

**AMP-460
AMP-360
AMP-260**

**AUTOMOTIVE AUDIO
POWER AMPLIFIER**

4260 CHARTER STREET
VERNON, CA 90058-2596

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FEATURES

DC/DC SWITCHING POWER SUPPLY

This stable power supply provides the amplifier with ample current to produce crystal clear sound at all frequencies as well as on dynamic program materials.

STABLE INTO 2-OHM LOADS

Coustic's Automotive Power Amplifiers are designed to be stable into highly reactive and low impedance loads.

HIGH CURRENT/HIGH VOLTAGE FULLY COMPLEMENTARY OUTPUT STAGE

Complementary symmetrical output stage audio circuitry has long been a hallmark of "exotic" home amplifier designs. Cooustic is one of the very few car audio manufacturers to incorporate such elaborate audio circuitry into its power amplifier designs.

MULTI-CHANNEL CIRCUIT DESIGN (MCD)

This special MCD circuitry allows the amplifier to be configured as a 1-channel bridged subwoofer amplifier, a 2-channel full range amplifier or, with capacitors and choke coils, a quasi 3-channel amplifier for stereo mid-range and mono subwoofer outputs.

HIGH/LOW IMPEDANCE INPUT

Coustic's Automotive Power Amplifiers have been designed so that you may use your existing floating or common ground car radio speaker outputs without the need for floating ground adaptors or you can connect to your higher quality aftermarket radio (e.g. Cooustic's RX-738) with RCA pre-amp outputs for improved frequency response/performance.

ADJUSTABLE INPUT SENSITIVITY

This control allows adjustment of the input sensitivity level of the Power Amplifier (from 250 mV to 1.5 volts) to provide for optimal performance of your car's audio system.

ACOUSTIC EQUALIZATION SWITCH

This feature allows the option of boosting sonic level from 0 dB to either +6 dB or +12 dB at 45 Hz and 15 KHz to compensate for in-vehicle high frequency losses as well as for enhancing bass performance due to premature low frequency roll-off from audio sources.

CONTROLS AND FUNCTIONS

A. FRONT END PLATE

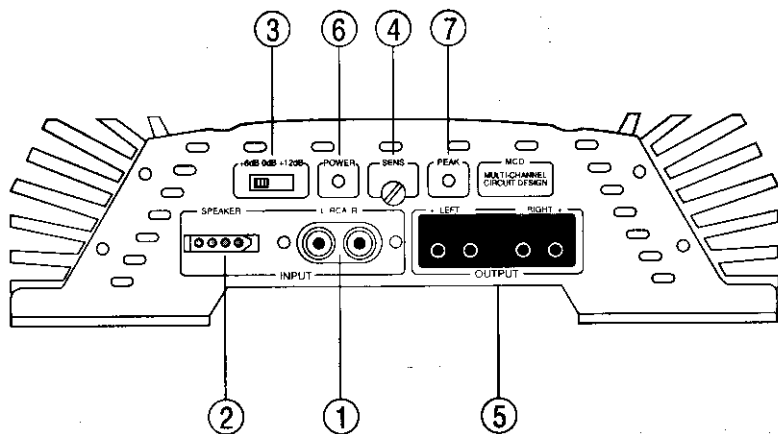


Figure 1. Amplifier Front End Plate.

- 1. LEFT/RIGHT HIGH IMPEDANCE INPUT (RCA - HI_Z INPUT)**
Connect signal source from radio/tape or CD player to this input (RCA input is preferred, if available).
- 2. LEFT/RIGHT LOW IMPEDANCE INPUT (SPEAKER LOW_Z INPUT)**
If RCA input is not available, connect signal source from radio/tape or CD player to this input.
- 3. ACOUSTIC EQUALIZATION SWITCH**
Three sonic levels (0 dB, +6 dB, +12 dB) at 45 Hz and 15 KHz to choose from by simply setting switch to the appropriate position as indicated.
- 4. SENSITIVITY LEVEL ADJUST**
Allows the correct matching of input adjustment of the signal source (radio/tape deck, CD player, etc.). This adjusts the overall system "GAIN" (see section titled FINAL SYSTEM CHECK).
- 5. SPEAKER OUTPUT TERMINAL**
Connect speaker wire to the appropriate speaker terminal.
- 6. POWER ON LED INDICATOR (GREEN)**
Green light indicates that Amplifier is turned "ON".
- 7. PEAK LEVEL LED INDICATOR (RED)**
When this LED continuously lights up for one second, it means the Amplifier is at full power - helpful in adjusting input sensitivity (see section titled FINAL SYSTEM CHECK).

CONTROLS AND FUNCTIONS

B. REAR END PLATE

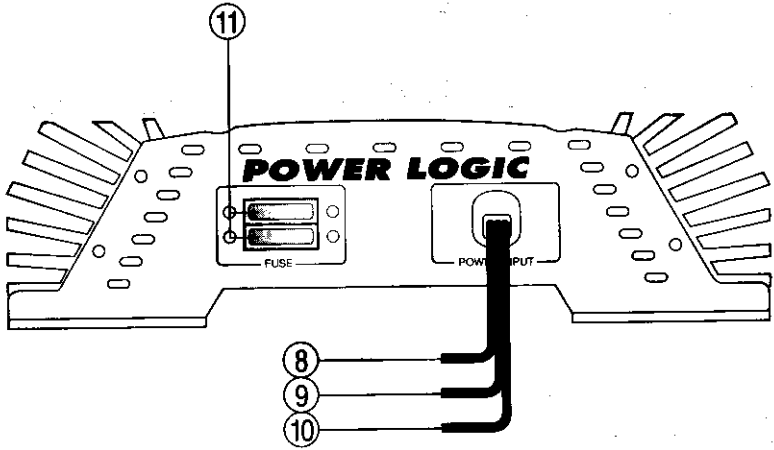


Figure 2. Amplifier Rear End Plate (Shown AMP-460)

- 8. POWER INPUT WIRE (RED)**
Connect red wire to vehicle's positive 12-volt supply (battery).
- 9. GROUND INPUT WIRE (BLACK)**
Connect black wire to vehicle's chassis ground.
- 10. REMOTE TURN-ON INPUT WIRE (ORANGE)**
Connect automatic antenna lead (sometimes this is marked "REMOTE") from radio or remote B+ to orange wire. This connection allows Power Amplifier to be turned ON and OFF by your radio, tape deck or CD player.
- 11. FUSE RECEPTACLE**

THE AMPLIFIER AND YOUR MOBILE AUDIO SYSTEM

A. SYSTEM DESIGN

Because of the versatility of the amplifier - multi-channel configuration capability - you are quite free to build whatever mobile audio system you want or plan a long term expansion scheme for your car's audio system.

The amplifier is capable of, in 4- or 8-ohm bridged mono mode, delivering extra full power to a single subwoofer. It can also be used as a typical high power stereo amplifier to drive a pair of speakers. In addition, with proper use of passive cross-overs (non-polar capacitors and choke coils), it can drive a pair of left and right channel full range mid-tweeters and a mono woofer (see Section B. USING THE AMPLIFIER WITH PASSIVE CROSSOVERS for proper connections and AMPLIFIER PROTECTION).

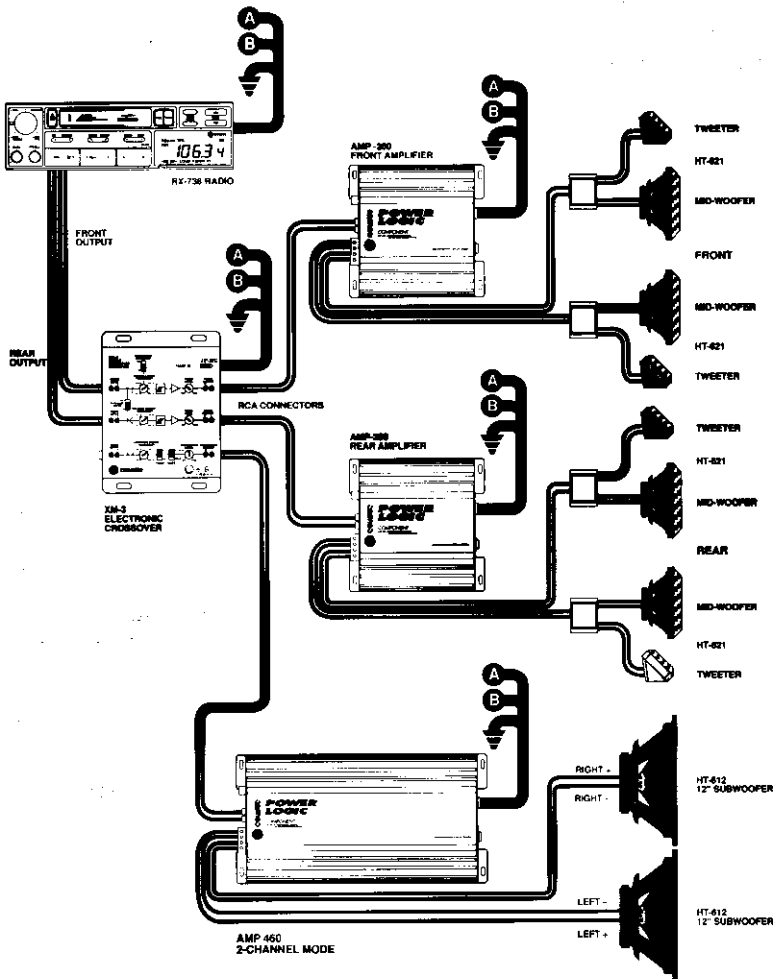


Figure 3. 2-Channel Mode with Active Electronic Cross-over.

THE AMPLIFIER AND YOUR MOBILE AUDIO SYSTEM

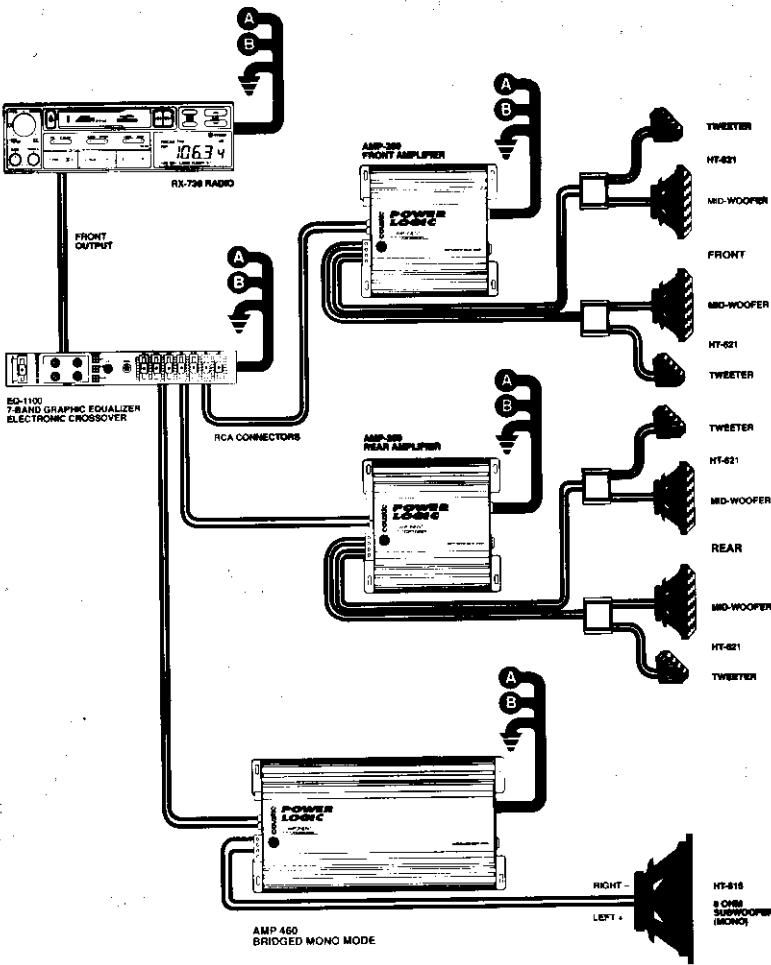


Figure 4. Bridged Mono Mode with Active Electronic Crossover.

THE AMPLIFIER AND YOUR MOBILE AUDIO SYSTEM

B. USING THE AMPLIFIER WITH PASSIVE CROSSOVERS

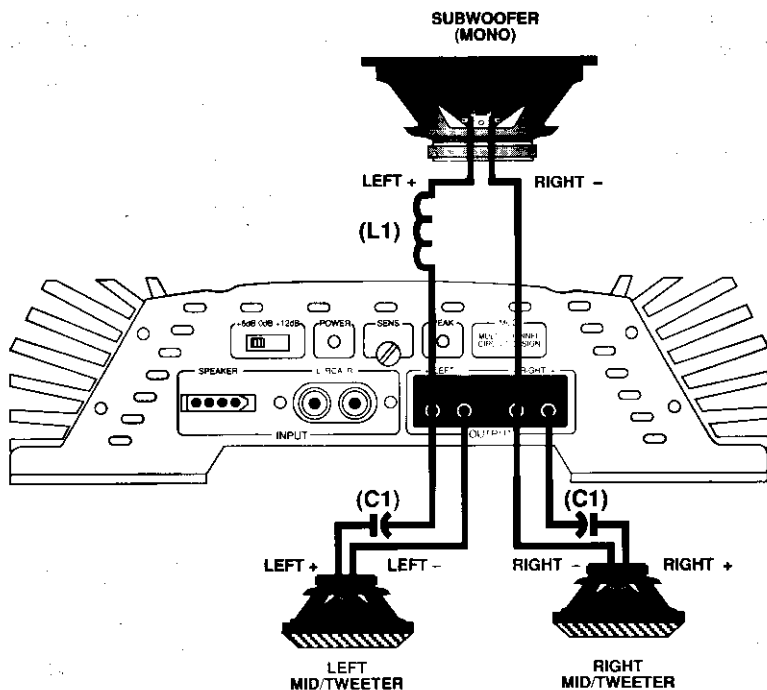


Figure 5A. 3-Channel Connection with Passive Crossover*.

WARNING: FAILURE TO INCLUDE APPROPRIATE CROSSOVER ELEMENTS (NON-POLAR CAPACITORS AND CHOKE COILS) ACROSS SPEAKERS WILL DAMAGE AMPLIFIER AND/OR SPEAKERS AS WELL AS VOID WARRANTY.

* For capacitor and inductor values, please refer to Table 1 (page 9) for other impedances and frequencies. All capacitors used MUST be non-polar.

THE AMPLIFIER AND YOUR MOBILE AUDIO SYSTEM

One of the least expensive ways to achieve quality sound powered by the amplifier is the use of a passive crossover (instead of an electronic crossover). To minimize power loss, we recommend that you use high-current inductors (the lowest impedance possible) and 50-volt minimum non-polarized capacitors when you use a passive crossover system with the amplifier (see Figure 5B).

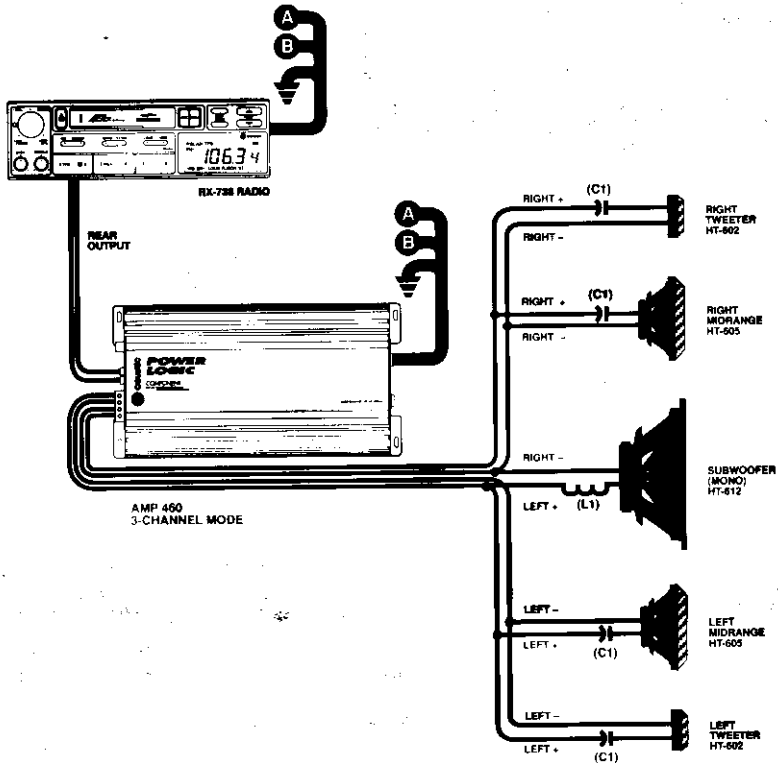


Figure 5B. Possible System Configuration Using Passive Crossovers.*

* For capacitor and inductor values, please refer to Table 1 (page 9) for other impedances and frequencies. All capacitors used MUST be non-polar.

THE AMPLIFIER AND YOUR MOBILE AUDIO SYSTEM

The table below provides approximate values for crossover components for various speaker impedances.

Frequency Hertz	Speaker Impedance					
	2 Ohms		4 Ohms		8 Ohms	
	L1	C1	L1	C1	L1	C1
80	4.1 mH	1000 μ F	8.2 mH	500 μ F	16 mH	250 μ H
100	3.1 mH	800 μ F	6.2 mH	400 μ F	12 mH	200 μ H
130	2.4 mH	600 μ F	4.7 mH	200 μ F	10 mH	150 μ H
200	1.6 mH	400 μ F	3.3 mH	200 μ F	6.8 mH	100 μ H
260	1.2 mH	300 μ F	2.4 mH	150 μ F	4.7 mH	75 μ H
400	.8 mH	200 μ F	1.6 mH	100 μ F	3.3 mH	50 μ H
600	.5 mH	136 μ F	1.0 mH	68 μ F	2.0 mH	33 μ H
800	.41 mH	100 μ F	.82 mH	50 μ F	1.6 mH	25 μ H
1000	.31 mH	78 μ F	.62 mH	39 μ F	1.2 mH	20 μ H
1200	.25 mH	66 μ F	.51 mH	33 μ F	1.0 mH	16 μ H
1800	.16 mH	44 μ F	.33 mH	22 μ F	.68 mH	10 μ H
4000	.08 mH	20 μ F	.16 mH	10 μ F	.33 mH	5 μ H
6000	51 μ H	14 μ F	.10 mH	6.8 μ F	.20 mH	3.3 μ H
9000	34 μ H	9.4 μ F	68 μ H	4.7 μ F	.15 mH	2.2 μ H
12000	25 μ H	6.6 μ F	51 μ H	3.3 μ F	100 μ H	1.6 μ H

*Table 1. 6 dB/Octave High and Low Pass Filters
Table of Component Values.*

WARNING: FOR 3-CHANNEL CONNECTION, COUSTIC DOES NOT RECOMMEND THE USE OF 12 DB/OCTAVE CROSSOVERS DUE TO POSSIBLE AMPLIFIER DAMAGE. IF SUBWOOFER/WOOFER BECOMES OPEN CIRCUIT OR IS DEAD, THERE WILL BE A SHORT ACROSS THE AMPLIFIER. IF A 12 DB/OCTAVE CROSSOVER IS USED, A SPEAKER FUSE MUST BE CONNECTED TO THE POSITIVE (+) TERMINAL OF YOUR AMPLIFIER OUTPUTS. THIS WILL ALSO PROVIDE PROTECTION TO THE AMPLIFIER IN CASE THE SPEAKER FAILS AND BECOMES OPEN CIRCUIT. FAILURE TO DO SO WILL DAMAGE YOUR AMPLIFIER AS WELL AS VOID WARRANTY.

WARNING: FAILURE TO INCLUDE APPROPRIATE CROSSOVER ELEMENTS(NON-POLAR CAPACITORS AND CHOKE COILS)ACROSS SPEAKERS WILL DAMAGE AMPLIFIER AND/OR SPEAKERS AS WELL AS VOID WARRANTY.

ELECTRICAL INSTALLATION

A. ELECTRICAL WIRING PRECAUTIONS

1. For safety, disconnect battery ground cable during installation.
2. Make wiring connection from one component to the next, making sure that you plug outputs to inputs and not inputs to inputs or outputs to outputs.
3. **NEVER RUN WIRES UNDERNEATH YOUR CAR.** It is best to route all wires along with the existing electrical wires in the vehicle and to conceal them from view. This may call for removal of kick panels, door sills, etc. The cleanest and safest wiring connections are made by running the wire under the carpet or behind the side panels.
4. Remember exactly how you removed each part from the vehicle so it can be easily replaced. Place each removed screw, etc., into a container to reduce the chances of losing screws or other hardware.
5. You can minimize noise radiation by running the power cables on one side of your car and the signal cables on the opposite side.

CAUTION: DO NOT ROUTE AUDIO CABLES AND POWER CABLES TOGETHER. THIS CAN CAUSE ENGINE NOISE IN YOUR AUDIO SYSTEM.

6. Avoid sharp edges and doorjamb when running the wires. Electrical tape or grommets should be used to protect the wires when they are routed through holes in the metal.
7. All wires and cables should be "stress relieved" at various points on either side of the Power Amplifier. Place cable clamps over the wires to reduce as much stress as possible from the amplifier terminals.
8. **ALWAYS** protect the battery and electrical systems from shorts. Use 70 amp fuse holders or circuit breakers near battery positive (+) terminal.
9. Take care to ensure a clean ground. Scrape off paint to obtain good electrical contact, if necessary.

B. ELECTRICAL WIRING

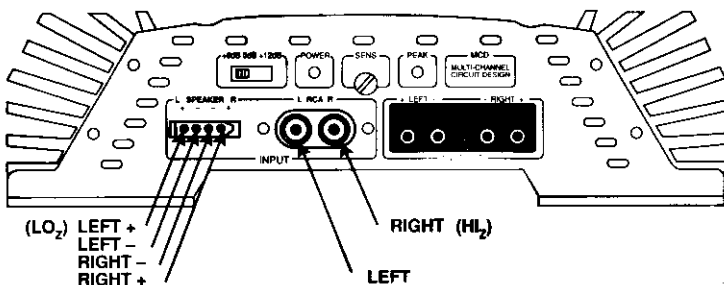


Figure 7. High/Low Impedance Inputs.

To make the connection, use high quality audio-type cables like **MONSTER CABLE*** super shielded cables with RCA jacks on both sides. If RCA output is not available, connect the left and right speaker output of your radio to the corresponding low impedance input of the amplifier. Be sure to connect the left channel of your radio to the Left Channel of the amplifier and the right channel of your radio to the Right Channel of the amplifier (Figure 7).

* See Bibliography.

ELECTRICAL INSTALLATION

NOTE: If you wish to bridge your amplifier, please finish reading the entire section titled BRIDGING YOUR POWER AMPLIFIER before you attempt to do so.

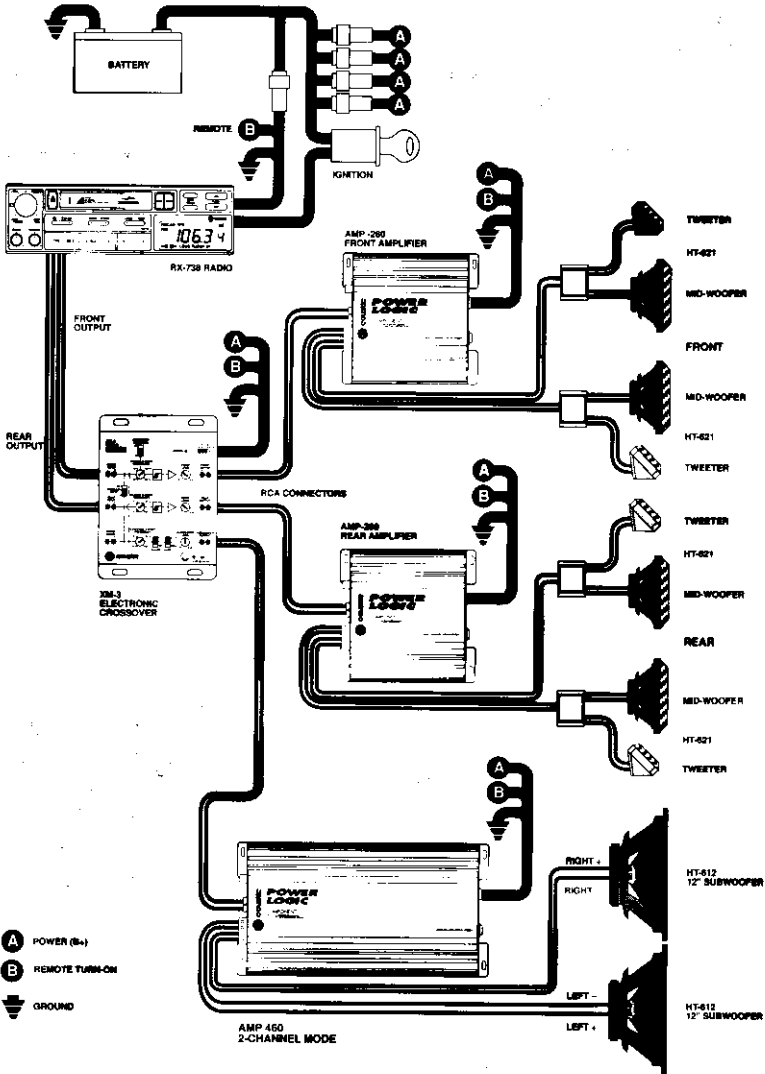


Figure 8. Electrical Wiring Diagram.

ELECTRICAL INSTALLATION

1. Connect the amplifier to the Car's Audio System

Connect the output of your program source (AM/FM radio, cassette player, etc.) to the input of the amplifier.

2. Connect the amplifier to the Car's Speaker System

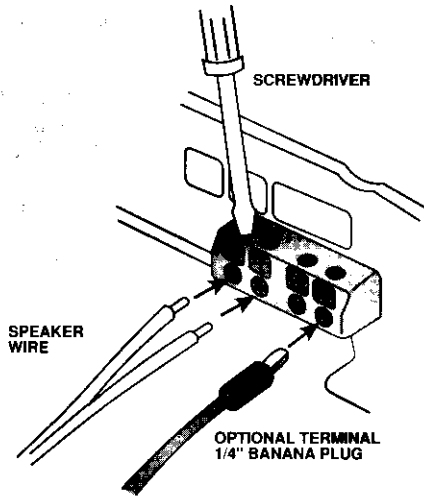


Figure 9. Speaker Output Connections.

As an added precaution that there is no short circuit in the wire, always connect wires to your speakers first, then test the other end of the wires at the amplifier with a Volt/Ohm Meter before connecting it to the amplifier. A short circuit could damage your amplifier when you turn it on. (See below for more information on Volt/Ohm Meter). Correct phasing of the amplifier and speakers is essential for maximum bass response. Since the amplifier can deliver 10 amperes to each speaker, it is advisable to use 14-gauge wire or heavier (10 gauge is preferred) and connect the negative "-" SPEAKER OUTPUT of the amplifier to the negative terminal of each of your speakers. Then connect the RED positive "+" SPEAKER OUTPUT of the Power Amplifier to the positive terminal of your speakers.

3. Connect the amplifier to the Specially Equipped Car Battery/Batteries

As discussed earlier, make sure you use large enough gauge wire to accommodate your particular system (and vehicle). Add circuit breakers to any power wire that is run through firewalls or sheet metal. This is to protect the batteries, the vehicle and YOU.

4. Connect the REMOTE Terminal of the amplifier

This connection allows the amplifier to be turned on and off automatically with the volume control of your radio. Connect the REMOTE output terminal on your radio/tape player to the REMOTE on the amplifier. If your radio does not provide a remote output, connect the wire to your radio's power antenna terminal or connect it to any switched 12-volt source, e.g. ignition switch.

FINAL SYSTEM CHECK

Check your entire system to ensure that the installation and electrical connections have been properly completed before making the final adjustment to the amplifier's Input Sensitivity Control.

A. PRELIMINARY ADJUSTMENTS

Pre-setting the system provides a necessary starting point for fine-tuning the entire audio system to maximize performance.

1. Start your car's engine (if your system has been wired to your ignition), turn on your radio/tape player and leave the volume at its minimum level for a few seconds until the amplifier comes on. This delayed turn-on has been designed into it to protect your speakers from being damaged.
2. Slowly increase your radio/tape player's volume level. Select a radio station or a tape and listen to it carefully to be sure you are getting sound from both left and right channels.
3. Once you pass this checkpoint, you can proceed to make Input Sensitivity adjustments. However, if you experience problems at this point, refer to the Trouble Shooting Guide at the back of this manual.

B. INPUT SENSITIVITY ADJUSTMENTS

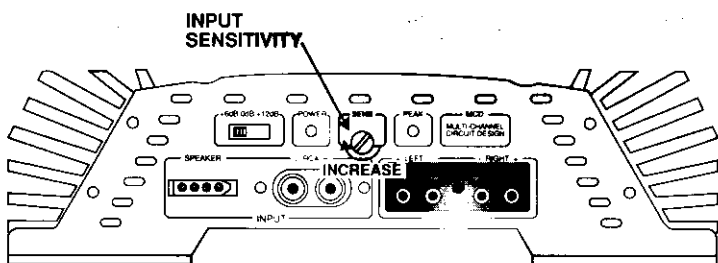


Figure 10. Input Sensitivity Control.

The Input Sensitivity Control of the amplifier is located on the end panel of the unit (Figure 10). Adjusting the Input Sensitivity Control requires some experimenting with program source as well as the Input Sensitivity Control on the amplifier. You will need another person to assist you to adjust the Input Sensitivity while you are listening for distortion.

Remember, the object of adjusting sensitivity control is to match the output of your radio. Every brand of radio has a different output voltage level. Some are 200 mV out, some are 700 mV and some are higher. The input to an amplifier is adjustable from 100 mV to 1.5 volts.

1. You will need a small flat screwdriver to make the adjustment. Begin by using the screwdriver to turn the Input Sensitivity Control all the way down (counter-clockwise).
2. Turn the volume level control on your tape player (AM/FM, cassette, CD player, etc.) to the imaginary 2 o'clock position (Figure 11).
3. Turn the balance control to its center position and leave the tone (bass/treble) controls set in their usual position.

FINAL SYSTEM CHECK

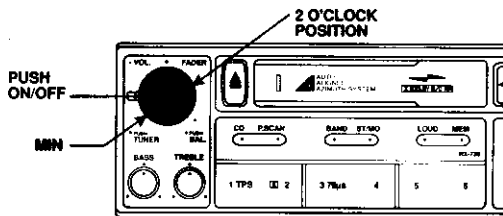


Figure 11. The Car Audio System's Volume Control.

WARNING: IT IS ABSOLUTELY IMPERATIVE FOR THE PROPER PERFORMANCE OF THE AMPLIFIER THAT THE INPUT SENSITIVITY ADJUSTMENT BE MADE CORRECTLY. TURNING IT "ALL THE WAY UP" IS NOT THE CORRECT SETTING AND MAY CAUSE OVERHEATING AND EXCESSIVE DISTORTION. MAKE SURE YOU READ THE SECTION TITLED "INPUT SENSITIVITY ADJUSTMENTS" BEFORE TURNING YOUR SYSTEM ON. THIS WILL GREATLY IMPROVE THE RELIABILITY SPAN OF YOUR AMPLIFIER AND YOUR SYSTEM.

4. Begin adjusting the Input Sensitivity Control using a cassette tape as a source. Usually CD and tapes (especially home-recorded ones) have the greatest amount of dynamic range, so it is a better choice than FM or AM radio.
5. First, use Acoustic Equalization Switch to compensate for your car's interior acoustic condition. For a boost of +6 dB at 45 Hz and 15 KHz, move Acoustic Equalization Switch to the left position. For a boost of +12 dB at 45 Hz and 15 KHz, move Acoustic Equalization Switch to the right position..
6. Have the person assisting you turn the Input Sensitivity Control until you begin to hear distortion developing. The amplifier has an additional aid to adjusting Input Sensitivity (Figure 12). You will notice a red LED next to the "SENS" adjust screw. This LED is marked "PEAK". When this LED lights up continuously for one second, it means that the Power Amplifier is at full power. When adjusting Input Sensitivity, watch for the red LED to blink as you turn the screwdriver clockwise. When the blinking LED stays on for one full second, the input is adjusted correctly.
7. Next, remove the tape and tune the radio to the strongest FM station in your area. Check the output level. If the radio output level differs from the tape output level, you will need to locate a balanced sensitivity setting which is the best possible for both program sources.

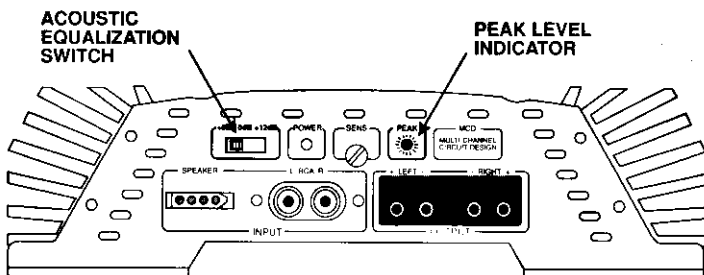


Figure 12. Acoustic Equalization Switch and Peak Level Indicator.

FINAL SYSTEM CHECK

C. BRIDGING YOUR POWER AMPLIFIER

When the amplifier is in bridged mode (see Figure 13A/B), note that the LEFT channel positive ("+") speaker output becomes the Amplifier's positive ("+") output. Connect this terminal to the positive ("+") input terminal of the appropriate channel's speaker. The Amplifier's RIGHT channel negative ("-") output terminal becomes the Amplifier's negative ("-"). Connect this terminal to the negative ("-") speaker input.

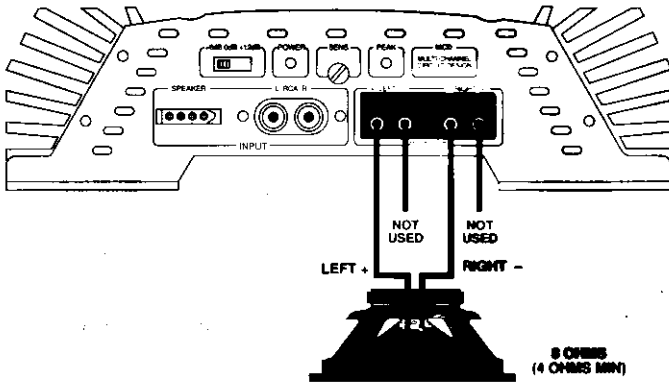


Figure 13A. Bridged Connection (Single Woofer at 4 or 8 Ohms).

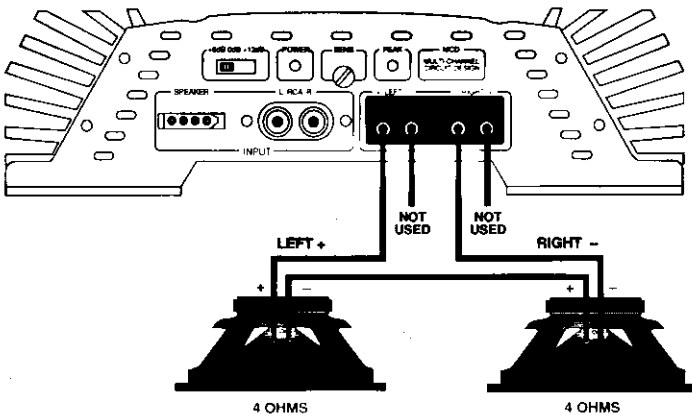


Figure 13B. Bridged Connection (Dual Woofers at 8 Ohms).

CAUTION: BE SURE TO CONNECT THE SPEAKER OUTPUTS OF A BRIDGED COUSTIC AMPLIFIER AS DESCRIBED ABOVE. ANY DEVIATION CAN CAUSE SERIOUS DAMAGE TO THE AMPLIFIER AND/OR SPEAKERS. DOUBLE CHECK THE CONNECTIONS PRIOR TO TURNING ON THE SYSTEM.

FINAL SYSTEM CHECK

D. NOISE CHECK

Check the entire audio system for noise before permanently securing the amplifier (and other components such as extra batteries and alternator, etc.) mounting. To check for noise:

1. Start the engine.
2. Turn the audio system on.
3. Rev the engine and vary the volume of the audio system to determine if there is any unwanted noise.
4. If the audio system does have a whine or tic-tic noise, turn both the audio system and the engine off. Do not secure the amplifier mounting screws. Refer to the TROUBLE SHOOTING GUIDE at the back of this manual.
5. If the audio system does not have any noise, then securely tighten the amplifier mounting screws and double check the wiring cables for safe placement.

NOTE: 99.9% of all noise problems (i.e. alternator whine or spark noise) are caused by installation error. If you are experiencing noise problems, first refer to the Trouble Shooting Guide at the back of this manual. If you are unable to resolve the problem, contact your local Coustic dealer or Coustic direct. Don't give up! Your noise problem CAN be solved.

TROUBLE SHOOTING GUIDE

BASIC INSTALLATION PROBLEMS

SOLUTIONS

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- | | |
|--|--|
| 1. No power | <ul style="list-style-type: none">• Check connections to the amplifier's + 12 Volt, Ground & Remote terminals (use VOM).• Check red power wire connection at " + " terminal of your car battery.• Check fuse in power line. If fuse is blown, replace it. If fuse continues to blow, see your Cooustic dealer. |
| 2. Power without sound | <ul style="list-style-type: none">• Check all input & output signal cables and connections.• Test the speaker with a VOM or by connecting it to a home system. |
| 3. No sound from radio | <ul style="list-style-type: none">• Check your tuner antenna connection.• Check your radio's ON/OFF switch. |
| 4. No sound from tape (especially one channel) | <ul style="list-style-type: none">• Clean tape head. |
| 5. No sound from one side | <ul style="list-style-type: none">• Check balance control.• Check speaker connections.• Clean tape head. |
| 6. Very low sound from both radio & tape | <ul style="list-style-type: none">• Check your radio's fader control.• Check the amplifier's Input Sensitivity Level. |
| 7. Amp sounds fine but gets very, very warm to the touch | <ul style="list-style-type: none">• Input Sensitivity is set too high. Refer to section titled INPUT SENSITIVITY ADJUSTMENTS and re-adjust input correctly. |
| 8. Power amplifier turns on and off repeatedly (motorboating) | <ul style="list-style-type: none">• Make sure connection to car battery is tight.• Check battery voltage. If low, recharge or replace battery.• Check all ground connections. |
| 9. A whining noise (alternator whine) that occurs while engine is running & varies with the accelerator. Noise level varies with radio's volume control (if volume has no effect, see #10) | <ul style="list-style-type: none">• Reroute power to radio so that it runs directly from battery (bypassing battery terminal in fuse box).• Check power connections to be sure they are clean.• Check ground connections to be sure surfaces have been scraped clean for good connections. |
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TROUBLE SHOOTING GUIDE

BASIC INSTALLATION PROBLEMS

SOLUTIONS

10. A whining noise (alternator whine) that occurs while engine is running & varies with the accelerator. Radio's volume has no effect on the noise.

- Check for ground loop in system. Turn system off and disconnect grounds, one at a time. Turn the system back on and check for noise after each ground change. CAUTION: Do not disconnect Power Amplifier's ground. This could damage the amplifier.
 - Check ground connections. You may have to relocate one or more ground connections to different spots to get the lowest noise.
 - Check to be sure that all ground connections are scraped clean of paint, rust or grease.
 - Check for defective signal cables. Disconnect signal cables at the amplifier and listen carefully for noise. If the noise is no longer present, run a test pair of signal cables on the outside of the car to double check. If the noise is still gone, re-route with the new signal cable.
 - Check battery ground at chassis to make sure it is clean. Also make sure battery's negative terminal connection is tight and clean.
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11. Crackling noise on FM; not present on tape. Varies slightly with accelerator but is present all the time. (This is radiated noise).

- Make certain the problem is actually "radiated" noise. Obtain a portable FM radio & tune it to an FM station you know is noisy. Move the portable radio near the car engine. If you pick up noise, then it is definitely radiated noise which is one of the most difficult noises to eliminate. It is an automotive problem, not the system's.
 - Use a VOM to make certain antenna is really grounded to car chassis. One way to be sure you have a true ground is to break the outer plastic covering of the antenna lead and solder a piece of heavy wire (minimum 14-gauge) to the braided shield. Ground other end of wire at same point as radio ground.
 - Check spark plug wires. They should be suppression-type wires and less than 2 years old. Otherwise, replace them with the best quality suppression cables you can find.
 - Make sure engine block is grounded to car chassis, not to paint. Remove grounds, clean surfaces and replace.
 - Make sure hood is also grounded. If it isn't, you can purchase a ground strap at any auto parts store. Scrape paint and ground hood to car chassis.
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SPECIFICATIONS

	AMP-460	AMP-360	AMP-260
Power Source: (DC Negative Ground)	14.4V	14.4V	14.4V
Maximum Input Current:	50A	40A	25A
Dynamic Power (IHF) One Channel (4 Ohms):	150W	100W	75W
Rated Power Per Channel: (20-20,000 Hz, 4 Ohms, 0.09% THD in Stereo Mode)	98W	65W	45W
Bridged Mono Rated Power: (20-20,000 Hz, 4 Ohms, 0.2% THD in Mono Mode)	250W	150W	100W
3-Channel Rated Power*:	180W x 1 45W x 2	105W x 1 30W x 2	80W x 1 28W x 2
Harmonic Distortion: (Rated Power at 1,000 Hz)	<0.05%	<0.05%	<0.05%
Frequency Response: (1 Watt, +3 dB)	10 Hz -55 KHz	10 Hz -50 KHz	10 Hz -50 KHz
S/N Ratio: (A-Weighted)	>95 dB	>92 dB	>92 dB
Acoustic Equalization: (at 45 Hz and 15 KHz)	0 dB, +6 dB, +12 dB	0 dB, +6 dB, +12 dB	0 dB, +6 dB, +12 dB
Input Sensitivity Pre-Amp: Speaker:	250 mV 2.5V	250 mV 2.5V	250 mV 2.5V
Input Impedance Pre-Amp: Speaker:	6K Ohms 100 Ohms	6K Ohms 100 Ohms	6K Ohms 100 Ohms
Output Impedance:	2,4 or 8 Ohms	2,4 or 8 Ohms	2,4 or 8 Ohms
Dimensions:	8 7/8"W (225MM) 2 3/8"H (60MM) 16 7/8"D (430MM)	8 7/8"W (225MM) 2 3/8"H (60MM) 13"D (330MM)	8 7/8"W (225MM) 2 3/8"H (60MM) 9"D (230MM)

FEATURES AND SPECIFICATIONS SUBJECT TO CHANGE AND IMPROVEMENT WITHOUT NOTICE

* Requires special connection, see Section B.
USING THE AMPLIFIER WITH PASSIVE CROSSOVER for reference.