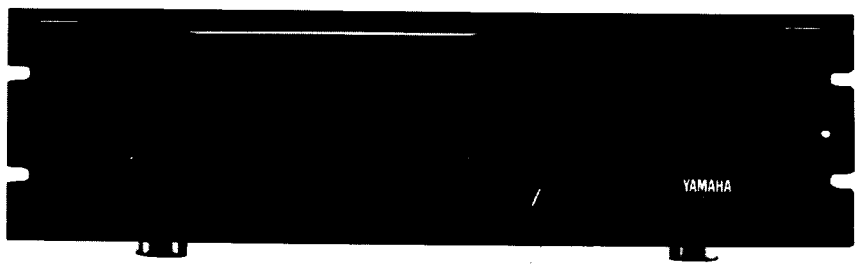


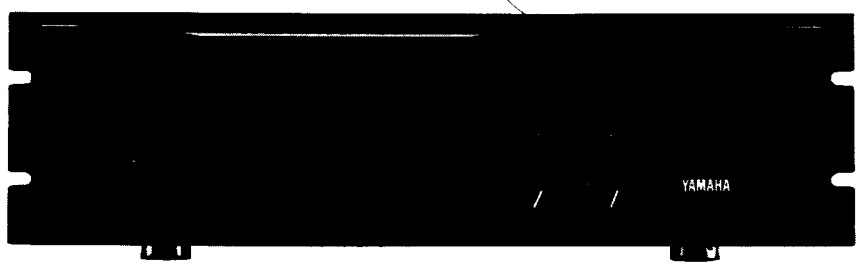
by

POWER AMPLIFIERS P1150/P1250/ P2150/P2250 SERVICE MANUAL



● P1250

~~1222~~
~~1222~~



● P2250

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006650

P1150/P1250
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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). 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, 250 W (300 VA)			
Weight	28.6 lbs (13 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)			
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: 5-1/4 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).							

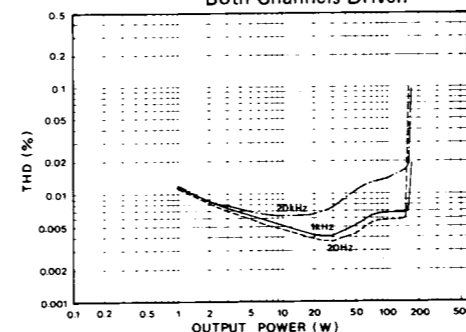
P2250

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

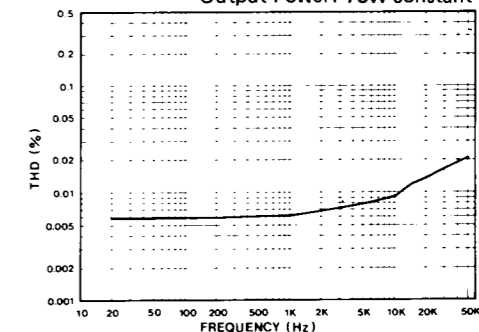
THD vs OUTPUT POWER CHARACTERISTICS

<Model: P2150>
Load Impedance: 4Ω
Mode: STEREO
Both Channels Driven



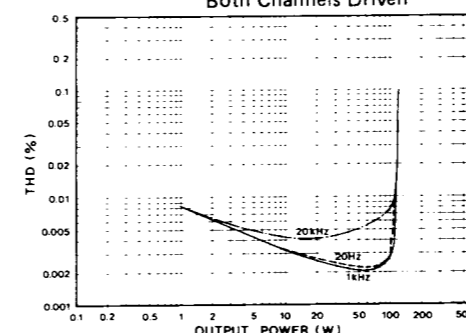
THD vs FREQUENCY CHARACTERISTICS

<Model: P2150>
Load Impedance: 4Ω
Mode: STEREO
Both Channels Driven
Output Power: 75W constant



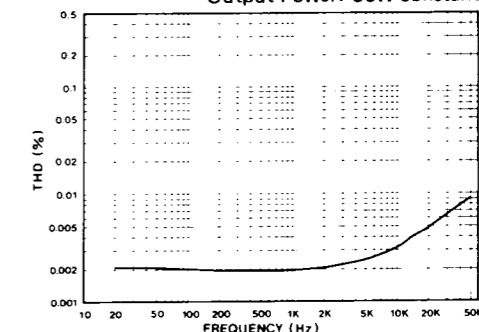
THD vs OUTPUT POWER CHARACTERISTICS

<Model: P2150>
Load Impedance: 8Ω
Mode: STEREO
Both Channels Driven



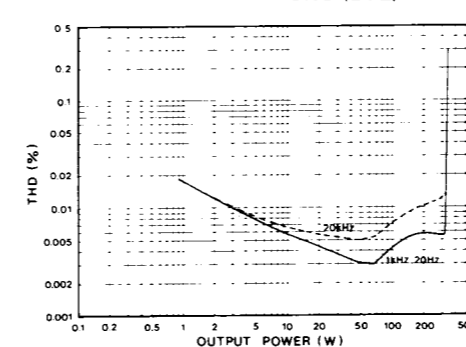
THD vs FREQUENCY CHARACTERISTICS

<Model: P2150>
Load Impedance: 8Ω
Mode: STEREO
Both Channels Driven
Output Power: 50W constant



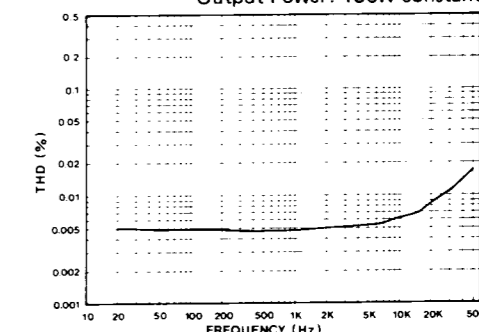
THD vs OUTPUT POWER CHARACTERISTICS

<Model: P2150>
Load Impedance: 8Ω
Mode: MONO (BTL)



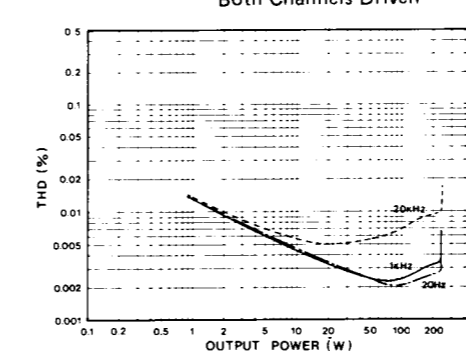
THD vs FREQUENCY CHARACTERISTICS

<Model: P2150>
Load Impedance: 8Ω
Mode: MONO (BTL)
Output Power: 150W constant



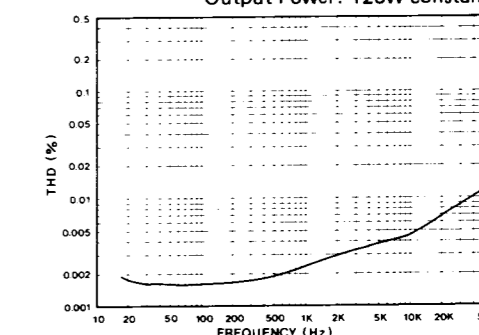
THD vs OUTPUT POWER CHARACTERISTICS

<Model: P2250>
Load Impedance: 4Ω
Mode: STEREO
Both Channels Driven



THD vs FREQUENCY CHARACTERISTICS

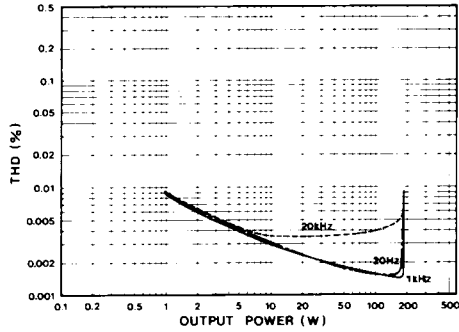
<Model: P2250>
Load Impedance: 4Ω
Mode: STEREO
Both Channels Driven
Output Power: 125W constant



THD vs OUTPUT POWER CHARACTERISTICS

<Model: P2250>

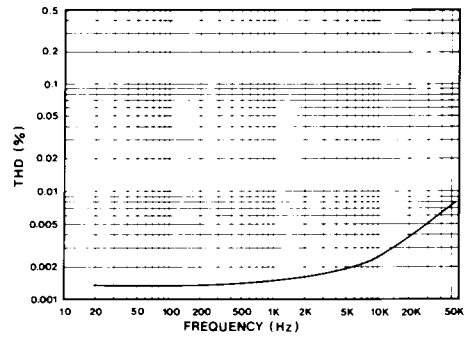
Load Impedance: 8Ω
Mode: STEREO
Both Channels Driven



THD vs FREQUENCY CHARACTERISTICS

<Model: P2250>

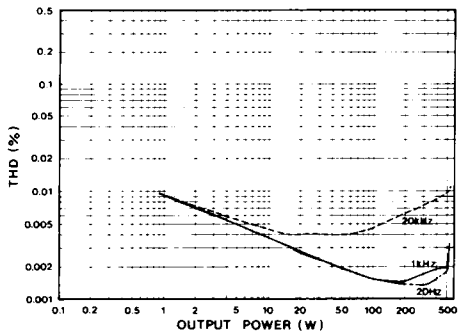
Load Impedance: 8Ω
Mode: STEREO
Both Channels Driven
Output Power: 85W constant



THD vs OUTPUT POWER CHARACTERISTICS

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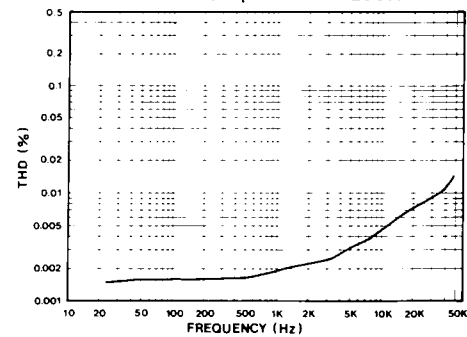
Load Impedance: 8Ω
Mode: MONO (BTL)



THD vs FREQUENCY CHARACTERISTICS

<Model: P2250>

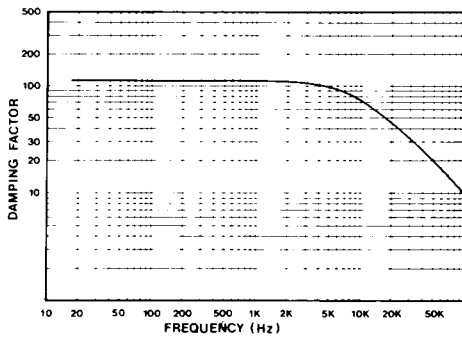
Load Impedance: 8Ω
MODE: MONO (BTL)
Output Power: 250W



DAMPING FACTOR CHARACTERISTICS

<Model: P2250>

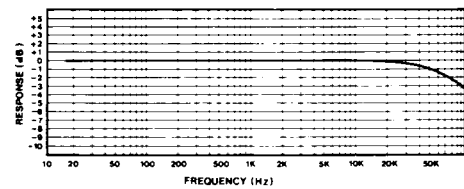
Load Impedance: 8Ω



FREQUENCY RESPONSE CHARACTERISTICS

<Model: all models>

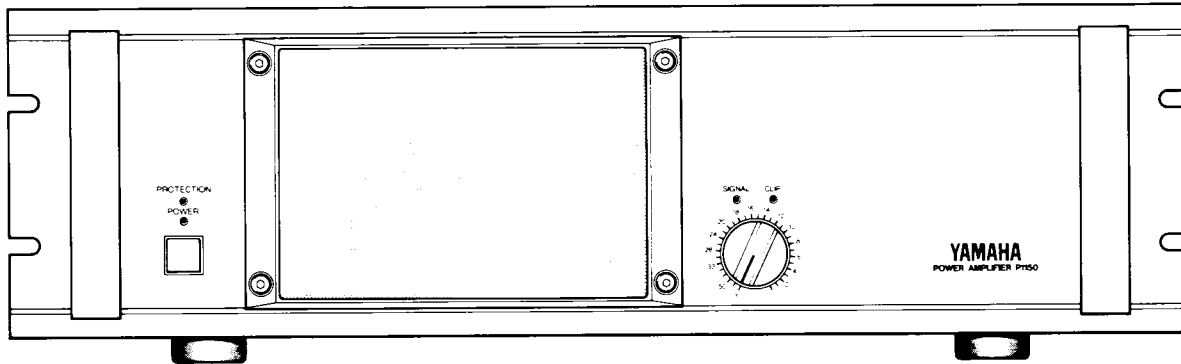
Load Impedance: 8Ω
Input Attenuators: Max



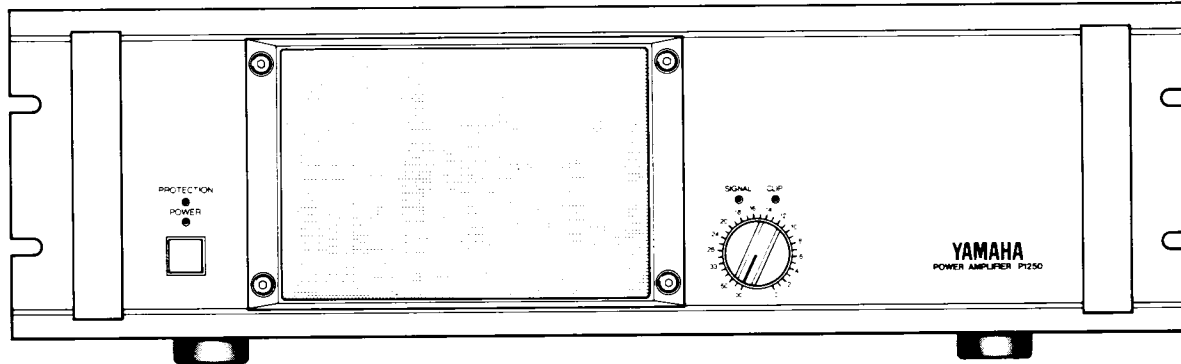
■ PANEL LAYOUT

FRONT PANEL

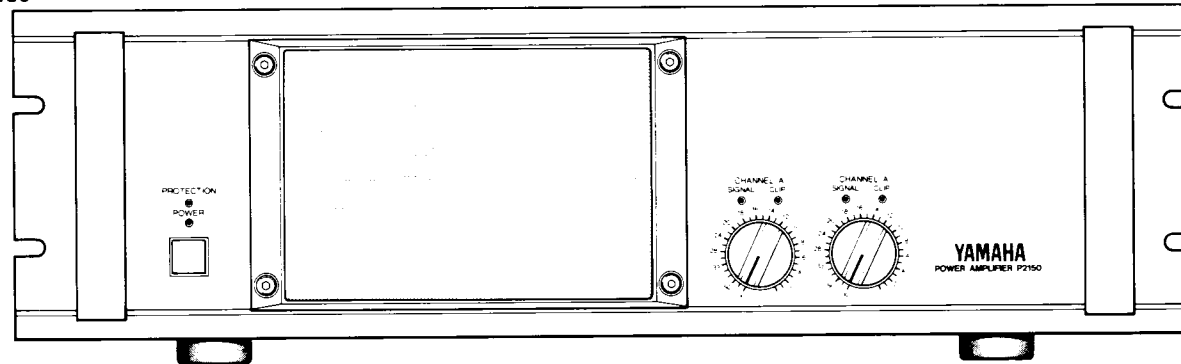
● P1150



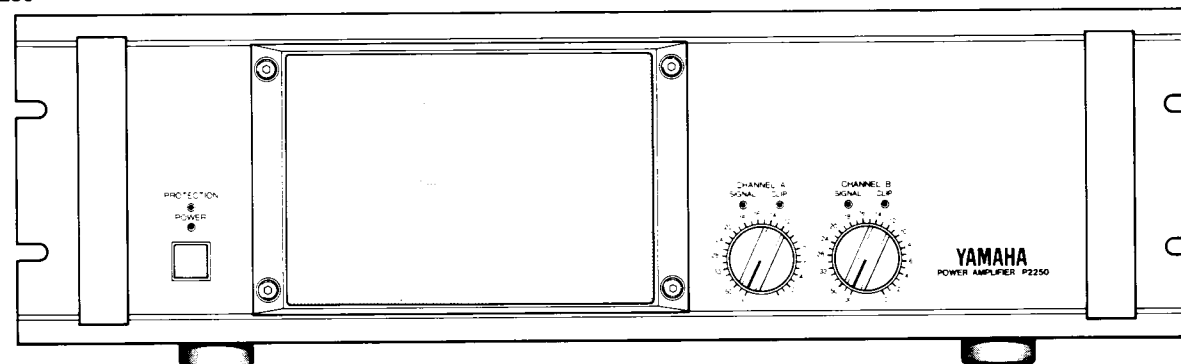
● P1250



● P2150

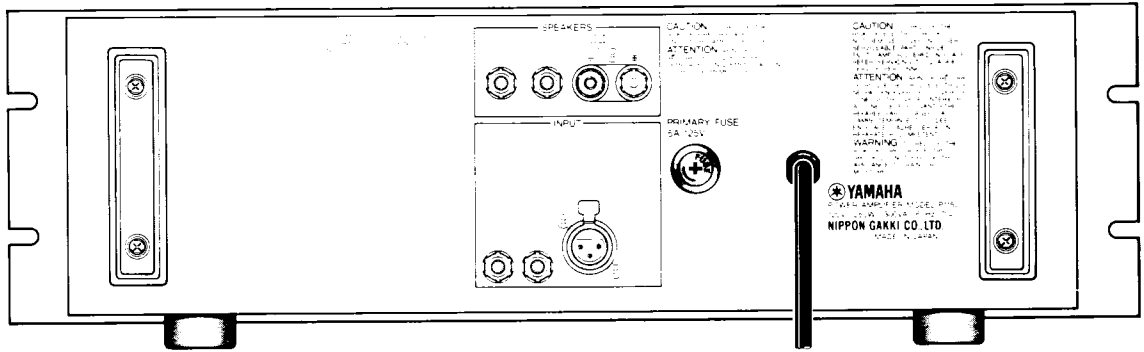


● P2250

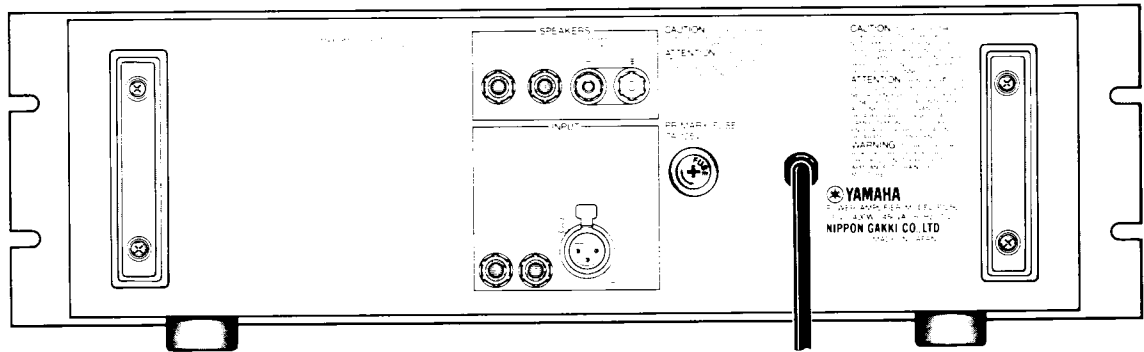


REAR PANEL (U.S. model)

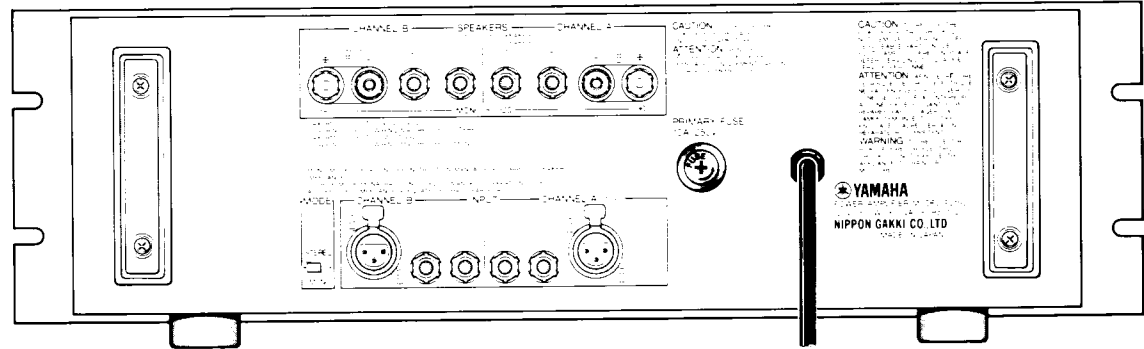
• P1150



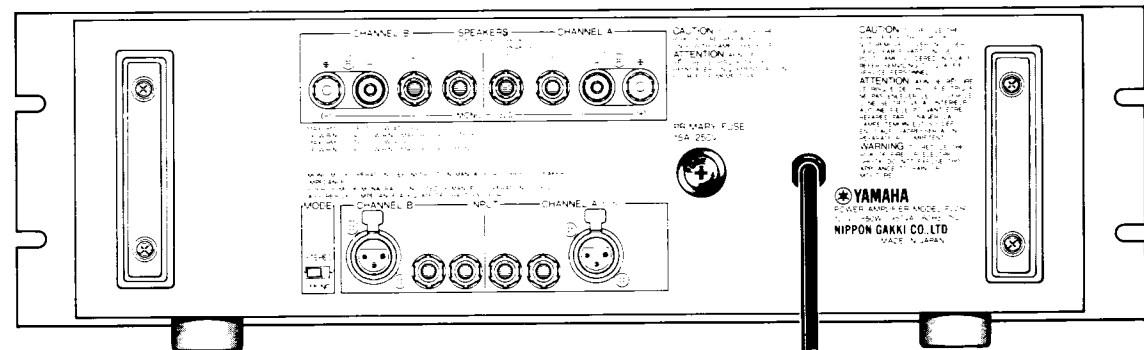
• P1250



• P2150



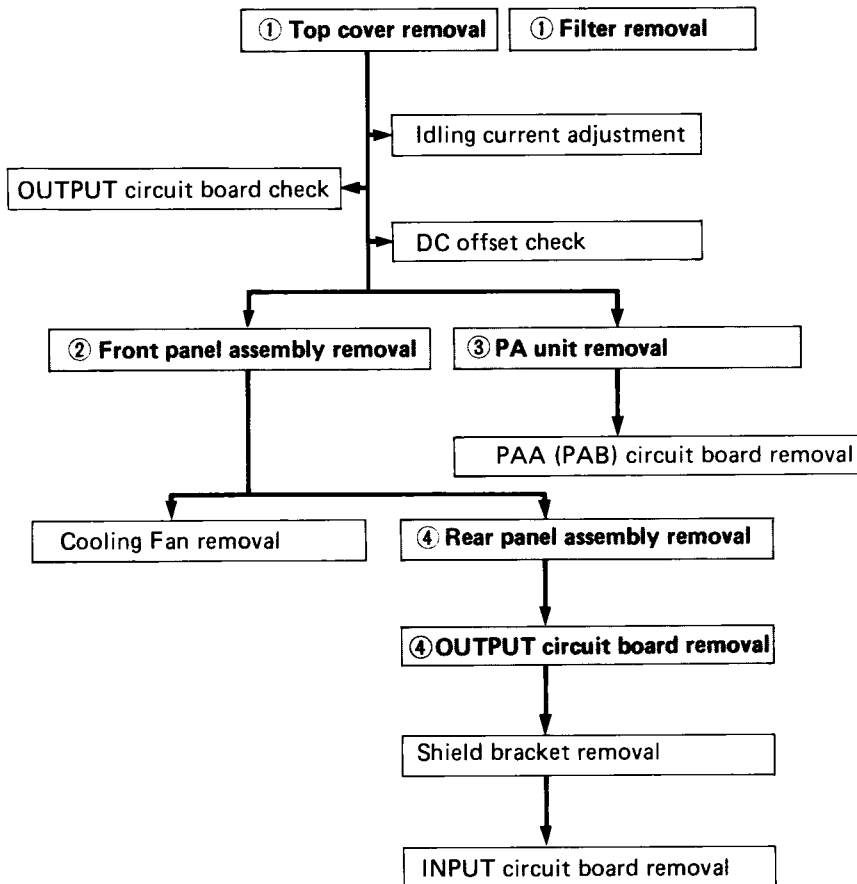
• P2250



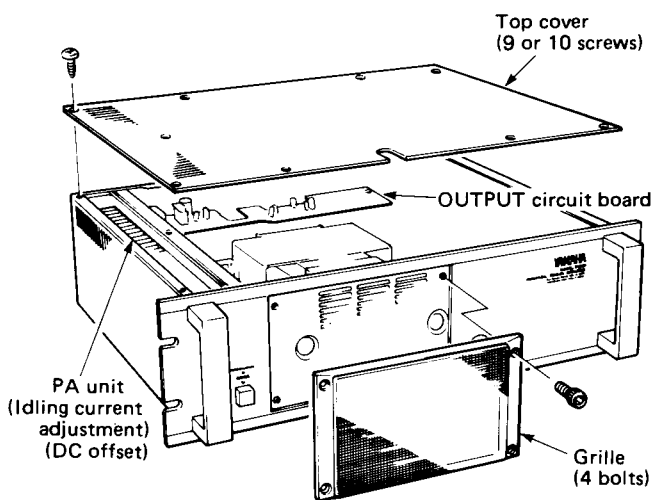
DISASSEMBLY PROCEDURES

- 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.

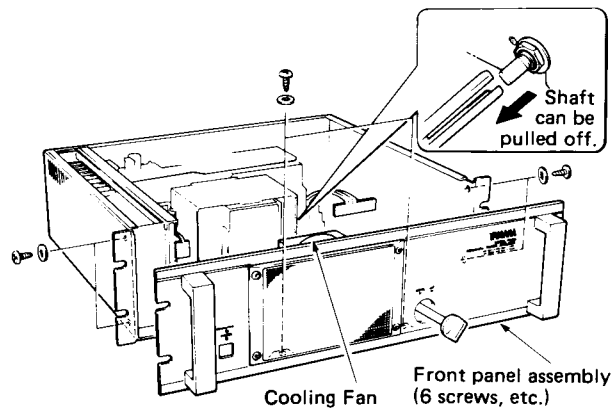
FLOW CHART



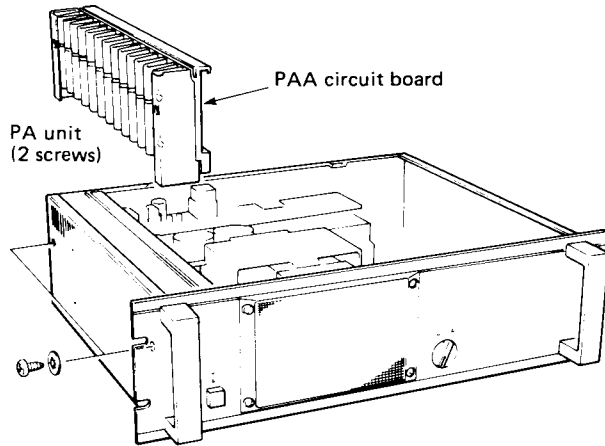
① TOP COVER REMOVAL/GRILLE REMOVAL



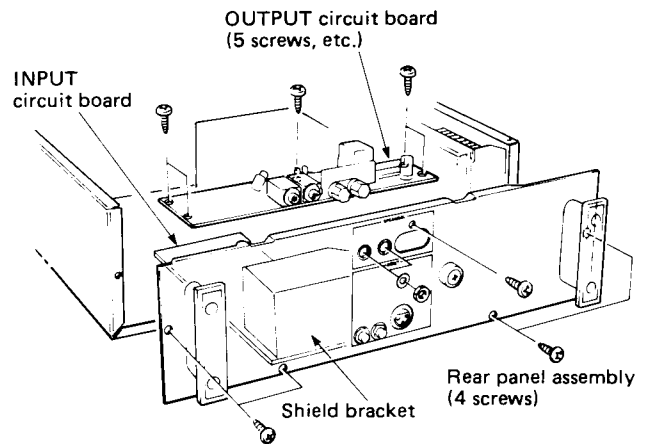
② FRONT PANEL ASSEMBLY REMOVAL



③ PA UNIT REMOVAL



④ REAR PANEL ASSEMBLY REMOVAL/
OUTPUT CIRCUIT BOARD REMOVAL



■ CHECK AND ADJUSTMENT

BEFORE ADJUSTING

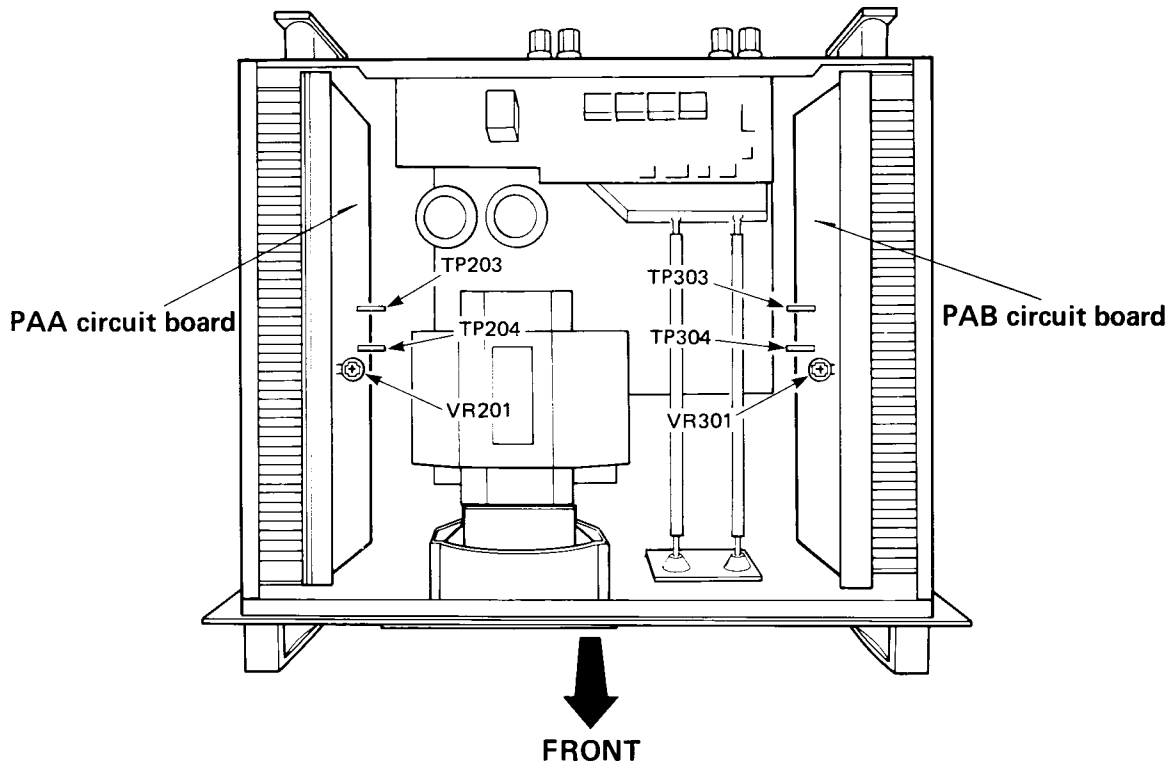
Be sure to wait for about 5 minutes after turning the power switch on, in order for the main amp's operation to become stable.

1. Idling current adjustment

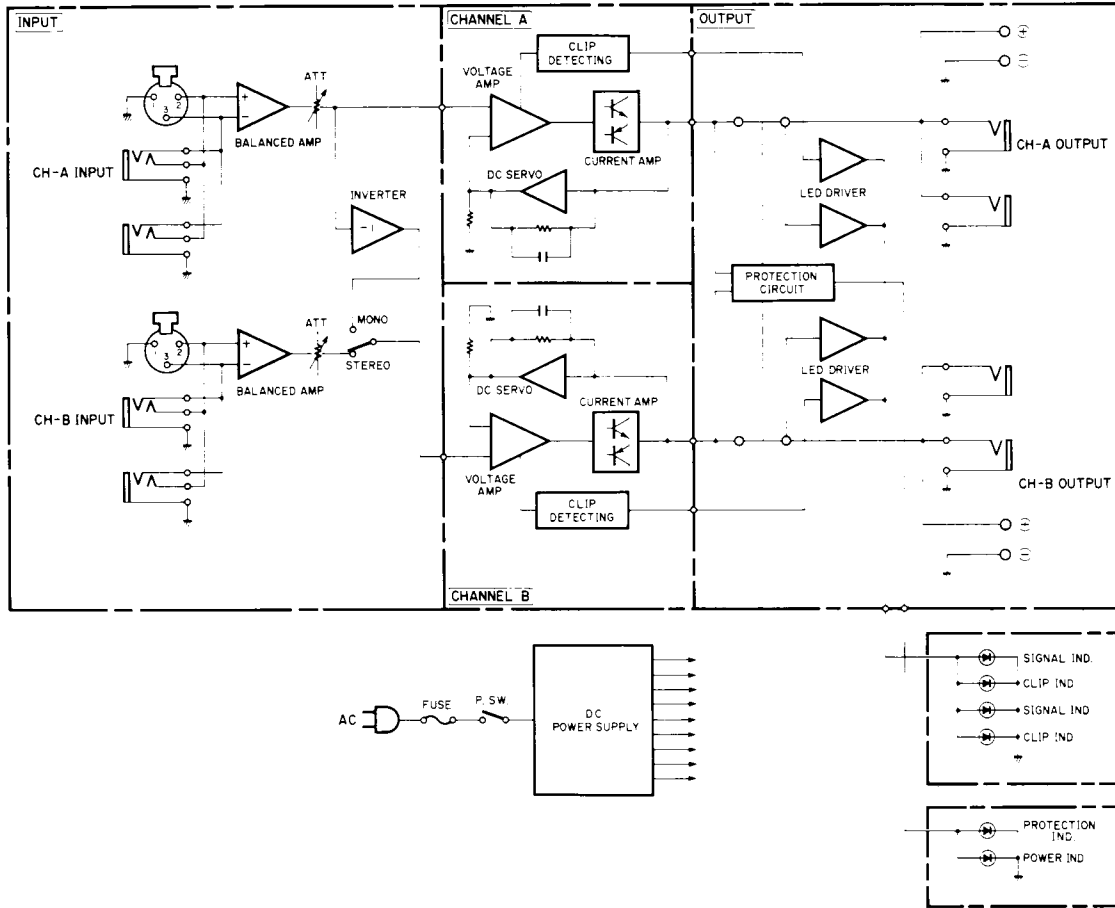
Adjust VR201 (and/or VR301) so that the voltage across the test points TP203 and TP204 on the PAA circuit board (and/or TP303 and TP304 on the PAB circuit board) is $12\text{mV} \pm 0.5\text{mV}$ in a no signal condition.

2. DC offset check

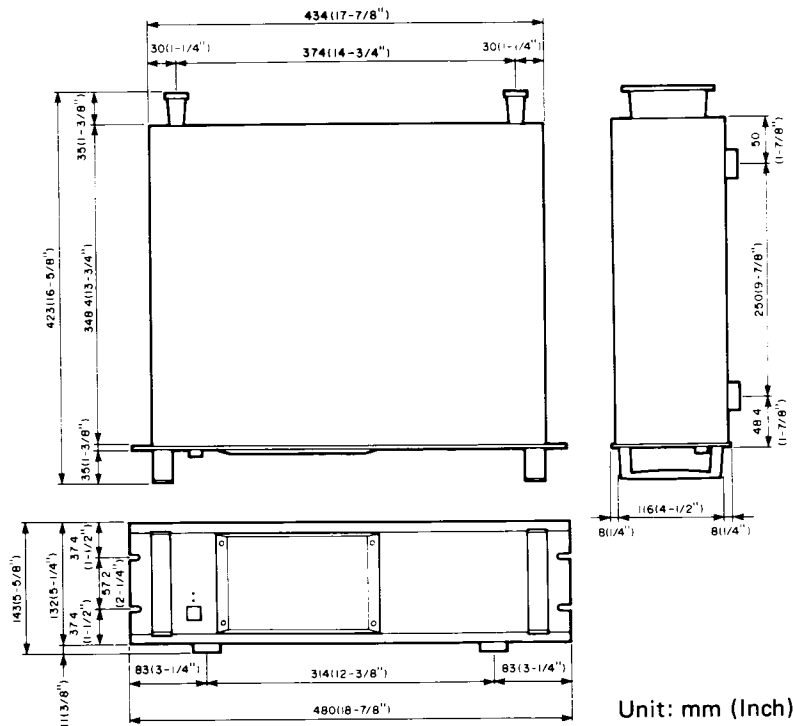
Check that the voltage across the SPEAKER terminals \oplus and \ominus is $0 \pm 10\text{mV}$ in a no signal condition.



■ BLOCK DIAGRAM

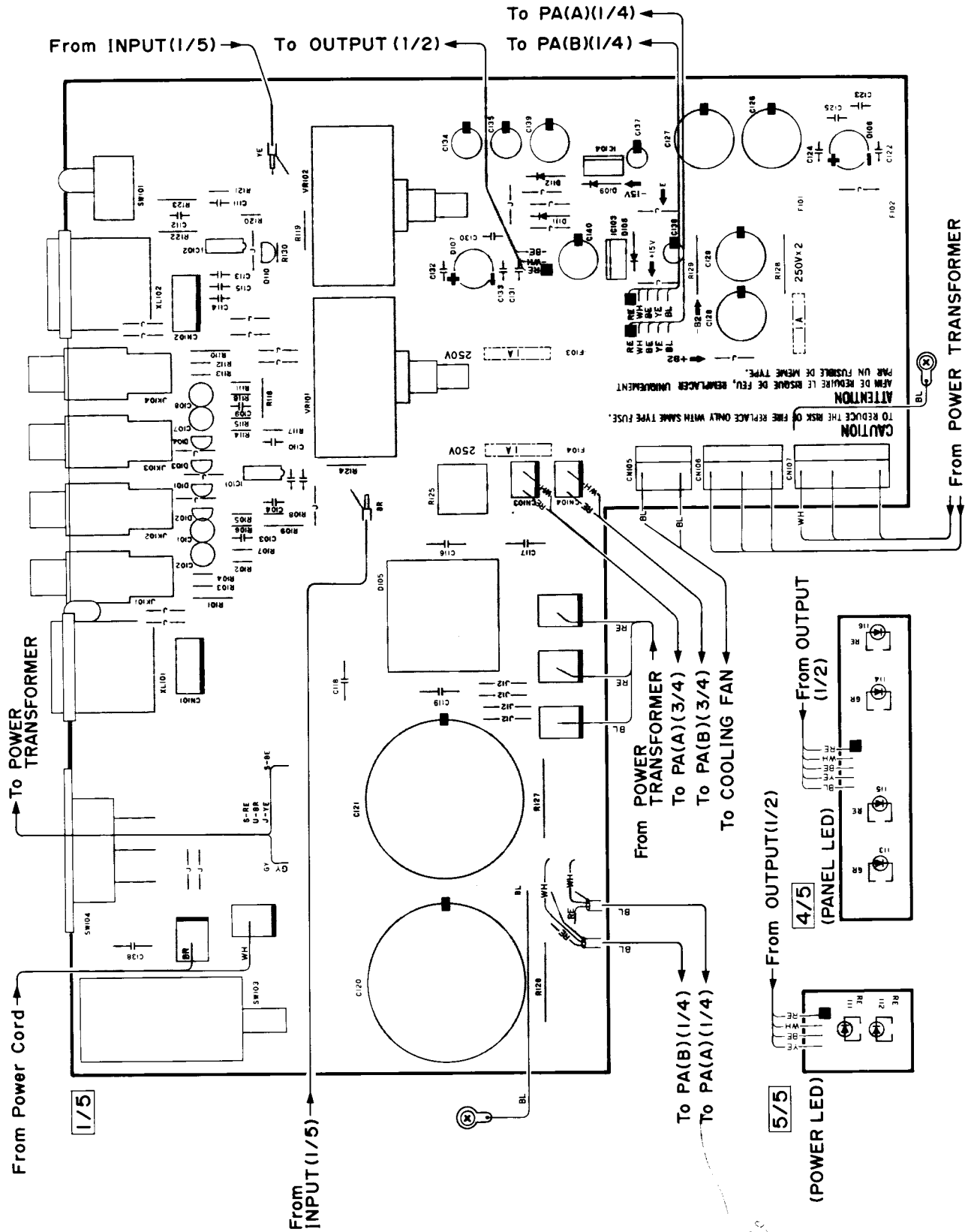


■ DIMENSIONS

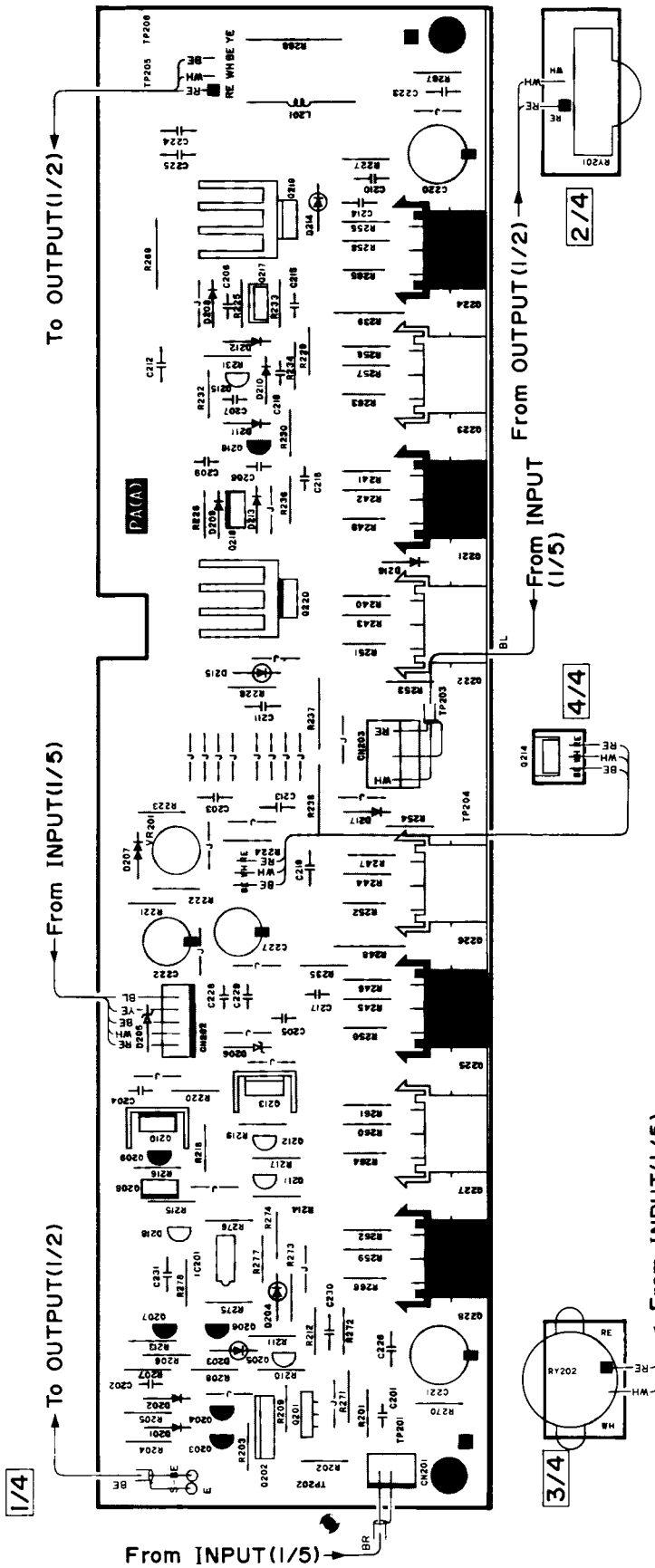


■ CIRCUIT BOARDS (Parts side)

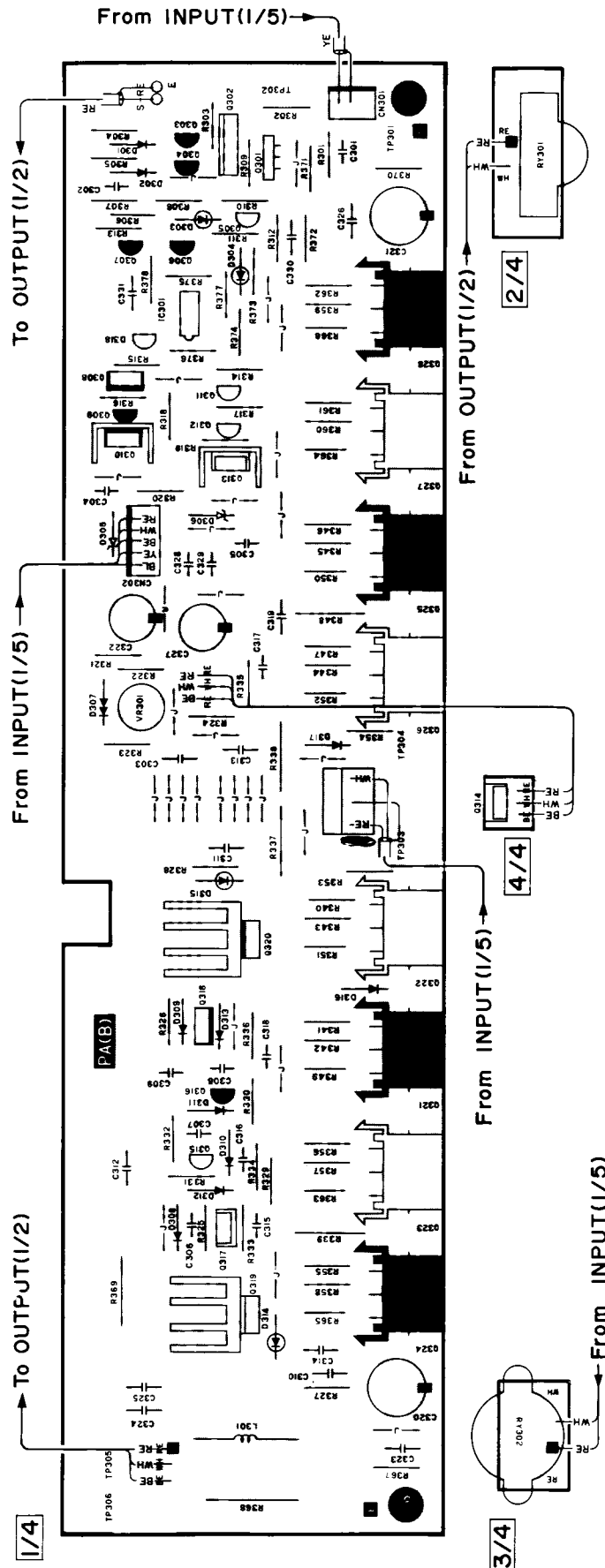
● INPUT CIRCUIT BOARD



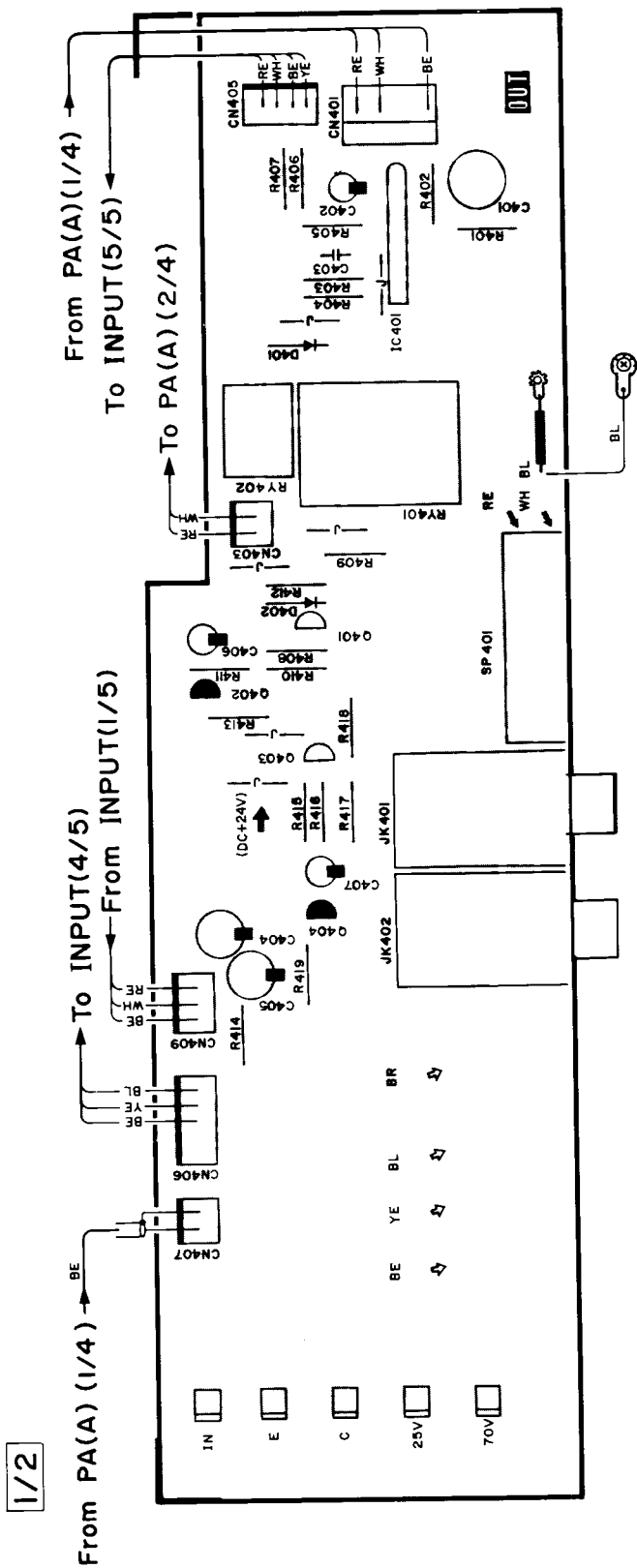
• PAA CIRCUIT BOARD



● PAB CIRCUIT BOARD (P2150 and P2250 only)

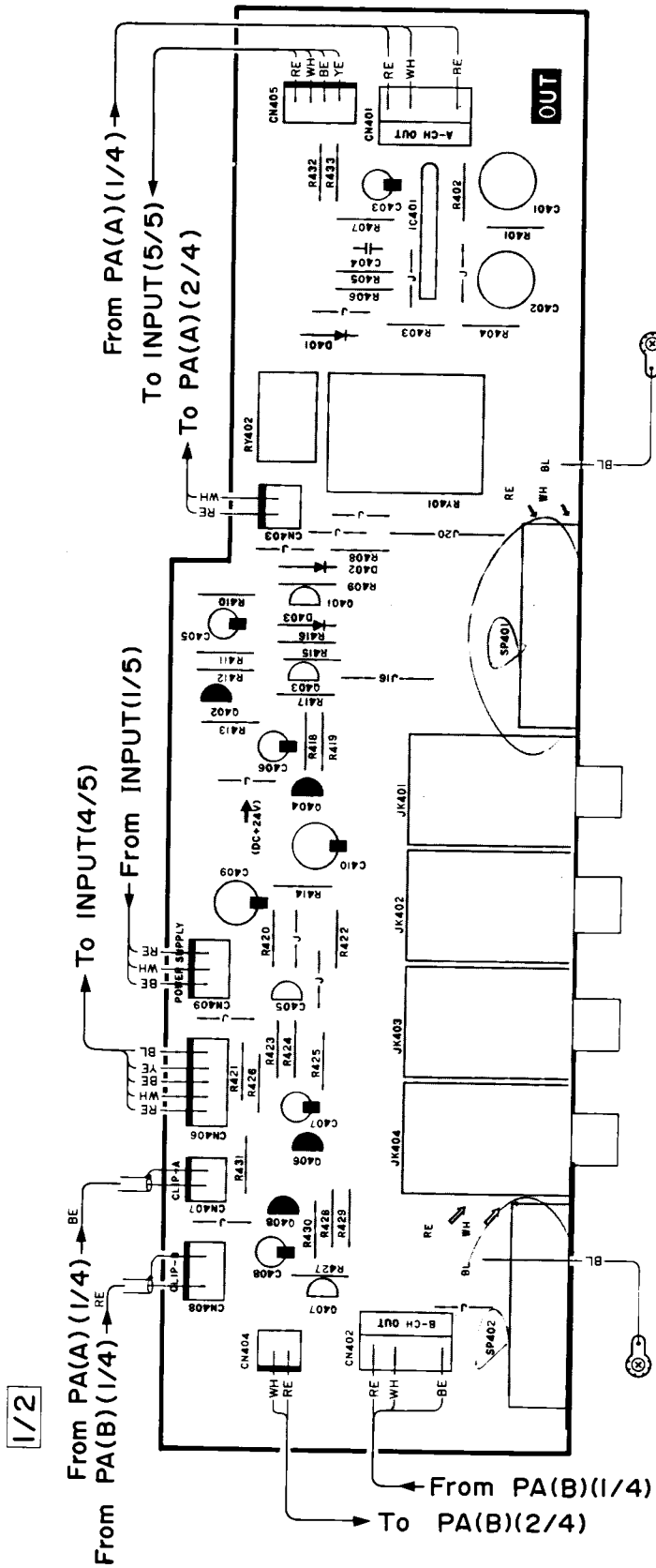


● OUTPUT CIRCUIT BOARD (Except P2250)



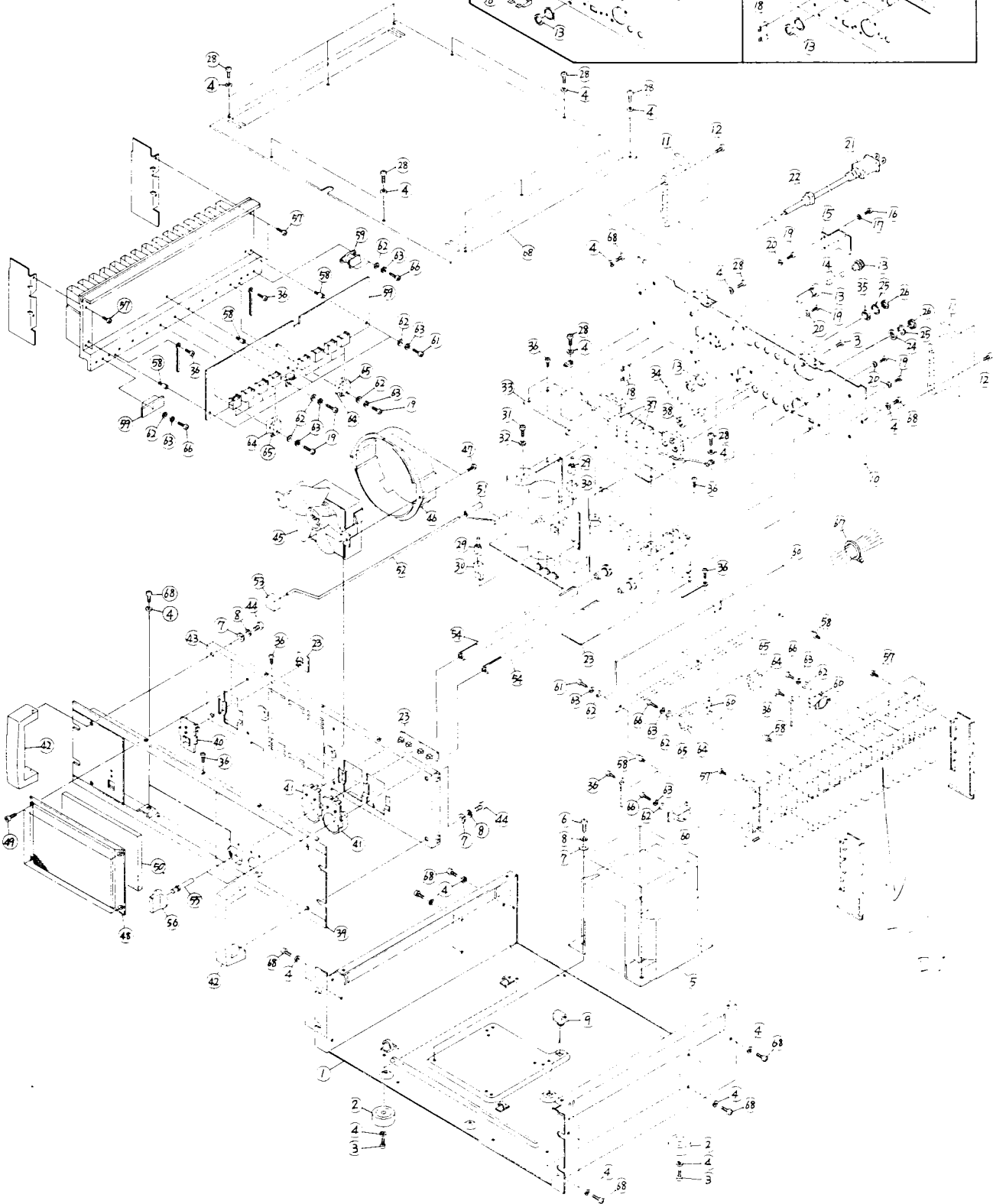
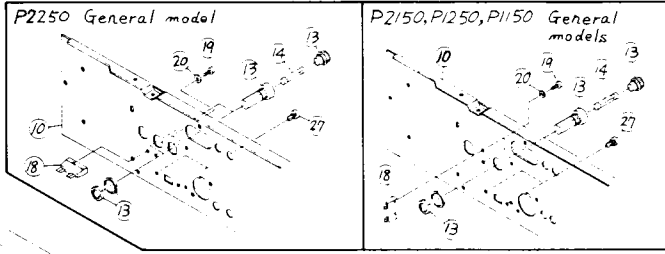
1/2

• OUTPUT CIRCUIT BOARD (P2250 only)



1/2

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	MA			
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 ₁		J	
* "	AA 83 31 30	"	"	"		U,C	
* "	AA 83 31 40	"	"	"		G	
* "	AA 83 30 00	"	"	P1250M ₁		J	
* "	AA 83 30 10	"	"	"		U,C	
* "	AA 83 30 20	"	"	"		G	
* "	AA 83 30 60	"	"	P2150M ₁		J	
* "	AA 83 30 70	"	"	"		U,C	
* "	AA 83 30 80	"	"	"		G	
* "	AA 83 29 40	"	"	P2250M ₁		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	
"	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 ₁ , 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	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 68 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	P1150M ₁		J	
* "	NA 81 39 70	"	"	"		U,C	
* "	NA 81 39 80	"	"	"		G	
* "	NA 81 40 80	"	"	P1250M ₁		J	
* "	NA 81 40 90	"	"	"		U,C	
* "	NA 81 41 00	"	"	"		G	
* "	NA 81 40 20	"	"	P2150M ₁		J	
* "	NA 81 40 30	"	"	"		U,C	
* "	NA 81 40 40	"	"	"		G	
* "	NA 81 41 40	"	"	P2250M ₁		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 ₁ , 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	ポジティブロックレセプタクル	AMP			
30	LB 10 11 80	Housing	ポジ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/P1250M ₁		J,G	
* "	NA 81 46 00	"	"	"		U	
* "	NA 81 45 70	"	"	"		C	
* "	NA 81 45 30	"	"	P2150M ₁		J,G	
* "	NA 81 45 90	"	"	"		U	
* "	NA 81 45 60	"	"	"		C	
* "	NA 81 42 60	"	≒91990	P2250M ₁		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	P2250M ₁		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	ホンジャック	M ₁		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	P1150M ₁			
* "	BA 81 01 00	"	"	P1250M ₁			
* "	BA 81 01 20	"	"	P2150M ₁			
* "	BA 81 00 80	"	"	P2250M ₁			
* 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	ツマミエスカッション				
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	3×12 BI	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	4×8 BI	六角穴付ボルト			
50	CB 83 57 10	Filter		フィルター			
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		アッテネーターツマミ			
57	Ei 33 01 06	Bind Head Tapping Screw	3×10 BI	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	3×6 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	3×12 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/P1250		
	AA 83 28 70	"		"	P2150		
	BA 81 06 40	"		"	P2250 P2150		
	CB 83 36 70	Knob		ツマミ			
	CB 83 36 10	Center Knob		ツマミ			
	BA 81 00 70	Panel		パネル	P2250C		
	BA 81 01 10				P1250C		
	BA 81 01 30				P2150C		
	BA 81 01 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	CUT		CUT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	P1150 M1	J	
	NA 81 39 70	"	"	"	"	U,C	
	NA 81 39 80	"	"	"	"	G	
	NA 81 40 20	"	"	"	P2150 M1	J	
	NA 81 40 30	"	"	"	"	U,C	
	NA 81 40 40	"	"	"	"	G	
	NA 81 40 80	"	"	"	P1250 M1	J	
	NA 81 40 90	"	"	"	"	U,C	
	NA 81 41 00	"	"	"	"	G	
	NA 81 41 40	"	"	"	P2250 M1	J	
	NA 81 41 50	"	"	"	"	U,C	
	NA 81 41 60	"	"	"	"	G	
	UW 65 71 00	Electrolytic Cap.	10μF 35V	ケミコン			
	UJ 15 81 00	"	100μF 35V	"			
	UJ 15 84 70	"	470μF 35V	"			
	UW 69 81 00	"	100μF 100V	"			
	UJ 29 84 70	"	470μF 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.	22μF 16V	B P ケミコン			
	HU 07 63 90	Metal Film Resistor	3.9kΩ 1/4W	金属皮膜抵抗			
	HU 07 71 20	"	12kΩ 1/4W	"			
	HU 07 71 60	"	16kΩ 1/4W	"			
	HU 07 73 00	"	30kΩ 1/4W	"			
	HU 07 73 90	"	39kΩ 1/4W	"	P2150/P2250		
	HU 07 75 10	"	51kΩ 1/4W	"			
	HL 31 51 00	Metal Oxide Film Resistor	100Ω 1W	酸化金属皮膜抵抗			
	HL 32 71 00	"	10kΩ 2W	"			
	HZ 00 50 80	Wire Wound Resistor	680Ω 15W	セメント抵抗	P1150/P2150		
	HZ 00 50 30	"	1kΩ 15W	"	P1250/P2250		
	HY 00 19 20	Detent Variable Resistor	20kΩ	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	"	KBH-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	"	μPC7815H	"			
	iG 07 75 00	"	μPC7915H	"			
	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		ファストン端子			
	LB 20 15 30	Fuse Clip		ヒューズホルダーピン			

*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 M _i 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	ウェ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	バネ座金			
	EV 41 30 46	Toothed Lock Washer	A4S	BI	歯付座金			
				"				
*	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		マイラーコン			
	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 μ F	80V	ケミコン			
	UJ 29 74 70	"	47 μ 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	"	1SS82		"			
	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	LTZ-R17		L E D			
	iG 10 70 00	IC	NJM072D		I C			
*	HT 41 03 70	Trimmer Potentiometer	B470 Ω		ソリッドVR			
	GD 90 05 80	Coil	2.0 μ 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	3 \times 8	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	\approx 92350		OUTPUT シート	P1150/P1250M ₁	J,G	
*	NA 81 46 00	"	"		"	"	U	
*	NA 81 45 70	"	"		"	"	C	
*	NA 81 45 30	"	"		"	P2150M ₁	J,G	
*	NA 81 45 90	"	"		"	"	U	
*	NA 81 45 60	"	"		"	"	C	
*	NA 81 42 60	"	\approx 91990		"	P2250M ₁	J,G	
*	NA 81 45 80	"	"		"	"	U	
*	NA 81 45 50	"	"		"	"	C	
	UJ 28 81 00	Electrolytic Cap.	100 μ F	10V	ケミコン			
	UW 55 74 70	"	47 μ F	35V	"			
	UW 56 61 00	"	1 μ F	50V	"			

*New Parts (新規部品)

P2150/P2250

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	UK 74 81 00	Bipolar Electrolytic Cap.	100 μ 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 M.C.	J, G	
*	LA 00 55 30	"	"	"	V M.C.	U, C,	
*	LA 00 55 20	"	Right	"	P2150/P2250 M.C.	J, G	
*	LA 00 55 40	"	"	"	" M.C.	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	Li Type	J, U, G	
	NA 81 41 10	P.C. B Assy, IN		IN シ ー ト	P1250 C	J	
	NA 81 42 50	CUT		CUT			
	NA 81 41 20	IN		IN		U, C	
	NA 81 41 30	IN		IN		G	
	NA 81 40 50	IN		IN	P2150 C	J	
	NA 81 45 40	CUT		CUT			
	NA 81 40 60	IN		IN		U, C	
	NA 81 40 70	IN		IN		G	
	NA 81 39 90	IN		IN	P1150 C	J	
	NA 81 42 50	CUT		CUT			
	NA 81 40 00	IN		IN		U, C	
	NA 81 40 10	IN		IN		G	
	AA 83 28 60			BS 金 具 (大)	C		
	CB 82 74 20	Cover		カバ -	P2250 C	J, U	
	LA 00 56 10			ス プ ッ ト K103	P2250 C	J, U	
	CB 81 00 90			絶 縁 ス プ ッ ト	P1250 C	J	
	CB 81 00 90			"	P2250 C	U, C, G	
	AA 83 33 60			ソ ッ ケ ッ ト ス パ ー サ	P1250 C, P1150 C		
	EK 00 23 70		16x9x0.3	フ ァ イ ー ワ ッ シ ャ ー	P2250 C, P1250 M.C.		
	AA 83 34 30			BS 金 具 (小)	Can		
	HJ 35 73 00		30K Ω	カ ー ボ ン 抵 抗	C Type		
	KA 40 17 10			ス ラ イ ド S/F	C Type		
	LA 00 55 60			カ ン 通 端 子 受	P2150 C, P2250 C		
	LB 60 80 30			オ ッ フ ソ ッ ケ ッ ト	C Type		
	CA 80 41 60			絶 縁 ワ ッ シ ャ ー	P1250 C		
	LA 00 54 70			カ ン ツ ウ 端 子 受	P2250 C, P2150 C		
	LB 10 05 00			ジ ャ ッ ク	P1250, P2150, P2250	J, U, G	
	LA 00 55 30			ス ピ ー カ ー タ ー ミ ナ ル	C Type		
	LA 00 55 40			"	C Type		

*New Parts (新規部品)