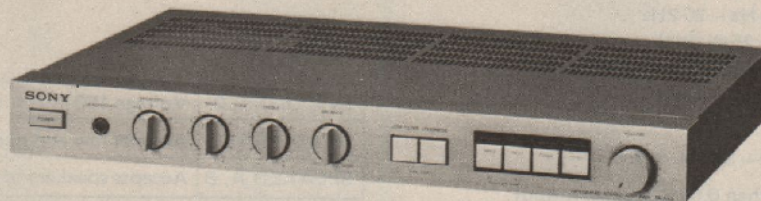


TA-AX2

*AEP Model
UK Model
E Model
US Model*



INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

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 UNE TRAME ET UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES ÉCLATÉES 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 DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

GENERAL

- System:** Quasi-complementary symmetry power amplifier circuit (SEPP OTL)
- Power Requirements:** US model: 120 V ac, 60 Hz
UK model: 240 V ac, 50/60 Hz
AEP model: 220 V ac, 50/60 Hz
E model: 120, 220, or 240 V ac adjustable, 50/60 Hz
- Power Consumption:** UK model: 230 W
AEP, E model: 64 W
US model: 70 W
- Dimensions:** Approx. 430 x 55 x 295 mm (w/h/d)
(17 x 2 1/4 x 11 5/8 inches)
incl. projecting parts and controls
- Weight:** Approx. 5.1 kg (11 lbs 4 oz) net
Approx. 5.8 kg (12 lbs 18 oz) in shipping carton

— Continued on next page —

SONY
SERVICE MANUAL

POWER AMPLIFIER SECTION

Power Output and Total Harmonic

Distortion: With 8Ω loads, both channels driven, from 20 – 20,000 Hz; rated 25 watts per channel minimum RMS power, with no more than 0.07% total harmonic distortion from 250 mW to rated output.

Continuous RMS

Power Output: (less than 0.07% THD, both channels driven simultaneously)

At 1 kHz
30 + 30 W (8Ω)
At 20 Hz – 20 kHz
25 + 25 W (8Ω)
According to DIN 45500
25 + 25 W (8Ω)

(AEP, UK, E model)

Power Bandwidth

(IHF): 15 Hz – 35 kHz (8Ω)

Harmonic Distortion: Less than 0.07% at rated output

Intermodulation

(IM) Distortion: Less than 0.07% at rated output (60 Hz: 7 kHz = 4:1)

Frequency Response: PHONO: RIAA equalization curve ± 0.5 dB
TUNER
TAPE 1, 2) 10 Hz – 45 kHz ± 1 dB

Damping Factor: 30 (8Ω , 1 kHz)

Inputs:

	Sensitivity	Impedance	Maximum input capability (at 1 kHz, 0.07% distortion)	S/N (weighting network)
PHONO	2.5 mV	50 k Ω	150 mV	75 dB (A)
TUNER TAPE 1, 2	150 mV	50 k Ω	—	95 dB (A)

Outputs:

REC OUT 1, 2	Voltage 150 mV, Impedance 10 k Ω
HEADPHONES	Accepts low and high impedance headphones
SPEAKER A, B	Accepts speakers of 4 – 16 Ω

Tone Controls: BASS ± 8 dB at 100 Hz
TREBLE ± 8 dB at 10 kHz

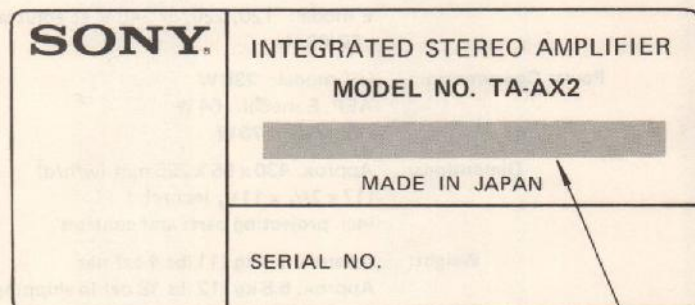
Loudness (att. 30 dB): +8 dB at 100 Hz

Low Filter: 6 dB/octave attenuation below 50 Hz

0 dB = 0.775 V

MODEL IDENTIFICATION

— Specification Label —



US model: 120 V 60 Hz 70 W
UK model: 240 V ~ 50/60 Hz 230 W
AEP model: 220 V ~ 50/60 Hz 64 W
E1, E2 model: 120, 220 240 V ~ 50/60 Hz 64 W

MELF (Metal Electrodes Face-Bonding) Components

Warning

If MELF components are forcibly removed from the printed circuit board with pincers or pliers, the circuit board pattern is likely to peel away. Always remove MELF components according to the procedure described on the next page. Replace MELF components with the lead type components.

MELF components are soldered directly to the surface of the printed circuit board.

MELF resistors and capacitors have the same dimensions and are distinguished by their background colors: light brown for resistors, and pink or light green for capacitors.

The MELF resistor color coding is the same as for conventional resistors, and MELF capacitor color coding is the same as for tube-type ceramic capacitors. Note, however, that all MELF resistors are rated at $\frac{1}{4}W$ and $\pm 5\%$.

Components larger than resistors and without a color code are cross conductors, which are used instead of jumper wires.

1. Structure

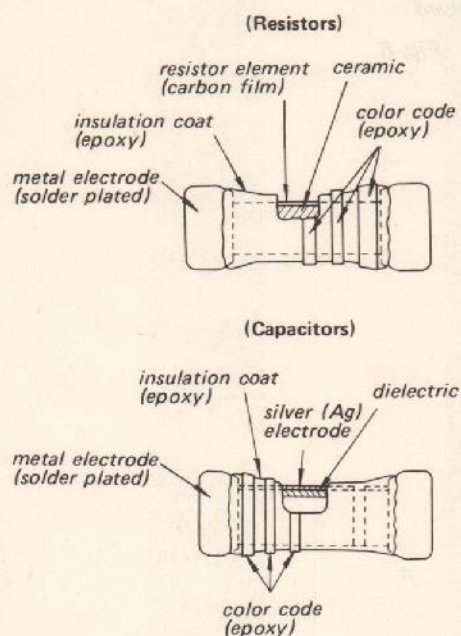
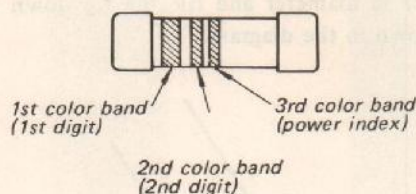
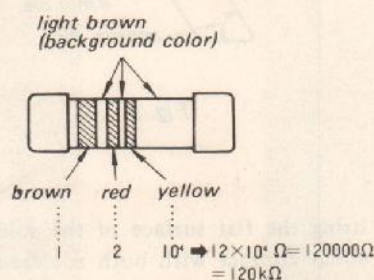


Fig. 1

2. Color Code Reading



(Example of Resistor)



(Example of Capacitor)

background color { pink 25 V voltage resistance
light green 50 V voltage resistance

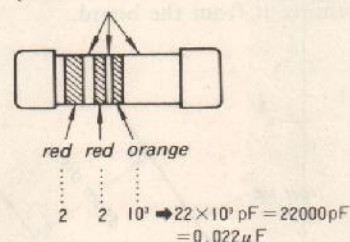


Fig. 2

— Continued on next page —

3. How to Remove MELF Components and Mount Replacements

Use a soldering iron of at least 40W with an iron tip 4 mm in diameter and file the tip down to the angle shown in the diagram.

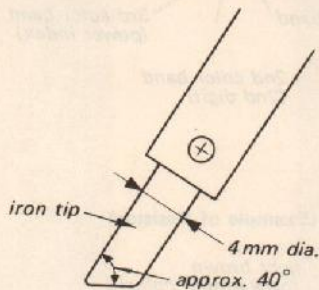


Fig. 3

1. Bring the flat surface of the soldering iron in equal contact with both soldered ends of the component.
2. The solder should melt in about 4 seconds. (The solder will melt more readily if a small amount of solder is attached to the iron tip and the iron tip is placed against the component.)
3. Once the solder has melted, tap the component aside with the tip of the soldering iron, and remove it from the board.

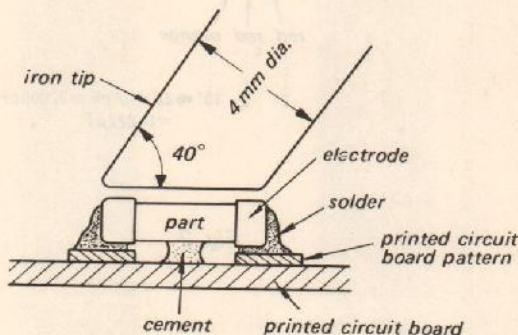


Fig. 4

4. Use lead type resistors or capacitors to replace the MELF components. These replacements may be mounted either with short leads (see Fig. 5), or by covering a lead with tubing (see Fig. 6).

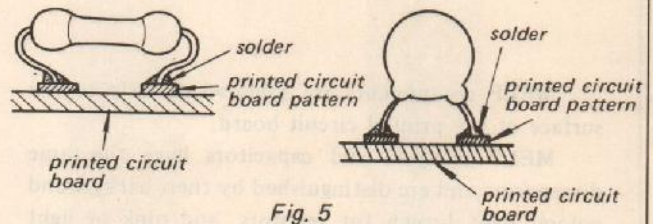


Fig. 5

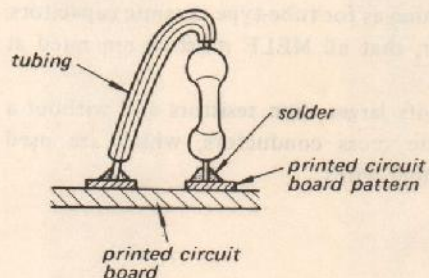
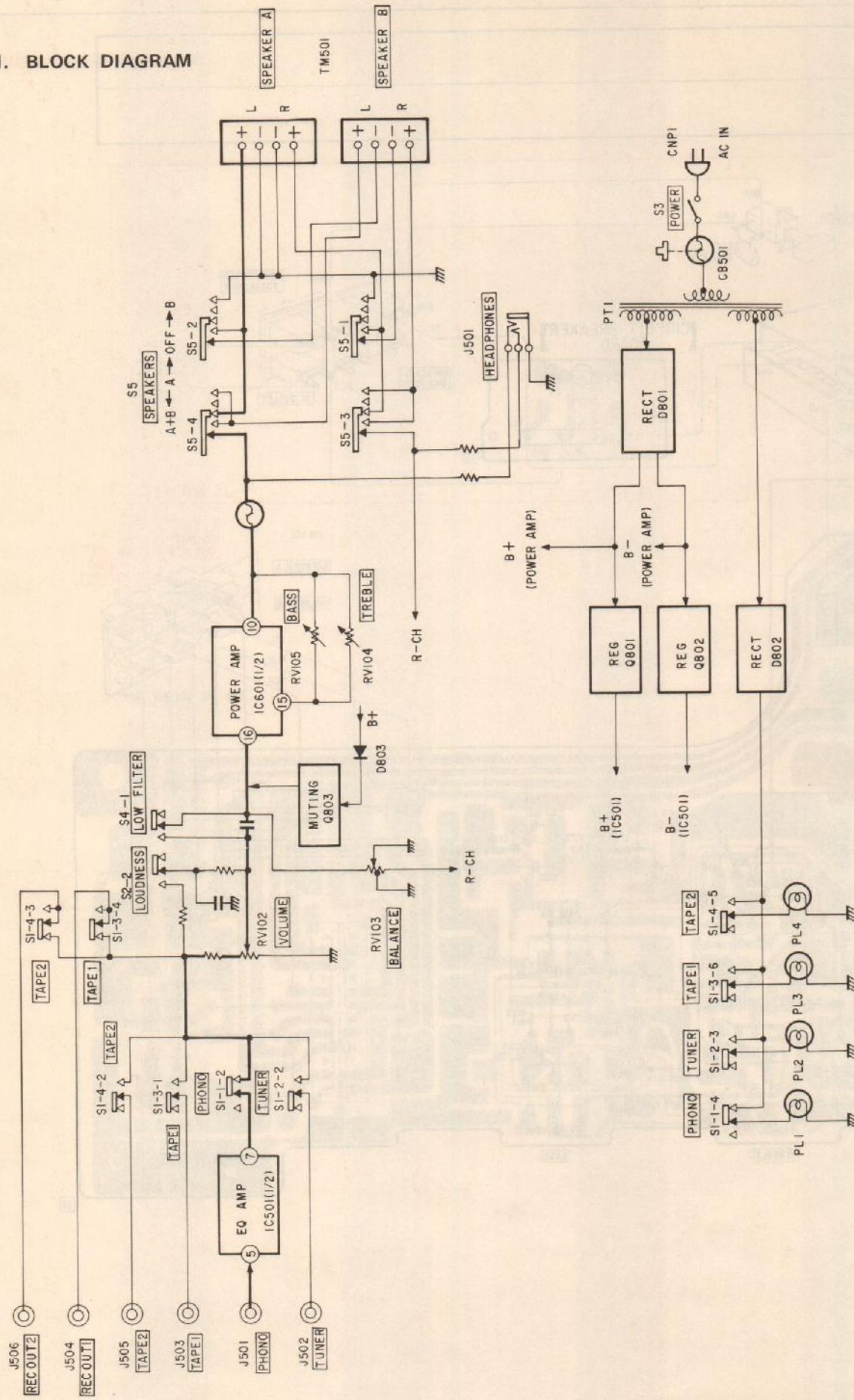


Fig. 6

SECTION 1
OUTLINE

SECTION 2
DISASSEMBLY

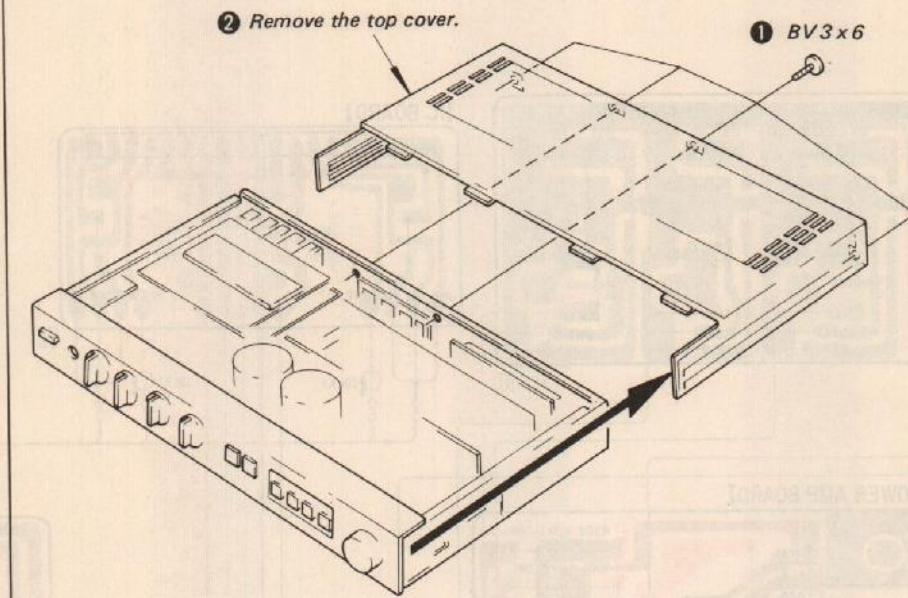
1-1. BLOCK DIAGRAM



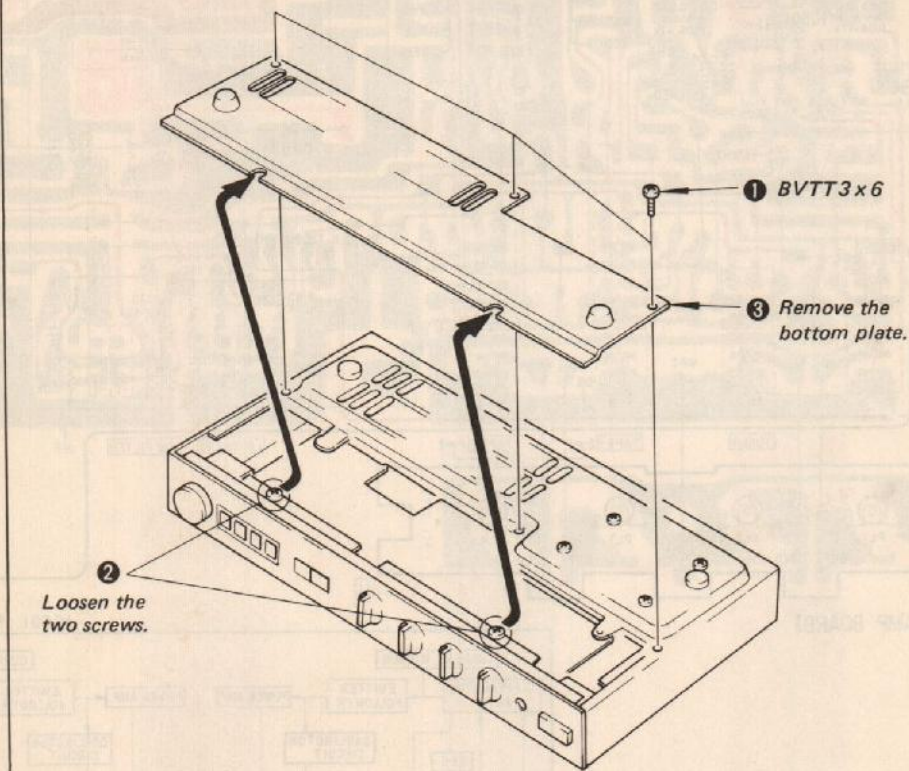
R-CH
SAME AS L-CH

Note: Follow the disassembly procedure in the numerical order given.

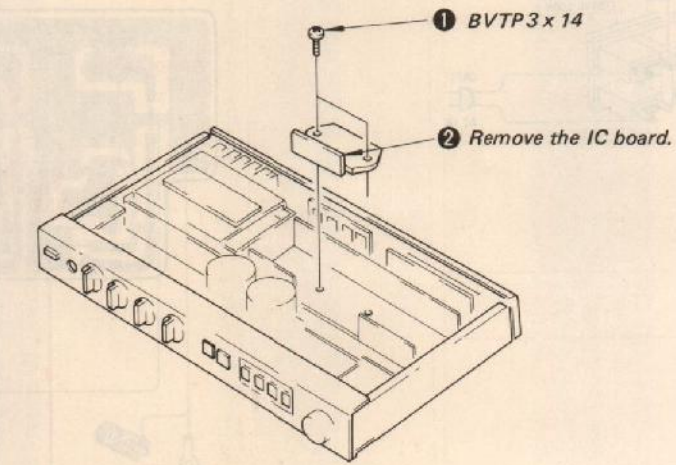
Top Cover Removal



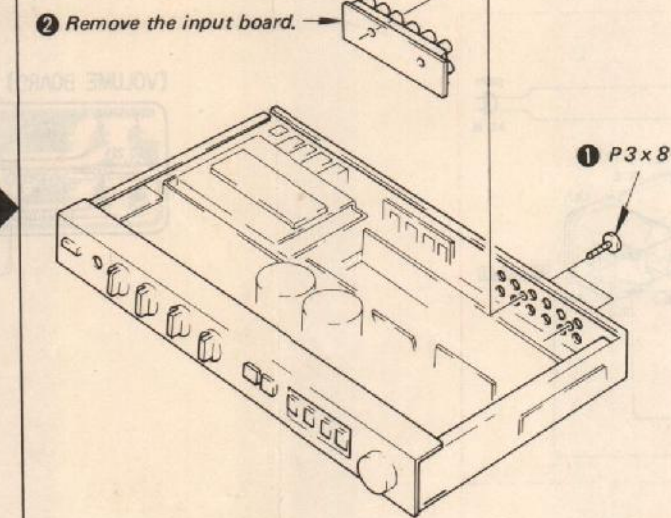
Bottom Plate Removal



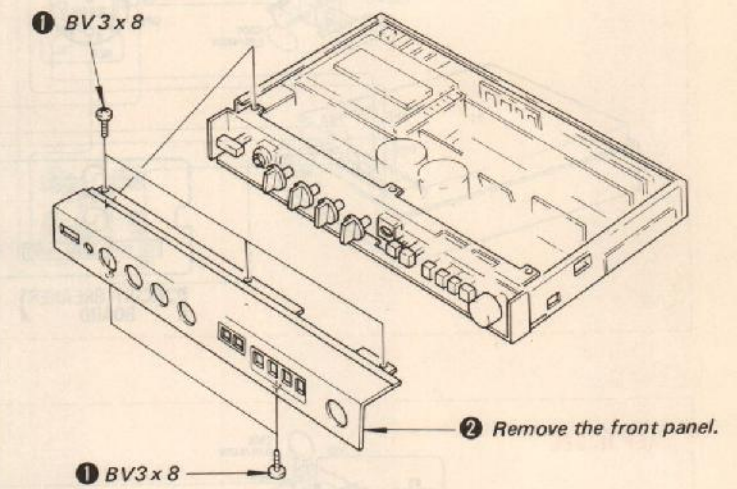
IC Board Removal



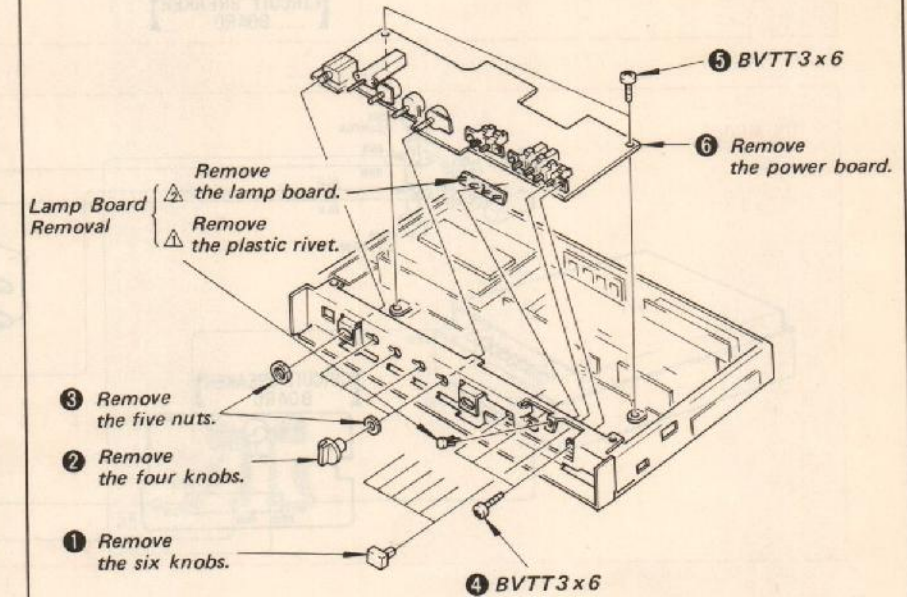
Input Board Removal



Front Panel Removal



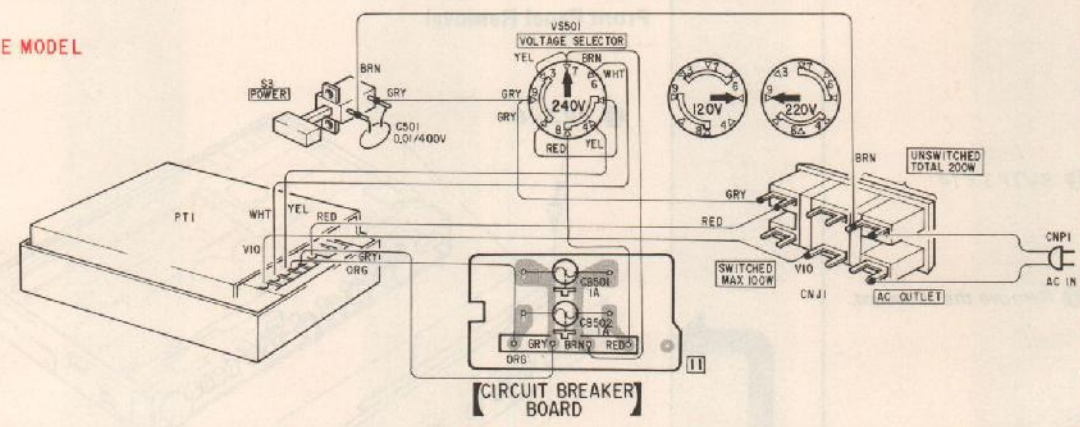
Power Board and Lamp Board Removal



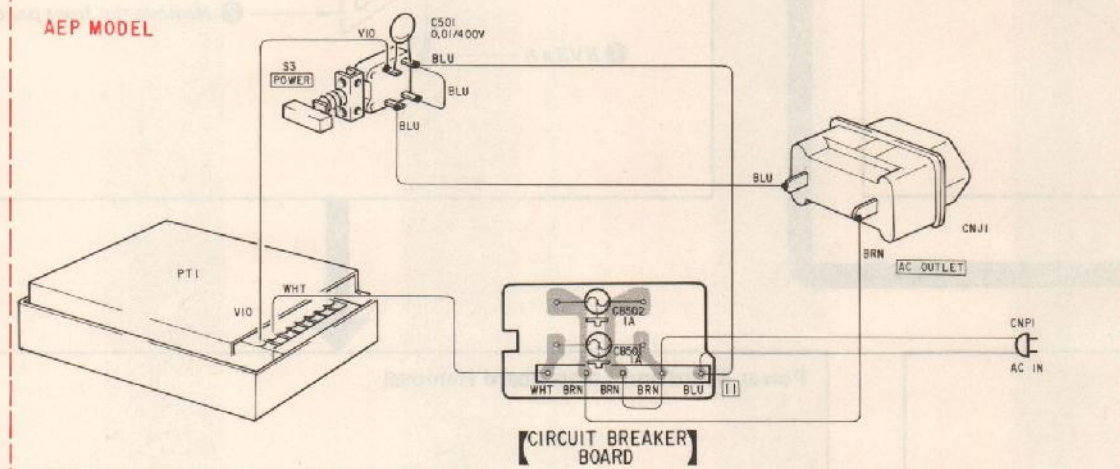
3-1. MOUNTING DIAGRAM

— Conductor Side —

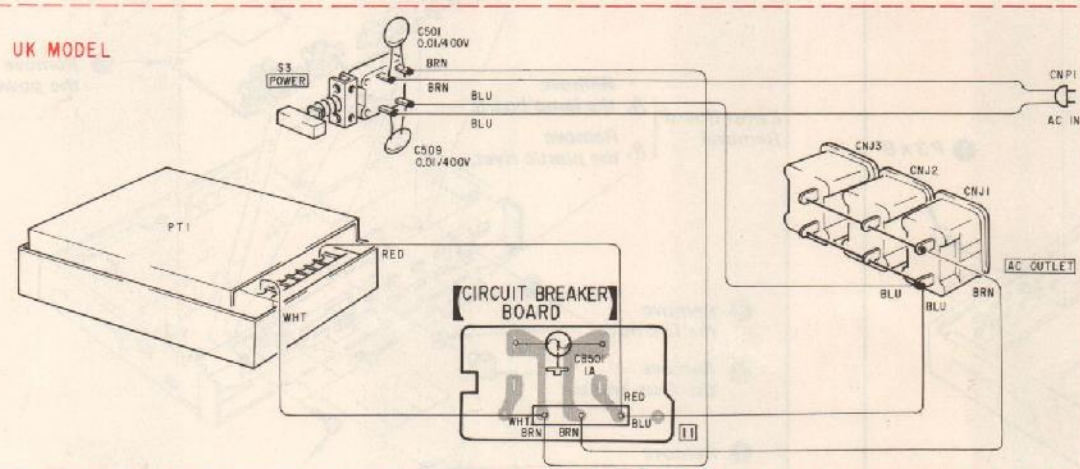
E MODEL



AEP MODEL

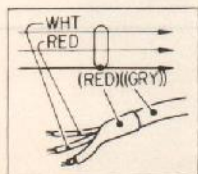


UK MODEL



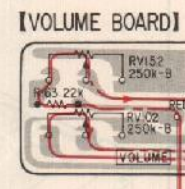
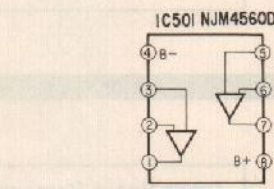
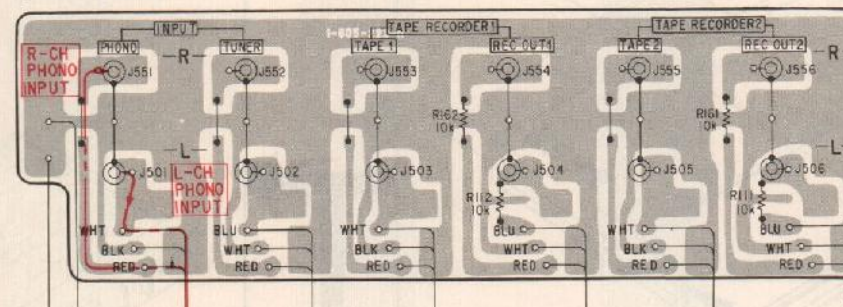
Note:

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

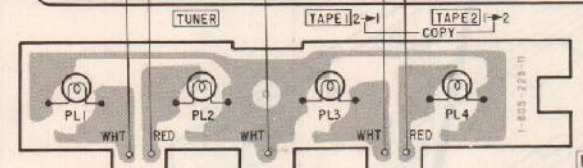


- ■ : part mounted on the conductor side.
- □ : indicates side identified with part number.
- ■ : B+ pattern
- ■ : B- pattern
- ■ : L-CH signal path
- ■ : R-CH signal path
- ■ : MELF components

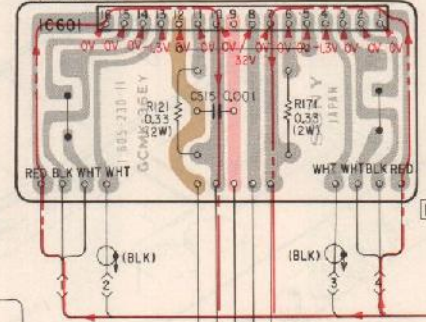
[INPUT BOARD]



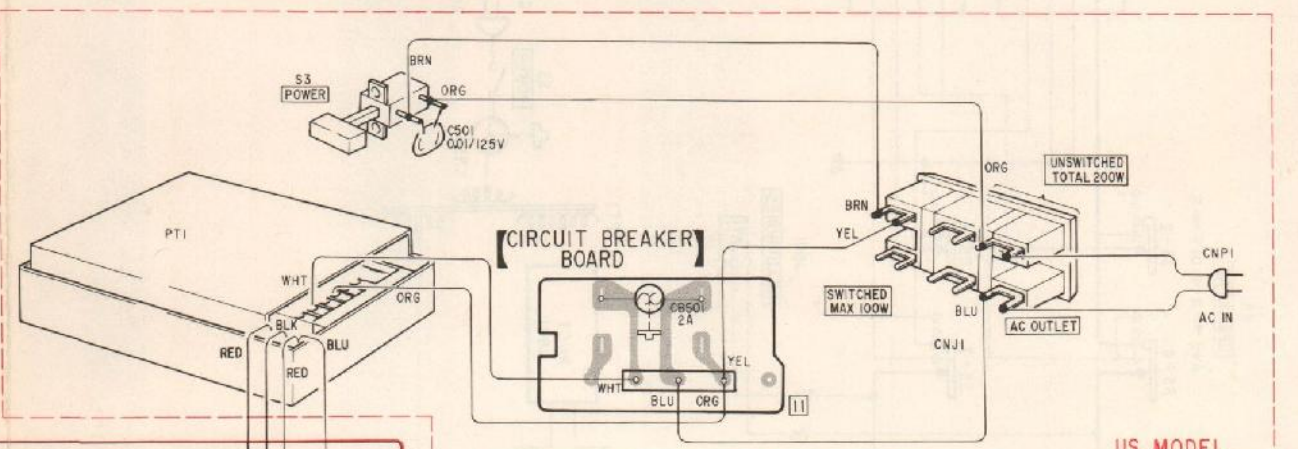
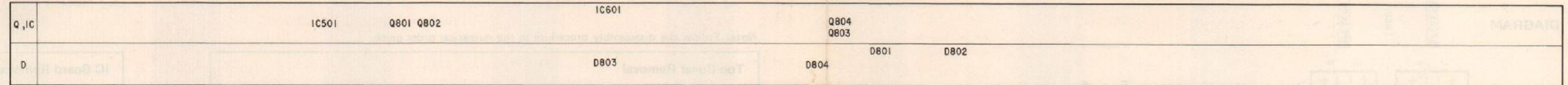
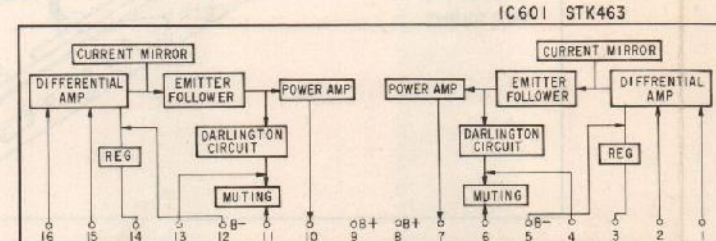
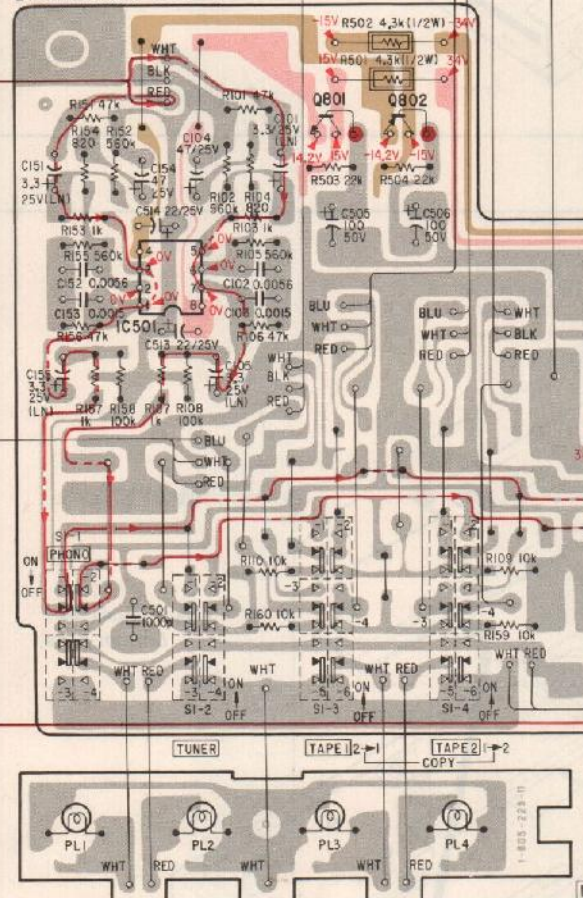
[LAMP BOARD]



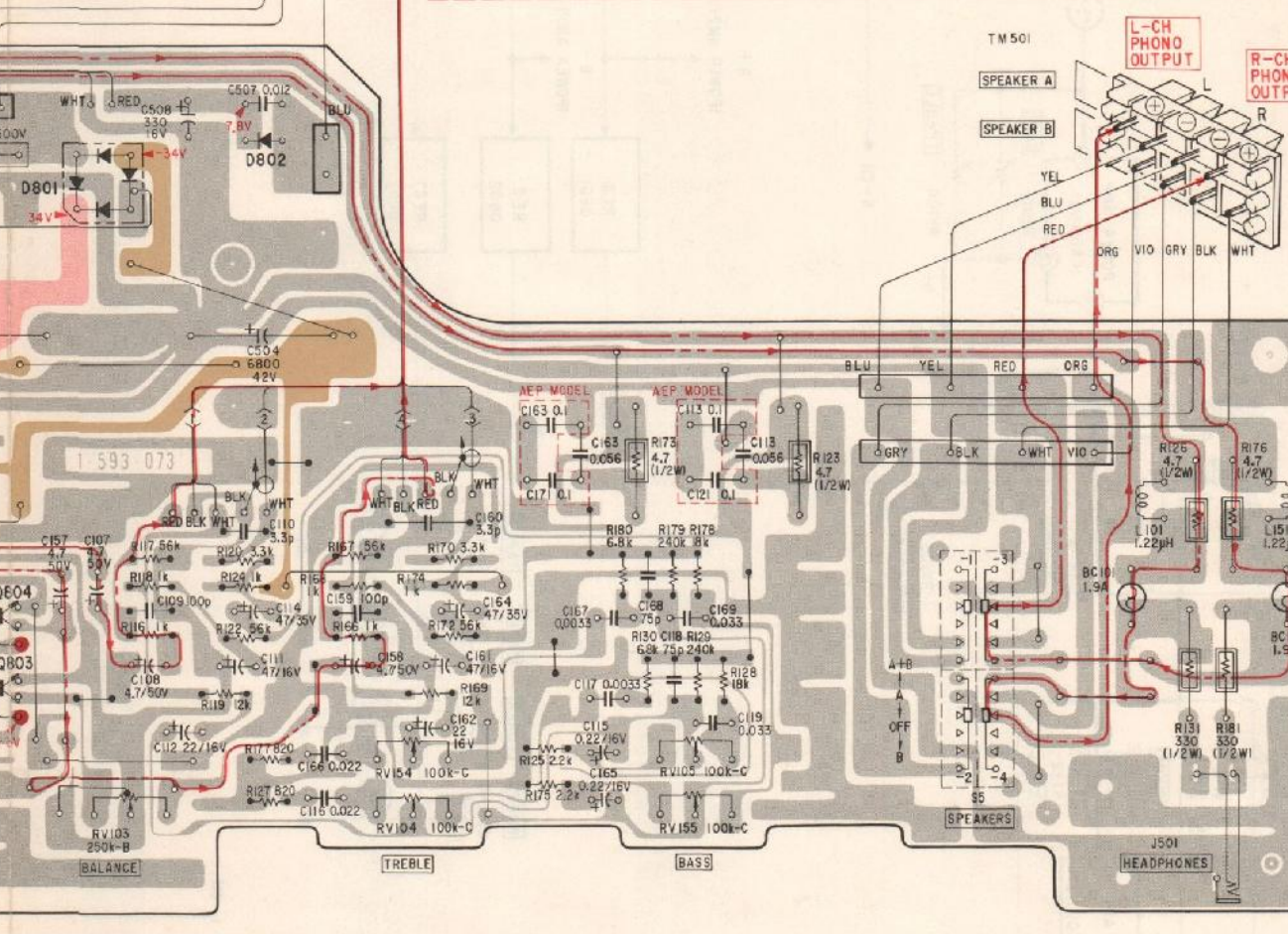
[IC BOARD]



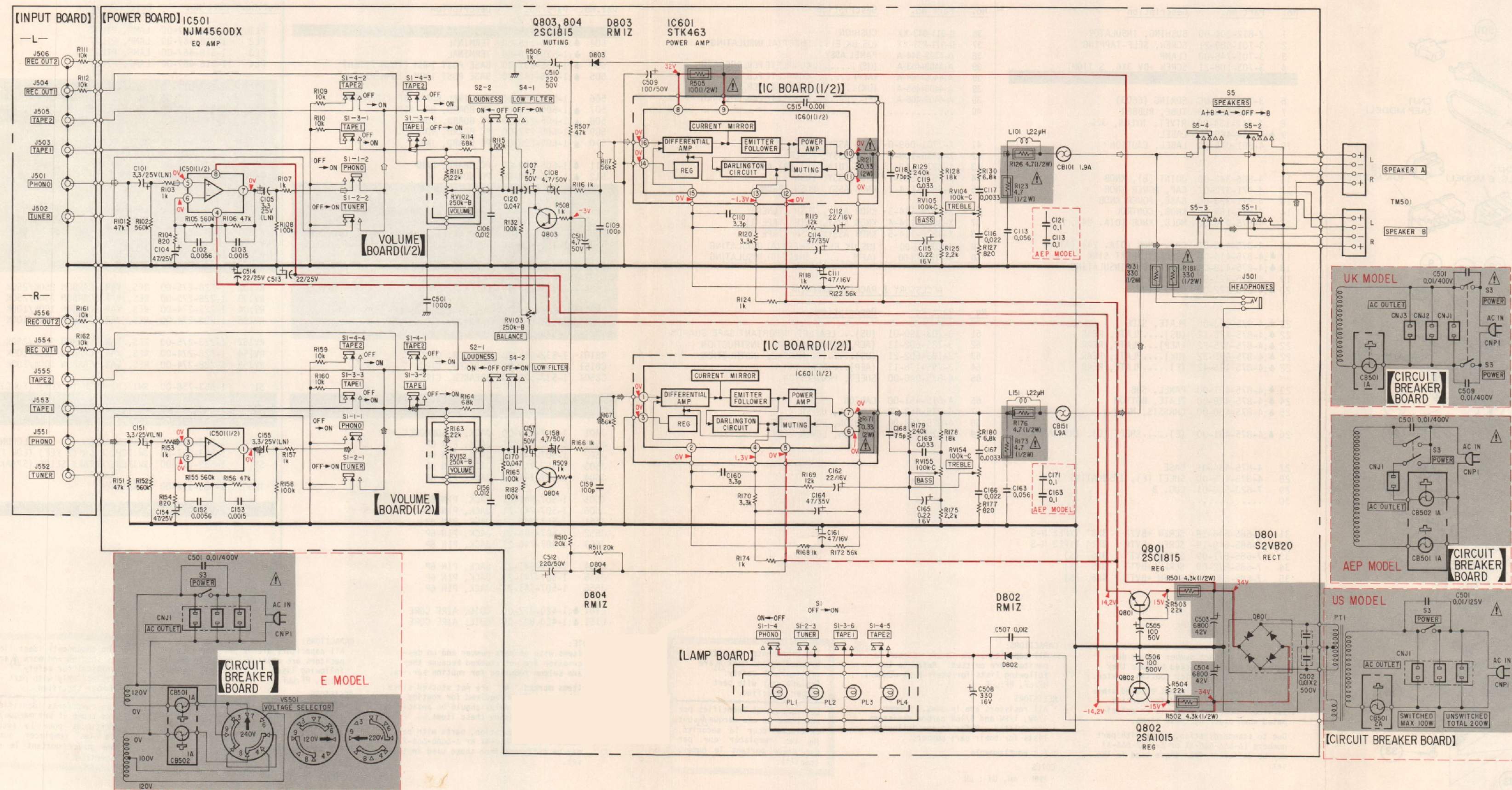
[POWER AMP BOARD]



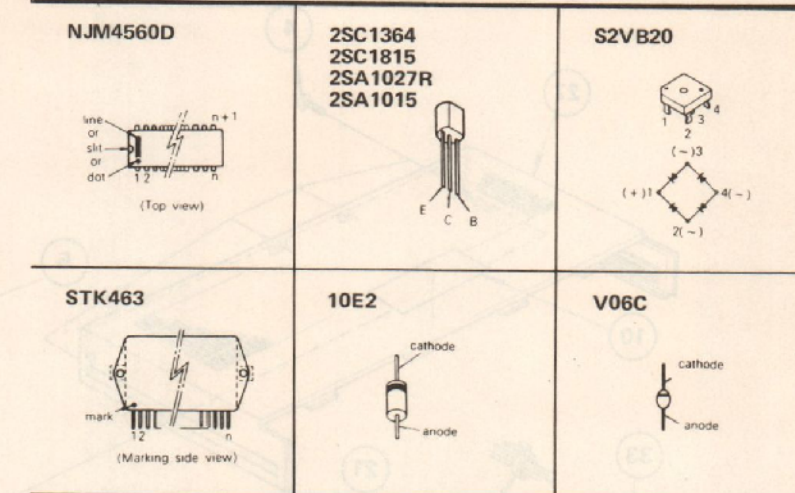
US MODEL



3-2. SCHEMATIC DIAGRAM



Semiconductor Lead Layouts



Note:

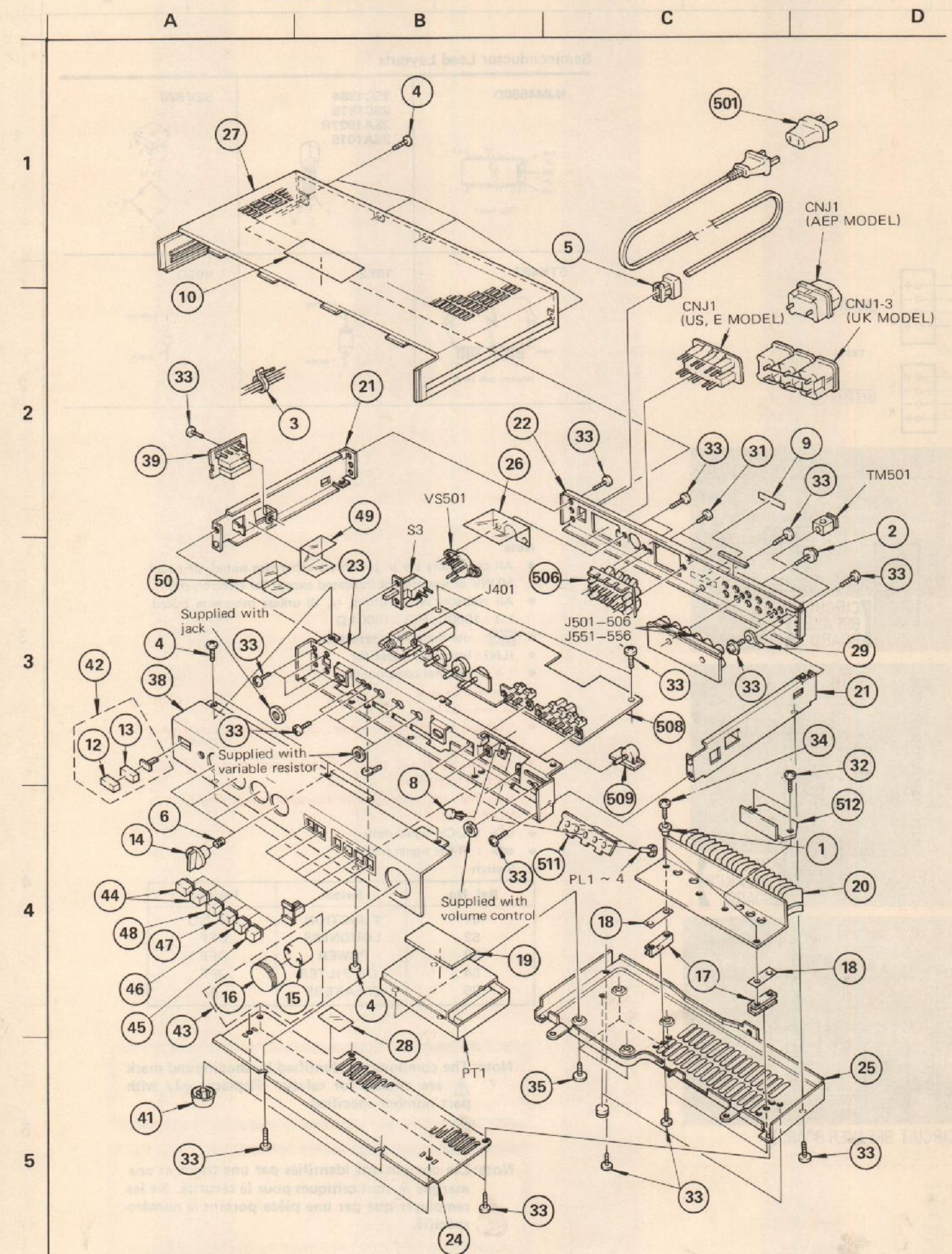
- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, $\frac{1}{4}$ W unless otherwise noted. $\text{k}\Omega$: 1000 Ω ; $\text{M}\Omega$: 1000 $\text{k}\Omega$.
- $\square$: nonflammable resistor.
- (LN): low-noise capacitor.
- Δ : internal component.
- : B+ bus.
- : B- bus.
- Voltage variations may be noted due to normal production tolerances.
- Readings are taken under no-signal conditions with a VOM (20 $\text{k}\Omega/\text{V}$).
- $\rightarrow$: L-CH signal path
- $\rightarrow$: R-CH signal path
- Switch

Ref. No.	Switch	Position
S1	FUNCTION	PHONO
S2	LOUDNESS	OFF
S3	POWER	OFF
S4	LOW FILTER	OFF
S5	SPEAKERS	A

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

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

SECTION 4
EXPLODED VIEWS & PARTS LIST



GENERAL SECTION				
No.	Part No.	Description		
1	2-832-004-00	BUSHING, INSULATOR		
2	3-701-589-21	SCREW, SELF-TAPPING		
3	3-701-748-00	CLAMP		
4	3-703-108-21	SCREW +BV 3X6, S TIGHT		
5	3-703-244-00	BUSHING, CORD		
6	3-703-466-00	SPRING (6600)		
7	3-886-569-00	TUBE, RUBBER		
8	4-812-134-00	RIVET, NYLON, 3.5		
9	4-844-449-00	LABEL		
10	4-861-045-00	LABEL, CAUTION		
11	4-866-342-00	JOINT (B), KNOB		
12	4-871-322-01	CAP, POWER KNOB		
13	4-871-323-00	BASE, POWER KNOB		
14	4-875-152-00	KNOB, CONTROL		
15	4-875-414-00	MOLD, KNOB (DIA. 24), R		
16	4-875-415-01	CAP, KNOB (DIA. 24) (A), R		
17	4-875-416-00	BRACKET, HEAT SINK		
18	4-875-419-00	SHEET (B), INSULATING		
19	4-875-421-00	CUSHION (A)		
20	4-875-422-00	HEAT SINK		
21	4-875-423-00	PLATE, SIDE		
22	4-875-425-12	(US)...PLATE, REAR		
22	4-875-425-22	(AEP)...PLATE, REAR		
22	4-875-425-32	(UK)...PLATE, REAR		
22	4-875-425-42	(E)...PLATE, REAR		
23	4-875-427-00	PANEL, SUB		
24	4-875-428-00	PLATE, BOTTOM		
25	4-875-430-00	CHASSIS, MAIN		
26	4-875-431-00	(E)...SHEET (C), INSULATING		
27	4-875-434-01	CASE		
28	4-875-435-00	SHEET (E), INSULATING		
29	7-623-508-01	LUG, 3		
30				
31	7-685-646-19	SCREW +BVTP	3X8	TYPE2 N-S
32	7-685-649-19	SCREW +BVTP	3X14	TYPE2 N-S
33	7-685-871-09	SCREW +BVTT	3X6	(S)
34	7-685-872-09	SCREW +BVTT	3X8	(S)
35	7-685-880-09	SCREW +BVTT	4X6	(S)

NOTE:
• Items with no part number and no description are not stocked because they are seldom required for routine service.
• Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
• Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
• All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μuF.
RESISTORS
• All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
• F : nonflammable
COILS
• MMH : mH, UH : μH

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.
Les composants identifiés par une trame et une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

GENERAL SECTION		
No.	Part No.	Description
36	9-911-843-XX	CUSHION
37	9-911-863-XX	(US, UK, E) ... SHEET (A), INSULATING
38	A-4322-344-A	PANEL ASSY
39	A-4409-463-A	(US) COMPLETE PCB, BREAKER
39	A-4409-464-A	(AEP) COMPLETE PCB, BREAKER
39	A-4409-465-A	(UK) COMPLETE PCB, BREAKER
39	A-4409-466-A	(E) COMPLETE PCB, BREAKER
40		
41	X-3701-069-0	FOOT ASSY, M.F
42	X-4875-108-0	KNOB ASSY, POWER
43	X-4875-113-1	KNOB (DIA. 24) (A) ASSY, R
44	X-4875-114-1	KNOB ASSY, PUSH
45	X-4875-114-2	KNOB ASSY, PUSH (PHONO)
46	X-4875-114-3	KNOB ASSY, PUSH (TUNER)
47	X-4875-114-4	KNOB ASSY, PUSH (TAPE 1)
48	X-4875-114-5	KNOB ASSY, PUSH (TAPE 2)
49	4-875-432-00	(US, UK, E) ... SHEET (A), INSULATING
50	4-875-433-00	(AEP) SHEET (D), INSULATING
ACCESSORY & PACKING MATERIAL		
61	3-703-390-01	(US)... LEAFLET, IMPORTANT SAFE GUARDS
62	3-783-602-11	(AEP, UK, E)...MANUAL, INSTRUCTION
63	3-783-602-21	(US).....MANUAL, INSTRUCTION
64	3-795-176-11	(AEP)...LEAFLET
65	4-875-040-00	SHEET, PROTECTION
66	4-875-451-00	CARTON
67	4-875-452-00	CUSHION, UPPER
68	4-875-453-00	CUSHION, LOWER LEFT
69	4-875-454-00	CUSHION, LOWER RIGHT

ELECTRICAL PARTS		
Ref.No.	Part No.	Description
501	▲1-526-565-00	(E)...AC PLUG ADAPTER
502	▲1-535-115-00	TERMINAL
503	▲1-535-116-00	TERMINAL
504	▲1-535-137-00	BASE POST 14MM (10MM PITCH)
505	▲1-535-141-00	BASE POST 19MM (10MM PITCH)
506	1-536-669-00	TERMINAL BOARD BP (SPEAKER)
507	▲1-605-225-00	PC BOARD, BREAKER
508	▲1-605-226-00	PC BOARD, POWER
509	▲1-605-227-00	PC BOARD, VOLUME
510	▲1-605-228-00	PC BOARD, INPUT
511	▲1-605-229-00	PC BOARD, LAMP
512	▲1-605-230-00	PC BOARD, IC
513	▲1-551-628-21	(US, E) CORD, POWER
513	▲1-551-908-11	(AEP) CORD, POWER
513	▲1-555-001-00	(UK) CORD, POWER
C501	▲1-161-744-00	(AEP, UK, E)...CAP, CERAMIC 0.01/400V
C501	▲1-161-749-00	(US).....CAP, CERAMIC 0.01/125V
C502	▲1-102-355-00	CERAMIC 0.01MFx2 99% 500V
C503	▲1-125-264-00	ELECT 6800MF 20% 42V
C504	▲1-125-264-00	ELECT 6800MF 20% 42V
CNJ1	▲1-526-574-00	(US, E)...AC-OUTLET, 3P
CNJ1	▲1-526-694-00	(AEP)...AC-OUTLET
▲CNJ1-3	▲1-526-636-00	(UK)...AC-OUTLET
CB101	1-532-566-00	BREAKER, CIRCUIT
CB151	1-532-566-00	BREAKER, CIRCUIT
CB501	1-532-520-00	BREAKER, CIRCUIT
CB501	▲1-532-535-00	(AEP, UK, E)...BREAKER, CIRCUIT
CB502	▲1-532-535-00	(AEP, E)...BREAKER, CIRCUIT
J401	1-507-659-00	JACK, HEADPHONES
J501	1-507-746-21	JACK, PIN 6P
J502	1-507-746-21	JACK, PIN 6P
J503	1-507-746-21	JACK, PIN 6P
J504	1-507-741-21	JACK, PIN 6P
J505	1-507-741-21	JACK, PIN 6P
J506	1-507-741-21	JACK, PIN 6P
J551	1-507-746-21	JACK, PIN 6P
J552	1-507-746-21	JACK, PIN 6P
J553	1-507-746-21	JACK, PIN 6P
J554	1-507-741-21	JACK, PIN 6P
J555	1-507-741-21	JACK, PIN 6P
J556	1-507-741-21	JACK, PIN 6P
L101	▲1-420-872-00	COIL, AIRE CORE
L151	▲1-420-872-00	COIL, AIRE CORE

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Les composants identifiés par une trame et une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS		
Ref.No.	Part No.	Description
PL1	1-518-467-00	LAMP, PILOT
PL2	1-518-467-00	LAMP, PILOT
PL3	1-518-467-00	LAMP, PILOT
PL4	1-518-467-00	LAMP, PILOT
PT1	▲1-447-013-00	(US).....TRANSFORMER, POWER
PT1	▲1-447-014-00	(AEP).....TRANSFORMER, POWER
PT1	▲1-447-015-00	(UK).....TRANSFORMER, POWER
PT1	▲1-447-016-00	(E).....TRANSFORMER, POWER
R121	1-217-152-00	METAL PLATE 0.33 2W
R123	▲1-247-188-00	CARBON 4.7 5% 1/2W F
R126	▲1-247-188-00	CARBON 4.7 5% 1/2W F
R131	▲1-247-228-00	CARBON 330 5% 1/2W F
R171	1-217-152-00	METAL PLATE 0.33 2W
R173	▲1-247-188-00	CARBON 4.7 5% 1/2W F
R176	▲1-247-188-00	CARBON 4.7 5% 1/2W F
R181	▲1-247-228-00	CARBON 330 5% 1/2W F
R501	▲1-247-255-00	CARBON 4.3K 5% 1/2W F
R502	▲1-247-255-00	CARBON 4.3K 5% 1/2W F
R505	▲1-247-216-00	CARBON 100 5% 1/2W F
RV102	1-228-275-00	RES, VAR, CARBON 250K/250K (VOLUME)
RV103	1-228-273-00	RES, VAR, CARBON 250K/250K (BALANCE)
RV104	1-228-274-00	RES, VAR, CARBON 100K/100K (TREBLE)
RV105	1-228-274-00	RES, VAR, CARBON 100K/100K (BASS)
RV152	1-228-275-00	RES, VAR, CARBON 250K/250K (VOLUME)
RV154	1-228-274-00	RES, VAR, CARBON 100K/100K (TREBLE)
RV155	1-228-274-00	RES, VAR, CARBON 100K/100K (BASS)
S1	1-553-758-00	SWITCH, PUSH (4 KEY) (FUNCTION)
S3	▲1-553-318-00	(E).....SWITCH, PUSH AC POWER
S3	▲1-553-319-00	(US).....SWITCH, PUSH AC POWER
S3	▲1-553-447-00	(AEP, UK).....SWITCH, PUSH AC POWER
S3	1-553-756-00	SWITCH, PUSH (LOUDNESS)
S4	1-553-757-00	SWITCH, PUSH (2 KEY) (LOW FILTER)
S5	1-553-724-00	SWITCH, ROTARY SLIDE (SPEAKERS)
TM501	1-535-132-00	TERMINAL
VS501	▲1-526-576-31	(E)...SELECTOR, POWER VOLTAGE