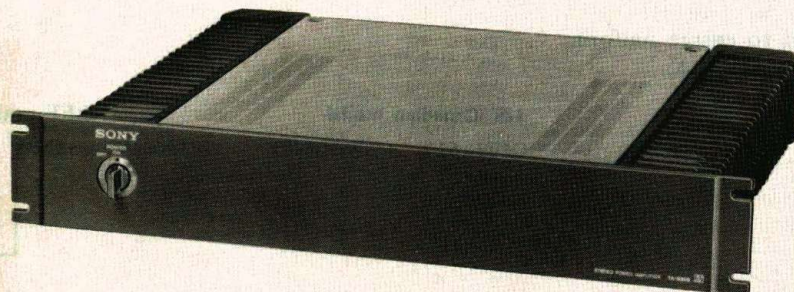


TA-N86B

*US Model
Canadian Model
AEP Model
UK Model*



STEREO POWER AMPLIFIER

SPECIFICATIONS

GENERAL

Power Requirements:	120 V ac, 60 Hz (US, Canadian model) 220 – 240 V ac, 50/60 Hz (AEP, UK model)
Power Consumption:	210 W (US model) 510 VA (Canadian model) 450 W (AEP, UK model)
Dimensions:	Approx. 480 (w) x 80 (h) x 380 (d) mm 18 ⁷ / ₈ (w) x 3 ¹ / ₈ (h) x 15 (d) inches Including projecting parts and controls
Weight:	Approx. 8.0 kg, 17 lb 10 oz (net) Approx. 8.6 kg, 18 lb 15 oz (in shipping carton)

POWER AMPLIFIER SECTION


Continuous RMS Power Output:
(US, Canadian model)

Class A and B Operation: with 8 Ω loads, both channels driven,
from 20–20,000 Hz, with no more
than 0.007% total harmonic distortion

Mono Amp Operation: with 8 Ω loads, from 20–20,000 Hz,
with no more than 0.015% THD

Class A	18 W + 18 W
Class B	80 W + 80 W (8 Ω) 90 W + 90 W (4 Ω)
Mono	180 W

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

(AEP, UK model)

Less than 0.007% THD, both channels driven simultaneously, 8 Ω
(In mono amp operation: less than 0.015%, 8 Ω)

	20 Hz – 20 kHz
Class A	18 W + 18 W
Class B	80 W + 80 W (8 Ω) 60 W + 60 W (4 Ω)
Mono	120 W

According to DIN 45500

Class A	18 W + 18 W
Class B	80 W + 80 W
Mono	120 W

Damping Factor: 70 (1 kHz, 8 Ω)

Harmonic Distortion:

		20 Hz–20 kHz	5 Hz–50 kHz
Rated output	Class A	0.007 %	0.02 %
	Class B	0.007 %	0.02 %
	Mono	0.015 %	0.07 %
½ rated output	Class A	0.0025 %	0.005 %
	Class B	0.0035 %	0.007 %
	Mono	0.008 %	0.03 %
1W output	Class A	0.001 %	0.006 %
	Class B	0.003 %	0.007 %
	Mono	0.008 %	0.025 %

Intermodulation (IM)

Distortion:

(60 Hz : 7 kHz = 4 : 1)

Rated output	Class A	0.004 %
	Class B	0.004 %
	Mono	0.005 %
½ rated output	Class A	0.002 %
	Class B	0.003 %
	Mono	0.004 %
1W output	Class A	0.002 %
	Class B	0.003 %
	Mono	0.004 %

Power Bandwidth (IHF): 5 Hz – 45 kHz (Class B, 8 Ω, 0.007%)
5 Hz – 60 kHz (Class A, 8 Ω, 0.007%)
5 Hz – 30 kHz (Mono, 8 Ω, 0.015%)

Frequency Response: DC – 200 kHz +0 dB (DIRECT input)
-1 dB (C COUPLED input)
7 Hz – 200 kHz +0 dB (C COUPLED input)
-1 dB

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

Residual Noise: 25 μV (8 Ω, network A)

Inputs:

	Gain			Impedance		
	Class A	Class B	Mono	Class A	Class B	Mono
DIRECT						
C COUPLED (3 Hz cutoff frequency 6 dB/oct slope)	27.4 dB	27.4 dB	33.4 dB	50 kΩ	50 kΩ	50 kΩ

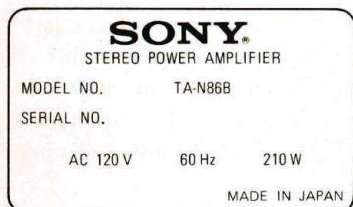
Outputs: SPEAKER terminals
Class B: Accept speakers of 4 – 16 Ω
Class A and Mono amp: Accept speakers of 8 – 16 Ω

0 dB = 0.775 V

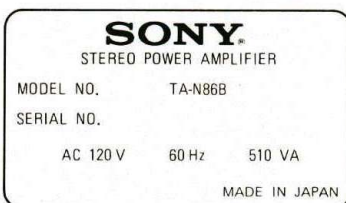
MODEL IDENTIFICATION

Specification Label

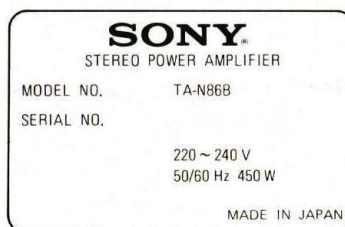
US model



Canadian model



AEP, UK model



SERVICING NOTES

1. REPLACEMENT OF THE TRANSFORMERS IN THE PULSE-LOCKED POWER-SUPPLY CIRCUIT

The lead wire arrangement for each of T601-603 in the inverter circuit are shown in Figs. 1 and 2.

As the repair parts, T603 is formed by an iron core and a coil winding, but T601 and T602 are only iron core. Thus, if the coils are defective, arrange a new transformers as shown in Fig. 1. Note that the lead lengths must be exact. Also wind the coil carefully.

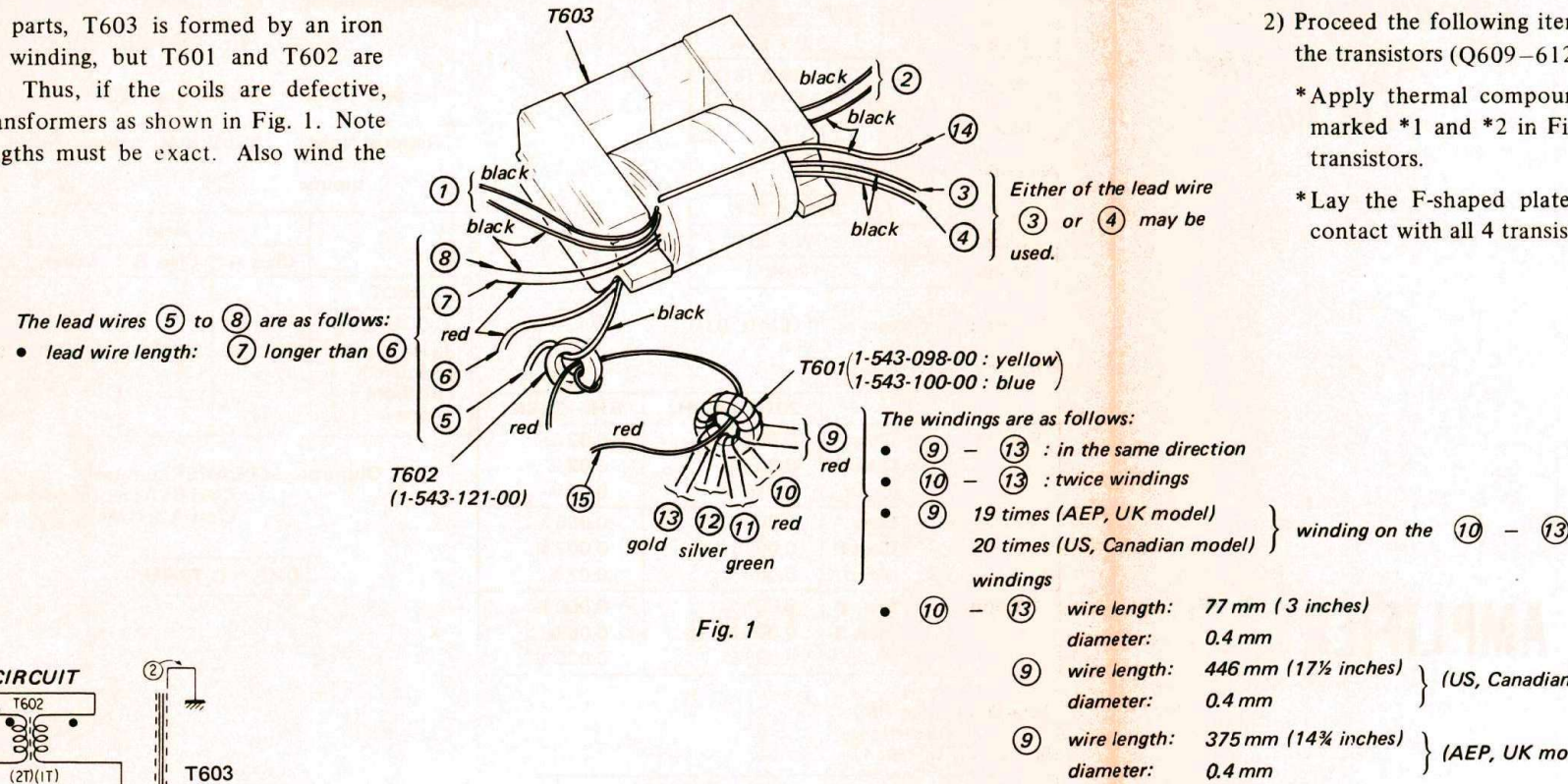


Fig. 1

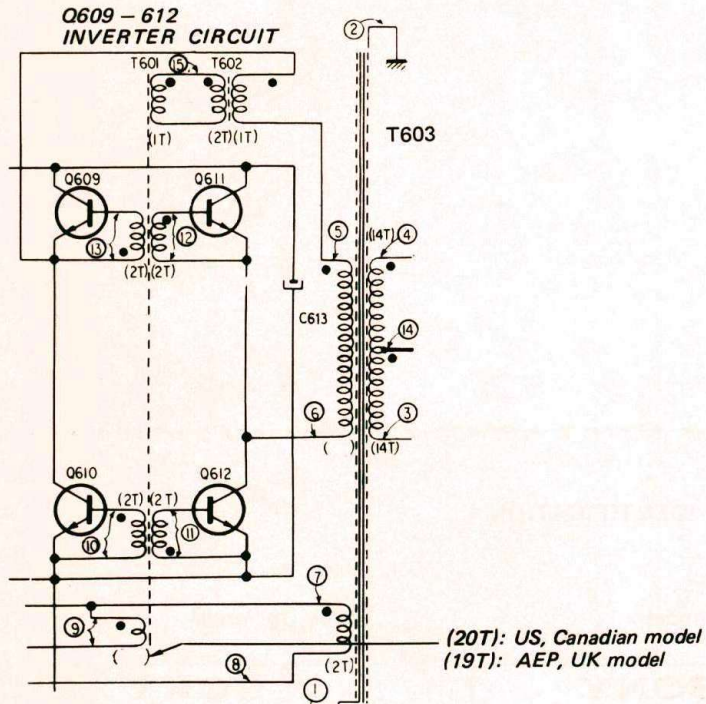
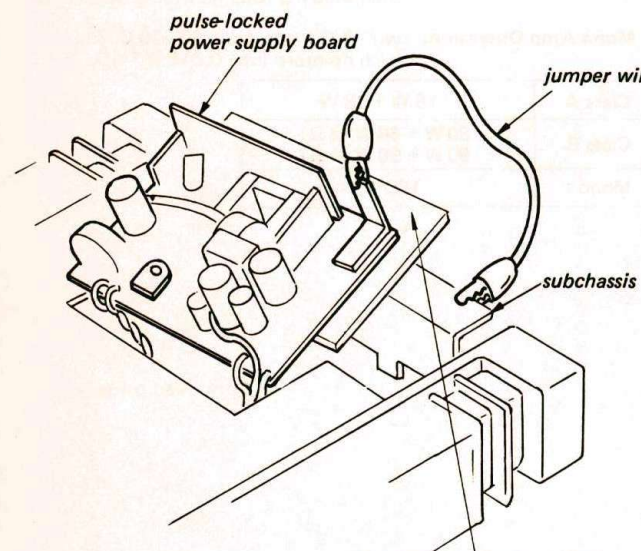


Fig. 2

2. PULSE-LOCKED POWER SUPPLY BOARD REPAIRING

This set has a pulse-locked power-supply circuit which is quite different from a conventional power-supply circuit. The pulse-locked power-supply directly rectifies and smooths the ac input power to produce the higher dc voltages required in the power supply circuit. When servicing this set, note the following.

- 1) To prevent unwanted radiation due to pulse signals in the pulse-locked power-supply circuit, the pulse-locked power-supply board is shielded by the aluminum diecast box.
- 2) The negative circuit of the secondary rectifier in the pulse-locked power-supply circuit is grounded by screws in the aluminum diecast box. When checking the pulse-locked power-supply board out of the box, use a jumper wire as shown.



3. INVERTER CIRCUIT TRANSISTOR REPLACEMENT (Q609-612)

1) Be sure that there are no bits of solder and wire ends on the places marked *2 in Fig. 3.

2) Proceed the following items surely when replacing the transistors (Q609-612).

* Apply thermal compound coat to the positions marked *1 and *2 in Fig. 3 before mounting the transistors.

* Lay the F-shaped plate flat to ensure uniform contact with all 4 transistors (see Fig. 4).

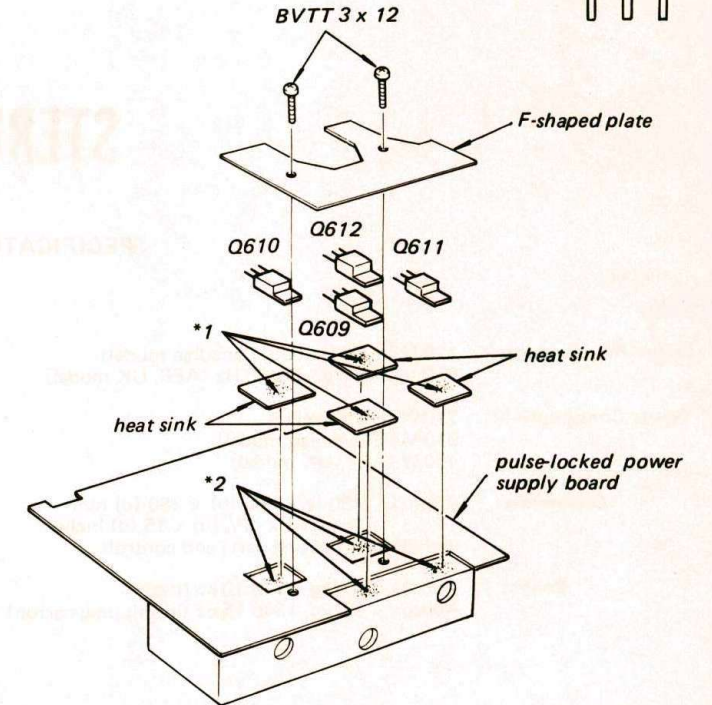
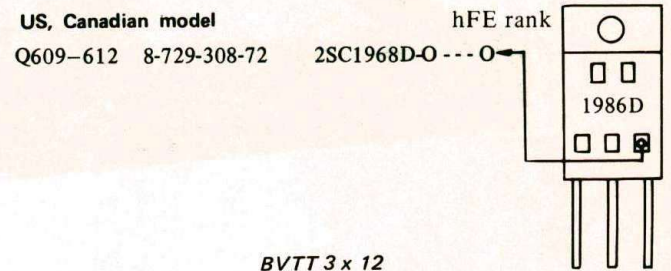
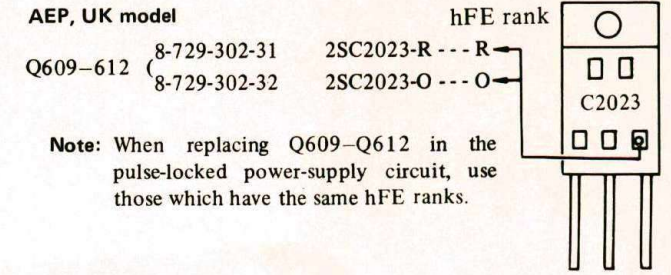


Fig. 3

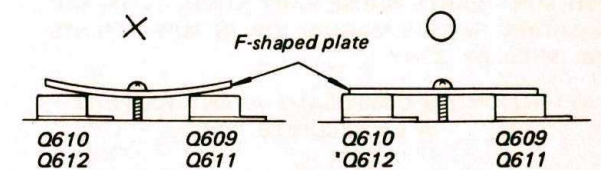


Fig. 4

SECTION 1 OUTLINE

1-1. CIRCUIT DESCRIPTION

[Switching of Class-A and Class-B Amplifiers]

The switching between the class-A and the class-B amplifiers is done by switching the bias voltage of the amplifier.

1. For the class-A amplifier, Q122 and Q123 (Q222 and Q223) are turned off by operating the reed relay RY101 (RY201). Therefore, the bias voltage for the class-A amplifier is determined by RT103 (RT203). The

B voltage is switched by RY601 to that for the class-A amplifier.

2. For the class-B amplifier, the reed relay RY101 (RY201) do not operate. RT103 (RT203) is short-circuited because Q122 and Q123 (Q222 and Q223) are turned on. As a result, the bias voltage for the class-B amplifier is determined by RT102 (RT202).

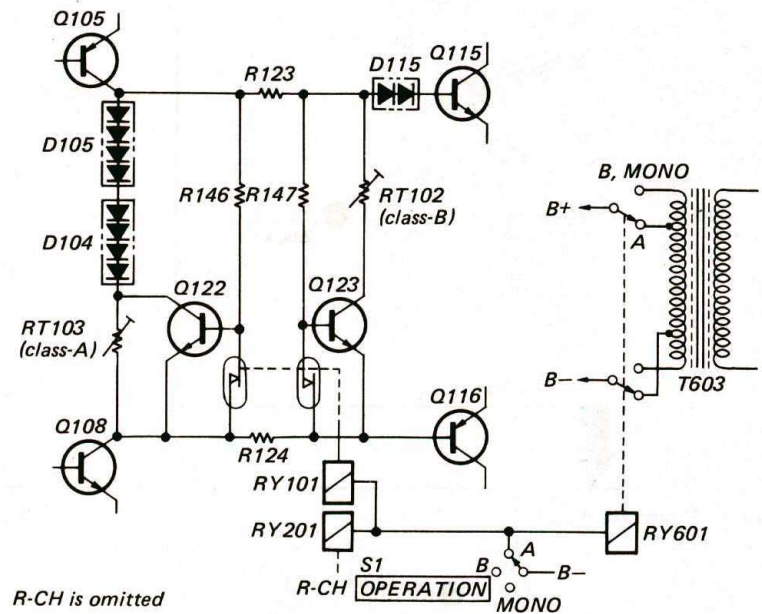


Fig. 1-1.

[MONO Operation]

The left and right channel amplifiers are connected and operated in series (BTL) as shown in Fig. 1-2.

Note that the output forms a balanced push-pull circuit, thus the output power becomes approximately double. The balanced output is obtained by using the original power amplifier input-output phase inversion and inserting a load in series between the each output hot side.

Thus, same but opposite phase signal is supplied to the left and right channel power amplifier inputs simultaneously. As a result, the power applied to the load is doubled.

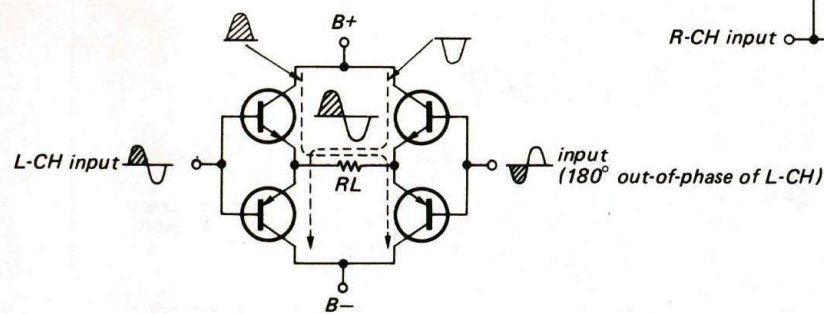


Fig. 1-2.

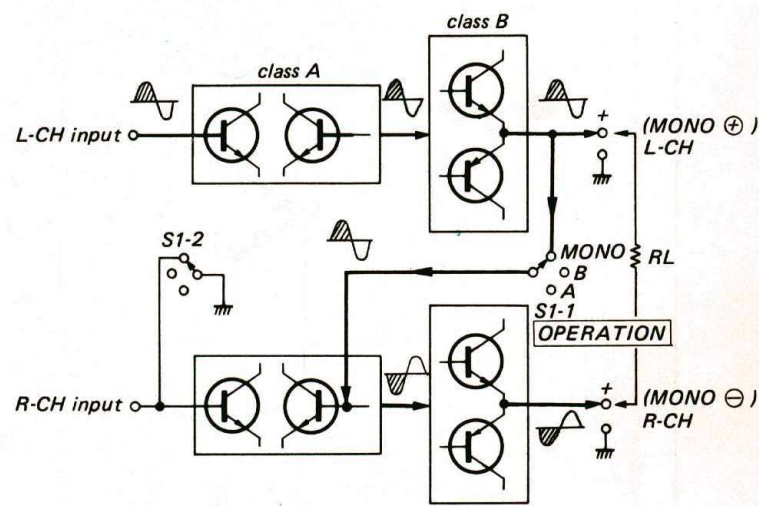
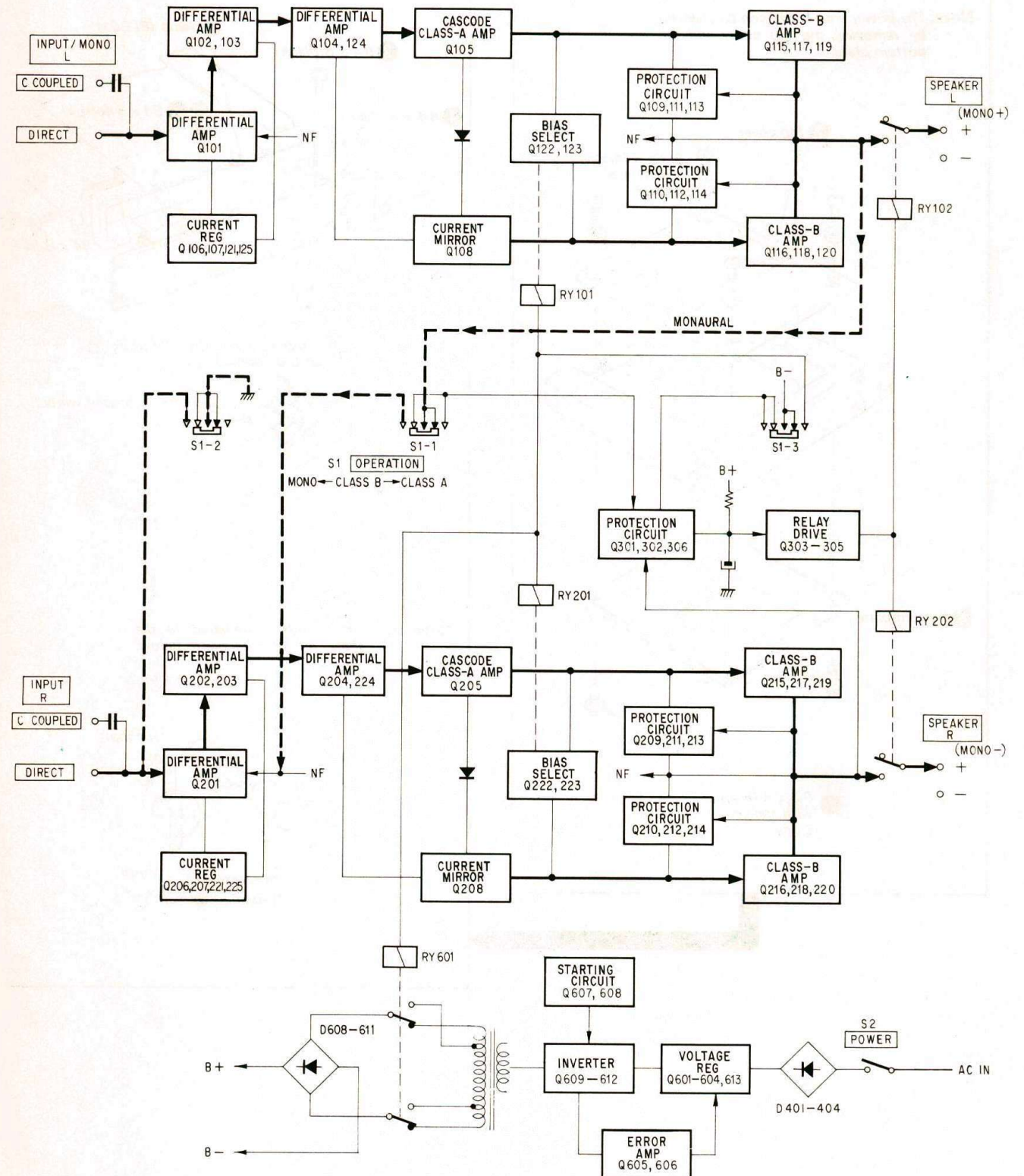


Fig. 1-3.

1-2. BLOCK DIAGRAM

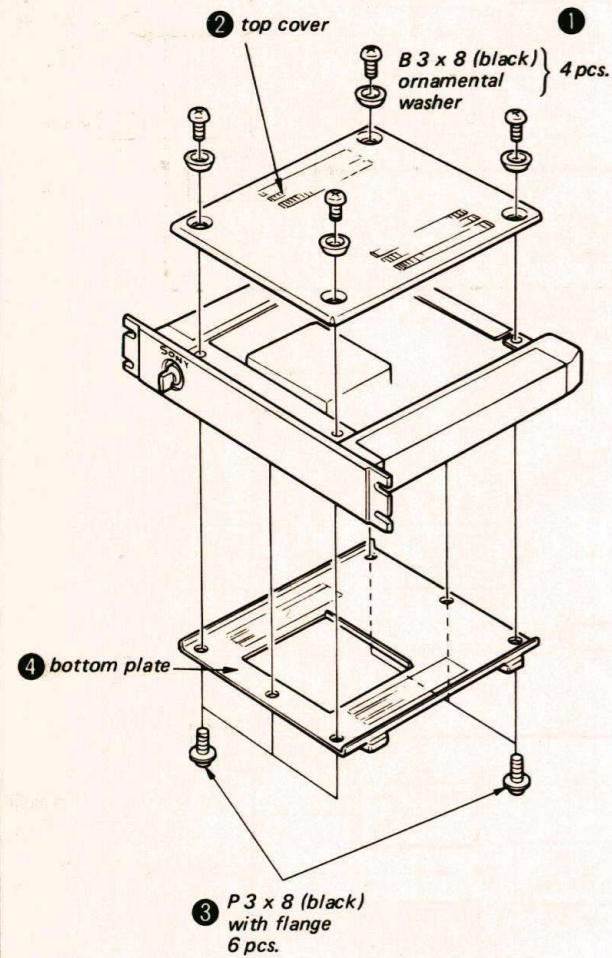


SECTION 2
DISASSEMBLY

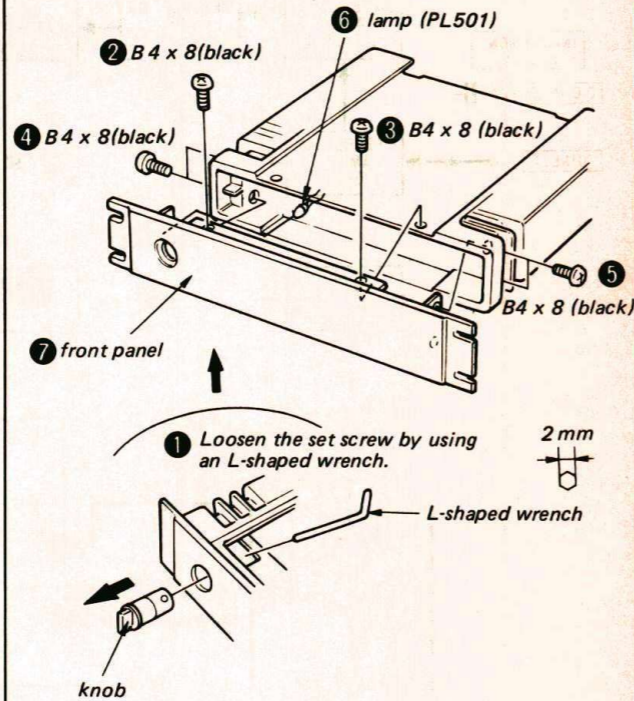
- Follow the disassembly procedure in the numerical order given.

Top Cover and Bottom Plate Removal

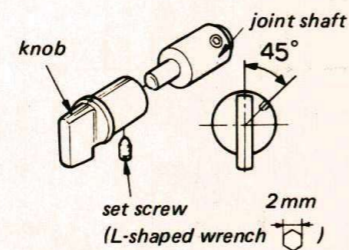
Note: The power amp board can be checked by removing the top cover and the bottom plate.



Front Panel Removal

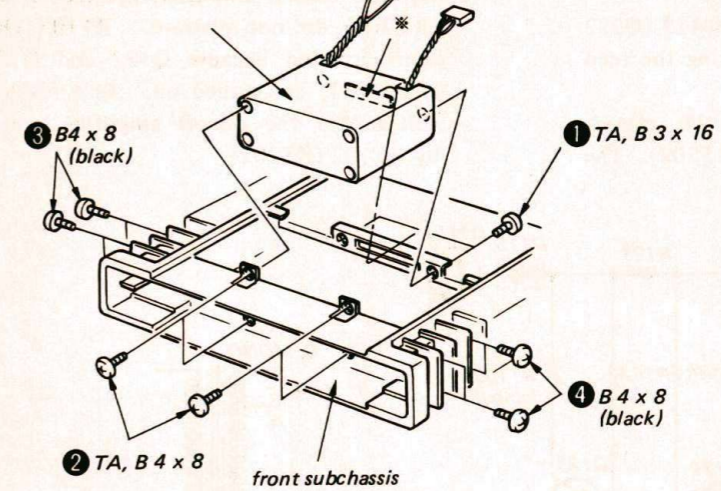


Note: When the knob is installed to the joint shaft, refer to the figure below.

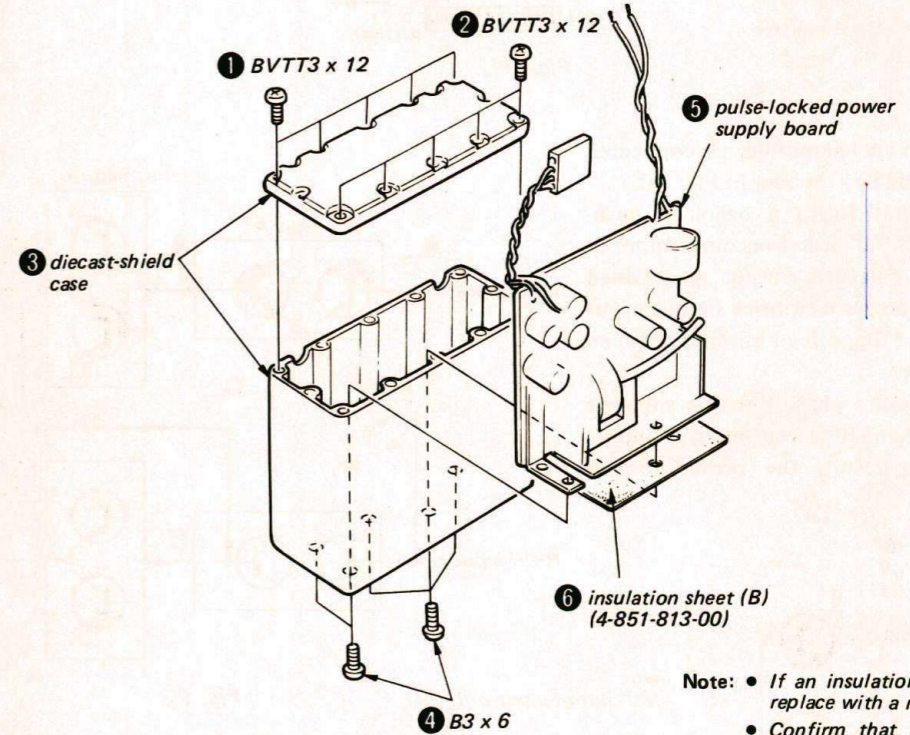


Pulse-locked Power Supply Section Removal

- ⑤ pulse-locked power supply section (Note: Take care that the portion marked * is hooked to the chassis.)



Pulse-locked Power Supply Board Removal



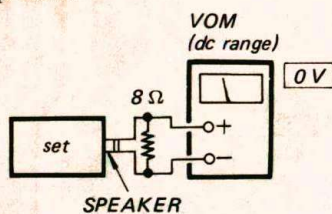
Note: • If an insulation sheet is defective, replace with a new one.
• Confirm that there are no scraps of solder or lead wire on any insulation sheet (B).

SECTION 3
ADJUSTMENTS

Note: 1. DC BIAS and DC BALANCE adjustments should be performed about several minutes later after the POWER switch (S10) is turned on.
2. Repeat DC BIAS and DC BALANCE adjustments two or three times.
3. After replacing the power transistors, DC BIAS and DC BALANCE adjustments should be performed.

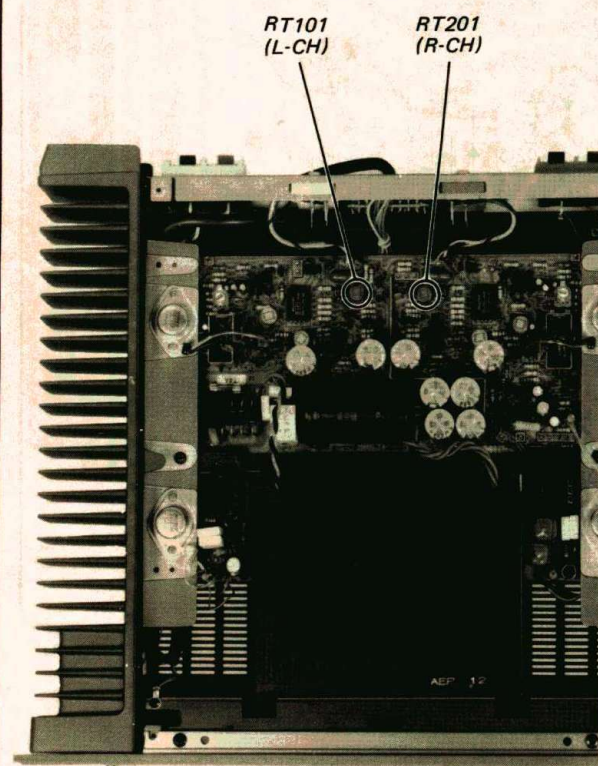
DC Balance Adjustment

Procedure:
- Power Amp Board -



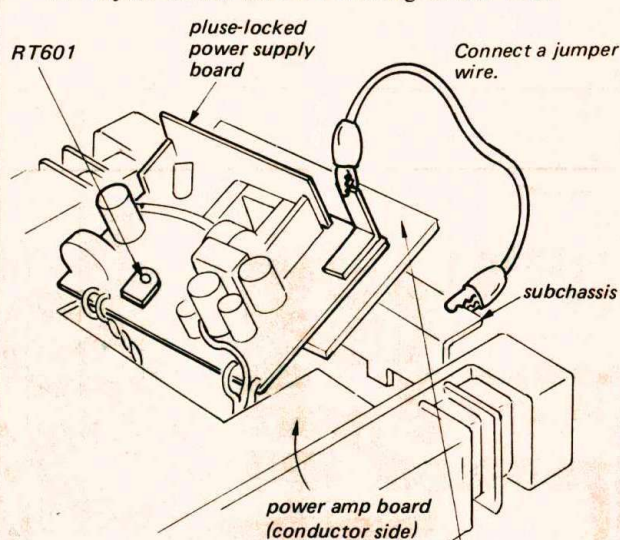
Adjust RT101 (L-CH) and RT201 (R-CH) for 0V reading on the VOM.

Adjustment Location
- Power Amp Board -



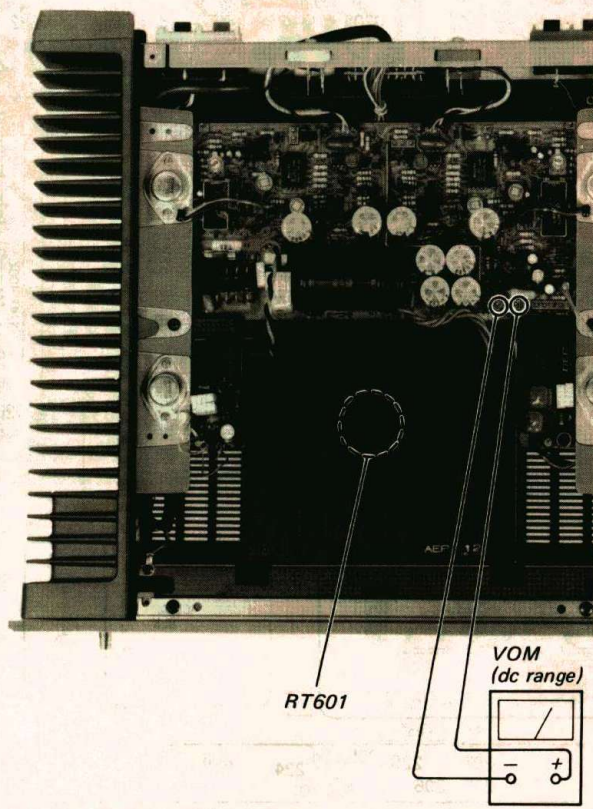
DC Voltage Adjustment

Procedure:
1. Connect a jumper wire.
2. Set the OPERATION switch (S1) to "CLASS B".
3. Adjust RT601 for 90 V reading on the VOM.



Place an insulator so that the circuit does not contact with the subchassis.

Adjustment Location
- Pulse-locked Power Supply Board -

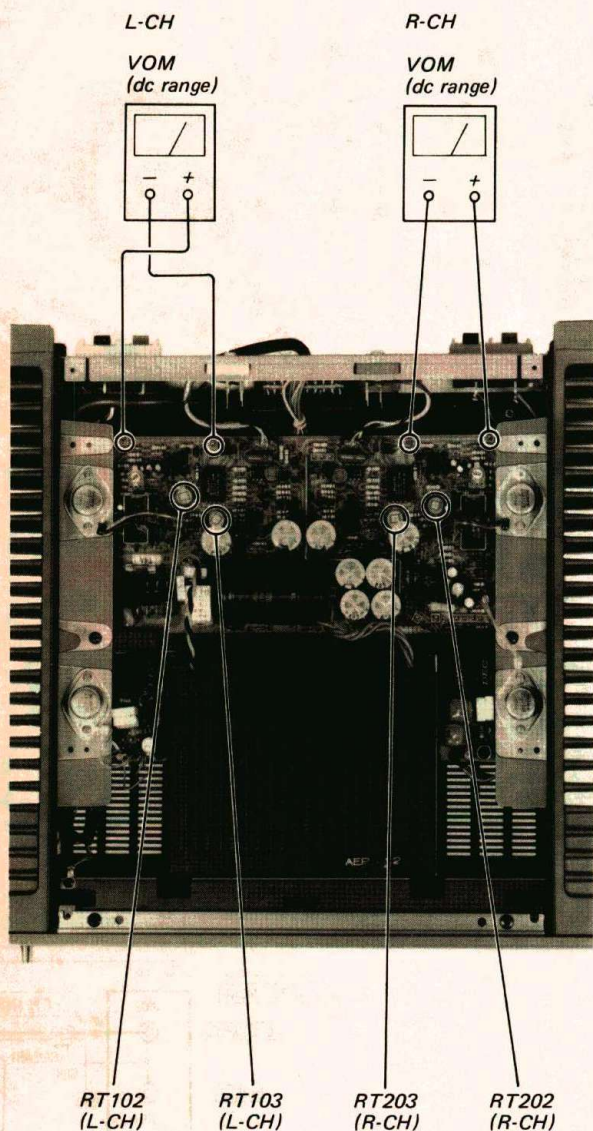


DC Bias Adjustment

Procedure:
1. Set the OPERATION switch (S1) to "CLASS A".
2. Adjust RT103 (L-CH) and RT203 (R-CH) for 350 mV dc on the VOM.
3. Set the OPERATION switch (S1) to "CLASS B".
4. Adjust RT102 (L-CH) and RT202 (R-CH) for 20 mV dc on the VOM.

Adjustment Location

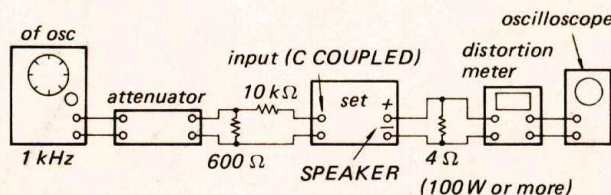
- Power Amp Board -



CLASS-B Amp Adjustments

Setting:
OPERATION switch (S1): CLASS-B

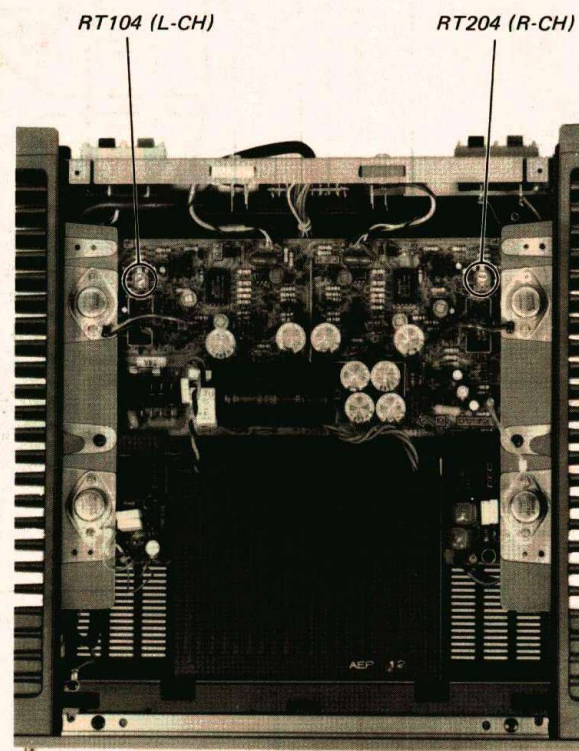
Procedure:



1. Adjust the attenuator for specified reading as shown below.
19 V US, Canadian model
15.5 V AEP, UK model
2. Adjust RT104 (L-CH) and RT204 (R-CH) for 0.007% or less on the distortion meter or for waveform with no clip on the oscilloscope.

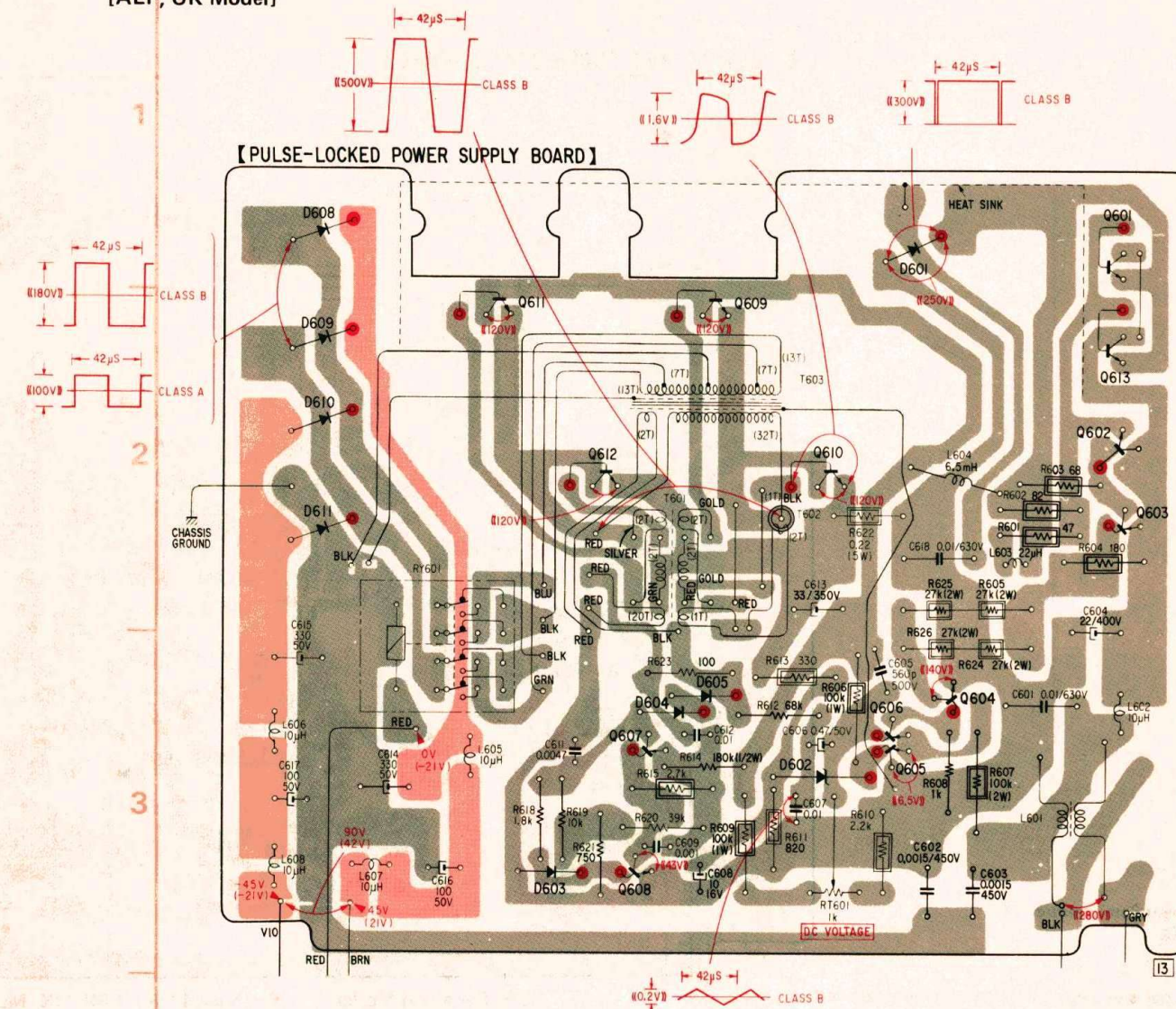
Adjustment Location

- Power Amp Board -



SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM - Pulse-locked Power Supply Board -
[AEP, UK Model]

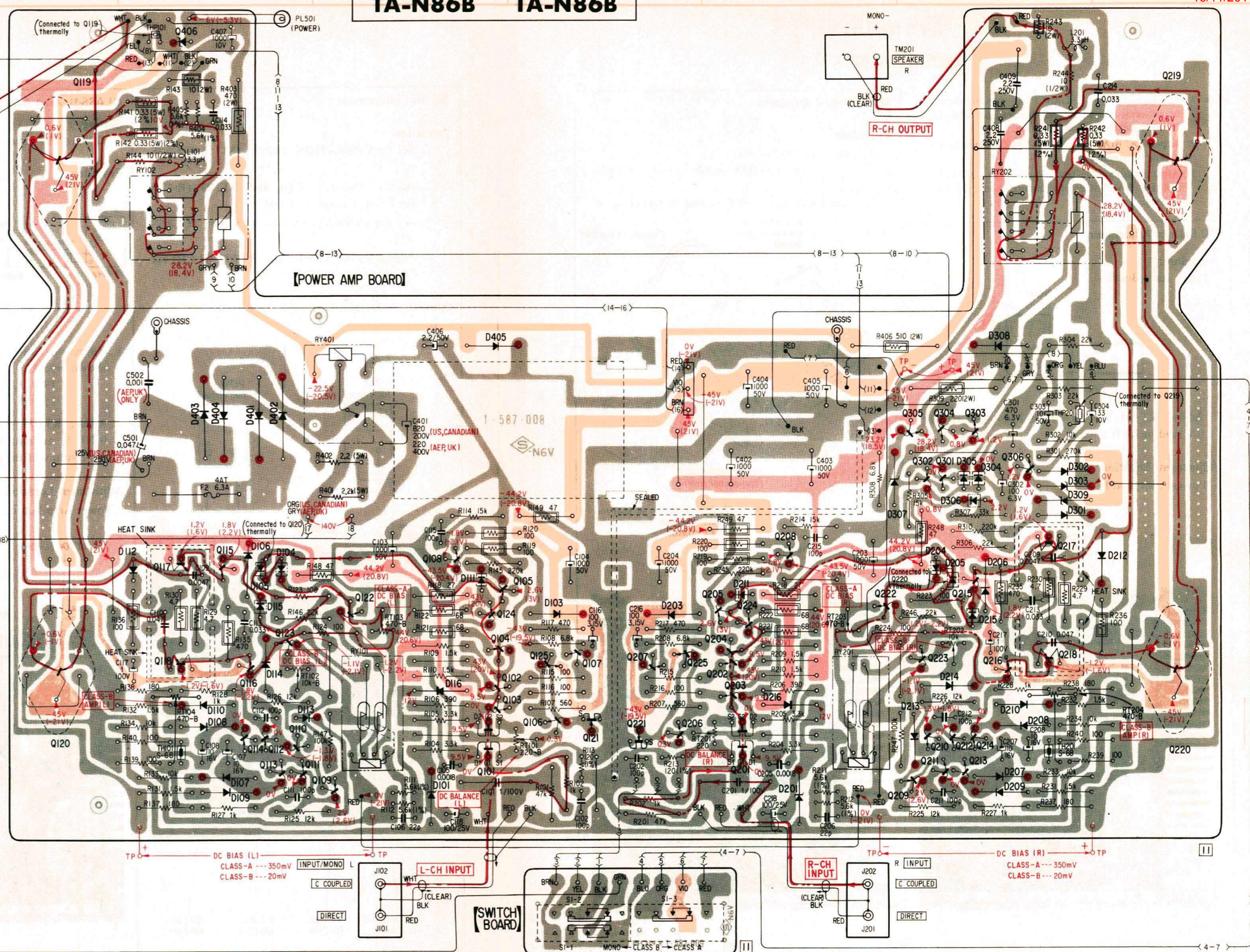
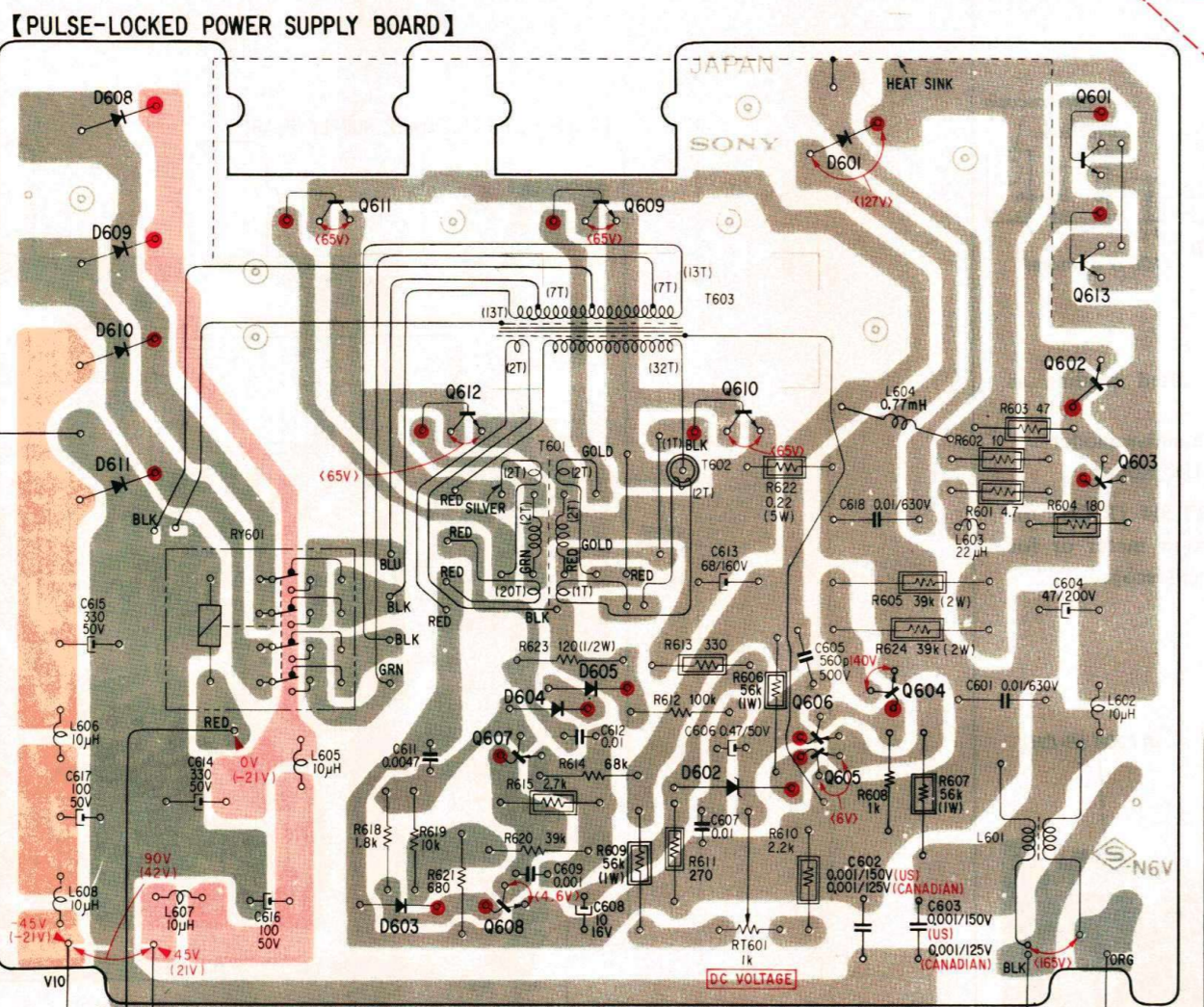


Q		611	612	607	609	610	606	604	601	613
D	608	609	610	611	603	604	605	601	602	603

Replacement Semiconductors
see page 18.

- Note:
 - : parts extracted from the component side.
 - : B + pattern
 - : B - pattern
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V)
- Voltage values for pulse-locked power supply circuit
 - () class A
 - (()) with 220 V ac
 - < > with 120 V ac
- The waveforms are taken under class-B operation with 220 V ac unless otherwise noted.

4.2. MOUNTING DIAGRAM



Replacement Semiconductors
see page 18.

Note:

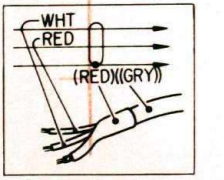
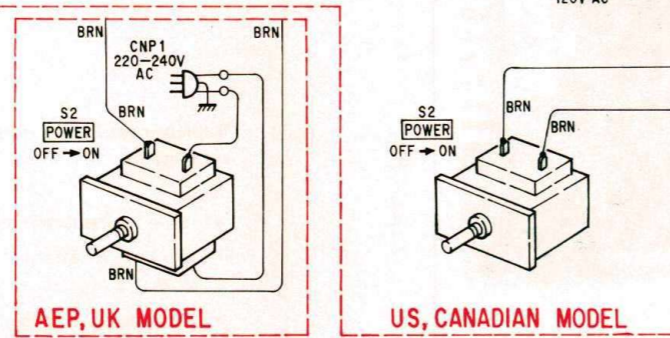
- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : B + pattern
- - - : B - pattern
- : Signal Path
- : L-CH
- - - : R-CH

• Readings are taken under no-signal conditions with a VOM (20 kΩ/V) (OPERATION switch: CLASS B)

• Voltage values for pulse-locked power supply circuit () class A (() with 220 V ac < > with 120 V ac

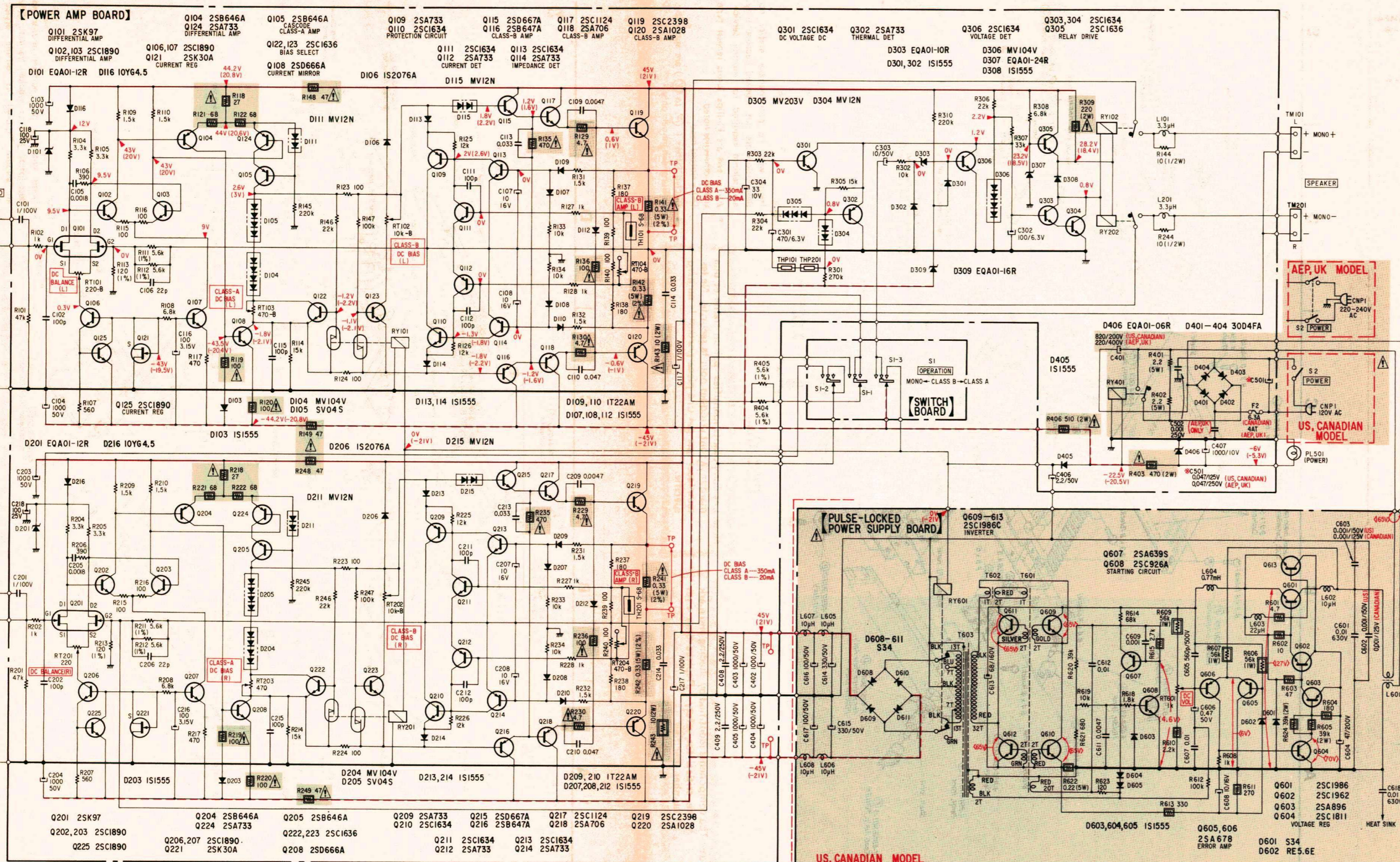
• The waveforms are taken under class-B operation with 220 V ac unless otherwise noted.

• Color code of sleeving over the end of the jacket.



Q	608 609	611	612 607 609	610 606 604	601 602 603	605 604	601 602 603	119 120	117 118	115 114 112	123 110 109	122	108 124,105 104 101,102,103	125 106 107	121	207 221 206	225 205,204 202,204 203,201	208	305,302 222 209,210,211,213,214	303 301,212,215 216 218	217 306 218	219 302,303 309,301 212	Q
D	608 609 610 611	603	603 604	602	601	605 604	601 602 603	112 406 110,108 107,109	406 110,108 107,109	106,105 104 113 402	113 402	116 101	405 111	103	121	203 203	211 216 201	216 201	307 213 214 306,215 209	204,205 210 208 305,304 207 208 309,301 212	210 302,303 309,301 212	219 302,303 309,301 212	D

4-3. SCHEMATIC DIAGRAM



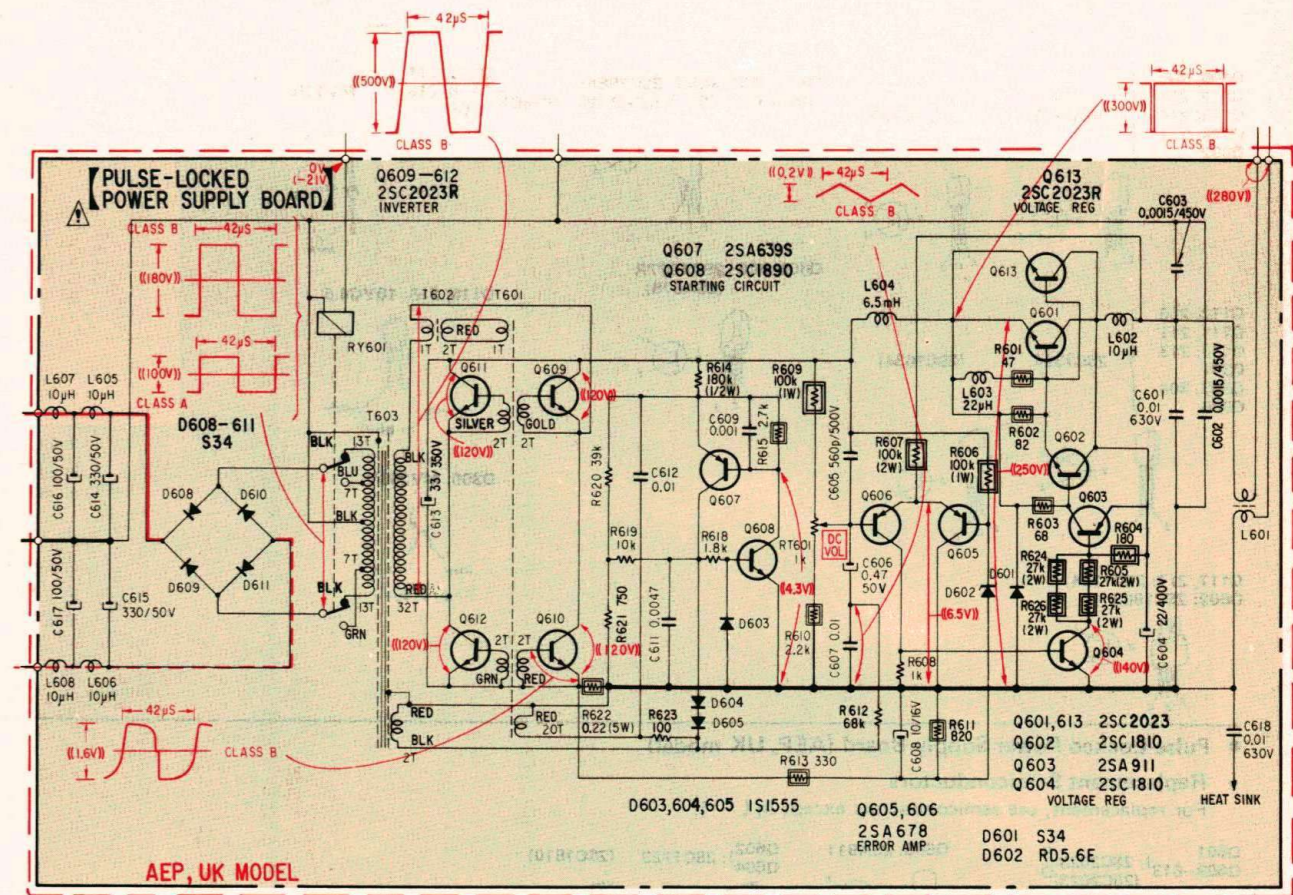
Note:

- All capacitors are in μF unless otherwise noted $\text{pF} = \mu\mu\text{F}$ 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, $\frac{1}{4}$ W unless otherwise noted. $\text{k}\Omega : 1000 \Omega; \text{M}\Omega = 1000 \text{k}\Omega$
- Voltages are dc with respect to ground unless otherwise noted.
- All adjustable resistors have characteristic curve B, unless otherwise noted.
- \square : nonflammable resistor.
- 1% indicates component tolerance.
- \square : panel designation.
- \square : adjustment for repair.
- Readings are taken under no-signal conditions with a VOM (20 $\text{k}\Omega/\text{V}$) (OPERATION switch: CLASS B)
- Voltage values for pulse-locked power supply circuit () class A () with 220 V ac < > with 120 V ac
- The waveforms are taken under class-B operation with 220 V ac unless otherwise noted.
- : B+ bus.
- - - : B- bus.
- Switch

Ref. No.	Switch	Position
S1	OPERATION	CLASS B
S2	POWER	OFF

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

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

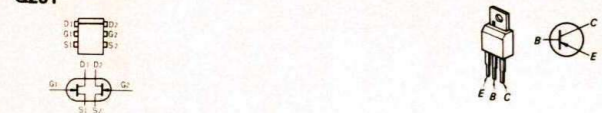


SECTION 5
EXPLODED VIEWS

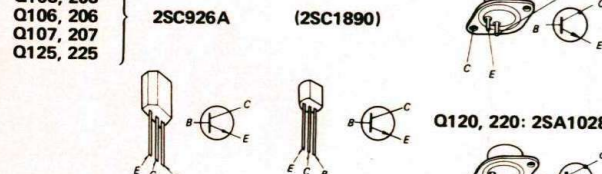
• Replacement Semiconductors

For replacement, use semiconductors except in ().

Q101, Q201 : 2SK97
Q118, 218 : 2SA706



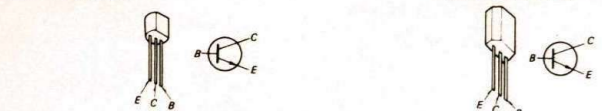
Q102, 202 : 2SC926A
Q103, 203 : (2SC1890)
Q106, 206 :
Q107, 207 :
Q125, 225 :



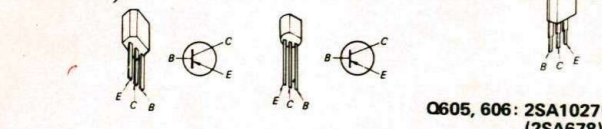
Q104, 204 : 2SB646A
Q105, 205 : 2SB647A
Q116, 216 : 2SB647A
Q603 : 2SA896
Q607 : 2SA639S



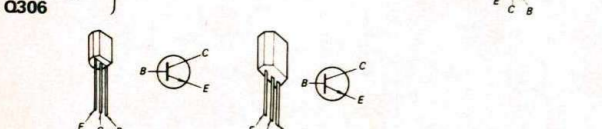
Q108, 208 : 2SC1811 (2SD666A)
Q115, 215 : 2SD667A
Q604 : 2SC1811



Q109, 209 : 2SA1027R
Q112, 212 : (2SA733)
Q114, 214 :
Q124, 224 :
Q302 :



Q110, 210 : 2SC1364
Q111, 211 : (2SC1634)
Q301 :
Q303, 304 :
Q306 :



Q117, 217 : 2SC1124
Q602 : 2SC1962

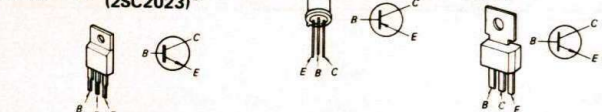


• Pulse-Locked Power Supply Board (AEP, UK model)

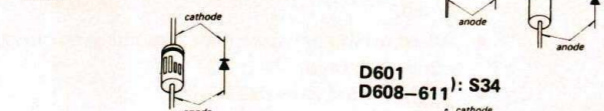
• Replacement Semiconductors

For replacement, use semiconductors except in ().

Q601 : 2SC2023 R
Q609-613 : 2SC2023 D
Q603 : 2SA911
Q602 : 2SC1723
Q604 : (2SC1810)



D101, 201 : EQB01-12Z (EAB01-12R)
D303 : EQB01-10 (EQA01-10R)
D307 : EQB01-24 (EQA01-24R)
D309 : EQB01-16 (EQA01-16R)
D406 : EQB01-16 (EQA01-16R)



D103, 203 : 1S1555
D107, 207 :
D108, 208 :
D112-114 :
D212-214 :
D301, 302 :
D308 :
D405 :
D603-605 :
D106, 206 : 1S2076A
D109, 209 :
D110, 210 : 1T22AM
D602 : RD5.6E



D104, 204 : MV104V
D306 :
D105, 205 : SV04S



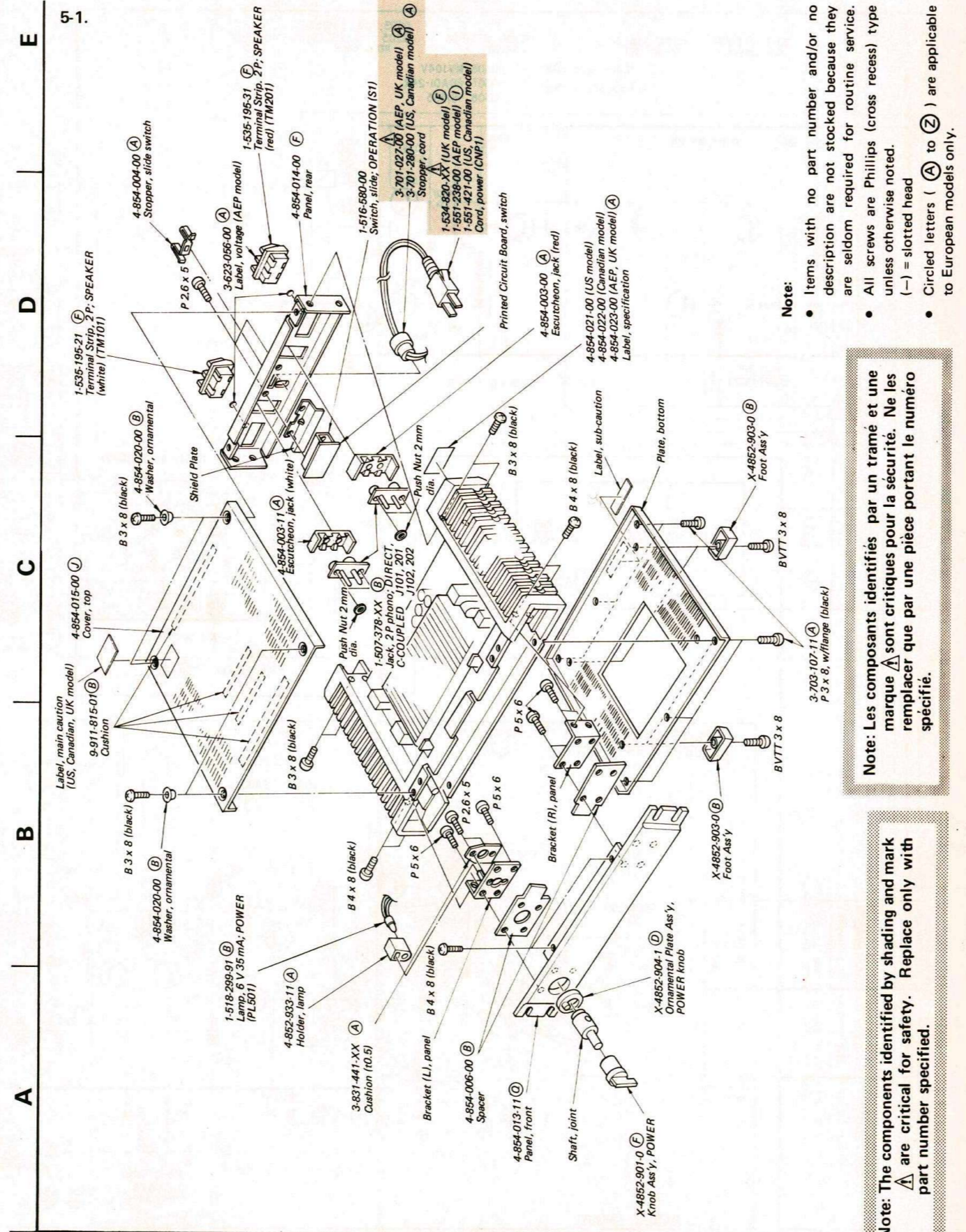
D111, 211 : MV12N
D115, 215 : D304



D116, 216 : 10YG4.5



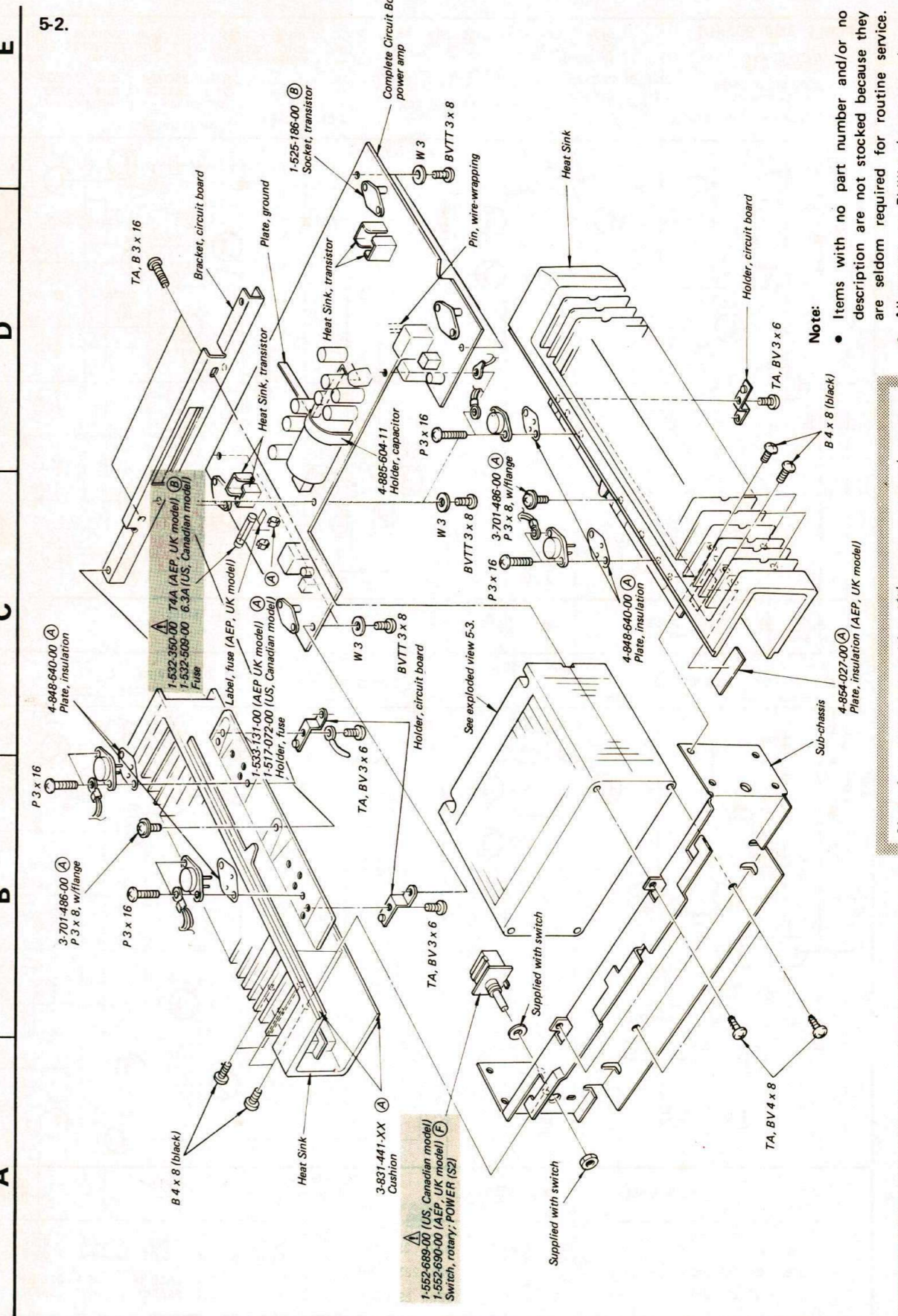
D305 : MV203V



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: Les composants identifiés par un trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifique.

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



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: Les composants identifiés par un trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifique.

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

A B C D E

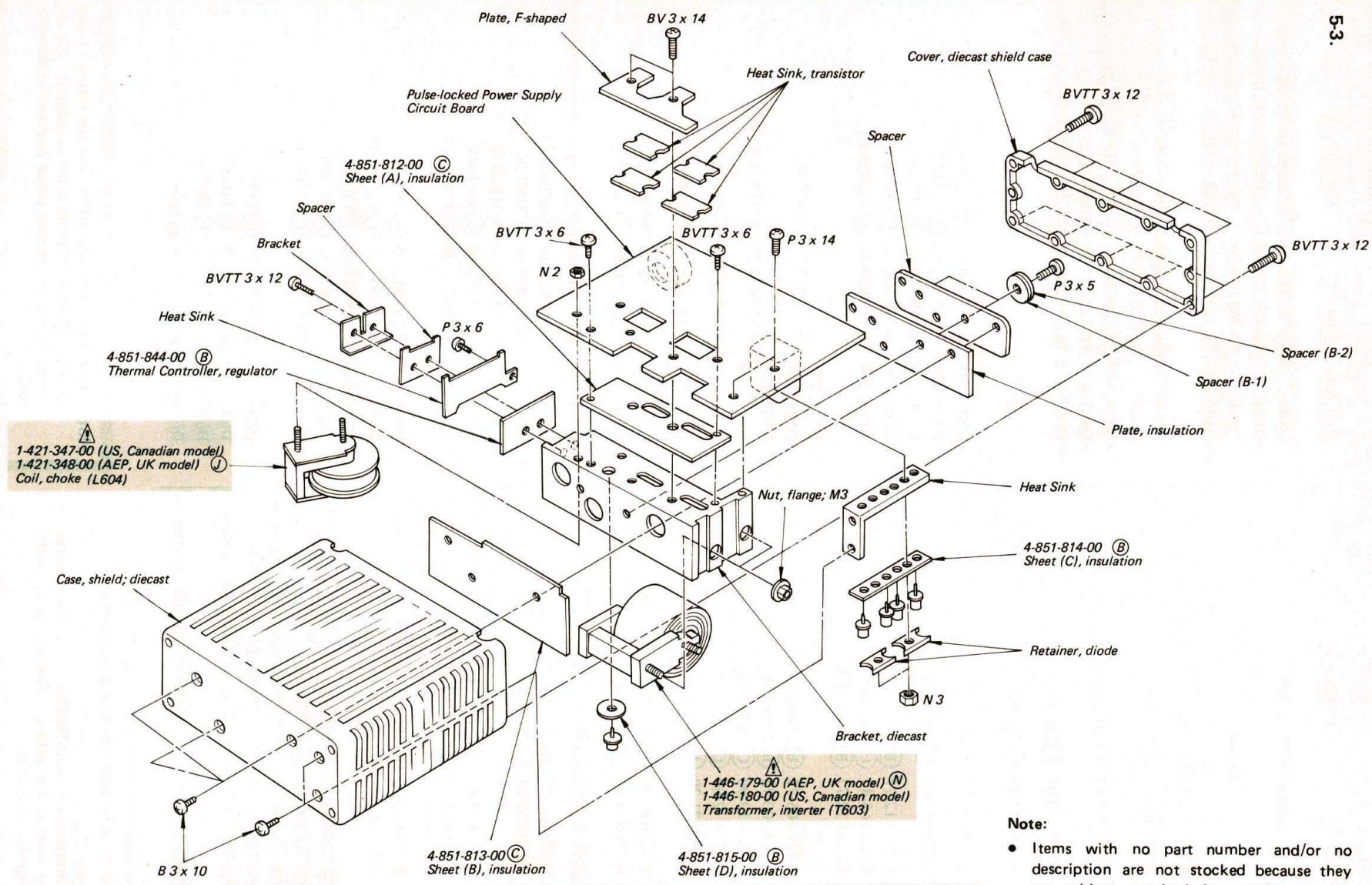
5-3.

1

2

3

- 21 -



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.
(-) = slotted head
 - Circled letters (to) are applicable to European models only.

SECTION 6

ELECTRICAL PARTS LIST **Note:** Circled letters (A to Z) are applicable to European models only.

Ref. No.	Part No.	Description
SEMICONDUCTORS		
Transistors		
Q101, 201	8-765-342-10	(F) 2SK97
⇒ Q102, 202	8-720-950-03	(C) 2SC926A
⇒ Q103, 203		
Q104, 204	8-729-304-62	(B) 2SB646A
Q105, 205		
⇒ Q106, 206	8-720-950-03	(C) 2SC926A
⇒ Q107, 207		
⇒ Q108, 208	8-765-012-20	(C) 2SC1811
⇒ Q109, 209	8-729-612-77	(B) 2SA1027R
⇒ Q110, 210	8-729-663-47	(C) 2SC1364
⇒ Q111, 211		
⇒ Q112, 212	8-729-612-77	(B) 2SA1027R
⇒ Q113, 213	8-729-663-47	(C) 2SC1364
⇒ Q114, 214	8-729-612-77	(B) 2SA1027R
Q115, 215	8-729-306-72	(B) 2SD667A
Q116, 216	8-729-300-72	(B) 2SB647A
Q117, 217	8-725-412-00	(C) 2SC1124
Q118, 218	8-727-632-00	(C) 2SA706
Q119, 219	8-765-471-20	(I) 2SC2398
Q120, 220	8-765-481-20	(K) 2SA1028
Q121, 221	8-729-203-04	(B) 2SK30A
Q122, 222	8-761-622-00	(B) 2SC1636
Q123, 223		
⇒ Q124, 224	8-729-612-77	(B) 2SA1027R
⇒ Q125, 225	8-720-950-03	(C) 2SC926A
⇒ Q301	8-729-663-47	(C) 2SC1364
⇒ Q302	8-729-612-77	(B) 2SA1027R
⇒ Q303, 304	8-729-663-47	(C) 2SC1364
Q305	8-761-622-00	(B) 2SC1636
⇒ Q306	8-729-663-47	(C) 2SC1364
⇒ Q601	8-729-302-31	(D) 2SC2023-R (AEP, UK model)
⇒ Q601	8-729-302-32	(D) 2SC2023-O (AEP, UK model)
⇒ Q601	8-729-308-72	2SC1986D (US, Canadian model)
⇒ Q602	8-729-372-30	(C) 2SC1723 (AEP, UK model)
Q602	8-765-170-01	2SC1962 (US, Canadian model)
Q603	8-765-082-20	2SA896 (US, Canadian model)

Ref. No.	Part No.	Description
Q603	8-765-141-00	(J) 2SA911 (AEP, UK model)
⇒ Q604	8-729-372-30	(C) 2SC1723 (AEP, UK model)
Q604	8-765-012-20	2SC1811 (US, Canadian model)
⇒ Q605, 606	8-729-612-77	(B) 2SA1027R
Q607	8-729-163-04	(C) 2SA639S
Q608	8-720-950-03	(C) 2SC926A
⇒ Q609-613	8-729-302-31	(D) 2SC2023-R (AEP, UK model)
⇒ Q609-613	8-729-302-32	(D) 2SC2023-O (AEP, UK model)
⇒ Q609-613	8-729-308-72	2SC1986D-O (US, Canadian model)
Diodes		
⇒ D101, 201	8-719-930-12	(B) EQB01-12Z
D103, 203	8-719-815-55	(B) 1S1555
D104, 204	8-719-910-40	(B) MV104V
D105, 205	8-719-300-11	(B) SV04S
D106, 206	8-719-923-76	(B) 1S2076A
D107, 207	8-719-815-55	(B) 1S1555
D108, 208		
D109, 209	8-719-422-21	(B) 1T22AM
D110, 210		
D111, 211	8-719-912-00	(B) MV12N
D112-114	8-719-815-55	(B) 1S1555
D212-214		
D115, 215	8-719-912-00	(B) MV12N
D116, 216	8-719-210-45	(C) 10YG4.5
D301, 302	8-719-815-55	(B) 1S1555
⇒ D303	8-719-931-10	(B) EQB01-10
D304	8-719-912-00	(B) MV12N
D305	8-719-920-30	(B) MV203V
D306	8-719-910-40	(B) MV104V
⇒ D307	8-719-931-24	(B) EQB01-24
D308	8-719-815-55	(B) 1S1555
⇒ D309	8-719-931-16	(B) EQB01-16
⇒ D401-404	8-719-911-55	(B) U05G
D405	8-719-815-55	(B) 1S1555
⇒ D406	8-719-931-16	(B) EQB01-16
D601	8-719-303-41	(C) S34
D602	8-719-156-08	(B) RD5.6E
D603-605	8-719-815-55	(B) 1S1555
D608-611	8-719-303-41	(C) S34

⇒: 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 trame et une marque **▲** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
Thermistors		
TH101, 201	1-800-193-00	(A) Thermistor, S-68
THP101, 201	1-800-427-00	(B) Thermistor, positive
COILS		
L601	▲1-421-259-00	Line filter (US, Canadian model)
L601	▲1-421-349-00	(F) Line filter (AEP, UK model)
L602	▲1-421-329-00	(B) 10 μH, choke
L603	▲1-407-161-XX	(A) 22 μH, microinductor
L604	▲1-421-347-00	0.77 mH, choke (US, Canadian model)
L604	▲1-421-348-00	(J) 6.5 mH, choke (AEP, UK model)
L605-608	▲1-421-329-00	(B) 10 μH, choke
TRANSFORMERS		
T601	▲1-543-098-00	Core (US, Canadian model)
T601	▲1-543-100-00	(B) Core (AEP, UK model)
T602	▲1-543-121-00	(B) Core
T603	▲1-446-179-00	(M) Inverter (AEP, UK model)
T603	▲1-446-180-00	Inverter (US, Canadian model)
CAPACITORS		
All capacitors are in μF and electrolytic unless otherwise noted. 50 WV or less are not indicated except for electrolytics. p : μμF, elect : electrolytic		
C101, 201	1-130-083-00	(C) 1 100 V polyethylene ceramic
C102, 202	1-102-975-00	(A) 100 p ceramic
C103, 203	1-123-061-00	(C) 1000 50 V
C104, 204		
C105, 205	1-108-561-00	(A) 0.0018 mylar
C106, 206	1-107-069-00	(A) 22 p mica
C107, 207	1-121-651-00	(A) 10 16 V
C108, 208		
C109, 209	1-108-234-00	(A) 0.0047 mylar
C110, 210	1-108-246-00	(A) 0.047 mylar
C111, 211	1-102-975-00	(A) 100 p ceramic
C112, 212		
C113, 213	1-108-244-00	(A) 0.033 mylar
C114, 214		

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

Ref. No.	Part No.	Description
C115, 215	1-107-085-00	(A) 100 p mica
C116, 216	1-131-177-00	(C) 100 3.15 V tantalum
C117, 217	1-123-249-00	(A) 1 100 V
C118, 218	1-121-417-00	(B) 100 25 V
C301	1-121-424-00	(B) 470 6.3 V
C302	1-121-414-00	(A) 100 6.3 V
C303	1-121-738-00	(A) 10 50 V
C304	1-121-402-00	(A) 33 10 V
C401	▲1-123-407-00	(I) 220 400 V (AEP, UK model)
C401	▲1-123-408-00	820 200 V (US, Canadian model)
C402-405	1-123-061-00	(C) 1000 50 V
C406	1-121-450-00	(A) 2.2 50 V
C407	1-121-736-00	(B) 1000 10 V
C408, 409	1-108-972-00	(G) 2.2 250 V mylar
C501	▲1-108-749-00	0.047 125 V mylar (US model)
C501	▲1-130-159-00	(C) 0.047 250 V film (AEP, UK model)
C501	▲1-130-197-00	0.047 125 V polyethylene (Canadian model)
C502	▲1-102-222-00	(B) 0.001 250 V ceramic (AEP, UK model)
C601	▲1-130-141-00	(A) 0.01 630 V polyethylene paper
C602, 603	▲1-115-149-00	(C) 0.0015 450 V (AEP, UK model)
C602, 603	▲1-161-502-00	0.001 150 V ceramic (US model)
C602, 603	▲1-161-516-00	0.001 125 V ceramic (Canadian model)
C604	▲1-123-401-00	47 200 V (US, Canadian model)
C604	▲1-123-402-00	(C) 22 400 V (AEP, UK model)
C605	▲1-161-438-00	(A) 560 p 500 V ceramic
C606	▲1-121-726-00	(A) 0.47 50 V
C607	▲1-108-239-00	(A) 0.01 mylar
C608	▲1-121-651-00	(A) 10 16 V
C609	▲1-108-227-00	(A) 0.001 mylar
C611	▲1-108-234-00	(A) 0.0047 mylar
C612	▲1-108-239-51	(A) 0.01 mylar
C613	▲1-123-277-00	68 160 V (US, Canadian model)

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

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

Table with columns: Ref. No., Part No., Description. Rows include C613, C614, C616, C618 with various part numbers and descriptions like 350 V (AEP, UK model), 50 V, 630 V polyethylene.

RESISTORS

All resistors are in ohms. Common 1/4 W carbon resistors are omitted. Refer to the list on page 27 for their part numbers. All adjustable resistors have characteristic curve B, unless otherwise noted. kΩ : 1000 Ω

Table with columns: Ref. No., Part No., Description. Rows include R111, R112, R113, R118, R119, R120, R121, R122 with part numbers like 1-214-150-11 and descriptions like 1/4 W(1%) metal oxide, carbon, nonflammable.

Table with columns: Ref. No., Part No., Description. Rows include R129, R130, R135, R136, R141, R142, R143 with part numbers like 1-211-490-00 and descriptions like carbon, metal oxide, wirewound, nonflammable.

Table with columns: Ref. No., Part No., Description. Rows include R144, R148, R149, R309 with part numbers like 1-244-825-00 and descriptions like carbon, metal oxide, nonflammable.

Table with columns: Ref. No., Part No., Description. Rows include R401, R402, R403, R404, R406 with part numbers like 1-217-570-00 and descriptions like metal plate, metal oxide, nonflammable.

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

Main table with columns: Ref. No., Part No., Description. Rows include R601, R602, R603, R604, R605, R606, R607, R608, R609 with various part numbers and descriptions like carbon, metal oxide, nonflammable, US, Canadian model, AEP, UK model.

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.

Table with columns: Ref. No., Part No., Description. Rows include R610, R611, R612, R614, R615 with part numbers like 1-211-945-00 and descriptions like carbon, nonflammable, US, Canadian model, AEP, UK model.

Table with columns: Ref. No., Part No., Description. Rows include R618, R619, R620, R621 with part numbers like 1-246-479-00 and descriptions like carbon, nonflammable, US, Canadian model, AEP, UK model.

Table with columns: Ref. No., Part No., Description. Rows include R622, R623, R624 with part numbers like 1-217-156-00 and descriptions like wirewound, carbon, nonflammable, US, Canadian model, AEP, UK model.

Table with columns: Ref. No., Part No., Description. Rows include RT101, RT102, RT103, RT104, RT601 with part numbers like 1-224-550-21 and descriptions like adjustable, dc balance, class-B dc bias, class-A dc bias, class-B amp, adjustable, dc voltage.

SWITCHES

Table with columns: Ref. No., Part No., Description. Rows include S1, S2 with part numbers like 1-516-580-00 and descriptions like Slide, OPERATION, Rotary, POWER, US, Canadian model, AEP, UK model.

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

Table with columns: Ref. No., Part No., Description. Rows include J101, J102, PL501, RY101, RY102, RY401 with part numbers like 1-507-378-XX and descriptions like Jack, 2 p; DIRECT, C COUPLED, Lamp, 6 V 35 mA; POWER, Relay, Relay (US, Canadian model).

MISCELLANEOUS

Table with columns: Ref. No., Part No., Description. Rows include CNP1, F2 with part numbers like 1-551-238-00 and descriptions like Cord, power (AEP model), Cord, power (US, Canadian model), Cord, power (UK model), Fuse, 4AT (AEP, UK model), Fuse, 6.3A (US, Canadian model).

Table with columns: Ref. No., Part No., Description. Rows include J101, J102 with part number 1-507-378-XX and description Jack, 2 p; DIRECT, C COUPLED.

Table with columns: Ref. No., Part No., Description. Rows include PL501, RY101, RY102, RY401 with part numbers like 1-518-299-91 and descriptions like Lamp, 6 V 35 mA; POWER, Relay, Relay, Relay (US, Canadian model).

Table with columns: Ref. No., Part No., Description. Rows include RY401, RY601 with part numbers like 1-515-278-00 and descriptions like Relay (AEP, UK model), Relay.

Table with columns: Ref. No., Part No., Description. Rows include TM101 with part number 1-535-195-21 and description Terminal Strip, 2 p; SPEAKER (white).

Table with columns: Ref. No., Part No., Description. Rows include TM201 with part number 1-535-195-31 and description Terminal Strip, 2 p; SPEAKER (red).

Table with columns: Ref. No., Part No., Description. Rows include 1-517-072-00, 1-525-186-00, 1-533-131-00 with descriptions like Holder, lamp (US, Canadian model), Socket, transistor, Holder, fuse.

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.

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

ACCESSORIES AND PACKING MATERIALS

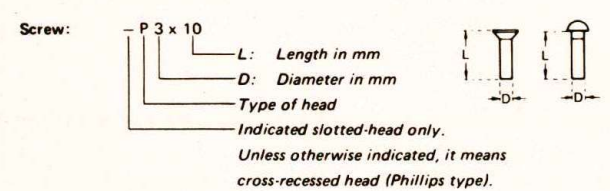
Part No.	Description
3-701-202-00	(A) Bag, check sheet
3-770-353-11	(F) Manual, instruction (AEP, UK model)
3-770-353-21	Manual, instruction (US, Canadian model)
3-794-233-21	Sheet (US model)
3-794-301-31	Sheet, instruction (Canadian model)
4-809-251-00	(A) Bag, plastic
4-854-019-00	(C) Cushion
4-854-024-00	(F) Carton (AEP, UK model)
4-854-025-00	(B) Sub-cushion (AEP, UK model)
4-854-026-00	Carton (US, Canadian model)

1/4 WATT CARBON RESISTORS (A)

Note: Circled letter (A) is applicable to European models only.

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-246-546-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-246-547-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-246-548-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-246-549-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-246-550-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-246-551-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-246-552-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-246-553-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-246-554-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-246-555-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-246-556-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-246-557-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-246-558-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-246-559-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-246-560-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-246-561-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-246-562-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

