

# Pioneer

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BRIDGEABLE FOUR-CHANNEL POWER AMPLIFIER  
AMPLIFICATEUR DE PUISSANCE PONTABLE A QUATRE CANAUX  
AMPLIFICADOR DE POTENCIA DE CUATRO CANALES DE PUENTE

## GM-6400F

English

Français

Español

Owner's Manual  
Mode d'emploi  
Manual de instrucciones

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## Before you start

Thank you for purchasing this PIONEER product. It is designed to give you many years of enjoyment.

PIONEER SUGGESTS USING A PROFESSIONAL INSTALLER DUE TO THE COMPLEXITY OF THIS PRODUCT. Please read all instructions and **WARNINGS** in this manual before attempting operation. Should you have any questions, contact your nearest Pioneer authorized dealer or installation specialist.

## Information to User

Alteration or modifications carried out without appropriate authorization may invalidate the user's right to operate the equipment.



## After-sales service for Pioneer products

Please contact the dealer or distributor from where you purchased this unit for after-sales service (including warranty conditions) or any other information. In case the necessary information is not available, please contact the companies listed below:

Please do not ship your unit to the companies at the addresses listed below for repair without advance contact.

### U.S.A.

Pioneer Electronics (USA) Inc.  
CUSTOMER SUPPORT DIVISION  
P.O. Box 1760  
Long Beach, CA 90801-1760  
800-421-1404

### CANADA

Pioneer Electronics of Canada, Inc.  
CUSTOMER SATISFACTION DEPARTMENT  
300 Allstate Parkway  
Markham, Ontario L3R 0P2  
1-877-283-5901  
905-479-4411

For warranty information please see the Limited Warranty sheet included with this unit.

## Visit our website

Visit us at the following site:

**<http://www.pioneerelectronics.com>**

- 1 Register your product. We will keep the details of your purchase on file to help you refer to this information in the event of an insurance claim such as loss or theft.
- 2 Receive updates on the latest products and technologies.
- 3 Download owner's manuals, order product catalogues, research new products, and much more.

## Before connecting/ installing the amplifier

### WARNING


- Handling the cord on this product or cords associated with accessories sold with the product may expose you to chemicals listed on proposition 65 known to the State of California and other governmental entities to cause cancer and birth defects or other reproductive harm. **Wash hands after handling.**
- The use of a special red battery and ground wire RD-223, available separately, is recommended. Connect the battery wire directly to the car battery positive terminal  $\oplus$  and the ground wire to the car body.
- This unit is for vehicles with a 12 V battery and negative grounding. Before installing in recreational vehicles, trucks or buses, check the battery voltage.
- Always use a fuse of the rating prescribed. The use of an improper fuse could result in overheating and smoke, damage to the product and injury, including burns.
- Check the connections of the power supply and speakers if the fuse of the separately sold battery wire or the amplifier fuse blows. Determine and resolve the cause, then replace the fuse with identical equivalent.
- Do not allow this unit to come into contact with liquids. Electrical shock could result. Also, damage to this unit, smoke, and overheating could result from contact with liquids. The surfaces of the amplifier and any attached speakers may also heat up and cause minor burns.
- In the event of any abnormality, the power supply to the amplifier is cut off to prevent equipment malfunction. If this occurs, switch the system power OFF and check the power supply and speaker connections. If you are unable to determine the cause, please contact your dealer.

- Always disconnect the negative  $\ominus$  terminal of the battery beforehand to avoid the risk of electric shock or short circuit during installation.

### CAUTION

- Always keep the volume low enough so that you can hear sounds from outside the vehicle.
- Extended use of the car stereo while the engine is at rest or idling may exhaust the battery.

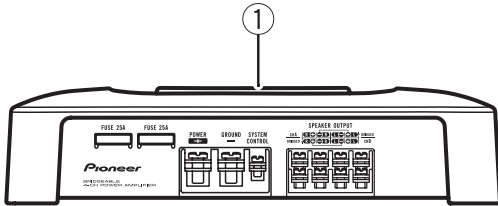
### Important (Serial number)

The serial number is located on the bottom of this unit. For your own security and convenience, be sure to record this number on the enclosed warranty card. 

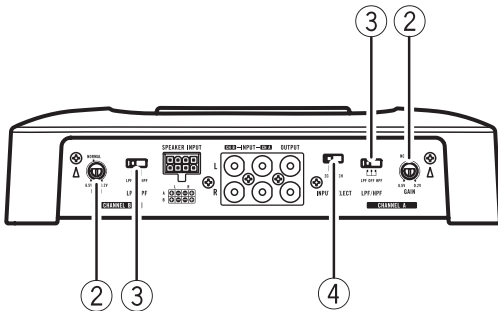
## Setting the Unit

### What's what

Front side



Rear side



To adjust the switch, use a flathead screwdriver if needed.

#### ① Power indicator

The power indicator lights up to indicate power ON.

#### ② GAIN (gain) control

Adjusting gain controls **CHANNEL A** (channel A) and **CHANNEL B** (channel B) helps align the car stereo output to the Pioneer amplifier. Default setting is the **NORMAL** position.

If output remains low, even when the car stereo volume is turned up, turn controls to lower level. If distortion occurs when the car stereo volume is turned up, turn these controls to higher level.

- If using only one input plug, set the gain controls for speaker outputs A and B to the same position.
- For use with an RCA equipped car stereo (standard output of 500 mV), set to the **NORMAL** position. For use with an RCA equipped Pioneer car stereo, with max.

output of 4 V or more, adjust level to match that of the car stereo output.

#### ③ LPF (low-pass filter)/HPF (high-pass filter) select switch

Switch the settings based on the connected speaker.

- When the Subwoofer is connected: Select **LPF**. This eliminates high range frequency and outputs low range frequency.
- When the full range speaker is connected: Select **HPF** or **OFF**. **HPF** eliminates low range frequency and output high range frequency. **OFF** outputs the entire frequency range.

#### ④ INPUT SELECT (input select) switch

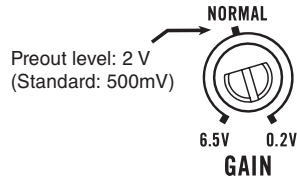
Select **2CH** for two-channel input and **4CH** for four-channel input.

### Setting gain properly

- Protective function included to prevent malfunction of the unit and/or speakers due to excessive output, improper use or improper connection.
- When outputting high volume sound etc., this function cuts off the output for a few seconds as a normal function, but output is restored when the volume of the head unit is turned down.
- A cut in sound output may indicate improper setting of the gain control. To ensure continuous sound output with the head unit at a high volume, set amplifier gain control to a level appropriate for the preout maximum output level of the head unit, so that volume can remain unchanged and to control excess output.

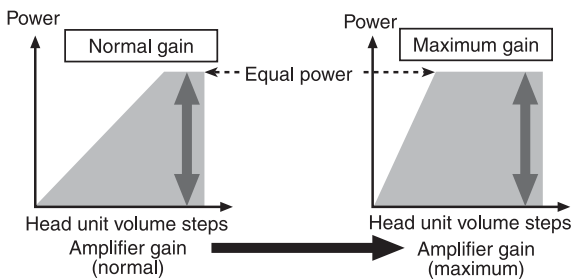
- Despite correct volume and gain settings, the unit sound still cuts out periodically. In such cases, please contact the nearest authorized Pioneer Service Station.

### Gain control of this unit



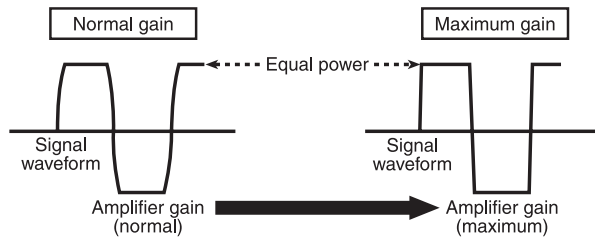
Above illustration shows **NORMAL** gain setting.

### Relationship between amplifier gain and head unit output power



If amplifier gain is raised improperly, this will simply increase distortion, with little increase in power.

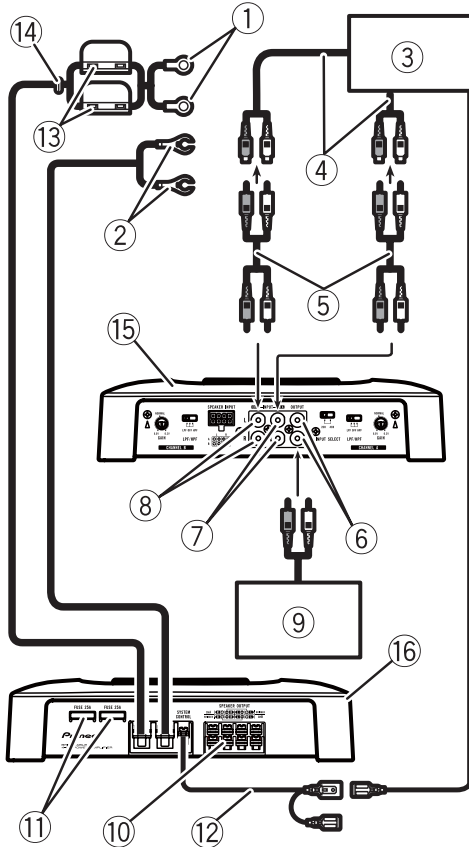
### Signal waveform when outputting at high volume using amplifier gain control



Signal waveform distorted with high output, if you raise the gain of the amplifier the power changes only slightly. ▣

## Connecting the units

### Connection diagram



- ① Special red battery wire RD-223 (sold separately)  
After completing all other amplifier connections, finally connect the battery wire terminal of the amplifier to the positive (⊕) battery terminal.
- ② Ground wire (Black) RD-223 (sold separately)  
Connect to metal body or chassis.
- ③ Car stereo with RCA output jacks (sold separately)
- ④ External output  
If only one input plug is used, do not connect anything to RCA input jack B.
- ⑤ Connecting wire with RCA pin plugs (sold separately)
- ⑥ RCA output jack
- ⑦ RCA input jack A
- ⑧ RCA input jack B

- ⑨ Amplifier with RCA input jacks (sold separately)
- ⑩ Speaker output terminals  
Please see the following section for speaker connection instructions. Refer to *Connections when using the speaker input wire* on page 10.
- ⑪ Fuse (25 A) × 2
- ⑫ System remote control wire (sold separately)  
Connect male terminal of this wire to the system remote control terminal of the car stereo (**SYSTEM REMOTE CONTROL**). The female terminal can be connected to the auto-antenna relay control terminal. If the car stereo lacks a system remote control terminal, connect the male terminal to the power terminal via the ignition switch.
- ⑬ Fuse (30 A) × 2
- ⑭ Grommet
- ⑮ Rear side
- ⑯ Front side



#### Note

**INPUT SELECT** (input select) switch must be set. For details, see *Setting the Unit* on page 5. ■

### Before connecting the amplifier



#### WARNING

- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap sections in contact with metal parts in adhesive tape.
- Never cut the insulation of the power supply to feed power to other equipment. Current capacity of the wire is limited.

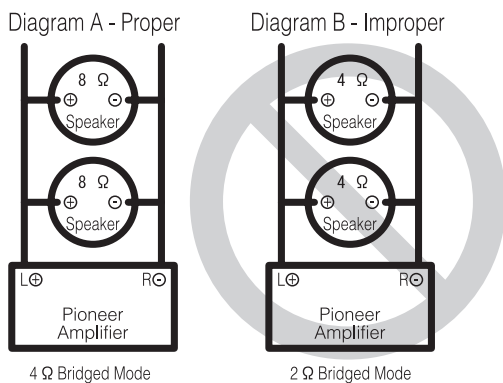


#### CAUTION

- Never shorten any wires, the protection circuit may malfunction.

- Never ground speaker wire directly or band together multiple speakers' negative ( $\ominus$ ) lead wires.
- If the system remote control wire of the amplifier is connected to the power terminal via the ignition switch (12 V DC), the amplifier will remain on with the ignition whether the car stereo is on or off, which may exhaust battery if the engine is at rest or idling.
- Install and route the separately sold battery wire as far as possible from the speaker wires. Install and route the separately sold battery wire, ground wire, speaker wires and the amplifier as far away as possible from the antenna, antenna cable and tuner. ■

## About bridged mode



Speaker impedance is max. 4 Ω, please carefully check. Improper connection to the amplifier may result in malfunction or personal injury due to burns from overheating.

For bridged mode for a two-channel amplifier, with a 4 Ω load, either wire two 8 Ω speakers in parallel, Left  $\oplus$  and Right  $\ominus$  (Diagram A) or use a single 4 Ω speaker. For other amplifiers, please follow the speaker output connection diagram for bridging shown on rear: two 8 Ω speakers in parallel for a 4 Ω load or a single 4 Ω speaker per channel.

For any further enquiries, contact your local authorized Pioneer dealer or customer service. ■

## About suitable specification of speaker

Ensure speakers conform to the following standards, otherwise there is a risk of fire, smoke or damage. Speaker impedance is 2 Ω to 8 Ω, or 4 Ω to 8 Ω for two-channel and other bridge connections.

### Subwoofer

Speaker channel	Power
Four-channel output	Nominal input: Min. 70 W
Two-channel output	Nominal input: Min. 200 W
Three-channel Speaker output A	Nominal input: Min. 70 W
Three-channel Speaker output B	Nominal input: Min. 200 W

### Other than subwoofer

Speaker channel	Power
Four-channel output	Max. input: Min. 120 W
Two-channel output	Max. input: Min. 300 W
Three-channel Speaker output A	Max. input: Min. 120 W
Three-channel Speaker output B	Max. input: Min. 300 W

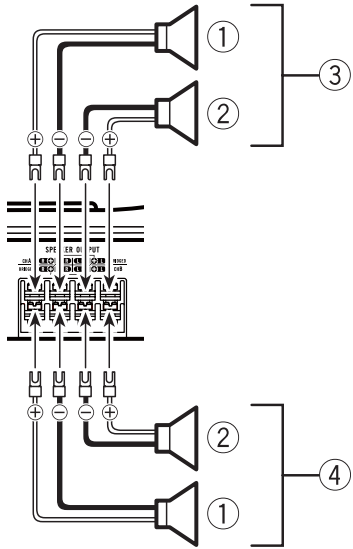


## Connecting the speakers

The speaker output mode can be four-channel, three-channel (stereo + mono) or two-channel (stereo, mono). Connect the speaker leads based on the mode and the figures shown below.

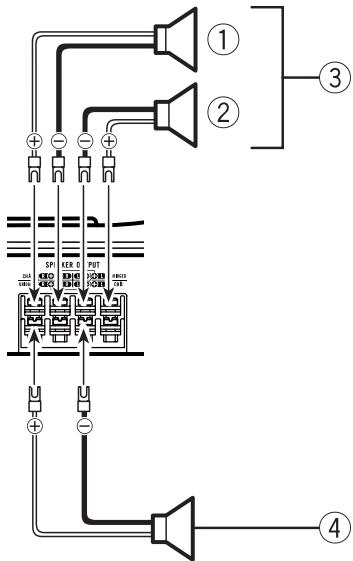
# Connecting the units

## Four-channel output



- ① Right
- ② Left
- ③ Speaker out A
- ④ Speaker out B

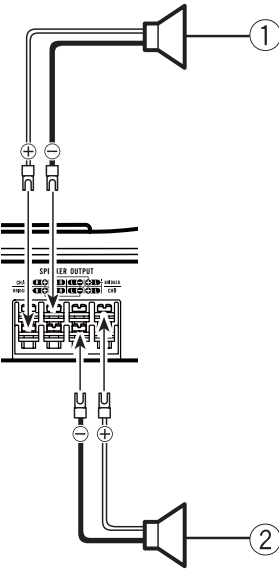
## Three-channel output



- ① Right
- ② Left
- ③ Speaker out A
- ④ Speaker out B (Mono)

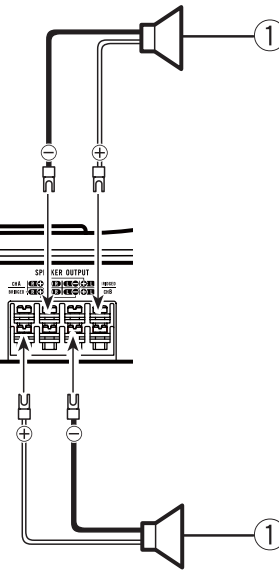
# Connecting the units

## Two-channel output (Stereo)



- ① Speaker (Right)
- ② Speaker (Left)

## Two-channel output (Mono)



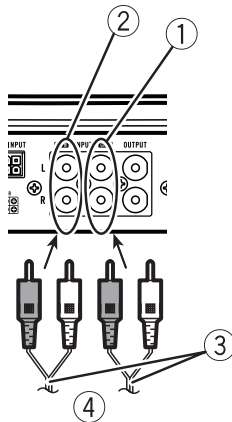
- ① Speaker (Mono) ■

## Connections when using the RCA input jack

Connect the car stereo RCA output jack and the RCA input jack of the amplifier.

### Four-channel / Three-channel output

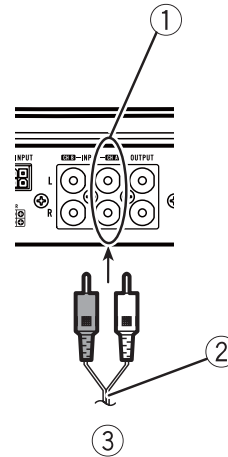
- Slide **INPUT SELECT** (input select) switch to **4CH** position.



- RCA input jack A
- RCA input jack B
- Connecting wires with RCA plugs (sold separately)
- From car stereo (RCA output)  
If only one input plug is used, e.g. when the car stereo has only one output (RCA output), connect the plug to RCA input jack A rather than B.

### Two-channel output (Stereo) / (Mono)

- Slide **INPUT SELECT** (input select) switch to **2CH** position.

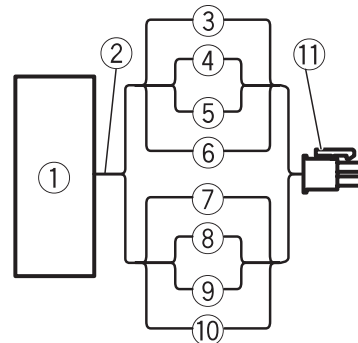


- RCA input jack A  
For two-channel output, connect the RCA plugs to the RCA input jack A.
- Connecting wire with RCA pin plugs (sold separately)
- From car stereo (RCA output) ■

## Connections when using the speaker input wire

Connect the car stereo speaker output wires to the amplifier using the supplied speaker input wire.

- Do not connect both the RCA input and the speaker input at the same time.



- Car Stereo
- Speaker output
- White: CH A, Left ⊕
- White/black: CH A, Left ⊖

## Connecting the units

- ⑤ Gray/black: CH A, Right ⊖
- ⑥ Gray: CH A, Right ⊕
- ⑦ Violet: CH B, Right ⊕
- ⑧ Violet/black: CH B, Right ⊖
- ⑨ Green/black: CH B, Left ⊖
- ⑩ Green: CH B, Left ⊕
- ⑪ Speaker input connector  
To speaker input terminal of this unit. ■

## Connecting the power terminal

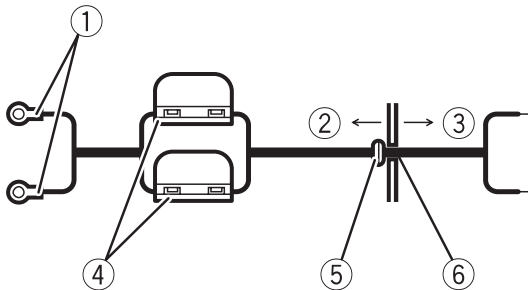
- The use of a special red battery and ground wire RD-223, available separately, is recommended. Connect the battery wire directly to the car battery positive terminal (⊕) and the ground wire to the car body.

### ! WARNING

If the battery wire is not securely fixed to the terminal using the terminal screws, there is a risk of overheating, malfunction and injury, including minor burns.

#### 1 Route battery wire from engine compartment to the vehicle interior.

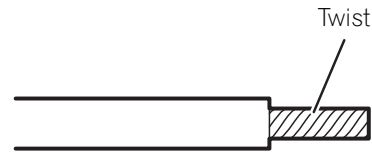
After completing all other amplifier connections, finally connect the battery wire terminal of the amplifier to the positive (⊕) battery terminal.



- ① Positive (⊕) terminal
- ② Engine compartment
- ③ Vehicle interior

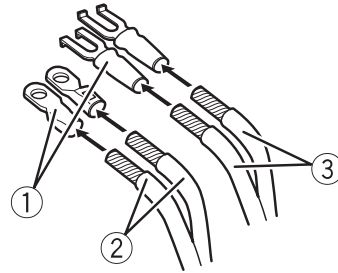
- ④ Fuse (30 A) × 2
- ⑤ Insert the O-ring rubber grommet into the vehicle body.
- ⑥ Drill a 14 mm hole into the vehicle body.

#### 2 Twist the battery wire, ground wire and system remote control wire.



#### 3 Attach lugs to wire ends. Lugs not supplied.

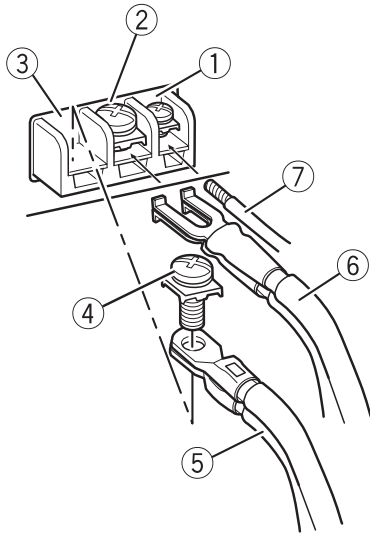
Use pliers, etc., to crimp lugs to wires.



- ① Lug
- ② Battery wire
- ③ Ground wire

#### 4 Connect the wires to the terminal.

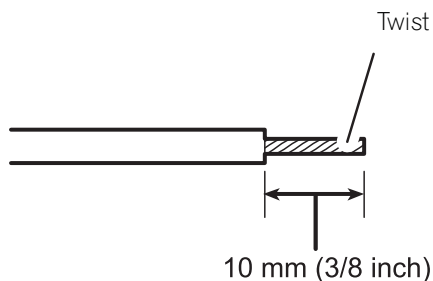
Fix the wires securely with the terminal screws.



- ① System remote control terminal
- ② GND terminal
- ③ Power terminal
- ④ Terminal screws
- ⑤ Battery wire
- ⑥ Ground wire
- ⑦ System remote control wire ■

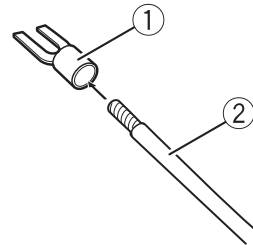
## Connecting the speaker output terminals

**1 Expose the end of the speaker wires using nippers or a cutter by about 10 mm (3/8 inch) and twist.**



**2 Attach lugs to speaker wire ends. Lugs not supplied.**

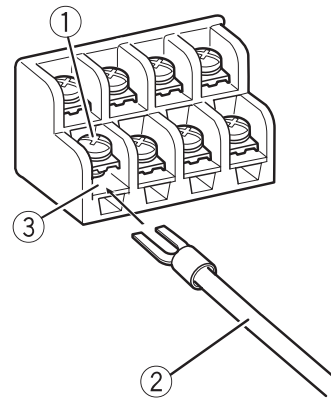
Use pliers, etc., to crimp lugs to wires.



- ① Lug
- ② Speaker wire

**3 Connect the speaker wires to the speaker output terminals.**

Fix the speaker wires securely with the terminal screws.



- ① Terminal screws
- ② Speaker wires
- ③ Speaker output terminals ■

## Installation

### Before installing the amplifier

#### **!** WARNING

- To ensure proper installation, use the supplied parts in the manner specified. If any parts other than those supplied are used, they may damage internal parts of the amplifier, or become loose causing the amplifier to shut down.
- Do not install in:
  - Places where it could injure the driver or passengers if the vehicle stops suddenly.
  - Places where it may interfere with the driver, such as on the floor in front of the driver's seat.
- Install tapping screws in such a way that the screw tip does not touch any wire. This is important to prevent wires from being cut by vibration of the car, which can result in fire.
- Make sure that wires are not caught in the sliding mechanism of the seats, resulting in a short-circuit.
- When drilling to install the amplifier, always confirm no parts are behind the panel and protect all cables and important equipment (e.g. fuel/brake lines, wiring) from damage.

#### **!** CAUTION

- To ensure proper heat dissipation of the amplifier, ensure the following during installation:
  - Allow adequate space above the amplifier for proper ventilation.
  - Do not cover the amplifier with a floor mat or carpet.
- Avoid routing wires through hot areas, such as near the heater outlet. Heat may damage the insulation, resulting in a short-circuit through the vehicle body.
- The optimal installation location differs depending on the car model. Secure the amplifier at a sufficiently rigid location.
- Firstly make temporary connections and check to ensure the amplifier and system operate properly.

- After installing the amplifier, confirm that the spare tire, jack and tools can be easily removed.

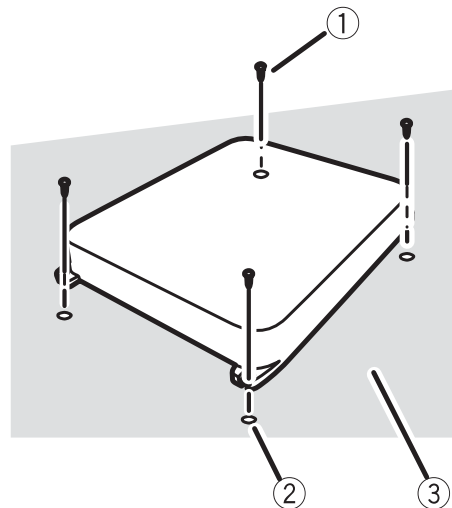
### Example of installation on the floor mat or chassis

#### 1 Place the amplifier in the desired installation location.

Insert the supplied tapping screws (4 mm × 18 mm) into the screw holes and push on the screws with a screwdriver so they make an imprint where the installation holes are to be located.

#### 2 Drill 2.5 mm (1/8 inch) diameter holes at the imprints either on the carpet or directly on the chassis.

#### 3 Install the amplifier with the use of supplied tapping screws (4 mm × 18 mm).



- ① Tapping-screws (4 mm × 18 mm)
- ② Drill a 2.5 mm (1/8 inch) diameter hole
- ③ Floor mat or chassis

## Specifications

Power source .....	14.4 V DC (10.8 V to 15.1 V allowable)
Grounding system .....	Negative type
Current consumption .....	35 A (at continuous power, 4 $\Omega$ )
Average current drawn .....	9 A (4 $\Omega$ for four channels) 15 A (4 $\Omega$ for two channels)
Fuse .....	25 A $\times$ 2
Dimensions (W $\times$ H $\times$ D) ...	265 mm $\times$ 62 mm $\times$ 346 mm (10-3/8 in. $\times$ 2-1/2 in. $\times$ 1 ft. 2 in.)
Weight .....	3.8 kg (Leads for wiring not included)
Maximum power output .....	120 W $\times$ 4 (4 $\Omega$ ) / 300 W $\times$ 2 (4 $\Omega$ )
Continuous power output ...	60 W $\times$ 4 (at 14.4 V, 4 $\Omega$ , 20 Hz to 20 kHz 0.2% THD) 150 W $\times$ 2 (at 14.4 V, 4 $\Omega$ , 20 Hz to 20 kHz 0.8% THD) 75 W $\times$ 4 (at 14.4 V, 2 $\Omega$ , 20 Hz to 20 kHz 0.8% THD)
Load impedance .....	4 $\Omega$ (2 $\Omega$ to 8 $\Omega$ allowable) (Bridge connection: 4 $\Omega$ to 8 $\Omega$ allowable)
Frequency response .....	10 Hz to 50 kHz (+0 dB, -1 dB)
Signal-to-noise ratio .....	95 dB (IHF-A network)
Distortion .....	0.03 % (10 W, 1 kHz)
Separation .....	70 dB (1 kHz)
Low pass filter:	
Cut off frequency .....	80 Hz
Cut off slope .....	-12 dB/oct
High pass filter:	
Cut off frequency .....	80 Hz
Cut off slope .....	-12 dB/oct
Gain control:	
RCA .....	200 mV to 6.5 V
Speaker .....	0.8 V to 26 V
Maximum input level / impedance:	
RCA .....	6.5 V / 22 k $\Omega$
Speaker .....	26 V / 90 k $\Omega$

## CEA2006 Specifications



Power output .....	60 W RMS $\times$ 4 Channels (at 14.4 V, 4 $\Omega$ and $\leq$ 1 % THD +N) 150 W RMS $\times$ 2 Channels (at 14.4 V, 4 $\Omega$ BRIDGE and $\leq$ 1 % THD+N) 75 W RMS $\times$ 4 Channels (at 14.4 V, 2 $\Omega$ and $\leq$ 1 % THD +N)
S/N ratio .....	80 dBA (reference: 1 W into 4 $\Omega$ )



### Notes

- Specifications and the design are subject to modifications without notice due to improvements.
- The average current drawn is nearly the maximum current drawn by this unit when an audio signal is input. Use this value when working out total current drawn by multiple power amplifiers. ■