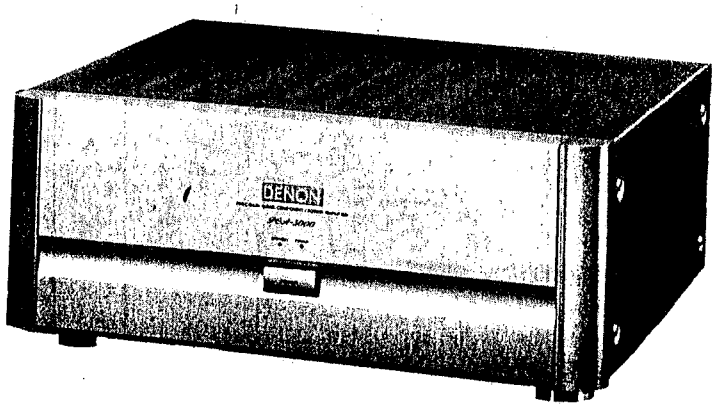
DENON

Hi-Fi Component

SERVICE MANUAL

MODEL POA-5000

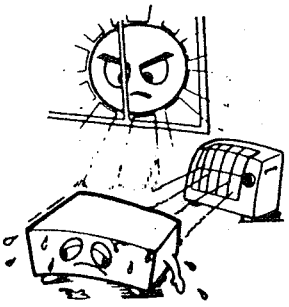
STEREO POWER AMPLIFIER



—TABLE OF CONTENTS —

NIPPON COLUMBIA CO., LTD.

NOTE ON USE

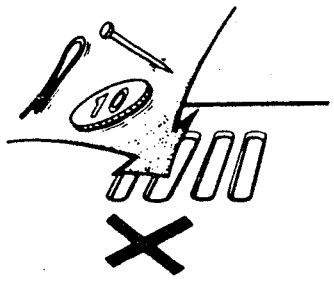


Be careful of high temperatures

- Do not place the set in a location where it will be exposed to direct sunlight or near a heating appliance.

Caution on rack/cabinet installation

- Avoid installing the set in a closed-type rack.
- When installing in a rack or cabinet, provide a sufficiently large ventilation opening to promote heat radiation.

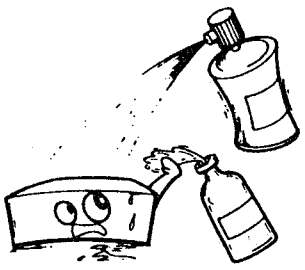


Do not allow foreign matter into the equipment

- Be especially careful of needles, hair pins, and coins getting into the set.

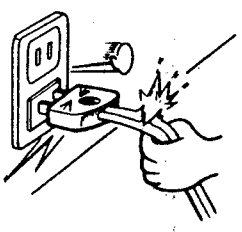
Caution on humidity, water, and dust

- Do not place the set in a location where there is high humidity or a lot of dust.
  Flower vases or other items containing water should not be placed on top of the set.



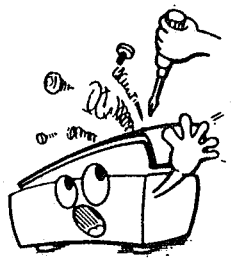
Care of the case

- Avoid the use of pesticides near the set as well as wiping the case with benzine, thinner or other solvents since they may cause a change in quality or color. Use a soft cloth when wiping away dirt and follow the instructions carefully when using chemically treated cloths.



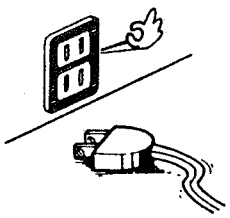
Care with the power cord

- When removing the plug from the receptacle, do not pull the power cord; be sure to hold the plug when removing it.



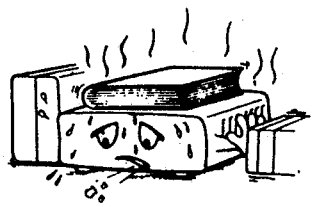
Do not open the case

- Opening the top cover or the bottom plate of the case and inserting your hand is dangerous. Do not open the case.
  If some trouble arises with the performance of the set, remove the power plug soon and contact the store where the set was purchased or a nearby dealer.



During your absence

- When not using the set for an extended period such as when taking a trip, be sure to disconnect the plug from the receptacle.



For sets with ventilation holes

Do not block the ventilation holes of the set

- Blocking of the ventilation holes will lead to damage of the set.
- The ventilation holes are very important for heat radiation from within the set. Care must be taken since placing an object against the holes will result in an extreme rise of temperature within the set.

INSTALLATION PRECAUTIONS

Install the POA-5000 horizontally. Leave at least 15 cm of space between this unit and other components on top of the amplifier.

Protective Circuit
This set is equipped with a high speed protective circuit. This circuit protects the internal circuitry from damage due to large currents flowing when the speaker jacks are not completely connected or when an output is generated by a short circuit. This protective circuit's operation cuts off the output to the speakers. In such a case, be sure to turn the power to the set off and check the connections to the speakers. Then turn the power on again. After muting for several seconds, the set will opreate normally.

Please check to make sure the following items are included with the main unit in the carton:

(1) Operating Instructions 1
(2) Remote connecting cable 1

SPECIFICATIONS

■ POWER AMPLIFIER SECTION

• **Rated output power:**	STEREO:	FRONT	100 W + 100 W (8 ohms load, T.H.D. 0.02%)
			140 W + 140 W (6 ohms load)
		CENTER	50 W + 50 W (8 ohms load, T.H.D. 0.02%)
			70 W + 70 W (6 ohms load)
		REAR	50 W + 50 W (8 ohms load, T.H.D. 0.02%)
			70 W + 70 W (6 ohms load)
	MONAURAL:	FRONT	200 W (8 ohms load, T.H.D. 0.02%)
		CENTER	100 W (8 ohms load, T.H.D. 0.02%)
		REAR	100 W (8 ohms load, T.H.D. 0.02%)
• **Total harmonic distortion:**	STEREO/MONAURAL:		0.008% (20 Hz ~ 20 kHz, –3 dB at rated output, 8 ohms)
• **Intermodulation distortion:**	STEREO/MONAURAL:		0.005% or less (7 kHz/60 Hz = 1/4 at a load of 8 ohms and amplitude output equivalent to the rated output)
• **Power bandwidth:**	STEREO/MONAURAL:		5 Hz ~ 50 kHz (T.H.D. 0.05%, –3 dB at rated output, 8 ohms)
• **Frequency response:**	STEREO:		1 Hz ~ 100 kHz (At a load of 8 ohms and 1 W output)
	MONAURAL:		2 Hz ~ 80 kHz (At a load of 8 ohms and 1 W output)
• **Input sensitivity:**	STEREO:		1 V
	MONAURAL:		0.7 V
• **Input impedance:**	STEREO:		47 kohms
	MONAURAL:		47 kohms
• **Output impedance:**	STEREO:		0.08 ohms (1 kHz)
	MONAURAL:		0.16 ohms (1 kHz)
• **S/N ratio (IHF a Network):**	STEREO:		118 dB
	MONAURAL:		113 dB

■ GENERAL

• **Power supply:**	AC 120 V/60 Hz (for U.S.A. model)
	AC 110/220 V 50/60 Hz (for multi-voltage model)
• **Power consumption:**	6.0 A (for U.S.A. model)
	450 W (for multi-voltage model)
• **Dimensions:**	434 (W) × 185 (H) × 415 (D) mm
	(17-3/32") × (7-9/32") × (16-11/32")
• **Weight:**	24.2 kg (53 lbs 6 oz)

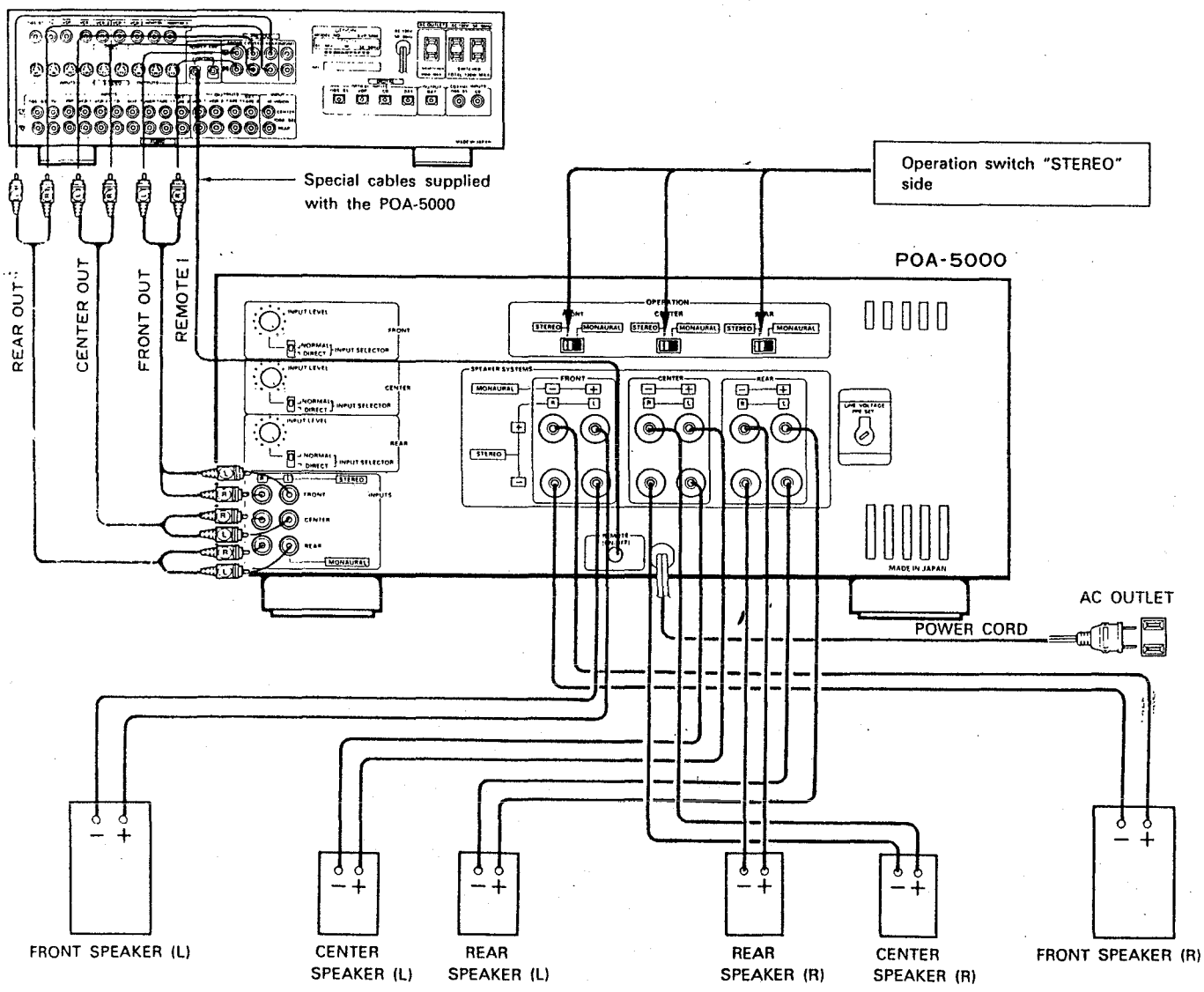
* Specifications and design are subject to change without notice for the purpose of improvement.

CONNECTIONS

[When used for stereo operation]

Preamplifiers for surround and other reproduction equipment

AVP-5000 connection examples (When connecting another preamplifier, see the accompanying instruction manual.)



Precautions When Making Connections

- Do not plug the power cord into the power outlet until all the connections have been completed.
- After checking the left and right channels, make proper connections: L with L, and R with R.
- Insert the plugs securely. Incomplete connections will cause noise to be generated.
- Note that bundling pin-plug cords with the power cord or placing pin-plug cords close to the power transformer might lead to the occurrence of hum or noise.

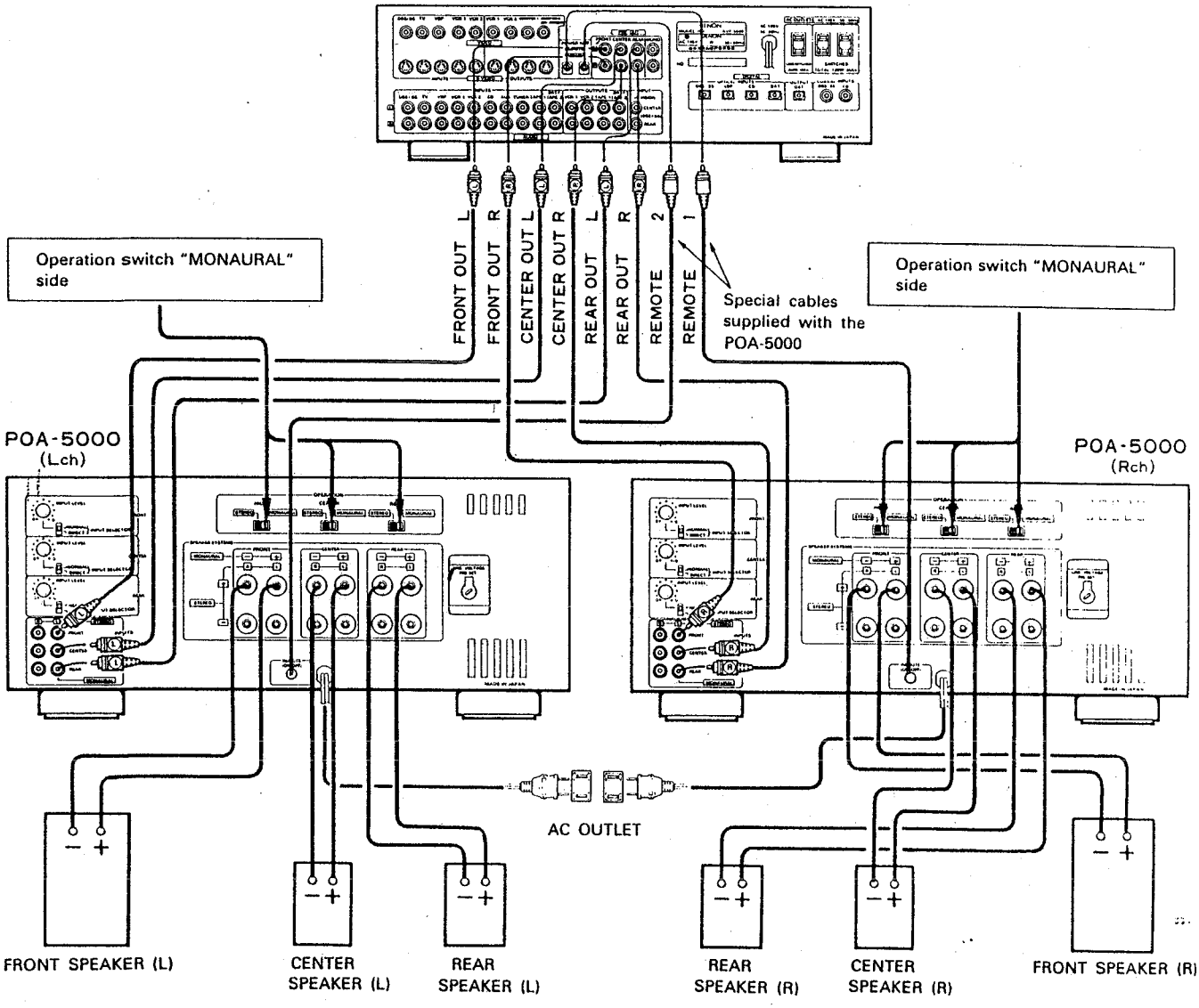
NOTE:

- Be sure to switch off the power before changing the position of the operation switch.
- The connection method for the speakers will differ with stereo and monaural operation.
- When the settings of the operation switches are made separately for each of FRONT, CENTER, and REAR, the input and speaker output connections must be made to match the stereo/monaural operation of the various sections.

[When used for monaural operation]

Preamplifiers for surround and other reproduction equipment

AVP-5000 connection examples (When connecting another preamplifier, see the accompanying instruction manual.)



① Peel the insulation off the end of the cord.

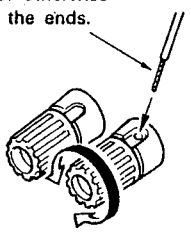
② Twist the conductors

③ Turn the speaker terminals counterclockwise to loosen them.

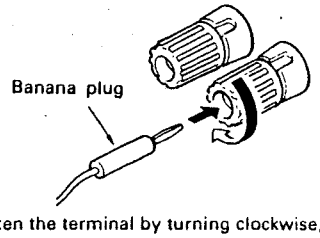
④ Insert the conductor section of the cord all the way into the terminal and tighten the terminal in the clockwise direction.

Speaker Terminal Connections

Twist the conductors tightly or otherwise process the ends.



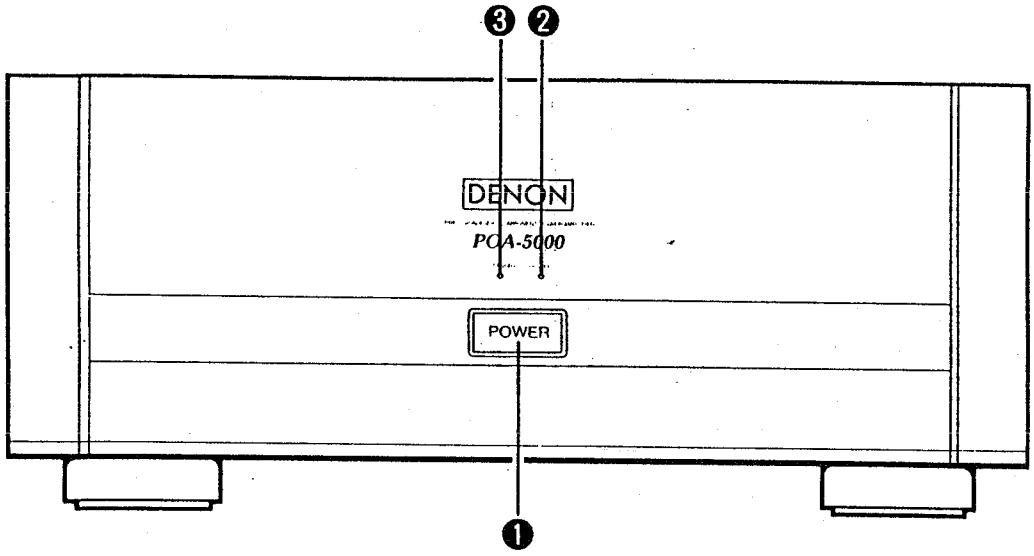
Banana Plug Connections



Tighten the terminal by turning clockwise, then insert the banana plug.

NAMES AND FUNCTIONS OF THE PARTS

Front Panel



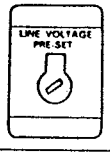
1 POWER (Power switch)
Pressing this switch causes the POWER indicator 2 to light and the power to be switched on. The muting circuit will operate for several seconds to prevent the noise that arises when the power is switched on, then the amplifier will enter the normal operating condition.
Connecting the output of a DENON component equipped with a REMOTE output to REMOTE input 9 of the rear panel in this condition (using the remote cable supplied with this amplifier) will allow the operating condition of the amplifier to be switched to standby or normal operation, synchronized with the power on/off state of the component at the other side. Pressing the POWER switch once again will cause the indicator to go off and the power to be switched off.

2 POWER (Power indicator)
The indicator lights up (red) when the power is on and goes off when the power is switched off.

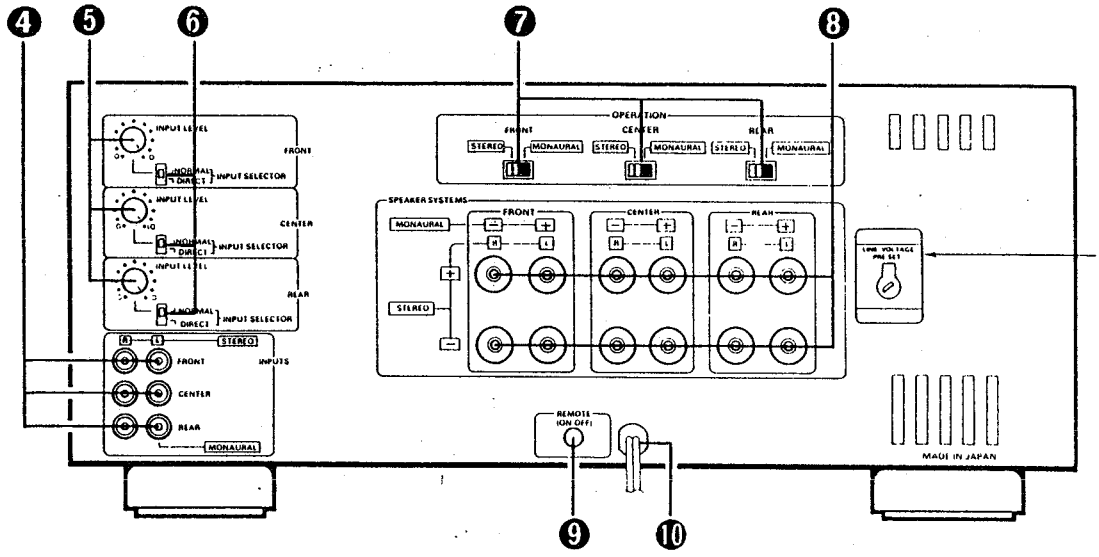
3 STANDBY (Standby display)
This indicator lights up (orange) to indicate the standby condition when the power is switched off with the component of the other side which is connected with the remote cable.

NOTE:
- When you will be away for a long period such as when on a trip, set the POWER switch of this amplifier to the off position, rather than use the standby condition.

- **LINE VOLTAGE (Voltage select switch) . . . For Multi-voltage model only.**
  - The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the back panel using a screw driver.
  - Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
  - If the voltage select switch does not turn smoothly, see qualified serviceman.



Rear Panel



❹ INPUTS (Input jacks)

These are the input jacks for each of the FRONT, CENTER, and REAR sections. Make connections to correspond with each output of an AV surround preamplifier, etc.
When OPERATION switch ❼ is set to MONAURAL, the left channel side becomes a monaural input jack. Do not connect the right channel side at this time.

❺ INPUT LEVEL (Input level controls)

These controls are used to adjust the input level of each of the inputs: FRONT, CENTER, and REAR.

❻ INPUT SELECTOR (Input selection switches)

Set to the "NORMAL" side when using the INPUT LEVEL controls ❺. This allows input level adjustments to be made. Setting to the "DIRECT" side makes the input signal bypass the input level control and applies the signal directly to the power amplifier to provide even higher quality reproduction.

❼ OPERATION (Operation switch)

This switch provides switching between stereo and monaural operation to correspond with each input of the FRONT, CENTER, and REAR sections.

NOTE:
- This amplifier permits a bridged connection (BTL) of the 2 amplifiers (of the left and right channels) for monaural operation which uses a positive and negative polarity amplifier.

- **"STEREO"**
  The amplifier is set to this position before being shipped from the factory. This setting provides 2-channel (left and right) stereo operation for each input.
- **"MONAURAL"**
  This setting uses the monaural input jack (left channel side) for monaural operation with each input.

NOTE:
- The switches are equipped with covers to prevent erroneous operation. Use a flat-bladed screwdriver with a thin tip from the space at the top side, and be sure to perform the switching with the power off.
- Note that the connection method of the input jacks and the speaker terminals will differ depending on stereo or monaural operation. (See the connection diagrams on Pages 6 and 7.)
- This amplifier contains a 2-channel power amplifier for each of the FRONT, CENTER, and REAR sections for a total 6- channel structure. Selection of stereo or monaural operation with each OPERATION switch allows this amplifier to be used as a 6-, 5-, 4-, or 3-channel power amplifier.

❽ SPEAKER SYSTEM (Speaker connection terminals)

Connect the speaker cords here. Be sure to connect the same polarity speaker system and amplifier speaker terminal (that is, (+) with (+), and (–) with (–)).

NOTE:
- The speaker connection method will differ for stereo and monaural operation. (See the connection diagrams on Pages 4 and 5.)

❾ REMOTE (Power Supply Remote Input Jack)

Connect this jack with a DENON component equipped with a REMOTE (power supply remote output) jack. Use the special cable supplied with this amplifier for the connections.

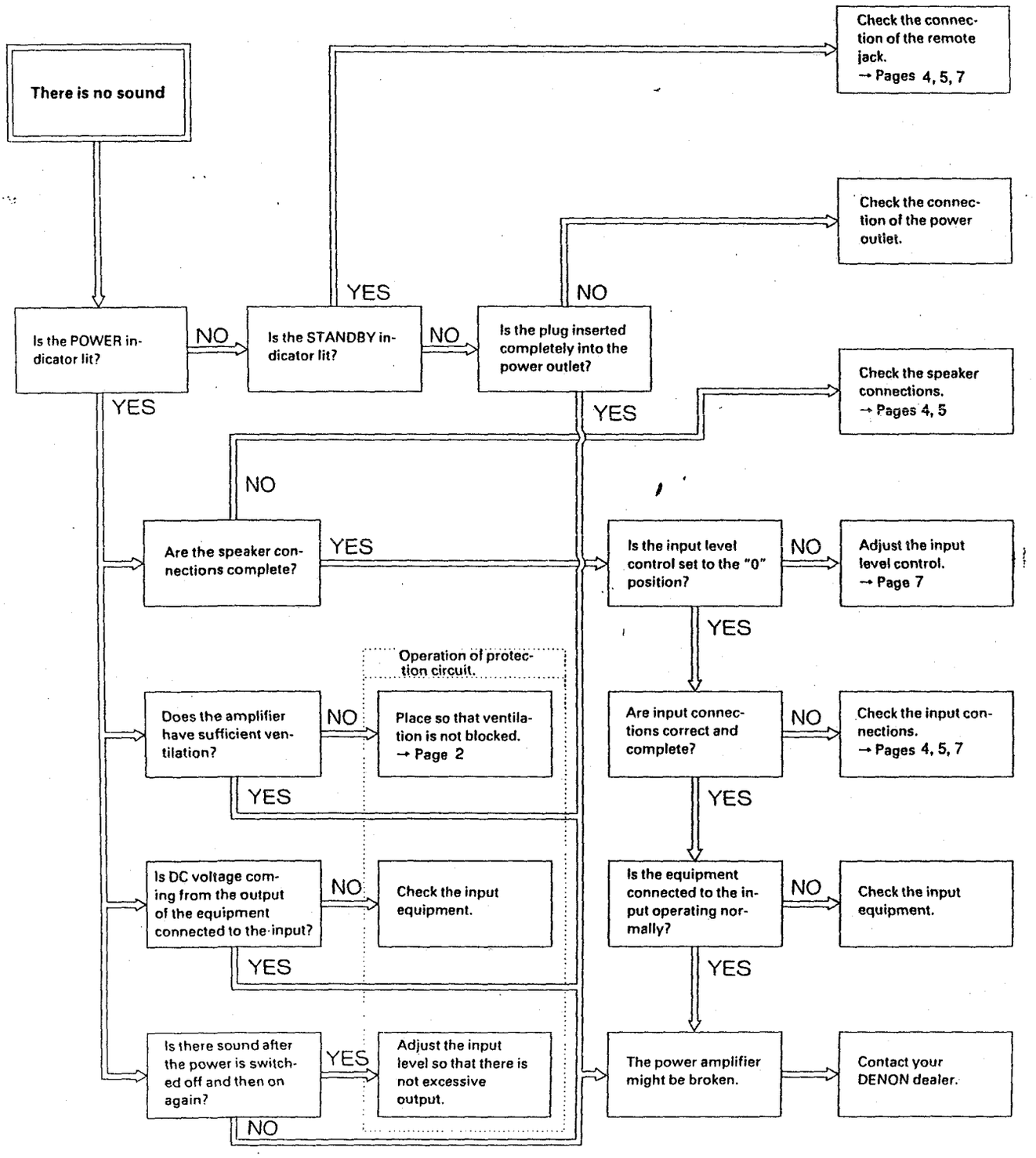
❿ Power Cord

Plug this cord into the power outlet.

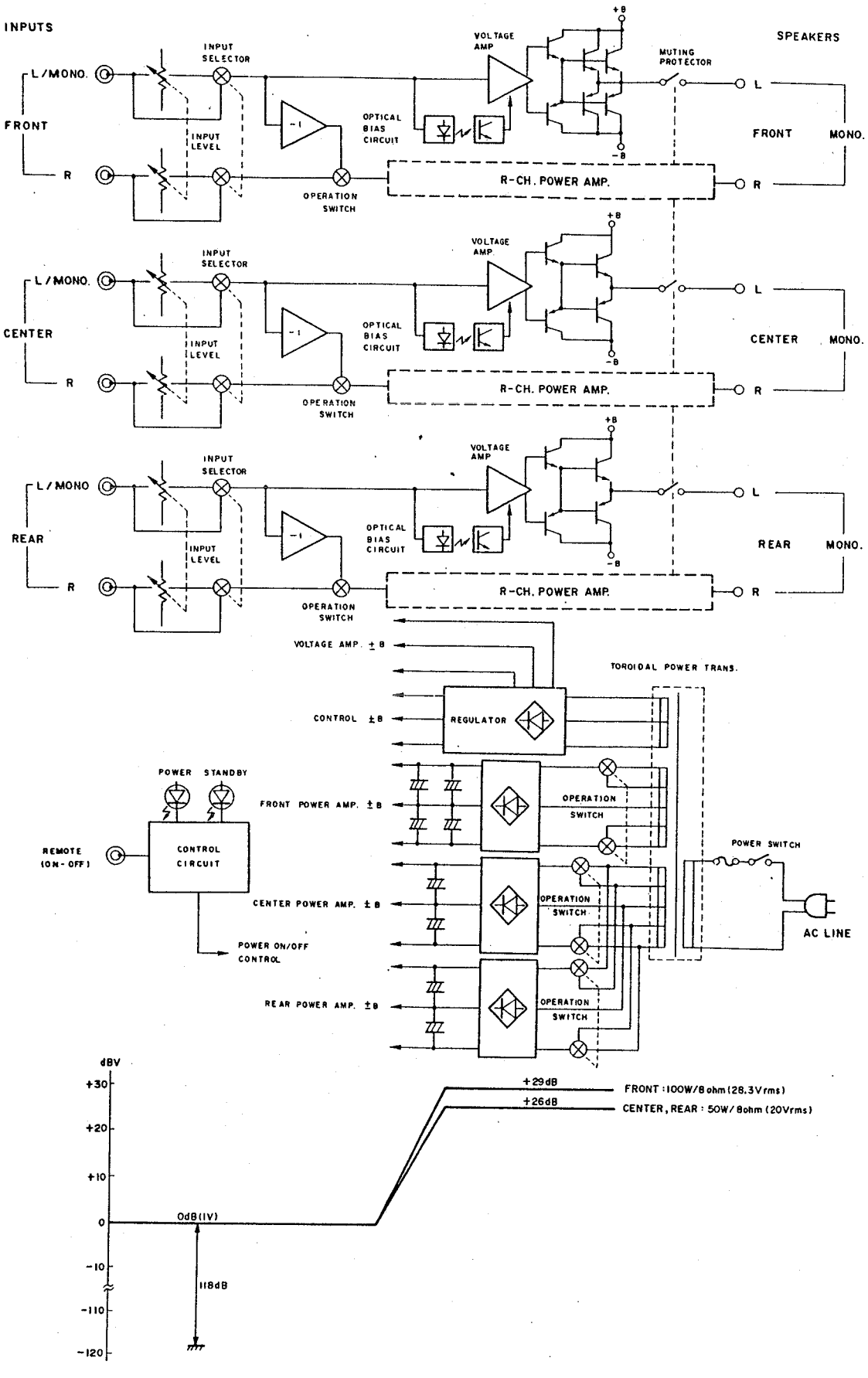
TROUBLESHOOTING

1. Have all connections been made PROPERLY?
2. Have you followed all operational instructions correctly?
3. Check speaker and the preamplifier systems for proper operation.

When your unit does not seem to be operating correctly, first check the items in the following table. If the symptom does not correspond to any of the problems as shown below, turn off the power sources immediately and contact your DENON dealer.



BLOCK & LEVEL DIAGRAM

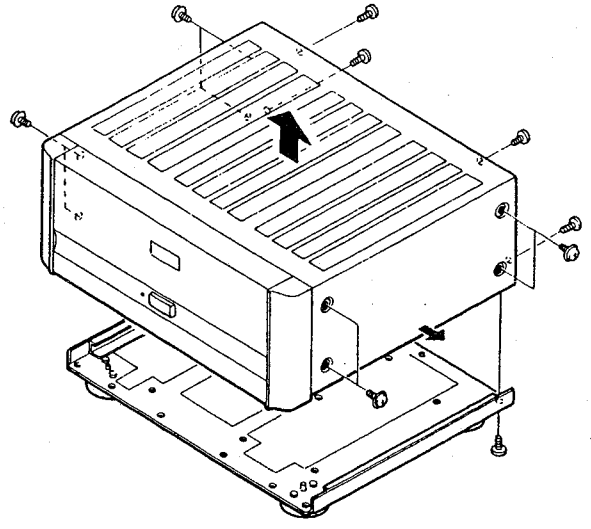


DISASSEMBLY INSTRUCTIONS

1. Top Cover and Bottom Cover

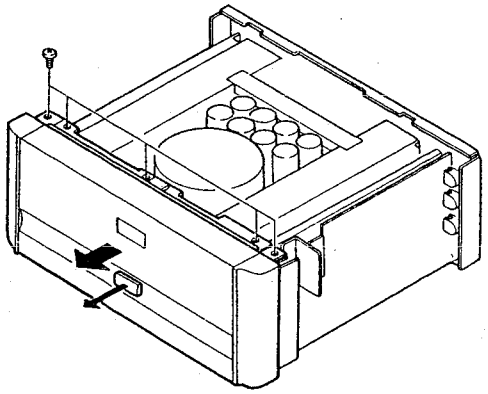
1) Remove 8 screws on both sides and 4 screws on rear side. Stretch side plates of Top Cover sidewise, and pull up Top Cover in arrow direction.
2) Remove 20 screws and detach Bottom Cover.

Note) 8 Zine coated screws are attached on right and left of Bottom Cover. Do not remove those screws.



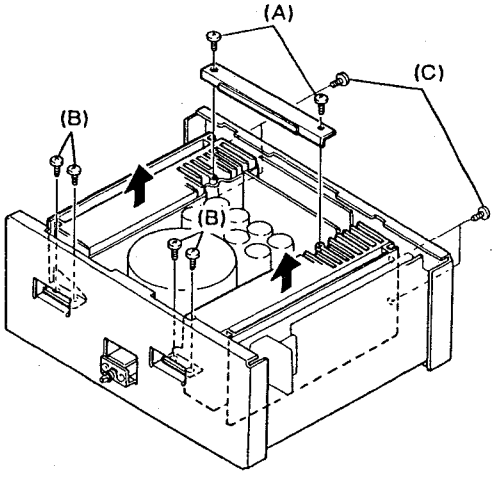
2. Front Panel

After pulling out power switch knob to front, remove 5 upper screws on Front Panel and pull Front Panel in arrow direction.



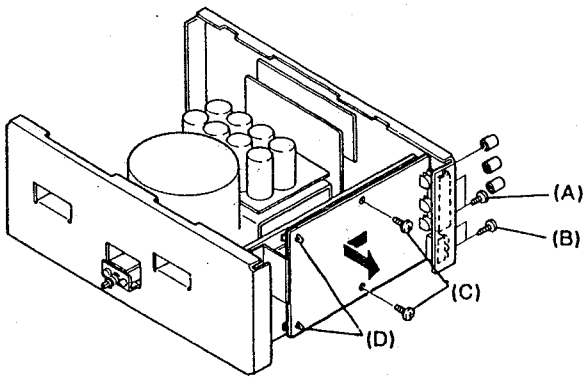
3. Power Unit (Left/Right)

Remove 2 screws (A) and detach Heat sink tank supporter. Secondly, remove 4 front screws (B) and 4 rear screws (C), then detach left and right Power Unit in arrow direction respectively.



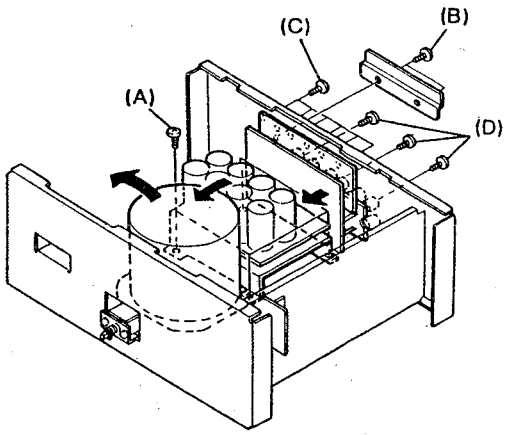
4. Input P.W.B.

1) Take off 3 knobs of volume knob (FRONT, CENTER, REAR) of input level which is located on rear side.
2) Remove rear 2 screws (A) fixing input volume holder to body, and remove 2 rear screws(B) fixing input terminal (RCA Jack).
3) Remove 2 screws (C) fixing input P.W.B. and detach P.W.B. from holder (D) on two places. Then pull out P.W.B. in arrow direction.



5. Power Unit and Speaker Terminal

1) Remove 8 screws fixing power transformer.
2) Remove 4 screws (A) of holder fixing power P.W.B.
3) Remove rear 2 screws (B) and detach switch guard of operation switch.
4) Remove 6 screws (C) fixing operation switch.
5) Remove 3 screws (D) fixing Speaker terminal.
6) Remove terminals of transformer, power unit, and speaker in arrow direction.



ADJUSTING AND CHECKING

- Adjustment of idling current.
  1) Measurement instruments required for adjustment.

* Digital voltmeter *Low frequency oscillator

2) Preset

1)Place the unit where having normal use conditions avoiding abnormally ventilated places such as nearby electric fans.

2)Set knobs, switches and others as follows:

- POWER (Power switch) → OFF (⏻)
- Rear side INPUT LEVEL (Volume control knob) → (↺minimum)
- Rear side SPEAKER SYSTEM (Speaker terminal) → No load (no connection with speakers, dummy resistors, etc.)
- Rear OPERATION SWITCH (Operation shifting switch) → STEREO

3) Adjustment

1)Initial setting.

- Remove Top Cover and set semi-fixed volume of Power Amplifier (1U-2236-1,-2),VR501, 502, 503, 504, 601, 602, 603, 604, 701, 702, 703, 704 at center position.

2)Idling current adjustment.

- Connect DC voltmeter to each test point (T.P.) of FRONT, CENTER,REAR and each of L/R channels, and turn Power switch "ON" (⏻) and turn semi-fixed volume for each channel to set to voltage values in Table 1.

Table 1

Adjust channel		Adjust spot	Test point	Adjust voltage value (DC)	
				Immediately after power ON	After 10 min.
FRONT	L	VR501	FRONT-L	1±0.5mV	10±1mV
	R	VR502	FRONT-R	1±0.5mV	10±1mV
CENTER	L	VR601	CENTER-L	1±0.5mV	4±1mV
	R	VR602	CENTER-R	1±0.5mV	4±1mV
REAR	L	VR701	REAR-L	1±0.5mV	4±1mV
	R	VR702	REAR-R	1±0.5mV	4±1mV

Note)Adjust voltage value between test points denotes the absolute value.

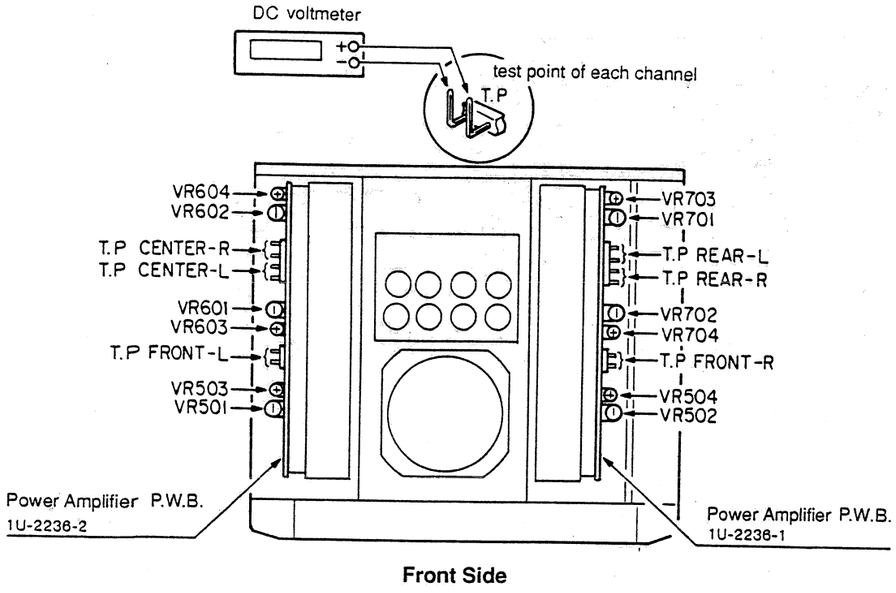
3)Adjustment of "Optical class A " idling current.

- Connect low frequency oscillator to each input terminal of each L/R channel of FRONT,CENTER,REAR, and input sine wave of 50m Vrms 1KHz.
- Set rear side INPUT LEVEL volume maximum (↻) at that time confirm that indication of DC voltmeter are increasing by steps from the adjust values in Table I.
- Adjust voltage of each channel according to Table 2.

Adjust channel		Adjust spot	Test point	Adjust voltage value (DC)	
				Immediately after the increase	After 10 min.
FRONT	L	VR503	FRONT-L	40±5mV	55±2mV
	R	VR504	FRONT-R	40±5mV	55±2mV
CENTER	L	VR603	CENTER-L	45±5mV	60±2mV
	R	VR604	CENTER-R	45±5mV	60±2mV
REAR	L	VR703	REAR-L	45±5mV	60±2mV
	R	VR704	REAR-R	45±5mV	60±2mV

Note)Adjust voltage value between test points denotes the absolute value.

Table 2



Front Side

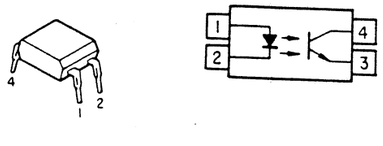
- Confirmation of neutral point voltage.

1)Connect a DC voltmeter to speaker terminal.
2)Turn power on for the unit.
3)Set rear side INPUT LEVEL volume at maximum (↻).
4)Confirm that voltage of digital voltmeter is within the range of ±100 mV (for each channel L/R).

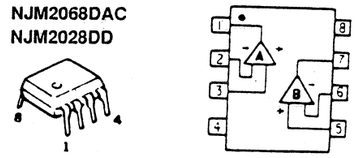
SEMICONDUCTORS

● IC

TLP521-1 (BL)

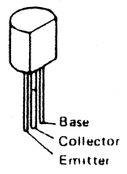


NJM4558DD
NJM2068DAC
NJM2028DD

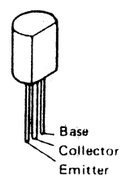


● Transitors

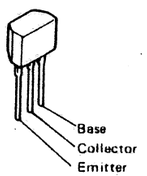
2SA988 (E/F)
2SC1841 (E/F)
2SD1111



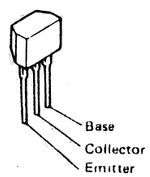
2SA1145 (O)/(Y)
2SC4208A
2SD667A (C)
2SC2705 (O)/(Y)



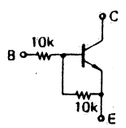
2SA1048 (GR)
2SC2458 (BL)



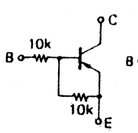
RN1202 (10k-10k)
RN1205 (2.2k-47k)
RN2202 (10k-10k)



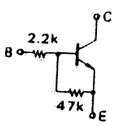
RN1202



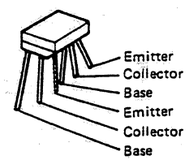
RN2202



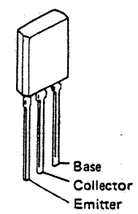
RN1205



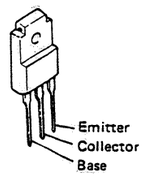
2SA1240 (F/G)



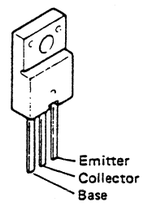
2SD2004 (P)
2SB1328 (P)



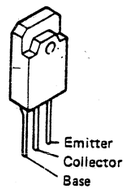
2SD1944
2SB1287



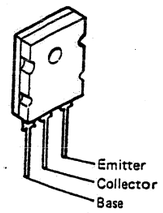
2SD1763A (D)
2SB1186A (D)



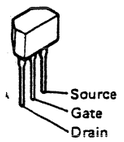
2SA1492LB (O/P/Y)
2SC3856LB (O/P/Y)



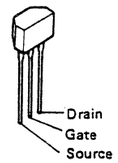
2SA1302 (R/O)
2SC3281 (R/O)



2SK184C (GR)/(BL)

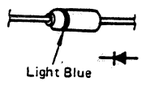


2SK381 (B/C)

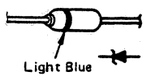


● Diode (included LED)

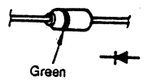
1S2076A
1SS270A



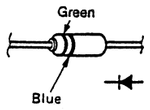
HZ5C-1 **HZ18-1**
HZ9B-2 **HZS2B-1**
HZ12A-2 **HZS15-2**



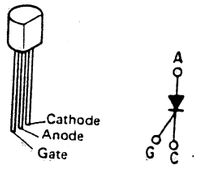
1SS198



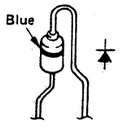
1SS82



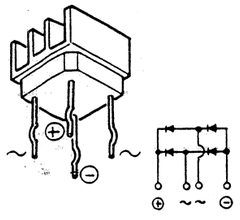
SFOR1A42
Thyristor



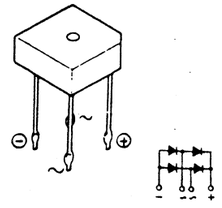
1SR35-200A



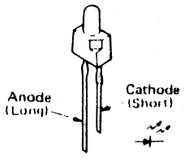
S10VB20F-15



S10VB20

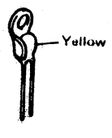


SEL-4117R (Red)
SEL-4917D (Org)

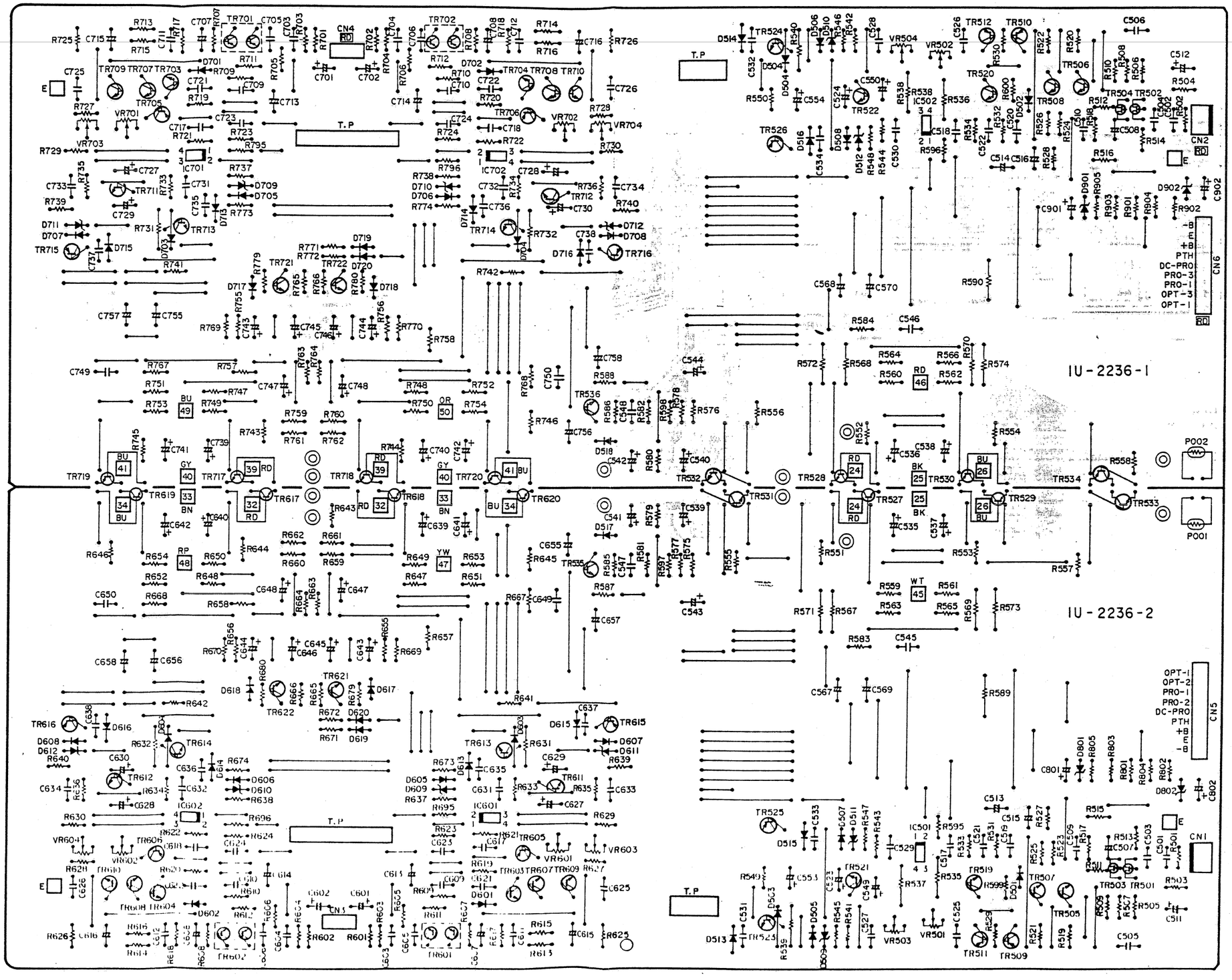


● OTHERS

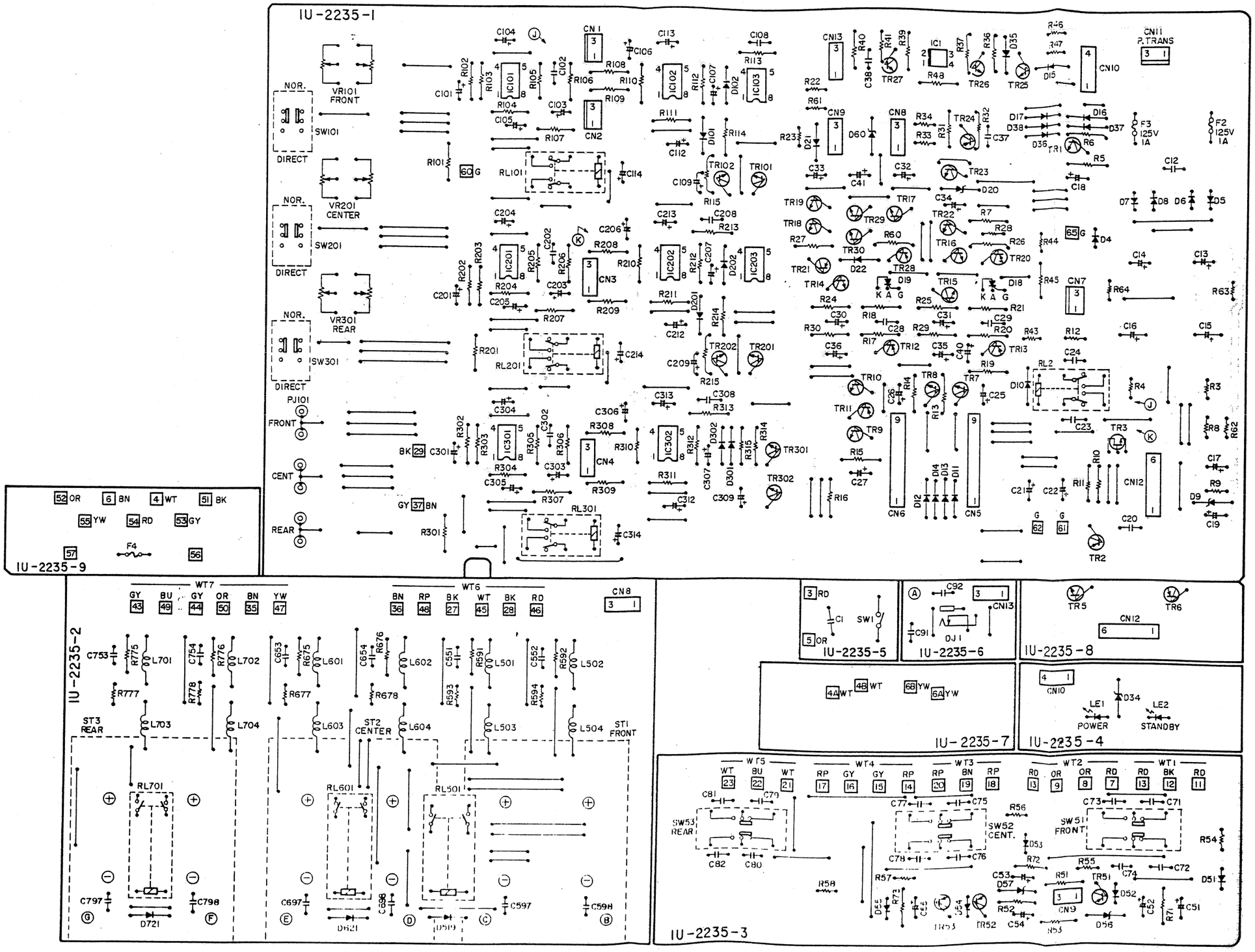
PTH487A01BD222TS



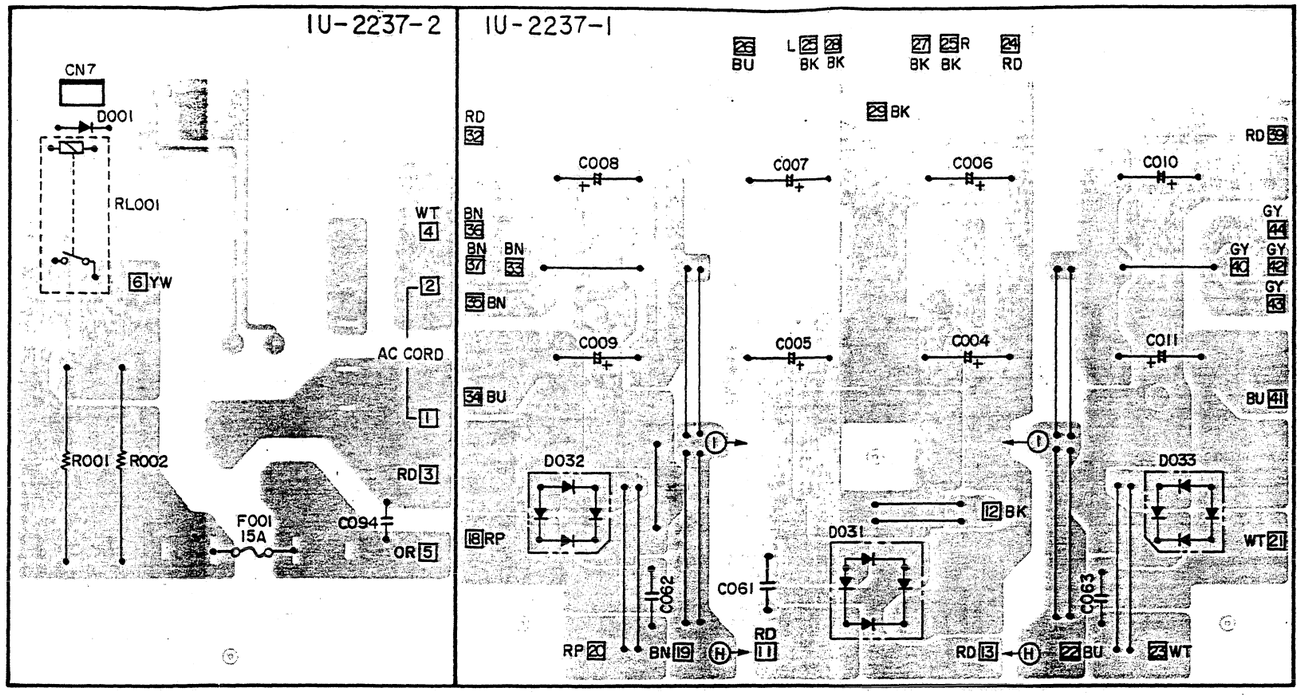
P.W.BOARD OF 1U-2236 POWER AMPLIFIER UNIT



P.W.BOARD OF 1U-2235 INPUT/CONTROL UNIT



P.W.BOARD OF 1U-2237 POWER SUPPLY UNIT



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 "l" (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 ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic 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
1 8 2 ⇒ 1800 ohm = 1.8 kohm
Indicates number of zeros after effective number
2-digit effective numver, decimal point indicated by R.
• Units: ohm

• Capasitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capasity) M (Allowable error) 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 : Tantalm electrolite	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	Z : −20%	C : CSA part	
CM : Mica	2B : 125V	P : +100% −0%	W : UL-CSA type	
CF : Metallized	2C : 160V	C : ±0.25pF	F : Lead wire forming	
CH : Metallized	2D : 200V	D : ±0.5pF		
	2E : 250V	= : Others		
	2H : 500V			
	2J : 630V			

Capasity
2 R 2 ⇒ 2.2μF
1-digit effective number, decimal point indicated by R.
2-digit effective numver, decimal point indicated by R.
• Units: μF, (for P, pF (μμF))
• When the dielectric strength is indicated in AC, "AC" is included after

1U-2236 POWER AMP UNIT PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC501,502	262 0874 009	IC TLP521-1(BL)	
601,602			
701,702			
TR501~504	275 0055 015	Transistor 2SK184C(GR)/(BL)	
TR505~508	273 0265 923	Transistor 2SC1841(E/F)	
TR509~512	273 0281 906	Transistor 2SC2705(O)/(Y)TPE6	
TR519,520			
TR521,522	273 0380 001	Transistor 2SC4208A	
TR523,524	274 0158 003	Transistor 2SD1763A(D)	
TR525,526	272 0115 008	Transistor 2SB1186A(D)	
TR535,536	273 0281 906	Transistor 2SC2705(O)/(Y)TPE6	
TR601,602	271 0253 006	Transistor 2SA1240F/G	
TR603~610	273 0281 906	Transistor 2SC2705(O)/(Y)TPE6	
TR611,612	273 0380 001	Transistor 2SC4208A	
TR613,614	274 0151 000	Transistor 2SD2004(P)	
TR615,616	272 0107 003	Transistor 2SB1328(P)	
TR621,622	273 0265 923	Transistor 2SC1841(E/F)	
TR701,702	271 0253 006	Transistor 2SA1240F/G	
TR703~710	273 0281 906	Transistor 2SC2705(O)/(Y)TPE6	
TR711,712	273 0380 001	Transistor 2SC4208A	
TR713,714	274 0151 000	Transistor 2SD2004(P)	
TR715,716	272 0107 003	Transistor 2SB1328(P)	
TR721,722	273 0265 923	Transistor 2SC1841(E/F)	

Ref. No.	Part No.	Part Name	Remarks
D501,502	276 0432 903	Diode 1SS270A TE	
D503,504	276 0049 914	Diode 1S2076A TE	
D505~508	276 0503 900	Diode 1SS198 TE	
D509~512	276 0450 901	Zener Diode HZS2B-1TD	
D513~516	276 0565 003	Diode 1SS82	
D517,518	276 0432 903	Diode 1SS270A TE	
601,602			
D603,604	276 0049 914	Diode 1S2076A TE	
D605~608	276 0503 900	Diode 1SS198 TE	
D609~612	276 0450 901	Zener Diode HZS2B-1TD	
D613~616	276 0565 003	Diode 1SS82	
D617~620	276 0432 903	Diode 1SS270A TE	
701,702			
D703,704	276 0049 914	Diode 1S2076A TE	
D705~708	276 0503 900	Diode 1SS198 TE	
D709~712	276 0450 901	Zener Diode HZS2B-1TD	
D713~716	276 0565 003	Diode 1SS82	
D717~720	276 0432 903	Diode 1SS270A TE	
D801,802	276 0476 914	Zener Diode HZS15-2TD	
901,902			
RESISTOR GROUP (Not included Carbon Film, ±5% 1/4W type)			
⚠R503,504	241 2381 904	Carbon 3.3Kohm 1/4W (N.B)	RD14B2E332JNBS
⚠R505~508	241 2381 946	Carbon 4.7Kohm1/4W (N.B)	RD14B2E472JNBS

Ref. No.	Part No.	Part Name	Remarks
⚠R515,516	241 2379 987	Carbon 1Kohm1/4W (N.B)	RD14B2E102JNBS
⚠R519~522	241 2379 903	Carbon 470ohm 1/4W (N.B)	RD14B2E471JNBS
⚠R523~526	241 2376 964	Carbon 47ohm 1/4W (N.B)	RD14B2E470JNBS
⚠R527,528	241 2380 921	Carbon 1.5Kohm 1/4W (N.B)	RD14B2E152JNBS
⚠R529,530	241 2377 934	Carbon 91ohm 1/4W (N.B)	RD14B2E910JNBS
⚠R531~534	241 2377 947	Carbon 100ohm 1/4W (N.B)	RD14B2E101JNBS
⚠R541,542	241 2381 904	Carbon 3.3Kohm 1/4W (N.B)	RD14B2E332JNBS
⚠R543,544	241 2379 987	Carbon 1Kohm 1/4W (N.B)	RD14B2E102JNBS
⚠R549,550	241 2378 920	Carbon 220ohm 1/4W (N.B)	RD14B2E221JNBS
⚠R551~558	241 2387 940	Carbon 4.7ohm 1/4W (N.B)	RD14B2E4R7JNBS
⚠R556,559	244 2043 982	Metallic Film 0.22ohm 1W (N.B)	RS14B3AR22JST
⚠R574~578	241 2377 947	Carbon 100ohm 1/4W (N.B)	RD14B2E101JNBS
⚠R579,580	241 2376 977	Carbon 51ohm 1/4W (N.B)	RD14B2E510JNBS
⚠R583,584	244 2050 904	Metal Oxide Film 22ohm 1W (N.B)	RS14B3A220JST
⚠R585,586	241 2382 903	Carbon 8.2Kohm 1/4W (N.B)	RD14B2E822JNBS
⚠R597,598	241 2380 921	Carbon 1.5Kohm 1/4W (N.B)	RD14B2E152JNBS
⚠R599,600	244 2052 999	Metal Oxide Film 10Kohm 1W (N.B)	RS14B3A103JST
⚠R611,612	241 2379 987	Carbon 1Kohm 1/4W (N.B)	RD14B2E102JNBS
⚠R613~616	241 2381 946	Carbon 4.7Kohm 1/4W (N.B)	RD14B2E472JNBS
⚠R619,620, 623,624	241 2379 929	Carbon 560ohm 1/4W (N.B)	RD14B2E561JNBS
⚠R625,626	241 2378 959	Carbon 300ohm 1/4W (N.B)	RD14B2E301JNBS
⚠R633~636	241 2377 947	Carbon 100ohm 1/4W (N.B)	RD14B2E101JNBS
⚠R641,642	241 2378 962	Carbon 330ohm 1/4W (N.B)	RD14B2E331JNBS
⚠R643~646	241 2387 908	Carbon 1ohm 1/4W (N.B)	RD14B2E010JNBS
⚠R647~654	244 2055 912	Metal Oxide Film 0.47ohm 1W (N.B)	RS14B3AR47JST
⚠R659~662	241 2377 947	Carbon 100ohm 1/4W (N.B)	RD14B2E101JNBS
⚠R663,664	241 2376 977	Carbon 51ohm 1/4W (N.B)	RD14B2E510JNBS
⚠R665,666	241 2381 904	Carbon 3.3Kohm 1/4W (N.B)	RD14B2E332JNBS
⚠R667,668	244 2050 904	Metal Oxide Film 22ohm 1W (N.B)	RS14B3A220JST
⚠R669,670	241 2382 903	Carbon 8.2Kohm 1/4W (N.B)	RD14B2E822JNBS
⚠R679,680	241 2380 963	Carbon 2.2Kohm 1/4W (N.B)	RD14B2E222JNBS
⚠R711,712	241 2379 987	Carbon 1Kohm 1/4W (N.B)	RD14B2E102JNBS
⚠R713~716	241 2381 946	Carbon 4.7Kohm 1/4W (N.B)	RD14B2E472JNBS
⚠R719,720	241 2379 929	Carbon 560ohm 1/4W (N.B)	RD14B2E561JNBS
⚠R723,724	241 2379 929	Carbon 560ohm 1/4W (N.B)	RD14B2E561JNBS
⚠R725,726	241 2378 959	Carbon 300ohm 1/4W (N.B)	RD14B2E301JNBS
⚠R733~736	241 2377 947	Carbon 100ohm 1/4W (N.B)	RD14B2E101JNBS
⚠R741,742	241 2378 962	Carbon 330ohm 1/4W (N.B)	RD14B2E331JNBS
⚠R743~746	241 2387 908	Carbon 1ohm 1/4W (N.B)	RD14B2E010JNBS
⚠R747~754	244 2055 912	Metal Oxide Film 0.47ohm 1W (N.B)	RS14B3AR47JST
⚠R759~762	241 2377 947	Carbon 100ohm 1/4W (N.B)	RD14B2E101JNBS
⚠R763,764	241 2376 977	Carbon 51ohm 1/4W (N.B)	RD14B2E510JNBS
⚠R765,766	241 2381 904	Carbon 3.3Kohm 1/4W (N.B)	RD14B2E332JNBS
⚠R767,768	244 2050 904	Metal Oxide Film 22ohm 1W (N.B)	RS14B3A220JST
⚠R769,770	241 2382 903	Carbon 8.2Kohm 1/4W (N.B)	RD14B2E822JNBS
⚠R779,780	241 2380 963	Carbon 2.2Kohm 1/4W (N.B)	RD14B2E222JNBS
⚠R801~805	244 2051 903	Metal Oxide Film 8.2Kohm 1W (N.B)	RS14B3A822JST

Ref. No.	Part No.	Part Name	Remarks
⚠R901~905	244 2051 903	Metal Oxide Film 8.2Kohm 1W (N.B)	RS14B3A822JST
VR501,502	211 6014 072	Variable 10Kohm	V09QB103
VR503,504	211 8005 005	Variable 47Kohm	V06QB473
VR601,602	211 6014 072	Variable 10Kohm	V09QB103
VR603,604	211 8005 005	Variable 47Kohm	V06QB473
VR701,702	211 6014 072	Variable 10Kohm	V09QB103
VR703,704	211 8005 005	Variable 47Kohm	V06QB473
CAPACITORS GORUP			
C501,502	255 4217 907	Plastic Film 100pF/50V	CQ09P1H101JT
C505,506	255 1249 965	Plastic Film 0.0047μF/50V	CQ93M1H472JT
C507,508	254 4356 027	Electrolytic 22μF/50V	CE04W1H220M(ARS)
C509,510	255 6152 031	Polystyrene Film 27pF/250V	CQ09S2E270T
C511,512	254 4356 027	Electrolytic 22μF/50V	CE04W1H220M(ARS)
C513~516	256 1033 035	Metalized 0.47μF/100V	CF93B2A474K(GU)
C517,518	255 4217 907	Plastic Film 10pF/50V	CQ09P1H101JT
C521,522	253 1179 987	Ceramic 470pF/50V	CK45B1H471KT
C523,524	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C525,526	253 4468 909	Ceramic 8pF/500V	CC45SL2H080DT
C527~530	253 1180 947	Ceramic 0.0015μF/50V	CK45B1H152KT
C531~534	253 4484 909	Ceramic 39pF/500V	CC45SL2H390DT
C535~538	254 4291 700	Electrolytic 10μF/100V	CE04W2A100M(AWF)
C539~542	254 4260 993	Electrolytic 22μF/50V	CE04W1H220MT
C543,544	254 4258 947	Electrolytic 47μF/35V	CE04W1V470MT
C545	255 4228 967	Plastic Film 0.01μF/100V	CQ93M2A103JT
C547,548	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C549,550	254 4289 039	Electrolytic 100μF/50V	CE04W1H101M(AWF)
C553,554	254 4296 909	Electrolytic 1μF/160V	CE04W2C010MT
C601,602	254 4304 927	Electrolytic 4.7μF/35V	CE04W1V4R7MT
C603,604	253 4542 003	Ceramic 100pF/50V	CC93CH1H101J
C607,608	254 4356 027	Electrolytic 22μF/50V	CE04W1H220M(ARS)
C609,610	255 6152 073	Polystyrene Film 56pF/250V	CQ09S2E560J
C611,612	255 1249 965	Plastic Film 0.0047μF/50V	CQ93M1H472JT
C613~616	254 3073 903	Electrolytic(Bipolar) 1μF/100V	CE04D2A010MBPT
C617,618	253 4537 966	Ceramic 47pF/50V	CC45SL1H470JT
C623,624	253 4538 907	Ceramic 68pF/50V	CC45SL1H680JT
C625,626	253 4470 900	Ceramic 10pF/500V	CC45SL2H100DT
C627,628	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C629,630	254 4289 039	Electrolytic 100μF/50V	CE04W1H101M(AWF)
C631~634	253 1180 947	Ceramic 0.0015μF/50V	CK45B1H152KT
C635~638	253 4480 903	Ceramic 27pF/500V	CC45SL2H270DT
C639~642	254 4396 906	Electrolytic 100μF/63V	CE04W1J101MT
C643~646	254 4260 993	Electrolytic 22μF/50V	CE04W1H220MT
C647,648	254 4258 947	Electrolytic 47μF/35V	CE04W1V470MT
C649,650	255 4213 972	Plastic Film 0.01μF/50V	CQ93M1H103JT
C655~658	254 3046 901	Electrolytic(Bipolar) 1μF/100V	CE04D2A010MBPT
C701,702	254 4304 927	Electrolytic 4.7μF/35V	CE04W1V4R7MT
C703,704	253 4542 003	Ceramic 100pF/50V	CC93CH1H101J
C707,708	254 4356 027	Electrolytic 22μF/50V	CE04W1H220M(ARS)
C709,710	255 6152 073	Polystyrene Film 56pF/250V	CQ09S2E560J
C711,712	255 1249 965	Plastic Film 0.0047μF/50V	CQ93M1H472JT
C713~716	254 3073 903	Electrolytic(Bipolar) 1μF/100V	CE04D2A010MBPT
C717,718	253 4537 966	Ceramic 47pF/50V	CC45SL1H470JT
C723,724	253 4538 907	Ceramic 68pF/50V	CC45SL1H680JT

1U-2235 INPUT/CONTROL UNIT

Ref. No.	Part No.	Part Name	Remarks
C725,726	253 4470 900	Ceramic 10pF/500V	CC45SL2H100DT
C727,728	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C729.730	254 4289 039	Electrolytic 100μF/50V	CE04W1H101M(AWF)
C731–734	253 1180 947	Ceramic 0.0015μF/50V	CK45B1H152KT
C735–738	253 4480 903	Ceramic 27pF/500V	CC45SL2H270DT
C739–742	254 4396 906	Electrolytic 100μF/63V	CE04W1J101MT
C743–746	254 4260 993	Electrolytic 22μF/50V	CD041H220MT
C747,748	254 4258 947	Electrolytic 47μF/35V	CE04W1V470MT
C749,750	255 4213 972	Plastic Film 0.01μF/50V	CQ93M1H103JT
C755–758	254 3046 901	Electrolytic(Bipolar) 1μF/100V	CE04D2A010MBPT
C801,802	254 4356 027	Electrolytic 22μF/50V	CE04W1H220M(ARS)
C901,902	254 4356 027	Electrolytic 22μF/50V	CE04W1H220M(ARS)
OTHER PARTS			
P001,022	276 0289 004	Posistor	PTH487A01BD222TS
CN001,002	205 0190 036	3P NH Connector Base	
CN003	205 0234 031	3P EH Side Connector Base	
CN004	205 0588 033	3P EH Side Base(Red)	
CN005	205 0233 090	9P EH Connector Base	
CN006	205 0277 098	9P EH Connector Base(Red)	

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC001	262 0847 009	IC Photo Coupler TLP521-1(BL)	
IC101	263 0594 007	IC NJM2068DAC	
IC102	265 0030 004	IC NJM4558D-D	
IC103	263 0654 002	IC NJM2082D	
IC201	263 0594 007	IC NJM2068DAC	
IC202	265 0030 004	IC NJM4558D-D	
IC203	263 0654 002	IC NJM2082D	
IC301	263 0594 007	IC NJM2068DAC	
IC302	265 0030 004	IC NJM4558D-D	
TR001	273 0253 918	Transistor 2SC2878(A/B)TPE2	
TR002	271 0131 924	Transistor 2SA988T(E/F)	
TR003	275 0048 912	FET 2SK381(B)/(C)T	
TR005	274 0138 007	Transistor 2SD1944	
TR006	272 0119 004	Transistor 2SB1287	
TR007–010	273 0317 906	Transistor 2SC2458B(L)TPE4	
TR011	271 0191 916	Transistor 2SA1048(GR)TPE4	
TR013	273 0235 923	Transistor 2SC1841T(E/F)	
TR014,015	269 0025 901	D.Transistor RN1202(10k-10K)T	
TR016	273 0317 906	Transistor 2SC2458(BL)TPE4	
TR017	269 0025 901	D.Transistor RN1202(10k-10K)T	
TR018	273 0317 906	Transistor 2SC2458(BL)TPE4	
TR019	269 0025 901	D.Transistor RN1202(10k-10K)T	
TR020,021	269 0026 900	D.Transistor RN2202(10k-10K)T	
TR022	274 0111 901	Transistor 2SD1111T	
TR023	273 0235 923	Transistor 2SC1841T(E/F)	
TR024	271 0131 924	Transistor 2SA988T(E/F)	
TR025	274 0060 900	Transistor 2SD667A(C)TZ	
TR026,027	273 0317 906	Transistor 2SC2458(BL)TPE4	
TR028	269 0026 900	D.Transistor RN2202(10k-10K)T	
TR029	269 0025 901	D.Transistor RN1202(10k-10K)T	
TR030	273 0317 906	Transistor 2SC2458(BL)TPE4	
TR051053	269 0026 900	D.Transistor RN2202(10k-10K)T	
TR101	273 0235 923	Transistor 2SC1841T(E/F)	
TR102	269 0067 901	D.Transistor RN1205(2.2K-47K)T	
TR201	273 0235 923	Transistor 2SC1841T(E/F)	
TR202	269 0067 901	D.Transistor RN1205(2.2K-47K)T	
TR301	273 0235 923	Transistor 2SC1841T(E/F)	
TR302	269 0067 901	D.Transistor RN1205(2.2K-47K)T	
D004–008	276 0348 000	Diode S2K20F	
D009	276 0249 921	Zener Diode HZ18-1TE	
D010–017	276 0049 914	Diode 1S2076A	
D018,019	276 0016 904	Diode SF0R1A42(TPE2)	
D020	276 0318 001	Zener Diode HZ12A-2	
D021,022	276 0049 914	Diode 1S2076A	
D034	276 0218 936	Zener Diode HZ9B2-TE	
D035–038	276 0049 914	Diode 1S2076A	
D051–055	276 0253 905	Diode 1SR35-200A(T93X)	
D056,057	276 0236 934	Zener Diode HZ5C-1TE	
D060	276 0318 001	Zener Diode HZ12A-2	
D101,102 201,202 301,302 519,621 721	276 0049 914	Diode 1S2076A	

Ref. No.	Part No.	Part Name	Remarks
LE001	393 9420 907	LED SEL4117R-T	(Red)
LE002	393 9420 910	LED SEL4917D-T	(Orange)
RESISTOR GROUP (Not included Carbon Film, ±5% 1/4W type)			
⚠R003,004	241 2387 908	Carbon 1ohm 1/4W (N.B)	RD14B2E010JNBS
⚠R008	244 2052 902	Metal Oxide Film 2.7Kohm 1W (N.B)	RS14B3A272JS
⚠R009	244 2051 990	Metal Oxide Film 4.7Kohm 1W (N.B)	RS14B3A472JS
⚠R012	241 2379 916	Carbon 510ohm 1/4W (N.B)	RD14B2E511JNBS
⚠R022,023	241 2380 905	Carbon 1.2Kohm 1/4W (N.B)	RD14B2E122JNBS
⚠R028	244 2051 974	Metal Oxide Film 1.2Kohm 1W (N.B)	RS14B3A102JS
⚠R033,034	244 2052 931	Metal Oxide Film 390ohm 1W (N.B)	RS14B3A391JS
⚠R043	244 2050 975	Metal Oxide Film 1.3Kohm 1W (N.B)	RS14B3A132JS
⚠R044–047	244 2052 902	Metal Oxide Film 2.7Kohm 1W (N.B)	RS14B3A272JS
⚠R054–058	241 2387 908	Carbon 1ohm 1/4W (N.B)	RD14B2E010JNBS
⚠R061	241 2380 905	Carbon 1.2Kohm 1/4W (N.B)	RD14B2E122JNBS
⚠R062	244 2052 902	Metal Oxide Film 2.7Kohm 1W (N.B)	RS14B3A272JS
⚠R063	244 2051 987	Metal Oxide Film 4.7Kohm 1W (N.B)	RS14B3A4R7JS
⚠R064	244 2043 937	Metal Oxide Film 10ohm 1W (N.B)	RS14B3A100JS
⚠R534,593 677,678 777,778	244 2050 904	Metal Oxide Film 22ohm 1W (N.B)	RS14B3A220JS
VR101,201 VR301	211 9106 000	Variable 100Kohm	V1620V30FB104
CAPACITORS GROUP			
⚠C001	253 8011 705	Ceramic 0.01μF/250VAC	CK45F2EAC103ZC (Multi-Voltage Models)
C012	255 6167 000	Polystyrene Film 0.01μF/125V	CQ09S2B103K(B)
C013,014	254 4262 784	Electrolytic 470μF/6.3V	CE04W1J471MC
C015,016	254 4397 701	Electrolytic 2200μF/6.3V	CE04W1J222MC
C017	254 4261 921	Electrolytic 100μF/50V	CE04W1H101MT
C018	256 1030 012	Metalized 1μF/100V	CF93W2A105J
C019	254 4291 700	Electrolytic 10μF/100V	CE04W2A100M(AWF)
C020	253 4494 902	Ceramic 100pF/500V	CC45SL2H101JT
C021,022	254 4356 027	Electrolytic 22μF/50V	CE04W1H220M(ARS)
C023,024	253 1151 905	Ceramic 0.0047μF/500V	CK45E2H472PT
C025,026	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C027	254 4250 932	Electrolytic 220μF/6.3V	CE04W0J221MT
C028,029	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C030	254 4254 938	Electrolytic 47μF/16V	CE04W1C470MT

Ref. No.	Part No.	Part Name	Remarks
C031	254 4250 932	Electrolytic 220μF/6.3V	CE04W0J221MT
C032,033	254 4256 949	Electrolytic 100μF/25V	CE04W1E101MT
C034	254 1018 009	Tantalum Electrolytic 10μF/16V	CS45E1C100M
C035	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C036	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7MT
C037	253 1151 905	Ceramic 0.0047μF/500V	CK45E2H472PT
C038	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C040	254 4258 002	Electrolytic 4.7μF/35V	CE04W1V4R7MT
C041	254 4256 949	Electrolytic 100μF/25V	CE04W1E101MT
C051–055	254 4262 904	Electrolytic 4.7μF/63V	CE04W1J4R7MT
C071	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C082	255 4228 996	Ceramic 0.022μF/100V	CQ92PA223JT
C091,092	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C101	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C102	255 6163 059	Polystyrene Film 22pF/250V	CQ09S2E220J
C103	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C104–107	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C108	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C109	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C112,113	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C114	254 4256 936	Electrolytic 47μF/25V	CE04W1E470MT
C201	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C202	255 6163 059	Polystyrene Film 22pF/250V	CQ09S2E220J
C203	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C204–207	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C208	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C209	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C212,213	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C214	254 4256 936	Electrolytic 47μF/25V	CE04W1E470MT
C301	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C302	255 6163 059	Polystyrene Film 22pF/250V	CQ09S2E220J
C303	255 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C304–307	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C308	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C309	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
C312,313	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C314	254 4256 936	Electrolytic 47μF/25V	CE04W1E470MT
C551,552 653,654 753,754	255 4228 996	Ceramic 0.022μF/100V	CQ92PA223JT
OTHER PARTS			
L501–504 601–604 701–704	235 0068 004	Inductor	1mH
RL002	214 9013 008	Relay	BS-RH-12S UL
RL101,201 301	214 0143 003	Relay	RY-24W
RL501	214 0037 009	Relay	JC-48V
RL601,701	214 0129 001	Relay	DH2TU
⚠F002,003	206 1039 034	Fuse 1.0A	U.S.A. Models
⚠F002,003	206 1053 007	Fuse 1.0A	Multi-Voltage Models
⚠SW001	212 9534 002	Power Switch	(PUSH)TV-8
SW051–053	212 2605 006	Slide Switch	
SW101,201 301	212 3644 008	Slide Switch	

1U-2237 POWER SUPPLY UNIT

Ref. No.	Part No.	Part Name	Remarks
DJ001	204 8101 008	2P Power Jack	
PJ101	204 8288 002	6P Connector Base	INPUT(GOLD)
ST001–003	205 0671 005	4P Terminal	
WT001,003, 005	205 0075 038	3P Terminal	
WT002,004	205 0075 041	Wrapping Terminal	
WT006,007	205 0075 067	6P Wrapping Terminal	
CN001,002	205 0190 036	3P NH Connector Base	
CN003	205 0233 032	3P EH Connector Base	
CN004	205 0277 030	3P EH Connector Base(Red)	
CN005	205 0233 090	9P EH Connector Base	
CN006	205 0277 098	9P EH Connector Base(Red)	
CN007	205 0190 036	3P NH Connector Base	
CN008	205 0587 034	3P EH Slide Base(Blk)	
CN008	205 0278 039	3P EH Connector Base(Blk)	
CN009	205 0296 037	3P EH Connector Base(Yel)	
CN010	205 0234 044	4P EH Slide Connector Base	
CN010	205 0233 045	4P EH Connector Base	
CN011	205 0190 036	3P NH Connector Base	
CN012	204 0339 001	6P EH-SCN Connector Cord	
CN012	205 0233 061	6P EH Connector Base	
CN013	205 0276 031	3P EH Connector Base(Blu)	

Ref. No.	Part No.	Part Name	Remarks
D001	276 0049 011	Diode 1S2076A	
D031	276 0579 002	Diode S10VB20F-15	
D032,033	276 0586 008	Diode S10VB20	
R001,002	243 2079 021	Wire Wound Resistor(Cement) 33ohm/10W	RW78A4A330K=(UL)
C004,005	254 4370 715	Electrolytic Capacitor 8200µF/63V	CE04W1J822MC(DL)
C006,007	254 4412 000	Electrolytic Capacitor 8200µF/63V	CE04W1J822MC(ARS)
C008–011	254 4365 720	Electrolytic Capacitor 12000µF/56V	CE04W==123MC(DL)
C061–063	256 1043 711	Metalized Capacitor 0.47µF/250V	CF93B2E474K
⚠C093	253 8011 005	Ceramic Capacitor 0.01µF/250VAC	CK45F2EAC103Z
C094,095	255 6167 000	Polystyrene Film Capacitor 1µF/125V	CQ09S2B105K(B)
RL001	214 0117 000	Relay (VS48MBUL TV5)	
CN007	205 0190 036	3P NH Connector Base	
⚠F001	206 1051 030	Fuse 15A	U.S.A. Models
⚠F001	206 1017 030	Fuse 15A	Multi-Voltage Models

PARTS LIST OF EXPOLDED VIEW

Ref. No.	Part No.	Part Name	Remarks
⊙ 1	412 9294 007	SWITCH COVER	
⊙ 2	102 9036 106	TOP COVER	(Gold)
⊙ 2	102 9036 122	TOP COVER	(Black)
⊙ 3	461 9025 032	RUBBER SHEET	
⊙ 4	122 0095 001	SPACER	
⊙ 5	122 9006 017	SPACER	
⊙ 6	461 9012 016	CUSHION	
⊙ 7	112 0555 007	VOLUME KNOB(B)	
⊙ 8	113 9242 107	PUSH KNOB(P) ASS'Y	(Gold)
⊙ 8	113 9242 110	PUSH KNOB(P) ASS'Y	(Black)
⊙ 9	144 9138 008	FRONT PANEL ASS'Y	(Gold)
⊙ 9	144 9138 215	FORNT PANEL ASS'Y	(Black)
⊙ 10	144 9137 106	SIDE ESC. BAR	(Gold)
⊙ 10	144 9137 119	SIDE ESC. BAR	(Black)
⊙ 11	412 9292 009	ESC. BRACKET	
⊙ 12	412 9293 008	ESC. SUPPORTER	
13	477 0096 007	PUSH RIVET	
⊙ 14	412 9295 006	HEAT SINK SUPPORTER	
⊙ 15	461 0390 070	RUBBER SHEET	
⊙ 16	415 9061 006	INSULATING COVER	
⊙ 17	125 9004 047	UL TUBE	
⊙ 18	233 9645 008	POWER TRANSFORMER	U.S.A. Models
⊙ 18	233 9643 000	POWER TRANSFORMER	Multi-Voltage Models
⊙ 19	445 0048 016	CORD HOLDER	L50
⊙ 20	443 0900 129	P.W.B. SUPPORTER	
⊙ 21	412 9274 014	P.W.B. BRACKET	
⊙ 22	412 9288 107	HEAT SINK BRACKET(REAR)	
⊙ 23	412 9291 107	HEAT SINK BRACKET(LEFT)	
⊙ 24	412 9290 108	HEAT SINK BRACKET(RIGHT)	
⊙ 25	417 9062 001	CU PLATE	
⊙ 26	417 9061 109	HEAT SINK	
27	415 0234 007	INSULATING SHEET	
28	415 9059 005	INSULATING SHEET	
29	273 0355 077	TRANSISTOR 2SC3856LB	
30	271 0221 009	TRANSISTOR 2SA1492LB	
31	273 0391 003	TRANSISTOR 2SC3291	
32	271 0245 001	TRANSISTOR 2SA1302	
⊙ 33	417 9063 000	HEAT SINK	
⊙ 34	412 9289 106	LEVEL VOLUME BRACKET	
⊙ 35	461 0114 023	CUSHION	
⊙ 36	415 9016 019	P.C.B. HOLDER	
⊙ 37	443 9015 002	P.W. SPACER	
38	104 9026 202	FOOT	
⊙ 39	412 9081 207	SUPPORT BRACKET	
⊙ 40	105 9185 108	BOTTOM COVER	
⊙ 41	414 9117 009	SAFETY SHEET	
⚠ 42	445 0071 009	CORD BUSH	
⚠ 43	206 2060 002	AC CORD(POLARIZED)	U.S.A. Models
⚠ 43	206 2083 005	AC CORD WITH PLUG	Multi-Voltage Models
⊙ 44	415 9032 006	P.C.B. HOLDER(T)	
⊙ 45	412 9287 108	CHEMI. CON. BRACKET	
⊙ 46	105 9208 108	REAR PANEL	U.S.A. Models
⊙ 46	105 9205 101	REAR PANEL	Mulch-Voltage Models
⊙ 47	411 9099 102	SHIELD CHASSIS	
⊙ 48	411 9098 103	TRANS. CHASSIS	
⊙ 49	411 9097 104	FRONT CHASSIS	
⊙ 50	412 9296 005	BRACKET(A)	
51	393 9420 907	LED(RED)	SEL4117R-T(LEI)
52	393 9420 910	LED(ORG)	SEL4917D-T(LE2)
53	272 0119 004	TRANSISTOR 2SB1287	
54	274 0138 007	TRANSISTOR 2SD1944	
55	212 9534 002	POWER SWITCH	
56	212 2605 006	SLIDE SWITCH	
57	211 9106 000	VARIABLE RESISTOR	V1620V30FB104
58	212 3644 008	SLIDE SWITCH	
59	204 8288 002	6P CONNECTOR BASE	
⚠ 60	206 1039 034	Fuse 1.0A	U.S.A. Models
⚠ 60	206 1053 007	Fuse 1.0A	Multi-Voltage Models
61	214 9013 008	RELAY	BSR-H-12S UL
62	214 0143 003	RELAY	RY-24W
63	204 8101 008	2P POWER JACK	
64	205 0671 005	4P TERMINAL	
65	243 2079 021	WINDING RESISTOR	RW78A330K=(UL)
66	214 0117 000	RELAY	VS48MBUL TV-5
⚠ 67	206 1051 012	Fuse 15A	U.S.A. Models
⚠ 67	206 1017 030	Fuse 15A	Multi-Voltage Models
68	276 0424 005	DIODE	4D4B42(LC1)
69	276 0356 005	DIODE	D5FB20(4001)
⊙ 70	445 0048 003	CORD HOLDER	L=76
⊙ 71	415 9018 017	INSULATING SHEET	t 0.3
⊙ 72	461 0390 012	RUBBER SHEET	t 2
⊙ 73	461 9029 009	SPACER	t 0.5
⚠ 80	212 3634 005	VOLTAGE SELECTOR	Multi-Voltage Models Only
⊙ 81	412 9304 007	VOLTAGE SELECTOR BRACKET	Multi-Voltage Models Only
⊙ 201	1U-2235E	INPUT/CONTROL UNIT	U.S.A. Models
⊙ 201	1U-2235D	INPUT/CONTROL UNIT	Multi-Voltage Models
⊙ 202	1U-2236E	POWER AMPLIFIER UNIT	U.S.A. Models
⊙ 202	1U-2236D	POWER AMPLIFIER UNIT	Multi-Voltage Models
⊙ 203	1U-2236D	POWER SUPPLY UNIT	U.S.A. Models
⊙ 203	1U-2237D	POWER SUPPLY UNIT	Multi-Voltage Models
101	473 7017 016	SCREW 3×8	CBTS(S)-C
102	473 7002 005	SCREW 3×6	CBTS(S)-Z
103	473 7002 021	SCREW 3×8	CBTS(S)-B
100	473 7015 018	SCREW 3×8	CBTS(S)-B
105	477 0064 107	SCREW 3×10	
106	473 7508 017	SCREW 3×10	CBTS(P)-B
107	473 7501 014	SCREW 3×14	CBTS(P)-Z
108	473 8007 025	3×8 SCREW WITH WASHER	
109	473 8007 009	3×12 SCREW WITH WASHER	
110	473 8007 038	3×14 SCREW WITH WASHER	
111	471 1302 019	3×5 SCREW	
112	473 0263 005	3POINT SWELLING SCREW	
113	477 0263 018	3POINT SWELLING SCREW	(Gold)
113	477 0263 005	3POINT SWELLING SCREW	(Black)
114	477 0262 006	SPECIAL SCREW	
115	475 3009 008	SPECIAL WASHER (φ7)	
116		SPECIAL NUT (φ7)	
117	473 7002 034	SCREW 3×6	CBTS(S)-B

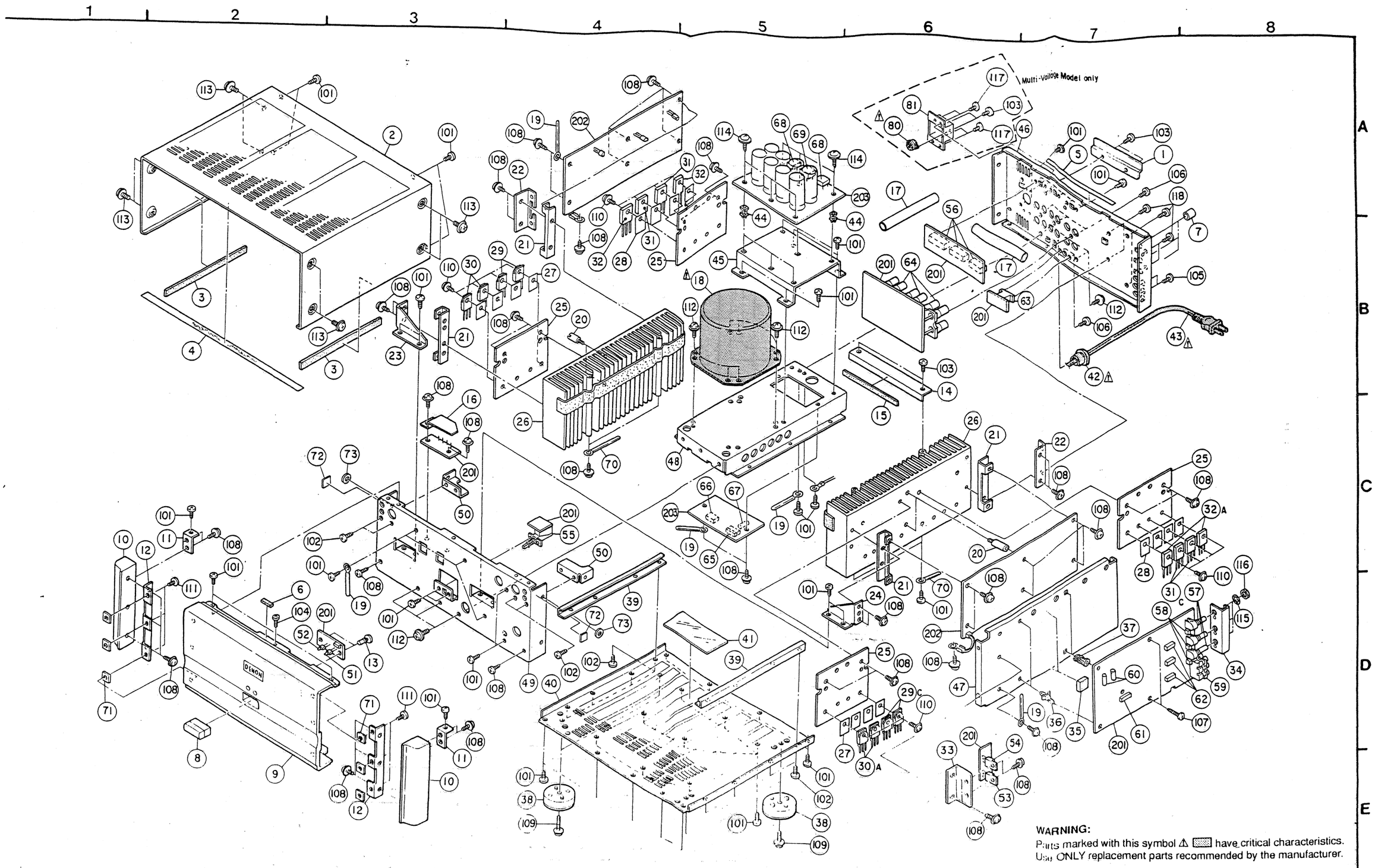
PARTS LIST OF PACKING & ACCESSORIES

Ref. No.	Part No.	Part Name	Remarks	Q'ty
⊙	504 7102 003	STYRENE PAPER (800×650)		1
⊙	504 7102 032	STYRENE PAPER (350×250)	FOR AC CORD	1
	505 0075 051	CABINET COVER		1
	505 8023 076	ENVELOPE	For Accessories	1
	503 9219 100	CUSHION (L)		1
	503 9220 102	CUSHION (R)		1
	502 9122 003	CUSHION (REAR)		1
	501 9191 031	CARTON CASE		1
	203 2247 004	REMOTE PLUG CORD		1
	511 9315 005	INST. MANUAL		1
	513 9160 007	NOTICE SHEET		1
	513 9111 001	COLOR LABEL (Gold)	(Gold)	1

WARNING:

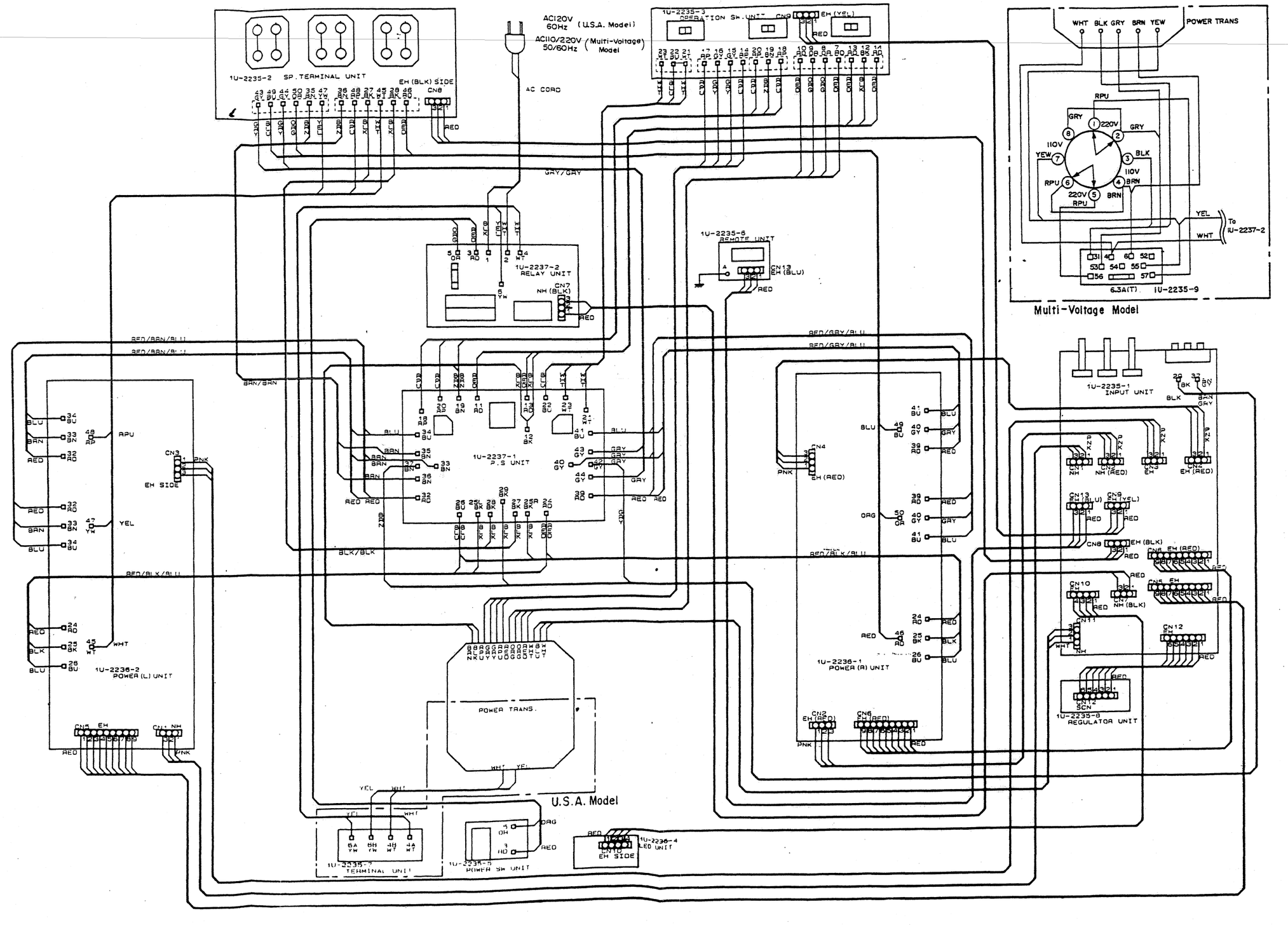
- Parts marked with " ⚠ " and/or shading have special characteristics important to safety.
  Be sure to use the specified parts for replacement.
- Part indicated with the mark " ⊙ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- (Black) in the remarks coulmn refers models with black front panels, (Gold) to models with gold front panels.

EXPLODED VIEW

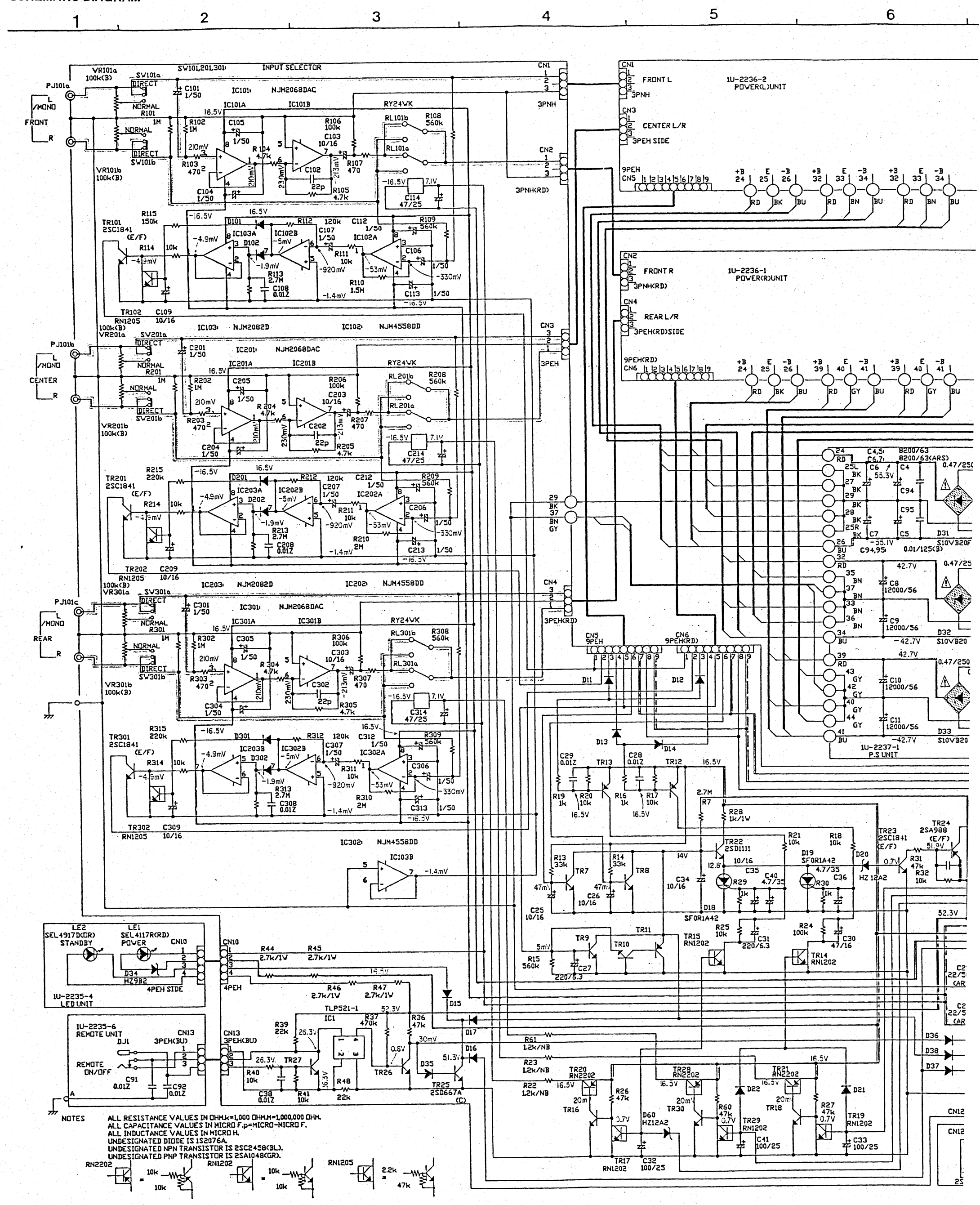


WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

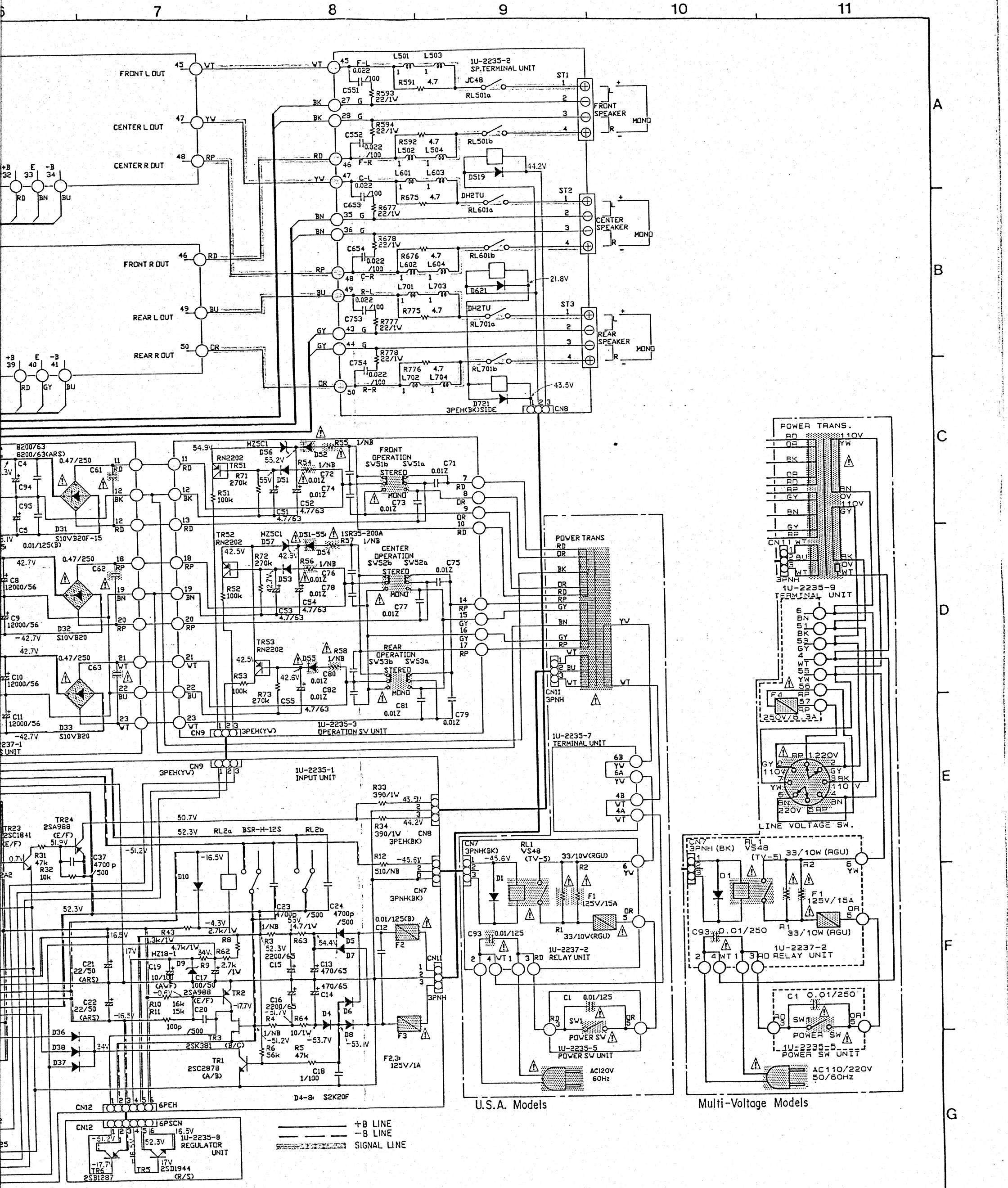
WIRING DIAGRAM



SCHEMATIC DIAGRAM



NOTES
ALL RESISTANCE VALUES IN OHM. k
ALL CAPACITANCE VALUES IN MICR
EACH VOLTAGE AND CURRENT ARE
CIRCUIT AND PARTS ARE SUBJECT



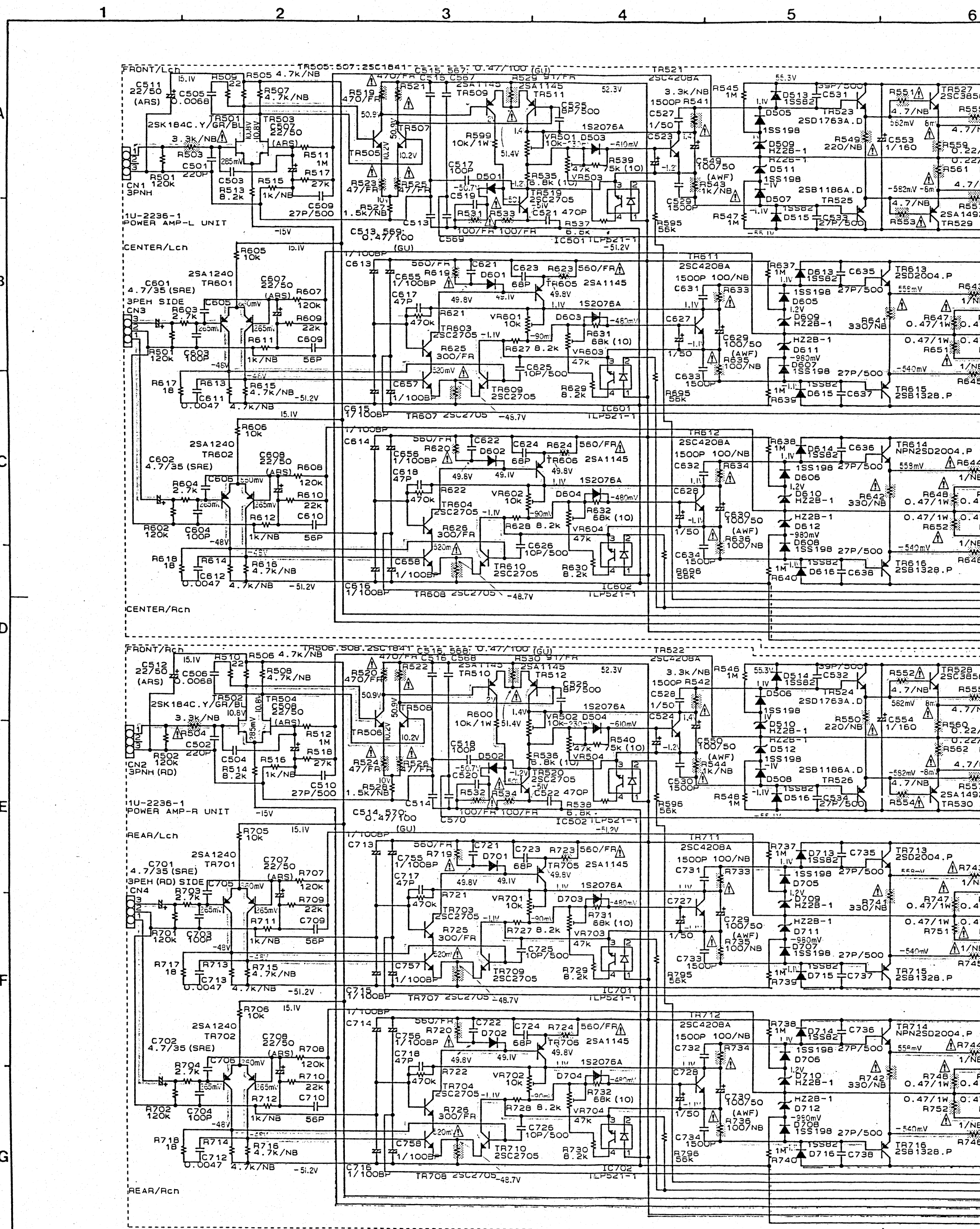
CE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
NCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
E AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

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 milliamps, 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.

SCHEMATIC DIAGRAM

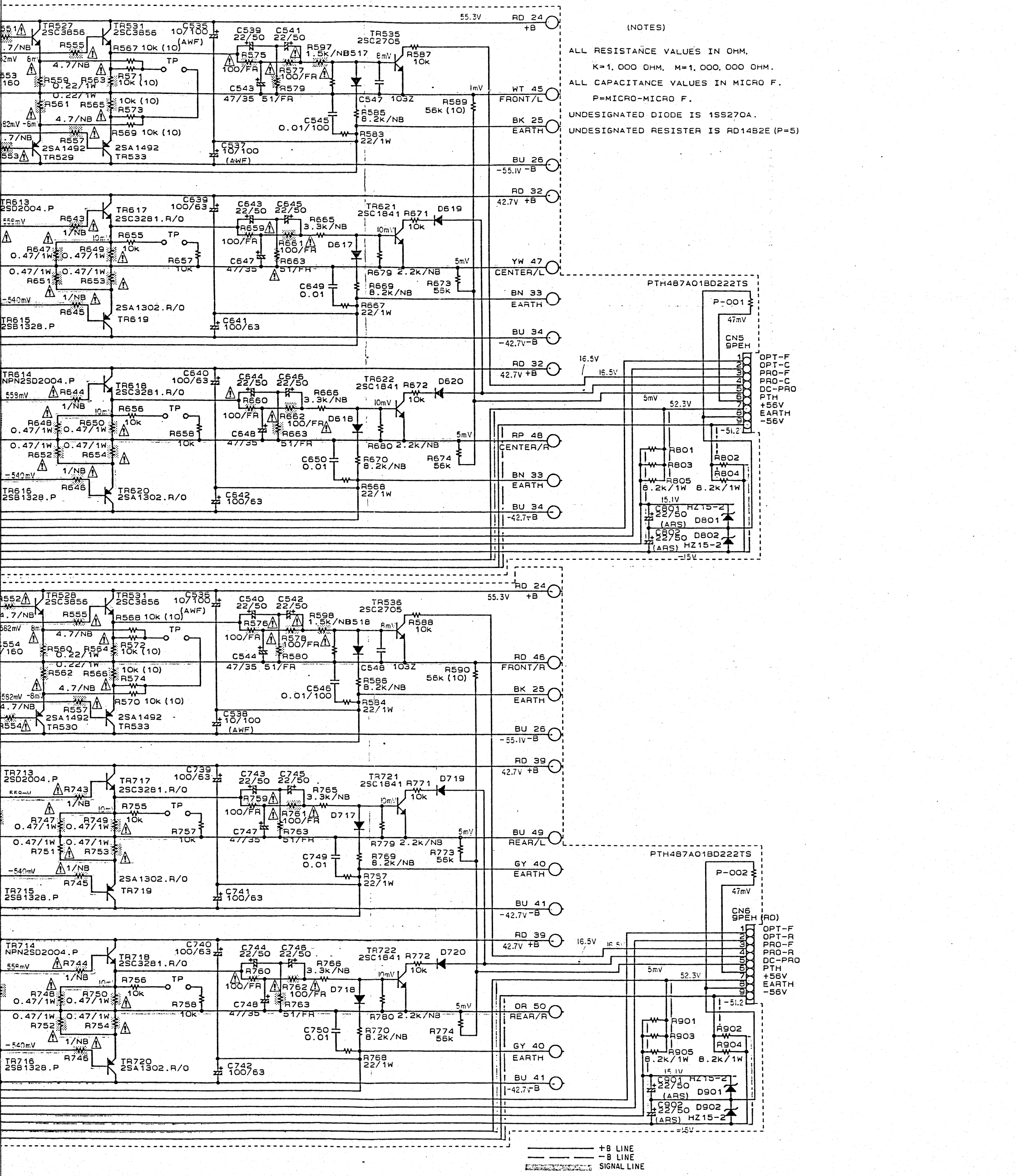


NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

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 resi
the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240
defective.

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



2) a line to chassis resistance check. If
r cord is less than 240 kohms, the unit is