

Stereo Power Amplifier

Operating Instructions

Mode d'emploi

Owner's Record

The model and serial numbers are located on the bottom of the unit.

Record the serial number in the space provided below.

Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. XM-404EQX Serial No. _____

XM-404EQX

Specifications

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

40 watts per channel minimum continuous average power into 4 ohms, four channels driven from 20 Hz to 20 kHz with no more than 0.04% total harmonic distortion per Car Audio Ad Hoc Committee standards.

Other Specifications

Circuit system	OTL (output transformerless) circuit Pulse power supply	Frequency response	5 Hz - 100 kHz (±3 dB)
Inputs	RCA pin jacks High level input connector	Harmonic distortion	0.005 % or less (at 1kHz, 4 Ω)
Outputs	Speaker terminals	Input level adjustment range	0.2 - 4.0 V (RCA pin jacks) 0.4 - 8.0 V (High level input)
Speaker impedance	2 - 8 Ω (stereo) 4 - 8 Ω (when used as a bridging amplifier)	High-pass filter	50 - 200 Hz, -12 dB/oct
Maximum outputs	Four speakers: 80 watts × 4 (at 4 Ω) Three speakers: 80 watts × 2 + 200 watts × 1 (at 4 Ω) Two speakers: 200 watts × 2 (at 4 Ω)	Low-pass filter	50 - 200 Hz, -12 dB/oct
Rated outputs (supply voltage at 14.4 V)	Four speakers: 40 watts × 4 (20 Hz - 20 kHz, 0.04 % THD, at 4 Ω) 50 watts × 4 (20 Hz - 20 kHz, 0.1 % THD, at 2 Ω) Two speakers: 100 watts × 2 (20 Hz - 20 kHz, 0.1 % THD, at 4 Ω)	Equalizer	50 Hz, 200 Hz, 800 Hz, 3.2 kHz, 12.8 kHz ±12 dB
		Power requirements	12 V DC car battery (negative ground)
		Power supply voltage	10.5 - 16 V
		Current drain	at rated output: 23 A Remote input: 1.5 mA
		Dimensions	Approx. 260 × 55 × 320 mm (w/h/d) (10 ¹ / ₄ × 2 ¹ / ₄ × 12 ⁵ / ₈ in.) not incl. projecting parts and controls
		Mass	Approx. 3.2 kg (7 lb. 1 oz.) not incl. accessories
		Supplied accessories	Mounting screws (4), Terminal cap (1)
		Optional accessories	Connecting cord for power amplifier RC-46

Design and specifications are subject to change without notice.

Features

- Maximum power output of 80 watts per channel (at 4 ohms).
- This unit can be used as a bridging amplifier with a maximum output of 200 watts.
- Direct connections can be made with the speaker outputs of your car audio if it is not equipped with the line output (High level input connection).
- Low-pass filter, high-pass filter, and five band equalizer circuit are built-in.
- The DIRECT switch can be used to bypass the low-pass filter, high-pass filter, and equalizer circuit for more enjoyable high quality sound.
- You can visually confirm the output level of both the left and right sides with the power level indicator.
- Protection circuit and indicator provided.
- Pulse power supply* for stable, regulated output power.

* Pulse power supply

This unit has a built-in power regulator which converts the power supplied by the DC 12 V car battery into high speed pulses using a semiconductor switch. These pulses are stepped up by the built-in pulse transformer and separated into both positive and negative power supplies before being converted into direct current again. This is to regulate fluctuating voltage from the car battery. This light weight power supply system provides a highly efficient power supply with a low impedance output.

Location and Function of Controls

1 POWER/PROTECTOR indicator

- OVER CURRENT lights up green during normal operation. The color will change from green to red when receiving a powerful signal.
- OFF SET lights up green during normal operation. The color will change from green to red when the voltage going out to the speaker terminal or the pin jack is too high.
- THERMAL lights up green during normal operation. The color will change from green to red when the temperature rises to an unsafe level. The color will return to green when the temperature returns to normal.

2 Power level indicator

Indicates the output levels of both the left and right sides. The scale is calibrated for use with 4 ohm speakers.

3 DIRECT switch

When the DIRECT switch is set to ON, the signal does not go through the low-pass filter, high-pass filter and equalizer circuit.

4 LEVEL adjustment control

The input level can be adjusted with this control when using source equipment made by other manufacturers. Turn it to MAX when the output level of the car audio seems low. To reduce noise, turn the LEVEL control (gain) of the amplifier to MIN and the volume of the car audio up.

5 FILTER selector switch

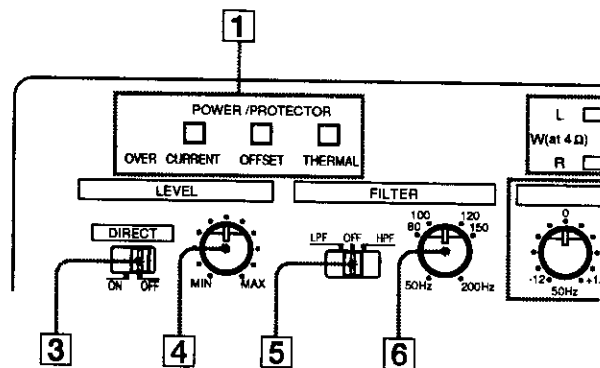
When the switch is in the LPF position, the filter is set to low-pass. When in the HPF position, the filter is set to high-pass. When the DIRECT switch is set to ON, these filters do not work.

6 Cut-off frequency adjustment control

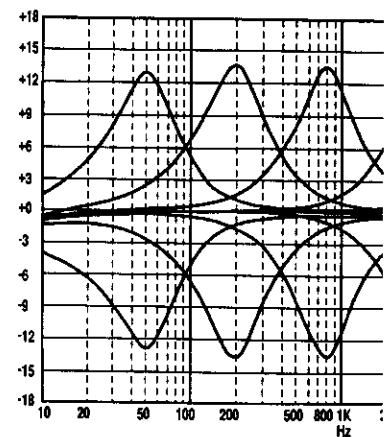
Sets the cut-off frequency (50–200 Hz) for the low-pass or high-pass filters.

7 EQUALIZER level control

You can change the settings of the five band (50 Hz, 200 Hz, 800 Hz, 3.2 kHz, 12.8 kHz) equalizer.



Equalizer/Egaliseur dB



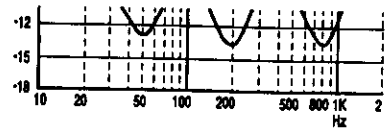
FREQUENCY

6 Cut-off frequency adjustment control

Sets the cut-off frequency (50–200 Hz) for the low-pass or high-pass filters.

7 EQUALIZER level control

You can change the settings of the five band (50 Hz, 200 Hz, 800 Hz, 3.2 kHz, 12.8 kHz) equalizer.



FREQUENC

Switch settings for each system configuration
(Change the switch positions according to the configuration.)

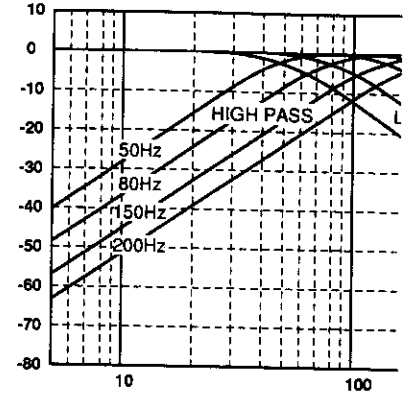
System (refer to "Connections")	DIRECT	FILTER	EQ
• 4-speaker system	ON	—	—
• 2-speaker system	OFF	OFF	*
• 3-speaker system Full range speakers	OFF	HPF	*
• 2-way system Subwoofers	OFF	LPF	*

* desirable level

Note

If you do not use the low-pass filter, high-pass filter and equalizer circuit, set the DIRECT switch to ON for more enjoyable high quality sound.

Cut-off frequency/Fréquence d
dB



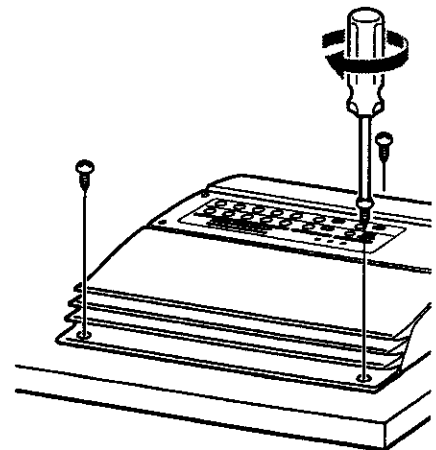
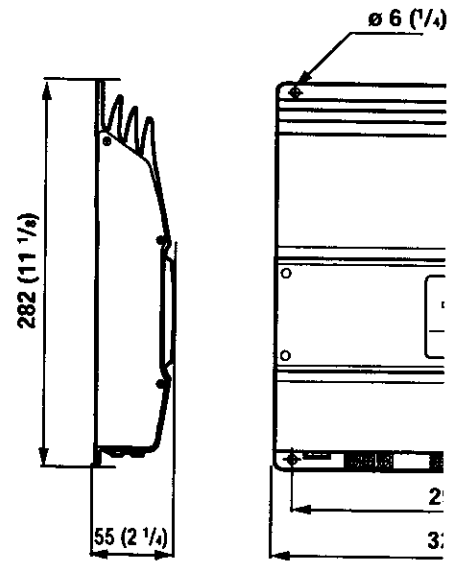
FREQUENC

Installation

Before Installation

- Mount the unit either inside the trunk or under a seat.
- Choose the mounting location carefully so that the unit will not interfere with the normal movements of the driver and so it will not be exposed to direct sunlight or hot air from the heater.
- Do not install the unit under the floor carpet, where the heat dissipation from the unit will be considerably impaired.

First, place the unit where you plan to install it, and mark the positions of the four screw holes on the surface of the mounting board (not supplied). Then drill the holes approximately 3 millimeters (mm) in diameter and mount the unit onto the board with the supplied mounting screws. The supplied mounting screws are 15 mm long, therefore, make sure that the mounting board is thicker than 15 mm.



Connections

Precautions

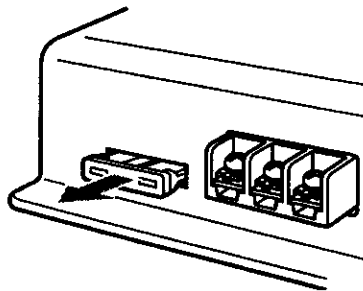
- This unit is designed for negative ground 12 V DC operation only.
- Use speakers with an impedance of 2 to 8 ohms (4 to 8 ohms when used as a bridging amplifier).
- Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers.
- Avoid installing the unit in areas subject to:
 - high temperatures such as from direct sunlight or hot air from the heater
 - rain or moisture
 - dust or dirt.
- If your car is parked in direct sunlight and there is a considerable rise in temperature inside the car, allow the unit to cool down before use.
- When installing the unit horizontally, be sure not to cover the fins with the floor carpet etc.
- If this unit is placed too close to the car radio or antenna, interference may occur. In this case, relocate the amplifier away from the car radio or antenna.
- If no power is being supplied to the master unit, check the connections.
- This power amplifier employs a protection circuit* to protect the transistors and speakers if the amplifier malfunctions. Do not attempt to test the protection circuits by covering the heat sink or connecting improper loads.
- Do not use the unit on a weak battery as its optimum performance depends on a good power supply.
- For safety reasons, keep your car audio volume moderate so that you can still hear sounds outside your car.

Fuse Replacement

If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after replacement, there may be an internal malfunction. In such a case, consult your nearest Sony dealer.

Warning

When replacing the fuse, be sure to use one matching the amperage stated above the fuse holder. Never use a fuse with an amperage rating exceeding the one supplied with the unit as this could damage the unit.



***Protection circuit**

This amplifier is provided with a protection circuit that activates in the following cases:

- when the unit is overheated*
- when a DC current is generated*
- when the speaker terminals are short circuited.*

The color of the POWER/PROTECTOR indicator will change from green to red, and the unit will shut down.

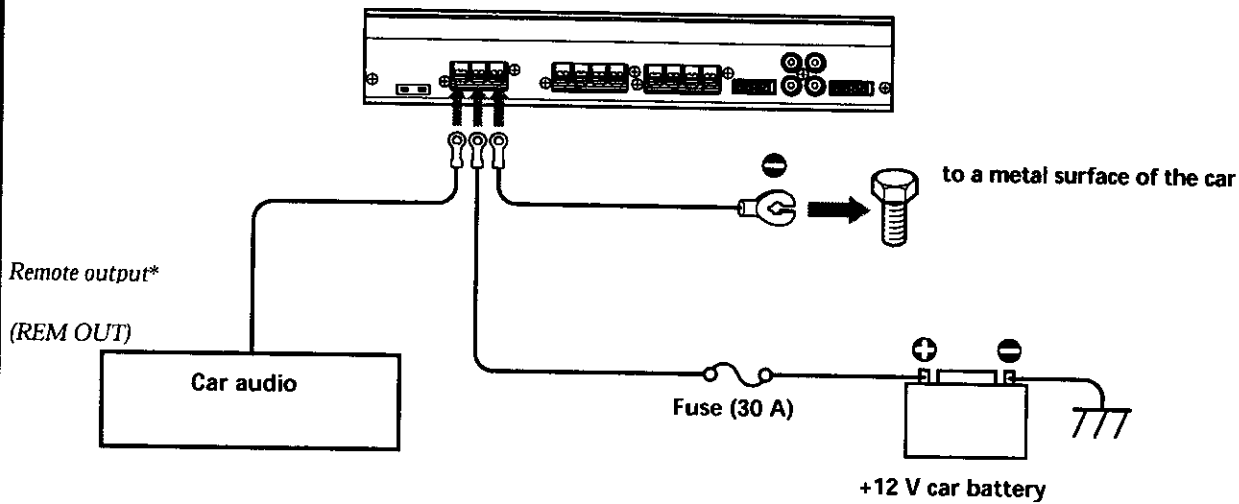
If this happens, turn off the connected equipment, take out the cassette tape or disc, and determine the cause of the malfunction. If the amplifier has overheated, wait until the unit cools down before use.

If you have any questions or problems concerning your unit that are not covered in this manual, please consult your nearest Sony dealer.

Caution

- Before making any connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Be sure to use speakers with an adequate power rating. If you use small capacity speakers, they may be damaged.
- Do not connect the \ominus terminal of the speaker system to the car chassis, and do not connect the \ominus terminal of the right speaker with that of the left speaker.
- Install the input and output cords away from the power supply lead as running them close together can generate some interference noise.
- This unit is a high-power amplifier. Therefore, it may not perform to its full potential if used with the speaker cords supplied with the car.
- If your car is equipped with a computer system for navigation or some other purpose, do not remove the ground wire from the car battery. If you disconnect the wire, the computer memory may be erased. To avoid short circuits when making connections, disconnect the +12 V power supply lead until all the other leads have been connected.

Power Connection Leads



* If you have the factory original or some other car audio without a remote output on the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.

Notes on the power supply

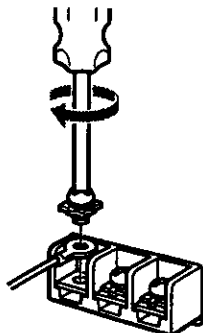
- Connect the +12 V power supply lead only after all the other leads have been connected.
- **Be sure to connect the ground lead of the unit securely to a metal surface of the car. A loose connection may cause a malfunction of the amplifier.**
- Be sure to connect the remote control lead of the car audio to the remote terminal.
- When using a car audio without a remote output on the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.
- Use the power supply lead with a fuse attached (30 A).
- Place the fuse in the power supply lead as close as possible to the car battery.
- Make sure that the leads to be connected to the +12 V and GND terminals of this unit are larger than 10-Gauge (AWG-10) or have a sectional area of more than 5 mm².
- When using the optional RC-46 power amplifier connecting cord, consult that manual for proper use.

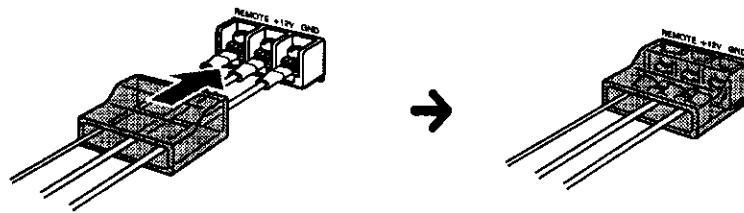
Make the terminal connections as illustrated below.

Note

Tighten the screws firmly, but be careful not to apply too much force* as doing so may damage the screws.

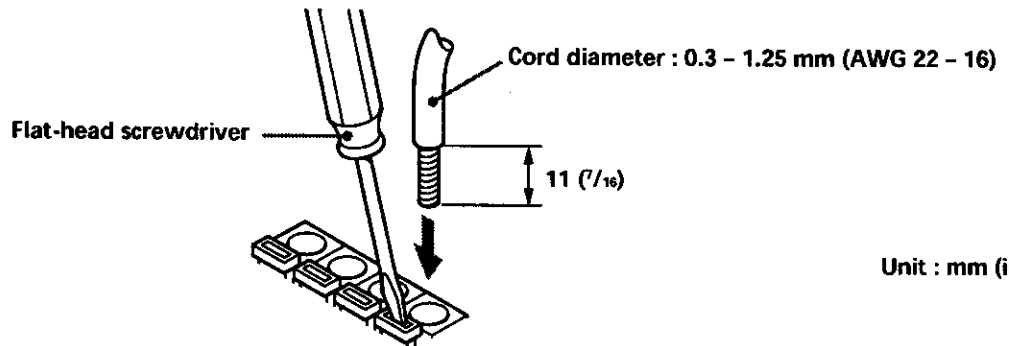
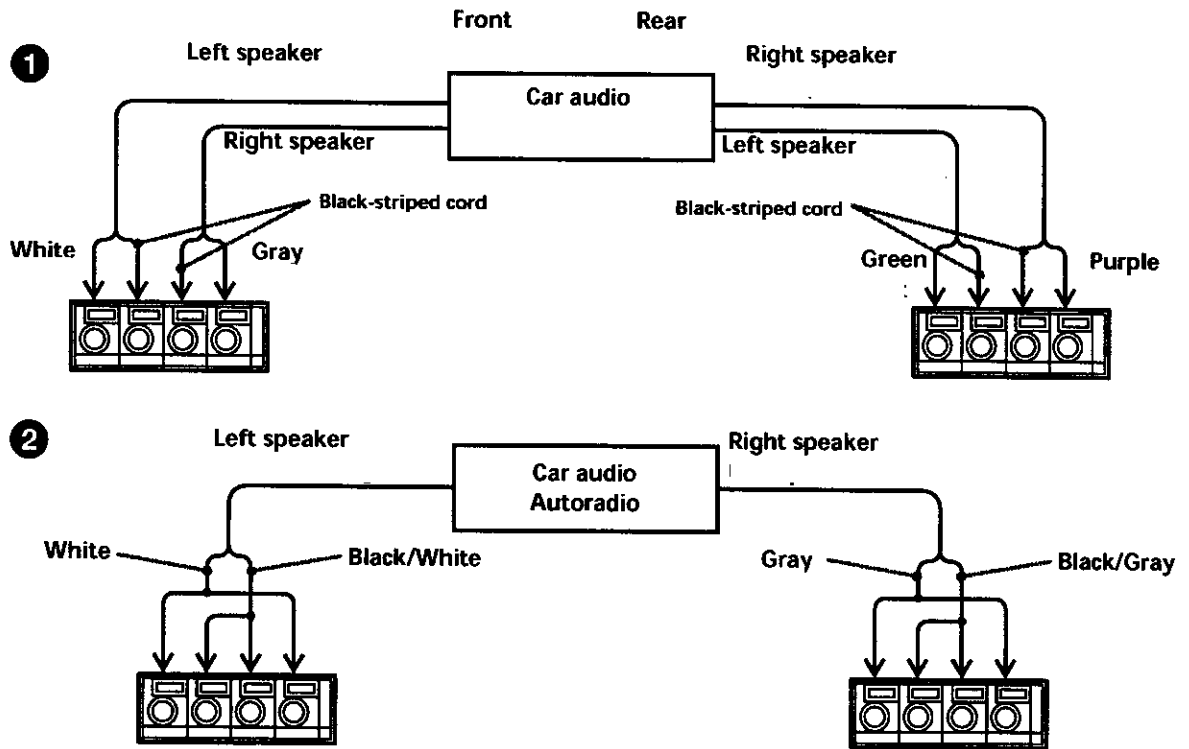
* The torque value should be less than 1 N•m.





Pass the leads through the cap, connect the leads, then cover the terminals with the cap.

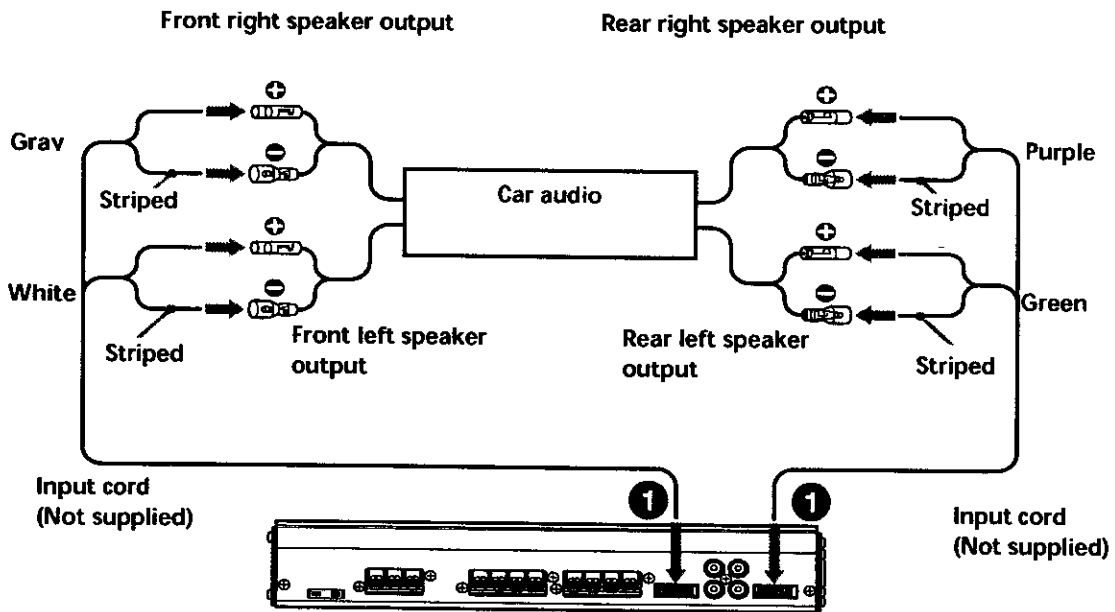
Direct speaker cord connection



Input Connections

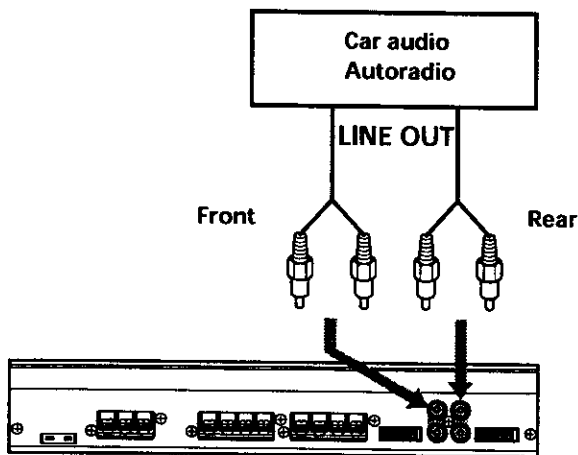
High Level Input Connection (with Speaker Connection 1, 2 or 4)

A



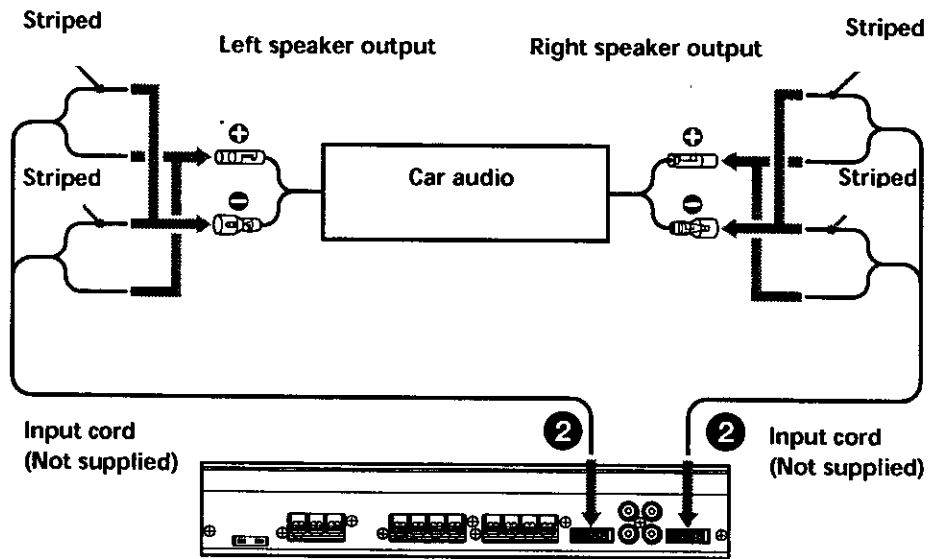
Line Input Connection (with Speaker Connection 1, 2 or 4)

C



High Level Input Connection (with Speaker Connection 3)

B



Note

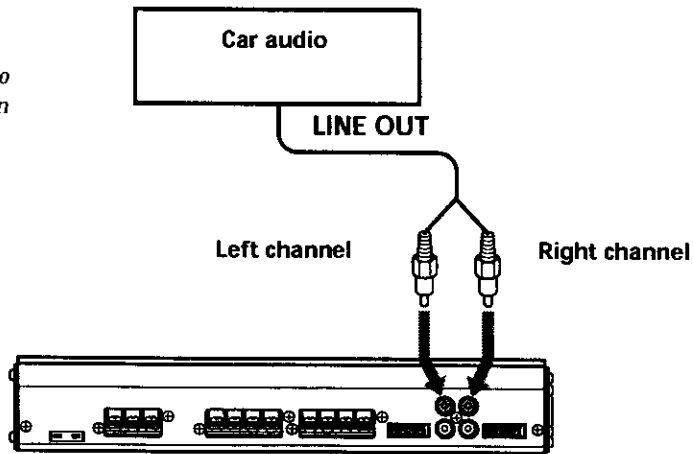
Make sure that the right speaker output from the car audio is connected to the connector marked "REAR" on the unit, and the left to "FRONT".

Line Input Connection (with Speaker Connection 3)

D

Note

Make sure that the line output from the car audio is connected to the jack marked "L (MONO)" on the unit.

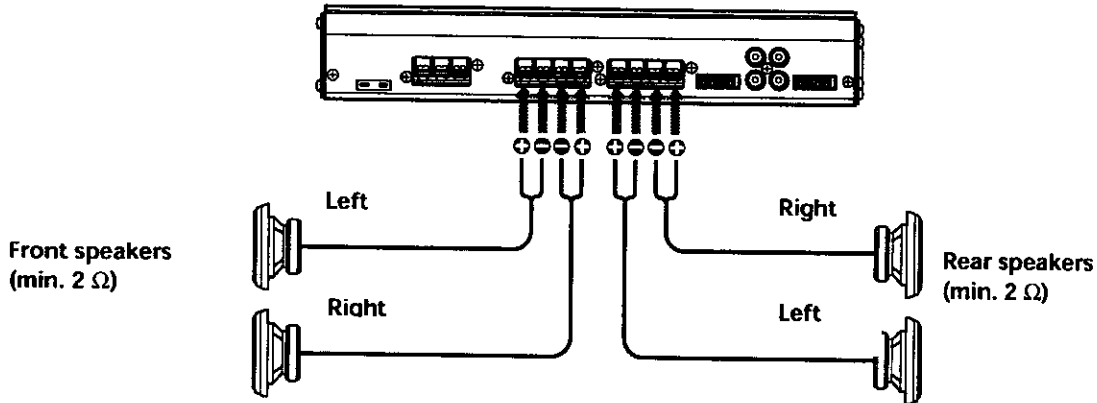


Speaker Connections

4-Speaker System (with Input Connection **A** or **C**)

1

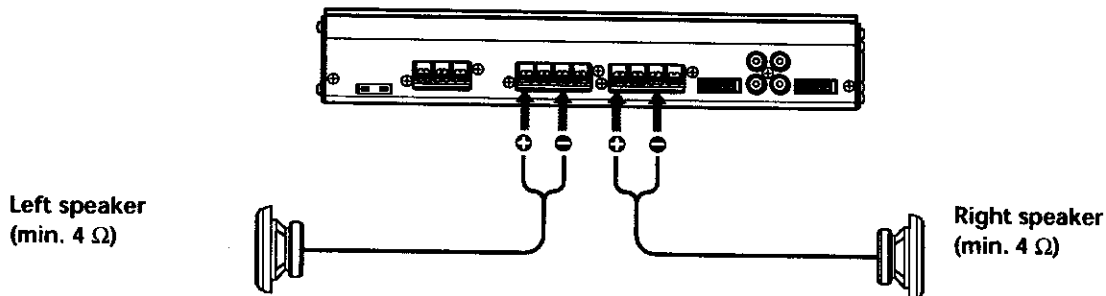
For details on the settings of switches and controls, refer to "Location and Function of Controls."



2-Speaker System (with Input Connection **B** or **D**)

3

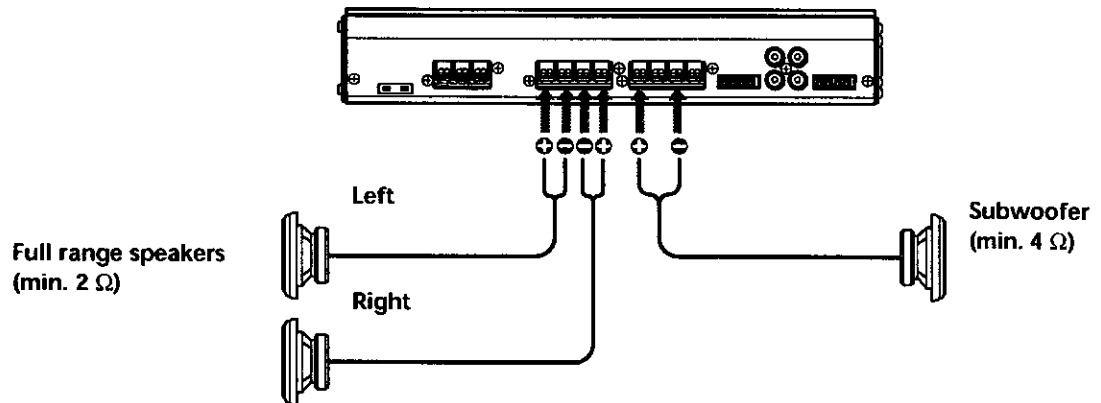
For details on the settings of switches and controls, refer to "Location and Function of Controls."



3-Speaker System (with Input Connection **A** or **C**)

2

For details on the settings of switches and controls, refer to "Location and Function of Controls."



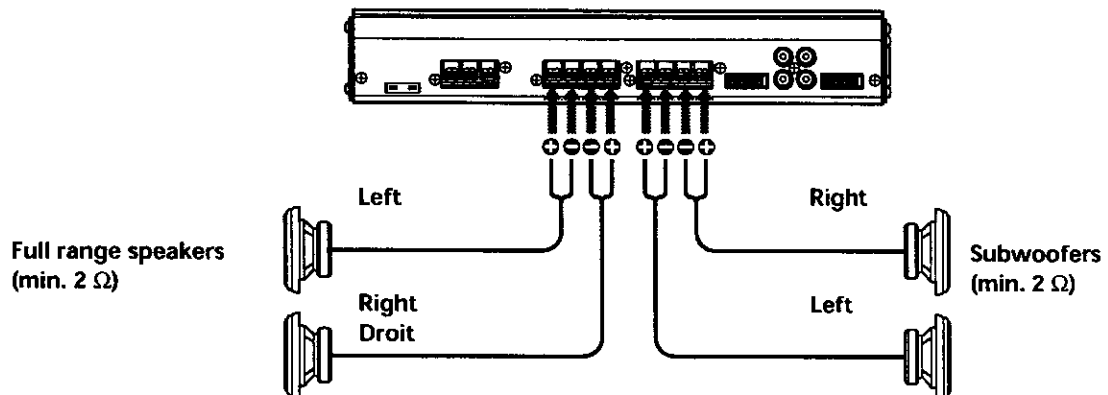
Notes

- In this system, the volume of the subwoofer will be controlled by the car audio fader control.
- In this system, the output signals to the subwoofer are a combination of both the REAR L and R INPUT jacks or the REAR high level input connector signals.

2-Way System (with Input Connection **A** or **C**)

4

For details on the settings of switches and controls, refer to "Location and Function of Controls."



Note

In this system, the volume of the subwoofers will be controlled by the car audio fader control.

Troubleshooting Guide

The following checklist will assist in the correction of most problems which you may encounter with your unit. Before going through the checklist below, refer to the connection and operating procedures.

Problem	Cause/Solution
The POWER/PROTECTOR indicator does not light up.	<p>The fuse is blown. → Replace the fuse with a new one.</p> <p>The ground lead is not securely connected. → Fasten the ground lead securely to a metal surface of the car.</p> <p>The voltage going into the remote terminal is too low.</p> <ul style="list-style-type: none">• The connected master unit is not turned on. → Turn on the master unit.• The system employs too many amplifiers. → Use a relay. <p>Check the battery voltage (10.5 - 16 V).</p>
The OVER CURRENT indicator lights up in red.	<p>Turn off the power switch. The speaker outputs are short-circuited. → Rectify the cause of the short-circuit.</p>
The OFFSET indicator lights up in red.	<p>Turn off the power switch. Make sure the speaker cord and ground lead are securely connected.</p>
The THERMAL indicator lights up in red.	<p>The unit heats up abnormally.</p> <ul style="list-style-type: none">• Use speakers with suitable impedance.• Make sure to place the unit in a well ventilated location.
Alternator noise is heard.	<p>The power connecting leads are installed too close to the RCA pin cords. → Keep the leads away from the cords.</p> <p>The ground lead is not securely connected. → Fasten the ground lead securely to a metal surface of the car.</p> <p>Negative speaker leads are touching the car chassis. → Keep the leads away from the car chassis.</p>
The sound is muffled.	<p>The FILTER selector switch is set to the "LPF" position.</p>
The sound is too low.	<p>The LEVEL adjustment control is set to the "MIN" position.</p>
HPF, LPF, and EQUALIZER does not work.	<p>The DIRECT switch is set to ON.</p>
No sound is heard.	<p>One or more of the switches is settled between settings (i.e., not correctly set); set the switch properly.</p>

