

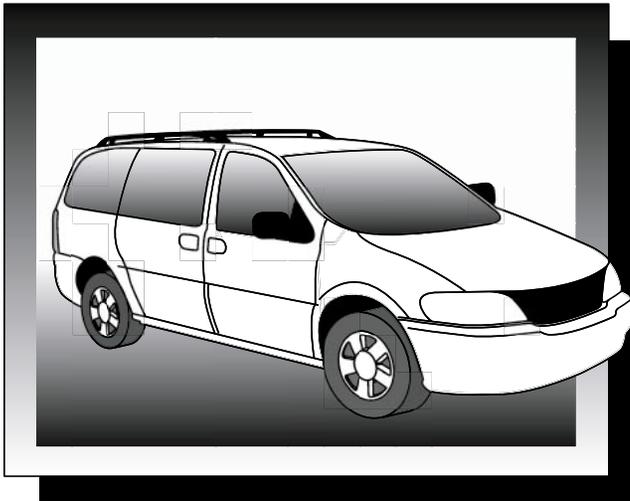
CRUTCHFIELD®

Amplifier Installation Guide

IMPORTANT

Before starting, compare items on your invoice with items received. Carefully check through packaging material. If any item is missing, please call: **Crutchfield Customer Service at 1-800-955-9091**

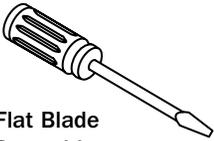
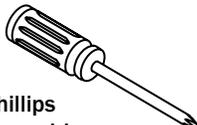
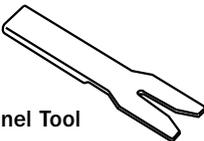
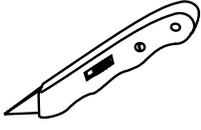
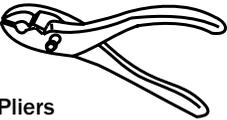
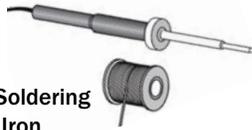
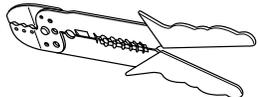
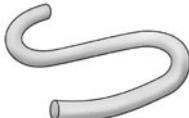
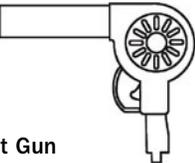
Although reasonable attempts are made to verify the accuracy of the information contained in this guide, it is presented without warranties or guarantees of any type due to the constantly changing nature of this type of information and running changes in vehicle production. Any person or entity using this information does so at his or its own risk. If you find that our instructions do not apply to your vehicle, or if you have questions, do not continue with your installation. Contact our toll-free technical support for assistance (Tech support phone number is on your invoice).



Tools Needed: (depending upon vehicle)

A note about wiring: In addition to the tools listed, your amp installation will require power and ground wiring, plus RCA cables, terminals, and a remote turn-on lead. The easiest way to get all of these items is in an amplifier wiring kit, available at crutchfield.com.

 As with any car audio/video installation, your first step is to disconnect the negative terminal of your car battery to prevent short circuits. Check your Crutchfield MasterSheet™ (available for most vehicles) or vehicle owner's manual for specific directions. In some vehicles, disconnecting the battery may require you to re-enter a security code or have the dealer reset the internal computer.

| | | | |
|--|--|--|---|
|  Flat Blade Screwdriver |  Phillips Screwdriver |  Panel Tool |  Utility Knife |
|  Pliers |  Drill & Bit Set |  Soldering Iron |  Socket & Ratchet Set |
|  Wire Stripper/ Crimp Tool |  Heat Shrink Tubing |  Electrical Tape |  Heat Gun |

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Planning ahead:

Choosing your location according to these guidelines will help your installation go smoothly:

- The amp should be at least three feet from the radio to avoid noise radiated from the vehicle's electrical system. If it's closer than three feet, the amp can also interfere with the receiver's AM/FM reception.
- An amp produces some heat during operation, which its heatsink absorbs and radiates, so it needs a few inches of air space to stay as cool as possible. When mounting an amp on a side wall, make sure the fins on the heatsink are vertical. Never mount an amp upside down, as dissipated heat will radiate back into the amp.
- There must be enough room on either side to make the wiring connections and adjust the controls (gain, crossover, bass boost, etc.).

IMPORTANT: Follow the manufacturer's recommendations for mounting the amp and make sure it's secure. An amp that isn't secure could break loose in an accident and injure a passenger as it flies through the vehicle.

Making the Power Connections

1. Following your Crutchfield MasterSheet™ (available for most vehicles) or owner's manual, set the parking brake and disconnect the negative terminal from your battery to prevent any electrical short.
2. Remove the red power wire from your amp wiring kit (usually 16-20 feet in length). Locate a hole on the firewall; most cars have a pre-drilled one you can use. If not, you'll have to find a good place to drill one. If you have problems, contact Crutchfield technical support at the phone number listed on your invoice. Once you've found or drilled a suitable hole, run the power wire through the hole into the engine compartment.
3. The red power wire from your amp wiring kit may have a fuse holder installed. If so, go to step 4 (next page). If not, find a good spot close to your battery to place your fuse-holder (included in the kit) — less than 6" from the battery is best. Cut a short piece off the end of the power wire (to cover the distance from the battery to the fuse holder location), and strip the insulation off both ends with a wire stripper.

Crimp the terminal ring (included in the kit) onto one end of the short piece of wire, and crimp the fuse holder onto the other end. Strip the insulation off the end of the red power wire that leads into the passenger compartment, and connect it to the other end of the fuse holder.

Good locations include:

Under a seat.

- **Pros:** Closer to the radio, so you can often use shorter patch cables and signal cables, which are less prone to noise and signal degradation. Closer to the front speakers, so running wire to them will be easier. No cargo space sacrificed.
- **Cons:** You may have to remove the seat to do the installation. Larger amps might not fit. You must elevate the amp to avoid contact with water from rain or snow brought in on passengers' shoes.

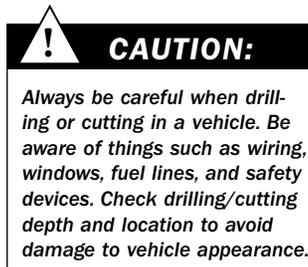
On the firewall (passenger side).

- **Pros:** Short wires and patch cords required. You won't have to remove a seat or climb into the trunk.
- **Cons:** Only very small amps fit here. Closer to some common noise sources.

In the trunk or hatch area (mounted on the floor, side wall, or the back of the rear seat).

- **Pros:** Plenty of room for large amps. Near the rear speakers and subwoofers.
- **Cons:** You sacrifice some cargo space. Longer wires and patch cords required. If working in the trunk, tape over the latch so you won't get trapped inside accidentally.

Route the red (power) wire from your amp wiring kit through a hole in your vehicle's firewall.



Fuse installed on power wire, and secured in engine compartment.



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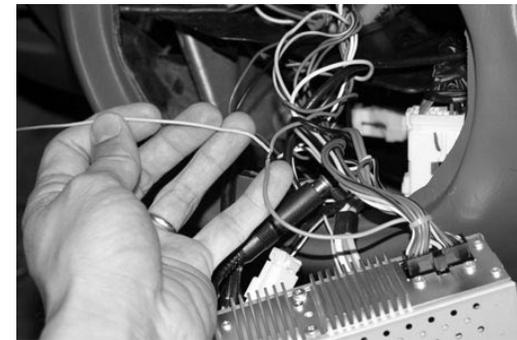
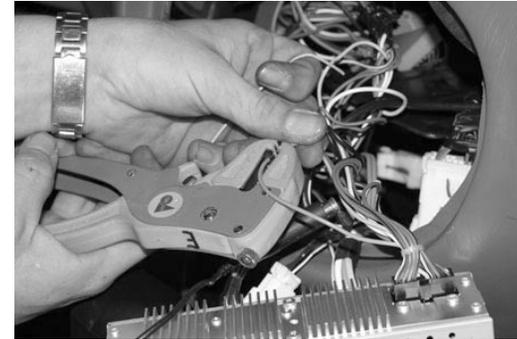
4. Attach the power cable to the positive battery terminal (not directly to the battery post itself). For top-mounted battery posts, the most common way to do this is to crimp a ring terminal onto the end of the power cable (most cables in wiring kits come with it already attached), remove the battery terminal's nut, slip the power cable's ring over the bolt that secures the battery terminal to the battery post, and replace the nut. For GM vehicles with a side-mount post, we offer an adapter that works nicely.

Thread the wire loom (included with some kits) over the red power cable until it reaches the firewall and cut to fit. Thread another piece over the short power wire running from the fuse holder to the battery.

Anchor the fuse holder to a suitable spot with a self-tapping screw (see photo on page 2).

5. Remove the radio from the dash to access the turn-on wire (usually a blue wire). The turn-on wire will "tell" your amplifier to turn on whenever the receiver is powered up (usually, whenever the vehicle is turned on). For step-by-step instructions on removing your vehicle's radio, see your vehicle-specific Crutchfield MasterSheet™ (available for most vehicles), or read our In-Dash Receiver Installation Guide.

Strip the insulation off a small section of this wire coming from the radio, wrap the blue turn-on lead (included in amp wiring kit) around it, and solder. Or, make the connection with crimp connectors and a crimp tool. Wrap the solder or crimp connection with electrical tape (or use a heat gun to apply heat shrink tubing) to guard against a short. Using wire ties (included in the kit) to secure the wire, route the blue turn-on lead behind your dash to the place where the red power wire comes through the firewall. You will route the turn-on lead and red power wire together to the amp location.



Locate the remote turn-on lead behind your radio (usually a blue wire), and connect the turn-on lead from your amplifier wiring kit to it.

Making the Signal Connections

6. If your in-dash radio has preamp (RCA) outputs, connect the RCA patch cables (included with most kits) to these outputs, taping them together so they won't come apart. Route the patch cables (again, using wire ties) to the OPPOSITE side of the vehicle from the power cable and blue turn on lead. It's important to separate the patch cables from the power wires to avoid potential noise problems. Now you can partially re-install the radio in the dash (don't push it all the way in, in case you need to fix a problem later).

Step 7 begins on page 5.

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Wire Routing

All system wiring should be concealed for safety, and to give your installation a nice, finished look. Wires should be secured so that they do not interfere with safe vehicle operation. Depending on the vehicle and the location you choose for your amplifier, the wiring for your system may need to be run under the dash, door scuff plate, pillar trimpanel, or kick panel. The instructions below address, in general, which panels may need to be removed and how they typically come off. Often, panels can be pried up at edges. Screws and retaining clips might also be present that will require removal (Figure 1). To prevent damage, always use care when removing panels — a panel removal tool is helpful.

Door Scuff Plate removal

The plates are usually removed by prying up the edges to release clips. Some vehicles will have screws present which will need to be removed (Figure 2).

Seat Belt removal

A seat belt may be located on a panel that needs to be removed. Most seat belt anchor covers pry off. The seat belt anchor is secured with a large nut or bolt (Figure 3).

! SAFETY CHECK
 ✓ Make sure seats and seat belts are secured to manufacturers' specifications.

Pillar Trimpanel removal

Remove seat belt if present. Remove screw covers, screws, and plastic retaining clips if present. Pry up edges of panel to remove (Figures 4 & 5).

Kick panel removal

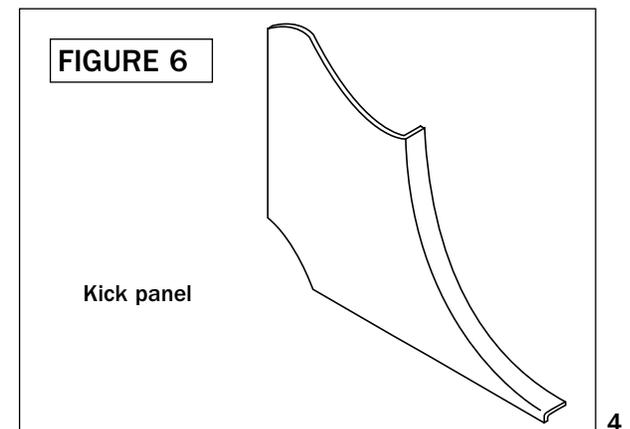
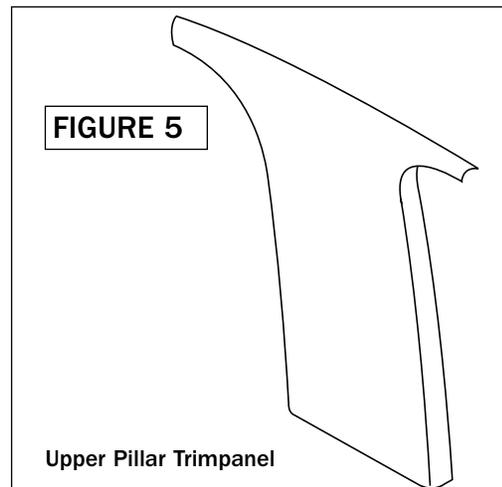
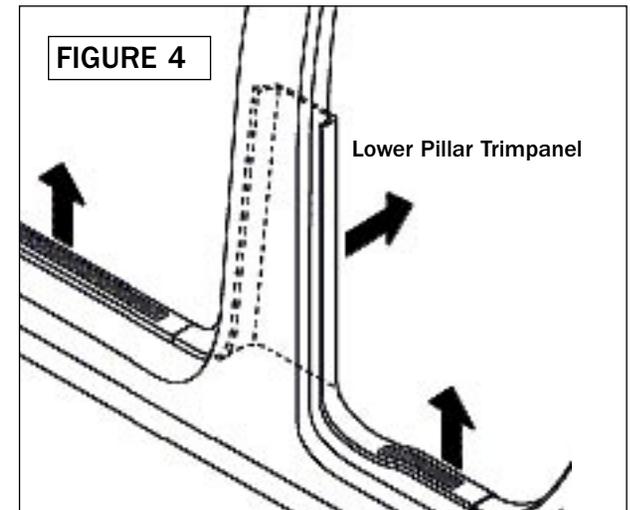
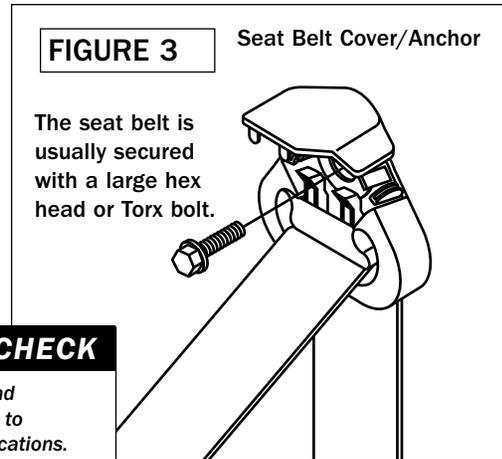
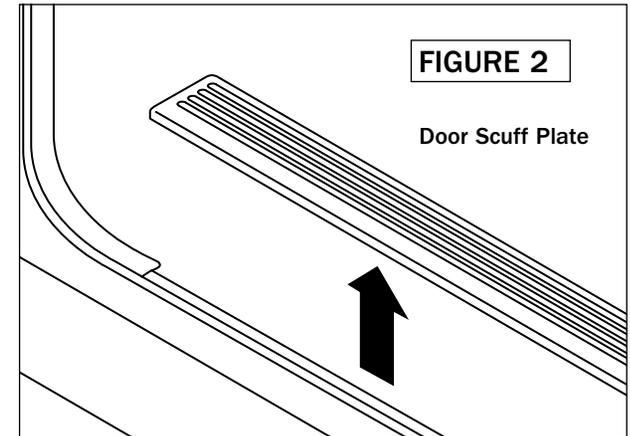
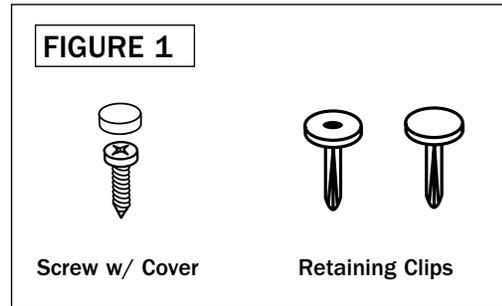
Look for screws and pry-out retaining clips to remove. Pry out edges of panel to release and remove (Figure 6).

Routing wire behind dash

Route wire behind dash and secure with plastic wire ties. Be sure that wire doesn't interfere with any moving parts to ensure safe operation of vehicle.

Routing wire for components and power connections

Determine desired locations for each component. Remove panels necessary to route and conceal wires. Test system before re-installing panels.



Amplifier Mounting and Connections

7. After routing the power and signal cables to your amplifier, using the techniques described on page 3, you're ready to mount and hook up the amplifier. First, remove a bolt near the planned amp location. Crimp a ring terminal (included with the kit) to the short piece of black ground cable (also in the kit). Scrape away any paint and clean the bolt location thoroughly (improper grounding is the #1 cause of noise problems), and then bolt the terminal tightly to the vehicle's metal chassis. If you can't find a convenient ground screw or bolt, drill a hole for one — be careful not to drill into the gas tank or a gas or brake line.
8. Mark off the amp's location on the floor or seat back (or your chosen location), also noting the location of the power connections, speaker outputs, and preamp inputs. Make slits in seat back fabric (or carpet, if the amp is to be mounted on the vehicle's floor), and run the power, speaker, and RCA wiring under the material to the appropriate slits. Here's where a wiring snake (available at hardware or auto parts stores) comes in handy. Insert the snake through the slit, grab the wiring with the snake's grips, and pull it through.
9. Install grommets and terminals (included in wiring kit) at the ends of the power, ground, and turn on leads, and connect them to the amplifier. Connect speaker wire and RCA patch cables to the amp. Reconnect your car's negative battery cable, turn on the radio, and the amp should power up. Start your car, rev the engine, and listen for any engine whine coming through the speakers. If there are no noise problems, re-install the radio and mount the amplifier using self-tapping screws.
10. Connect speaker wires to your speakers (or subwoofer box). Then, to maximize clean signal strength from your amp, you'll need to adjust the gain or input sensitivity settings. Here's how:
 - Set the input sensitivity controls of your amplifier to their minimum level (counter clockwise).
 - Put in a CD and turn up the receiver's volume (you might have to raise the amp's gain just a bit to hear the music).
 - When you hear distortion, stop. Turn the volume down just until the distortion disappears. This maximizes the signal-to-noise ratio, and leaves your system less prone to engine noise problems. Keep the volume setting here.
 - Now turn the gain controls on the amplifier up until it reaches the loudest volume at which you'll play it. If you hear distortion, slightly decrease the gain settings.

Now you've optimized the amp's output with the receiver's volume set near maximum. You can turn the volume almost all the way up and not damage your speakers or amplify distortion. If you're hooking up a subwoofer, a test disc (or bass-heavy CD) is helpful for making final adjustments.



CAUTION:

Always be careful when drilling or cutting in a vehicle. Be aware of things such as wiring, windows, fuel lines and safety devices. Check drilling/cutting depth and location to avoid damage to vehicle appearance.



Bolt the ground terminal tightly to the vehicle's metal chassis.



A wiring snake can come in handy for pulling wires to the amp mounting location.



RCA cables routed through slits in the vehicle's carpet, and connected to the amplifier's signal inputs.

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Tech Tips

- Entrance through fire wall may be found by following the hood release cable. The grommet or entrance may be large enough for both the cable and amp power wire. Use a wire coat hanger to fish the cable through.
- If drilling a hole through the fire wall, use a rubber grommet to seal the hole and protect the power wire.
- The turn-on wire for aftermarket stereos is usually blue/white. It is required to be used with most amplifiers to turn the amp on. It is safe to route the turn-on lead with the RCA wires, if being used.
- If the amp fails to turn on, check the main power wire fuse, as well as the fuses on the amp. Also, ensure that the ground cable is connected to an unpainted metal surface, such as seat bolts. If the amp does not turn on, check the remote turn-on lead to verify voltage. To test, disconnect the remote turn-on lead. Then connect a small jumper wire from the main power wire to the remote turn-on terminal of the amp while power wire is disconnected. Replace the fuse and verify that the amp turns on. Also, test it with a multi-meter. This will tell you if the remote turn on is working or not.