

## CONGRATULATIONS

Congratulations! You have taken advantage of our new Precision Power High Performance Mobile Audio Equipment. In your selection of the 4100AM or 4200AM, you will notice its unique capabilities, high-tech design, and use of "tomorrow's" technology today.

Precision Power is a proven world leader in mobile audio electronics. Specializing in the design, engineering, and manufacturing of our state-of-the-art amplifiers, crossovers, equalizers, and accessories. These products will help to further enhance your personal sound system.

To achieve optimum satisfaction and highest quality performance from your new amplifier, please read this manual thoroughly before installation. Keep the manual in a safe place and refer to it as you continue to refine your system. If you encounter difficulties during or after installation and are unable to resolve the problem, please contact your PPI dealer or call Precision Power at 1-800-62-POWER during business hours, for further assistance. (Precision Power is based in Arizona. Arizona does not recognize daylight savings time changes - consult your telephone directory for time zone information).

**CAUTION** The use of a high-powered stereo system may cause hearing loss or damage. While Precision Power systems are capable of "concert level" volumes with incredible accuracy, they are designed for you to enjoy the subtleties created by musicians for listening at reasonable sound pressure levels. The use of a high power stereo system may impair your ability to hear traffic sounds, thus may constitute a traffic hazard. PPI advises lower volume levels while driving.

## FEATURES

- \* Ultra-Wide Bandwidth Circuitry
- \* Gold RCA Input Connectors
- \* Linear Pulse Regulated Power Supplies
- \* Phantom Power
- \* Output Short Circuit Protection
- \* Soft Start
- \* Adjustable Input Sensitivity
- \* Two Year Warranty
- \* Manufactured in the USA

## ADDENDUM

### ADDENDUM for PRECISION POWER 4100AM and 4200AM

Concerning the 2/4 Way Control Switch on page 9

With the switch in the "in" position the amplifier utilizes only the Rear inputs. This combines the Front Left input with the Rear Left input and the Front Right input with the Rear Right input. The outputs will then "see" the same signal. With the switch in the "out" position both Front and Rear inputs are utilized and all output are separate.

Concerning the Dual Bridging Method on page 14

When separating the left and right signal coming out of the 4100AM or 4200AM the 2/4 Way Switch must be in the "out" position. Using a dual output preamp or Y adapter, hook two Left signals to the Front input and two Right signals to the Rear input.

## GLOSSARY

The following terms are used within this manual. Since they may be unfamiliar, definitions are provided as follows.

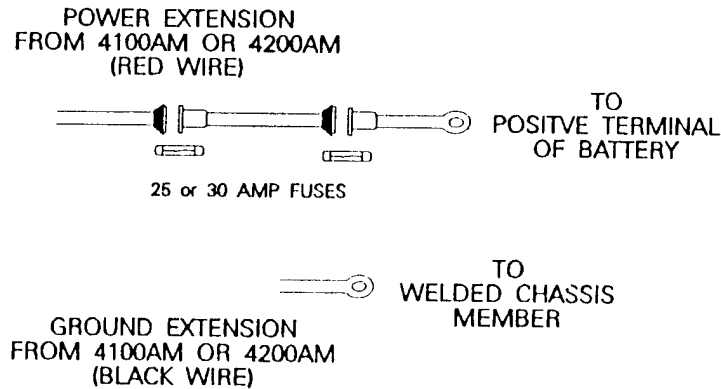
<b>Bridging</b>	Combining two amplifier channels into one channel.
<b>Gain</b>	The ratio of output voltage to input voltage. The gain control allows adjustment to the 4100AM and 4200AM output level for varying input levels.
<b>LED</b>	Light Emitting Diode. Usually indicates power on/off and/or signal overload.
<b>Load Impedance</b>	Measurement of speaker(s) resistance/reactance that the amplifier must drive.
<b>Phantom Power</b>	Power supplied to PPI accessories through a Precision Power amplifier via the DIN cables.
<b>Remote Turn-On</b>	Low current automatic switching circuit which is connected to a power antenna lead and to the amplifier(s) via the blue wire on the speaker harness.

## SPECIFICATIONS

	<b>4100AM</b>	<b>4200AM</b>
Continuous Power Output (Watts per channel into 4 Ohms @ 12V, Stereo)	25 W Front 25 W Rear	50 W Front 50 W Rear
(Watts into 4 Ohms @ 12V, Bridged)	75 W Front or Rear	150 W Front or Rear
(Watts per channel into 8 Ohms @ 12V, Stereo)	50 W Front or Rear	75 W Front or Rear
Dimensions	2.1"H x 8"W x 11.3"D	2.1"H x 8"W x 12"D
Fuse	25 A	30 A
<b>Common Specifications</b>		
Power Bandwidth (±1 dB)		10 Hz - 50K Hz
Total Harmonic Distortion (Per IHF A-202)		0.02%
Signal-to-Noise Ratio (A-weighted)		102 dB
Damping Factor (100 Hz)		>500
Dynamic Headroom (4 Ohms)		2.3 dB
Stereo Separation		>72 dB
Input Sensitivity		0.30 - 2.0V
Input Impedance		10K Ohms
Output Impedance (Stereo)		2 - 8 Ohms
Output Impedance (Bridged)		4 - 8 Ohms
Supply Voltage		10.5 - 16 VDC

Precision Power's four channel amplifiers, 4100AM and 4200AM, are efficient in the distribution of current throughout each channel. By utilizing the available features the sound quality and reliability are unmatched. These amplifiers feature an ADAPTIVE MOSFET switching power supply, over-current protection, and internal bridging capabilities. The adaptive protection, and internal bridging capabilities. The adaptive circuit operates when the amplifier senses an impedance load of less than 2 Ohms. The power supply's operational parameters are modified to retain optimum performance. A low impedance indicator is provided to let you know when the amplifier(s) is operating in this mode. If a load of less than 1.5 Ohms is sensed by the amplifier, the over-current protection responds and the amplifier is temporarily shut down until the problem is resolved. The internal bridging capabilities allows versatility in hosting several different speaker configurations. For further information in this area refer to the Sample Hookup Configurations in this manual.

**FIG. A POWER WIRING**



## POWER

**Disconnect the negative post of the battery before working on the positive terminal to prevent a short to ground. Reconnect the negative terminal only after all connections have been made.**

The 4100AM and 4200AM are powered from the vehicle's 12-volt battery or any standard 12-volt DC supply, and a remote switching +12 volt source for turn-on. These connections are color coded as follows:

- + 12 Volts ----- Red Wire
- Chassis Ground ----- Black Wire
- Remote Turn-On ----- Blue Wire

These amplifiers are shipped with a 10 gauge red, primary power harness which includes two inline fuse holders. One is mounted near the amplifier and the other near the positive terminal of the battery. (Refer to Fig. A) These offer protection from a short to the chassis and additional protection to the amplifier's internal circuitry. The power harness is terminated with a large ring for connection directly to the positive terminal of the battery. After this connection is made insert the fuse (25 Amp provided for the 4100AM and 30 Amp provided for the 4200AM) to the amplifier and the long power wire. Route this wire, avoiding sharp corners, creases, and sharp car body parts to the battery fuse holder. Cut off excess wire and slip on the black fuse cap (provided). Using wire strippers (not provided), strip the power wire 1/8 inch. Insert the stripped wire into the silver rivet cap (provided) and solder thoroughly. After the solder cools, clean the remaining flux from the rivet cap and insert the fuse that was provided with your amplifier (25 Amp fuse for the 4100AM and a 30 Amp fuse for the 4200AM).

The amplifier(s) now need to be grounded with the 10 gauge black wire that extends from the amplifier's chassis. This wire is also terminated with a ring for easy connection. The ground wire should be connected to a welded chassis member. When connecting, use a #8 sheet metal screw (not provided), being sure to remove any paint from the surrounding metal. **DO NOT** lengthen the ground wire. Failure to adhere to this procedure may result in system noise.

## REMOTE TURN-ON

In order for the amplifier(s) to turn on, the Remote Turn-On wire (blue wire located on the speaker harness) must be connected to the power antenna lead. (Refer to Fig. B) If this lead is unavailable a separate switch must be used. This switch will need to be connected to the +12-volts of the battery. This will allow your amplifier(s) to shut on and off with the car.

If the 4100AM or 4200AM does not power up, contact your dealer or Precision Power at 1-800-62-POWER for assistance.

## SPEAKER WIRING

All speaker connections are provided with a harness. (Refer to Fig. B) The harness connections are located on the right side panel of the 4100AM and 4200AM. (Refer to Fig. C) If extra wire is needed, always use 16 gauge or larger wire. **NEVER CONNECT ANY SPEAKER LEAD TO THE CAR CHASSIS OR TO ANOTHER LEAD.**

For optimum performance, speaker impedances should be 4 Ohms or greater, either bridged or stereo. The 4100AM and 4200AM may be used as a four, three, or two channel amplifier. The Sample Hookup Configurations will help to show how this may be accomplished.

## FIG. B SPEAKER HARNESS

The Remote Turn-On (blue wire) on either speaker harness, front or rear, is connected to the power antenna lead.

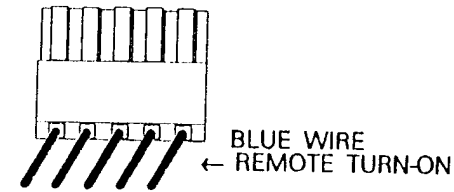
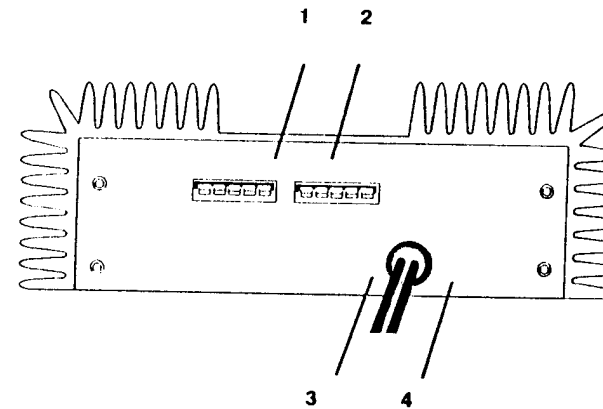


FIG. C RIGHT SIDE PANEL OF 4100AM AND 4200AM



1. Rear Output
2. Front Output
3. Red Power Wire (+12-Volts)
4. Black Ground Wire (Chassis Ground)

## INPUTS

On the left side panel of the 4100AM and 4200AM, (Refer to Fig. D), are two sets of RCA-jacks, front and rear. Preamp sources with dual outputs may take advantage of this feature by separating the highs and lows to different areas of your vehicle. A DIN-jack is paralleled to the rear input utilizing PPI's flexibility and convenience. This DIN-jack can be used to Phantom power other PPI accessories, such as our crossovers and equalizers.

## CONTROLS

### 2/4 WAY SWITCH

Located on the left side panel of the 4100AM and 4200AM is the 2 or 4 W Switch. (Refer to Fig. D) This switch enables the user to parallel the inputs. In order for the 4100AM and 4200AM to work in this mode the 2/4 Way Switch must be in the "in" position. The amplifier now utilizes only the Rear Left output and the Front Left output with the Rear Right output and the Front Right output. When in the "out" position both Front and Rear inputs are utilized and all outputs are separate. Using a dual output preamp as an example, hook the Low Pass outputs to the Rear inputs and the High Pass outputs to the Front inputs to separate the signal going into the speakers.

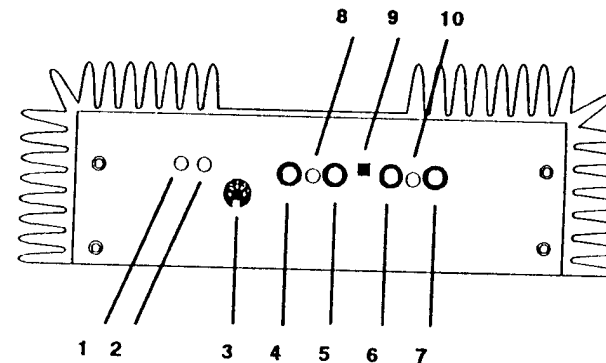
### GAIN

The gain controls are located on the left side panel of the 4100AM and 4200AM. (Refer to Fig. D) These controls require a small flat blade screwdriver to be adjusted. The gain determines the output signal level the amplifier produces. Too much gain can overload the speakers and produce distortion. The amplifier is the last device in a system to have the gain adjusted.

### LOW IMPEDANCE INDICATOR

This LED (Refer to Fig. D) is used to indicate when the amplifier is operating with less than a 2 Ohm Load. If the LED stays lit shut the amplifier off and check the impedance load to ensure it is not less than 2 Ohms. Occasional flashing is acceptable. The amplifier will shut down at 1.5 Ohms for it's protection. If any problems arise call your dealer or Precision Power for assistance.

FIG. D LEFT SIDE PANEL OF 4100AM and 4200AM



- |                            |                           |
|----------------------------|---------------------------|
| 1. Low Impedance Indicator | 6. Left Front RCA Input   |
| 2. Power Indicator         | 7. Right Front RCA Input  |
| 3. DIN-jack for Rear Input | 8. Rear Gain Adjustment   |
| 4. Left Rear RCA Input     | 9. 2/4 way Switch         |
| 5. Right Rear RCA Input    | 10. Front Gain Adjustment |

## TOOLS NEEDED FOR INSTALLATION

- |                                |                                  |
|--------------------------------|----------------------------------|
| * Small Flat Blade Screwdriver | * Phillips Screwdriver           |
| * Wire Cutters                 | * Wire Strippers                 |
| * Soldering Iron               | * Solder**                       |
| * Flux Cleaner**               | * 4 Washers and Screws per amp** |
| * #8 Metal Screw per amp       |                                  |

\*\* we suggest: water soluble solder, water to clean flux, and #6 Metal Screws for securing amp.

## MOUNTING

So as not to damage the 4100AM or 4200AM while driving, the amplifier should be mounted in a secure place. It may be mounted in any compatible space that is convenient to your needs. Secure with #6 metal screws (not provided).

## SYSTEM GAIN ADJUSTMENTS

In order to achieve maximum signal-to-noise performance from a high quality auto stereo system, it is desirable to use high signal levels wherever possible in the interconnection cables. High signal levels will reduce the effect of induced noise. The peak level of an audio signal is usually determined by the clipping level of electronic components. The following procedure should be used as a guide when the system installation is complete.

### Adjusting equalizer input gains:

1. Turn the equalizer's volume control to minimum.
2. Turn source unit volume 1/2 to 3/4 of maximum. If available on your unit, set the output level to maximum. Some units may have a switch.
3. If available, set selector switch to either input 1 or input 2.
4. Adjust all equalizer input gains to minimum.
5. For the chosen input play the respective music source, such as a cassette, CD, or FM station. A loud music selection is desired.
6. For the chosen input, increase the left input gain control until the onset of audible distortion. Then decrease the gain prior to the immediate point of audible distortion. This setting will minimize system background noise and prevents overloading of the equalizer. Adjust, for the same input, the right input gain control for proper left/right balance.
7. Set selector switch to the alternate source unit, if used, and repeat steps 5 and 6.
8. Adjust crossover next.

## SYSTEM GAIN ADJUSTMENTS

### Adjusting crossover input gains:

1. Adjust all crossover's gain control(s) to 0dB, 1/2 of maximum sensitivity.
2. Adjust all amplifier gains to 1/2 of maximum sensitivity.
3. Turn the volume knob on the equalizer to a maximum of 3 o'clock.
4. Increase the gain of the crossover until the onset of audible distortion. Then decrease the gain prior to the immediate point of audible distortion. This setting will minimize system background noise and prevents overloading of the crossover.
5. Repeat step 4 for any remaining crossovers in the system.
6. Adjust the 4100AM or 4200AM input gains next.

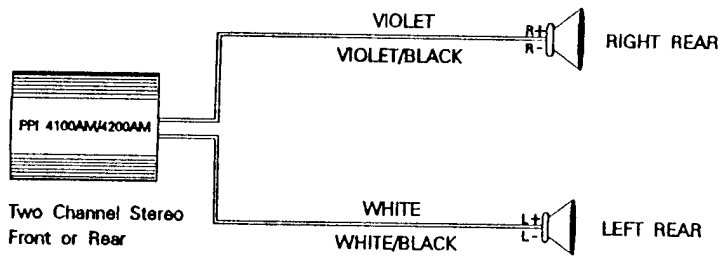
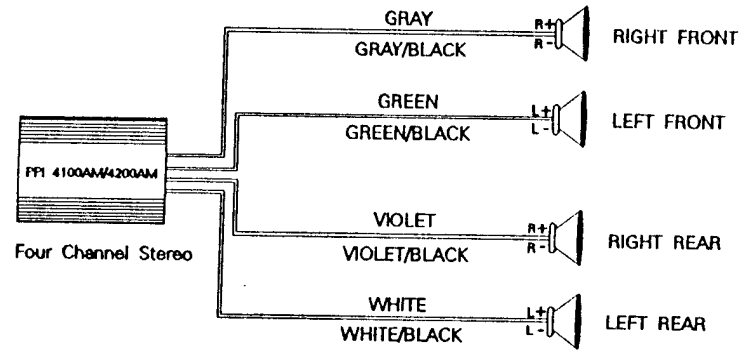
NOTE: In many multi-crossover/accessory systems, the gain of some crossovers/accessories may need to be further decreased to achieve proportional balance.

### Adjusting amplifier input gains:

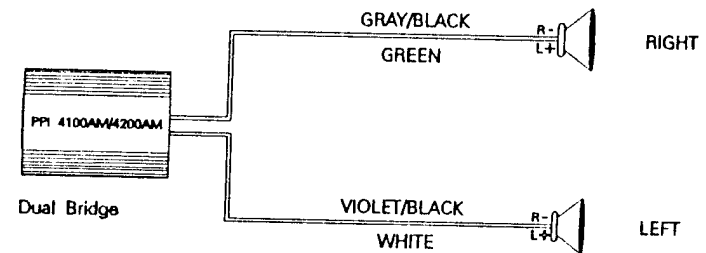
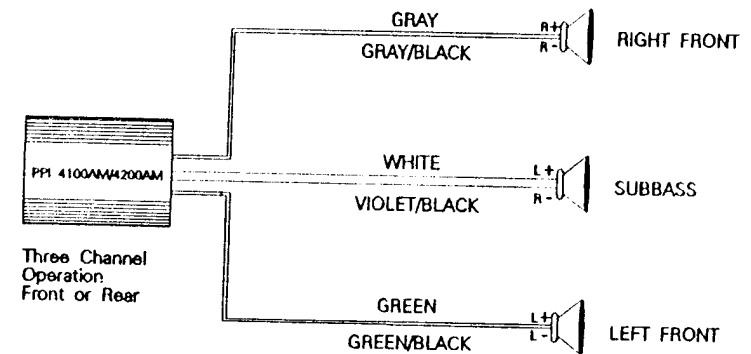
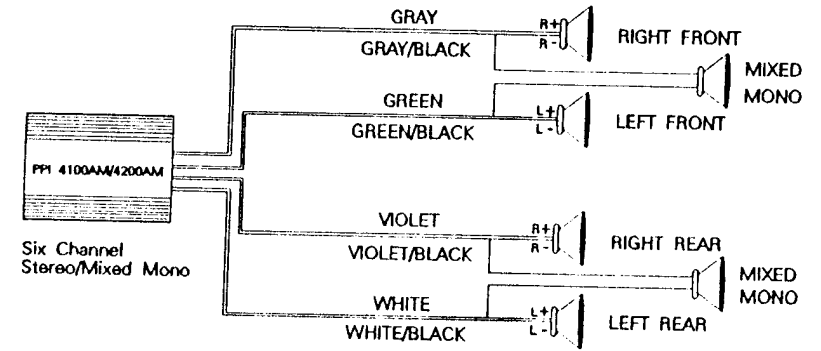
1. Adjust all 4100AM or 4200AM gains clockwise to 1/2 of maximum sensitivity.
2. Turn the volume knob on the equalizer to a maximum of 3 o'clock.
3. Increase the gains clockwise of the 4100AM or 4200AM until the onset of audible distortion. Then decrease the gains counterclockwise prior to the immediate point of audible distortion. This setting will minimize system background noise and prevents overloading the 4100AM or 4200AM.
4. Repeat step 3 for any remaining amplifiers in the system.

NOTE: Depending on the sensitivity of the system's preamp(s), the gain of the amplifier(s) may not need adjustments. Also, in many multi-amplifier systems, the gain of some amplifiers may need to be further decreased to achieve proportional balance.

# SAMPLE HOOKUP CONFIGURATION



# SAMPLE HOOKUP CONFIGURATIONS



## TROUBLESHOOTING

If for some reason your system fails to operate properly, please refer to this guide. If you are unable to resolve the problem, consult your dealer or call Precision Power at 1-800-62-POWER for further assistance.

NO SOUND	Is the power LED illuminated?	Check fuses in power wire. Be sure Turn-On lead is connected. Check signal leads. Check gain control. Check source unit's volume level. Check contacts on fuse holder.
NO SOUND IN ONE CHANNEL	Check Speaker Leads.	Inspect for short circuit or open connection.
	Check Audio Leads.	Reverse Left and Right cables to determine if it is occurring before the amp.
	Check Mono Bridge and Bi Amp Crossover Switches.	Depress switches to ensure proper position with respect to the installation.
	If problem is with amplifier...	Have your dealer inspect the unit.
AMP TURNING OFF AT LOW VOLUME LEVELS	Check speakers for damage or short.	Have your dealer inspect the unit.
AMP TURNING OFF AT MEDIUM OR HIGH VOLUME LEVELS	Check speaker load impedance.	Be sure proper speaker load impedance recommendations are observed. (If you use an ohmmeter to check speaker resistance, please remember that DC resistance and AC impedance may not be the same).

## THANK YOU

Thank you again for choosing Precision Power's 4100AM/4200AM to enhance your system. Your complete satisfaction is important to us. If you have any comments please feel free to write us.

To update your system with our state-of-the-art equipment we invite you to try our other products. Please consult your PPI dealer for further information.

**Precision Power is the competitive edge**