

---

# Stereo Power Amplifier GM70PA

	Introduction . . . . .	1
1.	Safety Precautions . . . . .	2
2.	Precautions for use . . . . .	2
3.	Names of parts and their functions . . . . .	3
4.	Installation and Connection . . . . .	5
5.	Product Specifications . . . . .	9
6.	Block Diagram . . . . .	9
7.	Troubleshooting . . . . .	10
8.	After-sales Service . . . . .	11

Thank you for purchasing our products.

We hope that this product will enhance your music and provide you with a richer musical life.

## 5-year quality warranty

All products will be repaired free of charge for five years if they fail under normal use in accordance with the user's manual. (excluding consumables).

The following parts are consumables and are not covered by warranty.

- Vacuum tube GM70

## Product Contents

- Stereo Power Amplifier GM70PA
- AC cord
- User's Manual

Please read this User's Manual carefully before using the product to ensure safe operation.

## 1. Safety Precautions



### Warning

If the power cable is not handled properly, there is a danger of fire or electric shock.

- Do not use power cables other than attached.
- Do not touch the power plug with a wet hand.
- Do not place anything on the power cable.

The vacuum tube and glass tube become very hot.

- Do not place any objects on top of the unit, as this may cause a fire or failure.
- For heat dissipation, keep a sufficient distance from other equipment and walls, especially the top part, at least 30 cm.
- Do not touch the vacuum tube as it may cause burns.

Please be sure to remove the vacuum tube cushioning material for transportation before use.

- If the power is turned on without removing it, the cushioning material will melt due to the heat of the vacuum tube, which is very dangerous.

Do not remove the top plate, bottom plate, and side cover.

- There is a risk of electric shock and serious injury because of the high voltage of 1,100V inside.

Stop using immediately in the following cases.

- If water or chemicals flow into the unit.
- If there are metal or flammable items inside.
- If it seems a malfunction or an abnormality.
- If there is odor or smoke.

Turn off the power, unplug the power cable, and contact your dealer or our Service Department.

Do not disassemble, repair, or modify the product in any way.

- If you need repair, please contact your dealer or our service department.

## 2. Precautions for use



### Caution

Do not install the product in the following places

- Humid or dusty place
- Enclosed area
- Unstable place with vibration or inclination

When connecting the power cable, keep the following in mind.

- Plug the power cable securely into a robust electrical outlet.
- Make sure there are no unreasonable bends in the cable.

Connect the audio input/output cables securely without loosening them.

For daily cleaning, wipe with water and then wipe with a dry cloth.

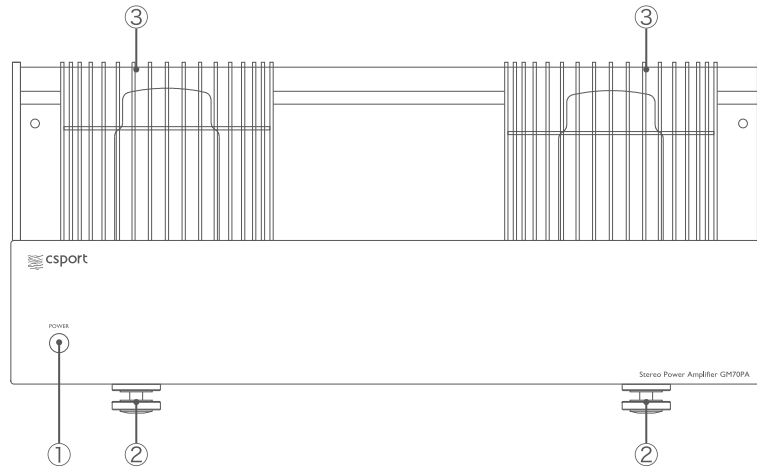
- Do not use solvents such as thinner.

The input impedance of this unit is 2.5 k $\Omega$ .

- Please use a equipment with an output impedance of 500  $\Omega$  or less.

### 3. Names of parts and their functions

#### Front



① Amplifier power button

Press the button to light the GM70 filament, and after 10 seconds, the high voltage power comes on and the amplifier is ready for operation. Press the button again to stop the amplifier operation.

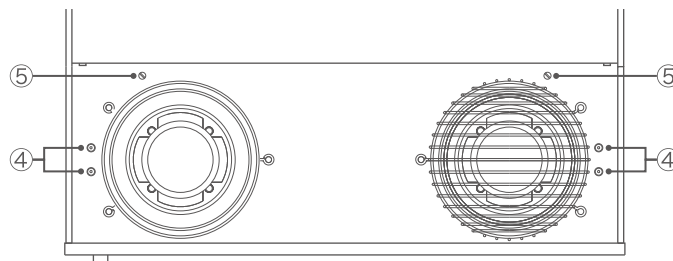
③ Vacuum tube protection cage

The cage protects the vacuum tube from high temperature. Use a screwdriver to remove and install it. Before use, be sure to remove the vacuum tube cushioning material for transportation.

② Legs

Adjust the height of the unit with the four legs. Loosen the lock nut on the upper section, and turn the lower section to adjust.

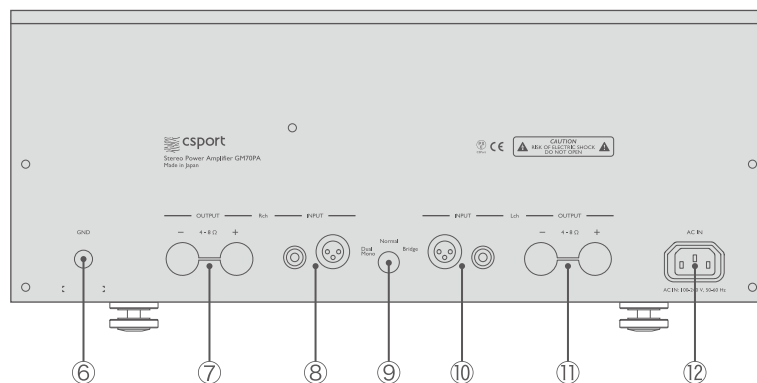
#### Upper



④ GM70 plate current measurement terminal

⑤ GM70 plate current adjustment volume

When the vacuum tube is replaced or aged, insert a tester lead into the current measurement terminal and turn the volume to set the voltage to 70mV.



⑥ Ground terminal

Used to connect to the ground of other equipment.

⑦ Speaker output terminal [Rch]

⑧ Audio input terminals [Rch]

- Balanced, Unbalanced

⑨ Mode switch

Switches between Normal, DualMono, and Bridge modes.

⑩ Audio input terminals [Lch]

- Balanced, Unbalanced

⑪ Speaker output terminal [Lch]

⑫ AC input terminal

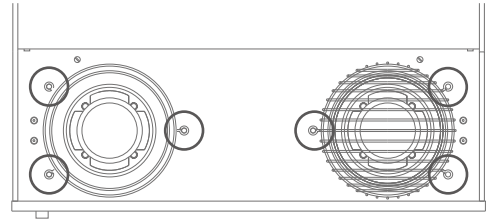
Used to connect AC power source. Be sure to use the supplied AC cord.

The safety ground of this unit is connected with the ground terminal of the AC cord. Please use an outlet with a ground wire connected. Failure to ground the unit may result in electric shock.

## 4. Installation and Connection

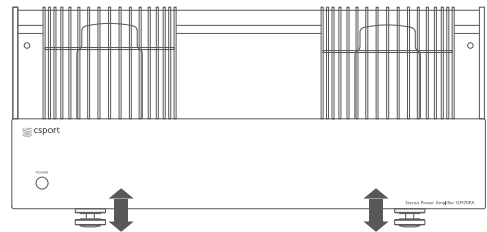
### 1. Remove the vacuum tube cushioning material

- Using a screwdriver, remove the six screws on both sides of the vacuum tube protection cage and pull up the cage. After removing the vacuum tube cushioning material, put the cage back and tighten the screws.



### 2. Adjust height

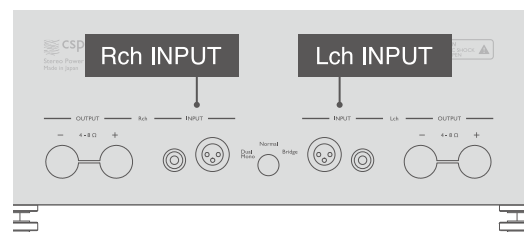
- Adjust the height with the four legs on the bottom. Loosen the lock nut of the upper section, and turn the lower section to adjust. After adjustment, tighten the lock nut to secure it.



### 3. Connect the audio input cable in Normal mode

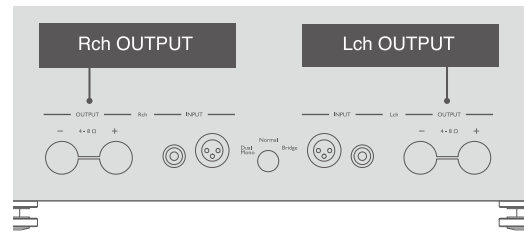
- Connect the audio input cable to the terminals on the rear panel with the main power turned off.

Unbalanced input and Balanced input can only be used either way and cannot be used simultaneously.



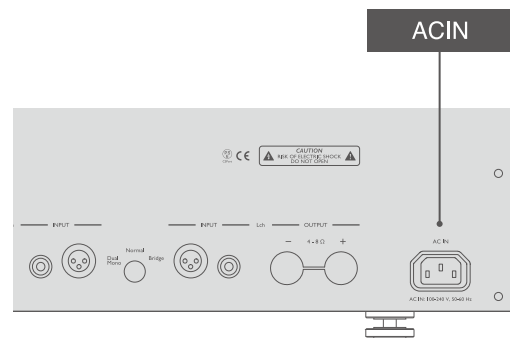
#### 4. Connect the speaker cables in Normal mode

- Turn the terminal knob on the rear panel to loosen it, and insert the speaker cable core wire. After insertion, turn the knob to tighten it.
- At this time, select "Normal" for the mode switch.



#### 5. Connect the AC cord

- Plug the AC cord into the AC input terminal and connect it to an outlet.



## Input/output connections for each mode

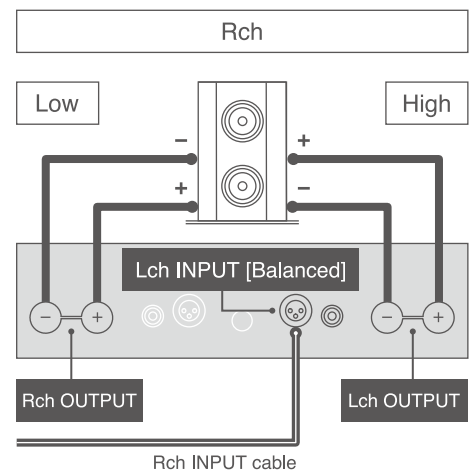
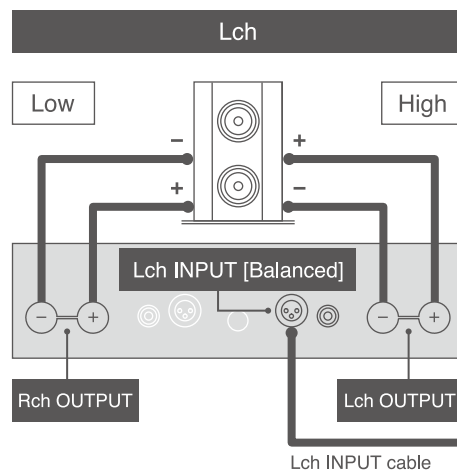
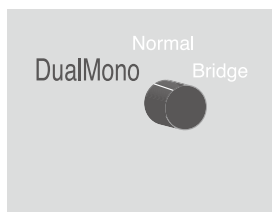
### ■ DualMono mode

In this mode, two GM70PAs (Lch and Rch) drive the mid-high and low frequencies of the speakers.

Select "DualMono" with the mode switch. (A speaker with mid-high and low frequency terminals is required.)

Connect the speaker cable and audio input cable as follows. Note that this mode is only available for balanced input.

Mode switch

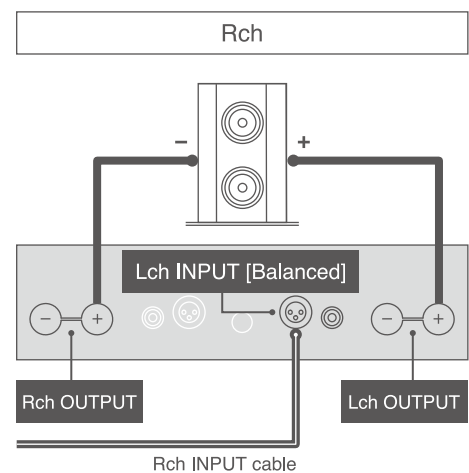
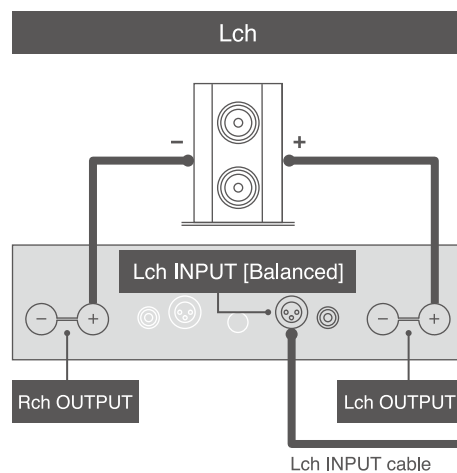
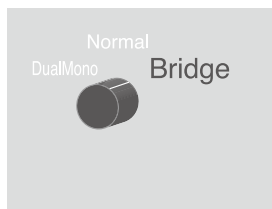


### ■ Bridge mode

In this mode, two GM70PAs (Lch and Rch) drive the Lch and Rch of the speakers.

Select "Bridge" with the mode switch. Connect the speaker cable and audio input cable as follows. Note that this mode is only available for balanced input.

Mode switch





## About the life of vacuum tubes

The life of a typical vacuum tube is about 15,000 hours for the signal tube and 10,000 hours for the output tube, and is affected by the following factors

- The filament becomes thin due to self-heating and evaporation. The heat concentrates there, and the wire breaks.
- The filament becomes thin due to the collision and breakage of cations. The heat concentrates there, and the wire breaks.
- The gas is generated by the high temperature of each electrode. The absorption of that gas exceeds the limit of the getter, causing the vacuum to drop.

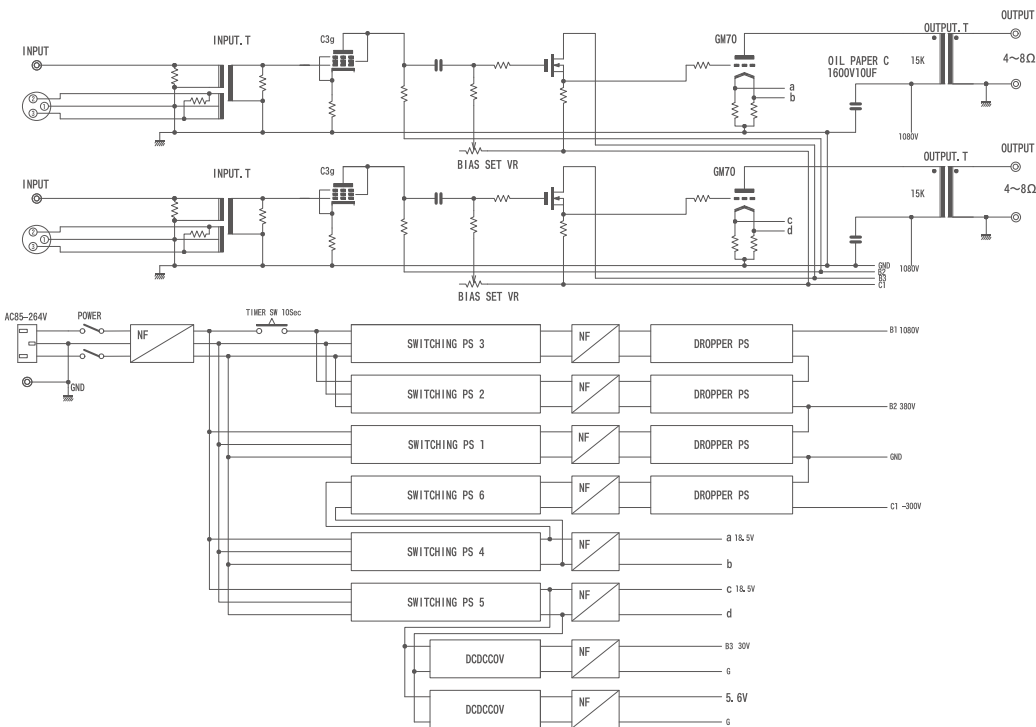
In the GM70PA, the following measures have been taken to improve the life of the vacuum tube to over 20,000 hours.

- Ultra-long life signal tube C3g heater voltage lowered to 30% of rated plate loss for use at low temperatures
- Output tube GM70 filament voltage lowered to 60% of rated plate loss for use at low temperatures
- The GM70 is equipped with an overcurrent protection circuit that uses a switching power supply. The filament inrush current of the GM70 is limited when the power is turned on.
- The GM70PA uses a sequence that applies high voltage after 10 seconds. When the power is turned on, only the filament is energized, preventing the phenomenon of breakage.

# 5. Product Specifications

Model	GM70PA
Type	Class-A Vacuum tube stereo power amplifier
Output Power	[Normal, DualMono] 30 W+30 W (4 Ω, THD 5%), 20 W+20 W (8 Ω, THD 5%) [Bridge] 60 W (8 Ω, THD 5%), 40 W (4 Ω, THD 5%) *The other than normal is valid for Lch/Balanced input.
Frequency Response	20-30 kHz -2 dB/10 W
THD	[Normal, DualMono] 0.7%/10 W, 0.2%/1 W [Bridge] 0.5%/10 W, 0.1%/1 W
NFB	None
Signal to Noise Ratio	90 dB/1 W (20-20 kHz)
Crosstalk	40 dB/1 W (20-20 kHz)
Input Sensitivity	[Normal, DualMono] 1 V/30 W (4 Ω), 1 V/20 W (8 Ω) [Bridge] 1 V/60 W (8 Ω), 1 V/40 W (4 Ω)
Gain	21 dB
Input Terminal	Balanced x1, Unbalanced x1
Input Impedance	2.5 kΩ 1 kHz
Mode Switching	By the rear rotary switch
Volume Adjustment	None
Damping Factor	2.8 (4 Ω), 5.6 (8 Ω)
Power Supply	AC100/120/200/240 V, 50/60 Hz
Power Consumption	400 W
Dimensions	470W×201H×430D mm
Weight	27 kg
Finishing	Anodic oxide coating

# 6. Block Diagram



## 7. Troubleshooting

Check the following when you think it may be a malfunction. If the problem persists even after these measures are taken, or if the problem is not listed, contact your dealer or our service department.

### GM70PA not turning on

- Check that the power cable is plugged in.

### Sound is not output properly.

- Check that the audio input/output cable is properly connected.
- Check that the mode switch is selected properly.

### Low sound level.

- Check that the impedance of the speakers is appropriate.
- Check if the input equipment is high impedance.

## 8. After-sales Service

### 5-year quality warranty

All products will be repaired free of charge for five years if they fail under normal use in accordance with the user's manual. (excluding consumables). Please note that even within the warranty period, repair may be charged depending on the circumstances of the failure.

### After expiration of warranty period

If repair is possible, the product will be repaired for a fee upon request. Repair parts will be available for 8 years after the end of production. If the product has been in use for a considerable period of time, please contact our service department in advance.

### Others

The following failures will be repaired for a fee. Please note that you will be responsible for the actual cost of parts, technical fees, shipping, and travel expenses.

- If the failure is caused by improper use or usage that does not follow the user's manual.
- If the failure is caused by a device other than our product you purchased.
- If the failure is damaged by fire, earthquake, flood, lightning, rodent damage, salt damage, other pollution, or abnormal voltage.
- The product has been repaired by someone other than us.

Please note that we are unable to repair any product that has been altered.

We do not warrant any incidental damage resulting from product failure.

### Second User Registration

Customers who have acquired our products as used products can take over the remaining warranty period as a second user. If you have acquired a used product, please register from the "Support" section of our website.

### Contact Us

If you have any questions about the product, please contact your dealer or our service department. When requesting repair, please inform us of the serial number attached to the back of the unit and the status of the failure.

Please keep the packing materials as they will be needed for transportation of the repair.



CS Port Co., Ltd.  
1-1-18 Nishinakanomachi, Toyama-city  
Toyama, 939-8084, Japan  
Service Department  
[Office Hours] Weekdays 9:00-18:00  
Phone: +81-76-461-4188  
Email: [service@cspport.audio](mailto:service@cspport.audio)  
WEB: [www.cspport.audio/en/inquiry](http://www.cspport.audio/en/inquiry)