YAMAHA M-80

Natural Sound Stereo Power Amplifier
Auto Class A Power Circuitry
Zero Distortion Rule Amplification
Three-Pair Speaker Support
Range-Selected LED Power Level Meters
Overload Protection Circuitry

CENTER

OWNER'S MANUAL

Thank you for purchasing the YAMAHA M-80 stereo power amplifier.

CONTENTS

IMPORTANT

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

Model: **M-80**
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 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:

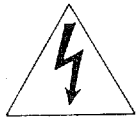
A. The power-supply cord or the plug has been damaged; or
B. Objects have fallen, or liquid has been spilled into the appliance; or
C. The appliance has been exposed to rain; or
D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
E. The appliance has been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

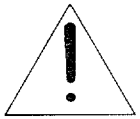
CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

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.

CAUTION: READ THIS BEFORE OPERATING YOUR M-80

1
To ensure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.

2
Install your M-80 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 M-80 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 M-80 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 M-80 is faulty.

9
Do not connect audio equipment to the AC outlets on the rear panel if that equipment requires more power than the outlets are rated to provide.

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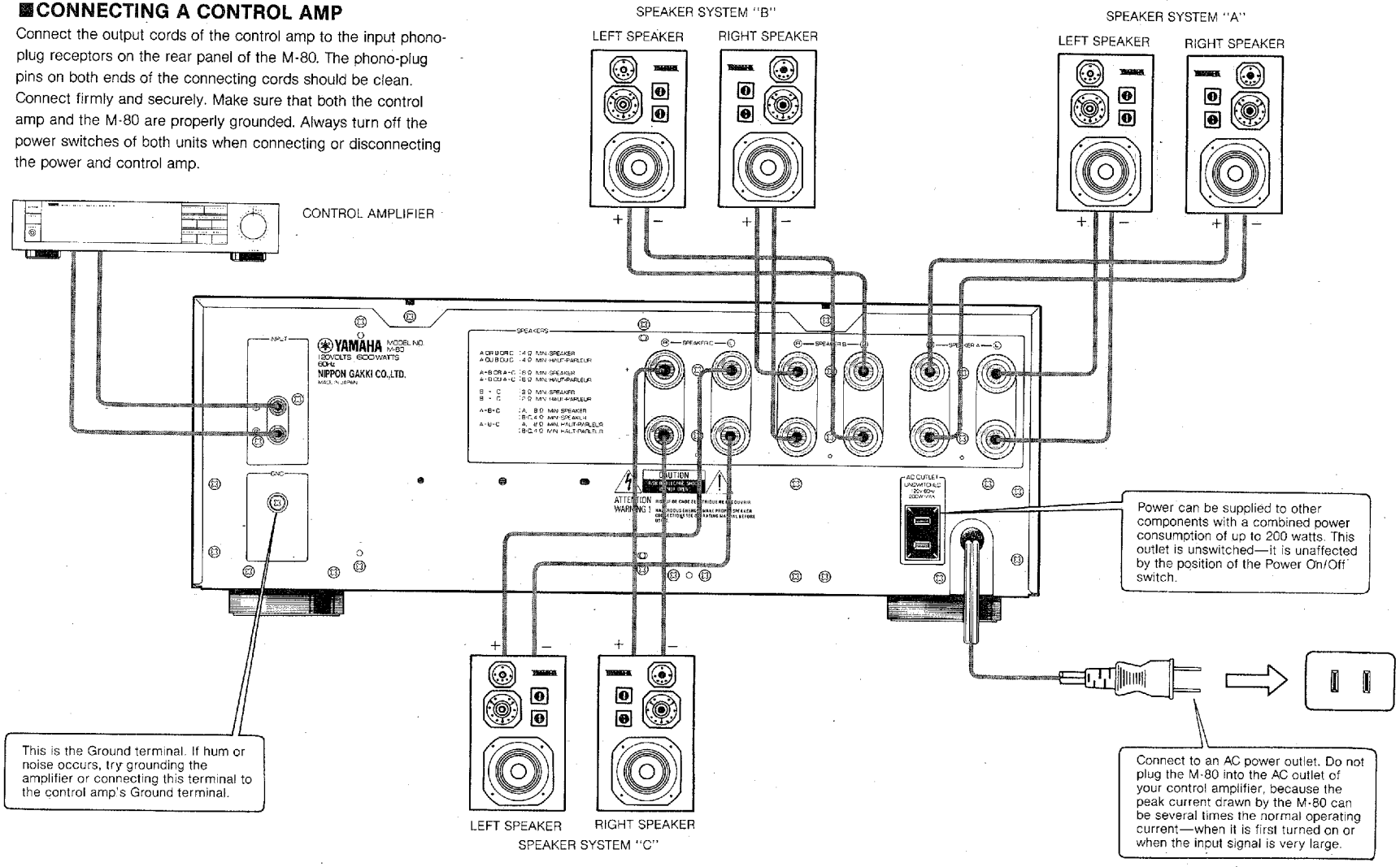
CONNECTION DIAGRAM

- **Make all connections securely. Insecure connections can cause noise or loss of sound output.**
- **When connecting the power amplifier to a control amp, make sure that the power is turned OFF.**

■CONNECTING A CONTROL AMP

Connect the output cords of the control amp to the input phono-plug receptors on the rear panel of the M-80. The phono-plug pins on both ends of the connecting cords should be clean. Connect firmly and securely. Make sure that both the control amp and the M-80 are properly grounded. Always turn off the power switches of both units when connecting or disconnecting the power and control amp.

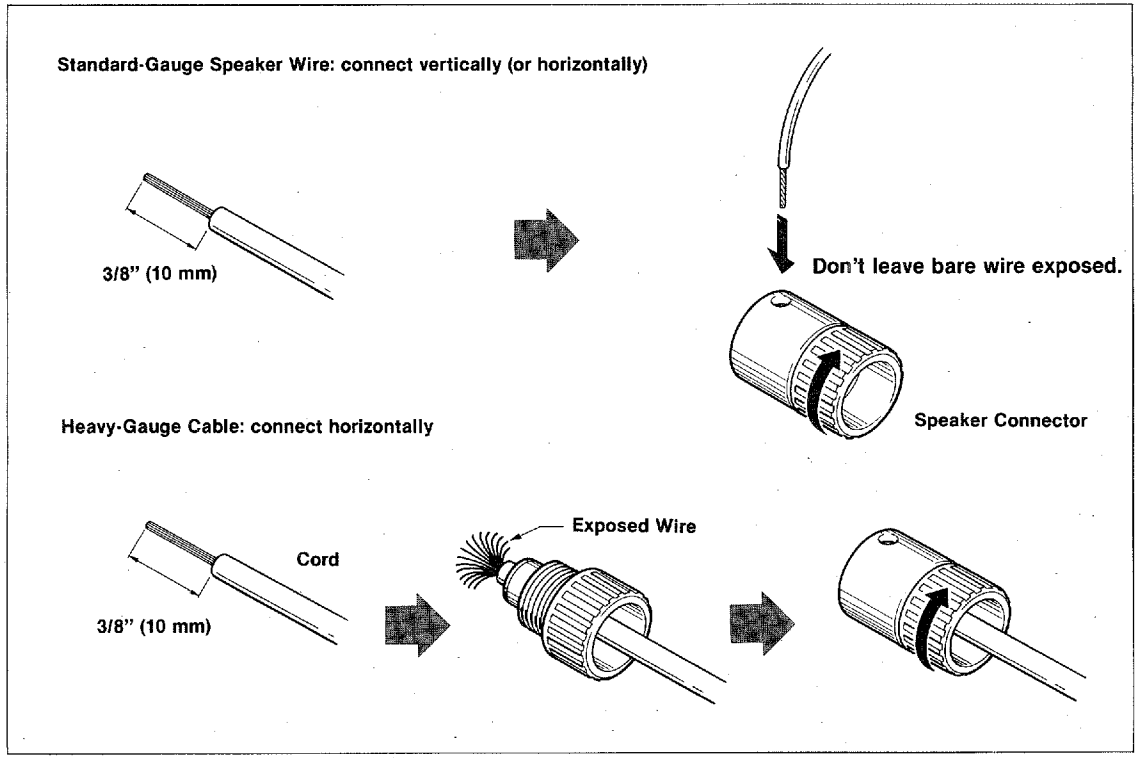


CONNECTING THE SPEAKERS

Strip approximately 3/8" (10 mm) insulation from the speaker cords (whatever their gauge). Insert exposed wire in rear panel connector terminals. For heavy-gauge wire, use the terminals' large apertures. For light, standard-gauge wire, use either the large apertures or the small apertures at top or bottom of housing, depending on convenience. Make sure that at least 1/16" (1.6 mm) of insulation is inside the housing. Rotate connector housing one half turn clockwise (or until firm). The cord will be locked into position. If these connections are faulty, no sound will be heard from the speakers.

■OPTIONS FOR SPEAKER CONNECTIONS

Speakers connected to A will be in parallel with speakers connected to B and/or C. Speakers connected to B and C will be in series with each other. Read "Connecting Up to Three Speaker Pairs" for full information.



■CONNECTING UP TO THREE SPEAKER PAIRS—INDIVIDUALLY, IN PARALLEL OR IN SERIES

A maximum of three sets of speakers can be connected to the M-80. You have a choice of four options:

(1) to connect one pair of speakers to terminals A, B, or C.
(2) to connect two pairs of speakers in parallel (one pair at A and another at either B or C).
(3) to connect two pairs of speakers in series (one pair at B and another at C).
(4) to connect three pairs of speakers at A, B and C.

In making any chosen hookup, observe the following minimum speaker load impedances:

(1) One speaker pair—
A or B or C: 4 ohm minimum per speaker

(2) Two speaker pairs in parallel—
A + B or A + C: 8 ohm minimum per speaker

(3) Two speaker pairs in series—
B + C: 2 ohm minimum per speaker

(4) Three speaker pairs—
A + B + C: 8 ohm minimum for A
4 ohm minimum for B and C

In connecting the R and L speaker cords, observe the "+" and "−" markings. If the "+" and "−" wires are reversed, the sound will be unnatural and will lack bass. Speaker cords should be cut as short as possible; do not coil up excess wire on the floor. Also, do not bundle with cords from other system components.

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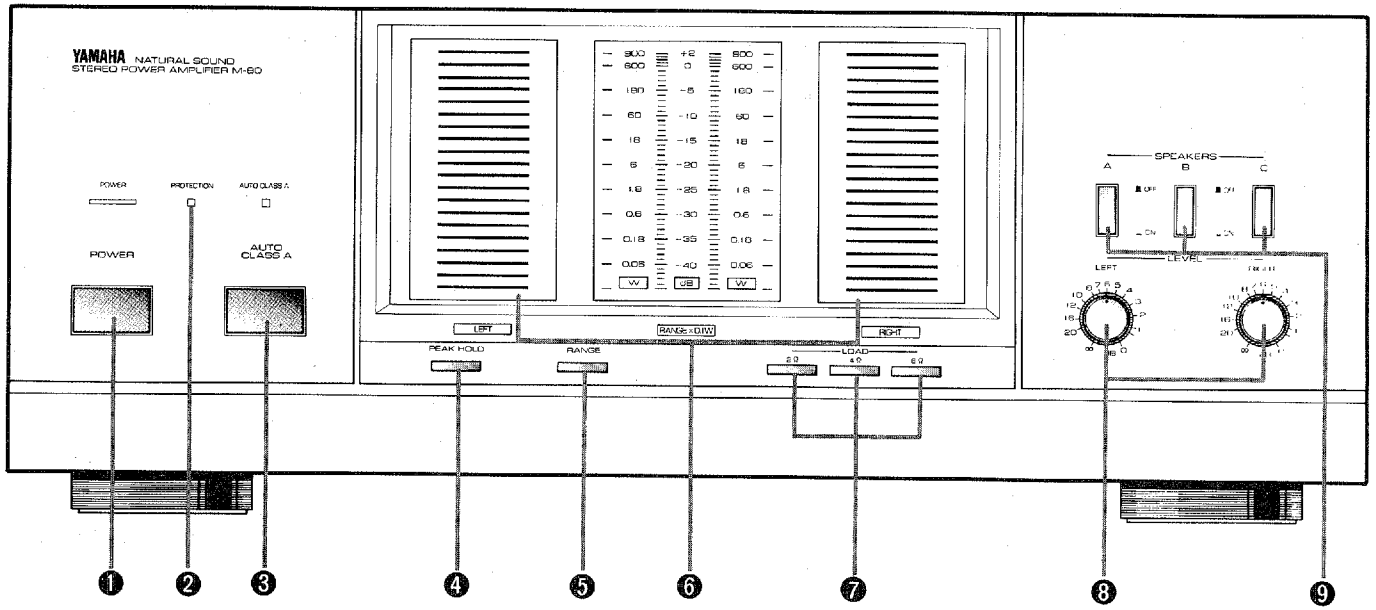
NAMES OF THE PARTS AND THEIR FUNCTIONS



❶ POWER SWITCH

Before pushing this switch to turn the power On, turn the Volume control of the control amp to the lowest position.

❷ PROTECTION INDICATOR

After the Power Switch is turned On, the Protection Indicator will light. To prevent sending a loud 'pop" noise through the speakers, the built-in protection circuitry mutes output for several seconds after power is turned on. While the Protection Indicator is lit, no signal is passed to the speakers.

If the Protection Indicator lights and output ceases during normal play, disconnect the plug from the AC outlet at once. Your speaker connections may be faulty. Turn off power to all audio components and check connections. Then restart the system at low volume.

❸ AUTO CLASS A SWITCH

Press this switch to activate the Auto Class A circuitry. The Auto Class A indicator will light. This circuitry provides pure Class A power amplification for output with low power requirements. To provide high power for transient peaks, the circuit shifts to Class AB operation while the peak lasts. When the switch is off, this unit operates as CLASS AB.

*Make sure that the top and sides of the M-80 have room to vent heat during CLASS A operation.

❹ PEAK HOLD SWITCH

With this switch on, the peaks displayed by the high bars of the Peak Power Indicator stay lit a second longer, making it easier to read high watt levels.

❺ RANGE SELECTION SWITCH

When you push this button, the Range Indicator lights, and the Peak Power Indicator level output reading becomes a tenfold conversion. Then 2 watts of actual output is shown on the scale as 20 watts. Pushing the button again returns the Peak Power Indicator to the normal scale.

❻ PEAK POWER INDICATORS

When the Power Switch is turned On, the Peak Power Indicators will light. The left and right bar indicators correspond to the left and right output channels, and indicate power output on a logarithmically compressed scale from 0.06 W to 900 W. Power output level readings are accurate for the impedance load chosen with the Load Selector Switches—2, 4, or 8 ohms.

❼ LOAD SELECTOR

These three switches adjust meter readout for 2, 4 or 8 ohm speaker load impedance. Select according to your preferred speaker configuration. To work out combined impedance of your speaker sets, use the following formula:

$$(X \times Y) / (X + Y) = \text{combined impedance}$$

Example: $(8 \times 8) / (8 + 8) = 4$ ohms

If three speaker sets A, B and C are connected, then A = X while B + C = Y; now apply the formula above. Set the Load Selector switches to the position closest to the combined impedance.

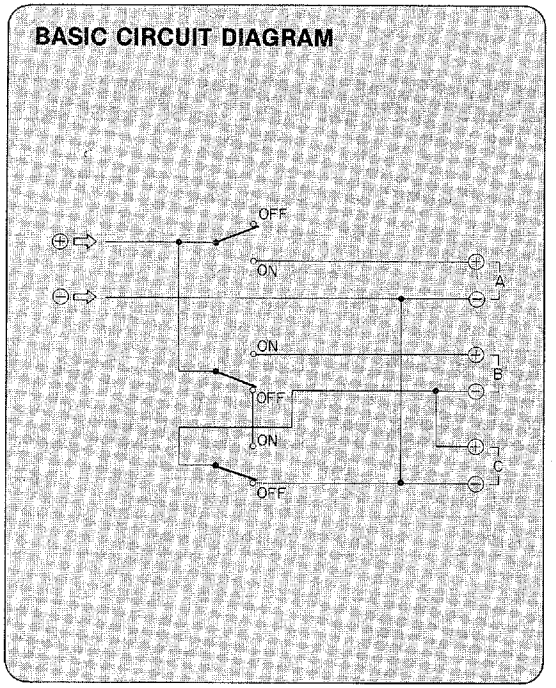
❽ INPUT LEVEL CONTROL

These controls give you independent L and R channel control over the input levels of the M-80. This lets you compensate for variances between different speaker pairs, or change the effect by modifying the output level between channels. It can also serve to protect speakers with lower power handling capacity.

❾ SPEAKER SELECTION SWITCHES

The chart below shows the effects of the A, B, and C speaker switches on all the possible speaker configurations of the M-80.
*If the Protection Indicator is lit, no signal will be passed to the speakers regardless of the Speaker Selection Switch mode.

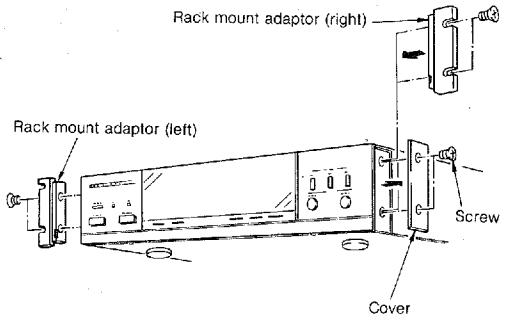
BASIC CIRCUIT DIAGRAM



■ATTACHING THE RACK MOUNTING ADAPTORS (Optional)

1) Remove the screws on each side of the unit as shown in the diagram and take off the covers which conceal the adaptor mounting holes.
2) Verify that the resulting mounting centers of the adaptors will match the width of your rack, then attach the adaptors firmly with screws.

* Using these adaptors allows the unit to be used with EIA standard racks.



SPEAKER SWITCH SETTING CHART

	A only	B only	C only	A+B	A+C	B+C	A+B+C
A SWITCH	ON	—	—	ON	ON	—	ON
B SWITCH	OFF	ON	OFF	ON	OFF	ON	ON
C SWITCH	OFF	OFF	ON	OFF	ON	ON	ON

— = ON or OFF (Any position)

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TROUBLESHOOTING

Before assuming that your 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.

Fault	Cause	Cure
Power is not supplied even when the Power switch is turned on.	The power plug is not securely plugged in.	Plug it in securely.
No sound is heard from one, two or various speakers.	The cords from the preamplifier to the M-80 are not connected securely.	Connect them securely.
	The balance control is rotated to the extreme left or right on the control amplifier.	Turn the control amp's balance control to the center position.
The sound suddenly goes off. The PROTECTION indicator is lit.	The speaker protection circuit has activated because of DC flowing in the speaker circuit.	Turning the M-80 off and then on will reset the speaker protection circuit.
	The control amp is leaking DC into its output.	Use a control amp with no DC offset.
The sound suddenly goes off.	Driving speakers outside the rated impedance range at high power for an extended period has activated the speaker protection circuit.	Turning the M-80 off and then on will reset the speaker protection circuit. Use speakers inside the rated impedance range.
	There is a malfunction in the amplifier.	Consult your Yamaha dealer.
Unnatural bass with no ambience.	The speaker polarities are reversed.	Correct the speaker polarities.

SPECIFICATIONS

Continuous Power Per Channel
20 Hz ~ 20 kHz 0.003% THD 8 Ω ..... 250 W
0.007% THD 6 Ω ..... 290 W
0.02% THD 4 Ω ..... 330 W
Dynamic Power
1 kHz 8 Ω/6 Ω/4 Ω/2 Ω ..... 380/480/640/850 W
Power Bandwidth (0.03% THD, 125 W/8 Ω) ..... 10-100 kHz
Total Harmonic Distortion
MAIN IN to SP out, 80 W/8 Ω 0.002%
IM Distortion Ratio (8 Ω) 0.003%
Power Bandwidth (0.03% THD 80 W 8 Ω) ..... 10Hz ~ 100 kHz
Damping Factor
(Speaker A, 1 kHz, 8 Ω) 250
Frequency Response (20 Hz ~ 20 kHz) ..... +0, −0.1
Input Sensitivity/Impedance ..... 1.55 V/20 kΩ
Signal-to-Noise Ratio (IHF-A-Network)
(MAIN IN Shorted, 5.1 kΩ) ..... 127 dB/119 dB
Channel Separation
Input shorted
40 Hz ..... 106 dB
1 kHz ..... 89 dB
10 kHz ..... 76 dB
Power Supply ..... AC 120 V/60 Hz
Power Consumption ..... 600 W
Dimensions (W × H × D) ..... 435 × 165 × 425 mm
(17-1/8" × 6-1/2" × 16-3/4")
Weight ..... 23 kg
(50 lbs. 10 oz.)

Specifications subject to change without notice.

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