

Subwoofer System Installation Guide for BMW 3 Series / M3 Cabrio 92-99 (E36)

Tools Required:

<ul style="list-style-type: none">• Panel Removal Tool• Flat Head screwdriver• 10mm socket wrench• Crimping Tool• Drill	<ul style="list-style-type: none">• Torx T27
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We're going to proceed as follows:

1. Disassembling the trunk
2. Removing the Back Seat
3. Locating the factory amplifier
4. Making appropriate wiring connections for audio inputs
5. Routing wires in the car
6. Removing factory subwoofer
7. Power/ground wire connections
8. Installing the subwoofer enclosure
9. Tuning/testing the system
10. Mounting the Amplifier

The Process:

1. Begin by removing all items from the trunk of the vehicle. Make sure that all tail lights are in working order. If not, now is a good time to replace them. Also, remove the carpet that covers the floor of the trunk, as it makes it easier to remove the battery cover and the passenger side carpeting.
2. Start by removing the passenger taillight cover. Twist the lever clockwise to free the plastic housing.



3. Let's now remove the carpeted panel from the passenger side of the vehicle. Locate the small grey fastener and remove it using a panel removal tool or flat head screwdriver as shown below:



4. Now, you'll encounter a small black plastic gas cap release when prying out the carpeting. There is a cylindrical plastic juncture where the two halves of the cable come together. We'll need to separate the cables using a small pick of some sort. This can take a second to do, so be careful not to prick your finger!
5. With the carpet removed, you'll see where we're going to route the power cable through into the cabin.



Back Seat Removal:

This part is really easy, but can only be done one very specific way. So, the first thing we'll need to do is remove the bottom portion of the back seat. To do this, simply lift straight upward from the front edges of the seat. You'll pop out one side first, then the other.

Now, let's remove the headrests, which can be very tricky if you don't do exactly what we've outlined below.

1. Extend each headrest upward as far as it will go.
2. Stand up in the backseat, as we will need the leverage!
3. Firmly grasping the underside of the headrest at the point of entry of each of the steel rods, lift upward while rocking side to side. You will actually find yourself rocking your entire body!
4. Each headrest will come out in steps. You'll notice that it releases itself in two stages, as there are notches in the rods that allow the headrest to be raised or lowered.



5. Once the headrests are removed, the back portion can be removed by grasping firmly on the outer upper edges and pulling outward. The bottom portion of the back cushion simply slides into two hooks on the floor. Lift upward once you've freed the top portion and the seat can be removed. Be careful not to scratch the car!

Locating the factory Amplifier:

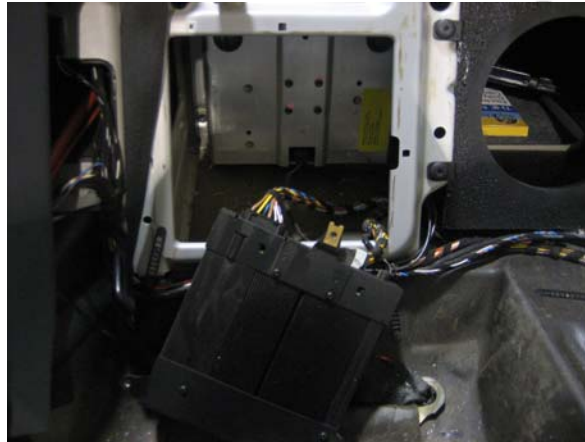
With the backseat removed, the factory amplifier, factory subwoofer, and all wiring routes are now revealed. The factory amplifier is behind the insulation on the passenger side of the vehicle, and is secured by 3 brass Philips head screws, which we'll need to remove to access our wiring harnesses.



Audio Input Connections (Getting the music to the new amplifier)

This part of the installation is the most time consuming, and by time consuming, we mean 10 minutes! Use the supplied blue butt connectors to make the connections.

1. Carefully observe the factory amplifier. You will see a large bundle of wires going into the amplifier. The harness contains several wires, but don't be overwhelmed. We will be using only five of them, and they are easy to locate. The wires will be twisted together, and each twisted pair represents a speaker or input.



2. You'll need to isolate the following four (4) wires. They will be twisted together in pairs, as they enter the factory amplifier. They are located on plug on the right shown above.

-Blue w/Black Stripe (+) twisted with Brown w/Orange Stripe(-)
-Yellow w/Black Stripe (+) twisted with Brown w/Orange Stripe (-)

3. Now, orient yourself with the RCA Cables that you received with your order. There are four individual wires coming out of the Cables.

Left Channel: Black (+) twisted with Grey (-)

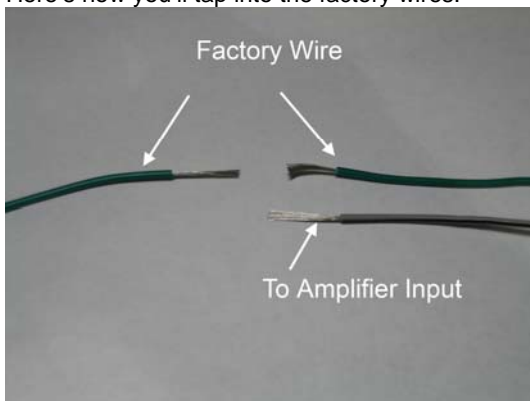
Right Channel: Red (+) twisted with Grey (-)

PLEASE NOTE: When making these connections, please keep in mind that the wires at the original BMW harness are twisted in pairs. These pairs **MUST** remain together when making your connections since there may be multiple instances of the same wire color and there would be no way to identify which wire is appropriate for which connection if the wires are separated.

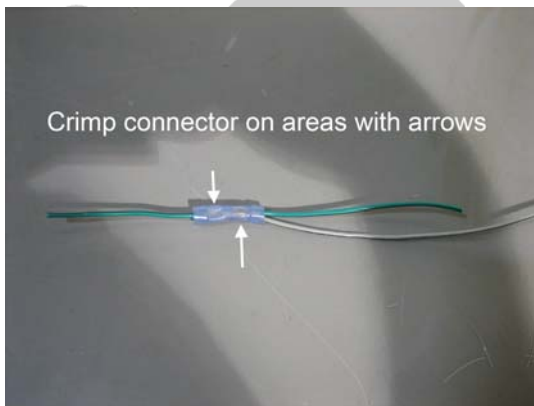
4. Make the physical wiring connections in exactly the same manner that the remote turn on connection was made above.

Connection	Wire Color at Harness	Connects to following RCA Cable connections:	Wire Color at RCA
Rear Left +	Yellow w/ Black Stripe <i>paired to</i>		Black
Rear Left -	Brown w/ Orange Stripe		Grey
Rear Right +	Blue w/ Black Stripe <i>paired to</i>		Red
Rear Right -	Brown w/ Orange Stripe		Grey

Here's how you'll tap into the factory wires:



After cutting the factory wire in half, twist the two wires together and insert them into one end of the butt connector. Crimp the connection tightly.



Insert the other end of the factory wire into the unused side of the butt connector and crimp the wire down tightly.

Remote Turn on Lead:

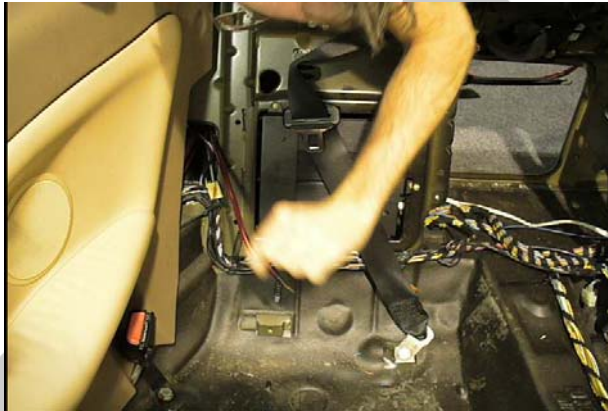
We'll tap into the white wire on the factory amplifier in the same manner outlined above. Using the **blue** wire included in your amplifier kit, make your connections to the white wire in the harness on the left side in the above photo. Easy!

Removing the Factory Subwoofer:

It doesn't get much easier than this. Using your Torx T27, you can now remove the (4) bolts that attach the enclosure to the vehicle. Now, unplug the enclosure, and firmly pull outward (toward the cabin). The enclosure has a plastic grille that snaps in from the rear of the trunk, and we need to separate the grille from the enclosure. Once removed, let's route our wires from the passenger side of the car to the driver's side, where our amplifier will live.

Routing the Wiring to the New Amplifier:

Now, remember the pass through that we found when we disassembled the trunk? Well, now it's time to use it. Route the large gauge red wire from the trunk up into the cabin through the pass through, and carefully down into the backseat area.

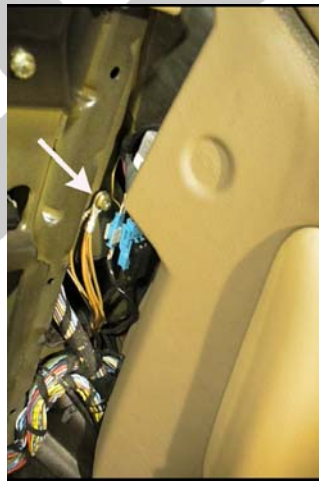


You can now also route the audio input harness and remote turn on leads over to the driver's side of the vehicle, as our amplifier is going to live in the cubby hole behind the driver's side backseat. Make sure to route the wires as shown below, with the wires coming around the backside of the cubby hole on the driver side.



Grounding your Amplifier:

This part is easy. Locate the factory ground terminal on the driver side of the car, about 4" to the right of the seatback latch. You can see it above, but here's a better look:



Using a 10mm socket, loosen the nut and slide the ground terminal ring on the large gauge black wire included in your amplifier power kit over the bolt and tighten it back down. Route the ground wire back into the driver side cubby hole to make the amplifier connections easier.

Subwoofer Enclosure Installation:

It doesn't get much easier than this. Drop the new enclosure into the same location of your factory subwoofer.

NOTE: You'll notice a red/brown wiring harness running up the driver side of the inner compartment. Make sure that this isn't pinched during the installation process. It's easiest to unclip it and leave it loose until you've installed the new woofer. See photo below.

Line the bolt holes up, and make sure that the enclosure isn't compromising any of the vehicle's wiring. Start the bolts in using your hands, and from there proceed to tighten down all of the bolts. Route the speaker wires back into the driver's side cubby hole as you did with all of the other wires.



Speaker Wiring Connections (Connecting the amplifier to the subwoofer enclosure)

From the new amplifier we'll need to route the included 12 gauge speaker wire to the subwoofer enclosure. We'll use the following guide to highlight your connections.

Subwoofer Wire	Connects to:	Connection at Amplifier
Black with +		(+) Output
Black	(-) Output	

Connecting your Amplifier:

As you've now completed the bulk of the installation, we'll need to actually connect the amplifier at this point.

- The large red wire is to be connected to the "battery" terminal.
- The large black wire is to be connected to the "GND" terminal.
- The blue wire is to be connected to the "remote" terminal.
- The speaker wires from the enclosure plug into the "speaker output" terminals.
- The input harness plugs into the amplifier on the opposite side of the above terminals.

Now, we'll also need to head back into the trunk and connect the red wire to the positive (+) terminal on your battery. Using a 10mm socket, loosen the top terminal on the positive terminal and slide the ring on the red wire onto the bolt.

Insert the fuse into the fuseholder, and we can proceed to tuning our amplifier.

Basic Testing of your Install

First things first, after physically completing the installation, make sure your amplifier is powered up properly. It needs to turn off and on with the key. The power light should turn off when you take the key out of the ignition. Test this out a couple of times to make sure. If it does not, and you are having trouble figuring out why, give us a call or drop us a line. Trust us, it won't be anything major. Go back over the above connections, and you'll undoubtedly find a small, silly mistake.

Amplifier Tuning

Now, go to the front of the car, and turn on the stereo. Put in your favorite CD (not a burned CD, but one that was professionally mastered and recorded), and tune in to your favorite track. We recommend using a very dynamic type of music, with many types of musical variations within the CD. Make sure that your bass settings on your radio are set in the middle or slightly lower. This will decrease distortion and increase the overall sound quality in the vehicle.

Let's Add Some Low End (Subwoofer Tuning)

Make sure all bass and treble settings on your radio or EQ are flat, or in the middle.

Preliminarily set the gains, crossovers, and crossover frequencies as follows:

Gains: ¼ of a turn, or roughly 9 o'clock.

Crossovers: Set the crossover to **LPF**.

Crossover Frequency: Start with 100hz.

Gain Adjustments:

Begin turning up the volume until you hear the music at a reasonable level and increase the volume slightly up to the point that you begin to hear distortion coming from your interior speakers. Now, back down the volume until the distortion disappears and stop there. Head back to the trunk and slowly begin adjusting the gain(s) of the amplifier until you are content with the amount of bass being produced by the subwoofer without any audible distortion of the woofer. Make sure that this blends in with the rest of the music, and you're on your way to a rich, full sound.

When adjusting the amplifier gains, do everything in very small increments.

We recommend 1/8th turn adjustments of the gain to find that sweet spot where there is no distortion and plenty of volume. Everyone listens to music differently, so the tuning process may take some of us days, while others can do it in a matter of minutes, whether they're a beginner or not.

The tuning is the most important aspect of the installation.

Don't rush any aspect of the tuning. You may ride around a few days and find that you need to make some adjustments. Don't worry, this is perfectly normal.

Crossover Adjustments:

This can be tricky, but if you keep your ears open, it shouldn't take long at all. Here are some tricks to finding that sweet spot.:

- Try turning up the crossover a bit, around 100hz. If you don't hear distortion, this may a good spot for you. Keep your ears open!
- You can also readjust the bass on the radio down a notch or two to compensate for the distortion, but again, **keep your ears open**.

Keep a fine ear out for any distortion, and once you've found that sweet spot where the volume and the fullness you desire is ideal, you shouldn't ever need to adjust the amplifier again.

Troubleshooting Guide

Invariably you'll come across one or two things in your install that didn't quite match up or weren't perfectly clear to you. We've put together several common things that may come up during an install, and how to isolate and troubleshoot them if they do. It is very advantageous to have a digital multi-meter on hand to troubleshoot anything electrical in your BMW. They can be found at any hardware store for around \$20-\$30.

No Sound from subwoofer(s):

- The fuse wasn't installed inline on the red 8 gauge power wire at the battery. This is very often overlooked. Pop in the fuse, and you'll be good to go.
- There isn't a connection between the amplifier and the subwoofer. Did you route the included speaker wire from the amplifier to the subwoofer enclosure?
- Amplifier isn't turning on properly. See next section.

Amplifier isn't Powering Up:

- The fuse wasn't installed inline on the red 8 gauge power wire at the battery. This is very often overlooked. Pop in the fuse, and you'll be good to go.
- Check to make sure you've found the correct remote turn-on wire. This is a very common oversight. Set your DMM to direct current and place one lead on the ground terminal of your amplifier and one on the remote turn on terminal. Turn the car and the radio on. If you don't have 12-14 volts on the remote turn on terminal, your connection may be the issue.
- Make sure your power and ground connections are correct. Using your DMM, again check each terminal to make sure that a connection has been established.

-Ground Connection: Set the DMM to its continuity section. Place one lead of the DMM on the amplifiers ground location where you screwed into the chassis, and the other lead on the negative battery terminal. If you don't see any continuity, move your ground wire until you do.

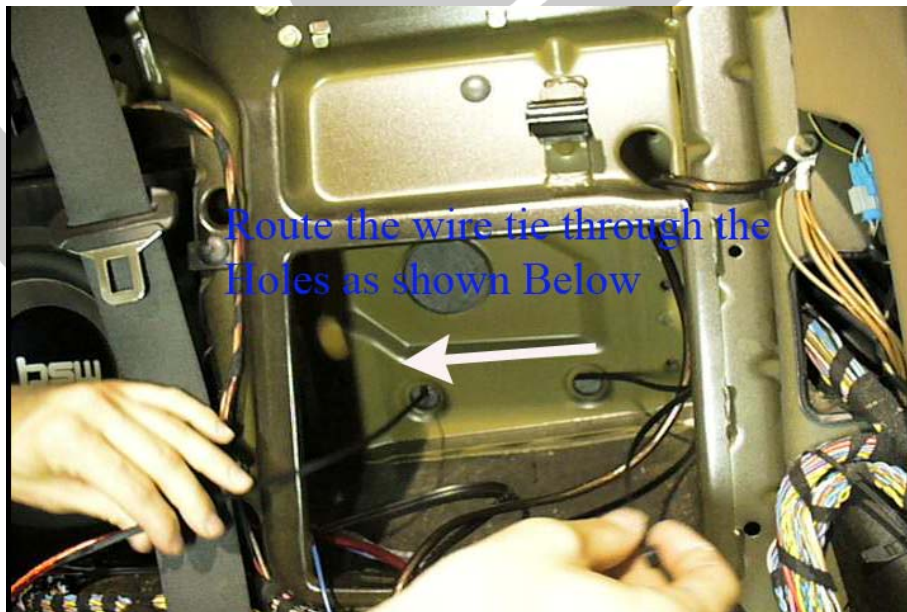
-Power Connection: Set the DMM to direct current again, and place one lead on the amplifiers power terminal and the other on the amplifiers ground terminal. You should see 12-14 volts. If not, check your inline fuse.

Subwoofers sound muffled or quiet:

- Check to make sure your phasing is correct between the amplifier and the subwoofer. Positive should go to positive, and negative to negative.
- Your input signals are out of phase. Check to make sure that your input connections are exactly as outlined in the guide. An easy test is to simply cut one of the input wires and see if the sound output increases exponentially.

Amplifier Mounting:

Now, this may sound a bit odd, but the best way we've been able to mount the amplifier in these E36 convertibles is to wire tie to the vehicle in the cubby hole on the driver side of the car behind the rear seat. It's secure, and keeps the amplifier cool even during the summer months. So, check out the photo below, and proceed as follows:



Okay, so now that the wire ties are through the holes as shown above, you can now place the amplifier down between the ties and tighten them down.



Put the backseat back in the car and finish assembling the trunk and you're on your way to rocking out with the top down!