



## Stage One Speaker Upgrade Installation Instructions for BMW 5 Series / M5 '97-'03 (E39)



### Want an easier install? Watch our videos first!

This is a supplement for the installation videos that you will find on our website ([www.bavsound.com](http://www.bavsound.com)). Head to "Help > Installation Info."

There are details we go over in the installation videos that cannot possibly be covered as effectively through the written word. This guide is meant to help you in the garage. We still suggest taking your computer/tablet/phone to the car with you and streaming the videos to make sure everything goes off without a hitch. Now, let's get started!

### What you'll need to complete the installation:

- **BAVSOUND Tool Kit** (or some variety thereof - the video highlights the tools needed for this particular installation) - <http://www.bavsound.com/product/414/361/BAVSOUND-Interior-Disassembly-Tool-Kit/>
- **Heat gun or hair dryer** (to dry your hair - only kidding - to heat up sound deadening for better pliability).
- **Tunes in the garage** (your choice)

# Before you Begin

- **Please review and familiarize yourself completely with these instructions before starting work on your vehicle!**
- **Install all your speakers before you audition the Stage One.** Installing one speaker and then listening to the system to “see if it sounds better” is like putting one high performance shock on your car and taking it for a test drive. Feel free to test to make sure the connections were properly made after installing each speaker, but beyond that, keep the process moving along and audition it once all speakers have been installed.
- **Ensure that your bass and treble settings are set to their default middle positions before installing your new speaker upgrade.** Once you’ve installed your Stage One, you can reset the bass and treble settings to taste. Keep in mind that we generally recommend keeping them both very close to center as large adjustments introduce distortion into the audio signal and will lower performance of your system.
- **Perform the installation one door at a time.** Since there are many small parts that you’ll remove when completing the project, limiting the work you’re doing to one door will prevent you from confusing which parts go with what door.
- **Installation is essentially the reverse of the removal process outlined below.**
- **Variations occasionally occur,** so if anything seems out of line with what is contained in the pages that follow, don’t hesitate to contact us.

Ready? Let’s get started!

# Part 1: Front Doors

## Front Door Panel Removal:

**1.** Open the driver's side door. There are only two screws holding the entire front door panel to the door. The first screw is tucked away inside the upper vent on the front of the door panel. Open the vent and you'll see a small Phillips head screw hiding back there. Remove it.



**2.** Next, look behind the chrome door handle and you'll see a small, round plastic cover. Remove this using either your small flat head screwdriver or straight pick. This will reveal either a Philips head screw or a Torx T20 screw. It depends what BMW had lying around that particular day. Remove this screw.



**3.** Now we need to remove the light on the underside of the door panel. Using your panel removal tool, pop the light out by prying on the rear edge of the light. It will just pop out and you'll unplug the light.



**4.** You're now ready to release the door panel from the door. The outer edges of the perimeter of the door are secured by plastic tabs that need to be removed. We've found it easiest to start the process by pulling firmly from inside of the hole from where the light was removed. This will free up the bottom front corner of the panel.

5. Now, **very carefully** use your hands to free up the rest of the clips around the perimeter of the door. It typically gets pretty tight around the pockets toward the rear of the panel, but keep firm pressure and you'll get the two sides and bottom of the door free easily enough.



7 Series shown for reference

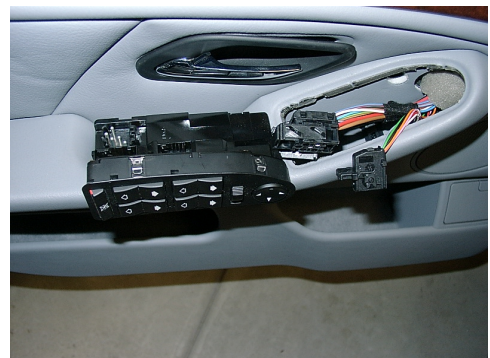
6. The removal of the top portion can be scary, but if you've made it this far, you've nothing to worry about. With the rest of the panel free, **carefully** pull outward on the top of the door panel from the front of the panel, underneath the tweeter.

7. Work rearward by continuing to pull firmly outward along the top edge of the panel. There are five contact points along the top edge that will pop loose.

8. Once the top is free, you will lift the door panel upward and toward the front of the car by twisting the panel in a counter clockwise direction.

9. At this point the door panel will be free of the door, but you'll need to remove the window switch before you can remove it completely. Simply pop the switches upward through the panel using your fingers once the panel is free of the door.

10. Now let's unplug the switch. You'll unplug the three plugs from the switch. Two of the plugs are removed by pressing the release tab on top and sliding the plastic lever downward, freeing the plug. The other plug is removed by sliding the lock tab away from the plug body and lifting upward, freeing the plug.



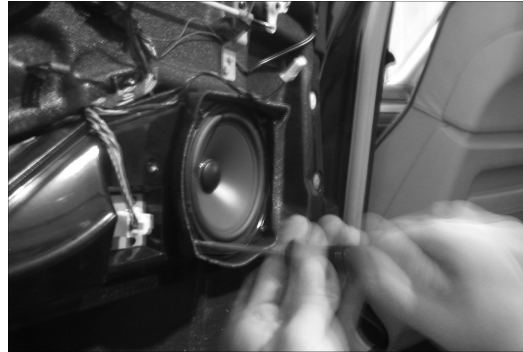
11. Before you pull the panel outward and ultimately free, you'll need to slide the door handle assembly through the hole in the door panel.

12. Unplug the midrange and other various plugs (seat memory controls, lights), and the door panel will be freed and you can set it aside.

## Midbass (130mm / 5.25" Driver) Removal and Installation:

1. Remove the foam gasket surrounding the original speaker.

2. It doesn't get much easier than this! Remove the four (4) Torx T10 screws from the speaker, and unplug the driver. These may also be Philips head screws, again depending on what BMW had lying around the plant.



**NOTE:** You may encounter two sets of wires in the speaker enclosure. The longer of the two sets was for the factory phone to communicate with the speaker. Simply tape off the leads individually, and use the shorter set of wires to attach to your new speakers as described below.

3. Connect your new Bavsound midbass drivers. The larger terminal is positive, and the smaller terminal is negative.

- Connect the Green/Black to the Positive (+) terminal
- Connect the old Green wire to the Negative (-) terminal

4. Install the supplied foam gasket between the enclosure and the speaker. This will ensure an airtight seal, and allow the speaker to perform to the maximum of its capabilities.

**NOTE: We are not replacing the midrange speaker in the car** (larger of the two speakers mounted in the upper door panel). It is actually an excellent speaker, and we were unable to improve upon its sound quality at a price point we felt would be appropriate for this Stage One upgrade.

## Tweeter Removal/Installation

This part is relatively easy compared to the door panel removal.

**1.** Notice a small black plastic anchor on the previously covered lower portion of the black tweeter/window trim panel. Remove this using your panel removal tool.



**2. Carefully** pry outward on the cover surrounding the tweeter, noting the attachment points around the rear lip of the tweeter grille. You're essentially unwrapping the tweeter. Pull outward just far enough to allow you to access the tweeter.

**3.** Unbolt the tweeter using your Torx T30 screwdriver. Unplug it from its juncture located atop the midbass assembly.



**4.** Unplug the tweeter from vehicle.

**5.** Bolt your new tweeter/bracket assembly to the upper bolt hole that you removed the factory tweeter from. You will use the very last hole in the bracket.



**6.** Angle the new tweeter assembly to fit perfectly behind the grille without impeding on the grille going back into place properly.

7. Reinstall the foam back around the tweeter.

8. Lastly, plug the tweeter back into the blue factory plug atop the midbass enclosure.



## Reinstalling your Front Door Panel

Reinstallation of your door panel is the reverse of removal. However, **here are a few tips and helpful reminders** that will make the process a little easier:

1. Start by orienting the door panel down over the vertical lock mechanism.
2. Toward the center of each door, you'll see a brass looking tab that will undoubtedly have a black plastic clip attached around it. This clip was attached to the door panel to the metal assembly bolted to each panel.

Remove this by compressing the brass tab and sliding the black clip toward you. Reattach this clip to the door panel's metal assembly. This will ensure a snug fit when you reattach the door.

3. **Don't forget to plug in the midrange.** It's easy to overlook it. Trust us, we know.
4. When you reattach the door, start at the top. Don't forget to pop the door handle back through the panel before you get too far.
5. Make sure that each plastic clip on the panel lines up with its corresponding hole on the door itself. You don't want to break those little guys if you can help it.
6. Give the door a solid once over using your hands. By this we mean pushing firmly around the outer edges with your hands, ensuring that everything is back together as it should be.

**Repeat the process with your passenger door, and your front speakers will be installed!**

## Part 2: Rear Doors

**IMPORTANT!** There may be sunshades on your rear doors. You **MUST** remove the sunshades first before you can remove your door panel. The instructions below will include details on removing the rear sunshades. (You may skip these portions of the instructions if your vehicle does not have rear sunshades).

**1.** Your rear doors are removed in the same way as the front doors. Release the door panel using the same instructions outlined for the front doors.

**NOTE:** There is no small screw located in the upper door vent, as there's no vent. :)

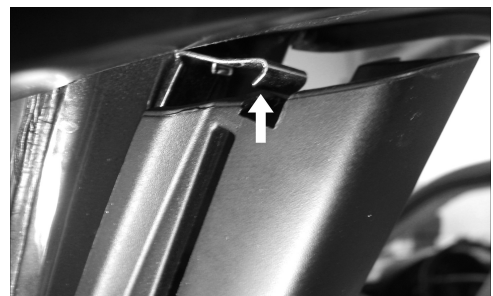
**2.** Remove the wood or metal trim piece carefully using your panel removal tool.

**3.** You will see two small holes behind the wood grain / metal trim. There will be a Philips head screw in each one. Remove them.



**4.** Make sure your rear windows are rolled down. You'll need to locate the small pinhole at the top of the sunshade that covers the smaller window in the door. It's on the inside toward the front of the car.

**5.** Using a small straight pick, you'll feel around in the hole for a metal clip. This needs to be lifted upward. This part can take some time, but you'll quickly realize the methodology necessary to get this thing off.





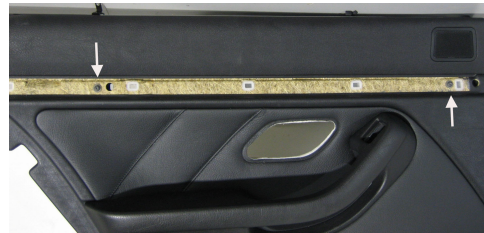
**6.** Once you've lifted the metal clip upward, the sunshade will just fall toward you and you'll simply lift it slightly upward to remove it.

**7.** This will reveal a Philips head screw on the top of the door panel, which will need to be removed.



**8.** With the sunshade free, remove the door panel (again, use the instructions for the front doors for additional detail).

**9.** Remove the two screws from the front of the door panel that secure the sunshade to the door panel.

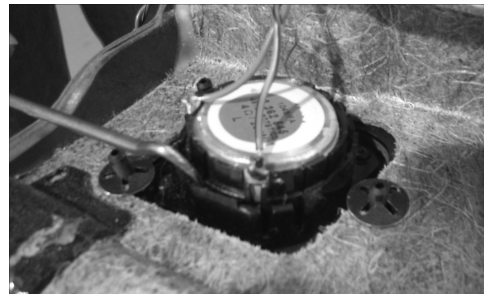


**10.** Now, flip the door panel over and locate the small brass screw on the front edge of the sunshade. Remove this.



**11.** Now carefully lift the sunshade off of the door panel and set it aside. Proceed as indicated below.

**12.** Pry the factory tweeter from its housing using a small straight pick. This can take a few minutes. Remove the tweeter and its wiring harness from the vehicle



**13.** Attach the new tweeter by simply snapping it into the factory housing, and using the included adhesive to place a few beads around the tweeter for further security.



**14.** Reinstall the horizontal sunshade, plug the tweeter back in, and reinstall the door panel.

**15.** Once the door panel is in place, reinstall the remaining sunshade.

**16.** Repeat with remaining opposite door.

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# Part 3: Rear Deck

NOTE: This takes an experienced installer about half an hour. It should take you between 1-2 hours, depending on your experience with vehicle disassembly.

## Rear Seat Removal:

### Models without Fold down Rear Seats

- 1.** First remove the bottom of the rear seat by pulling upward on the front underside of the cushion. There are two hooks on either side that need to be disengaged. This is super easy to remove.
- 2.** You'll next want to remove the back portion of the backseat. First remove the three headrests from the seat cushion. Do this by lifting upward on each headrest. You may find it easier to pull up on one side at a time. This seems to work best if you don't want bust a vein in your forehead while trying to remove those headrests.
- 3.** Now locate the 10mm bolts that line the underside of the seat which secure the rear cushion to the rear firewall. There are bolts on either outer side of the cushions where the cushion meets the sides of the car. Two nuts will also secure the arm rest portion toward the center of the seat. Remove all of these nuts and bolts.
- 4.** Once all of the nuts and bolts are removed, simply lift upward and outward. The seatbelts can be removed as well, but aren't necessary unless you have some extra time to waste.

**5.** You'll now remove the center headrest assembly from the car. There are four 4mm Allen bolts here. Remove them.



### **Models with Fold down Seats**

1. First remove the bottom of the rear seat by pulling upward on the front of the cushion. There are two hooks on either side that need to be disengaged. This is super easy to remove.
2. Fold down the rear seats. Make sure to cover the two metal attachment points of the bottom of the backseat with something soft, so when you fold down the rear seats you won't leave a mark in the leather. We use a piece of carpet, but you can use your old college sweatshirts or that ugly sweater your Grandma gave you. Notice the two outer cushions remaining once you've folded down the seats.
3. There is a single 10mm bolt on the outer edge where the cushion meets the side of the car. Remove it from each side. Now, tuck your hand behind the cushion toward the top from the outside. Lift outward toward you firmly, freeing up the top of the cushion. Now lift upward and the cushion will be free.
4. One last step though, and it's easy enough. There is a plastic trim piece running along the width of the bottom edge of the rear deck. There are six plastic anchors that need to be removed using your panel removal tools or flat head screw driver. You'll unhinge the bottom edge and pry the plastic piece out of the car. This can be tricky, but the plastic is very flexible and shouldn't break.

## C-Pillar Removal and Rear Deck Preparation

1. You'll also need to remove the C-Pillars on either side of the rear windshield. Using a panel removal tool or flathead screwdriver, carefully pry outward on the top of the lighting assembly, freeing the top portion. The bottom will simply fold out toward you once the top is free.



2. Unplug the harness going into the light by gently pulling it outward from the assembly.

3. Two 8mm bolts will be revealed. Remove these.

4. Pull the C-Pillar outward and toward the front of the car, being careful not to scratch your rear window tint if present.

5. Go ahead and pop out the speaker grilles located on either side of the rear deck. You can use your fingers here. Be careful and don't force anything. Here's how:

- Work your way around from the front of the grille (side closest to you) and around to the sides, being careful not to break the grille.
- Lift upward, and then toward you. The rear of the grille is simply slid underneath the deck.

### **If equipped with baby seat tie downs:**

1. To remove these, you'll first pop off the plastic cover that sits atop the circular rear portion of the hook. Simply use your panel removal tool or your fingers if you're really tough.
2. 13mm bolts will be revealed, and you'll need to remove them using a ratchet or wrench.

**If equipped with rear sunshades:**

1. If your BMW has the sunshade, make sure it is closed and disconnected before you attempt to remove it.
2. Make your way into the trunk and observe the underside of the rear deck. You'll see three nuts spaced equidistant across the line of the rear sunshade. They are 10mm nuts, which you'll of course be removing. Now the sunshade is physically free.
3. Head back into the car, as you'll also want to unplug the sunshade. Its plug is located on the passenger side wire harness running up into the trunk along the outer edge of the car. It's purple or darkish red. Unplug it.

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## Rear Deck Removal

The trick to removing the rear deck is patience. Do not force anything, as it isn't necessary. The car is built like a tank, and we want to preserve that integrity when reassembling the car.

1. You'll pull the rear deck upward and outward simultaneously. The seat belts are attached through the rear deck but as mentioned above, don't worry about it. They're easy to work around.
2. You'll need to lift slightly higher and be slightly firmer in your outward pull if your E39 has the rear sunshade. Its additional weight makes for a slightly more difficult removal. Again, patience is the key.
3. Once the deck is out, just rest its front edge where the bottom of the backseat was. Pull the seat belts out so there is enough slack for you to get in and remove the speakers.

## Rear speaker removal / reinstallation

This is the easiest and most fun part. The speakers are each in their own individual housing.

1. Unplug each speaker.
2. Remove the two gold Philips head screws from the front of each enclosure, and slide the housing toward you and upward.
3. Now head over to your workspace. Remove each speaker using a Torx T10 screwdriver (star bit).
4. Unplug the factory speaker. You'll use the exact same connections with your new speakers.
5. Plug in the new Bavsound speaker making sure female terminals are secure on the speaker's male terminals. Reinstall Bavsound speakers using the same hardware. Be sure and adhere the new foam surround back to the top of the new Bavsound speaker.

## Final Steps & Reassembly Tips

Obviously the reassembly of the rear deck vehicle is the reverse of the above, but there are **a few things we'd like you to keep in mind:**

- When reinstalling the rear deck, take extra caution not to puncture the speakers you just installed. We wouldn't mention it if we hadn't seen it.
- Make sure to get those baby seat bolts tightened down securely on top of the rear deck.
- Put the speaker grilles on lastly. Make sure nothing is on top of the speakers before you install the grilles. In fact, **take a good listen** before you put the deck completely back together.

# GIDDY UP!

**You've now completed your BAVSOUND Stage One Speaker Upgrade!**

Head up front, put on your favorite album, and go for a drive.

Enjoy your new BAVSOUND system!

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**Love your new Stage One?** Let us know!

Tweet us [@bavsound](https://twitter.com/bavsound) with hashtag #StageOne or #bavsound and tell us what you think!



# Troubleshooting

If you're experiencing an issue with your new speakers, please carefully read through this guide, as it covers almost any issue that you are likely to encounter. (If the guide doesn't resolve these issues for you, please feel free to contact us - [www.bavsound.com](http://www.bavsound.com)).

## ISSUE #1: No Sound from Speaker

One of three things is most likely happening, and they are listed in order of most common occurrence along with how to correct them:

### **Possible Cause 1: The wiring on the plug-n-play connector is misaligned.**

**Step 1.** Check for alignment of wires from their factory plug through the BAVSOUND connector. Do they line up (see below)?

**Step 2a.** If the connections line up, go ahead and plug the factory speaker back in to confirm operation. If the factory speaker works, and the wires in the plug are aligned, the speaker is defective. We need to get you a new speaker!

**Step 2b.** If the connections don't line up, you'll need to move them so polarity is correct and the positions are correct. On our wires, the Red Stripe is positive, while the solid black is negative, while on the BMW side of the plug that following holds true:

- Black Stripes, Red Stripes, White Stripes, Purple Stripes are Positive.
- Solid wires are negative, as are wires with Brown Stripes or Grey Stripes.

### **Possible Cause 2: The speaker connections are being shorted out.**

Check to make sure that no speaker terminal is touching metal. This can cause the speaker to not function, as it is effectively grounded (shorted) out (most common in midbass speakers).

If you find that this was the case, place electrical tape over the terminals to prevent future mishaps. If the entire system has no sound after the installation of new speakers, we almost know for sure that there is a speaker whose terminals are grounded out. Let's check by disconnecting each speaker until the music comes back on and we've isolated the problem speaker.

### **Possible Cause 3: The amplifier may be broken.**

If there was a speaker or location in your system which didn't play before installing the Stage One, this is probably the issue.

If this was the case, and you were trying to fix the problem by purchasing new speakers, we may need to look at the factory amplifier, as it is most likely the culprit.

Is the entire side (left front, right rear, right front, left rear) not working, or is it a particular speaker that was not working? Most likely it was a single speaker.

If an entire side is not working, make sure, especially on the tweeters that you just installed, that neither the positive or negative terminals are touching metal. This can contribute to an entire side (channel) not working properly.

## **ISSUE #2: Distorted Sound coming from new Speaker**

1. **Where are the bass/treble settings on the radio/EQ?** Flatten out the settings to ensure no pre-amp distortion is the cause of the problem. If you're using the radio to test the speakers, go ahead and use a CD or directly connected iPod instead.
2. **Are speaker terminals touching ground (metal)?** Where is the distortion coming from? A single speaker, an entire side (channel), or the entire system? Its best at this point to go back and disconnect each speaker until the distortion goes away. The most likely culprits are the front tweeters.
3. **Was the factory speaker distorted as well?** If a single speaker was distorting, the most likely culprit is the amplifier. We may need to explore replacing/repairing your factory amplifier.

## ISSUE #3: Lack of Bass Response

A common occurrence when a mid bass speaker is wired “out of phase”. This means that the positive (+) and negative (-) are backwards on the plug and play connections.

Here we’ll want to check alignment of the connectors as they come together between the speaker and the factory plugs. The lack of bass response generally is due to one speaker being out of phase and the other speaker(s) being in phase.

The easy fix is checking these connections to make sure that positives go to positive and negatives go to negatives. Basically, double check your wiring on each speaker. If one speaker is out of phase, the bass response of the entire vehicle can be compromised.

## ISSUE #4: Too Much Treble, Harshness, or Brightness

Where are the bass/treble settings on the radio/EQ? Go ahead and flatten out the settings to ensure no pre-amp distortion is the cause of the problem. If you’re using the radio to test the speakers, try using a CD or directly connected iPhone or iPod instead.

## ISSUE #5: Missing Product(s)

If you feel that a product or accessory is missing, let’s check a few things before we send out replacements. It’ll save everyone a lot of time!

1. **Please check to make sure that nothing has gone unnoticed in the packaging.** If you’re calling from your office and don’t have access to the package, please bring the package to the office the next day so that we can go over with you exactly what was supposed to be in the packages that we shipped out to you. Sometimes our shipping department uses filler boxes in packages to ensure that your products aren’t damaged in shipping, and often times those boxes are mistaken for missing products.
2. **If indeed a product is missing, firstly please accept our apologies.** We try our best to ensure that all orders are filled as they should be, but we’re only human. Please contact us ([www.bavsound.com](http://www.bavsound.com)) and we’ll get it resolved for you shortly!