

# TA-N90ES

## SERVICE MANUAL

US Model  
AEP Model

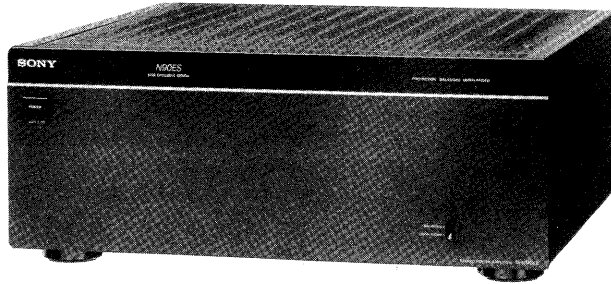


Photo : BLACK

### SPECIFICATIONS

#### System

Super legato linear, pure complementary SEPP power amplifier, powerful power supply

Intermodulation (IM) distortion at rated output 60 Hz : 7 kHz = 4 : 1  
0.004%

Residual noise at network A  
Less than 35  $\mu$ V

Frequency response  
1 Hz - 180 kHz  $\pm$ 3 dB

S/N (network)  
120 dB (A)

Dynamic power  
1 ohm: 400 W  
2 ohms: 640 W  
4 ohms: 440 W  
6 ohms: 320 W  
8 ohms: 240 W

Power bandwidth (IHF)  
4 ohms, THD 0.12%: 10 Hz - 30 kHz  
8 ohms, THD 0.12%: 10 Hz - 50 kHz

Dynamic headroom ('78 IHF)  
4 ohms: 2.8 dB  
8 ohms: 1.6 dB

Damping factor  
8 ohms, 1 kHz: 100

#### Input

Input sensitivity/impedance  
UNBALANCED: 1 V, 50 kilohms  
BALANCED: 0.5 V, 100 kilohms

#### Output

Continuous RMS power output (both channels driven simultaneously)  
4 ohms 20 Hz - 20 kHz, THD 0.015%: 140 + 140 W  
8 ohms 20 Hz - 20 kHz, THD 0.01%: 100 + 100 W

Total harmonic distortion  
4 ohms, at 10 watt output: 0.004%  
8 ohms, at 10 watt output: 0.0018%

#### General

Power requirements  
European countries model: 220 - 230 V AC, 50/60 Hz  
U.S.A. model: 120 V AC, 60 Hz

Power consumption  
European countries model: 390 W  
U.S.A. model: 330 W

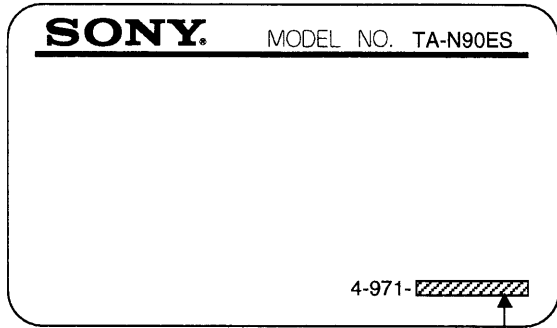
Dimensions (approx.) (w/h/d)  
430 x 175 x 440 mm (17 x 7 x 17 <sup>3</sup>/<sub>8</sub> inches)  
incl. projecting parts and controls

Mass (approx.)  
European countries model: 21.0 kg (46 lb 5 oz)  
U.S.A. model: 21.8 kg (48 lb 1 oz)

Design and specifications are subject to change without notice.

STEREO POWER AMPLIFIER  
**SONY**®

— MODEL IDENTIFICATION —  
(Specification Label)



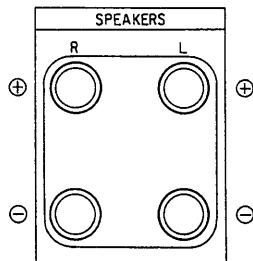
US model : 665-□□  
 AEP1, CE3 model : 663-□□  
 German model : 664-□□

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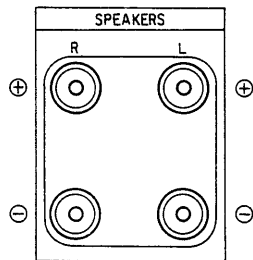
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— SPEAKERS TERMINAL —

CE3 model :



Other model :



**Note :**

When looking over schematic diagrams and printed wiring boards of the set, see the speaker terminal of the back panel to judge which kind of type of it.

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

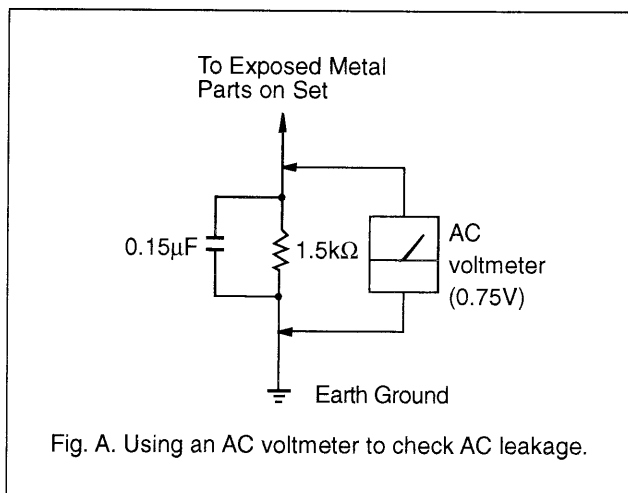


Fig. A. Using an AC voltmeter to check AC leakage.

### SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS 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.

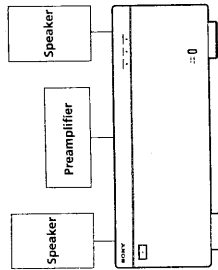
# SECTION 1 GENERAL

This section is extracted from instruction manual.

## Hooking Up the System

### Overview

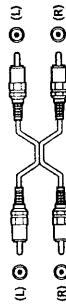
This section describes how to hook up the power amplifier to a preamplifier and speakers. Hook up your preamplifier and speakers according to the connection diagrams that follow.



### What cords will I need?

Depending on whether the preamplifier has balanced output jacks or not, use either of the two following ways to connect the power amplifier to a preamplifier:

(1) Use an audio connecting cord (not supplied) to connect the power amplifier to a preamplifier.



(2) Use two balanced cables (equivalent to Canon XLR-3; contact your dealer) when connecting a preamplifier with balanced output jacks.

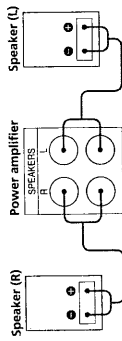
Use one speaker cord (not supplied) for each speaker for speaker connections.



### Hookup procedure

- Turn off the power to all components before making any connections.
- Do not connect the AC power cords until all connections are completed.
- Be sure to make connections firmly to prevent hum and noise.
- When connecting an audio cord, be sure to connect the R (right) and L (left) connectors of the power amplifier to the R and L connectors of the other equipment.

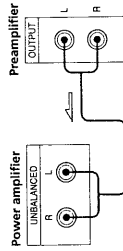
### Speakers



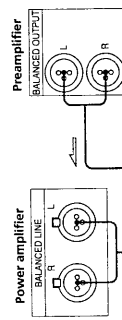
### Preamplifier

You can select either an unbalanced or balanced connection.

#### Unbalanced connection



#### Balanced connection



Connection assignment of balanced cables for European model



### Connecting the AC power cord

Connect the AC power cords from this power amplifier and the preamplifier to a wall outlet.

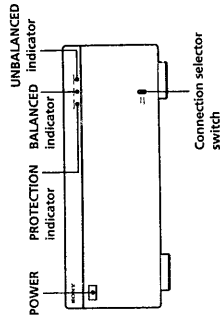
### Where do I go next?

Now you're ready to use your power amplifier. First, turn on the preamplifier, then the power amplifier.

## Listening to a Program Source

This section describes how to listen to a program source.

Before you begin, make sure you have connected the power amplifier to a preamplifier and speakers correctly and firmly as indicated on page 3.



- 1 Turn on the preamplifier.
- 2 Press POWER to turn on the power amplifier. The PROTECTION indicator flashes for about 9 seconds, then turns off.
- 3 Select either BALANCED or UNBALANCED with the connection selector switch, depending on the connection of the preamplifier. The BALANCED or UNBALANCED indicator will light.
- 4 Select the program source through the preamplifier.
- 5 Start playing the program source.

### Note

While the PROTECTION indicator is flashing, the built-in muting circuit is activating. If the indicator lights and you cannot hear the speaker output while a program source is playing, an error has occurred. If this happens, disconnect the AC power cord and check the preamplifier, speakers and connections.

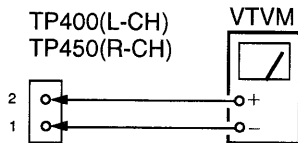
## SECTION 2 ELECTRICAL ADJUSTMENTS

**Note :**

1. DC BIAS adjustments should be made one minute after the POWER switch is turned on (POWER ON).
2. After replacing the power transistors, DC BIAS adjustments should be made.

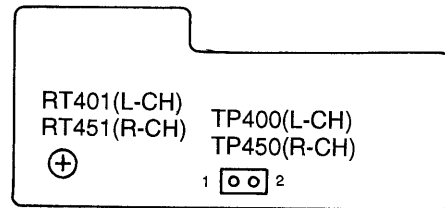
**DC Bias Adjustment (with no signal input)**

Procedure :



**Adjustment Location**

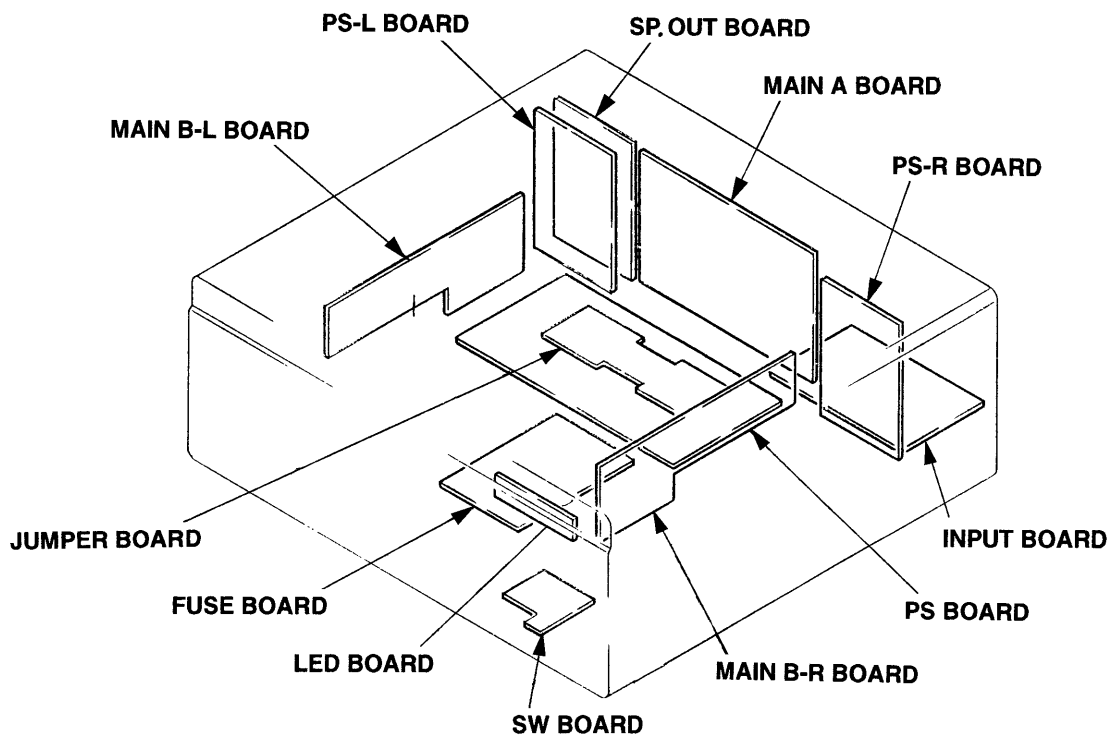
L-CH : MAIN B-L BOARD (COMPONENT SIDE)  
R-CH : MAIN B-R BOARD (COMPONENT SIDE)



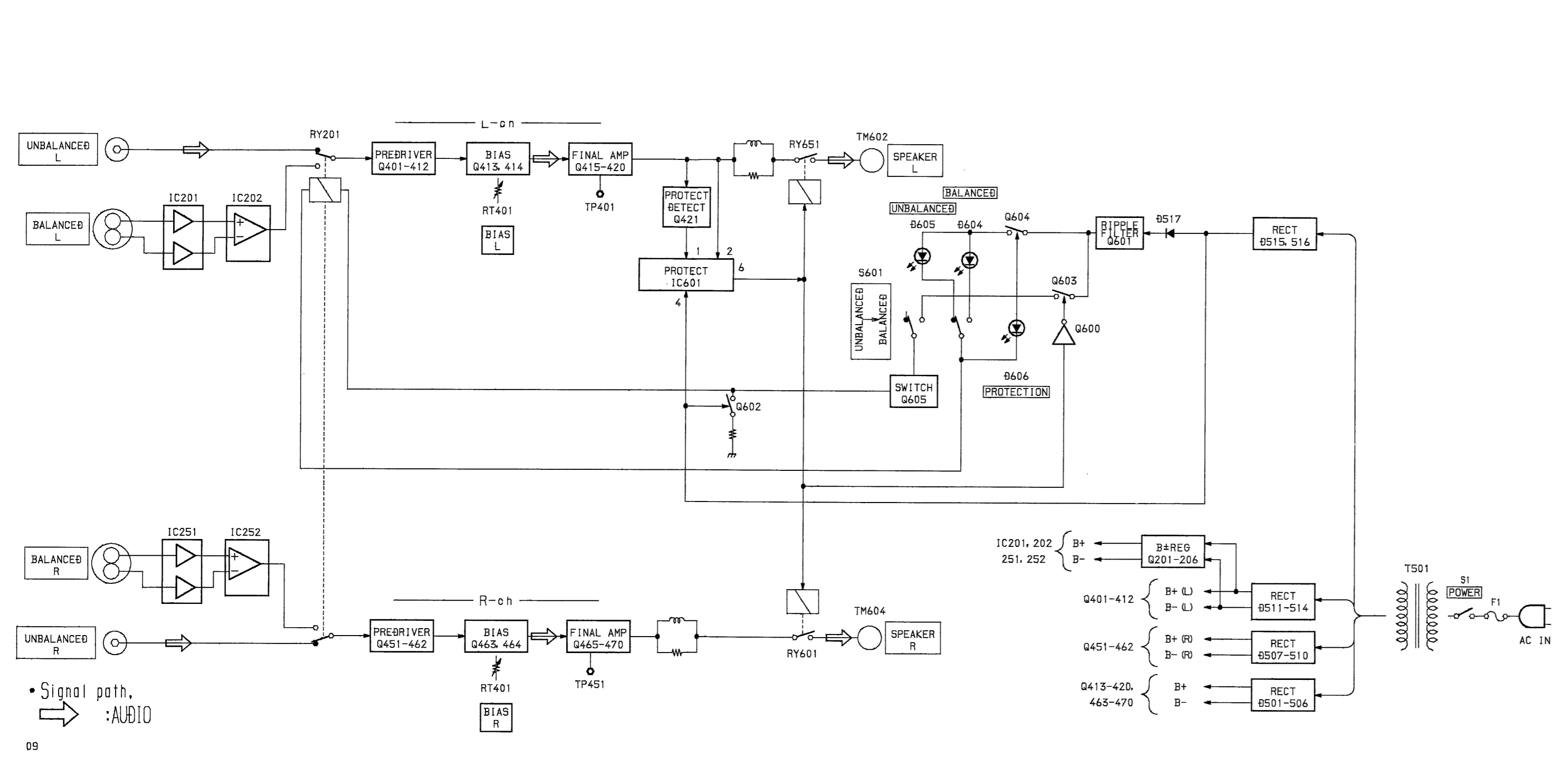
	Adjustment Part	Reading on VTVM
L-CH	RT401	90mV±10mV
R-CH	RT451	90mV±10mV

## SECTION 3 DIAGRAMS

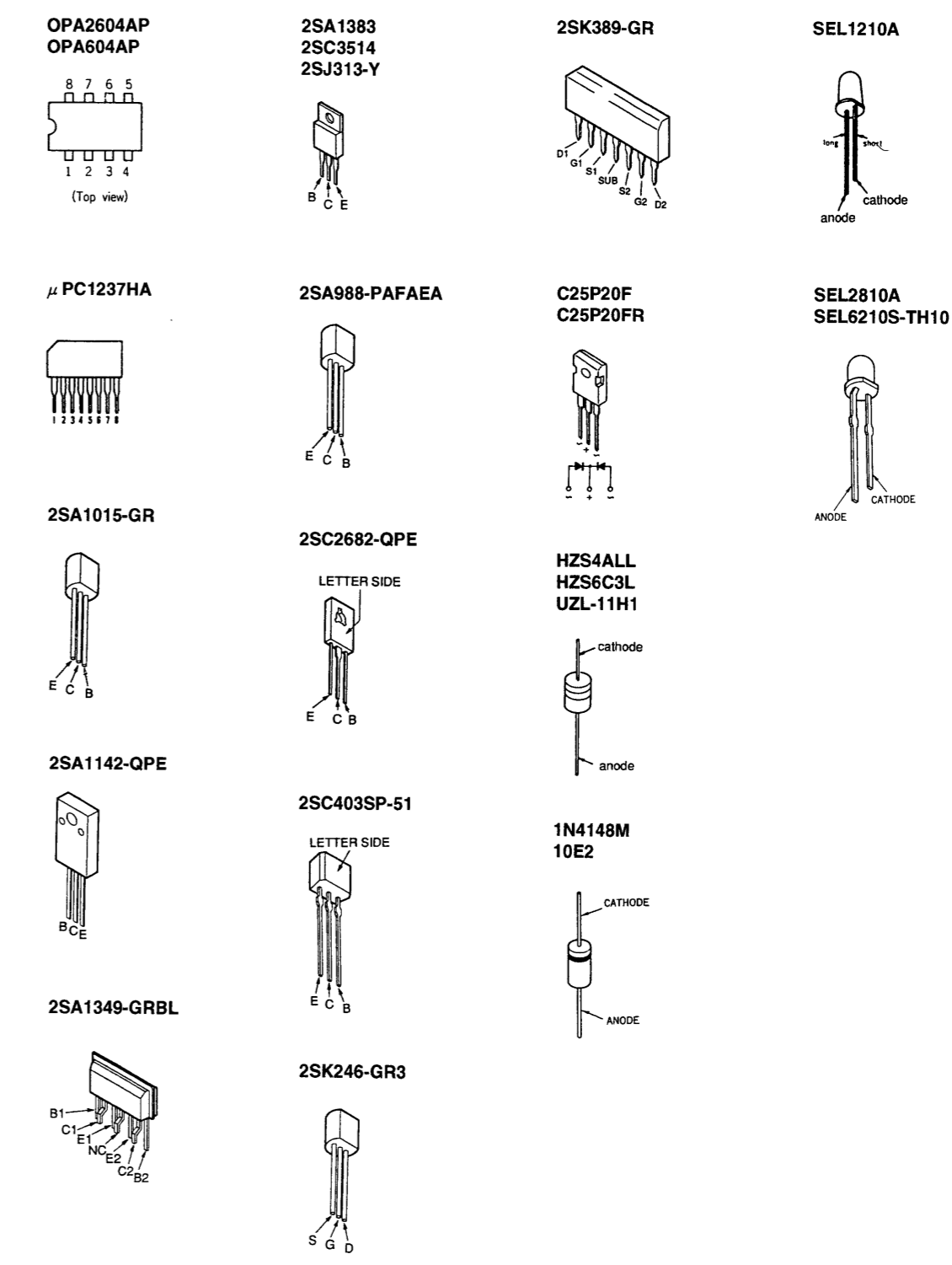
**3-1. CIRCUIT BOARDS LOCATION**



3-2. BLOCK DIAGRAM



3-3. SEMICONDUCTOR LEAD LAYOUTS

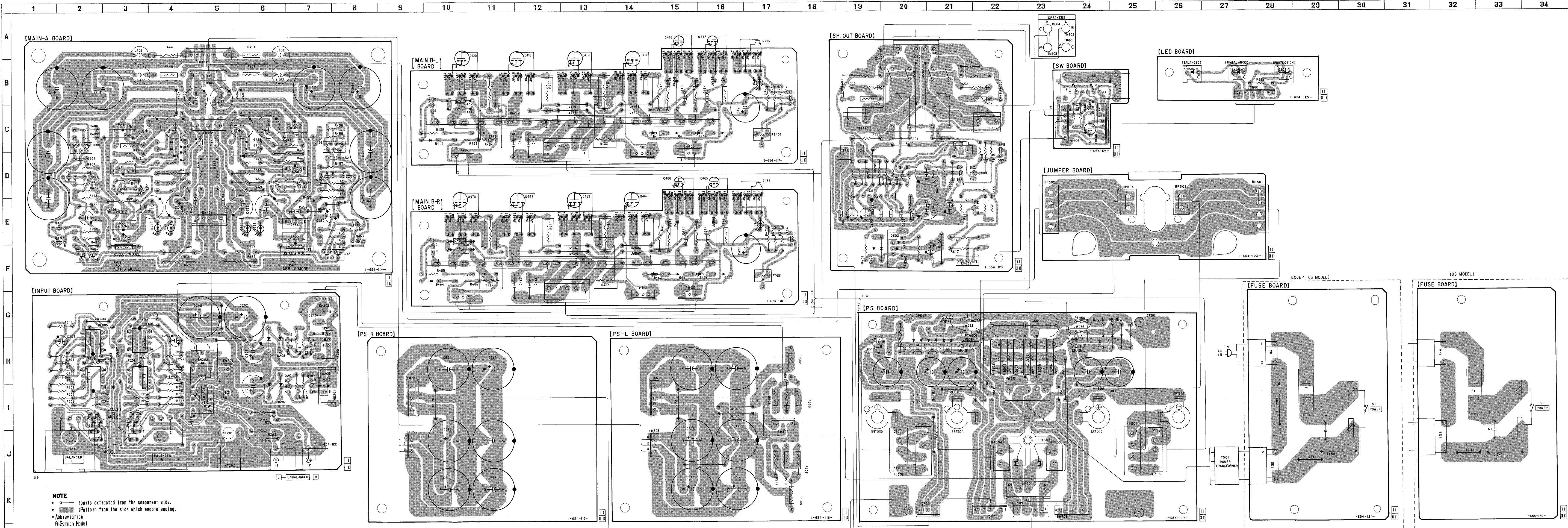


3-4. PRINTED WIRING BOARD

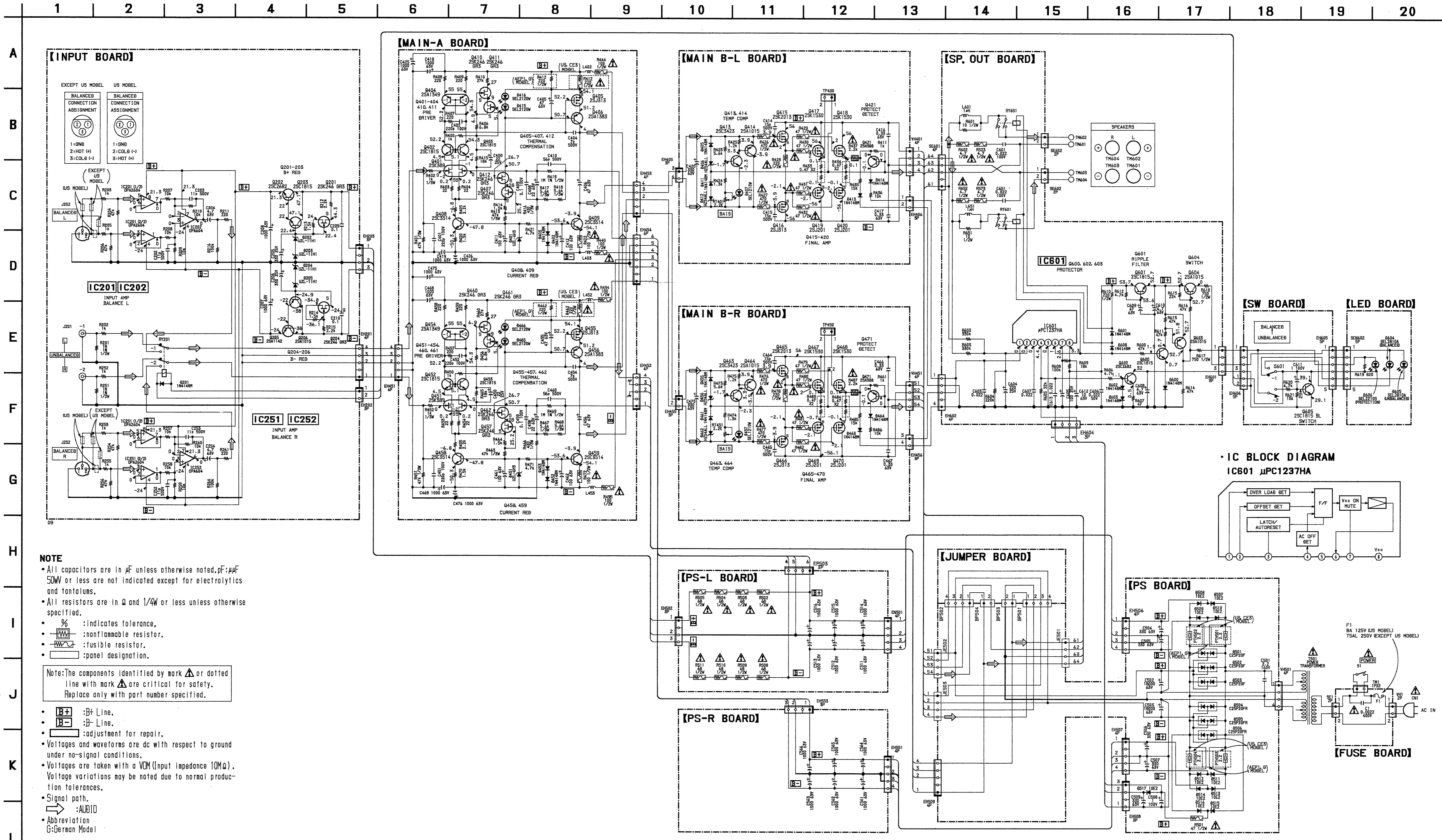
• See page 5 for Circuit Boards Location and see page 8 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D201	H-5	IC252	H-3
D202	I-6	IC601	D-19
D203	I-6		
D204	H-6	Q201	H-7
D205	H-6	Q202	H-7
D401	D-4	Q203	H-7
D402	C-4	Q204	H-7
D403	C-4	Q205	H-7
D405	C-16	Q206	H-7
D406	C-16	Q401	F-2
D407	B-17	Q402	E-1
D411	C-15	Q403	E-1
D412	C-15	Q404	C-2
D413	C-11	Q405	E-3
D414	C-10	Q406	E-3
D415	E-4	Q407	F-3
D416	E-4	Q408	D-3
D451	D-6	Q409	C-3
D452	C-6	Q410	D-2
D453	C-6	Q411	D-2
D455	F-16	Q412	D-3
D456	F-16	Q413	A-17
D457	E-17	Q414	B-18
D461	F-15	Q415	A-16
D462	F-15	Q416	A-15
D463	F-11	Q417	A-14
D464	F-10	Q418	A-12
D465	E-6	Q419	A-13
D466	E-6	Q420	A-10
D501	H-22	Q421	B-10
D502	H-22	Q451	F-7
D503	H-22	Q452	E-8
D504	H-23	Q453	E-8
D505	H-23	Q454	C-8
D506	H-23	Q455	E-7
D507	H-25	Q456	E-7
D508	H-25	Q457	D-7
D509	H-24	Q458	D-7
D510	H-24	Q459	C-7
D511	H-21	Q460	D-8
D512	H-20	Q461	D-7
D513	H-21	Q462	D-6
D514	H-21	Q463	D-17
D515	H-20	Q464	E-18
D516	H-20	Q465	D-16
D517	H-19	Q466	D-15
D600	D-21	Q467	E-14
D601	C-20	Q468	E-12
D602	F-19	Q469	E-13
D603	F-19	Q470	E-10
D604	B-26	Q471	E-10
D605	B-27	Q600	D-22
D606	B-28	Q601	D-21
D608	C-21	Q602	F-20
		Q603	D-22
IC201	H-2	Q604	E-21
IC202	H-2	Q605	C-24
IC251	H-3		



**NOTE**  
 • ○ : parts extracted from the component side.  
 • □ : Pattern from the side which enable seeing.  
 • Abbreviation  
 G: Gernon Model

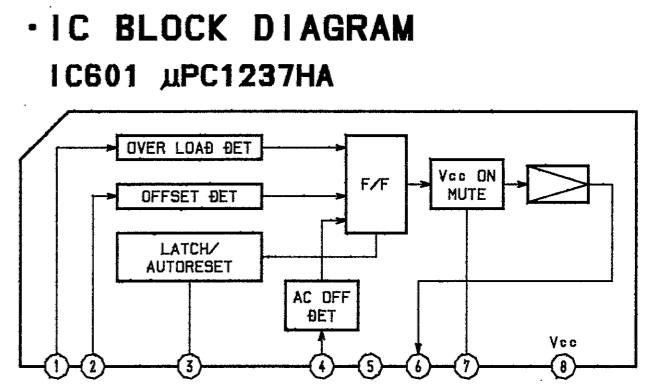


**NOTE**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
- $\%$  : indicates tolerance.
- $\text{NF}$  : nonflammable resistor.
- $\text{FR}$  : fusible resistor.
- $\text{P}$  : panel designation.

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

- $\text{B+}$  : B+ Line.
- $\text{B-}$  : B- Line.
- $\text{ADJ}$  : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (input impedance  $10\text{M}\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- $\rightarrow$  : AUDIO
- Abbreviation G: German Model





## SECTION 4 EXPLODED VIEWS

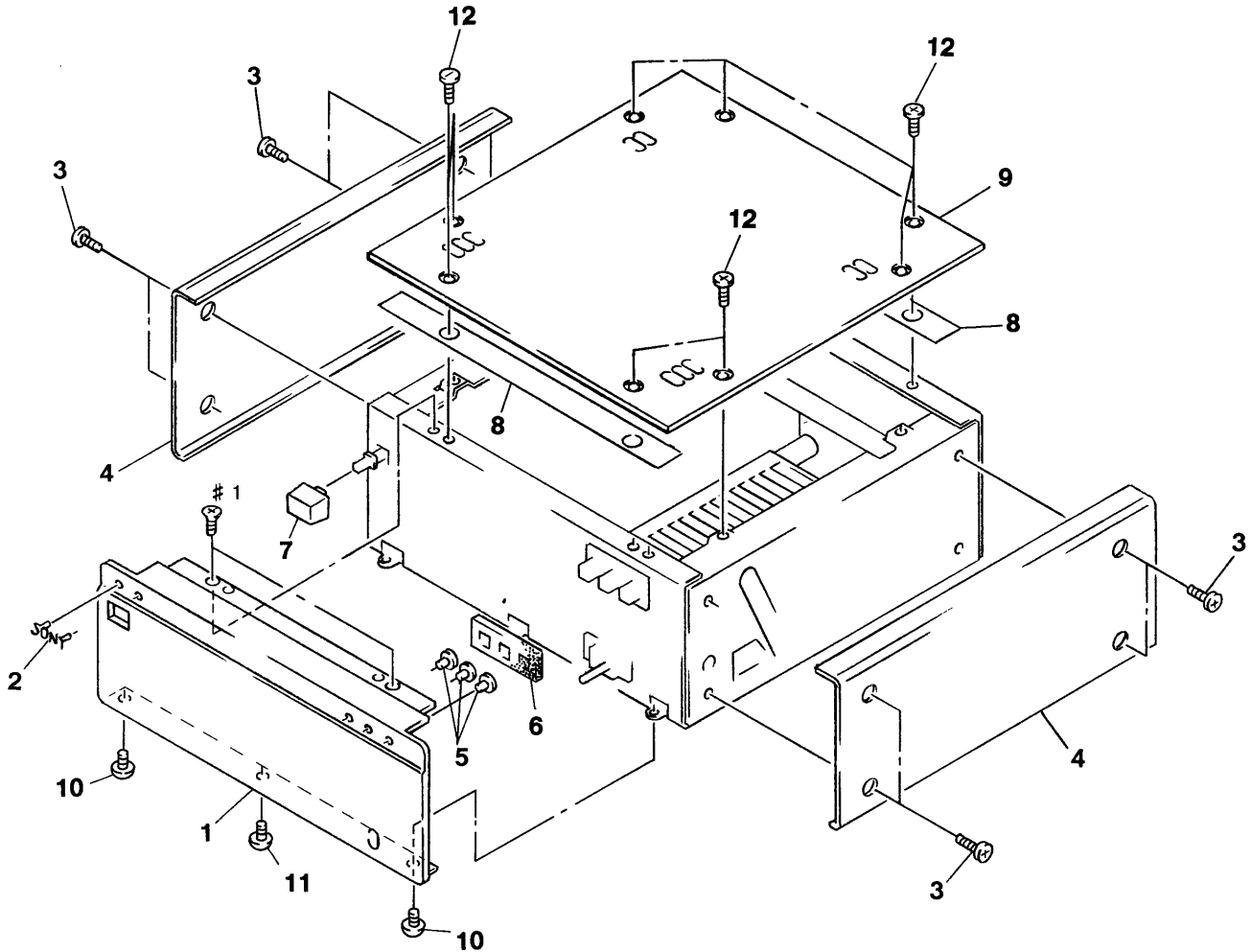
**NOTE:**

- Items marked “ \* ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.

- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation  
G : German model

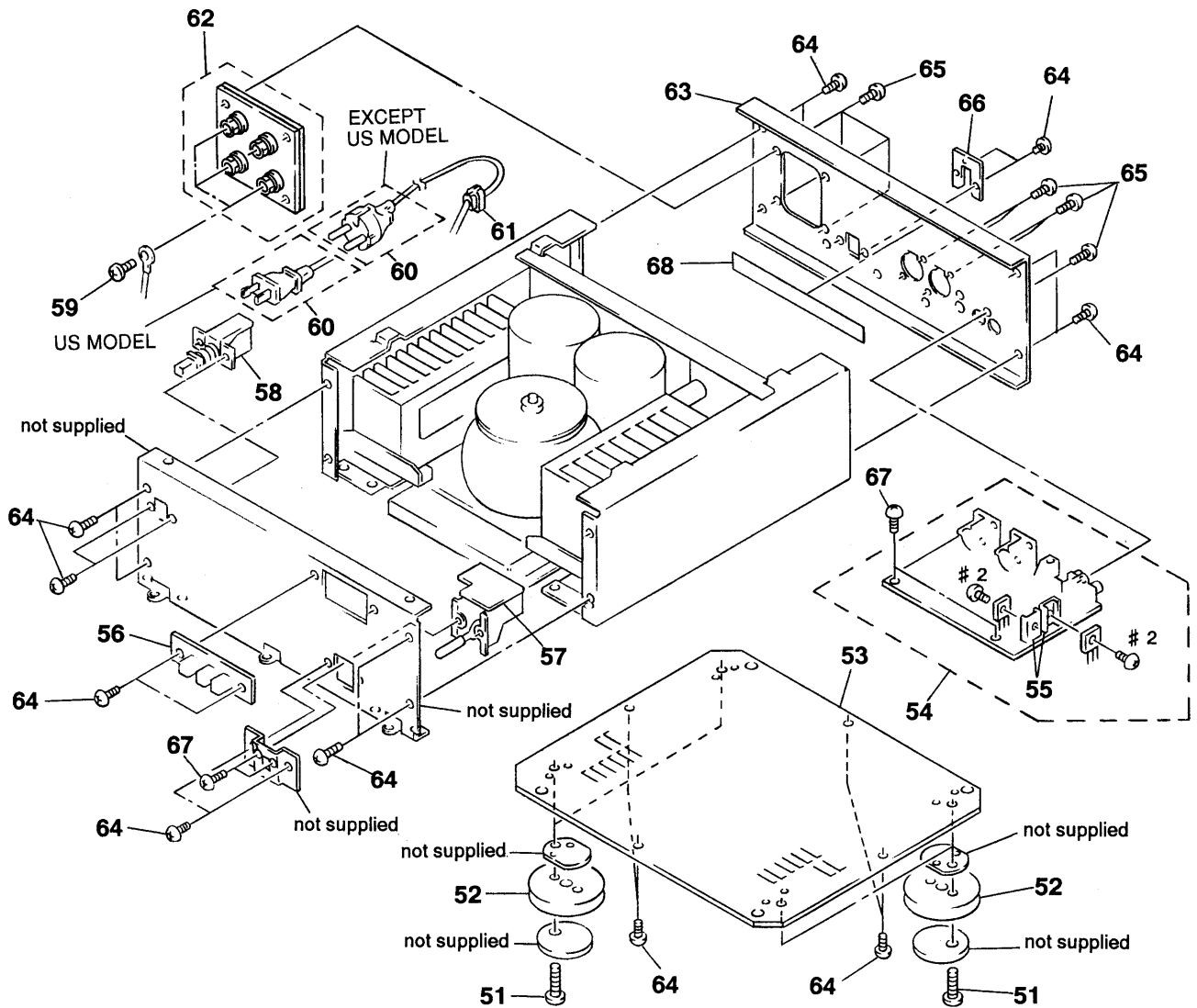
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

### 4-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-969-331-01	PANEL, FRONT (US, AEP1, CE3, G(BLACK))		7	4-942-032-01	KNOB (POWER) (US, AEP1, CE3, G(BLACK))	
1	4-969-331-11	PANEL, FRONT (G(GOLD))		7	4-942-032-11	KNOB (POWER) (G(GOLD))	
2	4-942-568-01	EMBLEM (NO. 5), SONY (US, AEP1, CE3, G(BLACK))		8	4-969-347-01	CUSHION	
2	4-942-568-21	EMBLEM (NO. 5), SONY (G(GOLD))		* 9	4-969-333-01	BOARD, TOP (US, AEP1, CE3, G(BLACK))	
3	4-924-242-11	SCREW (M3X6), FLAT HEAD (US, AEP1, CE3, G(BLACK))		* 9	4-969-333-11	BOARD, TOP (G(GOLD))	
3	4-924-242-61	SCREW (M3X6), FLAT HEAD (G(GOLD))		10	4-967-961-01	SCREW (3X8) (SPECIAL)	
* 4	4-969-332-01	PANEL, SIDE (US, AEP1, CE3, G(BLACK))		11	3-704-515-41	SCREW (BV/RING)	
* 4	4-969-332-11	PANEL, SIDE (G(GOLD))		12	4-921-439-01	SCREW (M3X8), FLAT HEAD (US, AEP1, CE3, G(BLACK))	
5	4-969-325-01	LENS, LED		12	4-921-439-11	SCREW (M3X8), FLAT HEAD (G(GOLD))	
6	4-971-098-01	PLATE, LIGHT INTERCEPTION (US, AEP1, CE3, G(BLACK))					

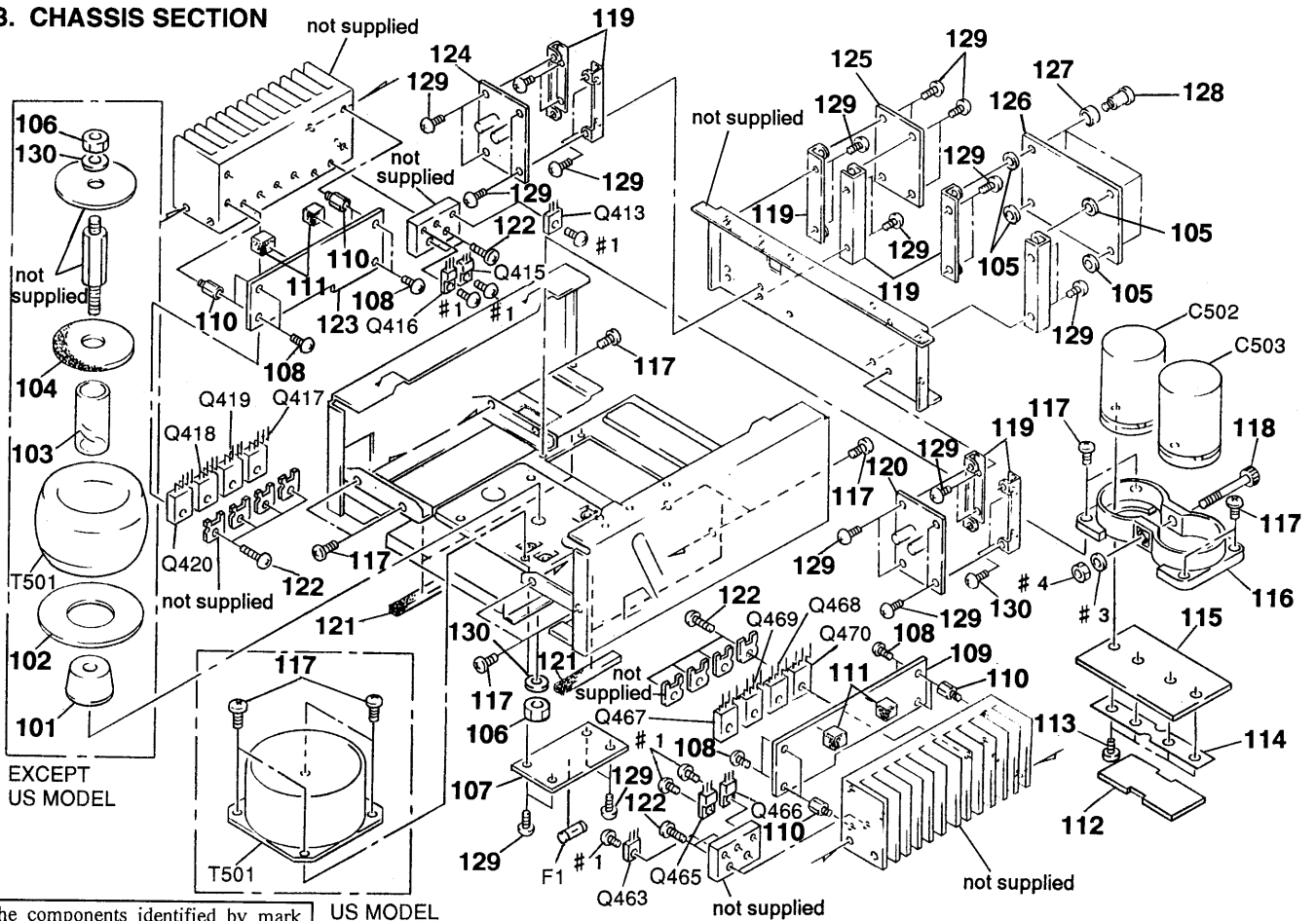
## 4-2. FRONT AND BACK SECTION



The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	4-968-979-01	SCREW (4X20), +B		61	2-352-626-01	BUSHING, CORD (AEP1, CE3, G)	
52	4-970-487-01	FOOT (F50180S)		61	4-916-783-01	BUSHING, CORD (US)	
* 53	X-4945-489-2	PLATE ASSY, BOTTOM		* 62	1-537-800-11	TERMINAL BOARD (SP) (US, AEP1, G)	
* 54	A-4371-760-A	INPUT BOARD, COMPLETE (AEP1, CE3, G)		62	1-537-800-21	TERMINAL BOARD (SP) (CE3)	
* 54	A-4371-761-A	INPUT BOARD, COMPLETE (US)		* 63	4-969-337-01	PANEL, BACK (AEP1, CE3, G)	
* 55	4-861-002-00	HEAT SINK		* 63	4-969-337-11	PANEL, BACK (US)	
* 56	1-654-125-11	LED BOARD		64	4-967-961-01	SCREW (3X8) (SPECIAL)	
* 57	1-654-124-11	SW BOARD		65	4-968-977-11	SCREW (3X10), +BVTP	
$\triangle$ 58	1-554-538-00	SWITCH, PUSH (AC POWER) (1 KEY)		* 66	4-923-873-01	BRACKET, CORD STOPPER	
59	4-967-960-01	SCREW (4X8)		67	4-967-959-01	SCREW (3X6)	
$\triangle$ 60	1-559-479-11	CORD, POWER (US)		68	4-971-316-11	DAMPER	
$\triangle$ 60	1-575-953-11	CORD, POWER (AEP1, CE3, G)					

### 4-3. CHASSIS SECTION



The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 101	4-971-103-01	HOLDER (DT) (AEP1, CE3, G)		* 126	A-4371-744-A	MAIN-A BOARD, COMPLETE (CE3)	
102	4-971-104-01	CUSHION (DT2) (AEP1, CE3, G)		* 126	A-4371-745-A	MAIN-A BOARD, COMPLETE (G)	
* 103	4-971-105-01	CUSHION (DIA. 22) (AEP1, CE3, G)		* 126	A-4371-746-A	MAIN-A BOARD, COMPLETE (US)	
104	4-971-101-01	CUSHION (DT1) (AEP1, CE3, G)		127	4-969-896-01	SPACER	
105	4-971-099-01	WASHER (P)		128	4-971-720-01	SCREW, (+) STEP	
				129	4-967-961-01	SCREW (3X8) (SPECIAL)	
106	4-960-914-01	NUT (M10) (AEP1, CE3, G)		130	3-376-862-01	WASHER	
* 107	1-654-121-11	FUSE BOARD (AEP1, CE3, G)		C502	1-110-496-11	CAP, ELECT 18000uF	
* 107	1-655-179-11	FUSE BOARD (US)		C503	1-110-496-11	CAP, ELECT 18000uF	
108	4-967-959-01	SCREW (3X6)		$\Delta$ F1	1-532-299-00	FUSE, TIME-LAG (T5A, 250) (AEP1, CE3, G)	
* 109	A-4371-750-A	MAIN B-R BOARD, COMPLETE		$\Delta$ F1	1-532-749-11	FUSE, GLASS TUBE (8A, 125V) (US)	
* 110	4-969-349-01	BOSS (H)		Q413	8-729-203-45	TRANSISTOR 2SC3423-0	
111	4-971-108-01	CUSHION (H)		Q415	8-729-018-19	TRANSISTOR 2SK2013-Y	
* 112	1-654-123-11	JAMPER BOARD		Q416	8-729-018-21	TRANSISTOR 2SJ313-Y	
* 113	4-931-964-01	SCREW (M4X6)		Q417	8-729-018-11	TRANSISTOR 2SK1530A-Y	
* 114	4-969-346-01	PLATE, GROUND		Q418	8-729-018-11	TRANSISTOR 2SK1530A-Y	
* 115	A-4371-751-A	PS BOARD, COMPLETE (AEP1, G)		Q419	8-729-018-13	TRANSISTOR 2SJ201A-Y	
* 115	A-4371-752-A	PS BOARD, COMPLETE (CE3)		Q420	8-729-018-13	TRANSISTOR 2SJ201A-Y	
* 115	A-4371-753-A	PS BOARD, COMPLETE (US)		Q463	8-729-203-45	TRANSISTOR 2SC3423-0	
* 116	4-969-342-01	HOLDER (C)		Q465	8-729-018-19	TRANSISTOR 2SK2013-Y	
117	4-967-960-01	SCREW (4X8)		Q466	8-729-018-21	TRANSISTOR 2SJ313-Y	
118	4-971-106-01	BOLT (M5), HEXAGON HOLE		Q467	8-729-018-11	TRANSISTOR 2SK1530A-Y	
* 119	4-969-344-01	HOLDER (P)		Q468	8-729-018-11	TRANSISTOR 2SK1530A-Y	
* 120	1-654-115-11	PS-R BOARD		Q469	8-729-018-13	TRANSISTOR 2SJ201A-Y	
* 121	4-971-317-01	CUSHION (C)		Q470	8-729-018-13	TRANSISTOR 2SJ201A-Y	
122	4-956-589-01	SCREW (3X14), +B(COPPER PLATING)		$\Delta$ T501	1-427-646-11	TRANSFORMER, POWER (AEP1, CE3, G)	
* 123	A-4371-749-A	MAIN B-L BOARD, COMPLETE		$\Delta$ T501	1-427-647-11	TRANSFORMER, POWER (US)	
* 124	1-654-116-11	PS-L BOARD					
* 125	A-4371-758-A	SP. OUT BOARD, COMPLETE					
* 126	A-4371-743-A	MAIN-A BOARD, COMPLETE (AEP1)					

# FUSE INPUT

## SECTION 5 ELECTRICAL PARTS LIST

**NOTE:**

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:  
KNOB, BALANCE (WHITE) . . . (RED)  
  ↑  ↑  
  Parts color Cabinet's color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- RESISTORS  
All resistors are in ohms  
METAL: Metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A..., uPA...:  $\mu$ PA..., uPB...:  $\mu$ PB...,  
uPC...:  $\mu$ PC..., uPD...:  $\mu$ PD...
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H
- Abbreviation  
G: German model

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
*	1-654-121-11	FUSE BOARD (AEP1, CE3, G) *****				< DIODE >	
*	1-655-179-11	FUSE BOARD (US) *****		D201	8-719-987-63	DIODE 1N4148M	
	1-533-183-11	HOLDER, FUSE  < CAPACITOR >		D202	8-719-001-51	DIODE UZL-11H1	
				D203	8-719-001-51	DIODE UZL-11H1	
				D204	8-719-001-51	DIODE UZL-11H1	
				D205	8-719-001-51	DIODE UZL-11H1	
						< CONNECTOR >	
CI	1-161-742-00	CERAMIC 0.0022uF 20% 400V  < FUSE >		EH201	1-691-766-11	PLUG (MICRO CONNECTOR) 4P	
				* EH202	1-564-506-11	PLUG, CONNECTOR 3P	
				* EH203	1-564-506-11	PLUG, CONNECTOR 3P	
$\Delta$ F1	1-532-299-00	FUSE, TIME-LAG (T5AL, 250V) (AEP1, CE3, G)				< IC >	
$\Delta$ F1	1-532-749-11	FUSE, GLASS TUBE (8A, 125V) (US)  < CONNECTOR >		IC201	8-759-259-12	IC OPA2604AP	
				IC202	8-759-259-11	IC OPA604AP	
SE1	1-580-614-21	PIN, CONNECTOR 2P		IC251	8-759-259-12	IC OPA2604AP	
* VH1	1-568-226-11	PIN, CONNECTOR 2P		IC252	8-759-259-11	IC OPA604AP	
						< JACK >	
				J201	1-568-250-21	JACK, PIN 2P (UNBALANCED)	
				J202	1-766-803-11	CONNECTOR (CANON) (BALANCED L)	
				J252	1-766-803-11	CONNECTOR (CANON) (BALANCED R)	
						< TRANSISTOR >	
				Q201	8-729-202-67	TRANSISTOR 2SK246-GR3	
				Q202	8-729-141-05	TRANSISTOR 2SC2682-QPE	
				Q203	8-729-119-78	TRANSISTOR 2SC403SP-51	
				Q204	8-729-202-67	TRANSISTOR 2SK246-GR3	
				Q205	8-729-141-06	TRANSISTOR 2SA1142-QPE	
				Q206	8-729-201-53	TRANSISTOR 2SA1015-GR	
						< RESISTOR >	
C202	1-107-590-11	CERAMIC 11PF 5% 500V		R201	1-214-937-00	METAL 1M 1% 1/2W	
C203	1-107-590-11	CERAMIC 11PF 5% 500V		R202	1-247-713-11	CARBON 1K 5% 1/4W F	
C204	1-124-927-11	ELECT 4.7uF 20% 100V		R203	1-247-713-11	CARBON 1K 5% 1/4W F	
C205	1-126-025-11	ELECT 330uF 20% 25V		R204	1-249-465-11	CARBON 47K 5% 1/4W	
C206	1-126-025-11	ELECT 330uF 20% 25V		R205	1-247-713-11	CARBON 1K 5% 1/4W F	
C207	1-124-922-11	ELECT 1000uF 20% 63V		R206	1-249-465-11	CARBON 47K 5% 1/4W	
C208	1-124-922-11	ELECT 1000uF 20% 63V		R207	1-247-725-11	CARBON 10K 5% 1/4W F	
C209	1-164-159-11	CERAMIC 0.1uF 50V		R208	1-247-725-11	CARBON 10K 5% 1/4W F	
C210	1-164-159-11	CERAMIC 0.1uF 50V		R209	1-247-725-11	CARBON 10K 5% 1/4W F	
C252	1-107-590-11	CERAMIC 11PF 5% 500V		R210	1-247-725-11	CARBON 10K 5% 1/4W F	
C253	1-107-590-11	CERAMIC 11PF 5% 500V					
C254	1-124-927-11	ELECT 4.7uF 20% 100V					

**INPUT      JUMPER      LED      MAIN-A**

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R211	1-247-704-11	CARBON	220 5% 1/4W F	*	A-4371-743-A	MAIN-A BOARD, COMPLETE (AEP1)	
R212	1-247-717-11	CARBON	2.2K 5% 1/4W F			*****	
R213	1-249-556-11	CARBON	1.5K 5% 1/4W				
R214	1-249-556-11	CARBON	1.5K 5% 1/4W	*	A-4371-744-A	MAIN-A BOARD, COMPLETE (CE3)	
R215	1-247-717-11	CARBON	2.2K 5% 1/4W F			*****	
R216	1-249-469-11	CARBON	100K 5% 1/4W	*	A-4371-745-A	MAIN-A BOARD, COMPLETE (G)	
R251	1-214-937-00	METAL	1M 1% 1/2W			*****	
R252	1-247-713-11	CARBON	1K 5% 1/4W F				
R253	1-247-713-11	CARBON	1K 5% 1/4W F	*	A-4371-746-A	MAIN-A BOARD, COMPLETE (US)	
R254	1-249-465-11	CARBON	47K 5% 1/4W			*****	
R255	1-247-713-11	CARBON	1K 5% 1/4W F			< CAPACITOR >	
R256	1-249-465-11	CARBON	47K 5% 1/4W	C400	1-126-233-11	ELECT 22uF 20% 50V	
R257	1-247-725-11	CARBON	10K 5% 1/4W F	C401	1-136-810-11	FILM 220PF 5% 100V	
R258	1-247-725-11	CARBON	10K 5% 1/4W F	C402	1-136-810-11	FILM 220PF 5% 100V	
R259	1-247-725-11	CARBON	10K 5% 1/4W F	C404	1-107-587-11	CERAMIC 7PF 0.5PF 500V	
R260	1-247-725-11	CARBON	10K 5% 1/4W F	C405	1-124-918-11	ELECT 47uF 20% 63V	
R261	1-247-704-11	CARBON	220 5% 1/4W F	C406	1-124-918-11	ELECT 47uF 20% 63V	
R266	1-249-469-11	CARBON	100K 5% 1/4W	C408	1-124-929-11	ELECT 22uF 20% 100V	
		< RELAY >		C409	1-137-174-11	FILM 0.1uF 10% 100V	
RY201	1-515-803-11	RELAY		C410	1-107-606-11	CERAMIC 56PF 5% 500V	
		*****		C411	1-126-365-51	ELECT 100uF 20% 63V	
*	1-654-123-11	JUMPER BOARD		C412	1-126-365-51	ELECT 100uF 20% 63V	
		*****		C418	1-128-474-11	ELECT 1000uF 20% 63V	
		*****		C419	1-128-474-11	ELECT 1000uF 20% 63V	
*	1-654-125-11	LED BOARD		C425	1-124-922-11	ELECT 1000uF 20% 63V	
		*****		C426	1-124-922-11	ELECT 1000uF 20% 63V	
		< DIODE >		C450	1-126-233-11	ELECT 22uF 20% 50V	
D604	8-719-301-49	DIODE SEL2810A (BALANCED)		C451	1-136-810-11	FILM 220PF 5% 100V	
D605	8-719-301-49	DIODE SEL2810A (UNBALANCED)		C452	1-136-810-11	FILM 220PF 5% 100V	
D606	8-719-313-43	DIODE SEL6210S-TH10 (PROTECTION)		C454	1-107-587-11	CERAMIC 7PF 0.5PF 500V	
		< RESISTOR >		C455	1-124-918-11	ELECT 47uF 20% 63V	
R619	1-247-712-11	CARBON	820 5% 1/4W F	C456	1-124-918-11	ELECT 47uF 20% 63V	
		*****		C458	1-124-929-11	ELECT 22uF 20% 100V	
		*****		C459	1-137-174-11	FILM 0.1uF 10% 100V	
		*****		C460	1-107-606-11	CERAMIC 56PF 5% 500V	
		*****		C461	1-126-365-51	ELECT 100uF 20% 63V	
		*****		C462	1-126-365-51	ELECT 100uF 20% 63V	
		*****		C468	1-128-474-11	ELECT 1000uF 20% 63V	
		*****		C469	1-128-474-11	ELECT 1000uF 20% 63V	
		*****		C475	1-124-922-11	ELECT 1000uF 20% 63V	
		*****		C476	1-124-922-11	ELECT 1000uF 20% 63V	
		< DIODE >					
D401	8-719-933-41	DIODE HZS6C3L		D401	8-719-933-41	DIODE HZS6C3L	
D402	8-719-987-63	DIODE 1N4148M		D402	8-719-987-63	DIODE 1N4148M	
D403	8-719-987-63	DIODE 1N4148M		D403	8-719-987-63	DIODE 1N4148M	
D415	8-719-303-13	DIODE SEL1210W		D415	8-719-303-13	DIODE SEL1210W	
D416	8-719-303-13	DIODE SEL1210W		D416	8-719-303-13	DIODE SEL1210W	
D451	8-719-933-41	DIODE HZS6C3L		D451	8-719-933-41	DIODE HZS6C3L	
D452	8-719-987-63	DIODE 1N4148M		D452	8-719-987-63	DIODE 1N4148M	

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

# MAIN-A

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D453	8-719-987-63	DIODE 1N4148M		R408	1-247-704-11	CARBON 220 5% 1/4W	F
D465	8-719-303-13	DIODE SEL1210W		R409	1-247-704-11	CARBON 220 5% 1/4W	F
D466	8-719-303-13	DIODE SEL1210W		R410	1-249-586-11	CARBON 27K 5% 1/4W	
< CONNECTOR >				△R412	1-219-193-11	FUSIBLE 220 5% 1/2W	F (US, CE3)
EH451	1-691-766-11	PLUG (MICRO CONNECTOR) 4P		R412	1-249-657-11	CARBON 220 5% 1/2W	(AEP1, G)
EH452	1-691-766-31	PLUG (MICRO CONNECTOR) 4P		R413	1-249-492-11	CARBON 47K 5% 1/3W	
EH453	1-691-766-21	PLUG (MICRO CONNECTOR) 4P		R414	1-249-556-11	CARBON 1.5K 5% 1/4W	
EH454	1-691-768-11	PLUG (MICRO CONNECTOR) 6P		R415	1-249-461-11	CARBON 18K 5% 1/4W	
< COIL >				R416	1-247-231-00	CARBON 430 5% 1/3W	
* L402	1-428-203-11	COIL, AIR-CORE		R417	1-247-761-11	CARBON 5.6K 5% 1/3W	
* L403	1-428-203-11	COIL, AIR-CORE		R418	1-247-761-11	CARBON 5.6K 5% 1/3W	
* L452	1-428-203-11	COIL, AIR-CORE		R419	1-214-937-00	METAL 1M 1% 1/2W	
* L453	1-428-203-11	COIL, AIR-CORE		R420	1-249-556-11	CARBON 1.5K 5% 1/4W	
< TRANSISTOR >				R421	1-247-721-11	CARBON 4.7K 5% 1/4W	F
Q401	8-729-203-21	TRANSISTOR 2SK389-GR		△R422	1-219-022-11	FUSIBLE 100 5% 1/2W	
Q402	8-729-119-78	TRANSISTOR 2SC403SP-51		△R444	1-219-022-11	FUSIBLE 100 5% 1/2W	F
Q403	8-729-119-78	TRANSISTOR 2SC403SP-51		△R445	1-219-022-11	FUSIBLE 100 5% 1/2W	F
Q404	8-729-232-00	TRANSISTOR 2SA1349-GRBL		R450	1-247-713-11	CARBON 1K 5% 1/4W	F
Q405	8-729-018-21	TRANSISTOR 2SJ313-Y		R451	1-249-492-11	CARBON 47K 5% 1/3W	
Q406	8-729-104-91	TRANSISTOR 2SA1383		R452	1-249-210-11	CARBON 1K 5% 1/3W	
Q407	8-729-202-67	TRANSISTOR 2SK246-GR3		R453	1-249-883-11	CARBON 22 5% 1/4W	
Q408	8-729-104-18	TRANSISTOR 2SC3514		R454	1-249-883-11	CARBON 22 5% 1/4W	
Q409	8-729-104-18	TRANSISTOR 2SC3514		R455	1-247-717-11	CARBON 2.2K 5% 1/4W	F
Q410	8-729-202-67	TRANSISTOR 2SK246-GR3		R456	1-247-723-11	CARBON 6.8K 5% 1/4W	F
Q411	8-729-202-67	TRANSISTOR 2SK246-GR3		R457	1-247-704-11	CARBON 220 5% 1/4W	F
Q412	8-729-202-67	TRANSISTOR 2SK246-GR3		R458	1-247-704-11	CARBON 220 5% 1/4W	F
Q451	8-729-203-21	TRANSISTOR 2SK389-GR		R459	1-247-704-11	CARBON 220 5% 1/4W	F
Q452	8-729-119-78	TRANSISTOR 2SC403SP-51		R460	1-249-586-11	CARBON 27K 5% 1/4W	
Q453	8-729-119-78	TRANSISTOR 2SC403SP-51		△R462	1-219-193-11	FUSIBLE 220 5% 1/2W	F (US, CE3)
Q454	8-729-232-00	TRANSISTOR 2SA1349-GRBL		R462	1-249-657-11	CARBON 220 5% 1/2W	(AEP1, G)
Q455	8-729-018-21	TRANSISTOR 2SJ313-Y		R463	1-249-492-11	CARBON 47K 5% 1/3W	
Q456	8-729-104-91	TRANSISTOR 2SA1383		R464	1-249-556-11	CARBON 1.5K 5% 1/4W	
Q457	8-729-202-67	TRANSISTOR 2SK246-GR3		R465	1-249-461-11	CARBON 18K 5% 1/4W	
Q458	8-729-104-18	TRANSISTOR 2SC3514		R466	1-247-231-00	CARBON 430 5% 1/3W	
Q459	8-729-104-18	TRANSISTOR 2SC3514		R467	1-247-761-11	CARBON 5.6K 5% 1/3W	
Q460	8-729-202-67	TRANSISTOR 2SK246-GR3		R468	1-247-761-11	CARBON 5.6K 5% 1/3W	
Q461	8-729-202-67	TRANSISTOR 2SK246-GR3		R469	1-214-937-00	METAL 1M 1% 1/2W	
Q462	8-729-202-67	TRANSISTOR 2SK246-GR3		R470	1-249-556-11	CARBON 1.5K 5% 1/4W	
< RESISTOR >				R471	1-247-721-11	CARBON 4.7K 5% 1/4W	F
R400	1-247-713-11	CARBON 1K 5% 1/4W	F	△R472	1-219-022-11	FUSIBLE 100 5% 1/2W	F
R401	1-249-492-11	CARBON 47K 5% 1/3W		△R494	1-219-022-11	FUSIBLE 100 5% 1/2W	F
R402	1-249-210-11	CARBON 1K 5% 1/3W		△R495	1-219-022-11	FUSIBLE 100 5% 1/2W	F
R403	1-249-883-11	CARBON 22 5% 1/4W		*****			
R404	1-249-883-11	CARBON 22 5% 1/4W					
R405	1-247-717-11	CARBON 2.2K 5% 1/4W	F				
R406	1-247-723-11	CARBON 6.8K 5% 1/4W	F				
R407	1-247-704-11	CARBON 220 5% 1/4W	F				

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
*	A-4371-749-A	MAIN B-L BOARD, COMPLETE *****		R434	1-219-117-11	RES, WIREWOUND (0.47+0.47)	
		< BUS BAR >		R435	1-249-460-11	CARBON            15K   5%   1/4W	
BB401	1-564-295-00	BAR, BUS		R436	1-247-725-11	CARBON            10K   5%   1/4W F	
		< CAPACITOR >		△R437	1-249-931-11	CARBON            2.2K   5%   1/4W F	
C414	1-107-593-11	CERAMIC            15PF   5%   500V				< VARIABLE RESISTOR >	
C415	1-107-593-11	CERAMIC            15PF   5%   500V		RT401	1-224-489-11	RES, ADJ, METAL FILM 2.2K	
C416	1-137-163-11	FILM                0.33uF   10%   63V				< CONNECTOR >	
C417	1-137-163-11	FILM                0.33uF   10%   63V		* TP400	1-564-518-11	PLUG, CONNECTOR 3P	
C420	1-124-920-11	ELECT              330uF   20%   63V		VH401	1-766-897-11	PIN, CONNECTOR (PC BOARD) 4P	
		< DIODE >		*****			
D405	8-719-987-63	DIODE    1N4148M		*	A-4371-750-A	MAIN B-R BOARD, COMPLETE *****	
D406	8-719-985-53	DIODE    HZS4ALL				< BUS BAR >	
D407	8-719-303-13	DIODE    SEL1210W		BB451	1-564-295-00	BAR, BUS	
D411	8-719-987-63	DIODE    1N4148M				< CAPACITOR >	
D412	8-719-985-53	DIODE    HZS4ALL		C464	1-107-593-11	CERAMIC            15PF   5%   500V	
D413	8-719-987-63	DIODE    1N4148M		C465	1-107-593-11	CERAMIC            15PF   5%   500V	
D414	8-719-987-63	DIODE    1N4148M		C466	1-137-163-11	FILM                0.33uF   10%   63V	
		< CONNECTOR >		C467	1-137-163-11	FILM                0.33uF   10%   63V	
* EH405	1-564-506-11	PLUG, CONNECTOR 3P		C470	1-124-920-11	ELECT              330uF   20%   63V	
* EH406	1-564-506-11	PLUG, CONNECTOR 3P				< DIODE >	
		< TRANSISTOR >		D455	8-719-987-63	DIODE    1N4148M	
Q413	8-729-203-45	TRANSISTOR    2SC3423-0		D456	8-719-985-53	DIODE    HZS4ALL	
Q414	8-729-201-53	TRANSISTOR    2SA1015-GR		D457	8-719-303-13	DIODE    SEL1210W	
Q415	8-729-018-19	TRANSISTOR    2SK2013-Y		D461	8-719-987-63	DIODE    1N4148M	
Q416	8-729-018-21	TRANSISTOR    2SJ313-Y		D462	8-719-985-53	DIODE    HZS4ALL	
Q417	8-729-018-11	TRANSISTOR    2SK1530A-Y		D463	8-719-987-63	DIODE    1N4148M	
Q418	8-729-018-11	TRANSISTOR    2SK1530A-Y		D464	8-719-987-63	DIODE    1N4148M	
Q419	8-729-018-13	TRANSISTOR    2SJ201A-Y				< CONNECTOR >	
Q420	8-729-018-13	TRANSISTOR    2SJ201A-Y		* EH455	1-564-506-11	PLUG, CONNECTOR 3P	
Q421	8-729-140-82	TRANSISTOR    2SA988-PAFAEA		* EH456	1-564-506-11	PLUG, CONNECTOR 3P	
		< RESISTOR >				< TRANSISTOR >	
R411	1-247-713-11	CARBON            1K   5%   1/4W F		Q463	8-729-203-45	TRANSISTOR    2SC3423-0	
R423	1-247-722-11	CARBON            5.6K   5%   1/4W F		Q464	8-729-201-53	TRANSISTOR    2SA1015-GR	
R424	1-249-926-11	CARBON            1.3K   5%   1/4W		Q465	8-729-018-19	TRANSISTOR    2SK2013-Y	
R425	1-247-714-11	CARBON            1.2K   5%   1/4W F		Q466	8-729-018-21	TRANSISTOR    2SJ313-Y	
△R426	1-202-954-71	FUSIBLE            470   5%   1/2W F		Q467	8-729-018-11	TRANSISTOR    2SK1530A-Y	
△R427	1-202-954-71	FUSIBLE            470   5%   1/2W F		Q468	8-729-018-11	TRANSISTOR    2SK1530A-Y	
△R428	1-219-193-11	FUSIBLE            220   5%   1/2W F		Q469	8-729-018-13	TRANSISTOR    2SJ201A-Y	
△R429	1-219-185-11	FUSIBLE            47   5%   1/2W F		Q470	8-729-018-13	TRANSISTOR    2SJ201A-Y	
△R430	1-219-185-11	FUSIBLE            47   5%   1/2W F		Q471	8-729-140-82	TRANSISTOR    2SA988-PAFAEA	
△R431	1-219-185-11	FUSIBLE            47   5%   1/2W F					
△R432	1-219-185-11	FUSIBLE            47   5%   1/2W F					
R433	1-219-117-11	RES, WIREWOUND (0.47+0.47)					

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

# MAIN B-R PS

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< RESISTOR >							
R461	1-247-713-11	CARBON	1K 5% 1/4W F	C505	1-110-395-11	ELECT	330uF 20% 63V (US)
R473	1-247-722-11	CARBON	5.6K 5% 1/4W F	C505	1-124-920-11	ELECT	330uF 20% 63V (AEP1, CE3, G)
R474	1-249-926-11	CARBON	1.3K 5% 1/4W	C506	1-110-395-11	ELECT	330uF 20% 63V (US)
R475	1-247-714-11	CARBON	1.2K 5% 1/4W F	C506	1-124-920-11	ELECT	330uF 20% 63V (AEP1, CE3, G)
△R476	1-202-954-71	FUSIBLE	470 5% 1/2W F	C507	1-110-395-11	ELECT	330uF 20% 63V (US)
△R477	1-202-954-71	FUSIBLE	470 5% 1/2W F	C507	1-124-920-11	ELECT	330uF 20% 63V (AEP1, CE3, G)
△R478	1-219-193-11	FUSIBLE	220 5% 1/2W F	C508	1-124-791-11	ELECT	1.0uF 20% 100V
△R479	1-219-185-11	FUSIBLE	47 5% 1/2W F	C509	1-110-395-11	ELECT	330uF 20% 63V (US)
△R480	1-219-185-11	FUSIBLE	47 5% 1/2W F	C509	1-124-920-11	ELECT	330uF 20% 63V (AEP1, CE3, G)
△R481	1-219-185-11	FUSIBLE	47 5% 1/2W F	< DIODE >			
△R482	1-219-185-11	FUSIBLE	47 5% 1/2W F	D501	8-719-210-25	DIODE	C25P20F
R483	1-219-117-11	RES, WIREWOUND	(0.47+0.47)	D502	8-719-210-25	DIODE	C25P20F
R484	1-219-117-11	RES, WIREWOUND	(0.47+0.47)	D503	8-719-210-25	DIODE	C25P20F
R485	1-249-460-11	CARBON	15K 5% 1/4W	D504	8-719-210-26	DIODE	C25P20FR
R486	1-247-725-11	CARBON	10K 5% 1/4W F	D505	8-719-210-26	DIODE	C25P20FR
△R487	1-249-931-11	CARBON	2.2K 5% 1/4W F	D506	8-719-210-26	DIODE	C25P20FR
< VARIABLE RESISTOR >				D507	8-719-200-02	DIODE	10E2
RT451	1-224-489-11	RES, ADJ, METAL FILM	2.2K	D508	8-719-200-02	DIODE	10E2
< CONNECTOR >				D509	8-719-200-02	DIODE	10E2
* TP450	1-564-518-11	PLUG, CONNECTOR	3P	D510	8-719-200-02	DIODE	10E2
VH451	1-766-897-11	PIN, CONNECTOR (PC BOARD)	4P	D511	8-719-200-02	DIODE	10E2
*****				D512	8-719-200-02	DIODE	10E2
*	A-4371-751-A	PS BOARD, COMPLETE (AEP1, G)	*****	D513	8-719-200-02	DIODE	10E2
*	A-4371-752-A	PS BOARD, COMPLETE (CE3)	*****	D514	8-719-200-02	DIODE	10E2
*	A-4371-753-A	PS BOARD, COMPLETE (US)	*****	D515	8-719-200-02	DIODE	10E2
*	4-916-791-01	PLATE, GROUND, 5P (EPT501)		D516	8-719-200-02	DIODE	10E2
*	3-346-266-21	PLATE, GROUND (EPT502-505)		D517	8-719-200-02	DIODE	10E2
< TERMINAL >				< CONNECTOR >			
* BP501	1-535-117-00	TERMINAL		EH506	1-691-766-11	PLUG (MICRO CONNECTOR)	4P
* BP502	1-535-117-00	TERMINAL		EH507	1-691-766-21	PLUG (MICRO CONNECTOR)	4P
* BP503	1-535-115-00	TERMINAL		* EH508	1-564-506-11	PLUG, CONNECTOR	3P
* BP504	1-535-115-00	TERMINAL		EH509	1-691-766-31	PLUG (MICRO CONNECTOR)	4P
< CAPACITOR >				< TRANSFORMER >			
C501	1-136-880-11	FILM	2.2uF 10% 160V	PTH501	1-806-882-11	THERMISTOR, POSITIVE 2.2	(US, CE3)
C502	1-110-496-11	ELECT	18000uF 63V	PTH502	1-806-882-11	THERMISTOR, POSITIVE 2.2	(US, CE3)
C503	1-110-496-11	ELECT	18000uF 63V	PTH503	1-806-882-11	THERMISTOR, POSITIVE 2.2	(US, CE3)
C504	1-110-395-11	ELECT	330uF 20% 63V (US)	PTH504	1-806-882-11	THERMISTOR, POSITIVE 2.2	(US, CE3)
C504	1-124-920-11	ELECT	330uF 20% 63V (AEP1, CE3, G)	< RESISTOR >			
				△R501	1-219-185-11	FUSIBLE	47 5% 1/2W F
				< CONNECTOR >			
				VH501	1-564-241-00	PIN, CONNECTOR	4P (US)
				VH501	1-766-897-11	PIN, CONNECTOR (PC BOARD)	4P (AEP, G)

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.



PS-L

PS-R

SP.OUT

Ref.No.	Part No.	Description	Remark
*****			
*	1-654-116-11	PS-L BOARD *****	
< CAPACITOR >			
C511	1-124-922-11	ELECT 1000uF 20%	63V
C512	1-128-474-11	ELECT 1000uF 20%	63V
C513	1-124-922-11	ELECT 1000uF 20%	63V
C514	1-124-922-11	ELECT 1000uF 20%	63V
C515	1-124-922-11	ELECT 1000uF 20%	63V
C516	1-128-474-11	ELECT 1000uF 20%	63V
< CONNECTOR >			
EH501	1-691-766-11	PLUG (MICRO CONNECTOR) 4P	
* EH502	1-564-506-11	PLUG, CONNECTOR 3P	
* EH503	1-564-506-11	PLUG, CONNECTOR 3P	
< RESISTOR >			
$\Delta$ R502	1-202-947-71	FUSIBLE 68 5%	1/2W F
$\Delta$ R503	1-202-947-71	FUSIBLE 68 5%	1/2W F
$\Delta$ R504	1-202-947-71	FUSIBLE 68 5%	1/2W F
$\Delta$ R505	1-202-947-71	FUSIBLE 68 5%	1/2W F
$\Delta$ R508	1-202-947-71	FUSIBLE 68 5%	1/2W F
$\Delta$ R509	1-202-947-71	FUSIBLE 68 5%	1/2W F
$\Delta$ R510	1-202-947-71	FUSIBLE 68 5%	1/2W F
$\Delta$ R511	1-202-947-71	FUSIBLE 68 5%	1/2W F
*****			
*	1-654-115-11	PS-R BOARD *****	
< CAPACITOR >			
C561	1-124-922-11	ELECT 1000uF 20%	63V
C562	1-128-474-11	ELECT 1000uF 20%	63V
C563	1-124-922-11	ELECT 1000uF 20%	63V
C564	1-124-922-11	ELECT 1000uF 20%	63V
C565	1-128-474-11	ELECT 1000uF 20%	63V
C566	1-124-922-11	ELECT 1000uF 20%	63V
< CONNECOTR >			
EH551	1-691-766-21	PLUG (MICRO CONNECTOR) 4P	
* EH553	1-564-506-11	PLUG, CONNECTOR 3P	
*****			
*	A-4371-758-A	SP.OUT BOARD, COMPLETE *****	
	4-861-002-00	HEAT SINK (HS601)	

Ref.No.	Part No.	Description	Remark
< CAPACITOR >			
C601	1-130-973-00	FILM 0.022uF 2%	100V
C603	1-136-157-00	FILM 0.022uF 5%	50V
C604	1-124-911-11	ELECT 220uF 20%	50V
C605	1-124-478-11	ELECT 100uF 20%	25V
C606	1-136-157-00	FILM 0.022uF 5%	50V
C607	1-136-157-00	FILM 0.022uF 5%	50V
C608	1-124-927-11	ELECT 4.7uF 20%	100V
C609	1-124-918-11	ELECT 47uF 20%	63V
C610	1-124-927-11	ELECT 4.7uF 20%	100V
C612	1-124-915-11	ELECT 10uF 20%	63V
C613	1-136-157-00	FILM 0.022uF 5%	50V
C651	1-130-973-00	FILM 0.022uF 2%	100V
< DIODE >			
D600	8-719-987-63	DIODE IN4148M	
D601	8-719-987-63	DIODE IN4148M	
D602	8-719-987-63	DIODE IN4148M	
D603	8-719-987-63	DIODE IN4148M	
D608	8-719-987-63	DIODE IN4148M	
< CONNECTOR >			
EH600	1-691-767-11	PLUG (MICRO CONNECTOR) 5P	
* EH601	1-564-506-11	PLUG, CONNECTOR 3P	
EH602	1-691-766-11	PLUG (MICRO CONNECTOR) 4P	
* EH604	1-564-506-11	PLUG, CONNECTOR 3P	
< IC >			
IC601	8-759-111-68	IC uPC1237HA	
< COIL >			
* L601	1-422-009-13	COIL, AIR-CORE 1uH	
* L651	1-422-009-13	COIL, AIR-CORE 1uH	
< TRANSISTOR >			
Q600	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q601	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q602	8-729-141-05	TRANSISTOR 2SC2682-QPE	
Q603	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q604	8-729-201-53	TRANSISTOR 2SA1015-GR	
< RESISTOR >			
$\Delta$ R523	1-202-934-71	FUSIBLE 4.7 5%	1/2W F
$\Delta$ R573	1-202-934-71	FUSIBLE 4.7 5%	1/2W F
R600	1-249-437-11	CARBON 47K 5%	1/4W
R601	1-247-727-11	CARBON 10 5%	1/2W
$\Delta$ R602	1-202-934-71	FUSIBLE 4.7 5%	1/2W F
R603	1-247-891-00	CARBON 330K 5%	1/4W
R604	1-247-887-00	CARBON 220K 5%	1/4W
R605	1-249-462-11	CARBON 22K 5%	1/4W

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

**SP.OUT**

**SW**

Ref. No.	Part No.	Description	Remark
R606	1-247-721-11	CARBON	4.7K 5% 1/4W F
R607	1-249-520-11	CARBON	47 5% 1/4W
R608	1-249-469-11	CARBON	100K 5% 1/4W
R609	1-249-461-11	CARBON	18K 5% 1/4W
R610	1-249-657-11	CARBON	220 5% 1/2W
R611	1-249-437-11	CARBON	47K 5% 1/4W
R612	1-247-721-11	CARBON	4.7K 5% 1/4W F
R613	1-249-437-11	CARBON	47K 5% 1/4W
R614	1-249-437-11	CARBON	47K 5% 1/4W
R615	1-249-462-11	CARBON	22K 5% 1/4W
R616	1-249-437-11	CARBON	47K 5% 1/4W
R617	1-249-799-11	CARBON	750 5% 1/2W
R618	1-249-799-11	CARBON	750 5% 1/2W
R651	1-247-727-11	CARBON	10 5% 1/2W
△R652	1-202-934-71	FUSIBLE	4.7 5% 1/2W F
R653	1-247-891-00	CARBON	330K 5% 1/4W
< RELAY >			
RY601	1-515-676-11	RELAY	
RY651	1-515-676-11	RELAY	
< CONNECTOR >			
SE601	1-766-897-11	PIN, CONNECTOR (PC BOARD)	4P
SE602	1-564-321-00	PIN, CONNECTOR	2P
SE652	1-564-321-00	PIN, CONNECTOR	2P
*****			
*	1-654-124-11	SW BOARD	*****
< CAPACITOR >			
C611	1-124-791-11	ELECT	1.0uF 20% 100V
< CONNECTOR >			
EH605	1-691-767-11	PLUG (MICRO CONNECTOR)	5P
EH606	1-691-767-31	PLUG (MICRO CONNECTOR)	5P
< TRANSISTOR >			
Q605	8-729-119-78	TRANSISTOR	2SC403SP-51
< RESISTOR >			
R620	1-247-721-11	CARBON	4.7K 5% 1/4W F
R621	1-247-725-11	CARBON	10K 5% 1/4W F
< SWITCH >			
S601	1-554-338-00	SWITCH, LEVER SLIDE (BALANCED)	
*****			

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	*****
△58	1-554-538-00	SWITCH, PUSH (AC POWER) (1 KEY)	
△60	1-559-479-11	CORD, POWER (US)	
△60	1-575-953-11	CORD, POWER (AEP1, CE3, G)	
* 62	1-537-800-11	TERMINAL BOARD (SP) (US, AEP1, G)	
62	1-537-800-21	TERMINAL BOARD (SP) (CE3)	
C502	1-110-496-11	CAP, ELECT 18000uF	
C503	1-110-496-11	CAP, ELECT 18000uF	
△F1	1-532-299-00	FUSE, TIME-LAG (T5A, 250V) (AEP1, CE3, G)	
△F1	1-532-749-11	FUSE, GLASS TUBE (8A, 125V) (US)	
Q413	8-729-203-45	TRANSISTOR 2SC3423-0	
Q415	8-729-018-19	TRANSISTOR 2SK2013-Y	
Q416	8-729-018-21	TRANSISTOR 2SJ313-Y	
Q417	8-729-018-11	TRANSISTOR 2SK1530A-Y	
Q418	8-729-018-11	TRANSISTOR 2SK1530A-Y	
Q419	8-729-018-13	TRANSISTOR 2SJ201A-Y	
Q420	8-729-018-13	TRANSISTOR 2SJ201A-Y	
Q463	8-729-203-45	TRANSISTOR 2SC3423-0	
Q465	8-729-018-19	TRANSISTOR 2SK2013-Y	
Q466	8-729-018-21	TRANSISTOR 2SJ313-Y	
Q467	8-729-018-11	TRANSISTOR 2SK1530A-Y	
Q468	8-729-018-11	TRANSISTOR 2SK1530A-Y	
Q469	8-729-018-13	TRANSISTOR 2SJ201A-Y	
Q470	8-729-018-13	TRANSISTOR 2SJ201A-Y	
△T501	1-427-646-11	TRANSFORMER, POWER (AEP1, CE3, G)	
△T501	1-427-647-11	TRANSFORMER, POWER (US)	
*****			
ACCESSORIES & PACKING MATERIALS			
*****			
	3-703-351-00	LABEL (CTV), FTZ (AEP1, CE3, G)	
	3-703-710-41	STICKER, SONY SYMBOL (12) (AEP1, CE3, G)	
	3-759-992-11	MANUAL, INSTRUCTION (US, AEP1, CE3) (ENGLISH, FRENCH, SPANISH, PORTUGUESE)	
	3-759-992-41	MANUAL, INSTRUCTION (AEP1, CE3, G) (GERMAN, DUTCH, SWEDISH, ITALIAN)	
	4-970-079-01	CUSHION	
	4-970-080-01	INDIVIDUAL CARTON	
*****			
*****			
HARDWARE LIST			
*****			
#1	7-682-247-09	SCREW +K 3X6	
#2	7-682-548-09	SCREW (3X8)	
#3	7-623-112-05	W 5, SMALL	
#4	7-684-025-04	N 5, TYPE 2	

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