

TA-F211/F242

SERVICE MANUAL

AEP Model
 UK Model
 E Model
 Australian Model
 TA-F211
 UK Model
 TA-F242

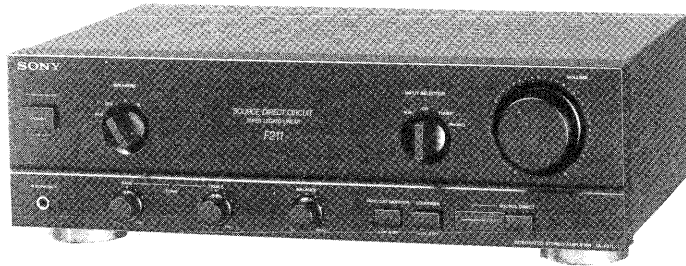


Photo : TA-F211

SPECIFICATIONS

Amplifier

Continuous RMS power output (both channels driven simultaneously)

Model for Scandinavian countries, Spain and Portugal

		TA-F211
DIN, 1 kHz	8 ohms	45 W + 45 W
20 Hz – 20 kHz	8 ohms	30 W + 30 W THD 0.05%

Model for U.K. and Australia

		TA-F211	TA-F242*
DIN, 1 kHz	8 ohms	45 W + 45 W	70 W + 70 W
20 Hz – 20 kHz	8 ohms	30 W + 30 W THD 0.05%	60 W + 60 W THD 0.05%

* U.K. model only

Model for other European countries

		TA-F211
DIN, 1 kHz	4 ohms	55 W + 55 W
	8 ohms	45 W + 45 W
20 Hz – 20 kHz	4 ohms	–
	8 ohms	30 W + 30 W THD 0.05%

Tone controls

	Response	Turnover frequency
BASS	± 6 dB	500 Hz
TREBLE	± 6 dB	3 kHz

Input

Input jack	Jack type	Sensitivity	Impedance	S/N (weighting network, input level)
PHONO (MM)	Phono	2.0 mV	50 kilohms	78 dB (A, 5 mV)
TUNER, CD, AUX, DAT/TAPE 1 TAPE 2	Phono	150 mV	50 kilohms	98 dB (150 mV)

Output

Output jack	Jack type	Voltage/impedance
REC OUT	Phono jack	Voltage 150 mV Impedance 1 kohm
SPEAKERS	–	<ul style="list-style-type: none"> Models except for Germany: Accepts speakers of 8 – 16 ohms Model for other countries: Accepts speakers of 4 – 16 ohms
HEADPHONES	Stereophono jack	Accepts low and high impedance headphones

– Continued on next page –

INTEGRATED STEREO AMPLIFIER
SONY®

TABLE OF CONTENTS

Loudness (Attenuation 30 dB)	+6 dB (100 Hz)/+3 dB (10 kHz)
Subsonic filter	6 dB/octave, attenuation below 15 Hz
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, CD, AUX, TAPE 1, TAPE 2/ DAT: 7 Hz – 100 kHz ± 3 dB
Residual noise	Less than 190 μV (network A)
Damping factor	40 (8 ohms, 1 kHz)
Total harmonic distortion	Less than 0.05% at 10 W output (8 ohms, 20 Hz – 20 kHz)

General System	Preamplifier: Low-noise, high-gain equalizer amplifier Power amplifier: Pure-complementary SEPP OCL power amplifier with all stages directly coupled
Power requirements	Models for Continental European countries: 220 V – 230 V AC, 50 Hz Model for U.K. and Australia: 240 V AC, 50 Hz Models for other countries: 120 V, 220 V or 240 V AC adjustable, 50/60 Hz

Power consumption

Models for	TA-F211
Scandinavian countries, Spain and Portugal	80 W
Other countries	80 W

Dimensions	Approx. 430 × 135 × 315 mm (w/h/d) (17 × 5 3/8 × 12 1/2 inches)
Mass	Approx. 6.2 kg (13 lb 11 oz)

For all the countries except U.K. and Australia the above values are measured at 230 V AC.

Design and specifications are subject to change without notice.

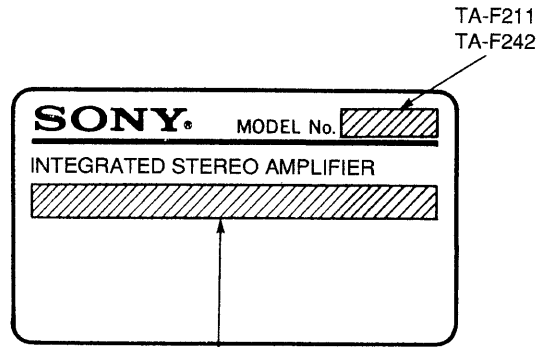
Note

This appliance conform with EEC Directive 87/308/EEC regarding interference suppression.

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MODEL IDENTIFICATION

—Model Number Label—



AEP, Germany model : AC 220 — 230V, 50/60Hz, 80W
 UK, Australian model : AC 240V, 50/60Hz
 E model : AC 120/220/240V, 50/60Hz, 115W

SAFETY-RELATED COMPONENT WARNING!!

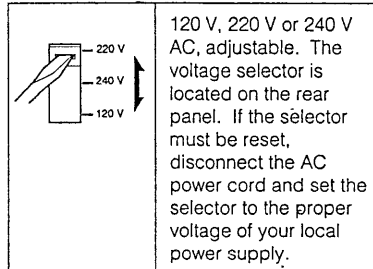
COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1 GENERAL

Precautions

On safety

- Before operating the unit, be sure that the operating voltage of your unit is identical with that of your local power supply. (Except for European countries and Australia)



- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.
- Should any liquid or solid object fall into the unit, unplug the unit and have the unit checked by qualified personnel before operating it any further.
- Do not block the ventilation holes on top of the unit. The ventilation holes must be unobstructed for proper operation of the unit and to prolong the life of its components.
- AC power cord must be changed only at the qualified service shop.

To prevent internal heat buildup in the unit,

Place the unit in a location with adequate air circulation.

Do not install the unit:

- near heat sources such as radiators or air ducts.
- in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

On cleaning the cabinet

Clean the cabinet, panels and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

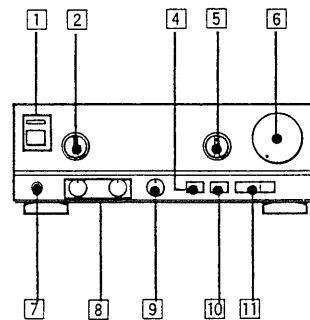
On repacking

Do not throw away the carton and the packing material. This makes an ideal container when transporting the unit. When shipping the unit, repack it as it was packed at the factory.

If you have any question or problem concerning your unit that is not covered in this manual, please consult your nearest Sony dealer.

Parts Identification

This section describes about each name of this amplifier and remote commander.



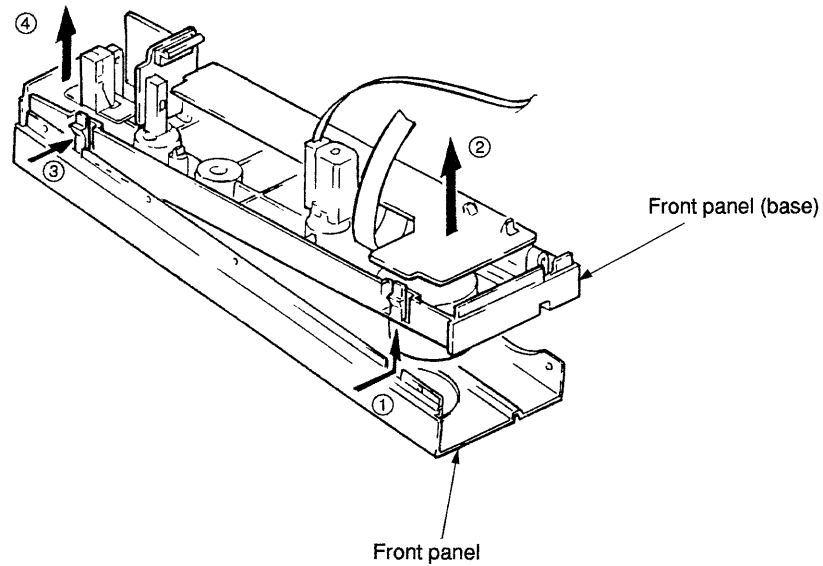
Front Panel

- 1 POWER switch and indicator
- 2 SPEAKERS selector
- 4 TAPE/DAT MONITOR
Cassette deck/DAT deck monitor switch
- 5 INPUT SELECTOR
- 6 VOLUME control
- 7 HEADPHONES jack
(stereo phone jack)
- 8 TONE controls
- 9 BALANCE control
- 10 LOUDNESS switch
- 11 SOURCE DIRECT switch and indicator

SECTION 2 DISASSEMBLY

Note : Follow the disassembly procedure in the numerical given.

2-1. FRONT PANEL (BASE)



SECTION 3 ELECTRICAL ADJUSTMENT

Note :

- Adjustment should be performed 5 minutes after the POWER switch is on (POWER ON).

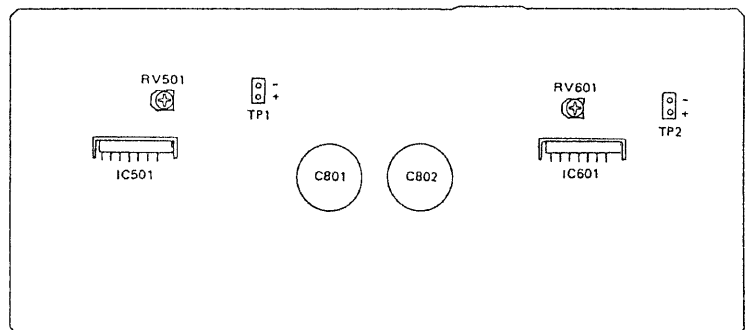
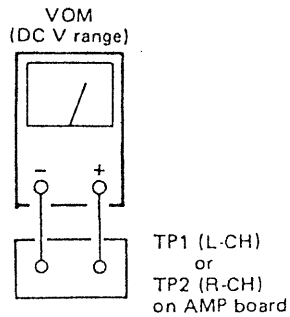
Bias Current Adjustment

Setting :

VOLUME control : minimum

Adjustment Location :

[AMP BOARD] — Component Side —

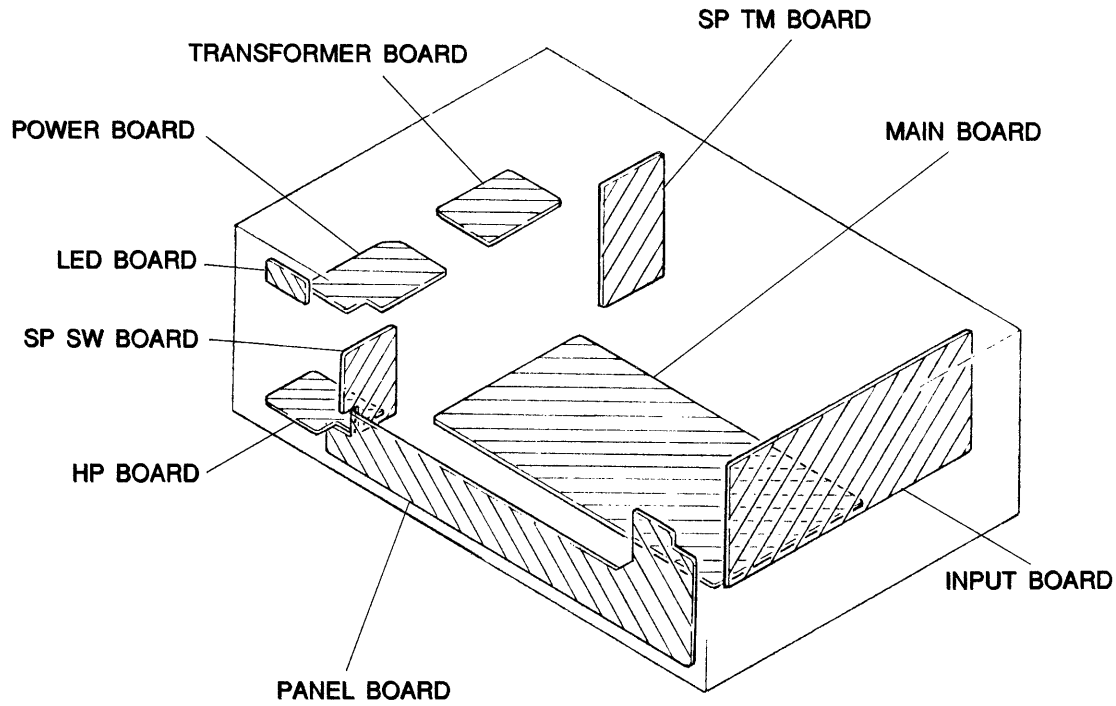


Procedure :

Adjust RV501 (L-CH) and RV601 (R-CH) so as to obtain 4mV at TP1 (L-CH) and TP2 (R-CH) respectively.

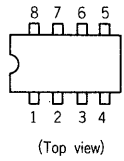
SECTION 4 DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION

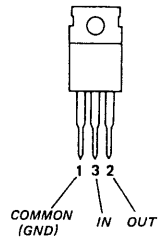


4-2. SEMICONDUCTOR LEAD LAYOUTS

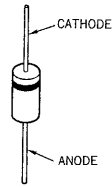
M5218AP-22



M5F7915L



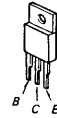
**10E2N
1N4148M**



**2SA1694-OPY
2SA1695-OPY
2SC4467-OPY
2SC4468-OPY**



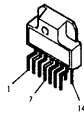
**2SB1094-LK
2SD2012**



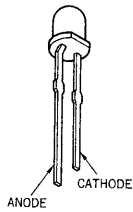
**M5218AL
uPC1237HA**



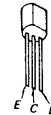
**uPC1342V
uPC1298V**



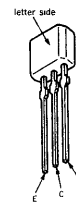
SEL2510C-C



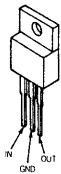
2SC1841-PAFAEA



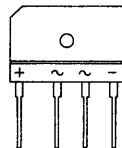
DTA124ES



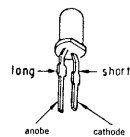
M5F7815L



RBV-602-01



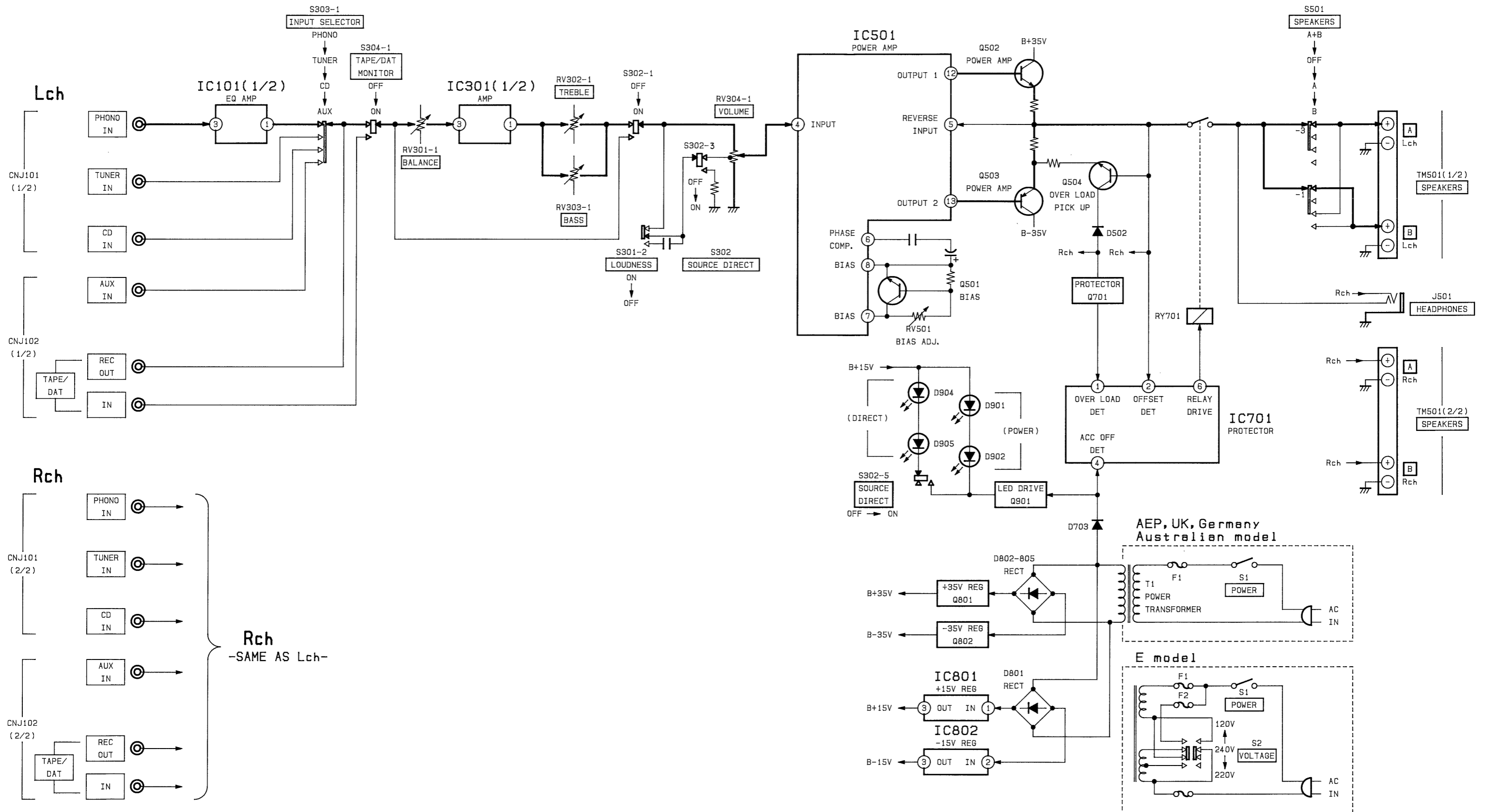
SEL2810A-C



2SC2603-EF



4-3. BLOCK DIAGRAM

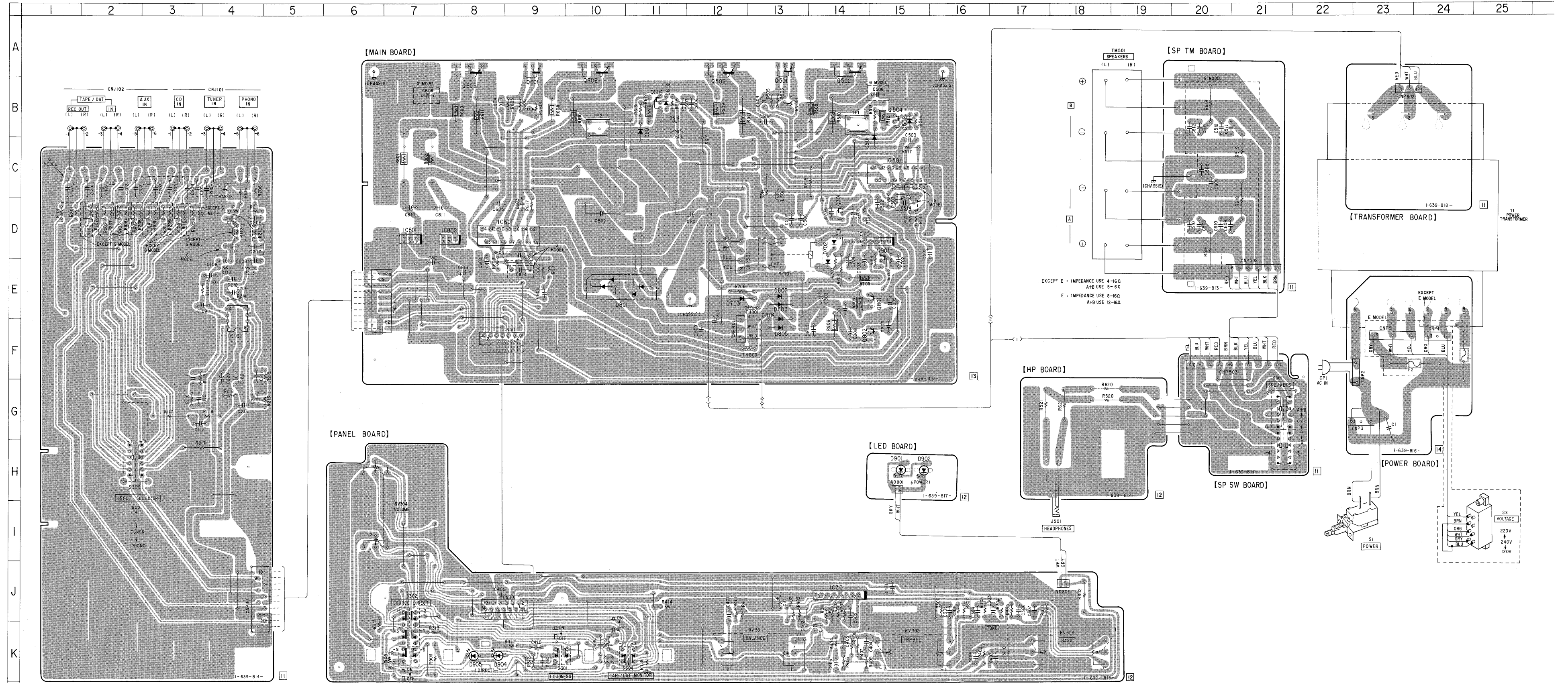


4-4. PRINTED WIRING BOARD

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

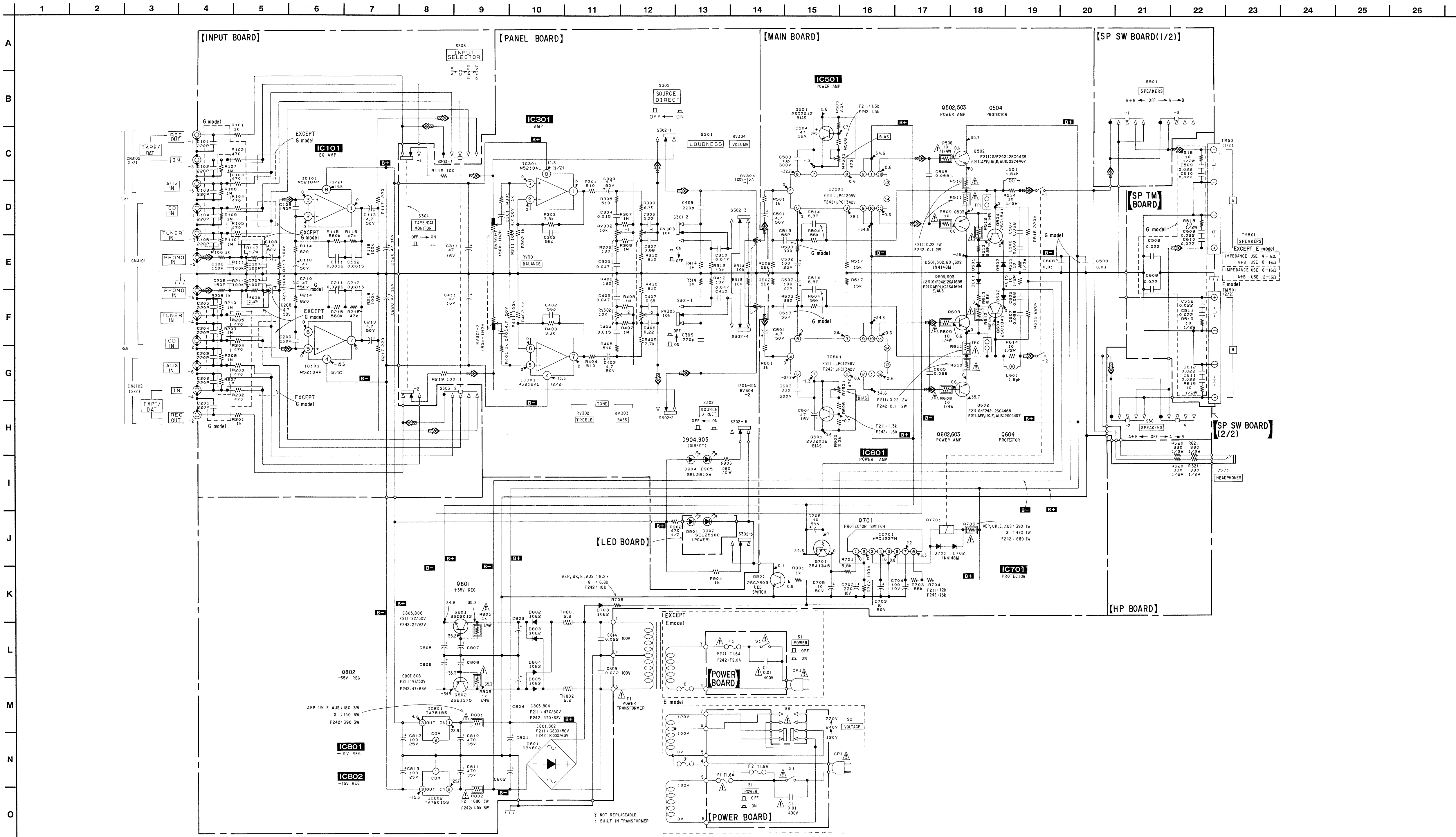
• Semiconductor Location

Ref. No.	Location
D501	B-15
D502	B-15
D601	B-11
D602	B-11
D701	D-14
D702	E-14
D703	E-12
D801	E-10
D802	E-13
D803	E-13
D804	F-13
D805	F-13
D901	H-15
D902	H-15
D904	K-8
D905	K-8
IC101	F-4
IC301	J-14
IC501	C-15
IC601	D-9
IC701	D-14
IC801	D-7
IC802	D-8
Q501	A-13
Q502	A-14
Q503	A-12
Q504	B-15
Q601	A-9
Q602	A-10
Q603	A-8
Q604	B-11
Q701	D-14
Q801	E-15
Q802	F-15
Q901	E-15



Note:
 • ○ : parts extracted from the components side. [INPUT BOARD]
 • G : Germany
 • AUS : Australian

4-5. SCHEMATIC DIAGRAM
 • See page 15 for IC Block Diagrams.



Note:

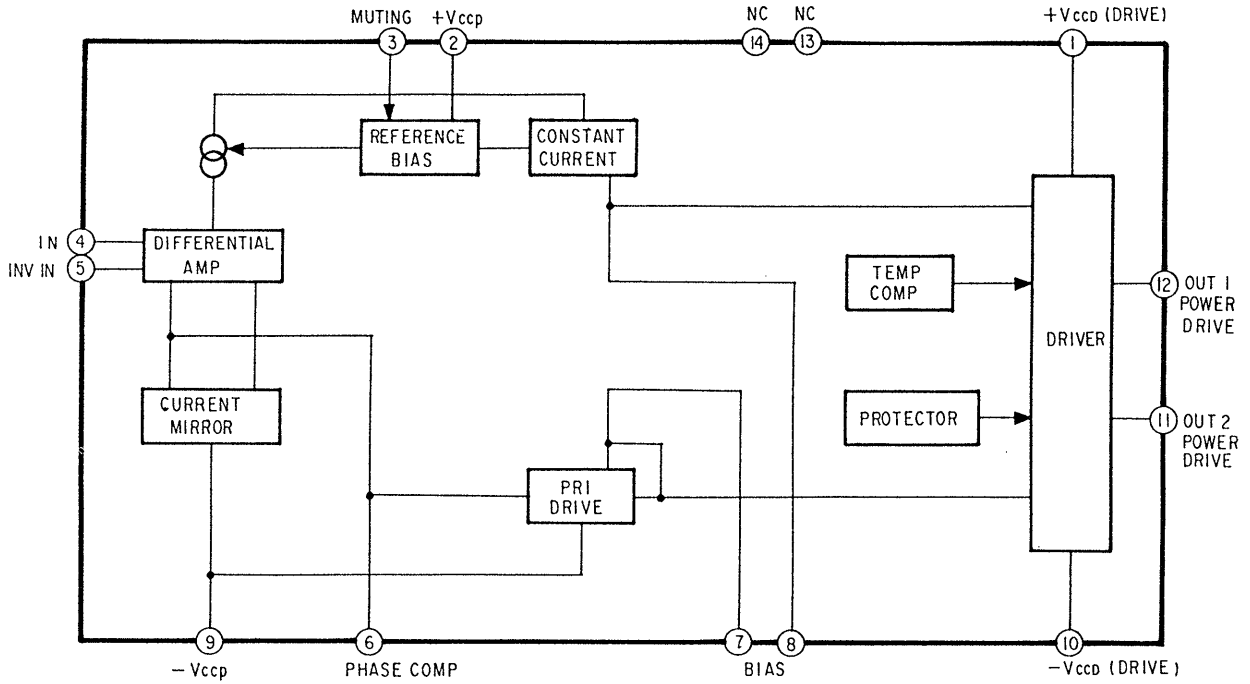
- All capacitors are in μF unless otherwise noted. $\text{pF} = \mu\text{F} \times 10^{-6}$, $\text{nF} = \mu\text{F} \times 10^{-9}$.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- \square : nonflammable resistor.
- \square : fusible resistor.

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

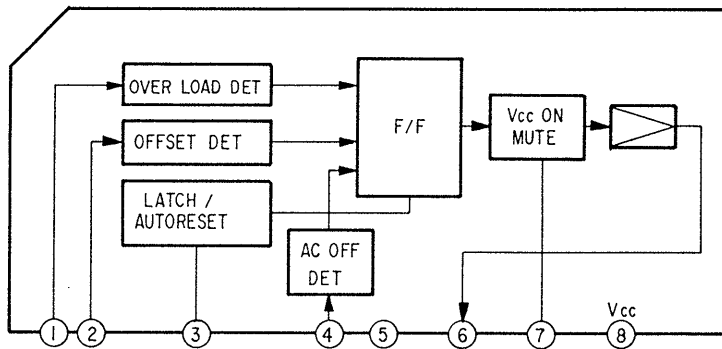
- **B+** : B+ Line
- **B-** : B- Line
- \square : panel designation, and adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- PHONO : PHONO
- G : Germany
- AUS : Australian

4-6. IC BLOCK DIAGRAMS

IC501, 601
 uPC1298V, uPC1342V



IC701 uPC1237HA



SECTION 5 EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

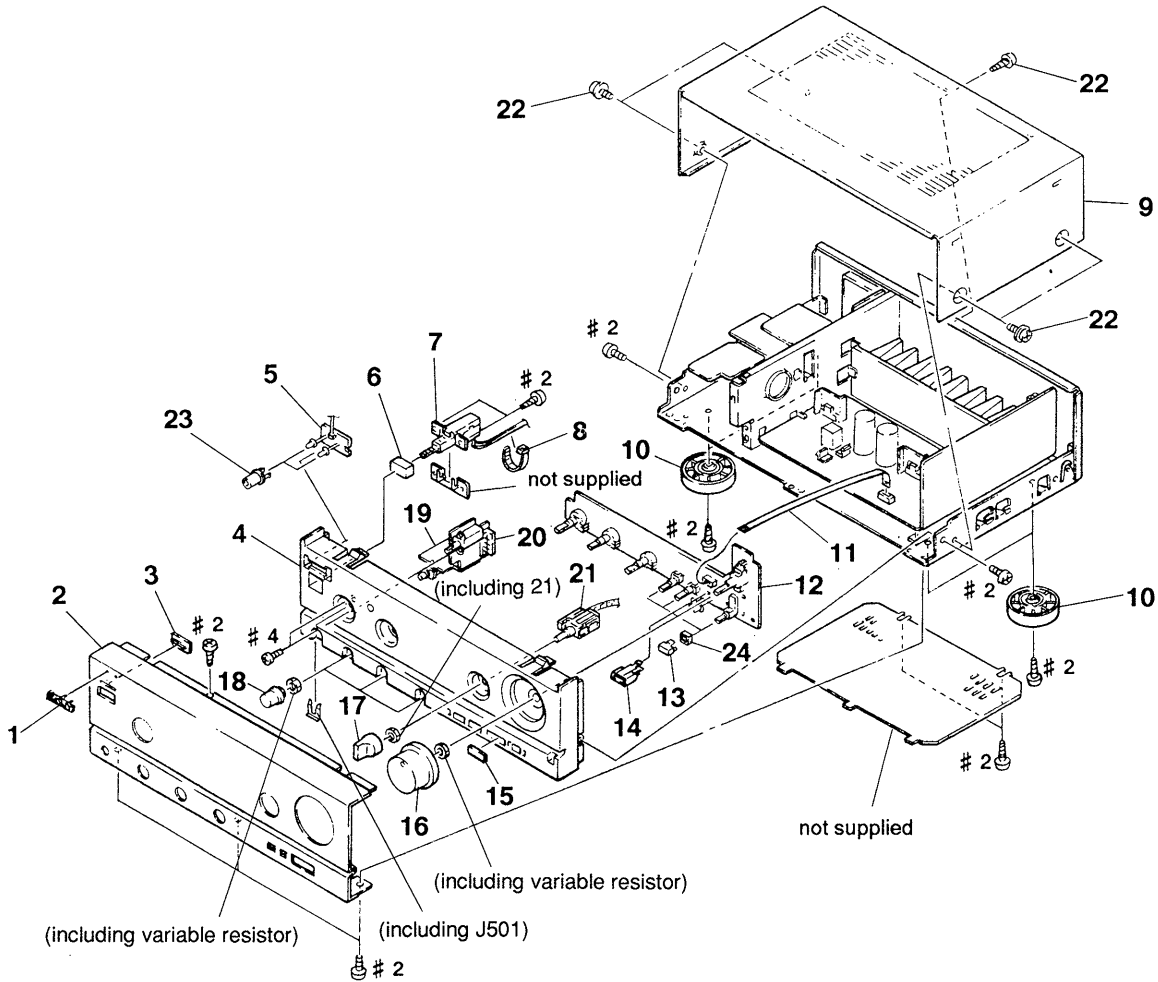
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.
- G : Germany model
- AUS : Australian model

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

Note:

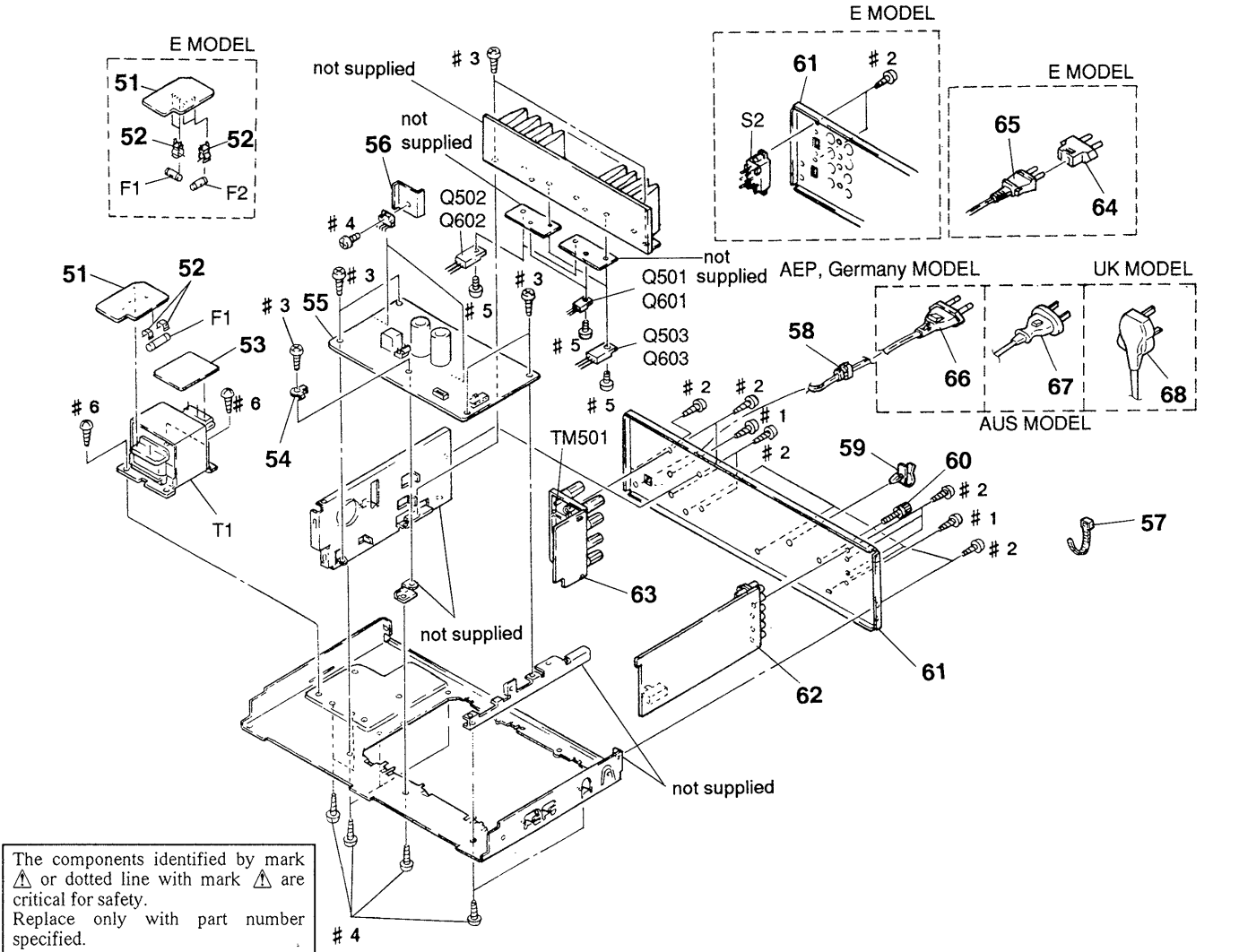
There are two type of AEP models which are depend on countries.
 AEP2 model: Model for Scandinavian countries.
 Switzerland, Spain and Portugal
 AEP1 model: Model for other European countries

5-1. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-942-568-01	EMBLEM (NO. 5), SONY		13	4-947-011-01	BUTTON (F)	
2	4-957-473-11	PANEL, FRONT (F211)		14	4-945-177-01	HOUSE, LIGHTING	
2	4-957-473-21	PANEL, FRONT (F242)		15	4-945-622-01	PLATE (S/D), INDICATION (F211)	
3	X-4942-660-1	INDICATOR ASSY		15	4-945-622-11	PLATE (S/D), INDICATION (F242)	
* 4	4-957-474-01	BASE, PANEL		16	X-4941-616-1	KNOB (R53) ASSY	
* 5	1-639-817-11	LED BOARD		17	4-945-174-01	KNOB (F25)	
6	4-929-289-01	BUTTON		18	4-945-173-01	KNOB (R21)	
7	1-572-267-41	SWITCH, PUSH (AC POWER) (1 KEY)		* 19	1-639-812-11	H. P BOARD	
8	3-655-653-21	BAND (TAITON), BINDING		* 20	1-639-811-11	SP SW BOARD	
9	4-929-294-11	CASE		21	1-572-803-11	SWITCH, ROTARY SLIDE (INPUT SELECTION)	
10	4-956-885-11	FOOT (F58175S2W)		22	3-704-366-01	SCREW (CASE) (M3X8)	
11	1-590-036-11	WIRE, FLAT TYPE (13 CORE)		* 23	3-362-478-21	HOLDER (T), LED	
* 12	A-4360-576-A	PANEL BOARD, COMPLETE (F242)		24	4-864-307-00	RING	
* 12	A-4360-585-A	PANEL BOARD, COMPLETE (F211)					

5-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 51	1-639-816-14	POWER BOARD		66	1-575-651-21	CORD, POWER (F211:AEP, G)	
* 52	1-533-225-11	HOLDER, FUSE		67	1-696-845-11	CORD, POWER (F211:AUS)	
* 53	1-639-818-11	TRANSFORMER BOARD		68	1-696-586-11	CORD, POWER (F211:UK/F242)	
* 54	4-942-204-01	PLATE, GROUND		Q501	8-729-209-15	TRANSISTOR 2SD2012	
* 55	A-4360-580-A	MAIN BOARD, COMPLETE (F242)		Q502	8-729-021-66	TRANSISTOR 2SC4467-OPY (F211:AEP, UK, E, AUS)	
* 55	A-4360-589-A	MAIN BOARD, COMPLETE (F211:AEP, UK, AUS)		Q502	8-729-021-68	TRANSISTOR 2SC4468-OPY (F211:G/F242)	
* 55	A-4360-595-A	MAIN BOARD, COMPLETE (F211:G)		Q503	8-729-021-67	TRANSISTOR 2SA1694-OPY (F211:AEP, UK, E, AUS)	
* 55	A-4360-598-A	MAIN BOARD, COMPLETE (F211:E)		Q503	8-729-021-69	TRANSISTOR 2SA1695-OPY (F211:G/F242)	
* 56	4-931-998-11	HEAT SINK (S) (F211)		Q601	8-729-209-15	TRANSISTOR 2SD2012	
* 57	3-655-653-01	BAND (TAITON), BINDING (F211:E)		Q602	8-729-021-66	TRANSISTOR 2SC4467-OPY (F211:AEP, UK, E, AUS)	
* 58	3-703-244-00	BUSHING (2104), CORD (F211:AEP, G, UK, AUS/F242)		Q602	8-729-021-68	TRANSISTOR 2SC4468-OPY (F211:G/F242)	
* 58	3-703-571-11	BUSHING (S) (4516), CORD (F211:E)		Q603	8-729-021-67	TRANSISTOR 2SA1694-OPY (F211:AEP, UK, E, AUS)	
* 59	4-949-235-01	HOOK (F211:AEP, G, E)		Q603	8-729-021-69	TRANSISTOR 2SA1695-OPY (F211:G/F242)	
* 60	4-947-010-01	SCREW, FEEDER FIXED		ΔS2	1-570-307-11	SELECTOR, POWER VOLTAGE (VOLTAGE) (F211:E)	
* 61	4-957-887-01	PANEL, BACK (F211:AEP1)		ΔT1	1-423-623-11	TRANSFORMER, POWER (F211:G)	
* 61	4-957-887-11	PANEL, BACK (F211:AEP2)		ΔT1	1-423-624-11	TRANSFORMER, POWER (F242)	
* 61	4-957-887-21	PANEL, BACK (F211:G)		ΔT1	1-423-628-11	TRANSFORMER, POWER (F211:AEP)	
* 61	4-957-887-31	PANEL, BACK (F211:UK, AUS)		ΔT1	1-423-629-11	TRANSFORMER, POWER (F211:UK, AUS)	
* 61	4-957-887-41	PANEL, BACK (F211:E)		ΔT1	1-423-650-11	TRANSFORMER, POWER (F211:E)	
* 61	4-957-887-51	PANEL, BACK (F242)		ΔF1	1-532-203-00	FUSE (T2.0AL) (F242)	
* 62	A-4360-584-A	INPUT BOARD, COMPLETE (F242)		ΔF1	1-532-259-00	FUSE (T1.6AL) (F211)	
* 62	A-4360-593-A	INPUT BOARD, COMPLETE (F211:AEP, UK, E, AUS)		ΔF2	1-532-259-00	FUSE (T1.6AL) (F211)	
* 62	A-4360-597-A	INPUT BOARD, COMPLETE (F211:G)		TM501	1-537-227-11	TERMINAL BOARD (SP) (SPEAKERS) (F211:AEP2)	
* 63	1-639-813-11	SP TM BOARD		TM501	1-537-228-11	TERMINAL BOARD (SP) (SPEAKERS) (F211:G)	
* 64	1-569-007-11	ADAPTER, CONVERSION 2P (F211:E)		TM501	1-537-235-11	TERMINAL BOARD (SP) (SPEAKERS) (F211:AEP1, UK, E, AUS/F242)	
65	1-558-943-41	CORD, POWER (F211:E)					

H.P INPUT

SECTION 6 ELECTRICAL PARTS LIST

NOTE:

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

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

Note:

There are two type of AEP models which are depend on countries.

AEP2 model: Model for Scandinavian countries, Switzerland, Spain and Portugal

AEP1 model: Model for other European countries

- 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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F : nonflammable
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...
- CAPACITORS
uF : μ F
- COILS
uH : μ H
- G : Germany model
- AUS : Australian model

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-639-812-11	H. P BOARD ***** < JACK >		C207	1-164-070-11	CERAMIC 100PF 5% 50V (F211:G)	
J501	1-507-796-71	JACK (HEADPHONES) < RESISTOR >		C208	1-126-163-11	ELECT 4.7uF 20% 50V	
R520	1-247-745-11	CARBON 330 5% 1/2W		C209	1-164-075-11	CERAMIC 150PF 10% 50V	
R521	1-247-745-11	CARBON 330 5% 1/2W		C210	1-126-051-11	ELECT 47uF 20% 50V	
R620	1-247-745-11	CARBON 330 5% 1/2W		C211	1-130-480-00	MYLAR 0.0056uF 5% 50V	
R621	1-247-745-11	CARBON 330 5% 1/2W		C212	1-130-473-00	MYLAR 0.0015uF 5% 50V	
*****				C213	1-126-163-11	ELECT 4.7uF 20% 50V	
*	A-4360-593-A	INPUT BOARD, COMPLETE ***** (F211:AEP, UK, E, AUS)		C220	1-126-022-11	ELECT 47uF 20% 16V	
*	A-4360-584-A	INPUT BOARD, COMPLETE (F242) ***** < IC >		CNJ101	1-566-883-61	JACK, PIN 6P (PHONO/TUNER/CD)	
*	A-4360-597-A	INPUT BOARD, COMPLETE (F211:G) ***** < RESISTOR >		CNJ102	1-566-883-51	JACK, PIN 6P (AUX/TAPE/DAT)	
C101	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		CNP301	1-573-296-11	CONNECTOR, BOARD TO BOARD 10P	
C102	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		IC101	8-759-636-74	IC M5218AP-22	
C103	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		R101	1-249-417-11	CARBON 1K 5% 1/4W	
C104	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		R102	1-249-413-11	CARBON 470 5% 1/4W (F211:G)	
C105	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		R103	1-249-413-11	CARBON 470 5% 1/4W (F211:G)	
C106	1-164-075-11	CERAMIC 150PF 10% 50V		R104	1-249-413-11	CARBON 470 5% 1/4W (F211:G)	
C107	1-164-070-11	CERAMIC 100PF 5% 50V (F211:G)		R105	1-249-413-11	CARBON 470 5% 1/4W (F211:G)	
C108	1-126-163-11	ELECT 4.7uF 20% 50V		R106	1-249-417-11	CARBON 1K 5% 1/4W	
C109	1-164-075-11	CERAMIC 150PF 10% 50V		R107	1-247-903-00	CARBON 1M 5% 1/4W	
C110	1-126-051-11	ELECT 47uF 20% 50V		R108	1-247-903-00	CARBON 1M 5% 1/4W	
C111	1-130-480-00	MYLAR 0.0056uF 5% 50V		R109	1-247-903-00	CARBON 1M 5% 1/4W	
C112	1-130-473-00	MYLAR 0.0015uF 5% 50V		R110	1-247-903-00	CARBON 1M 5% 1/4W	
C113	1-126-163-11	ELECT 4.7uF 20% 50V		R111	1-249-441-11	CARBON 100K 5% 1/4W	
C120	1-126-022-11	ELECT 47uF 20% 16V		R112	1-249-418-11	CARBON 1.2K 5% 1/4W (F211:G)	
C201	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		R113	1-249-441-11	CARBON 100K 5% 1/4W	
C202	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		R114	1-249-416-11	CARBON 820 5% 1/4W	
C203	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		R115	1-247-897-11	CARBON 560K 5% 1/4W	
C204	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		R116	1-249-437-11	CARBON 47K 5% 1/4W	
C205	1-162-286-31	CERAMIC 220PF 10% 50V (F211:G)		R117	1-249-409-11	CARBON 220 5% 1/4W	
C206	1-164-075-11	CERAMIC 150PF 10% 50V		R118	1-249-441-11	CARBON 100K 5% 1/4W	
				R201	1-249-417-11	CARBON 1K 5% 1/4W	
				R202	1-249-413-11	CARBON 470 5% 1/4W (F211:G)	
				R203	1-249-413-11	CARBON 470 5% 1/4W (F211:G)	
				R204	1-249-413-11	CARBON 470 5% 1/4W (F211:G)	
				R205	1-249-413-11	CARBON 470 5% 1/4W (F211:G)	
				R206	1-249-417-11	CARBON 1K 5% 1/4W	
				R207	1-247-903-00	CARBON 1M 5% 1/4W	

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R208	1-247-903-00	CARBON 1M 5% 1/4W		< CAPACITOR >			
R209	1-247-903-00	CARBON 1M 5% 1/4W		C501	1-126-163-11	ELECT 4.7uF 20% 50V	
R210	1-247-903-00	CARBON 1M 5% 1/4W		C502	1-126-023-11	ELECT 100uF 20% 25V	
R211	1-249-441-11	CARBON 100K 5% 1/4W		C503	1-102-316-00	CERAMIC 15PF 5% 500V	
R212	1-249-418-11	CARBON 1.2K 5% 1/4W (F211:G)		C504	1-126-022-11	ELECT 47uF 20% 16V	
R213	1-249-441-11	CARBON 100K 5% 1/4W		C505	1-136-163-00	FILM 0.068uF 5% 50V	
R214	1-249-416-11	CARBON 820 5% 1/4W		C506	1-136-163-00	FILM 0.068uF 5% 50V	
R215	1-247-897-11	CARBON 560K 5% 1/4W		C507	1-136-163-00	FILM 0.068uF 5% 50V	
R216	1-249-437-11	CARBON 47K 5% 1/4W		C508	1-136-153-00	FILM 0.01uF 5% 50V (F211:G)	
R217	1-249-409-11	CARBON 220 5% 1/4W		C513	1-162-217-31	CERAMIC 56PF 5% 50V (F211:G)	
R218	1-249-441-11	CARBON 100K 5% 1/4W		C514	1-162-197-31	CERAMIC 6.8PF 10% 50V (F211:G)	
R506	1-249-419-11	CARBON 1.5K 5% 1/4W (F242)		C601	1-126-163-11	ELECT 4.7uF 20% 50V	
△R510	1-217-611-00	RES, METAL PLATE 0.1 2W (F242)		C602	1-126-023-11	ELECT 100uF 20% 25V	
△R511	1-217-611-00	RES, METAL PLATE 0.1 2W (F242)		C603	1-102-316-00	CERAMIC 15PF 5% 500V	
R606	1-249-419-11	CARBON 1.5K 5% 1/4W (F242)		C604	1-126-022-11	ELECT 47uF 20% 16V	
△R610	1-217-611-00	RES, METAL PLATE 0.1 2W (F242)		C605	1-136-163-00	FILM 0.068uF 5% 50V	
△R611	1-217-611-00	RES, METAL PLATE 0.1 2W (F242)		C606	1-136-163-00	FILM 0.068uF 5% 50V	
R704	1-249-431-11	CARBON 15K 5% 1/4W (F242)		C607	1-136-163-00	FILM 0.068uF 5% 50V	
△R705	1-215-868-00	METAL OXIDE 680 5% 1W (F242)		C608	1-136-153-00	FILM 0.01uF 5% 50V (F211:G)	
R706	1-249-429-11	CARBON 10K 5% 1/4W (F242)		C613	1-162-217-31	CERAMIC 56PF 5% 50V (F211:G)	
△R801	1-216-478-11	METAL OXIDE 390 5% 3W (F242)		C614	1-162-197-31	CERAMIC 6.8PF 10% 50V (F211:G)	
△R802	1-215-918-00	METAL OXIDE 1.5K 5% 3W (F242)		C702	1-124-995-11	ELECT 220uF 20% 10V	
< SWITCH >				C703	1-126-059-11	ELECT 10uF 20% 50V	
S303	1-572-804-11	SWITCH, SLIDE (INPUT SELECTOR)		C704	1-124-994-11	ELECT 100uF 20% 10V	
*****				C705	1-126-059-11	ELECT 10uF 20% 50V	
*	1-639-817-11	LED BOARD		C706	1-126-059-11	ELECT 10uF 20% 50V	
		*****		C801	1-125-683-11	ELECT 10000uF 20% 63V (F242)	
< DIODE >				C801	1-125-686-11	ELECT 6800uF 20% 50V (F211)	
D901	8-719-303-00	LED SEL2510C-C		C802	1-125-683-11	ELECT 10000uF 20% 63V (F242)	
D902	8-719-303-00	LED SEL2510C-C		C802	1-125-686-11	ELECT 6800uF 20% 50V (F211)	
*****				C803	1-126-055-11	ELECT 470uF 20% 50V (F211)	
*	A-4360-580-A	MAIN BOARD, COMPLETE (F242)		C803	1-126-066-11	ELECT 470uF 20% 63V (F242)	
		*****		C804	1-126-055-11	ELECT 470uF 20% 50V (F211)	
*	A-4360-589-A	MAIN BOARD, COMPLETE (F211:AEP, UK, E, AUS)		C804	1-126-066-11	ELECT 470uF 20% 63V (F242)	
		*****		C805	1-126-049-11	ELECT 22uF 20% 50V (F211)	
*	A-4360-595-A	MAIN BOARD, COMPLETE (F211:G)		C805	1-126-060-11	ELECT 22uF 20% 63V (F242)	
		*****		C806	1-126-049-11	ELECT 22uF 20% 50V (F211)	
*	A-4360-598-A	MAIN BOARD, COMPLETE (F211:E)		C806	1-126-060-11	ELECT 22uF 20% 63V (F242)	
		*****		C807	1-126-051-11	ELECT 47uF 20% 50V (F211)	
*	4-931-998-11	HEAT SINK (S) (F211)		C807	1-126-062-11	ELECT 47uF 20% 63V (F242)	
*	4-942-204-01	PLATE, GROUND		C808	1-126-051-11	ELECT 47uF 20% 50V (F211)	
	7-682-548-04	SCREW +BVTT 3X8 (S)		C808	1-126-062-11	ELECT 47uF 20% 63V (F242)	
				C809	1-106-375-12	MYLAR 0.022uF 5% 200V	
				C810	1-126-104-11	ELECT 470uF 20% 35V	
				C811	1-126-104-11	ELECT 470uF 20% 35V	
				C812	1-126-023-11	ELECT 100uF 20% 25V	
				C813	1-126-023-11	ELECT 100uF 20% 25V	
				C814	1-106-375-12	MYLAR 0.022uF 5% 200V	

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

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< CONNECTOR >							
CN501	1-568-443-11	SOCKET, CONNECTOR 13P		Q604	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
* CNJ103	1-573-299-11	CONNECTOR, BOARD TO BOARD 10P		Q701	8-729-900-63	TRANSISTOR DTA124ES	
* CNP503	1-506-599-11	PIN, CONNECTOR (B10P-VH) 10P		Q801	8-729-209-15	TRANSISTOR 2SD2012	
* CNP505	1-564-241-00	PIN, CONNECTOR (B4P-VH) 4P		Q802	8-729-141-83	TRANSISTOR 2SB1094-LK	
* CNP801	1-564-104-00	PIN, CONNECTOR (B3P-VH) 3P		Q901	8-729-620-05	TRANSISTOR 2SC2603-EF	
< DIODE >				< RESISTOR >			
D501	8-719-987-63	DIODE 1N4148M		R501	1-249-417-11	CARBON 1K 5% 1/4W	
D502	8-719-987-63	DIODE 1N4148M		R502	1-249-438-11	CARBON 56K 5% 1/4W	
D601	8-719-987-63	DIODE 1N4148M		R503	1-249-412-11	CARBON 390 5% 1/4W	
D602	8-719-987-63	DIODE 1N4148M		R504	1-249-466-11	CARBON 56K 5% 1/4W	
D701	8-719-987-63	DIODE 1N4148M		R505	1-249-423-11	CARBON 3.3K 5% 1/4W	
D702	8-719-987-63	DIODE 1N4148M		R506	1-247-834-11	CARBON 1.3K 5% 1/4W (F211)	
D703	8-719-200-77	DIODE 10E2N		△R508	1-247-688-11	CARBON 10 5% 1/4W F	
D801	8-719-302-38	DIODE RBV-602-01		△R509	1-247-688-11	CARBON 10 5% 1/4W F	
D802	8-719-200-77	DIODE 10E2N		△R510	1-216-361-00	METAL OXIDE 0.22 5% 2W F (F211)	
D803	8-719-200-77	DIODE 10E2N		△R511	1-216-361-00	METAL OXIDE 0.22 5% 2W F (F211)	
D804	8-719-200-77	DIODE 10E2N		△R512	1-247-713-11	CARBON 1K 5% 1/4W F	
D805	8-719-200-77	DIODE 10E2N		R513	1-249-427-11	CARBON 6.8K 5% 1/4W	
< IC >				R514	1-247-727-11	CARBON 10 5% 1/2W	
IC501	8-759-109-06	IC uPC1298V (F211)		R515	1-247-727-11	CARBON 10 5% 1/2W	
IC501	8-759-144-04	IC uPC1342V (F242)		R516	1-247-887-00	CARBON 220K 5% 1/4W	
IC601	8-759-109-06	IC uPC1298V (F211)		R517	1-249-431-11	CARBON 15K 5% 1/4W	
IC601	8-759-144-04	IC uPC1342V (F242)		R601	1-249-417-11	CARBON 1K 5% 1/4W	
IC701	8-759-111-68	IC uPC1237HA		R602	1-249-438-11	CARBON 56K 5% 1/4W	
IC801	8-759-231-59	IC M5F7815L		R603	1-249-412-11	CARBON 390 5% 1/4W	
IC802	8-759-245-87	IC M5F7915L		R604	1-249-466-11	CARBON 56K 5% 1/4W	
< COIL >				R605	1-249-423-11	CARBON 3.3K 5% 1/4W	
L501	1-420-872-00	COIL, AIR CORE 1.8uH		R606	1-247-834-11	CARBON 1.3K 5% 1/4W (F211)	
L601	1-420-872-00	COIL, AIR CORE 1.8uH		△R608	1-247-688-11	CARBON 10 5% 1/4W F	
< TRANSISTOR >				△R609	1-247-688-11	CARBON 10 5% 1/4W F	
Q501	8-729-209-15	TRANSISTOR 2SD2012		△R610	1-216-361-00	METAL OXIDE 0.22 5% 2W F (F211)	
Q502	8-729-021-68	TRANSISTOR 2SC4468-OPY (F211:G/F242)		△R611	1-216-361-00	METAL OXIDE 0.22 5% 2W F (F211)	
Q502	8-729-021-66	TRANSISTOR 2SC4467-OPY (F211:AEP, UK, E, AUS)		△R612	1-247-713-11	CARBON 1K 5% 1/4W F	
Q503	8-729-021-69	TRANSISTOR 2SA1695-OPY (F211:G/F242)		R613	1-249-427-11	CARBON 6.8K 5% 1/4W	
Q503	8-729-021-67	TRANSISTOR 2SA1694-OPY (F211:AEP, UK, E, AUS)		R614	1-247-727-11	CARBON 10 5% 1/2W	
Q504	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA		R615	1-247-727-11	CARBON 10 5% 1/2W	
Q601	8-729-209-15	TRANSISTOR 2SD2012		R616	1-247-887-00	CARBON 220K 5% 1/4W	
Q602	8-729-021-68	TRANSISTOR 2SC4468-OPY (F211:G/F242)		R617	1-249-431-11	CARBON 15K 5% 1/4W	
Q602	8-729-021-66	TRANSISTOR 2SC4467-OPY (F211:AEP, UK, E, AUS)		R701	1-249-427-11	CARBON 6.8K 5% 1/4W	
Q603	8-729-021-69	TRANSISTOR 2SA1695-OPY (F211:G/F242)		R702	1-249-441-11	CARBON 100K 5% 1/4W	
Q603	8-729-021-67	TRANSISTOR 2SA1694-OPY (F211:AEP, UK, E, AUS)		R703	1-249-439-11	CARBON 68K 5% 1/4W	
△R704	1-249-430-11	CARBON 12K 5% 1/4W (F211)		△R705	1-215-867-00	METAL OXIDE 470 5% 1W F (F211:G)	
△R705	1-216-430-11	METAL OXIDE 390 5% 1W F (F211:AEP, UK, E, AUS)		△R706	1-249-427-11	CARBON 6.8K 5% 1/4W F (F211:G)	
△R706	1-249-428-11	CARBON 8.2K 5% 1/4W F (F211:AEP, UK, E, AUS)		△R801	1-215-912-11	METAL OXIDE 150 5% 3W F (F211:G)	

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
△R801	1-216-476-11	METAL OXIDE 180 5% 3W F (F211:ABP, UK, E, AUS)				< DIODE >	
△R802	1-215-916-00	METAL OXIDE 680 5% 3W F (F211)		D904	8-719-301-52	LED SEL2810A-C	
△R805	1-247-713-11	CARBON 1K 5% 1/4W F		D905	8-719-301-52	LED SEL2810A-C	
△R806	1-247-713-11	CARBON 1K 5% 1/4W F				< IC >	
R901	1-249-417-11	CARBON 1K 5% 1/4W		IC301	8-759-634-50	IC M5218AL	
		< VARIABLE RESISTOR >				< RESISTOR >	
RV501	1-238-596-11	RES, ADJ, CAREBON 470		R119	1-249-405-11	CARBON 100 5% 1/4W	
RV601	1-238-596-11	RES, ADJ, CAREBON 470		R219	1-249-405-11	CARBON 100 5% 1/4W	
		< RELAY >		R301	1-249-417-11	CARBON 1K 5% 1/4W	
RY701	1-515-501-00	RELAY		R302	1-249-417-11	CARBON 1K 5% 1/4W	
		< THERMISTOR >		R303	1-249-423-11	CARBON 3.3K 5% 1/4W	
TH801	1-806-882-11	THERMISTOR, POSITIVE 2.2		R304	1-249-442-11	CARBON 510 5% 1/4W	
TH802	1-806-882-11	THERMISTOR, POSITIVE 2.2		R305	1-249-442-11	CARBON 510 5% 1/4W	

*	A-4360-576-A	PANEL BOARD, COMPLETE (F242)		R306	1-249-408-11	CARBON 180 5% 1/4W	
		*****		R307	1-247-903-00	CARBON 1M 5% 1/4W	
*	A-4360-585-A	PANEL BOARD, COMPLETE (F211)		R308	1-247-903-00	CARBON 1M 5% 1/4W	
		*****		R309	1-249-422-11	CARBON 2.7K 5% 1/4W	
		< CAPACITOR >		R310	1-247-830-11	CARBON 910 5% 1/4W	
C301	1-126-163-11	ELECT 4.7uF 20% 50V		R311	1-249-441-11	CARBON 100K 5% 1/4W	
C302	1-162-217-31	CERAMIC 56PF 5% 50V		R312	1-249-429-11	CARBON 10K 5% 1/4W	
C303	1-126-163-11	ELECT 4.7uF 20% 50V		R313	1-249-429-11	CARBON 10K 5% 1/4W	
C304	1-136-155-00	FILM 0.015uF 5% 50V		R314	1-247-903-00	CARBON 1M 5% 1/4W	
C305	1-136-161-00	FILM 0.047uF 5% 50V		R401	1-249-417-11	CARBON 1K 5% 1/4W	
C306	1-136-169-00	FILM 0.22uF 5% 50V		R402	1-249-417-11	CARBON 1K 5% 1/4W	
C307	1-136-175-00	FILM 0.68uF 5% 50V		R403	1-249-423-11	CARBON 3.3K 5% 1/4W	
C309	1-162-286-31	CERAMIC 220PF 10% 50V		R404	1-249-442-11	CARBON 510 5% 1/4W	
C310	1-136-161-00	FILM 0.047uF 5% 50V		R405	1-249-442-11	CARBON 510 5% 1/4W	
C311	1-126-022-11	ELECT 47uF 20% 16V		R406	1-249-408-11	CARBON 180 5% 1/4W	
C401	1-126-163-11	ELECT 4.7uF 20% 50V		R407	1-247-903-00	CARBON 1M 5% 1/4W	
C402	1-162-217-31	CERAMIC 56PF 5% 50V		R408	1-247-903-00	CARBON 1M 5% 1/4W	
C403	1-126-163-11	ELECT 4.7uF 20% 50V		R409	1-249-422-11	CARBON 2.7K 5% 1/4W	
C404	1-136-155-00	FILM 0.015uF 5% 50V		R410	1-247-830-11	CARBON 910 5% 1/4W	
C405	1-136-161-00	FILM 0.047uF 5% 50V		R411	1-249-441-11	CARBON 100K 5% 1/4W	
C406	1-136-169-00	FILM 0.22uF 5% 50V		R412	1-249-429-11	CARBON 10K 5% 1/4W	
C407	1-136-175-00	FILM 0.68uF 5% 50V		R413	1-249-429-11	CARBON 10K 5% 1/4W	
C409	1-162-286-31	CERAMIC 220PF 10% 50V		R414	1-247-903-00	CARBON 1M 5% 1/4W	
C410	1-136-161-00	FILM 0.047uF 5% 50V		R902	1-247-747-11	CARBON 470 5% 1/2W	
C411	1-126-022-11	ELECT 47uF 20% 16V		R903	1-247-749-11	CARBON 560 5% 1/2W	
		< CONNECTOR >		R904	1-249-417-11	CARBON 1K 5% 1/4W	
CN301	1-568-443-11	SOCKET, CONNECTOR 13P				< VARIABLE RESISTOR >	
				RV301	1-238-513-11	RES, VAR, CARBON 150K/150K (BALANCE)	
				RV302	1-241-548-11	RES, VAR, CARBON 10K (TREBLE)	
				RV303	1-241-549-11	RES, VAR, CARBON 10K (BASS)	
				RV304	1-241-550-11	RES, VAR, CARBON 120K/120K (VOLUME)	

PANEL POWER SP SW SP TM TRANSFORMER

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< SWITCH >				< TERMINAL >	
S301	1-571-112-21	SWITCH, PUSH (1 KEY) (LOUDNESS)		TM501	1-537-227-11	TERMINAL BOARD (SP) (SPEAKERS) (F211:AEP2)	
S302	1-572-642-11	SWITCH, PUSH (1 KEY) (SOURCE DIRECT)		TM501	1-537-228-11	TERMINAL BOARD (SP) (SPEAKERS) (F211:G)	
S304	1-571-872-11	SWITCH, PUSH (1 KEY) (TAPE/DAT MONITOR)		TM501	1-537-235-11	TERMINAL BOARD (SP) (SPEAKERS) (F211:AEP1, UK, E, AUS/F242:UK)	
*****				*****			
*	1-639-816-14	POWER BOARD *****		*	1-639-818-11	TRANSFORMER BOARD *****	
		< CAPACITOR >				< CONNECTOR >	
△C1	1-161-744-00	CERAMIC 0.01uF	400V	* CNP802	1-564-104-00	PIN, CONNECTOR (B3P-VH) 3P	
		< CONNECTOR >		*****			
* CNP2	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P				MISCELLANEOUS	
* CNP3	1-564-321-00	PIN, CONNECTOR 2P				*****	
* CNP4	1-564-321-00	PIN, CONNECTOR 2P (F211:E)		7	1-572-267-41	SWITCH, PUSH (AC POWER) (1 KEY)	
* CNP5	1-564-687-11	PIN, CONNECTOR 3P (F211:E)		11	1-590-036-11	WIRE, FLAT TYPE (13 CORE)	
*****				21	1-572-803-11	SWITCH, ROTARY SLIDE (INPUT SELECTION)	
*	1-639-811-11	SP SW BOARD *****		64	1-569-007-11	ADAPTER, CONVERSION 2P (F211:E)	
		< SWITCH >		65	1-558-943-41	CORD, POWER (F211:E)	
S501	1-571-973-11	SWITCH, ROTARY (SPEAKERS)		66	1-575-651-21	CORD, POWER (F211:AEP, G)	
*****				67	1-696-845-11	CORD, POWER (F211:AUS)	
*	1-639-813-11	SP TM BOARD *****		68	1-696-586-11	CORD, POWER (F211:UK/F242)	
		< CAPACITOR >		△F1	1-532-203-00	FUSE (T2. 0AL) (F242)	
C508	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	△F1	1-532-259-00	FUSE (T1. 6AL) (F211)	
C509	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	△F2	1-532-259-00	FUSE (T1. 6AL) (F211)	
C510	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	△S2	1-570-307-11	SELECTOR, POWER VOLTAGE (VOLTAGE) (F211:E)	
C511	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	△T1	1-423-623-11	TRANSFORMER, POWER (F211:G)	
C512	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	△T1	1-423-624-11	TRANSFORMER, POWER (F242)	
C608	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	△T1	1-423-628-11	TRANSFORMER, POWER (F211:AEP)	
C609	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	△T1	1-423-629-11	TRANSFORMER, POWER (F211:UK, AUS)	
C610	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	△T1	1-423-650-11	TRANSFORMER, POWER (F211:E)	
C611	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)	*****			
C612	1-136-157-00	FILM 0.022uF 5%	50V (F211:G)			ACCESSORIES & PACKING MATERIALS	
		< CONNECTOR >				*****	
* CNP502	1-564-243-00	PIN, CONNECTOR 6P		3-756-898-11	MANUAL, INSTRUCTION (F211:AEP, UK, E, AUS/F242) (ENGLISH, FRENCH, SPANISH, PORTUGUESE, ITALIAN)		
		< RESISTOR >		3-756-898-41	MANUAL, INSTRUCTION (F211:AEP) (GERMAN, DUTCH, SWEDISH, DANISH, FINNISH)		
R518	1-247-727-11	CARBON 10 5%	1/2W (F211:G)	3-756-898-51	MANUAL, INSTRUCTION (GERMAN) (F211:G)		
R519	1-247-727-11	CARBON 10 5%	1/2W (F211:G)	*	4-945-810-02	CUSHION (LEFT)	
R618	1-247-727-11	CARBON 10 5%	1/2W (F211:G)	*	4-945-811-01	CUSHION (RIGHT)	
R619	1-247-727-11	CARBON 10 5%	1/2W (F211:G)	*	4-958-314-01	INDIVIDUAL CARTON (F211)	
				*	4-958-315-01	INDIVIDUAL CARTON (F242)	

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

<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>

HARDWARE LIST			

#1	7-621-849-00	SCREW (BV/RING)	
#2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#4	7-682-548-04	SCREW +BVTP 3X8 (S)	
#5	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	(F211:G/F242)
#6	7-682-560-04	SCREW +BVTP 4X6 (S)	

