 pieces

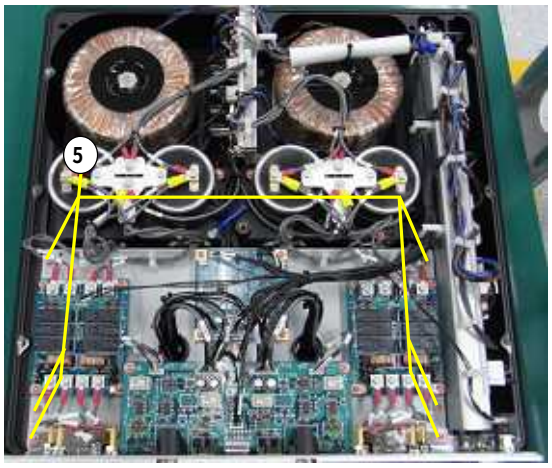
CASE(CLA4944) を上に持ち上げ外す。
Lift up Case to above and take it off .

[シールド部を外す]
Disassemble sheild(CND5643)

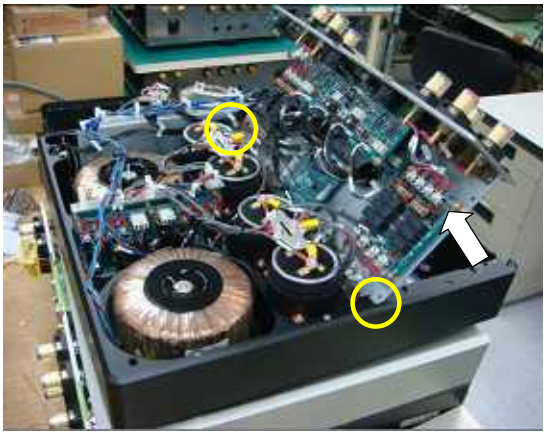
①REARのビスを外す。4本 (PMH30P100FNI)
②Remove screws(PMH30P100FNI) from Panel .　4 pieces

Pnanel No	U model	YS8 model	J model	L model
M2500	CNB3695	CNB3696	CNB3697	CNB3698
M4300	CNB3699	CNB3700	CNB3701	CNB3702

④SHIELD　PLATE　ビスを外す6本 (PMB30P080FCC)
⑤Remove screws(PMB30P080FCC) sheild .　6 pieces



CHASSISのスリットにSHIELD　PLATEを差し込んで、フクゴウユニット診断する。
Plug in the sheild assy to the slits of Chassis to diagnose the Complex unit.



A

B

C

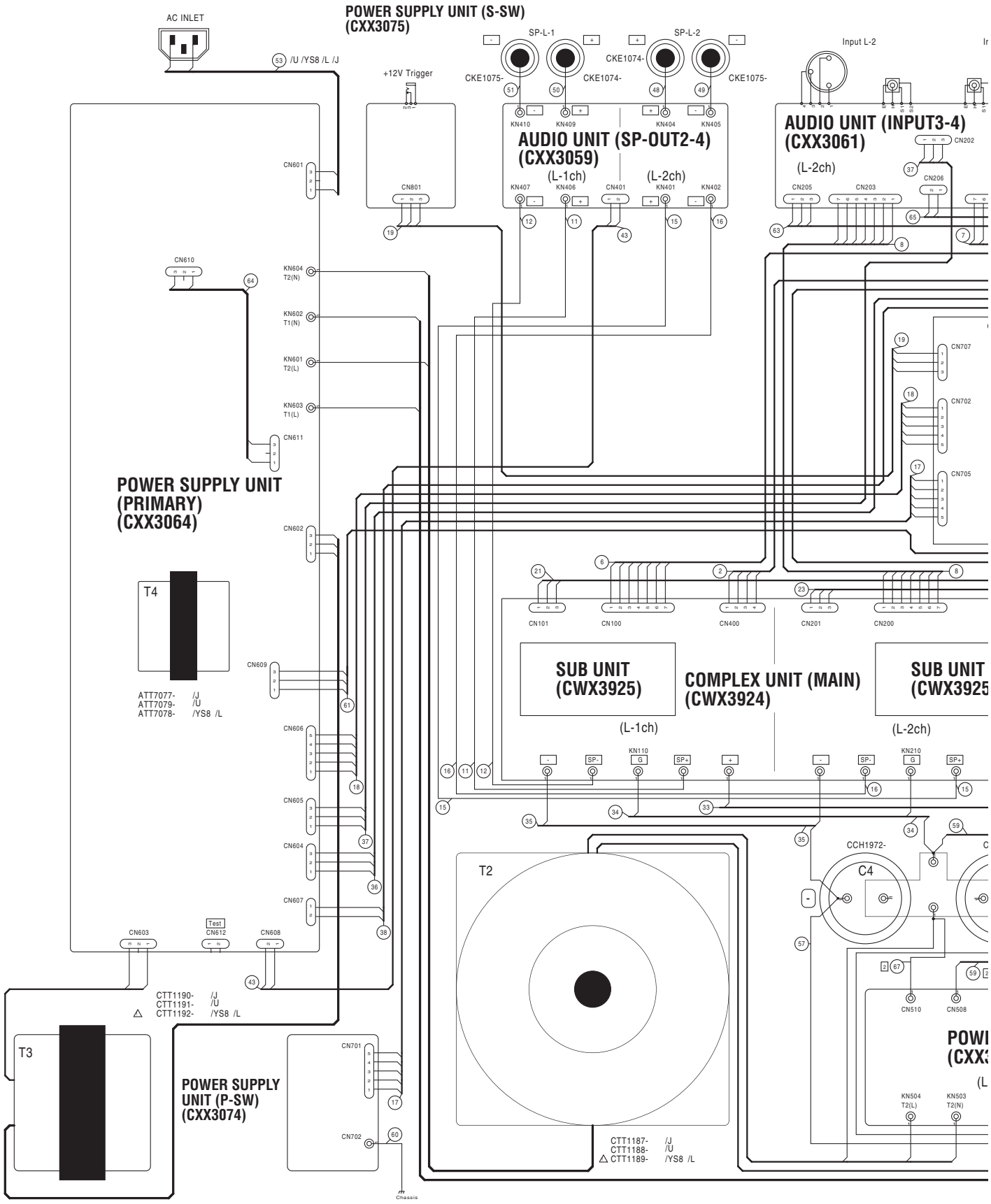
D

E

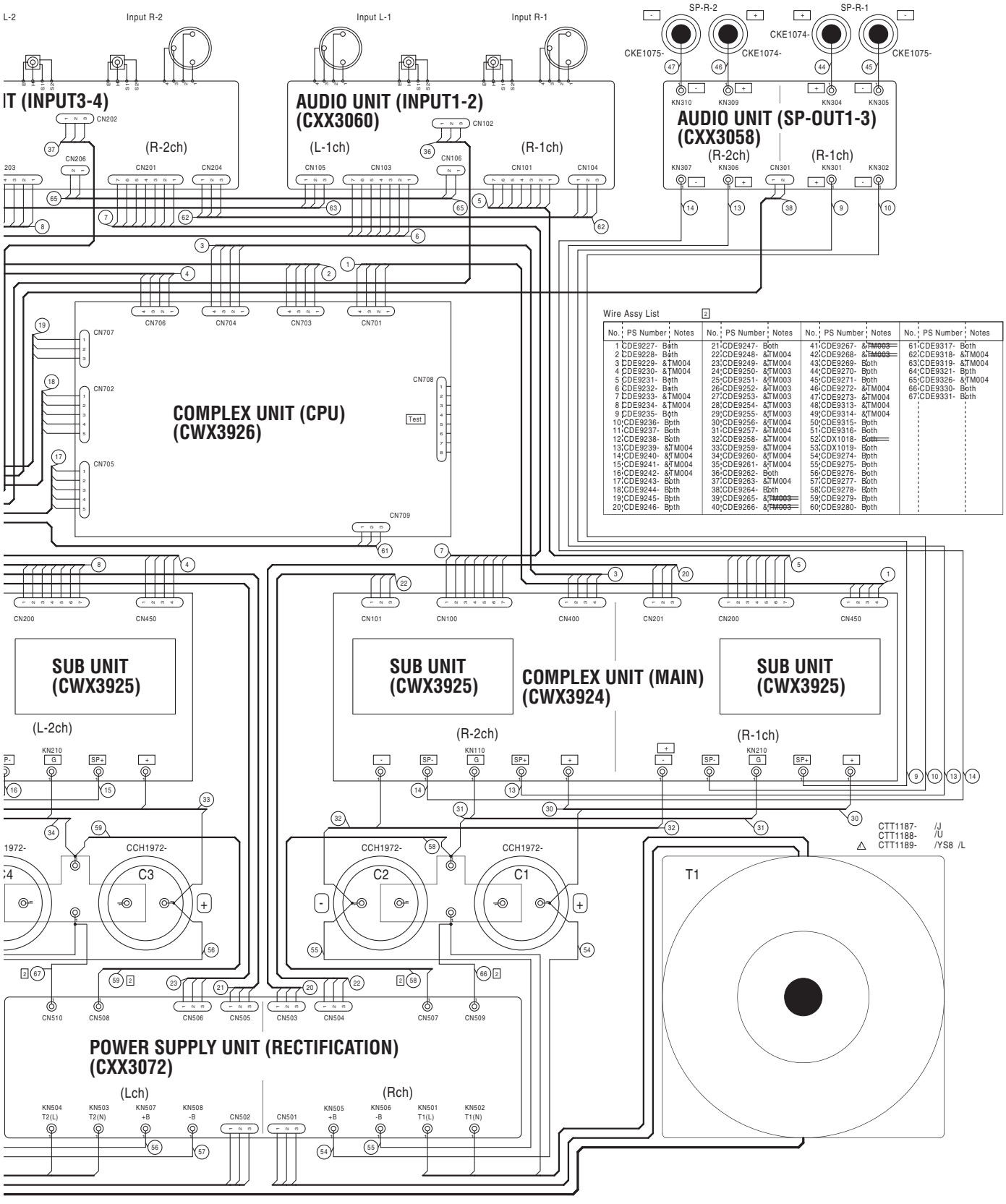
F

5 6 7 8

4. BLOCK DIAGRAM
4.1 OVERALL WIRING DIAGRAM (TAD-M4300)



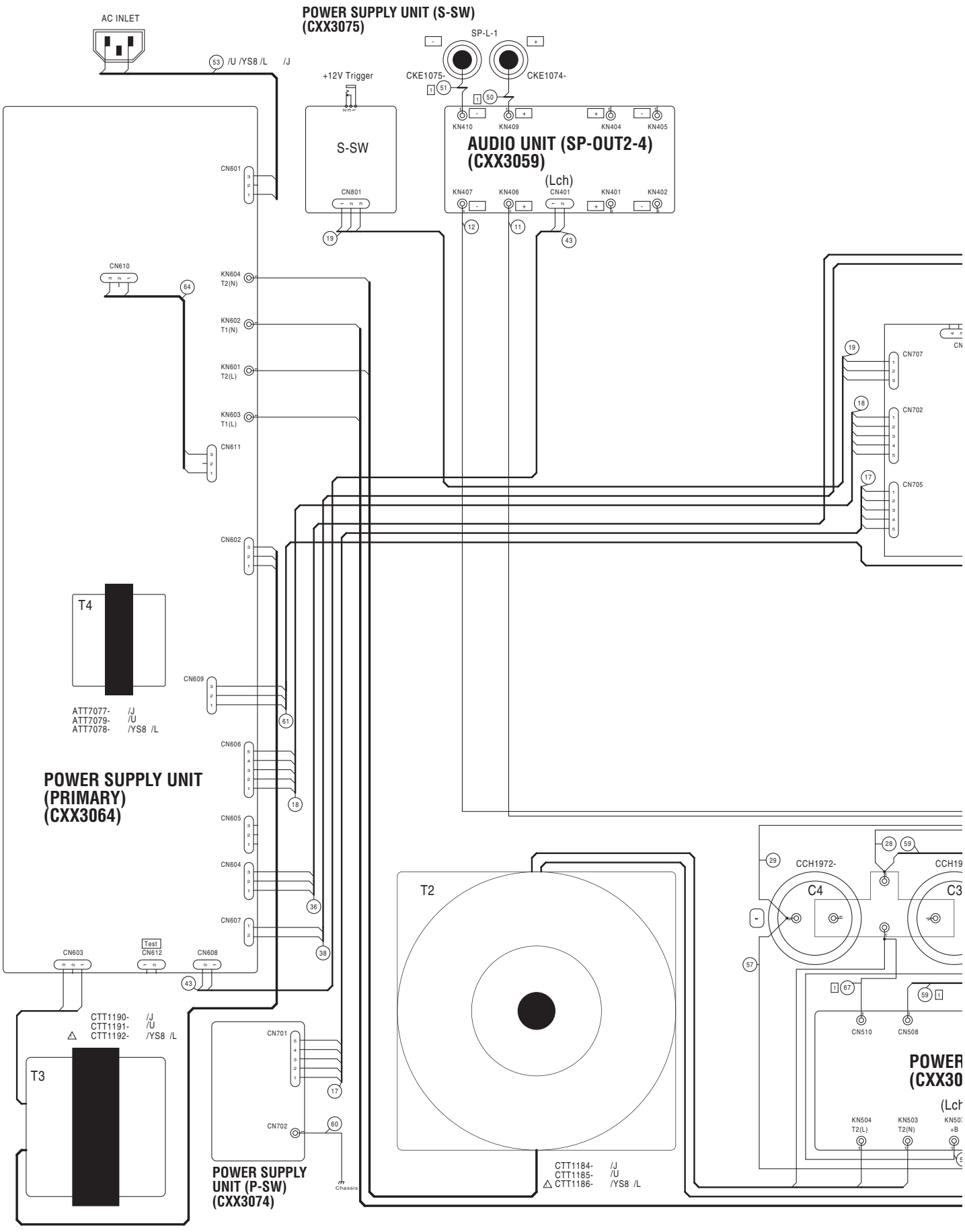
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply is shown with the marked box.

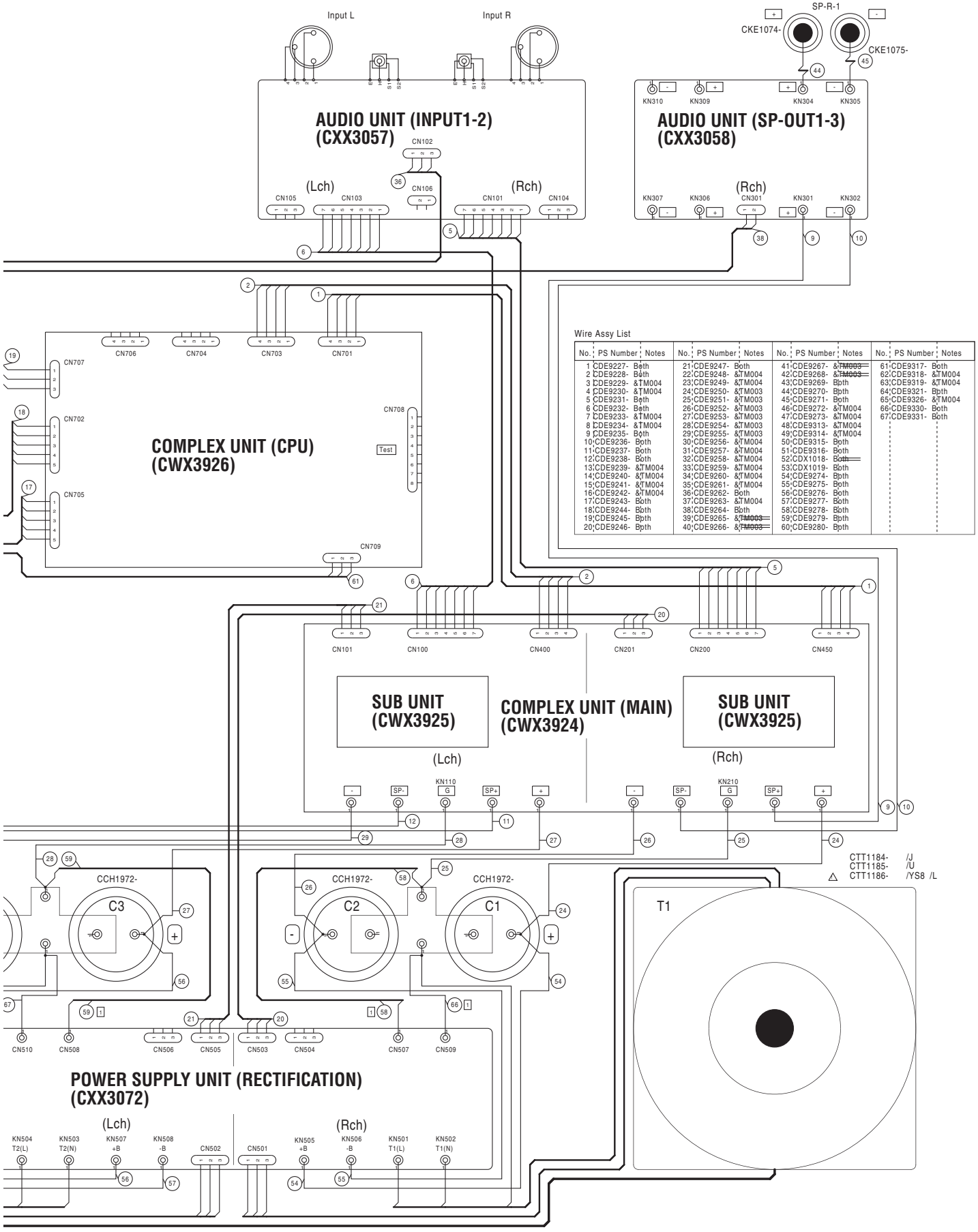


Wire Assy List [2]

No.	PS Number	Notes	No.	PS Number	Notes	No.	PS Number	Notes	No.	PS Number	Notes
1	CDE9227-	Both	21	CDE9247-	Both	41	CDE9267-	&~~TM003~~	61	CDE9317-	Both
2	CDE9228-	Both	22	CDE9248-	&TM004	42	CDE9268-	&~~TM003~~	62	CDE9318-	&TM004
3	CDE9229-	&TM004	23	CDE9249-	&TM004	43	CDE9269-	Both	63	CDE9319-	&TM004
4	CDE9230-	&TM004	24	CDE9250-	&TM003	44	CDE9270-	Both	64	CDE9321-	Both
5	CDE9231-	Both	25	CDE9251-	&TM003	45	CDE9271-	Both	65	CDE9326-	&TM004
6	CDE9232-	Both	26	CDE9252-	&TM003	46	CDE9272-	&TM004	66	CDE9330-	Both
7	CDE9233-	&TM004	27	CDE9253-	&TM003	47	CDE9273-	&TM004	67	CDE9331-	Both
8	CDE9234-	&TM004	28	CDE9254-	&TM003	48	CDE9313-	&TM004			
9	CDE9235-	Both	29	CDE9255-	&TM003	49	CDE9314-	&TM004			
10	CDE9236-	Both	30	CDE9256-	&TM004	50	CDE9315-	Both			
11	CDE9237-	Both	31	CDE9257-	&TM004	51	CDE9316-	Both			
12	CDE9238-	Both	32	CDE9258-	&TM004	52	CDX1018-	~~Both~~			
13	CDE9239-	&TM004	33	CDE9259-	&TM004	53	CDX1019-	Both			
14	CDE9240-	&TM004	34	CDE9260-	&TM004	54	CDE9274-	Both			
15	CDE9241-	&TM004	35	CDE9261-	&TM004	55	CDE9275-	Both			
16	CDE9242-	&TM004	36	CDE9262-	Both	56	CDE9276-	Both			
17	CDE9243-	Both	37	CDE9263-	&TM004	57	CDE9277-	Both			
18	CDE9244-	Both	38	CDE9264-	Both	58	CDE9278-	Both			
19	CDE9245-	Both	39	CDE9265-	&~~TM003~~	59	CDE9279-	Both			
20	CDE9246-	Both	40	CDE9266-	&~~TM003~~	60	CDE9280-	Both			

4.2 OVERALL WIRING DIAGRAM (TAD-M2500)

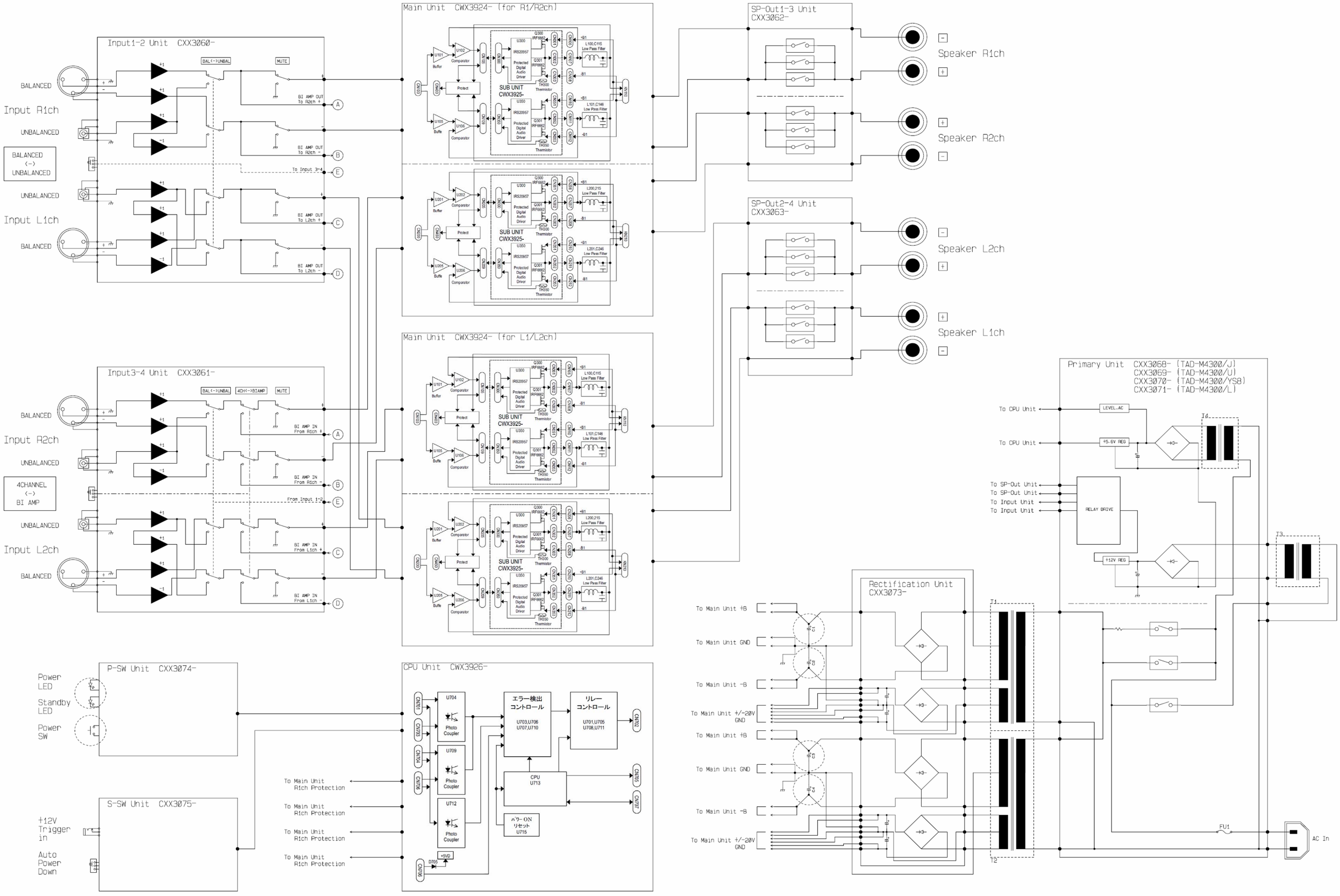




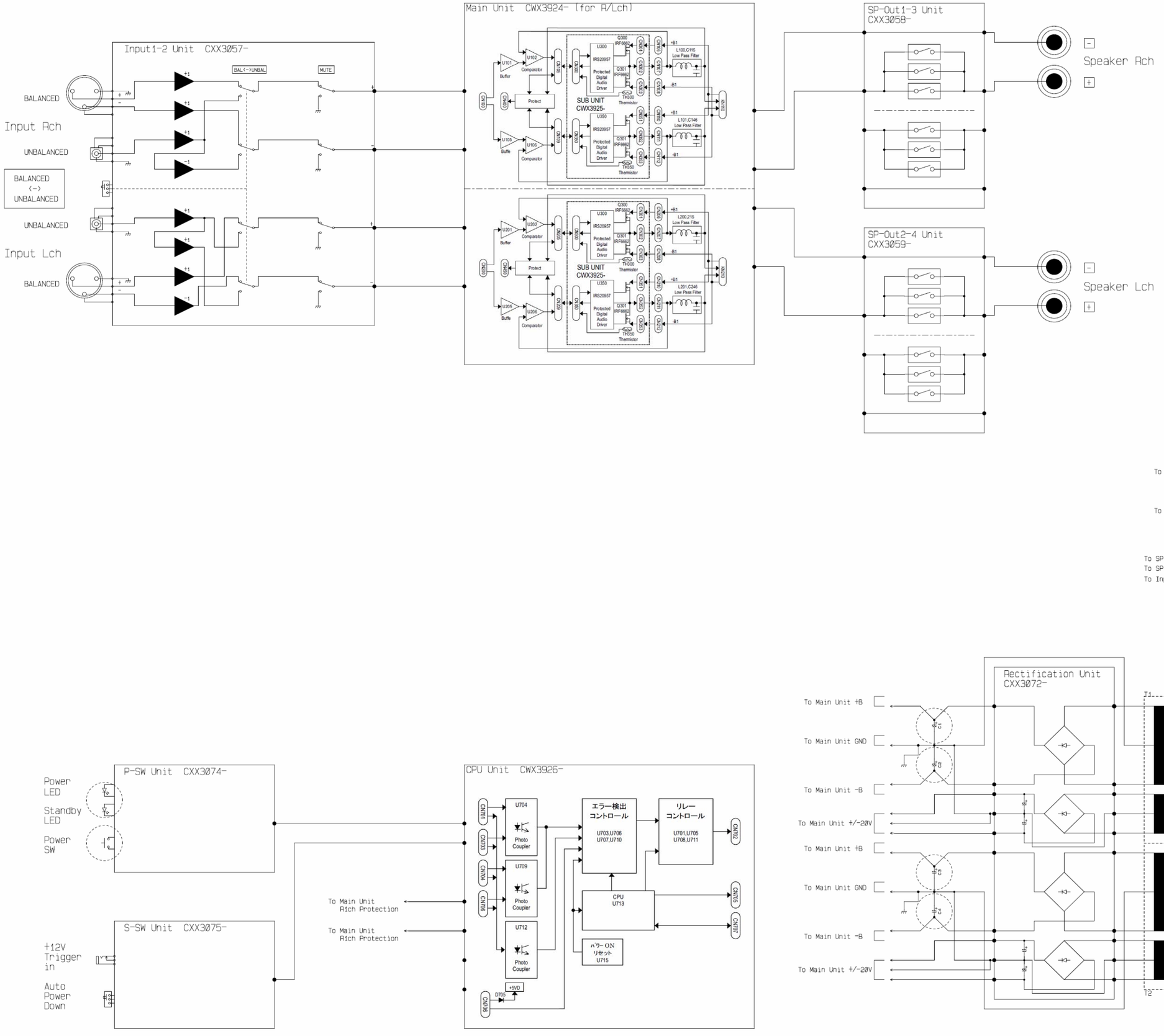
△ CTT1184- /J
CTT1185- /U
CTT1186- /YS8 /L

Wire Assy List

No.	PS Number	Notes	No.	PS Number	Notes	No.	PS Number	Notes	No.	PS Number	Notes
1	CDE9227-	Both	21	CDE9247-	Both	41	CDE9267-	&~~TM003~~	61	CDE9317-	Both
2	CDE9228-	Both	22	CDE9248-	&TM004	42	CDE9268-	&~~TM003~~	62	CDE9318-	&TM004
3	CDE9229-	&TM004	23	CDE9249-	&TM004	43	CDE9269-	Both	63	CDE9319-	&TM004
4	CDE9230-	&TM004	24	CDE9250-	&TM003	44	CDE9270-	Both	64	CDE9321-	Both
5	CDE9231-	Both	25	CDE9251-	&TM003	45	CDE9271-	Both	65	CDE9326-	&TM004
6	CDE9232-	Both	26	CDE9252-	&TM003	46	CDE9272-	&TM004	66	CDE9330-	Both
7	CDE9233-	&TM004	27	CDE9253-	&TM003	47	CDE9273-	&TM004	67	CDE9331-	Both
8	CDE9234-	&TM004	28	CDE9254-	&TM003	48	CDE9313-	&TM004			
9	CDE9235-	Both	29	CDE9255-	&TM003	49	CDE9314-	&TM004			
10	CDE9236-	Both	30	CDE9256-	&TM004	50	CDE9315-	Both			
11	CDE9237-	Both	31	CDE9257-	&TM004	51	CDE9316-	Both			
12	CDE9238-	Both	32	CDE9258-	&TM004	52	CDX1018-	Both			
13	CDE9239-	&TM004	33	CDE9259-	&TM004	53	CDX1019-	Both			
14	CDE9240-	&TM004	34	CDE9260-	&TM004	54	CDE9274-	Both			
15	CDE9241-	&TM004	35	CDE9261-	&TM004	55	CDE9275-	Both			
16	CDE9242-	&TM004	36	CDE9262-	Both	56	CDE9276-	Both			
17	CDE9243-	Both	37	CDE9263-	&TM004	57	CDE9277-	Both			
18	CDE9244-	Both	38	CDE9264-	Both	58	CDE9278-	Both			
19	CDE9245-	Both	39	CDE9265-	&~~TM003~~	59	CDE9279-	Both			
20	CDE9246-	Both	40	CDE9266-	&~~TM003~~	60	CDE9280-	Both			

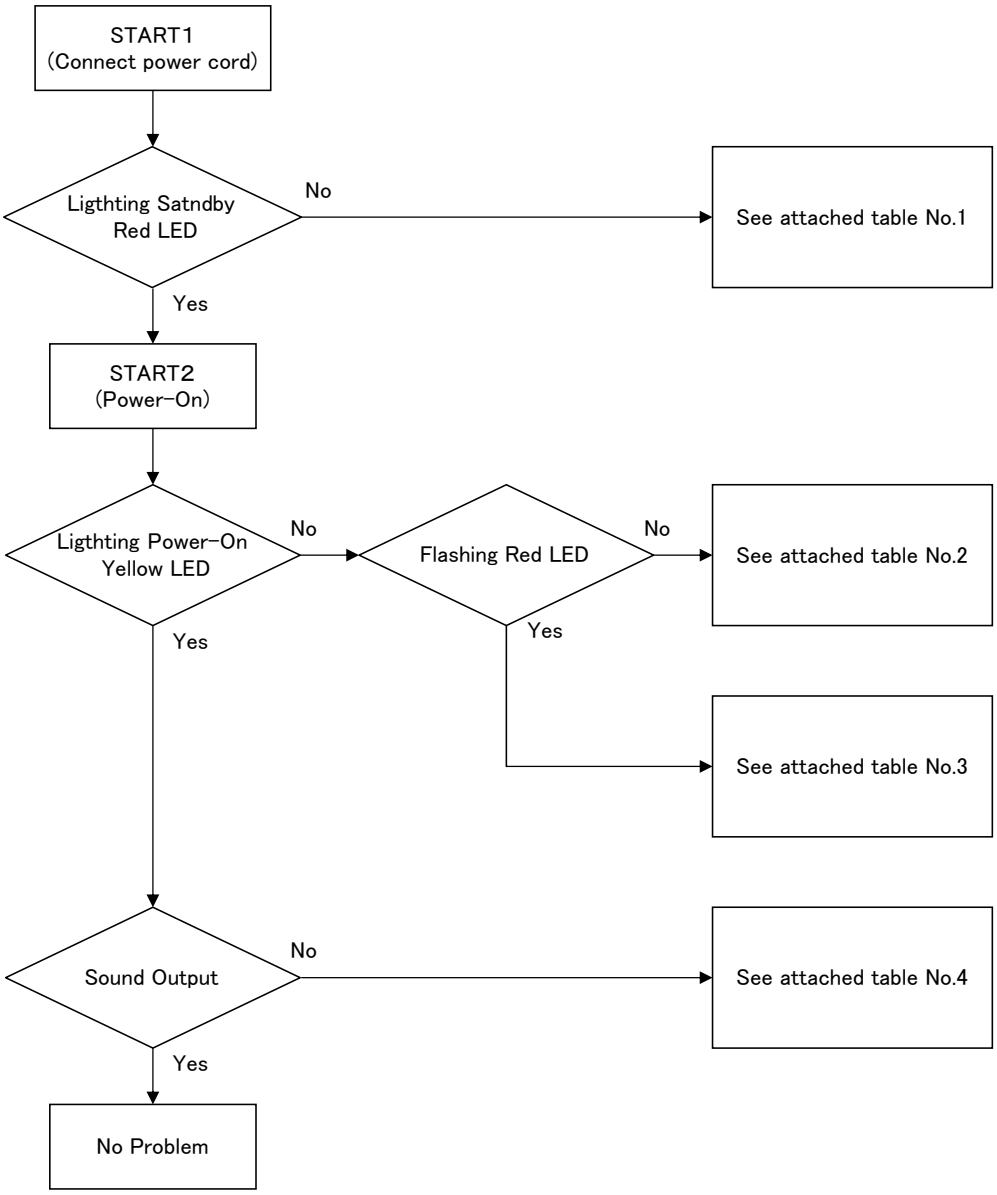

Input1-2 Unit CXX3060-
BALANCED
Input R1ch
UNBALANCED
BALANCED
(-)
UNBALANCED
UNBALANCED
Input L1ch
BALANCED
BAL(-)UNBAL
MUTE
BI AMP OUT To R2ch +
BI AMP OUT To R2ch -
To Input 3-4
BI AMP OUT To L2ch +
BI AMP OUT To L2ch -
Input3-4 Unit CXX3061-
BALANCED
Input R2ch
UNBALANCED
4CHANNEL
(-)
BI AMP
UNBALANCED
Input L2ch
BALANCED
BAL(-)UNBAL
4CH(-)BIAMP
MUTE
BI AMP IN From R1ch +
BI AMP IN From R1ch -
From Input 1-2
BI AMP IN From L1ch +
BI AMP IN From L1ch -
Main Unit CWX3924- (for R1/R2ch)
Main Unit CWX3924- (for L1/L2ch)
SUB UNIT CWX3925-
Buffer
Comparator
Protect
Protected Digital Audio Driver
Thermistor
Low Pass Filter
SP-Out1-3 Unit CXX3062-
SP-Out2-4 Unit CXX3063-
Speaker R1ch
Speaker R2ch
Speaker L2ch
Speaker L1ch
Primary Unit CXX3068- (TAD-M4300/J)
CXX3069- (TAD-M4300/U)
CXX3070- (TAD-M4300/YS8)
CXX3071- (TAD-M4300/L)
To CPU Unit
LEVEL-AC
+5.6V REG
To SP-Out Unit
To SP-Out Unit
To Input Unit
To Input Unit
RELAY DRIVE
+12V REG
Rectification Unit CXX3073-
To Main Unit +B
To Main Unit GND
To Main Unit -B
To Main Unit +/-20V
GND
To Main Unit +B
To Main Unit GND
To Main Unit -B
To Main Unit +/-20V
GND
P-SW Unit CXX3074-
Power LED
Standby LED
Power SW
S-SW Unit CXX3075-
+12V Trigger in
Auto Power Down
CPU Unit CWX3926-
Photo Coupler
エラー検出 コントロール
U703,U706 U707,U710
リレー コントロール
U701,U705 U708,U711
CPU U713
パワー ON リセット U715
+5VD
To Main Unit Rich Protection
To Main Unit Rich Protection
To Main Unit Rich Protection
To Main Unit Rich Protection
FU1
AC In

TAD-M4300


Input1-2 Unit CXX3057-
BAL(-)UNBAL
MUTE
BALANCED
Input Rch
UNBALANCED
BALANCED
(-)
UNBALANCED
UNBALANCED
Input Lch
BALANCED
Main Unit CWX3924- (for R/Lch)
SUB UNIT
CWX3925-
Protect
Buffer
Comparator
Protected Digital Audio Driver
Thermistor
Low Pass Filter
SP-Out1-3 Unit
CXX3058-
SP-Out2-4 Unit
CXX3059-
Speaker Rch
Speaker Lch
P-SW Unit CXX3074-
Power LED
Standby LED
Power SW
S-SW Unit CXX3075-
+12V Trigger in
Auto Power Down
To Main Unit Rich Protection
To Main Unit Rich Protection
CPU Unit CWX3926-
Photo Coupler
エラー検出 コントロール
リレー コントロール
CPU U713
パワー ON リセット U715
Primary Unit CXX3064- (TAD-M2500/J)
CXX3065- (TAD-M2500/U)
CXX3066- (TAD-M2500/YSB)
CXX3067- (TAD-M2500/L)
To CPU Unit
LEVEL_AC
+5.6V REG
To SP-Out Unit
To SP-Out Unit
To Input Unit
RELAY DRIVE
+12V REG
Rectification Unit
CXX3072-
To Main Unit +B
To Main Unit GND
To Main Unit -B
To Main Unit +/-20V
To Main Unit +B
To Main Unit GND
To Main Unit -B
To Main Unit +/-20V
T1
T2
T3
FU1
AC In

TAD-M2500

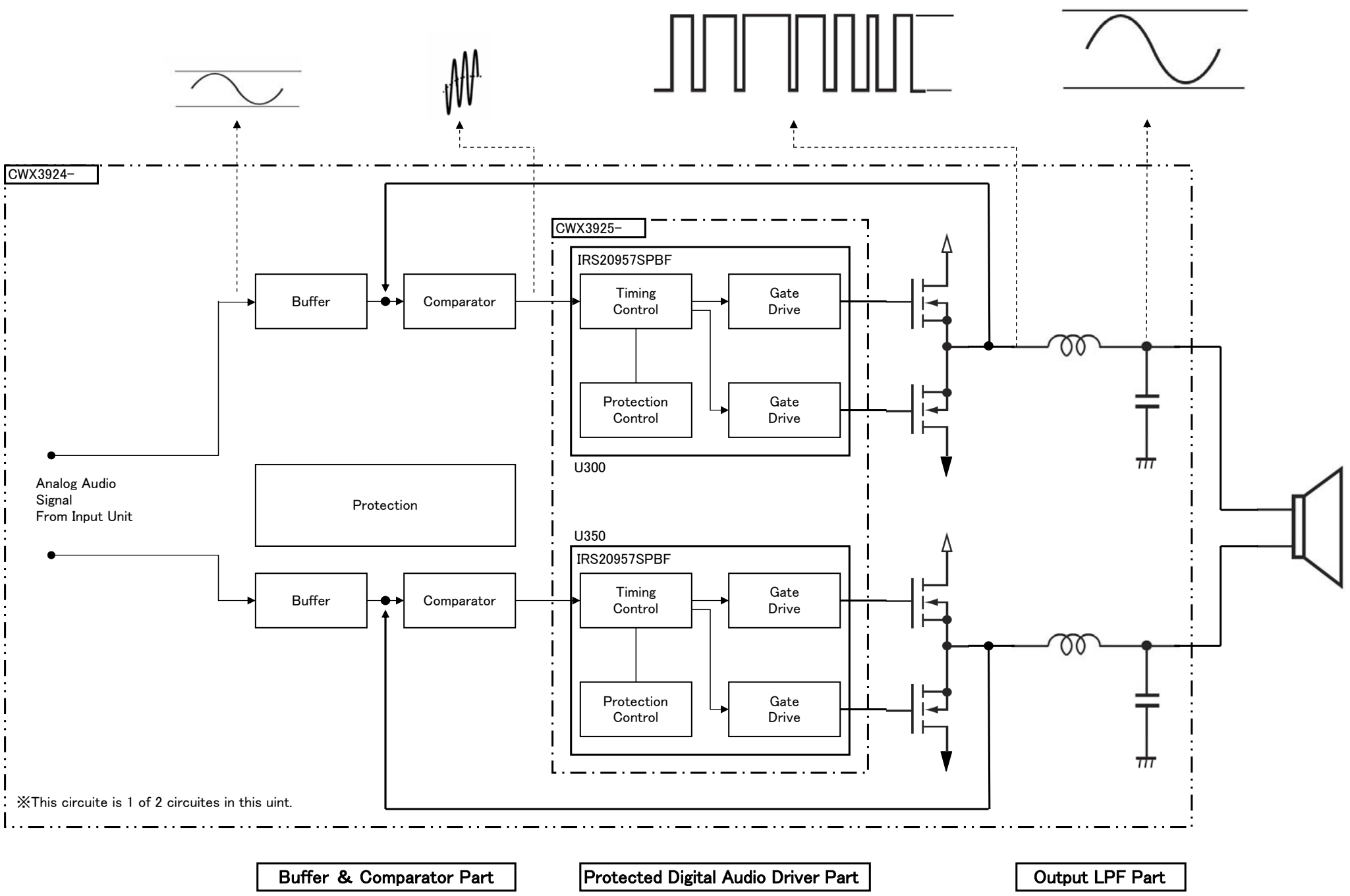
5. DIAGNOSIS
5.1 TROUBLESHOOTIN(



5. DIAGNOSIS
5.1 TROUBLESHOOTIN(

No.	Symptoms	Diagnosis Contents	Possible Defective Points
1	Power does not turn on. Satndby Red LED does not light.	Confirmation. Whether does the fuse do OPEN or not?	**Primary Unit** FU1
		Confirmation. Are wires disconnected or dameged?	**Primary Unit** CN601、CN609 **CPU Unit** CN705、CN709
		Check that the following voltage is output: **CN709 1pin:+5.6V**	**CPU Unit** CN709
2	Power does not turn on. Satndby Yellow LED does not light.	Confirmation. Are wires disconnected or dameged?	**P-SW Unit** CN701 **CPU Unit** CN705
3	Power does not turn on. Protection circuit operate. Red LED flashes.	Confirmation. Are wires disconnected or dameged?	**Main Unit** CN400、450 **CPU Unit** CN701、703、704、706
		Check that the following voltage is output: **KN110、KN210 1ピン:+40V(M2500)、+35V(M4300)** **KN110、KN210 5ピン:-40V(M2500)、-35V(M4300)** **CN101、CN201 1ピン:+20V** **CN101、CN201 2ピン:-20V** **U107 3ピン:+15V** **U108 3ピン:-15V** **U109 3ピン:+5V** **U110 3ピン:-5V**	**Main Unit** KN110、KN210、CN101、CN201 U107、U108、U109、U110
		Confirmation. Does not the protection circuit operate? **U713 7ピン(CH_ERR):L**	**CPU Unit** U713
		Confirmation. Does not the DC detection circuit operate? **KN110、KN210 2、4ピン:under than -3V、more than +3V**	**Main Unit** KN110、KN210
		Confirmation. Does not the temperature detection circuit operate? **CN105、CN109、CN205、CN209 6ピン:0V**	**Main Unit** CN105、CN109、CN205、CN209
		Confirmation. Does not the overcurrent detection circuit operate? **CN701、703、704、706 3ピン:+5V** Is not the SP terminal short-circuited?	**CPU Unit** CN701、703、704、706 **SP terminal**
4	The power turn on. The sound is nothing.	Confirmation. Check the input select sw. Are wires disconnected or dameged?	**Input Unit** S101、CN101、CN103 CN201、CN203(M4300)

5.2 CIRCUITE DESCRIPTION



Buffer & Comparator Part

Analog audio signal output from Input unit is input to Comparator via Buffer.
Standard wave, Input audio signal, and the negative feed back(NFB) signal are composed by Comparator part.
The oscillatory frequency of a standard wave is set in this part.

Protected Digital Audio Driver Part

The signal composed with pre-circuit is input to U300,350 of driver IC.
U300,350 execute pulse width modulation(PWM), and controls the level shift and timing and drive MOSFET.
MOSFET output the PWM signal for the speaker drive.
This part has the overcurrent protection by the short-circuit of the output and the temperature detection protection function .

Output LPF Part

This part removes the career element of an unnecessary radio-frequency signal to the speaker.
After low pass filter(LPF) is passed, it becomes Analog signal as shown in the above figure.

Detailed Descriptions on the Protection Functions

The protection circuit function of the amplifier is done in the following specifications.
Refer to this protection functions and the detailed circuit description for the diagnosis of a digital amplifier.

Overcurrent output detection function

Driver IC IRS20957SPBF(U300,U350) has this protection function.
Driver IC function will stop when the overcurrent is detected by either a high side or a low side of output MOSFET.
At the same time, detection signal (CSD) is transmitted to CPU(U713) by driver IC and the power is turned off. (Red LED flashes.)

DC output detection function

The power amplifier breaks down. MOSFET is destroyed.
Some the DC outputs are generated in the SP output by ±3V or more.
Detection signal (ERR) is transmitted from the DC output detection circuit to CPU so as not to destroy the connected speaker and the power is turned off. (Red LED flashes.)

Temperature detection function

PTC (positive temperature coefficient, TH300, and TH350) resistance is mounted on the neighborhood to MOSFET.
Driver IC function stops when the temperature of the PTC resistance over about 75℃.
Detection signal (CSD) is transmitted to CPU and the power is turned off at the same time. (Red LED flashes.)

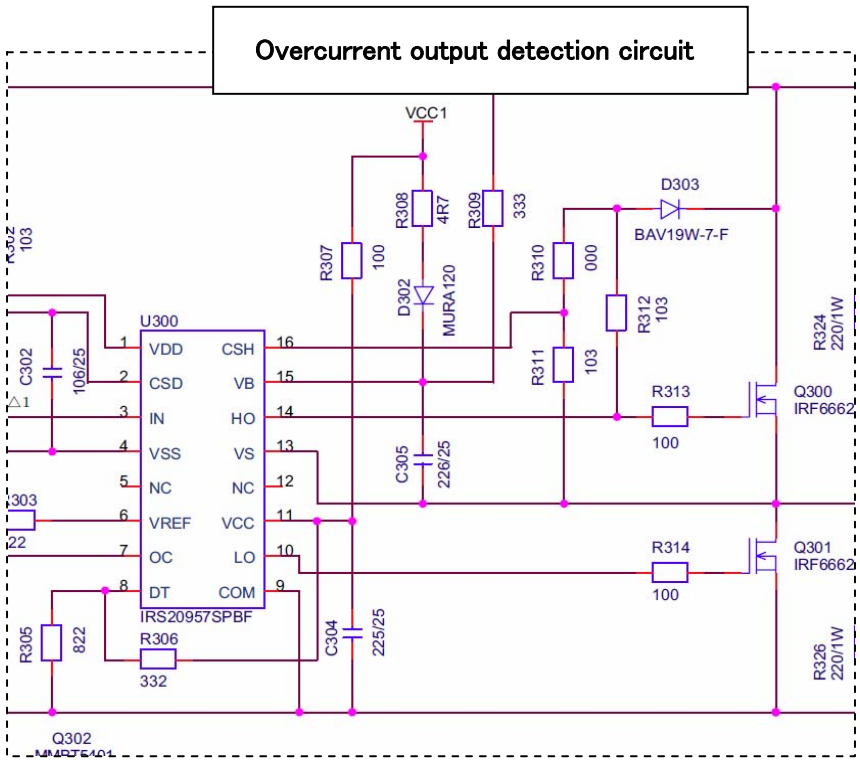
Over Voltage detection function

Driver IC function stops when the voltage between GND and +B power supply over about 50V.
Detection signal (CSD) is transmitted to CPU and the power is turned off at the same time. (Red LED flashes.)

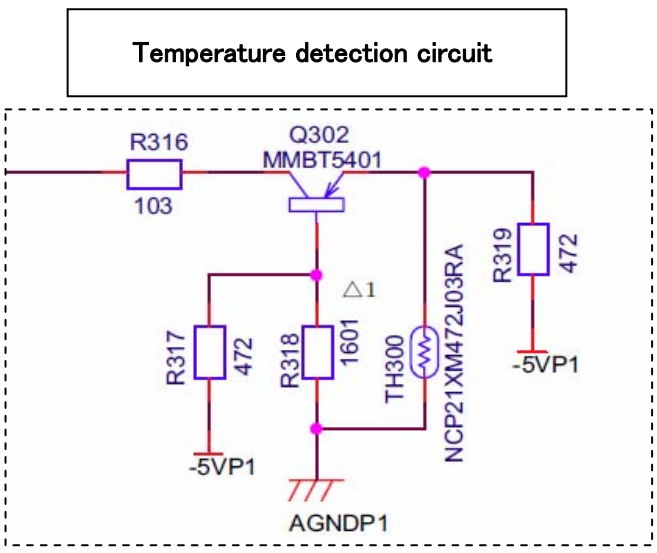
Under Voltage detection function

Driver IC function stops when the voltage between GND and +B power supply under about 20V.
Detection signal (CSD) is transmitted to CPU and the power is turned off at the same time. (Red LED flashes.)

Overcurrent output detection circuit



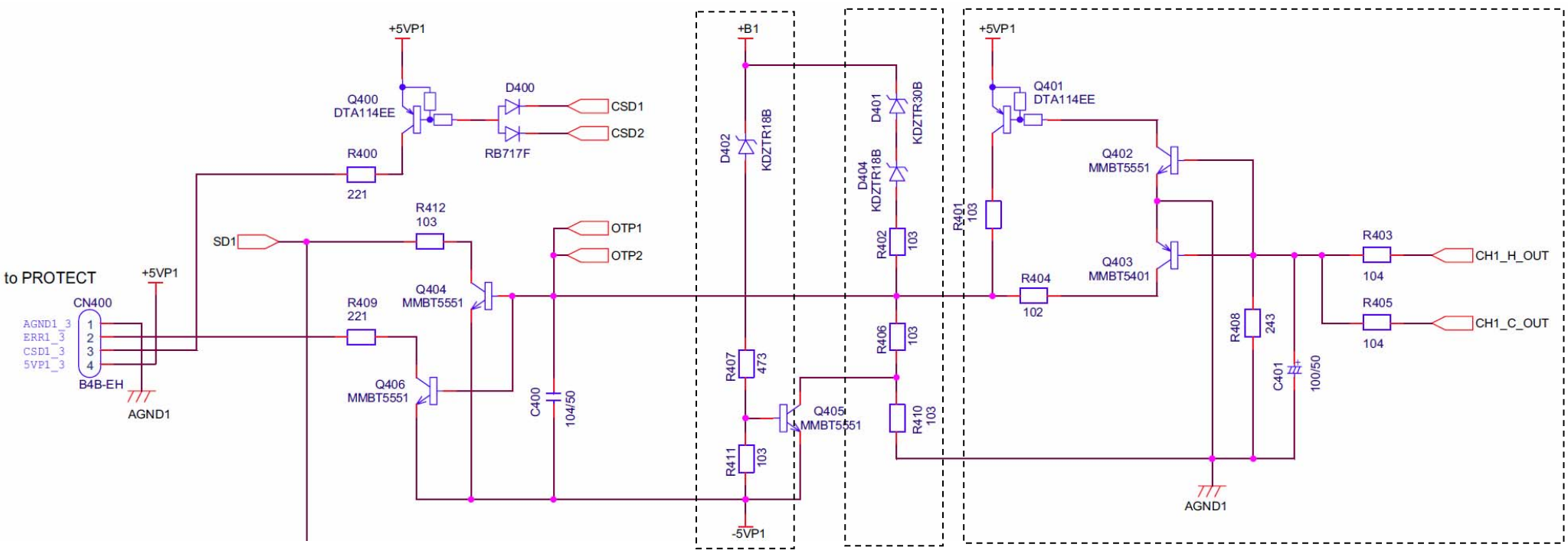
Temperature detection circuit



Under Voltage detection circuit

Over Voltage detection circuit

DC output detection circuit



サービス基本項目

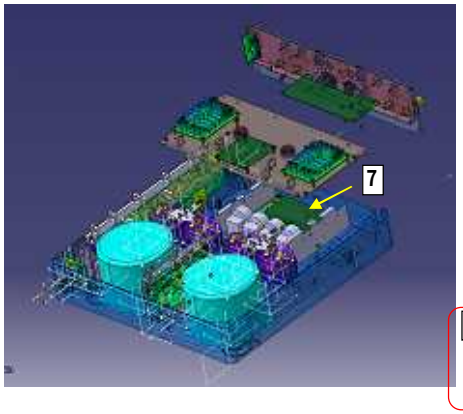
主要部品配置図　Layout

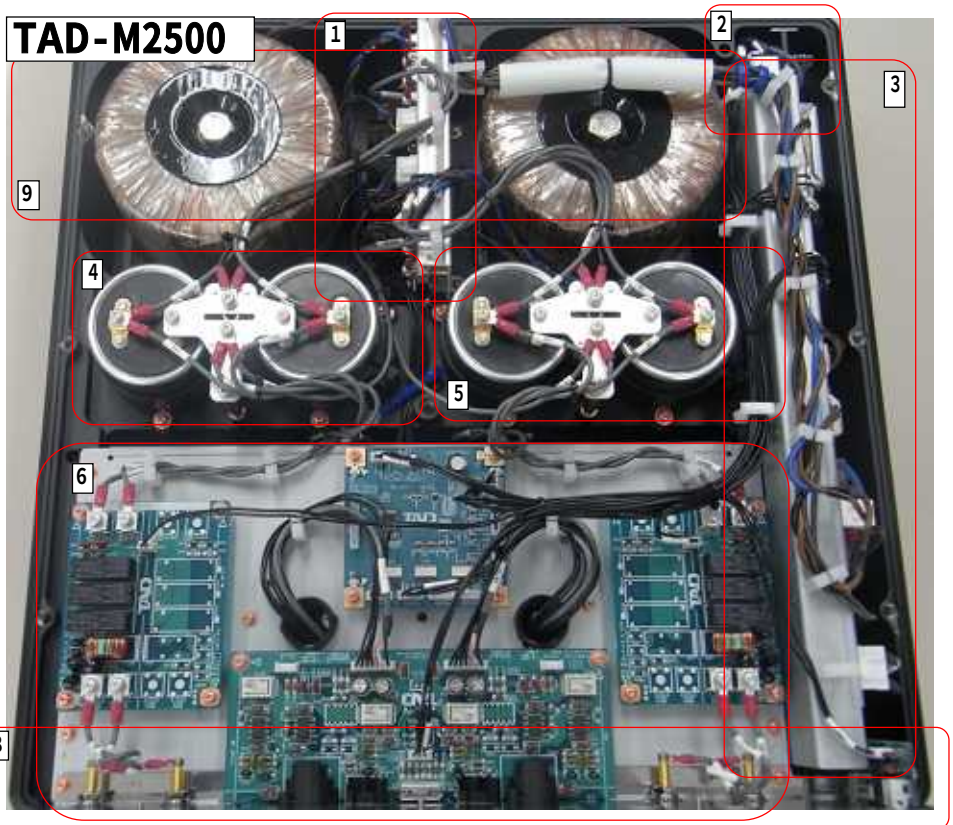
線材レイアウトと注意点
The layout of wires

線材がバラけない程度、写真のように軽くよる。
Twist those wire like this picture .

TAD-M2500

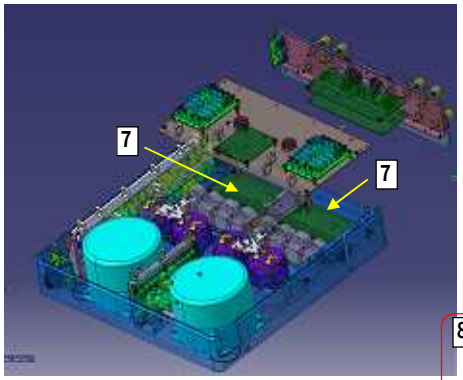
1,RECTIFICATION UNIT
2,P-SW UNIT
3,PRIMARY UNIT
4,CAPACITORS
5,CAPACITORS
6,AUDIO AREA
7,COMPLEX UNIT
8,SPEAKERS
9,MAIN　TRANSFORMER AND OTHERS

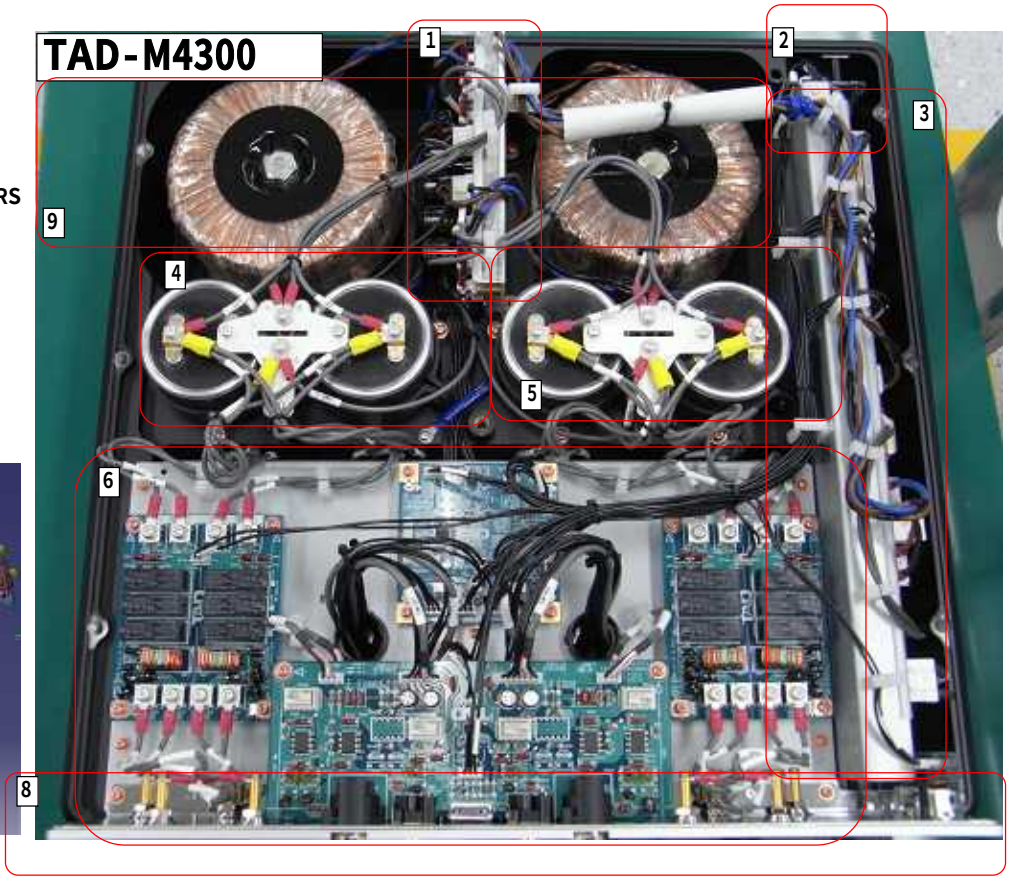




TAD-M4300

1,RECTIFICATION UNIT
2,P-SW UNIT
3,PRIMARY UNIT
4,CAPACITORS
5,CAPACITORS
6,AUDIO AREA
7,COMPLEX UNIT
8,SPEAKERS
9,MAIN　TRANSFORMER AND OTHERS



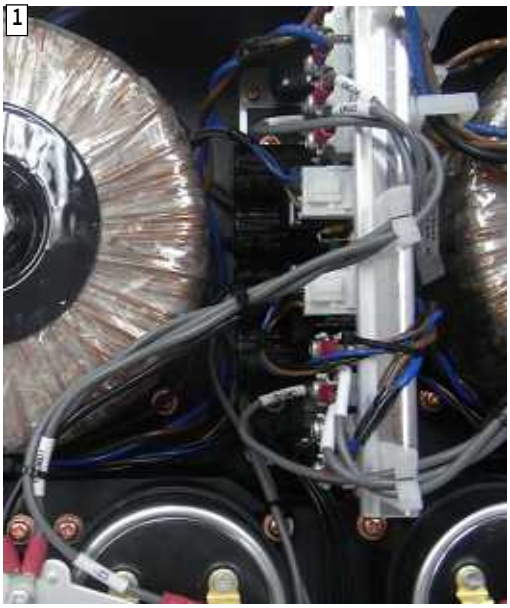


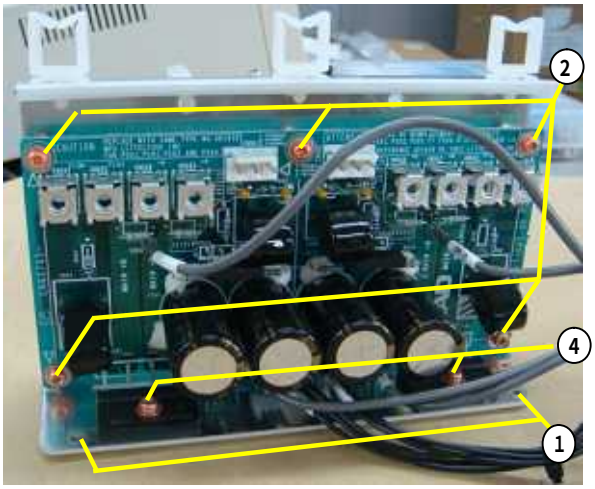
1,SEIRYU PCB ASSY

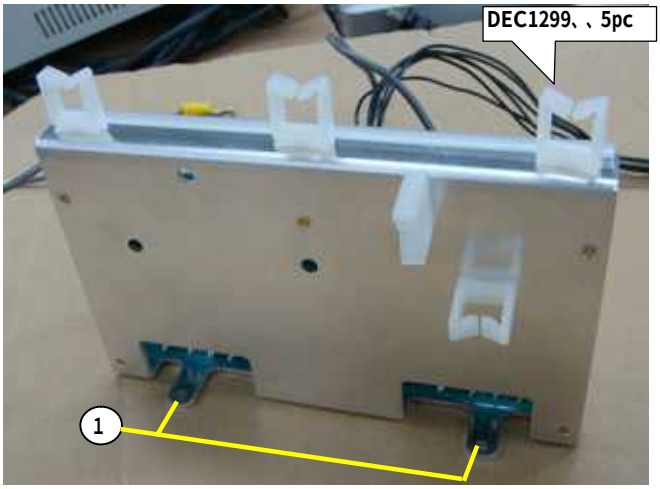
Disassemble RECTIFICATION UNIT
①Remove Screws PMB30P080FCC X 4
②Remove Screws PMB30P080FCC X 7
③Remove Screws PMH30P080B X 2
④Remove Screws CBA2257
TAD-M2500 x4
TAD-M4300 x8

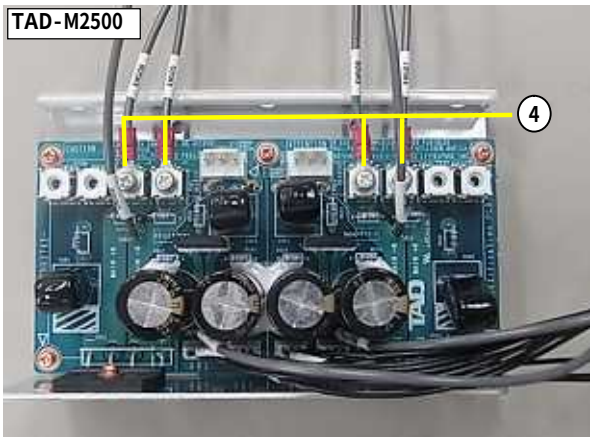
Taking out ANGLE(CND5646) from Chassis

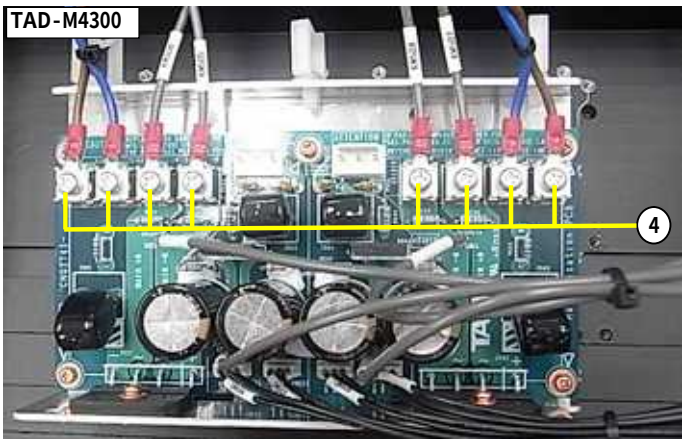
Taking out PCB from ANGLE(CND5646)





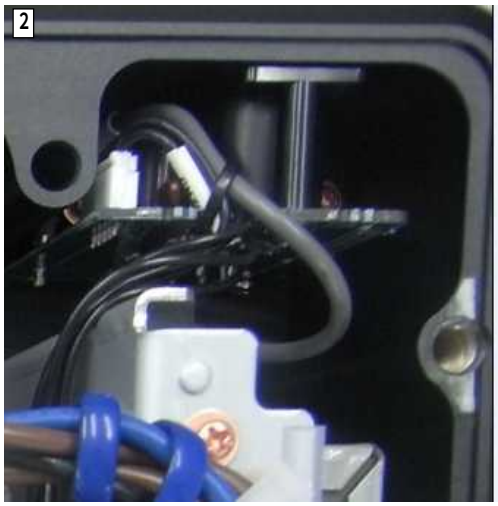


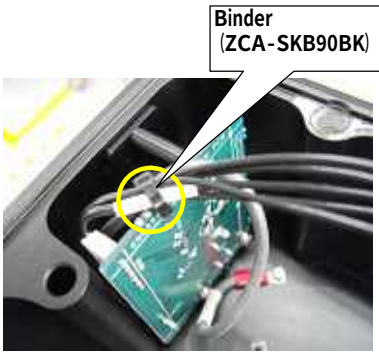


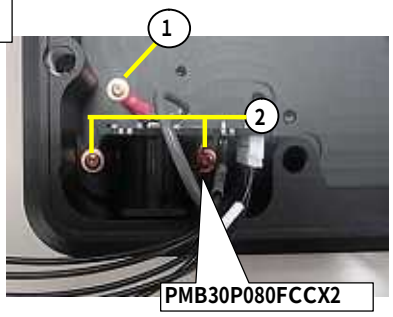


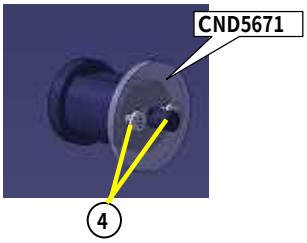
2,POWER BUTTON ASSY

Disassemble RECTIFICATION UNIT
①Remove Screws PMH30P060FTC X 1
②Remove Screws PMB30P080FCC X 2
③Remove Screws PPZ30P080FNI X 3
④Remove Screws PMH26P060FTCX 2





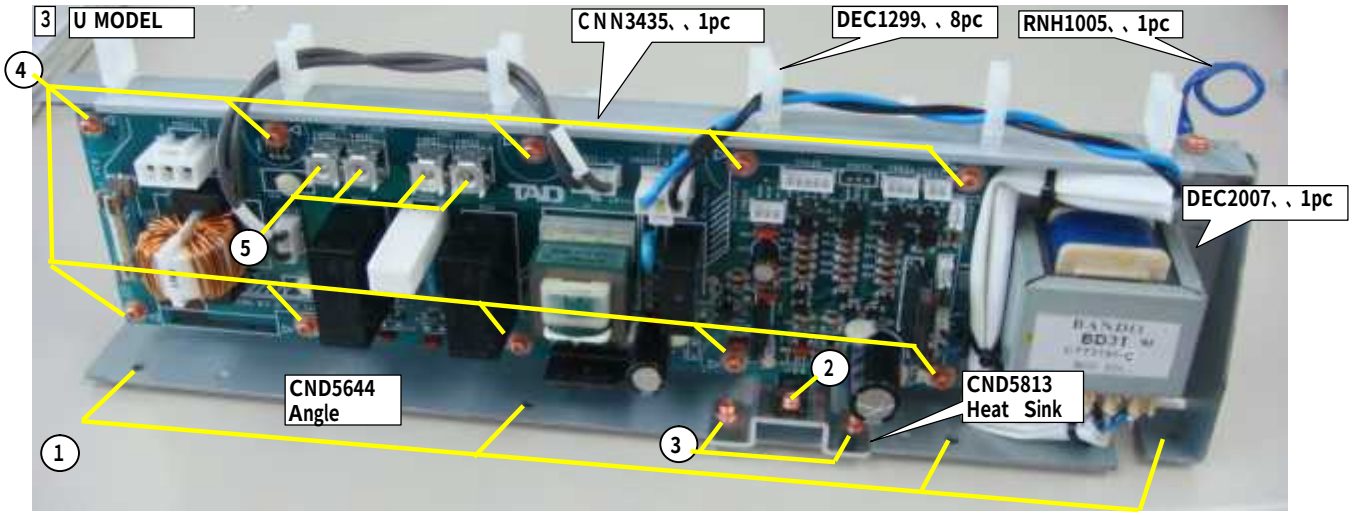




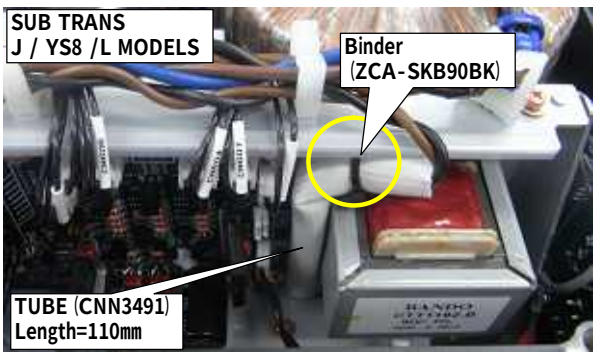
3,PRIMARY PCB ASSY

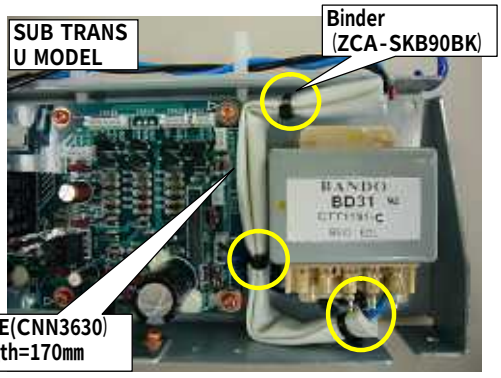
Disassemble RICTIFICATION UNIT

①Remove Screws PMB30P080FCC X 1	Taking out ANGLE(CND5644) from Chassis
②Remove Screws PMH30P080FCC X 1	Taking out IC601 from HEAT SINK
③Remove Screw PMB30P080FCC X 2	Taking out HEAT SINK(CND5813) from ANGEL
④Remove Screws PMB30P080FCCX 10	Taking out PRIMARY PCB from ANGEL
⑤Remove Screws CNB2257X 4	Taking out WIRES from PCB



*Uモデルのみ、サブトランス回りの配線スタイリングが異なる。
*The stayling for Transformar of U model is different from other models .



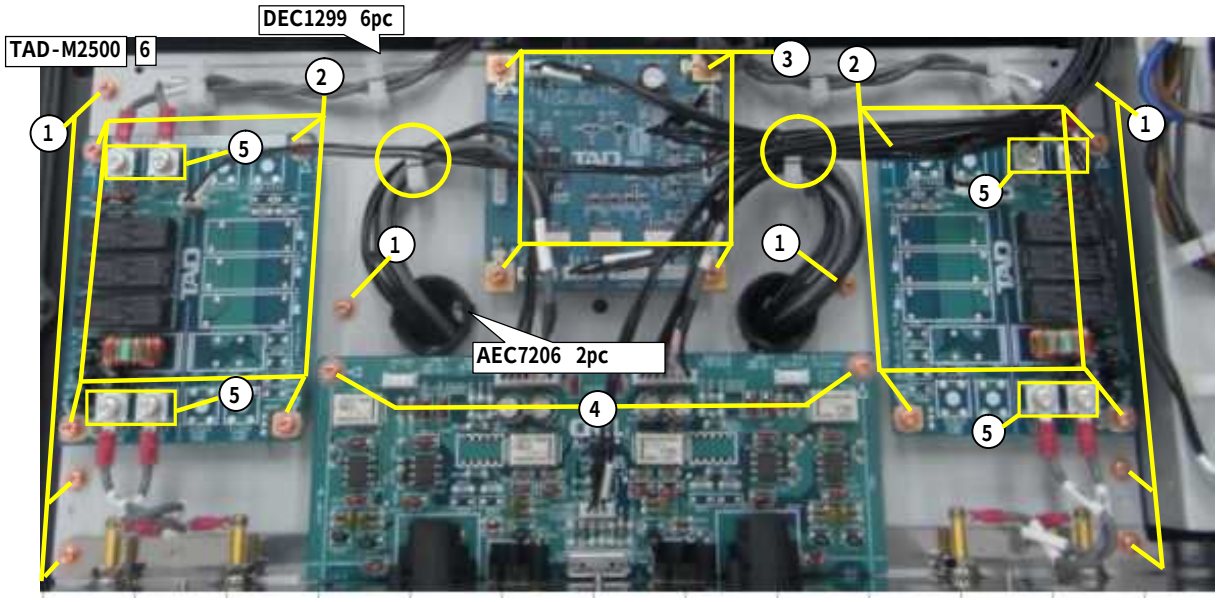


6,AUDIO AREA

TAD-M2500

Disassemble PCB UNITS

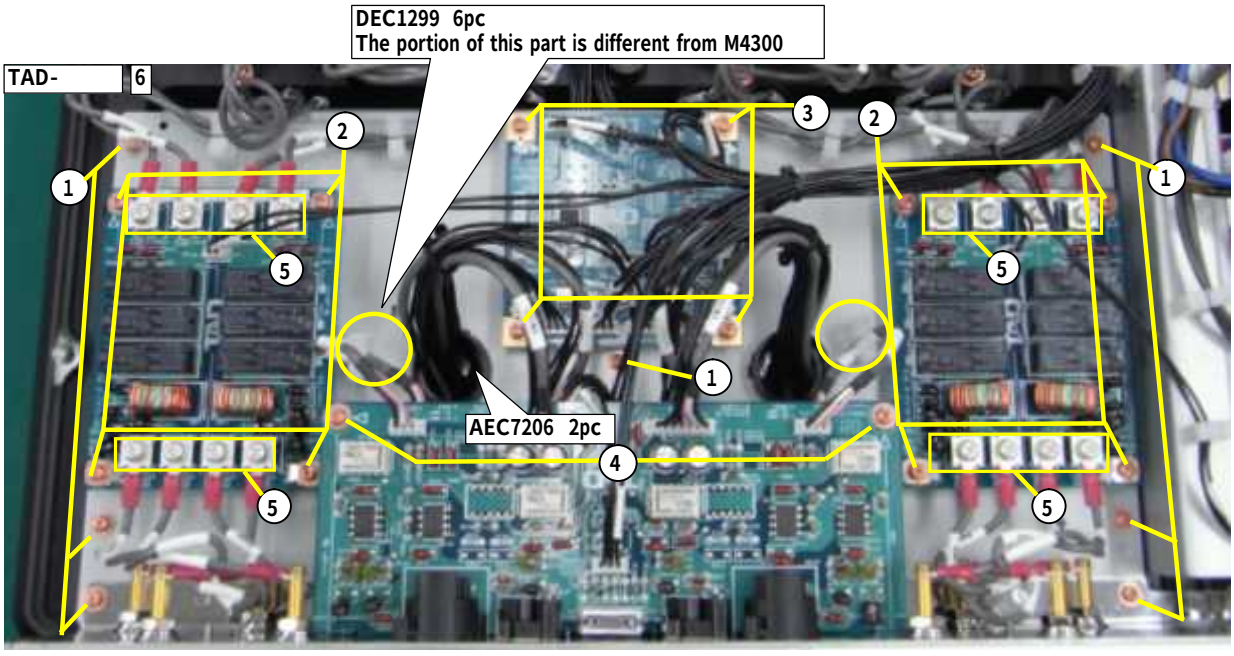
①Remove Screws PMB30P080FCC X 8	Taking out SHEILD(CND5643) from Chassis
②Remove Screws PMH30P080FCC X 8	Taking out Speaker PCB from SHEILD .
③Remove Screw PMB30P080FCC X 4	Taking out μ PCB from SHEILD .
④Remove Screws PMB30P080FCCX 2	Taking out INPUT PCB from SHEILD .
	*Screw for conpornent on the Rear panel should be taken .
⑤Remove Screws CNB2257X 8	Taking out WIRES from PCB



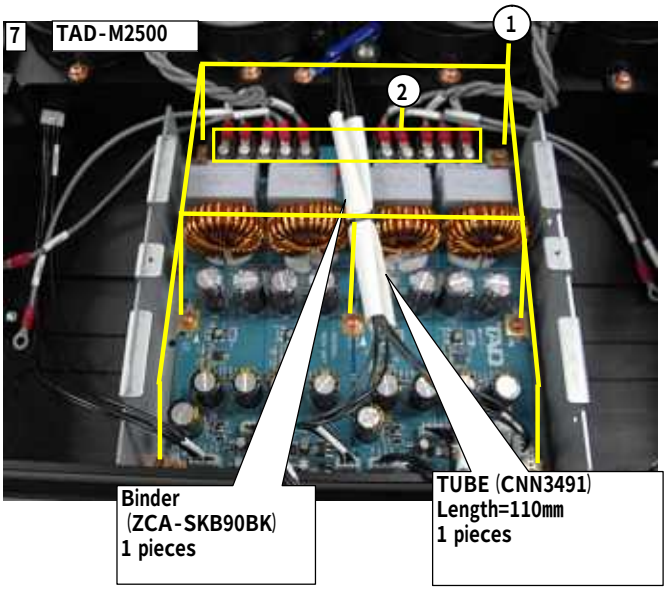
TAD-M4300

Disassemble PCB UNITS

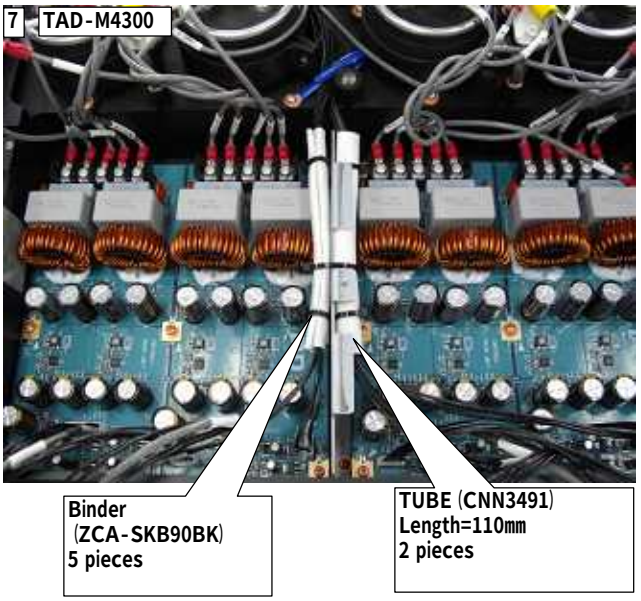
①Remove Screws PMB30P080FCC X 8	Taking out SHEILD(CND5643) from Chassis
②Remove Screws PMH30P080FCC X 8	Taking out Speaker PCB from SHEILD .
③Remove Screw PMB30P080FCC X 4	Taking out μ PCB from SHEILD .
④Remove Screws PMB30P080FCCX 2	Taking out INPUT PCB from SHEILD .
	*Screw for conpornent on the Rear panel should be taken .
⑤Remove Screws CNB2257X 16	Taking out WIRES from PCB



TAD-M2500
ﾌｸｺﾞｳﾕﾆｯﾄ部線材スタイリング
Wire styling for Complex Unit (CWX3924)

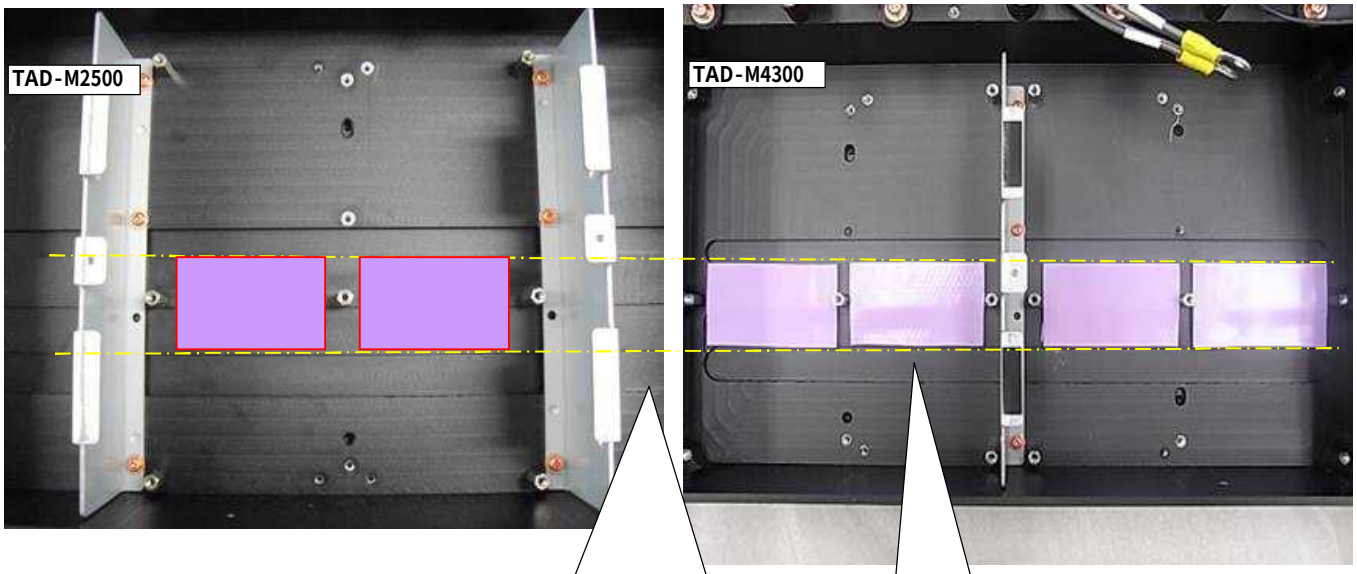


TAD-M4300
ﾌｸｺﾞｳﾕﾆｯﾄ部線材スタイリング
Wire styling for Complex Unit (CWX3924)

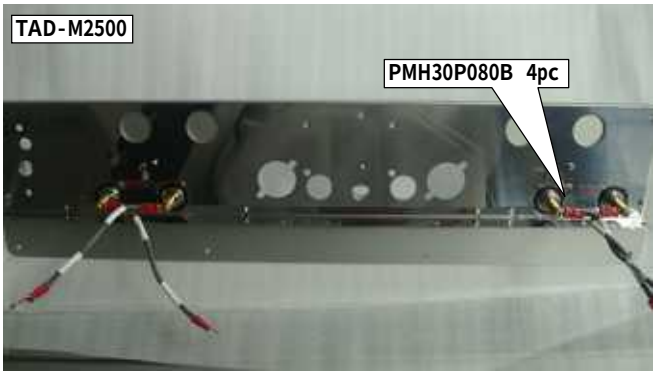


放熱ｼｰﾄ貼り付け位置 (CNN3476)
Portion for Sheets (CNN3476)

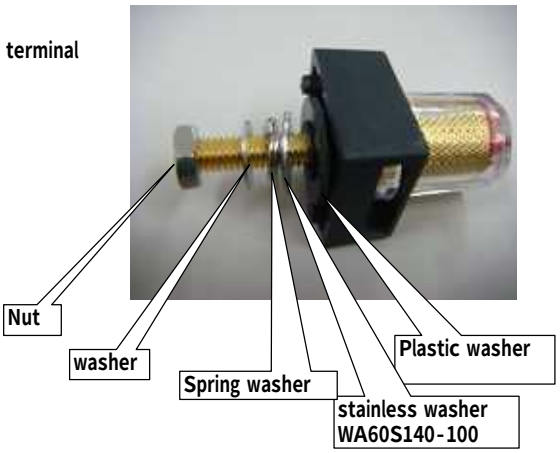
Sheetを貼り付け直す場合は、貼り位置間違えなき事。
Do not put the sheets on wrong position when those are put again .



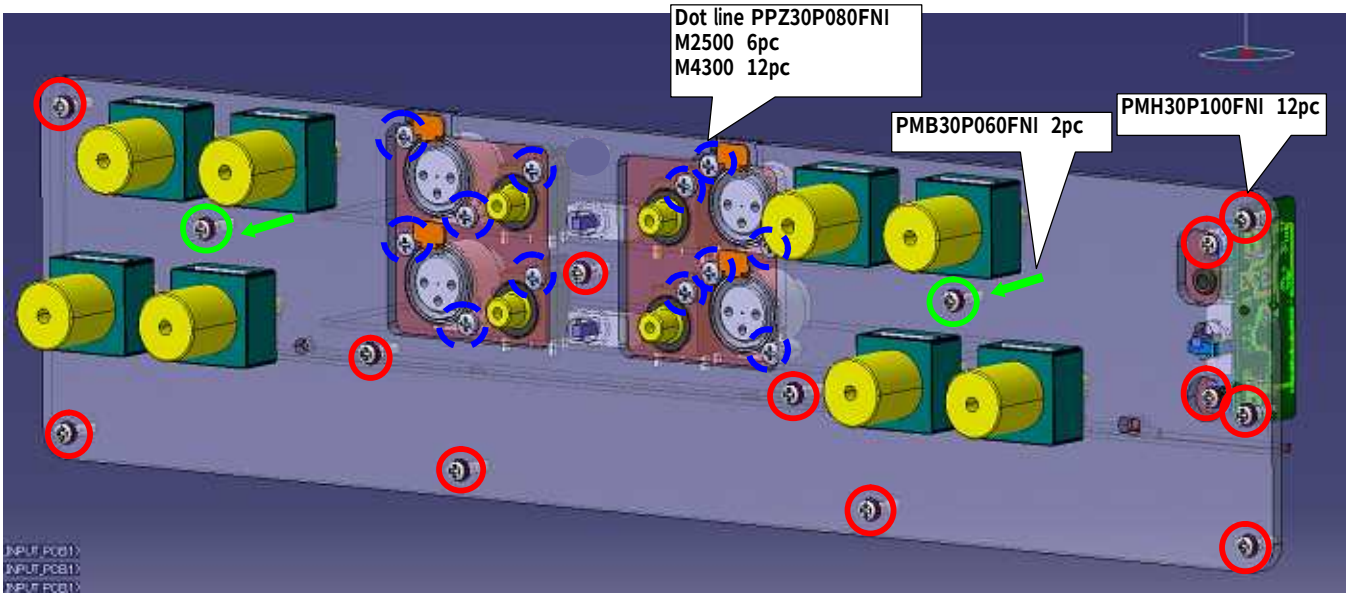
8,SPEAKERS



SPﾀｰﾐﾅﾙ取り付け順序
Installation order of Speaker terminal



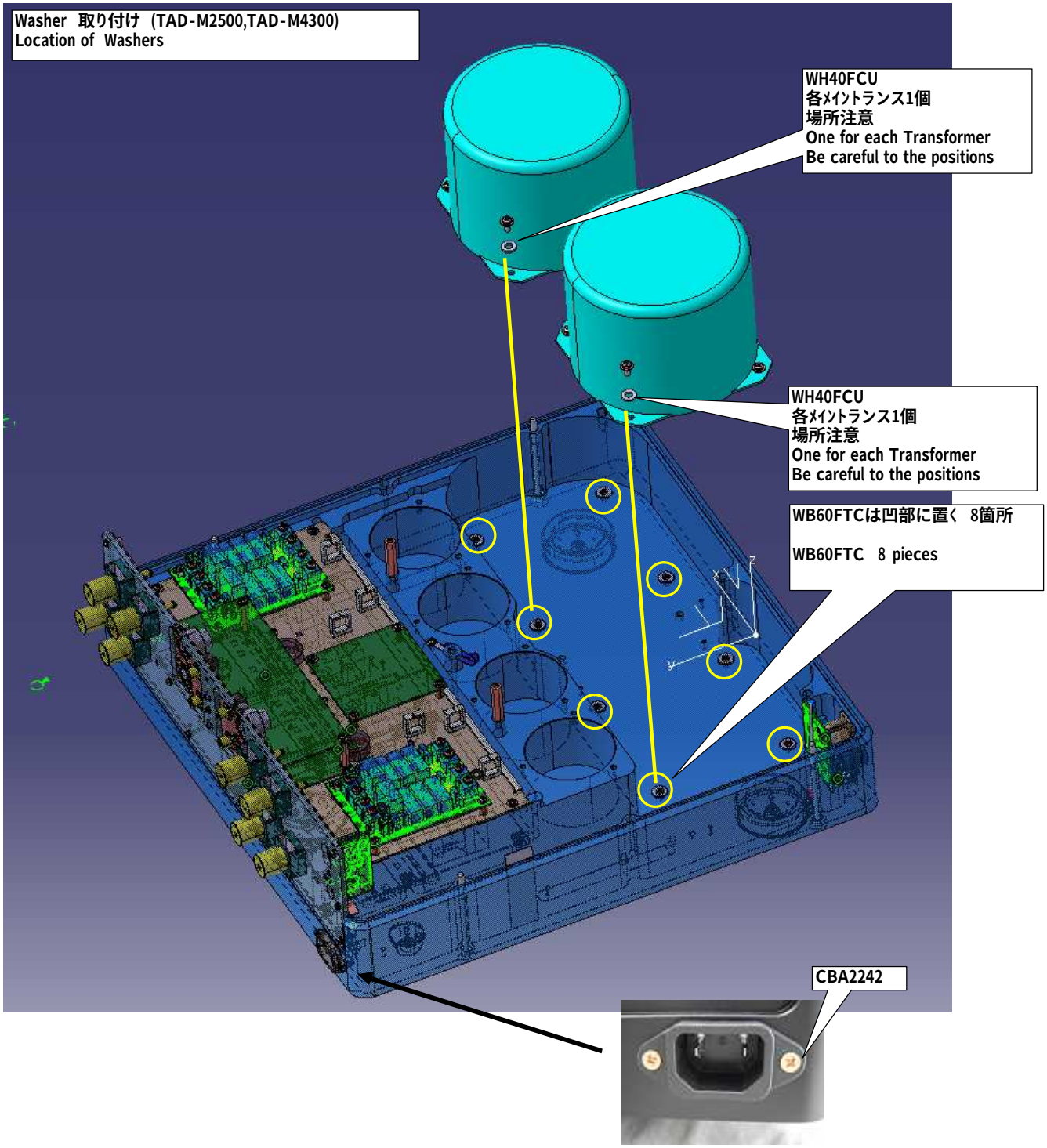
ﾘｱﾊﾟﾈﾙﾋﾞｽ
Screw for Rear Panel



9,MAIN TRANSFORMER

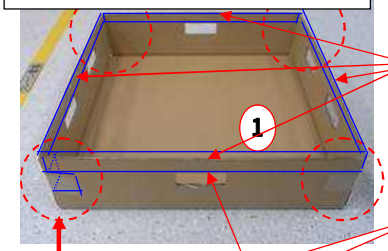
①Remove Screws PMB40P100FCC X 8 Taking out TRANSFPRMAR from Chassis
Taking out Washaers form Chassis

②Remove Screws CBA2242 X 2 Taking out AC INLET form Chassis



梱包　PACKING

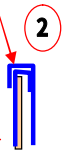
梱包手順　Packing



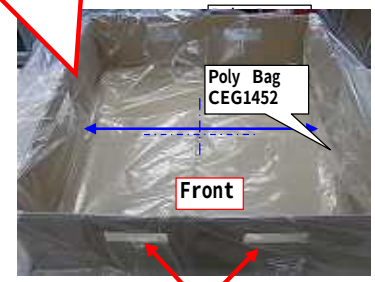
4隅を止める

取っ手開口部
に合わせて
位置決め

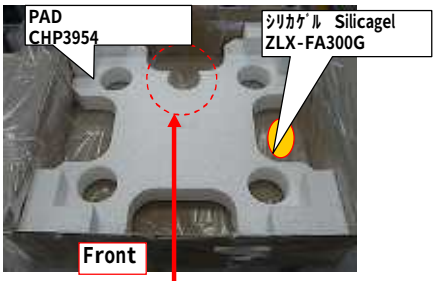
4辺に
裏表貼る



ﾋﾞﾆｰﾙ袋の継ぎ目が矢印の横方向になるように置く
Put joint of poly bag as arrow direction

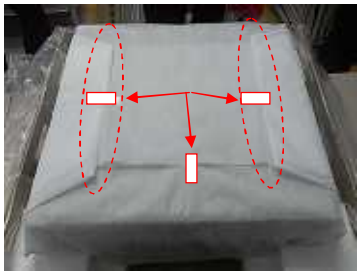


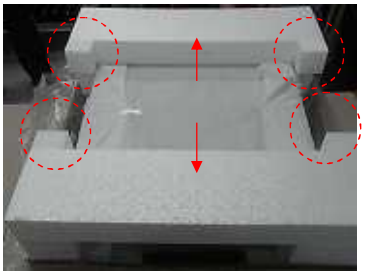
２つ穴が製品の前後方向。
この場合、製品のﾌﾛﾝﾄは手前とする
Those two holes are on the front or rear side



このﾏｰｸが後ろ
This mark is on the rear side

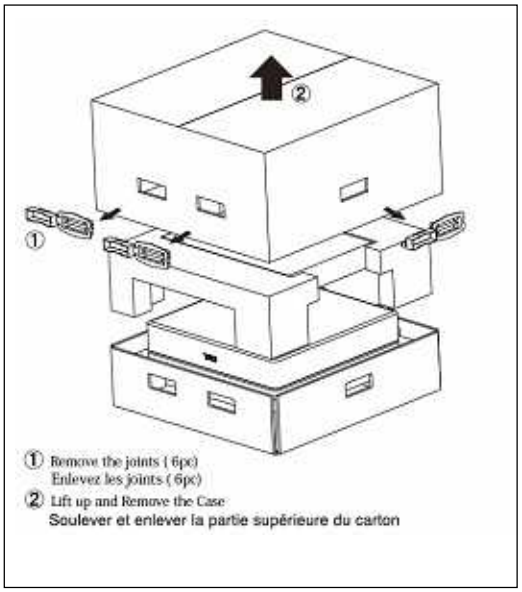
前後で折りたたみﾃｰﾌﾟ止め
folding tape stopper in front and back





両ｻｲﾄﾞを折りたたみﾃｰﾌﾟ止め点線部は2つ折り
fold both sides, and two tape stopper
dotted line parts are folded

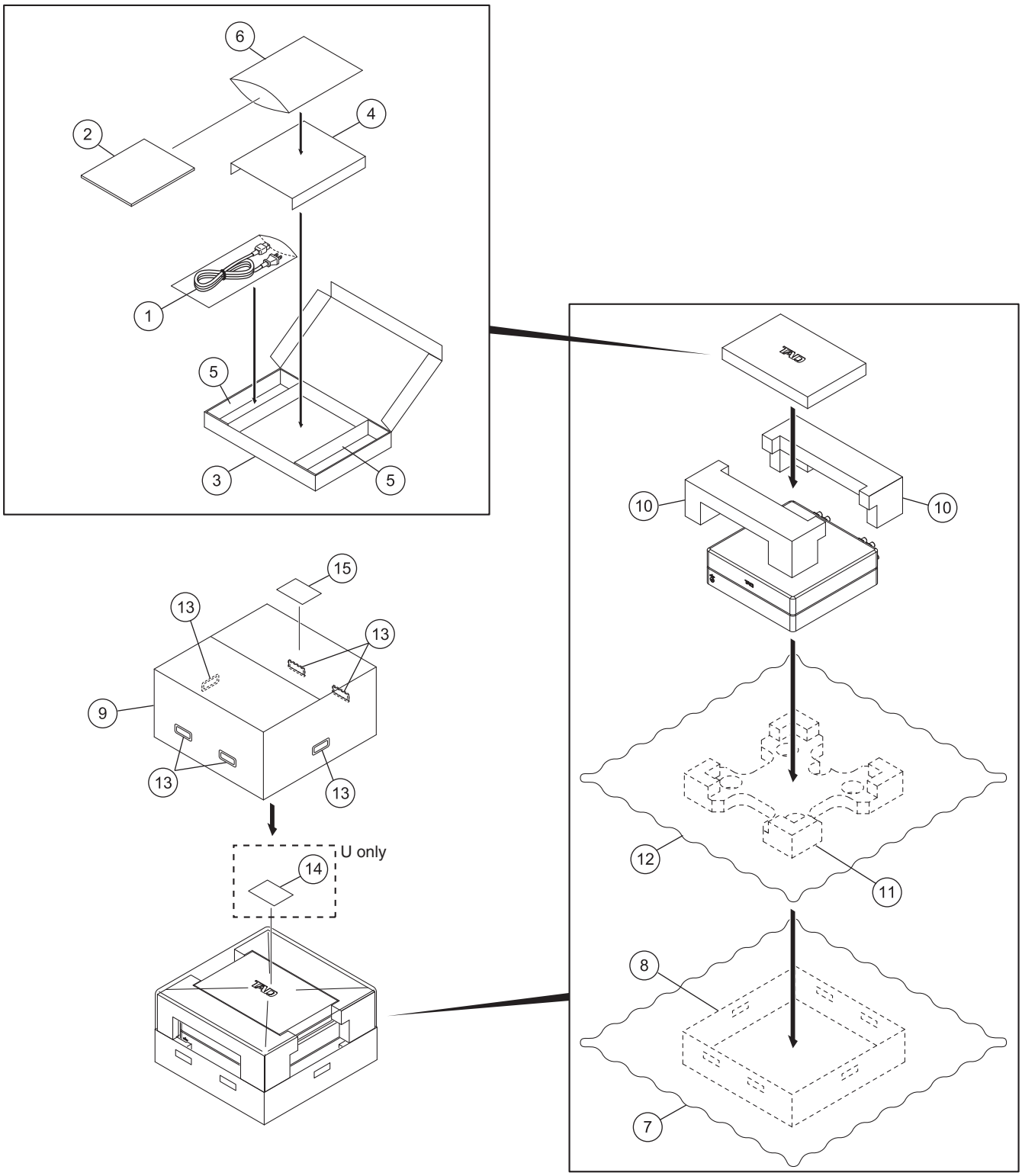
ﾋﾞﾆｰﾙを前後に折りｺｰｼｮﾝを貼る
fold vinyl into front and back and put caution CAN6233(US model)



9. EXPLODED VIEWS AND PARTS LIST

NOTES : ● *Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screw adjacent to mark on the product are used for disassembly.*
● *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions,apply as you think it appropriate.)*

9.1 PACKING SECTION



(1) PACKING SECTION PARTS LIST

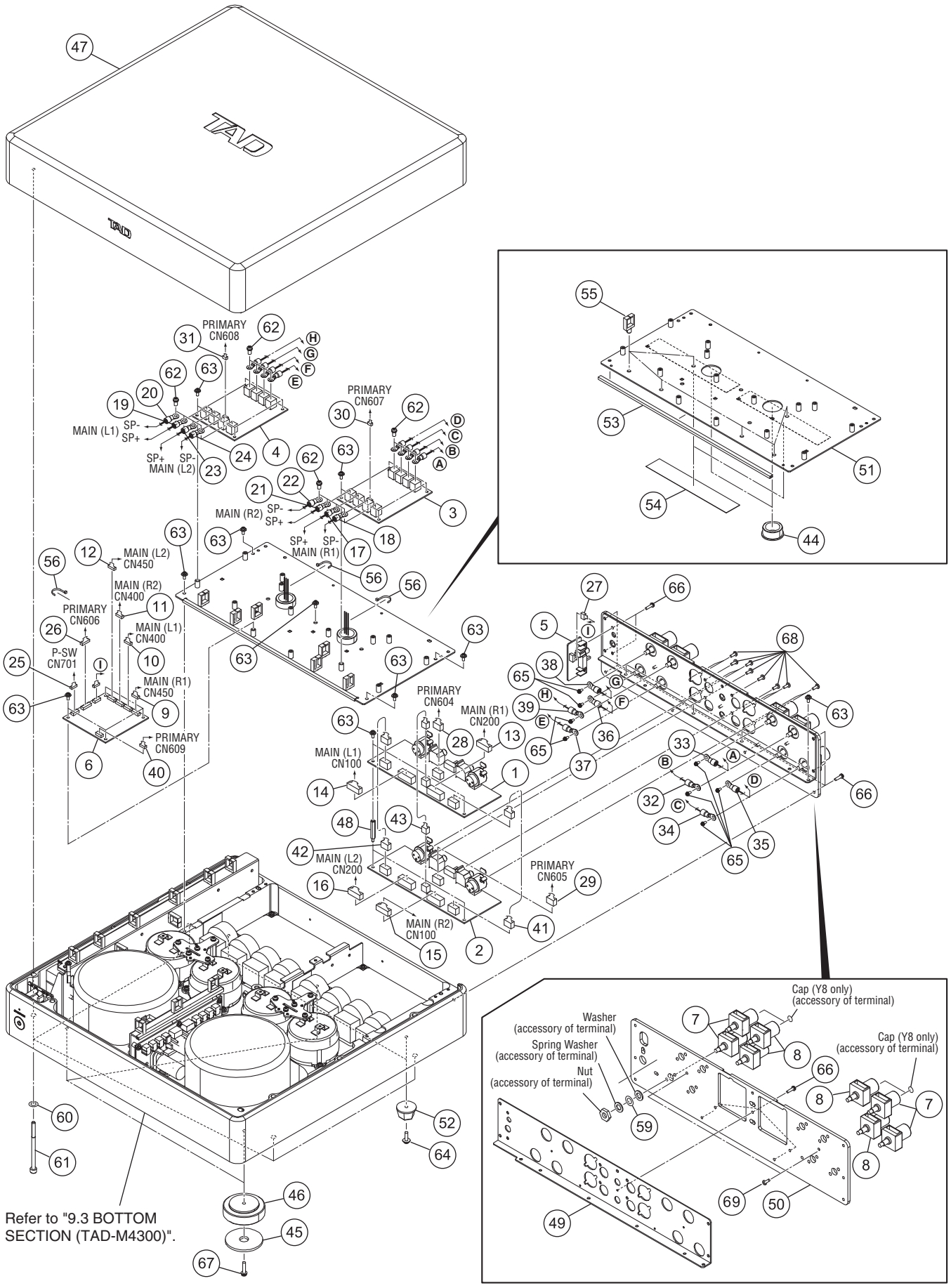
Mark	No.	Description	Part No.
⚠	1	Power Cord	See Contrast table (2)
	2	Operating Instructions (En, Fr, De, It, Es, Ru, Zhtw)	CRD4490
	3	Accessory Box	CHW2145
*	4	Partition	CHW2135
	5	Spacer	CHW2146
	6	Polyethylene Bag	CEG1190
	7	Poly Bag	CEG1452
	8	Unit Box	CHG7122
	9	Unit Box	See Contrast table (2)
	10	Protector	CHP3953
	11	Protector	CHP3954
	12	Sheet	CHV1005
	13	Holder	CNW2003
*	14	Label	See Contrast table (2)
*	15	Label	CAN6506

(2) CONTRAST TABLE

TAD-M4300/U, YS8, L, TAD-M2500/U, YS8 and L are constructed the same except for the following:

Mark	No.	Symbol and Description	TAD-M4300 /U	TAD-M4300 /YS8	TAD-M4300 /L	TAD-M2500 /U	TAD-M2500 /YS8	TAD-M2500 /L
⚠	1	Power Cord	ADG7061	ADG7062	ADG7104	ADG7061	ADG7062	ADG7104
	9	Unit Box	CHG7129	CHG7129	CHG7129	CHG7125	CHG7125	CHG7125
*	14	Label	CAN6233	Not used	Not used	CAN6233	Not used	Not used

9.2 EXTERIOR SECTION (TAD-M4300)



(1) EXTERIOR SECTION (TAD-M4300) PARTS LIST

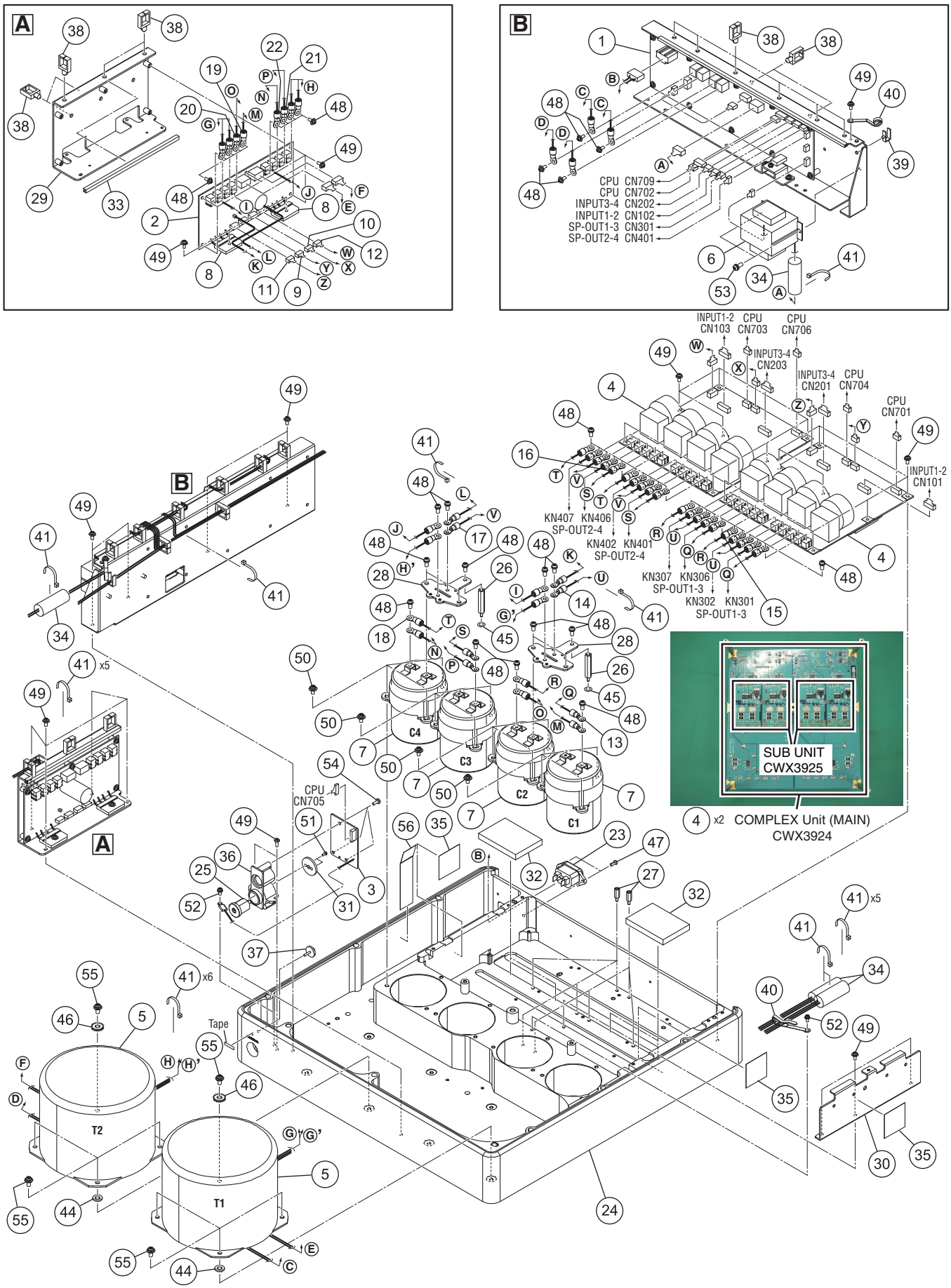
Mark	No.	Description	Part No.
	1	AUDIO Unit (INPUT1-2)	CXX3060
	2	AUDIO Unit (INPUT3-4)	CXX3061
	3	AUDIO Unit (SP-OUT1-3)	CXX3062
	4	AUDIO Unit (SP-OUT2-4)	CXX3063
	5	POWER SUPPLY Unit (S-SW)	CXX3075
	6	COMPLEX Unit (CPU)	CWX3926
	7	Terminal	CKE1074
	8	Terminal	CKE1075
	9	Cord	CDE9227
	10	Cord	CDE9228
	11	Cord	CDE9229
	12	Cord	CDE9230
	13	Cord	CDE9231
	14	Cord	CDE9232
	15	Cord	CDE9233
	16	Cord	CDE9234
	17	Cord	CDE9235
	18	Cord	CDE9236
	19	Cord	CDE9237
	20	Cord	CDE9238
	21	Cord	CDE9239
	22	Cord	CDE9240
	23	Cord	CDE9241
	24	Cord	CDE9242
	25	Cord	CDE9243
	26	Cord	CDE9244
	27	Cord	CDE9245
	28	Cord	CDE9262
	29	Cord	CDE9263
	30	Cord	CDE9264
	31	Cord	CDE9269
	32	Cord	CDE9270
	33	Cord	CDE9271
	34	Cord	CDE9272
	35	Cord	CDE9273
	36	Cord	CDE9313
	37	Cord	CDE9314
	38	Cord	CDE9315
	39	Cord	CDE9316
	40	Cord	CDE9317
	41	Cord	CDE9318
	42	Cord	CDE9319
	43	Cord	CDE9326
*	44	Bush	AEC7206
	45	Cushion	AEC7224
	46	Insulator 56 (MET)	ANL7028
	47	Case	CLA4944
	48	Spacer	CLA4962
	49	Panel	CNB3665
	50	Panel	See Contrast table (2)
	51	Shield	CND5643
	52	Foot	CNN3414
	53	Edging	CNN3435
	54	Sheet	CNN3436
	55	Wire Saddle	DEC1299
	56	Binder	ZCA-SKB90BK
	57	•••••	
	58	•••••	
	59	Washer	WA60S140-100
	60	Washer	WG50FCC
	61	Bolt	CLA4948
	62	Screw	CBA2257
	63	Screw	PMB30P080FCC
	64	Screw	PMB40P140FCC
	65	Screw	PMH30P080B-
	66	Screw	PMH30P100FNI
	67	Screw	PMH40P180FCC
	68	Screw	PPZ30P080FNI
	69	Screw	PMB30P060FNI

(2) CONTRAST TABLE

TAD-M4300/U, YS8 and L are constructed the same except for the following:

Mark	No.	Symbol and Description	TAD-M4300/U	TAD-M4300/YS8	TAD-M4300/L
	50	Panel	CNB3699	CNB3700	CNB3702

9.3 BOTTOM SECTION (TAD-M4300)



(1) BOTTOM SECTION (TAD-M4300) PARTS LIST

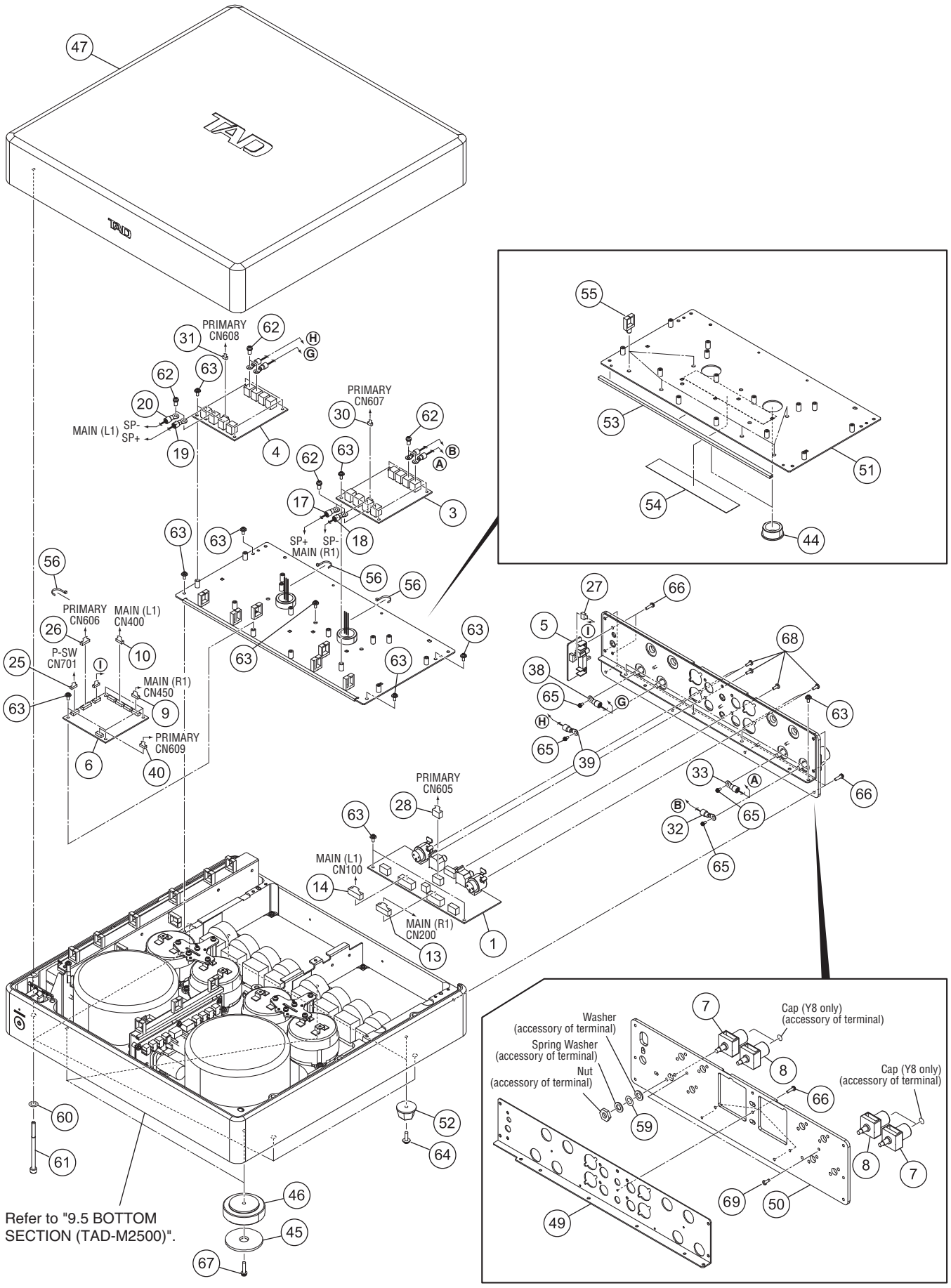
Mark	No.	Description	Part No.
	1	POWER SUPPLY Unit (PRIMARY)	See Contrast table (2)
	2	POWER SUPPLY Unit (RECTIFICATION)	CXX3073
	3	POWER SUPPLY Unit (P-SW)	CXX3074
	4	COMPLEX Unit (MAIN)	CWX3924
⚠	5	Transformer (T1, T2)	See Contrast table (2)
⚠	6	Transformer (T3)	See Contrast table (2)
	7	Capacitor (C1 - C4)	CCH1972
	8	Diode (D501, D502)	D30XBN20
	9	Cord	CDE9246
	10	Cord	CDE9247
	11	Cord	CDE9248
	12	Cord	CDE9249
	13	Cord	CDE9256
	14	Cord	CDE9257
	15	Cord	CDE9258
	16	Cord	CDE9259
	17	Cord	CDE9260
	18	Cord	CDE9261
	19	Cord	CDE9274
	20	Cord	CDE9275
	21	Cord	CDE9276
	22	Cord	CDE9277
	23	Other Cord	CDX1019
	24	Chassis	CLA4945
	25	Button	CLA4946
	26	Specer	CLA4960
	27	Spacer	CLA4961
	28	Earth Plate	CND5642
	29	Angle	CND5646
	30	Angle	CND5656
	31	Cap	CND5671
	32	Sheet	CNN3476
	33	Edging	CNN3490
	34	Tube	CNN3491
*	35	Sheet	CNN3508
	36	Cover	CNW1867
	37	Lens	CNW2000
	38	Wire Saddle	DEC1299
	39	Side Clamp	DEC2007
	40	Cord Clamper (Steel)	RNH1005
	41	Binder	ZCA-SKB90BK
	42	•••••	
	43	•••••	
	44	Washer	WB60FTC
	45	Washer	WG40FCC
	46	Nut	WH40FCU
	47	Screw	CBA2242
	48	Screw	CBA2257
	49	Screw	PMB30P080FCC
	50	Screw	PMB40P080FCC
	51	Screw	PMH26P060FTC
	52	Screw	PMH30P060FTC
	53	Screw	PMH40P100FCC
	54	Screw	PPZ30P080FNI
	55	Screw	PMB40P100FCC
	56	Spacer	CNN3624

(2) CONTRAST TABLE

TAD-M4300/U, YS8 and L are constructed the same except for the following:

Mark	No.	Symbol and Description	TAD-M4300/U	TAD-M4300/YS8	TAD-M4300/L
	1	POWER SUPPLY Unit (PRIMARY)	CXX3069	CXX3070	CXX3071
⚠	5	Transformer (T1, T2)	CTT1188	CTT1189	CTT1189
⚠	6	Transformer (T3)	CTT1191	CTT1192	CTT1192

9.4 EXTERIOR SECTION (TAD-M2500)



(1) EXTERIOR SECTION (TAD-M2500) PARTS LIST

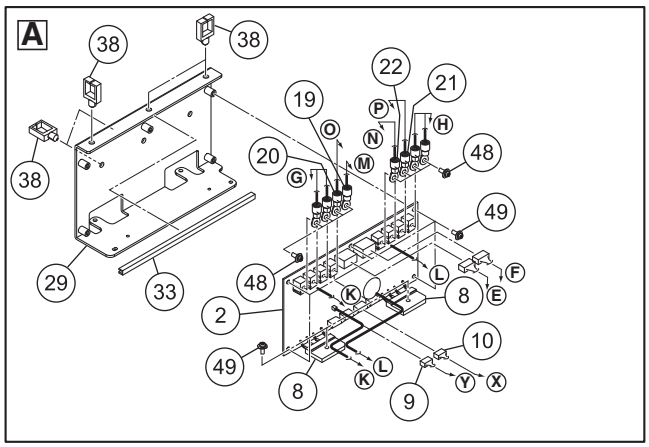
Mark	No.	Description	Part No.
	1	AUDIO Unit (INPUT1-2)	CXX3057
	2	•••••	
	3	AUDIO Unit (SP-OUT1-3)	CXX3058
	4	AUDIO Unit (SP-OUT2-4)	CXX3059
	5	POWER SUPPLY Unit (S-SW)	CXX3074
	6	COMPLEX Unit (CPU)	CWX3926
	7	Terminal	CKE1074
	8	Terminal	CKE1075
	9	Cord	CDE9227
	10	Cord	CDE9228
	11	•••••	
	12	•••••	
	13	Cord	CDE9231
	14	Cord	CDE9232
	15	•••••	
	16	•••••	
	17	Cord	CDE9235
	18	Cord	CDE9236
	19	Cord	CDE9237
	20	Cord	CDE9238
	21	•••••	
	22	•••••	
	23	•••••	
	24	•••••	
	25	Cord	CDE9243
	26	Cord	CDE9244
	27	Cord	CDE9245
	28	Cord	CDE9262
	29	•••••	
	30	Cord	CDE9264
	31	Cord	CDE9269
	32	Cord	CDE9270
	33	Cord	CDE9271
	34	•••••	
	35	•••••	
	36	•••••	
	37	•••••	
	38	Cord	CDE9315
	39	Cord	CDE9316
	40	Cord	CDE9317
	41	•••••	
	42	•••••	
	43	•••••	
*	44	Bush	AEC7206
	45	Cushion	AEC7224
	46	Insulator 56 (MET)	ANL7028
	47	Case	CLA4944
	48	•••••	
	49	Panel	CNB3660
	50	Panel	See Contrast table (2)
	51	Shield	CND5643
	52	Foot	CNN3414
	53	Edging	CNN3435
	54	Sheet	CNN3436
	55	Wire Saddle	DEC1299
	56	Binder	ZCA-SKB90BK
	57	•••••	
	58	•••••	
	59	Washer	WA60S140-100
	60	Washer	WG50FCC
	61	Bolt	CLA4948
	62	Screw	CBA2257
	63	Screw	PMB30P080FCC
	64	Screw	PMB40P140FCC
	65	Screw	PMH30P080B-
	66	Screw	PMH30P100FNI
	67	Screw	PMH40P180FCC
	68	Screw	PPZ30P080FNI
	69	Screw	PMB30P060FNI

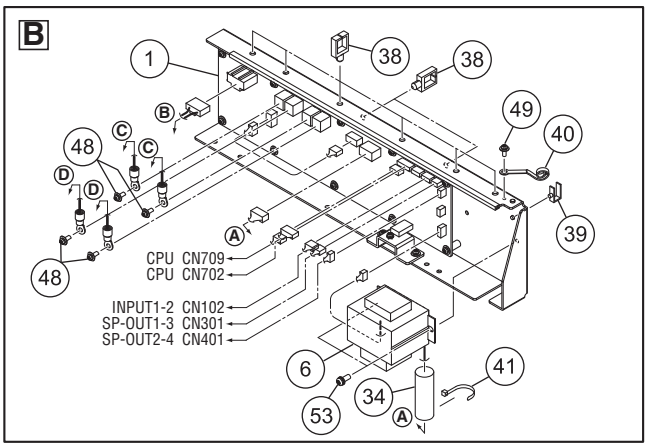
(2) CONTRAST TABLE

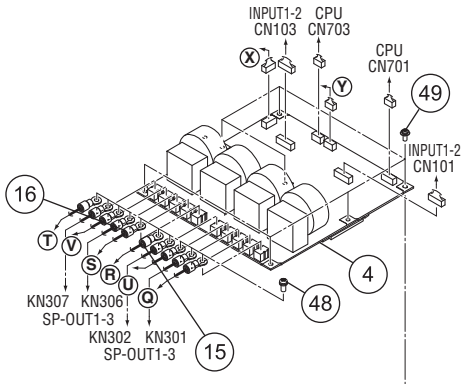
TAD-M2500/U, YS8 and L are constructed the same except for the following:

Mark	No.	Symbol and Description	TAD-M2500/U	TAD-M2500/YS8	TAD-M2500/L
	50	Panel	CNB3695	CNB3696	CNB3698

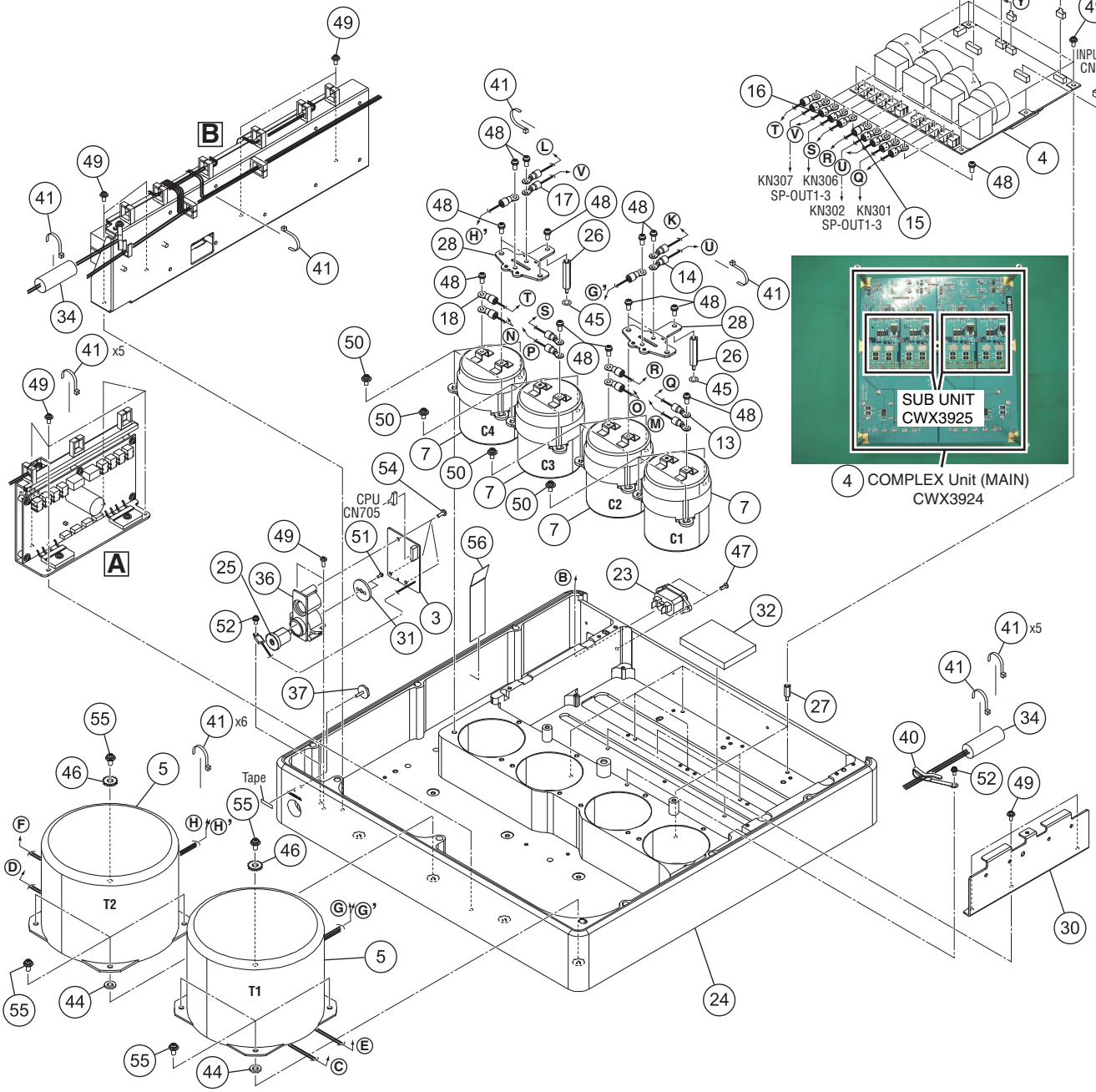
9.5 BOTTOM SECTION (TAD-M2500)







4 COMPLEX Unit (MAIN)
CWX3924



(1) BOTTOM SECTION (TAD-M2500) PARTS LIST

Mark	No.	Description	Part No.
	1	POWER SUPPLY Unit (PRIMARY)	See Contrast table (2)
	2	POWER SUPPLY Unit (RECTIFICATION)	CXX3072
	3	POWER SUPPLY Unit (P-SW)	CXX3074
	4	COMPLEX Unit (MAIN)	CWX3924
⚠	5	Transformer (T1, T2)	See Contrast table (2)
⚠	6	Transformer (T3)	See Contrast table (2)
	7	Capacitor (C1 - C4)	CCH1972
	8	Diode (D501, D502)	D30XBN20
	9	Cord	CDE9246
	10	Cord	CDE9247
	11	•••••	
	12	•••••	
	13	Cord	CDE9250
	14	Cord	CDE9251
	15	Cord	CDE9252
	16	Cord	CDE9253
	17	Cord	CDE9254
	18	Cord	CDE9255
	19	Cord	CDE9274
	20	Cord	CDE9275
	21	Cord	CDE9276
	22	Cord	CDE9277
	23	Other Cord	CDX1019
	24	Chassis	CLA4945
	25	Button	CLA4946
	26	Specer	CLA4960
	27	Spacer	CLA4961
	28	Earth Plate	CND5642
	29	Angle	CND5646
	30	Angle	CND5656
	31	Cap	CND5671
	32	Sheet	CNN3476
	33	Edging	CNN3490
	34	Tube	CNN3491
	35	•••••	
	36	Cover	CNW1867
	37	Lens	CNW2000
	38	Wire Saddle	DEC1299
	39	Side Clamp	DEC2007
	40	Cord Clamper (Steel)	RNH1005
	41	Binder	ZCA-SKB90BK
	42	•••••	
	43	•••••	
	44	Washer	WB60FTC
	45	Washer	WG40FCC
	46	Nut	WH40FCU
	47	Screw	CBA2242
	48	Screw	CBA2257
	49	Screw	PMB30P080FCC
	50	Screw	PMB40P080FCC
	51	Screw	PMH26P060FTC
	52	Screw	PMH30P060FTC
	53	Screw	PMH40P100FCC
	54	Screw	PPZ30P080FNI
	55	Screw	PMB40P100FCC
	56	Spacerw	CNN3624

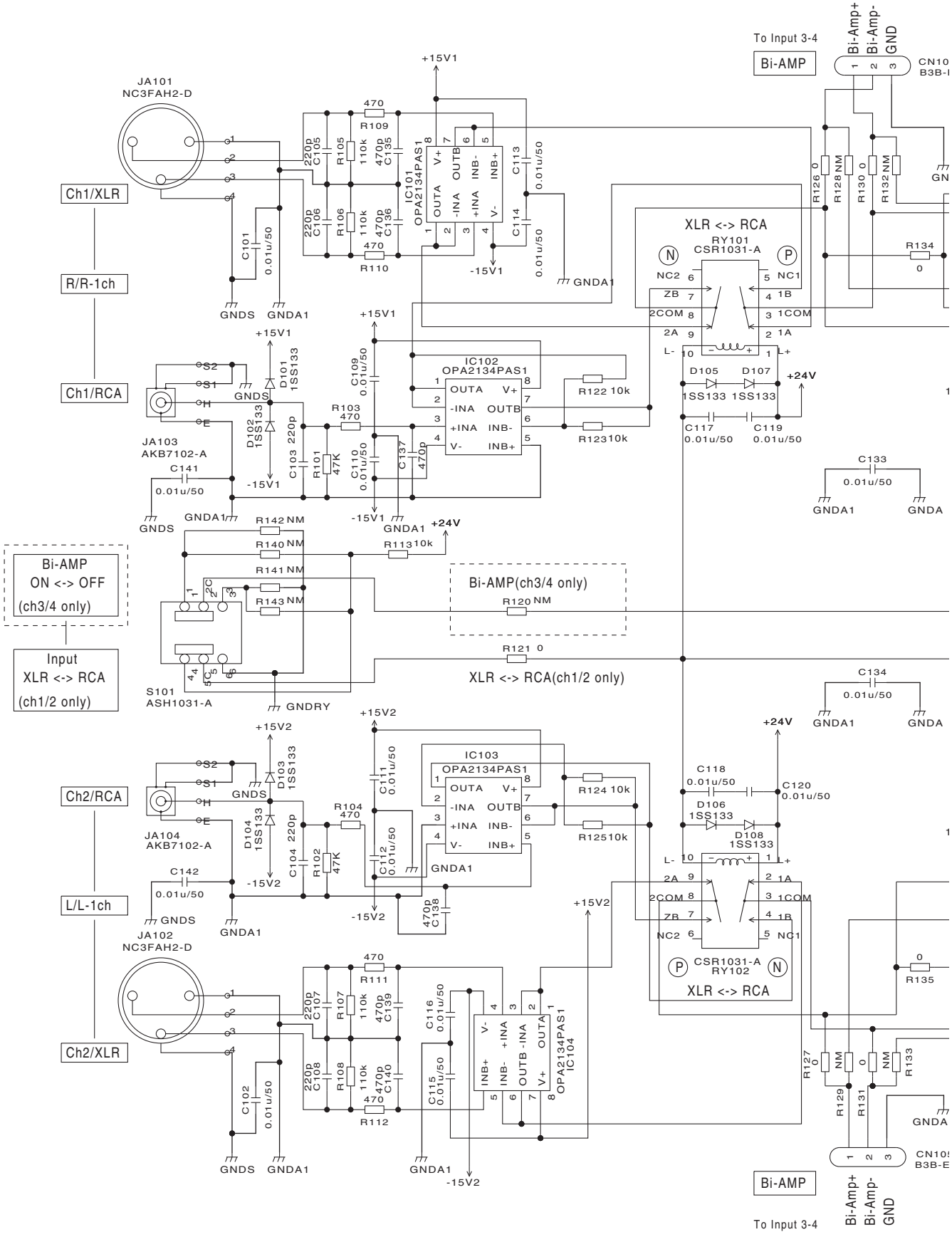
(2) CONTRAST TABLE

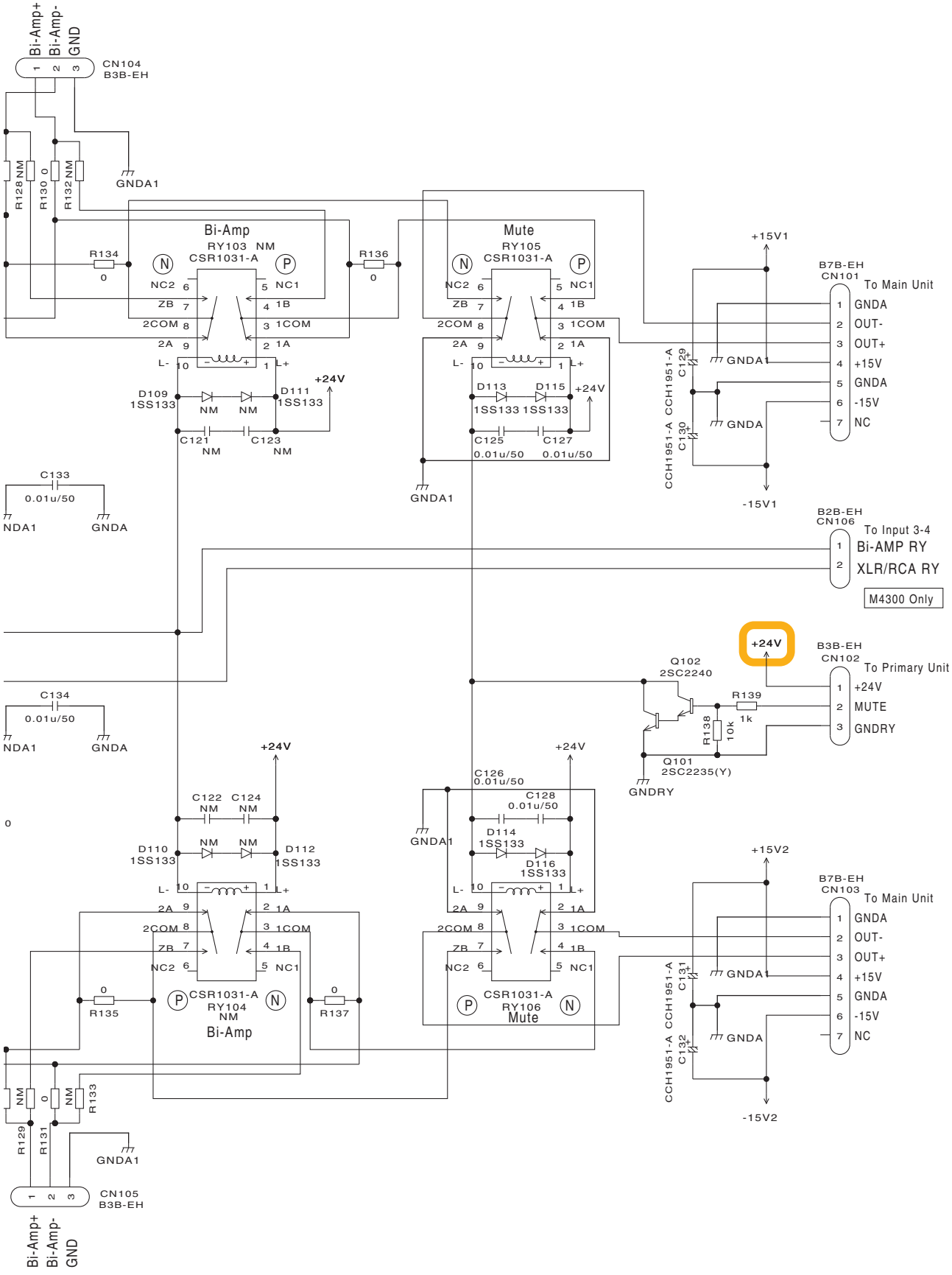
TAD-M2500/U, YS8 and L are constructed the same except for the following:

Mark	No.	Symbol and Description	TAD-M2500/U	TAD-M2500/YS8	TAD-M2500/L
	1	POWER SUPPLY Unit (PRIMARY)	CXX3065	CXX3068	CXX3067
⚠	5	Transformer (T1, T2)	CTT1185	CTT1186	CTT1186
⚠	6	Transformer (T3)	CTT1191	CTT1192	CTT1192

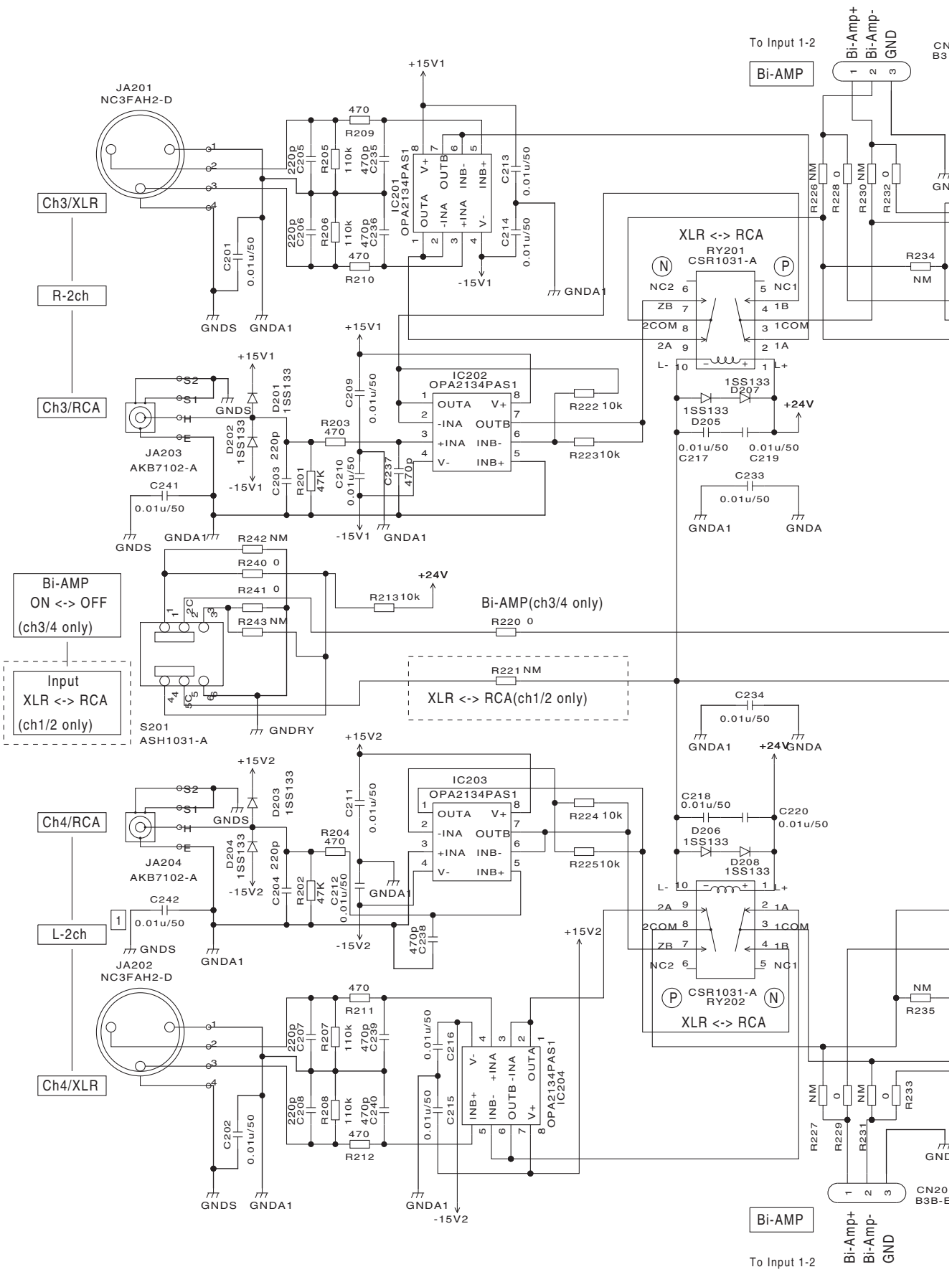
10. SCHEMATIC DIAGRAM
10.1 AUDIO UNIT (INPUT1-2)

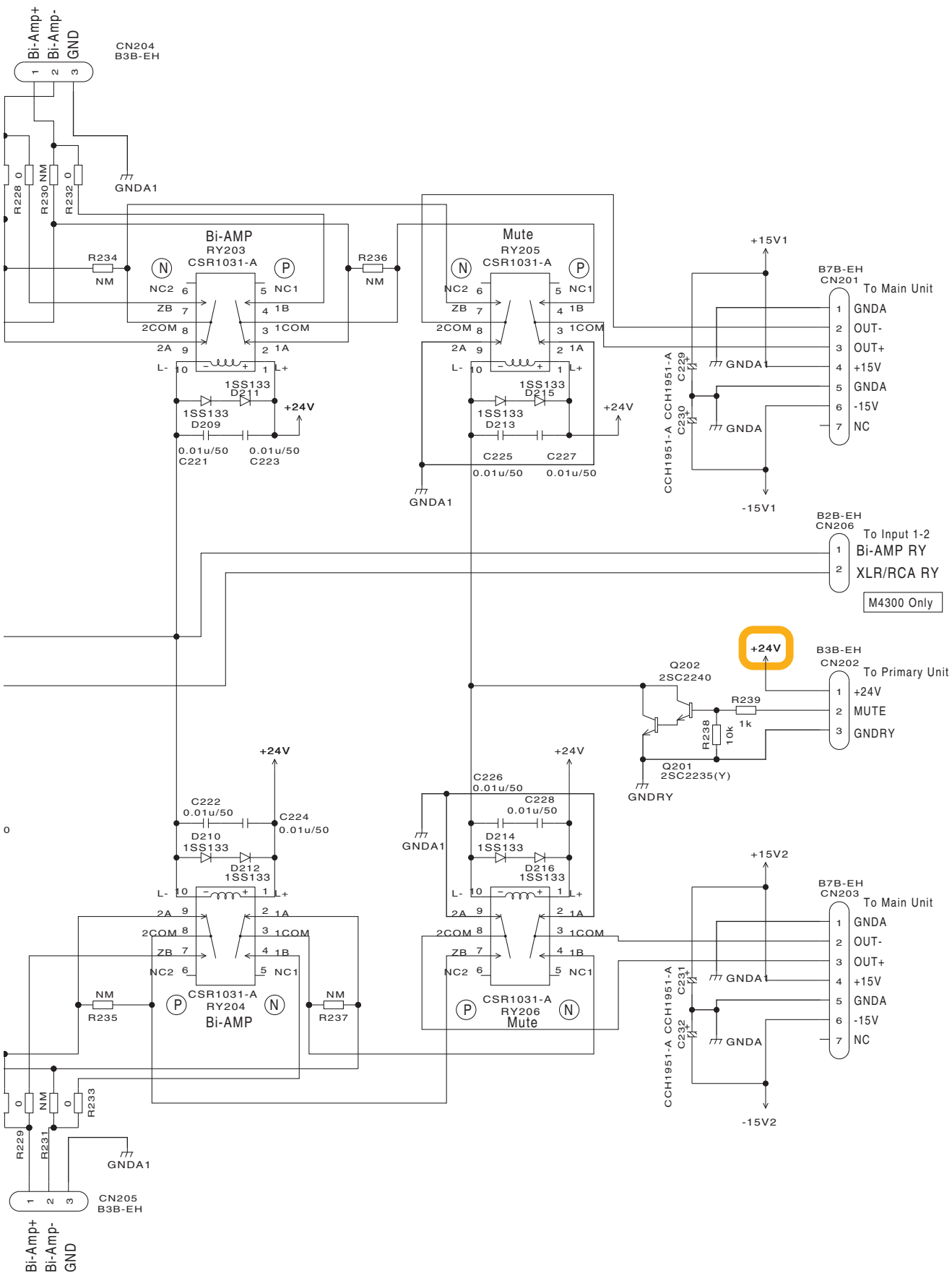
AUDIO UNIT (INPUT1-2)



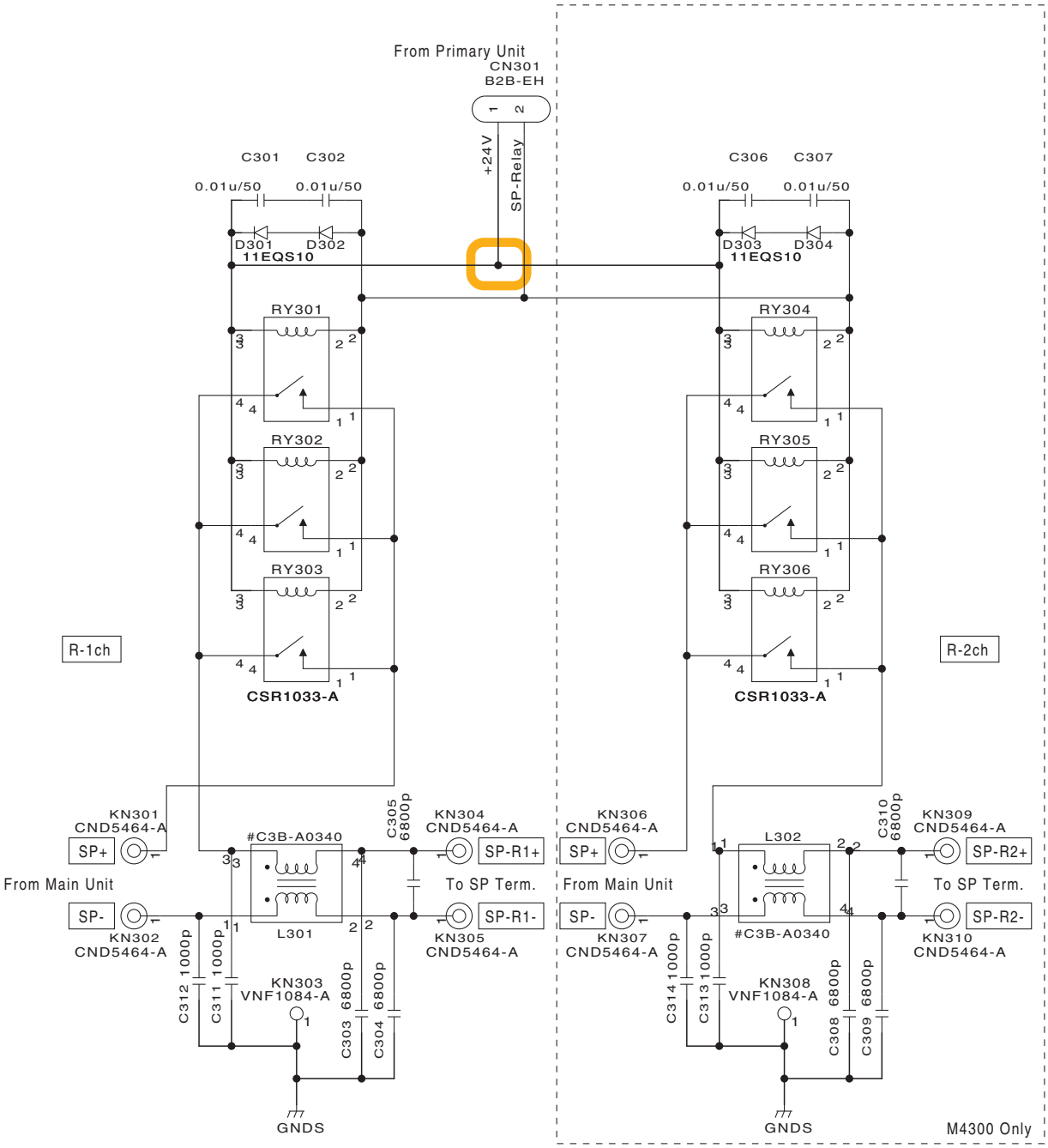

Bi-Amp+
Bi-Amp-
GND
CN104
B3B-EH
R128 NM
R130 0
R132 NM
GNDA1
Bi-Amp
RY103 NM
CSR1031-A
R134
0
R136
0
Mute
RY105
CSR1031-A
NC2
ZB
2COM
2A
L-
NC1
1B
1COM
1A
L+
D109 1SS133
D111 1SS133
NM
+24V
C121 NM
C123 NM
D113 1SS133
D115 1SS133
C125 0.01u/50
C127 0.01u/50
+15V1
-15V1
B7B-EH
CN101
To Main Unit
GNDA
OUT-
OUT+
+15V
-15V
NC
CCH1951-A
C129
C130
C133
0.01u/50
B2B-EH
CN106
To Input 3-4
Bi-AMP RY
XLR/RCA RY
M4300 Only
C134
0.01u/50
Q102
2SC2240
Q101
2SC2235(Y)
R139
1k
R138
10k
B3B-EH
CN102
To Primary Unit
MUTE
GNDRY
C122 NM
C124 NM
D110 1SS133
D112 1SS133
C126 0.01u/50
C128 0.01u/50
D114 1SS133
D116 1SS133
R135
R137
CSR1031-A
RY104
NM
RY106
+15V2
-15V2
C131
C132
R129 NM
R131 0
R133 NM
CN105
B3B-EH

AUDIO UNIT (INPUT3-4)



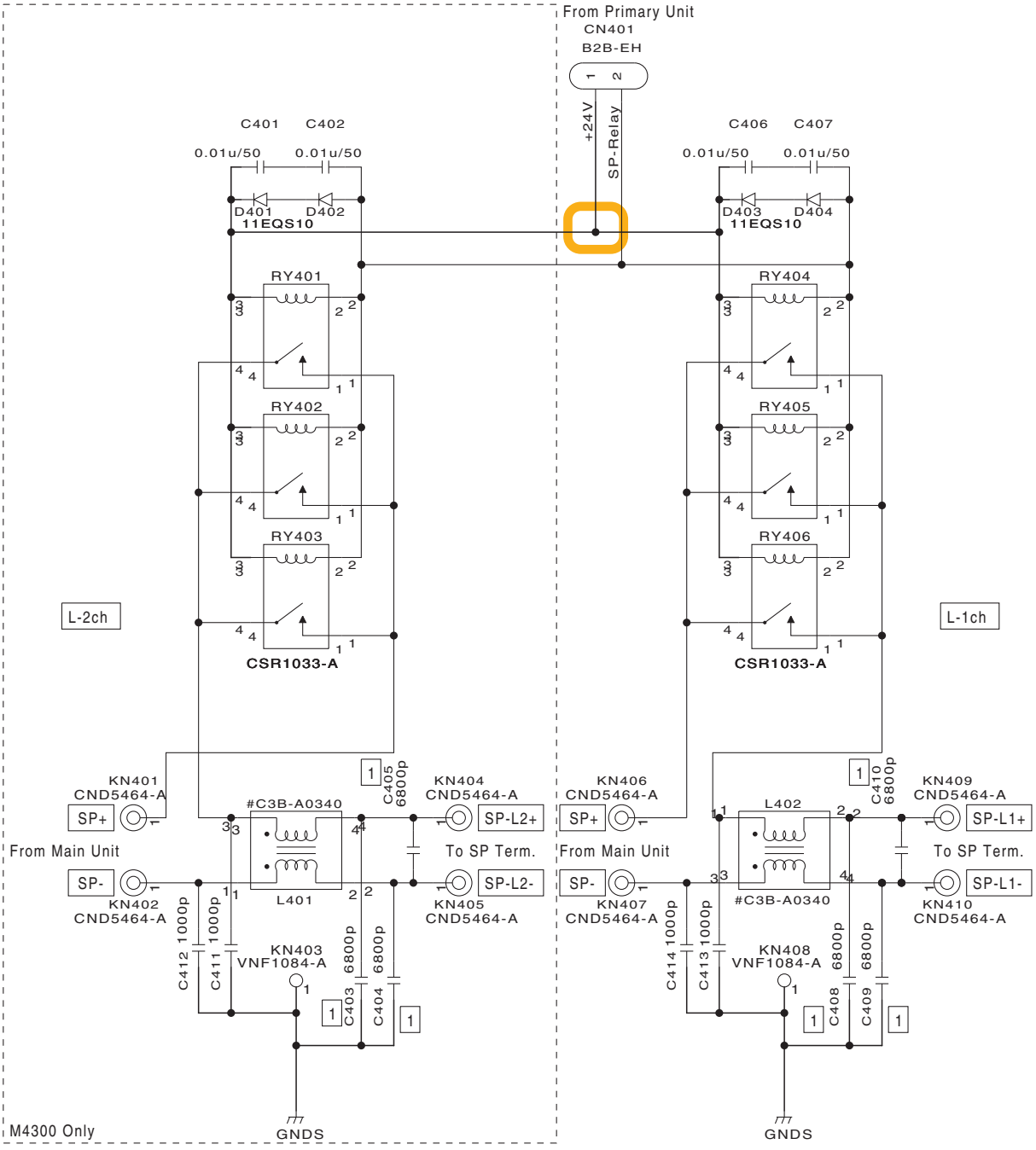

Bi-Amp+
Bi-Amp-
GND
CN204
B3B-EH
GNDA1
R228 0
R230 NM
R232 0
Bi-AMP
RY203
CSR1031-A
R234
NM
R236
NM
Mute
RY205
CSR1031-A
NC2
ZB
2COM
2A
L-
NC1
1B
1COM
1A
L+
1SS133
D211
D209
D213
D215
+24V
0.01u/50
C221
C223
C225
C227
+15V1
-15V1
B7B-EH
CN201
To Main Unit
GNDA
OUT-
OUT+
+15V
-15V
NC
CCH1951-A
C229
C230
B2B-EH
CN206
To Input 1-2
Bi-AMP RY
XLR/RCA RY
M4300 Only
Q202
2SC2240
Q201
2SC2235(Y)
R239
1k
R238
10k
GNDRY
B3B-EH
CN202
To Primary Unit
MUTE
C222
C224
C226
C228
D210
D212
D214
D216
RY204
RY206
C231
C232
+15V2
-15V2
B7B-EH
CN203
R235
R237
R229
R231
R233
CN205
B3B-EH

AUDIO UNIT (SP-OUT1-3)



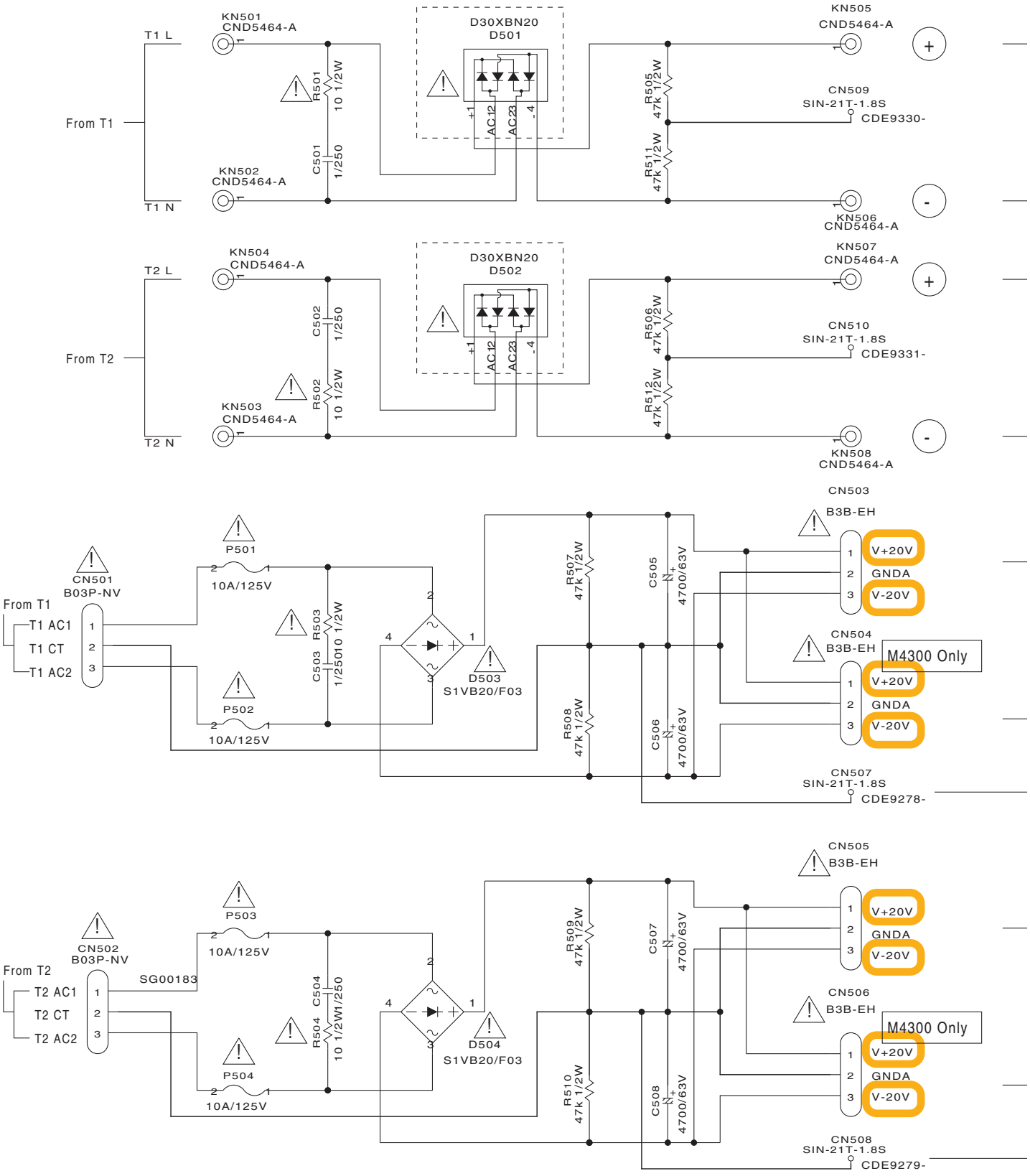
10.4 AUDIO UNIT (SP-OUT2-4)

AUDIO UNIT (SP-OUT2-4)



10.5 POWER SUPPLY UNIT (RECTIFICATION, S-SW and P-SW)

POWER SUPPLY UNIT (RECTIFICATION)



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE ONLY WITH SAME TYPE NO. 491010 MFD. BY
LITTELFUSE INC. FOR P501, P502, P503 and P504.

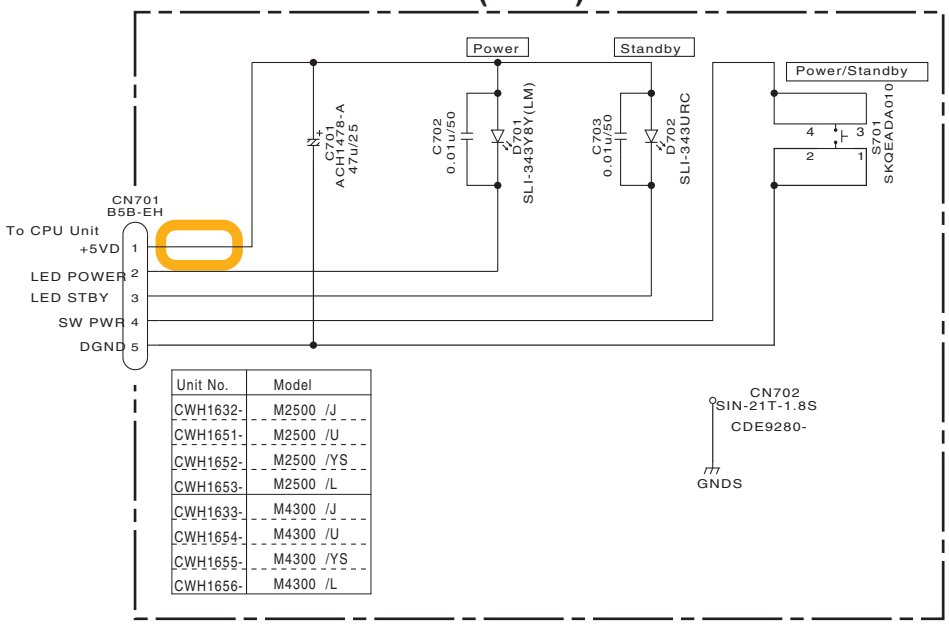
The ⚠ mark found on some component parts should be replaced with same parts (safety regulation authorized) of identical designation.

Unit No.	Model
CWH1632-	M2500 /J
CWH1651-	M2500 /U
CWH1652-	M2500 /YS
CWH1653-	M2500 /L
CWH1633-	M4300 /J
CWH1654-	M4300 /U
CWH1655-	M4300 /YS
CWH1656-	M4300 /L

330- (+) (-) To Main Capacitor

331- (+) (-) To Main Capacitor

POWER SUPPLY UNIT (P-SW)



Unit No.	Model
CWH1632-	M2500 /J
CWH1651-	M2500 /U
CWH1652-	M2500 /YS
CWH1653-	M2500 /L
CWH1633-	M4300 /J
CWH1654-	M4300 /U
CWH1655-	M4300 /YS
CWH1656-	M4300 /L

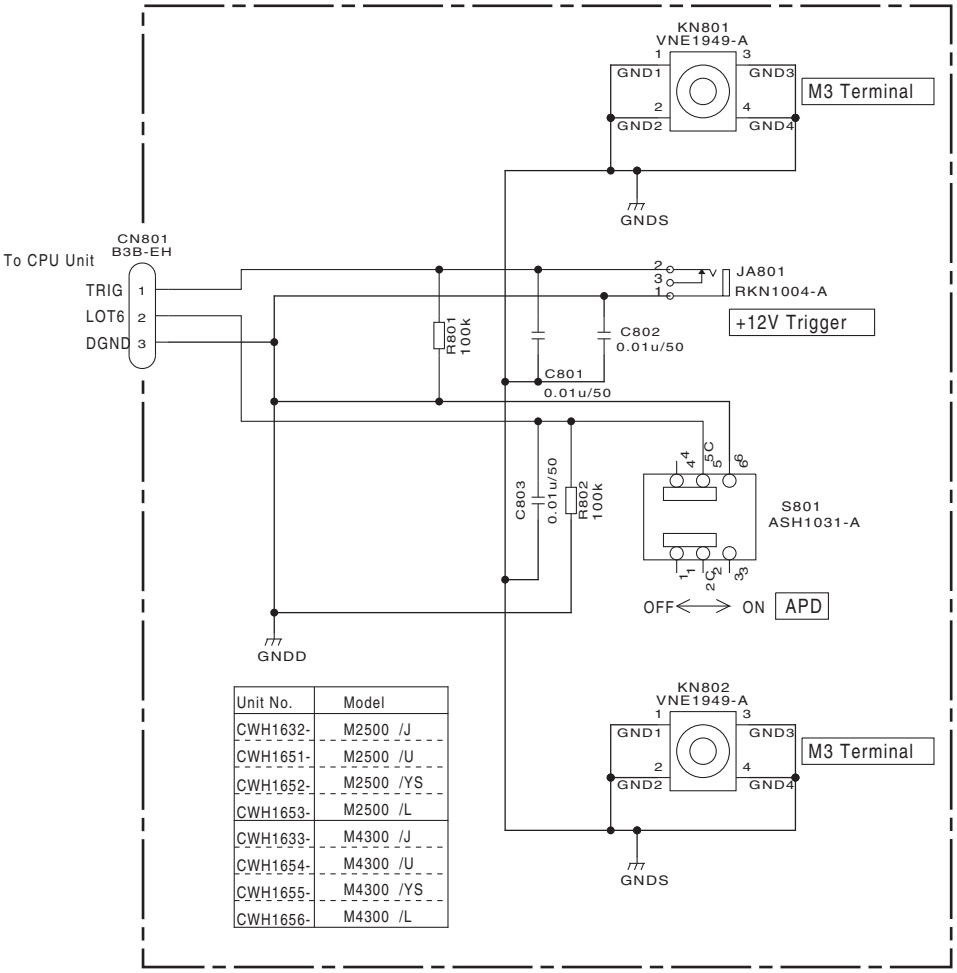
4300 Only (+) (-) To Main Unit

278- To Main Capacitor

4300 Only (+) (-) To Main Unit

279- To Main Capacitor

POWER SUPPLY UNIT (S-SW)



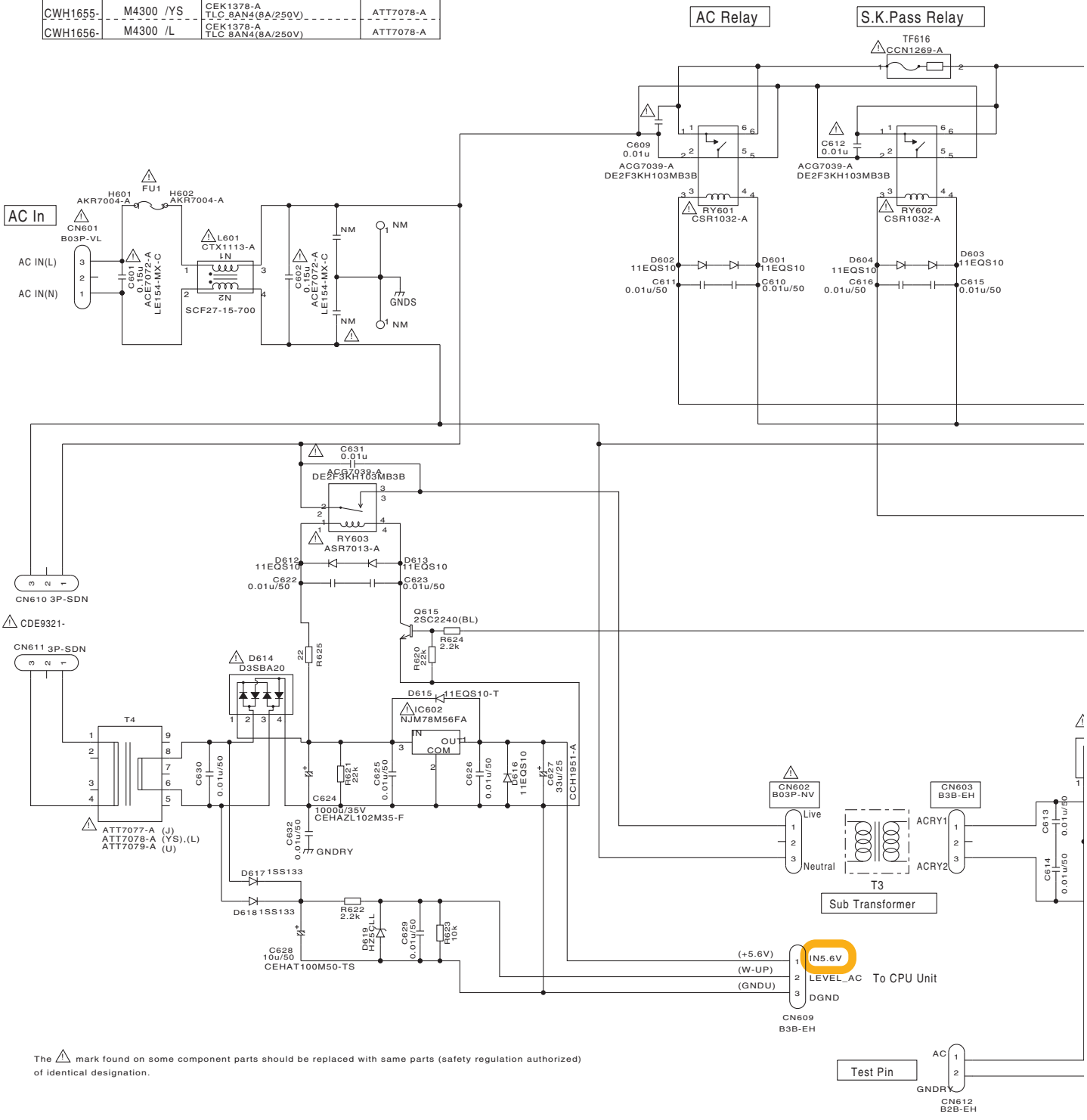
Unit No.	Model
CWH1632-	M2500 /J
CWH1651-	M2500 /U
CWH1652-	M2500 /YS
CWH1653-	M2500 /L
CWH1633-	M4300 /J
CWH1654-	M4300 /U
CWH1655-	M4300 /YS
CWH1656-	M4300 /L

POWER SUPPLY UNIT (PRIMARY)

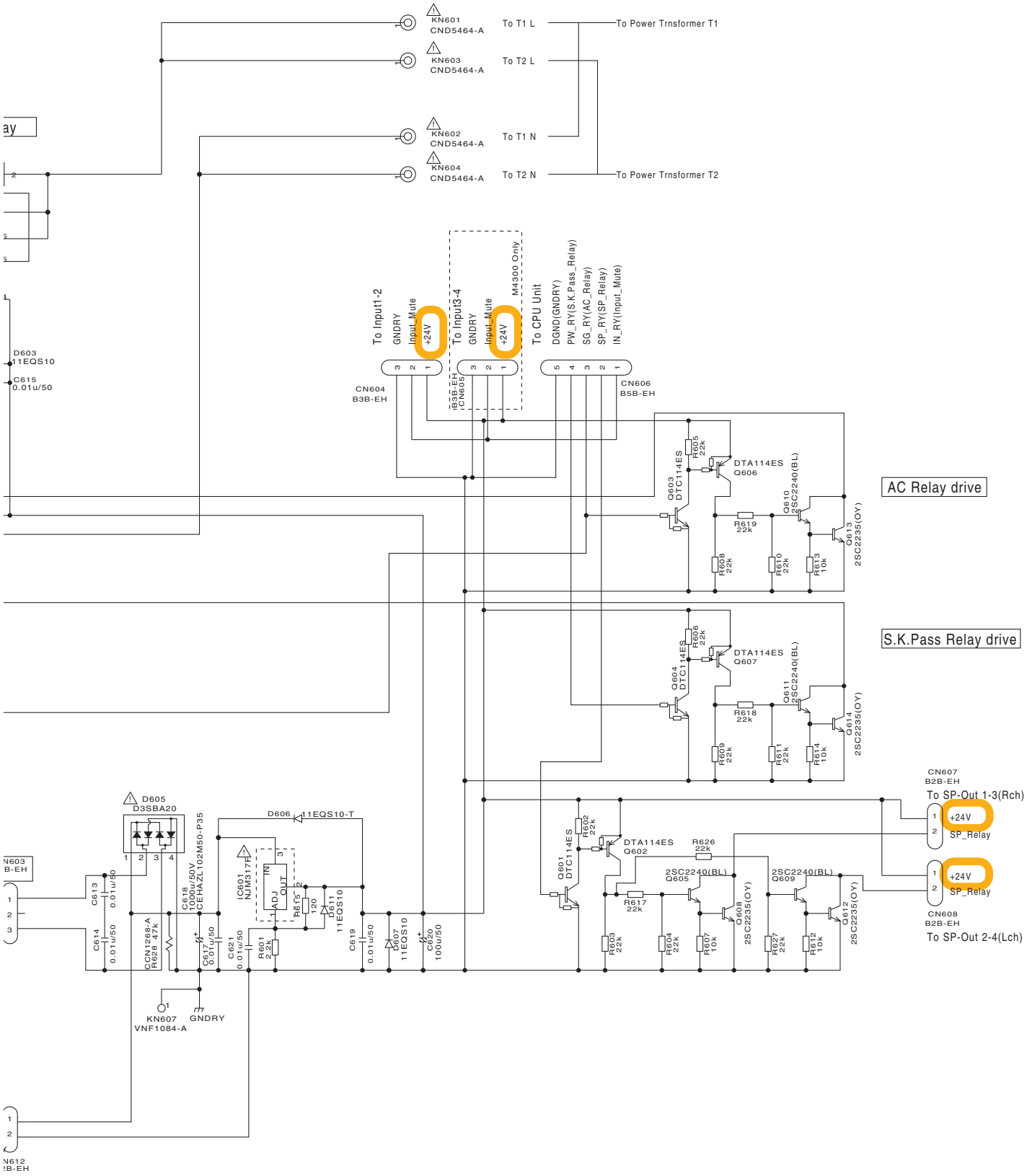
• NOTE FOR FUSE REPLACEMENT

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE AND RATINGS OF FUSE.

Unit No.	Model	FU1	T4
CWH1632-	M2500 /J	AEK7077-A SHV14-15A N4(15A/300V)	ATT7077-A
CWH1651-	M2500 /U	AEK7077-A SHV14-15A N4(15A/400V)	ATT7079-A
CWH1652-	M2500 /YS	CEK1378-A TLC 8AN4(8A/250V)	ATT7078-A
CWH1653-	M2500 /L	CEK1378-A TLC 8AN4(8A/250V)	ATT7078-A
CWH1633-	M4300 /J	AEK7077-A SHV14-15A N4(15A/300V)	ATT7077-A
CWH1654-	M4300 /U	AEK7077-A SHV14-15A N4(15A/400V)	ATT7079-A
CWH1655-	M4300 /YS	CEK1378-A TLC 8AN4(8A/250V)	ATT7078-A
CWH1656-	M4300 /L	CEK1378-A TLC 8AN4(8A/250V)	ATT7078-A



The ⚠ mark found on some component parts should be replaced with same parts (safety regulation authorized) of identical designation.


KN601 CND5464-A
To T1 L
To Power Trnsformer T1
KN603 CND5464-A
To T2 L
KN602 CND5464-A
To T1 N
KN604 CND5464-A
To T2 N
To Power Trnsformer T2
To Input1-2
GNDRY
Input_Mute
+24V
To Input3-4
GNDRY
Input_Mute
+24V
M4300 Only
To CPU Unit
DGND(GNDRY)
PW_RY(S.K.Pass_Relay)
SG_RY(AC_Relay)
SP_RY(SP_Relay)
IN_RY(Input_Mute)
CN604 B3B-EH
CN605 B3B-EH
CN606 B5B-EH
D603 1SS1EQS10
C615 0.01u/50
AC Relay drive
S.K.Pass Relay drive
DTA114ES Q606
DTA114ES Q607
DTC114ES Q603
DTC114ES Q604
2SC2240(BL) Q610
2SC2240(BL) Q611
2SC2235(OY) Q613
2SC2235(OY) Q614
R606 22k
R607 22k
R608 22k
R609 22k
R610 22k
R611 22k
R613 10k
R614 10k
R618 22k
R619 22k
D605 D3SBA20
D606 1SS1EQS10-T
IC601 NJM317H
ADJ
IN
OUT
C618 1000u/50V CEHAL102M50-P35
C613 0.01u/50
C614 0.01u/50
CCN1268-A R628 47k
C617 0.01u/50
C621 0.01u/50
R601 2k
R615 120
D611 1SS1EQS10
C619 0.01u/50
D607 1SS1EQS10
C620 100u/50
KN607 VNF1084-A
GNDRY
DTA114ES Q602
DTC114ES Q601
2SC2240(BL) Q605
2SC2240(BL) Q609
2SC2235(OY) Q608
2SC2235(OY) Q612
R602 22k
R603 22k
R604 22k
R605 22k
R607 10k
R617 22k
R626 22k
R627 22k
R612 10k
CN607 B2B-EH
To SP-Out 1-3(Rch)
+24V
SP_Relay
CN608 B2B-EH
To SP-Out 2-4(Lch)
+24V
SP_Relay

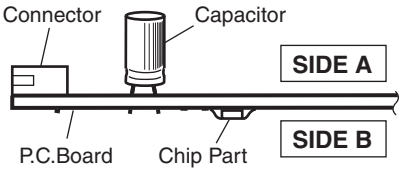
11. PCB CONNECTION DIAGRAM
11.1 AUDIO UNIT (INPUT1-2)

SIDE A **SIDE B**

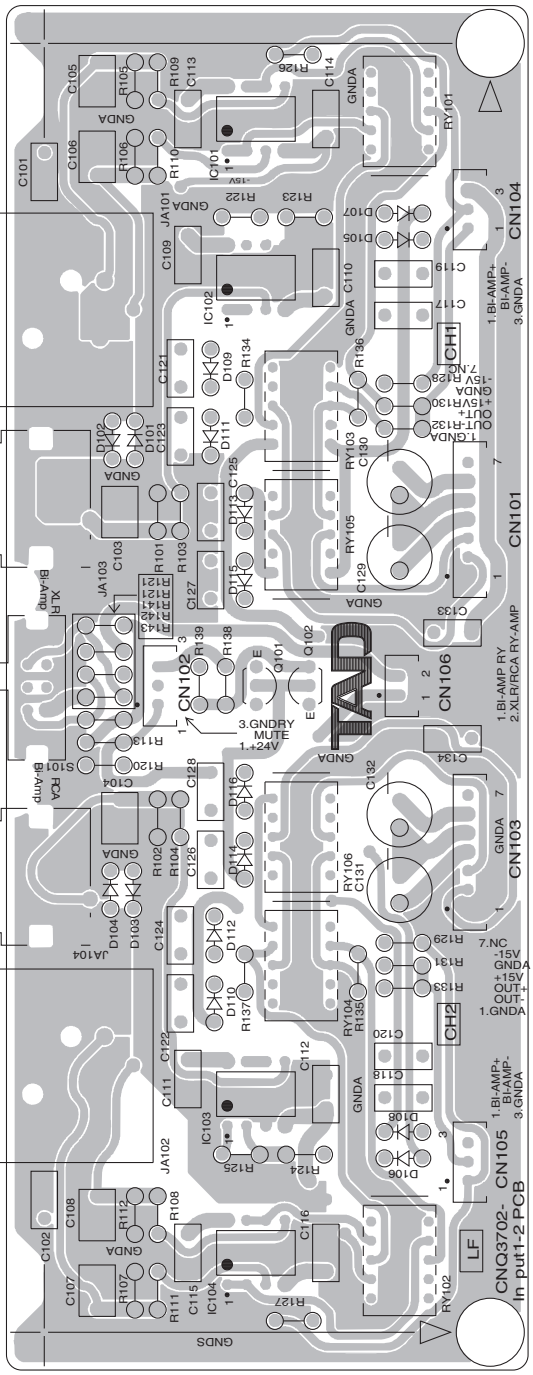
NOTE FOR PCB DIAGRAMS :

1. The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.

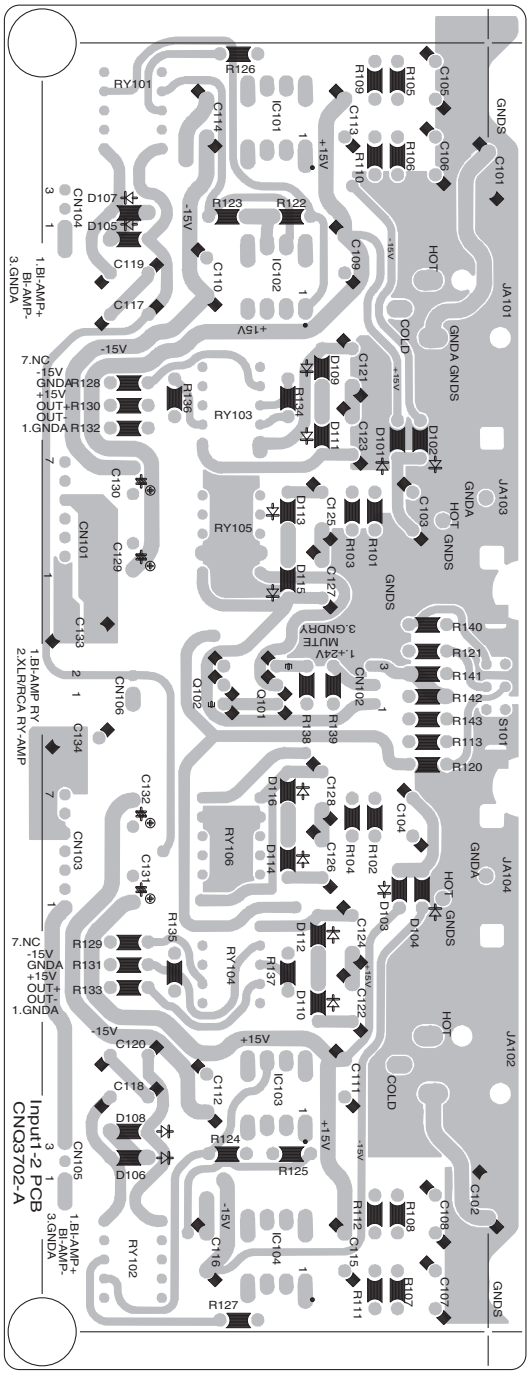
2. View point of PCB diagrams.



AUDIO UNIT (INPUT1-2)



AUDIO UNIT (INPUT1-2)

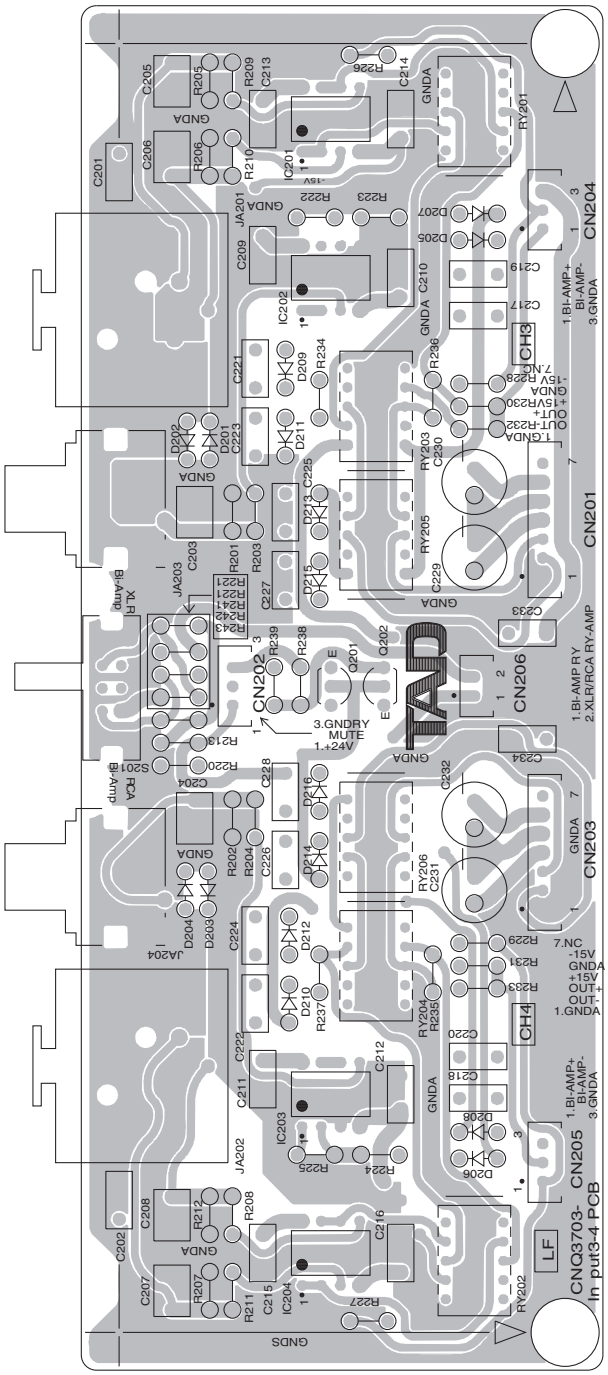


11.2 AUDIO UNIT (INPUT3-4)

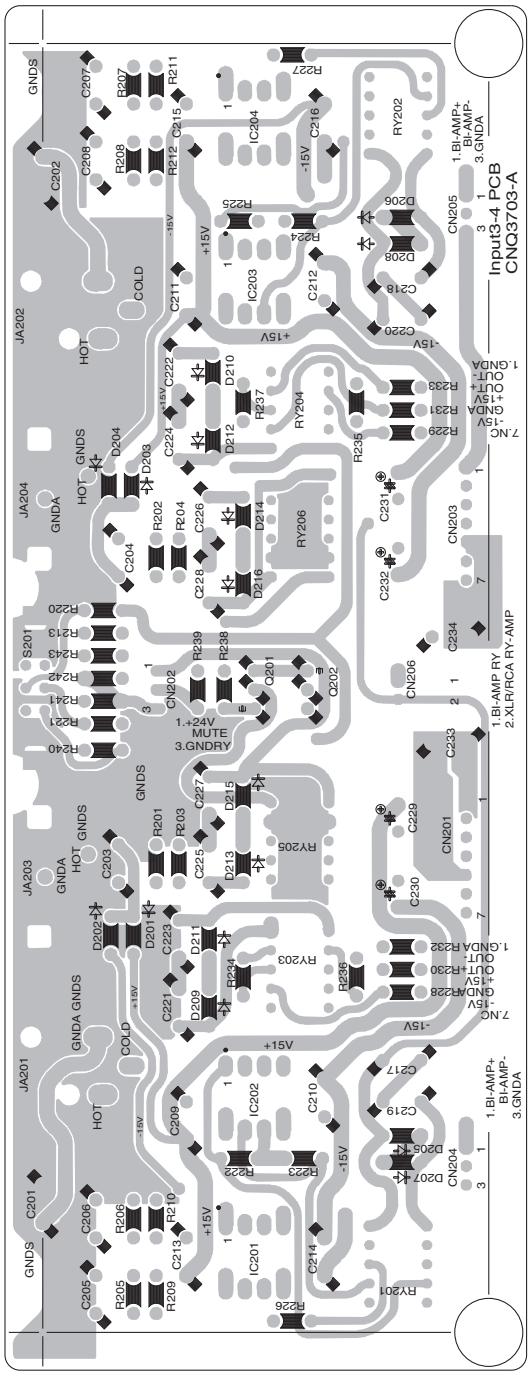
SIDE A

SIDE B

AUDIO UNIT (INPUT3-4)



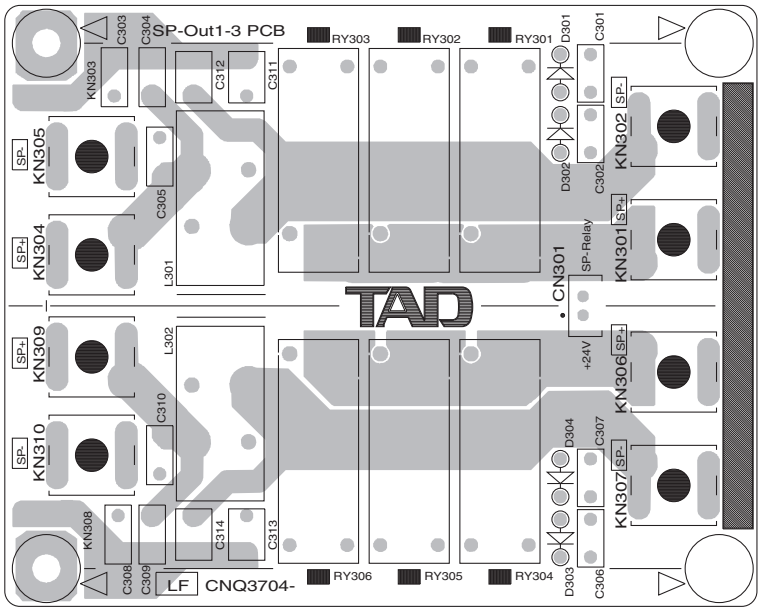
AUDIO UNIT (INPUT3-4)



11.3 AUDIO UNIT (SP-OUT1-3)

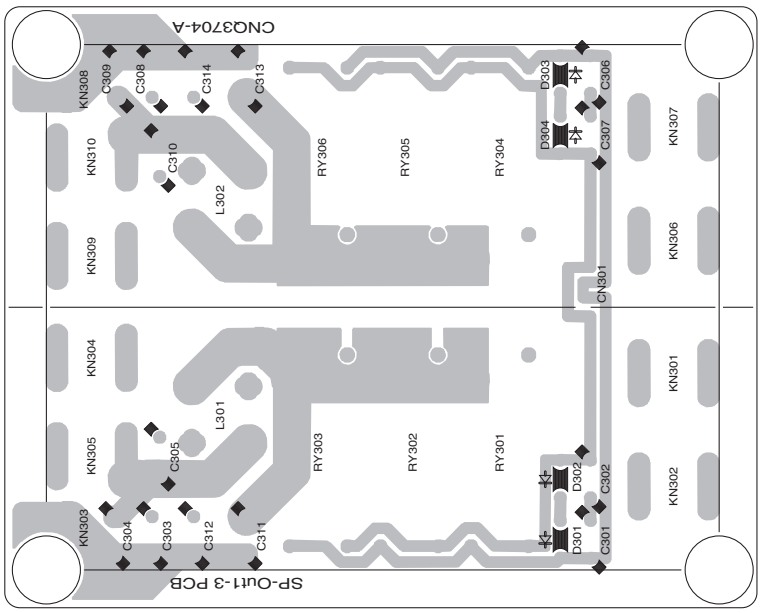
SIDE A **SIDE A**

AUDIO UNIT (SP-OUT1-3)



SIDE B **SIDE B**

AUDIO UNIT (SP-OUT1-3)

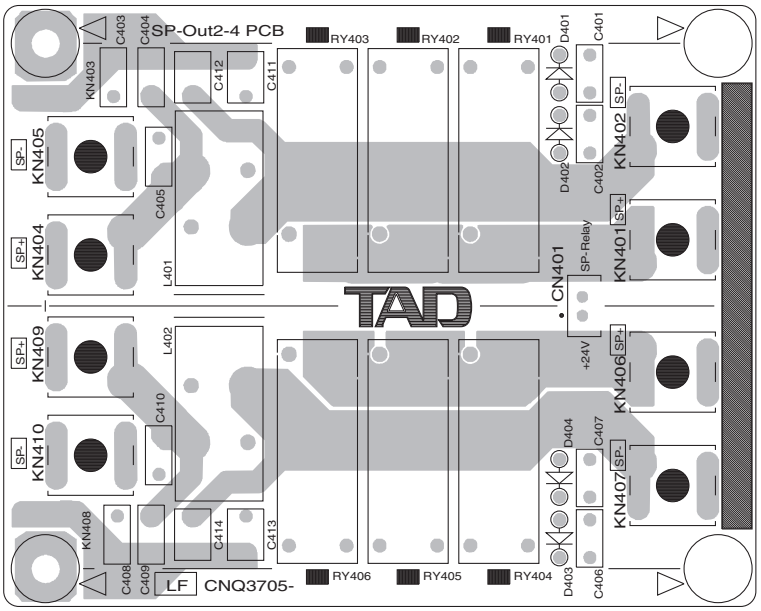


11.4 AUDIO UNIT (SP-OUT2-7)

SIDE A

SIDE A

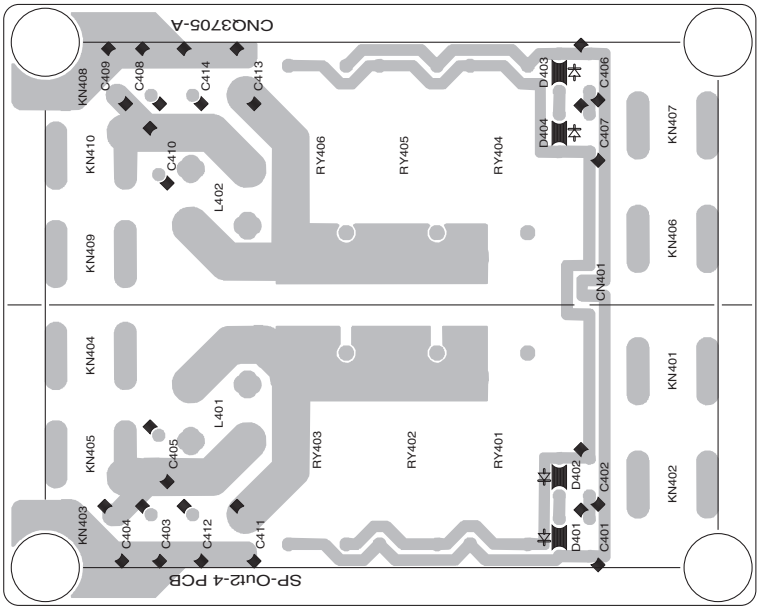
AUDIO UNIT (SP-OUT2-4)



SIDE B

SIDE B

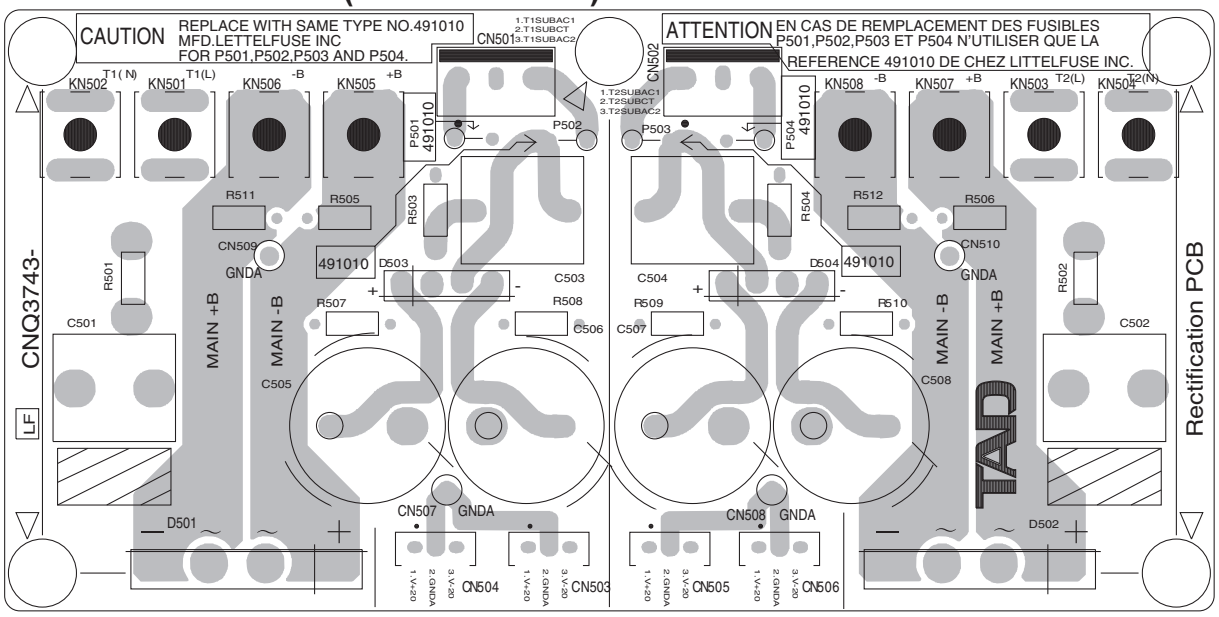
AUDIO UNIT (SP-OUT2-4)



11.5 POWER SUPPLY UNIT (RECTIFICATION)

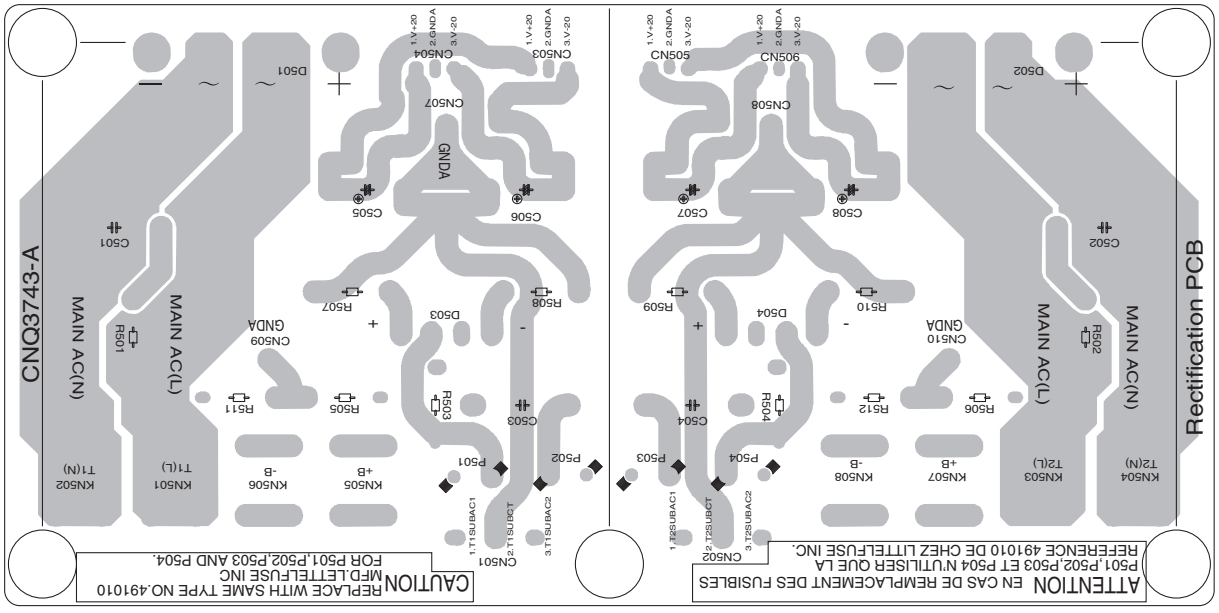
SIDE A **SIDE A**

POWER SUPPLY UNIT (RECTIFICATION)



SIDE B **SIDE B**

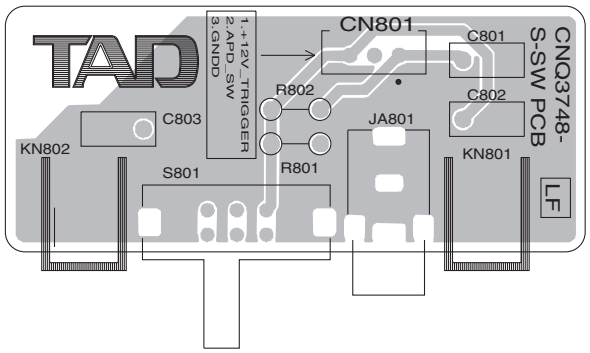
POWER SUPPLY UNIT (RECTIFICATION)



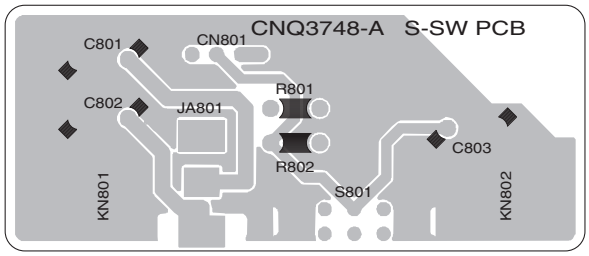
11.6 POWER SUPPLY UNIT (S-SW and P-SW)

SIDE A **SIDE B**

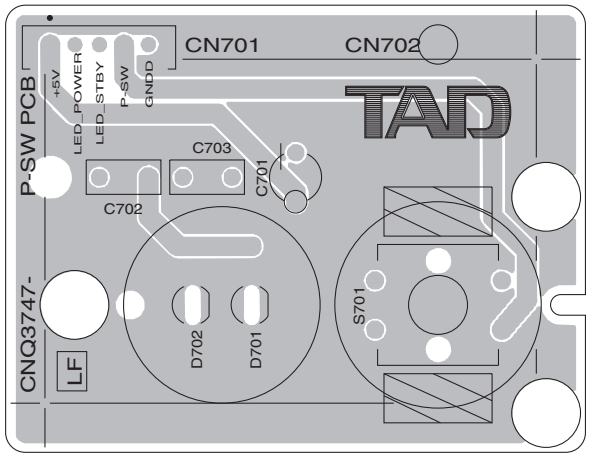
POWER SUPPLY UNIT (S-SW)



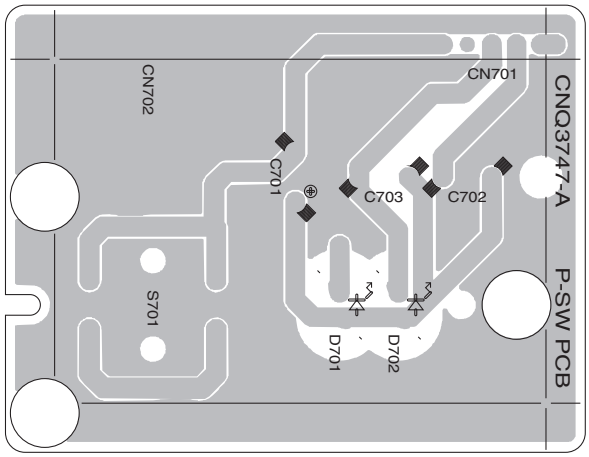
POWER SUPPLY UNIT (S-SW)



POWER SUPPLY UNIT (P-SW)



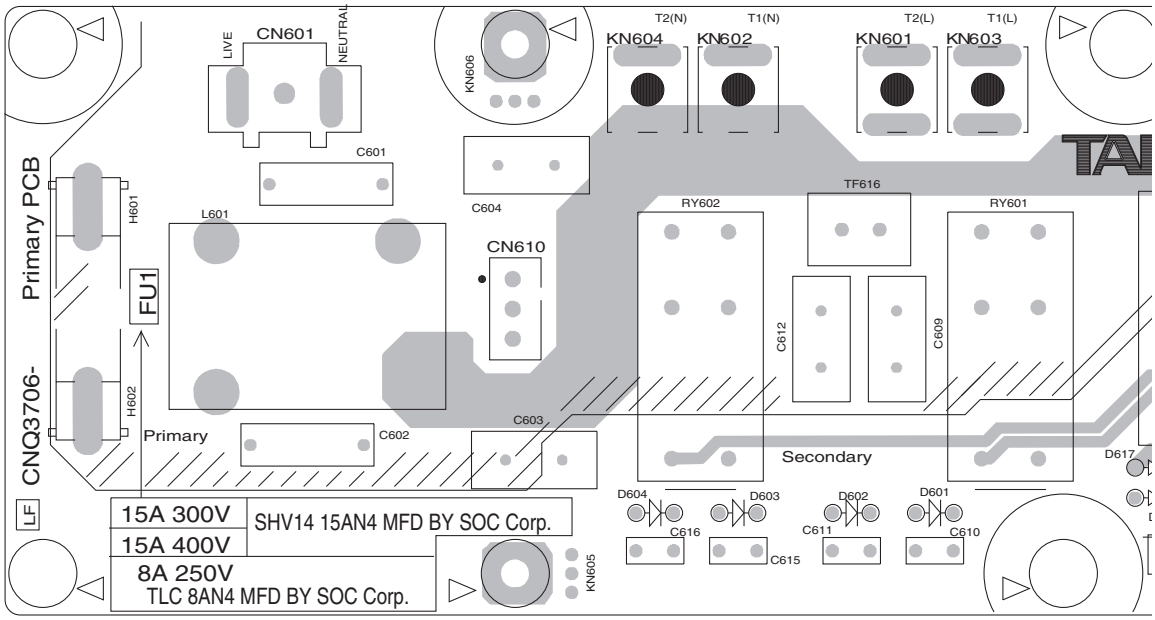
POWER SUPPLY UNIT (P-SW)



11.7 POWER SUPPLY UNIT (PRIMARY)

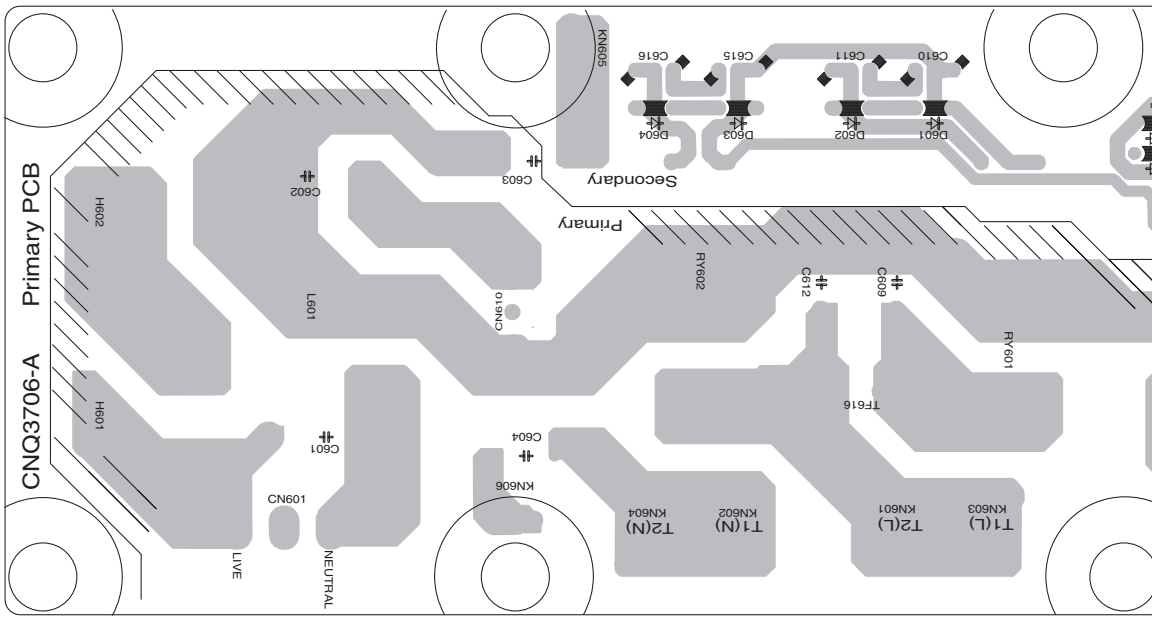
SIDE A

POWER SUPPLY UNIT (PRIMARY)

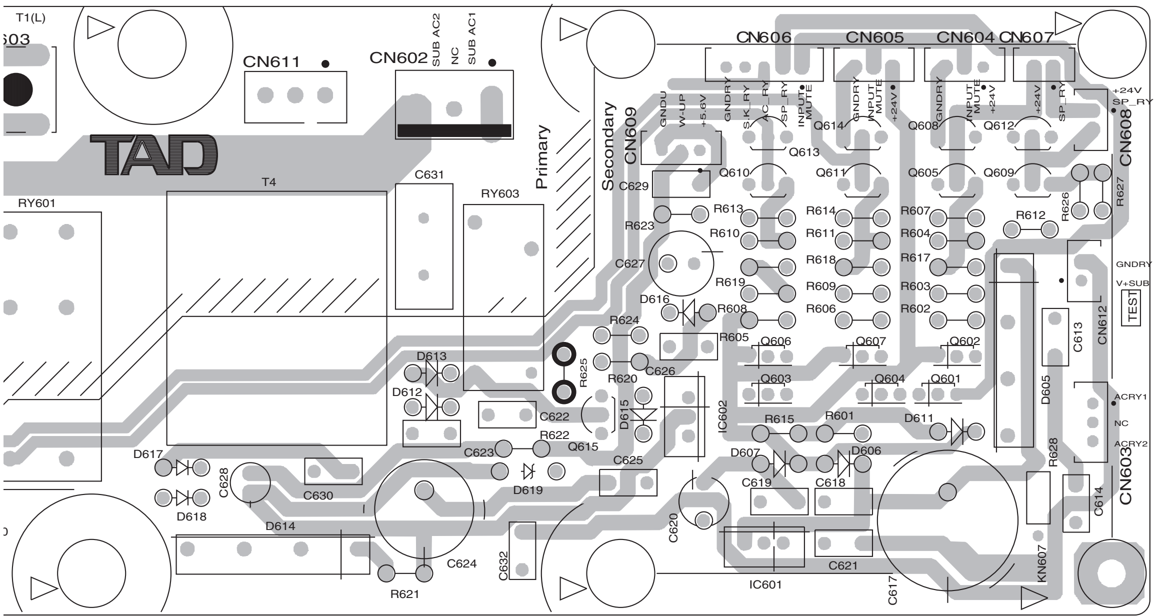


SIDE B

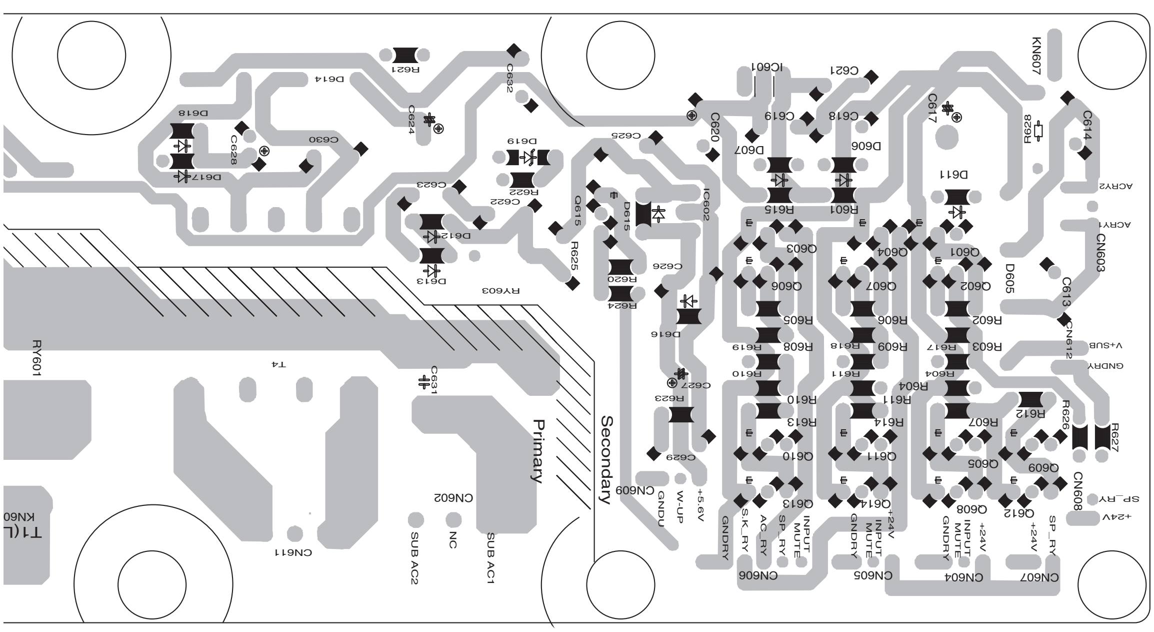
POWER SUPPLY UNIT (PRIMARY)



SIDE A


T1(L)
CN611
CN602
SUB AC2
NC
SUB AC1
TAD
T4
RY601
RY603
C631
Primary
Secondary
CN609
CN606
CN605
CN604
CN607
CN608
CN612
CN603
GNDU
W-UP
+5.6V
GNDRY
SK_RY
AC_RY
SP_RY
INPUT MUTE
+24V
V+SUB
ACRY1
ACRY2
TEST
IC601
IC602
KN607

SIDE B



12. PCB PARTS LIST

NOTES:
- *Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47 k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω	→	*56 × 10^1*	→	*561* ····· *RD1/4PU 5 6 1 J*
47 kΩ	→	*47 × 10^3*	→	*473* ····· *RD1/4PU 4 7 3 J*
0.5 Ω	→	*R50*		····· *RN2H R 5 0 K*
1 Ω	→	*1R0*		····· *RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62 kΩ	→	*562 × 10^1*	→	*5621* ····· *RN1/4PC 5 6 2 1 F*

- *Meaning of the figures and others in the parentheses in the parts list.*

Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.
IC 301 (A, 91, 111) IC NJM2068V

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
	1	..AUDIO UNIT (TAD-M4300)	CWH1635
	1	..AUDIO UNIT (TAD-M2500)	CWH1634
	1	..POWER SUPPLY UNIT (TAD-M4300/U)	CWH1654
	1	..POWER SUPPLY UNIT (TAD-M4300/YS8)	CWH1655
	1	..POWER SUPPLY UNIT (TAD-M4300/L)	CWH1656
	1	..POWER SUPPLY UNIT (TAD-M2500/U)	CWH1651
	1	..POWER SUPPLY UNIT (TAD-M2500/YS8)	CWH1652
	1	..POWER SUPPLY UNIT (TAD-M2500/L)	CWH1653

AUDIO UNIT (CWH1635)

SEMICONDUCTORS

Mark	No.	Description	Part No.
IC	101-104,201-204		OPA2134PAS1
Q	101,201		2SC2235
Q	102,202		2SC2240
D	101-108,113-116		1SS133
D	201-216		1SS133
D	301-304,401-404		11EQS10

MISCELLANEOUS

Mark	No.	Description	Part No.
L	301,302,401,402	COIL	CTX1112
JA	101,102,201,202	PLUG	CKM1597
JA	103,104,203	PIN JACK (1P)	AKB7102
JA	204	PIN JACK (1P)	AKB7102
KN	301,302,304-307	HOLDER	CND5464
KN	303,308	WRAPPING TERMINAL	VNF1084
KN	309,310,401,402	HOLDER	CND5464
KN	403,408	WRAPPING TERMINAL	VNF1084
KN	404-407,409,410	HOLDER	CND5464
RY	101,102,105,106	RELAY	CSR1031
RY	201-206	RELAY	CSR1031
RY	301-306,401-406	RELAY	CSR1033
S	101,201	SLIDE SWITCH	ASH1031
CN	101,103,201,203	CONNECTOR	B7B-EH
CN	102,104,105,202	3P TOP POST	B3B-EH
CN	106,206,301,401	2P TOP POST	B2B-EH
CN	204,205	3P TOP POST	B3B-EH

RESISTORS

Mark	No.	Description	Part No.
		All Resistors	RD1/4PU###J

CAPACITORS

Mark	No.	Description	Part No.
C	101,102,109-120		CFTLA103J50
C	103-108,203-208		CQHA221J2A
C	125-128,133,134		CFTLA103J50
C	129-132,229-232		CCH1951
C	135-140,235-240		CQMA471J50
C	141,142,201,202		CFTLA103J50
C	209-228,233,234		CFTLA103J50
C	241,242,301,302		CFTLA103J50
C	303-305,308-310		CCE1059
C	306,307,401,402		CFTLA103J50
C	311-314,411-414		CQHA102J2A
C	403-405,408-410		CCE1059
C	406,407		CFTLA103J50

AUDIO UNIT (CWH1634)

SEMICONDUCTORS

Mark	No.	Description	Part No.
IC	101-104		OPA2134PAS1
Q	101		2SC2235
Q	102		2SC2240
D	101-108,113-116		1SS133
D	301,302,403,404		11EQS10

MISCELLANEOUS

Mark	No.	Description	Part No.
L	301,402	COIL	CTX1112
JA	101,102	PLUG	CKM1597
JA	103,104	PIN JACK (1P)	AKB7102
KN	301,302,304,305	HOLDER	CND5464
KN	303,408	WRAPPING TERMINAL	VNF1084
KN	406,407,409,410	HOLDER	CND5464
RY	101,102,105,106	RELAY	CSR1031
RY	301-303,404-406	RELAY	CSR1033
S	101	SLIDE SWITCH	ASH1031
CN	101,103	CONNECTOR	B7B-EH
CN	102,104,105	3P TOP POST	B3B-EH
CN	301,401	2P TOP POST	B2B-EH

RESISTORS

Mark	No.	Description	Part No.
		All Resistors	RD1/4PU###J

Mark	No.	Description	Part No.
CAPACITORS			
C	101,102,109-120		CFTLA103J50
C	103-108		CQHA221J2A
C	125-128,133,134		CFTLA103J50
C	129-132		CCH1951
C	135-140		CQMA471J50
C	141,142,301,302		CFTLA103J50
C	303-305,408-410		CCE1059
C	311,312,413,414		CQHA102J2A
C	406,407		CFTLA103J50

POWER SUPPLY UNIT (CWH1654)

Mark	No.	Description	Part No.
SEMICONDUCTORS			
IC	601		NJM317F
IC	602		NJM78M56FA
Q	601,603,604		DTC114ES
Q	602,606,607		DTA114ES
Q	605,609-611,615		2SC2240
Q	608,612-614		2SC2235
D	503,504		S1VB20/F03
D	601-604,606,607		11EQS10
D	605,614		D3SBA20
D	611-613,615,616		11EQS10
D	617,618		1SS133
D	619		HZ5LL(C)
D	701		SLI-343Y8Y(LM)
D	702		SLI-343URC
MISCELLANEOUS			
L	601	COIL	CTX1113
H	601,602	FUSE HOLDER	AKR7004
JA	801	JACK	RKN1004
KN	501-508,601-604	HOLDER	CND5464
KN	607	WRAPPING TERMINAL	VNF1084
KN	801,802	SCREW TERMINAL	VNE1949
RY	601,602	RELAY	CSR1032
RY	603	JOE LOWPOWER RELAY	ASR7013
S	701	PUSH SW	CSG1194
S	801	SLIDE SWITCH	ASH1031
T	4	POWER TRANSFORMER	ATT7079
CN	501,502,602	CONNECTOR	CKS6112
CN	503-506,603-605	3P TOP POST	B3B-EH
CN	507	CORD	CDE9278
CN	508	CORD	CDE9279
CN	509	CORD	CDE9330
CN	510	CORD	CDE9331
CN	601	CONNECTOR	CKS6211
CN	606,701	5P TOP POST	B5B-EH
CN	607,608,612	2P TOP POST	B2B-EH
CN	609,801	3P TOP POST	B3B-EH
CN	610	CORD	CDE9321
CN	702	CORD	CDE9280
	56	COIL SPRING	CBH3060
	57	SHEET	CNN3415
	61	ANGLE	CND5644
	130	HEAT SINK	CND5813
	131	EDGING	CNN3435
	180	SCREW	PMH30P080FCC
	181	SCREW	PMB30P080FCC
	803	SPACER	CNW1813

Mark	No.	Description	Part No.
FU	1	FUSE (15 A)	AEK7077
P	501-504	PROTECTOR (10 A)	AEK7022
TF	616	FIXED RESISTOR	CCN1269
RESISTORS			
R	501-504		CCN1193
R	505-512,628		CCN1268
R	625		RD1/4MUF220J
Other Resistors			RD1/4PU###J
CAPACITORS			
C	501-504		CCE1040
C	505-508		CCH1973
C	601,602		ACE7072
C	609,612,631		ACG7039
C	610,611,613-616		CFTLA103J50
C	617		CEHAZL102M50
C	618,619,621-623		CFTLA103J50
C	620		CEHAZL101M50
C	624		CEHAZL102M35
C	625,626,629,630		CFTLA103J50
C	627		CCH1951
C	628		CEHAT100M50
C	701		ACH1478
C	702,703,801-803		CFTLA103J50

POWER SUPPLY UNIT (CWH1655)

Mark	No.	Description	Part No.
SEMICONDUCTORS			
IC	601		NJM317F
IC	602		NJM78M56FA
Q	601,603,604		DTC114ES
Q	602,606,607		DTA114ES
Q	605,609-611,615		2SC2240
Q	608,612-614		2SC2235
D	503,504		S1VB20/F03
D	601-604,606,607		11EQS10
D	605,614		D3SBA20
D	611-613,615,616		11EQS10
D	617,618		1SS133
D	619		HZ5LL(C)
D	701		SLI-343Y8Y(LM)
D	702		SLI-343URC
MISCELLANEOUS			
L	601	COIL	CTX1113
H	601,602	FUSE HOLDER	AKR7004
JA	801	JACK	RKN1004
KN	501-508,601-604	HOLDER	CND5464
KN	607	WRAPPING TERMINAL	VNF1084
KN	801,802	SCREW TERMINAL	VNE1949
RY	601,602	RELAY	CSR1032
RY	603	JOE LOWPOWER RELAY	ASR7013
S	701	PUSH SW	CSG1194
S	801	SLIDE SWITCH	ASH1031
T	4	POWER TRANSFORMER	ATT7078
CN	501,502,602	CONNECTOR	CKS6112
CN	503-506,603-605	3P TOP POST	B3B-EH
CN	507	CORD	CDE9278
CN	508	CORD	CDE9279
CN	509	CORD	CDE9330
CN	510	CORD	CDE9331
CN	601	CONNECTOR	CKS6211

Mark	No.	Description	Part No.
	CN	606,701 5P TOP POST	B5B-EH
	CN	607,608,612 2P TOP POST	B2B-EH
	CN	609,801 3P TOP POST	B3B-EH
	CN	610 CORD	CDE9321
	CN	702 CORD	CDE9280
	56	COIL SPRING	CBH3060
	57	SHEET	CNN3415
	61	ANGLE	CND5644
	130	HEAT SINK	CND5813
	131	EDGING	CNN3435
	180	SCREW	PMH30P080FCC
	181	SCREW	PMB30P080FCC
	803	SPACER	CNW1813
	FU	1 FUSE	CEK1378
	P	501-504 PROTECTOR (10 A)	AEK7022
	TF	616 FIXED RESISTOR	CCN1269

RESISTORS

	R	501-504	CCN1193
	R	505-512,628	CCN1268
	R	625	RD1/4MUF220J
	Other Resistors		RD1/4PU###J

CAPACITORS

	C	501-504	CCE1040
	C	505-508	CCH1973
	C	601,602	ACE7072
	C	609,612,631	ACG7039
	C	610,611,613-616	CFTLA103J50
	C	617	CEHAZL102M50
	C	618,619,621-623	CFTLA103J50
	C	620	CEHAZL101M50
	C	624	CEHAZL102M35
	C	625,626,629,630	CFTLA103J50
	C	627	CCH1951
	C	628	CEHAT100M50
	C	701	ACH1478
	C	702,703,801-803	CFTLA103J50

POWER SUPPLY UNIT (CWH1656)

SEMICONDUCTORS

	IC	601	NJM317F
	IC	602	NJM78M56FA
	Q	601,603,604	DTC114ES
	Q	602,606,607	DTA114ES
	Q	605,609-611,615	2SC2240
	Q	608,612-614	2SC2235
	D	503,504	S1VB20/F03
	D	601-604,606,607	11EQS10
	D	605,614	D3SBA20
	D	611-613,615,616	11EQS10
	D	617,618	1SS133
	D	619	HZ5LL(C)
	D	701	SLI-343Y8Y(LM)
	D	702	SLI-343URC

MISCELLANEOUS

	L	601 COIL	CTX1113
	H	601,602 FUSE HOLDER	AKR7004
	JA	801 JACK	RKN1004
	KN	501-508,601-604 HOLDER	CND5464
	KN	607 WRAPPING TERMINAL	VNF1084
	KN	801,802 SCREW TERMINAL	VNE1949
	RY	601,602 RELAY	CSR1032
	RY	603 JOE LOWPOWER RELAY	ASR7013
	S	701 PUSH SW	CSG1194
	S	801 SLIDE SWITCH	ASH1031
	T	4 POWER TRANSFORMER	ATT7078
	CN	501,502,602 CONNECTOR	CKS6112
	CN	503-506,603-605 3P TOP POST	B3B-EH
	CN	507 CORD	CDE9278
	CN	508 CORD	CDE9279
	CN	509 CORD	CDE9330
	CN	510 CORD	CDE9331
	CN	601 CONNECTOR	CKS6211
	CN	606,701 5P TOP POST	B5B-EH
	CN	607,608,612 2P TOP POST	B2B-EH
	CN	609,801 3P TOP POST	B3B-EH
	CN	610 CORD	CDE9321
	CN	702 CORD	CDE9280
	56	COIL SPRING	CBH3060
	57	SHEET	CNN3415
	61	ANGLE	CND5644
	130	HEAT SINK	CND5813
	131	EDGING	CNN3435
	180	SCREW	PMH30P080FCC
	181	SCREW	PMB30P080FCC
	803	SPACER	CNW1813
	FU	1 FUSE	CEK1378
	P	501-504 PROTECTOR (10 A)	AEK7022
	TF	616 FIXED RESISTOR	CCN1269

RESISTORS

	R	501-504	CCN1193
	R	505-512,628	CCN1268
	R	625	RD1/4MUF220J
	Other Resistors		RD1/4PU###J

CAPACITORS

	C	501-504	CCE1040
	C	505-508	CCH1973
	C	601,602	ACE7072
	C	609,612,631	ACG7039
	C	610,611,613-616	CFTLA103J50
	C	617	CEHAZL102M50
	C	618,619,621-623	CFTLA103J50
	C	620	CEHAZL101M50
	C	624	CEHAZL102M35
	C	625,626,629,630	CFTLA103J50
	C	627	CCH1951
	C	628	CEHAT100M50
	C	701	ACH1478
	C	702,703,801-803	CFTLA103J50

POWER SUPPLY UNIT (CWH1651)

SEMICONDUCTORS

	IC	601	NJM317F
	IC	602	NJM78M56FA
	Q	601,603,604	DTC114ES
	Q	602,606,607	DTA114ES
	Q	605,609-611,615	2SC2240
	Q	608,612-614	2SC2235

Mark	No.	Description	Part No.
	D	503,504	S1VB20/F03
	D	601-604,606,607	11EQS10
	D	605,614	D3SBA20
	D	611-613,615,616	11EQS10
	D	617,618	1SS133
	D	619	HZ5LL(C)
	D	701	SLI-343Y8Y(LM)
	D	702	SLI-343URC

MISCELLANEOUS

	L	601 COIL	CTX1113
	H	601,602 FUSE HOLDER	AKR7004
	JA	801 JACK	RKN1004
	KN	501-508,601-604 HOLDER	CND5464
	KN	607 WRAPPING TERMINAL	VNF1084
	KN	801,802 SCREW TERMINAL	VNE1949
	RY	601,602 RELAY	CSR1032
	RY	603 JOE LOWPOWER RELAY	ASR7013
	S	701 PUSH SW	CSG1194
	S	801 SLIDE SWITCH	ASH1031
	T	4 POWER TRANSFORMER	ATT7079
	CN	501,502,602 CONNECTOR	CKS6112
	CN	503,505,603,604 3P TOP POST	B3B-EH
	CN	507 CORD	CDE9278
	CN	508 CORD	CDE9279
	CN	509 CORD	CDE9330
	CN	510 CORD	CDE9331
	CN	601 CONNECTOR	CKS6211
	CN	606,701 5P TOP POST	B5B-EH
	CN	607,608,612 2P TOP POST	B2B-EH
	CN	609,801 3P TOP POST	B3B-EH
	CN	610 CORD	CDE9321
	CN	702 CORD	CDE9280
		56 COIL SPRING	CBH3060
		57 SHEET	CNN3415
		61 ANGLE	CND5644
		130 HEAT SINK	CND5813
		131 EDGING	CNN3435
		180 SCREW	PMH30P080FCC
		181 SCREW	PMB30P080FCC
		803 SPACER	CNW1813
	FU	1 FUSE (15 A)	AEK7077
	P	501-504 PROTECTOR (10 A)	AEK7022
	TF	616 FIXED RESISTOR	CCN1269

RESISTORS

	R	501-504	CCN1193
	R	505-512,628	CCN1268
	R	625	RD1/4MUF220J
		Other Resistors	RD1/4PU###J

CAPACITORS

	C	501-504	CCE1040
	C	505-508	CCH1973
	C	601,602	ACE7072
	C	609,612,631	ACG7039
	C	610,611,613-616	CFTLA103J50
	C	617	CEHAZL102M50
	C	618,619,621-623	CFTLA103J50
	C	620	CEHAZL101M50
	C	624	CEHAZL102M35
	C	625,626,629,630	CFTLA103J50
	C	627	CCH1951
	C	628	CEHAT100M50
	C	701	ACH1478
	C	702,703,801-803	CFTLA103J50

POWER SUPPLY UNIT (CWH1652)

SEMICONDUCTORS

	IC	601	NJM317F
	IC	602	NJM78M56FA
	Q	601,603,604	DTC114ES
	Q	602,606,607	DTA114ES
	Q	605,609-611,615	2SC2240
	Q	608,612-614	2SC2235
	D	503,504	S1VB20/F03
	D	601-604,606,607	11EQS10
	D	605,614	D3SBA20
	D	611-613,615,616	11EQS10
	D	617,618	1SS133
	D	619	HZ5LL(C)
	D	701	SLI-343Y8Y(LM)
	D	702	SLI-343URC

MISCELLANEOUS

	L	601 COIL	CTX1113
	H	601,602 FUSE HOLDER	AKR7004
	JA	801 JACK	RKN1004
	KN	501-508,601-604 HOLDER	CND5464
	KN	607 WRAPPING TERMINAL	VNF1084
	KN	801,802 SCREW TERMINAL	VNE1949
	RY	601,602 RELAY	CSR1032
	RY	603 JOE LOWPOWER RELAY	ASR7013
	S	701 PUSH SW	CSG1194
	S	801 SLIDE SWITCH	ASH1031
	T	4 POWER TRANSFORMER	ATT7078
	CN	501,502,602 CONNECTOR	CKS6112
	CN	503,505,603,604 3P TOP POST	B3B-EH
	CN	507 CORD	CDE9278
	CN	508 CORD	CDE9279
	CN	509 CORD	CDE9330
	CN	510 CORD	CDE9331
	CN	601 CONNECTOR	CKS6211
	CN	606,701 5P TOP POST	B5B-EH
	CN	607,608,612 2P TOP POST	B2B-EH
	CN	609,801 3P TOP POST	B3B-EH
	CN	610 CORD	CDE9321
	CN	702 CORD	CDE9280
		56 COIL SPRING	CBH3060
		57 SHEET	CNN3415
		61 ANGLE	CND5644
		130 HEAT SINK	CND5813
		131 EDGING	CNN3435
		180 SCREW	PMH30P080FCC
		181 SCREW	PMB30P080FCC
		803 SPACER	CNW1813
	FU	1 FUSE	CEK1378
	P	501-504 PROTECTOR (10 A)	AEK7022
	TF	616 FIXED RESISTOR	CCN1269

RESISTORS

	R	501-504	CCN1193
	R	505-512,628	CCN1268

Mark	No.	Description	Part No.
	R	625	RD1/4MUF220J
	Other Resistors		RD1/4PU###J

CAPACITORS

	C	501-504	CCE1040
	C	505-508	CCH1973
	C	601,602	ACE7072
	C	609,612,631	ACG7039
	C	610,611,613-616	CFTLA103J50
	C	617	CEHAZL102M50
	C	618,619,621-623	CFTLA103J50
	C	620	CEHAZL101M50
	C	624	CEHAZL102M35
	C	625,626,629,630	CFTLA103J50
	C	627	CCH1951
	C	628	CEHAT100M50
	C	701	ACH1478
	C	702,703,801-803	CFTLA103J50

POWER SUPPLY UNIT (CWH1653)

SEMICONDUCTORS

	IC	601	NJM317F
	IC	602	NJM78M56FA
	Q	601,603,604	DTC114ES
	Q	602,606,607	DTA114ES
	Q	605,609-611,615	2SC2240
	Q	608,612-614	2SC2235
	D	503,504	S1VB20/F03
	D	601-604,606,607	11EQS10
	D	605,614	D3SBA20
	D	611-613,615,616	11EQS10
	D	617,618	1SS133
	D	619	HZ5LL(C)
	D	701	SLI-343Y8Y(LM)
	D	702	SLI-343URC

MISCELLANEOUS

	L	601 COIL	CTX1113
	H	601,602 FUSE HOLDER	AKR7004
	JA	801 JACK	RKN1004
	KN	501-508,601-604 HOLDER	CND5464
	KN	607 WRAPPING TERMINAL	VNF1084
	KN	801,802 SCREW TERMINAL	VNE1949
	RY	601,602 RELAY	CSR1032
	RY	603 JOE LOWPOWER RELAY	ASR7013
	S	701 PUSH SW	CSG1194
	S	801 SLIDE SWITCH	ASH1031
	T	4 POWER TRANSFORMER	ATT7078
	CN	501,502,602 CONNECTOR	CKS6112
	CN	503,505,603,604 3P TOP POST	B3B-EH
	CN	507 CORD	CDE9278
	CN	508 CORD	CDE9279
	CN	509 CORD	CDE9330
	CN	510 CORD	CDE9331
	CN	601 CONNECTOR	CKS6211
	CN	606,701 5P TOP POST	B5B-EH
	CN	607,608,612 2P TOP POST	B2B-EH
	CN	609,801 3P TOP POST	B3B-EH
	CN	610 CORD	CDE9321
	CN	702 CORD	CDE9280
		56 COIL SPRING	CBH3060
		57 SHEET	CNN3415
		61 ANGLE	CND5644
		130 HEAT SINK	CND5813
		131 EDGING	CNN3435
		180 SCREW	PMH30P080FCC
		181 SCREW	PMB30P080FCC
		803 SPACER	CNW1813
	FU	1 FUSE	CEK1378
	P	501-504 PROTECTOR (10 A)	AEK7022
	TF	616 FIXED RESISTOR	CCN1269

RESISTORS

	R	501-504	CCN1193
	R	505-512,628	CCN1268
	R	625	RD1/4MUF220J
	Other Resistors		RD1/4PU###J

CAPACITORS

	C	501-504	CCE1040
	C	505-508	CCH1973
	C	601,602	ACE7072
	C	609,612,631	ACG7039
	C	610,611,613-616	CFTLA103J50
	C	617	CEHAZL102M50
	C	618,619,621-623	CFTLA103J50
	C	620	CEHAZL101M50
	C	624	CEHAZL102M35
	C	625,626,629,630	CFTLA103J50
	C	627	CCH1951
	C	628	CEHAT100M50
	C	701	ACH1478
	C	702,703,801-803	CFTLA103J50