

# DENON

Hi-Fi Personal Component System

Europe Model

## SERVICE MANUAL

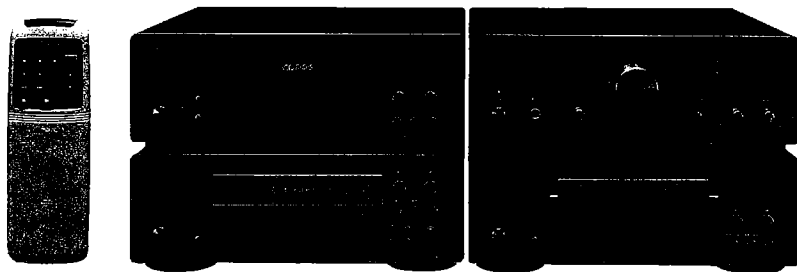
### PERSONAL COMPONENT SYSTEM D-F10

UNIT No. UTU-F10 (AM, FM Stereo Tuner)

UNIT No. UPA-F10 (Pre-Main Amplifier)

UNIT No. UCD-F10 (Compact Disc Player)

UNIT No. UDR-F10 (Cassette Tape Deck)



• The D-F10 Personal Component System consists of the following:

AM, FM Stereo Tuner Unit	UTU-F10
Remote Control Unit	RC-172
Pre-Main Amplifier Unit	UPA-F10
CD player Unit	UCD-F10
Cassette Deck Unit	UDR-F10

## MAIN FEATURES

- **RDS compatible**  
Compatible with various RDS services, including program service name (PS), program type identification (PTY), traffic program identification (TP) and clock time (CT).
- **Quality power for high quality sound**  
55W + 55W (4 ohm DIN) high quality amplifier and terminals for large speakers.
- **High sound quality, multi-function CD player**  
Edit function for automatically dividing the tracks on a CD for recording onto sides A and B of a tape. .S.L.C for playback with high quality sound.
- **Cassette deck with Dolby B, C and HX-Pro circuits**  
For playback and recording of high quality sound.
- **Two types of timers**  
Two timer settings can be made – everyday and sleep.
- **Easy-to-use remote control unit**  
The most frequently used keys are located on the front, with the remaining keys enclosed under a sliding cover.
- **Auto on function**  
The power turns on automatically and playback begins when the play button on the CD player or the cassette deck or the tuner preset up/down buttons on the remote control unit are pressed.

## BEFORE USING

- **Moving the system**  
To prevent short-circuiting or damage of connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.  
In addition, always remove CDs before moving the system. If not, the CD may be scratched.
- **Before turning the power on**  
Check again that all connections are proper and that the connection cords are not damaged. Always set the power switch to the STANDBY position before disconnecting connection cords.
- Humming may be produced if the system is set near a TV set or other audio component or its connection cords. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, as this may cause dew (water droplets) to form in the set, preventing proper operation. If this happens, wait one hour before using the system.
- **Be sure to keep this manual**  
The illustrations used in this manual may differ from the actual system.

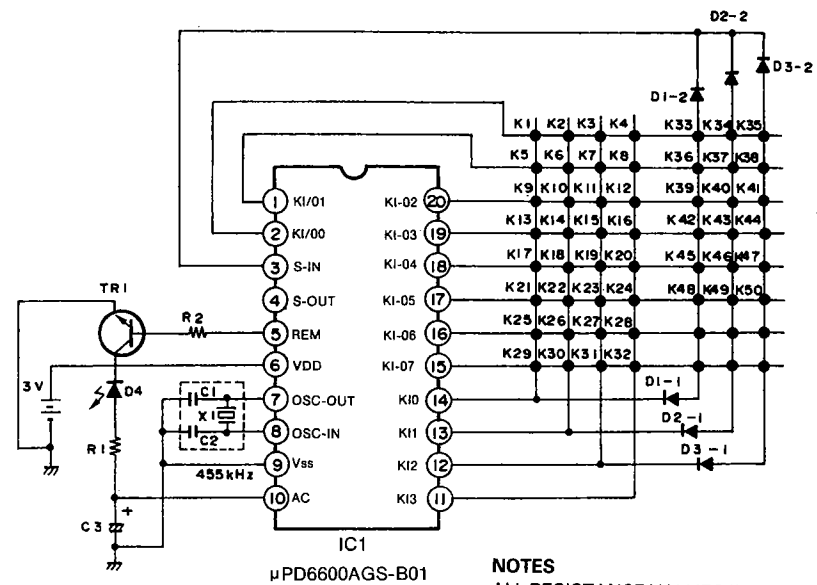
Check that the following parts are included in the package aside from the main unit:

- **UPA-F10 (pre-main amplifier unit)**
  - Remote control unit (RC-172) ..... 1
  - R6P/AA batteries ..... 2
  - Operating instructions ..... 1
- **UTU-F10 (AM/FM stereo tuner)**
  - FM antenna ..... 1
  - AM loop antenna ..... 1
  - System connector cable ..... 1
  - RCA pin-plug cord ..... 1
  - AC cord ..... 1
  - Inst. Sheet ..... 1
- **UCD-F10 (compact disc player)**
  - System connector cable ..... 1
  - RCA pin-plug cord ..... 1
  - AC cord ..... 1
  - Inst. Sheet ..... 1
- **UDR-F10 (cassette tape deck)**
  - System connector cable ..... 1
  - RCA pin-plug cord ..... 2
  - Inst. Sheet ..... 1

# NIPPON COLUMBIA CO., LTD.

REMOTE CONTROL UNIT (RC-172 : Part No. 399 0235 005)

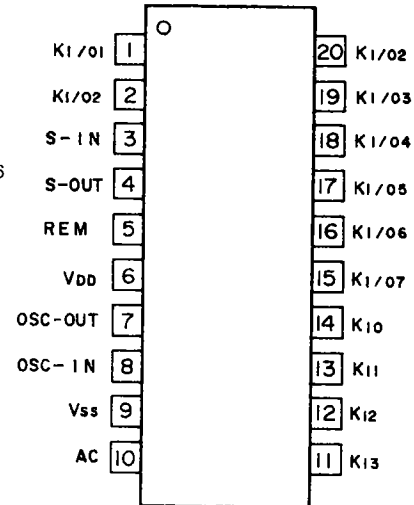
Schematic Diagram



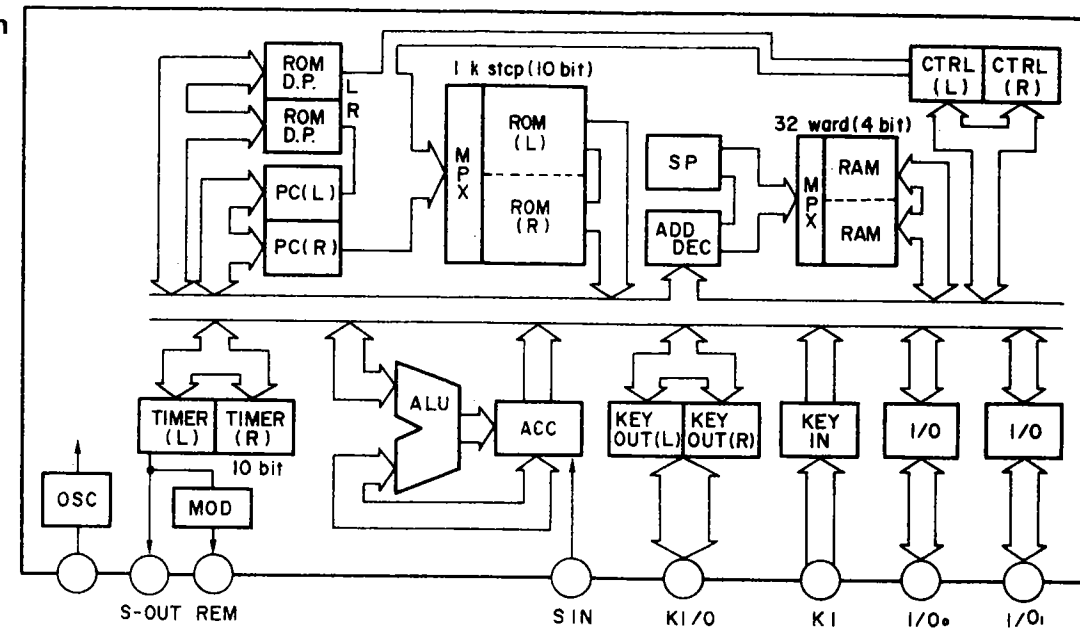
NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

IC Block Diagram

µPD6600AGS-B01
Pin Connections Diagram (Top View)



Block Diagram



TUNER Mode

After sending the tuner (K5) key and immediately after inserting the batteries, K9 through K19 are to send the tuner number keys and the + number key codes.

Table with columns: Key No., Address classify, System Address (C1-C14), Mask, Judgment, Registration code, Notes. Rows 1-40 listing functions like RECIVER, TUNER, and CD.

Table with columns: Key No., Address classify, System Address (C1-C14), Mask, Judgment, Registration code, Notes. Rows 41-50 listing functions like DECK, BAND, and TUNING UP.

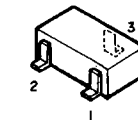
CD Mode

After sending the direct (K28) or program (K29) key, K9 through K19 are to send the CD number keys and the + number key codes.

Table with columns: Key No., Address classify, System Address (C1-C14), Mask, Judgment, Registration code, Notes. Rows 9-19 listing CD functions.

Transistors

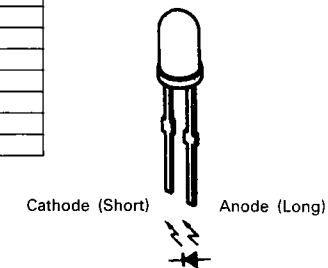
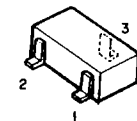
2SD1781KR
2SC3265
2SD596



Diodes

Infrared LED
SE303
LN66

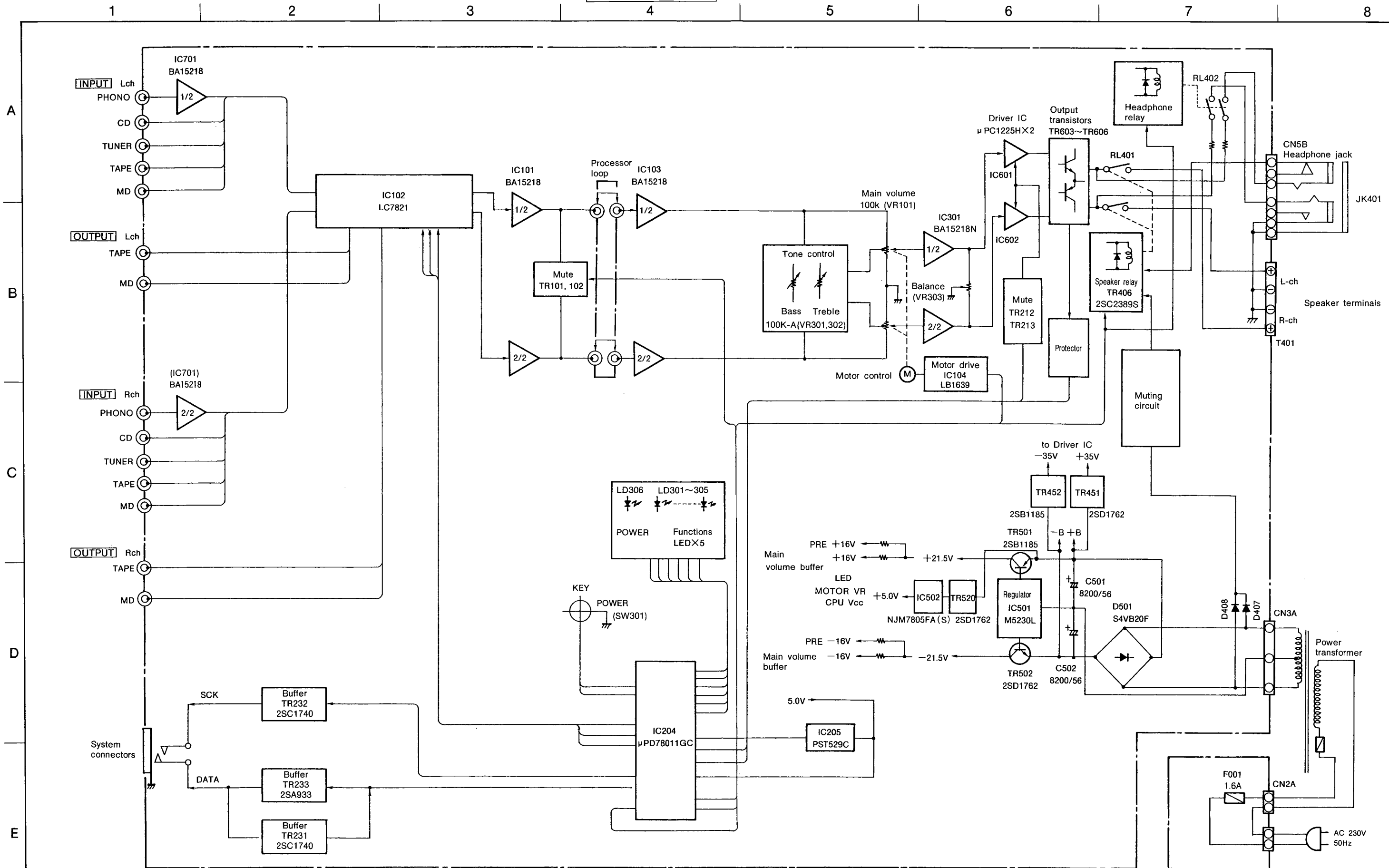
DAP202K
MA151WA

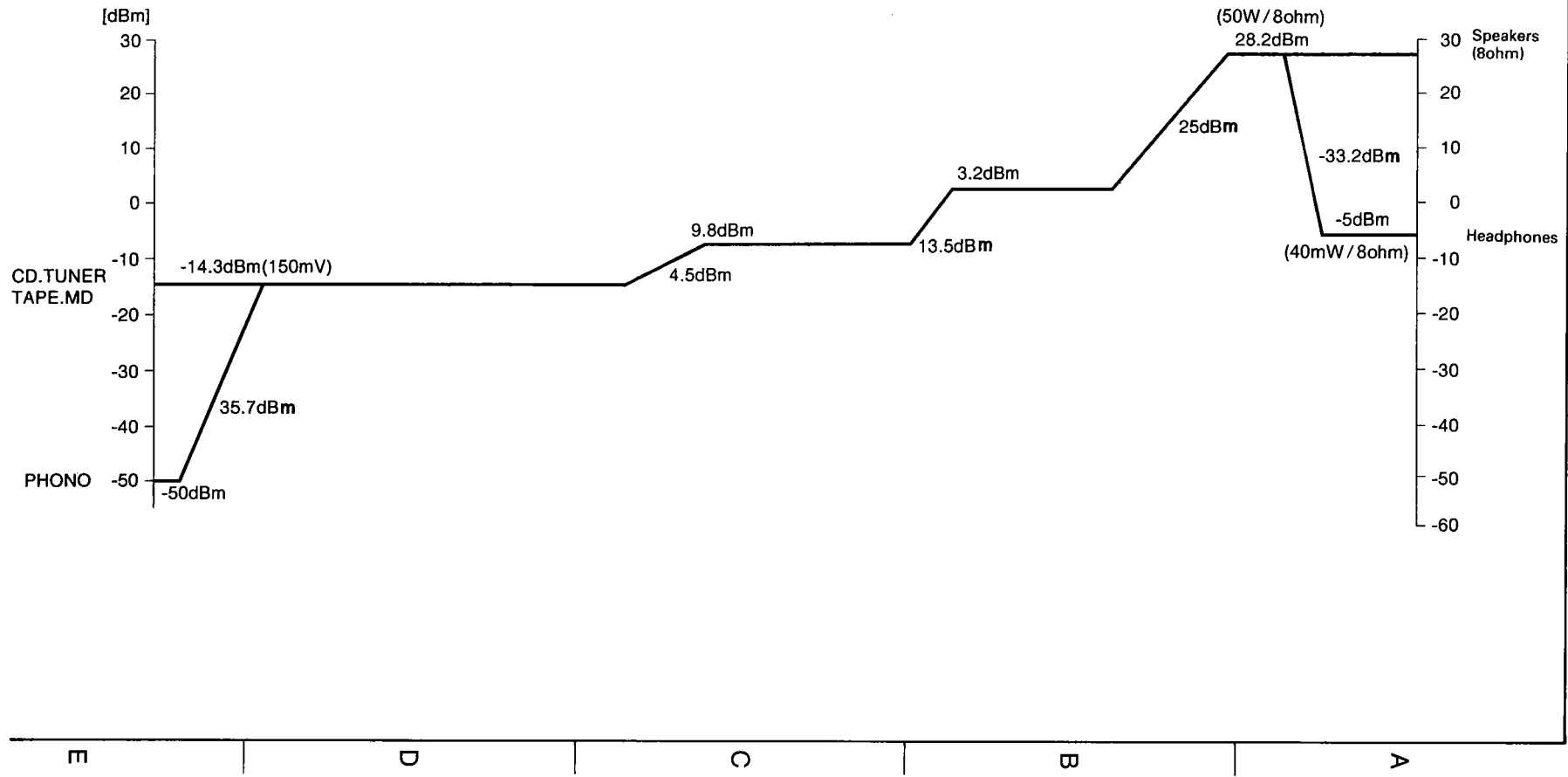
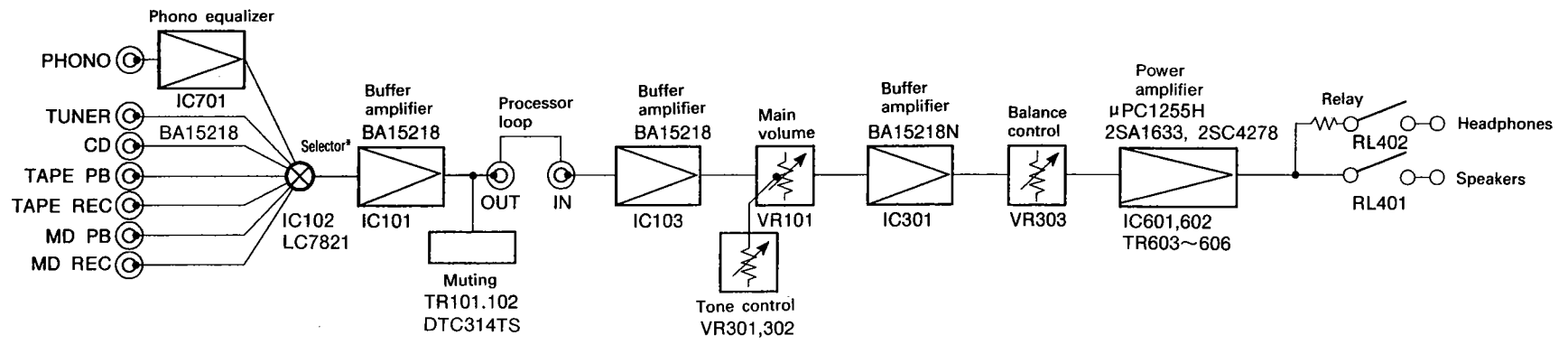


A
B
C
D
E

PRE-MAIN AMP. SECTION

BLOCK DIAGRAM





LEVEL DIAGRAM

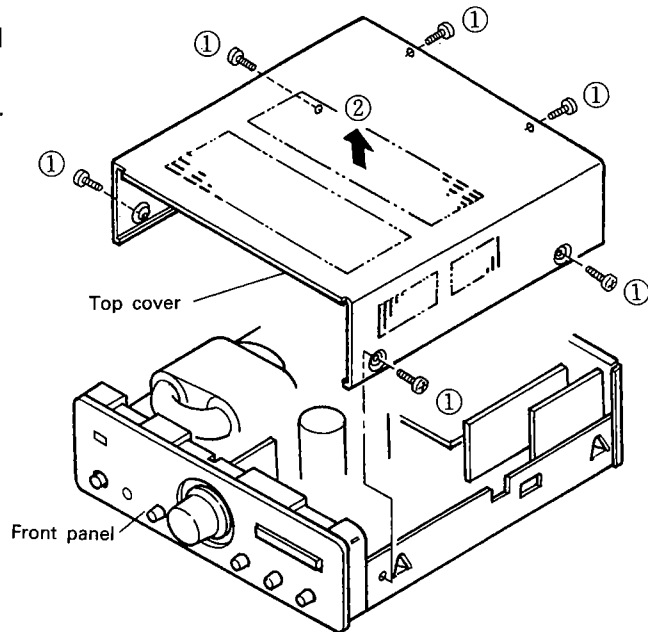
PRE-MAIN AMP. SECTION

**PRE-MAIN AMP. SECTION****DISASSEMBLY PROCEDURES**

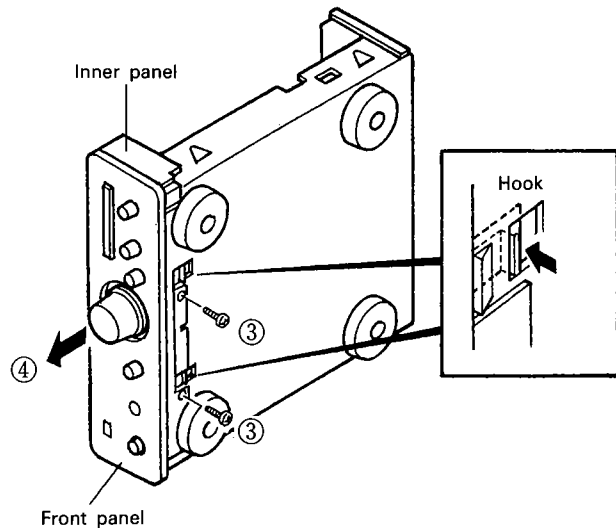
(Assembly is performed in the reverse order.)

**1. Removing the Top Cover and the Front Panel**

- ① Remove the six screws which fasten the top cover.
- ② Remove the top cover (upward) in the direction of the arrow.



- ③ Remove the two screws which fasten front panel.
- ④ Release the inner panel hooks from the chassis while pulling the panels in the direction of the arrow to remove the inner panel and the front panel as one unit.

**2. Removing the Units****Main Volume Unit (2U-2688B-4)**

- ⑤ Remove the main volume control assembly in the direction of the arrow, and remove the nut which fastens the main volume unit.

**Switch Unit (1) (2U-2688B-1)**

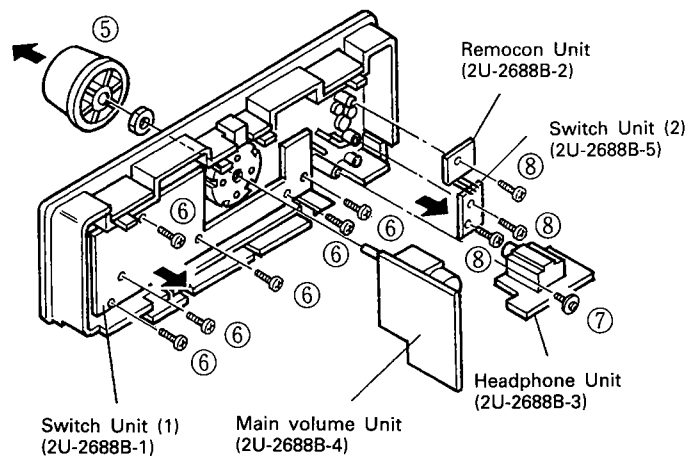
- ⑥ Remove the six screws which fasten switch unit (1).

**Headphone Unit (2U-2688B-3)**

- ⑦ Remove the screw which fastens the headphone unit.

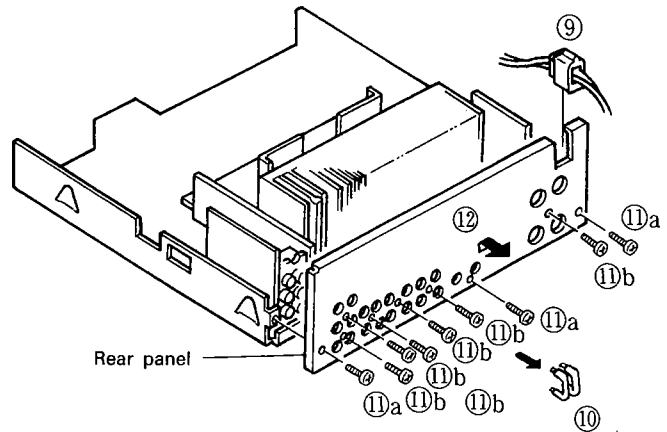
**Remocon Unit (2U-2688B-2) and Switch Unit (2) (2U-2688B-5)**

- ⑧ Remove the two screws which fasten remocon unit and switch unit (2).



**PRE-MAIN AMP. SECTION****3. Removing the Rear Panel**

- ⑨ Remove the cord bush from the rear panel.
- ⑩ Remove the two shorting pins.
- ⑪ Remove the three "a" screws and the nine "b" screws which fasten the rear panel.
- ⑫ Remove the rear panel in the direction of the arrow.

**Processor Unit (2U-2687B-3)**

- ⑬ Disconnect the processor unit from the connector and remove in the direction of the arrow.

**Input Unit (2U-2687B-2)**

- ⑭ Disconnect the input unit from the connector and remove in the direction of the arrow.

**AC Input Unit (2U-2687B-5)**

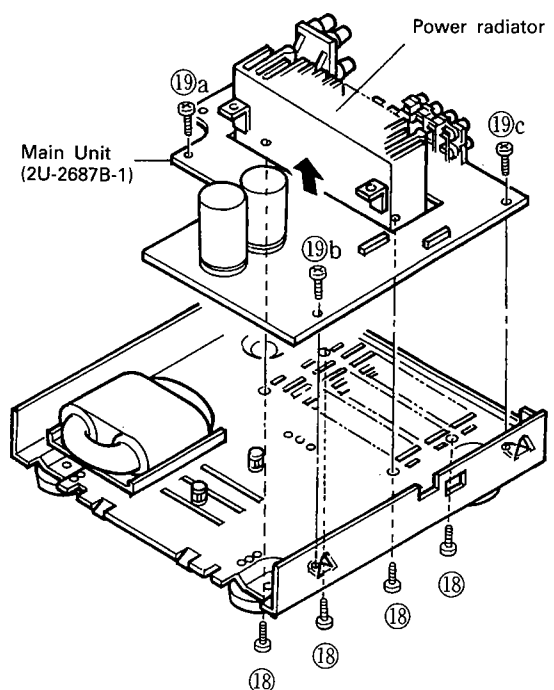
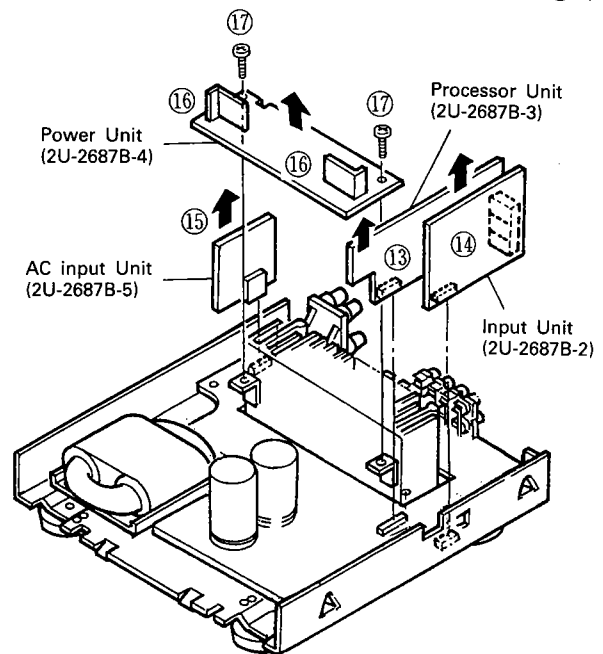
- ⑮ Disconnect the AC input unit from the connector and remove in the direction of the arrow.

**Power Unit (2U-2687B-4)**

- ⑯ Remove the solder from the four power transistors.
  - ⑰ Remove the two screws which fasten the power unit.
- NOTE:** Perform this after removing the power radiator.

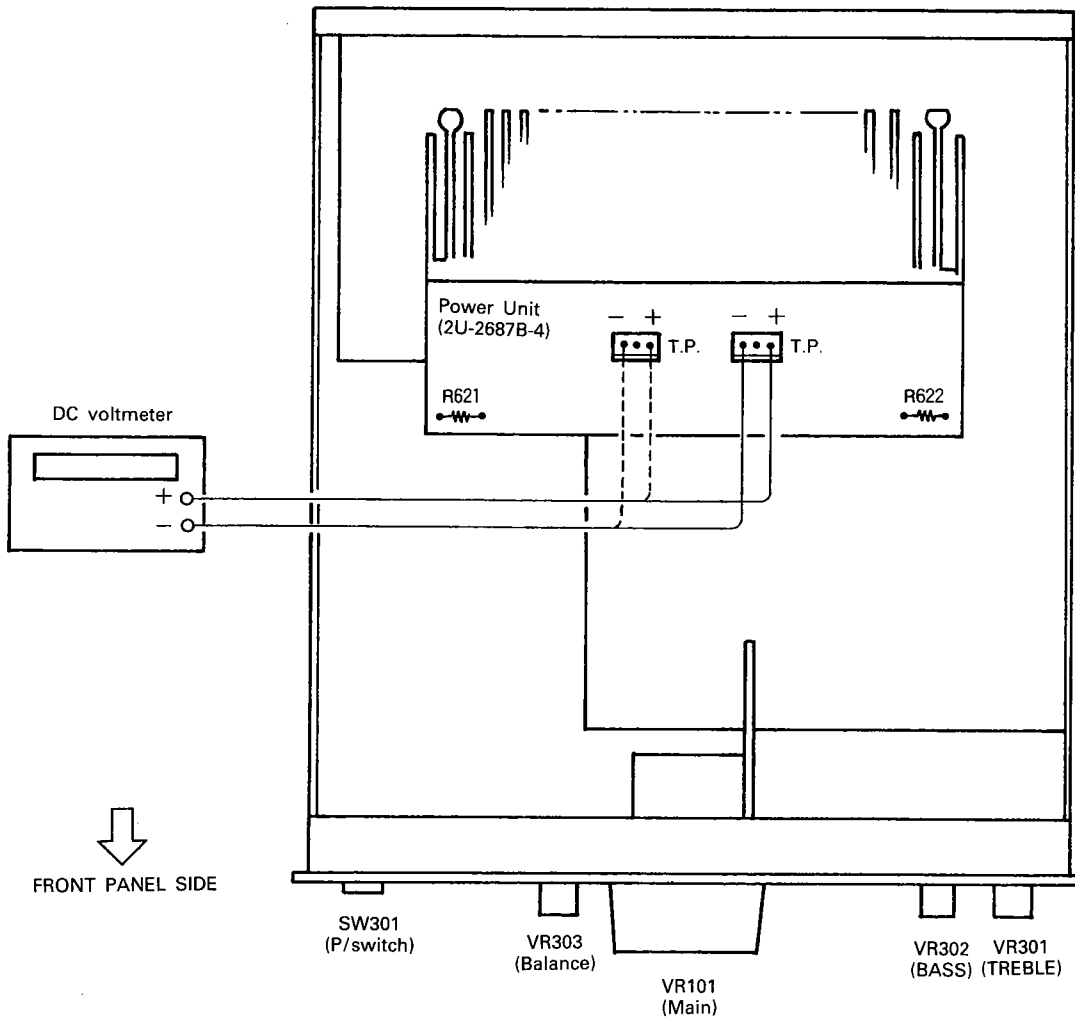
**Main Unit (2U-2687B-1)**

- ⑱ Remove the four screws which fasten the power radiator, then remove the power radiator.
- ⑲ Remove the single "a", "b", and "c" screws which fasten the main unit.



## PRE-MAIN AMP. SECTION

## ADJUSTMENTS



## 1. Measuring Instruments Required for the Adjustments

- DC voltmeter

## 2. Preparation

- ① Place the set in a location having normal usage conditions and avoid places with strong drafts such as near coolers or fans. The operating temperature of the set should be between 15 and 30°C and the humidity should be normal.
- ② Set the switches of the set as follows:
  - POWER switch → ON ( — )
  - SPEAKER terminals → No load (Do not connect speakers or dummy resistors)
  - INPUT terminals → No input

## • Adjustments

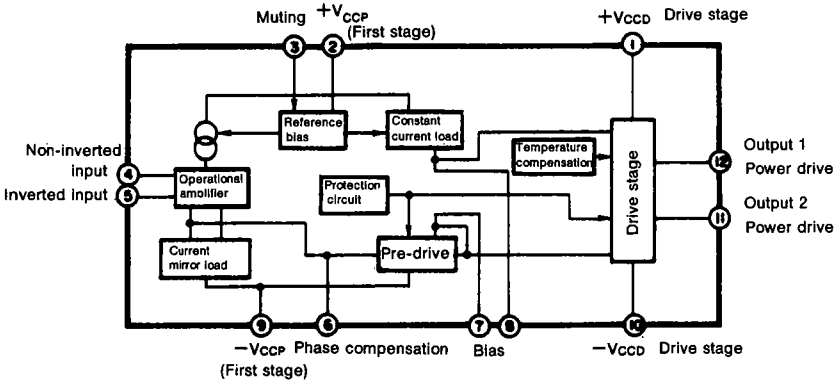
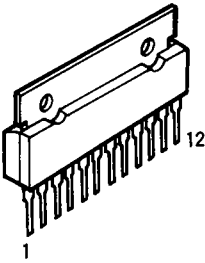
- ① Remove the top cover and connect the DC voltmeter to the test points of the power unit (2U-2687B-4).
- ② Connect the power cable to a 230 V AC source and set the power switch to "ON ( — )."
- ③ After 10 minutes, read the voltmeter and check that the reading is in the range of 2 mV to 40 mV (DC).
- ④ When the value read from the voltmeter is 2 mV or less, cut R621 and R622 (2 kohm) shown in the above diagram.

**PRE-MAIN AMP. SECTION**

• IC's

**SEMICONDUCTORS**

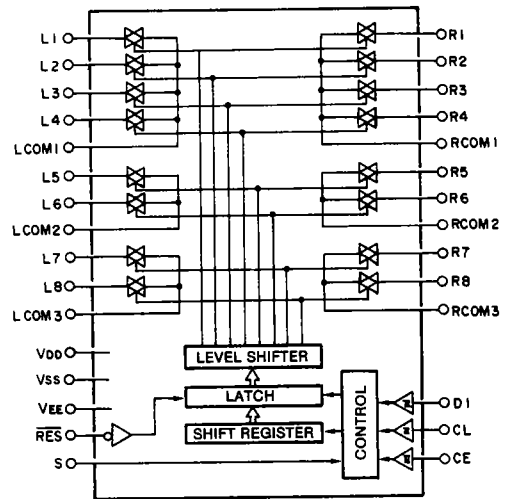
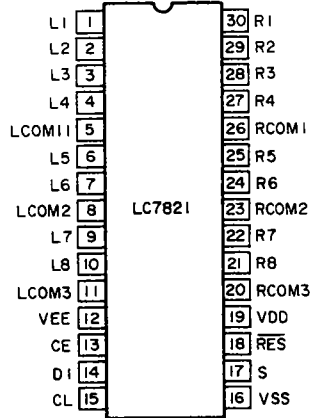
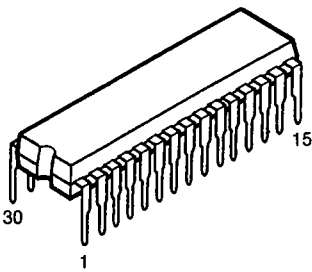
μPC1225H (IC601, 602)



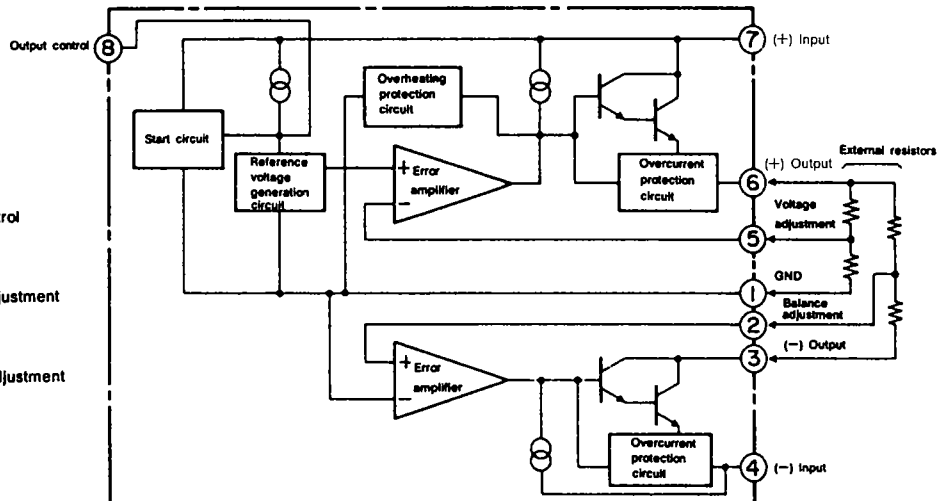
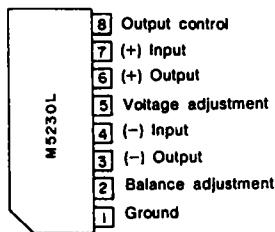
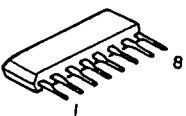
**Pin Connections**

Pin No.	Connection
1	+V <sub>CCD</sub> (drive stage power supply)
2	+V <sub>CCP</sub> (pre-drive stage power supply)
3	MUTING
4	INPUT (non-inverting)
5	NFB (inverting)
6	PHASE COMP
7	BIAS
8	BIAS
9	-V <sub>CCP</sub> (drive stage power supply)
10	-V <sub>CCD</sub> (pre-drive stage power supply)
11	LOWER OUTPUT
12	UPPER OUTPUT

LC7821 (IC102)



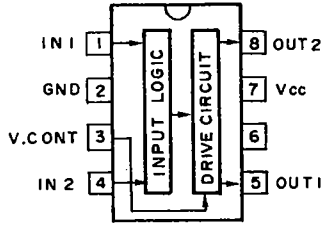
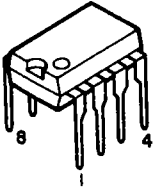
M5230L (IC501)



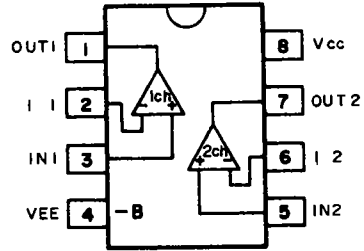
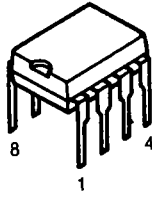


**PRE-MAIN AMP. SECTION**

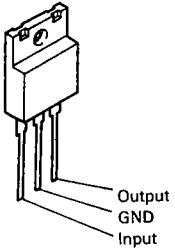
LB1639  
(IC104)



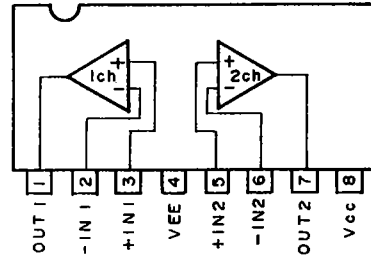
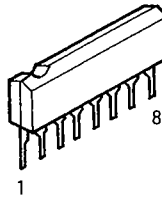
BA15218  
(IC101, 103, 701)



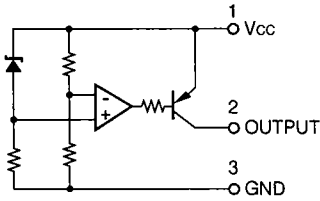
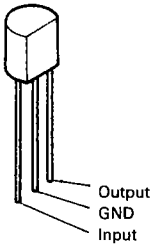
NJM7805FA (S)  
(IC502)



BA15218N  
(IC301)

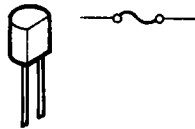


PST529C  
(IC205)



● **IC Protector**

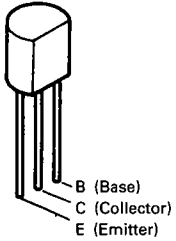
ICP-N15 (IC503, 504, 520)



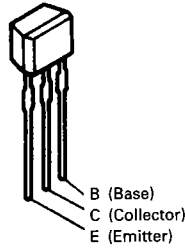
**PRE-MAIN AMP. SECTION**

● **Transistors**

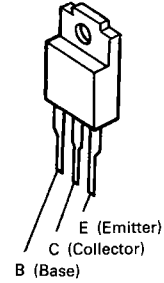
2SA1038 (S/E)



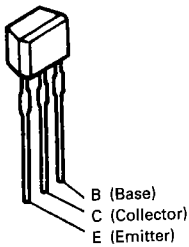
2SA933S (S)  
2SC1740S (E)  
2SC2389 (S/E)  
2SD2144 (U)



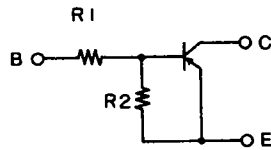
2SB1185 (E/F)  
2SD1762 (E/F)



DTA144ES PNP Type  
DTC144ES } NPN Type  
DTC314TS

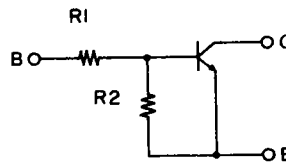


PNP Type



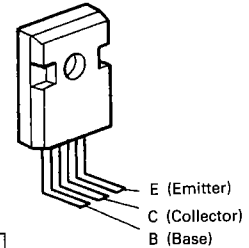
	R1	R2
DTA144ES	47 kohm	47 kohm

NPN Type



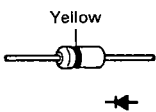
	R1	R2
DTA144ES	47 kohm	47 kohm
DTC314TS	10 kohm	-

2SA1633 (E/F) (TR605, 606)  
2SC4278 (E/F) (TR605, 606)

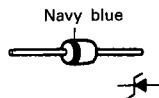


● **Diodes (including LED)**

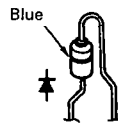
1SS252



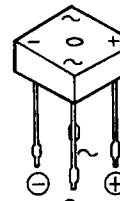
HZS6C-1  
HZS9B-1  
HZS18-1



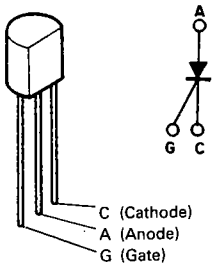
1SR35-200A



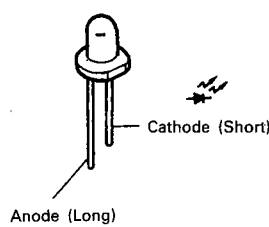
S4VB20F (D501)



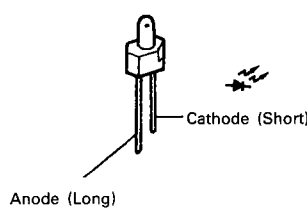
SF0R1A42 (SR401)



SEL4914D (LD306)

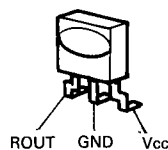


SEL4917D (LD301~305)



● **Infrared Remote Control Sensor**

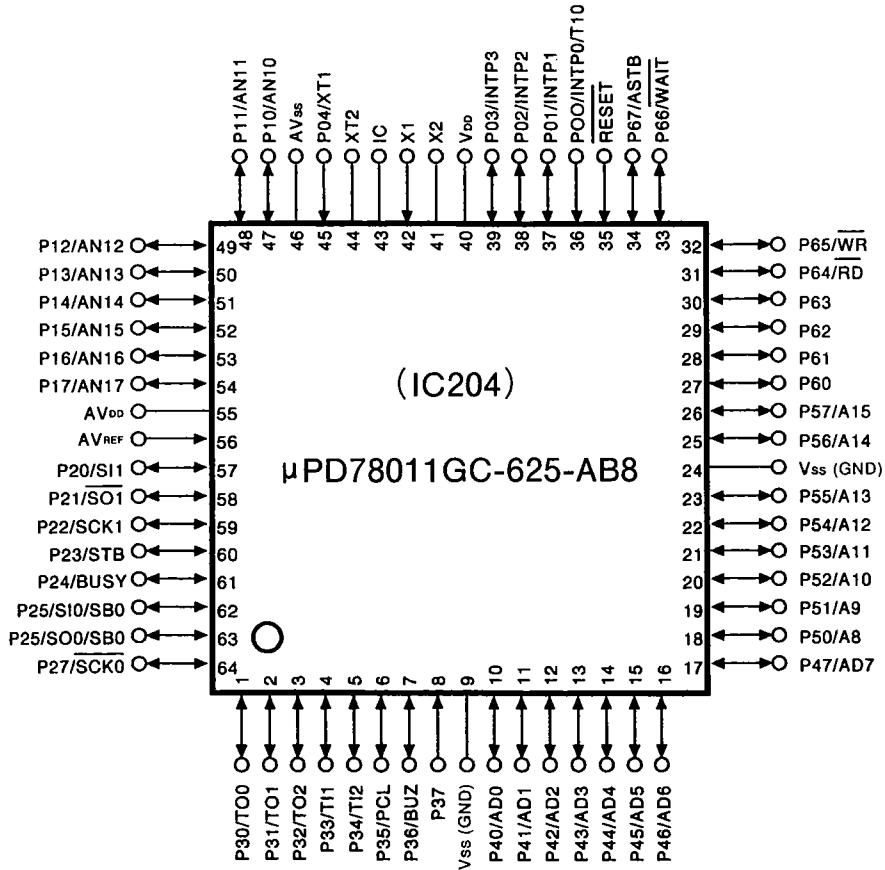
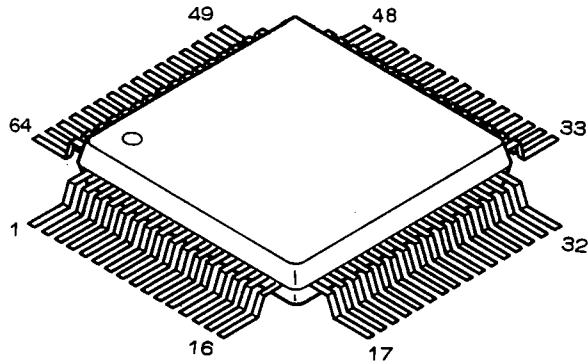
RPM-638CBR-L (IC302)



PRE-MAIN AMP. SECTION

MICROPROCESSOR DOCUMENTATION

μPD78011GC-625-AB8 : 262 1964 002  
(IC204)



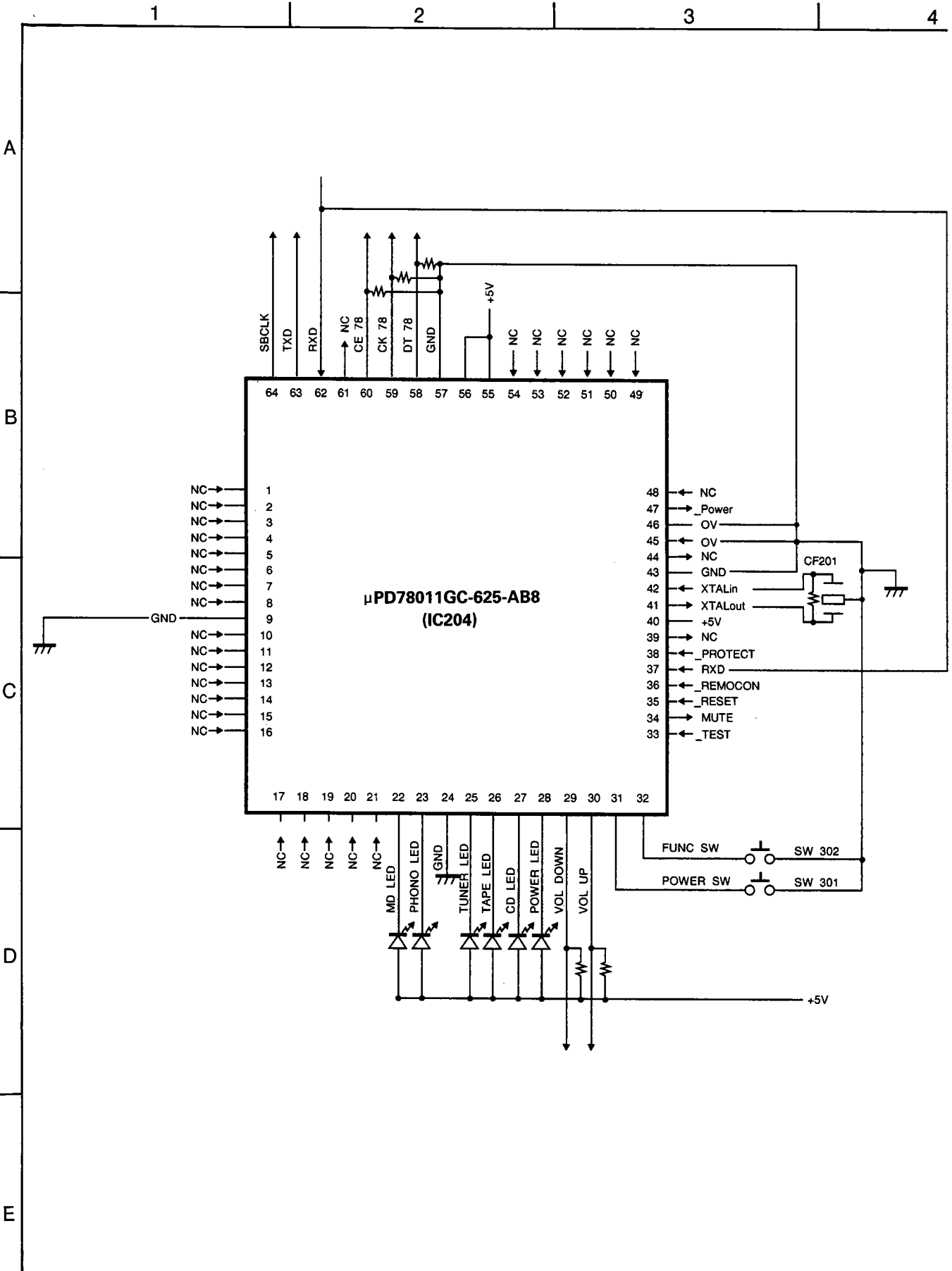
## PRE-MAIN AMP. SECTION

## ● Pin Description (Ini: Initial Condition, ACT: Active)

No.	Port Name	Function Name	I/O	Ini	ACT	Function
1	P30/TO0	NC	O	L	–	Open, fixed at 5 V internally.
2	P31/TO1	NC	O	L	–	Open, fixed at 5 V internally.
3	P32/TO2	NC	O	L	–	Open, fixed at 5 V internally.
4	P33/TI1	NC	O	L	–	Open, fixed at 5 V internally.
5	P34/TI2	NC	O	L	–	Open, fixed at 5 V internally.
6	P35/PCL	NC	O	L	–	Open, fixed at 5 V internally.
7	P36/BUZ	NC	O	L	–	Open, fixed at 5 V internally.
8	P37	NC	O	L	–	Open, fixed at 5 V internally.
9	GND	GND	–	–	–	0 V: digital ground
10	P40/AD0	NC	O	L	–	Open, fixed at 5 V internally.
11	P41/AD1	NC	O	L	–	Open, fixed at 5 V internally.
12	P42/AD2	NC	O	L	–	Open, fixed at 5 V internally.
13	P43/AD3	NC	O	L	–	Open, fixed at 5 V internally.
14	P44/AD4	NC	O	L	–	Open, fixed at 5 V internally.
15	P45/AD5	NC	O	L	–	Open, fixed at 5 V internally.
16	P46/AD6	NC	O	L	–	Open, fixed at 5 V internally.
17	P47	NC	O	L	–	Open, fixed at 5 V internally.
18	P50	NC	O	L	–	Open, fixed at 5 V internally.
19	P51	NC	O	L	–	Open, fixed at 5 V internally.
20	P52	NC	O	L	–	Open, fixed at 5 V internally.
21	P53	NC	O	L	–	Open, fixed at 5 V internally.
22	P54	MDLED	O	H	L	LED lights when MD LED drive is low
23	P55	Phn LED	O	H	L	LED lights when Phono LED drive is low
24	GND	GND	–	–	–	0 V: digital ground
25	P56	Tuner LED	O	H	L	LED lights when Tuner LED drive is low
26	P57	Tape LED	O	H	L	LED lights when Tape LED drive is low
27	P60	CD LED	O	H	L	LED lights when CD LED drive is low
28	P61	Pwrl LED	O	H	L	LED lights when Power Indicator LED drive is low
29	P62	VI Dwn	O	H	L	There is drive when Volume Down is low
30	P63	VI Up	O	H	L	There is drive when Volume Up is low
31	P64	Power Sw	I	H	L	Power On/Off switch: Active low
32	P65	Func Sw	I	–	L	Function switch: Active low
33	P66	TEST	I	–	L	Test mode is set when the level is 0 V immediately after reset cancellation
34	P67	MUTE	O	L	H	Speaker relay is switched off at high level. Sound is muted.
35	RESET	RESET	I	–	L	Reset input
36	PO0/INTP0	REMOCON	I	–	L	Remote control signal input
37	PO1/INTP1	RXD	I	–	L	DENON BUS input signal: Connects in parallel with pin 62
38	PO2/INTP2	PROTECT	I	–	L	Overcurrent detection signal input (Not used with interrupts)
39	PO3/INTP3	NC	O	HZ	–	Fixed at open 0 V.
40	VDD	5 V	–	–	–	Digital 5 V
41	X2	XTAL out	O	–	–	Crystal oscillator output
42	X1	XTAL in	I	–	–	Crystal oscillator input
43	IC	IC	–	–	–	Connected inside microprocessor. Connects to GND.
44	XT2	NC	O	–	–	Fixed at open 0 V.
45	PO4/XT1	GND	I	–	–	Connects to GND.
46	AV <sub>SS</sub>	0 V	–	–	–	0 V: digital ground
47	P10/ANI0	NC	I	–	–	Open
48	P11/ANI1	NC	I	–	–	Open
49	P12/ANI2	NC	I	–	–	Open
50	P13/ANI3	NC	I	–	–	Open
51	P14/ANI4	NC	I	–	–	Open
52	P15/ANI5	NC	I	–	–	Open
53	P16/ANI6	FUNC	I	–	–	Open
54	P17/ANI7	POWER	I	–	–	Open
55	AV <sub>DD</sub>	5 V	–	–	–	Digital 5 V
56	AV <sub>REF</sub>	5 V	–	–	–	Digital 5 V
57	P20/SI1	GND	I	–	–	0 V: digital ground
58	P21/SO1	DT78	O	–	H	Serial output data to IC7821
59	P22/SCK1	CK78	O	H	–	Serial output clock to IC7821
60	P23	CE78	O	L	H	Chip enable to IC7821. A pull-down resistor is attached externally to guarantee the operation at the time of output reset.
61	P24	NC	O	L	L	Fixed at open 0 V.
62	P25/SI0	RXD	O	L	L	DENON BUS communications data input
63	P26/SO0	TXD	O	H	L	DENON BUS communications data output
64	P27/SCK0	SBCLK	O	L	H	DENON BUS communications data clock

PRE-MAIN AMP. SECTION

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

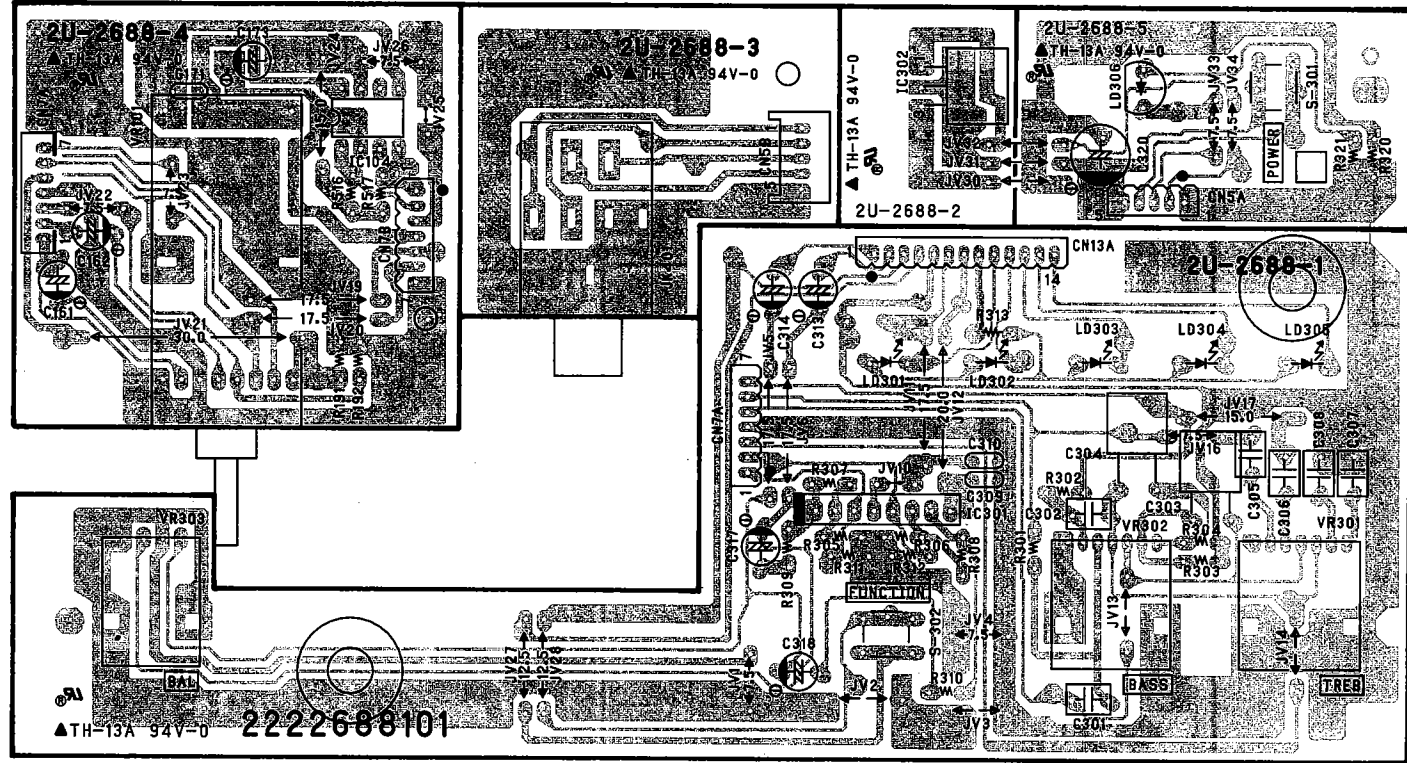


PRINTED WIRING BOARD

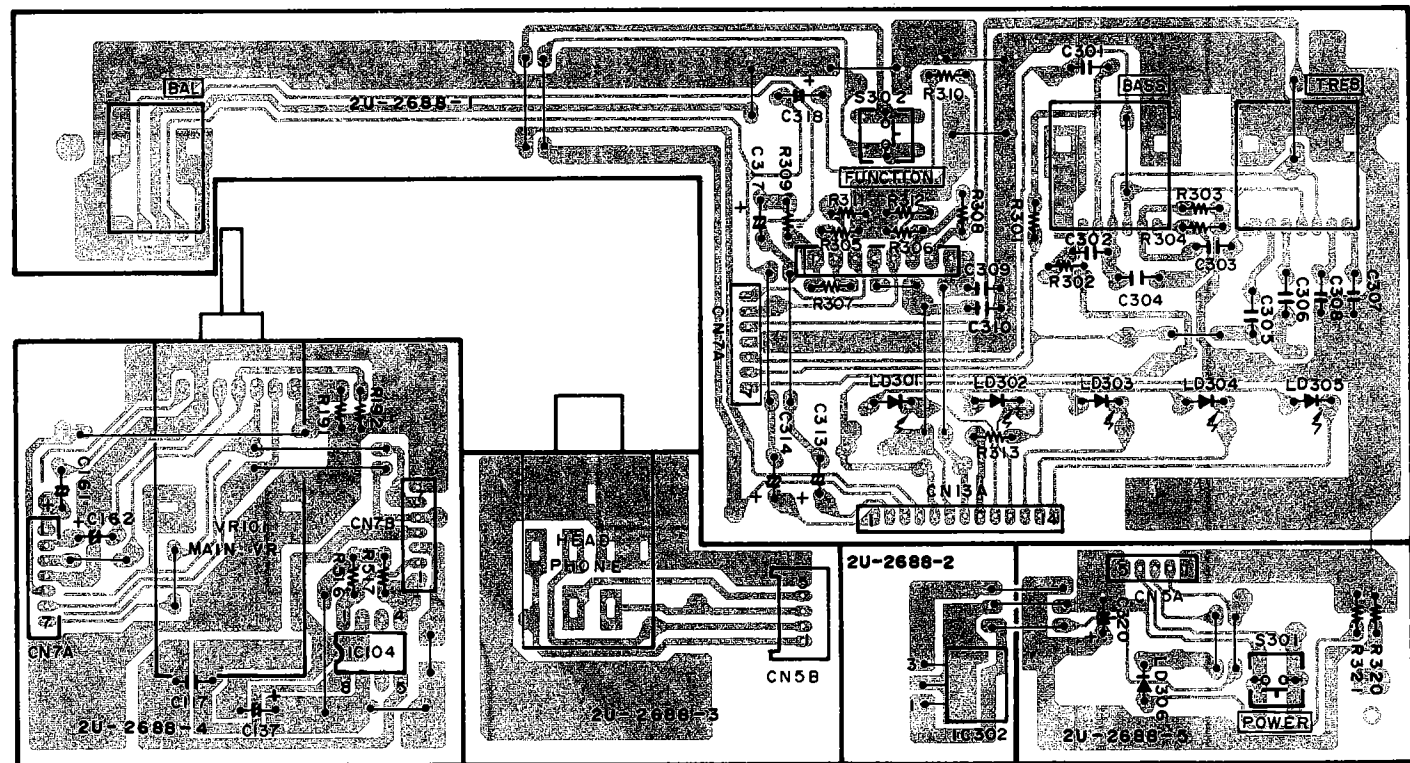
UPA-F10 2U-2688B SWITCH UNIT ASS'Y

2U-2688B	
-1	Switch Unit (1)
-2	Remocon Unit
-3	Headphone Unit
-4	Volume Unit
-5	Switch Unit (2)

Component Side



Pattern Side



A

B

C

D

E

PRE-MAIN AMP. SECTION

1

2

3

4

5

6

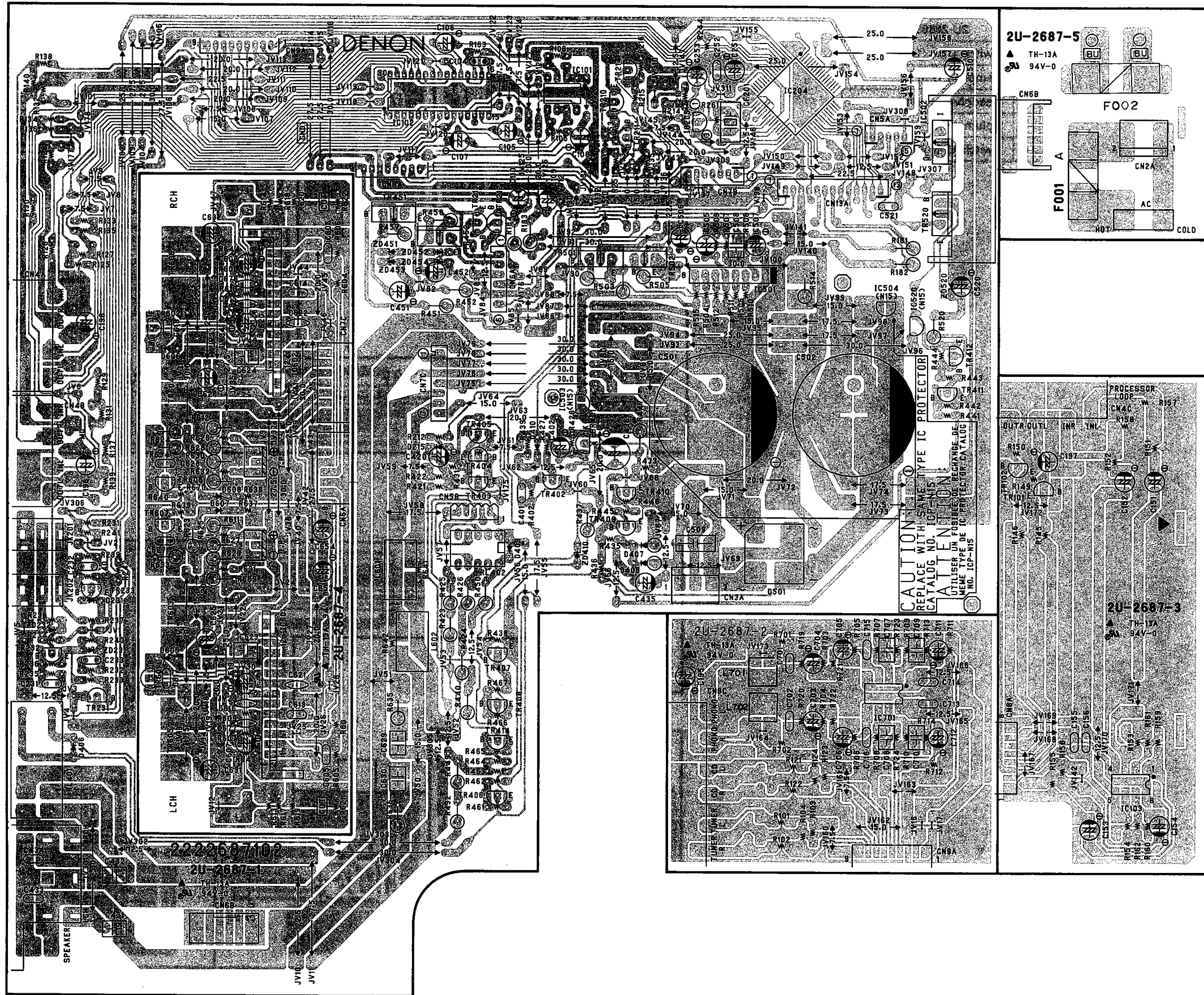
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8

UPA-F10 2U-2687B MAIN UNIT ASS'Y

Component Side

2U-2687B	
-1	Main Amp. Unit
-2	Input Unit
-3	Processor Unit
-4	Power Unit
-5	AC Input Unit



A

B

C

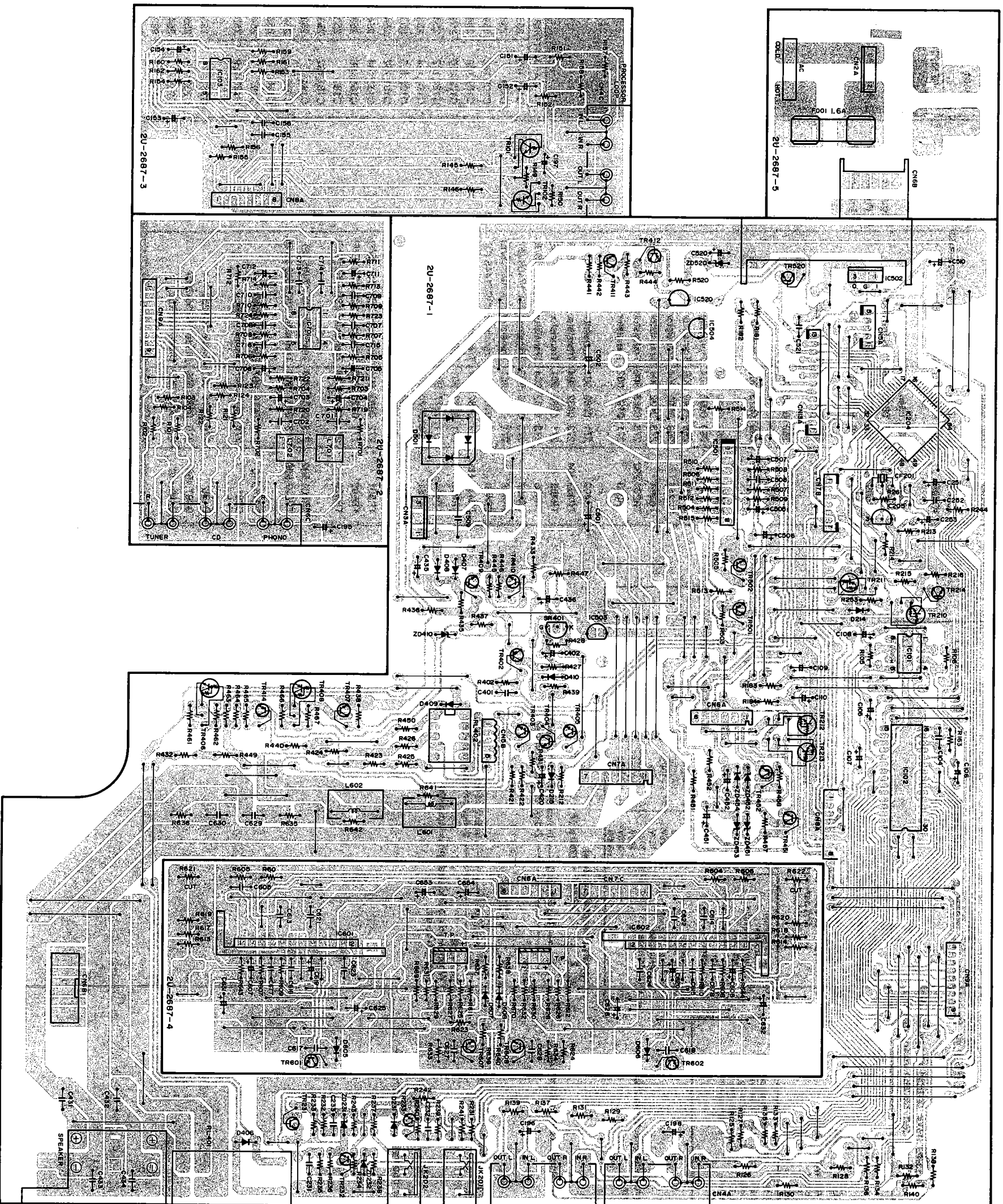
D

E



PRE-MAIN AMP. SECTION

Pattern Side



1  
2  
3  
4  
5  
6  
7  
8

E  
D  
C  
B  
A



**PRE-MAIN AMP. SECTION**

**NOTE ON 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 "I" (i) to avoid mis-supplying.
- Ordering part without stating 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. Board parts list. (Refer to the Schematic Diagram for those parts.)

**WARNING:**

Parts marked with this symbol  $\Delta$  have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

**Resistors**

Ex.:  $\frac{RN}{Type} \frac{14K}{Shape\ and\ per- formance} \frac{2E}{Power} \frac{182}{Resist- ance} \frac{G}{Allowable\ error} \frac{FR}{Others}$

RD : Carbon Film	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic oxide Film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

**\* Resistance**  
 $\frac{1}{\uparrow} \frac{8}{\uparrow} \frac{2}{\uparrow} \Rightarrow 1800\ ohm = 1.8\ kohm$   
 Indicates number of zeros after effective number  
 2-digit effective number  
 • Units: ohm

$\frac{1}{\uparrow} \frac{R}{\uparrow} \frac{2}{\uparrow} \Rightarrow 1.2\ ohm$   
 1-digit effective number.  
 2-digit effective number, decimal point indicated by R.  
 • Units: ohm

**\* Capacity (electrolyte only)**  
 $\frac{2}{\uparrow} \frac{2}{\uparrow} \frac{2}{\uparrow} \Rightarrow 2200\ \mu F$   
 Indicates number of zeros after effective number.  
 2-digit effective number.  
 • Units:  $\mu F$

$\frac{2}{\uparrow} \frac{R}{\uparrow} \frac{2}{\uparrow} \Rightarrow 2.2\ \mu F$   
 1-digit effective number.  
 2-digit effective number, decimal point indicated by R.  
 • Units:  $\mu F$

**Capacitors**

Ex.:  $\frac{CE}{Type} \frac{04W}{Shape\ and\ per- formance} \frac{1H}{Dielectric\ strength} \frac{2R2}{Capacity} \frac{M}{Allowable\ error} \frac{BP}{Others}$

CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80%	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : +100%	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	= : Others	
	2J : 630V		

**\* Capacity (except electrolyte)**  
 $\frac{2}{\uparrow} \frac{2}{\uparrow} \frac{2}{\uparrow} \Rightarrow 2200pF = 2200\ \mu F = 0.0022\ \mu F$   
 (More than 2) Indicates number of zeros after effective number.  
 2-digit effective number.  
 • Units:  $\mu F$

$\frac{2}{\uparrow} \frac{2}{\uparrow} \frac{1}{\uparrow} \Rightarrow 220pF$   
 (0 or 1) 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.

**2U-2687B MAIN UNIT ASS'Y PARTS LIST**

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
<b>SEMICONDUCTORS GROUP</b>				<b>RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)</b>			
IC101	263 0565 007	IC BA15218		ZD451~454	276 0478 909	Zener Diode HZS18-1	18V
IC102	262 1227 008	IC LC7821		ZD520	276 0478 909	Zener Diode HZS18-1	18V
IC103	263 0565 007	IC BA15218		SR401	279 0016 001	Thyristor SF0R1A42	
IC204	262 1964 002	IC $\mu$ PD78011GC-625-AB8	$\mu$ -com				
IC205	263 0652 907	IC PST529C					
IC501	263 0646 007	IC M5230L					
IC502	263 0809 006	IC NJM7805FA (S)	Regulator +5V				
IC503,504	268 0073 905	IC ICP-N15	IC Protector 15V				
IC520	268 0073 905	IC ICP-N15	IC Protector 15V				
IC601,602	263 0206 007	IC $\mu$ PC1225H					
IC701	263 0565 007	IC BA15218					
TR101,102	269 0073 908	Transistor DTC314TS	Built in Resistor	$\Delta$ R181,182	244 2050 976	Metal Oxide 1.3k ohm 1W (NB)	RS14B3A132JNBS (S)
TR210	269 0040 009	Transistor DTC144ES	Built in Resistor	$\Delta$ R183,184	244 2052 931	Metal Oxide 390 ohm 1W (NB)	RS14B3A391JNBS (S)
TR211	269 0093 904	Transistor DTA144ES	Built in Resistor	$\Delta$ R423~426	244 2050 933	Metal Oxide 180 ohm 1W (NB)	RS14B3A181JNBS (S)
TR212	269 0040 009	Transistor DTC144ES	Built in Resistor	$\Delta$ R432	244 2050 959	Metal Oxide 270 ohm 1W (NB)	RS14B3A271JNBS (S)
TR213	269 0093 904	Transistor DTA144ES	Built in Resistor	$\Delta$ R437	244 2051 932	Metal Oxide 3.3k ohm 1W (NB)	RS14B3A332JNBS (S)
TR214	273 0432 904	Transistor 2SC2389 (S/E)		$\Delta$ R440	244 2051 974	Metal Oxide 1k ohm 1W (NB)	RS14B3A102JNBS (S)
TR231,232	273 0388 906	Transistor 2SC1740S (E)		$\Delta$ R447	244 2051 990	Metal Oxide 4.7k ohm 1W (NB)	RS14B3A472JNBS (S)
TR233	271 0192 002	Transistor 2SA933S (S)		$\Delta$ R449	244 2050 959	Metal Oxide 270 ohm 1W (NB)	RS14B3A271JNBS (S)
TR402	271 0280 901	Transistor 2SA1038 (S/E)		$\Delta$ R450	244 2051 974	Metal Oxide 1k ohm 1W (NB)	RS14B3A102JNBS (S)
TR403,404	273 0432 904	Transistor 2SC2389 (S/E)		$\Delta$ R451,452	241 2387 908	Carbon Film 1 ohm 1/4W (NB)	RD14B2E010JNBS
TR405	271 0280 901	Transistor 2SA1038 (S/E)		$\Delta$ R457,458	241 2380 950	Carbon Film 1k ohm 1/4W (NB)	RD14B2E202JNBS
TR406	273 0432 904	Transistor 2SC2389 (S/E)		$\Delta$ R503~505	241 2378 920	Carbon Film 220 ohm 1/4W (NB)	RD14B2E221JNBS
TR407	273 0388 906	Transistor 2SC1740S (E)		$\Delta$ R520	244 2052 902	Metal Oxide 2.7k ohm 1W (NB)	RS14B3A272JNBS (S)
TR408	271 0280 901	Transistor 2SA1038 (S/E)		$\Delta$ R611,612	244 2055 912	Metal Oxide 0.47 ohm 1W (NB)	RS14B3AR47JNBS (S)
TR409	274 0160 907	Transistor 2SD2144S (U)		$\Delta$ R623,624	241 2380 934	Carbon Film 1.8k ohm 1/4W (NB)	RD14B2E162JNBS
TR410,411	273 0432 904	Transistor 2SC2389 (S/E)		$\Delta$ R627~630	244 2055 912	Metal Oxide 0.47 ohm 1W (NB)	RS14B3AR47JNBS (S)
TR412	271 0277 901	Transistor 2SA1038 (S/E)		$\Delta$ R633,634	241 2380 950	Carbon Film 2k ohm 1/4W (NB)	RD14B2E202JNBS
TR414	271 0277 901	Transistor 2SA1038 (S/E)		$\Delta$ R635,636	244 2043 937	Metal Oxide 10 ohm 1W (NB)	RS14B3A100JNBS (S)
TR451	274 0120 002	Transistor 2SD1762 (E/F)		$\Delta$ R669,670	244 2055 912	Metal Oxide 0.47 ohm 1W (NB)	RS14B3AR47JNBS (S)
TR452	272 0083 004	Transistor 2SB1185 (E/F)					
TR501	272 0083 004	Transistor 2SB1185 (E/F)					
TR502	274 0120 002	Transistor 2SD1762 (E/F)					
TR520	274 0120 002	Transistor 2SD1762 (E/F)					
TR601,602	273 0388 906	Transistor 2SC1740S (E)					
TR607,608	273 0432 904	Transistor 2SC2389 (S/E)					
D214,215	276 0616 907	Diode 1SS252					
D231	276 0616 907	Diode 1SS252					
D406	276 0616 907	Diode 1SS252					
D407,408	276 0553 905	Diode 1SR35-200A					
D409,410	276 0616 907	Diode 1SS252					
$\Delta$ D501	276 0338 007	Diode S4VB20F	Bridge				
D605~608	276 0616 907	Diode 1SS252					
ZD231,232	276 0463 901	Zener Diode HZS6C-1	6V				
ZD410	276 0468 906	Zener Diode HZS9B-1	9V				
				<b>CAPACITORS GROUP</b>			
C101,102	253 1194 959	Ceramic Cap. 1000pF/50V	CK14B1H102K				
C104	253 1175 907	Ceramic Cap. 0.022 $\mu$ F/25V	CK14F1E223Z				
C105,106	254 4260 948	Electrolytic 1 $\mu$ F/50V	CE04W1H010M				
C107,108	254 4254 909	Electrolytic 10 $\mu$ F/16V	CE04W1C100M				
C109,110	254 4258 918	Electrolytic 10 $\mu$ F/35V	CE04W1V100M				
C121,122	253 1193 976	Ceramic Cap. 220pF/50V	CK14B1H221K				
C123,124	253 1194 933	Ceramic Cap. 680pF/50V	CK14B1H681K				
C125,126	253 1193 976	Ceramic Cap. 220pF/50V	CK14B1H221K				
C151,152	254 4260 948	Electrolytic 1 $\mu$ F/50V	CE04W1H010M				
C153,154	254 4305 968	Electrolytic 1 $\mu$ F/50V	CE04W1H010M (SRE)				
C155,156	253 1196 902	Ceramic Cap. 0.01 $\mu$ F/25V	CK14F1E103Z				
C180	253 1197 914	Ceramic Cap. 0.1 $\mu$ F/50V	CK14F1H104Z				
C181,182	253 1194 959	Ceramic Cap. 1000pF/50V	CK14B1H102K				
C194	253 1197 914	Ceramic Cap. 0.1 $\mu$ F/50V	CK14F1H104Z				
C195	254 4260 948	Electrolytic 1 $\mu$ F/50V	CE04W1H010M				
C196	253 1197 914	Ceramic Cap. 0.1 $\mu$ F/50V	CK14F1H104Z				
C197	254 4260 948	Electrolytic 1 $\mu$ F/50V	CE04W1H010M				
C198,199	253 1197 914	Ceramic Cap. 0.1 $\mu$ F/50V	CK14F1H104Z				
C231	253 1194 959	Ceramic Cap. 1000pF/50V	CK14B1H102K				
C232	253 1193 934	Ceramic Cap. 100pF/50V	CK14B1H101K				
C251	254 4250 958	Electrolytic 470 $\mu$ F/6.3V	CE04W0J471M				
C252	253 1196 902	Ceramic Cap. 0.01 $\mu$ F/25V	CK14F1E103Z				
C253	254 4254 912	Electrolytic 22 $\mu$ F/16V	CE04W1C220M				
C401	253 1196 902	Ceramic Cap. 0.01 $\mu$ F/25V	CK14F1E103Z				
C402	254 4260 980	Electrolytic 10 $\mu$ F/50V	CE04W1H100M				
C420	254 4250 945	Electrolytic 330 $\mu$ F/6.3V	CE04W0J331M				
C431,432	255 1264 995	Mylar Film 0.0056 $\mu$ F/50V	CQ93M1H562J (B)				
C433,434	253 1195 903	Ceramic Cap. 1500pF/16V	CK14X1C152M				

PRE-MAIN AMP. SECTION

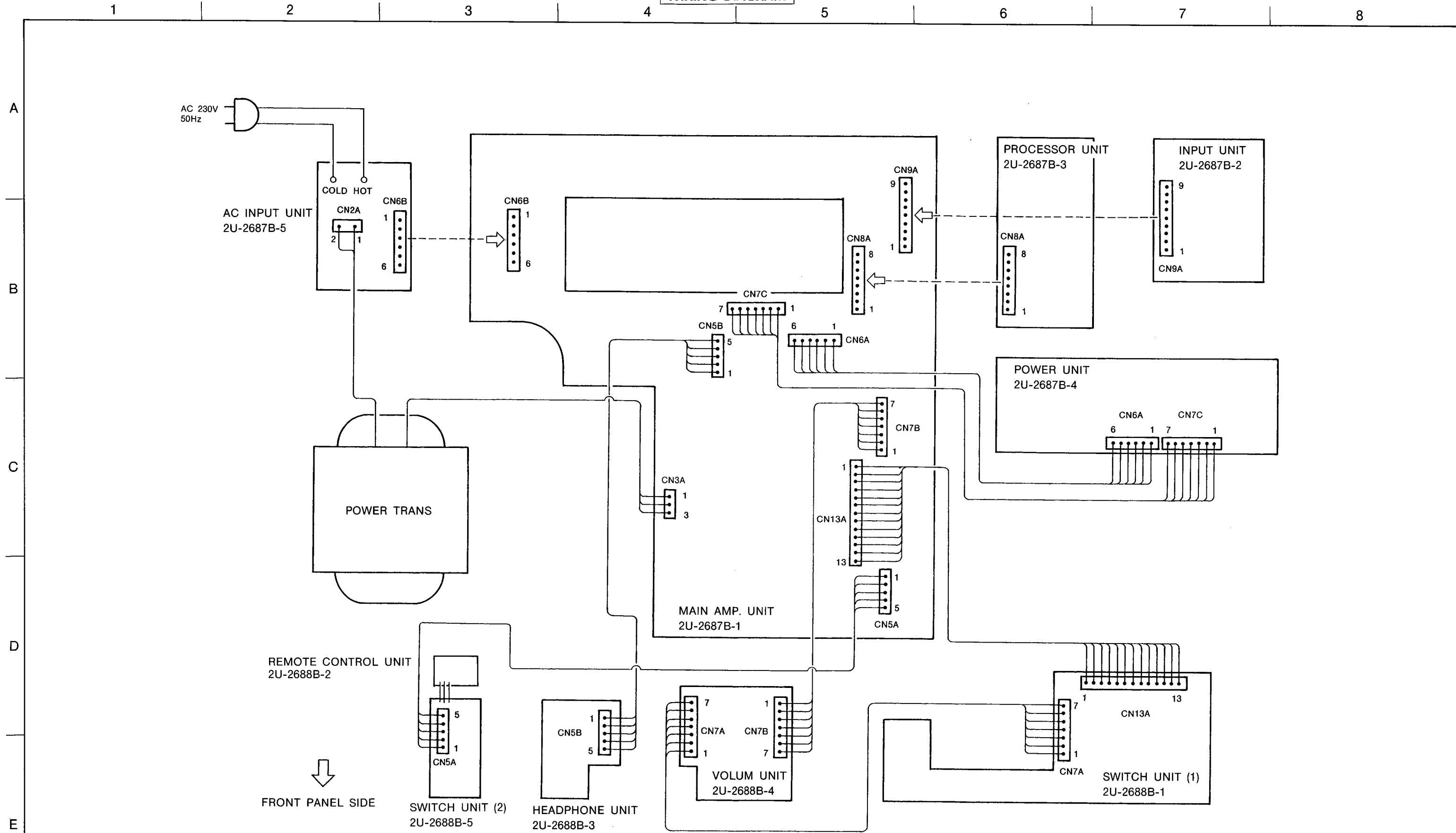
Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks	Q'ty
C435	254 4263 945	Electrolytic 1μF/100V	CE04W2A010M		473 8007 009	Cup Screw 3×12		2
C451,452	254 4262 917	Electrolytic 10μF/63V	CE04W1J100M					
C501,502	254 4371 701	Electrolytic 8200μF/56V	CE04W==822MC (DL)	CN2A	205 0581 001	2P VH Conn. Base		1
C505	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M	CN3A	205 0653 036	3P VH Conn. Base		1
C506,507	254 4260 980	Electrolytic 10μF/50V	CE04W1H100M	CN5A	205 0343 058	5P Conn. Base (KR-PH)		1
C508	255 1264 982	Mylar Film 0.0047μF/50V	CQ93M1H472J (B)	CN6A	205 0234 060	6P Conn. Base		1
C509	256 1043 711	Metalized 0.47μF/250V	CF93B2E474K	CN8A	205 0535 002	8P Conn. Base		1
C510	254 4254 912	Electrolytic 22μF/16V	CE04W1C220M	CN8A	205 0536 001	8P Conn. Socket		1
C520	254 4260 964	Electrolytic 3.3μF/50V	CE04W1H3R3M	CN9A	205 0535 015	9P Conn. Base		1
C521	253 1196 902	Ceramic Cap. 0.01μF/25V	CK14F1E103Z	CN9A	205 0536 014	9P Conn. Socket		1
				CN13A	205 0375 039	13P Conn. Base (KR-PH)		1
C605,606	253 1193 934	Ceramic Cap. 100pF/50V	CK14B1H101K	CN6B	205 0696 064	JL Connector (BT-E) 6P		1
C607,608	254 4470 903	Electrolytic 100μF/6.3V	CE04W0J101M (KME)	CN6B	205 0697 063	JL Connector (F-E) 6P		1
C613,614	253 1193 934	Ceramic Cap. 100pF/50V	CK14B1H101K	CN7B	205 0343 074	7P Conn. Base (KR-PH)		1
C615,616	253 4536 996	Ceramic Cap. 24pF/50V	CC45SL1H240J	CN7C	205 0234 073	7P EH-SID Conn. Base		1
C617,618	253 1196 902	Ceramic Cap. 0.01μF/25V	CK14F1E103Z					
C619,620	254 4274 947	Electrolytic 10μF/16V	CE04W1C100= (KME)	T.P.	205 0190 036	3P NH Conn. Base		2
C621,622	253 1126 901	Ceramic Cap. 150pF/500V	CK45B2H151K					
C623,624	255 1265 994	Mylar Film 0.033μF/50V	CQ93M1H333J (B)	CN5B	203 8280 078	5P KR-DA Conn. Cord		1
C625,626	254 4262 917	Electrolytic 10μF/63V	CE04W1J100M	CN6A	204 0447 003	6P EH-SCN Conn. Cord		1
C627,628	253 1175 907	Ceramic Cap. 0.022μF/25V	CK14F1E223Z	CN7C	204 2688 006	7P EH-SCN Conn. Cord		1
C629,630	256 1034 979	Metalized 0.1μF/50V	CF93A1H104J					
C631,632	254 4262 917	Electrolytic 10μF/63V	CE04W1J100M		205 0452 017	Style Pin		3
C653,654	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M		205 0692 000	2P Wrapping Terminal		1
C677,678	253 4535 955	Ceramic Cap. 5pF/50V	CC45SL1H050C					
C701,702	253 1193 976	Ceramic Cap. 220pF/50V	CK14B1H221K					
C703,704	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M					
C705,706	254 4250 932	Electrolytic 220μF/6.3V	CE04W0J221M					
C707,708	255 4199 999	Mylar Film 0.024μF/50V	CQ92M1H243J (MRZ)					
C709,710	255 1265 907	Mylar Film 0.0068μF/50V	CQ93M1H682J (B)					
C711,712	254 4260 951	Electrolytic 2.2μF/50V	CE04W1H2R2M					
C713,714	253 1196 902	Ceramic Cap. 0.01μF/25V	CK14F1E103Z					
C715,716	253 1191 917	Ceramic Cap. 470pF/50V	CK14SL1H471K					
<b>OTHER GROUP</b>								<b>Q'ty</b>
	—	(P.W. Board)						(1)
L601,602	235 0104 007	Inductor 1μH						2
L701,702	235 9003 002	FTZ Choke Coil						2
CF201	399 0243 903	Ceramic Resonator CST8.38MTW						1
RL401	214 0154 005	Relay (VB24SMBU)						1
RL402	214 0162 000	Relay (A12W-K)						1
JK101	204 8278 009	6P Pin Jack (S-GND)						1
JK102	204 8266 008	4P Pin Jack (S-GND)						1
JK103,104	204 8457 008	4P Pin Jack (S-GND)						2
JK201,202	204 8421 005	Mini Jack						2
T401	205 0551 002	4P Terminal						1
△F001	206 1015 058	Fuse 1.6A	20mm					1
	202 0022 008	Fuse Holder						2
	513 2277 049	Fuse Label						1
	417 0499 000	Heat Sink						2
	473 7002 018	Tapping Screw (S) 3×8						4
	417 0307 066	Heat Sink						1

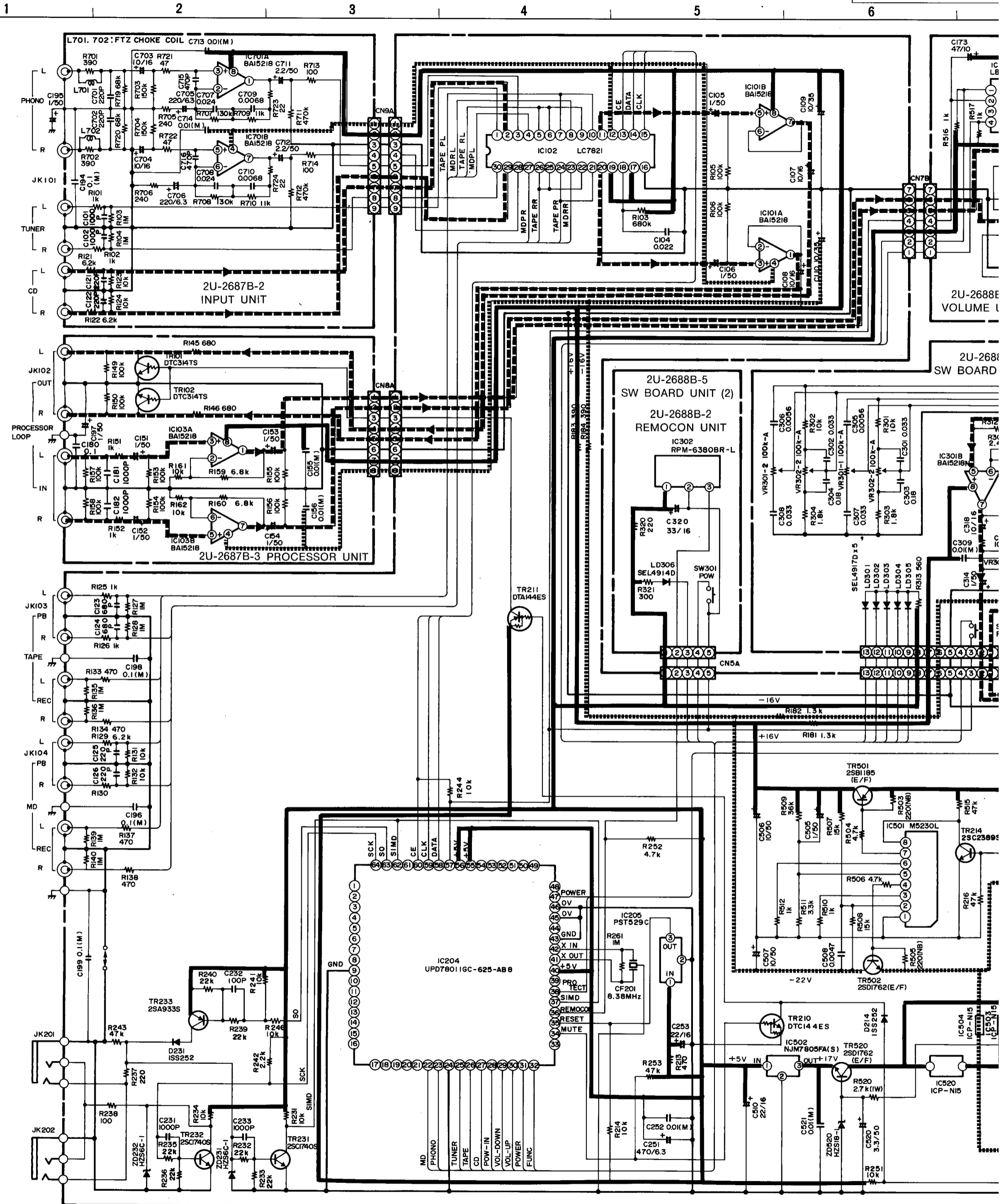
2U-2688 B SWITCH UNIT ASS'Y PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
<b>SEMICONDUCTORS GROUP</b>				
IC104	263 0476 002	IC LB1639		
IC301	263 0606 005	IC BA15218N		
IC302	499 0281 003	Remoccon Sensor RPM-638C8R-L		
LD301~305	393 9420 910	LED SEL4917D	Red	
LD306	393 9408 945	LED SEL4914D		
<b>RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)</b>				
VR101	211 0825 005	Variable Resistor 100k ohm	Main Vol.	
VR301,302	211 0822 008	Variable Resistor 100k ohm	Tone Vol.	
VR303	211 0823 007	Variable Resistor 50k ohm	Balance Vol.	
<b>CAPACITORS GROUP</b>				
C161,162	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M	
C171	253 1196 902	Ceramic Cap. 0.01μF/25V	CK14F1E103Z	
C173	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	
C301,302	255 1265 994	Mylar Film 0.033μF/50V	CQ93M1H333J (B)	
C303,304	256 1035 004	Metalized 0.18μF/50V	CF93A1H184J	
C305,306	255 1264 995	Mylar Film 0.0056μF/50V	CQ93M1H562J (B)	
C307,308	255 1265 994	Mylar Film 0.033μF/50V	CQ93M1H333J (B)	
C309,310	253 1196 902	Ceramic Cap. 0.01μF/25V	CK14F1E103Z	
C313,314	254 4305 968	Electrolytic 1μF/50V	CE04W1H010M (SRE)	
C317,318	254 4299 906	Electrolytic 10μF/16V	CE04W1C100M (SRE)	
C320	254 4299 951	Electrolytic 33μF/16V	CE04W1C330M (SRE)	
C323,324	253 1194 959	Ceramic Cap. 1000pF/50V	CK14B1H102K	
<b>OTHER GROUP</b>				<b>Q'ty</b>
	—	(P.W. Board)		(1)
S301,302	212 5604 910	Tact Switch		2
JK401	204 8420 006	Headphone Jack (6.5)		1
CN5B	205 0355 059	5P KR Conn. Base (L)		1
CN7A	205 0343 074	7P KR Conn. Base (KR-PH)		1
CN5A	203 8280 065	5P KR-DA Conn. Cord		1
CN7A	204 2513 032	7P KR-DA Conn. Cord		1
CN7B	204 2513 045	7P KR-DA Conn. Cord		1
CN13A	204 6269 049	13P KR-DA Conn. Cord		1
	461 0665 080	Rubber Sheet		1

PRE-MAIN AMP. SECTION

WIRING DIAGRAM





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

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

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

EMATIC DIAGRAM

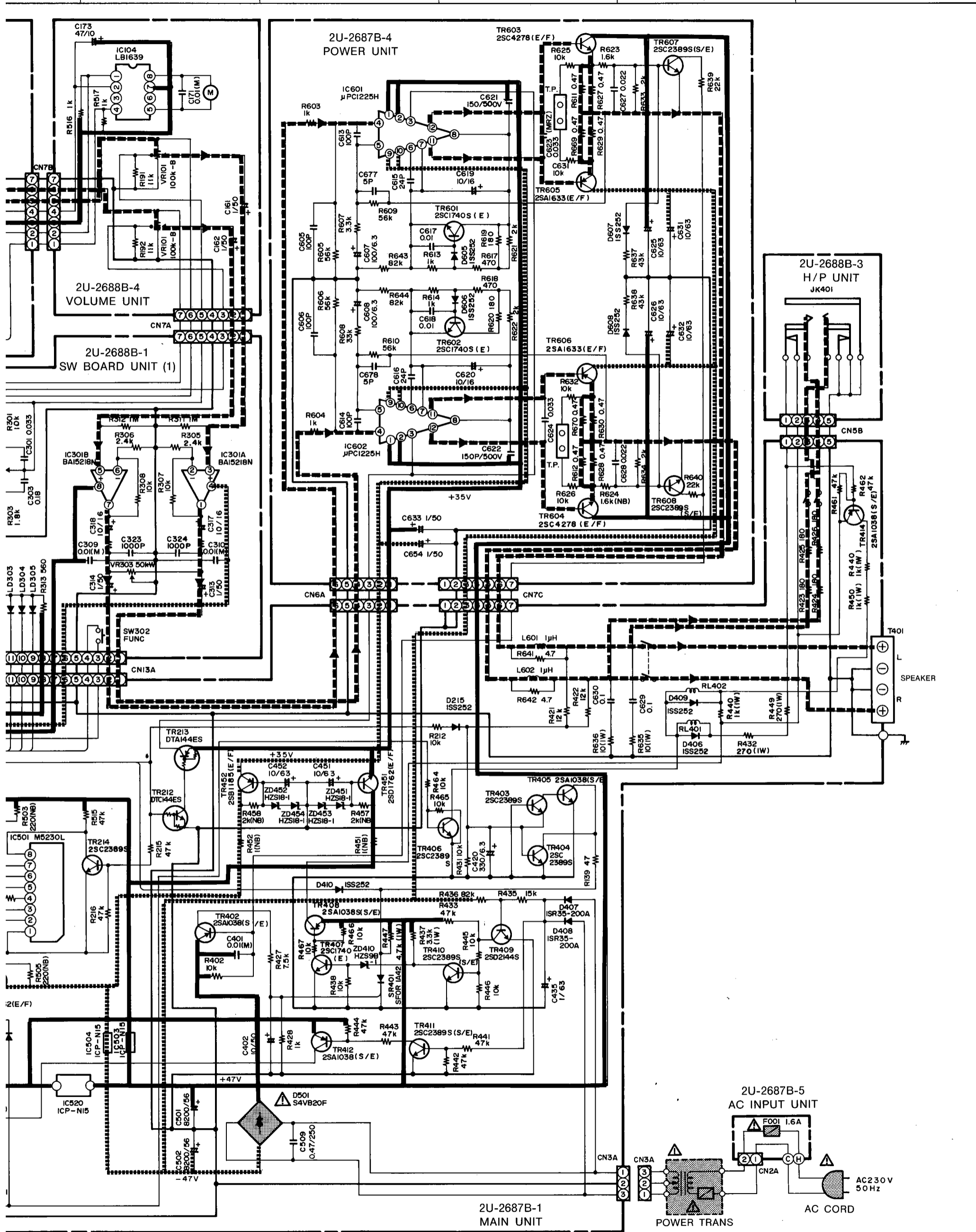
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A

B

C

D

E

F

G

H

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

**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.

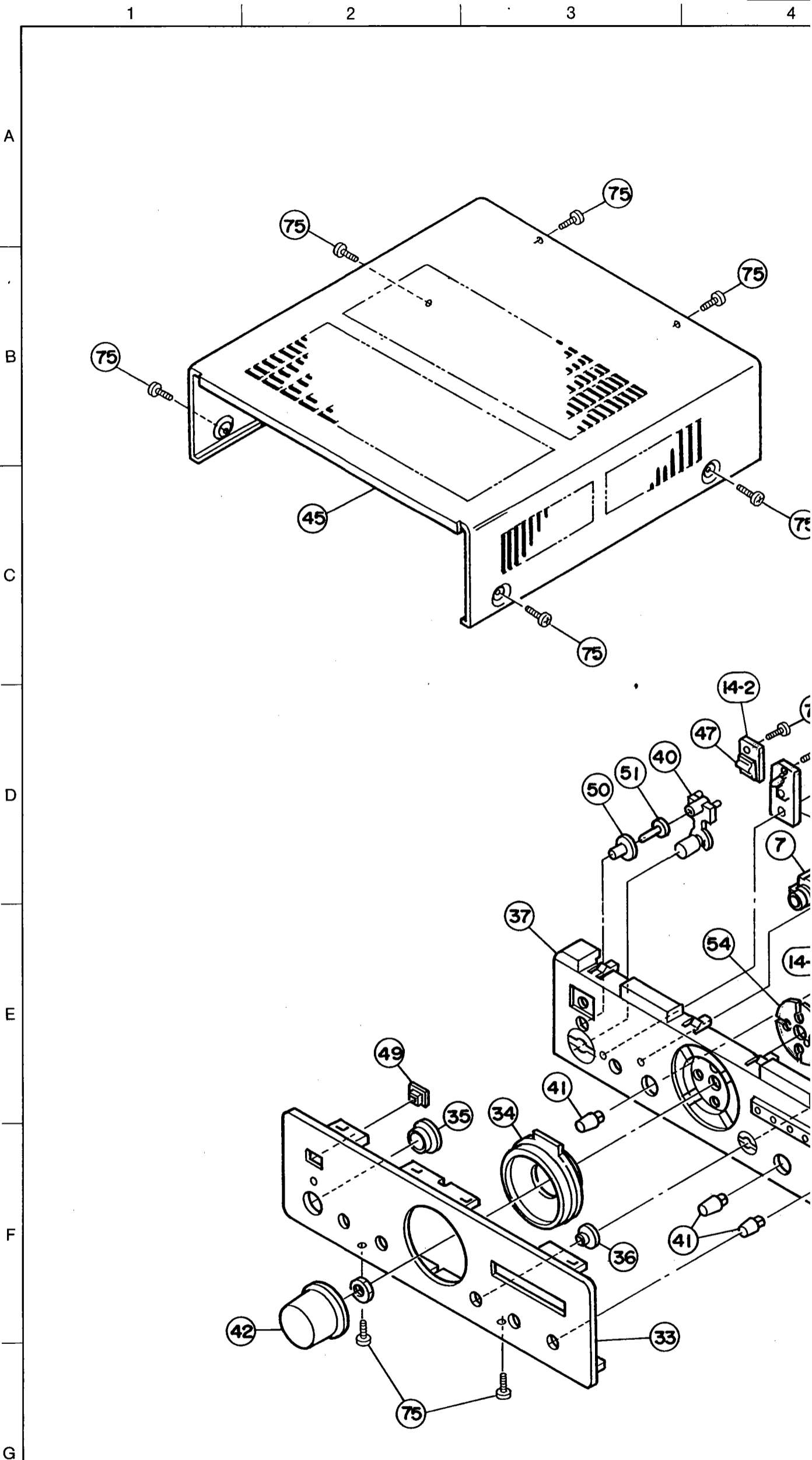
page current check or (2) a line to chassis resistance check. If the  
 ter side of the power cord is less than 240 Kohms, the unit is

**PRE-MAIN AMP. SECTION**

**EXPLO**

**PARTS LIST OF UPA-F10 EXPLODED VIEW**

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	2U- 2687 B	Main Unit Ass'y		1 <sup>S</sup>
1-1	—	Main Unit		(1)
1-2	—	Input Unit		(1)
1-3	—	Processor Unit		(1)
1-4	—	Power Unit		(1)
1-5	—	AC IN Unit		(1)
2	214 0154 005	Relay (VB24SMBU)	RL401	1
3	254 4371 701	Chemicon 8200µF/56V	C501,502	2
4	417 0499 000	Heat Sink		2
5	417 0307 066	Heat Sink		2
6	204 8421 005	Mini Jack	JK201,202	1
7	204 8420 006	Headphone Jack	JK401	1
8	211 0825 005	Variable Resistor 100k ohm	VR101 Main Volume	1
9	204 8266 008	4P Pin Jack (S-GND)	JK102	1
10	204 8457 008	4P Pin Jack (S-GND)	JK103,104	2
11	204 8278 009	6P Pin Jack (S-GND)	JK101	1
12	205 0551 002	4P Terminal	T401	1
13	206 1015 058	Fuse 1.6A	F001	1
14	2U- 2688 B	Switch Unit Ass'y		1 <sup>S</sup>
14-1	—	Switch Unit (1)		(1)
14-2	—	Remocom Unit		(1)
14-3	—	Headphone Unit		(1)
14-4	—	Volume Unit		(1)
14-5	—	Switch Unit (2)		(1)
15	211 0822 008	Variable Resistor 100k ohm	VR301,302 Tone	2
16	211 0823 007	Variable Resistor 50k ohm	VR303 Balance	1
17	411 1224 315	Main Chassis		1
18	412 3782 007	Trans Bracket		1
19	GEN2798	Foot Ass'y		4
20	412 3548 005	P.W.B. Catcher	H=10	4
21	412 2814 028	Card Spacer (L=10)	H=10	1
22	417 0496 003	Power Radiator		1
23	271 0276 009	Transistor 2SA1633 F31 (E/F)	TR605,606	2
24	273 0430 003	Transistor 2SC4278 F31 (E/F)	TR603,304	2
25	415 0234 007	Insulating Sheet		4
26	412 3829 009	P.W.B. Bracket (A)		2
27	105 1110 016	Rear Panel (Amp.)		1
28	206 2063 009	AC Cord with Plug		1
29	445 0056 008	Cord Bush		1
30	205 0071 016	Terminal Ass'y	GND	1
31	477 0018 001	Washer (P-87)		1
32	233 6094 005	Power Trans		1
33	144 2362 004	Front Panel (Amp.)		1
34	146 1482 208	Knob Ring (C)		1
35	146 9294 100	Knob Ring (A)		1
36	146 9295 109	Knob Ring (B)		1
37	146 1480 404	Inner Panel (Amp.)		1
38	143 0873 107	Lens (5 Gang)		1
39	113 1656 005	Tact Button (1 Key)		1
40	113 1654 104	Power Button Ass'y		1
41	112 0743 000	Knob (Round)		3
42	112 0741 002	Main Volume Kob Ass'y		1
★ 43	445 0033 005	Wire Clamp Band		3
44	205 0752 005	Short Pin		2
45	102 0545 133	Top Cover		1
46	—	—		—
47	499 0281 003	Remocn Sensor	RPM-638CBB-L	1
48	214 0162 000	Relay (A12W-K)	RL402	1
49	143 0874 106	Remocn Window		1
50	146 1483 100	Lens Guide		1
51	143 0876 104	Lens		1
52	513 2240 005	Rating Sheet		1
53	412 3838 003	Headphone Bracket		1
54	414 0725 102	Main VR. Shield		1
55				
56				
57				
<b>SCREWS</b>				
71	473 7004 003	Tapping Screw (S) 4×8		8
72	473 7002 018	Tapping Screw (S) 3×8		7
73	473 7508 046	Tapping Screw (P) 3×16	Black	1
74	473 8007 009	Cup Screw 3×12		4
75	473 7015 018	Tapping Screw (S) 3×8	Black	17
76	477 0064 107	Fixing Screw		6
77	473 7505 007	Tapping Screw (P) 2.6×8		9
78	477 0262 006	Special Screw		2
79	473 7003 020	F.H. Tapping Screw (S) 3×6		2
80				
<b>PACKING &amp; ACCESSORIES (Not included EXPLODED VIEW)</b>				
101	505 0102 089	Stylen Paper	700×700	1
102	503 1077 104	Cushion		1
103	GEN2738	Envelope Sub. Ass'y		1 <sup>S</sup>
103-1	505 8006 019	Envelope		(1)
103-2	399 0235 005	Remote Control	RC-172	(1)
103-3	—	Batterise	R06P/AA/UM-3	(2)
103-4	511 2614 004	Inst. Manual	E,G,F,IT	(1)
103-5	511 2615 003	Inst. Manual	ES,NL,S,PO	(1)
104	503 1075 203	Top Cushion		1
105	501 1780 000	Carton Case		1



**NOTE ON 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 supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

**WARNING:**

Parts marked with this symbol △ [hatched box] have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

EXPLODED VIEW

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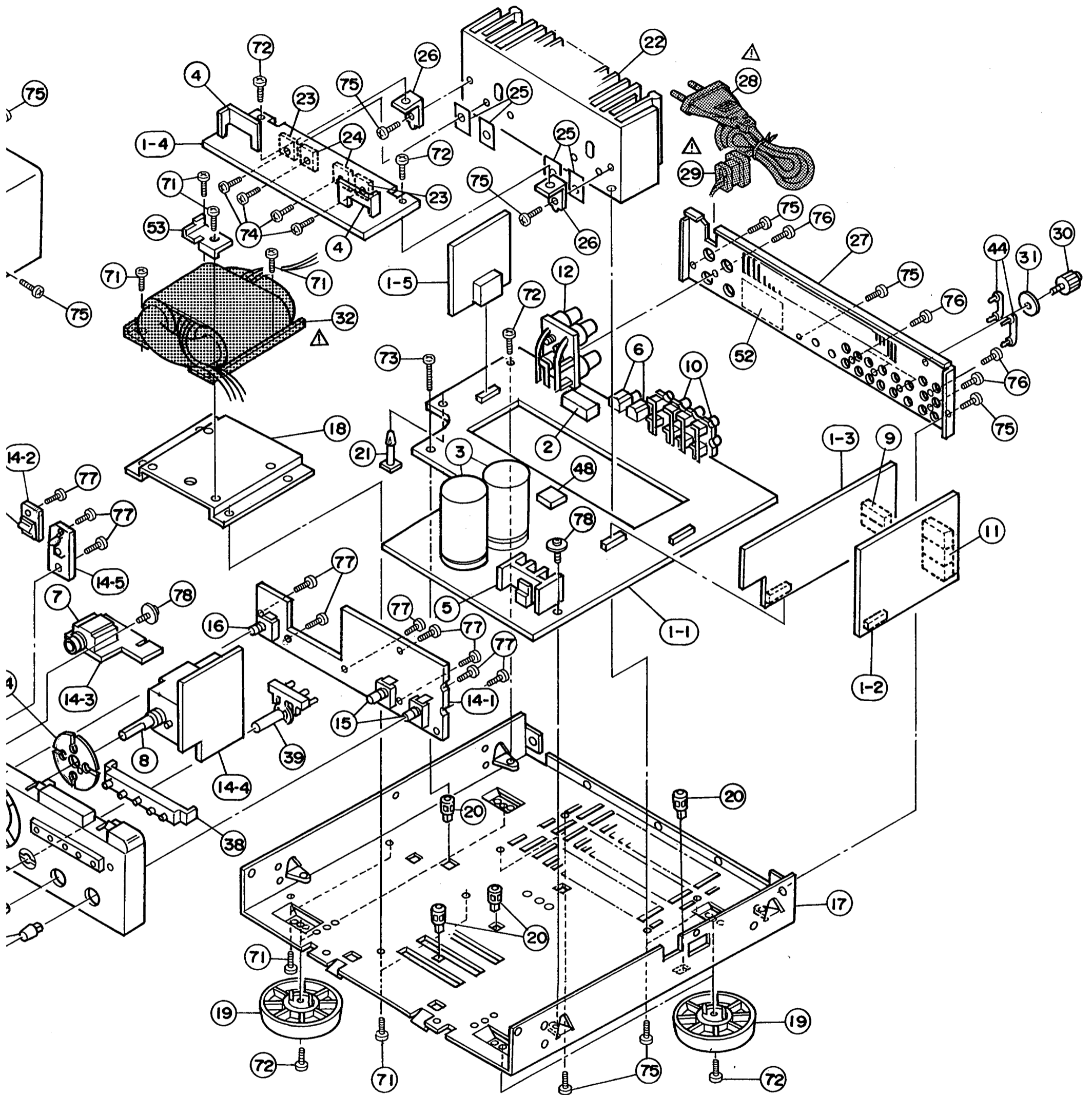
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pling, or in some case