

BMW Z3 Model 80.v2 Installation Instructions

IMPORTANT: Read these instructions from start to finish twice before you even go near the car! The Z3 Model 80.v2 installation is not difficult, but the steps detailed in these instructions **MUST BE FOLLOWED** or you will damage your enclosure. Professional installation is recommended for those who are unfamiliar with car audio.

What's Included:

1. The Model 80 enclosure bottom
2. The Model 80 vinyl covered enclosure top
3. Alumapro Alusonic 8 subwoofer (optional)
4. Subwoofer grille (optional)
5. Terminal cup
6. Self-adhesive gasket foam
7. Trim cord
8. (8) #10 x $\frac{3}{4}$ " Phillips pan-head screws
9. (4) #14 x 1" hex-head sheet metal screws
10. (4) 1" fender washers
11. (4) $\frac{3}{8}$ " thick rubber washers
12. (12) $\frac{1}{16}$ " thick rubber washers
13. (4) #8 x $\frac{1}{2}$ " Phillips head screws

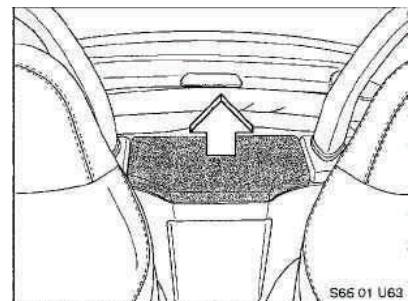


What You Will Need:

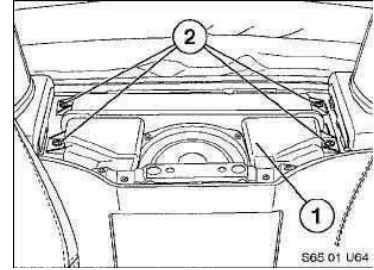
1. Power drill
2. $\frac{5}{16}$ ", $\frac{3}{16}$ ", $\frac{9}{64}$ ", and $\frac{1}{8}$ " drill bits
3. Philips screwdriver
4. $\frac{3}{8}$ " socket driver or wrench
5. Stiff-blade putty knife or similar flat bladed tool
6. Coping saw or hacksaw blade holder & blade

Remove the old enclosure

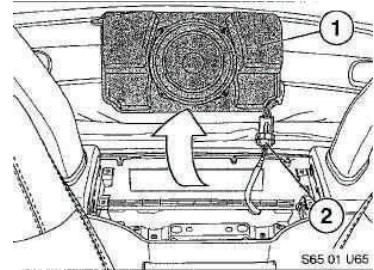
1. Carefully remove the subwoofer enclosure cover by first lifting the rear edge of the cover and then lifting entire cover straight up. The cover should lift out with minimal effort, but may require some additional effort to release the rear snaps. Take your time and be careful when removing the sub lid! The easiest thing to do is to insert a flat, metal, handled-tool like a stiff putty knife and carefully pry each side up from the back.



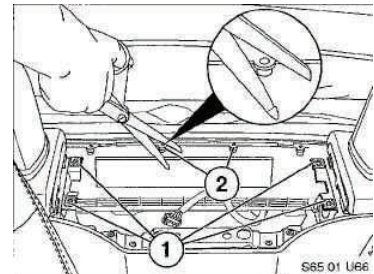
2. Remove the 4 mounting screws (2) from the existing speaker enclosure (1).



3. Remove the old enclosure (1) by pulling upwards. Disconnect the wiring harness connector (2) and remove the entire enclosure from vehicle.



4. Using a socket wrench, loosen and remove the brackets (1) that the original factory enclosure was attached to. With a knife, diagonal flush cutters or small saw, carefully trim away the 4 plastic extrusions (2).



5. Trim the plastic ridge from the back of the compartment as shown using a small hacksaw (you can pick one up at a hardware or home improvement store for less than \$5), a Dremel, coping saw, or other tool of choice. In the front of the subwoofer compartment, use the same tool to cut and remove the plastic flange that the front of the factory compartment lid was attached to (this is the area under the number 1 in the previous picture). Save this flange - if you ever want to revert back to the stock lid (sell the car, for example), you will need to glue this piece back on using a gap-filling type superglue.



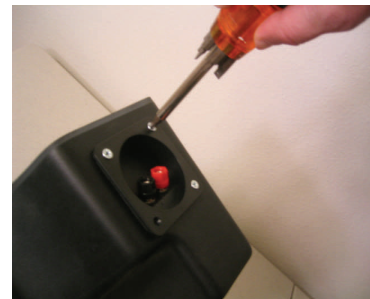
6. Remove the old foam insulation from the rear panel of the sub compartment. Using a utility knife and a flat surface, cut a square of the foil-skinned sound matting. Remove the backing from the sound matting and apply in the upper center portion of the rear plastic panel. Place the matting so that it overlaps the area where the plastic ridge was removed. Press matting firmly against panel to ensure complete adhesion.



7. Flip the bottom half of the Model 80 enclosure upside down on a stable surface. Using a 5/16" drill bit, carefully drill four holes in the locations shown by red dots. Place the enclosure bottom in the cavity before you drill to familiarize yourself with the location. Make sure that you do not place the holes too close to edges or any of the curved surfaces—you will need to leave room for the 1" washers on the interior of the enclosure. Also make sure that you do not drill holes in any location that has existing holes in the vehicle. Drill CAREFULLY, and do not apply too much pressure. If you apply too much pressure or use insufficient drill speed you could damage the enclosure.



8. Place the terminal cup in the hole of the side of the enclosure. Mark the location of the screw holes. Using a 1/8" drill bit, pre-drill the holes for the screws. Attach the included wire terminals to a length of speaker wire, then attach the wire to the terminals on the plastic terminal cup. Be sure to note which wire/terminal is negative. I recommend soldering, but the terminals to the wire. Using the four #8 x 1/2" screws, install the terminal cup in the hole in the side of the enclosure. Tighten the screws CAREFULLY by hand, DO NOT use a drill. The foam gasket will compress over time—about 15 minutes after installing the terminal cup retighten the screws to ensure an air-tight seal.



Level and Center the Enclosure in the Compartment

The following steps detail how to center, level, and mount the enclosure in the subwoofer compartment. The enclosure attaches to the vehicle with the four #14 sheet metal screws and is insulated and leveled with the included rubber spacers. Due to manufacturing tolerances, every BMW Z3 is slightly different. To allow for this, various thicknesses of rubber spacers have been included.

1. Beginning with the two thickest washers, place four pairs (each made up of one thick and one thin washer) on the sheet metal in the bottom of the subwoofer cabinet. Place the pairs in the locations where the four holes drilled previously in the enclosure bottom will be.
2. Place the top of the enclosure on the bottom. Make sure the bottom of the enclosure is fully seated into the channel on the top. Carefully place the enclosure in the sub compartment on top of the rubber washers, being careful not to disturb or separate the washers or the enclosure halves.
3. Check to see if the enclosure top is level and that there is a gap of about 1/8" between the bottom edge of the enclosure's top piece and top edge of the plastic panels of the Z3's subwoofer compartment. If not, repeat the previous step using different combinations of spacers. You will want the enclosure to be between 1/32" and 1/16" higher than the desired finish level to allow for compression of the rubber spacers. Note that on some vehicles not all spacer pairs will be the same - some may be higher or lower than others depending on the location. Use any combination of spacers required, but you must reserve four spacers for the inside of the enclosure, preferably four of the 1/16" thickness.

4. Once the enclosure is level, it is time to center the enclosure in the compartment. With the top on, center the enclosure so that it is flush with the edges on the front of the compartment and so that the appearance is satisfactory.
5. While holding the bottom securely in place so that it does not move (you will have to do this through the speaker hole and then switch hands), remove the top and mark the location of the holes in the enclosure on the sheet metal below. Remove the entire enclosure.
6. Using a 3/16" drill bit suitable for drilling metal, drill holes in the locations marked on the sheet metal. **IMPORTANT:** Do not continue to drill down after the bit penetrates the sheet metal. Do not let the drill bit penetrate more than 1" through the sheet metal.
7. Using a small amount of the included RTV sealant, glue the spacers together and to the enclosure in the appropriate locations. Be sure to center the hole in the spacers with the holes in the enclosure bottom. Be careful to push the spacers flat and not use too much RTV or your careful leveling job earlier will for naught. Allow the RTV to cure. **NOTE:** If you wish to save time, you can substitute Super Glue or any other rubber compatible quick dry glue for the RTV in this step only.

Assemble the Enclosure Halves

The following steps detail how to glue the two halves of the enclosure together. An air-tight seal is absolutely critical to the proper functioning of the enclosure. **NOTE:** It is helpful to read the next steps fully, and then do a dry run without the RTV to test the fit.

1. Lay the top of the enclosure vinyl side down on a clean work surface. Carefully apply a bead of RTV to the channel that the bottom fits into. It is important that you apply an even bead that is enough to fill approximately half the channel. Any voids or gaps will result in an air leak, which will have a significant detrimental impact on enclosure performance.



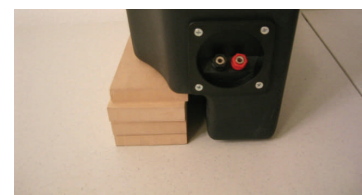
2. Place the bottom of the enclosure into the channel on the top. Make sure the bottom of the enclosure is seated completely into the channel. You will want to flip the enclosure right side up and use your hands to work the enclosure and be sure the bottom is fully seated into the channel and flush. As a guide, look through the speaker mounting hole at the back section where the top edge of the bottom of the enclosure is visible - it should be flush with the top of the channel. Smooth the excess RTV along the outside seam to ensure a completely air tight seal. Clamp or weight down the enclosure.



3. Allow the RTV to cure. Full cure takes 24 hours, but the RTV will be cured enough for careful handling in 60-90 minutes at 75 degrees.

Mount the Speaker & Attach the Enclosure

1. Place the enclosure upright on a stable working surface. Wedge or shim the short side so that the enclosure will sit flat even with weight applied to it.



2. Remove the rubber gasket from the speaker.



3. Place the speaker face down in the recessed opening in the top of the enclosure. Maneuver the speaker so that it is centered in the enclosure. To help with centering, lay the trim cord in the space between the speaker basket edge and the enclosure lid. Make sure the logo (if your speaker has one) will be situated as desired. Mark the location of the screw holes. Remove the speaker.



4. Using a 9/64" drill bit, drill holes in the locations marked in the previous step. **THIS IS CRITICAL!!** If you do not drill properly sized pilot holes the enclosure top will be damaged by the mounting screws. As with the holes in the enclosure bottom, use the drill at high speed and apply **VERY** light pressure while drilling.



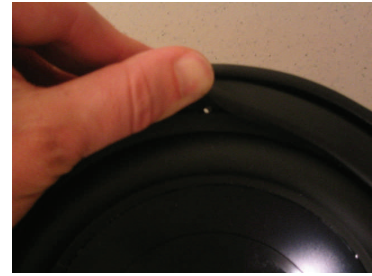
5. Vacuum all dust and plastic shavings from the enclosure.
6. Attach the wiring from the amplifier to the terminal cup (these instructions do not cover installing your new amplifier - seek professional advice if you need help with this step).
7. Cut the remaining foil-skinned sound matting into four approximately even pieces. Affix to the exterior of the enclosure - two on the large rear wall and two on the opposite side.
8. Place the enclosure in the compartment.
9. Using the four #14 x 1" screws, the metal fender washers, and four of the leftover rubber washers, attach the enclosure to the vehicle. You will need a short handled or right-angle Phillips screwdriver to do this. The metal fender washer should be against the screw head and the rubber washer should be against the inside of the enclosure bottom wall. Be sure to do a final centering of the enclosure before the final tightening of the screws.

10. Affix the self-adhesive foam gasketing tape to the **VERTICAL** surface of the speaker hole as shown. The lower side of the gasket tape will be flush with the top of lower lip in the speaker hole, the upper side should stick up above the flange where the speaker mounts. This will be compressed and will ensure an airtight seal. Carefully cut the overlapping seam so that there are no gaps in the foam.



11. Attach (soldering recommended) the speaker leads to the speaker according to your particular amplifier setup.

12. Replace the rubber gasket removed in Step 2. Align the holes in the rubber gasket with the holes in the speaker basket. Place the speaker in the enclosure and carefully align the speaker basket/gasket holes with the pilot holes drilled earlier. Proper alignment is critical—if the mounting screws do not thread properly into the pilot holes the enclosure top can be damaged.



13. Attach the speaker to the enclosure using the eight #10 x 3/4" pan-head screws included in the parts bag—DO NOT use the screws provided with the speaker. Tighten the screws by hand, DO NOT use a drill! To ensure a proper seal when attaching the speaker to the enclosure, you should lightly snug all eight screws and then tighten them in a series of steps using a "star" pattern. Do NOT tighten them in a circular, consecutive pattern. Doing this can warp the basket flange and cause the speaker to not seat/seal properly.

Install the Grille & Trim

1. Insert the grille into the rubber speaker surround. Work the grille edges into the surround until it is fully seated down into the surround as shown.



2. Lay the trim cord on the gap between the rubber surround and the enclosure top. Cut to the correct length using a razor knife or other very sharp. It is helpful to use a roller tool or the back of a flat or rounded object to press the cord flush into the gap. If you need to remove and reinsert the grille you will need to remove the trim cord—once the cord has been inserted it is impossible to insert the grille.



Breaking-in & Troubleshooting

You're ready to start listening!

The Alumapro subwoofer requires some break-in time. You will want to play a variety of bass-intensive music for a few hours or so before you really crank the system. The break-in process gives the spider and surround time to soften up.

The enclosure should sound clean and hit hard. If you aren't impressed by the sound I can assure you that something is wrong. If you hear something that sounds like a rattle coming from the enclosure it is almost certainly an air leak. TRUST ME! The Alumapro subwoofer is a

powerful subwoofer that generates a tremendous amount of air pressure. Even the smallest of pinhole leaks will create a rattle-like sound that increases with volume. If you think you have an air leak see the section below for help.

Finding and Fixing an Air Leak

Any seam or hole in the enclosure is a possible source of the leak. The most likely sources are the speaker-to-enclosure seal and the terminal cup, followed by the RTV seal between the enclosure halves.

The best method for diagnosis is to use a stethoscope (even a kids toy stethoscope will work!). Keep the volume low and run the stethoscope slowly along all the seams. The leak will be apparent when you come across it. An alternative method is to disconnect the other speakers in the system and play bass-intensive music that causes the rattle/air-leak. Put your ear as close as possible and try to determine the general location or source.

1. Is the speaker seated properly against the enclosure? Ensure that all the speaker mounting screws are in place and tight.
2. Did you install the self-adhesive foam gasket properly? Refer to installation step #10 under the Mount the Speaker section. There should be no gaps in the foam gasket and it should stick up above the top of the speaker mounting flange so that it is compressed down by the speaker.
3. Is the terminal cup seated and sealed against the enclosure? Check that the screws are snug and the gasket compressed.
4. Is the bottom of the enclosure sealed to the top of the enclosure? If you suspect this area, the best solution is to run an additional bead of silicone around the outside of the seam.
5. Are there rubber washers properly placed around the enclosure mounting screws on the interior of the enclosure between the enclosure bottom and the metal washers?
6. Were all pilot holes properly drilled? Without proper pilot holes for the speaker and the terminal cup the screws can crack the enclosure. These cracks are a serious problem and in most cases are irreparable. If you find that you have cracked your enclosure please contact me about getting a replacement.