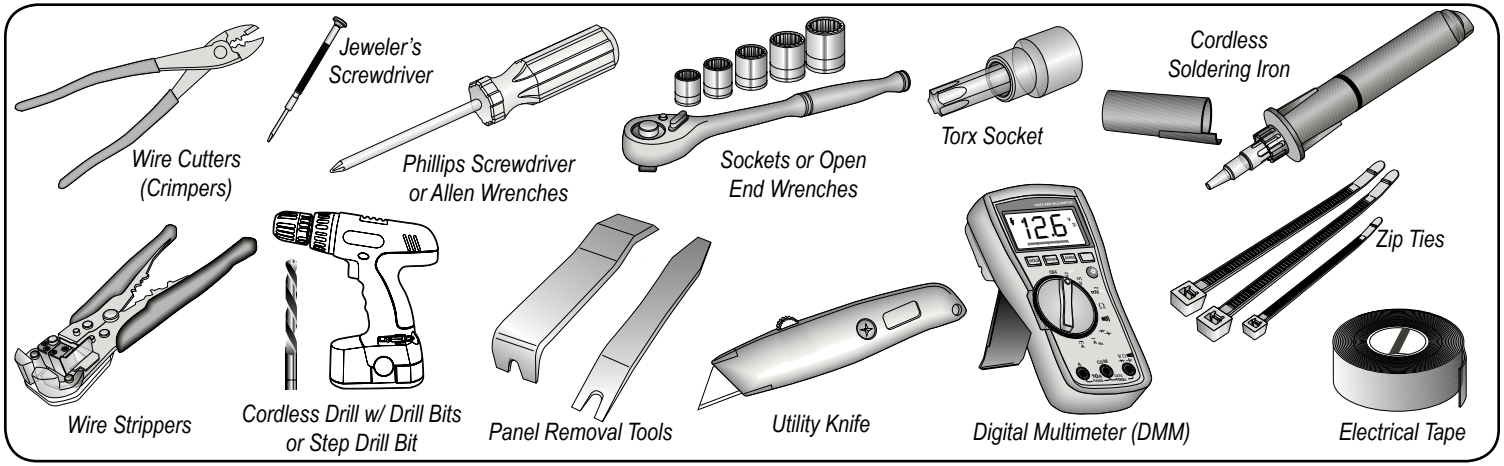
Amplifier Installation Guide

Difficulty Level: Moderate **Average Installation Time: 3 Hours**

In This Guide: Amplifier installation requires connecting power wires to the battery, routing signal input wires, disassembling interior components, and mounting the amplifier. Follow these easy installation steps to ensure correct installation of your amplifier.

Tools and Supplies Needed:

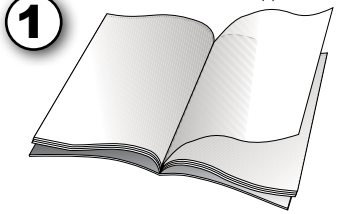


Important

This content has not been verified by Amazon for accuracy, completeness, or otherwise. Consult your vehicle's owner's manual and the product's manual before attempting an installation. Contact the product's manufacturer or consult a Mobile Electronics Certified Professional installer if you are uncertain about how to properly install your product. Amazon attempts to be as accurate as possible, however, because of the number of vehicles and products available to consumers, it is not possible to provide detailed installation steps that apply universally to all vehicles and products. Amazon does not warrant that product descriptions or other content of this site is accurate, complete, reliable, current, or error-free. Further, Amazon disclaims any warranties, express or implied, as further set forth in the 'Conditions of Use' for Amazon.com.

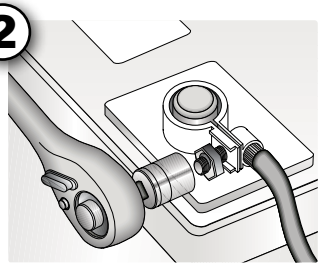
Before You Begin

1. Product Owner's Manual Installation Manual(s)



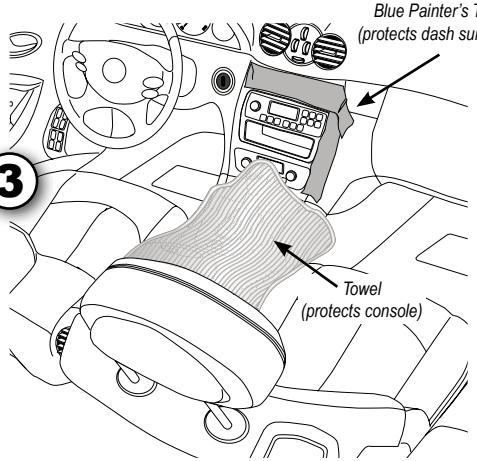
Read all instructions carefully

2.



Disconnect the negative battery cable

3.



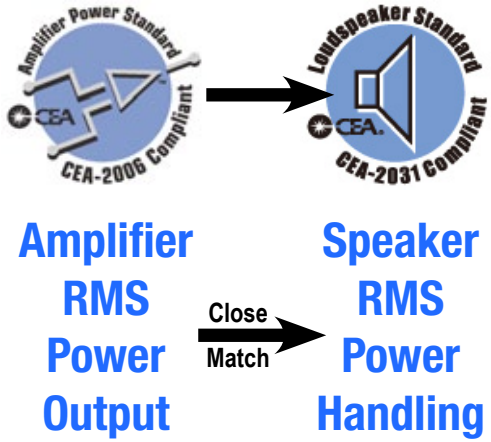
Protect interior surfaces

Note: Additional accessories such as an amplifier wiring kit may be required to complete the installation and are available for purchase at Amazon.com

Amplifier Configurations

RMS Power

RMS power ratings provide a realistic expectation of an amplifier's performance and allows for comparison to other amplifiers. Try to closely match the per-channel RMS wattage (or RMS power handling) of the speaker(s) or subwoofer(s) with the amplifier's per-channel RMS wattage. In general, choose an amplifier with at least 50-100 watts RMS per channel for midrange/tweeter component speakers. For a subwoofer, consider a minimum of 150-300 watts RMS.



Closely match CEA-2006 Amplifier Output Power Wattage with CEA-2031 Speaker Power Handling Wattage. If CEA ratings are not available, always look for the 'RMS' ratings to guide product matching.

Number of Channels

A mono amplifier can provide a single output channel that drives one or multiple subwoofers, wired in a series or parallel configuration. A 2-channel amplifier can be used to power a pair of component or coaxial speakers, or the two channels can be 'bridged' to create a single channel for powering a subwoofer(s). Multi-channel amplifiers, with 3, 4, 5 or 6 channels, can power all speakers and subwoofers in the audio system, each with an individually configured channel and power output.

The number of output channels determines how the amplifier can be configured to connect speakers. Many amplifiers can also bridge two channels into a single, more powerful channel. Always refer to the manufacturer's detailed product information to determine the number of channels available for a specific amplifier model.

Current Draw and Bridging

Bridging channels is a common technique used to deliver all of the wattage of a 2-channel amplifier through a single channel, providing more powerful output to a subwoofer. In a bridged configuration, current drawn from the vehicle electrical system doubles as power output doubles. When bridging an amplifier, choose power wires rated to handle the higher current levels and select a mounting location that will allow for adequate cooling. Always check the amplifier's specifications to determine bridging compatibility and optimum ohm load of the speakers it powers.

Ensure adequate power wiring from the vehicle battery when using an amplifier in bridged mode to increase power output.

Caution:

Using a fuse supplied in an amplifier wiring kit is recommended. If using bulk wire and your own connectors, purchase fuse holders and use appropriately sized fuses. The fuse requirement will be listed in the amplifier owner's manual. If this information is not provided, match the size of the amplifier's onboard fuse (if present). Remember the fuse at the battery protects the wire routed through the car, not the amplifier. Using a fuse that is larger than necessary is not recommended as it puts wires and amplifiers at risk.

Interior Disassembly and Amplifier Location

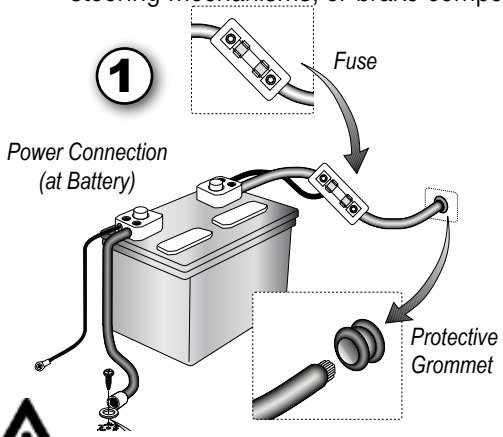
Choose a location to install the amplifier, such as in the trunk, under a front seat or on the back of a fold-down rear seat. The amplifier location should be dry (no moisture) and provide sufficient air circulation to keep the amplifier cool.

1) Remove the necessary interior panels, door sill panels, seats, seat belt mounts to gain access to the under-carpet wiring channels. Use these wiring channels to route wires to the amplifier location.
2) Set the amplifier in the chosen location. Do not mount the amplifier until all wiring is connected and settings are completed.

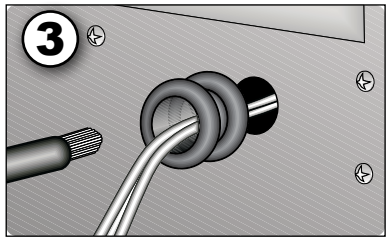
Connect the Power Wiring

Connect to Positive Battery Terminal

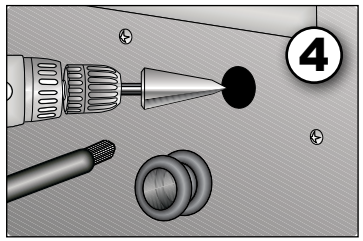
1) Connect the power wire's ring terminal to the positive (+) battery terminal. Ensure a fuse holder or circuit breaker is placed within 18 inches of the power connection. Leave the fuse out until the installation is complete (this will be the last step before testing).
2) Route the wiring to the firewall bulkhead and find the location where existing wires pass through the firewall into the vehicle's interior. Avoid routing wires near heat sources or moving parts such as manifolds, steering mechanisms, or brake components.



Caution:
Leave the fuse out of the fuse holder near the battery until the installation is complete (this will be the last step). If using a circuit breaker, set to 'OFF.' These methods avoid shorting the power wire while routing through the car before finalizing all connections.



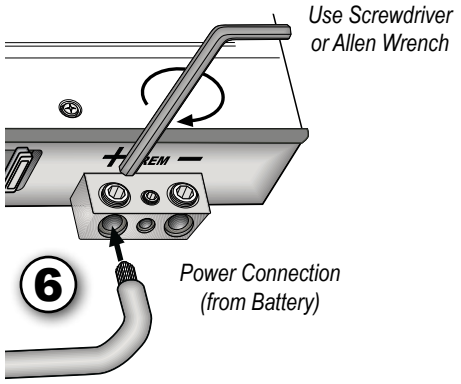
Example of using factory grommet



Example of drilling new hole for grommet

Run Wire into Interior

3) Pass the power wire into the interior through an existing rubber grommet by making a small incision with a utility knife along the unused part of the existing grommet (cut away from factory wires).
4) If a suitable hole does not exist, you may need to drill a hole in the vehicle's firewall to route the wire into the interior. Check for obstructions on both sides of the firewall BEFORE drilling. After drilling, place a plastic snap grommet or rubber grommet in the newly cut hole to protect the wire insulation from any sharp metal edges.
5) After routing the wire into the interior, ensure the hole is sealed well with silicone sealant or waterproof material.
6) Route the power wire to the amplifier location (through under-carpet wiring channels, if possible) and connect to the amplifier terminal labeled POWER or B+.

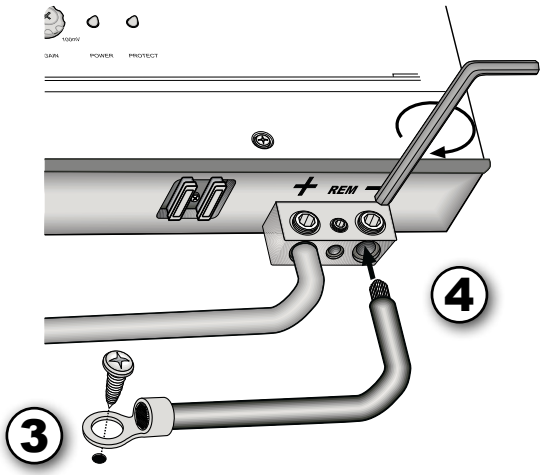


Connect the Ground Wiring

Connect Chassis Ground Wire

Connect the ground wire's ring terminal to a solid metal point on the vehicle body or chassis using the hardware supplied with the amplifier kit. Avoid using a factory ground point to eliminate voltage spike induced noise in the audio system.

1) Locate a suitable ground point, with no obstructions on, around, or behind it (such as fuel tanks, wiring harnesses, etc.).
2) Drill a 1/8" hole. Clean the painted surface around the hole. To ensure good electrical conductivity, remove paint by sanding down to bare metal.
3) Attach the ground wire's ring terminal to the location using a #8 sheet metal screw (or supplied hardware).
4) Route the ground wire to the amplifier location and connect to the amplifier terminal labeled **GROUND**, **GND** or **B-**.



Chassis Ground Connection

Caution:
The seat bolt or seat belt bracket bolt is not a suitable chassis ground point.

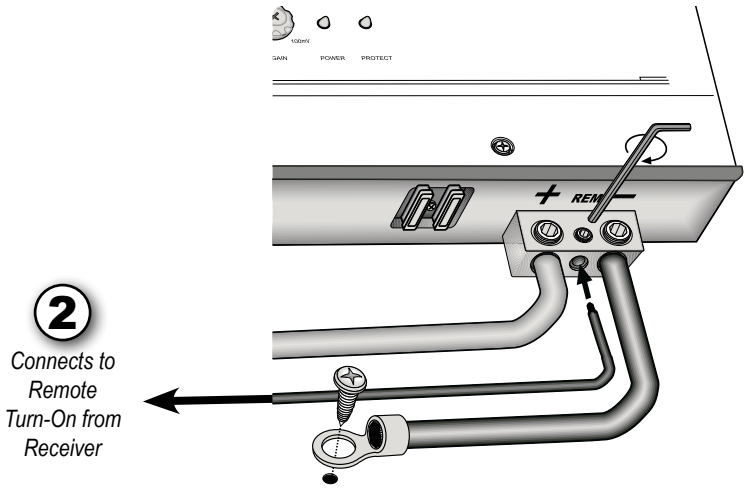
Connect the Remote Turn-On

Aftermarket In-Dash Receiver

1) Connect a 20 or 18 gauge wire to the receiver's remote turn-on output. This is generally a blue wire with a white stripe. This provides 12 volts when the receiver is on.
2) Route the remote turn-on wire to the amplifier location and connect to the amplifier terminal labeled **TURN-ON** or **REM**..

Factory Stereo

2) Connect a 20 or 18 gauge wire to the factory stereo's amp turn-on or power antenna wire. This provides 12 volts when the stereo is on.
3) Alternatively, connect the amplifier's remote turn-on wire to a source of key switch 12 volt accessory (ACC) key switched power in the vehicle.
4) Route the remote turn-on (or accessory) wire to the amplifier location and connect to the amplifier terminal labeled **TURN-ON** or **REM**.

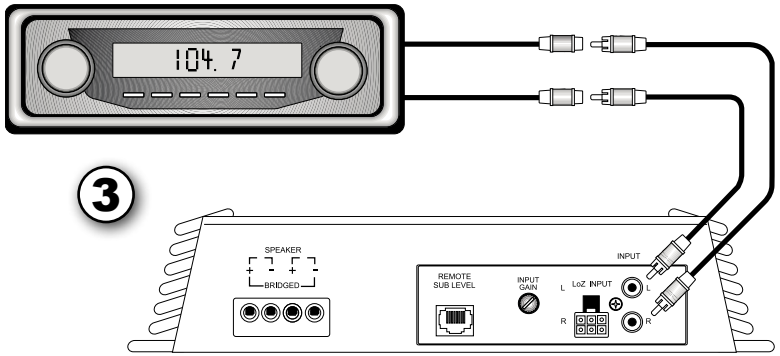


Input Signal Wiring

Preamp Level RCA Connections

1) Connect one or more RCA audio cables to the receiver's preamp outputs. If using multiple cables, be sure to label the cables as 'FRONT', 'REAR', and/or 'SUB' outputs.

2) Route RCA cables to the amplifier location on the opposite side of the car as the power wiring is routed to avoid radiated noise in the RCA cable.
3) Connect to the appropriate RCA input at the amplifier. If using a multi-channel amplifier with multiple RCA inputs, observe which RCA cables are designated as as 'FRONT', 'REAR', and/or 'SUB' from Step 1 (above).

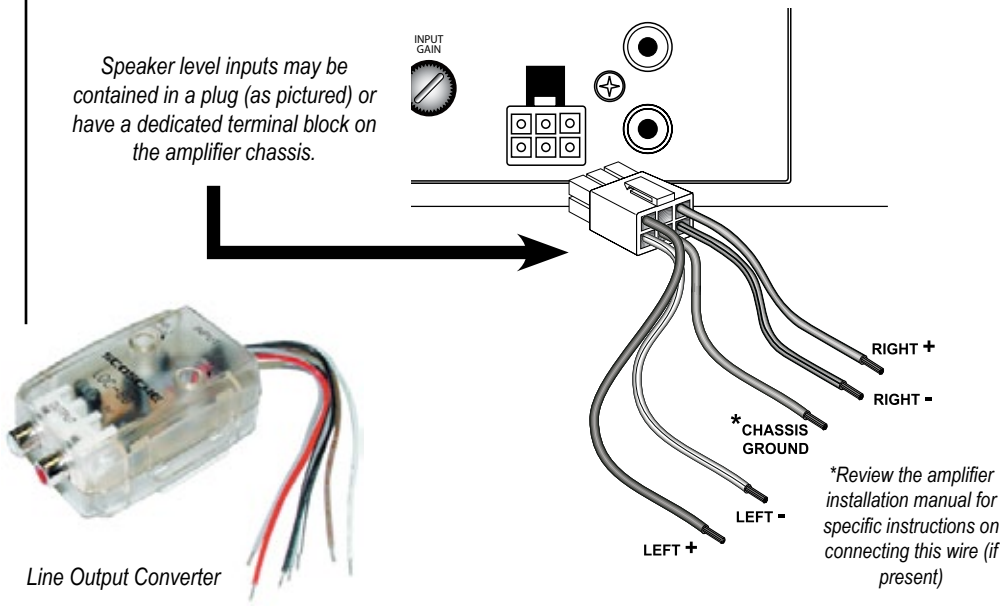


Preamp Input Connections at the Amplifier's RCA Jacks

Speaker Level Input Connections

1) If connecting a factory stereo to the amplifier's speaker level input (also called 'high level input' or "Low Z"), connect the input wiring to one left and one right full range speaker output. This connection can be located at the output of the stereo or at the location of the speaker.
2) When making the connections, be sure to observe correct polarity, meaning the positive (+) signal input wire for the amplifier connects to the positive (+) speaker wire in the vehicle. Use soldered or crimped connections to secure the connections to the vehicle's speaker wiring.
3) Disconnect the speaker in the vehicle from the factory wiring if it will be powered by this amplifier. Leave the speaker connected to the factory wiring if the amplifier will only power a subwoofer.

Speaker level inputs may be contained in a plug (as pictured) or have a dedicated terminal block on the amplifier chassis.



Line Output Converter

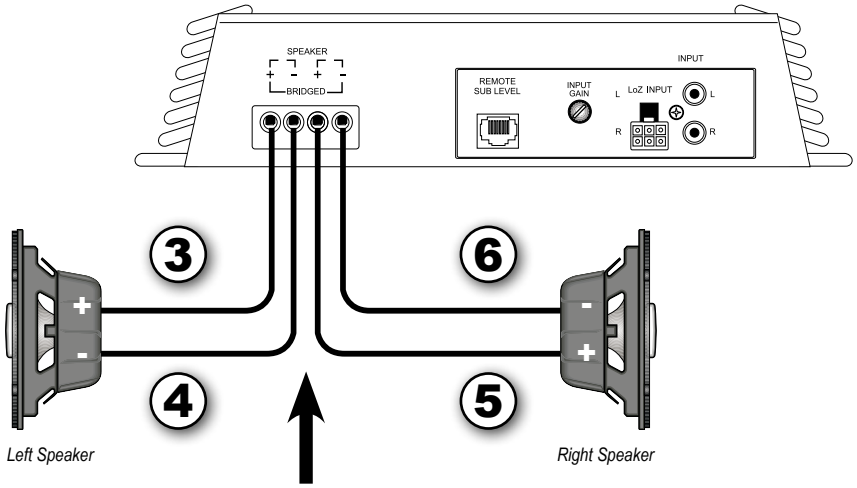
**Review the amplifier installation manual for specific instructions on connecting this wire (if present)*

Note: For amplifier installations using a factory stereo, where the amplifier has no speaker level inputs, purchase a Line Output Converter (LOC) at Amazon.com to convert the vehicle's speaker level signals to preamp level RCA outputs compatible with the amplifier's input configuration.

Speaker Output Wiring

Stereo Mode

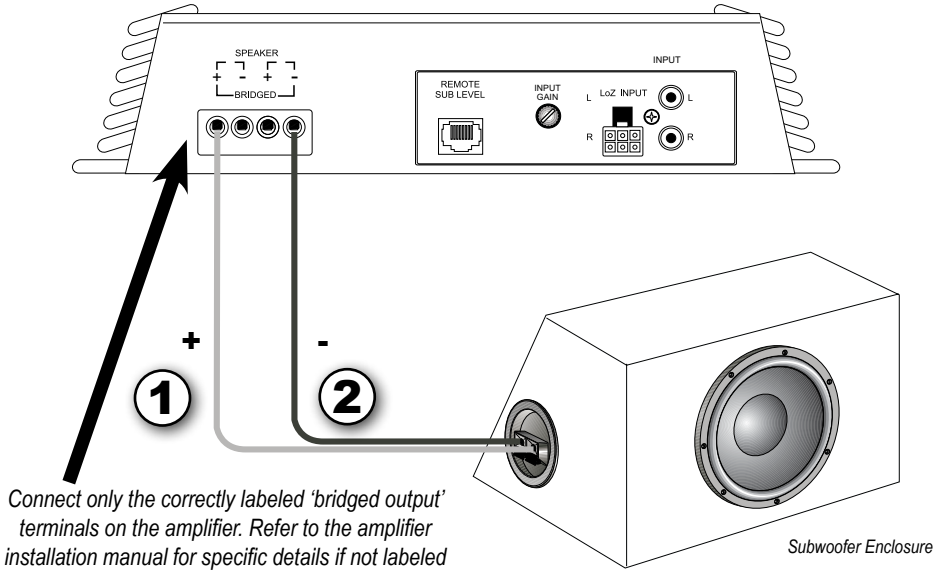
1) Connect wires to the left and right side speaker. When making the connections, be sure to observe correct polarity, meaning the positive (+) speaker wire for the amplifier output connects to the positive (+) speaker terminal on each channel.
2) Route the speaker wires to the amplifier location.
3) Connect the left positive (+) speaker wire to the amplifier's left positive (+) output.
4) Connect the left negative (-) speaker wire to the amplifier's left negative (-) output.
5) Connect the right positive (+) speaker wire to the amplifier's right positive (+) output.
6) Connect the right negative (-) speaker wire to the amplifier's right negative (-) output.



When making the connections, be sure to observe correct polarity, meaning the positive (+) speaker wire for the amplifier output connects to the positive (+) speaker terminal on each channel.

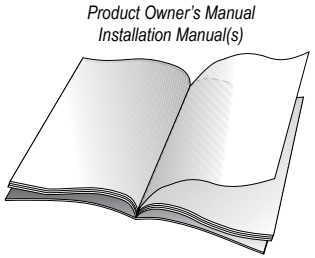
Bridged Mode

1) If bridging the amplifier's channels, connect the positive (+) speaker wire to the amplifier's positive (+) bridged channel output.
2) Connect the negative (-) speaker wire to the amplifier's negative (-) bridged channel output.



Connect only the correctly labeled 'bridged output' terminals on the amplifier. Refer to the amplifier installation manual for specific details if not labeled at the speaker output terminals.

Note: Review the amplifier's product installation manual for specific speaker configurations for different numbers of output channels, including 3, 4, 5 and 6-channel amplifiers connecting to multiple speakers.



Check Your Progress

Configuring Internal Crossovers

If the amplifier has internal crossovers that will be used, select the correct configuration(s) at this time. Here are some suggestions that can be used as a starting point:

- Factory Speakers – use 120Hz High Pass
- 6.5" or smaller Coaxial Speakers – use 100Hz High Pass
- 6x8" or 6x9" Coaxial Speakers – use Full Range (no crossover) or 50Hz High Pass
- Component Midrange Speakers – use 100Hz High Pass (there is a separate passive crossover for the filtering between the midrange and tweeter)
- Subwoofers – use 100Hz Low Pass

Crossover controls are also called "Filters"

Note: If using the internal crossovers in a receiver, turn off the amplifier's built-in crossovers. Do not 'cascade' multiple active crossovers by using the crossovers in both devices on the same channel. Choose only one of crossovers in the receiver (if present) or amplifier for each input channel. Amplifiers typically have more flexible crossover points than receivers.

Turn On / Initial Testing

After all the necessary connections are made, it's time to turn on and test the amplifier.

1) Verify all connections are correct and secure.
2) Place a fuse in the fuse holder located by the battery. If using a circuit breaker, reset to 'ON.'
3) Turn the receiver on and start a music source (AM/FM, CD, iPod, etc.). Verify music plays through all speakers connected to the amplifier at a low to moderate volume level.
4) Use the receiver's audio controls to adjust the balance to left and verify that only left side speakers play. Adjust the balance to the right and verify that only right side speakers play. Speakers on bridged mono channels will play music when balanced on either side.
5) Proceed to final level setting process.

Level Setting (Gain Adjustment)

The amplifier input level control (also called 'gain adjustment') is not 'ready to go' out of the box. The input level must be set to allow maximum output from the audio system without audible distortion by matching the amplifier's input to the receiver's signal level outputs.

1) Turn the amplifier's level adjustment (or gain) control to its lowest setting. The lowest gain setting is the larger of the two numbers in the range, meaning maximum input signal, requiring no gain.
2) Play dynamic music with a lot of complex instruments and sounds. Give preference to high quality content sources, such as a music CD (if the receiver allows it) or a digital music file format (MP3, AAC, WMA, etc.) with minimal compression at 256kbps. This ensures dynamics in music are conveyed in the playback.
3) Turn the receiver's volume up to 80% of its maximum level (for example, if the receiver has a maximum numeric volume range of 50, turn it to 40).
4) Adjust the amplifier's level control to the point where you just begin to hear the music distort, then back it down slightly. The result should be distortion free music.
5) The amplifier's input level adjustment is now set to match the receiver's output.

Level Control (Gain Adjustment)

Caution:
Increasing the input level adjustment beyond the set point described above may add distortion at high volume levels and increase the potential for premature speaker failure.

Finishing the Installation

Mount the Amplifer

Mount the amplifier securely, so that it will not move when the vehicle is in accelerating/decelerating or in motion. A loosely mounted amplifier is a liability in an accident or when stopping suddenly. Before mounting, carefully inspect the area around and behind the mounting surface to avoid drilling into the fuel tanks or wiring harnesses.

1) Place the amplifier in the final location.
2) Use a felt tip pen to mark the location of the amplifier mounting holes to ensure you drill in the intended location.
3) Check the other side of the mounting surface for any drilling obstructions.
4) Drill 1/8” mounting holes.
5) Mount amplifier with the supplied hardware or #8 sheet metal screws.

Reassembly

Reassemble any parts of the vehicle removed during the amplifier installation. Double check that all wiring is securely tied down with zip ties and routed away from moving parts or heat sources.

Fine Tuning

For fine tuning or using specific sound enhancement features such as built in bass boost or subsonic filters, review the amplifier’s product installation and owner’s manuals to learn more about those features (if equipped).