

Stage 1 Audio Upgrade (BMW Speakers) Installation Instructions for BMW 3 Series Sedan '99-'05 (E46)

If your Stage 1 packaging does not contain the exact speakers that you see to the right, please do not proceed with the installation until you have spoken with a BSW representative.

Your Stage 1 contains:
(4) 3 prong Midbass Drivers
(2) Front Midrange Drivers
(2) Front Tweeters
(2) Rear Midrange Drivers

The two sets of midranges are interchangeable.

You should have a total of ten (10) speakers in your Stage 1.



Tools Required:

(All the below are readily available at your local auto parts store)

- Phillips Head Screwdriver
- Panel Removal Tool
- Torx T20 screwdriver
- Small, Straight Pick Tool
- 8mm Socket Wrench
- Hot Glue Gun w/Glue Sticks (Rear Midranges)
- Brain
- Hair Dryer or Heat Gun (Optional Sound deadening installation)

Before you Begin

- **Please review and familiarize yourself completely with these instructions before starting work on your vehicle!**
- **Insure 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 1, 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. Take a quick listen to confirm that the speakers are functional, **but wait until all of the speakers are installed for a complete audition**. Installing the speakers into one door and comparing them to the rest of the factory speakers will not yield the desired results of the upgrade.

The Process

As each customer's installation is unique, it is important to remember that installation is essentially the reverse of the removal process outlined below, though you will need a certain level of personal ingenuity and certain tools outlined above. 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.

If you experience any issues with your installation, please consult the troubleshooting guide located at the rear of this installation packet.

We're going to proceed as follows:

1. **Front Door Speakers**
2. **Rear Door Speakers**
3. **Rear Deck Speakers**

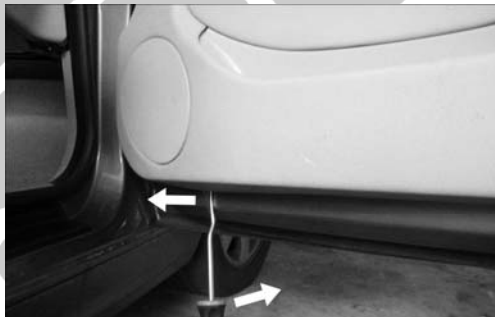
Front Doors:

1. Start by rolling down the windows on all of the doors. This will decrease the chance of scratching the glass or tint on the window.
2. Orient yourself with the door. Read these instructions fully before beginning the installation process. This will again ensure proper planning and that the process goes as smoothly as possible.
3. You're now ready to begin. **Starting with the passenger front door**, locate the large wood grain (or aluminum, depending on the trim level of your BMW) panel that runs along the top portion of the door panel.
4. Carefully, place your fingers under the outer side of the panel farthest away from the handle and carefully pry outward towards you. Run your fingers along the back edge of the panel as you make your way to the front edge of the panel. Be careful as the wood trim panel in effect hooks into the door handle area with three little inserts. As you are pulling the panel outward, and as you get towards the handle, carefully pull the panel out of the handle





5. This will reveal two Torx T20 screws. Remove these. Put them aside in a place where you will not lose them.
6. Locate the small trapezoidal shape at the top of the door handle. It will match your interior color, so it may be black, tan or grey. Carefully insert the head of the small flat head screwdriver underneath the insert as shown and carefully pry upward.
7. Only two more screws are left, and they are located behind the two plastic inserts on the underside of the armrest. Remove the two bolts and you are now ready to begin removing the actual door panel. See photo next page.



8. Carefully insert your panel removal tool on the front side bottom edge as shown. Pry steadily outward until you hear the clip(s) release themselves.
9. Now, using your hands, as this will decrease the chances of anything becoming scratched; continue pulling outward around the outer edges of the door. Leave the top part intact, as we will remove this section lastly.



- Carefully pull outward and upward from the rear of the door along the top edge while working your hand up alongside the front edge, carefully releasing each clip. The top edge of the panel can be pulled outward once the sides and bottom of the panel are released.
- Take note of the lock mechanism because the door can be released now, but you'll first need to free the lock assembly. You have to unhook the door handle itself. Simply lift the white clip away from the door panel, and pull it out of the mechanism.



Front Tweeter Removal / Access:

- Locate the two small clips on the inside of the door itself that secure the lower portion of the black plastic housing around the tweeter and door panel. They are on either side of the main wiring harness as it enters the door. Remove these with your panel removal tool or fingers.



- Carefully pull outward and in towards the center of the door, and the panel will slowly come towards you, revealing the tweeter.
- DO NOT remove the entire door sill trim. It will take you all day to get it back on. Just work with the tweeter side of the panel, being careful not to over-flex the trim.



4. You will see that the tweeters are mounted using two Torx T30 bolts. These also secure the side view mirror. **DO NOT** remove the bottom bolt. Simply loosen it. Remove the top bolt, and slide the tweeter housing upward. Reinstall the top bolt to prevent your side mirror from falling off until you reattach the tweeter. Peel back the foam insulation on the door panel to reveal the tweeter plug juncture. Unplug the tweeter

Front Tweeter Installation:

To install your new tweeters, simply bolt them to the top Torx Bolt and angle the tweeter so that it is approximately the same as the factory tweeter. If equipped, place the factory foam piece back around the tweeter and reinstall the outer grille cover. Easy!

Front Speaker Removal/Installation

Mid Bass Drivers (Larger speaker in lower front door panel)

First, notice that the larger speaker in the lower panel is attached using three Phillips head screws. Remove these and place them aside. We'll use them to attach the new speaker to the door.



Note – If your factory speaker had the above foam gasket around it, reuse it on the new speaker as well.

Also, remove the rubber gasket surrounding the magnet on the new BSW speaker to ensure a proper fitment of the door panel upon reinstallation. See photo above.

Midrange Drivers (Located in the center portion of the door panel):

To remove the factory midrange, you'll first need to free the speaker assembly from the door panel itself. Unscrew the plastic ring from the rear of the assembly by turning it counter clockwise. Push the front portion of the assembly through the door panel, being careful not to damage the thin plastic ring around the outer perimeter.



- **Note:** The plastic surrounding the outer edge mentioned above is notoriously brittle. Try your best not to handle the speaker assembly by this outer edge. Now may also be the time to repair the ring(s) if any cracking has previously occurred.

There are two pairs of opposing tabs located closer to the front of the assembly. Pry these tabs outward, and the speaker will be free at this point. See above right photo.

Midrange Installation:

There are two options below: Harman Kardon systems and Standard Audio Systems. Both require the use of a small amount of glue, but the Harman Kardon Stage 1 systems will contain (2) metal tabs that further secure the midrange to the housing.

Standard Audio Systems

1. After removing the factory midrange, push the tabs that secured the speaker on the front of the assembly back into place, and drop the new midrange directly into the assembly with the speaker facing outward (through the grille).
2. Using your hot glue gun, apply a drop of glue the size of your thumbnail at approximately 3, 6, 9, and 12 o'clock. Pay extra caution to not getting glue on the midrange cone by applying glue at the points highlighted below:



Harman Kardon Systems

1. After removing the factory midrange, push the tabs that secured the speaker on the front of the assembly back into place, and drop the new midrange directly into the assembly with the speaker facing outward (through the grille). The midrange is keyed so that it will only slide down into the housing one way. You will immediately see this and understand what we mean.



2. With the midrange snapped into place, we'll install the metal tab as shown below. Note that the tab has somewhat sharp edges, so pay extra attention to not cut your fingers when installing the tab.
3. Slide one side of the tab into one of the slots on the housing. It doesn't matter which one. The tab will fit regardless of which slot you choose, as the opposing slot will always line up properly.



4. Flexing the tab, push downward and let the tab slot into place, locking the midrange into the housing. We recommend a drop of glue atop the metal bracket as it sits on the magnet of the midrange for further security.

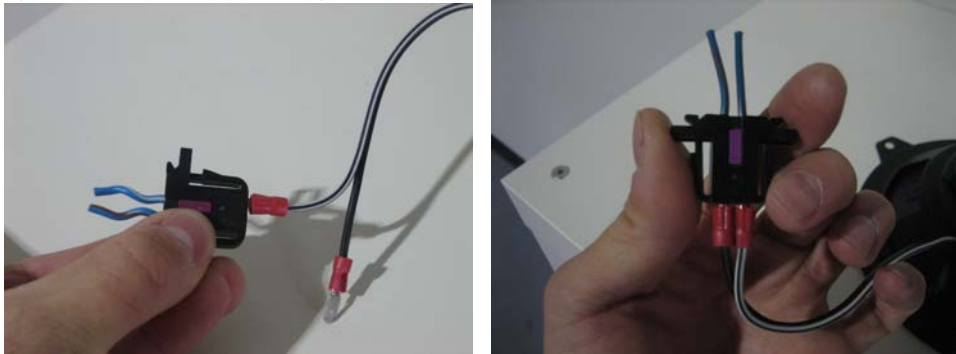
Speaker Housing Reinstallation (Both HK and Std. Vehicles)

1. Place the front portion the assembly back through the door panel, and screw the ring back into place, securing the assembly.
2. Simply plug the midrange back into the factory connector, along with any other plugs you may have disconnected.

Now you're ready to reinstall the door panel. You'll first want to connect the door handle, as the cable length will allow you plenty of room to reconnect the midbass and midrange speakers.

Midbass Connections

In order to make the wiring connections on the new midbass, we're going to use the existing factory plugs. We're just going to slide the terminals on the end of the wiring attached to your new speaker into the factory plugs that you removed from the factory speakers. Here are a few photos to illustrate the process:



Driver Door Wire Colors

| | | |
|-------------------------|-------------|-------|
| Blue w/White Stripe (+) | Connects to | Red |
| Blue w/Brown Stripe (-) | | Black |

Passenger Door Wire Colors

| | | |
|-------------------------|-------------|-------|
| Blue w/Red Stripe (+) | Connects to | Red |
| Blue w/Brown Stripe (-) | | Black |

The midrange speakers and window connections will simply plug back into the factory connections, and the door panel is ready to go back onto the door.

Note – It is imperative that you ensure proper alignment of all clips when reinstalling the door panel. The midbass driver is going to be a very tight fit, and special care is needed to ensure that the front edge of the panel is properly secured.

You'll want to attach the top portion of the door panel initially, and from there, you'll kind of lift up while pushing the panel in at the same time. You're allowing the speaker's magnet to sit atop a ridge on the door itself, but at the same time you must ensure the clips around the outer edge of the panel are aligned. A little bit of patience here will go a long way.

Rear Door Panel/Speaker Removal:

There are five attachment points for the rear door, exactly like the front doors:



Using a small flat head screwdriver, carefully pry out the window control switches in each door.

Rear Door Midrange Installation:

Remove the speaker from the panel by unscrewing the ring on the back of the door panel.



Pry the old speaker out from the front part of the housing using a pick or small screwdriver.

Complete the removal using your hands to pull the speaker from its housing:



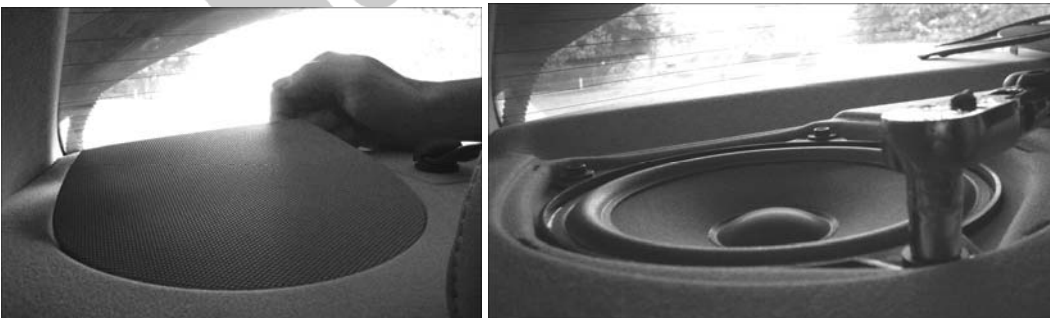
Attach the new tweeter/midrange to the front housing using a bead of hot glue.

Place the front housing back through the door panel, and screw the rear portion of the assembly back down to ensure that the speaker is secure.

Once completed, simply plug the midrange back in along with the rear window switches, and reattach the door panel in a manner similar to the front door panels.

Rear Deck Removal:

1. Carefully pry upward on the rear of the speaker grilles. With your fingers, follow the outside edges and continue pulling upward.



- This will reveal the rear speaker and the (3) 8mm bolts that secure it in place. Remove these three bolts using an 8mm socket wrench. Remove the speaker carefully, being sure to unplug the speaker wire.

Rear Deck Installation:

The rear deck speakers will mount the same way as the front speakers. Simply bolt the new speakers in using the factory hardware. The wiring will be performed in the same way as well. Simply slide the terminals attached to the new speaker into the existing factory plugs as outlined below.

Note - We have seen some vehicles where it is necessary to remove the rubber rings from around the magnets as you did on the front door panels in order for the midbass to drop into the rear deck provisions.

Wiring:

Driver Side

| | | |
|------------|-------------|-------|
| Yellow (+) | Connects to | Red |
| Brown (-) | | Black |

Passenger Side

| | | |
|-----------|-------------|-------|
| Blue (+) | Connects to | Red |
| Brown (-) | | Black |

Now head up to the driver's seat, pop in your favorite CD, and enjoy your new speakers!

Stage 1 Speaker Upgrade Troubleshooting Guide:

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 issue cannot be resolved, please call us at (404) 963.8857 for further support.

Here are the most common issues we've experienced:

- **No sound from speaker (s)**
- **Distorted sound from speaker (s)**
- **Lack of Bass response**
- **Physically defective speaker (broken or damaged during shipping, no sound)**
- **Missing product**

Let's address each bullet point:

- **No Sound from Speaker:**
One of three things is most likely happening, and they are listed in order of most common occurrence:

1. Wiring on plug-n-play connector is misaligned.
Here we want to check for alignment of wires from their factory plug through the BSW connector.
Do they line up? If so, was the factory speaker working prior to replacing the speaker? 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!
If not, let us guide you to the proper connections. Remember, 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.
 2. 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. This is very common, especially in front tweeter installations and in E46 vehicles on the front and rear mid bass installations.
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 the most likely culprits, (Front tweeters, E46 front mid bass drivers) by disconnecting each speaker until the music comes back on and we've isolated the problem speaker.
 3. The Factory Speaker did not work either. 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.
- **Distorted Sound coming from new Speaker**
Again, a few things come to mind:
 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. Speaker terminals may be 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 and E46 front mid bass connections.
 3. The factory speaker was 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.
 - **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.

- **A speaker is physically defective, as in defective from shipping or directly from the manufacturer.**

There is only one solution here:

1. We will be happy to get a replacement speaker out to you. We'll need to bill you for the replacement speaker, and once the defective speaker arrives back to us, we will gladly issue a refund. Once you get the new speaker, please keep us posted on the results, as we want to make sure that everything is sounding as it should.

- **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 notify us immediately of the missing product, and we will ship the appropriate pieces out to you that same business day, provided FedEx hasn't already come for the day. We want you to get your new equipment installed as quickly as possible, so we'll make sure you have it in an expedited fashion once we've been made aware of the problem.