

YAMAHA B-2x

Natural Sound Stereo Power Amplifier

Zero Distortion Rule Amplification

Dual Amplifier Pure Class A Operation

Full Twin Monaural Configuration



OWNER'S MANUAL

Thank you for purchasing the YAMAHA B-2x Stereo Power Amplifier.

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IMPORTANT

Please check your unit's serial number on the rear of the cabinet and record it in the space below.

Model: **B-2x**

Serial No.:

Keep this owner's manual in a safe place for future reference.

WARNING

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

CAUTION (PREPARED IN ACCORDANCE WITH UL STANDARD 1270)**1**

Read Instructions—All the safety and operating instructions should be read before the appliance is operated.

2

Retain Instructions—The safety and operating instructions should be retained for future reference.

3

Heed Warnings—All warnings on the appliance and in the operating instructions should be adhered to.

4

Follow Instructions—All operating and other instructions should be followed.

5

Water and Moisture—The appliance should not be used near water—for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

6

Carts and Stands—The appliance should be used only with a cart or stand that is recommended by the manufacturer.

7

Wall or Ceiling Mounting—The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.

8

Ventilation—The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug or similar surface that may block the ventilation openings, or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

9

Heat—The appliance should be situated away from heat sources such as radiators, stoves or other appliances that produce heat.

10

Power Sources—The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

11

Power-Cord Protection—Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

12

Cleaning—The appliance should be cleaned only as recommended by the manufacturer.

13

Nonuse periods—The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

14

Object and Liquid Entry—Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the appliance.

15


Damage Requiring Service—The appliance should be serviced by qualified service personnel when:

- A. The power-supply cord or the plug has been damaged; or
- B. Objects have fallen, or liquid has been spilled into the appliance; or
- C. The appliance has been exposed to rain; or
- D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
- E. The appliance has been dropped, or the cabinet damaged.

16

Servicing—The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.


CAUTION: READ THIS BEFORE OPERATING YOUR B-2x



CAUTION

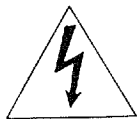
RISK OF ELECTRIC SHOCK

DO NOT OPEN



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

• Explanation of Graphic Symbols



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



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

1

To ensure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.

2

Install your B-2x in a cool, dry, clean place—away from windows, heat sources, and too much vibration, dust, moisture or cold. Avoid sources of hum (transformers, motors). To prevent fire or electrical shock, do not expose to rain and water.

3

Do not operate the amplifier upside-down. It may overheat, possibly causing damage.

4

Never open the cabinet. If a foreign object drops into the set, contact your dealer.

5

Do not place records or other objects on top of the amplifier; this will block the ventilation holes, cause the internal temperature to rise and may result in a failure.

6

Do not use force on switches, knobs or cords. When moving the set, first turn the B-2x off. Then gently disconnect the power plug and the cords connecting to other equipment. Never yank the cords.

7

Do not attempt to clean the B-2x with chemical solvents; this might damage the finish. Use a clean, dry cloth.

8

Be sure to read the "troubleshooting" section on common operating errors before concluding that your B-2x is faulty.

9

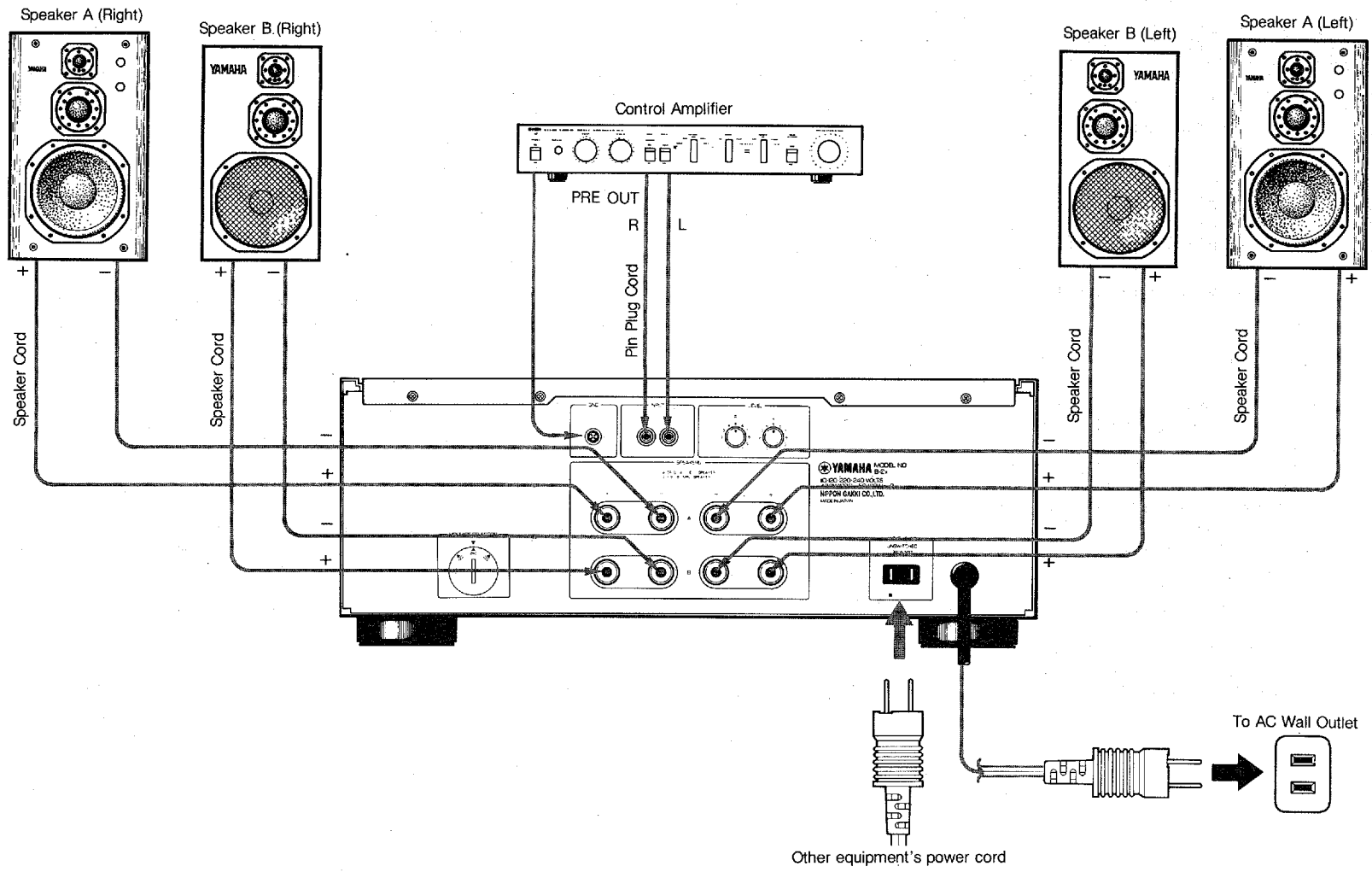
Do not connect audio equipment to the AC outlet on the rear panel if that equipment requires more power than the outlet.

10

Check that the voltage selector is set to your local voltage before you plug it in. If not properly set, reset the switch to indicate your supply voltage (100-120/220-240 V).

B-2x

CONNECTION DIAGRAM



CONNECTIONS

■CONNECTING A CONTROL AMP

Connect the output of the control amplifier to the input phono receptors on the rear panel of the B-2x. The phono-plug pins on both ends of the connecting cords should be clean. Connect firmly and securely. Make sure that both the control amplifier and the B-2x are properly grounded. Always turn off the power switches of both units when connecting or disconnecting the power and control amplifier.

■CONNECTION OF POWER SUPPLY

- * As the rated power consumption of the B-2x is 470 watts, do not connect it to the outlet (spare AC power outlet) of another amplifier.
- * Regardless of the position (ON/OFF) of the power switch of the B-2x, the AC OUTLET (spare AC power outlet) provided on the rear panel will handle a maximum of 300 watts power consumption when a power cord is inserted in it.

CAUTION

- DO NOT CONNECT THIS AMPLIFIER TO AN AMPLIFIER/SPEAKER SWITCHING SYSTEM. DO NOT ATTEMPT TO CONFIRM PERFORMANCE WITH A COMBINATION/Common Ground Audio Oscillator and T.H.D./I.M. Analyzer System. DO NOT CONNECT AN OUTPUT POWER METER.
- THE RED (+) AND BLACK (-) SPEAKER TERMINALS ARE INTERNALLY CONNECTED TO ACTIVE CIRCUITRY (NOT TO CHASSIS OR COMMON GROUND).

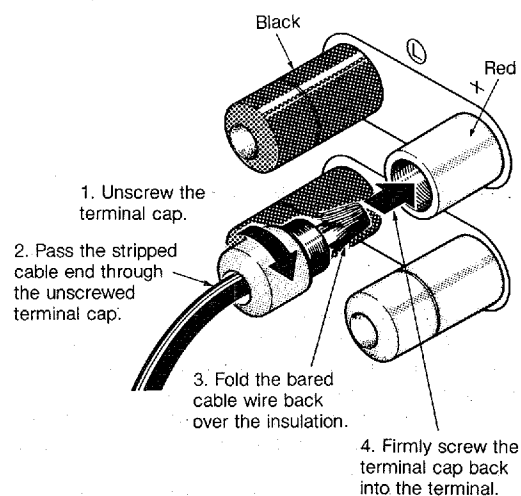
■CONNECTING AND OPERATION OF SPEAKER SYSTEM

Connect a speaker system having an impedance of 4 ohms to 16 ohms to the A or B side of SPEAKERS (speaker output terminals) provided on the rear panel. When using A and B speaker output terminals at the same time, check and confirm that all the polarities (+ & -) are correct, and right and left speakers are connected to right and left terminals. Otherwise, unnatural sound with poor bass response will be produced.

■GND (Ground Terminal)

If hum or noise occurs during operation, try grounding the amplifier or connecting this terminal to the Ground terminal of the control amp.

Securely attach the cables following steps 1—4.

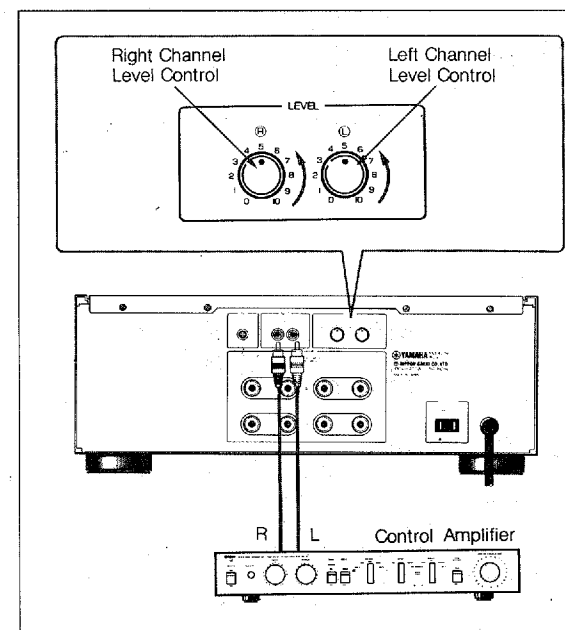


■HOW TO USE LEVEL CONTROLS

The right side of the Level control provided on the rear panel is for the L (left) channel, while the left one is for the R (right) channel.

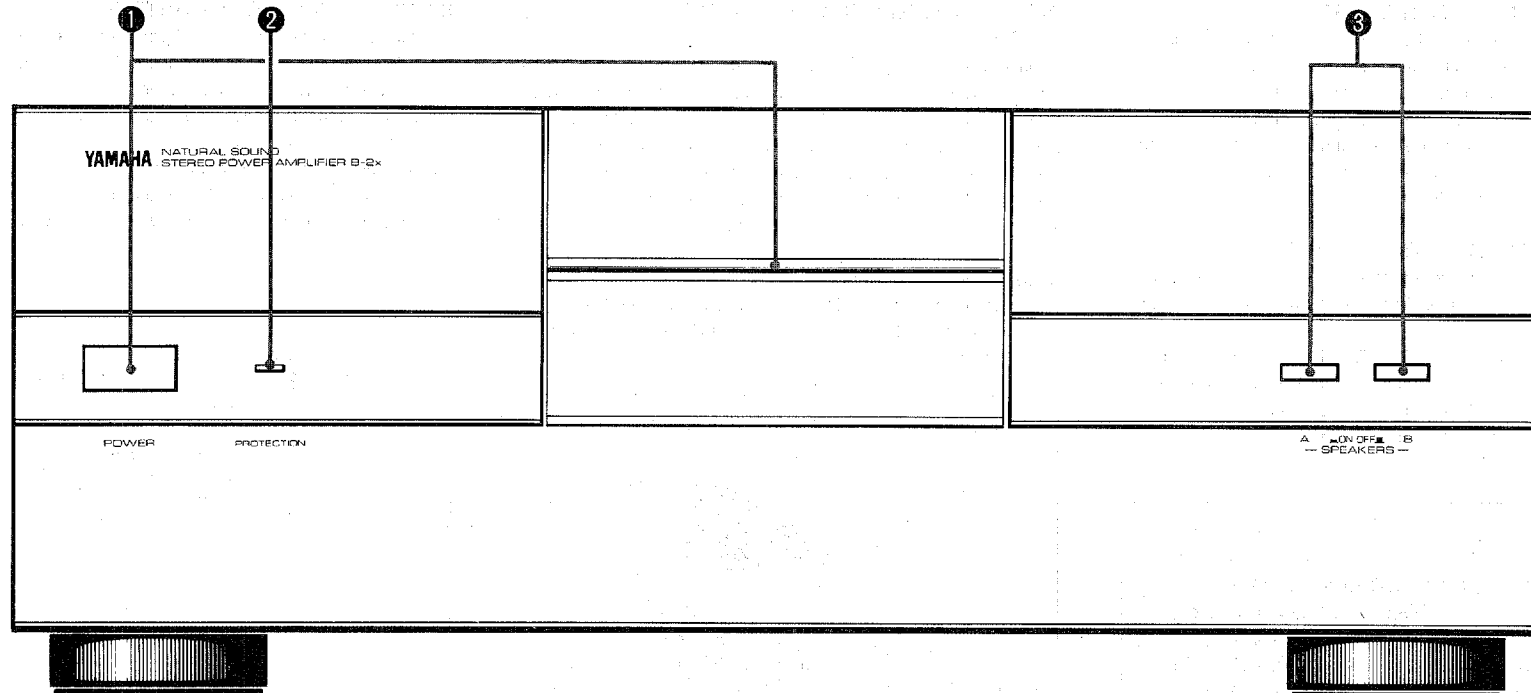
If the sound distorts appreciably when a high output control amplifier is connected, lower the input level by turning these Level controls counterclockwise.

Volume adjustment of the control amplifier can be facilitated by turning the set's Level control counterclockwise a little. But if turned fully counterclockwise no sound will be produced.



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NAMES OF THE PARTS AND THEIR FUNCTIONS



1 POWER switch

When this button is depressed, power will be switched on and the red indicator will illuminate. When depressed again, power will turn off and the indicator will go out.

- * No sound will be heard for several seconds following depression of this switch because of the action of the muting relay that works to eliminate the pop-noise caused by switch-on of power.
- * Be sure to turn the Volume control of the control amplifier to the minimum position (turned fully counterclockwise) when turning on the POWER switch, to prevent extremely high sound levels which could damage the speakers.

2 PROTECTION indicator

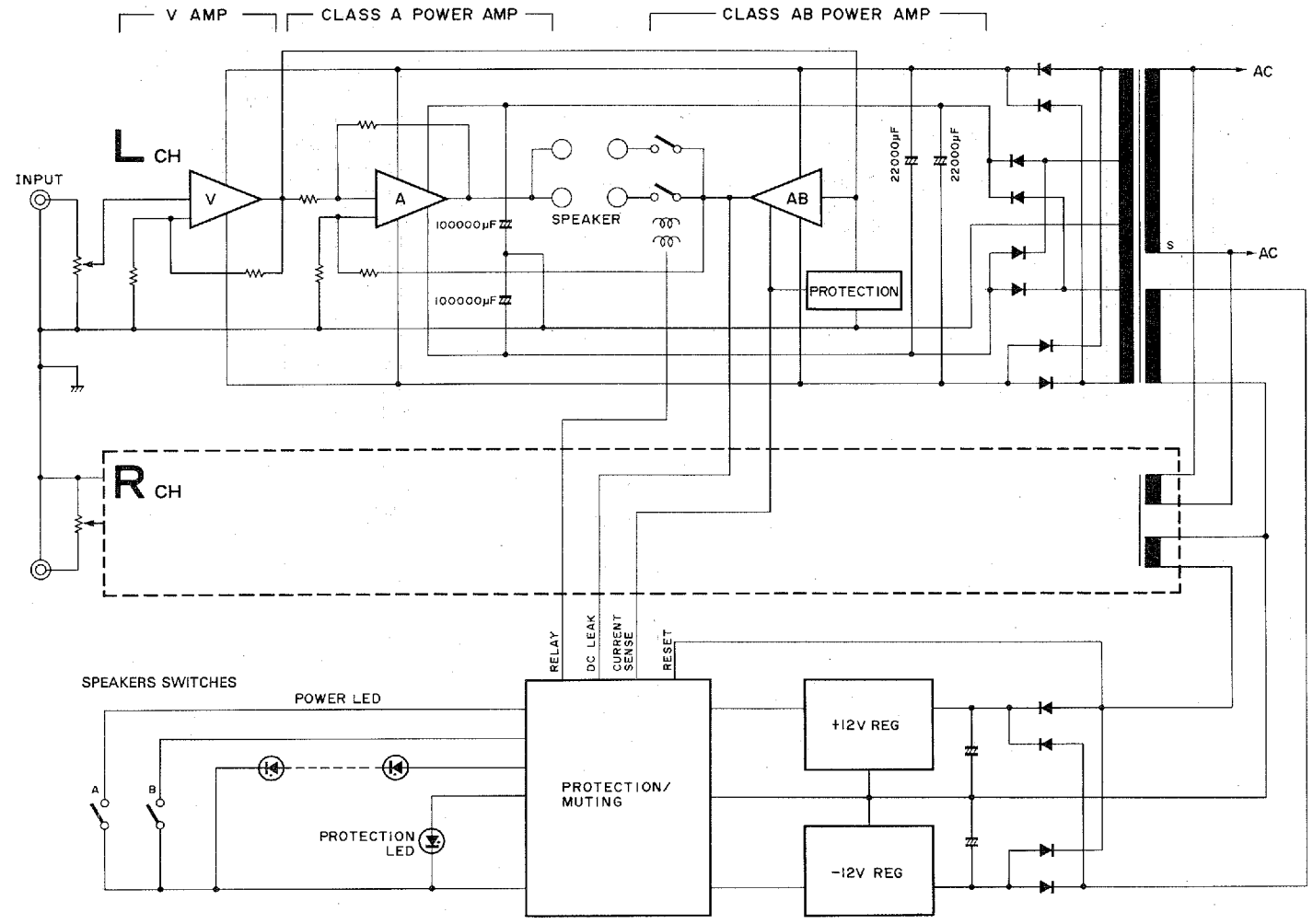
After the Power Switch is turned on, the Protection Indicator will light to inform you that the B-2x's protection circuitry is operating. While this indicator is lit, output signal to the speakers is muted. The protection circuitry normally operates for several seconds after power is switched on, and ceases operation when the indicator is no longer lit.

- During operation of the B-2x, should the Protection Indicator light and output signal be muted, disconnect the plug from the AC outlet at once and locate the cause.

3 SPEAKERS switches

With these switches, you can select A, B or both of two sets of speakers. When button A is depressed, it will cause the speaker circuit that is connected to the A-side of the rear panel to turn on. When button B is depressed, it will cause the speaker circuit connected to the B-side of the rear panel to turn on. Depressing buttons A and B for the second time will cause the speaker circuits to be disconnected.

BLOCK DIAGRAM



B-2x

TROUBLESHOOTING

Before assuming that the amplifier is faulty, check the following troubleshooting list which details the corrective action you can take yourself without having to call a service engineer. If you have any doubts or questions, get in touch with your nearest Yamaha dealer.

| Symptom | Cause | Remedy |
|---|---|---|
| Power will not turn on although POWER switch is ON. | Power cord plug is not firmly inserted into AC outlet. | Re-insert power plug into AC outlet in a firm manner. |
| | Power does not turn on when power plug is inserted into AC outlet. | Contact an audio serviceman at your nearest YAMAHA dealer. |
| No sound produced from the right and left speakers, or either the right or left speaker. | Insufficient connection between control amplifier and power amplifier, or between power amplifier and speakers. | Check and confirm connections. |
| | BALANCE control of the control amplifier has deviated either to the right or left side. | Properly re-adjust BALANCE control of control amplifier. |
| | LEVEL control turned down too much. (Turned too far counterclockwise.) | Turn LEVEL control clockwise. |
| Sound suddenly ceases. | Speaker's protective circuit is working because a DC potential has been generated at the speaker's output terminal. | When the potential of the power amplifier becomes zero, the relay will be actuated, causing the circuit to be connected. Turn off the POWER switch of the power amplifier. Wait a little while and turn it on again. |
| | Abnormality inside the circuit. | Contact an audio serviceman at your nearest YAMAHA dealer. |
| | There is a short in the speaker cord. | Correct the short and switch power on again. |
| | The phases (+ and -) of the power amplifier do not match those of the speakers. | After matching the phases properly, re-connect. |
| Sufficient volume not obtained when VOLUME control of control amplifier is turned up. | Input LEVEL control is turned counterclockwise. | Adjust to proper volume by turning input LEVEL control clockwise. |
| Loud humming generated during program audition. | Insufficient of pin plug contact. | Re-insert pin plug in a firm manner. |
| | Ground wire of turntable not connected to GND terminal of control amplifier. | Connect ground wire to GND terminal of control amplifier. |

SPECIFICATIONS

Continuous Power Per Channel

| | |
|-------------------------------------|-------|
| 8 ohms (20 Hz—20 kHz, T.H.D 0.002%) | 170 W |
| 6 ohms (20 Hz—20 kHz, T.H.D 0.002%) | 200 W |
| 4 ohms (20 Hz—20 kHz, T.H.D 0.003%) | 240 W |

Power Bandwidth

| | |
|----------------------------|---------------|
| 8 ohms (T.H.D 0.02%, 85 W) | 10 Hz—100 kHz |
|----------------------------|---------------|

Input Sensitivity/Impedance

| | |
|------------------------|----------------|
| (8 ohms, 170 W, 1 kHz) | 1.3 V/25k-ohms |
|------------------------|----------------|

Frequency Response (8 ohms, 1 W)

| | |
|---------|-------|
| 10 Hz | 0 dB |
| 1 kHz | 0 dB |
| 100 kHz | -1 dB |

Total Harmonic Distortion (8 ohms, 85 W)

| | |
|--------------|------------------|
| 10 Hz—20 kHz | Less than 0.002% |
|--------------|------------------|

Intermodulation Distortion

| | |
|------------------------------|------------------|
| (8 ohms, 85 W, 50 Hz, 7 kHz) | Less than 0.002% |
|------------------------------|------------------|

Channel Separation

(Input shorted, VR: Max, Output Channel: 120 W/8 ohms)

| | |
|--------|-----------------|
| 1 kHz | More than 95 dB |
| 20 kHz | More than 75 dB |

Residual Noise

(Input shorted, IHF-A-Network, 8 ohms Load) ... Less than 23 μ V

Signal to Noise Ratio

(Input shorted, IHF-A-Network, 8 ohms Load) ... Less than 124 dB

Damping Factor (8 ohms, 1 kHz) 200

Power Supply 110—120/220—240 V 50/60 Hz

Power Consumption 470 W

Dimensions (W x H x D) 435 x 164 x 422 mm
(17-1/8" x 6-7/8" x 16-5/8")

Weight 28 kg
(52 lbs. 3 oz.)

*Specifications and appearance are subject to change without notice.