

YAMAHA MX-1000U

Natural Sound Stereo Power Amplifier

Amplificateur stéréophonique de puissance de la série "Natural Sound"

CENTER

Thank you for purchasing the YAMAHA MX-1000U stereo power amplifier.

ABOUT THIS MANUAL

To obtain the finest performance from your new power amplifier, please read this manual carefully, keeping it handy for future reference.

After you know which PRECAUTIONS to take, the section CONNECTIONS will show you how to hook up the MX-1000U to your control amplifier and speakers. Operation of this power amplifier is explained under FRONT PANEL CONTROLS AND THEIR FUNCTIONS. If you have any trouble, the final section on TROUBLESHOOTING tells you what to do before contacting your YAMAHA dealer.

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IMPORTANT:

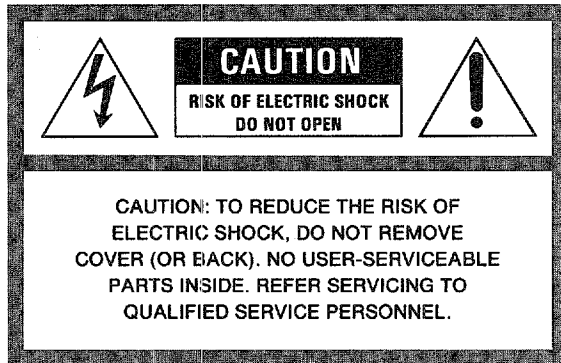
Please record the serial number of your unit in the space below.

Model: MX-1000U

Serial No.:

SAFETY INSTRUCTIONS

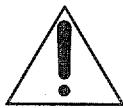
Read this before operating your MX-1000U.



● Explanation of graphical 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.

WARNING:

To prevent fire and shock hazards, do not expose your amplifier to rain or moisture.

- 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 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.

17. Grounding or Polarization — The precautions that should be taken so that the grounding or polarization of an appliance is not defeated.

18. Speaker Connection — To reduce the risk of shock or fire and prevent short circuits, strictly follow the instructions for connecting speakers on p. 6.

PRECAUTIONS

1 LOCATION

Install this unit in a cool, dry, clean place - away from windows (direct sunlight), heat sources, excessive vibration, dust, moisture or cold. Avoid sources of hum such as transformers, motors, etc..

Turn the unit off and disconnect it when moving it.

2 VENTILATION

Do not place records or other objects that block ventilation on top of the amplifier as this will cause its internal temperature to rise and may result in damage.

3 HANDLING

Do not use force on controls, terminals or cords. Remove plugs by gripping them directly, not by pulling the cord.

4 CLEANING

Wipe the exterior with a soft, dry cloth. Never use chemical solvents, as this might damage the finish.

FEATURES

- *Hyperbolic Conversion Amplification Circuit*
- *Advanced Power Supply Circuitry (APS)*
- *Three-Pair Speaker Support*
- *LCD (Liquied Crystal Display) Power Level Meters*
- *Overload Protection Circuitry*

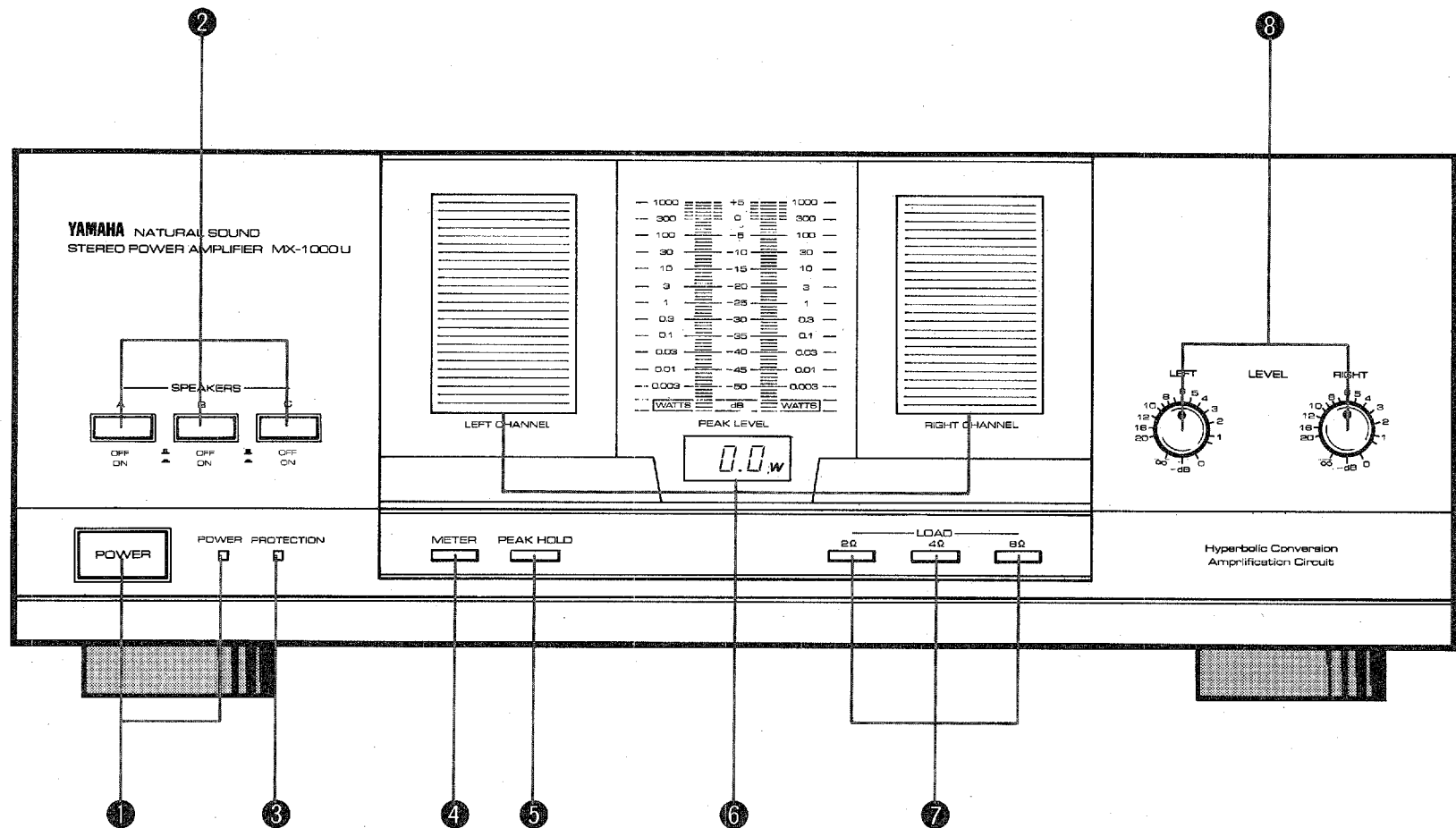
Hyperbolic Conversion Amplification Circuit

This new kind of circuitry, developed by Yamaha, eliminates the only serious drawback of previous Class A operation amplifiers. These had to switch to non-linear class AB operation above a certain load current, causing a slight deterioration in the otherwise excellent sound quality. The new Hyperbolic Conversion Amplification Circuit does away with this problem, allowing your Yamaha MX-1000U to deliver superior performance constantly, without switching or cut-off, over its entire power range.

Advanced Power Supply Circuitry (APS)

An amplifier is only as good as its power supply — this simple truth has prompted Yamaha to develop the APS circuitry incorporated in your new MX-1000U. The problem with conventional power sources was their tendency to produce pronounced voltage ripples during medium to large amplitude music signals, particularly under low impedance loads, together with voltage fluctuations in the power transistors. APS solves this problem by providing an active power source that ensures stable voltage in the final transistor stage under all operating conditions, thus greatly improving power supply to the amplifier.

FRONT PANEL CONTROLS AND THEIR FUNCTIONS



① **POWER switch and indicator:** Pressing this switch turns power on, causing the POWER indicator to light. To turn the unit off, press again.

② **SPEAKERS selectors:** Allow you to select any of the speaker pairs connected to the A, B and/or C terminals by pushing the appropriate switch(es) to the ON position.

NOTE:

If speakers are connected to terminals B, but not to terminals C, be sure to press only the B SPEAKERS selector when listening via pair B. Pushing in selector C as well will cut off the sound from pair B since B and C are connected in series. (The same holds true if speakers are connected to C and selector B is pressed.)

③ **PROTECTION indicator:** Lights for several seconds after power is turned on, showing that the internal protection circuitry is currently activated. This mutes the output signal to the speakers, preventing the loud noise otherwise heard when switching on the amplifier.

④ **METER switch:** Switches the power peak meter OFF. (This power display is not illuminated when the METER switch is pressed in.)

⑤ **PEAK HOLD:** When this switch is pressed, power peaks are displayed for a second longer, making it easier to read peak levels.

⑥ **Power peak meter and digital display:** The left and right channel bar meters indicate the peak power output on a logarithmically compressed scale from 0.003 to 1000 watts. At the same time, the precise peak wattage of the higher-level channel is also shown by the digital power display beneath the bar meter scale.

Readings are accurate for the load determined by the LOAD selectors.

⑦ **LOAD selectors:** These three switches let you adjust the peak power display according to the speaker load impedance. When using more than one pair of speakers at the same time, you can work out their combined impedance with the following formulas, where X and Y are the impedance values of each speaker pair:

1) 2 pairs in parallel (A + B or A + C)
 $(X \times Y) / (X + Y) = \text{combined impedance}$

Example for 2 pairs of 8 ohm speakers:

$$(8 \times 8) / (8 + 8) = 4 \text{ ohms}$$

2) 2 pairs in series (B + C)
 $X + Y = \text{combined impedance}$

3) 3 pairs (A + B + C)
Same formula as 1), with $A = X$ and $(B + C) = Y$

If the combined impedance does not correspond exactly to one of the three LOAD settings, select the closest one.

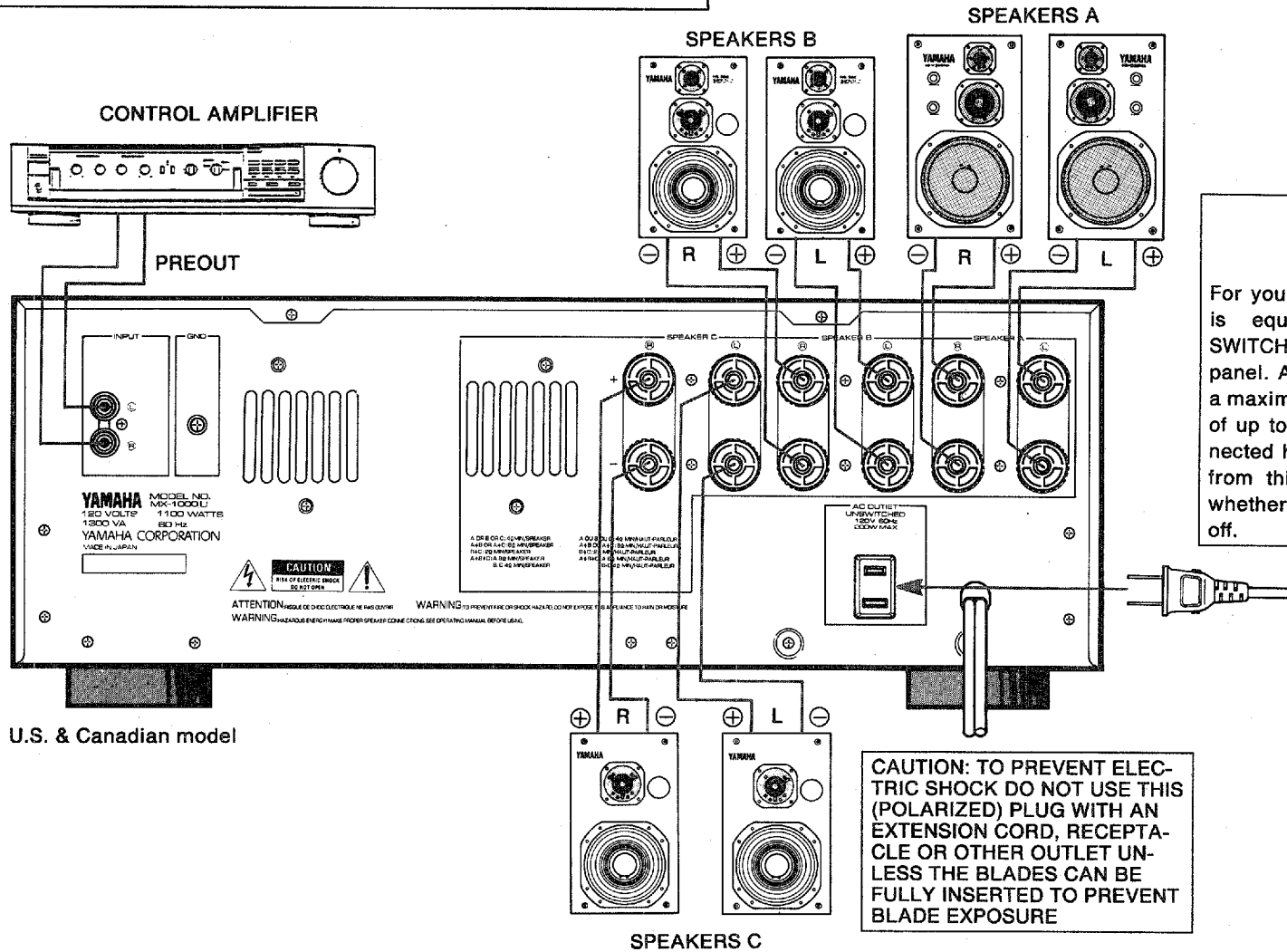
⑧ **LEFT and RIGHT LEVEL controls:** These give you independent control over the power output levels to the L and R speakers. This allows you to preset speaker balance for optimum stereo imaging. These controls can also serve to protect speakers with power handling capacity lower than this amplifier's rated output.

CONNECTIONS

Make sure the left (L) and right (R) channels are connected consistently between components.

NOTE:

Before making or altering any of the connections described below, be sure to turn off the power of the MX-1000U.



U.S. & Canadian model

AC OUTLET

For your convenience, this unit is equipped with an **UN-SWITCHED** AC outlet on the rear panel. Another component with a maximum power consumption of up to 200 watts can be connected here. Power is supplied from this outlet regardless of whether the MX-1000U is on or off.

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

CONNECTING A CONTROL AMPLIFIER

Making sure that the control amplifier is also turned off, connect the output jacks of your control amplifier to the corresponding INPUT jacks on the rear panel of this unit. Always check that

- the RCA plugs of the connecting cord are clean,
- the left and right channels of both units correspond,
- connections are secure, and
- both units are properly grounded.

CONNECTING SPEAKERS

The MX-1000U can drive up to three pairs of speakers (A, B and C) at the same time. Those connected to terminals A are in parallel with pairs B and C, which are in series. The following table shows the minimum load impedances per speaker for all possible connections.

| Number of speakers | MX-1000U terminals | Minimum speaker load impedance |
|---------------------|--------------------|--------------------------------|
| 1 pair | A or B or C | 4 ohms |
| 2 pairs in parallel | A + B or A + C | 8 ohms |
| 2 pairs in series | B + C | 2 ohms |
| 3 pairs | A + B + C | A: 8 ohms B,C: 4 ohms |

Be sure to use only speakers within the rated impedance range and with adequate power handling capacity. Driving speakers with extremely low impedance (or several low-impedance pairs simultaneously) at continuous full power may cause the protection circuit to activate.

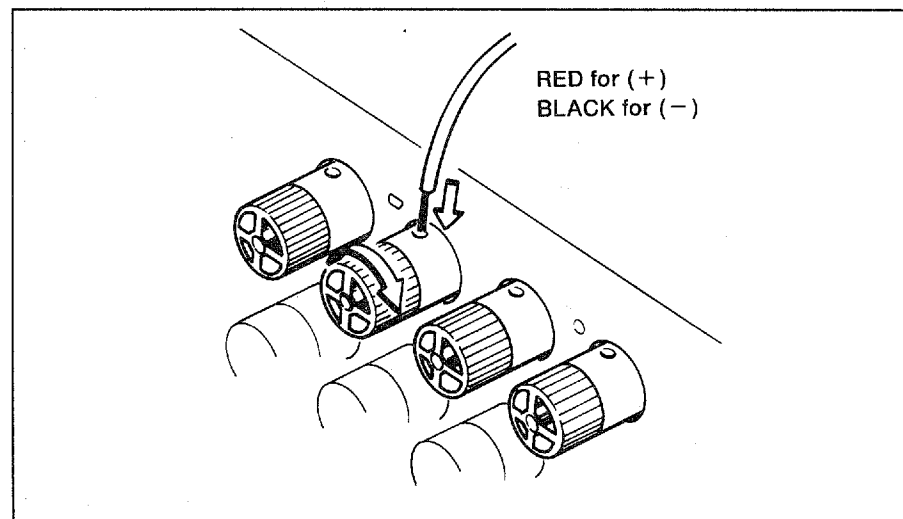
When connecting the speaker cords, observe the “+” and “-” markings on the backs of the speakers and MX-1000U. If the “+” and “-” polarities are reversed, the sound will be unnatural and lack bass.

Speaker cords should be cut as short as possible. Do not coil up excess cord or bundle it with cables from other components.

Strip approximately 10 mm (3/8”) insulation from the ends of the speaker cords and connect them as explained below:

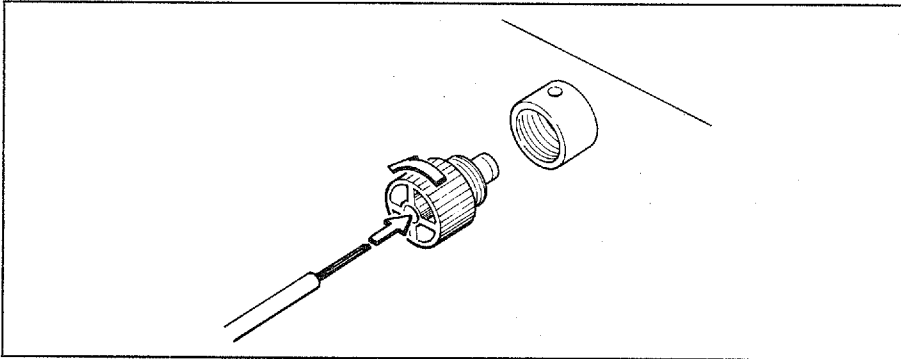
A. Light-gauge Speaker cords

Partly unscrew the plastic wire holders. Insert the stripped ends of the speaker cords as shown and retighten the holders.

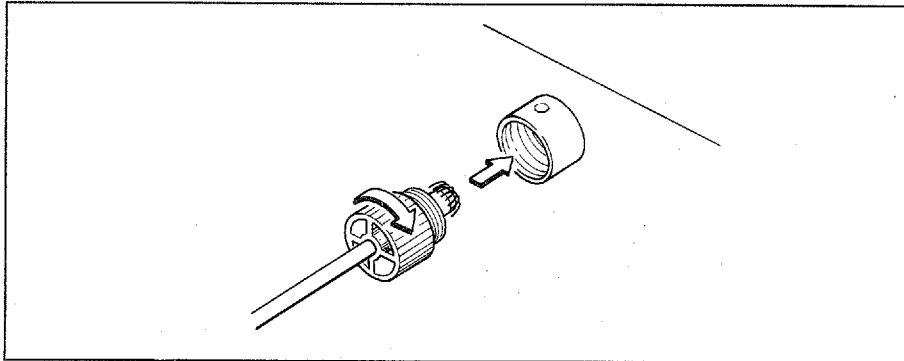


B Heavy-gauge speaker cords

First, unscrew and remove the plastic wire holders. Insert the stripped ends of the speaker cords into the holders until they protrude on the other side.



Splay the strands as shown, then screw the wire holders back on.



CAUTION:

When inserting the stripped ends of the speaker cords as shown above, make sure at least 1/16 inch (1.6 mm) of insulation is inside the wire holders (i.e. no exposed wire is visible) and no loose conductor wire strands are protruding after connection. To prevent speaker wires from coming loose, make sure wire holders are firmly screwed in.

TROUBLESHOOTING

Before assuming that your amplifier is faulty, check the following list. If you still have any doubts or questions, contact your nearest YAMAHA dealer.

| Symptom | Possible cause | Remedy |
|--|--|--|
| No power even when the POWER switch is ON. | ● The power cord is not plugged in securely. | ● Plug in securely. |
| No sound is heard from the left and/or right speaker(s). | ● The speaker cords are not properly connected. | ● Check speaker connections and correct them. |
| | ● Either or both LEVEL controls are set to $-\infty$ dB. | ● Adjust the appropriate LEVEL control(s). |
| | ● The cords from the control amplifier are not secure. | ● Connect them securely. |
| | ● The control amp's balance is set to the extreme left or right. | ● Adjust the control amp's balance control. |
| The sound ceases suddenly, and the PROTECTION indicator is lit. | ● The speaker protection circuit has activated. | ● Turn power OFF, then ON again to reset the speaker protection circuit. Also see CONNECTING SPEAKERS on p. 8. |
| | ● There is a malfunction in the amplifier. | ● Consult your YAMAHA dealer. |
| Unnatural sound lacking bass. | ● The speaker polarities are reversed. | ● Connect the speaker wires with the correct + and - polarity. |

SPECIFICATIONS

Minimum RMS Output Power Per Channel

| | | |
|--------------|--------------------|------|
| 20Hz ~ 20kHz | 0.003% THD, 8 ohms | 260W |
| | 0.007% THD, 6 ohms | 295W |
| | 0.02% THD, 4 ohms | 330W |

Dynamic Power Per Channel

(by IHF Dynamic Headroom measuring method)

| | |
|--------|--------|
| 8 ohms | 450W |
| 6 ohms | 560W |
| 4 ohms | 740W |
| 2 ohms | 960W |
| 1 ohms | 1,000W |

Dynamic Headroom (U.S.A., Canada only)

| | |
|--------|--------|
| 8 ohms | 2.38dB |
| 6 ohms | 2.78dB |
| 4 ohms | 3.51dB |

Power Band Width

| | |
|------------------------|--------------|
| 0.03% THD 130W, 8 ohms | 10Hz ~ 60kHz |
|------------------------|--------------|

Damping Band Width

| | |
|--------------|-----|
| 1kHz, 8 ohms | 130 |
|--------------|-----|

Input Sensitivity/Impedance

| | |
|---------|--------------------|
| MAIN IN | 1.62V/60k Ω |
|---------|--------------------|

Frequency Response (20Hz ~ 20kHz)

| |
|------------|
| +0, -0.2dB |
|------------|

Total Harmonic Distortions (20Hz ~ 20kHz)

| | |
|------------------------------------|--------|
| MAIN IN to Sp Out, 130W/8 Ω | 0.003% |
|------------------------------------|--------|

Intermodulation Distortion

| | |
|---------------------|--------|
| Rated Output/8 ohms | 0.003% |
|---------------------|--------|

Signal to Noise Ratio (IHF-A-Network)

| | |
|-------------------------------------|-------|
| MAIN IN (shorted) | 126dB |
| MAIN IN (5.1 k Ω terminated) | 122dB |

Residual Noise (IHF-A-Network)

| |
|------------|
| 21 μ V |
|------------|

Channel Separation

| | |
|--|-----------|
| Input shorted, terminated, 1kHz/10kHz | 89dB/72dB |
|--|-----------|

Power Supply

| |
|--------------|
| AC120V, 60Hz |
|--------------|

Power Consumption

| |
|-----------------|
| 1,100W, 1,300VA |
|-----------------|

AC Outlet

| | |
|----------------|----------|
| Unswitched x 1 | 200W max |
|----------------|----------|

Dimensions (W x H x D)

| |
|---|
| 435 x 165 x 425mm (17-1/8" x 6-1/2" x 16-47/64") |
|---|

Weight

| |
|--------|
| 20.5kg |
|--------|

Specifications subject to change without notice.

YAMAHA