

# TA-N7/N7B

TA-N7 (Panel: Silver)

AEP Model

UK Model

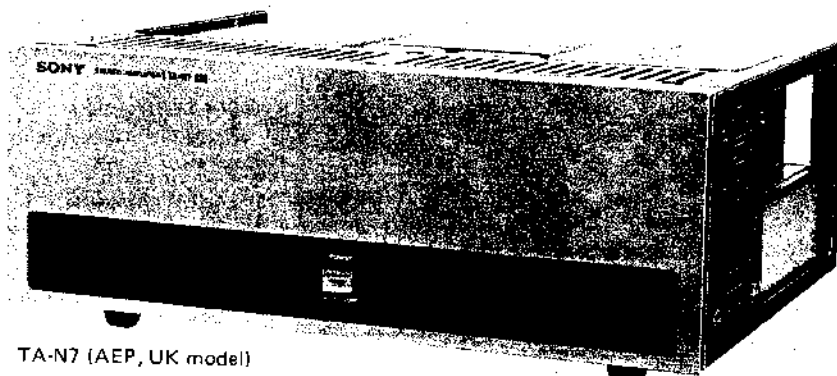
TA-N7B (Panel: Black)

AEP Model

UK Model

US Model

Canadian Model



TA-N7 (AEP, UK 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 6½(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 SCHÉMATIQUES, 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**<sup>®</sup>  
**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	1.3V (for rated output)	50kΩ
C COUPLED (3Hz cut-off frequency)		

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

### ● MODEL IDENTIFICATIONS

– Specification Label –

AEP model (TA-N7)

SONY	STEREO AMPLIFIER	
	MODEL NO. TA-N7	420W
	AC 220V ~ 50/60Hz	
	SERIAL NO.	
MADE IN		

UK model (TA-N7)

SONY	STEREO AMPLIFIER	
	MODEL NO. TA-N7	480W
	AC 240V ~ 50/60Hz	
	SERIAL NO.	
MADE IN		

AEP model (TA-N7B)

SONY	STEREO AMPLIFIER	
	MODEL NO. TA-N7B	420W
	AC 220V ~ 50/60Hz	
	SERIAL NO.	
MADE IN		

UK model (TA-N7B)

SONY	STEREO AMPLIFIER	
	MODEL NO. TA-N7B	480W
	AC 240V ~ 50/60Hz	
	SERIAL NO.	
MADE IN		

US model (TA-N7B)


SONY	STEREO AMPLIFIER	
	MODEL NO. TA-N7B	160W
	AC 120V 60Hz	
	SERIAL NO.	
MADE IN		


Canadian model (TA-N7B)

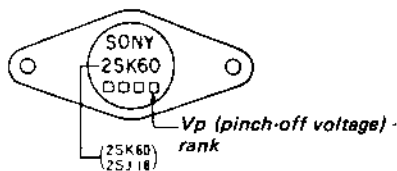
SONY	STEREO AMPLIFIER	
	MODEL NO. TA-N7B	350VA
	AC 120V 60Hz	
	SERIAL NO.	
MADE IN		

### 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<sub>p</sub> (pinch-off voltage)-rank figure printed on them as shown below. The fluctuation of the V<sub>p</sub> rank of the three can be acceptable on one-rank-difference basis.
- Two kinds of hexagonal-socket screwdrivers are required for the following removal.

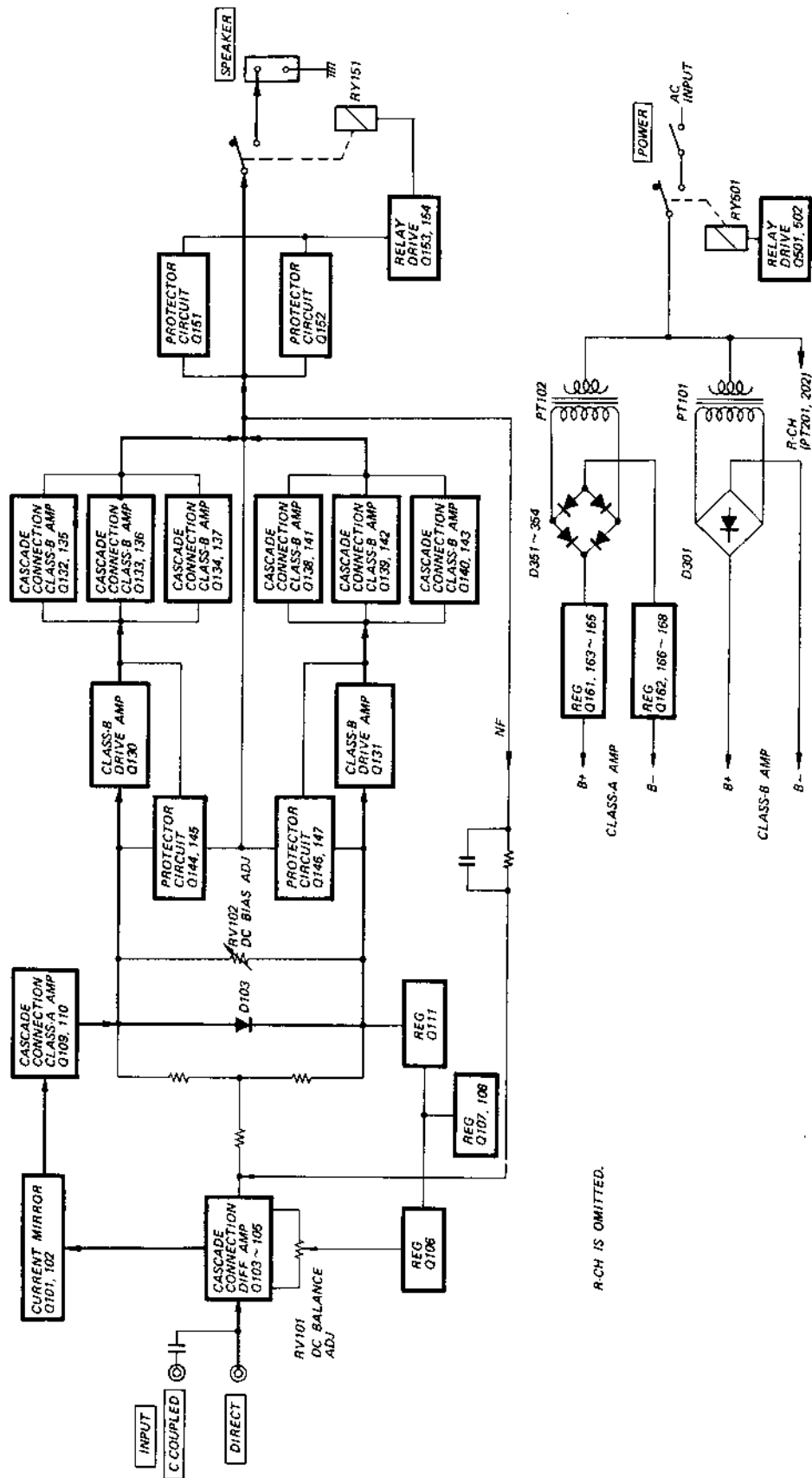
 2.5mm : top cover removal

 4mm : side plate removal



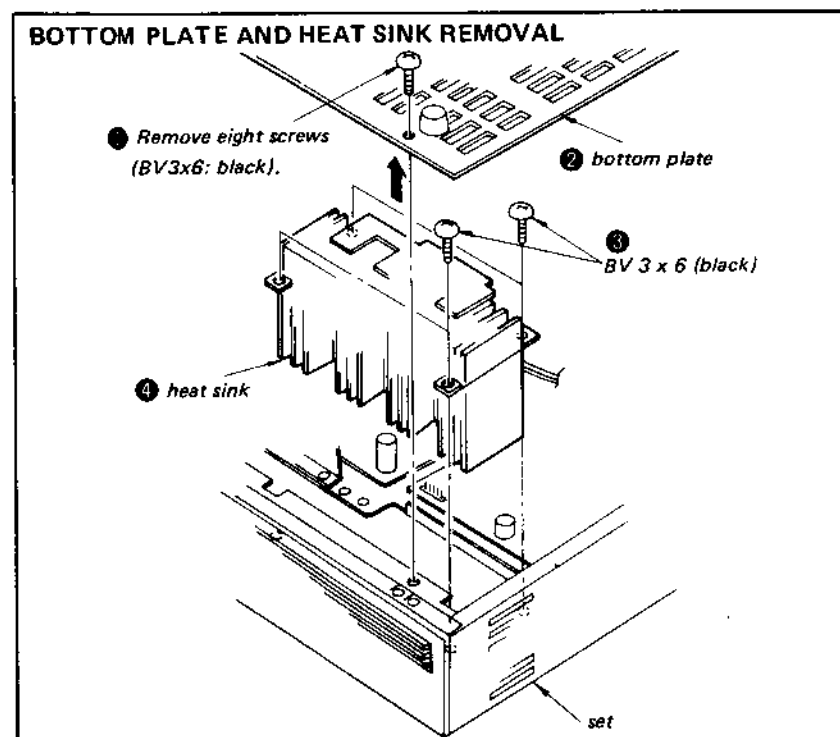
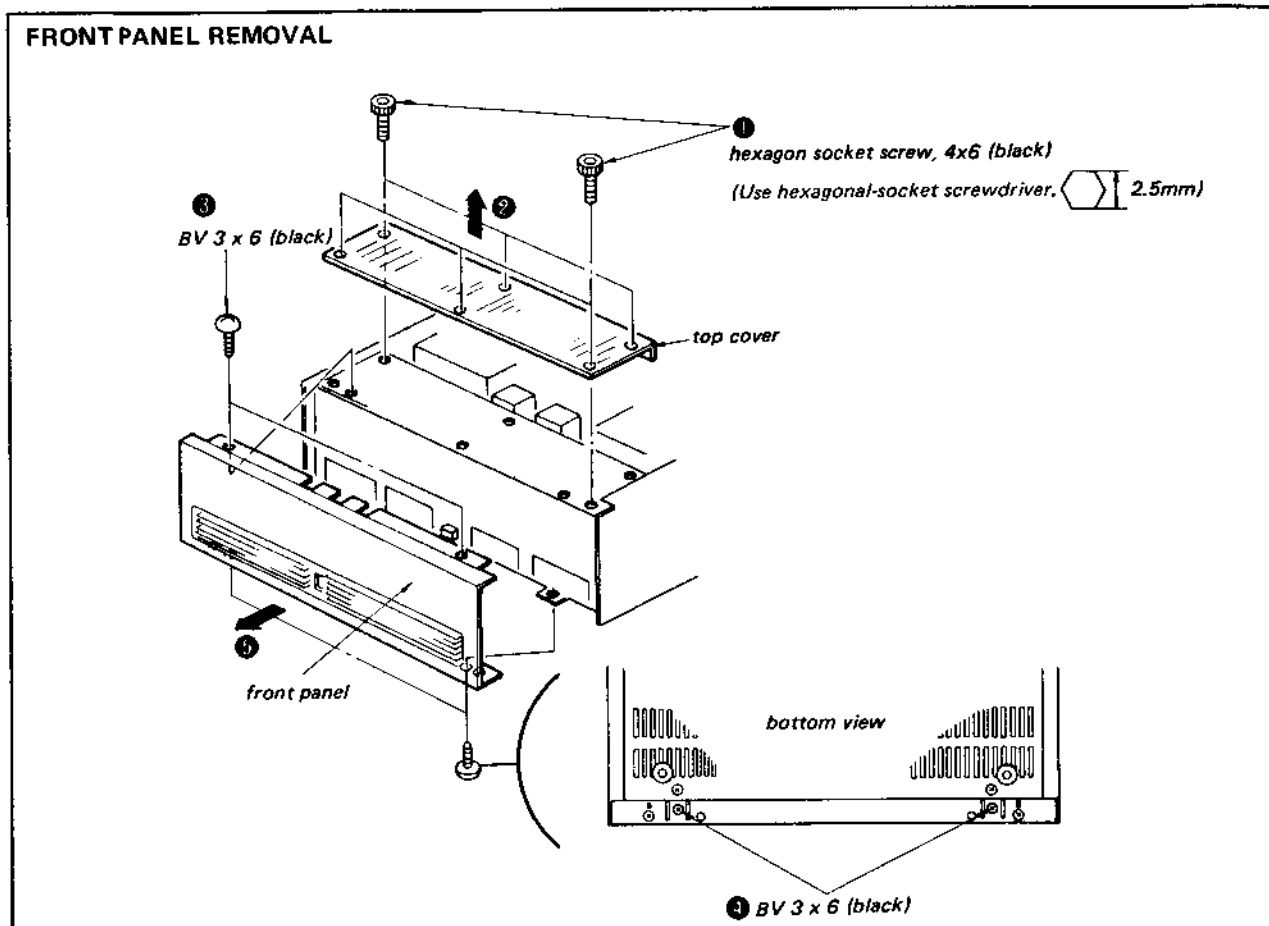
SECTION 1  
OUTLINE

1-1. BLOCK DIAGRAM



**SECTION 2  
DISASSEMBLY**

Remove the parts in the numerical order.



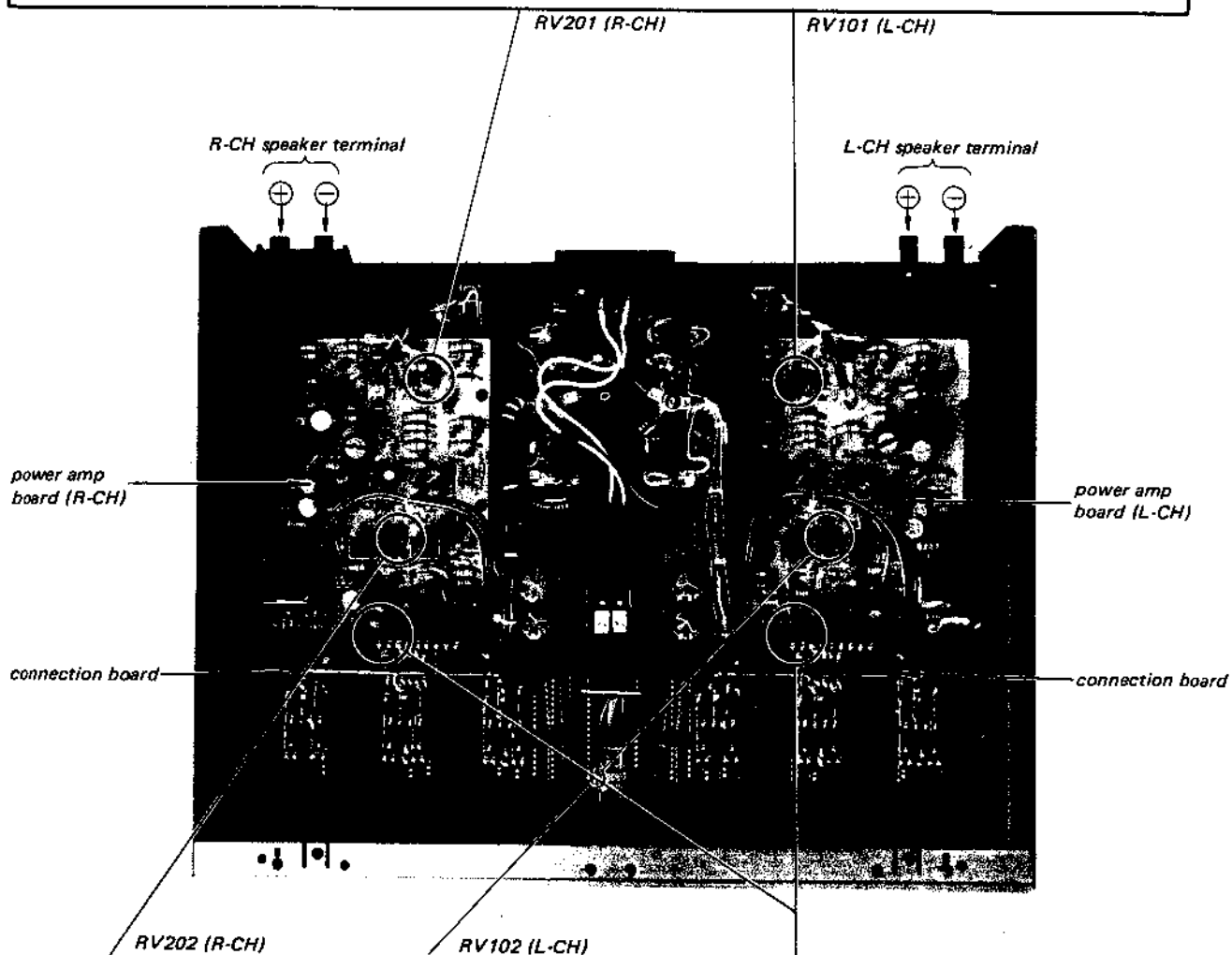
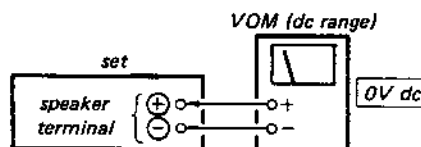
**SECTION 3  
ADJUSTMENT**

**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.

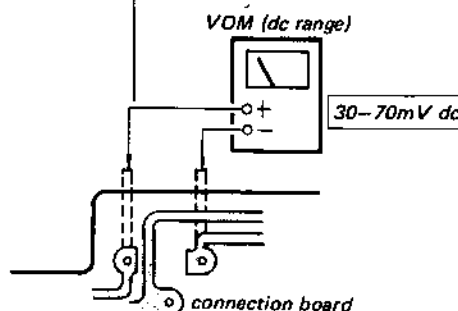
**DC Balance Adjustment**

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



**DC Bias Adjustment**

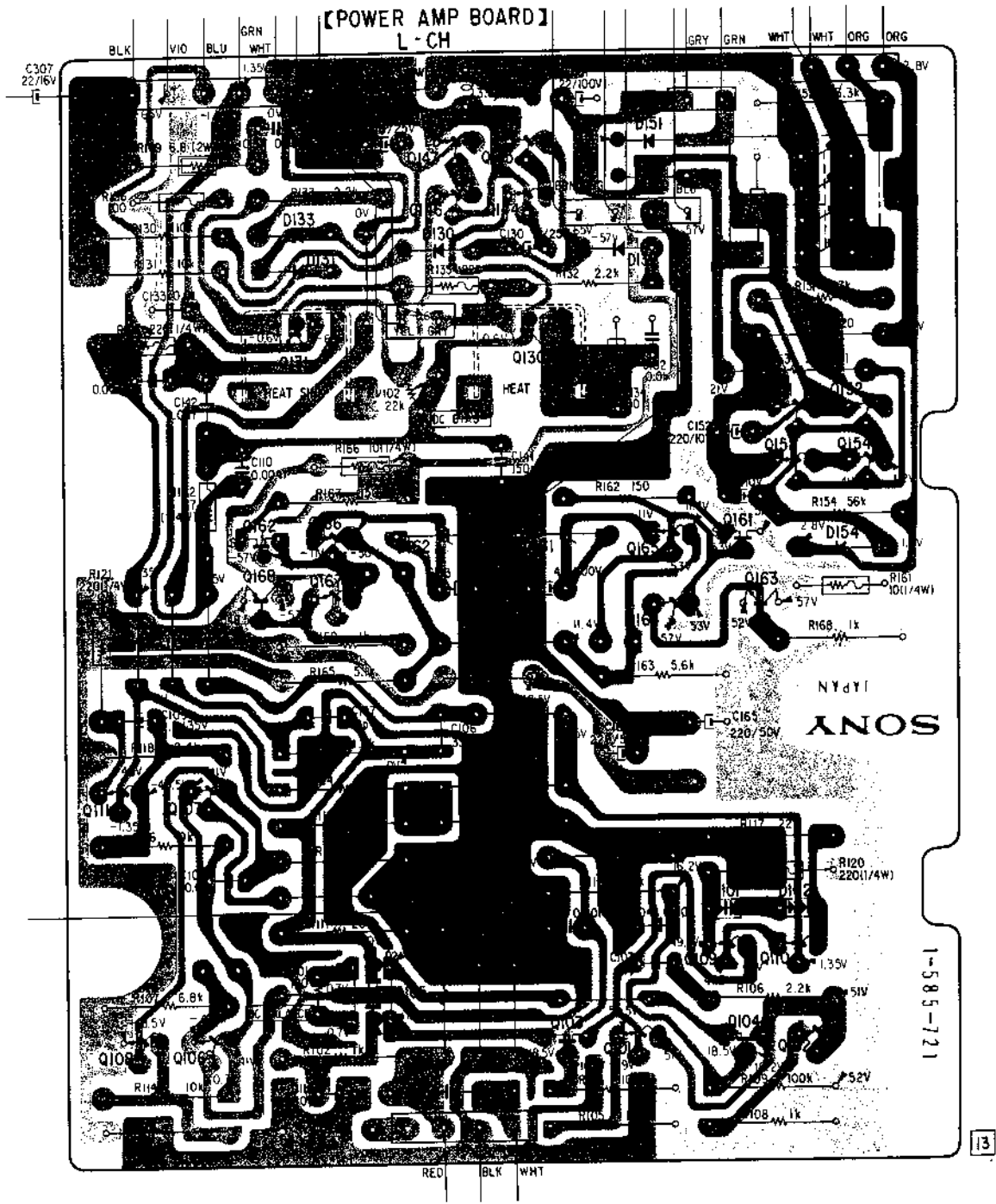
Adjust RV102 (L-CH) and RV202 (R-CH) for 30–70 mV dc with no signal input.



SECTION 4  
DIAGRAMS

4-1. MOUNTING DIAGRAM - L-CH Power Amp Board -  
- Conductor Side -

• Replacement Semiconductors: See page 8.



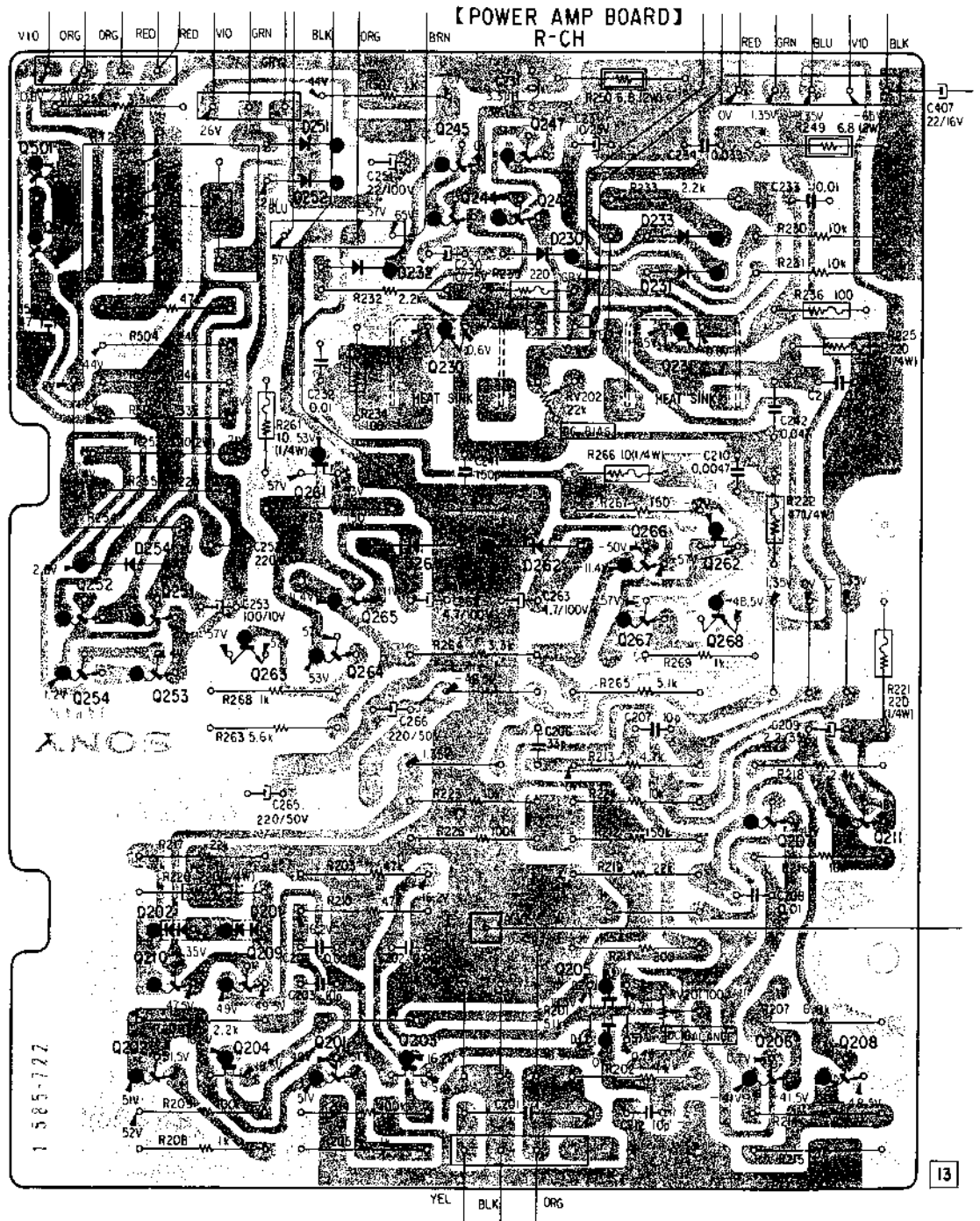
Q	111	107	162 131	166	147	145	165	161	151	152
	108	106	168	167 105	146	144	164	109	153	154
D			133		130		161	132	151	154
			131		162		152	101	102	

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

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

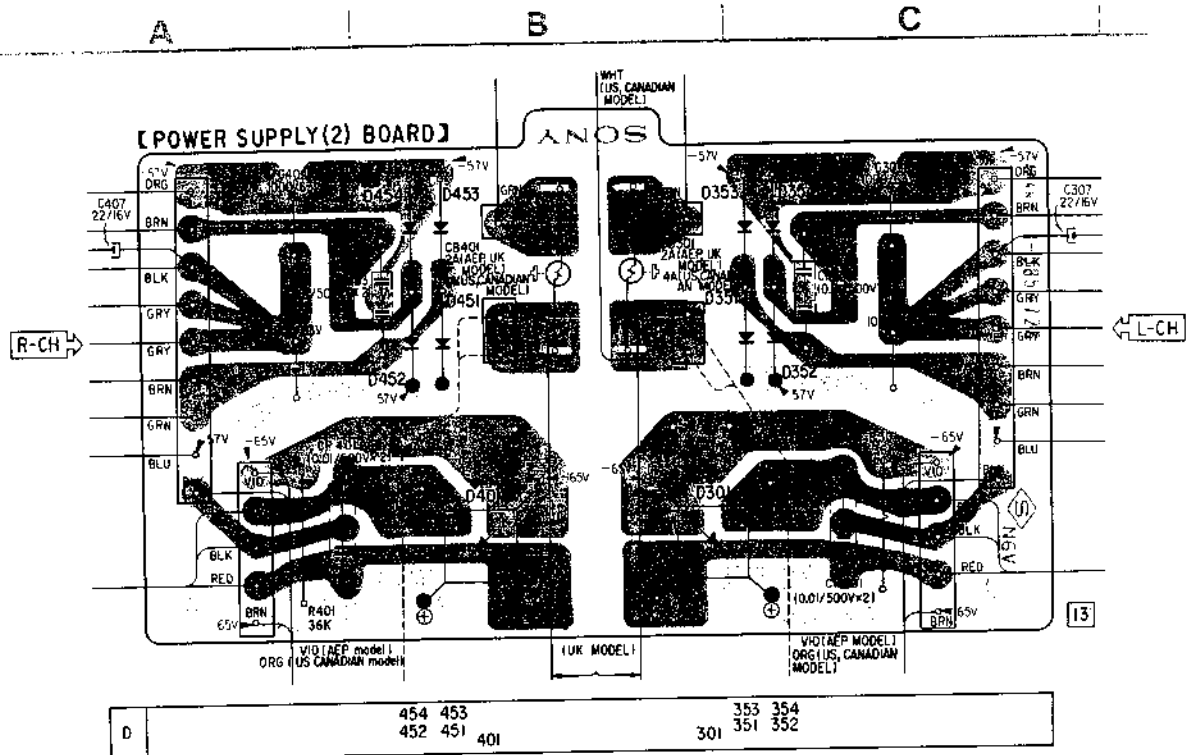
– Conductor Side –

• Replacement Semiconductors: See page 8.



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

- [Symbol] : B+pattern
- [Symbol] : nonflammable resistor
- [Symbol] : fusible resistor.



**• Replacement Semiconductors**

For replacement, use semiconductors except in ( ).

<p><b>Q101, 102, 144</b> 147, 166, 167 201, 202, 244 247, 266, 267</p> <p>: 2SA678</p>	<p><b>Q106-108</b> 206-208</p> <p>: 2SC926A</p>	<p><b>Q131, 231</b>: 2SA835</p>	<p><b>Q141-143</b> 241-243</p> <p>: 2SJ18</p>	<p><b>D130-133</b> 230-233</p> <p>: 1S1555</p>
<p><b>Q103, 104</b> 203, 204</p> <p>: 2SK30A</p>	<p><b>Q145, 146, 151-154</b> 245, 246, 251-254 164, 165, 264, 265 501, 502</p> <p>: 2SC1364</p>	<p><b>Q132-134</b> 232-234</p> <p>: 2SK60</p>	<p><b>Q161, 162</b> 261, 262</p> <p>: 2SK42-2</p>	<p><b>D151, 152</b> 251, 252 351-354 451-454</p> <p>: 10E2</p>
<p><b>Q105, 205</b>: 2SK97</p> <p>(2SC634A)</p>	<p><b>Q111, 130</b> 211, 230</p> <p>: 2SC 1962</p>	<p><b>Q135-137</b> 235-237</p> <p>: 2SC1173</p>	<p><b>D101, 102</b> 201, 202</p> <p>: MV12N</p>	<p><b>D154, 254</b>: 1T22AM (1T22A)</p>
<p><b>Q109, 209</b>: 2SA639S</p>	<p><b>Q110, 210</b>: 2SA896</p>	<p><b>Q163, 263</b>: 2SC1061</p>	<p><b>D103, 203</b>: SV04S (SV04F)</p>	<p><b>D161, 162</b> 261, 262</p> <p>: EQB01-11Z</p>
		<p><b>Q138-140</b> 238-240 Q168, 268</p> <p>: 2SA473 : 2SA671</p>	<p><b>D301, 401</b>: S5VB20</p>	



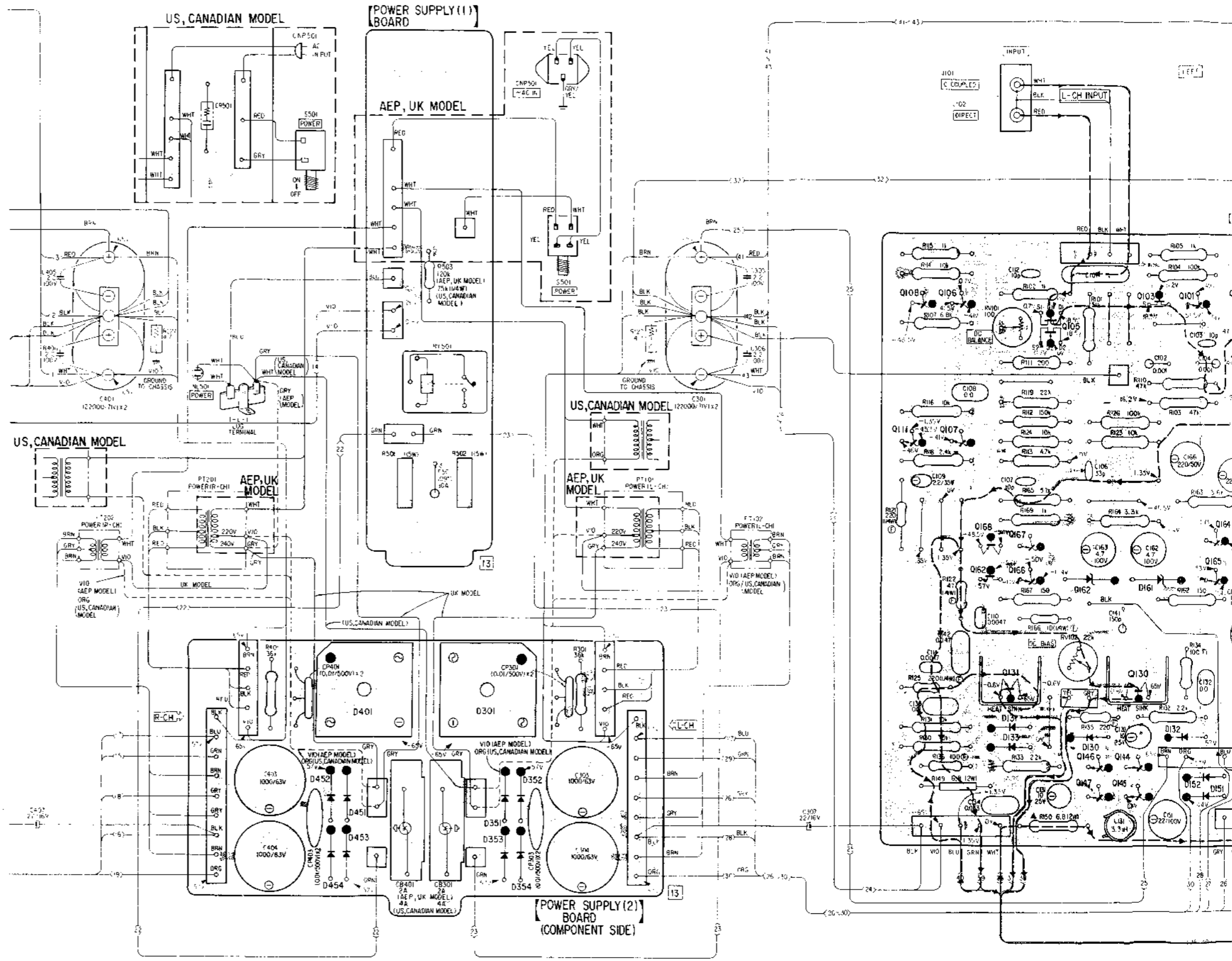
# TA-N7/N7B TA-N7/N7B

## 4-4. MOUNTING DIAGRAM — L-CH Power Amp Board —

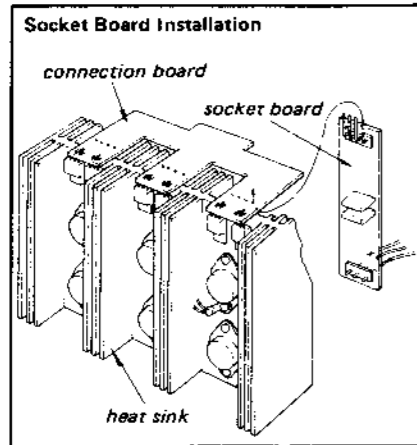
— Component Side —

**Note.**

- : B + pattern
  - —> : signal path
  - ▲ : nonflammable resistor
  - ⊕ : 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.

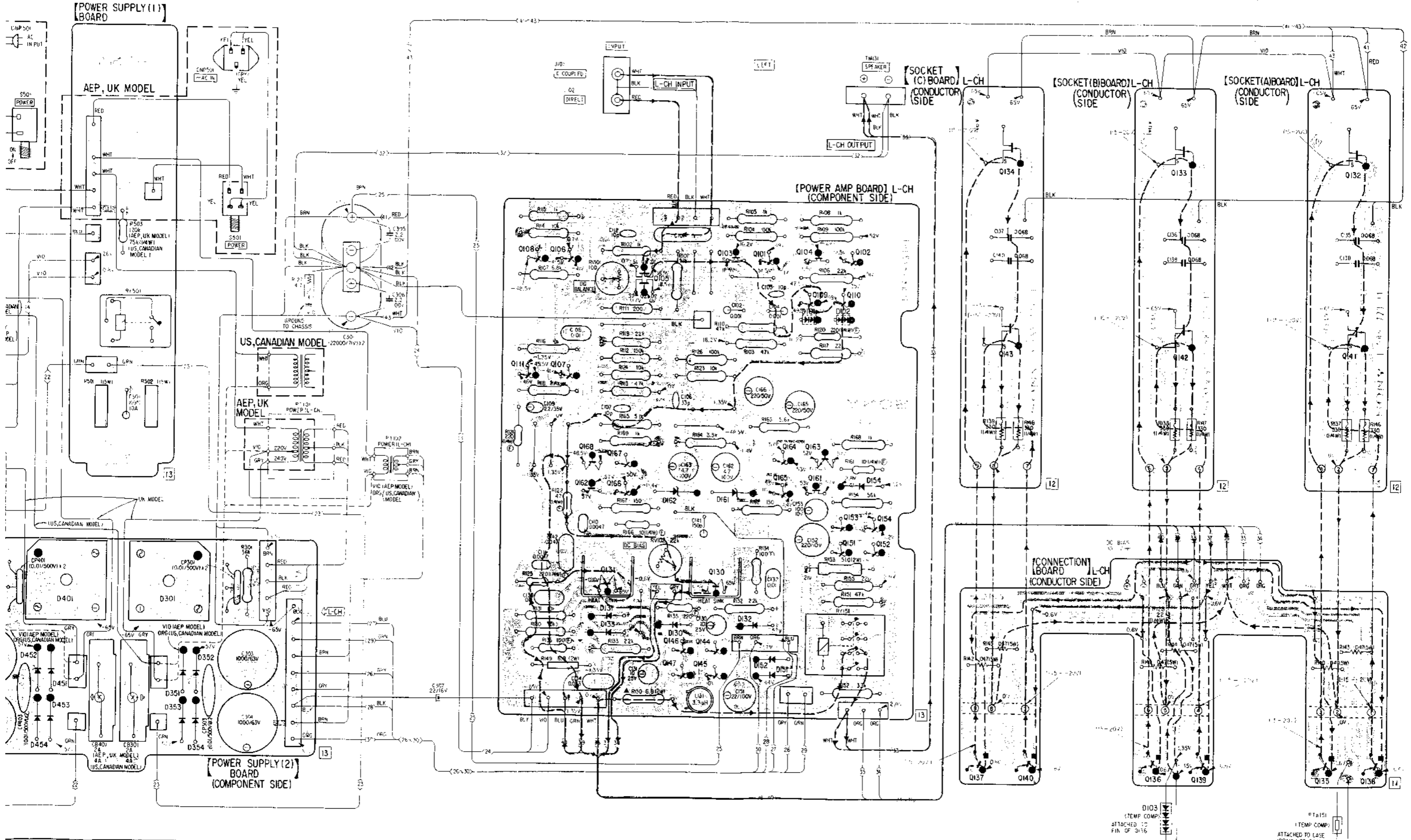


power amp (R-CH)



D	452	451	401	301	351	352
	454	453		353	354	

Q	108	106	168	131	167	105	146	130	103	101	164
	111	107	162		166		147	144	145		165
D			131				162		161	132	152
			133				130				151



452	451	401	301	351	352
454	453		353	354	

Q	111	108	106	168	131	167	105	146	130	103	101	164	109	104	163	102	154	134	133	132	Q	
D				131	133	162	130	161	132	151	101	102	154	137	134	140	136	142	139	135	141	D

4.5. MOUNTING DIAGRAM – R-CH Power Amp Board –

– Component Side –

• Replacement Semiconductors: See page 8.

• B + pattern

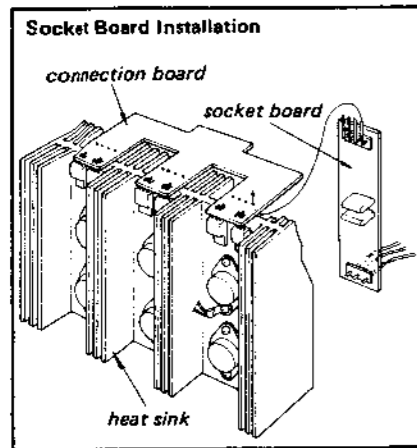
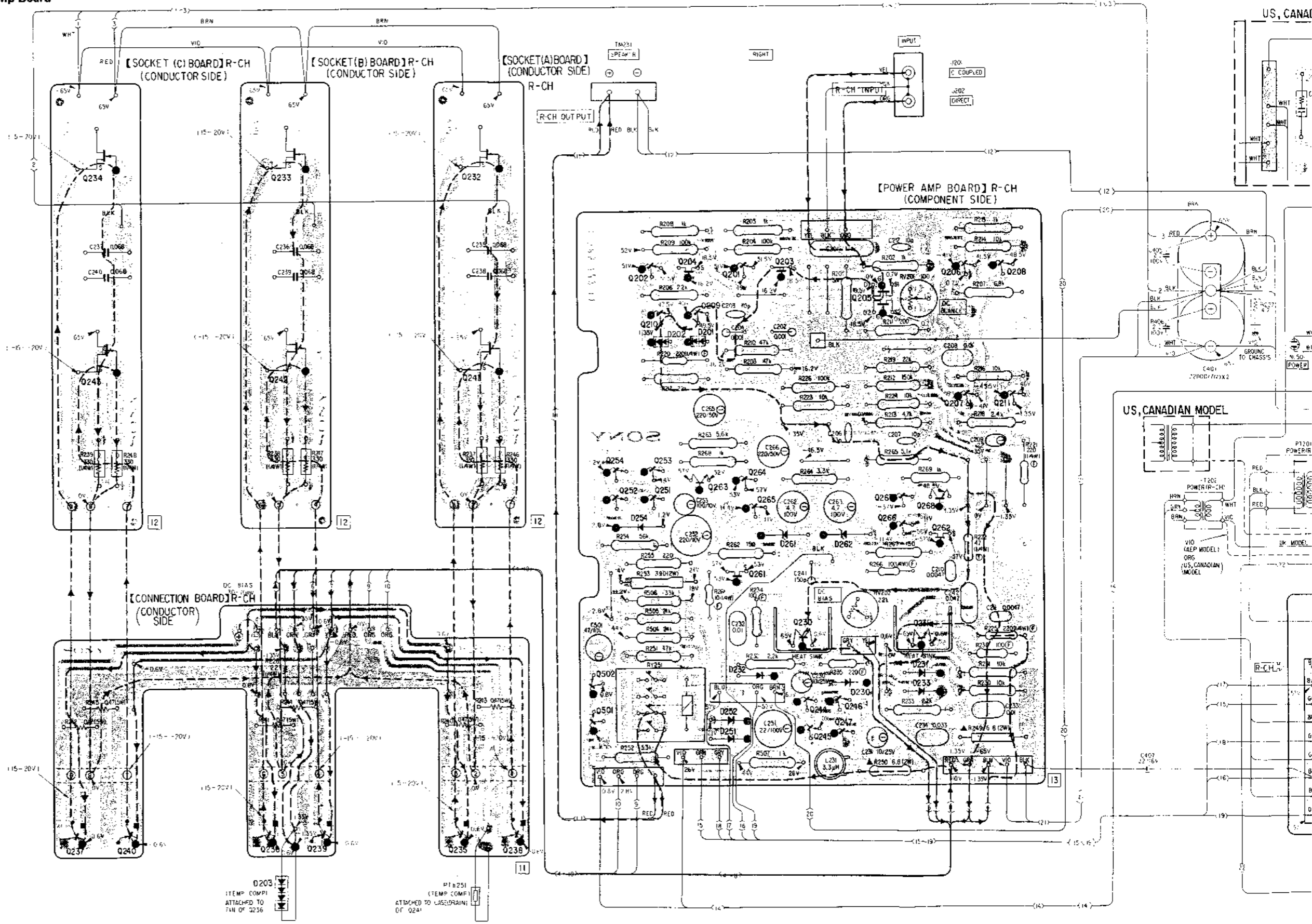
• —→—: signal path

• ▲: nonflammable resistor.

• (F): fusible resistor.

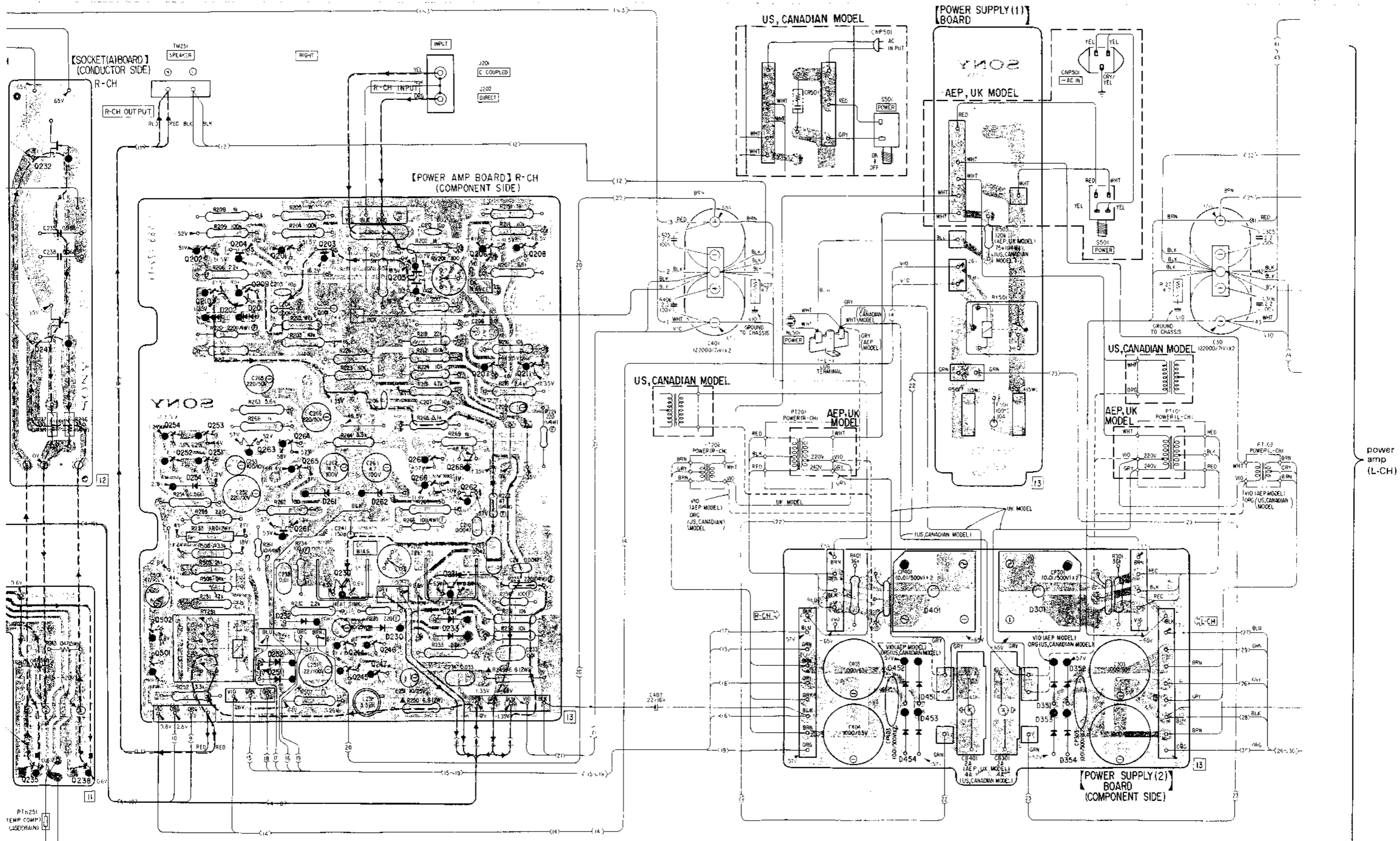
• Voltages are dc with respect to ground unless otherwise noted.

• Readings are taken under no signal conditions with a VOM (20k $\Omega$ /V).  
 ( ) : voltage variations according to the rank of V-FET.



Q	237	234	240	233	232	238	502	254	210	204	209	261	201	265	203	230	246	205	267	231	268	206	208	Q
		243		236	241		501	252	202	263	251	252	232	261		244	247		266	262	207		211	
D				203					254	202	201	252	232	261		262	230			231	233			D

TA-N7/N7B TA-N7/N7B



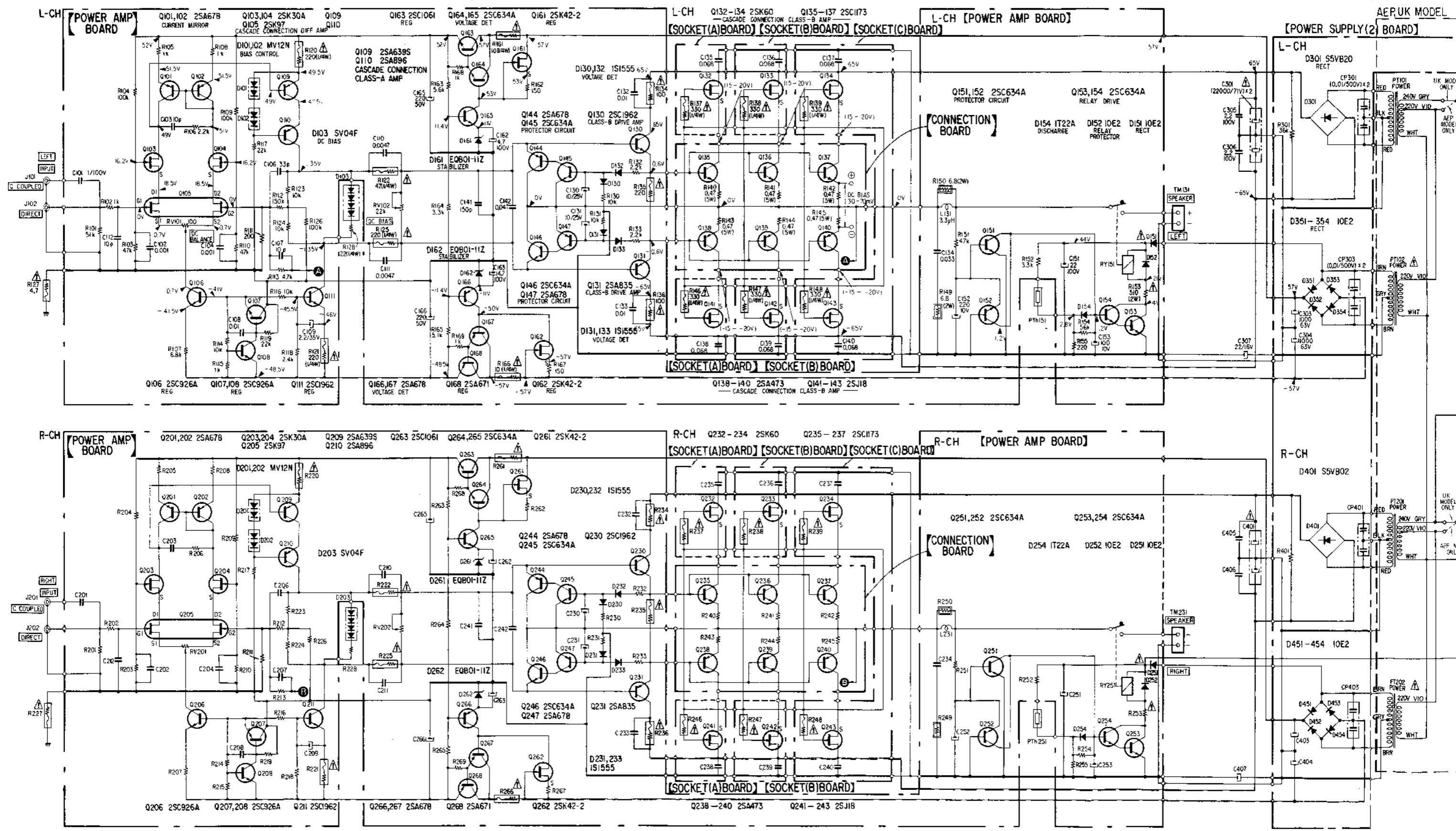
232	254	210	204	209	201	265	203	230	246	205	267	231	268	206	208	Q
235	241	238	502	252	501	263	261	264	245	247	266	262	262	207	211	
			254	202	201	252	232	261	262	230	231	233				D

0	452	451	401	301	351	352
	454	453		353	354	

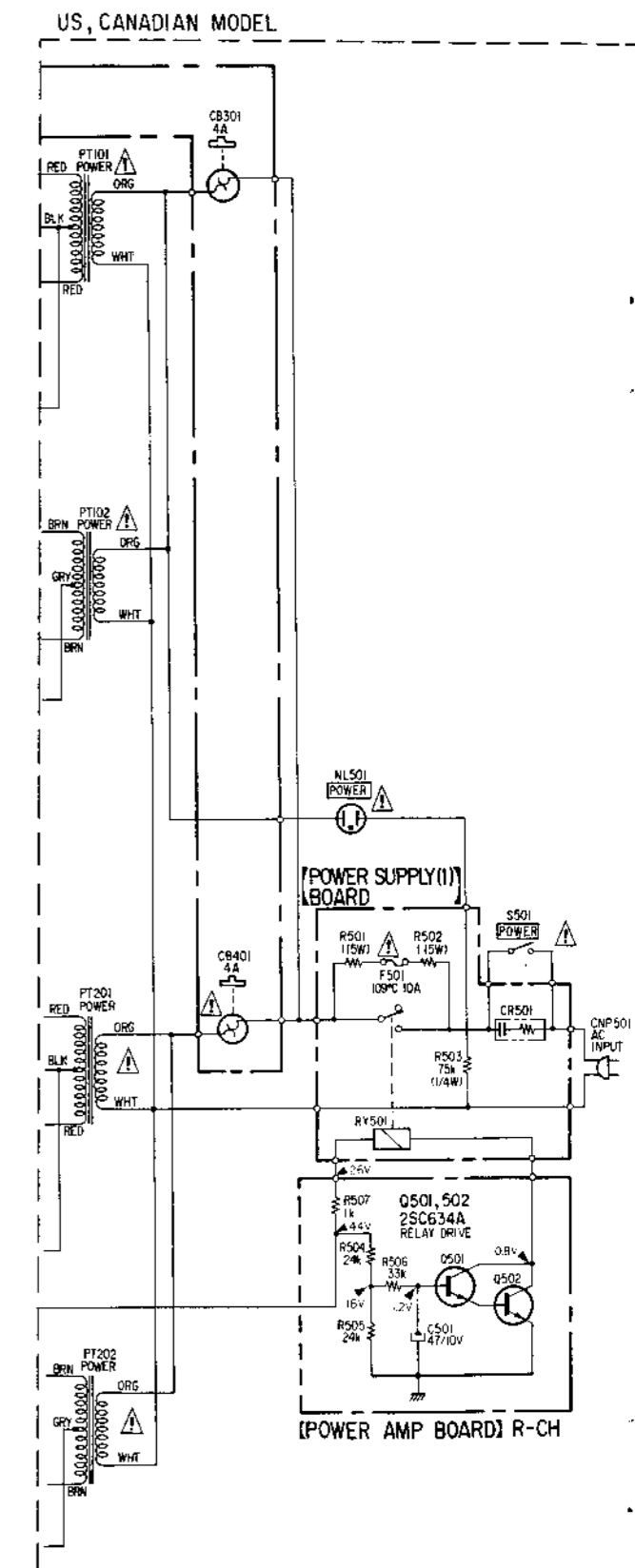
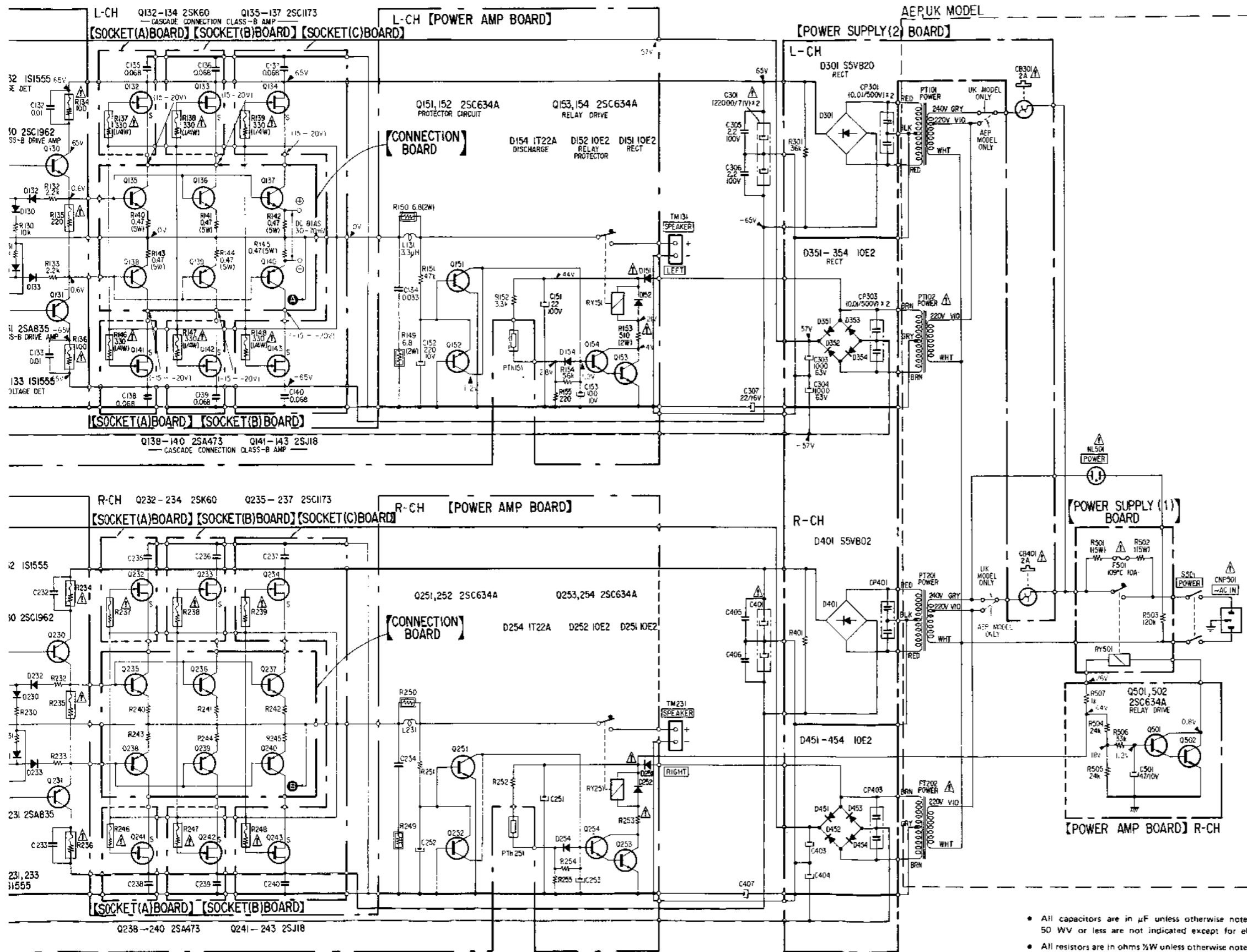
4-6. SCHEMATIC DIAGRAM

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 trané et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



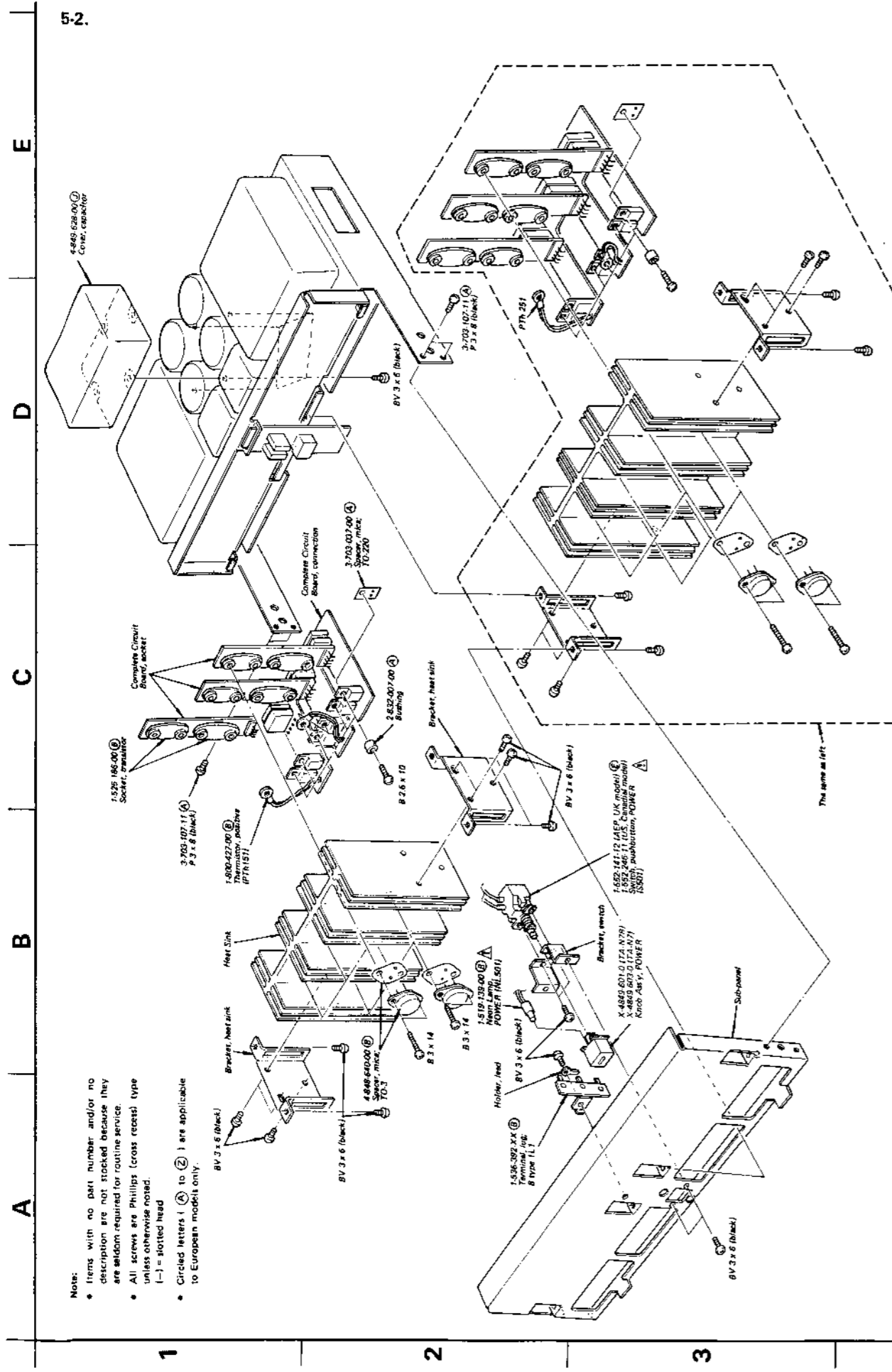
Composants identifiés par un tramé et une marque  
 critiques pour la sécurité. Ne les remplacer que par  
 ceux portant le numéro spécifié.



- 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



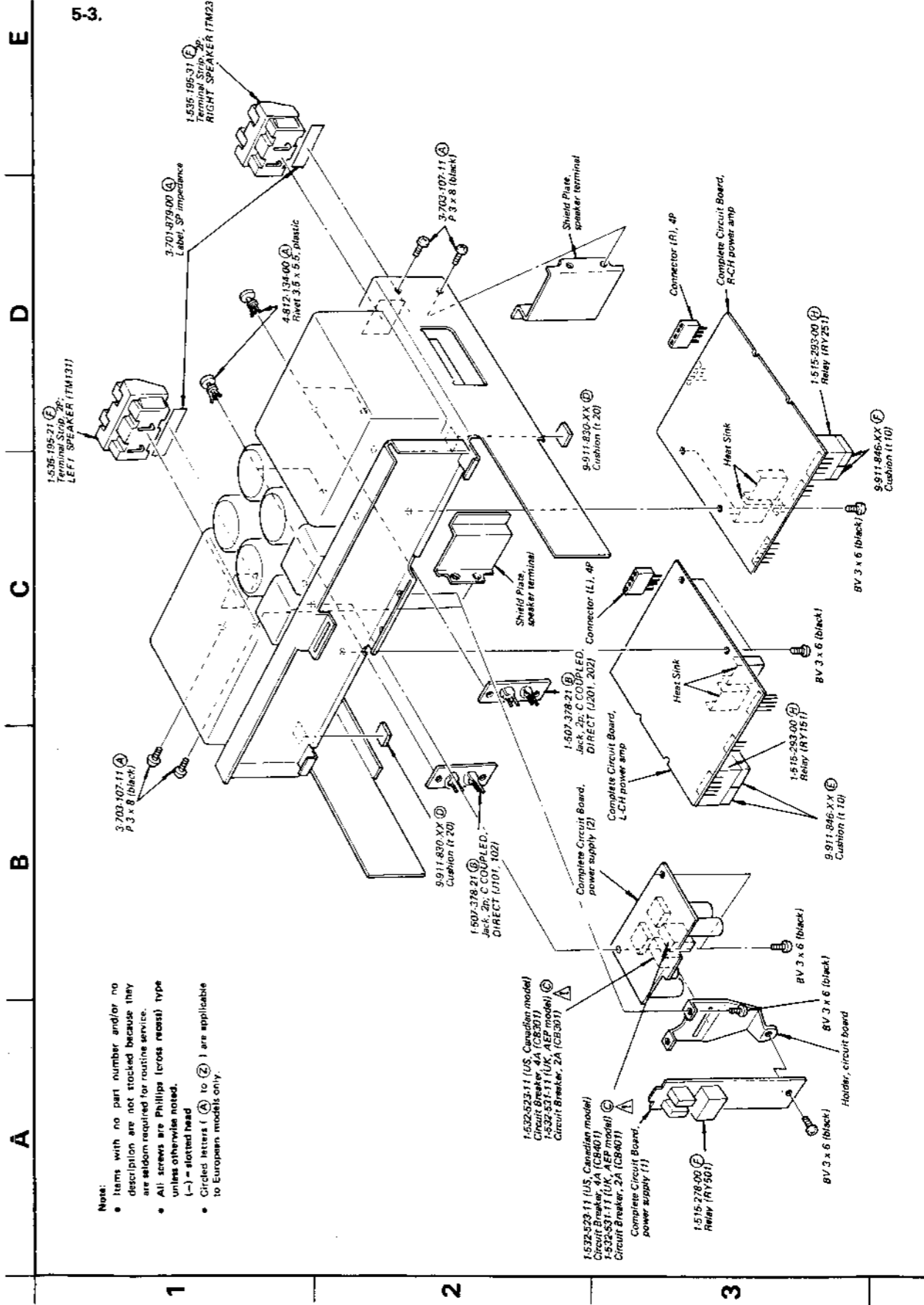


**Note:**

- 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 une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



**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.
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# TA-N7/N7B TA-N7/N7B

• 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
CS01	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

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

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 1/2W fusible
R122, 222	1-212-873-11 (A)	47 1/2W fusible
R123, 223 R124, 224	1-244-897-11 (A)	10k
R125, 225	1-212-889-11 (A)	220 1/2W 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 1/2W
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 1/2W 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 1/2W 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 1/2W 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: Les composants identifiés par un tramé et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
R166, 266	1-212-857-11 (A)	10 1/2W 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 (A)	75k 1/2W (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 (E)	Pushbutton, POWER (US, Canadian model)

### MISCELLANEOUS

CB301, 401	1-532-523-11 (A)	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 (A)	Cord, power (US, Canadian model)
CP301, 303 CP401, 403	1-102-355-11 (B)	Encapsulated Component
CR501	1-231-326-11 (A)	Encapsulated Component (US model)
	1-231-341-00 (A)	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 (A)	Transformer, power (US, Canadian model)
	1-442-973-00 (V)	Transformer, power (AEP, UK model)
	1-442-970-00 (A)	Transformer, power (US, Canadian model)
	1-442-972-00 (C)	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 (E)	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 A 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

Part No.	Description
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 A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.