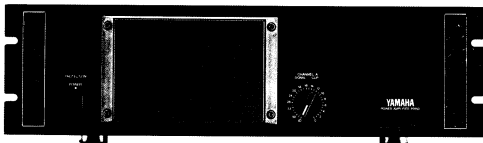
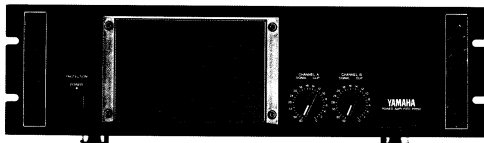


# POWER AMPLIFIERS P1150/P1250/ P2150/P2250

## SERVICE MANUAL



● P1250



● P2250

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## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit **OFF** during disassembly and parts replacement. Recheck all work before you apply power to the unit.

## ■ SPECIFICATIONS

### P1150

Output Power Specs meet FTC preconditioning criteria	OUTPUT SPECIFICATIONS			
	8 ohms		4 ohms	
	20Hz – 20kHz	1kHz	20Hz – 20kHz	1kHz
Continuous sine wave output power at less than 0.05% THD	100 W	105 W	150 W	165 W
Total Harmonic Distortion (THD)	≤ 0.007% @ 55 W	≤ 0.003% @ 55 W	≤ 0.01% @ 75 W	≤ 0.005% @ 75 W
Intermodulation Distortion (IHD) 60 Hz & 7 kHz 4 : 1	≤ 0.005% @ 55 W		≤ 0.01% @ 75 W	
Power Bandwidth (@ THD ≤ 0.1%)	10 Hz to 100 kHz @ 55 W		10 Hz to 100 kHz @ 75 W	
Frequency Response (1 watt output)	+0, -1 dB, 10 Hz to 50 kHz			
Damping Factor	≥ 110 @ 1 kHz			≥ 55 @ 1 kHz
Slew Rate	±50 volts/microsecond full swing			
Signal-to-Noise (Input shorted)	≥ 110 dB, -6 dB/octave LPF @ 12.47 kHz ≥ 115 dB, IHF-A network			
Residual Noise (Input ATT @ minimum)	≤ -80 dBm, -6 dB/octave LPF @ 12.47 kHz ≤ -90 dBm, IHF-A network			
Input Impedance	≥ 15 kohms, balanced or unbalanced (ATT @ max)			
Sensitivity	+4 dBm (1.23 V rms) for nominal output (4 ohm load)			
Voltage Gain	26.0 dB			
Indicators	Signal:	Green LED turns on when signal present at output is at or above 2 volts RMS (20 Hz – 20 kHz).		
	Cipping:	Red LED turns on when THD ≥ 1%.		
	Protection:	Red LED turns on when protection or muting is on.		
	Pilot:	Red LED turns on when power is on.		
Protection Circuits	Muting:	Output muted 6 seconds (±2 sec.) after power is on.		
	DC sense:	Output shut off if ±2V DC sense @ output.		
	Thermal:	Output shut off if heat sink temp. ≥ 85 degrees C.		
	Current Limiter:	Output reduced if load ≤ 2 ohms.		
Fan Circuit	Fan is normally at low speed; when heat sink reaches 60 degrees Centigrade, fan goes to high speed; then resets to low at 45°C.			
Controls	Front: 32 step Input Attenuator; 0 to -20 dB in 1 dB steps, -20 to -30 dB in 2 dB steps, then -33, -37, -42, -50, -60 dB, and infinite attenuation. Push On/Push Off POWER switch.			
Power Requirements	105 – 130 volts, 50 or 60 Hz, AC, 250 W (300 VA)			
Weight	28.6 lbs (13 kg)			
Dimensions	Width:	18-7/8 inches (480 mm)		
	Height:	8-1/4 inches (132 mm)		
	Overall Depth:	16-3/4 inches (423 mm)		
	Depth Behind Front Panel:	15-1/8 inches (384 mm)		
Accessory	Rubber cap to discourage unauthorized or accidental changes in setting of input attenuator (included).			

## P1250

Output Power Specs meet FTC preconditioning criteria	OUTPUT SPECIFICATIONS			
	8 ohms		4 ohms	
	20Hz – 20kHz	1kHz	20Hz – 20kHz	1kHz
Continuous sine wave output power at less than 0.05% THD	170 W	185 W	250 W	265 W
Total Harmonic Distortion (THD)	≤ 0.007% @ 85 W	≤ 0.003% @ 85 W	≤ 0.01% @ 125 W	≤ 0.005% @ 125 W
Intermodulation Distortion (IHD) 60 Hz & 7 kHz 4 : 1	≤ 0.005% @ 85 W		≤ 0.01% @ 125 W	
Power Bandwidth (@ THD ≤ 0.1%)	10 Hz to 100 kHz @ 85 W		10 Hz to 100 kHz @ 125 W	
Frequency Response (1 watt output)	+0, -1 dB, 10 Hz to 50 kHz			
Damping Factor	≥ 110 @ 1 kHz		≥ 55 @ 1 kHz	
Slew Rate	≥ 50 volts/microsecond full swing			
Signal-to-Noise (Input shorted)	≥ 110 dB, -6 dB/octave LPF @ 12.47 kHz ≥ 115 dB, IHF-A network			
Residual Noise (Input ATT @ minimum)	≤ -80 dBm, -6 dB/octave LPF @ 12.47 kHz ≤ -90 dBm, IHF-A network			
Input Impedance	≥ 15 kohms, balanced or unbalanced (ATT @ max)			
Sensitivity	+4 dBm (1.23 V rms) for nominal output (4 ohm load)			
Voltage Gain	28.3 dB			
Indicators	Signal: Green LED turns on when signal present at output is at or above 2 volts RMS (20 Hz – 20 kHz). Clipping: Red LED turns on when THD ≥ 1%. Protection: Red LED turns on when protection or muting is on. Pilot: Red LED turns on when power is on.			
Protection Circuits	Muting: Output muted 6 seconds (± 2 sec.) after power is on. DC sense: Output shut off if ± 2V DC sensed at output. Thermal: Output shut off if heat sink temp. ≥ 85 degrees C. Current Limiter: Output reduced if load ≤ 2 ohms.			
Fan Circuit	Fan is normally at low speed; when heat sink reaches 60 degrees Centigrade, fan goes to high speed; then resets to low at 45°C.			
Controls	Front: 32 step Input Attenuator; 0 to -20 dB in 1 dB steps, -20 to -30 dB in 2 dB steps, then -33, -37, -42, -50, -60 dB, and infinite attenuation. Push On/Push Off POWER switch.			
Power Requirements	105 – 130 volts, 50 or 60 Hz, AC, 400 W (450 VA)			
Weight	33 lbs (15 kg)			
Dimensions	Width:		18-7/8 inches (480 mm)	
	Height:		6-1/4 inches (132 mm)	
	Overall Depth:		16-3/4 inches (423 mm)	
	Depth Behind Front Panel:		15-1/8 inches (384 mm)	
Accessory	Rubber cap to discourage unauthorized or accidental changes in setting of input attenuator (included).			

## P2150

Output Power Specs meet FTC preconditioning criteria	STEREO OPERATION (Power output specified per channel, with both channels driven)				BRIDGED MONO OPERATION			
	8 ohms		4 ohms		16 ohms		8 ohms	
	20Hz – 20kHz	1kHz	20Hz – 20kHz	1kHz	20Hz – 20kHz	1kHz	20Hz – 20kHz	1kHz
Continuous sine wave output power at less than 0.05% THD	100 W	105 W	150 W	165 W	220 W	250 W	300 W	330 W
Total Harmonic Distortion (THD)	≤ 0.007% @ 55 W	≤ 0.003% @ 55 W	≤ 0.01% @ 75 W	≤ 0.005% @ 75 W	≤ 0.007% @ 110 W	≤ 0.003% @ 110 W	≤ 0.01% @ 150 W	≤ 0.005% @ 150 W
Channel Separation (@ 3 dB below nominal power output, ATT @ max, input shorted)	≥ 70 dB	≥ 90 dB						
Intermodulation Distortion (IHD) 60 Hz & 7 kHz 4 : 1	≤ 0.005% @ 55 W		≤ 0.01% @ 75 W		≤ 0.01% @ 110 W		≤ 0.01% @ 150 W	
Power Bandwidth (@ THD ≤ 0.1%)	10 Hz to 50 kHz @ 55 W		10 Hz to 50 kHz @ 75 W		10 Hz to 50 kHz @ 110 W		10 Hz to 50 kHz @ 150 W	
Frequency Response (1 watt output)	+0, -1dB, 10Hz to 50kHz							
Damping Factor	≥ 110 @ 1 kHz		≥ 55 @ 1 kHz					
Slew Rate	± 50 volts/microsecond full swing			± 90 volts/microsecond full swing				
Signal-to-Noise (Input shorted)	≥ 110 dB, -6 dB/octave LPF @ 12.47 kHz ≥ 115 dB, IHF-A network				≥ 106 dB, -6 dB/octave LPF @ 12.47 kHz ≥ 110 dB, IHF-A network			
Residual Noise (Input ATT @ minimum)	≤ -80 dBm, -6 dB/octave LPF @ 12.47 kHz ≤ -90 dBm, IHF-A network							
Input Impedance	≥ 15 kohms, balanced or unbalanced (ATT @ max)							
Sensitivity	+4 dBm (1.23 V rms) for nominal output (4 ohm load)							
Voltage Gain	26.0 dB							
Indicators	Signal: Green LED turns on when signal present at output is at or above 2 volts RMS (20 Hz – 20 kHz) Clipping: Red LED turns on when THD ≥ 1% (x 2). Protection: Red LED turns on when protection or muting is on. Pilot: Red LED turns on when power is on.							
Protection Circuits	Muting: Output muted 6 seconds (± 2 sec.) after power is on. DC sense: Output shut off if ± 2V DC sensed at output. Thermal: Output shut off if heat sink temp. ≥ 85 degrees C. Current Limiter: Output reduced if load ≤ 2 ohms.							
Fan Circuit	Fan is normally at low speed; when heat sink reaches 60 degrees Centigrade, fan goes to high speed; then resets to low at 45°C.							
Controls	Front: 2 x 32 step Input Attenuators; 0 to -20 dB in 1 dB steps, -20 to -30 dB in 2 dB steps, then -33, -37, -42, -50, -60 dB, and infinite attenuation. Push On/Push Off POWER switch. Rear: MONO/STEREO MODE switch.							
Power Requirements	105 – 130 volts, 50 or 60 Hz, AC, 500 W (600 VA)							
Weight	37.4 lbs (17 kg)							
Dimensions	Width:		18-7/8 inches (480 mm)					
	Height:		5-1/4 inches (132 mm)					
	Overall Depth:		16-3/4 inches (423 mm)					
	Depth Behind Front Panel:		15-1/8 inches (384 mm)					
Accessories	Rubber caps of discourage unauthorized or accidental changes in setting of input attenuators (included).							

## P2250

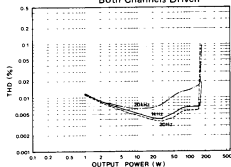
Output Power Specs meet FTC preconditioning criteria	STEREO OPERATION (Power output specified per channel, with both channels driven)				BRIDGED MONO OPERATION			
	8 ohms		4 ohms		16 ohms		8 ohms	
	20Hz – 20kHz	1kHz	20Hz – 20kHz	1kHz	20Hz – 20kHz	1kHz	20Hz – 20kHz	1kHz
Continuous sine wave output power at less than 0.05% THD	170 W	185 W	250 W	265 W	340 W	370 W	500 W	530 W
Total Harmonic Distortion (THD)	≤ 0.007% @ 85 W	≤ 0.003% @ 85 W	≤ 0.01% @ 125 W	≤ 0.005% @ 125 W	≤ 0.007% @ 85 W	≤ 0.003% @ 85 W	≤ 0.01% @ 125 W	≤ 0.005% @ 125 W
Channel Separation (@ 3 dB below nominal power output, ATT @ max, input shorted)	≥ 70 dB	≥ 90 dB						
Intermodulation Distortion (IHD) 60 Hz & 7 kHz 4 : 1	≤ 0.005% @ 85 W		≤ 0.01% @ 125 W		≤ 0.01% @ 170 W		≤ 0.01% @ 250 W	
Power Bandwidth (@ THD ≤ 0.1%)	10 Hz to 50 kHz @ 85 W		10 Hz to 50 kHz @ 125 W		10 Hz to 50 kHz @ 170 W		10 Hz to 50 kHz @ 250 W	
Frequency Response (1 watt output)	+0, -1dB, 10Hz to 50kHz							
Damping Factor	≥ 110 @ 1 kHz		≥ 55 @ 1 kHz					
Slew Rate	± 50 volts/microsecond full swing				± 90 volts/microsecond full swing			
Signal-to-Noise (Input shorted)	≥ 110 dB, -6 dB/octave LPF @ 12.47 kHz ≥ 115 dB, IHF-A network				≥ 106 dB, -6 dB/octave LPF @ 12.47 kHz ≥ 110 dB, IHF-A network			
Residual Noise (Input ATT @ minimum)	≤ -80 dBm, -6 dB/octave LPF @ 12.47 kHz ≤ -90 dBm, IHF-A network							
Input Impedance	≥ 15 kohms, balanced or unbalanced (ATT @ max)							
Sensitivity	+4 dBm (1.23 V rms) for nominal output (4 ohm load)							
Voltage Gain	28.3 dB							
Indicators	Signal: Green LED turns on when signal present at output is at or above 2 volts RMS (20 Hz – 20 kHz). Clipping: Red LED turns on when THD ≥ 1% (x 2). Protection: Red LED turns on when protection or muting is on. Pilot: Red LED turns on when power is on.							
Protection Circuits	Muting: Output muted 6 seconds (± 2 sec.) after power is on. DC sense: Output shut off if ± 2V DC sensed at output. Thermal: Output shut off if heat sink temp. ≥ 85 degrees C. Current Limiter: Output reduced if load ≤ 2 ohms.							
Fan Circuit	Fan is normally at low speed; when heat sink reaches 60 degrees Centigrade, fan goes to high speed; then resets to low at 45°C.							
Controls	Front: 2 x 32 step Input Attenuators; 0 to -20 dB in 1 dB steps, -20 to -30 dB in 2 dB steps, then -33, -37, -42, -50, -60 dB, and infinite attenuation. Push On/Push Off POWER switch. Rear: MONO/STEREO MODE switch.							
Power Requirements	105 – 130 volts, 50 or 60 Hz, AC, 850 W (950 VA)							
Weight	41.8 lbs (19 kg)							
Dimensions	Width: 18-7/8 inches (480 mm) Height: 5-1/4 inches (132 mm) Overall Depth: 16-3/4 inches (423 mm) Depth Behind Front Panel: 15-1/8 inches (384 mm)							
Accessories	Rubber caps to discourage unauthorized or accidental changes in setting of input attenuators (included).							

**PERFORMANCE GRAPHS**

**THD vs OUTPUT POWER CHARACTERISTICS**

<Model: P2150>

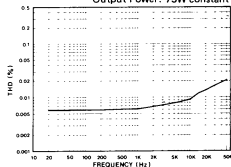
Load Impedance: 4Ω  
Mode: STEREO  
Both Channels Driven



**THD vs FREQUENCY CHARACTERISTICS**

<Model: P2150>

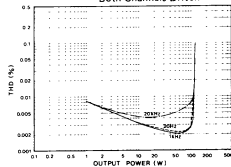
Load Impedance: 4Ω  
Mode: STEREO  
Both Channels Driven  
Output Power: 75W constant



**THD vs OUTPUT POWER CHARACTERISTICS**

<Model: P2150>

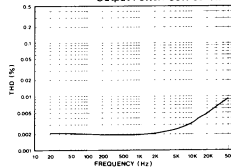
Load Impedance: 8Ω  
Mode: STEREO  
Both Channels Driven



**THD vs FREQUENCY CHARACTERISTICS**

<Model: P2150>

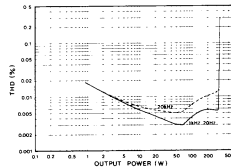
Load Impedance: 8Ω  
Mode: STEREO  
Both Channels Driven  
Output Power: 50W constant



**THD vs OUTPUT POWER CHARACTERISTICS**

<Model: P2150>

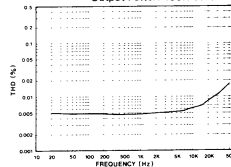
Load Impedance: 8Ω  
Mode: MONO (BTL)



**THD vs FREQUENCY CHARACTERISTICS**

<Model: P2150>

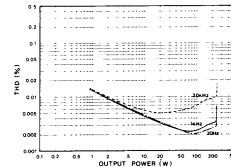
Load Impedance: 8Ω  
Mode: MONO (BTL)  
Output Power: 150W constant



**THD vs OUTPUT POWER CHARACTERISTICS**

<Model: P2250>

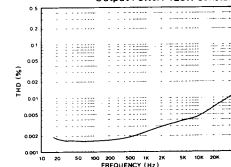
Load Impedance: 4Ω  
Mode: STEREO  
Both Channels Driven



**THD vs FREQUENCY CHARACTERISTICS**

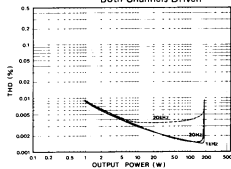
<Model: P2250>

Load Impedance: 4Ω  
Mode: STEREO  
Both Channels Driven  
Output Power: 125W constant

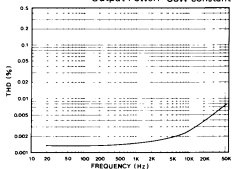


**THD vs OUTPUT POWER CHARACTERISTICS**

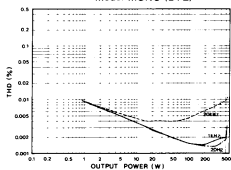
&lt;Model: P2250&gt;

Load Impedance:  $8\Omega$   
Mode: STEREO  
Both Channels Driven**THD vs FREQUENCY CHARACTERISTICS**

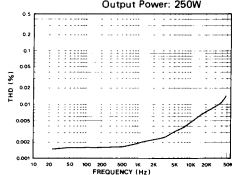
&lt;Model: P2250&gt;

Load Impedance:  $8\Omega$   
Mode: STEREO  
Both Channels Driven  
Output Power: 85W constant**THD vs OUTPUT POWER CHARACTERISTICS**

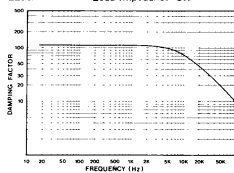
&lt;Model: P2250&gt;

Load Impedance:  $8\Omega$   
Mode: MONO (BTL)**THD vs FREQUENCY CHARACTERISTICS**

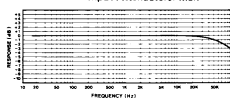
&lt;Model: P2250&gt;

Load Impedance:  $8\Omega$   
Mode: MONO (BTL)  
Output Power: 250W**DAMPING FACTOR CHARACTERISTICS**

&lt;Model: P2250&gt;

Load Impedance:  $8\Omega$ **FREQUENCY RESPONSE CHARACTERISTICS**

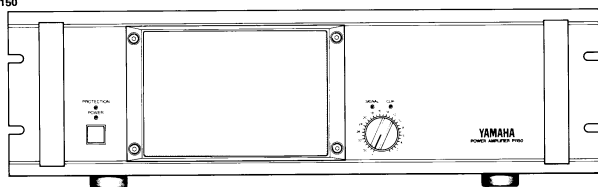
&lt;Model: all models&gt;

Load Impedance:  $8\Omega$   
Input Attenuators: Max

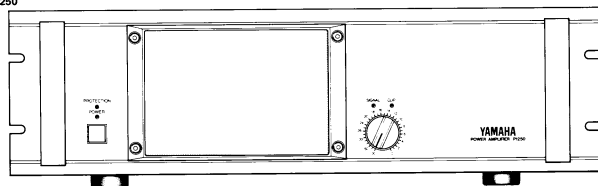
## ■ PANEL LAYOUT

### FRONT PANEL

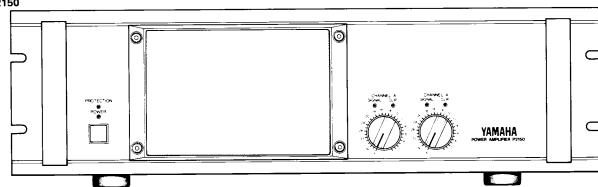
• P1150



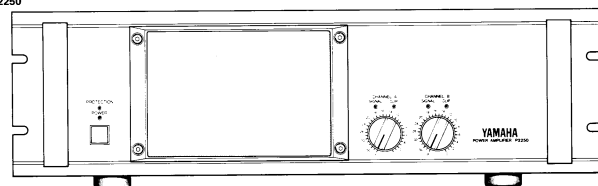
• P1250



• P2150



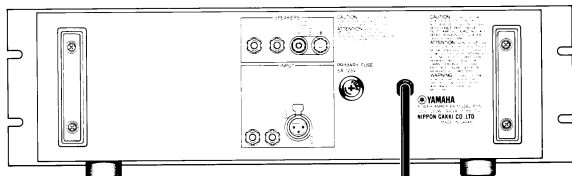
• P2250



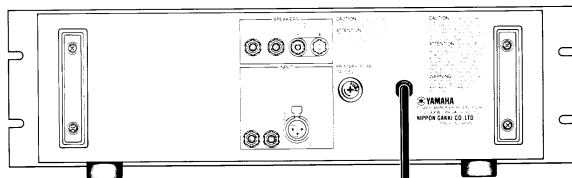


## REAR PANEL (U.S. model)

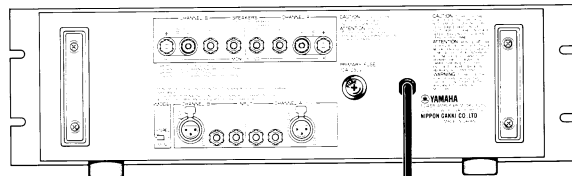
• P1150



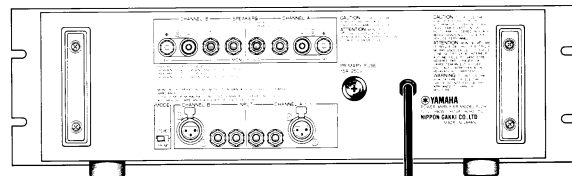
• P1250



• P2150



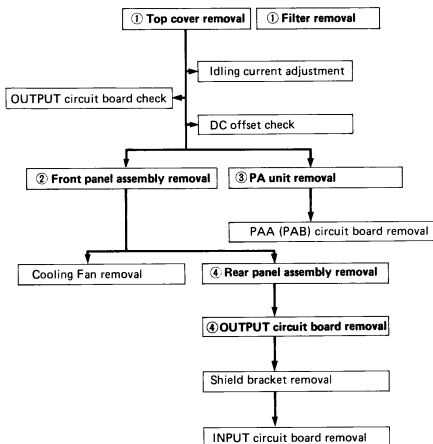
• P2250



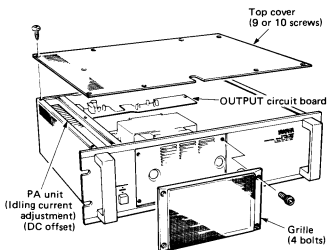
## DISASSEMBLY PROCEDURES

- Disconnect each connector as necessary for the part removal.
- Electric charge may be accumulated at the electrolytic capacitor of the power supply. Discharge it by shorting across the capacitor terminals with a resistor of 8Ω, 100W or so.

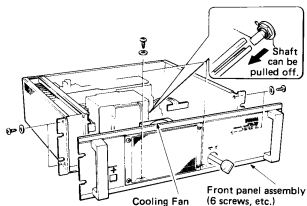
### FLOW CHART



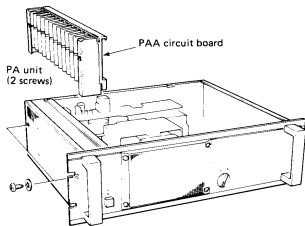
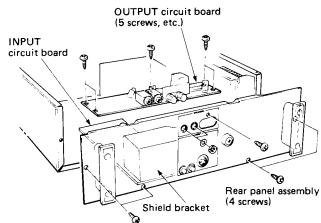
#### 1 TOP COVER REMOVAL/GRILLE REMOVAL



#### 2 FRONT PANEL ASSEMBLY REMOVAL



## ③ PA UNIT REMOVAL

④ REAR PANEL ASSEMBLY REMOVAL/  
OUTPUT CIRCUIT BOARD REMOVAL

## ■ CHECK AND ADJUSTMENT

## BEFORE ADJUSTING

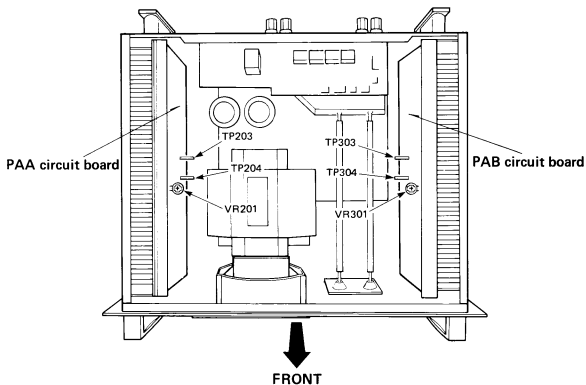
Be sure to wait for about 5 minutes after turning the power switch on, in order for the main amp's operation to become stable.

## 1. Idling current adjustment

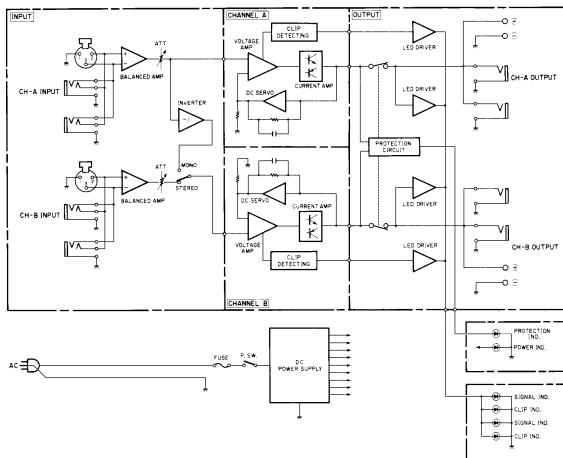
Adjust VR201 (and/or VR301) so that the voltage across the test points TP203 and TP204 on the PAA circuit board (and/or TP303 and TP304 on the PAB circuit board) is  $12\text{mV} \pm 0.5\text{mV}$  in a no signal condition.

## 2. DC offset check

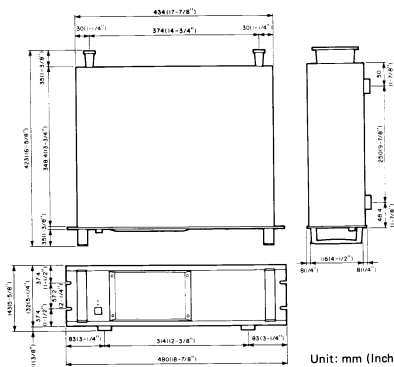
Check that the voltage across the SPEAKER terminals  $\oplus$  and  $\ominus$  is  $0 \pm 10\text{mV}$  in a no signal condition.



## ■ BLOCK DIAGRAM



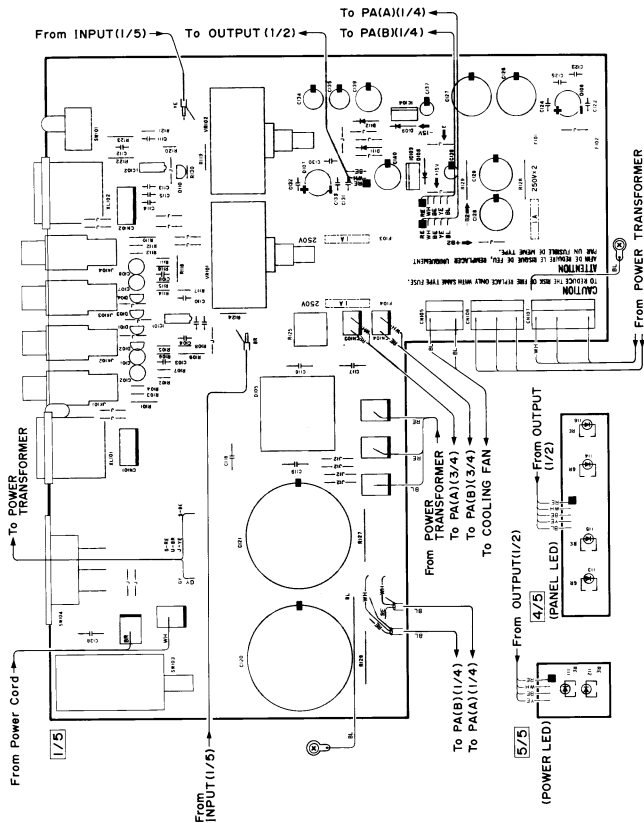
## ■ DIMENSIONS



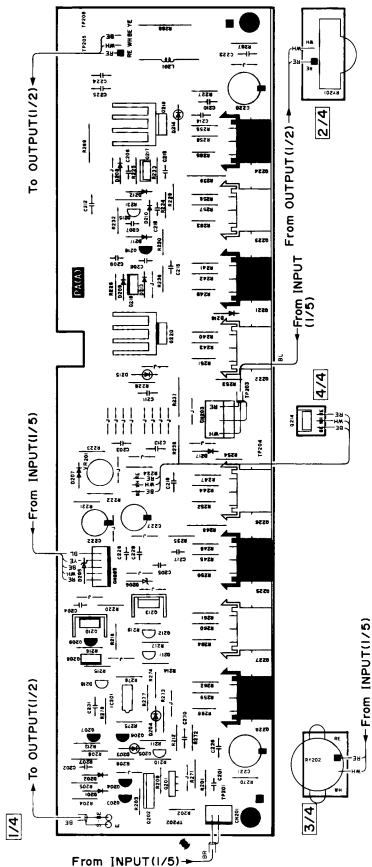
Unit: mm (Inch)

## ■ CIRCUIT BOARDS (Parts side)

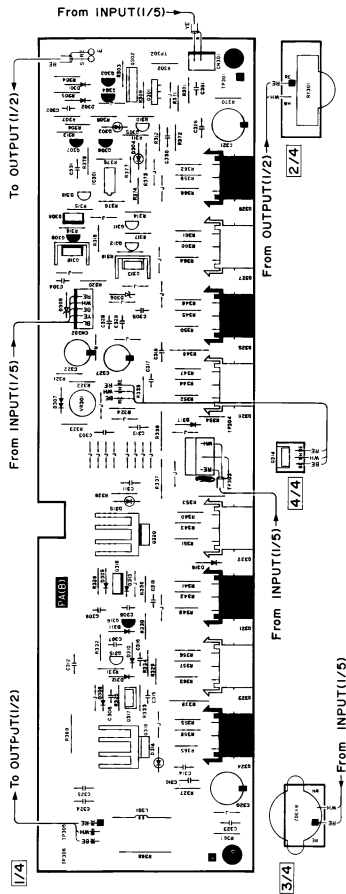
### ● INPUT CIRCUIT BOARD



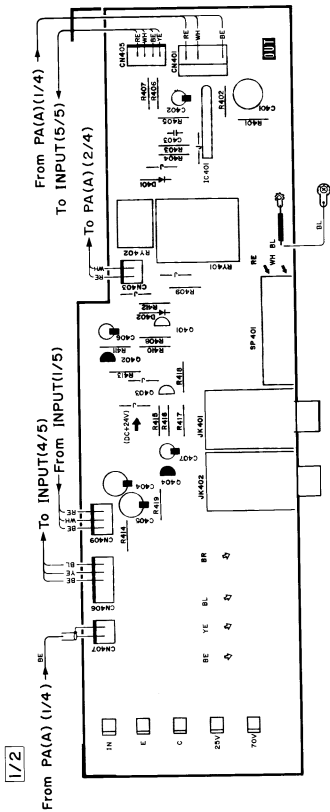
● PAA CIRCUIT BOARD



● PAB CIRCUIT BOARD (P2150 and P2250 only)

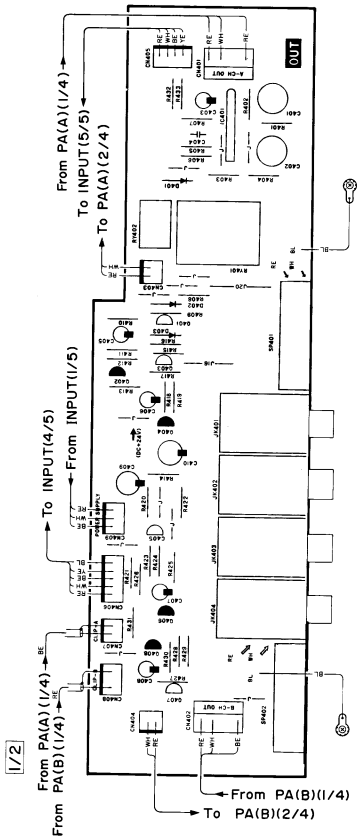


● OUTPUT CIRCUIT BOARD (Except P2250)

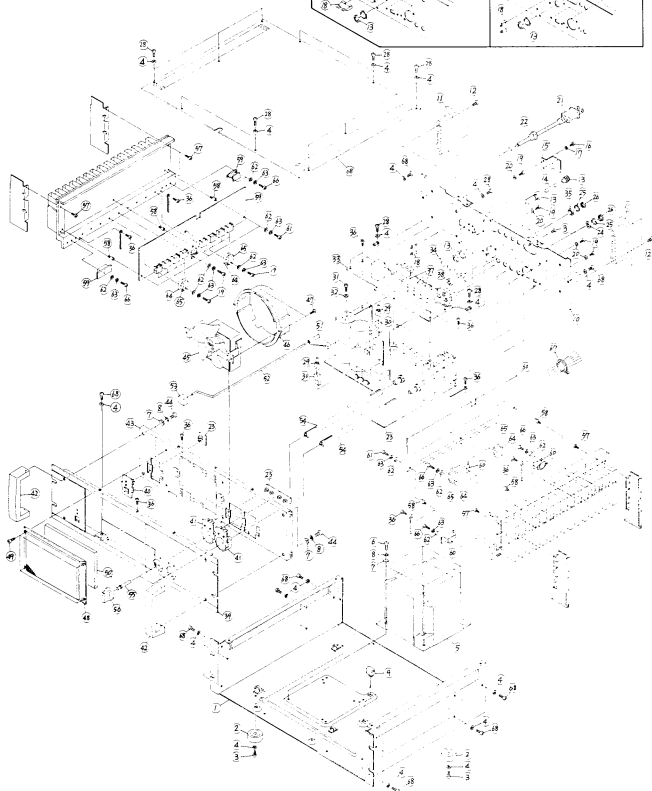
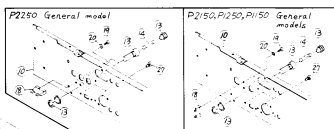




- OUTPUT CIRCUIT BOARD (P2250 only)



**EXPLODED VIEW**



## PARTS LIST

Ref. No.	Part No.	Description		部 品 名	Remarks	Common Model	Markets	ランク
* 1	AA 83 29 00	Chassis		シ ャ ー シ	P1150/P1250			
*	AA 83 28 90	"		"	P2150/P2250			
2	CB 80 65 90	Foot		脚				
3	Ei 34 01 06	Bind Head Tapping Screw	4×10	BI	バインドタッピングネジ	M		
4	EV 41 30 46	Toothed Lock Washer	A4S	BI	歯付座金			
* 5	NB 83 18 70	Power Transformer			電 源 ト ラ ン ス	P1150		J
*	NB 83 19 10	"			"	"		U,C
*	NB 83 19 50	"			"	"		G
*	NB 83 18 50	"			"	P1250		J
*	NB 83 18 90	"			"	"		U,C
*	NB 83 19 30	"			"	"		G
*	NB 83 18 60	"			"	P2150		J
*	NB 83 19 00	"			"	"		U,C
*	NB 83 19 40	"			"	"		G
*	NB 83 18 90	"			"	P2250		J
*	NB 83 18 80	"			"	"		U,C
*	NB 83 19 20	"			"	"		G
6	ED 35 01 06	Bind Head Screw	5×10	BI	バインド小ネジ			
7	EV 20 30 56	Flat Washer	5S	BI	平 座 金			
8	EV 30 35 06	Spring Washer	5S	BI	バネ座金			
9	CB 03 54 00	Holder, Circuit Board	D-85		シートホルダー			
* 10	AA 83 31 20	Rear Panel			リアパネル	P1150M;		J
*	AA 83 31 30	"			"	"		U,C
*	AA 83 31 40	"			"	"		G
*	AA 83 30 00	"			"	P1250M;		J
*	AA 83 30 10	"			"	"		U,C
*	AA 83 30 20	"			"	"		G
*	AA 83 30 60	"			"	P2150M;		J
*	AA 83 30 70	"			"	"		U,C
*	AA 83 30 80	"			"	"		G
*	AA 83 29 40	"			"	P2250M;		J
*	AA 83 29 50	"			"	"		U,C
*	AA 83 29 60	"			"	"		G
11	CB 80 86 50	Power Cord Holder			コードリール			
12	Ei 34 01 26	Bind Head Tapping Screw	4×12	BI	バインドタッピングネジ			
13	LB 20 29 40	Fuse Holder	15A 250V		ヒューズホルダー			J,U,C
*	LB 20 05 90	"	6.3A 250V		"	"		G
14	KB 00 04 00	Fuse	5A 250V		ヒューズ	P1150		J
*	KB 00 14 20	"	5A 125V		"	"		U,C
*	KB 00 07 60	"	T3.15A 250V		"	"		G
*	KB 00 13 00	"	7A 250V		"	P1250		J
*	KB 00 15 20	"	7A 125V		"	"		U,C
*	KB 00 07 90	"	T4.0A 250V		"	"		G
*	KB 00 14 90	"	10A 250V		"	P2150		J
*	KB 00 13 90	"	10A 250V		"	"		U,C
* 1	KB 00 07 70	"	T6.3A 250V		"	"		G
*	KB 00 12 70	"	15A 125V		"	P2250		J
*	KB 00 13 80	"	15A 250V		"	"		U,C
*	KB 00 07 90	"	T4.0A 250V		"	"		G
* 15	AA 83 32 50	Fuse Cover			ヒューズカバー	P2250M; c		J,C
16	Ei 33 00 86	Bind Head Tapping Screw	3×8	BI	バインドタッピングネジ	"		J,C
17	EV 41 30 36	Toothed Lock Washer	A3S	BI	歯付座金	"		J,C
18	LA 00 07 60	Lug Terminal	2P		ラグ端子板	"		J

\*New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
19	Ei 33 00 86	Bind Head Tapping Screw	3×8 BI	バインドタッピングネジ			
20	EV 41 30 36	Toothed Lock Washer	A3S BI	歯付 座 金			
21	MG 00 06 10	Power Cord	15A 125V 2.1m	電 源 コ ー ド		J	
	MG 00 05 30	"	10A 125V 2.2m	"		U.C	
	MG 00 11 30	"	6A 250V 3.5m	"		G	
22	CB 80 88 50	Cord Stopper	6N3-4	コ ー ド ス ト ッ パ ー		J,U.C	
	CB 03 28 40	"	5N-4	"		G	
*	23 NA 81 39 60	INPUT Circuit Board	≒91980	INPUT シ ー ト	P1150 M <sub>4</sub>	J	
*	NA 81 39 70	"	"	"	"	U.C	
*	NA 81 39 80	"	"	"	"	G	
*	NA 81 40 80	"	"	"	P1250 M <sub>4</sub>	J	
*	NA 81 40 90	"	"	"	"	U.C	
*	NA 81 41 00	"	"	"	"	G	
*	NA 81 40 20	"	"	"	P2150 M <sub>4</sub>	J	
*	NA 81 40 30	"	"	"	"	U.C	
*	NA 81 40 40	"	"	"	"	G	
*	NA 81 41 40	"	"	"	P2250 M <sub>4</sub>	J	
*	NA 81 41 50	"	"	"	"	U.C	
*	NA 81 41 60	"	"	"	"	G	
24	EV 41 00 98	Toothed Lock Washer	A9S BI	歯付 座 金	M <sub>4</sub> P2250C		
25	LX 20 00 10	Plain Washer	9S Cr	特 殊 平 座 金			
26	LX 20 00 60	Hexagonal Nut	9S Ni	特 殊 六 角 ナ ッ ト			
27	CB 06 88 80	Plastic Rivet		プラスチックリベット		G	
28	Ei 34 00 86	Bind Head Tapping Screw	4×8 BI	バインドタッピングネジ			
29	LB 10 11 60	Receptacle		ポシティブロックセプタクル	AMP		
30	LB 10 11 80	Housing		ポシティブロックハウジング	"		
31	Ei 34 00 86	Bind Head Tapping Screw	4×8 BI	バインドタッピングネジ		U.C	
32	EV 41 30 46	Toothed Lock Washer	A4S BI	歯付 座 金		U.C	
*	33 NA 81 42 40	OUTPUT Circuit Board	≒92350	OUTPUT シ ー ト	P1150/P1250 M <sub>4</sub>	J,G	
*	NA 81 46 00	"	"	"	"	U	
*	NA 81 45 70	"	"	"	"	C	
*	NA 81 45 30	"	"	"	P2150 M <sub>4</sub>	J,G	
*	NA 81 45 90	"	"	"	"	U	
*	NA 81 45 60	"	"	"	"	C	
*	NA 81 42 60	"	≒91990	"	P2250 M <sub>4</sub>	J,G	
*	NA 81 45 80	"	"	"	"	U	
*	NA 81 45 50	"	"	"	"	C	
*	34 CA 80 91 60	Insulating Washer		絶縁ワッシャー		C	
35	CB 81 00 90	Insulating Nut		絶縁ナット	P2250 M <sub>4</sub>	J	
36	Ei 33 00 66	Bind Head Tapping Screw	3×6 BI	バインドタッピングネジ			
37	LB 20 15 40	Phone Jack		ホーンジャック	M <sub>4</sub>	C	
38	EV 41 00 98	Toothed Lock Washer	A9S BI	歯付 座 金		C	
*	39 BA 81 01 40	Front Panel		フ ロ ン ト パ ネ ル	P1150 M <sub>4</sub>		
*	BA 81 01 00	"		"	P1250 M <sub>4</sub>		
*	BA 81 01 20	"		"	P2150 M <sub>4</sub>		
*	BA 81 00 80	"		"	P2250 M <sub>4</sub>		
40	CB 83 57 00	Switch Escutcheon		スイッチエスカッション			
41	CB 83 56 90	Knob Escutcheon		つまみエスカッション			
42	BA 80 19 50	Handle		アンプハンドル			
43	AA 83 29 20	Sub Panel		サブパネル			
44	ED 35 01 26	Bind Head Screw	5×12 BI	バインド小ネジ			
45	JC 00 11 50	Cooling Fan		放 熱 フ ァ ン			
46	CB 83 58 70	Duct		ダ ク ト			

\*New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名		Remarks	Common Model	Markets	ランク
47	Ei 33 01 26	Bind Head Tapping Screw	3x12	Bl	バインドタッピングネジ			
48	NB 83 15 70	Front Grill			フロントグリル			
49	EX 80 01 80	Cap Screw	4x8	Bl	六角穴付ボルト			
50	CB 83 57 10	Filter			フィルタ			
51	CB 83 61 70	Rod Holder			ロッドホルダー			
52	AA 83 28 40	Rod			ロッド			
53	CB 81 23 80	Push Button			プッシュボタン			
54	BA 81 00 60	Shaft			シャフト			
55	CB 83 56 60	Joint			ジョイント			
56	CB 81 23 70	Attenuator Knob			アッテネーターつまみ			
57	Ei 33 01 06	Bind Head Tapping Screw	3x10	Bl	バインドタッピングネジ			
58	AA 07 75 90	Prop			支柱			
59	NA 81 42 00	PAA Circuit Board	=92000		P A A シート	P1150/P2150		
	NA 81 42 20	"	"	"	"	P1250/P2250		
60	NA 81 42 10	PAB Circuit Board	=92010		P A B シート	P2150		
	NA 81 42 30	"	"	"	"	P2250		
61	EA 03 00 66	Pan Head Screw	3x6	Ye	ナベ小ネジ			
62	EV 20 00 36	Flat Washer	3S	Ye	平座金			
63	EV 30 00 36	Spring Washer	3S	Ye	バネ座金			
64	iL 00 06 80	Insulator			マイカベース			
65	iX 80 12 70	Transistor	2SA1186(O.Y)		トランジスタ	P1150/P2150		
	iX 80 12 90	"	2SC2837(O.Y)		"	"		
	iX 80 12 80	"	2SA1303(O.Y)		"	P1250/P2250		
	iX 80 13 00	"	2SC3284(O.Y)		"	"		
66	EA 03 01 26	Pan Head Screw	3x12	Ye	ナベ小ネジ			
67	CB 06 92 50	Binding Tie			インシュロックタイ			
68	AA 83 28 80	Top Cover			トップカバー	P1150/P2150		
	AA 83 28 70	"			"	P2150		
	BA 81 06 40	"			"	P2250 P2150		
	CB 83 36 70	Knob			つまみ			
	CB 83 36 70	Center Knob			ノブ			
	BA 81 06 70	Panel			パネル	P2250C		
	BA 81 06 10					P1250C		
	BA 81 06 30					P2150C		
	BA 81 06 50					P1150C		
	AA 83 36 30	Rear Panel			リアパネル	P2250C		J
	AA 83 29 80							U,C
	AA 83 29 90							G
	AA 83 36 50					P1250C		J
	AA 83 36 40							U
	AA 83 36 50							G
	AA 83 43 30							C
	AA 83 36 70					P2150C		J
	AA 83 31 00							U,C
	AA 83 31 10							G
	AA 83 36 40					P1150C		J
	AA 83 31 60							U
	AA 83 31 70							G
	AA 83 43 20							C
	NA 81 41 70	P.C.B Assy. IN			INシート	P2250C		J
	NA 81 42 70	OUT			OUTシート			
	NA 81 41 80	IN			INシート			U,C
	NA 81 41 90	IN			INシート			G

\*New Parts (新規部品)

## ■ CIRCUIT BOARDS & ELECTRICAL PARTS

Ref No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
*	NA 81 39 60	INPUT Circuit Board	≒91980	INPUT シ ー ト	P1150M <sub>1</sub>	J	
*	NA 81 39 70	"	"	"	"	U,C	
*	NA 81 39 80	"	"	"	"	G	
*	NA 81 40 20	"	"	"	P2150M <sub>1</sub>	J	
*	NA 81 40 30	"	"	"	"	U,C	
*	NA 81 40 40	"	"	"	"	G	
*	NA 81 40 80	"	"	"	P1250M <sub>1</sub>	J	
*	NA 81 40 90	"	"	"	"	U,C	
*	NA 81 41 00	"	"	"	"	G	
*	NA 81 41 40	"	"	"	P2250M <sub>1</sub>	J	
*	NA 81 41 50	"	"	"	"	U,C	
*	NA 81 41 60	"	"	"	"	G	
*※	UJ 15 71 00	Electrolytic Cap.	10 $\mu$ F 35V	ケ ミ コ ン			
	UJ 15 81 00	"	100 $\mu$ F 35V	"			
	UJ 15 84 70	"	470 $\mu$ F 35V	"			
	UW 69 81 00	"	100 $\mu$ F 100V	"			
	UJ 29 84 70	"	470 $\mu$ F 100V	"			
*	FZ 00 70 10	"	0.01F 80V	"	P1250		
*	FZ 00 72 20	"	0.01F 63V	"	P1150		
*	FZ 00 67 90	"	0.015F 63V	"	P2150		
*	FZ 00 67 80	"	0.015F 80V	"	P2250		
	UK 13 72 20	Bipolar Electrolytic Cap.	22 $\mu$ F 16V	B P ケ ミ コ ン			
	HU 07 63 90	Metal Film Resistor	3.9 $\Omega$ 1/4W	金 属 皮 膜 抵 抗			
	HU 07 71 20	"	12 $\Omega$ 1/4W	"			
	HU 07 71 60	"	16 $\Omega$ 1/4W	"			
	HU 07 73 00	"	30k $\Omega$ 1/4W	"			
	HU 07 73 90	"	39k $\Omega$ 1/4W	"	P2150/P2250		
	HU 07 75 10	"	51k $\Omega$ 1/4W	"			
	HL 31 51 00	Metal Oxide Film Resistor	100 $\Omega$ 1W	酸 化 金 属 皮 膜 抵 抗			
	HL 32 71 00	"	10k $\Omega$ 2W	"			
*	HZ 00 50 80	Wire Wound Resistor	680 $\Omega$ 15W	セ メ ン ト 抵 抗	P1150/P2150		
*	HZ 00 50 30	"	1k $\Omega$ 15W	"	P1250/P2250		
*	HY 00 19 20	Detent Variable Resistor	20k $\Omega$	デ ィ テ ン ト 抵 抗			
	iH 00 00 30	Diode	10D1	ダ イ オ ード			
	iF 00 51 20	"	MC931	ダ ブ ル ダ イ オ ード			
	iH 00 14 00	Bridge Rectifier	1G4B1	ブ リ ッ ジ ダ イ オ ード			
	iH 00 03 90	"	K8H-2504	"			
	iF 00 17 20	LED	LN222RP	L E D			
	iF 00 21 80	"	LN322GP	"			
*	iG 14 28 00	IC	NJM5532D	I C			
*	iG 14 95 00	"	NJM5534D	"	P2150/P2250		
	iG 06 39 00	"	$\mu$ PC7815H	"			
	iG 07 75 00	"	$\mu$ PC7915H	"			
	KA 40 12 30	Slide Switch		ス ラ イ ド ス イ ッ チ	Voltage Selector	G	
	KA 40 12 80	"	SSP32204	"	P2150 P2250 STEREO MONO		
*	KA 80 49 70	Power Switch		電 源 ス イ ッ チ		J	
*	KA 80 49 80	"		"		U,C	
*	KA 80 49 90	"		"		G	
	KB 00 03 30	Fuse	1A 250V	ヒ ュ ー ズ		J	
	KB 00 10 60	"	1A 250V	"		U,C	
	KB 00 06 70	"	T630mA 250V	"		G	
	LA 00 44 00	Terminal		フ ェ ス ト ン 端 子			
	LB 20 15 30	Fuse Clip		ヒ ュ ー ズ ホ ル ダ ー ビ ン			

\* New Parts (新規部品)

Ref. No.	Part No.	Description	部品名		Remarks	Common Model	Markets	ランク
*	LB 30 20 70	Phone Jack	stereo	ホーンジャック	INPUT H, Type			
	LB 30 23 20	XLR Connector	XLB-3-31-PCV	キャノンソケット	#			
	LB 91 80 30	Connector Base Pin	3P TE	コネクタベースピン	XH			
	LB 92 80 30	Connector	3P	ウエハーアッセンブリー				
	LB 40 08 90	"	4P	"				
	LB 50 04 70	"	5P	"				
	LB 01 40 30	Connector Housing	3P	コネクタハウジング				
	LB 00 90 50	"	5P	"	XH			
	LB 00 90 30	"	3P	"				
	LB 00 90 40	"	4P	"				
	LB 10 10 00	Contact Pin		コンタクトピン				
	LB 10 11 30	"		"	XH			
	LB 30 11 50	Connector	3P	Lコネクター				
*	LB 10 18 20	Contact Pin		コンタクトピン				
	Ei 33 00 66	Bind Head Tapping Screw	3×6	BI	バインドタッピングネジ			
	Ei 34 01 66	"	4×16	BI	"			
	Ei 34 00 86	"	4×8	BI	"			
	ED 24 05 02	Bind Head Screw	4×50	Cr	バインド小ネジ			
	EV 30 34 06	Spring Washer	4S	BI	バネ産金			
	EV 41 30 46	Toothed Lock Washer	A4S	BI	歯付産金			
					"			
*	NA 81 42 00	PAA Circuit Board	= 92000	P A A シート	P1150/P2150			
*	NA 81 42 20	"	"	"	P1250/P2250			
*	NA 81 42 10	PAB Circuit Board	= 92010	P A B シート	P2150			
*	NA 81 42 30	"	"	"	P2250			
	HV 35 34 70	Flame Proof Carbon Resistor	4.7Ω		不燃化カーボン抵抗			
	HV 35 42 20	"	22Ω		"			
	HV 35 44 70	"	47Ω		"			
	HV 35 51 00	"	100Ω		"			
	HV 35 51 20	"	120Ω		"			
	HV 35 52 20	"	220Ω		"			
	HV 35 52 70	"	270Ω		"			
	HV 35 53 30	"	330Ω		"			
	HV 35 55 60	"	560Ω		"			
*	HV 35 63 00	"	3kΩ		"			
	HU 57 54 30	Metal Film Resistor	430Ω	1/4W	金属皮膜抵抗	P1150/P2150		
	HU 57 68 20	"	8.2kΩ	1/4W	"			
	HU 57 71 80	"	18kΩ	1/4W	"			
	HU 57 53 30	"	330Ω	1/4W	"	P1250/P2250		
	HL 31 41 00	Metal Oxide Film Resistor	10Ω	1W	酸化金属皮膜抵抗			
	HL 31 48 20	"	82Ω	1W	"			
	HL 32 34 70	"	4.7Ω	2W	"			
	HZ 00 39 50	Wire Wound Resistor	0.33Ω	5W	金属板抵抗			
	HZ 00 48 20	"	10Ω	5W	"			
	UA 25 32 20	Mylar Film Cap.	0.0022μF	50V	マイラコン			
	UA 25 51 00	"	0.1μF	50V	"			
	FZ 00 52 00	Metalized Mylar Cap.	0.1μF	100V	M M コン			
	FZ 00 52 10	"	0.22μF	100V	"			
	FZ 00 52 20	"	0.48μF	100V	"			
	FU 35 13 30	Mica Cap.	33pF	500V	F E マイカコン			
	FU 35 21 50	"	150pF	500V	"			
	FT 55 21 00	Polypropylene Cap.	100pF	50V	ポリプロコン			
	FT 55 24 70	"	470pF	50V	"			

\* New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	FT 55 25 60	Polypropylene Cap.	560pF 50V	ポリプロコン			
	FT 55 26 80	"	680pF 50V	"			
	FT 55 31 50	"	1500pF 50V	"			
	UJ 28 82 20	Electrolytic Cap.	220 $\mu$ F 80V	ケミコン			
	UJ 29 74 70	"	47 $\mu$ F 100V	"			
	iA 09 68 00	Transistor	2SA968 (O,Y)	トランジスタ			
	iC 22 38 00	"	2SC2238(O,Y)	"			
	iA 13 60 00	"	2SA1360(O,Y)	"			
	iC 34 23 00	"	2SC3423(O,Y)	"			
	iA 09 70 00	"	2SA970(GR,BL)	"			
	iA 10 15 30	"	2SA1015(Y,GR)	"			
	iC 18 15 30	"	2SC1815 (GR)	"			
	iC 22 91 00	"	2SC2291(F,G,H)	"			
	iC 22 40 00	"	2SC2240(GR,BL)	"			
	iE 10 45 10	FET	2SK389 (BL,V)	F E T			
	iF 00 06 70	Diode	1S2473	ダイオード			
	iF 00 14 00	"	1S882	"			
	iH 00 03 20	"	1S1888	"			
	iF 00 51 20	"	MC931	ダブルダイオード			
	iF 00 56 00	Zener Diode	RD5.6EB2	ツェナーダイオード			
	iF 00 07 90	Varistor Diode	MV-12	バリスタ			
	iF 00 61 90	LED	L TZ-R17	L E D			
	iG 10 70 00	IC	NJM072D	I C			
	HT 41 03 70	Trimmer Potentiometer	B470 $\Omega$	ソリッドVR			
	GD 90 05 80	Coil	2.0 $\mu$ F	コイル			
	BA 01 18 70	Heat Sink		放 熱 板			
	KA 00 02 20	Thermal Reed Switch	OHD-85B	サーマルガード			
	KA 90 70 00	Relay	INT60M15	リレー			
	LB 60 77 70	Transistor Socket	M168Z	トランジスタソケット			
	LB 92 80 30	Connector	3P	ウェハーアッセンブリー			
	LB 91 80 30	Connector Base Pin	3P	コネクタベースピン	XH		
	LB 91 80 50	"	5P	"	"		
	LB 00 70 40	Connector Housing	4P	コネクタハウジング			
	LB 00 90 30	"	3P	"	XH		
	LB 00 90 20	"	2P	"	"		
	LB 10 10 00	Contact Pin		コンタクトピン			
	LB 10 11 30	"		"	XH		
	Ei 33 00 86	Bind Head Tapping Screw	3x8	BI バインドタッピングネジ			
	EV 30 33 06	Spring Washer	3S	BI バネ座金			
	EV 20 30 36	Flat Washer	3S	BI 平座金			
	NA 81 42 40	OUTPUT Circuit Board	=92350	OUTPUT シート	P1150/P1250M <sub>1</sub>		J,G
	NA 81 46 00	"	"	"	"		U
	NA 81 45 70	"	"	"	"		C
	NA 81 45 30	"	"	"	P2150M <sub>1</sub>		J,G
	NA 81 45 90	"	"	"	"		U
	NA 81 45 60	"	"	"	"		C
	NA 81 42 60	"	=91990	"	P2250M <sub>1</sub>		J,G
	NA 81 45 80	"	"	"	"		U
	NA 81 45 50	"	"	"	"		C
	UJ 12 81 00	Electrolytic Cap.	100 $\mu$ F 10V	ケミコン			
	UW 55 74 70	"	47 $\mu$ F 35V	"			
	UW 56 61 00	"	1 $\mu$ F 50V	"			

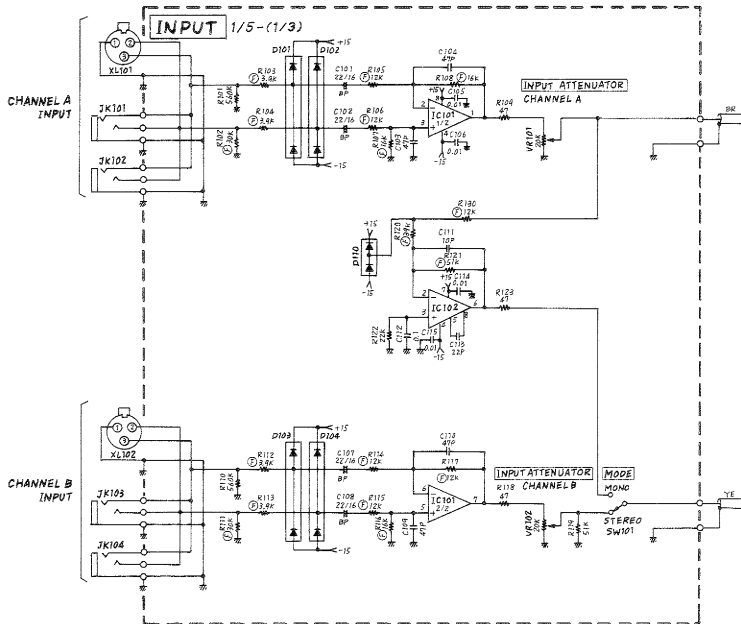
\* New Parts (新規部品)



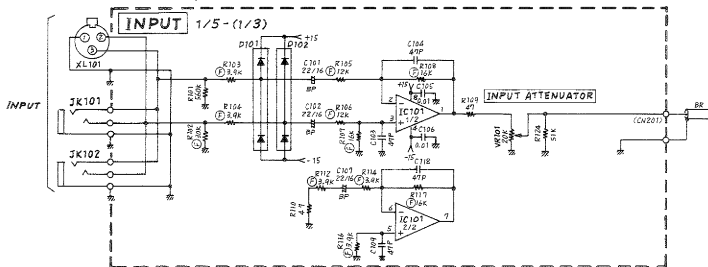
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	UK 74 81 00	Bipolar Electrolytic Cap.	100 $\mu$ F 25V	B P ケ ミ コ ン			
	IA 09 70 00	Transistor	2SA970 (GR, BL)	ト ラ ン ジ ス タ			
	IC 22 40 00	"	2SA2240 (GR, BL)	"			
	IF 00 06 70	Diode	1S2473	ダ イ オ ード			
	IH 00 00 30	"	10D-1	"			
	IG 03 48 00	IC	TA7317P	I C			
*	KC 00 20 10	Relay	MS24D4	リ レ	P1150/P1250/P2150		
	KC 00 19 80	"	MZ-24	"			
*	KC 00 19 70	"	MSJ24	"	P2250		
	LB 10 05 00	Phone Jack		ホ ー ン ジャ ッ ク		J, U, G	
*	LA 00 55 10	Speaker Terminal	Left	ス ピ ー カ ー タ ー ミ ナ ル	P1250, 2250, 2150	J, G	
*	LA 00 55 30	"	"	"	M, E	U, C	
*	LA 00 55 20	"	Right	"	P2150/P2250	J, G	
*	LA 00 55 40	"	"	"	"	U, C	
	LB 91 80 20	Connector Base Pin	2P	コ ネ ク タ ベ ー ス ピ ン	XH		
	LB 91 80 30	"	3P	"	"		
	LB 91 80 40	"	4P	"	"		
	LB 91 80 50	"	5P	"	"		
*	LB 40 08 50	Connector	4P	ウ ェ ハ ー ア ッ セ ン ブ リ ー			
*	CA 80 91 60	Insulating Washer		絶 縁 ワ ッ シ ャ ー	Mi Type	J, U, G	
	NA81411C	P.C.B Assy, IN	IN	IN	シート	P1250 C	J
	NA81425C	CUT	CUT	CUT			
	NA81412C	IN	IN	IN			U, C
	NA81413C	IN	IN	IN			G
	NA81415C	IN	IN	IN	P2150 C	J	
	NA81454C	CUT	CUT	CUT			
	NA81466C	IN	IN	IN			U, C
	NA81470C	IN	IN	IN			G
	NA81399C	IN	IN	IN	P1150 C	J	
	NA81425C	CUT	CUT	CUT			
	NA81466C	IN	IN	IN			U, C
	NA81461C	IN	IN	IN			G
	AA83286C		BS 全 員 (ス)	C			
	CB82742C	Ccfer	カハ-	P2250 C		J, U	
	LA80561C		スフット K103	P2250 C		J, U	
	CB81067C		絶縁フット	P1250 C		J	
	CB81064C		"	P2250 C		U, C, G	
	AA83336C		フットスプーサ	P1250 C, P1150 C			
	EK80237C		フタ-ワッシャー	P2250 C, P1250 C, Mi			
	AA83343C		BS 全 員 (カ)	Cap			
	HJ35736C	30k $\Omega$	カーボン抵抗	C type			
	KA40171C		スライド SW	C type			
	LA00556C		アン通端子	P2150 C, P2250 C			
	LB00503C		アッフルフット	C type			
	CA80041C		絶縁ワッシャー	P1250 C			
	LA00547C		アン通端子	P2250 C, P2150 C			
	LB10056C		シャフ	P1250, P2150, P2250		J, U, G	
	LA00553C		ステ-A-7-ミル	C type			
	LA00554C		"	C type			

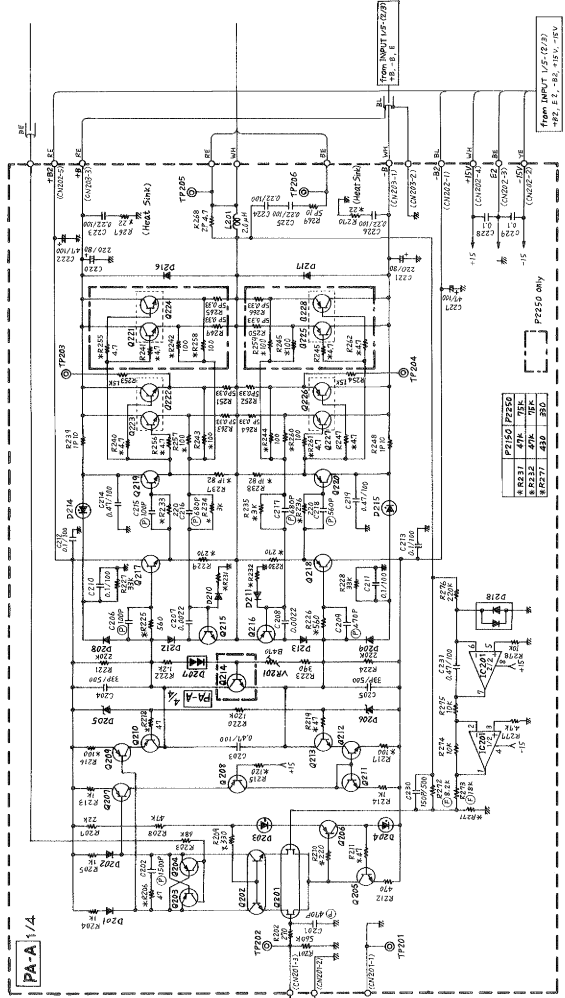
\* New Parts (新規部品)

# P2150, P2250



# P1150, P1250

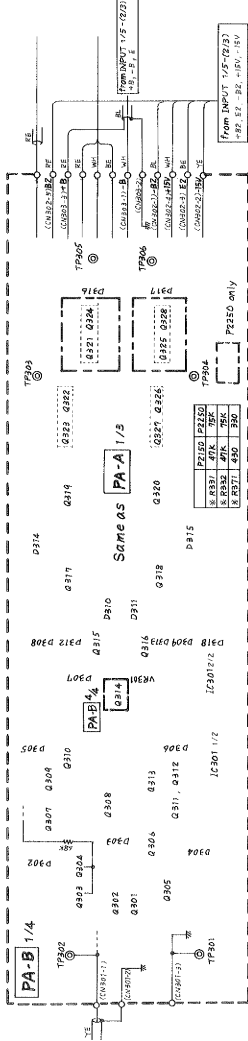




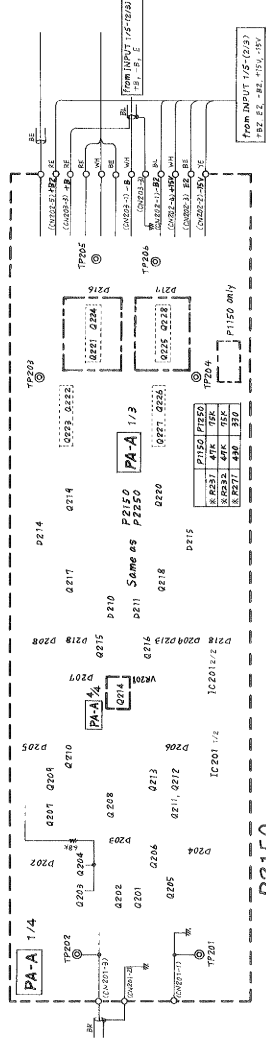
PA-A 1/4

	P2150	P2150
R231	47K	75K
R232	47K	75K
R233	47K	75K
R234	47K	75K

P2150 Only



Same as **PA-A 1/3**



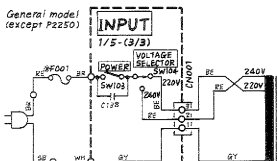
Same as **PA-A 1/3**

	*R125	*C120		Wire Color				
		*C121	*A	*B	*C	*D	*E	
P1150	15P 680	10000/63	YE	YE	OR	BE	BE	
P1250	15P 1K	10000/80	YE	YE	OR	BE	BE	
P2150	15P 680	15000/63	BE	BE	VT	OR	OR	
P2250	15P 1K	15000/80	PK	PK	VT	OR	OR	

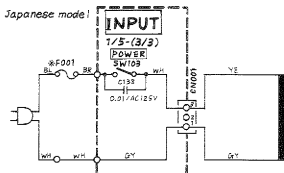
	*F101 ~ 104
Japanese	1A 250V
U.S. and Canadian	1A 250V
General	T630mA 250V

	Japanese		U.S. and Canadian		General (except P2250)		General (P2250 only)		
	Power Transformer	*F001	Power Transformer	*F001	Power Transformer	*F001	Power Transformer	*F001	*F002
P1150	GA83780	5A 250V	GA83790	5A 125V	GA83800	T3.15A 250V			
P1250	GA83810	7A 250V	GA83820	7A 125V	GA83830	T4.0A 250V			
P2150	GA83920	10A 250V	GA83930	10A 250V	GA83740	T6.3A 250V			
P2250	GA83750	15A 250V	GA83760	15A 250V			GA83770	T4.0A 250V	T4.0A 250V

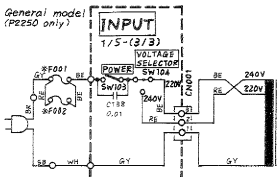
General model (except P2250)



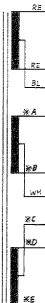
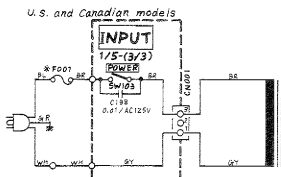
Japanese mode:



General model (P2250 only)



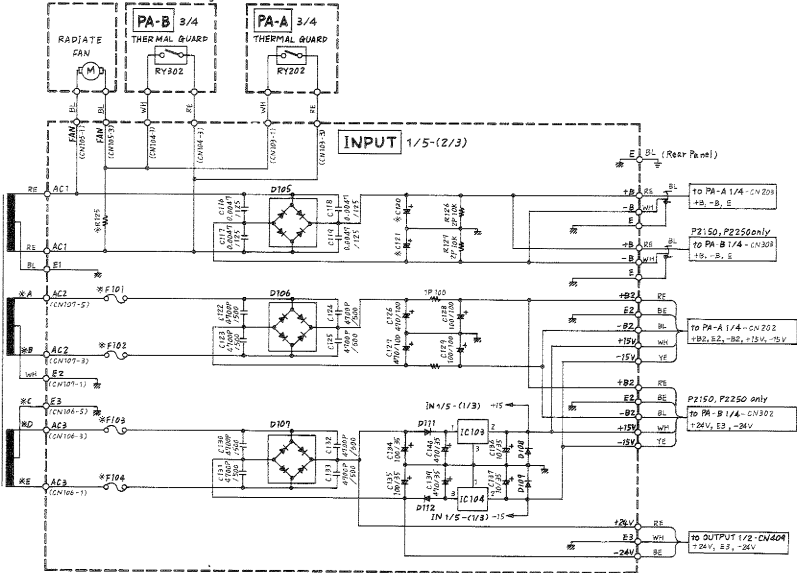
U.S. and Canadian models



Notes)	
INPUT Circuit Board	
IC101	: NJM5532D (1G142800)
IC102	: NJM5534D (1G143500)
IC103	: PC7815P (1G063900)
IC104	: PC7915H (1G077500)
D101-104, 110	: MC831
D105	: KBR-2504
D106, 107	: 16481
D108, 109,	
111, 112	: 1001
LED111, 112	
115, 116	: LN228P
LED113, 114	: LN3226P
VR101, 102	: 20k $\Omega$

Notes)	
FAA Circuit Board	
IC201	: NJM720 (1G107000)
Q201	: 2SK389 (BL, V)
Q202	: 2SC2281 (F, G, H)
Q203, 204, 206,	
207, 216	: 2SA470 (GR, BL)
Q205, 215	: 2SC2240 (GR, BL)
Q208, 210, 218	: 2SA1360 (O, Y)
Q209	: 2SA1015 (F, GR)
Q211, 212	: 2SC1815 (GR)
Q213, 214, 217	: 2SC3423 (O, Y)
Q219	: 2SC2238 (O, Y)
Q220	: 2SA468 (O, Y)
Q221-224	
(P1150/P2150)	: 2SC2837 (O, Y)
(P1250/P2250)	: 2SC3284 (O, Y)
Q225-228	
(P1150/P2150)	: 2SA1186 (O, Y)
(P1250/P2250)	: 2SA1303 (O, Y)
Q201, 202, 212,	
213	: 1S2473
Q203, 204, 214,	
215	: LTZ-R17
Q205, 200	: R05.GER2
Q207	: MV-12
Q208-211	: 15882
Q216, 217	: 1S1588
Q219	: MC831
VR201	: 8470 $\Omega$
RY201	: OH0-R5B
RY202	: INT60M15

P2150, P2250 only



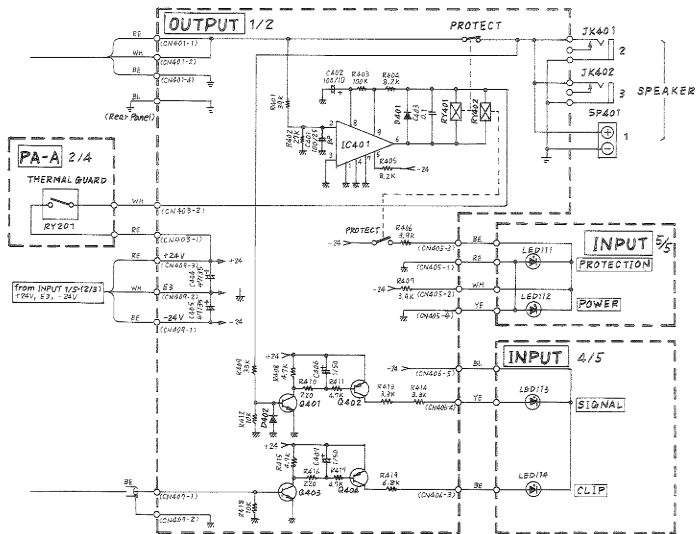
Notes)  
PAB Circuit Board

- IC301 : NJM72D (G107000)  
 Q301 : 25K389 (BL, Y)  
 Q302 : 25C2291 (F, G, H)  
 Q303, 304, 306 : 307, 315  
 Q305, 315 : 25A970 (GR, BL)  
 Q306, 310, 312 : 25A1360 (O, Y)  
 Q309 : 25A1015 (Y, GR)  
 Q311, 312 : 25C1815 (GR)  
 Q313, 314, 317 : 25C3423 (O, Y)  
 Q319 : 25C2238 (O, Y)  
 Q320 : 25A968 (O, Y)  
 Q321-324 : 25A2837 (O, Y)  
 (P2150) : 25C3284 (O, Y)  
 (P2250) : 25C3284 (O, Y)  
 Q325-328 : 25A18610 (O, Y)  
 (P2150) : 25A18610 (O, Y)  
 (P2250) : 25A1303 (O, Y)

- Q301, 302, 312, 313 : 1S2473  
 Q303, 304, 314, 315 : LTZ-117  
 Q305, 306 : R05.6E32  
 Q307 : MV-12  
 Q309-311 : 1S382  
 Q316, 317 : 1S1866  
 Q318 : M0331  
 VR301 : B470 Ω  
 RV301 : oHd-B5P  
 RY302 : INTG0M15

Notes)  
OUTPUT Circuit Board

- IC401 : TA7317P (G034800)  
 Q401, 403, 405, 407 : 25C2240 (GR, BL)  
 Q402, 404, 406, 408 : 25A970 (GR, BL)  
 L401 : 100-1  
 L402, 403 : 1S2473  
 RY401 : (P1150/P1250#P2150) : MS2404  
 (P2250) : MS124  
 RY402 : MZ-24



• WIRE COLOR ABBREVIATIONS

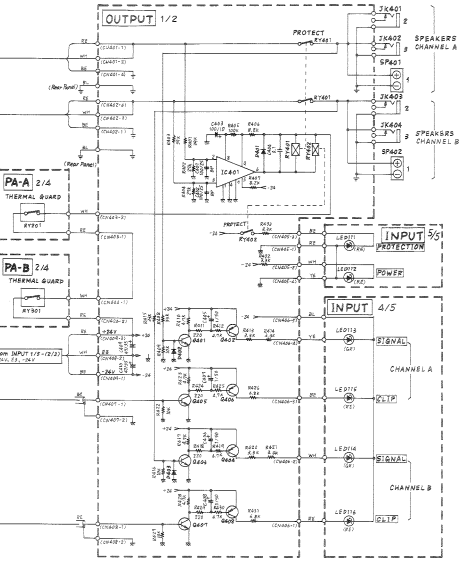
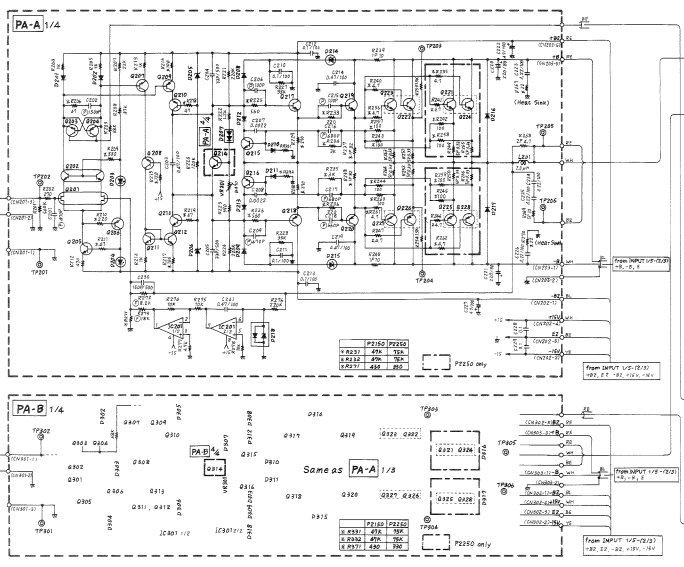
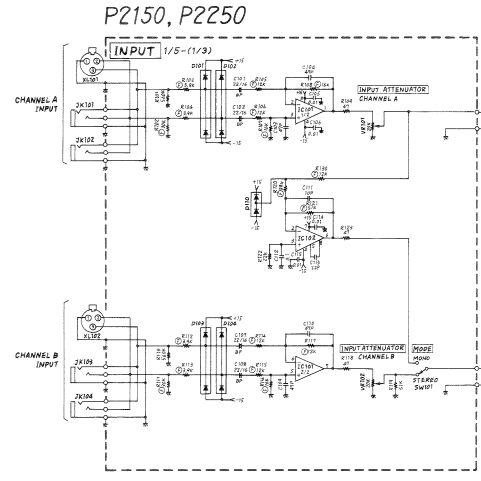
BE→Blue	RE→Red
BL→Black	SB→Sky Blue
BR→Brown	VI→Violet
GR→Green	WH→White
GY→Gray	YE→Yellow
OR→Orange	

\*Schematic diagram subjects to change without notice.

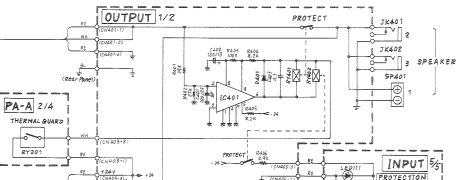
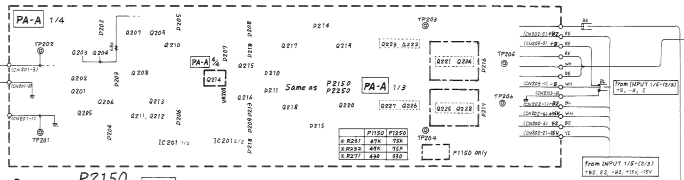
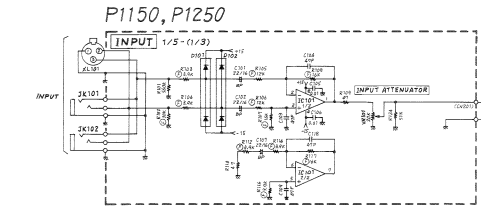




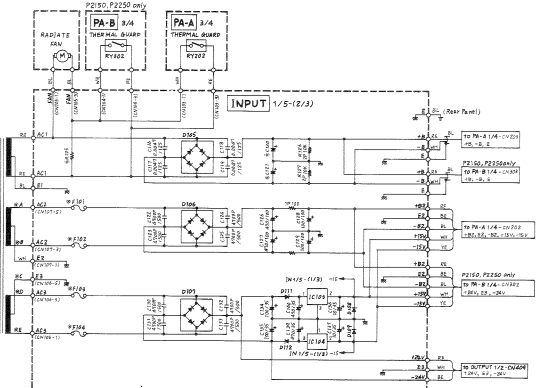
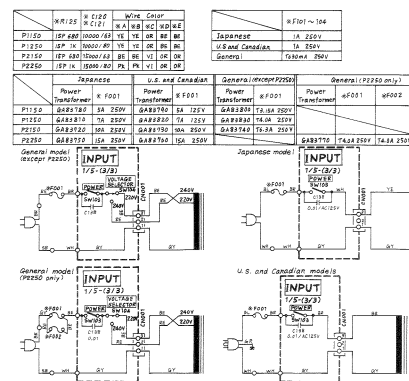
SCHEMATIC DIAGRAM



Same as PA-A 1/3



Same as P2150 PA-A 1/3



Model	Power Transformer	Power Transformer	Power Transformer	Power Transformer
P1150	4E601	4E601	4E601	4E602
P1150	8A 220V	8A 220V	8A 220V	8A 220V
P1150	8A 220V	8A 220V	8A 220V	8A 220V
P1150	8A 220V	8A 220V	8A 220V	8A 220V
P2150	8A 220V	8A 220V	8A 220V	8A 220V
P2150	8A 220V	8A 220V	8A 220V	8A 220V
P2150	8A 220V	8A 220V	8A 220V	8A 220V
P2150	8A 220V	8A 220V	8A 220V	8A 220V
P2250	8A 220V	8A 220V	8A 220V	8A 220V
P2250	8A 220V	8A 220V	8A 220V	8A 220V

INPUT 1/5 (1/3)

INPUT ATTENUATOR

INPUT 1/5 (1/3)

INPUT ATTENUATOR

Model	Power Transformer	Power Transformer	Power Transformer	Power Transformer
P1150	4E601	4E601	4E601	4E602
P1150	8A 220V	8A 220V	8A 220V	8A 220V
P1150	8A 220V	8A 220V	8A 220V	8A 220V
P1150	8A 220V	8A 220V	8A 220V	8A 220V
P2150	8A 220V	8A 220V	8A 220V	8A 220V
P2150	8A 220V	8A 220V	8A 220V	8A 220V
P2150	8A 220V	8A 220V	8A 220V	8A 220V
P2150	8A 220V	8A 220V	8A 220V	8A 220V
P2250	8A 220V	8A 220V	8A 220V	8A 220V
P2250	8A 220V	8A 220V	8A 220V	8A 220V

- WIRE COLOR ABBREVIATIONS**
- BG—Blue
  - BL—Black
  - BR—Brown
  - GR—Green
  - GT—Gray
  - OR—Orange
  - RC—Red
  - SS—Sky Blue
  - VI—Violet
  - WH—White
  - YE—Yellow

\*Schematic diagram subjects to change without notice.