CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

NIPPON COLUMBIA CO., LTD.
14-14, 4-CHOME AKASAKA,
MINATO-KU, TOKYO 107-11, JAPAN
TEL: 03-584-8111
TLX: JAPANOLA J22591
CABLE: NIPPONCOLUMBIA TOKYO

Printed in Japan 806 BU 0108

DENON

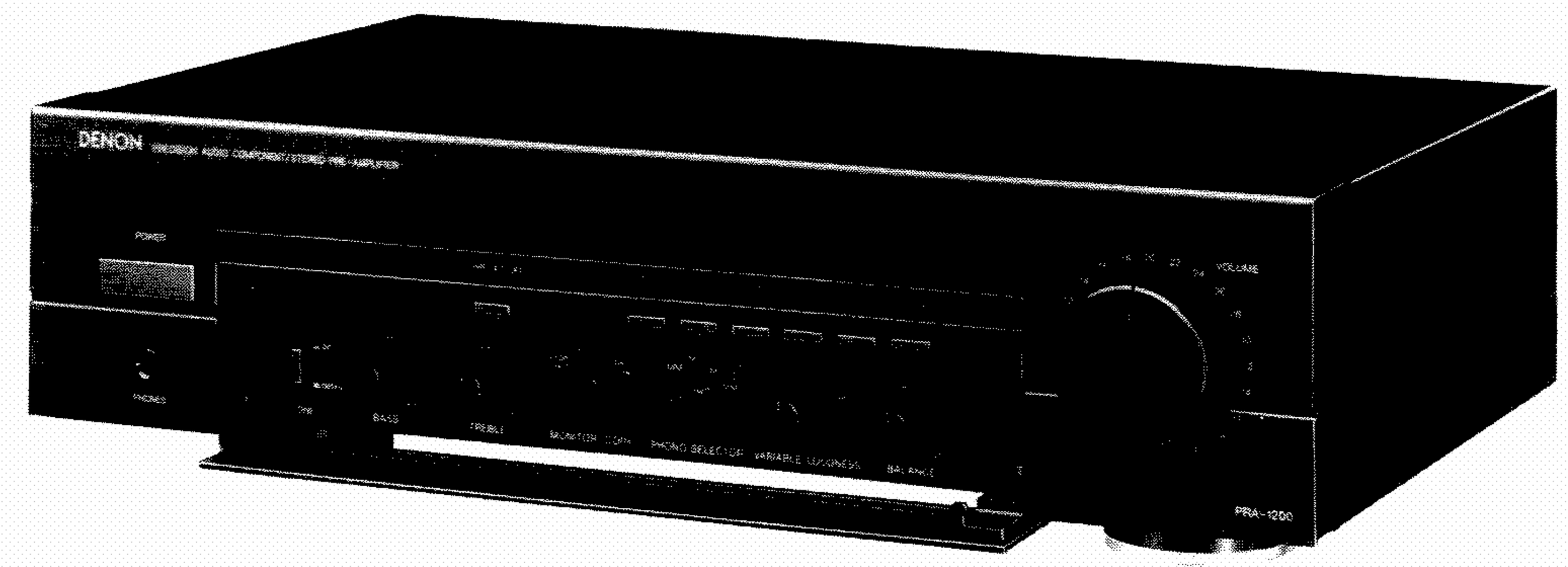
Hi-Fi Stereo Preamplifier

For U.S.A, CANADA and Asia Models

SERVICE MANUAL

MODEL PRA-1200

STEREO PREAMPLIFIER



CONTENTS

NIPPON COLUMBIA CO., LTD.

SPECIFICATIONS

EQUALIZER AMPLIFIER (PHONO IN ~ REC OUT)

Input sensitivity/impedance:	Phono-MC:	0.2 mV/100 ohms
	Phono-MM:	2.5 mV/47 k ohms
Max. input level:	Phono-MC:	13 mV/1 kHz
	Phono-MM:	160 mV/1 kHz
Max. Output/rated output:	10 V/150 mV	
Total harmonic distortion:	Less than 0.001% (1 kHz, 7 V output)	
RIAA deviation:	Phono-MC:	20 Hz ~ 100 kHz ±0.3 dB
	Phono-MM:	20 Hz ~ 20 kHz ±0.2 dB
S/N ratio:	Phono-MC:	79 dB (A-weighting) at 0.5 mV input
	Phono-MM:	96 dB (A-weighting) at 5 mV input
Gain:	Phono-MC:	57.5 dB/1 kHz
	Phono-MM:	35.6 dB/1 kHz
Phono subsonic filter:	16 Hz, 12 dB/OCT	

HIGH-LEVEL AMPLIFIER (AUX IN ~ PRE OUT)

Input sensitivity/impedance:	CD, TUNER VIDEO/AUX 1, 2, 3 TAPE 1, 2 150 mV/33 k ohms
Max. output/rated output:	10 V/1 V
Total harmonic distortion:	Less than 0.003% (20 Hz ~ 20 kHz, 5 V output)
Frequency response:	1 Hz ~ 300 kHz + 0.2 dB − 3 dB 10 Hz ~ 100 kHz ± 0.2 dB
S/N ratio:	105 dB (A-weighting)
Tone control:	Treble 10 kHz ±8 dB Bass 100 Hz ±8 dB
Muting:	PRE out off muting (indication by LED)
Variable loudness:	100 Hz + 8 dB, 10 kHz + 4 dB at max
Gain:	16.5 dB
Video:	Input: Sensitivity/impedance . . . 1 V p-p/75 ohms (Video 1, 2, 3 input) Output: Rated level/impedance . . . 1 V p-p/75 ohms (Monitor out, Video 3 Rec out)

GENERAL

AC outlets:	250 W total unswitched 100 W total switched
Power supply:	AC120V, 60Hz (U.S.A. and Canada) AC110/120/220/240V, 50, 60Hz (Asia, Multiple Model)
REMOTE ON-OFF terminal:	Output x 2
Power consumption:	15W (USA & Canada), 14W (Asia, Multiple Model)
Dimensions:	434 mm (17-3/32") W x 122 mm (4-51/64") H x 300 mm (11-51/64") D (Including control knobs and feet)
Weight:	5.0 kg (11 lbs 1 oz)

Design and specifications are subject to change without prior notice.

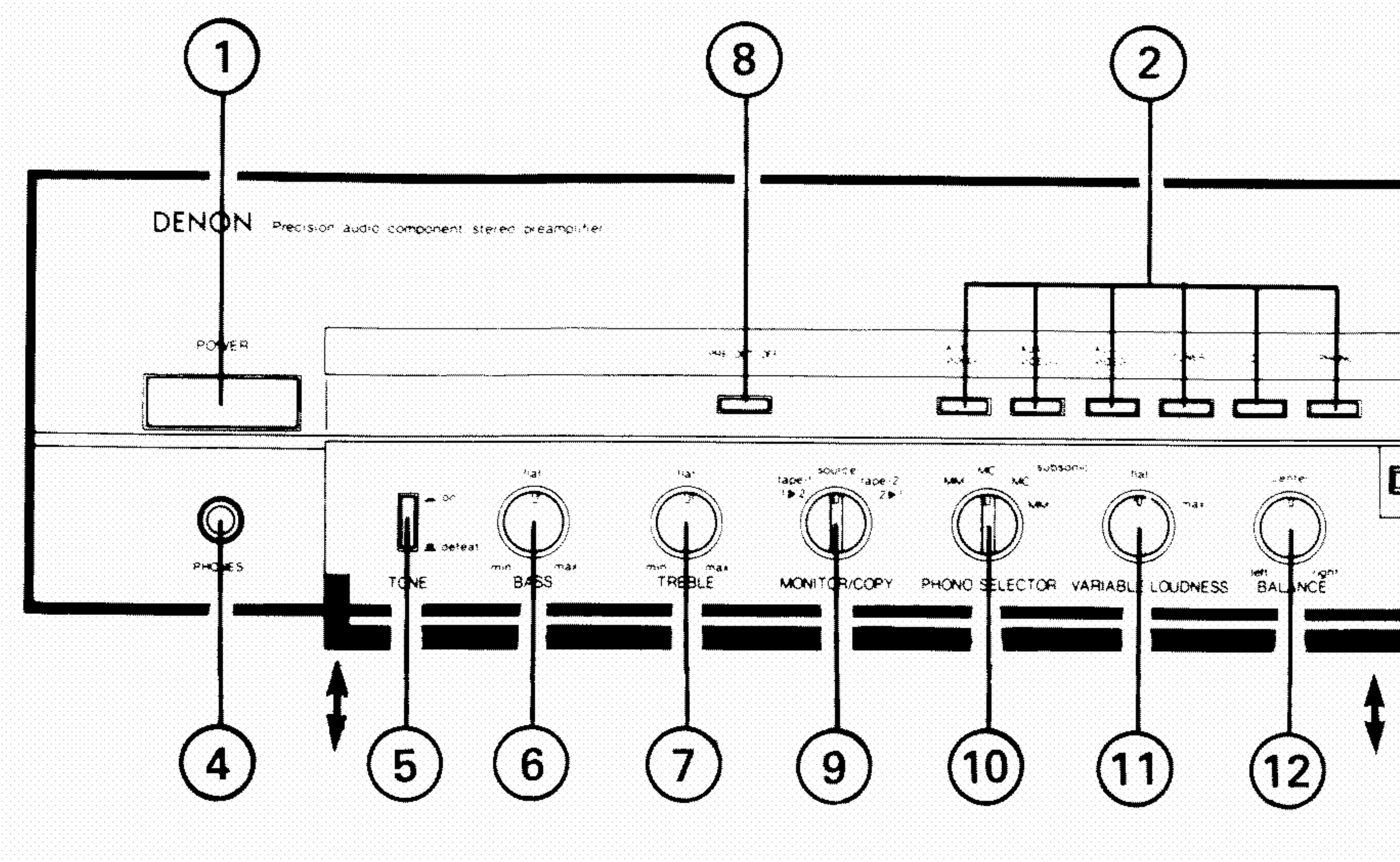
This Service Manual is prepared based on U.S.A. Black Version.

All values in this specifications are measured at minimum volume level of headphones. (except the ones in headphone circuit.)

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

NAMES AND FUNCTIONS OF PARTS



DOOR
Attachment and removal of this door are performed in the directions indicated by the arrows.

Fig. 1

1. POWER (Power switch)
2. INPUT SELECTOR (Input selector buttons)
3. VOLUME (Volume control)
4. PHONES (Headphones jack)
5. TONE (Tone switch)
6. BASS (Bass control)
7. TREBLE (Treble control)
8. PRE OUT OFF (Pre out off button)
9. MONITOR/COPY (Tape monitor/copy switch)
10. PHONO SELECTOR (Cartridge selection/Subsonic filter switch)
11. VARIABLE LOUDNESS (Loudness Control)
12. BALANCE (Balance control)

- **Notes on installing the pre-amplifier**
  To prevent influence caused by radiation from the power amp or externally induced humming, install the pre-amplifier to one side of the power amp. If such installation is not possible, separate the pre-amplifier 15 cm or more from the power amp or external noise source.

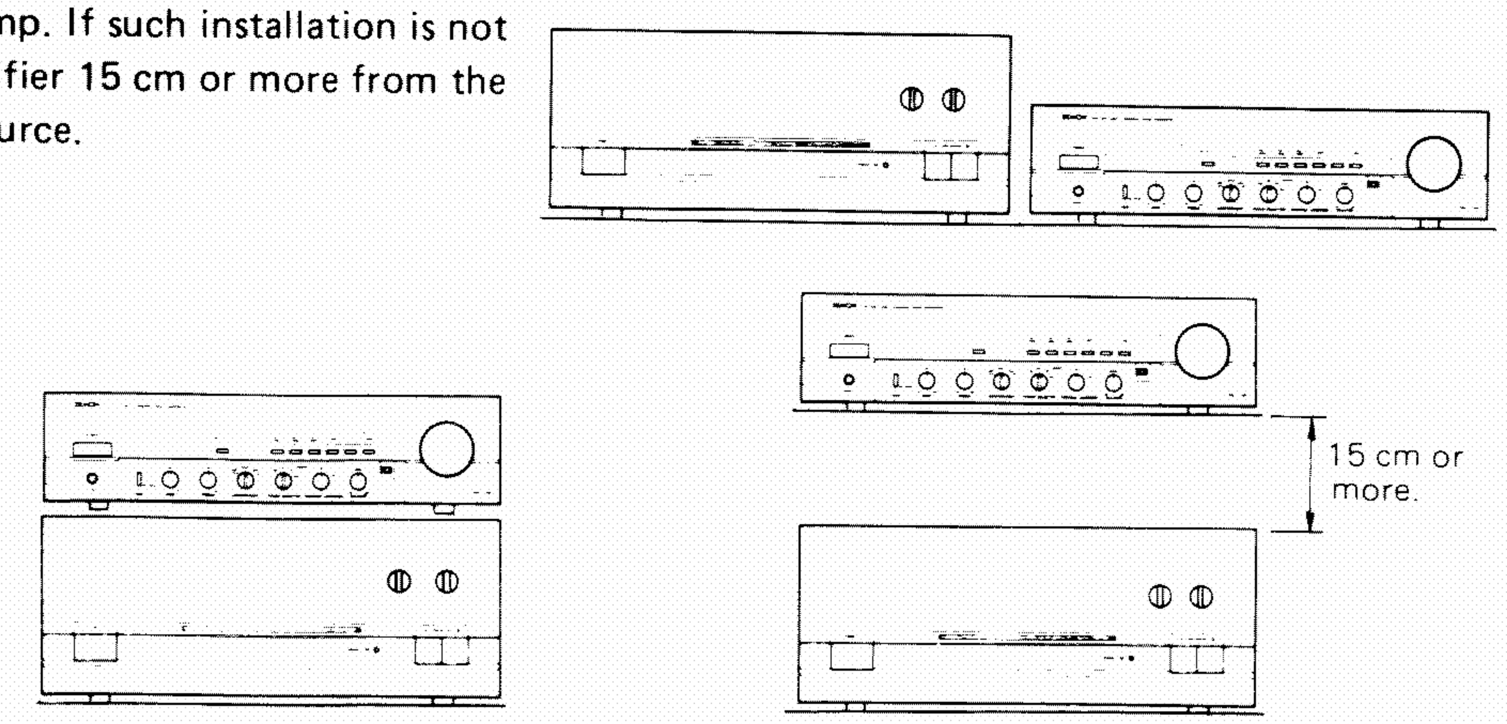


Fig. 2

CONNECTIONS

REMOTE ON-OFF Terminals
These terminals are used for remote control of the power amplifier and/or active speaker system. A low-voltage DC current is emitted from the terminals to turn on the power of an active speaker system and/or DENON power amplifier (models POA-4400, POA-6600, etc.). Two channels will emit independent signals for left and right channels.

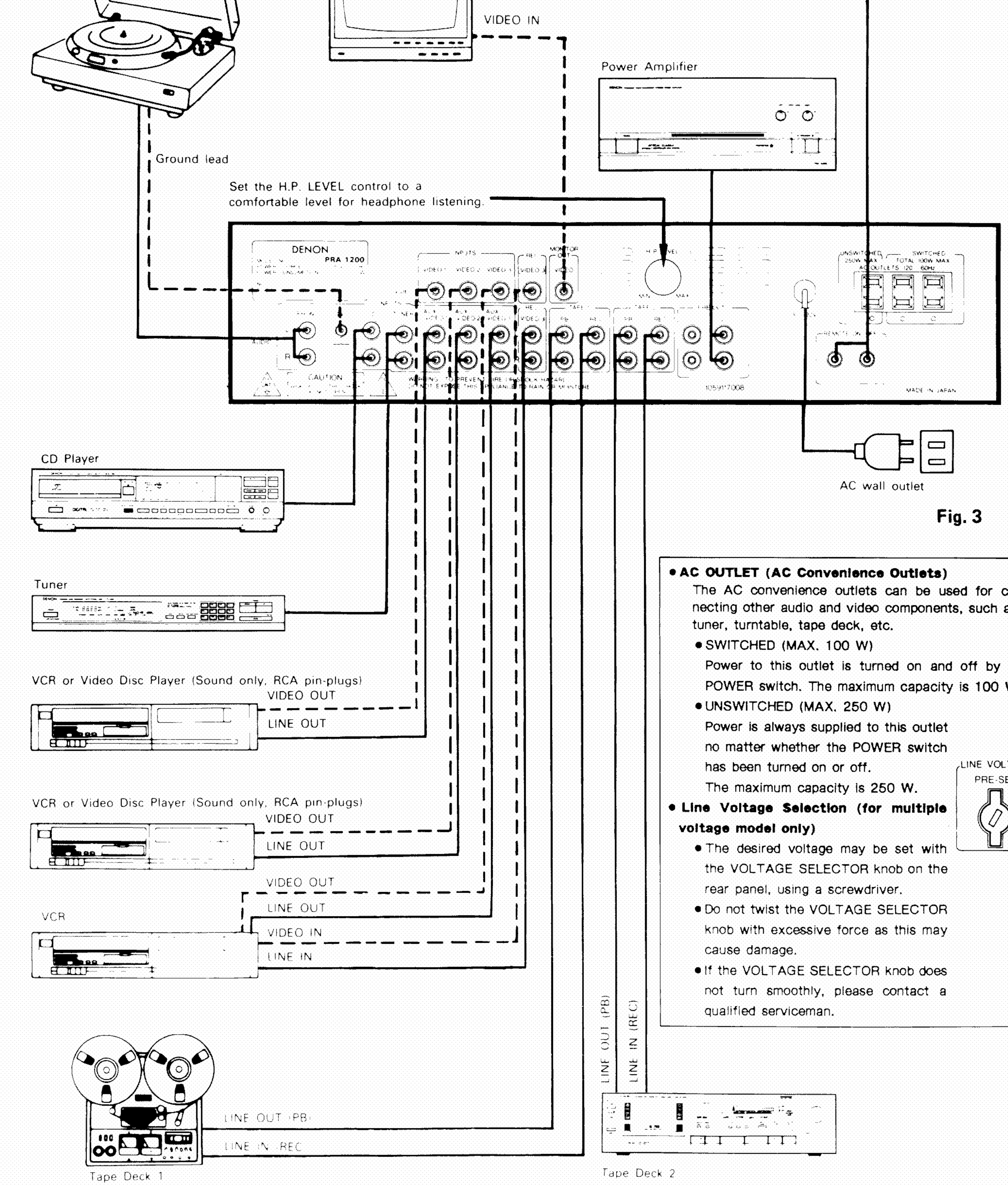


Fig. 3

- **AC OUTLET (AC Convenience Outlets)**
  The AC convenience outlets can be used for connecting other audio and video components, such as a tuner, turntable, tape deck, etc.
  - SWITCHED (MAX. 100 W)
    Power to this outlet is turned on and off by the POWER switch. The maximum capacity is 100 W.
  - UNSWITCHED (MAX. 250 W)
    Power is always supplied to this outlet no matter whether the POWER switch has been turned on or off.
    The maximum capacity is 250 W.
- **Line Voltage Selection (for multiple voltage model only)**
  - The desired voltage may be set with the VOLTAGE SELECTOR knob on the rear panel, using a screwdriver.
  - Do not twist the VOLTAGE SELECTOR knob with excessive force as this may cause damage.
  - If the VOLTAGE SELECTOR knob does not turn smoothly, please contact a qualified serviceman.

LINE VOLTAGE
PRE-SET

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
SCREWS & WASHERS & NUTS			
*101	4737002034	TAPPING SCREW (S) 3×6 (BLACK)	20
102		NUT M7 (Attached to VR & SW)	8
103		WASHER M7 (Attached to VR & SW)	2
104		SNAP PLATE (Attached to VR & SW)	1
105	4737500044	TAPPING SCREW (P) 3×8 (BLACK)	3
106	–	–	–
107	–	–	–
108	4737002021	TAPPING SCREW (S) 3×8 (BLACK)	5
109	4737007000	TAPPING SCREW (S) 4×8 (BLACK)	10
110	4770064107	FIXING SCREW	14
111	4770195005	WASHER	2
112	4737003017	COUNTERSUNK HEAD TAPPING SCREW (S) 3×8	2

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
PACKING & ACCESSORIES (not included EXPLODED VIEW)			
201	5040079012	STYLEN PAPER (t0.5×700×500)	1
202	5050075006	CABINET COVER (t0.02×750×350)	1
203	5039169001	CUSHION	2
204	5019157033	CARTON CASE	1
205	5058006019	ENVELOPE	1
206	5119240002	INST MANUAL	1
*207	5150418107	DAI WARRANTY HOME	1
208	2048121004	2P PIN CORD	1
209	–	–	–
210	–	–	–

ADDENDUM LIST

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

Ref. No.	Part Name & Descriptions	Part No. (Multi. voltage)	Part No. Canada	
7	BACK PANEL	1059117011	1059117008	
⚠ 8	AC CORD	2006031026	–	
	AC CORD (POLARIZED)	–	2062060002	
⚠ 17	POWER TRANS	2339556016	2339554018	
37	DANGEROUS MARK	–	5138266009	
70	VOLTAGE SEL SW	2129555000	–	
71	PRESET LABEL	5150290008	–	
101	TAPPING SCREW (S) 3×6 (BLACK)	4737002034 (20)	4737002034 (20)	
207	WARRANTY IN ENVELOPE	5158052206	–	
	DCI WARRANTY	–	5150388004	
*209	CAUTION SHEET	–	5139201005	

Note
1. See addendum list above for the parts with asterisk (*) on the Ref. No. and the otherparts not included in the list.
2. * marked not included EXPLODED VIEW OF CHASSIS AND CABINET.
3. This list is prepared based on U.S.A BLACK VERSION.
4. 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.

BLOCK DIAGRAM

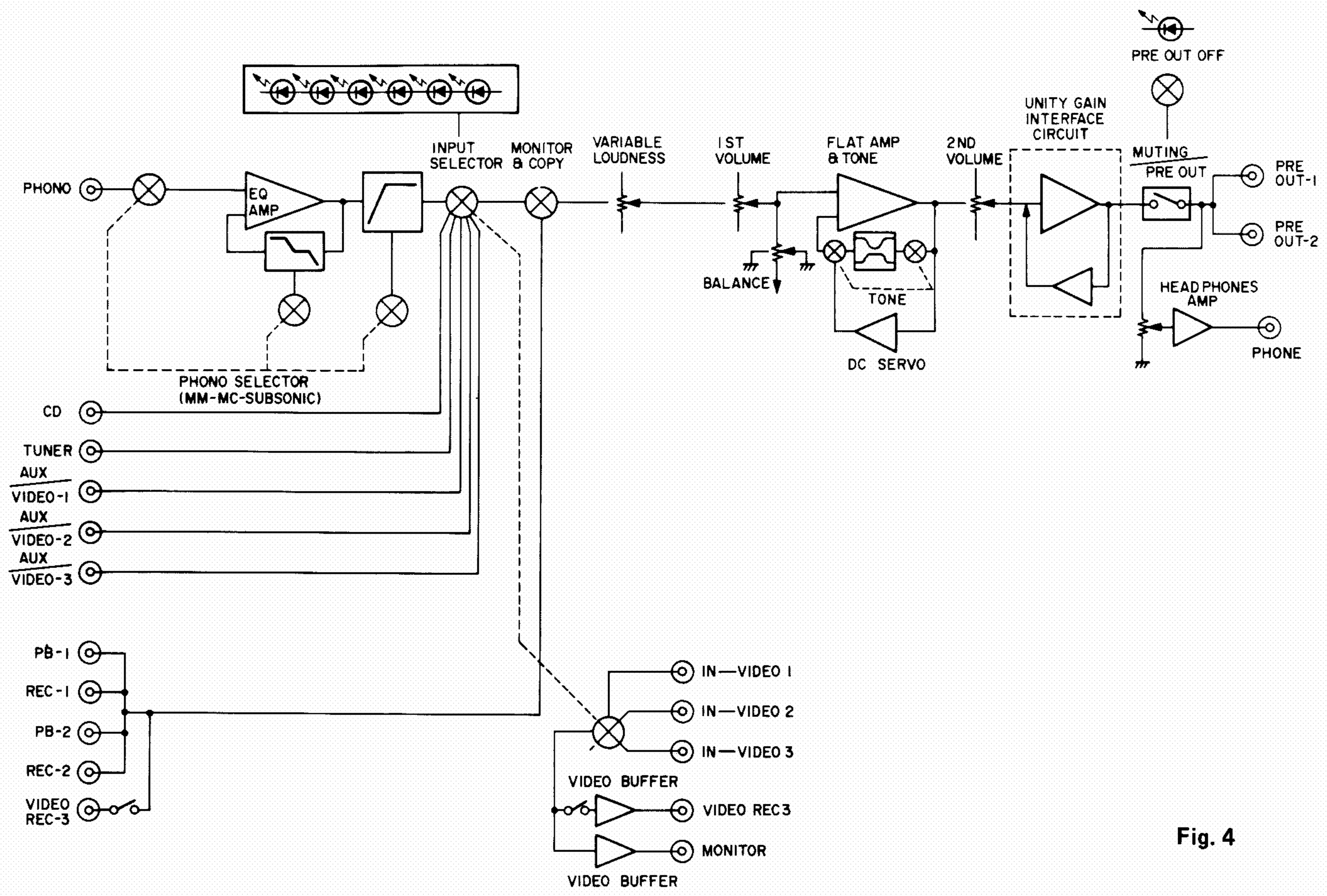


Fig. 4

METHOD OF ADJUSTMENTS

When marking adjustments, be sure the power supply is at the rated voltage and the room air is in normal condition with respect to temperature and humidity.

DC OFFSET ADJUSTMENT (Fig. 5)

1. Keep the unit away from direct wind blown by an air-conditioner and an electric fan, and keep the unit under normal conditions. Adjust the range of ambient temperature to 15 ~ 30°C.
2. Set the following switches as follows:
   - POWER (power switch) to off
   - VOLUME (VOLUME CONTROL) to 0 (↶)
3. Remove the top cover and connect a DC digital voltmeter to the test points of ETC9072 (VOLUME unit) (between the positive terminal TP and the negative terminal (chassis ground), and between the positive TP and the negative terminal (chassis ground). (Refer to Fig. 3–6)
4. Connect Power cord to AC outlet, and turn Power Switch "on" (▬). Within 10 seconds turn VR206 (Lch) and VR207 so that the DC voltmeter reads 0 mV ± 3 mV.

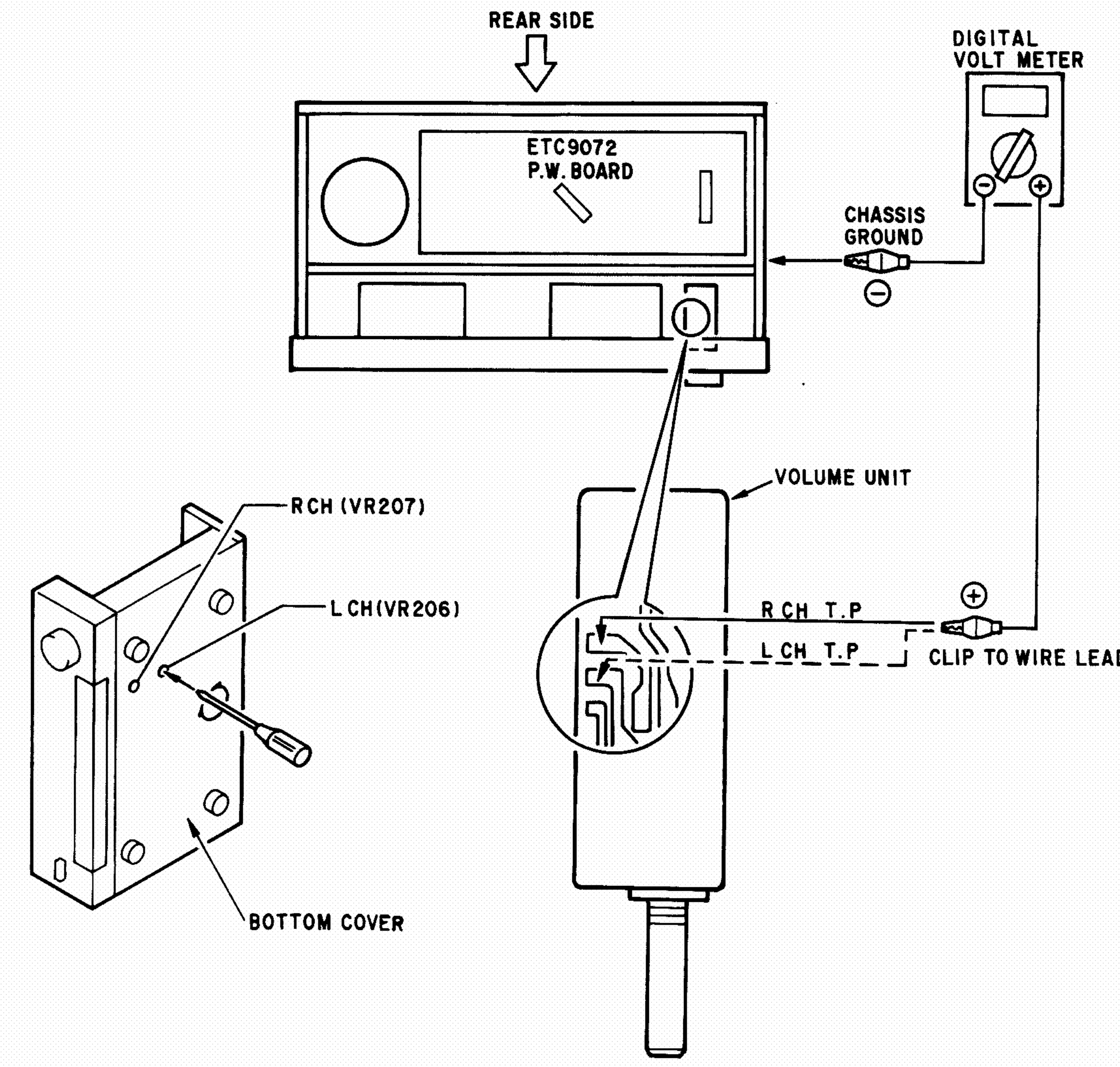
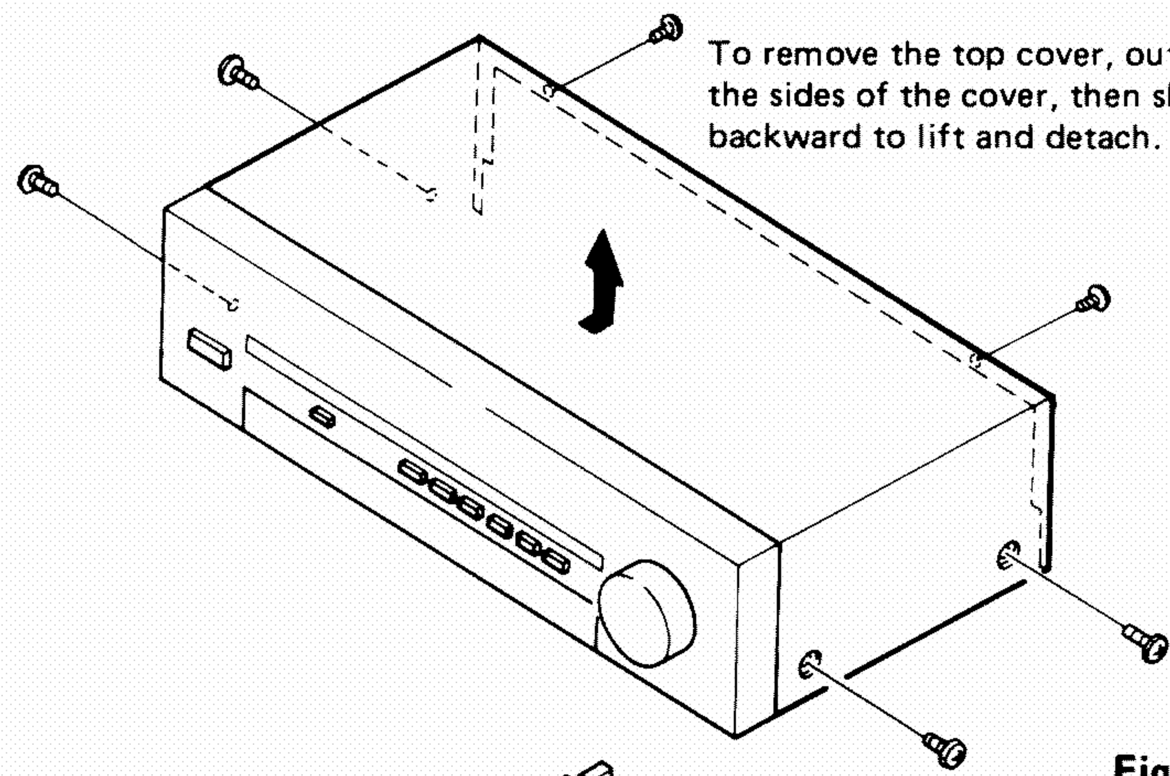


Fig. 5

REMOVAL OF EACH SECTION (Reverse the procedure to install the covers.)

1. How to remove the top cover (Fig. 6)

1) Remove the six screws holding the top cover in place.
2) Pull out the sides of the cover to free it, then lift off the cover.



To remove the top cover, outstretch the sides of the cover, then slide it backward to lift and detach.

Fig. 6

2. How to remove the back panel (Fig.7)

1) Remove the fourteen screws holding the back panel in place.
2) Pull the back panel toward you and remove it.

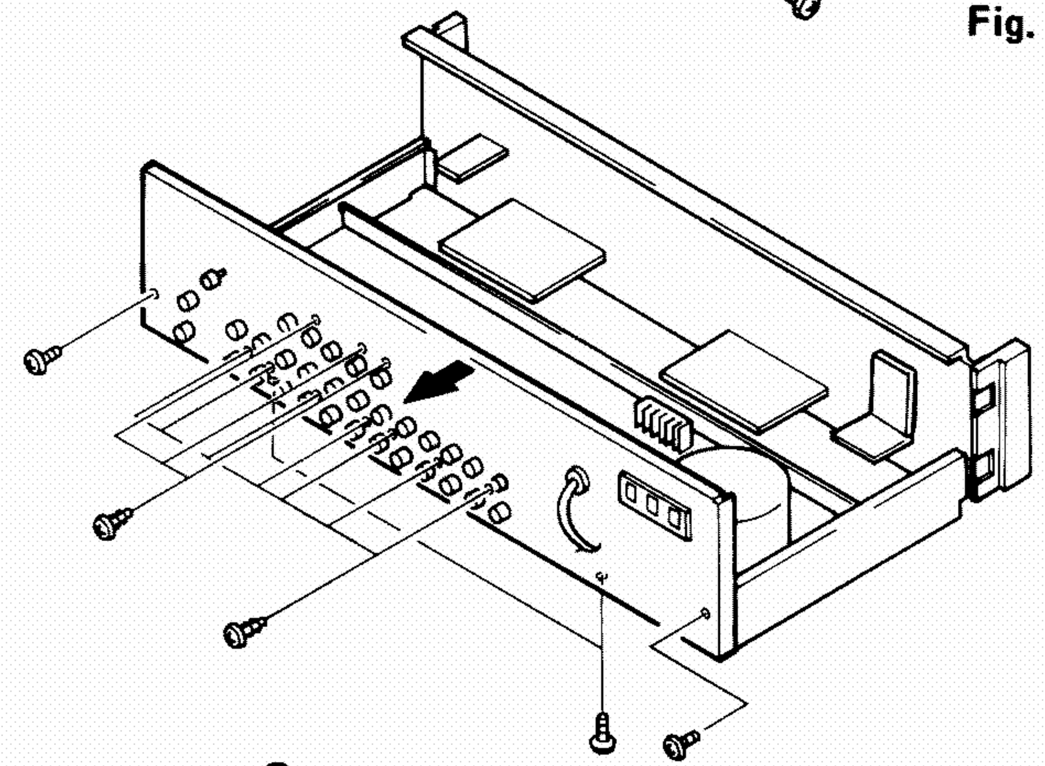
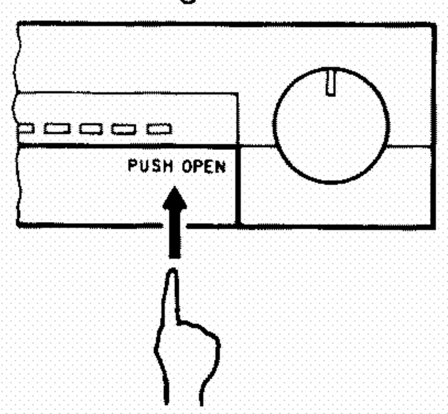


Fig. 7

3. How to remove the front panel (Fig. 8)

1) Open the door by pressing "push open" spot on the door.
   Note: Be sure to press "push open" spot when opening or closing the door, otherwise the door will be damaged.



2) Pull off the six knobs.
   Note: Because the knobs are tightly inserted on the shafts, use an appropriate pair of pliers to remove and not to give them damages.
3) Remove the five screws holding the front panel in place.
4) Pull the front panel toward you and remove it.
5) Carefully tear off the safety plate by cutter or the like when removing the P.C.Board. When installing the P.C.Board, adjust the movemen of knob to stick the safety plate. (Stick the safety plate by means of pushing the knob and that will not affect neighbor knob.)

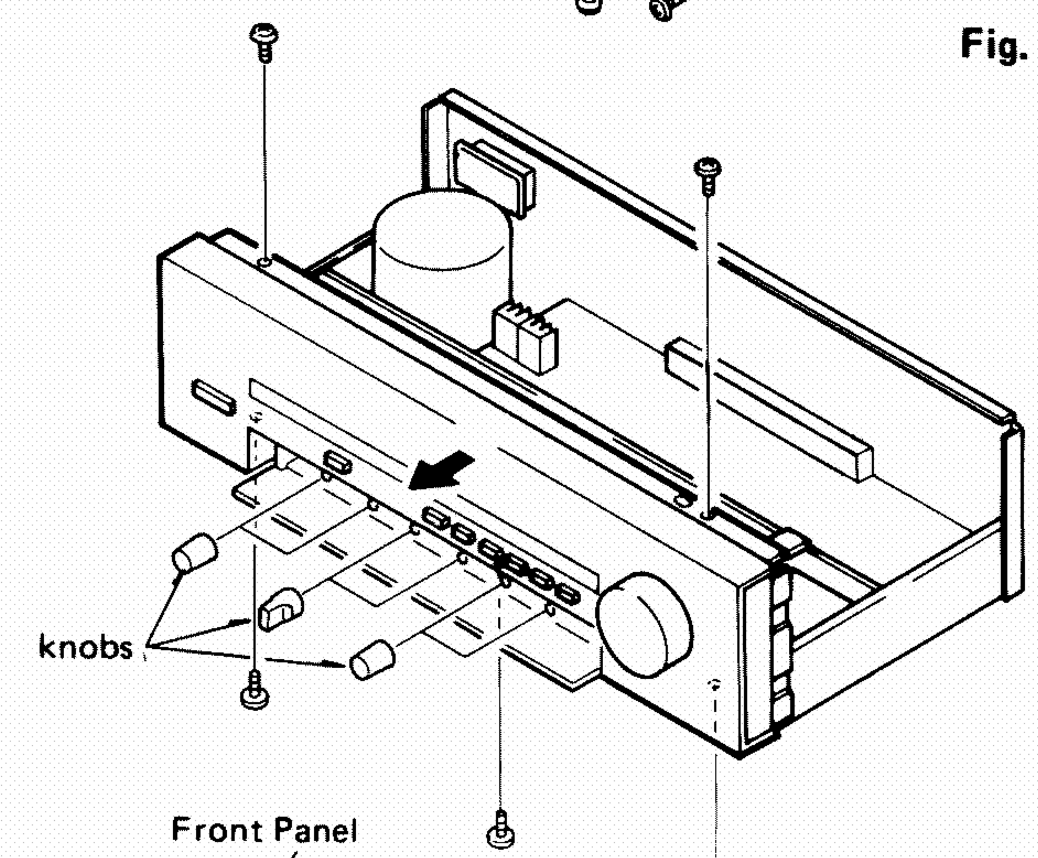
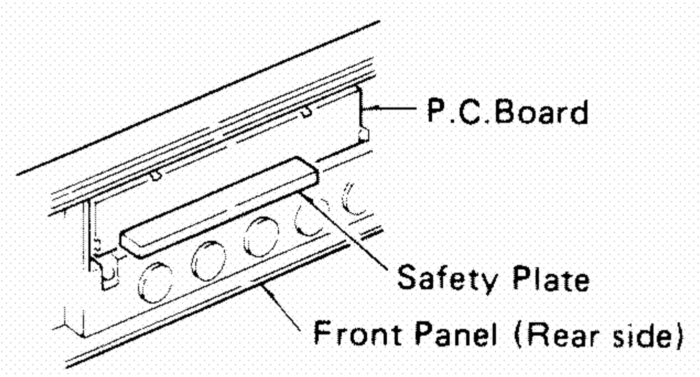


Fig. 8



After stuck the plate, check to see that the pushing of knob does not affect other knobs.

4. How to remove/Install the door (Fig. 9)

(Door must be opened.)
While pushing the hinges on both sides, remove or install door in the direction arrow shows.
Never remove the washers attached on the hinges.

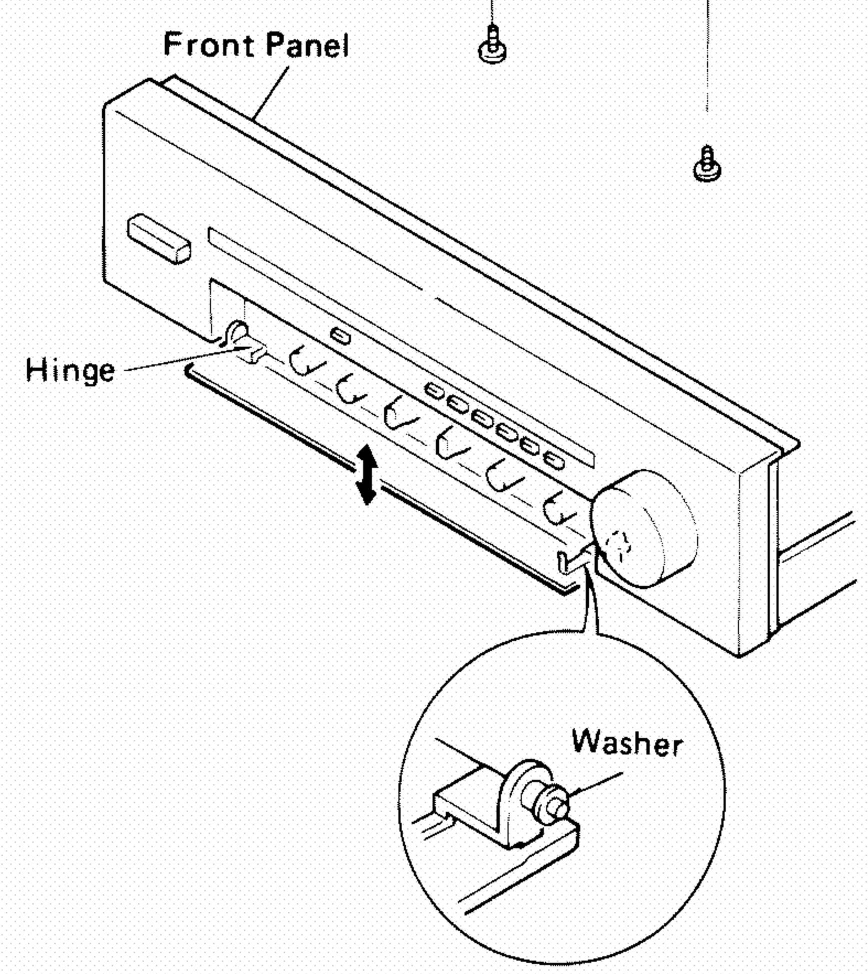


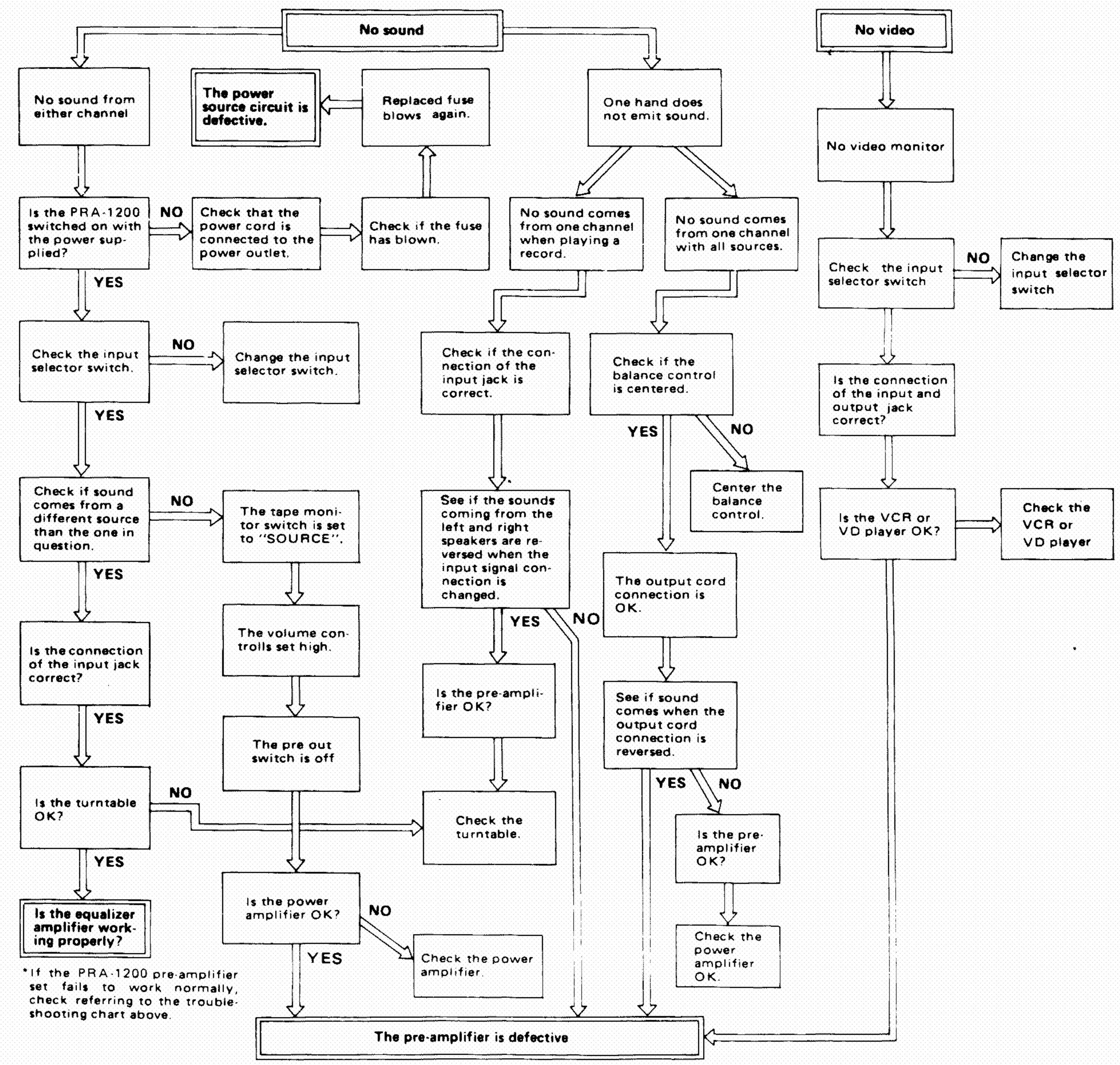
Fig. 9

TROUBLESHOOTING

Prior to anything, be sure whether or not your audio and video system is really in trouble.

1. Check all connections for correctness.
2. See to it that your audio and video system is operated properly according to the instruction manual.
3. Check that the speakers and turntable are working properly.

If your PRA-1200 pre-amplifier does not provide normal performance, check it referring to the following troubleshooting chart. If the unit still malfunctions after this check, contact your local DENON dealer.



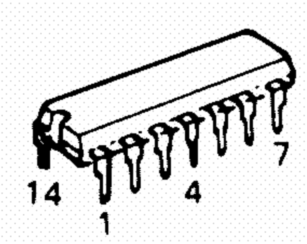
WARNING:
Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

Ref.No	Part No.	Part Name	Remarks	Q'ty
C603	2531025002	CK45F1H223Z	0.022μF/50V +80,−20%	
C701	2544260045	CE04W1H010M (SME)	1μF/50V ±20%	
SWITCHES & RELAYS & COILS				
L101,102	2350016917	INDUCTOR(180K)		
L301,302	2350016917	INDUCTOR(180K)		
RL001,002	2140105009	REED RELAY 2M		
⚠	2124409006	POWER SWITCH		
TS001 ~007	2124149010	PUSH SWITCH		
SW001	2129521002	SLIDE SW REMOTE	PHONO	
SW002	2123623003	ROTARY SLIDE SWITCH	TAPE MONITOR	
	2124447000	1P PUSH SWITCH	DEFEAT	
OTHER PARTS				**Q'ty**
	4170253000	RADIATOR		2
	4700012022	Cross Pan Screw with S.W. W 3×12		2
	2020022008	FUSE HOLDER		2
F001	2061039034	FUSE 1A		1
	2048178002	1P PIN JACK		2
	2050274004	2P CONNECTOR BASE		2
	2050240009	3P CONNECTOR BASE		1
	2050150005	4P CONNECTOR BASE		4
	2050152003	6P CONNECTOR BASE		1
	2048191005	HEADPHONES JACK		1
	2050243022	2P WIRE HOLDER		4
	2050243035	3P WIRE HOLDER		5
	2050243051	5P WIRE HOLDER		4
	2050185038	3P WIRE HOLDER		1
	2050243064	6P WIRE HOLDER		5
	2050256051	5P JP CONNECTOR		2
	2050256064	6P JP CONNECTOR		1
	2050256035	3P JP CONNECTOR		1
	2050275029	12P EH CON.BASE		1
	2050305025	12P EH SID CON. BASE		1
	2050190036	3P NH CONNECTOR BASE		1
	2050396034	3P JP-3 CONNECTOR		2

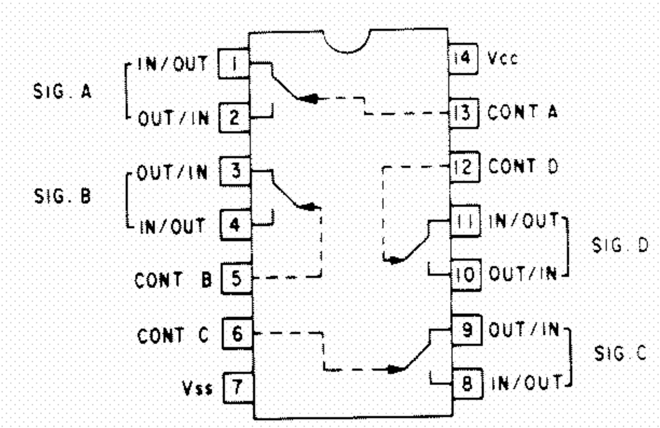
SEMICONDUCTORS

• IC's

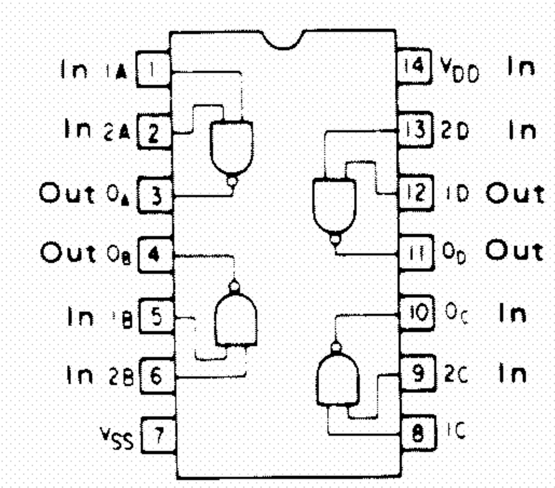
HD14011BP
HD14066BP
(Hitachi)



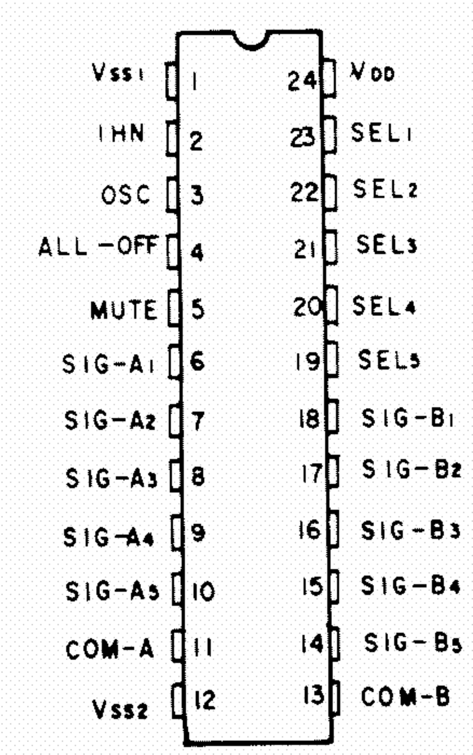
HD14066BP



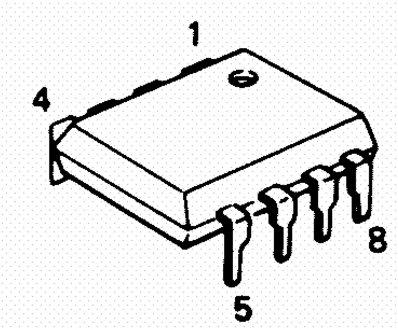
HD14011BP

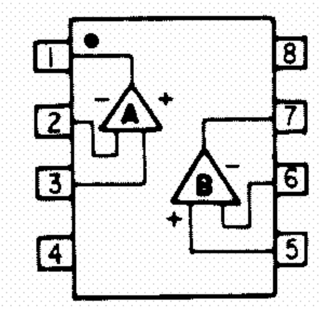


TC9152P (Toshiba)

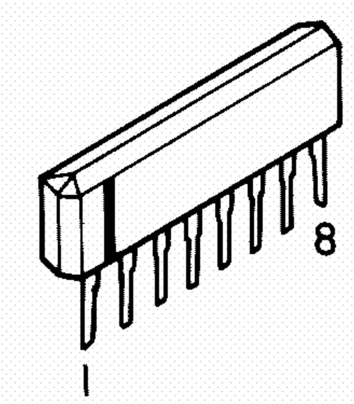


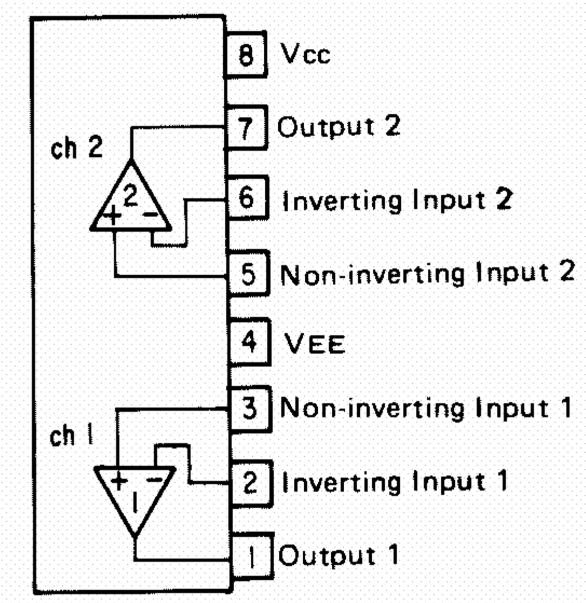
M5238P (Mitsubishi)
M5218P(Mitsubishi)
LA6458DF(Sanyo)





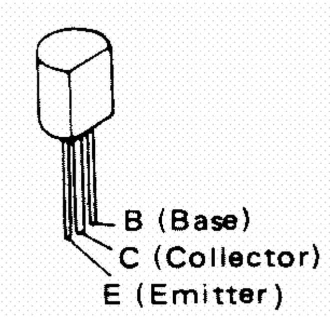
M5216L (Mitsubishi)



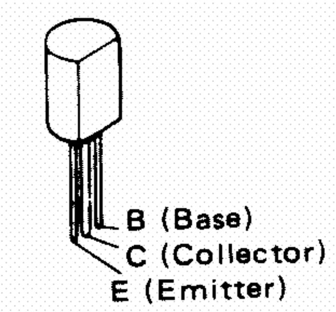


• TRANSISTORS (including FET)

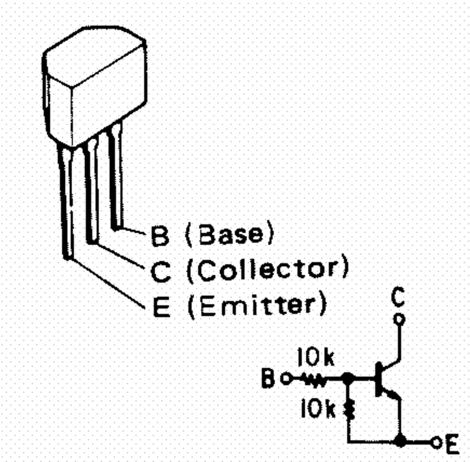
2SA1015(Y)
2SC1815(BL)
2SA1015(GR)
2SC1815(Y)



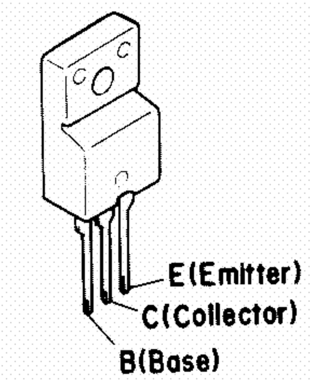
2SC2655(Y)



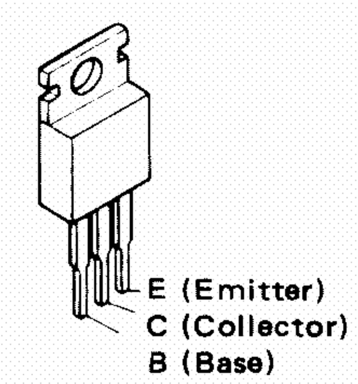
RN1202 (10k-10k)



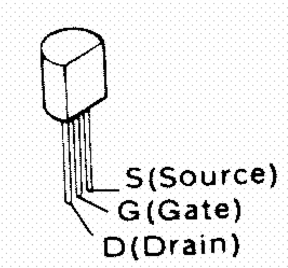
2SC3852



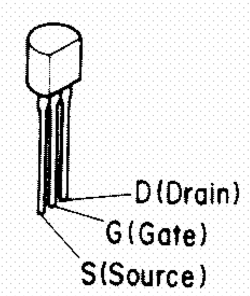
2SB834(Y)/(GR)



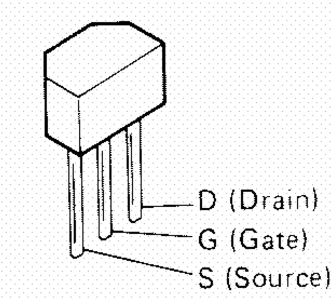
FET
2SK369(BL)/(GR)-C



2SK246(BL/V)
2SJ103(BL/V)

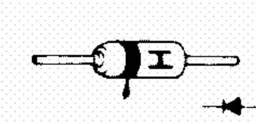


2SK381 (D)/(E)



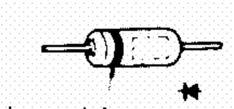
• DIODES (including LED)

1S2076A



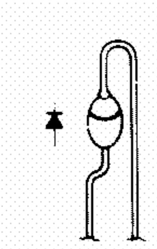
Navy blue

HZ5C-1
HZ15-1
HZ18-2
HZ24-2

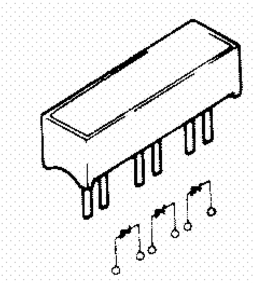


Navy blue

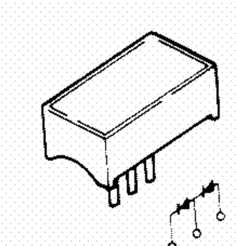
DSA1A2-Type-3



LD-701YY (YELLOW)



LD-603DU (ORANGE)



PRINTED WIRING BOARD PATTERNS AND PARTS LIST
ETC9072E PREAMP UNIT PARTS LIST for U.S.A.

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

Ref.No	Part No.	Part Name	Remarks
SEMICONDUCTORS			
IC001	2620581004	TC9152P	
IC002	2620300007	HD14011BP	
IC101	2630257001	M5218P	
IC102	2630229013	LA-6458DF	
IC201	2630257001	M5218P	
IC301	2620679000	M5238P	
IC302	2630229013	LA-6458DF	
IC401	2630409008	M-5216L	
IC501	2620276005	HD14066BP	
TR001	2730330006	2SC3852	
TR002	2720058013	2SB834(Y)/(GR)	
TR003,004	2750048006	2SK381(D)/(E)	FET
TR005	2710102005	2SA1015(Y)	
TR006	2730212001	2SC2655(Y)	
TR007	2730198015	2SC1815(BL)	
TR008 ~011	2710102021	2SA1015(GR)	
TR012 ~014	2730198015	2SC1815(BL)	
TR015	2690025008	RN1202(10k-10k)	
TR016 ~018	2730198015	2SC1815(BL)	
TR019	2710102021	2SA1015(GR)	
TR020,021	2750038045	2SK369(BL)/(GR)-C	
TR023	2730198015	2SC1815(BL)	
TR101 ~108	2750038045	2SK369(BL)/(GR)-C	
TR201 ~204	2750038045	2SK369(BL)/(GR)-C	
TR205 ~208	2730198002	2SC1815(Y)	
TR301,302	2750050010	2SK246(BL/V)	FET
TR303,304	2750054003	2SJ103(BL/V)	
TR501	2710102005	2SA1015(Y)	
TR502 ~504	2730198002	2SC1815(Y)	
D001 ~005	2760427015	DSA1A2(TYPE-3)	
D006 ~012	2760049011	1S2076A	
D014 ~024	2760049011	1S2076A	
D026,027	2760049011	1S2076A	
D028	2760249002	HZ18-2	Zener
D029 ~032	2760049011	1S2076A	
D033	2760220021	HZ24-2	Zener
D035,036	2760236031	HZ5C-1	Zener
D201,202	2760236031	HZ5C-1	Zener
D501,502	2760049011	1S2076A	
D602	2760253014	HZ15-1	Zener

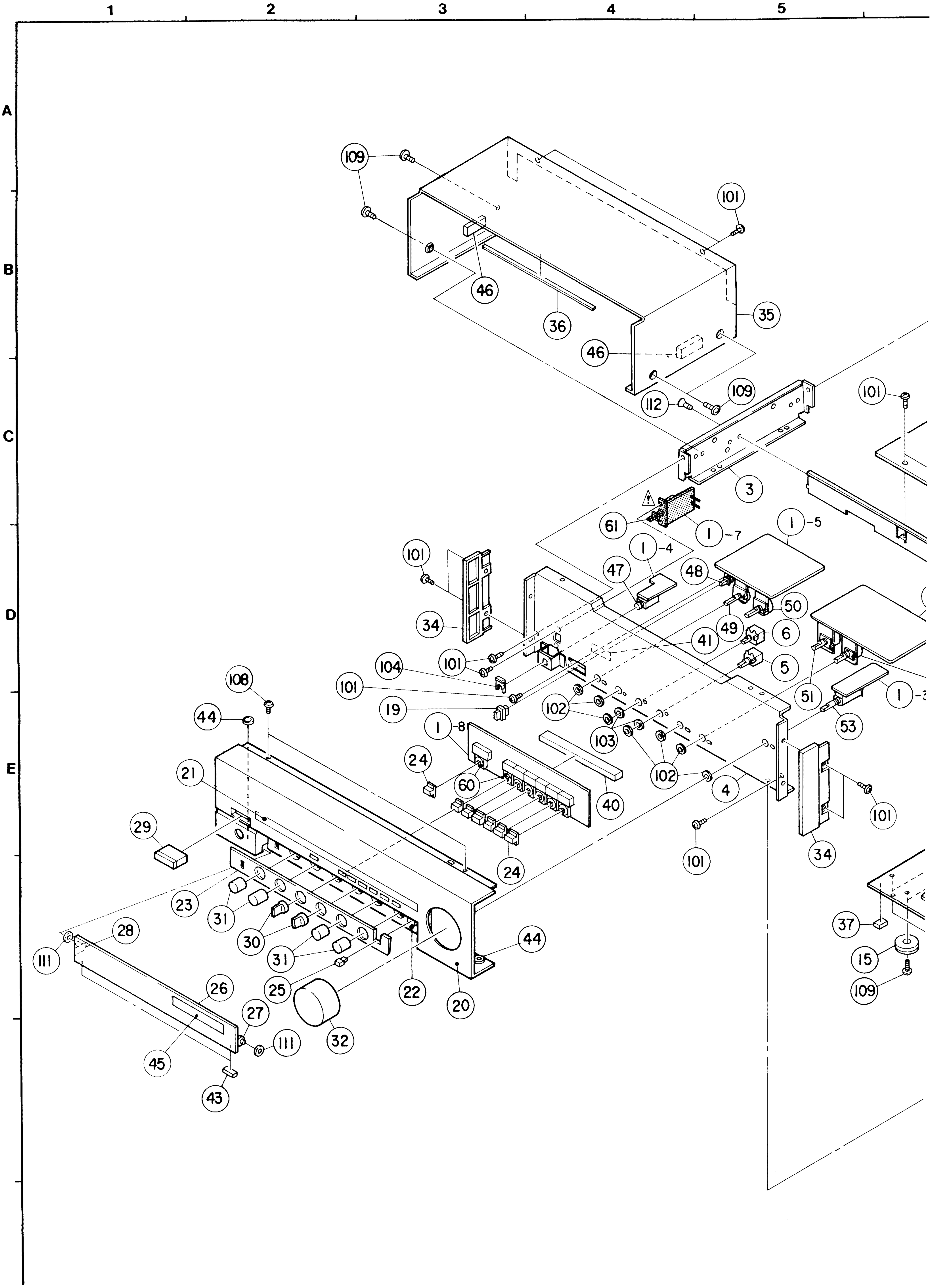
Ref.No	Part No.	Part Name	Remarks
LE001 ~006	3939333007	LD-603DU	
LE007	3939319021	LD-701YY	
RESISTORS (not included Carbon Film±5%,1/4W type)			
⚠R002	2440086022	RS14B3D101JNBF	100ohm,2W ±5%
⚠R012	2412378959	RD14B2E301JNB	300ohm,1/4W ±5%
⚠R037	2412378959	RD14B2E301JNB	300ohm,1/4W ±5%
⚠R053	2412387908	RD14B2E010JNB	1ohm,1/4W ±5%
⚠R145,146	2440038025	RS14B3A561JNB	560ohm,1W ±5%
⚠R413,414	2440033020	RS14B3A221JNBF	220ohm,1W ±5%
⚠R531	2412387940	RD14B2E4R7JNB	4.7ohm,1/4W, ±5%
VR201	2119028007	V1620V25FB104	100kohm Loudness VR
VR202	2119021004	V16V25FB254T	250kohm Balance VR
VR203	2119044010	V1640V35F····	Main VR
VR204,205	2119022029	V1620V25FC104K	100kohm Bass,Treble VR
VR206,207	2116016009	V08PB101	Semi Fixed Resistor 100ohm
VR401	2119032006	V1620V15KB104	Headphones VR 100kohm
CAPACITORS			
C001	2538003014	CK45E2GAC472M	4700PF/400V AC
C002,003	2544165713	CE04W1V471MC (SM)	470μF/35V C-2A,2B,3A,3B
C004	2544258769	CE04W1V221MC (SME)	220μF/35V
C005	2544260032	CE04W1HR47M (SME)	0.47μF/50V
C006	2544273016	CE04W1E221M (KME)	220μF/25V
C007 ~009	2544260045	CE04W1H010M (SME)	1μF/50V
C010	2544250026	CE04W0J101M (SME)	100μF/6.3V
C011	2544254035	CE04W1C470M (SME)	47μF/16V
C012	2544260032	CE04W1HR47M (SME)	0.47μF/50V

Ref.No	Part No.	Part Name	Remarks
C013,014	2531024003	CK45F1H103Z	0.01μF/50V +80,−20%
C015	2544260003	CE04W1H0R1M (SME)	0.1μF/50V
C016,017	2531024003	CK45F1H103Z	0.01μF/50V +80,-20%
C018,019	2544260045	CE04W1H010M (SME)	1μF/50V ±20%
C020	2544254035	CE04W1C470M (SME)	47μF/16V ±20%
C021	2544260045	CE04W1H010M (SME)	1μF/50V ±20%
C023	2544254035	CE04W1C470M (SME)	47μF/16V ±20%
C024	2544254006	CE04W1C100M (SME)	10μF/16V ±20%
C025	2554229982	CQ92P2A471J (PRS)	470pF/100V ±5%
C026	2531052004	CK45E2H472P	4700pF/500V +100,−0%
C028,029	2531024003	CK45F1H103Z	0.01μF/50V +80,-20%
C101,102	2533637003	CC45SL1H271J	270pF/50V ±5%
C103,104	2554213930	CQ93M1H222JT (B)	2200pF/50V ±5%
C105,106	2544250026	CE04W0J101M (SME)	100μF/6.3V ±20%
C107,108	2554213927	CQ93M1H152JT (B)	1500pF/50V ±5%
C109,110	2554199957	CQ92M1H183J (MRZ)	0.018μF/50V ±5%
C111,112	2554213943	CQ93M1H332JT (B)	3300pF/50V ±5%
C113,114	2544254048	CE04W1C101M (SME)	100μF/16V ±20%
C115,116	2544250026	CE04W0J101M (SME)	100μF/6.3V ±20%
C117,118	2544260045	CE04W1H010M (SME)	1μF/50V ±20%
C119,120	2544260058	CE04W1H2R2M (SME)	2.2μF/50V ±20%
C121,122	2554199931	CQ92M1H683JT (MRZ)	0.068μF/50V ±5%
C123~129	2544260045	CE04W1H010M (SME)	1μF/50V ±20%
C130,131	2554199986	CQ92M1H102JT (MRZ)	1000pF/50V ±5%
C201,202	2551249910	CQ93M1H561JT (B)	560pF/50V ±5%
C203,204	2551121067	CQ93M1H223J	0.022μF/50V ±5%

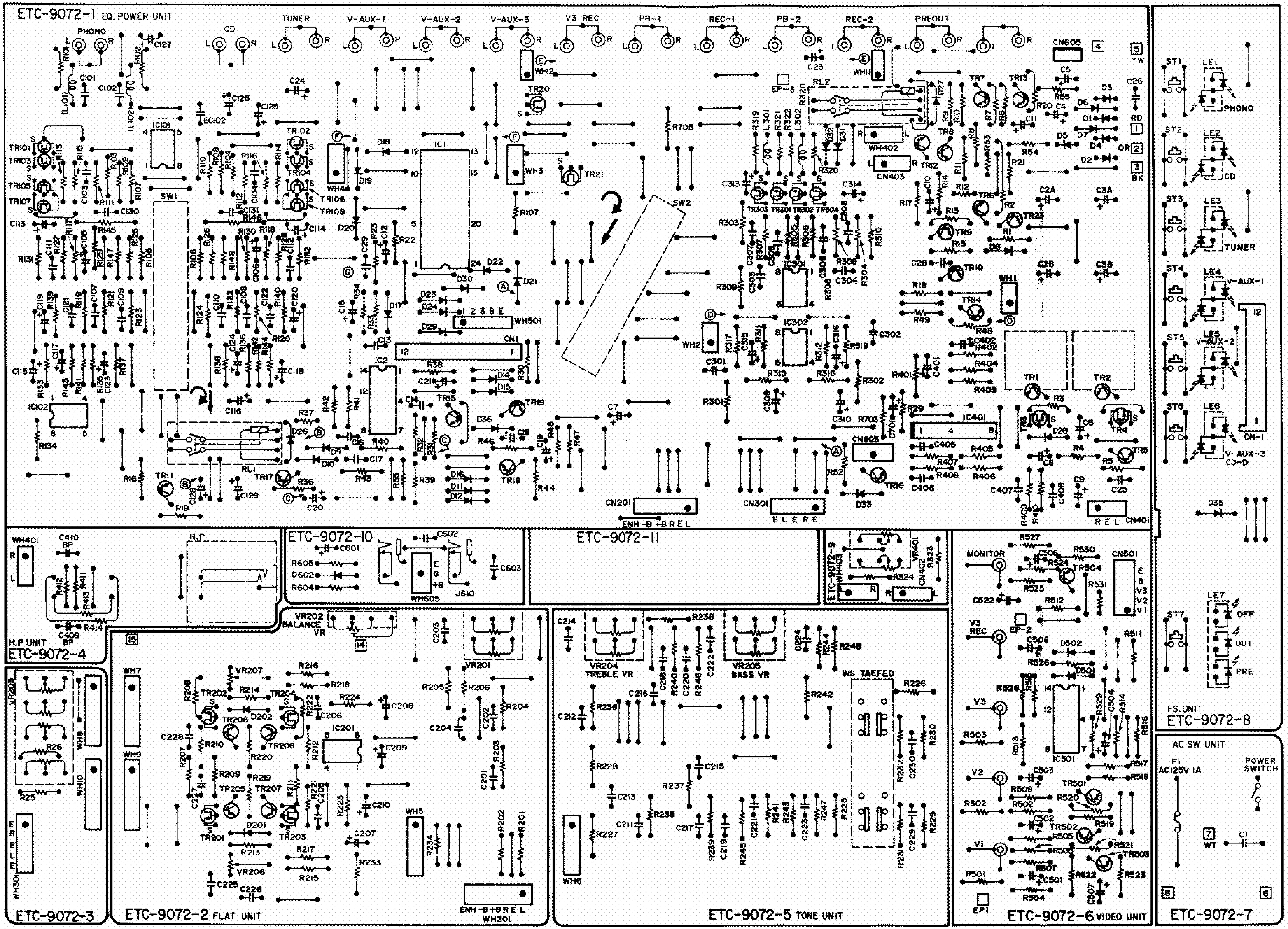
Ref.No	Part No.	Part Name	Remarks
C205,206	2551249910	CQ93M1H561JT (B)	560pF/50V ±5%
C207 ~210	2544260045	CE04W1H010M (SME)	1μF/50V ±20%
C211,212	2534289007	CC45SL2H680J	68pF/500V ±5%
C213,214	2551120026	CQ93M1H152J	1500pF/50V ±5%
C215,216	2551121038	CQ93M1H123J	0.012μF/50V ±5%
C217,218	2534273000	CC45SL2H150J	15pF/500V ±5%
C219,220	2534281005	CC45SL2H330J	33pF/500V ±5%
C221,222	2551121038	CQ93M1H123J	0.012μF/50V ±5%
C223,224	2554199928	CQ92M1H823JT (MRZ)	0.082μF/50V ±5%
C225,226	2554229953	CQ92P2A271JT	270pF/100V ±5%
C227,228	2554199986	CQ92M1H102JT (MRZ)	1000pF/50V ±5%
C229,230	2534285001	CC45SL2H470J	47pF/500V ±5%
C301,302	2554229953	CQ92P2A271JT	270pF/100V ±5%
C303,304	2534277006	CC45SL2H220J	22pF/500V ±5%
C305 ~308	2554211903	CQ92P2A221JT	220pF/100V ±5%
C309,310	2544260045	CE04W1H010M (SME)	1μF/50V ±20%
C313,314	2544260003	CE04W1H0R1M (SME)	0.1μF/50V ±20%
C315,316	2544250026	CE04W0J101M (SME)	100μF/6.3V ±20%
C401,402	2544260045	CE04W1H010M (SME)	1μF/50V ±20%
C405,406	2554229908	CQ92P2A101JT	100PF/100V ±5%
C407,408	2531024003	CK45F1H103Z	0.01μF/50V +80,−20%
C409,410	2543053033	CE04D1C470MBP (SME)	47μF/16V ±20%
C501 ~504	2544254035	CE04W1C470M (SME)	47μF/16V ±20%
C506 ~508	2544254048	CE04W1C101M (SME)	100μF/16V ±20%
C522	2544254035	CE04W1C470M (SME)	47μF/16V ±20%
C601	2544254006	CE04W1C100M (SME)	10μF/16V ±20%
C602	2531024003	CK45F1H103Z	0.01μF/50V +80,−20%

EXPLODED VIEW OF CHASSIS AND CABINET & PARTS LIST

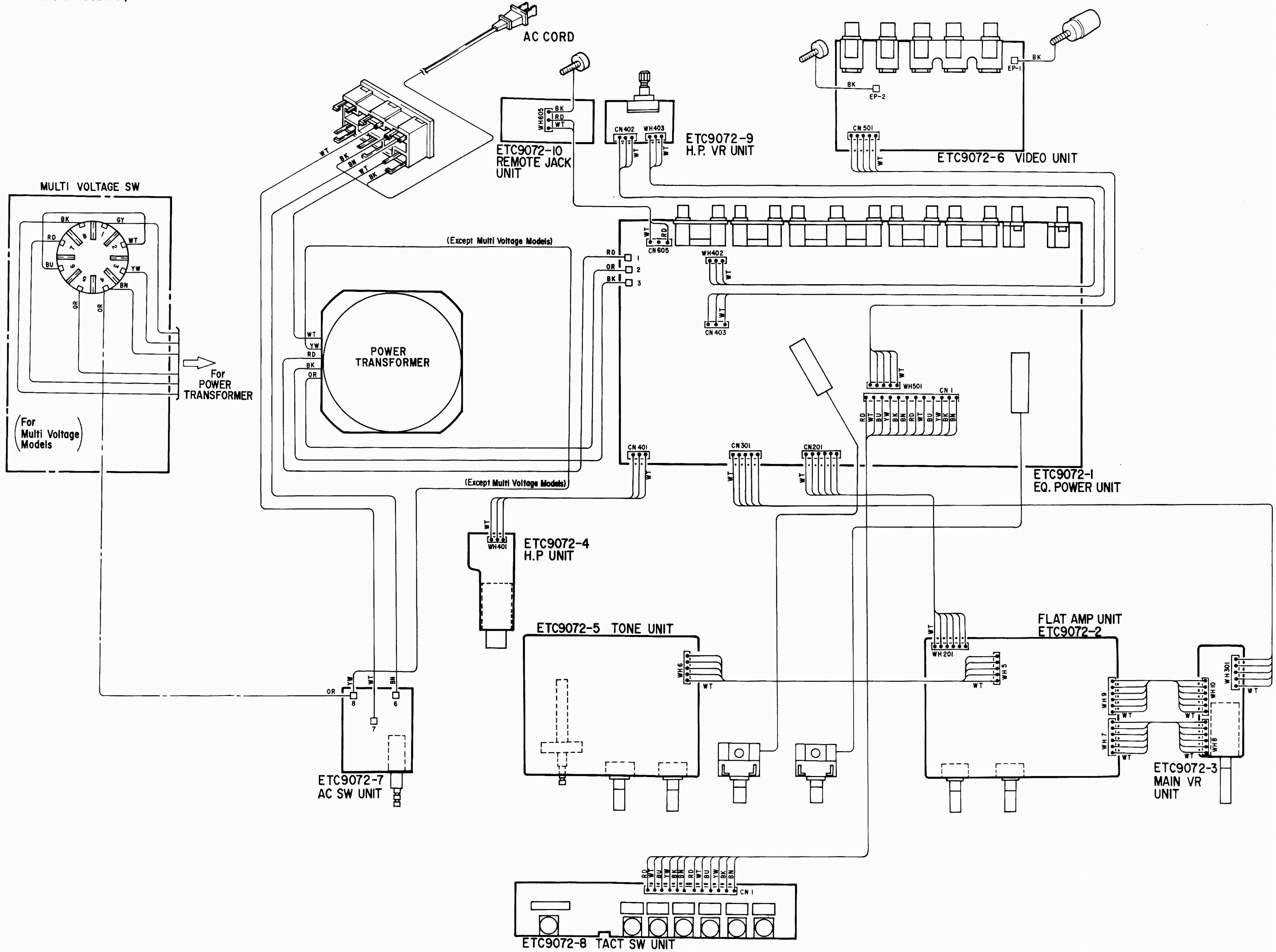
• EXPLODED VIEW OF CHASSIS AND CABINET



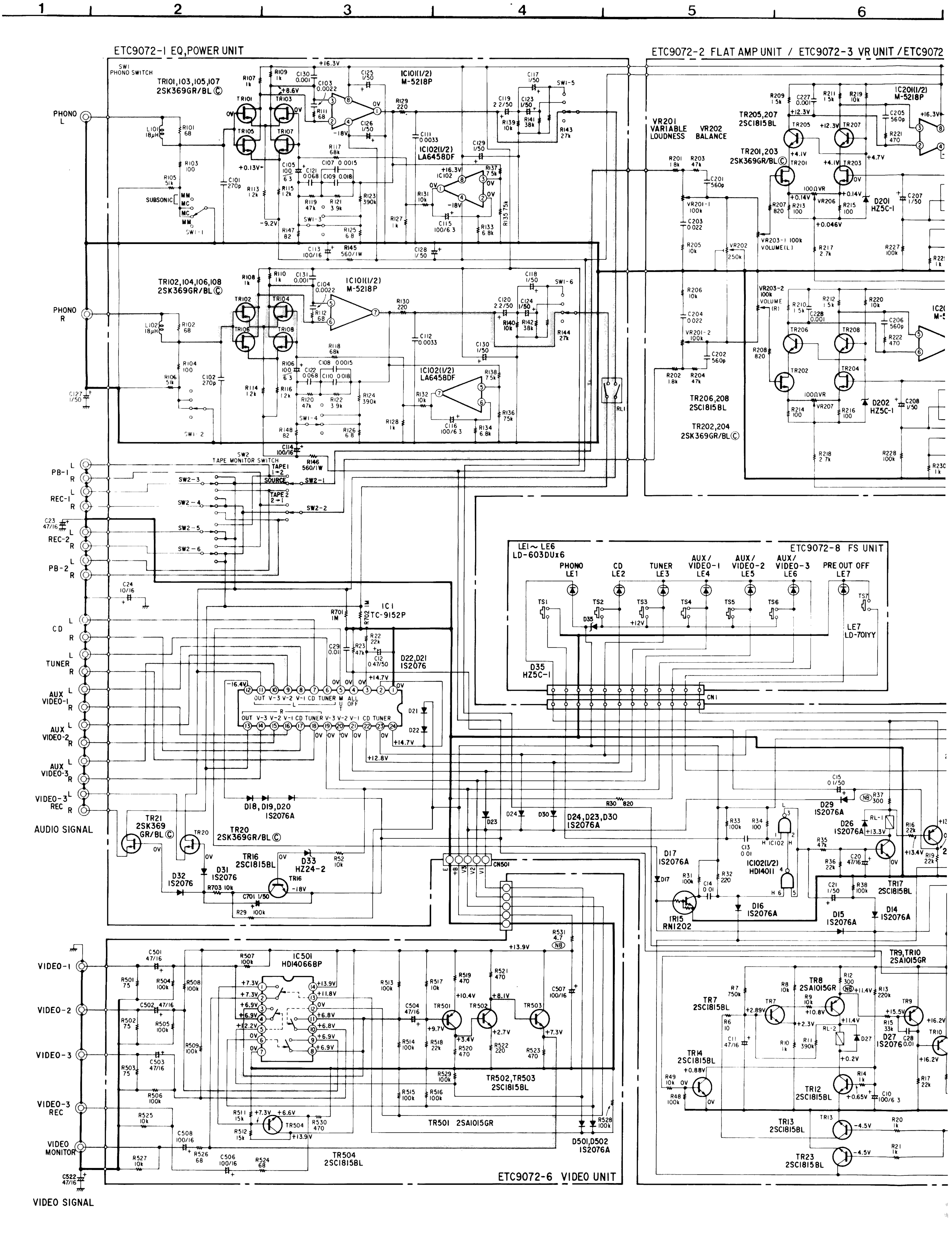
PRINTED WIRING BOARD PATTERNS
ETC9072E PREAMP UNIT



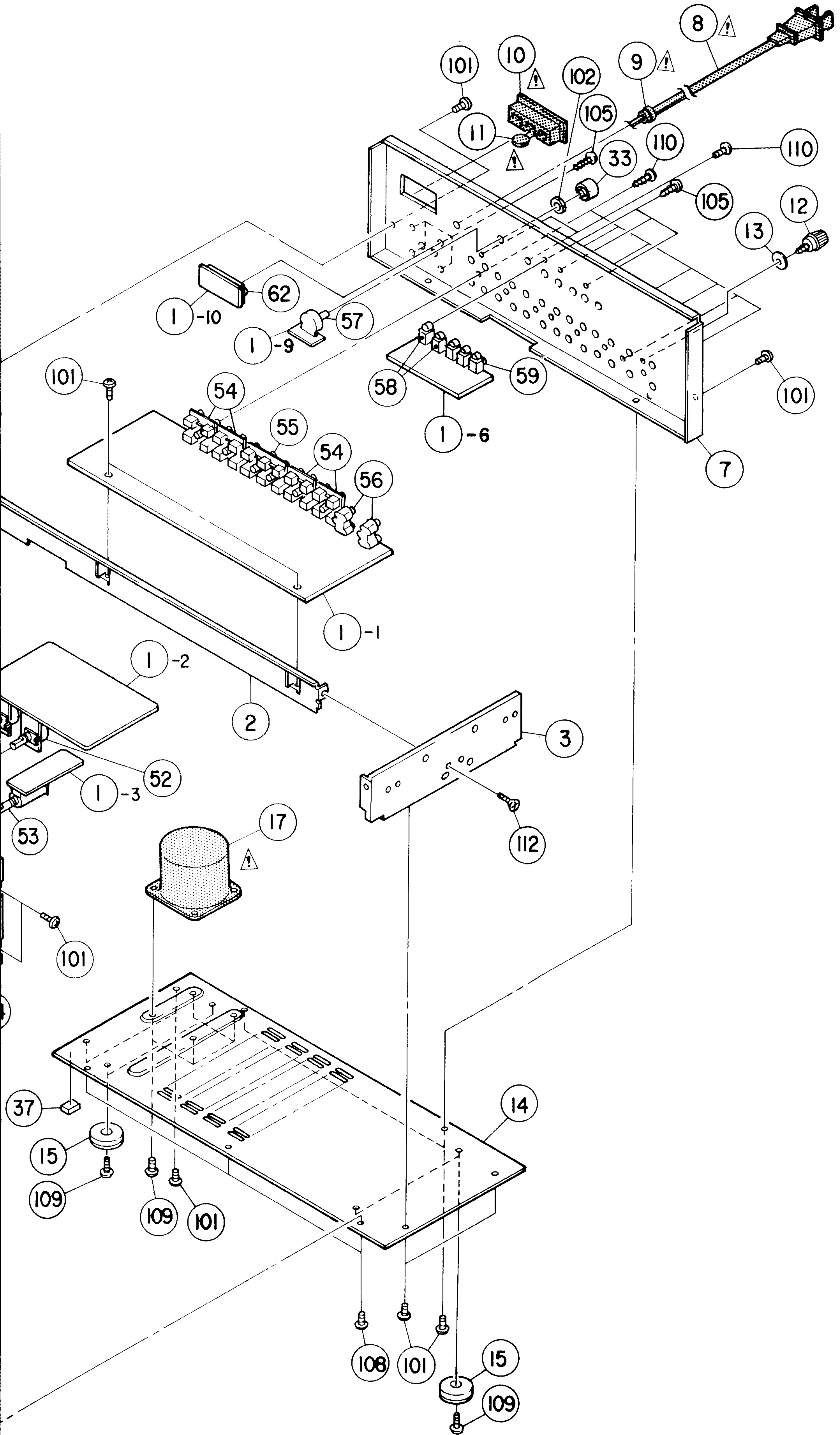
WIRING DIAGRAM
(This figure is specifications of U.S.A.)



SCHEMATIC DIAGRAM

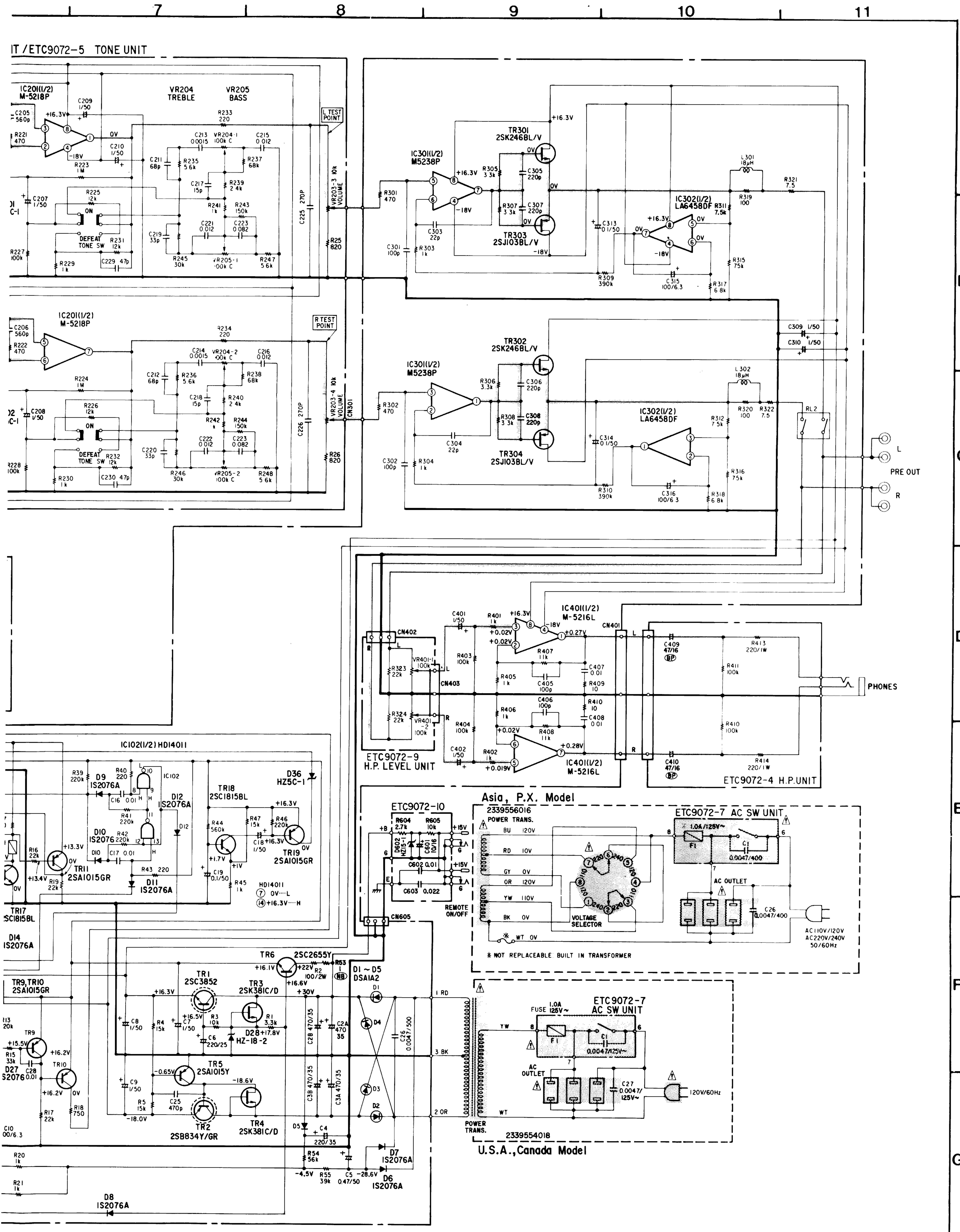


WARNING:
Parts marked with this symbol ⚠ [shaded] have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.



• PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
⊙ 1	ETC9072E	PREAMP UNIT	1
⊙ 2	4119030200	CENTER CHASSIS	1
⊙ 3	4119027200	SIDE CHASSIS	2
⊙ 4	4119032402	F. CHASSIS ASS'Y	1
5	2123614038	ROTARY REMOTE SWITCH (L=250)	1
6	2123614041	ROTARY REMOTE SWITCH (L=310)	1
*7	1059117008	BACK PANEL	1
⚠ *8	2062060002	AC CORD (POLARIZED)	1
⚠ 9	4450020005	CORD BUSH (4K-4)	1
⚠ 10	2033926007	AC OUTLET (POLARIZED)	1
⚠ 11	2538003014	4700pF ±20% 400VAC CERAMIC (C-027)	1
12	2050071016	TERMINAL ASS'Y	1
13	4770018001	WASHER (P-87)	1
14	1059059412	BOTTOM COVER	1
15	1049012207	FOOT ASS'Y	4
16	—	—	—
⚠*17	2339554018	POWER TRANS	1
18	4450033005	WIRE CLAMP BAND	5
19	1139072102	PUSH KNOB (L)	1
20	AF71A08	FRONT PANEL SUB ASS'Y	1
⊙21	1419014204	WINDOW	1
⊙22	1149006401	INNER PANEL	1
⊙23	5139146131	SHEET	1
24	1149005004	PUSH KNOB	7
25	4029001002	PUSH LATCH	1
26	AD70A05	DOOR SUB ASS'Y	1
⊙27	4019001407	HINGE (R)	1
⊙28	4019002406	HINGE (L)	1
29	1139088002	PUSH KNOB ASS'Y (P)	1
30	1129028108	KNOB	2
31	1129027109	KNOB	4
32	1129012127	VR KNOB ASS'Y	1
33	1129024005	VR KNOB (LEVEL)	1
34	1469063108	ESC PLATE	2
35	1029015224	TOP COVER	1
36	1229006017	SPACER	1
*37	5138266009	DANGEROUS MARK	2
38	—	—	—
39	—	—	—
40	4149017031	SAFETY PLATE	1
*41	5139148045	FUSE LABEL	1
42	—	—	—
43	1229013013	SPACER	2
44	4770224002	SP WASHER	2
45	5139155009	NOTICE SHEET	1
46	4129185006	PLATE	2
47	2048191005	HEADPHONES JACK	1
48	2124447000	1P PUSH SWITCH (DEFEAT)	1
49	2119022029	V1620 V25 FC104K 100kohms BASS VR	1
50	2119022029	V1620 V25FC 104K 100kohms Treble VR	1
51	2119028007	V1620 V25 FB104 100kohms Loudness VR	1
52	2119021004	V16 V25 FB254T 250kohms Balance VR	1
53	2119044010	V1640 V35 F--- Main VR	1
54	2050150005	4P CONNECTOR BASE	4
55	2050152003	6P CONNECTOR BASE	1
56	2050274004	2P CONNECTOR BASE	2
57	2119032006	V1620 V15 KB104 Headphones VR 100kohms	1
58	2048178002	1P PIN JACK	2
59	2050240009	3P CONNECTOR BASE	1
60	2124149010	PUSH SWITCH TS001～ 007	7
⚠ 61	2124409006	1P PUSH SWITCH (POWER)	1
62	2048101008	2P POWER JACK (REMOTE)	1



SIGNAL LINE

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 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.

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