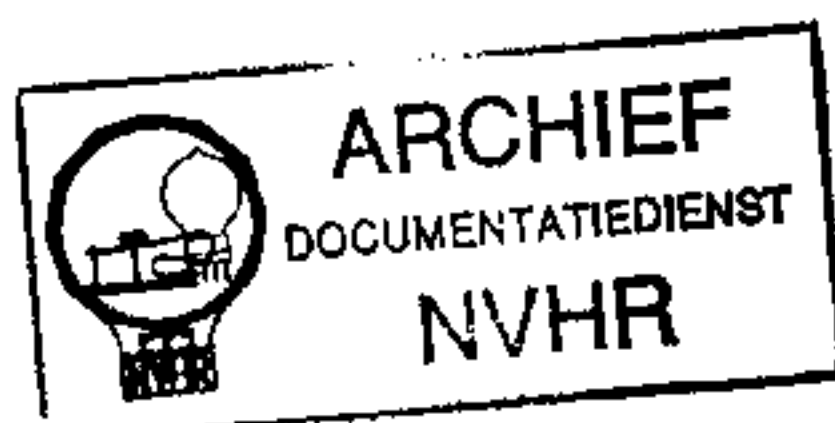


Met dank aan A.R.A. van Rossum
Ned. Ver. v. Historie v/d Radio



TA-AX22

*Canadian Model
AEP Model
UK Model
E Model*



INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

Amplifier section

Continuous RMS power output

(both channels driven simultaneously)

At 1 kHz (Less than 0.01% THD)

35 + 35 watts (8 ohms)

At 20 Hz - 20 kHz (Less than 0.05% THD)

30 + 30 watts (8 ohms)

According to DIN 45500

30 + 30 watts (8 ohms)

Power bandwidth (IHF)

10 Hz - 30 kHz

Dynamic headroom

1.4 dB (78 IHF)

Harmonic distortion

Less than 0.05% at rated output

Intermodulation (IM) distortion

(60 Hz - 7 kHz = 4 : 1)

Less than 0.05% at rated output

Frequency response

PHONO: RIAA equalization curve ± 0.5 dB

TUNER

DAD/AUX

TAPE 1, 2

15 Hz - 100 kHz ± 0.5 dB

Residual noise

Less than 0.8 μ V (8 ohms, network A)

Damping factor

50 (8 ohms, 1 kHz)

Inputs

	Sensitivity	Impedance	Maximum input capability (1 kHz)	S/N (weighting network, input level)
PHONO	2.5 mV	50 k Ω	150 mV	75 dB (A, 2.5 mV) 77 dB*
TUNER DAD/AUX TAPE 1, 2	150 mV	50 k Ω	—	100 dB (A, 150 mV) 85 dB*

* 78 IHF

— Continued on page 2 —

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME 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 DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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.



SONY[®]

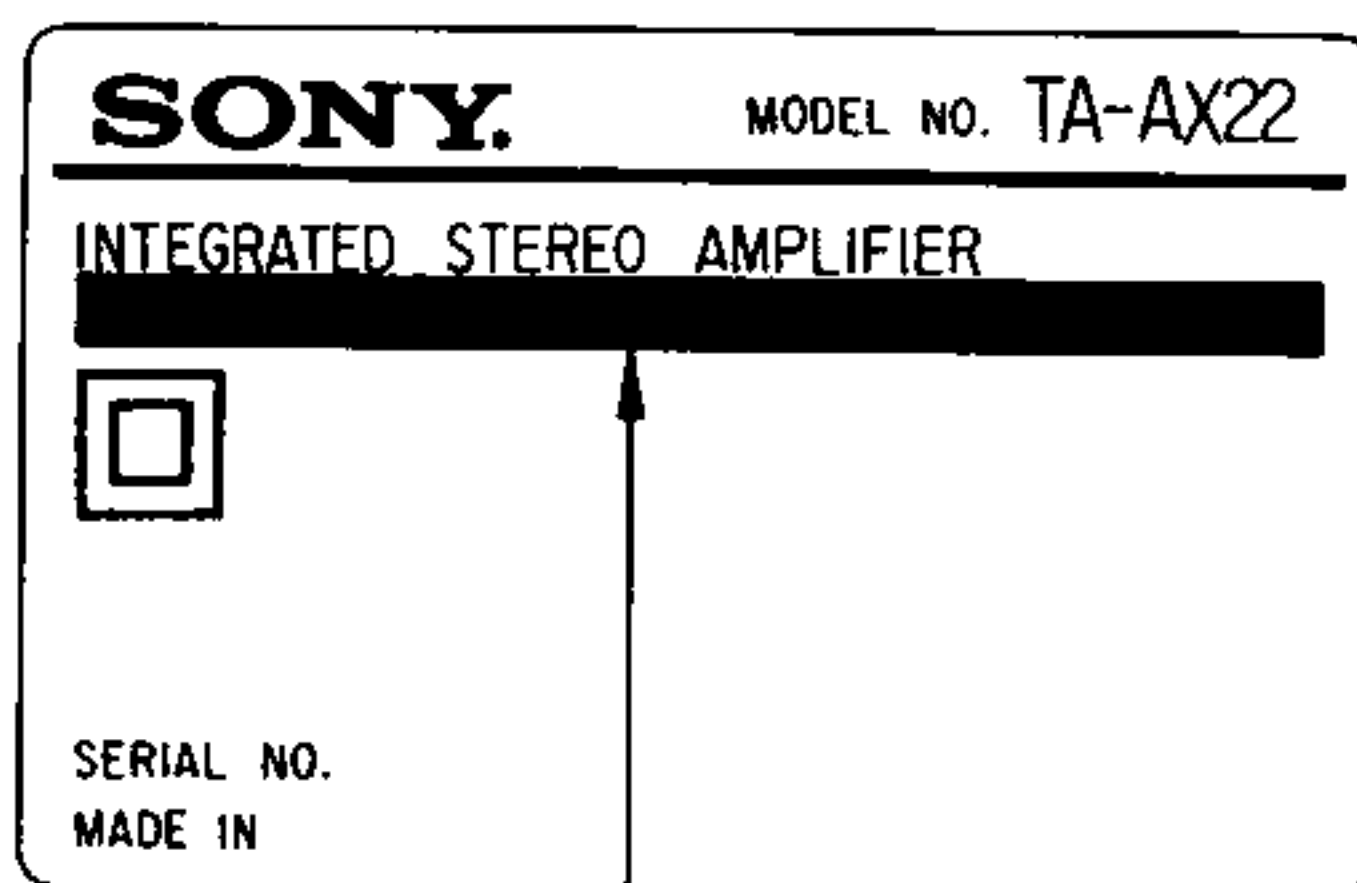
SERVICE MANUAL

Outputs	REC OUT 1, 2 Voltage 150 mV Impedance 4.7 k ohms SPEAKER A, B Accepts speakers of 8 - 16 ohms. HEADPHONES Accepts low and high impedance headphones.	AC outlets	AEP, UK model: 3 switched, total 100 watts max. E model: 2 switched, total 100 watts max. 1 switched, 100 watts max. Canadian model: 2 switched, total 100 watts max. 1 switched, 100 watts max. AEP model: Approx. 430 × 80 × 290 mm (w/h/d) (17 × 3 ¹ / ₄ × 11 ¹ / ₄ inches)
Tone controls	BASS: ±8 dB at 100 Hz TREBLE: ±8 dB at 10 kHz SOUND ENHANCER 1 + 10 dB at 80 Hz + 8 dB at 800 Hz + 10 dB at 8 kHz SOUND ENHANCER 2 + 10 dB at 80 Hz + 10 dB at 8 kHz	Dimensions	UK, E model: Approx. 430 × 80 × 280 mm (w/h/d) (17 × 3 ¹ / ₄ × 11 inches) including projecting parts and controls Canadian model: Approx. 430 × 80 × 280 mm (w/h/d) (17 × 3 ¹ / ₄ × 11 inches) AEP, UK model: Approx. 4.8 kg (10 lbs 10 oz) net Approx. 5.4 kg (11 lbs 15 oz) in shipping carton E model: Approx. 4.9 kg (10 lbs 13 oz) net Approx. 5.5 kg (12 lbs 2 oz) in shipping carton Canadian model: Approx. 4.8 kg (10 lbs 10 oz) net Approx. 5.4 kg (11 lbs 15 oz) in shipping carton
General System	Quasi-complementary SEPP power amplifier	Weight	
Power requirements	AEP model: 220 V ac (240 V ac adjustable by authorized Sony personnel), 50/60 Hz UK model: 240 V ac (220 V ac adjustable by authorized Sony personnel), 50 Hz E model: 120, 220 or 240 V ac adjustable, 50/60 Hz Canadian model: 120V ac, 60Hz		
Power consumption	AEP model 65 watts UK model 210 watts E model: 65 watts Canadian model: 110 watts		

0 dB = 0.775 V

MODEL IDENTIFICATION

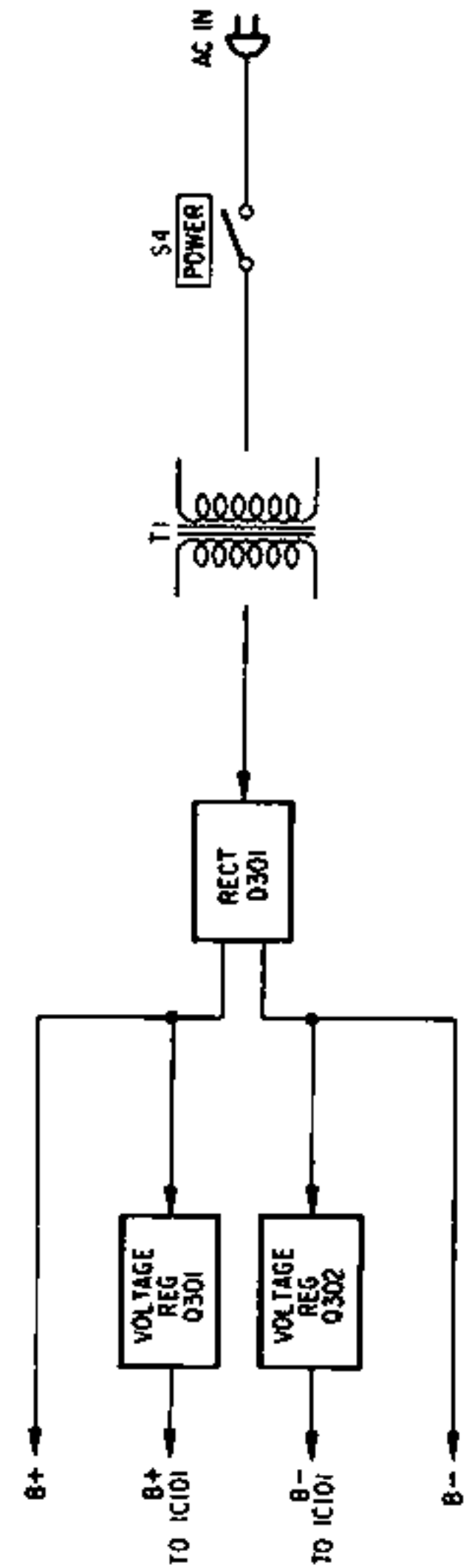
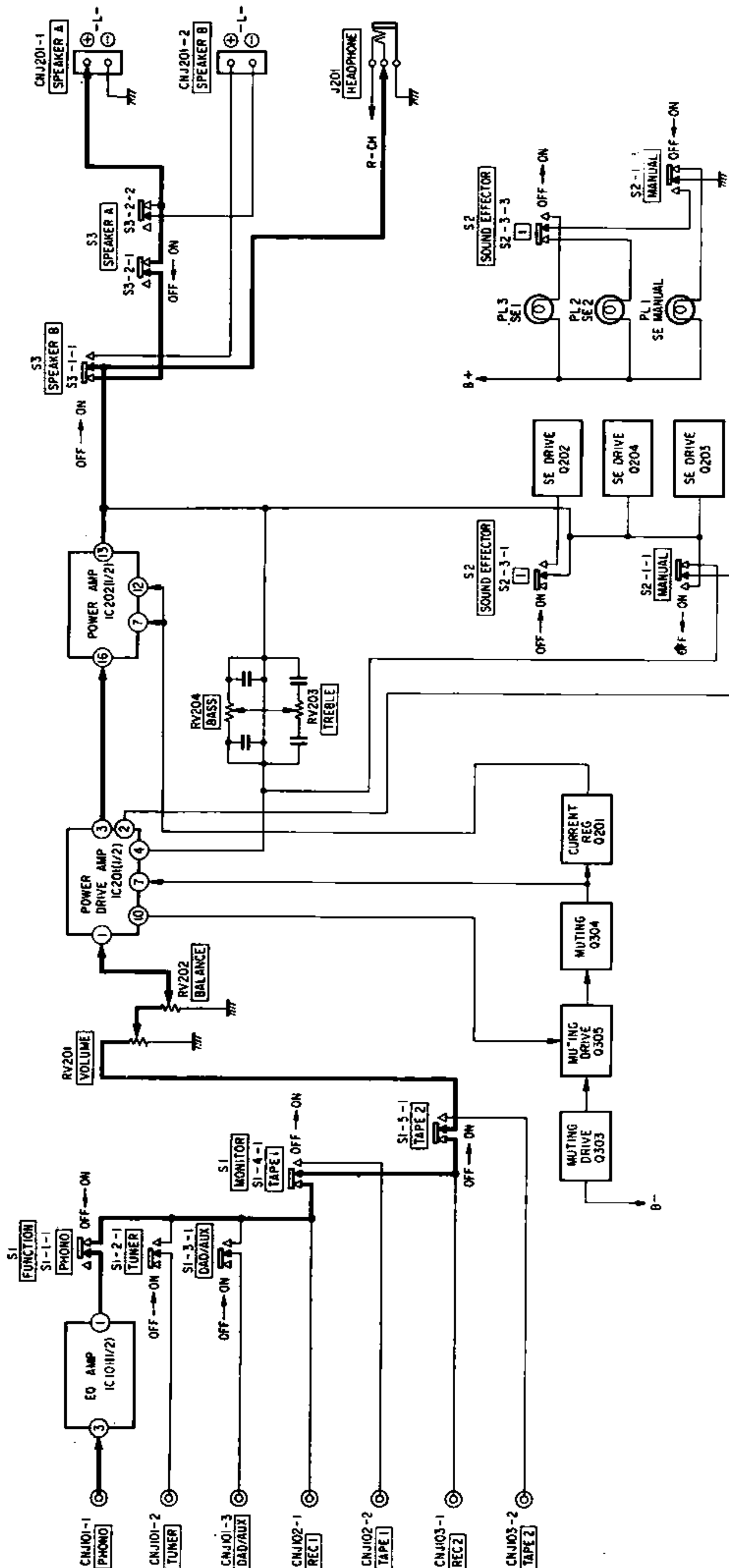
— Specification Label —



Canadian model: 120V ~ 60Hz 110W
AEP model: 220V ~ 50/60Hz 65W
UK model: 240V ~ 50/60Hz 210W
E model: 120, 220, 240V ~ 50/60Hz 65W

SECTION 1 OUTLINE

1-1. BLOCK DIAGRAM



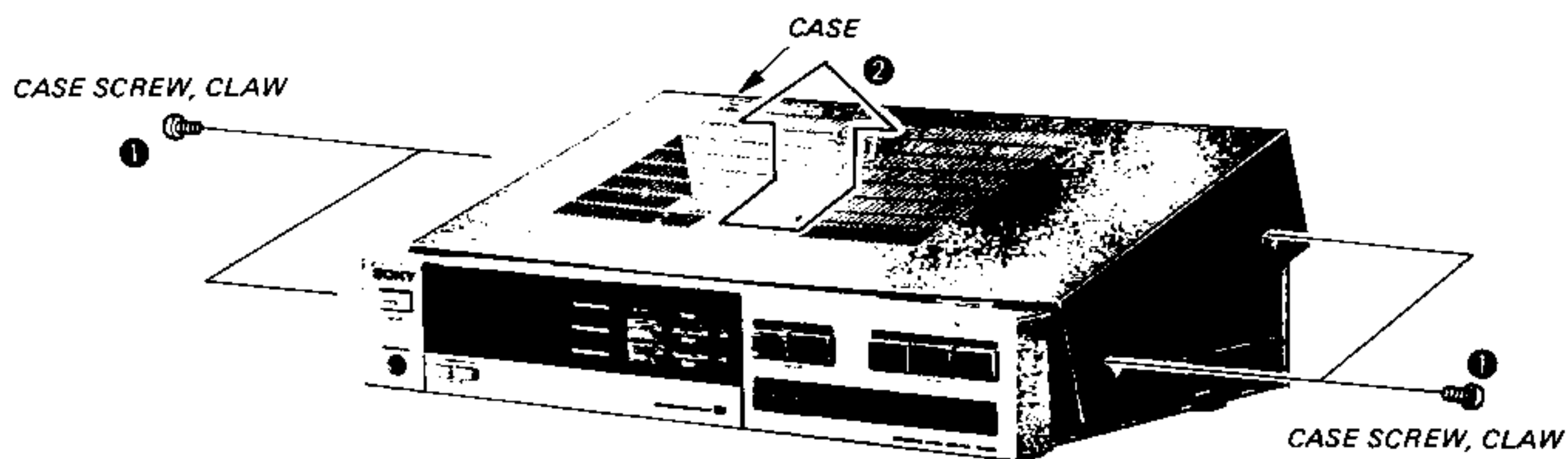
R-CH IS OMITTED

SECTION 2 DISASSEMBLY

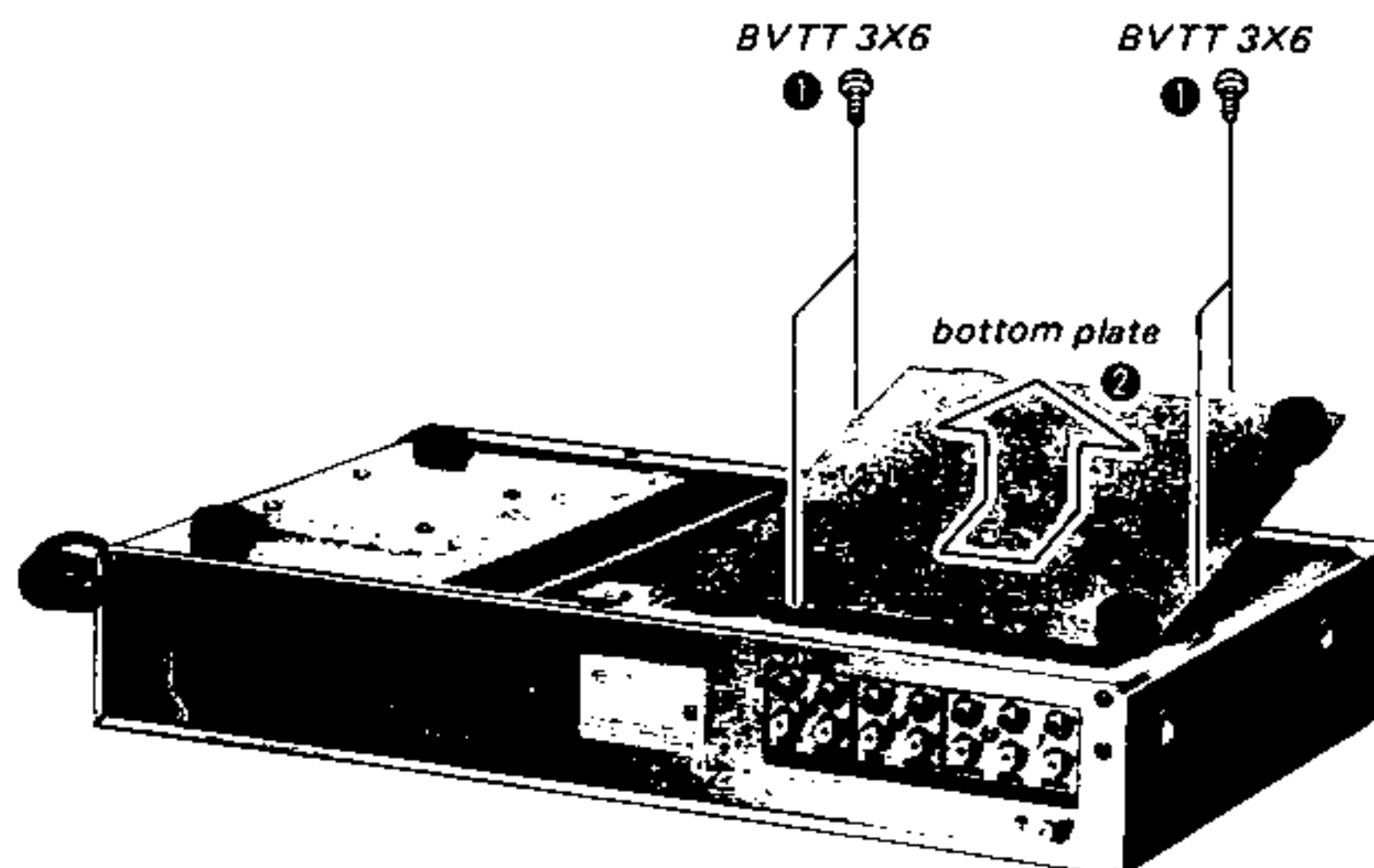
2-1. REMOVAL

- Follow the disassembly procedure in the numerical order given.

CASE



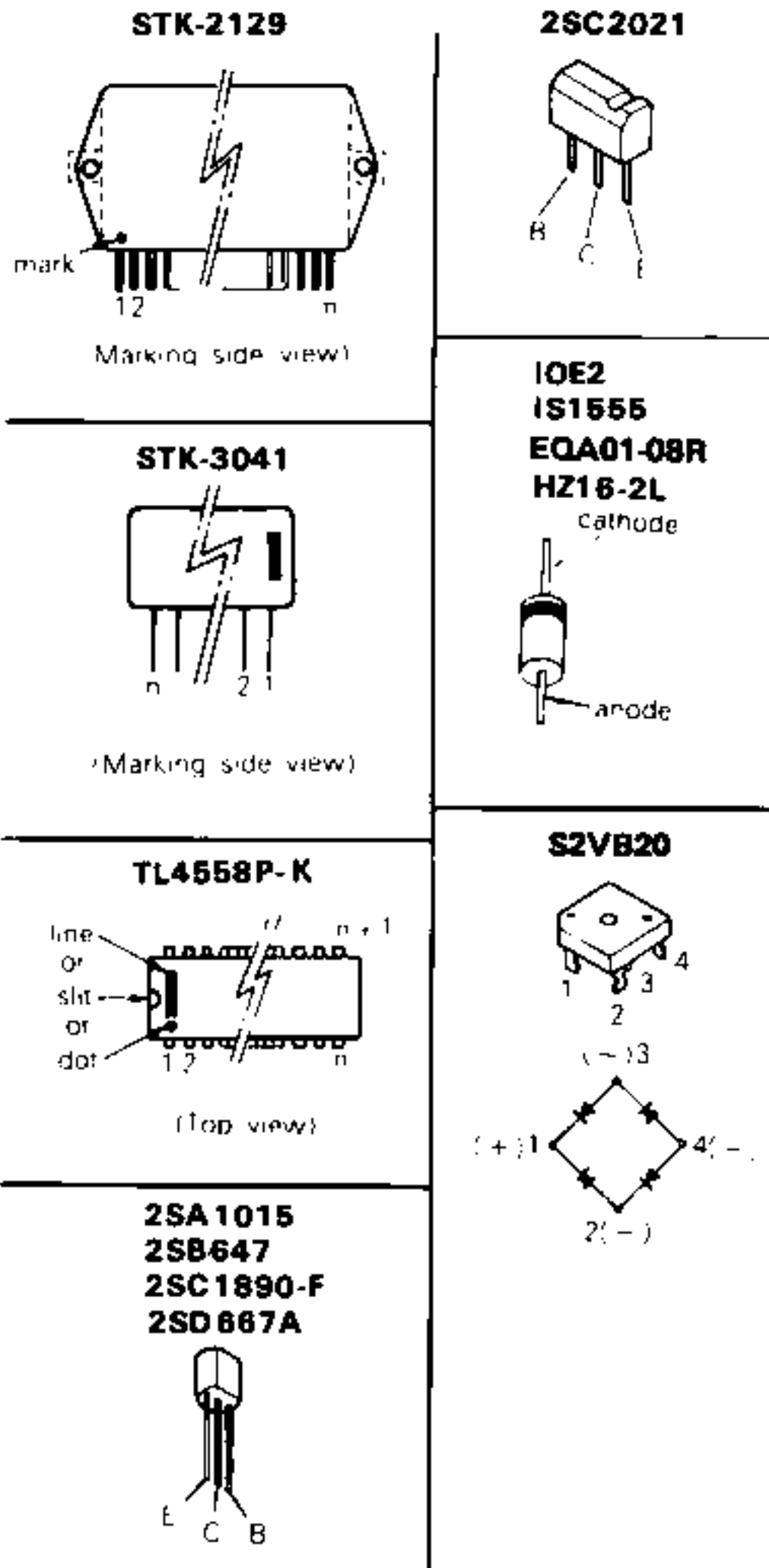
Bottom Plate



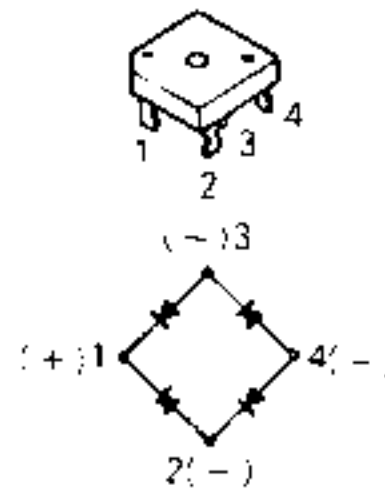
SECTION 3 DIAGRAMS

TA-AX22 TA-

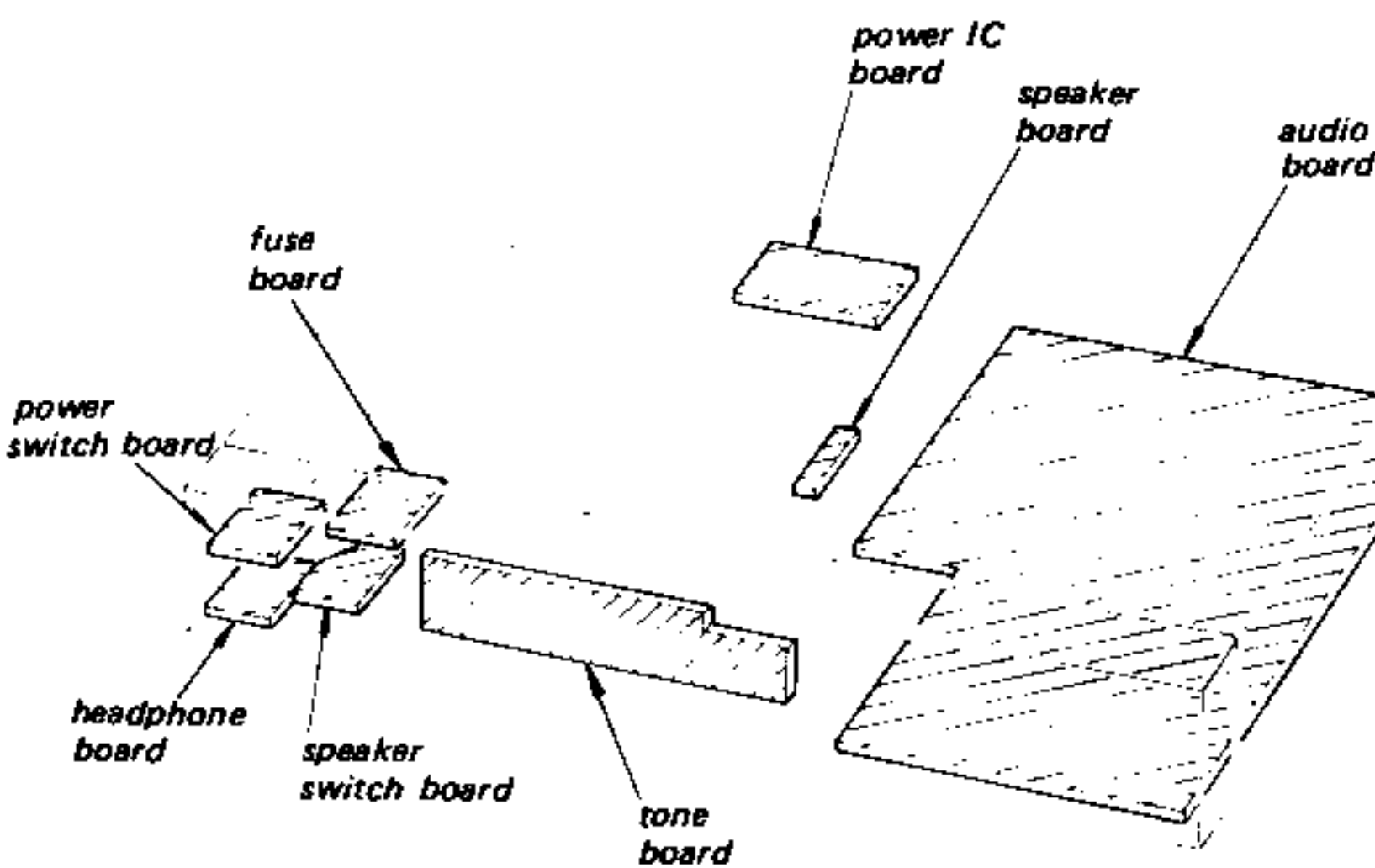
● Semiconductors Lead Layouts



S2VB20



● CIRCUIT BOARDS LOCATION



Note:

- — : parts extracted from the component side.
- : B+ pattern
- : B- pattern
- : signal path
- : L-CH signal path
- : R-CH signal path

3-1. MOUNTING DIAGRAM — Conductor Side —

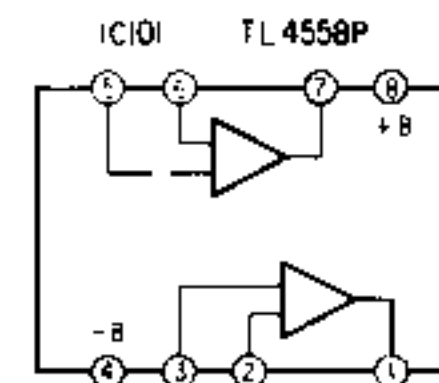
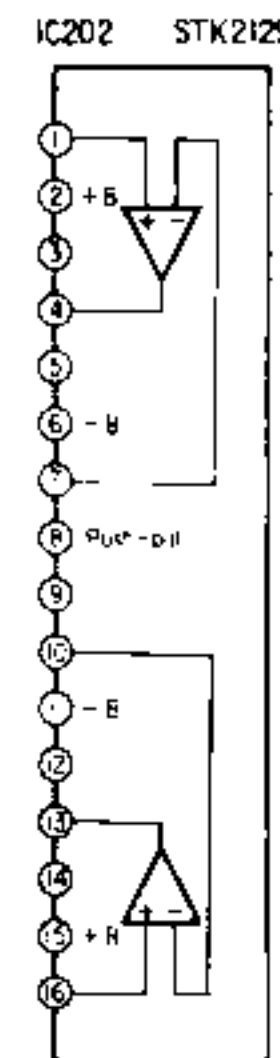
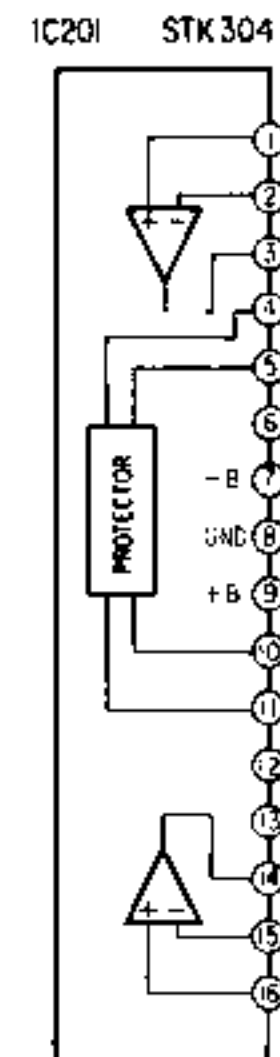
1

2

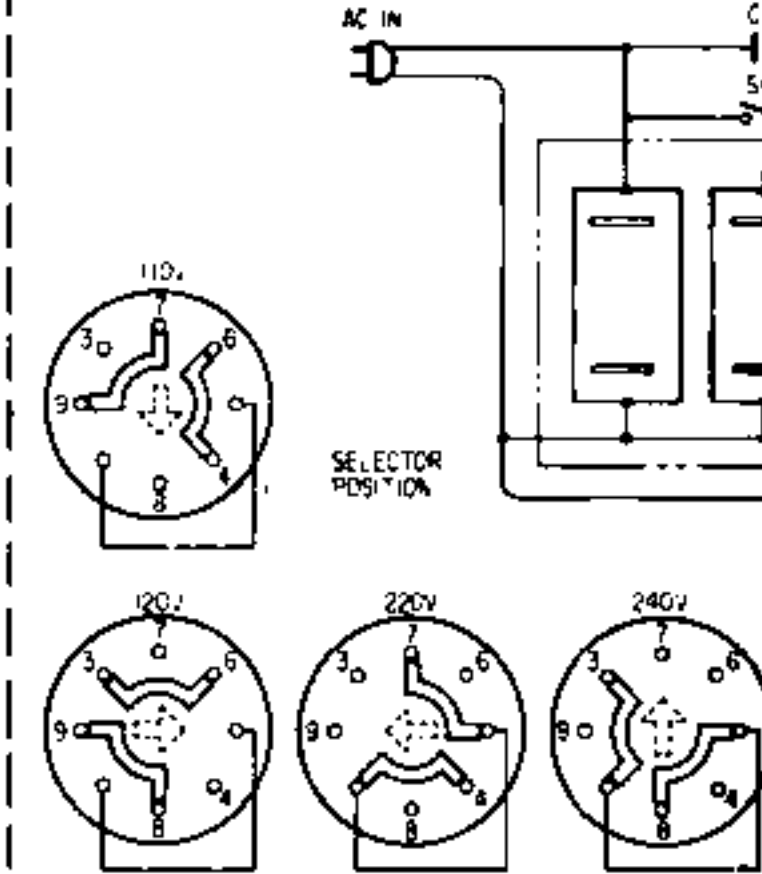
3

4

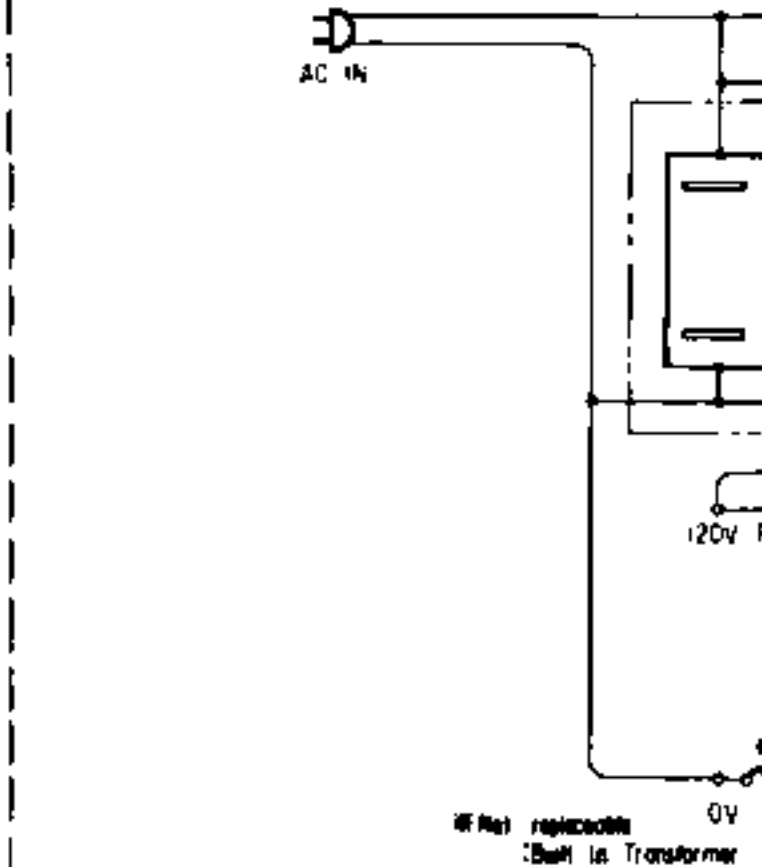
5



E MODEL



US, Canadian MODEL



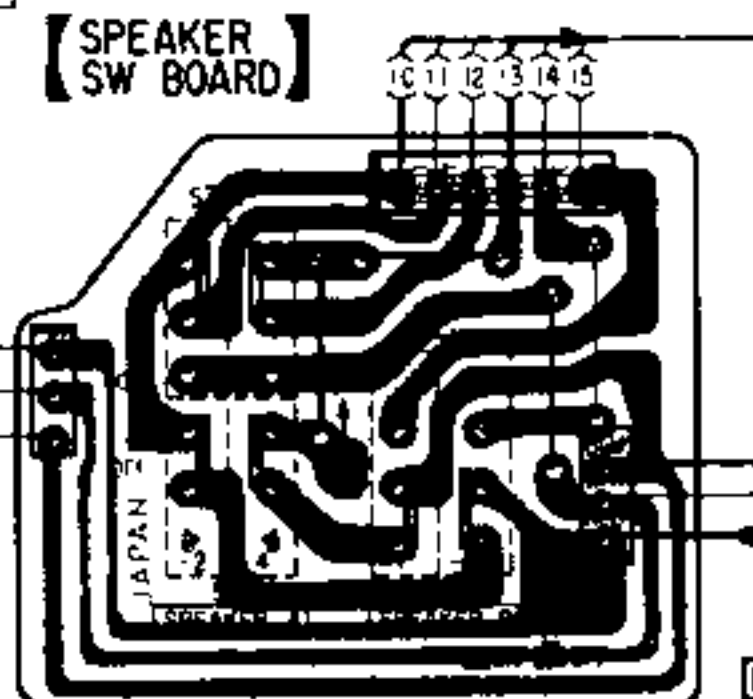
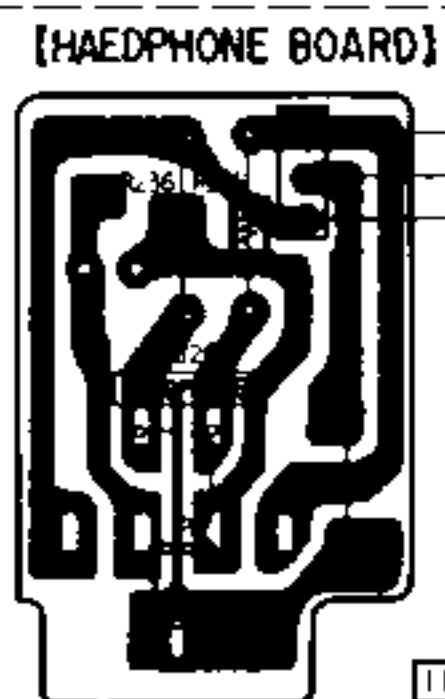
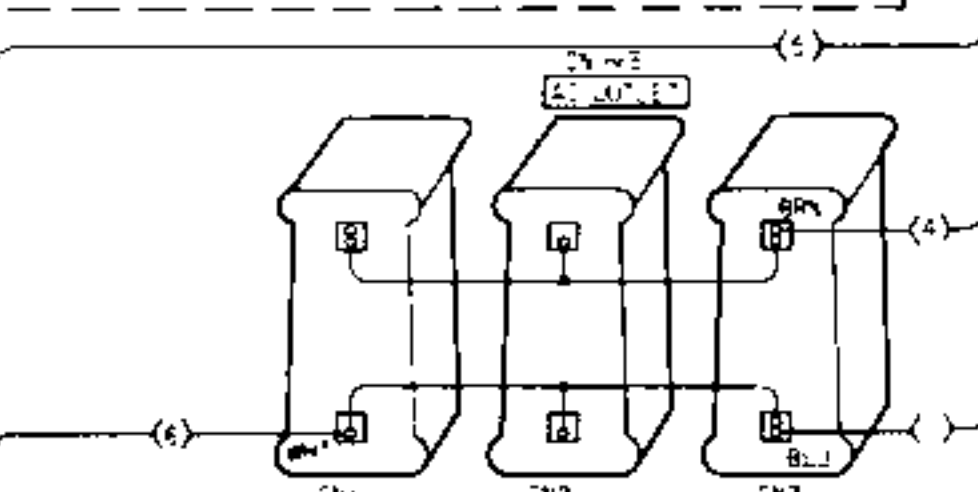
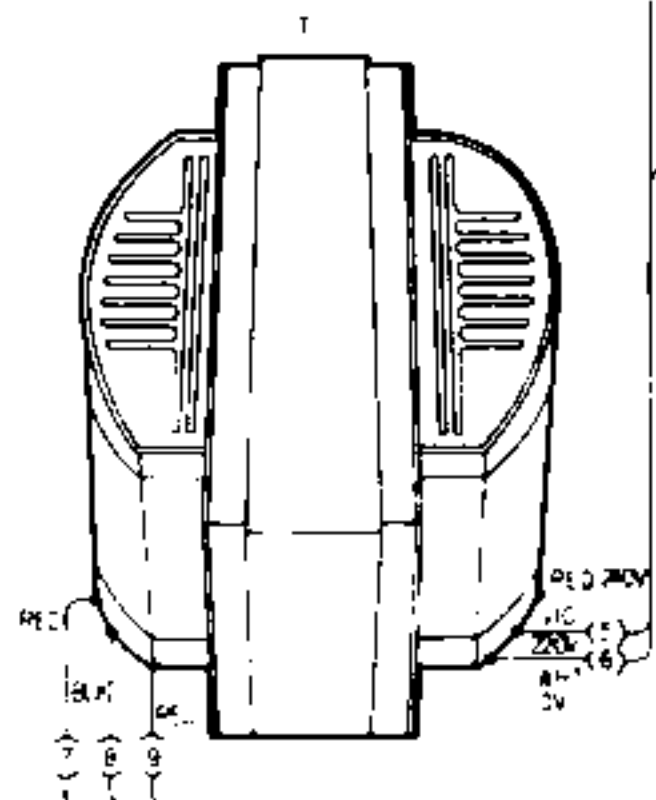
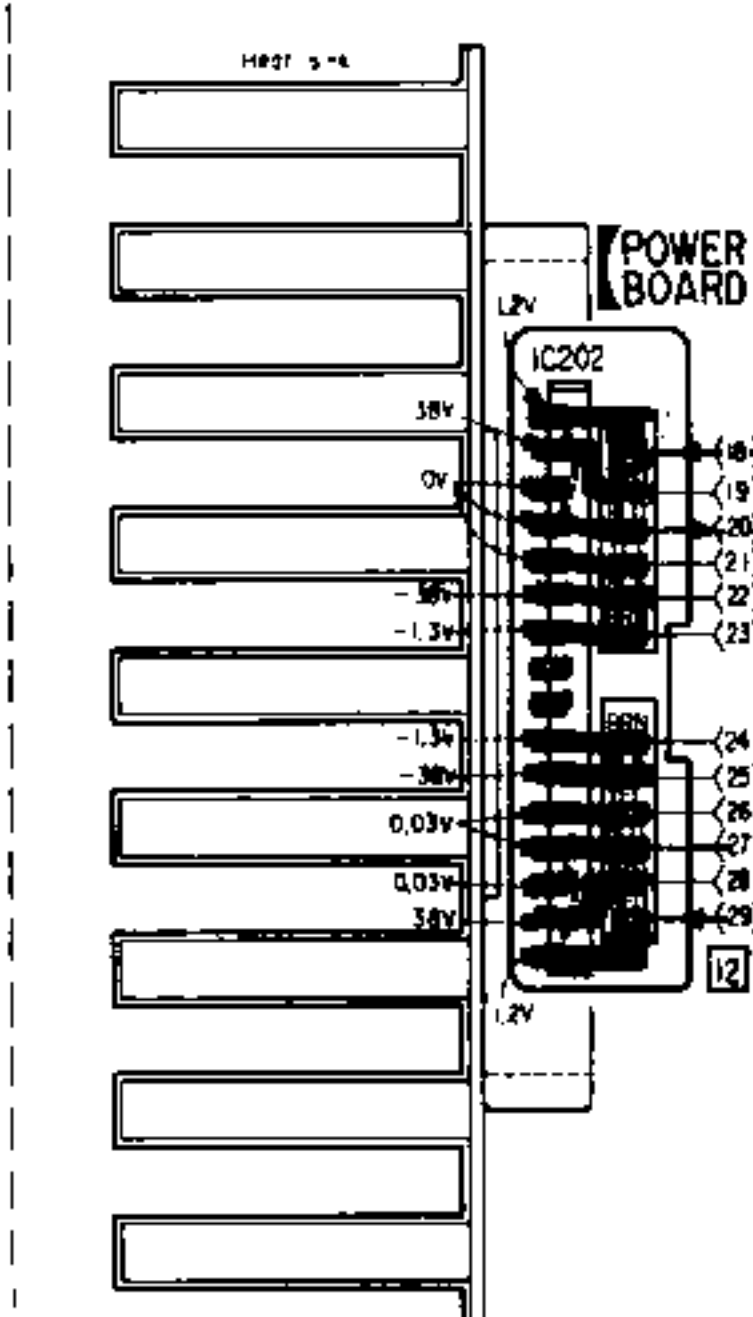
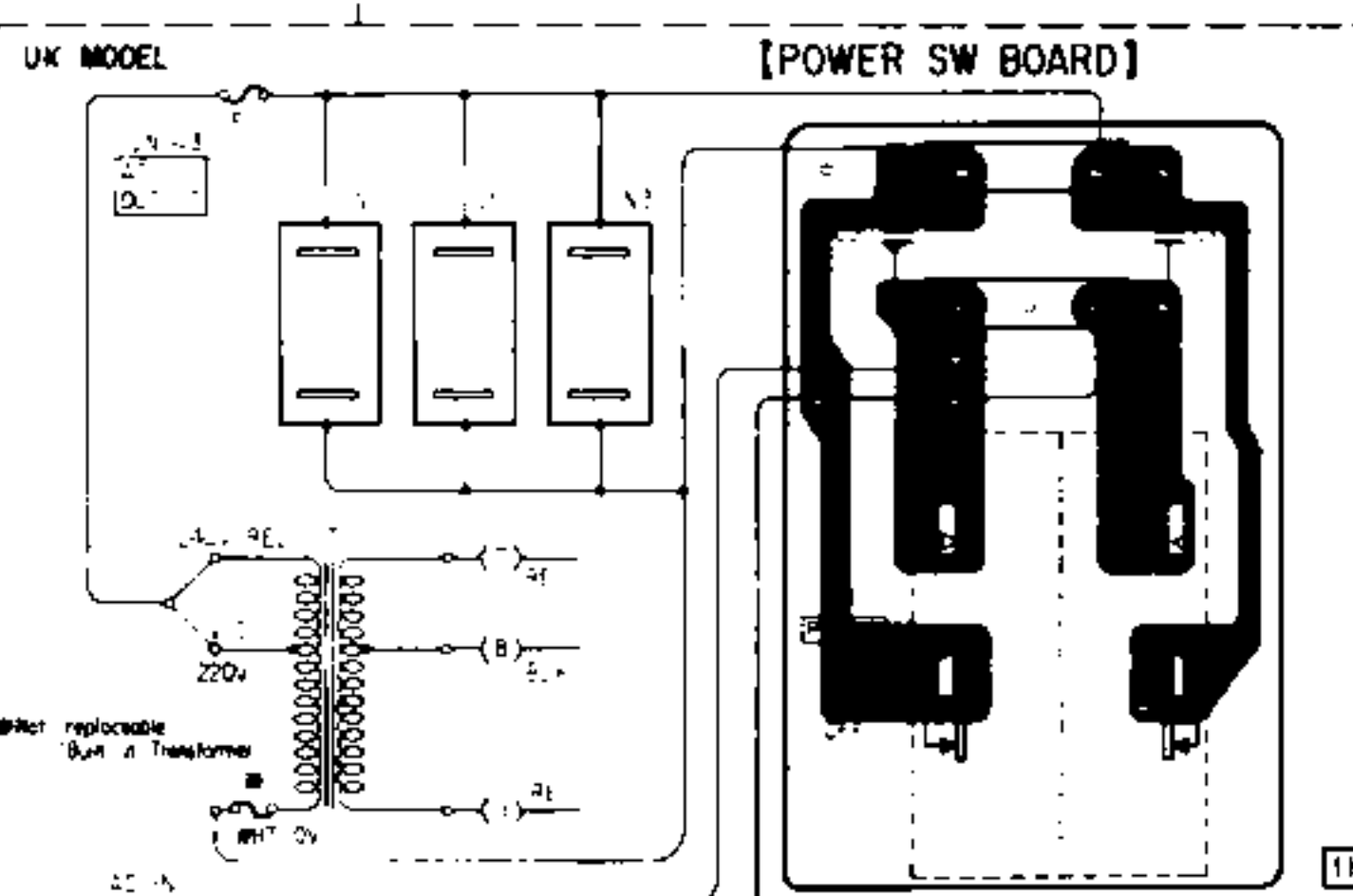
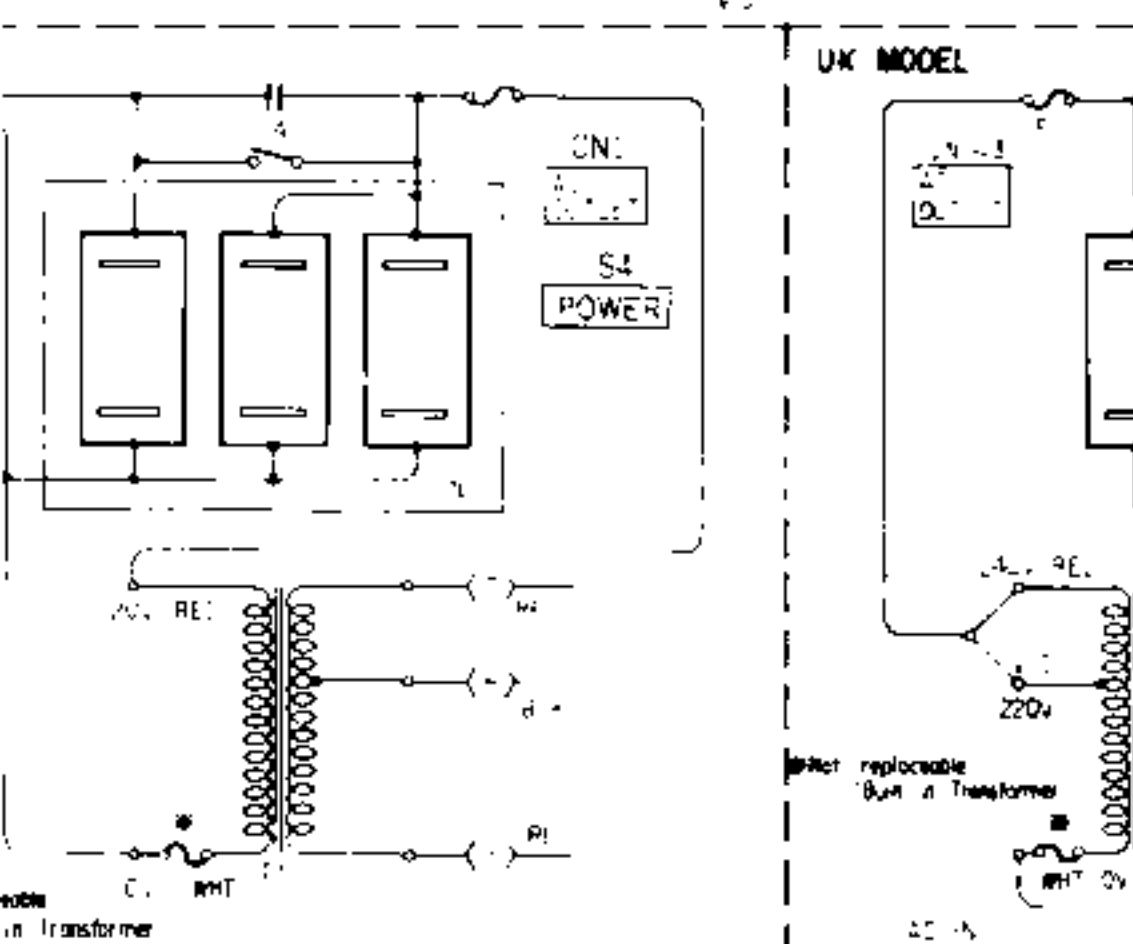
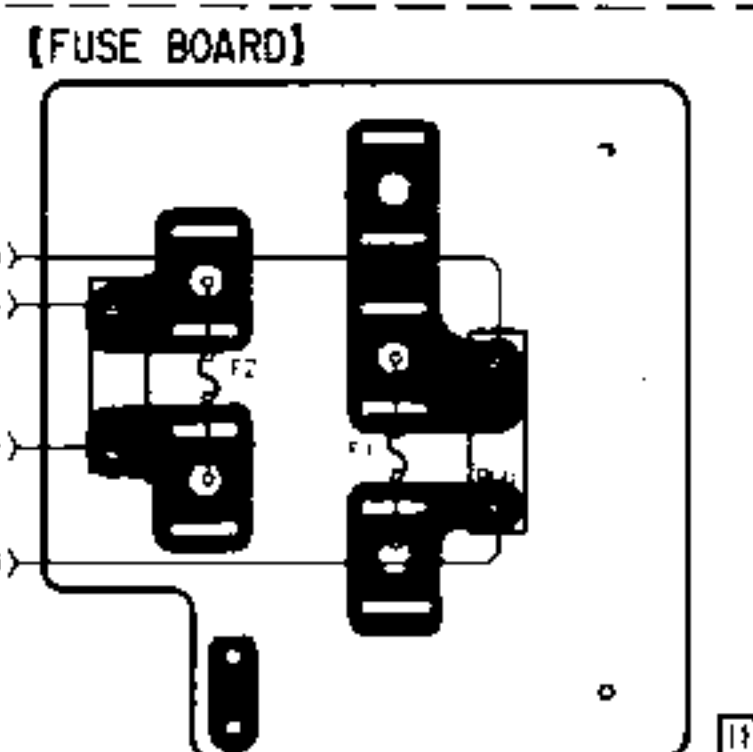
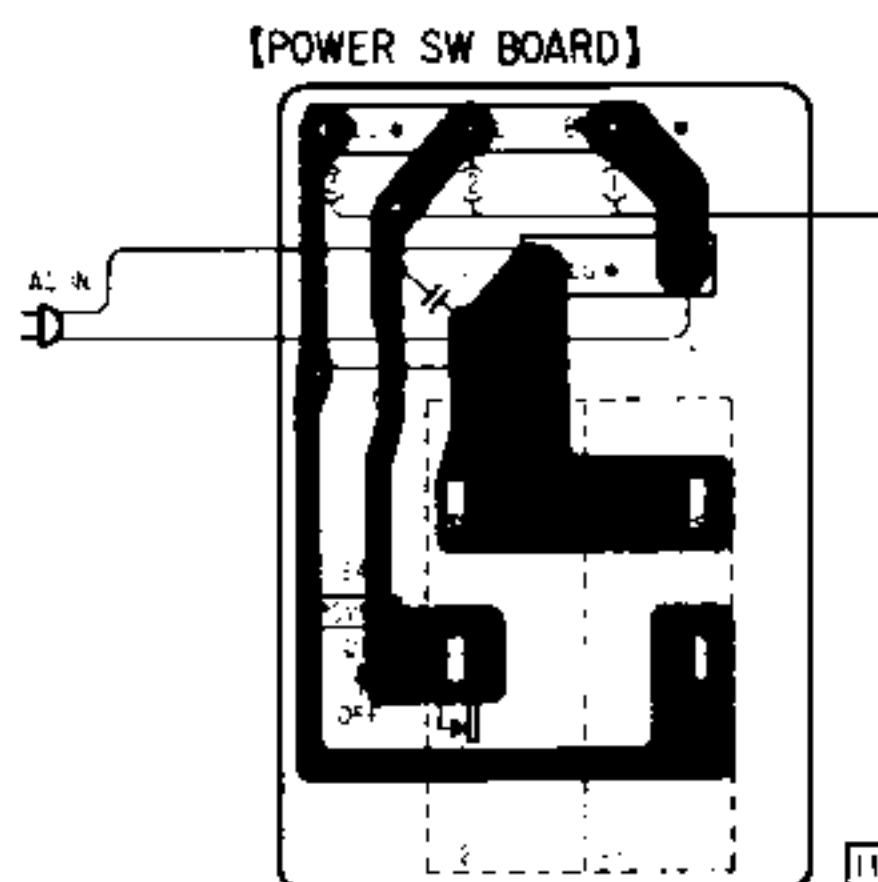
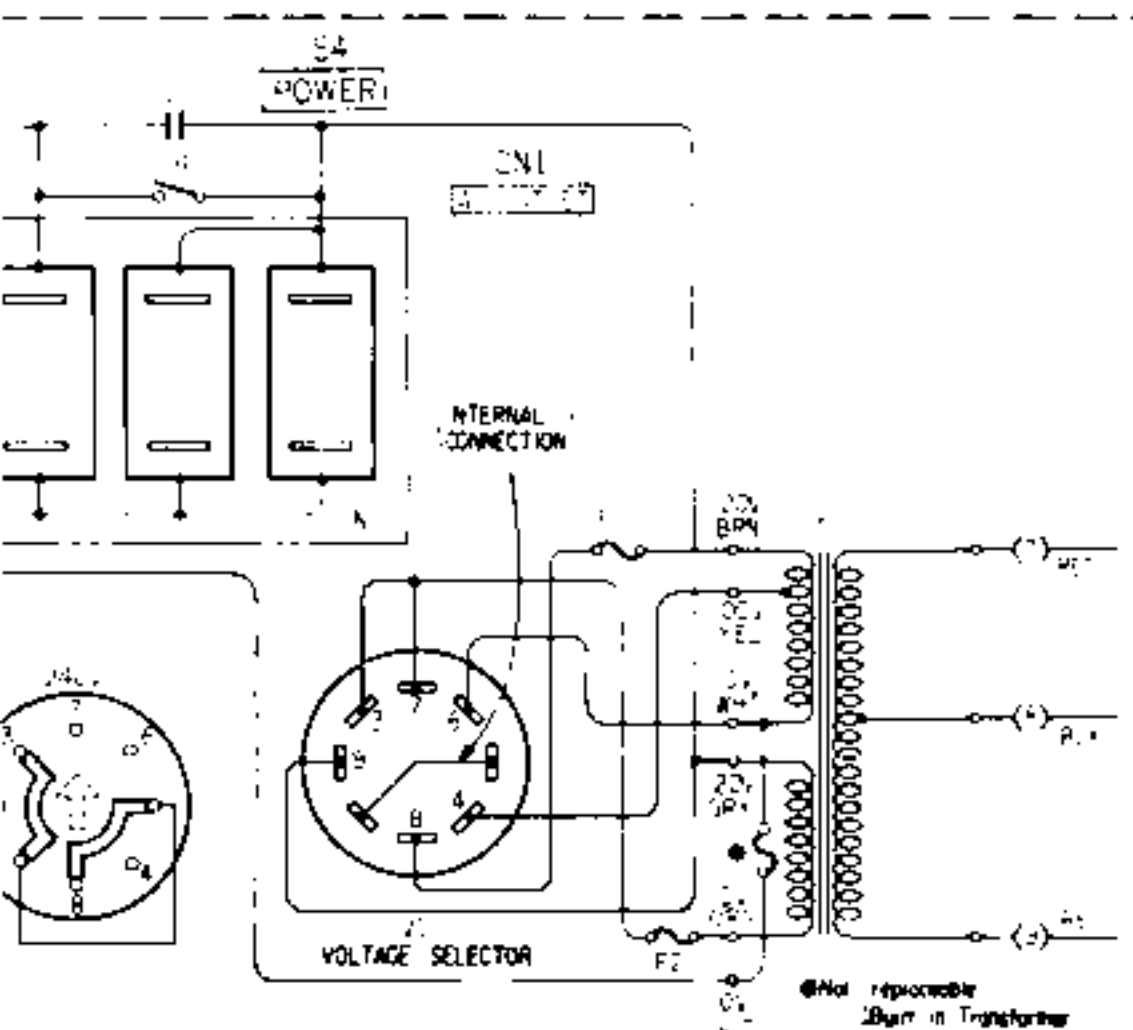
C

D

E

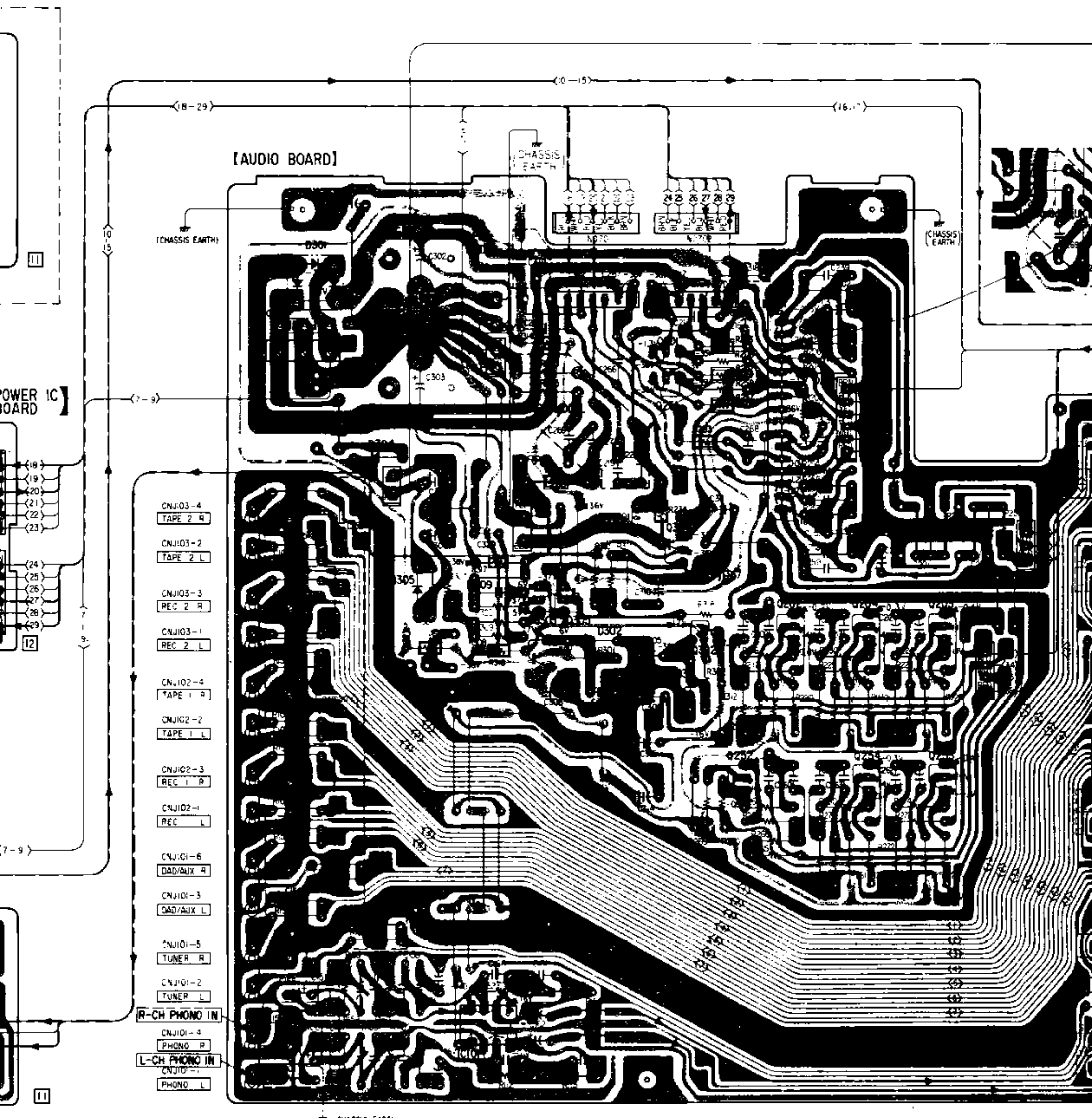
F

IC, Q	IC202
D	



	303	305	201	IC201	204	203
			251		202	
IC101	301		304	302	252	254
						253

301	304	305	309	302	303
-----	-----	-----	-----	-----	-----



CHASSIS EARTH

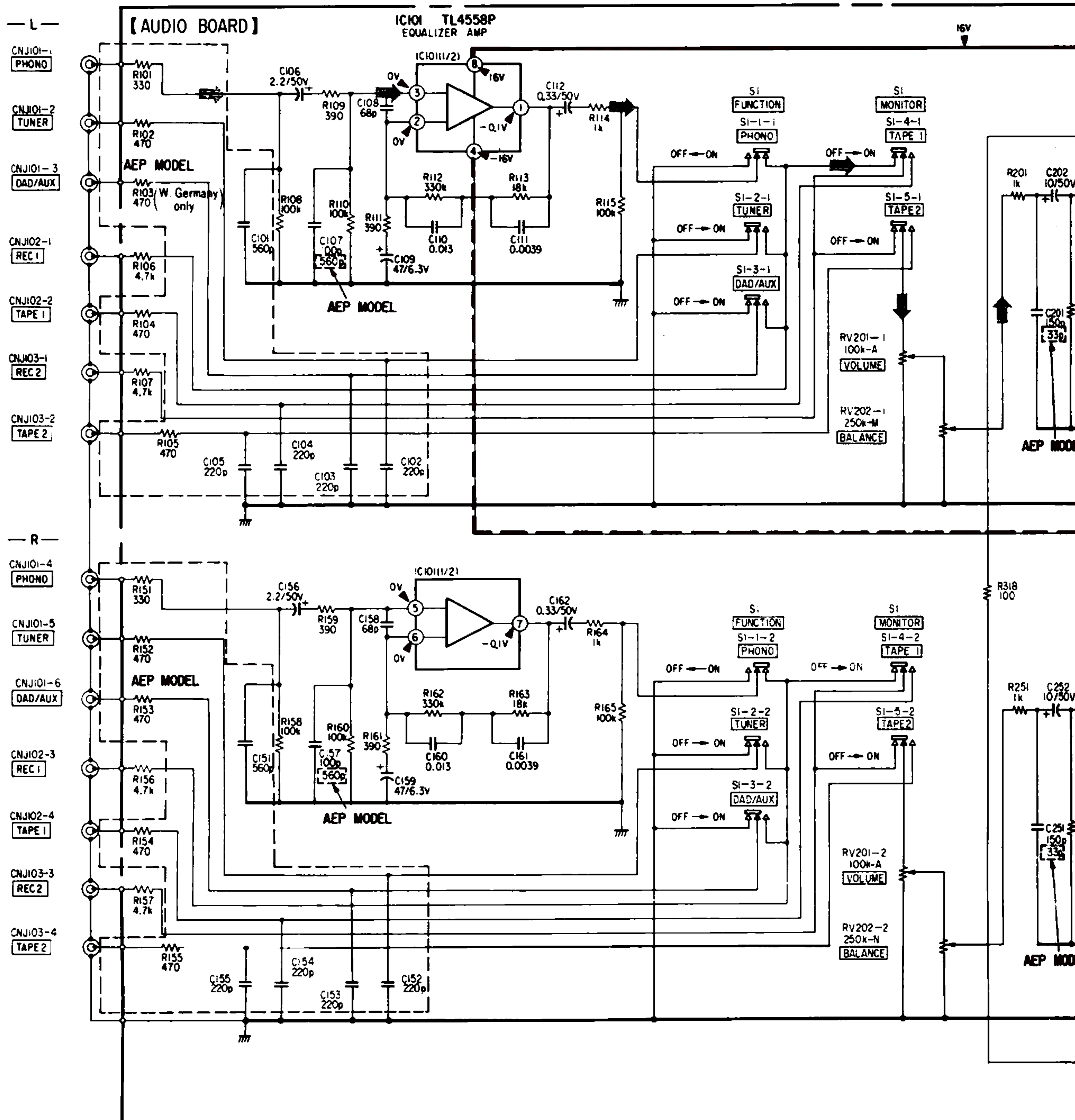
A

B

C

D

3-2. SCHEMATIC DIAGRAM



[TONE BOARD]

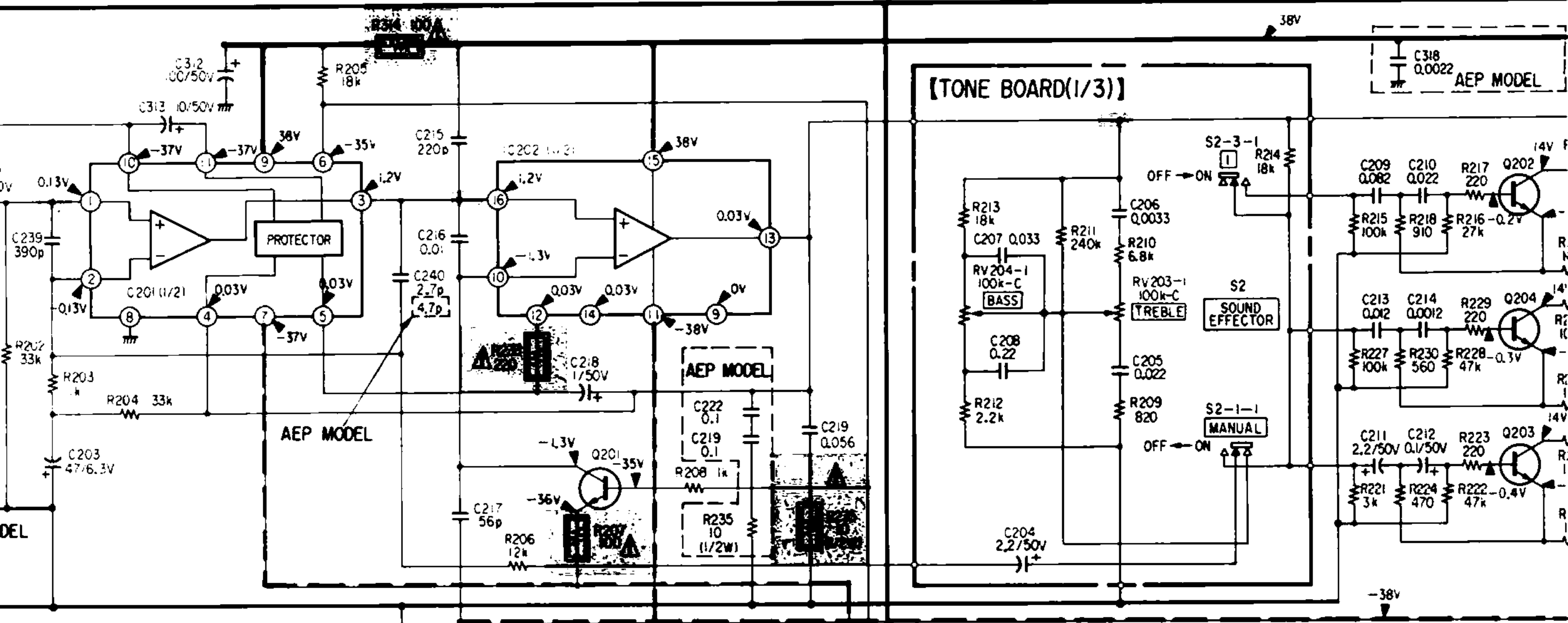
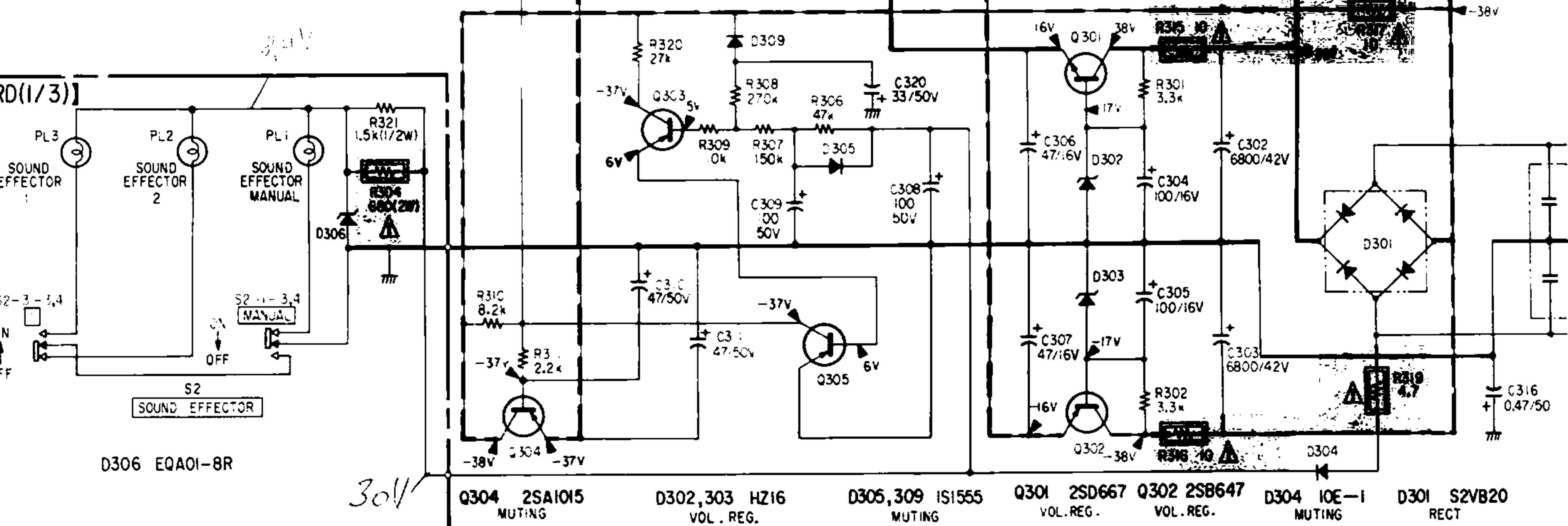
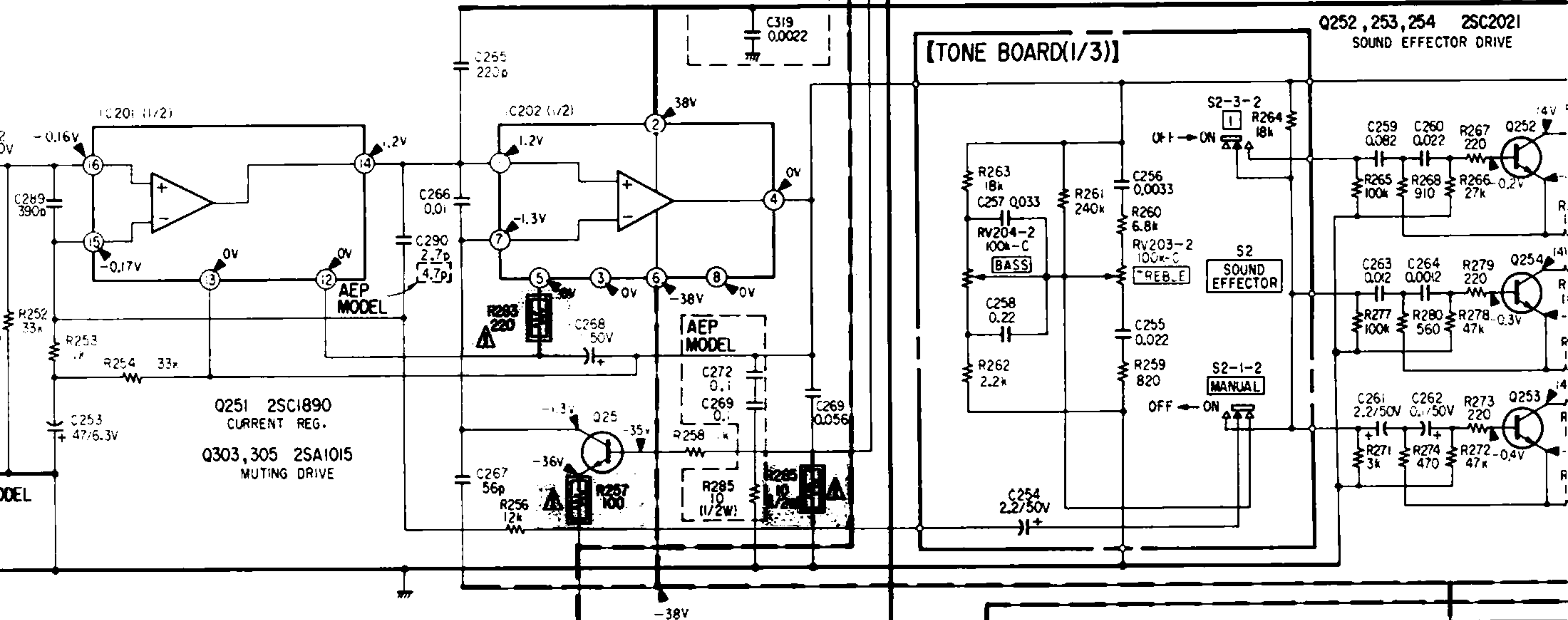
S

EF

S2-

ON

OFF

IC201 STK3041
POWER DRIVE AMPIC202 STK2129
POWER AMPQ202, 203, 204 2SC1890
SOUND EFFECTOR DRIVEQ201 2SC1890
CURRENT REG



DI S2VB20
RECT

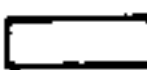
1

Note: 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.

2

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

Note:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$
50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $\frac{1}{4}\text{W}$ unless otherwise noted.
 $\text{k}\Omega$: $1000\ \Omega$, $\text{M}\Omega$: $1000\ \text{k}\Omega$
-  : nonflammable resistor.
-  : panel designation.
-  : B+ bus.
-  : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM ($50\ \text{k}\Omega/\text{V}$).
- Voltage variations may be noted due to normal production tolerances.
-  : signal path

3

• Switch

Ref. No.	Switch	Position
S1-1	PHONO	ON
S1-2	TUNER	OFF
S1-3	DAD/AUX	OFF
S1-4	TAPE 1	OFF
S1-5	TAPE 2	OFF
S2-1	SE MANUAL	ON
S2-3	SE 1	OFF
S3-1	SPEAKER B	OFF
S3-2	SPEAKER A	ON
S4	POWER	OFF

4

5

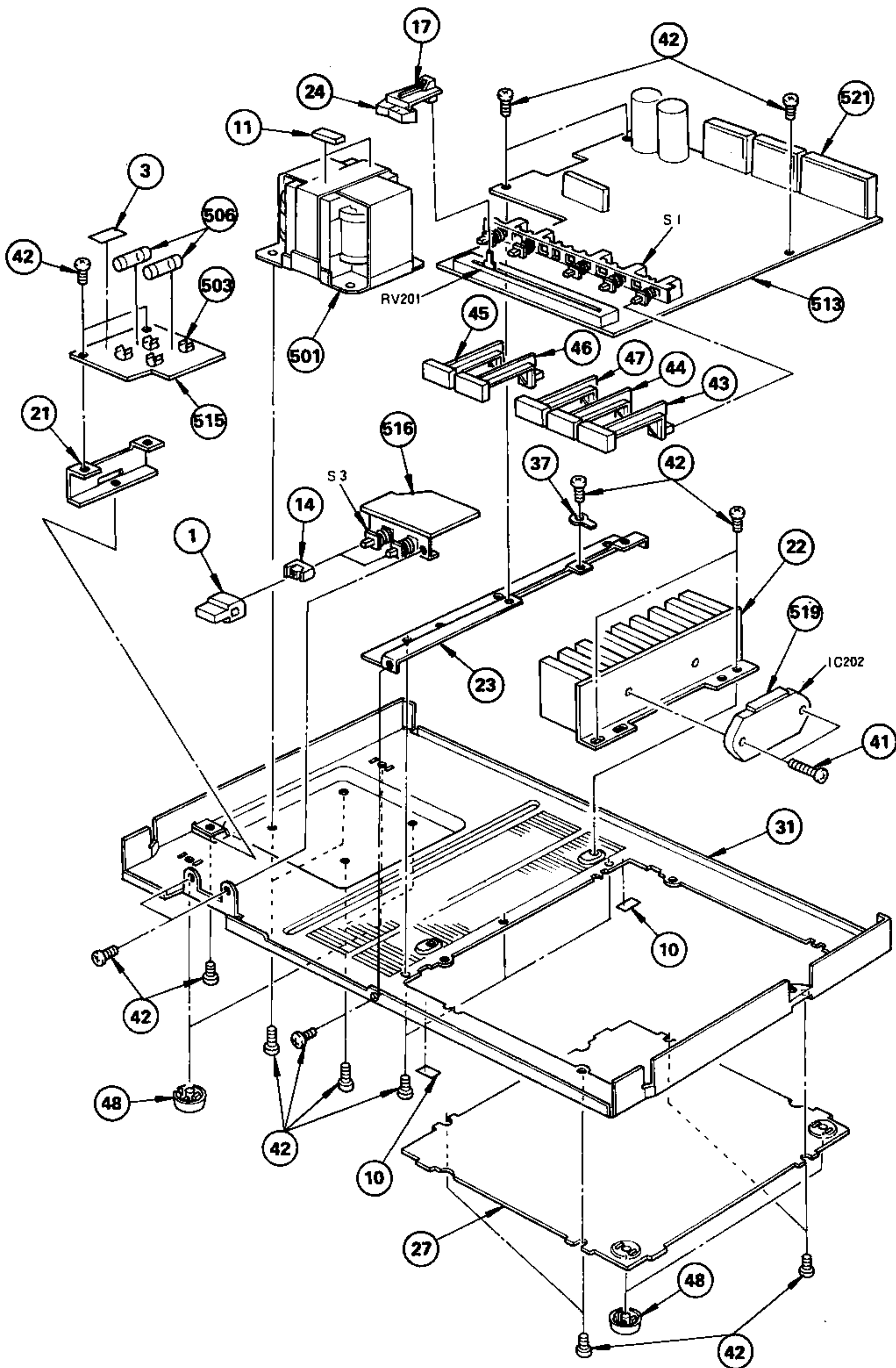
A

B

C

D

4-2.



GENERAL SECTION

No.	Part No.	Description
1	2-363-012-00	KNOB (6X14), CORNER
2	3-671-893-00	CLAMP (LOW TYPE)
3	3-701-948-14	(AEP,UK,E)....LABEL, FUSE
4	3-701-993-00	SPACER, TERMINAL
5	3-703-244-00	BUSHING, CORD
6	3-703-354-11	SCREW (OS), CASE, CLAW
7	3-703-473-01	SCREW, TERMINAL
8	3-703-591-01	(AEP)....LABEL (135855) (SMALL), FTZ
9	3-706-165-00	SCREW
10	3-831-441-XX	CUSHION, SPEAKER
11	4-015-736-00	CUSHION, CHASSIS
12	4-848-642-00	CUSHION, VIBRATION
13	4-861-045-00	LABEL, CAUTION
14	4-864-307-00	RING
15	4-871-324-00	ESCUTCHEON, POWER KNOB
16	4-881-402-01	(US).....LABEL, MODEL NUMBER (JAPAN MADE ONLY)
16	4-881-402-11	(US).....LABEL, MODEL NUMBER (KOREA MADE ONLY)
16	4-881-403-02	(Canadian)....LABEL, MODEL NUMBER (JAPAN MADE ONLY)
16	4-881-403-12	(Canadian)....LABEL, MODEL NUMBER (KOREA MADE ONLY)
16	4-881-404-21	(AEP).....LABEL, MODEL NUMBER (JAPAN MADE ONLY)
16	4-881-404-31	(AEP).....LABEL, MODEL NUMBER (KOREA MADE ONLY)
16	4-881-405-01	(UK).....LABEL, MODEL NUMBER (JAPAN MADE ONLY)
16	4-881-405-11	(UK).....LABEL, MODEL NUMBER (KOREA MADE ONLY)
16	4-881-429-01	(E1).....LABEL, MODEL NUMBER
16	4-881-431-01	(E2).....LABEL, MODEL NUMBER
17	4-881-406-00	SHAFT, KNOB, CONTROL, MAIN
18	4-881-407-00	KNOB, SLIDE, TONE
19	4-881-410-00	PLATE, BACK, CONTROL
20	4-881-411-00	KNOB, PUSH, TONE
21	4-881-414-00	BRACKET (FUSE)
22	4-881-415-00	HEAT SINK (A)
23	4-881-416-00	FRAME, CENTER
24	4-881-417-00	CAP, KNOB, CONTROL, MAIN
25	4-881-419-00	(AEP).....PLATE, JACK
25	4-881-418-02	(US,Canadian)....PLATE, JACK
25	4-881-420-01	(UK).....PLATE, JACK
25	4-881-421-01	(E1,E2).....PLATE, JACK

GENERAL SECTION

No.	Part No.	Description
26	4-881-422-00	PANEL, SUB
27	4-881-424-00	PLATE, BOTTOM
28	4-881-425-11	ESCUTCHEN
29	4-881-426-00	PANEL
30	4-881-427-01	CASE (JAPAN MADE ONLY)
30	4-881-427-11	CASE (KOREA MADE ONLY)
31	4-881-428-01	CHASSIS
32	4-881-432-00	REINFORCEMENT
33		
34	4-881-448-00	HOUSE, LAMP
35	4-881-516-00	BRACKET (LEFT), PANEL
36	4-881-517-00	BRACKET (RIGHT), PANEL
37	7-623-508-01	(AEP).....LUG, 3
38	7-682-147-09	SCREW +P 3X6
39	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
40		
41	7-685-649-21	SCREW +BVTP 3X14 TYPE2 SLIT
42	7-685-871-01	SCREW +BVTT 3X6 (S)
43	A-4490-124-A	KNOB ASSY, PHONO
44	A-4490-125-A	KNOB ASSY, TUNER
45	A-4490-127-A	TAPE COPY 1-2 ASSY
46	A-4490-128-A	TAPE (2) ASSY
47	A-4490-129-A	DAD/AUX ASSY
48	X-3701-069-0	FOOT ASSY, M.F
49	X-4875-108-0	KNOB ASSY, POWER

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
81	3-701-630-00	BAG, POLYETHYLENE
82	3-701-690-01	(UK).....LABEL (MADE IN JAPAN)
83	3-703-079-21	(US,Canadian)....LABEL, COURTION (BACK)
84	3-703-540-01	(AEP)....INSTRUCTION, FTZ
85	3-703-545-01	(E1).....LABEL (E1), DESTINATION
86	3-783-845-11	(AEP,UK,E).....MANUAL, INSTRUCTION
87	3-783-845-21	(US,Canadian)....MANUAL, INSTRUCTION
88	3-783-845-41	(AEP).....MANUAL, INSTRUCTION
89	4-875-448-00	CUSHION, UPPER
90	4-875-449-00	CUSHION, LOWER
91	4-876-352-00	SHEET, PROTECTION
92	4-881-444-01	INDIVIDUAL CARTON (E)
93	4-881-445-00	(AEP,E).....INDIVIDUAL CARTON
94	4-881-446-01	(UK,US,Canada)....INDIVIDUAL CARTON

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 (4-AAA-AAA-XX or 4-AAA-AAA-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: μpF .

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.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	▲ 1-447-294-11	(US,Canadian)...TRANSFORMER, POWER
501	▲ 1-447-295-00	(AEP,UK).....TRANSFORMER, POWER
501	▲ 1-447-296-11	(E).....TRANSFORMER, POWER
502	● 1-508-809-00	(AEP,UK).....BASE POST (14MM) 2P
503	▲ 1-517-072-12	(US,Canadian)...LAMP HOLDER
503	▲ 1-533-131-00	(AEP,UK,E).....HOLDER, FUSE
504	▲ 1-526-565-12	(E).....AC PLUG ADAPTOR
505	▲ 1-526-636-13	(UK).....OUTLET, AC
505	▲ 1-526-694-00	(AEP).....OUTLET, AC
505	▲ 1-526-696-11	(US,Canadian,E)...OUTLET, AC (3GANG)
506	▲ 1-532-078-00	(AEP,UK,E)...FUSE, TIME-LAG
507	▲ 1-534-817-XX	(AEP).....CORD, POWER, EULO PLUG
508	● 1-535-115-00	TERMINAL
509	● 1-535-116-00	TERMINAL
510	● 1-535-135-00	(AEP,UK).....BASE POST 14MM (10MM PITCH)
511	● 1-535-136-00	(AEP).....BASE POST 14MM (10MM PITCH) 3P
512	● 1-535-139-00	(AEP,US,Canadian,E)...BASE POST 19MM (10MM PITCH)
513	● 1-607-207-00	PC BOARD, AUDIO
514	● 1-607-208-00	PC BOARD, TONE
515	● 1-607-209-00	PC BOARD, FUSE
516	● 1-607-210-00	PC BOARD, SPEAKER SW
517	● 1-607-211-00	PC BOARD, HEADPHONE
518	● 1-607-213-00	PC BOARD, SPEAKER
519	● 1-607-214-00	PC BOARD, POWER IC
520	● 1-607-216-00	(AEP)...PC BOARD, POWER SW
520	● 1-607-217-11	(UK)....PC BOARD, POWER SW
521	● A-4409-592-A	(AEP).....MOUNTED PCB, AUDIO
521	● A-4409-593-A	(US,E).....MOUNTED PCB, AUDIO
521	● A-4409-594-A	(US,Canadian)...MOUNTED PCB, AUDIO
C1	▲ 1-161-744-00	(AEP,UK,E).....CERAMIC 0.01MF 400V
C1	▲ 1-161-749-11	(Canadian,US)...CERAMIC 0.01MF 400V
C2	▲ 1-161-744-00	(AEP,UK).....CERAMIC 0.01MF 400V
C102	1-161-315-00	CERAMIC 220PF 10% 50V
C103	1-161-315-00	CERAMIC 220PF 10% 50V
C104	1-161-315-00	CERAMIC 220PF 10% 50V
C105	1-161-315-00	CERAMIC 220PF 10% 50V
C152	1-161-315-00	CERAMIC 220PF 10% 50V
C153	1-161-315-00	CERAMIC 220PF 10% 50V
C154	1-161-315-00	CERAMIC 220PF 10% 50V
C155	1-161-315-00	CERAMIC 220PF 10% 50V
C208	1-130-636-00	FILM 0.22MF 5% 50V
C215	1-161-315-00	CERAMIC 220PF 10% 50V
C218	1-123-228-00	ELECT 1MF 20% 50V
C239	1-161-318-00	CERAMIC 390PF 10% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C240	1-161-252-11	(US,UK,E)..CERAMIC 2.7PF 10% 50V
C240	1-161-255-00	(AEP).....CERAMIC 4.7PF 10% 50V
C258	1-130-636-00	FILM 0.22MF 5% 50V
C265	1-161-315-00	CERAMIC 220PF 10% 50V
C268	1-123-228-00	ELECT 1MF 20% 50V
C289	1-161-318-00	CERAMIC 390PF 10% 50V
C290	1-161-252-11	(US,UK,E)..CERAMIC 2.7PF 10% 50V
C290	1-161-255-00	(AEP).....CERAMIC 4.7PF 10% 50V
C301	1-102-394-00	CERAMIC 0.01MF×2 250V
C302	1-124-030-00	ELECT 6800MF 20% 42V
C303	1-124-030-00	ELECT 6800MF 20% 42V
C320	1-123-358-00	ELECT 33MF 20% 50V
CNJ101	1-507-769-00	JACK, PIN 6P
CNJ102	1-507-762-00	JACK, PIN 4P
CNJ103	1-507-762-00	JACK, PIN 4P
CNJ201	1-536-706-00	TERMINAL BOARD (SP)
D301	8-719-502-20	DIODE S2VB20
D302	8-719-901-62	DIODE HZ16-2L
D303	8-719-901-62	DIODE HZ16-2L
D304	8-719-200-02	DIODE 10E-2
D305	8-719-815-55	DIODE 1S1555
D306	8-719-936-08	DIODE EQA01-08R
D309	8-719-815-55	DIODE 1S1555
IC101	8-759-935-58	IC TL4558P-K
IC201	8-749-930-41	IC STK-3041
IC202	8-749-921-29	IC STK-2129
J201	1-507-669-00	JACK
L201	● 1-420-872-00	COIL, AIRE CORE
L251	● 1-420-872-00	COIL, AIRE CORE
PL1	1-518-502-00	LAMP, PILOT
PL2	1-518-502-00	LAMP, PILOT
PL3	1-518-502-00	LAMP, PILOT
Q201	8-729-389-08	TRANSISTOR 2SC1890-E
Q202	8-729-902-11	TRANSISTOR 2SC2021-R
Q203	8-729-902-11	TRANSISTOR 2SC2021-R
Q204	8-729-902-11	TRANSISTOR 2SC2021-R
Q251	8-729-389-08	TRANSISTOR 2SC1890-E
Q252	8-729-902-11	TRANSISTOR 2SC2021-R
Q253	8-729-902-11	TRANSISTOR 2SC2021-R
Q254	8-729-902-11	TRANSISTOR 2SC2021-R
Q301	8-729-306-72	TRANSISTOR 2SD667-C
Q302	8-729-364-72	TRANSISTOR 2SB647-C
Q303	8-729-201-52	TRANSISTOR 2SA1015
Q304	8-729-201-52	TRANSISTOR 2SA1015
Q305	8-729-201-52	TRANSISTOR 2SA1015

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 (1-AAA-XXX-XX or A-AAAA-AAA-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers. MF: μ F, PF: μ F.

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 : μ H

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.

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R207	△.1-247-107-00	CARBON	100	5%	1/4W	F
R233	△.1-247-115-00	CARBON	220	5%	1/4W	F
R234	△.1-247-188-00	CARBON	4.7	5%	1/2W	F
R235	△.1-244-825-00	CARBON	10	5%	1/2W	F
R236	△.1-247-228-00	CARBON	330	5%	1/2W	F
R237	1-244-825-00	CARBON	10	5%	1/2W	
R238	1-244-825-00	CARBON	10	5%	1/2W	
R257	△.1-247-107-00	CARBON	100	5%	1/4W	F
R283	△.1-247-115-00	CARBON	220	5%	1/4W	F
R284	△.1-247-188-00	CARBON	4.7	5%	1/2W	F
R285	△.1-244-825-00	CARBON	10	5%	1/2W	F
R286	△.1-247-228-00	CARBON	330	5%	1/2W	F
R287	1-244-825-00	CARBON	10	5%	1/2W	
R288	1-244-825-00	CARBON	10	5%	1/2W	
R304	△.1-206-660-00	METAL	680	5%	2W	F
R314	△.1-247-107-00	CARBON	100	5%	1/4W	F
R315	△.1-247-083-00	CARBON	10	5%	1/4W	F
R316	△.1-247-083-00	CARBON	10	5%	1/4W	F
R317	△.1-247-083-00	CARBON	10	5%	1/4W	F
R319	△.1-247-079-00	CARBON	4.7	5%	1/4W	F
R321	1-244-877-00	CARBON	1.5K	5%	1/2W	
RV201	1-228-615-00	RES, VAR, SLIDE 100K				
RV202	1-228-616-00	RES, VAR, SLIDE 250K				
RV203	1-228-617-00	RES, VAR, SLIDE 100K				
RV204	1-228-617-00	RES, VAR, SLIDE 100K				
S1	1-554-126-00	SWITCH, PUSH (5 KEY)				
S2	1-554-117-00	SWITCH, PUSH				
S3	1-554-125-00	SWITCH, PUSH (2 KEY)				
S4	△.1-553-447-00	(AEP,UK).....SWITCH, PUSH (AC POWER)				
S4	△.1-553-318-11	(E).....SWITCH, PUSH (AC POWER)				
S4	△.1-553-319-22	(US,Canadian)...SWITCH, PUSH (AC POWER)				
VS1	△.1-526-576-31	(E).....SELECTOR, POWER VOLTAGE				

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 (△-△△△-△△△-XX or △-△△△△-△△△-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers.
- MF: μ F, PF: μ F.

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 : μ H

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 qu'une pièce portant le nu no spécifié.

MYLAR CAPACITORS

RATING											
CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-220-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	-	-
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	-	-
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	-	-
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	-	-
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				



TANTALUM CAPACITORS

RATING → : Use the high voltage rated one.							
CAP. (μF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	-	-	-	-	1-131-412-00	→	1-131-406-00
0.68	-	-	-	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	-	-	1-131-418-00	-	1-131-413-00	→	1-131-408-00
1.5	-	1-131-421-00	-	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	-	1-131-419-00	-	1-131-414-00	1-131-355-00	1-131-349-00
3.3	-	1-131-422-00	-	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	-	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	-	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	-
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00				
68	1-131-394-00	1-131-388-00	-	-			
100	1-131-395-00	-	-	-			



TANTALUM CAPACITORS

RATING						
CAP. (μF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			-	-	1-131-262-00	1-131-278-00
0.33			-	-	1-131-263-00	1-131-279-00
0.47			1-131-169-00	-	1-131-264-00	1-131-280-00
0.68			-	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	-	1-131-266-00	1-131-282-00
1.5		1-131-250-00	-	-	1-131-267-00	1-131-283-00
2.2		-	-	1-131-259-00	1-131-268-00	1-131-284-00
3.3		-	1-131-255-00	-	1-131-269-00	-
4.7		1-131-251-00	1-131-171-00	-	1-131-270-00	-
6.8		-	-	1-131-260-00	1-131-271-00	-
10	-	-	1-131-256-00	-	1-131-272-00	-
15	-	1-131-252-00	-	1-131-261-00		
22	-	-	1-131-257-00	-		
33	1-131-176-00	1-131-253-00	1-131-173-00	-		
47	1-131-288-00	1-131-174-00	-	-		
100	1-131-177-00					

ELECTROLYTIC CAPACITORS

RATING → : Use the high voltage rated one.						
CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	-	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	-
3300	1-121-661-00	1-123-075-00	1-123-071-00	-	-	-

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	-	-	-	-
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	-	1-123-028-00
3.3	1-121-995-00	-	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	-	-
47	1-123-251-00	1-121-919-00	-	-
100	1-123-084-00	-	-	-

CERAMIC CAPACITORS

RATING							
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

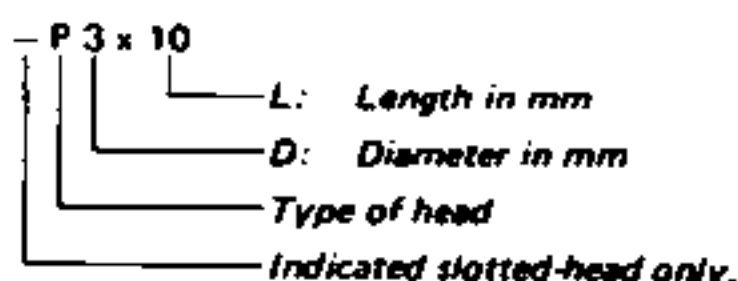
RATING → : Use the high voltage rated one.					
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

1/4 WATT CARBON RESISTORS

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	1-210-814-00
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	1-210-815-00
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	1-210-816-00
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	1-210-817-00
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	1-210-818-00
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	1-210-819-00
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	1-210-820-00
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	1-210-821-00
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	1-244-754-00
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	1-244-755-00
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	1-244-756-00
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	1-244-757-00
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	1-244-758-00
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	1-244-759-00
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	1-244-760-00
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	1-244-761-00
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	1-244-762-00
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

Screw:



Unless otherwise indicated, it means cross-recessed head (Phillips type).

Nut, Washer, Retaining ring:



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	

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