

DENON

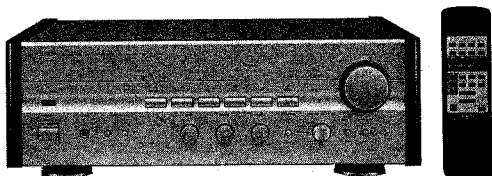
Hi-Fi Integrated Stereo Amplifier

SERVICE MANUAL

MODEL PMA-1315R

MODEL PMA-1315RG

INTEGRATED STEREO AMPLIFIER



The photograph shows the PMA-1315RG with side wood boards. (Multi-Voltage Model only)

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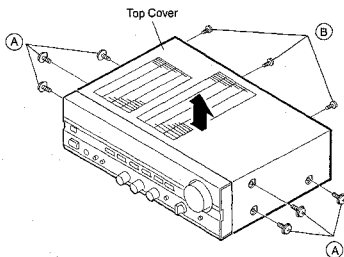
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NIPPON COLUMBIA CO., LTD.

REMOVAL OF EACH SECTION

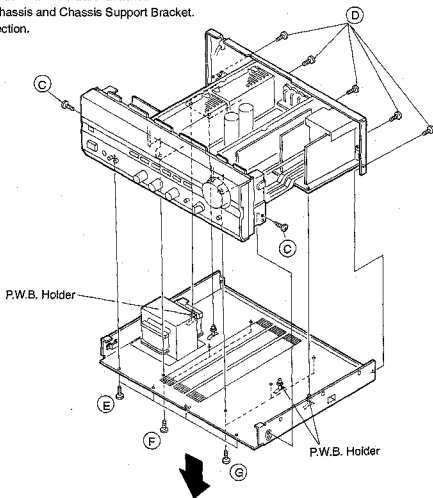
1. Top Cover

- (1) Remove 6 screws (A), and 3 screws (B).
- (2) Pull up Top Cover in arrow direction.



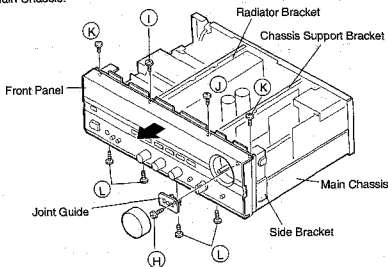
2. Main Chassis

- (1) Remove 4 P.W.B. Holder from P.W. Board.
- (2) Remove 2 screws (C) fixing Main Chassis and Side Bracket.
- (3) Remove 5 screws (D) fixing Main Chassis and Rear Panel.
- (4) Remove 4 screws (E) fixing Main Chassis and Front Panel.
- (5) Remove 3 screws (F) fixing Main Chassis and Radiator Bracket.
- (6) Remove 3 screws (G) fixing Main Chassis and Chassis Support Bracket.
- (7) Pull down Main Chassis in arrow direction.



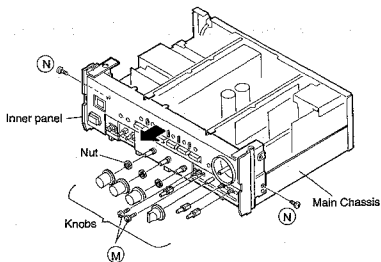
3. Front Panel

- (1) Detach Control Knob, remove 1 screw (H) and detach Joint Guide.
- (2) Remove 1 screw (I) fixing Front Panel and Radiator Bracket.
- (3) Remove 1 screw (J) fixing Front Panel and Chassis Support Bracket.
- (4) Remove 2 screws (K) fixing Front Panel and Side Bracket.
- (5) Remove 4 screws (L) fixing Front Panel and Main Chassis.
- (6) Detach Front Panel in arrow direction.



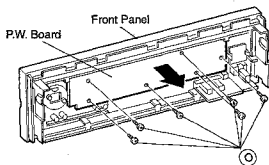
4. Inner Panel

- (1) Detach 7 Knobs, remove 2 screws (M) and 3 nuts.
- (2) Remove 2 screws (N) fixing Side Bracket and Main Chassis.
- (3) Detach Inner Panel in arrow direction.



5. P.W. Board attached to Inner Panel

- (1) Remove 6 screws (O) fixing P.W. Board.
- (2) Take out P.W. Board in arrow direction.



FUNCTION OF NEW CIRCUIT

1. CHARACTERISTIC OF THIS CIRCUIT

The junction temperature of power amplifier output transistor always varies by an ambient temperature and music signal. Occurrence of junction temperature varying causes in change of bias current, unstable function, thus pure music signal playback is unable to do.

To maintain fixed bias current and to make pure music signal playback possible is the purpose of this circuit. This circuit holds stable bias current condition within a few seconds after turning on the power.

2. BLOCK DIAGRAM OF BIAS CONTROL CIRCUIT FUNCTION

As explained in Fig. 1, detects a voltage across the emitter resistors (RE) of TR1, TR2. Converts the detected voltage and comparing with the reference voltage to make the bias current value in stable state. Actually, these functions are performed by 1 chip IC.

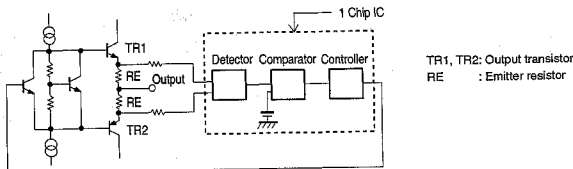


Fig. 1

3. POWER SUPPLY FOR ACTUATING CONTROL CIRCUIT

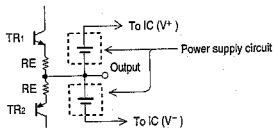
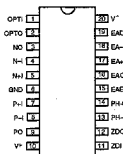
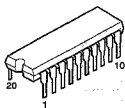


Fig. 2

The circuit (IC) controlling bias current actuates by floating.

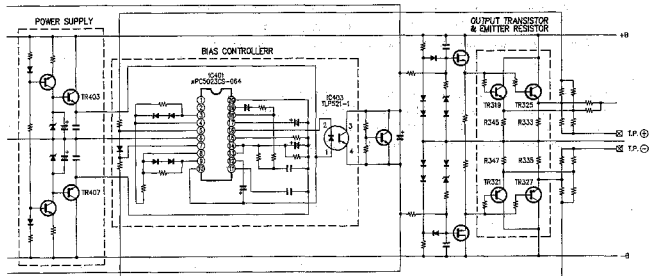
Accordingly, the power supply is also needed to be floated.

In this circuit, as indicated in Fig. 2, output is common to provide +, - power system and supplies to IC.

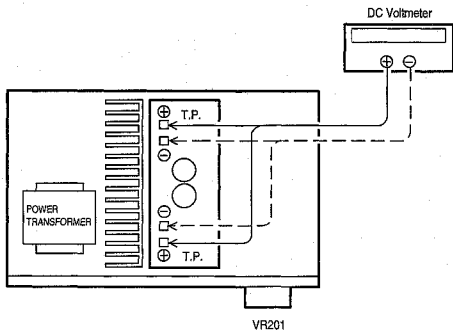
4. IC DESCRIPTION (μ PC5023CS-064)

Pin. No.	Name	Contents	Pin. No.	Name	Contents
1	OPTI	NCP	11	ZDI	Control signal stabilizer input
2	OPTO		12	ZDO	Control signal stabilizer output
3	N-1	Comparator output	13	PH-1	Peak hold input
4	N-1	Comparator input (-)	14	PH-0	Peak hold output
5	N+1	Comparator input (+)	15	EACO	Controller gain setting
6	GND	Floating common	16	EACO	Control signal output
7	P+1	Comparator input (+)	17	EA+1	Reference voltage
8	P-1	Comparator input (-)	18	EA-1	Comparator gain setting
9	PO	Comparator output	19	EAO	Comparator output
10	V+	+ Power supply	20	V-	- Power supply

5. CIRCUIT IN THE CONCRETE



METHOD OF ADJUSTMENTS



IDLING CURRENT

● Setup

1. Lay the unit at an ordinary position away from a direct current from a cooler or fan. Do the adjustment at a temperature between 15°C (59°F) and 30°C (86°F).

2. Set controls as follows.

POWER SWITCH → OFF (■)

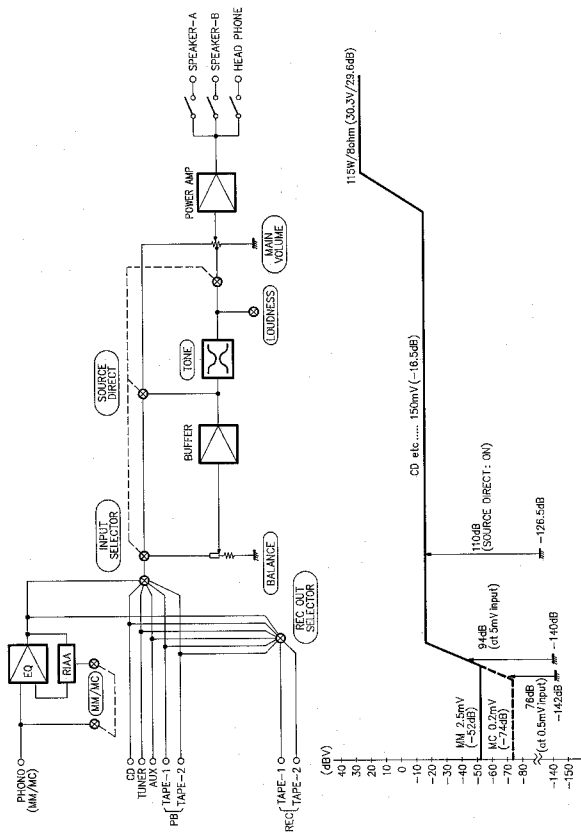
VOLUME CONTROL → fully counterclockwise. (⤴) min. (Main volume (VR201)
(VR202, 203 and 204 are center position.)

SPEAKER Terminals → open: do not connect the speakers, dummy load etc.

● Confirm

1. Remove Top cover. And then connect DC Voltmeter to Test points of Main Unit.
2. Connect Power cord to AC Outlet, and turn POWER Switch "on" (■).
3. 10 seconds after check to see DC Voltmeter reading is $17 \pm 2\text{mV}$.
4. 2 minutes after re-check DC Voltmeter for $17 \pm 2\text{mV}$ reading.

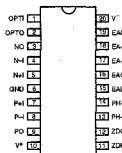
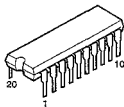
BLOCK AND LEVEL DIAGRAM



SEMICONDUCTORS

● IC's

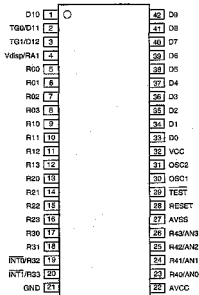
μPC5023CS-064 (IC401,402)



Pin. No.	Name	Contents
1	OPTI	NCP
2	OPTO	
3	NO	Comparator output
4	N-H	Comparator input (-)
5	N+	Comparator input (+)
6	GND	Floating common
7	P-H	Comparator input (+)
8	P-	Comparator input (-)
9	PO	Comparator output
10	V+	+ Power supply

Pin. No.	Name	Contents
11	ZDI	Control signal stabiliser input
12	ZDO	Control signal stabiliser output
13	PH-I	Peak hold input
14	PHO	Peak hold output
15	EAO	Controller gain setting
16	EACO	Control signal output
17	EA+	Reference voltage
18	EA-1	Comparator gain setting
19	EAO	Comparator output
20	V-	- Power supply

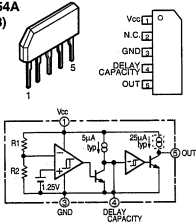
HD404304A13P (IC801)



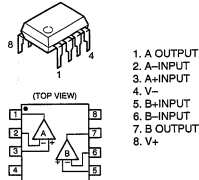
HD404304P Terminal Function

Pin No.	Name	I/O	Contents	Active
1	010	O	VOLUME LED indication	H
2	TG0/D11	O	NCP	
3	TG1/D12	O	Power Control (REMOTE Power-ON/OFF)	L
4	Video/RAT	I	NCP	
5	R00	O	NCP	
6	R01	O	Muting Control (Power-On/Off, Function, Still/Key, Muting)	L
7	R02	O	SP-A Control	H
8	R03	O	SP-A Control	H
9	R10	O		H
10	R11	O	Key scan strobe	H
11	R12	O		H
12	R20	O	NCP	
13	R21	I		
14	R22	I	Key scan receive	
15	R23	I		
16	R30	O	Volume Control "UP" → "H"	H
17	R31	O	Volume Control "DOWN" → "L"	H
18	R32	I	Power Breakdown Detect Input	
19	R33	I	Remote control signal decoding input	
20	GND			
21	010	O	Audio (A1)	
22	010	O	Audio (A2)	
23	010	O	Audio (A3)	
24	010	O	Audio (A4)	
25	010	O	Audio (A5)	
26	010	O	Audio (A6)	
27	010	O	Audio (A7)	
28	010	O	Audio (A8)	
29	010	O	Audio (A9)	
30	010	O	Audio (A10)	
31	010	O	Audio (A11)	
32	010	O	Audio (A12)	
33	010	O	Audio (A13)	
34	010	O	Audio (A14)	
35	010	O	Audio (A15)	
36	010	O	Audio (A16)	
37	010	O	Audio (A17)	
38	010	O	Audio (A18)	
39	010	O	Audio (A19)	
40	010	O	Audio (A20)	
41	010	O	Audio (A21)	
42	010	O	Audio (A22)	

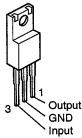
M51954A (IC803)



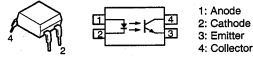
NJM4558DDC (IC201, 901)



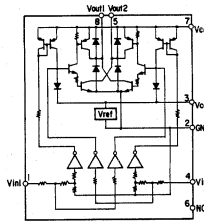
NJM7806FA(S) (IC702)



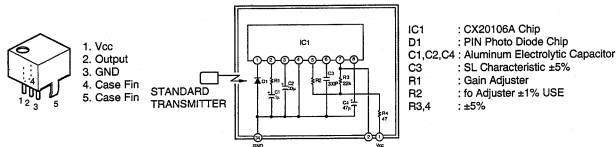
TRP521-1(BL) INFRARED LED + PHOTO TRANSISTOR (IC403, 404)



LB1639 (IC802)

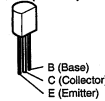


SBX1610-S2 (Remote Control Receiver) (IC804)

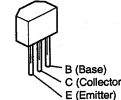


● TRANSISTORS

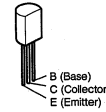
- 2SA970 (BL), (BL/GR)
- 2SA988 (E/F)
- 2SC1841 (E/F)
- 2SC1815 (BL)
- 2SC2240 (BL/GR)



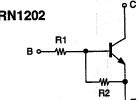
RN1202NPN
RN2204 PNP



- 2SA1145 (O)/(Y)
- 2SC2705 (O)/(Y)

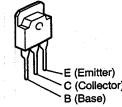


RN1202

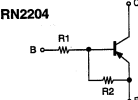


	R1	R2
RN1202	10kohm	10kohm

- 2SA1491 LB4 (O)/(P)/(Y)/(Z)
- 2SC3855 LB4 (O)/(P)/(Y)/(Z)

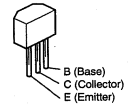


RN2204

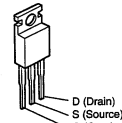


	R1	R2
RN2204	47kohm	47kohm

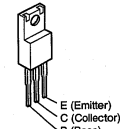
- 2SA1048 (GR)
- 2SC2458 (BL)



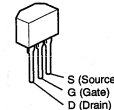
- 2SJ78
- 2SK215



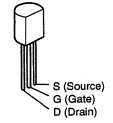
- 2SD1913 (R/S)
- 2SB1274 (R/S)



- 2SK184C (GR)/(RL)

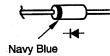


- 2SK369 (BL)/(GR)-C



● DIODES (including LED)

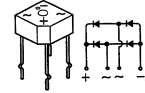
- 1S2076A
- 1S270A



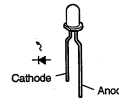
- HZS4B-2
- HZS5C-1
- HZS7C-1
- HZS27-1
- HZS18-1



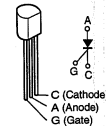
- S4VB20 (D701, 702)



- SEL-1810A (Orange)
- SEL-1210S (Red)



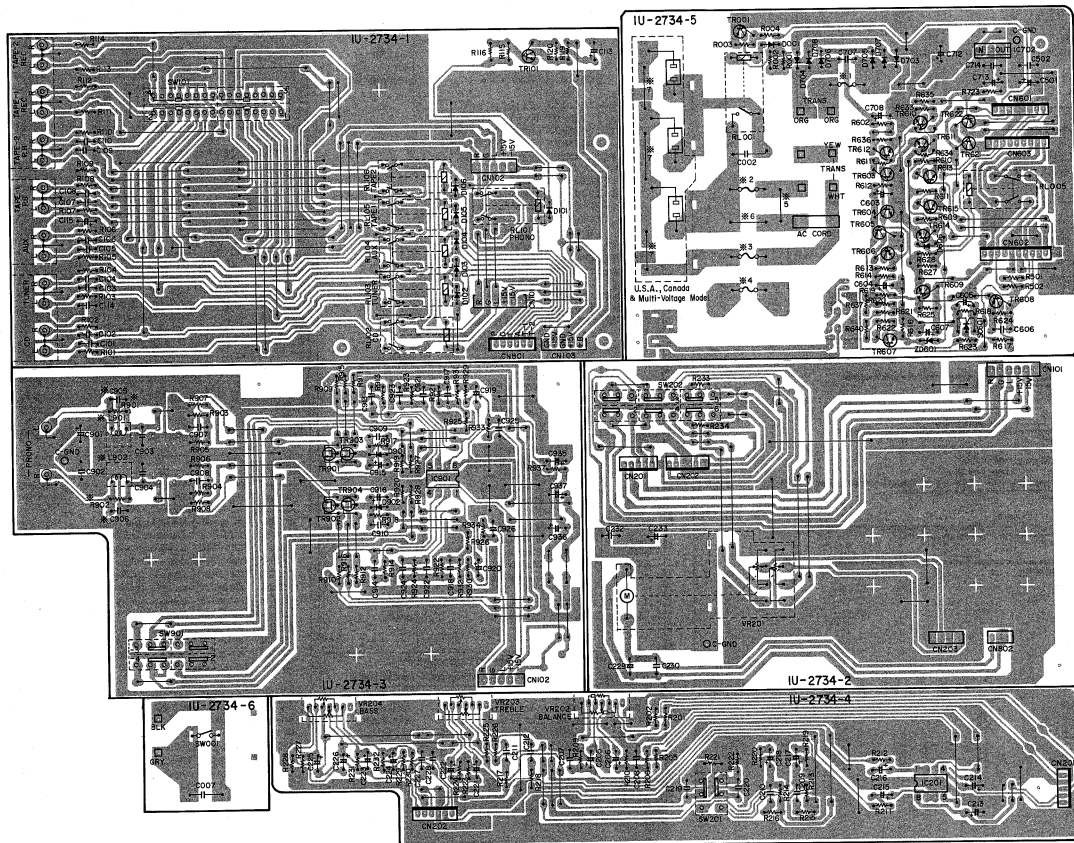
- Thyristor SFOR1A42 (SC601)



- 1SR35-200A



1U-2734A INPUT UNIT ASS'Y


1U-2734: Europe, U.K. & Australia Model
1U-2777: U.S.A., Canada & Multi Voltage Model

	Europe Model	Other Model
L901, 902	150µH	—
C905, 906	47p	—
R901, 902	820ohm	Jumper

*1 - *7

	Europe Model	U.K. & Australia Model	U.S.A. & Canada Model	Multi-Voltage Model
#1	F701 T1A	F701 T1A	F701 1A/125V	F701 T1A
#2	F001 T4A	F001 T4A	F002 8A/125V	F001 T10A
#3	F002 T1A	—	Jumper	Jumper
#4	—	—	F001 10A/125V	F003 T4A
#5	—	—	Jumper	—
#6	Jumper	Jumper	—	Jumper
#7	—	—	Jumper	Jumper

A

B

C

D

E

PRINTED WIRING BOARD PARTS LIST

1U-2733A/B P. AMP UNIT ASS'Y (For Europe Black/Gold)

Ref. No.	Parts No.	Parts Name	Remarks
SEMICONDUCTORS GROUP			
IC401-402	283 0930 01	IC JLP0502CS-064	Bias Controller
IC403-404	282 0874 00	IC TLP521-1(BL)	Photo Coupler
IC801	282 1879 30	IC HD4045A41A13P	µ-j-com
IC802	283 0176 02	IC L18159	Motor Driver
IC803	283 0555 08	IC MS1654L	Reset
IC804	499 0150 08	IC SX81191-92	Remot. Sensor
TR901-904	275 0555 01	FET 25K184C(GR/IV)	
TR905-906	273 0281 10	Transistor 25C220S(OV/V)	
TR907-908	271 0168 90	Transistor 25A1145(OV/V)	
TR909-912	273 0187 82	Transistor 25C220C(BL/GR)	
TR131-314	273 0198 91	Transistor 25C1185(BL)	
TR151-316	275 0099 01	FET 25K215	
TR311-318	275 0098 02	FET 25J78	
TR323-324	271 0168 90	Transistor 25A1145(OV/V)	
TR329	274 0136 012	Transistor 25D1191(S/VS)	
TR330	272 0093 010	Transistor 25B1274(S/VS)	
TR331	271 0094 919	Transistor 25A970(BL)	
TR332-333	273 0187 82	Transistor 25C220S(OV/GR)	
TR401-402	271 0094 919	Transistor 25C270(BL)	
TR403-404	273 0281 10	Transistor 25C220S(OV/V)	
TR405-406	273 0187 82	Transistor 25C220C(BL/GR)	
TR407-408	271 0158 90	Transistor 25A1145(OV/V)	
TR601-602	273 0255 62	Transistor 25C1141(EF)	
TR901-906	273 0255 62	Transistor 25C1141(EF)	
TR907	271 0191 06	Transistor 25C1048(GR)	
TR808-809	273 0317 06	Transistor 25C2458(BL)	
TR810	269 0030 909	Transistor RN2204	Built in Resistor
D031-316	276 0432 903	Diode 1SS270A	
D039-322	276 0432 903	Diode 1SS270A	
D083	276 0553 905	Diode 1SR35-200A	
D401-414	276 0432 903	Diode 1SS270A	
D091-602	276 0432 903	Diode 1SS270A	
D097-608	276 0432 903	Diode 1SS270A	
Diodes			
D01-130	276 0335 61	Diode 34VR20	Bridge
D601-805	276 0432 903	Diode 1SS270A	
D636	276 0499 913	Diode 1SS6076A	
D097-608	276 0432 903	Diode 1SS270A	
ZD301-302	276 0460 904	Zener Diode HZ55C-1	5 V
ZD307-308	276 0460 904	Zener Diode HZ55C-1	5 V
ZD309-310	276 0478 909	Zener Diode HZ51H-1	18 V
ZD311-312	276 0485 916	Zener Diode HZ55C-1	5 V
ZD401-404	276 0434 954	Zener Diode MT23A	3.3 V
LD802-807	393 9434 906	LED SEL1210S	Fluorescent
LD908-910	393 9435 911	LED SEL1610A	Speaker
RESISTORS GROUP (Not included Carbon Film ±5%, 1/4 W Type. Refer to the Schematic Diagram for those parts.)			
R031-302	245 2116 906	Metal Film 100ohm 1/4 W	RN14KE0140
R033-304	245 2090 900	Metal Film 470ohm 1/4 W	RN14KE471G
R035-306	245 2090 900	Metal Film 8.2ohm 1/4 W	RN14KE822G
R037-308	245 2052 905	Metal Film 220ohm 1/4 W	RN14KE221G
R039-312	245 2064 802	Metal Film 4.7ohm 1/4 W	RN14KE472G
R015-313	245 2090 900	Metal Film 20ohm 1/4 W	RN14KE200G
R017-318	245 2046 908	Metal Film 150ohm 1/4 W	RN14KE151G
R019-322	241 2371 330	Fusable 150ohm 1/4 W WFR	RD14BE151GFRS
R023-324	241 2315 933	Fusable 330ohm 1/4 W WFR	RD14BE331GFRS
R025-326	241 2279 949	Carbon Film 750ohm 1/4 W WNB	RD14BE751JNB
R027-328	241 2379 304	Carbon Film 150ohm 1/4 W WNB	RD14BE151JNB

NOTE FOR PARTS LIST

- Part indicated with the mark * * * are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
 - When ordering of part, clearly indicate "1" and "1" (I) to avoid mis-supplying.
 - Ordering part without starting its part number can not be supplied.
 - Part indicated with the mark "*" is not illustrated in the exploded view.
 - Not including Carbon Film ±5%, 1/4W Type in the P.W.B. board parts list. (Refer to the Schematic Diagram for those parts.)
- WARNING:**
Parts marked with this symbol have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

Resistors

Ex:

RN	14K	2E	182	G	FR
Type	Shape and performance	Power	Resist. error	Allowable error	Others

RD	Carbon	2B	116W	F: ±1%	N: Lead wire type
RC	Composition	3E	116W	G: ±5%	NS: Low noise type
RI	Metal oxide film	3A	120W	J: ±5%	NB: Non-burning type
RW	Winding	3D	11W	K: ±10%	NR: Fuse-resistor
RM	Metal film	3F	2W	M: ±20%	P: Lead wire forming
RL	Metal mixture	3H	2W		

* Resistance

$\frac{1}{2} \frac{R}{2} = 1800 \text{ ohm} = 1.8 \text{ kohm}$
Indicates number of zeros after effective number.

* Units: ohm

$\frac{1}{2} \frac{R}{2} = 1.2 \text{ ohm}$
Indicates number of zeros after effective number, decimal point indicated by R.

* Units: ohm

* Capacity (electrolytic only)

$\frac{2}{2} \frac{2}{2} = 2200\mu\text{F}$
Indicates number of zeros after effective number, 2-digit effective number.

* Units: µF

$\frac{2}{2} \frac{R}{2} = 2.2\mu\text{F}$
1-digit effective number, 2-digit effective number, decimal point indicated by R.

* Units: µF

* Capacity (except electrolytic)

$\frac{2}{2} \frac{2}{2} = 2200\text{pF} = 0.0022\mu\text{F}$
Indicates number of zeros after effective number, 2-digit effective number.

* Units: µF

$\frac{2}{2} \frac{1}{2} = 220\text{pF}$
Indicates number of zeros after effective number, 2-digit effective number.

* Units: pF

* When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

Capacitors

Ex:

CE	04W	1H	2R2	M	BP
Type	Shape and performance	Dielectric and perm. strength	Capacity	Allowable error	Others

CA	Aluminum solid electrolytic	0J	6.3V	F: ±5%	HS: High stability type
CB	Aluminum electrolytic	1A	10V	G: ±20%	HP: Non-polar type
CC	Tantalum electrolytic	1C	10V	J: ±5%	HR: Ripple-resistant type
CD	Oil	1E	25V	K: ±10%	HL: For charging and discharge
CE	Ceramic	1V	25V	M: ±20%	HF: For assuring high frequency
CG	Ceramic	1W	50V	Z: ±80%	U: UL part
CH	Oil	2A	100V	-20%	C: CSA part
CI	Mica	2C	100V	+10%	W: UL-CSA type
CM	Mica	2D	100V	-20%	F: Lead wire forming
CO	Metallized	2E	250V	D: ±20%	
CP	Metallized	2F	500V	-20%	
CR	Metallized	2H	250V	-20%	

Ref. No.	Parts No.	Parts Name	Remarks
△R223-303	241 2315 933	Fusable 330ohm 1/4 WFR	RD14BE331GFRS
△R011-322	241 2377 921	Carbon Film 82ohm 1/4 W WNB	RD14BE820JNB
△R035-326	243 2379 304	Wry Wire 150ohm 1/4 W	RN10B-07520G
△R033-340	241 2378 922	Carbon Film 330ohm 1/4 W WNB	RD14BE330JNB
△R041-342	241 2280 911	Carbon Film 1 kohm 1/4 W WNB	RD14BE1K0JNB
△R043-344	243 2295 987	Metal Oxide 12 kohm 1 W	RS145SA123JNB(S)
△R045-348	245 2091 013	Wire Wound 0.22ohm 5 W	RFW99-03F22W
△R055-355	241 2387 943	Carbon Film 6.2ohm 1/4 W WNB	RD14BE620JNB
△R056-362	241 2276 964	Carbon Film 47ohm 1/4 W WNB	RD14BE470JNB
△R067-370	241 2278 964	Carbon Film 47ohm 1/4 W WNB	RD14BE470JNB
△R075-378	241 2390 950	Carbon Film 2 kohm 1/4 W WNB	RD14BE2K0JNB
△R079-380	245 2036 905	Metal Film 47ohm 1/4 W	RN14KE470G
△R085-386	249 0255 969	Carbon Film 22 kohm 1/4 W WNB	RS145SA223JNB(S)
△R081-392	241 2387 940	Carbon Film 4.7ohm 1/4 W WNB	RD14BE470JNB
△R039-398	244 2022 938	Metal Oxide 47ohm 1 W	RS145SA470JNB(S)
△R101-422	241 2279 916	Carbon Film 510ohm 1/4 W WNB	RD14BE510JNB
△R103-404	241 2378 948	Carbon Film 270ohm 1/4 W WNB	RD14BE270JNB
△R105-410	241 2379 916	Carbon Film 1 kohm 1/4 W WNB	RD14BE1K0JNB
△R107-414	241 2378 946	Carbon Film 270ohm 1/4 W WNB	RD14BE270JNB
△R110-416	241 2379 987	Carbon Film 1 kohm 1/4 W WNB	RD14BE1K0JNB
△R123-424	241 2399 950	Carbon Film 2 kohm 1/4 W WNB	RD14BE2K0JNB
△R125-428	241 2399 950	Carbon Film 1 kohm 1/4 W WNB	RD14BE1K0JNB
△R127-432	241 2379 987	Carbon Film 1 kohm 1/4 W WNB	RD14BE1K0JNB
△R141-444	241 2377 947	Carbon Film 100ohm 1/4 W WNB	RD14BE100JNB
△R146-448	241 2379 987	Carbon Film 1 kohm 1/4 W WNB	RD14BE1K0JNB
△R149-456	244 2043 937	Metal Oxide 5.6 kohm 1 W	RS145SA562JNB(S)
△R152-464	244 2043 937	Metal Oxide 10kohm 1 W	RS145SA10K0JNB(S)
△R155-504	241 2367 924	Carbon Film 2.7ohm 1/4 W WNB	RD14BE270JNB
△R157-510	244 2051 958	Metal Oxide 220ohm 1 W	RS145SA221JNB(S)
△R163-504	241 2280 950	Carbon Film 2 kohm 1/4 W WNB	RD14BE2K0JNB
△R164-522	244 2052 957	Metal Oxide 5.6 kohm 1 W	RS145SA562JNB(S)
△R168-526	244 2052 957	Metal Oxide 10kohm 1 W	RS145SA10K0JNB(S)
RT11-716	245 2113 906	Metal Film 750ohm 1/4 W	RN14KE750G
△R802	241 2387 940	Carbon Film 4.7ohm 1/4 W WNB	RD14BE470JNB

CAPACITORS GROUP

C301-302	255 4199 973	Mylar Film 0.01µF50 V	C02M11H103JMR2
C303-304	255 6177 948	Polystyrol Film 100pF50 V	C05B011JASMT1
C305-306	253 4538 949	Ceramic Cap. 100pF50 V	C04SL1H101J
C307-308	255 1251 987	Mylar Film 0.0033µF50 V	C02M11H033JMR2
C309-310	253 4481 901	Ceramic Cap. 30pF50 V	C04S12300J
C311-312	253 1179 945	Ceramic Cap. 220pF50 V	C04S5H121K
C313-314	253 9476 904	Ceramic Cap. 18pF500 V	C04S8E18180J
C317-320	254 4261 921	Electrolytic 100 µF50 V	C04WH1H101MC
C321-322	254 4566 713	Electrolytic 100 µF50 V	C04WH1H101MC(S)
C323-324	254 4566 739	Electrolytic 47 µF50 V	C04WH1H470MC(S)
C325-328	254 4261 921	Electrolytic 100 µF100 V	C04WH1H100MC(S)
C331-342	254 4263 987	Electrolytic 10µF700 V	C04WH2A100MSME
C371-372	253 4470 900	Ceramic Cap. 10pF500 V	C04SL2H1000
C401-402	254 4261 918	Electrolytic 47 µF50 V	C04WH1H470M
C403-404	254 3056 939	Electrolytic 10µF50 V	C04WH1H100MP
(Special)			
C005-006	254 4260 993	Electrolytic 22 µF50 V	C04WH1H22M
C007-008	255 4199 986	Mylar Film 0.01µF50 V	C02M11H102JMR2
C009-010	254 4260 948	Electrolytic 1 µF50 V	C04WH101M
C011-012	255 4199 973	Mylar Film 0.01µF50 V	C02M11H103JMR2
C013-016	254 4260 948	Electrolytic 1 µF50 V	C04WH101M
C017-026	254 4263 987	Electrolytic 10µF100 V	C04WH2A100MS
C021-034	256 1034 979	Metallized 1 µF50 V	C04S1H101A
C039-040	253 1179 991	Ceramic Cap. 330pF50 V	C04S8E1H31K
C041-044	253 1128 909	Ceramic Cap. 220pF500 V	C04S8E221K
C050-506	255 1251 940	Mylar Film 0.0047µF50 V	C02M11H472JMR2
C057-508	255 4199 960	Mylar Film 0.022µF50 V	C02M11H223JMR2

1U-2733C for Multi-Voltage Model PARTS LIST
 (Same as 1U-2733A/B for Europe Black except the following)

Ref. No.	Parts No.	Parts Name	Remarks	Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
C509,510	253 1181 904	Ceramic Cap. 0.01 μ F/50 V	CK45F1H103Z	JAS01	204 8341 004	Head Phone Jack	Change	1
C521	253 1181 917	Ceramic Cap. 0.022 μ F/50 V	CK45F1H223Z		205 0777 006	8P Terminal (S-GND)	Change	1
C601,502	255 4199 973	Mylar Film 0.01 μ F/50 V	CQ92M1H103J(MRZ)					
C701	258 1042 903	Metalized 0.1 μ F/250 V	CF93A2E104K					
C801	254 4213 837	Electrolytic 100 μ F/6.3 V	CE04WJ101M(SRA)					
C802	253 1181 917	Ceramic Cap. 0.022 μ F/50 V	CK45F1H223Z					
C803	254 4213 937	Electrolytic 100 μ F/6.3 V	CE04WJ101M(SRA)					
C804	253 1181 917	Ceramic Cap. 0.022 μ F/50 V	CK45F1H223Z					
C805,806	254 4213 937	Electrolytic 100 μ F/6.3 V	CE04WJ101M(SRA)					
C807	259 0007 003	Backup Cap. 8200 μ F/5.5 V	SB CAP--822--					
C808	253 1181 917	Ceramic Cap. 0.022 μ F/50 V	CK45F1H223Z					
C809	254 4196 873	Electrolytic 4.7 μ F/50 V	CE04W1H4R7M(SRA)					
C810	254 4196 944	Electrolytic 1 μ F/50 V	CE04W1H010M(SRA)					
C811	254 4196 928	Electrolytic 0.33 μ F/50 V	CE04W1HR33M(SRA)					
C812	256 1034 982	Metalized 0.12 μ F/50 V	CF93A1H124J					
C813	253 1181 917	Ceramic Cap. 0.022 μ F/50 V	CK45F1H223Z					

1U-2733D for U.S.A & Canada Models PARTS LIST
 (Same as 1U-2733A/B for Europe Black except the following)

OTHER GROUP				Q'ty
	—	(P,W,Board)		(1)
L501,502	235 0098 004	Inductor 1 μ H		2
SW501	212 1128 005	2 P Push Switch	SP Switch	1
SW801-806	212 5604 910	Tact Switch		6
RL603,804	241 9003 005	Relay		2
	205 0733 004	8 P Terminal(S-GND)		1
JAS01	204 8354 004	Headphone Jack	Black model	1
JAS01	204 8355 003	Headphone Jack	Gold model	1
XL801	389 0191 903	Ceramic Resonator	CST4.00MGW	1
	417 0043 100	Radiator	for TR315-318	4
	473 7500 015	Tapping Screw (S)3x8		4
	412 2160 031	Common Plate		1
	412 2160 044	Common Plate		2
	412 2160 060	Common Plate		1
	203 0525 057	1 P Contact Assy	L=110 Black	1
	203 0528 015	1 P Contact Assy	L=130 Black	1
	203 0601 008	1 P SIN Cord Assy	L=130 Red	1
	203 0601 011	1 P SIN Cord Assy	L=130 White	1
CN103	203 8414 006	5 P EH-SDN Conn. Cord		1
CN203	203 8484 009	4 P EH-SDN Conn. Cord		1
CN301	205 0298 032	3 P EH Conn. Base		1
CN301	205 0234 031	3 P EH SID Conn. Base		1
CN302	205 0233 074	7 P EH Conn. Base		1
CN302	205 0234 073	7 P EH SID Conn. Base		1
CN303	205 0233 081	6 P EH Conn. Base		1
CN303	205 0234 060	6 P Conn. Base		1
CN304	203 5023 021	3 P SDN-SDN Conn. Cord		1
CN305	203 5023 019	3 P SDN-SDN Conn. Cord		1
CN306	203 5023 005	3 P SDN-SDN Conn. Cord		1
CN601	205 0955 088	8 P KR Conn. Base (L)		1
CN602	205 0375 000	10 P KR Conn. Base (KR-PH)		1
CN603	205 0343 050	9 P KR Conn. Base (KR-PH)		1
CN602	205 0355 033	3 P KR Conn. Base (L)		1
CN601	205 0355 062	6 P KR Conn. Base (L)		1
CN603	203 4769 017	3 P DA-DA Conn. Cord		1
T.P.	205 0190 036	3 P NH Conn. Base		2

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	205 0777 006	8P Terminal (S-GND)	Change	1

1U-2734A/B INPUT UNIT ASS'Y

Ref. No.	Parts No.	Parts Name	Remarks	Ref. No.	Parts No.	Parts Name	Remarks
SEMICONDUCTORS GROUP							
IC001	263 0030 004	IC NJM4558DD	Regulator +5 V	C225,228	254 4260 908	Electrolytic 0.47 μ F/50 V	CE04WH1R47M CC45L1H330J CE04D1H010MSP (5ipolar)
IC702	263 0793 002	IC NJM7906FA(S)		C227,228	263 4537 624	Ceramic Cap. 33pF/50 V	
IC901	263 0030 004	IC NJM4558DD		C229	254 3056 917	Electrolytic 1 μ F/50 V	
TR001	273 0317 906	Transistor 2SC2458(BL)		C230	253 1181 904	Ceramic Cap. 0.01 μ F/50 V	
TR101	274 0151 603	Transistor 2SD2004(P)		C232	255 4199 960	Mylar Film 0.022 μ F/50 V	
TR603-605	273 0317 906	Transistor 2SC2458(BL)	C233	254 4356 797	Electrolytic 10 μ F/50 V	CE04WH100M(C/AR5)	
TR606	271 0191 906	Transistor 2SA1048(GR)	C501	254 4260 948	Electrolytic 1 μ F/50 V		CE04WH1010M
TR607	273 0235 923	Transistor 2SC1841(E/F)	C502	253 1181 917	Ceramic Cap. 0.022 μ F/50 V	CK45FH223Z	
TR608	271 0191 904	Transistor 2SA688(E/F)	C603	254 4250 945	Electrolytic 330 μ F/16 V	CE04W0J331M	
TR609	274 0151 903	Transistor 2SD2004(P)	C604,605	254 4254 912	Electrolytic 22 μ F/16 V	CE04WC1220M	
TR610	273 0235 623	Transistor 2SC1841(E/F)	C606	263 1181 917	Ceramic Cap. 0.022 μ F/50 V	CE04W2A100M	
TR611	269 0025 901	Transistor RN1202	C607	254 4063 667	Electrolytic 10 μ F/100 V	CK45FH223Z	
TR612	273 0317 906	Transistor 2SC2458(BL)	C707	263 1181 917	Ceramic Cap. 0.022 μ F/50 V	CE04WH1010M	
TR613-615	273 0235 923	Transistor 2SC1841(E/F)	C708	254 4260 948	Electrolytic 1 μ F/50 V	CE04WH1010M	
TR621	269 0025 901	Transistor RN1202	C712	254 4259 700	Electrolytic 2200 μ F/5 V	CE04WH10223C	
TR622	269 0026 900	Transistor RN2202	C713	254 4254 909	Electrolytic 10 μ F/16 V	CE04WH1010M	
TR901-904	275 0038 045	FET 2SK369(BL)(GR)-C	C714	253 1191 904	Ceramic Cap. 0.01 μ F/50 V	CK45FH103Z	
D001	276 0432 903	Diode 1S5270A	C801	254 4260 948	Electrolytic 1 μ F/50 V	CE04WH1010M	
D101-106	276 0432 903	Diode 1S5270A	C802	253 1181 917	Ceramic Cap. 0.022 μ F/50 V	CK45FH223Z	
D606	276 0432 903	Diode 1S5270A	C903,904	253 1179 929	Ceramic Cap. 150pF/50 V	CK45B1H151K	
D703-708	276 0553 903	Diode 1SR35-200A	C905,906	253 4537 966	Ceramic Cap. 47pF/50 V	CC45L1H470J	
D901,902	276 0432 903	Diode 1S5270A	C907,908	253 1179 929	Ceramic Cap. 150pF/50 V	CK45B1H151K	
ZD601	276 0468 908	Zener Diode HZ57C-1	C909,910	253 1179 903	Ceramic Cap. 100pF/50 V	CK45B1H101K	
SC601	279 0019 904	Thyristor SF0R11A42	C913,914	255 1251 937	Mylar Film 0.0033 μ F/50 V	CG82M1H332J(MRZ)	
RESISTORS GROUP (Not included Carbon Film $\pm 5\%$, 1/4 W Type. Refer to the Schematic Diagram for those parts.)							
R1001	244 2071 901	Metal Oxide 10 Ohm 1/4 W (100)	RS1403A010J (B57C)				
R1002	244 2043 924	Metal Oxide 50 Ohm 1/4 W (100)	RS1403A050J (B57C)				
R1101-116	244 2071 901	Metal Oxide 10 Ohm 1/4 W (100)	RS1403A010J (B57C)				
R119	244 2390 940	Carbon Film 4.7 Ohm 1/4 W (100)	RD1403A47J (MFR)				
R1901	244 2432 905	Carbon Film 4.7 Ohm 1/4 W (100)	RD1403A47J (MFR)				
R201	244 2432 905	Carbon Film 4.7 Ohm 1/4 W (100)	RD1403A47J (MFR)				
R202,203	244 2051 903	Metal Oxide 8.2 Ohm 1/4 W (100)	RS1403A082J (B57C)				
VR201	211 0761 004	Variable Resistor 30 kohm	Main Volume				
VR202	211 0793 103	Variable Resistor 100 kohm	Balance				
VR203	211 0834 012	Variable Resistor 10 kohm	Treble				
VR204	211 0834 009	Variable Resistor 30 kohm	Bass				
CAPACITORS GROUP							
C001,002	253 9003 713	Ceramic Cap. 470pF/50 V	CK45E230A472M6				
C110-110	263 4537 682	Ceramic Cap. 56pF/50 V	CC45L1H560J				
C113	254 4263 987	Electrolytic 10 μ F/100 V	CE04W2A100M				
C114	263 1181 917	Ceramic Cap. 0.022 μ F/50 V	CK45FH223Z				
C115	254 4260 948	Electrolytic 1 μ F/50 V	CE04WH1010M				
C205,206	254 4260 948	Electrolytic 1 μ F/50 V	CE04WH1010M				
C207,208	263 4538 907	Ceramic Cap. 66pF/50 V	CC45L1H660J				
C209,210	256 1034 953	Metallized 0.068 μ F/50 V	CF93A1H683J				
C211,212	256 1034 911	Metallized 0.033 μ F/50 V	CF93A1H333J				
C213,214	254 4260 948	Electrolytic 1 μ F/50 V	CE04WH1010M				
C215,216	254 4254 906	Electrolytic 10 μ F/16 V	CE04WC100M				
C217,218	254 4260 922	Electrolytic 0.33 μ F/50 V	CE04WH1R33M				
C219,220	256 1034 911	Metallized 0.033 μ F/50 V	CF93A1H333J				
C221,222	254 4259 919	Electrolytic 0.22 μ F/50 V	CE04WH1R22M				
C223,224	254 4260 906	Electrolytic 0.1 μ F/50 V	CE04WH1R10M				
OTHER GROUP							
L901,902	235 9003 002	FTZ Choke Coil					Q'ty
RL01	214 0127 003	Relay (RY-12W)					1
RL101-106	214 0127 003	Relay (RY-12W)					6
F001	204 9413 027	Fuse 3-AT					1
F002	203 9415 022	Fuse 1-AT					1
F003	208 9015 028	Fuse 3-AT					1
AC001	203 9459 232	3-Phase Coupler					1
	202 4000 909	Fuse Clip					6
SW01	212 101258	Push Switch (TPS)					1
SW101	212 0335 005	Rotary Switch					1
SW201	212 1097 000	1 P. Push Switch	Loudness				1
SW202	212 1130 008	1 P. Push Switch	S.Direct				1
SW801	212 1041 001	1 P. Push Switch	MM-MC				1
	204 9413 030	2 P. Pin Jack (C-GND)	Phono				1
	204 8296 006	4 P. Pin Jack (S-GND)					1
	204 8278 009	6 P. Pin Jack (S-GND)					2
	415 0259 000	Condenser Cover					2

1U-277C for Multi-Voltage Model PARTS LIST
 (Same as 1U-2734A/B for Europe Black except the following)

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	205 0892 000	2 P Whipping Terminal		1
CN101	205 0666 055	6 P Conn. Base(9130)		1
CN101	205 0667 064	6 P Conn. Base-L(9130)		1
CN102	205 0666 055	5 P Conn. Base(9130)		1
CN102	205 0667 051	5 P Conn. Base-L(9130)		1
CN103	205 0293 056	5 P EH Conn. Base		1
CN201	205 8415 056	5 P Conn. Base (KR-Ph)		2
CN201	203 8415 005	5 P PH-Ph Conn. Cord		1
CN202	204 0455 009	6 P PH-Ph Conn. Cord		1
CN202,201	205 0340 001	6 P Conn. Base (KR-Ph)		3
CN203	205 0294 044	4 P EH SID Base		1
CN301	203 5024 004	3 P EH-EH Conn. Cord		1
CN303	204 0454 009	6 P EH-EH Conn. Cord		1
	204 2893 004	7 P EH-EH Conn. Cord		1
CN601	205 0240 007	8 P Conn. Base (KR-Ph)	L=550	1
CN601	204 2548 007	8 P KR-KR Ribbon		1
CN602	205 0376 000	10 P Conn. Base (KR-Ph)	L=750	1
CN602	204 2554 046	10 P KR-KR Ribbon		1
CN603	205 0340 009	3 P Conn. Base (KR-Ph)		1
CN603	204 2550 053	3 P KR-KR Ribbon	L=400	1
CN602	205 0352 023	3 P KR Conn. Base (L)		1
	203 0418 042	1 P SN Cord Assy	L=70 Black	1
CN602	203 4872 037	3 P KR-KR Ribbon	L=350	1

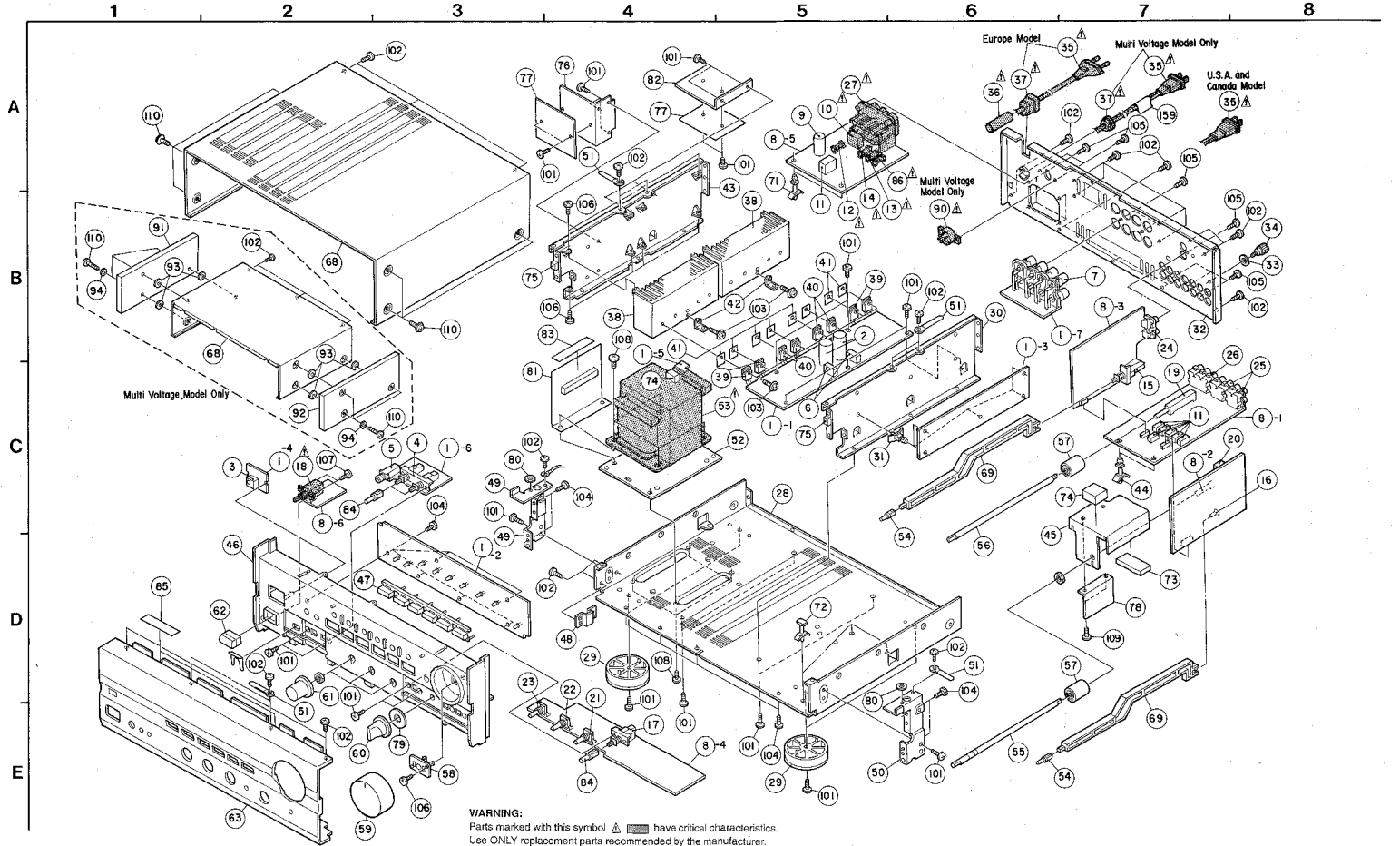
Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
CAPACITORS GROUP				
C605,606	253 4537 866	Ceramic Cap. 47pF160V	Delete	--
OTHER GROUP				
L601,602	235 9003 002	FTZ Choke Coil	Delete	--
△ P601	216 1391 073	Fuse 60A (25-37)	Change	1
△ P602	220 1674 070	Fuse 10T	Change	1
△ F603	513 2195 082	Fuse 5A	Add	1
	513 2695 095	Fuse Label	Add	1
△ A604	216 3345 070	AO Driver	Change	1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
CAPACITORS GROUP				
C605,606	253 4537 866	Ceramic Cap. 47pF160V	Delete	--
OTHER GROUP				
L601,602	235 9003 002	FTZ Choke Coil	Delete	--
△ P601	206 1642 043	Fuse 10A	Change	1
△ P602	201 1543 013	Fuse 5A	Change	1
△ F603	205 1668 086	5A Fuse	Change	1
	415 0209 000	Condenser Cover	Delete	--
	513 2195 078	Fuse Label	Add	1
	513 1674 083	Fuse Label	Add	1
	513 2195 082	Fuse Label	Add	1
△ A604	216 3345 070	AO Driver	Change	1

1U-277D for U.S.A. & Canada Models PARTS LIST
 (Same as 1U-2734A/B for Europe Black except the following)

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
CAPACITORS GROUP				
C605,606	253 4537 866	Ceramic Cap. 47pF160V	Delete	--
OTHER GROUP				
L601,602	235 9003 002	FTZ Choke Coil	Delete	--
△ P601	206 1642 043	Fuse 10A	Change	1
△ P602	201 1543 013	Fuse 5A	Change	1
△ F603	205 1668 086	5A Fuse	Change	1
	415 0209 000	Condenser Cover	Delete	--
	513 2195 078	Fuse Label	Add	1
	513 1674 083	Fuse Label	Add	1
	513 2195 082	Fuse Label	Add	1
△ A604	216 3345 070	AO Driver	Change	1

EXPLODED VIEW OF CHASSIS AND CABINET



WARNING:
 Parts marked with this symbol  have critical characteristics.
 Use ONLY replacement parts recommended by the manufacturer.

SCHEMATIC DIAGRAM

1

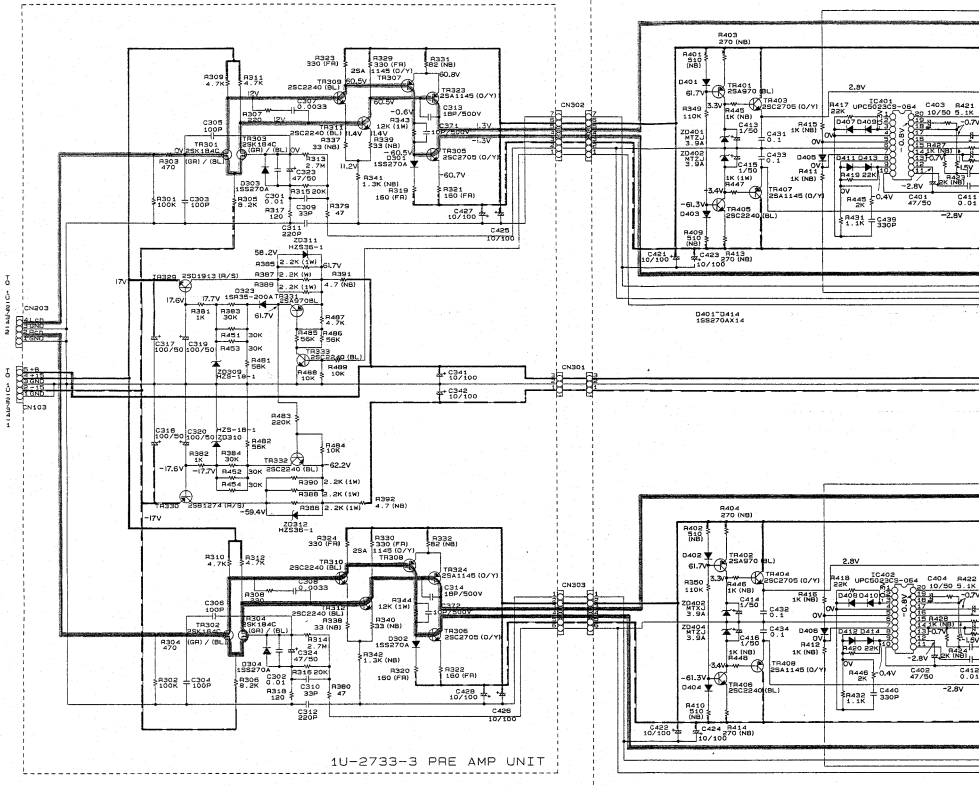
2

3

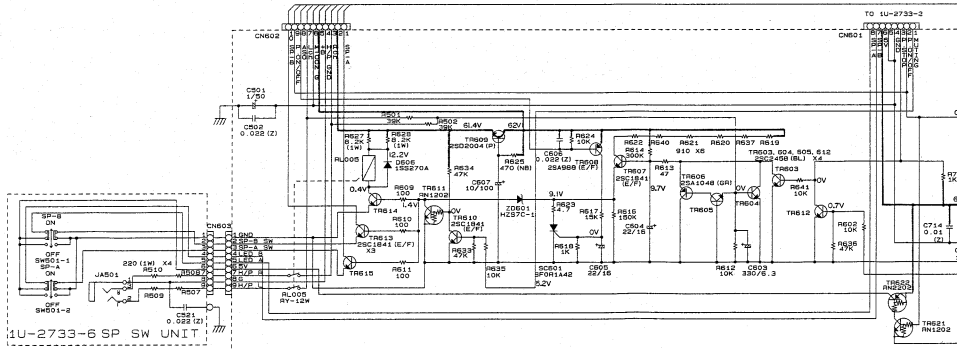
4

5

6

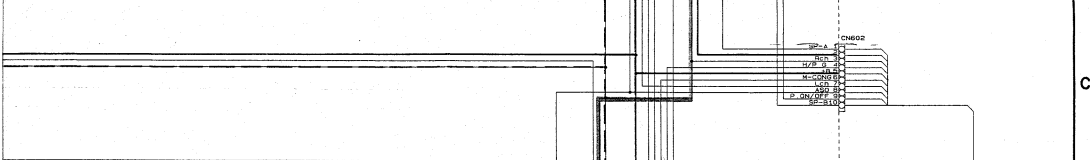
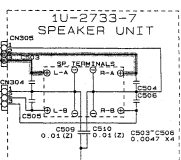
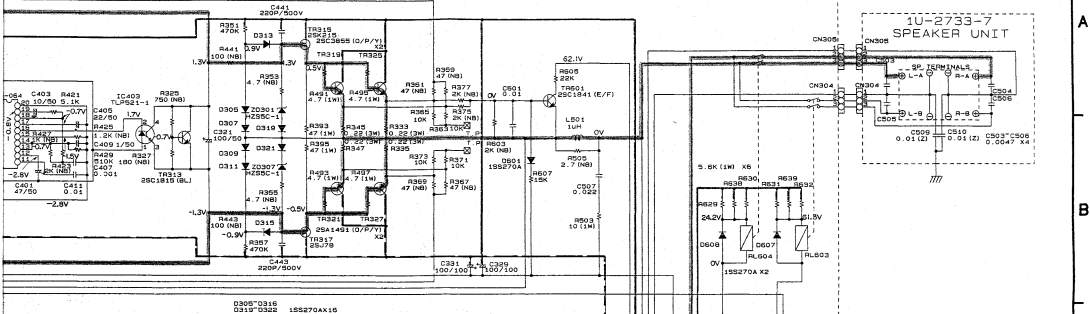


1U-2733-3 PRE AMP UNIT

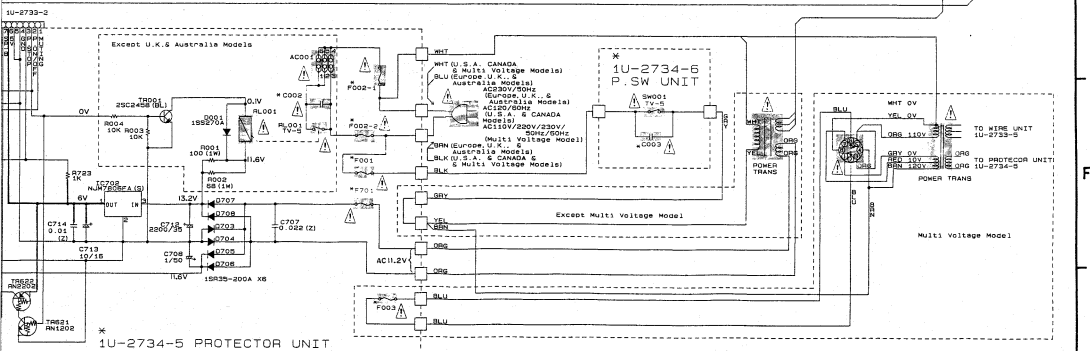


1U-2733-6 SP SW UNIT

6 7 8 9 10 11



Model	Type	Europe	U.S.A. & CANADA	Mult. Voltage	U.K. & Australia
PO01	YIA	YUR02	YUR02	YUR02	YUR02
PO02	YIA	YUR02	YUR02	YUR02	YUR02
PO03	YIA	YUR02	YUR02	YUR02	YUR02
PO04	YIA	YUR02	YUR02	YUR02	YUR02
PO05	YIA	YUR02	YUR02	YUR02	YUR02
PO06	YIA	YUR02	YUR02	YUR02	YUR02
PO07	YIA	YUR02	YUR02	YUR02	YUR02
PO08	YIA	YUR02	YUR02	YUR02	YUR02
PO09	YIA	YUR02	YUR02	YUR02	YUR02
PO10	YIA	YUR02	YUR02	YUR02	YUR02



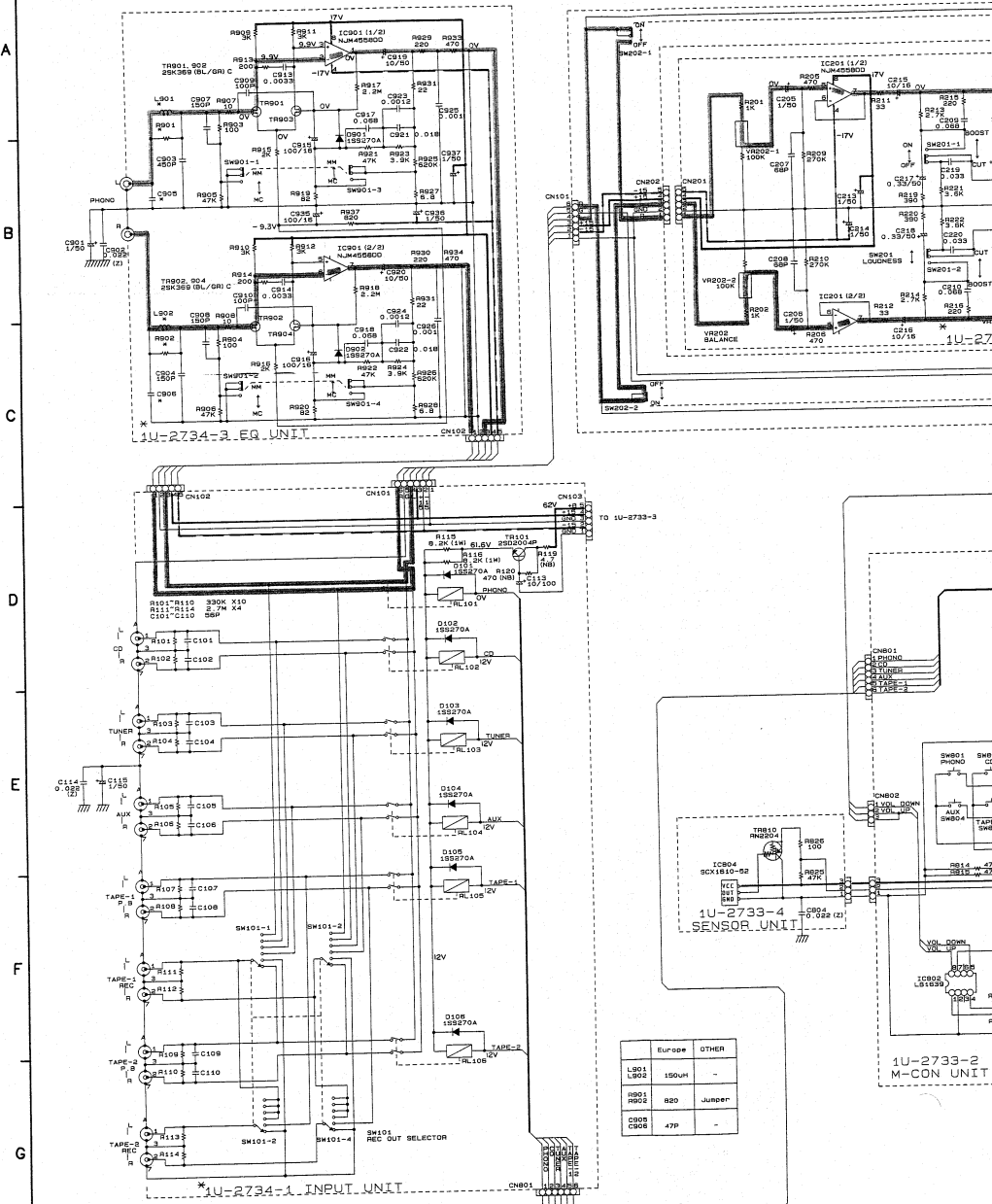
——— +B LINE
 - - - - - -B LINE
 ——— SIGNAL LINE

MEASURING CONDITIONS :
 PHONO INPUT
 SOURCE DIRECT : OFF
 SPEAKER A : ON

WARNING:
 Parts marked with this symbol have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.
CAUTION:
 Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliams, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.
WARNING:
 DO NOT return the unit to the customer until the problem is located and corrected.

NOTES
 ALL RESISTANCE VALUES IN OHM, k=1,000 OHM, M=1,000,000 OHM
 ALL CAPACITANCE VALUES IN MICRO FARAD, P=PicRo-MICRO FARAD
 EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL-INPUT CONDITION
 CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

A B C D E F G H



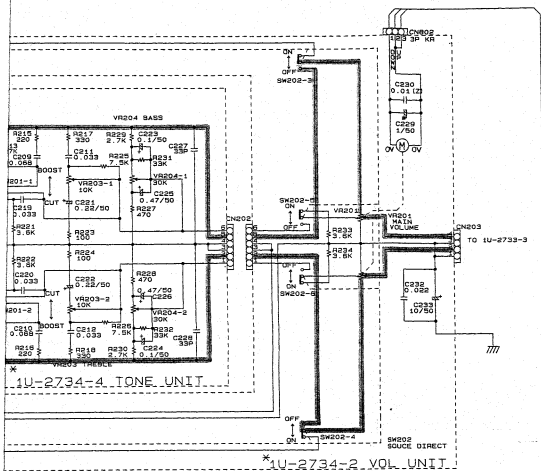
	ELCOP	OTHER
L801	150uH	-
R801	R80	Jumper
R802	47K	-
C808	47P	-

NOTES
 ALL RESISTANCE VALUES IN OHM. K=1,000 OHM. M=1,000,000 OHM
 ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
 EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
 CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:
 Parts marked with this symbol have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

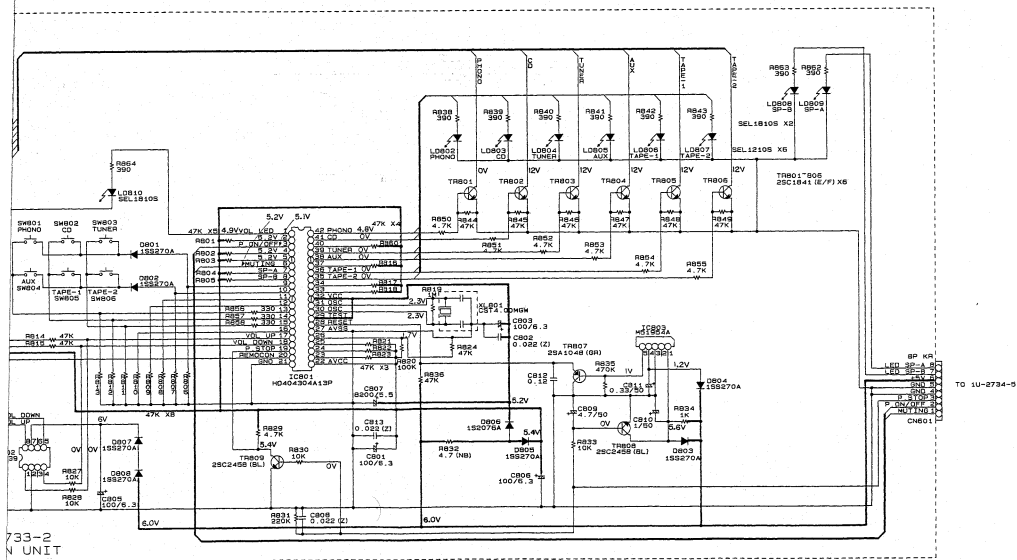
CAUTION:
 Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
 DO NOT return the unit to the customer until the problem is located and corrected.



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NO. OF	AVAILABILITY	MODEL	DATE
1U-2734-1	1U-2734-1	1U-2734-1	1U-2734-1
1U-2734-2	1U-2734-2	1U-2734-2	1U-2734-2
1U-2734-3	1U-2734-3	1U-2734-3	1U-2734-3
1U-2734-4	1U-2734-4	1U-2734-4	1U-2734-4
1U-2734-5	1U-2734-5	1U-2734-5	1U-2734-5
1U-2734-6	1U-2734-6	1U-2734-6	1U-2734-6



— +B LINE
 — -B LINE
 — SIGNAL LINE

MEASURING CONDITIONS:
 PHONO INPUT
 SOURCE DIRECT : OFF
 SPEAKER A : ON