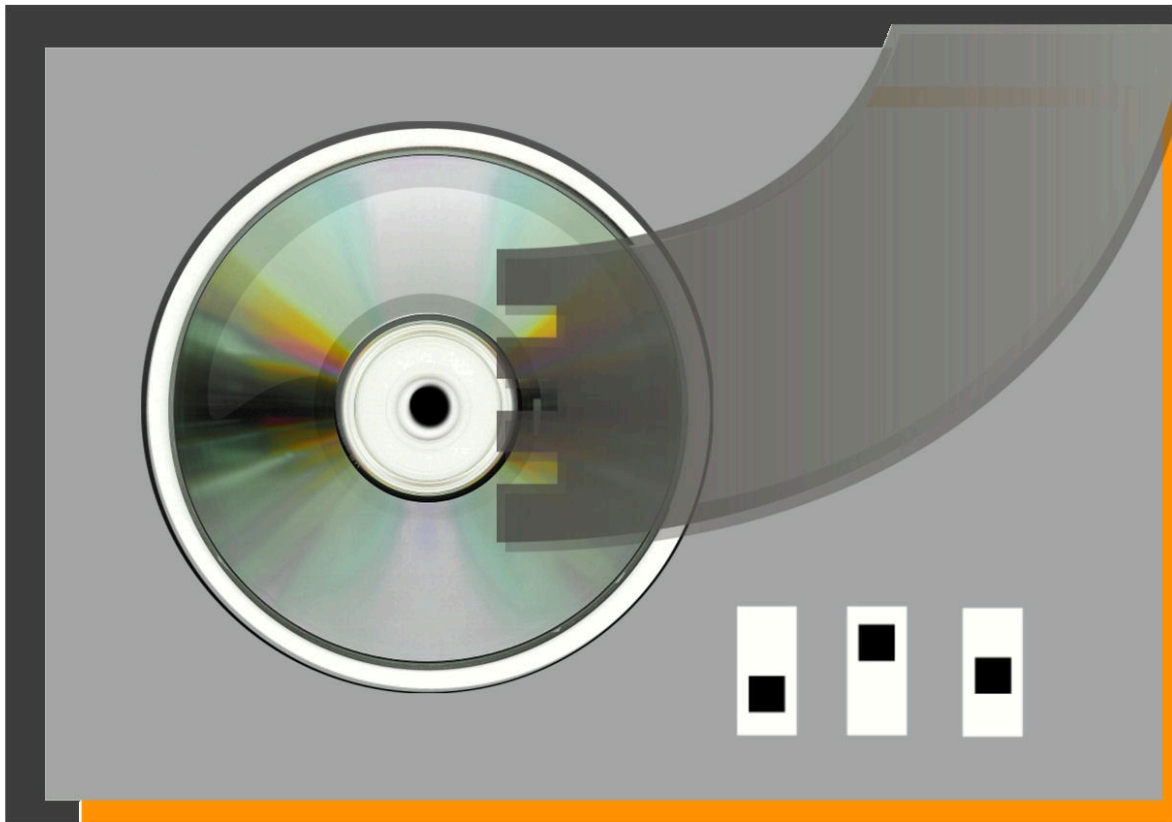


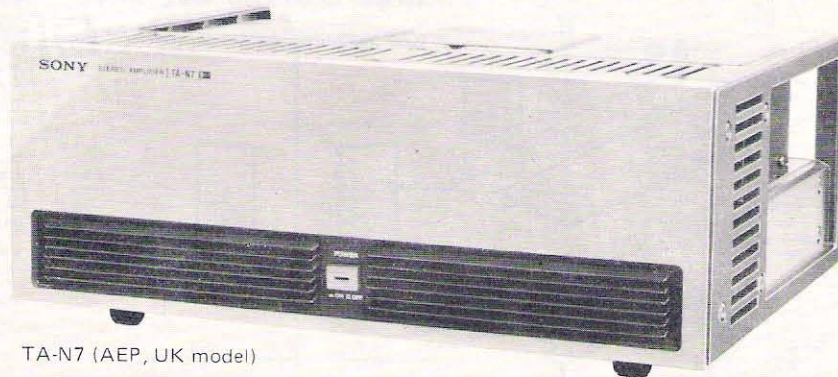


# VINTAGE-AUDIO *laser*



[www.vintage-audio-laser.com](http://www.vintage-audio-laser.com)

# TA-N7/N7B



TA-N7 (AEP, UK model)

TA-N7 (Panel: Silver)

AEP Model

UK Model

TA-N7B (Panel: Black)

AEP Model

UK Model

US Model

Canadian Model


## STEREO POWER AMPLIFIER

### SPECIFICATIONS


#### GENERAL

<b>Power Requirements:</b>	240V ac, 50/60Hz (UK model) 220V ac, 50/60Hz (AEP model) 120V ac, 60Hz (US, Canadian model)
<b>Power Consumption:</b>	480W (UK model) 420W (AEP model) 160W (US model) 350VA (Canadian model)
<b>Dimensions:</b>	Approx. 430(W) x 170(h) x 335(d) mm 17(w) x 6¾(h) x 13¼(d) inches Including projecting parts and controls
<b>Weight:</b>	(UK, AEP model) Approx. 20.1kg, 44 lb 5 oz (net) Approx. 22.6kg, 49 lb 14 oz (with shipping carton) (US, Canadian model) Approx. 21kg, 46 lb 5 oz (net) Approx. 23.6kg, 52 lb 1 oz (with shipping carton)

#### SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND  MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

#### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ !

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE  SUR LES DIAGRAMMES SCHEMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY.

—Continued on page 2—

**SONY**  
**SERVICE MANUAL**

## POWER AMPLIFIER SECTION

**Continuous RMS Power Output:** Both channels driven simultaneously  
 (Less than 0.01% THD) At 20–20,000 Hz  
 100W + 100W (8Ω)  
 According to DIN 45500 (AEP, UK model)  
 100W + 100W (8Ω)

**Power Bandwidth:** 5–35,000 Hz (8Ω), IHF (AEP, UK model)

**Damping Factor:** 100 (8Ω, 1kHz)

**Harmonic Distortion:** Less than 0.01% at rated output  
 Less than 0.008% at 1W/10W output

Less than 0.01% at 250mW–rated output  
 (US, Canadian model)

**IM Distortion:** Less than 0.01% at rated output  
 (60Hz: 7kHz = 4:1) Less than 0.008% at 1W/10W output

**Frequency Response:** DC–100,000Hz  $\pm 1$  dB (DIRECT INPUT)  
 6–100,000Hz  $\pm 1$  dB (C COUPLED INPUT)

**S/N Ratio:** Greater than 120 dB, short-circuited input

**Residual Noise:** Less than 0.024mV (8Ω) weighting network A

Inputs:	Sensitivity	Impedance
DIRECT		
C COUPLED (3Hz cut-off frequency)	1.3V (for rated output)	50kΩ

**Outputs:** SPEAKER terminals:  
 Accept speakers of 8Ω or more

### MODEL IDENTIFICATIONS

– Specification Label –

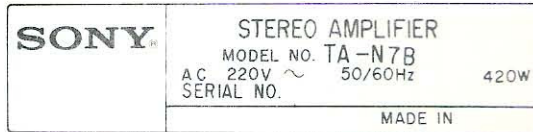
AEP model (TA-N7)



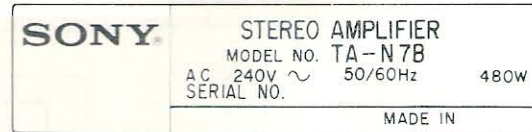
UK model (TA-N7)



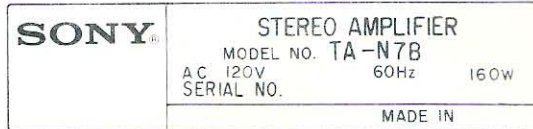
AEP model (TA-N7B)



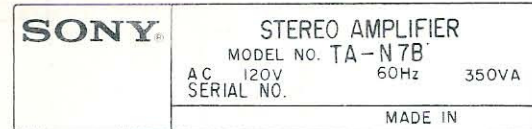
UK model (TA-N7B)



US model (TA-N7B)





Canadian model (TA-N7B)

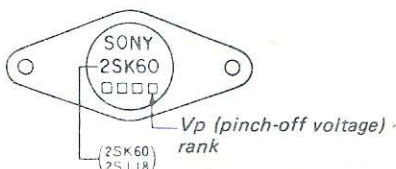


### SERVICING NOTES

- This set uses bipolar transistors and V-FETs in cascade circuit to maintain stable biasing. When replacing the three P-channel V-FETs 2SK60 and/or the three N-channel V-FETs 2SJ18 in each channel, use three matched ones which have the same  $V_p$  (pinch-off voltage)-rank figure printed on them as shown below. The fluctuation of the  $V_p$  rank of the three can be acceptable on one-rank-difference basis.
- Two kinds of hexagonal-socket screw-drivers are required for the following removal.

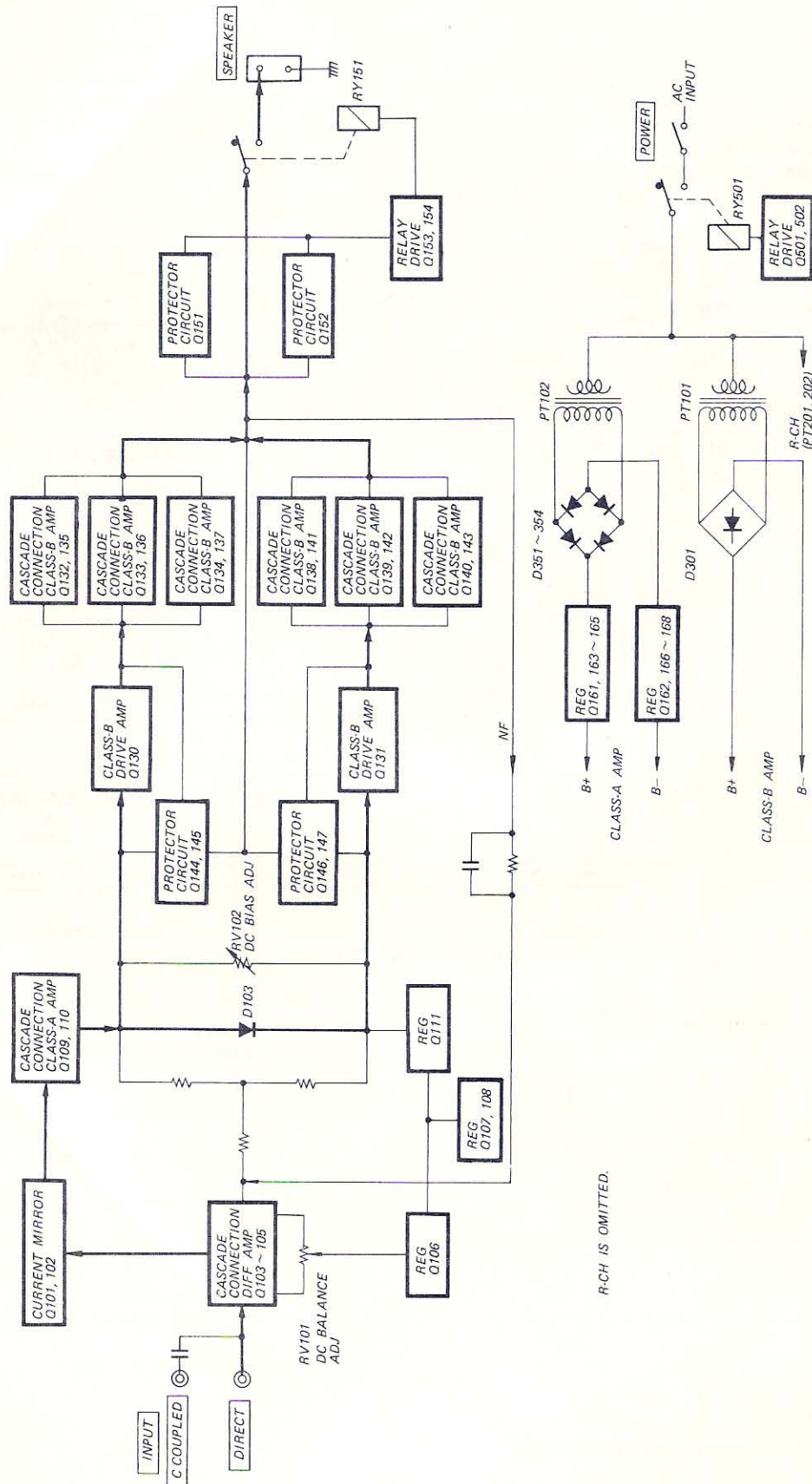
 2.5mm : top cover removal

 4mm : side plate removal



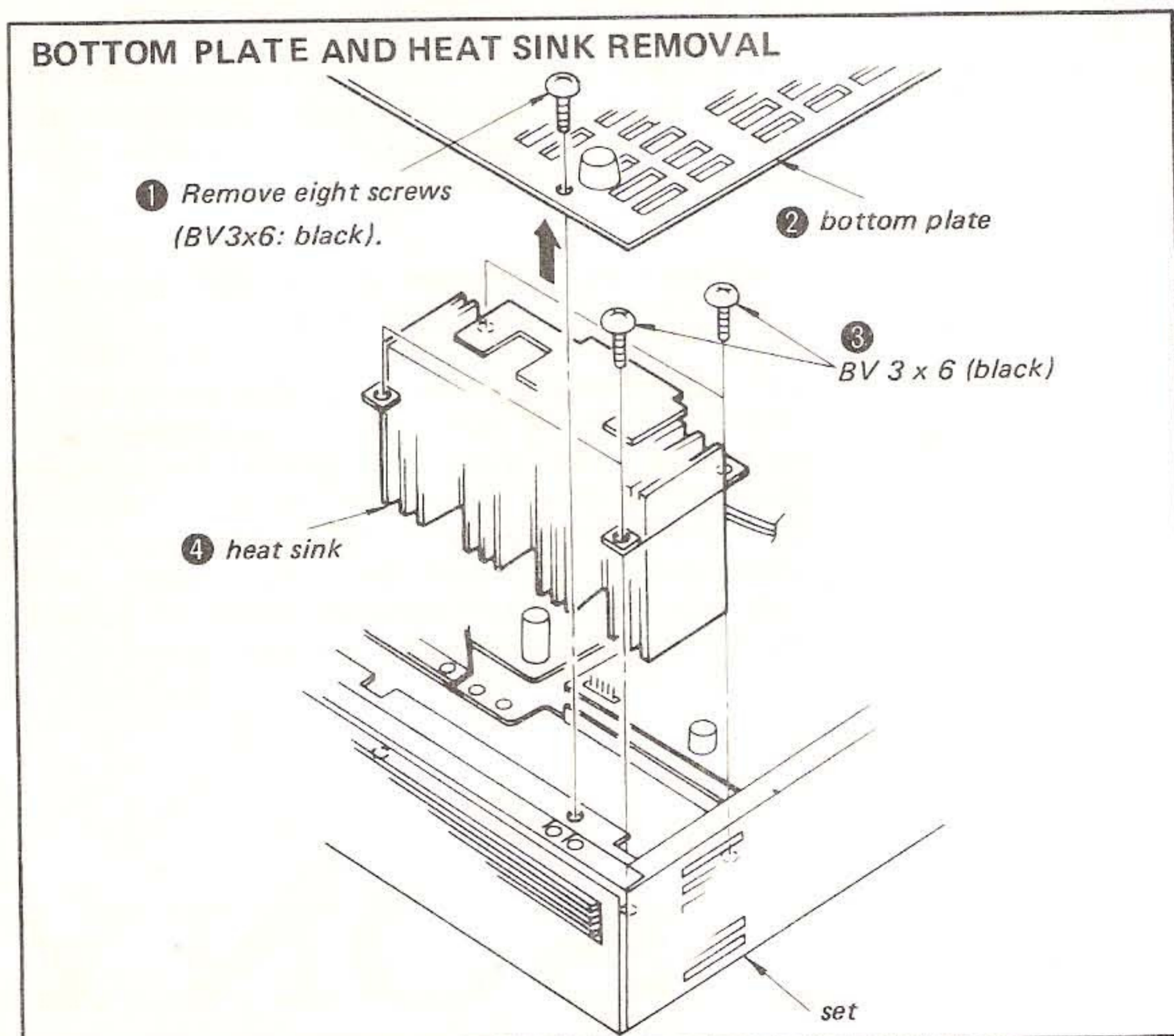
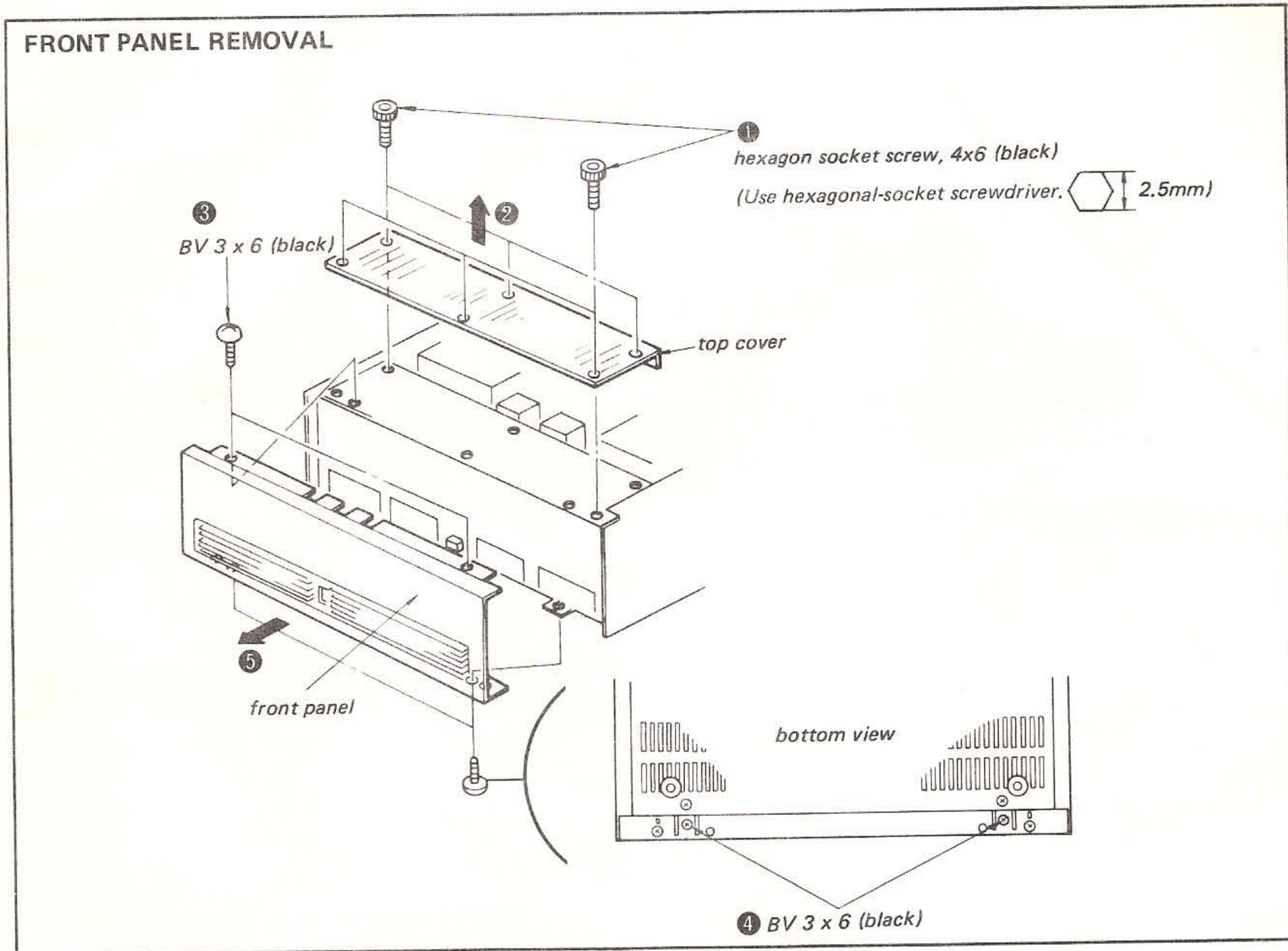
SECTION 1  
OUTLINE

1-1. BLOCK DIAGRAM



SECTION 2  
DISASSEMBLY

Remove the parts in the numerical order.



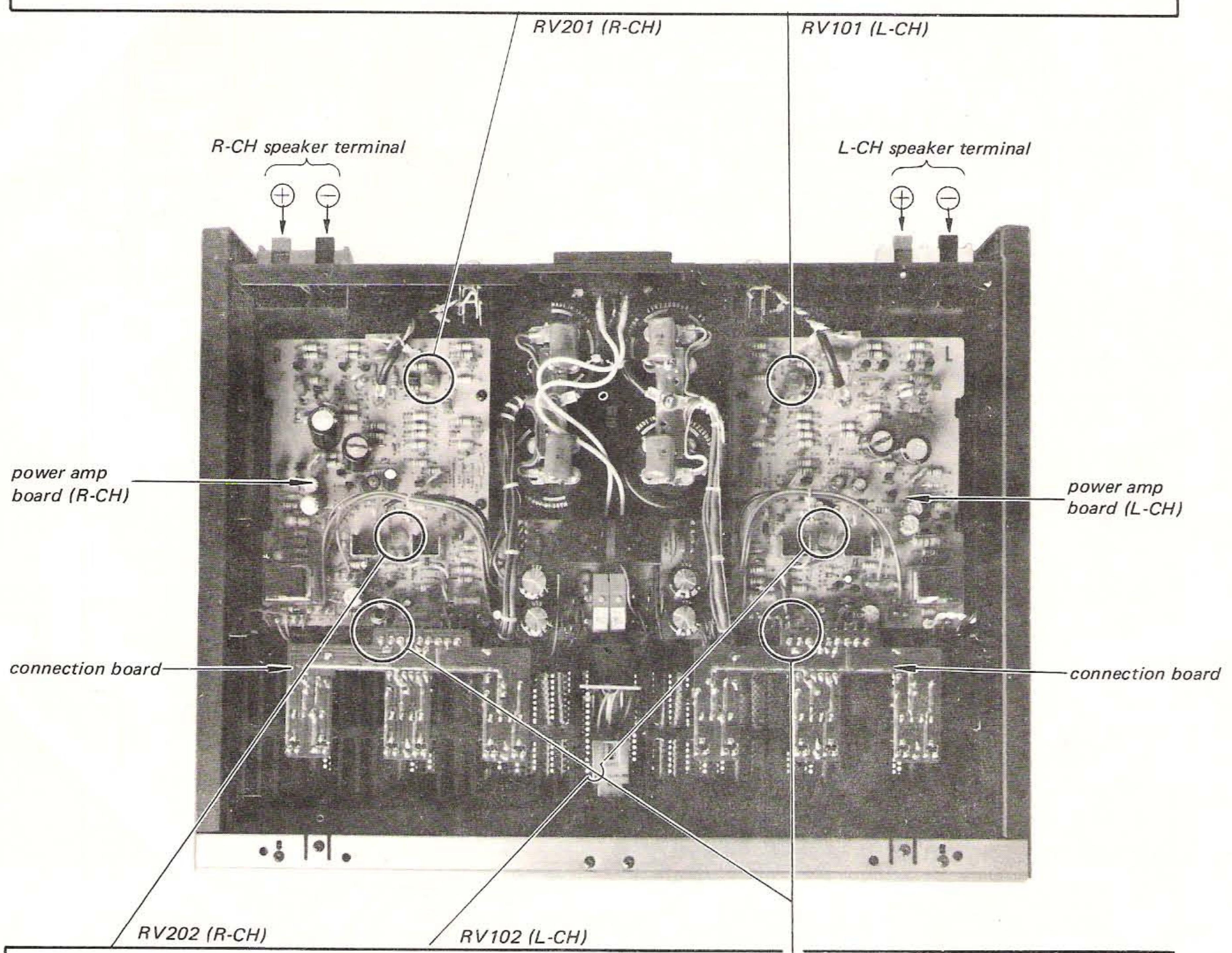
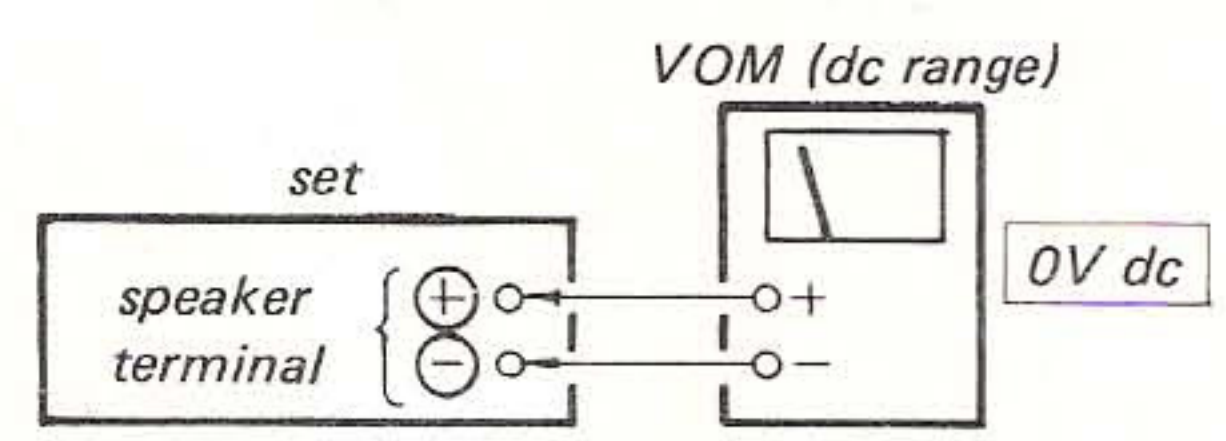
### SECTION 3 ADJUSTMENT

**Note:**

1. Apply the rated ac line voltage to the set directly. Do not increase the voltage gradually by using a variable transformer or other such instrument; this will cause a V-FET failure.
2. Turn the set on and wait a few minutes for warm-up.
3. Alternately repeat the two adjustments 2 or 3 times.

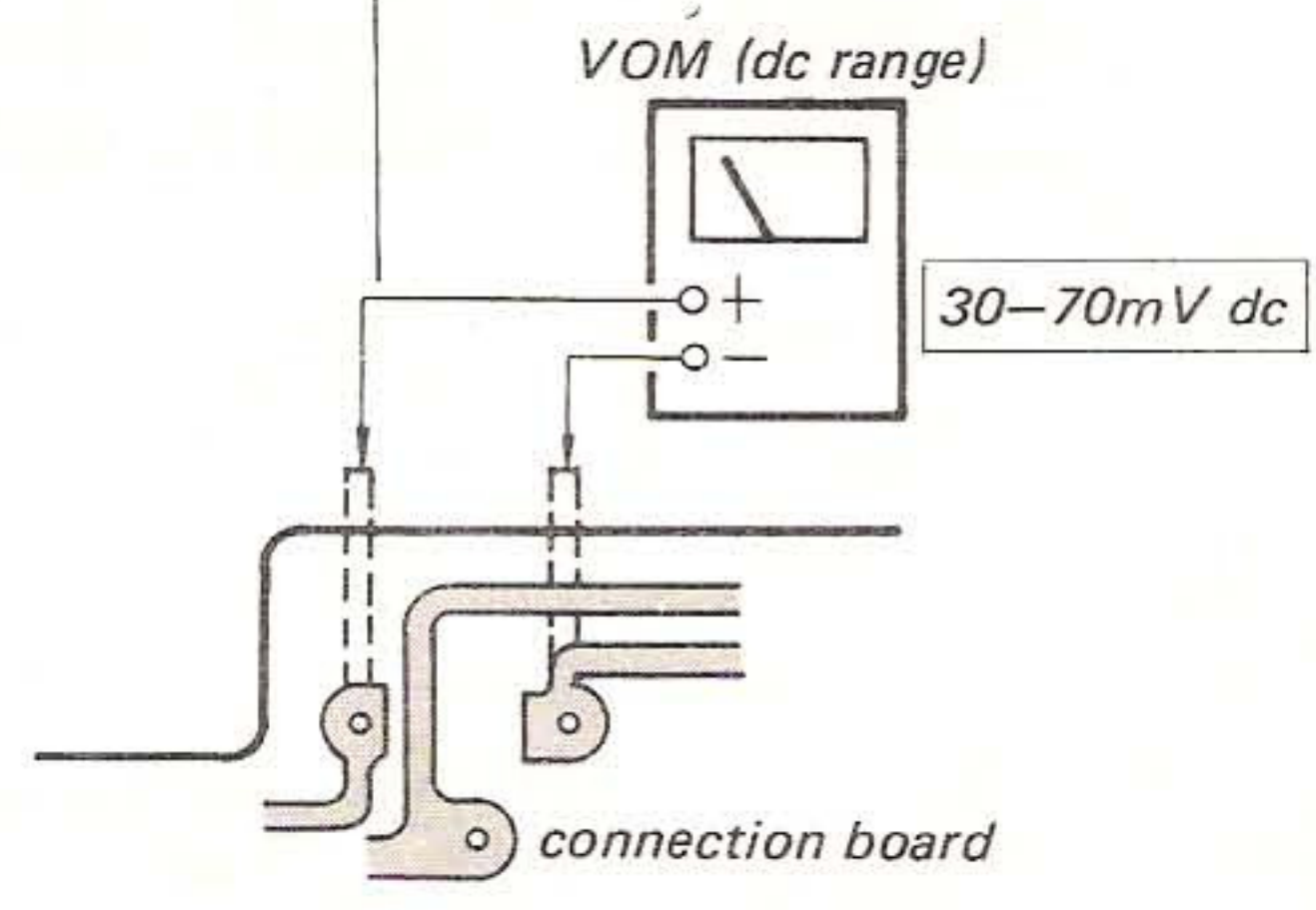
#### DC Balance Adjustment

Adjust RV101(L-CH) and RV201 (R-CH) for 0V dc with no signal input.



#### DC Bias Adjustment

Adjust RV102 (L-CH) and RV202 (R-CH) for 30-70 mV dc with no signal input.

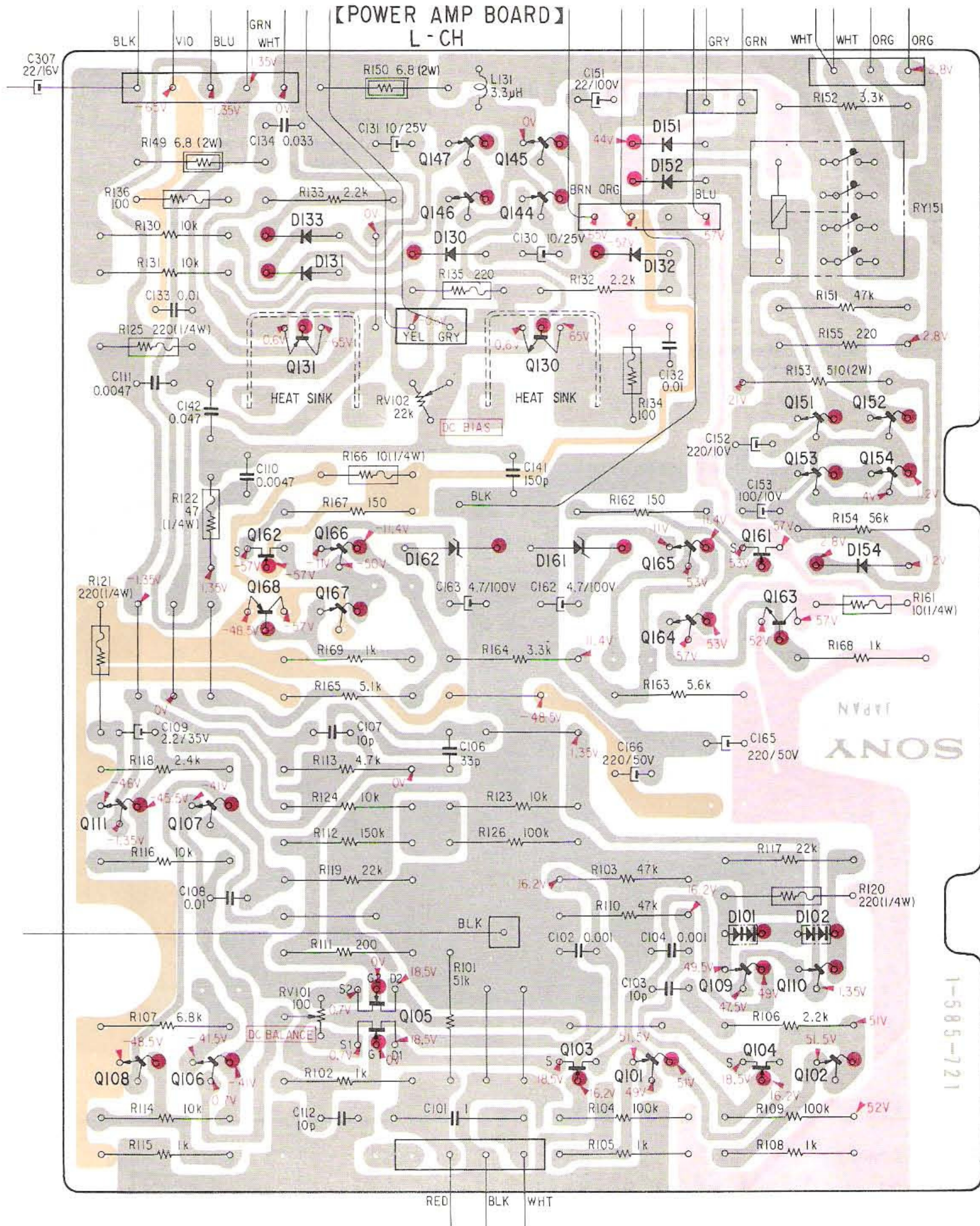


SECTION 4  
DIAGRAMS

4-1. MOUNTING DIAGRAM – L-CH Power Amp Board –

– Conductor Side –

• Replacement Semiconductors: See page 8.

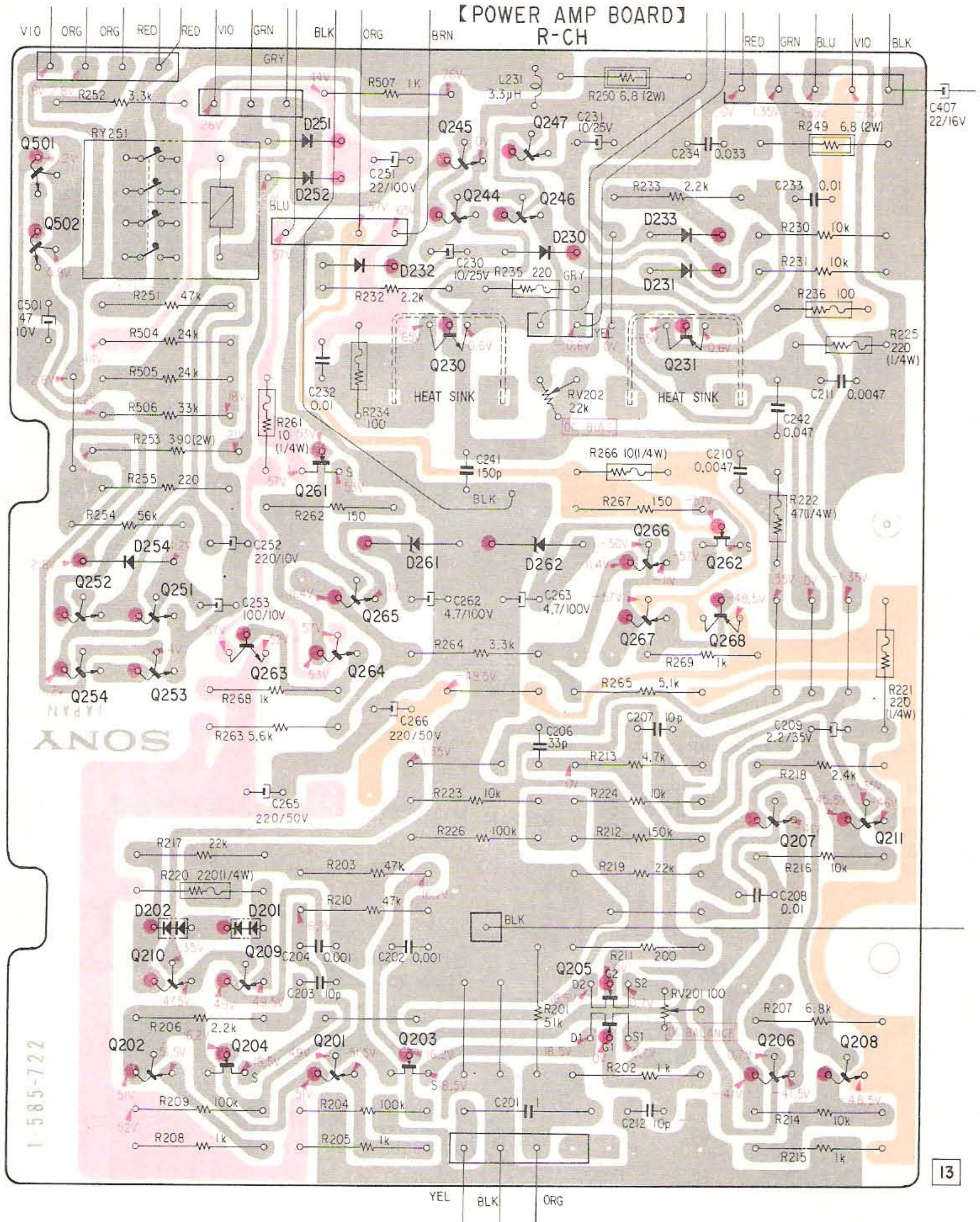


Q	111 108	107 106	162 168	131 167	166 105	147 146	145 144 130	103	101	165 164	109 104	163	151 153 110	102	152 154
D			133 131			130 162		161	132	151 152		101	102		154

- : B + pattern
- : B - pattern
- : nonflammable resistor
- : fusible resistor.

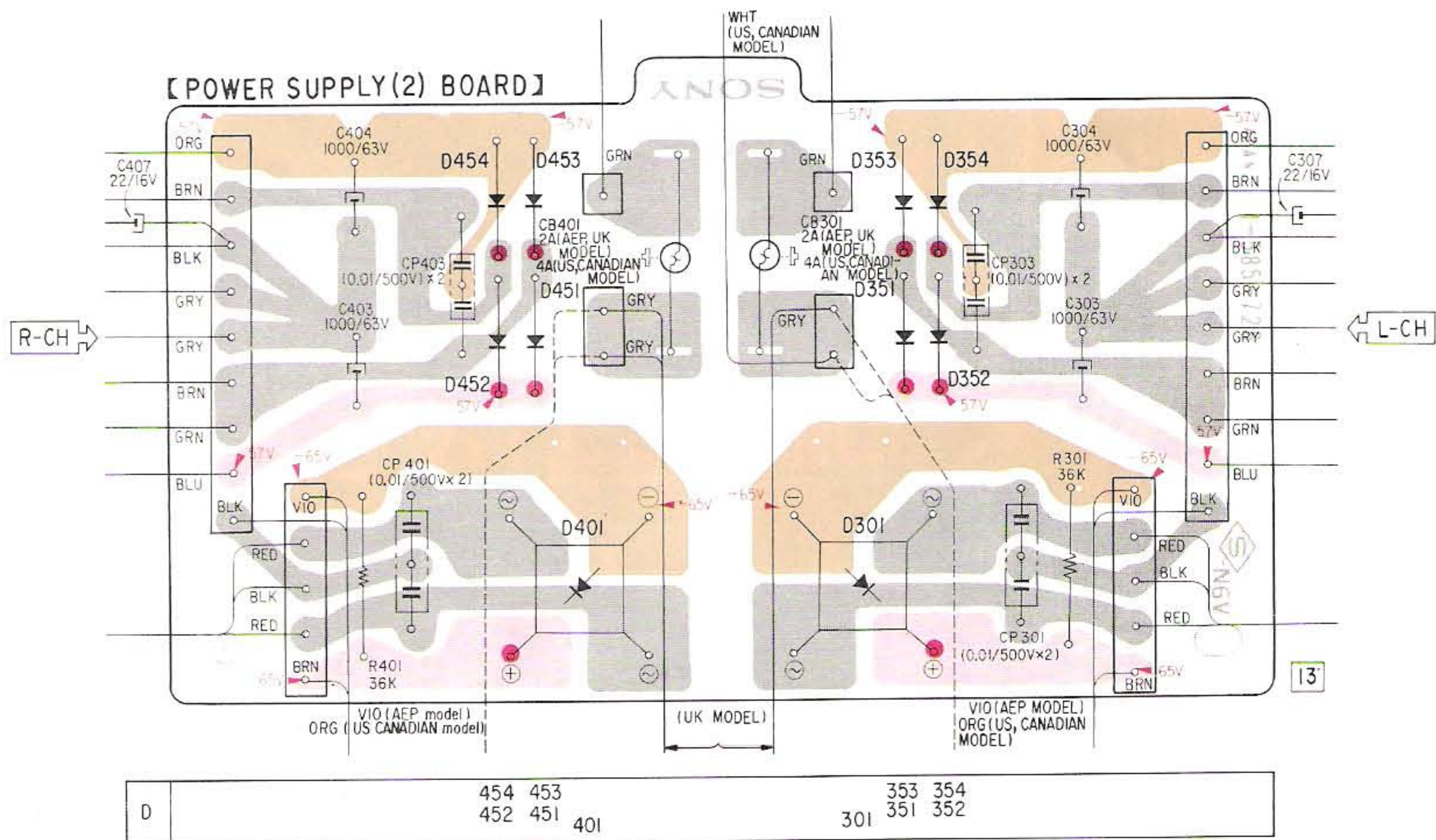
4-2. MOUNTING DIAGRAM – R-CH Power Amp Board –  
 – Conductor Side –

● Replacement Semiconductors: See page 8.



Q	501 502	252 254	251 253 202 210	204 263 209	261 264 201	265 203	245 244 230	247 246	205	266 267	231 268	262 206	207 208	211 208
D		254	202	201	251 252	232	261	230 262		233	231			

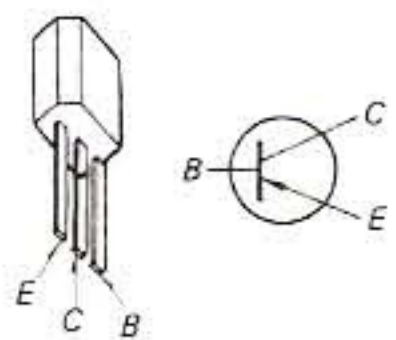
- : B+ pattern
- : B - pattern
- : nonflammable resistor
- : fusible resistor.



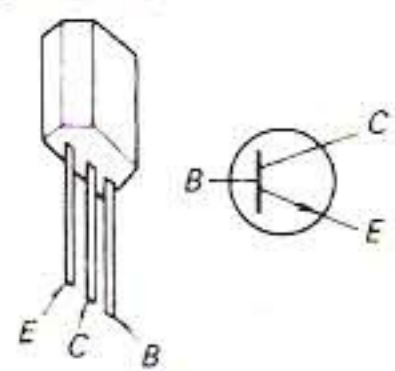
## • Replacement Semiconductors

For replacement, use semiconductors except in ( ).

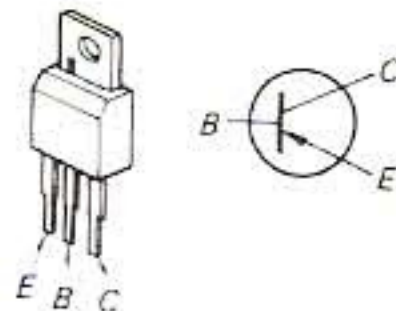
Q101, 102, 144  
147, 166, 167  
201, 202, 244  
247, 266, 267 } : 2SA678



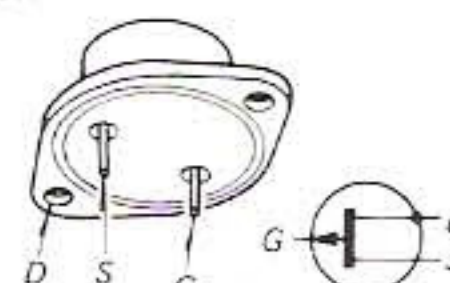
Q106-108  
206-208 : 2SC926A



Q131, 231: 2SA835



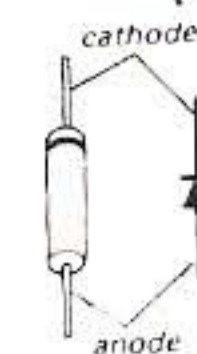
Q141-143  
241-243 : 2SJ18



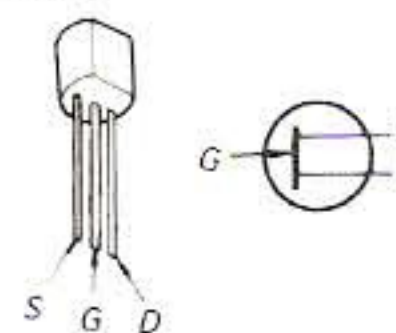
D130-133  
230-233 : 1S1555

D151, 152  
251, 252  
351-354  
451-454 } : 10E2

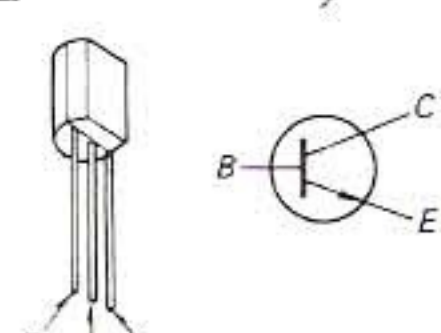
D154, 254: 1T22AM (1T22A)



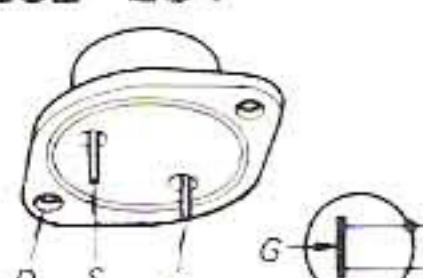
Q103, 104  
203, 204 : 2SK30A



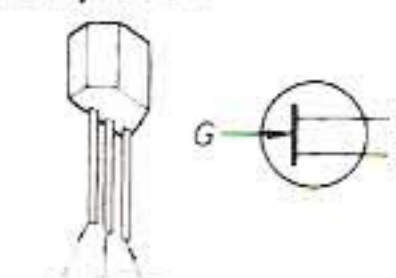
Q145, 146, 151-154  
245, 246, 251-254  
164, 165, 264, 265  
501, 502 } : 2SC136A



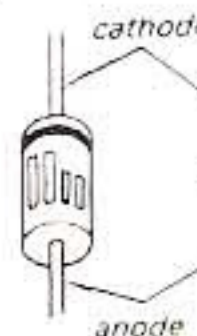
Q132-134  
232-234 : 2SK60



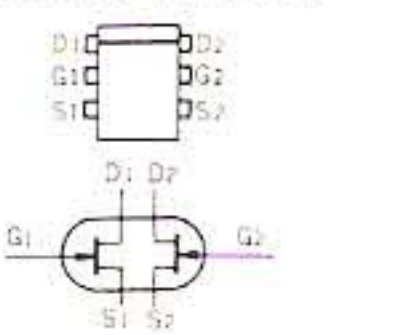
Q161, 162  
261, 262 : 2SK42-2



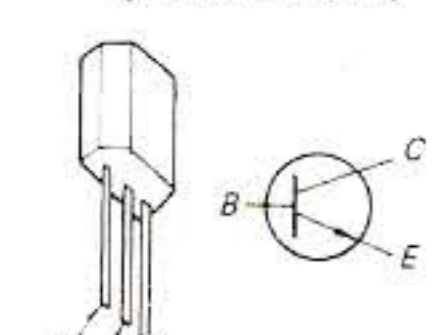
D161, 162  
261, 262 : EQB01-11Z



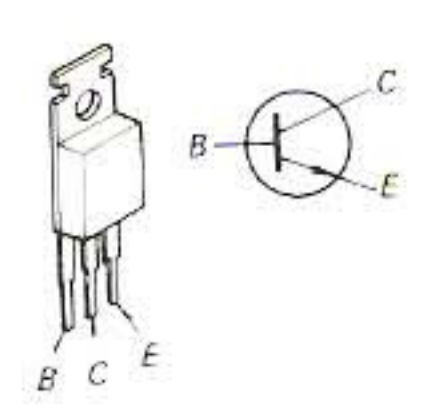
Q105, 205: 2SK97



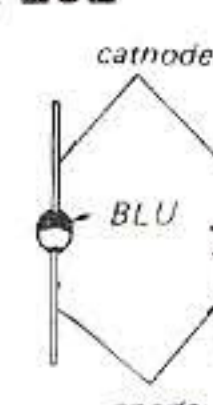
(2SC634A)



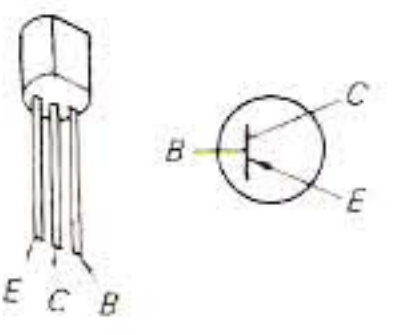
Q135-137  
235-237 : 2SC1173



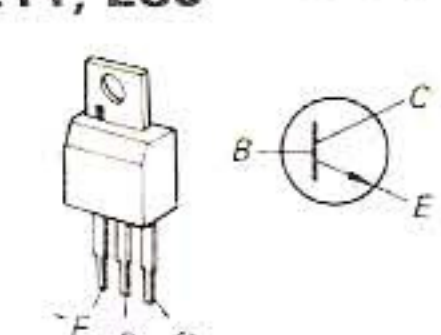
D101, 102  
201, 202 : MV12N



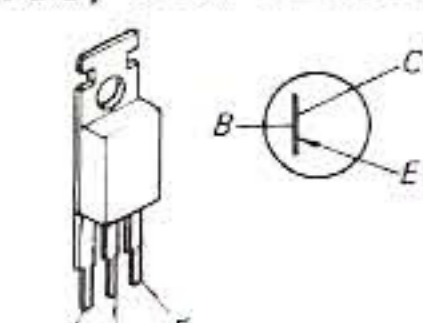
Q109, 209: 2SA639S



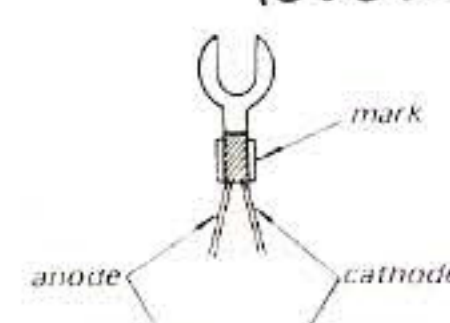
Q111, 130  
211, 230 : 2SC 1962



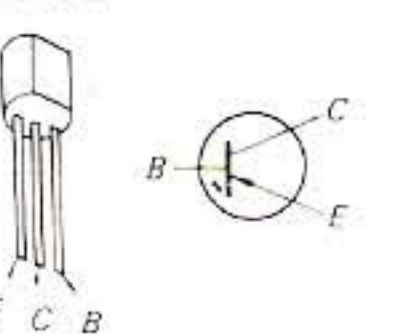
Q138-140  
238-240 : 2SA473



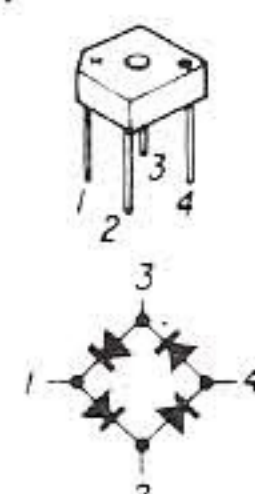
D103, 203: SV04S (SV04F)



Q110, 210 : 2SA896



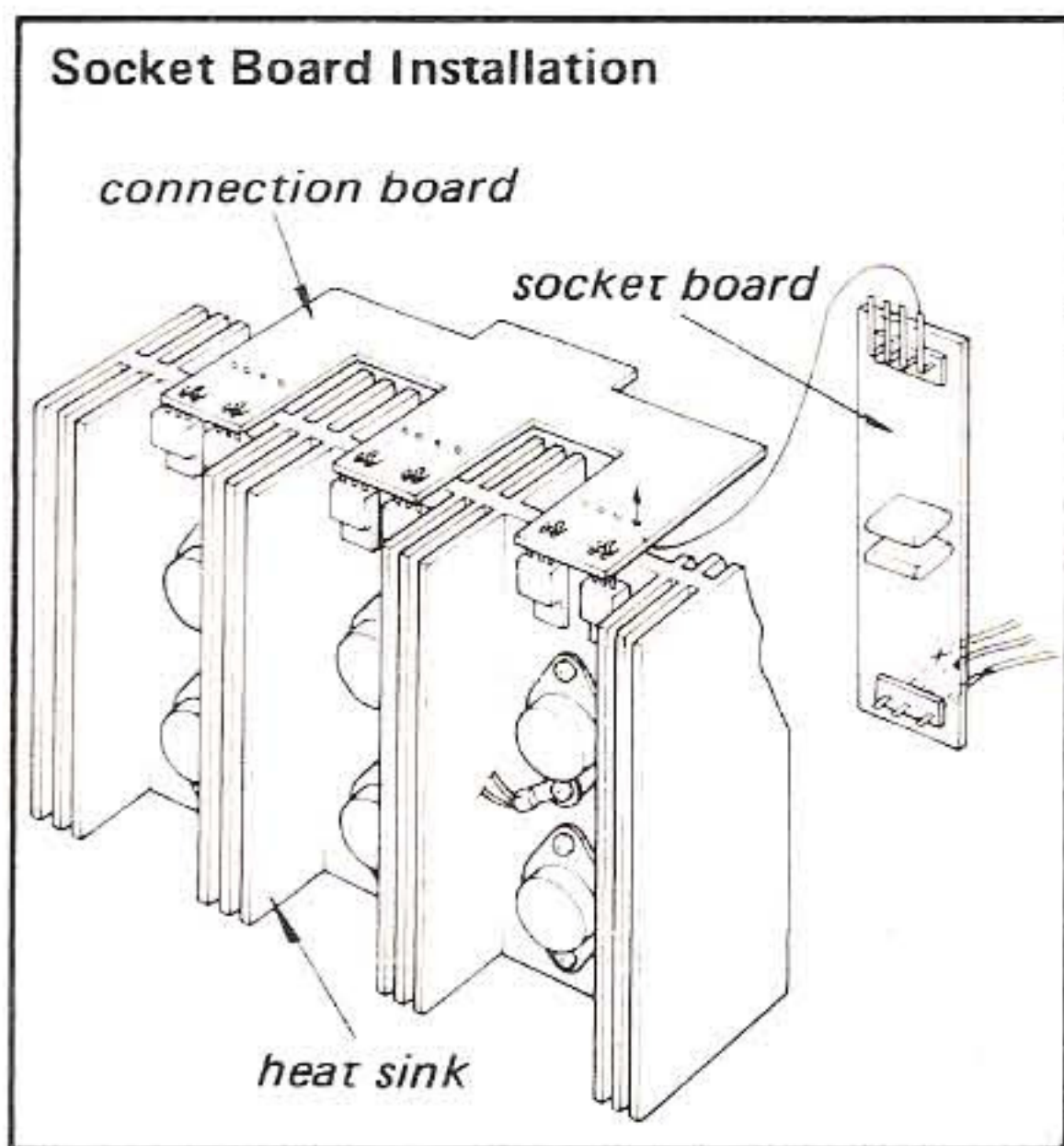
D301, 401: S5VB20



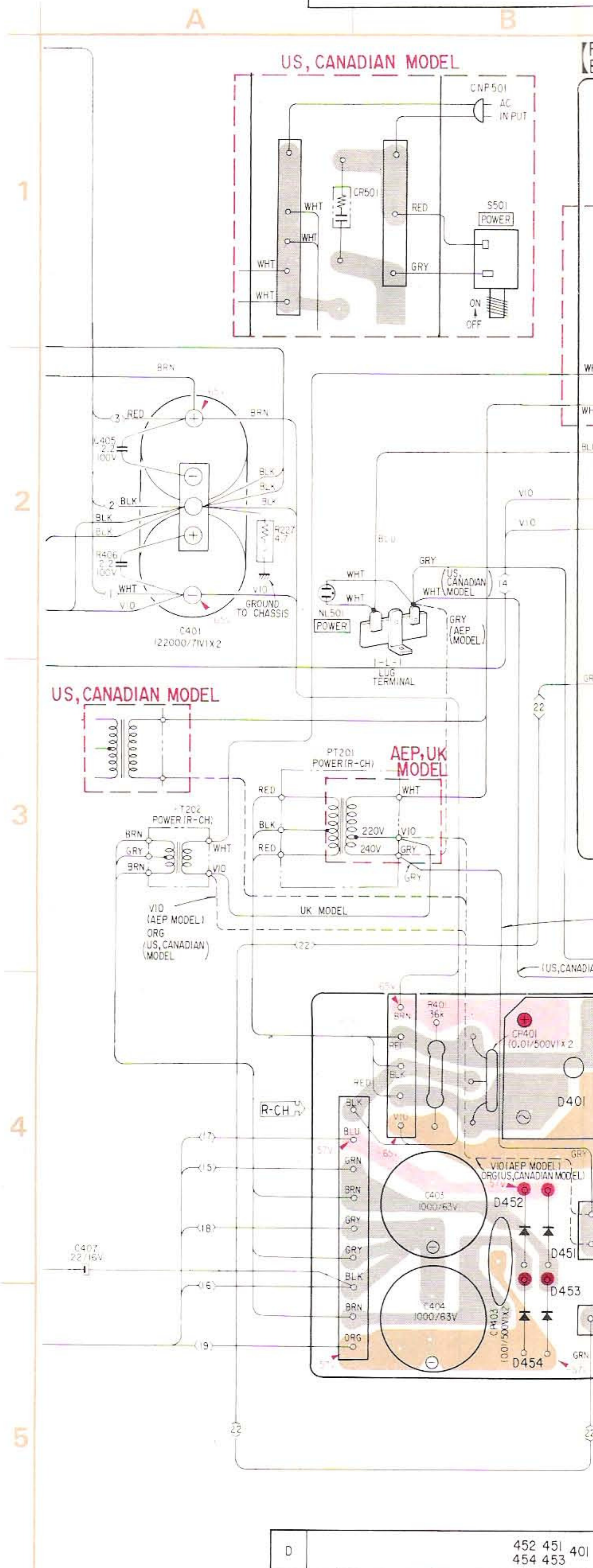
4-4. MOUNTING DIAGRAM – L-CH Power Amp Board –  
– Component Side –

Note:

- : B + pattern
  - : B - pattern
  - → : signal path
  - ▲ : nonflammable resistor
  - F : fusible resistor.
- Voltages are dc with respect to ground unless otherwise noted.
  - Readings are taken under no signal conditions with a VOM (20kΩ/V).
  - ( ) : voltage variations according to the rank of V-FET.



power amp (R-CH)



C

D

E

F

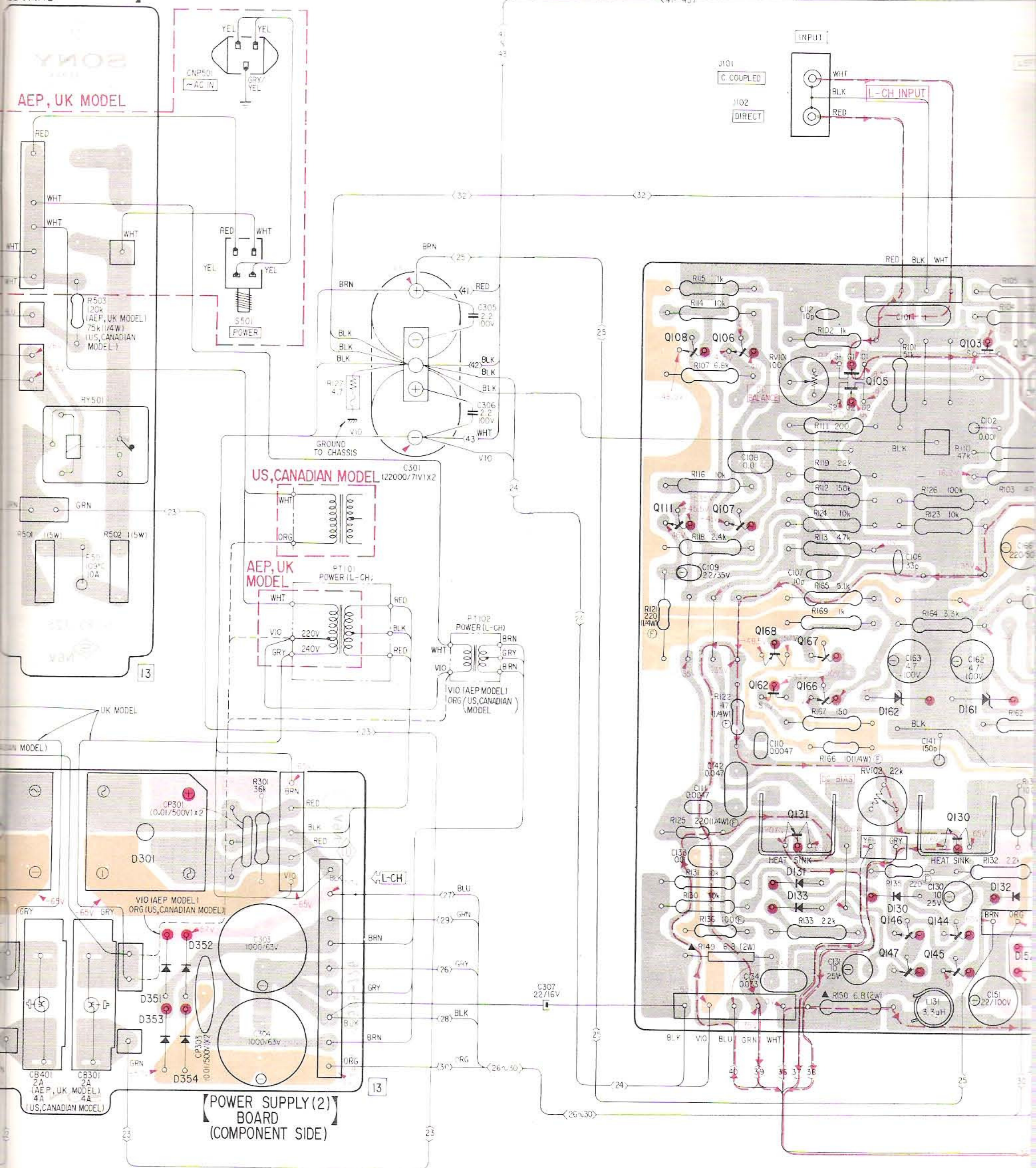
**POWER SUPPLY (1) BOARD**

AEP, UK MODEL

US, CANADIAN MODEL

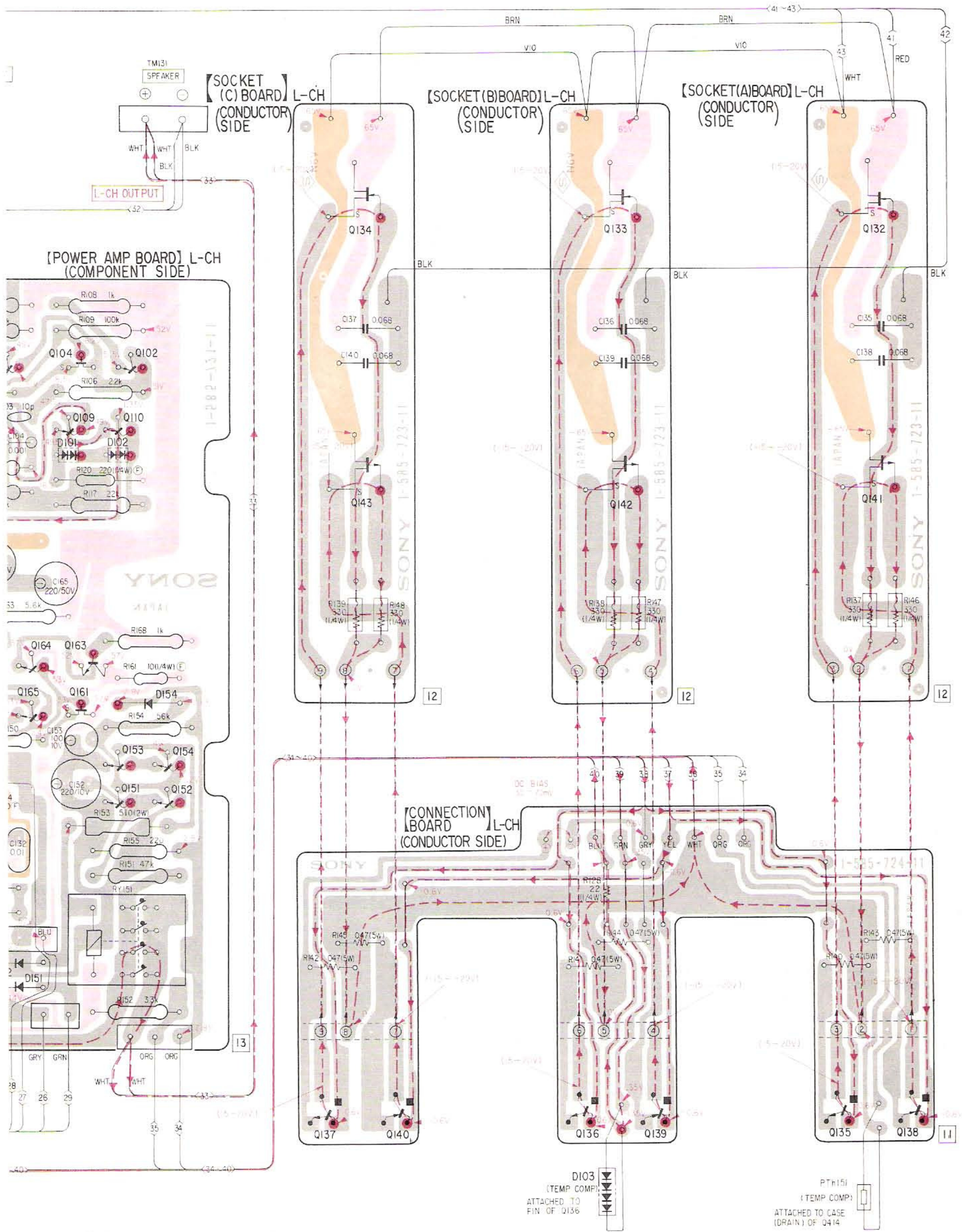
AEP, UK MODEL

**POWER SUPPLY (2) BOARD  
BOARD  
(COMPONENT SIDE)**



301	351	352
	353	354

Q	111	108	106	168	131	167	105		146	130	103	10
			107	162		166			147	144		
D					131				162		161	132
					133				130			



164	109	104	163	102	154	134	133	132	Q					
165	161	153	151	152	137	143	140	136		142	139	135	141	138
152	101	102	154				103							D

## 4-5. MOUNTING DIAGRAM – R-CH Power Amp Board –

– Component Side –

● Replacement Semiconductors: See page 8.

● : B + pattern

● : B – pattern

● → : signal path

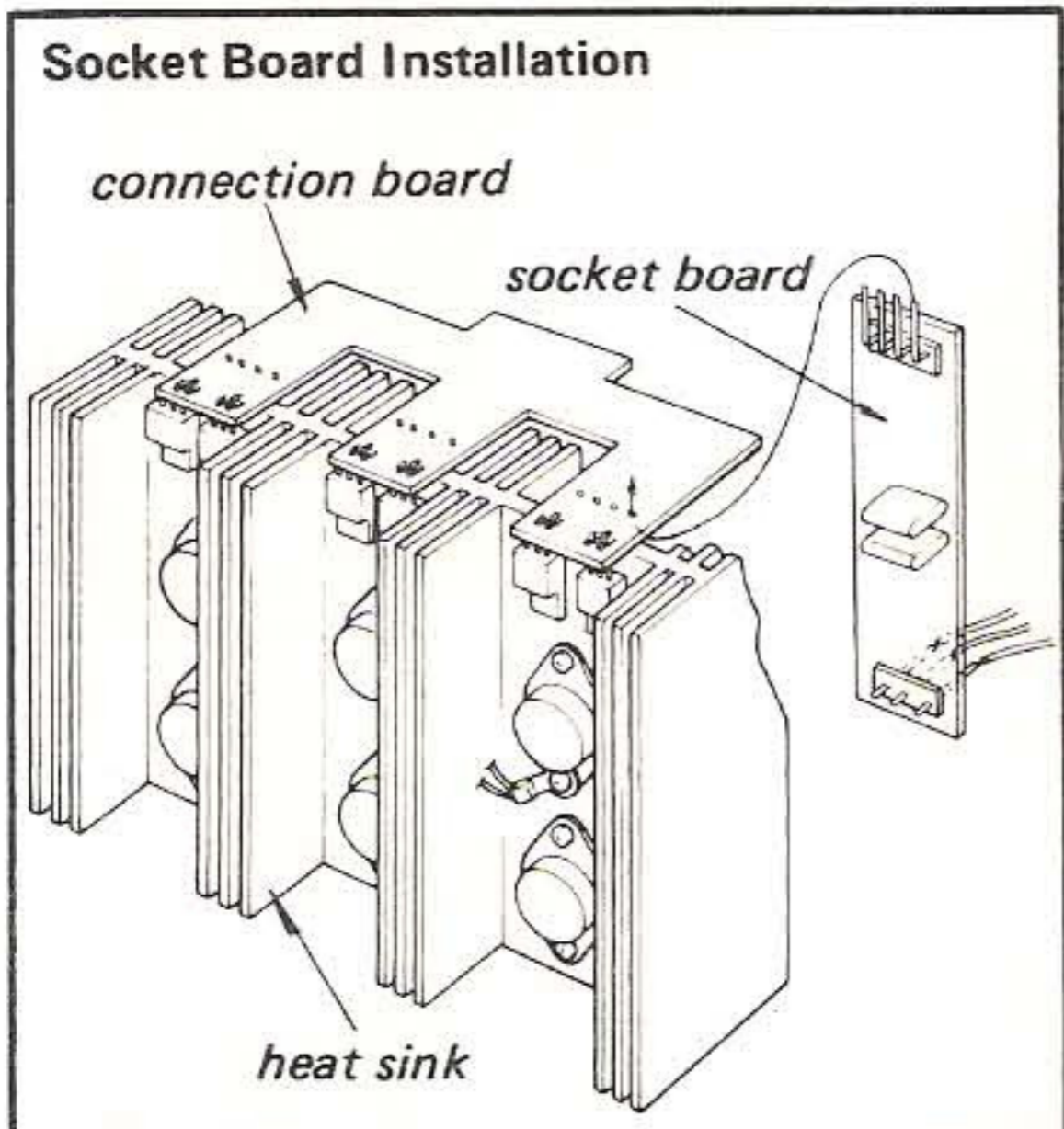
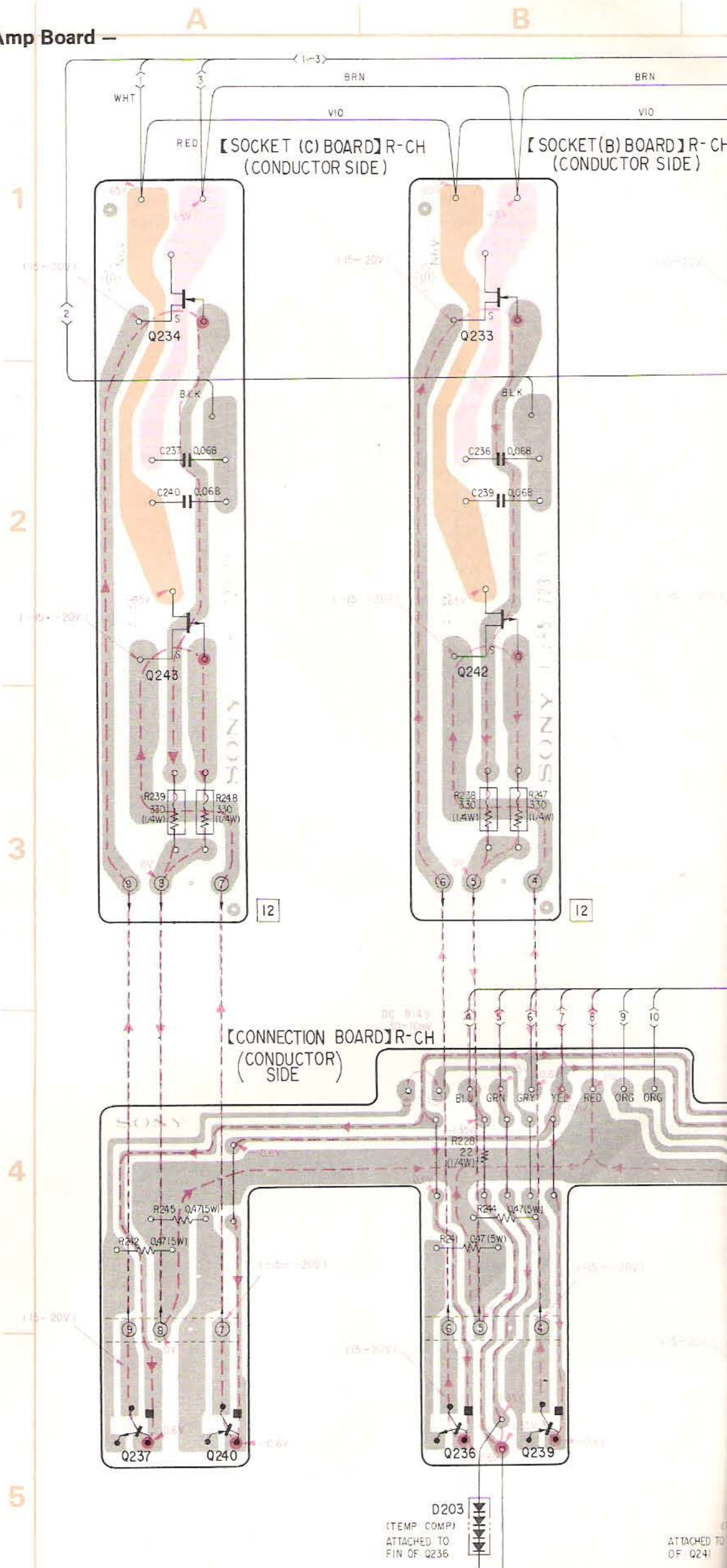
● ▲ : nonflammable resistor.

● (F) : fusible resistor.

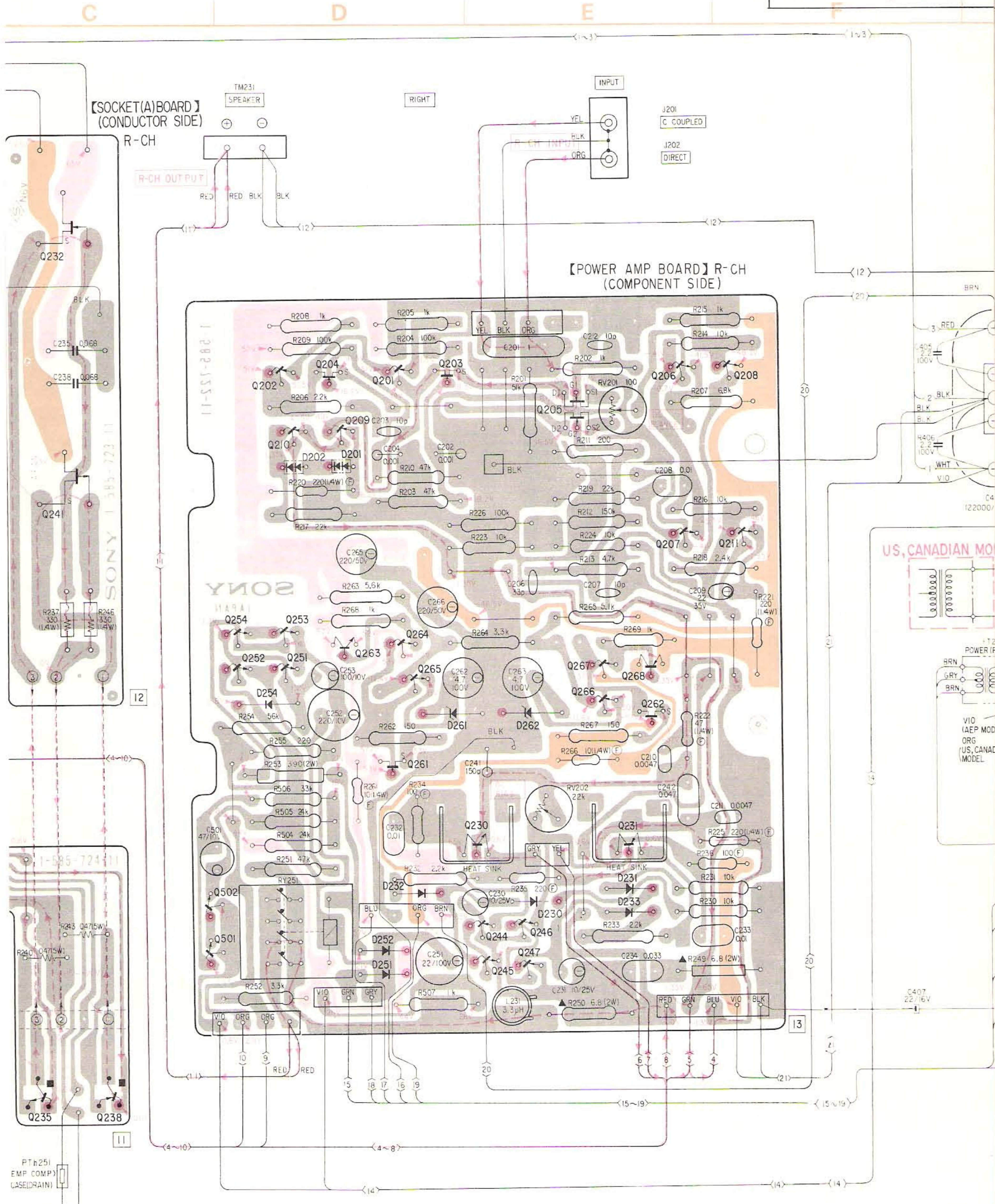
● Voltages are dc with respect to ground unless otherwise noted.

● Readings are taken under no signal conditions with a VOM (20kΩ/V).

( ) : voltage variations according to the rank of V-FET.



Q	237	234 243	240	233 236	242	239
D				203		

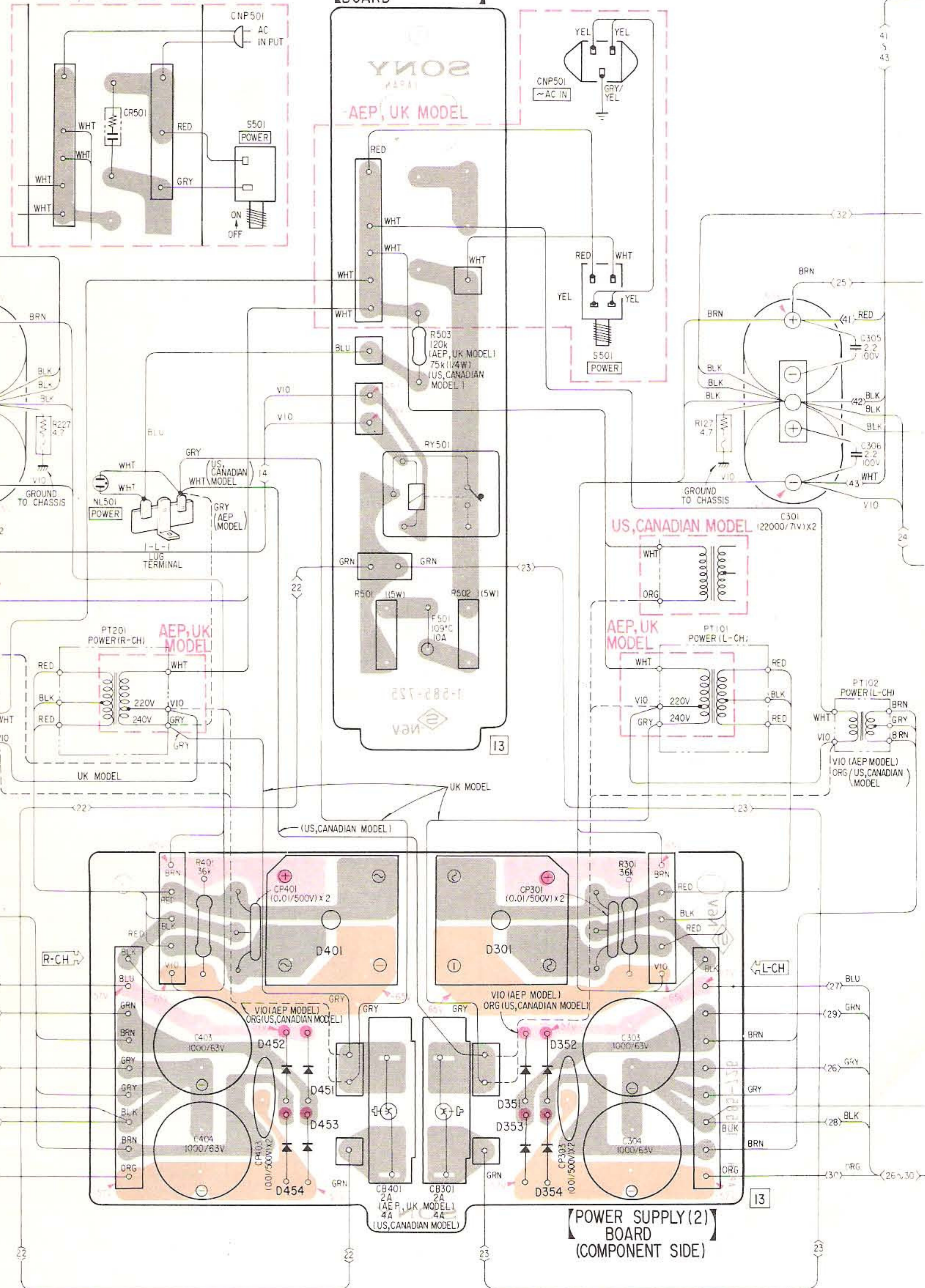


232	502	254	210	209	201	265	203	230	205	267	231	268	206	208	Q
235	501	252	202	204	261	264	246	244	266	262	207	211			
238		251	203	209	252	232	261	245		231					D
		253	202	201	251	232	261	247		233					

## US, CANADIAN MODEL

## POWER SUPPLY (1) BOARD

## AEP, UK MODEL



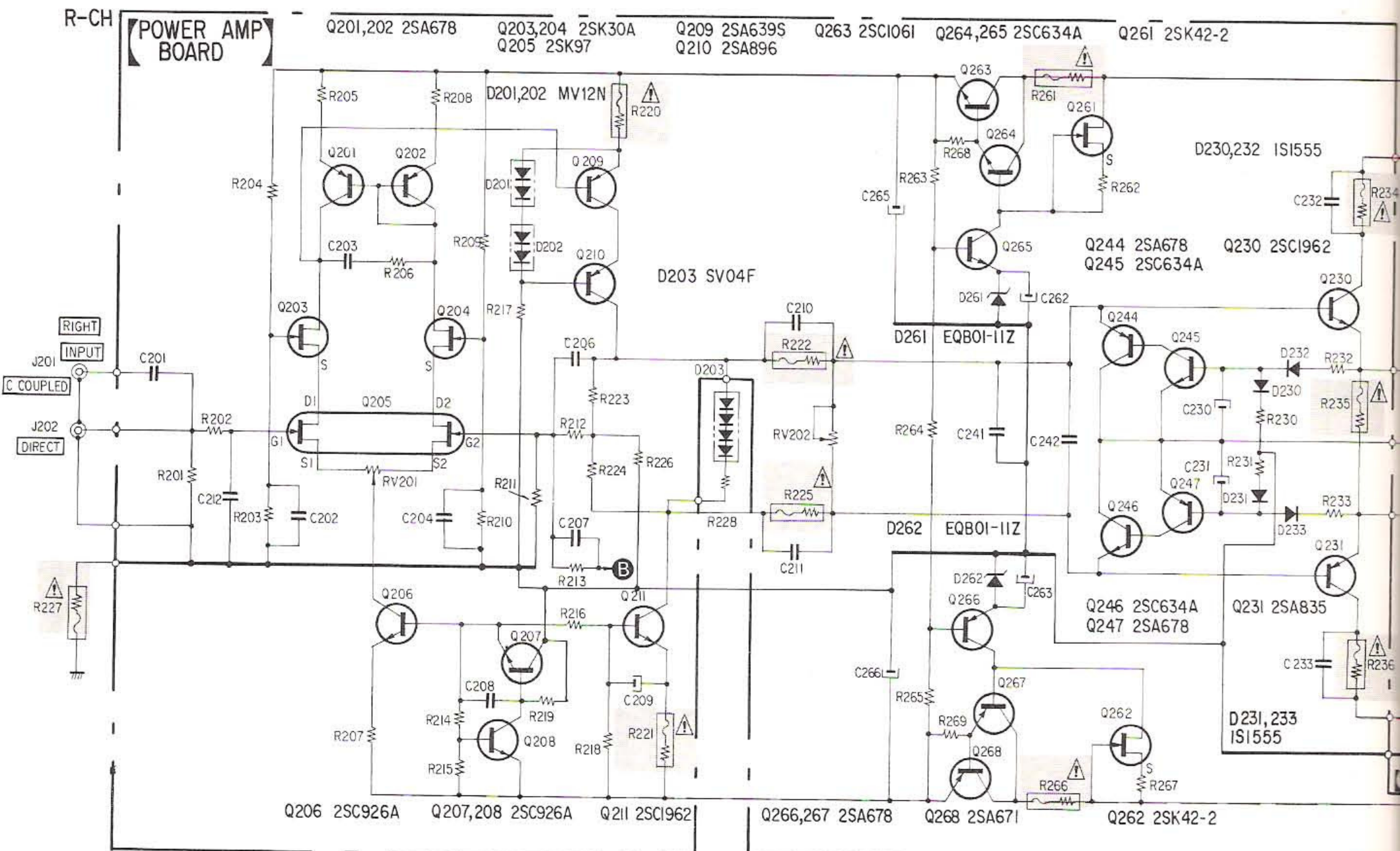
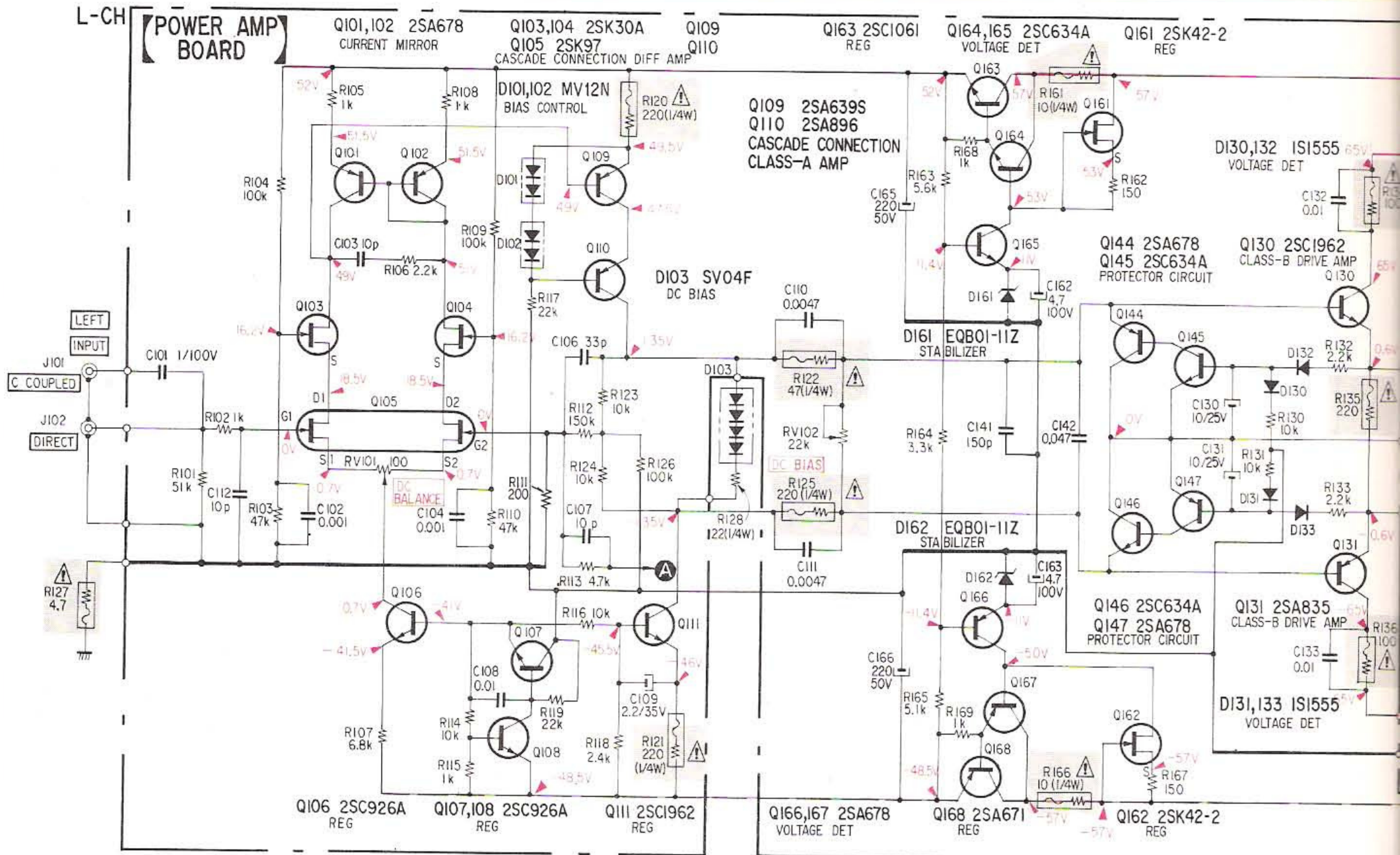
power amp (L-CH)


D	452	451	401	301	351	352
	454	453		353	354	

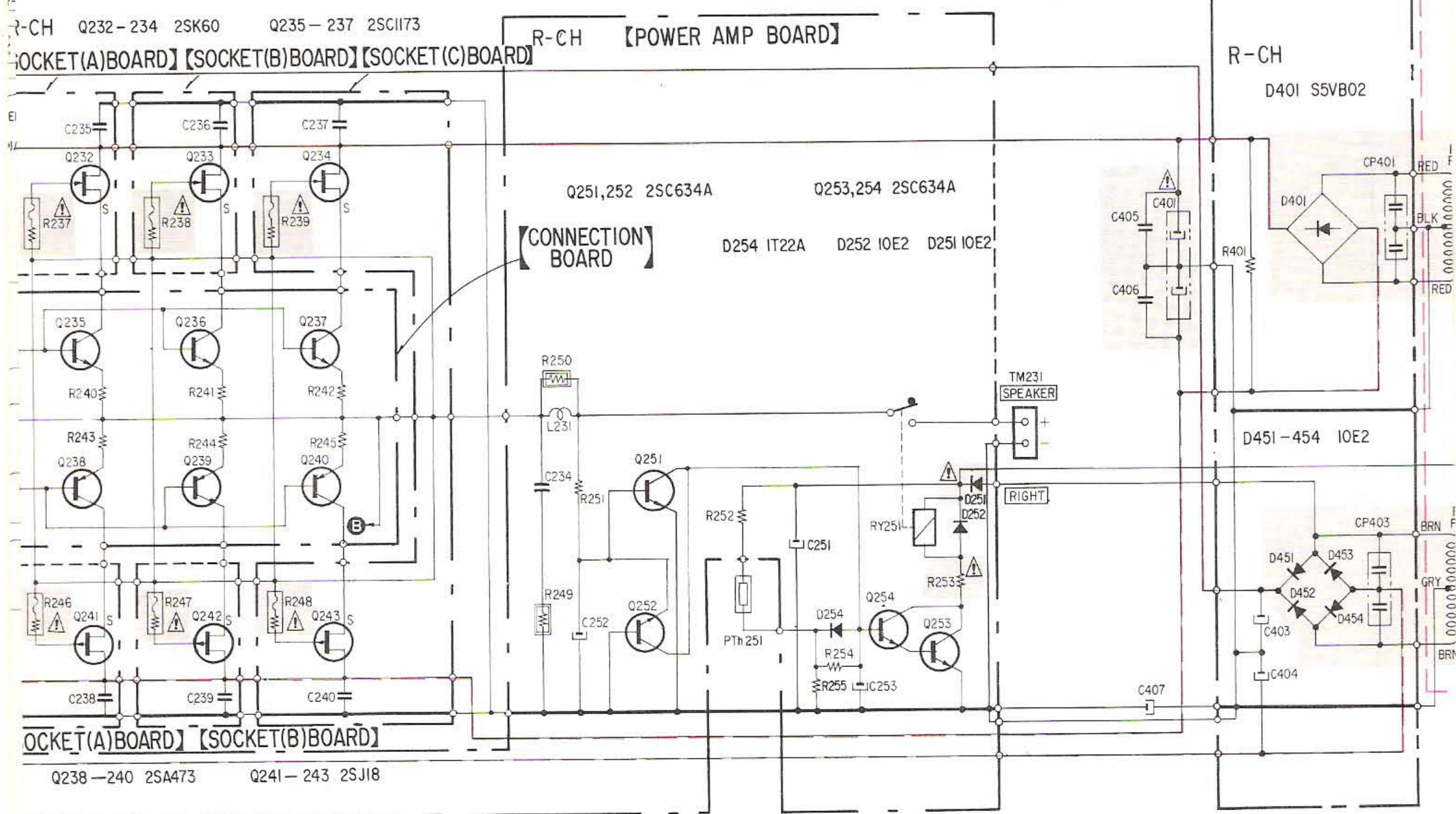
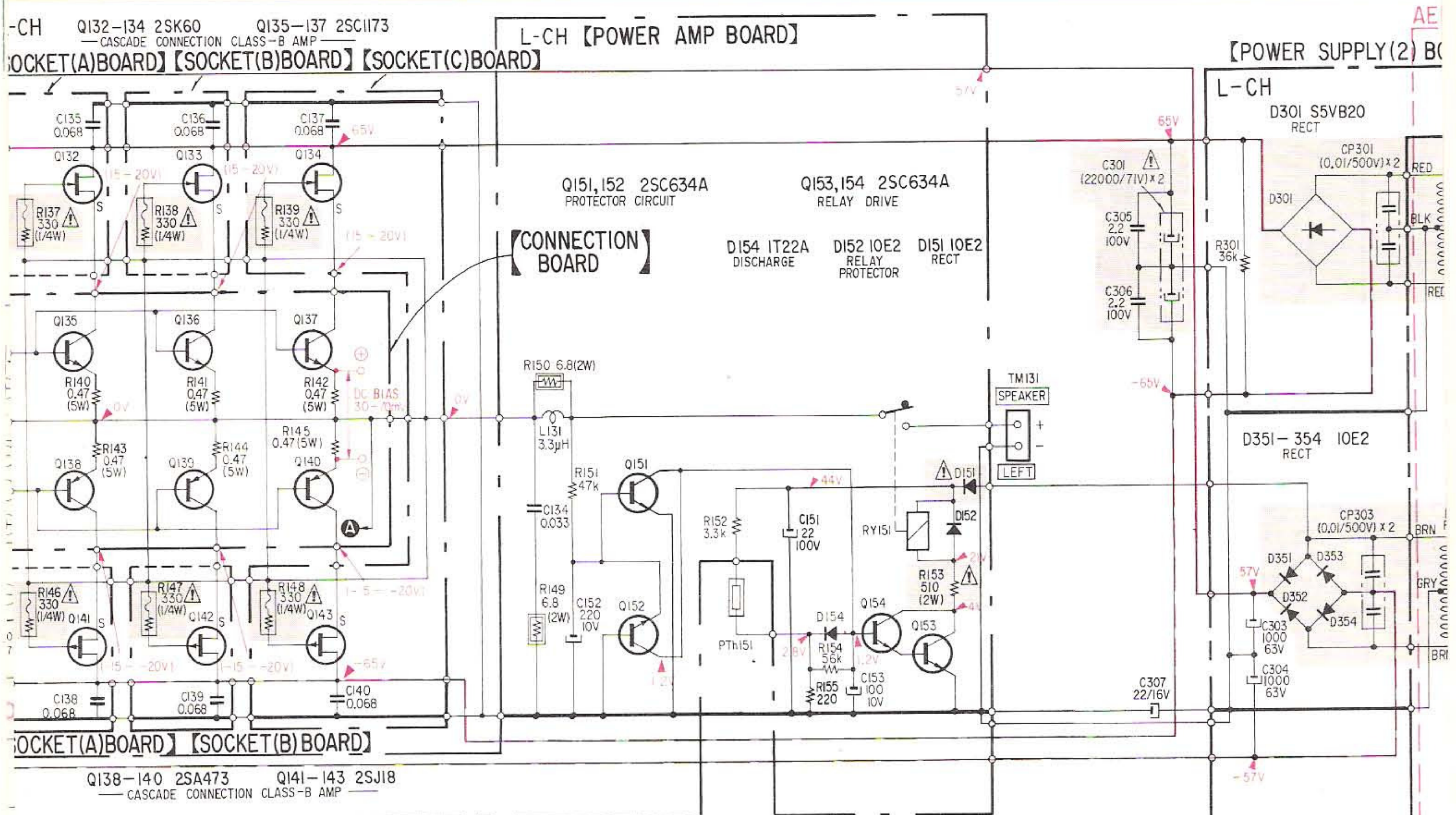
Note: The components identified by shading and ⚠ mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une hachure et un triangle sont critiques pour la sécurité. Remplacez-les par une pièce portant le numéro de pièce spécifié.

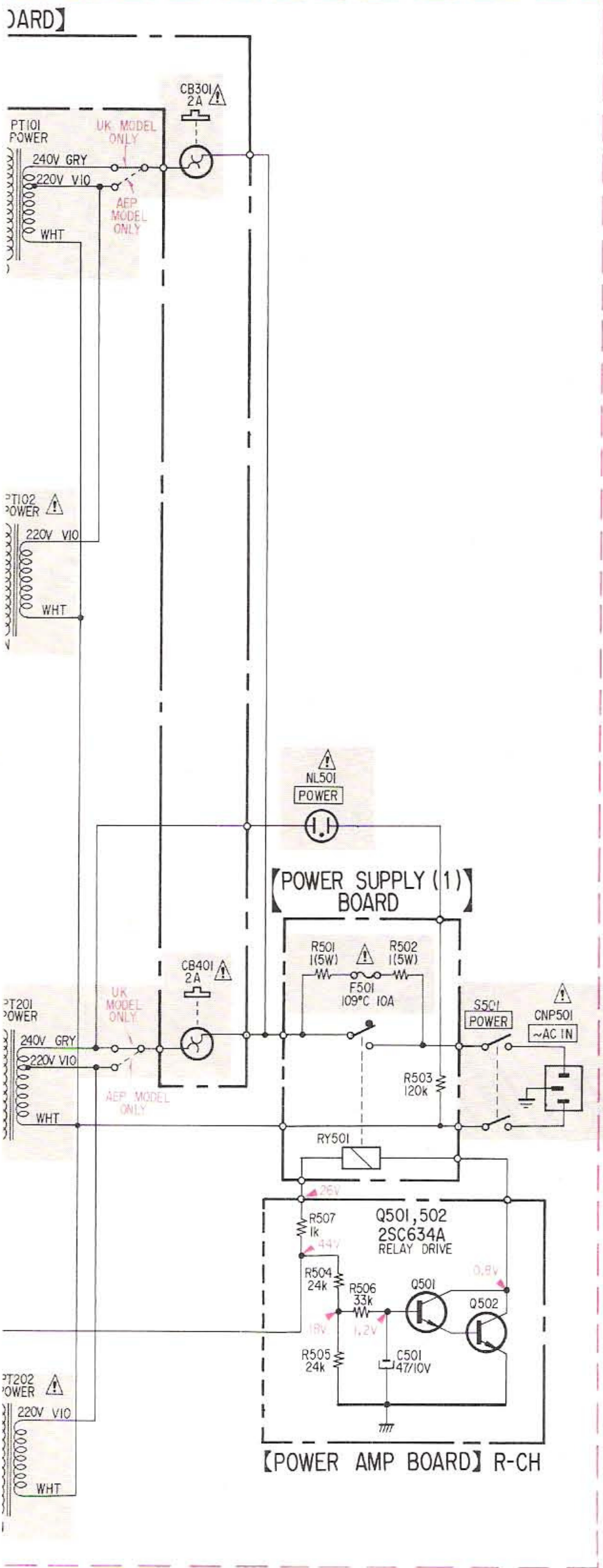
4-6. SCHEMATIC DIAGRAM



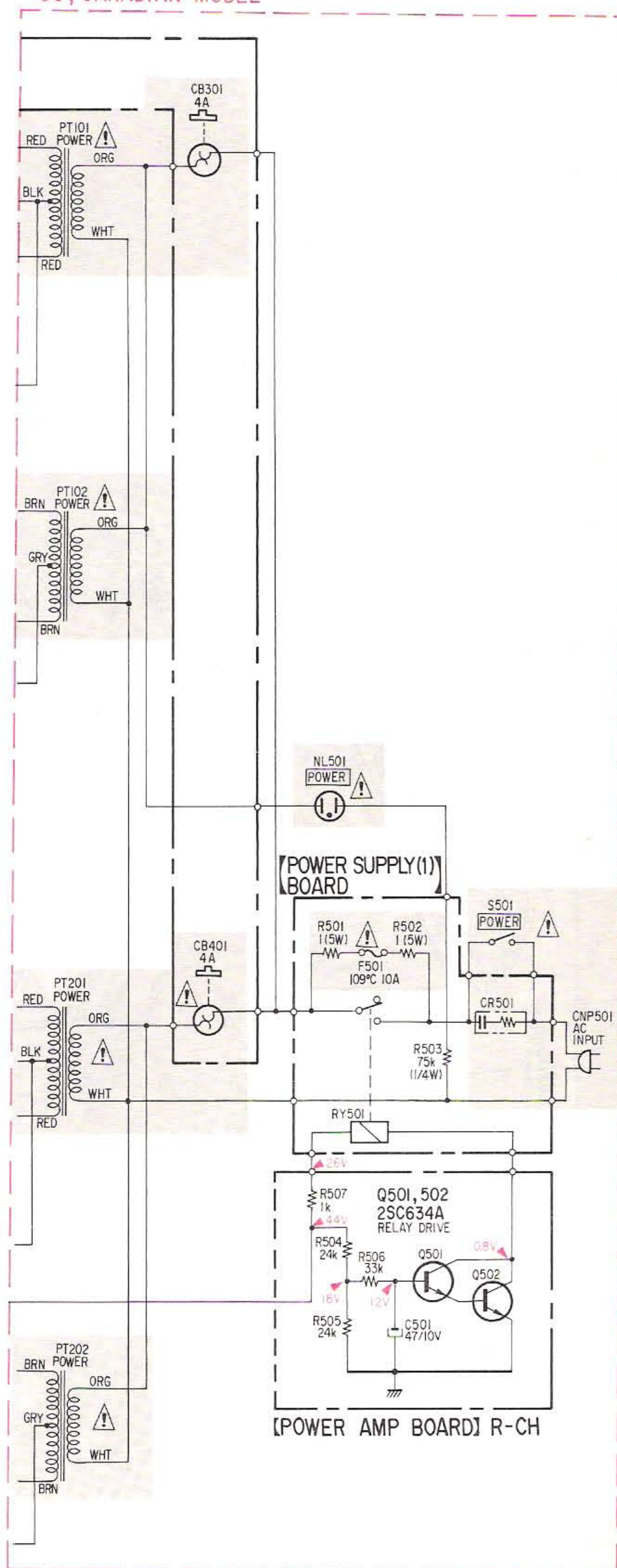
ifiés par un tramé et une marque  sécurité. Ne les remplacer que par un numéro spécifié.



R,UK MODEL



US, CANADIAN MODEL



- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} = \mu\mu\text{F}$ . 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms  $\frac{1}{2}\text{W}$  unless otherwise noted.  $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{k}\Omega$
- : nonflammable resistor.
- : fusible resistor.
- : B+ bus.
- : B-bus.
- : panel designation.

- : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20k $\Omega$ /V).
- ( ) : voltage variations according to the rank of V-FET.

• Switch

Ref. No.	Switch	Position
S501	POWER	OFF

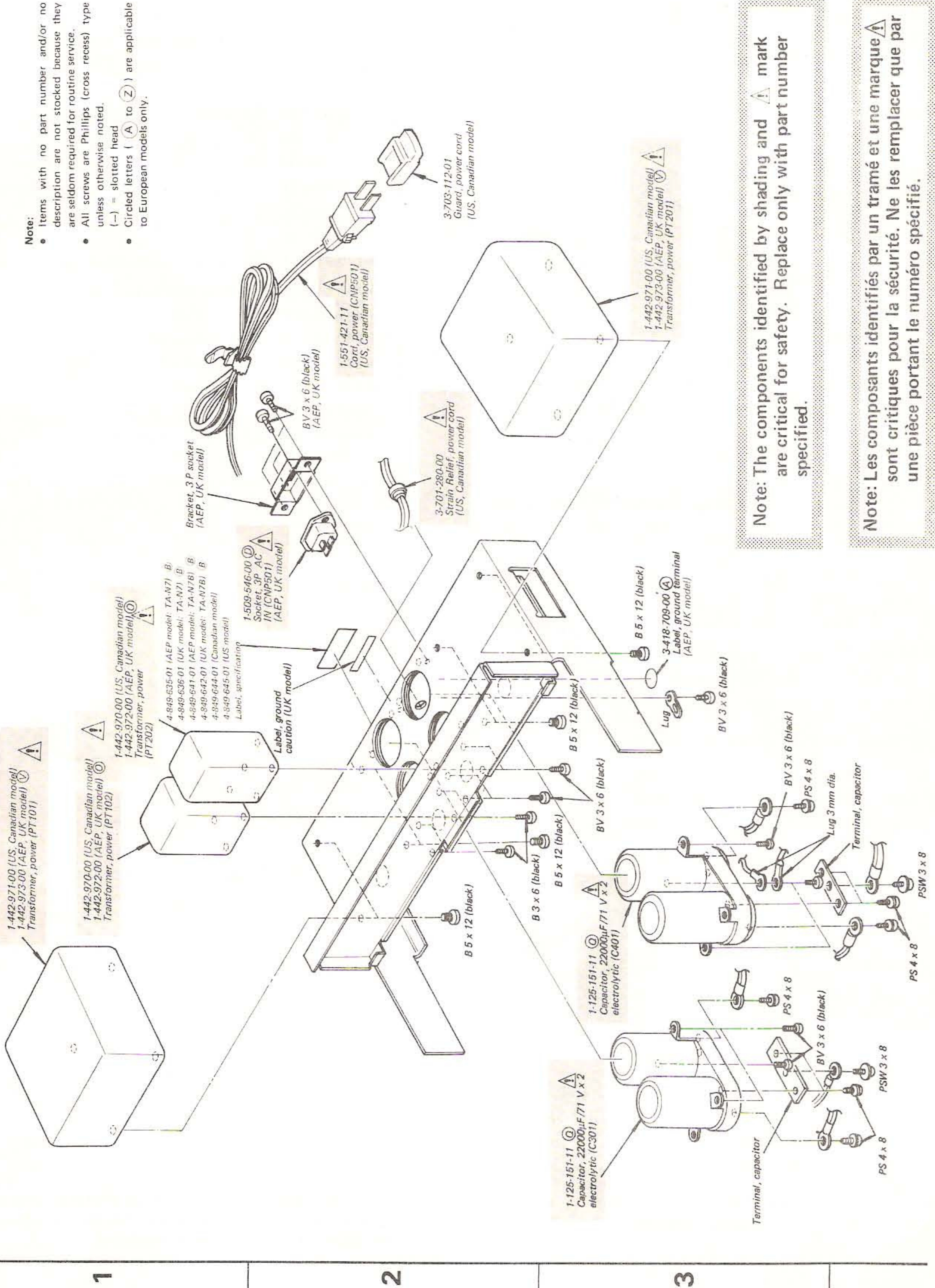






5-4.

A B C D E



**Note:**

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head
- Circled letters (A to Z) are applicable to European models only.

**Note:** The components identified by shading and ⚠ mark are critical for safety. Replace only with part number specified.

**Note:** Les composants identifiés par un trame et ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 6  
ELECTRICAL PARTS LIST

• Circled letters ( A to Z ) are applicable to European models only.

Ref. No. Part No. Description

Ref. No. Part No. Description

SEMICONDUCTORS

Diodes

Transistors

Q101, 201 Q102, 202	8-727-788-00	Ⓒ	2SA678
Q103, 203 Q104, 204	8-729-203-04	Ⓑ	2SK30A
Q105, 205	8-765-342-10	Ⓕ	2SK97
Q106-108 Q206-208	8-720-950-03	Ⓓ	2SC926A
Q109, 209	8-729-163-93	Ⓒ	2SA639S
Q110, 210	8-765-082-20	Ⓒ	2SA896
Q111, 211 Q130, 230	8-765-170-01	Ⓔ	2SC1962
Q131, 231	8-762-020-00	Ⓔ	2SA835
Q132-134 Q232-234	8-762-355-00	Ⓙ	2SK60
Q135-137 Q235-237	8-729-217-33	Ⓒ	2SC1173
Q138-140 Q238-240	8-729-247-33	Ⓒ	2SA473
Q141-143 Q241-243	8-762-455-00	Ⓚ	2SJ18
Q144, 244	8-727-788-00	Ⓒ	2SA678
⇒ Q145, 245 ⇒ Q146, 246	8-729-663-47	Ⓑ	2SC1364
Q147, 247	8-727-788-00	Ⓒ	2SA678
⇒ Q151-154 ⇒ Q251-254	8-729-663-47	Ⓑ	2SC1364
Q161, 261 Q162, 262	8-727-312-00	Ⓒ	2SK42-2
Q163, 263	8-729-316-12	Ⓓ	2SC1061
⇒ Q164, 264 ⇒ Q165, 265	8-729-663-47	Ⓑ	2SC1364
Q166, 266 Q167, 267	8-727-788-00	Ⓒ	2SA678
Q168, 268	8-729-317-12	Ⓔ	2SA671
⇒ Q501, 502	8-729-663-47	Ⓑ	2SC1364

D101, 201 D102, 202	8-719-912-00	Ⓑ	MV12N
⇒ D103, 203	8-719-300-11	Ⓒ	SV04S
D130-133 D230-233	8-719-815-55	Ⓑ	1S1555
D151, 251	8-719-200-02	Ⓑ	10E2
D152, 252	8-719-200-02	Ⓑ	10E2
⇒ D154, 254	8-719-422-21	Ⓑ	1T22AM
D161, 261 D162, 262	8-719-930-11	Ⓑ	EQB01-11Z
D301, 401	8-719-505-20	Ⓕ	S5VB20
D351-354 D451-454	8-719-200-02	Ⓑ	10E2

Thermistor

PTH 151 PTH 251	1-800-427-00	Ⓑ	positive
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CAPACITORS

All capacitors are in  $\mu\text{F}$  and ceramic unless otherwise noted.  
50WV or less are not indicated except for electrolytics. pF =  $\mu\mu\text{F}$ , elect = electrolytic

C101, 201	1-130-083-11	Ⓒ	1	100V	polyethylene
C102, 202	1-103-775-11	Ⓐ	0.001		polystyrol
C103, 203	1-102-947-11	Ⓐ	10p		
C104, 204	1-103-775-11	Ⓐ	0.001		polystyrol
C106, 206	1-102-963-11	Ⓐ	33p		
C107, 207	1-102-947-11	Ⓐ	10p		
C108, 208	1-108-239-12	Ⓐ	0.01		mylar
C109, 209	1-131-217-11	Ⓑ	2.2	35V	tantalum
C110, 210 C111, 211	1-108-234-12	Ⓐ	0.0047		mylar
C112, 212	1-102-947-11	Ⓐ	10p		
C130, 230 C131, 231	1-123-187-11	Ⓐ	10	25V	elect
C132, 232 C133, 233	1-108-239-12	Ⓐ	0.01		mylar

• ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading and ⚠ mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• Circled letters ( A to Z ) are applicable to European models only.

Ref. No.	Part No.	Description
C134, 234	1-108-244-12 (A)	0.033 mylar
C135-140 C235-240	1-108-847-12 (A)	0.068 mylar
C141, 241	1-103-755-11 (A)	150p polystyrol
C142, 242	1-108-246-12 (A)	0.047 mylar
C151, 251	1-123-081-11 (B)	22 100V elect
C152, 252	1-123-072-11 (B)	220 10V elect
C153, 253	1-123-196-11 (A)	100 10V elect
C162, 262 C163, 263	1-123-255-11 (B)	4.7 100V elect
C165, 265 C166, 266	1-121-423-11 (B)	220 50V elect
C301, 401	1-125-151-11 (C)	22000+22000 71V elect
C303, 403 C304, 404	1-123-262-11 (E)	1000 63V elect
C305, 405 C306, 406	1-130-084-11 (D)	2.2 100V polyethylene
C307, 407	1-121-479-11 (A)	22 16V elect
C501	1-123-195-11 (A)	47 10V elect

**RESISTORS**

All resistors are in ohms and 1/2W carbon unless otherwise noted.

R101, 201	1-244-914-11 (A)	51k
R102, 202	1-244-873-11 (A)	1k
R103, 203	1-244-913-11 (A)	47k
R104, 204	1-244-921-11 (A)	100k
R105, 205	1-244-873-11 (A)	1k
R106, 206	1-244-881-11 (A)	2.2k
R107, 207	1-244-893-11 (A)	6.8k
R108, 208	1-244-873-11 (A)	1k
R109, 209	1-244-921-11 (A)	100k
R110, 210	1-244-913-11 (A)	47k
R111, 211	1-244-856-11 (A)	200
R112, 212	1-244-925-11 (A)	150k
R113, 213	1-244-889-11 (A)	4.7k
R114, 214	1-244-897-11 (A)	10k
R115, 215	1-244-873-11 (A)	1k

Ref. No.	Part No.	Description
R116, 216	1-244-897-11 (A)	10k
R117, 217	1-244-905-11 (A)	22k
R118, 218	1-244-882-11 (A)	2.4k
R119, 219	1-244-905-11 (A)	22k
R120, 220 R121, 221	1-212-889-11 (A)	220 1/4W fusible
R122, 222	1-212-873-11 (A)	47 1/4W fusible
R123, 223 R124, 224	1-244-897-11 (A)	10k
R125, 225	1-212-889-11 (A)	220 1/4W fusible
R126, 226	1-244-921-11 (A)	100k
R127, 227	1-212-950-11 (A)	4.7 1/2W fusible
R128, 228	1-244-633-11 (A)	22 1/4W
R130, 230 R131, 231	1-244-897-11 (A)	10k
R132, 232 R133, 233	1-244-881-11 (A)	2.2k
R134, 234	1-212-982-11 (A)	100 1/2W fusible
R135, 235	1-212-990-11 (A)	220 1/2W fusible
R136, 236	1-212-982-11 (A)	100 1/2W fusible
R137-139 R237-239	1-212-893-11 (A)	330 1/4W fusible
R140-145 R240-245	1-217-158-11 (A)	0.47 5W metal oxide
R146-148 R246-248	1-212-893-11 (A)	330 1/4W fusible
R149, 249 R150, 250	1-206-459-11 (A)	6.8 2W metal oxide
R151, 251	1-244-913-11 (A)	47k
R152, 252	1-244-885-11 (A)	3.3k
R153, 253	1-206-657-11 (A)	510 2W metal oxide
R154, 254	1-244-915-11 (A)	56k
R155, 255	1-244-857-11 (A)	220
R161, 261	1-212-857-11 (A)	10 1/4W fusible
R162, 262	1-244-853-11 (A)	150
R163, 263	1-244-891-11 (A)	5.6k
R164, 264	1-244-885-11 (A)	3.3k
R165, 265	1-244-890-11 (A)	5.1k

Note: The components identified by shading and  $\Delta$  mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R166, 266	1-212-857-11	(A) 10 ¼W fusible
R167, 267	1-244-853-11	(A) 150
R168, 268 R169, 269	1-244-873-11	(A) 1k
R301, 401	1-244-910-11	(A) 36k
R501, 502	1-217-160-11	(B) 1 5W metal oxide
R503	1-244-718-11	75k ¼W (US, Canadian model)
	1-244-925-11	(A) 120k (AEP, UK model)
R504, 505	1-244-906-11	(A) 24k
R506	1-244-909-11	(A) 33k
R507	1-244-873-11	(A) 1k
RV101, 201	1-224-247-XX	(C) 100 adjustable, DC balance
RV102, 202	1-224-253-XX	(C) 22k adjustable, DC bias

### SWITCH

S501	1-552-141-12	(E) Pushbutton, POWER (AEP, UK model)
	1-552-246-11	Pushbutton, POWER (US, Canadian model)

### MISCELLANEOUS

CB301, 401	1-532-523-11	Circuit Breaker, 4A (US, Canadian model)
	1-532-531-11	(C) Circuit Breaker, 2A (AEP, UK model)
CNP501	1-509-546-00	(D) Socket, 3p AC IN (AEP, UK model)
	1-551-421-11	Cord, power (US, Canadian model)
CP301, 303 CP401, 403	1-102-355-11	(B) Encapsulated Component
CR501	1-231-326-11	Encapsulated Component (US model)
	1-231-341-00	Encapsulated Component (Canadian model)
F501	1-532-496-00	(C) Fuse, 109°C, 10A
J101, 201 J102, 202	1-507-378-21	(B) Jack, 2p; C-COUPLED, DIRECT
L131, 231	1-420-879-00	(B) Coil, 3.3µH
NL501	1-519-139-00	(B) Neon Lamp, power
PT101, 201	1-442-971-00	Transformer, power (US, Canadian model)
	1-442-973-00	(V) Transformer, power (AEP, UK model)
PT102, 202	1-442-970-00	Transformer, power (US, Canadian model)
	1-442-972-00	(O) Transformer, power (AEP, UK model)
RY151, 251	1-515-293-00	(H) Relay
RY501	1-515-278-00	(F) Relay
TM131	1-535-195-21	(F) Terminal Strip 2p; LEFT SPEAKER
TM231	1-535-195-31	(F) Terminal Strip 2p; RIGHT SPEAKER
	1-525-186-00	(B) Socket, transistor
	1-536-392-XX	(B) Terminal, lug

Note: The components identified by shading and ⚠ mark are critical for safety. Replace only with part number specified.

• Circled letters ( A to Z ) are applicable to European models only.

### ACCESSORIES & PACKING MATERIALS

<u>Part No.</u>	<u>Description</u>
1-534-819-12	(G) Cord, power (UK model)
3-701-622-00	(A) Bag, plastic (UK model)
3-701-630-00	(A) Bag, plastic; printed matters
3-770-058-21	Manual, instruction (US model)
3-770-058-21	Manual, instruction (Canadian model)
3-794-245-31	Manual, instruction (AEP, UK model)
3-770-441-11	(H) Manual, instruction (AEP, UK model)
4-848-648-00	(B) Bag, protection; set
4-849-622-00	(C) Cushion (A)
4-849-623-00	(C) Cushion (B)
4-849-637-00	(F) Carton (TA-N7)
4-849-638-00	(C) Spacer
4-849-639-00	(C) Cushion, lower
4-849-643-00	(G) Carton (TA-N7B)

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.