

## Sealing Passenger Side Breather Cover – M112 Engine

Tools required:

- Internal Torx T25
- T30
- External Torx E10
- Swivel Joint (Universal Joint)
- 4 inch or longer extension
- Sealant
- Cleaner

Start by removing plastic cover over engine. Although there are some pictures where it is recommended to grasp the cover in the front center, I think that puts unnecessary stresses on the cover and may cause it to crack. Rather pull up next to the oil filler cap until the clip on that side release and then on the opposite front side of the cover. Repeat the exercise in the two rear corners.

The picture below show the engine with the cover removed and the oily mess.



Next pull up on the front of the baffle to release the clip holding it and swivel it up and back to provide more space. (Picture below). This may be a good time to clean up the worst of the mess with simple green and a strong jet of water, since the car is still drivable.



Release the silver clip marked with arrow, as well as the one on the opposite side of the intake pipe. Remove the plug from the MAF by pressing down where the arrows indicate and pulling back on the plug.



Release the 6 clips on the air cleaner cover and remove the cover.

Down below, next to the gearbox dipstick tube is an E10 bolt. Its position is indicated in the picture below.

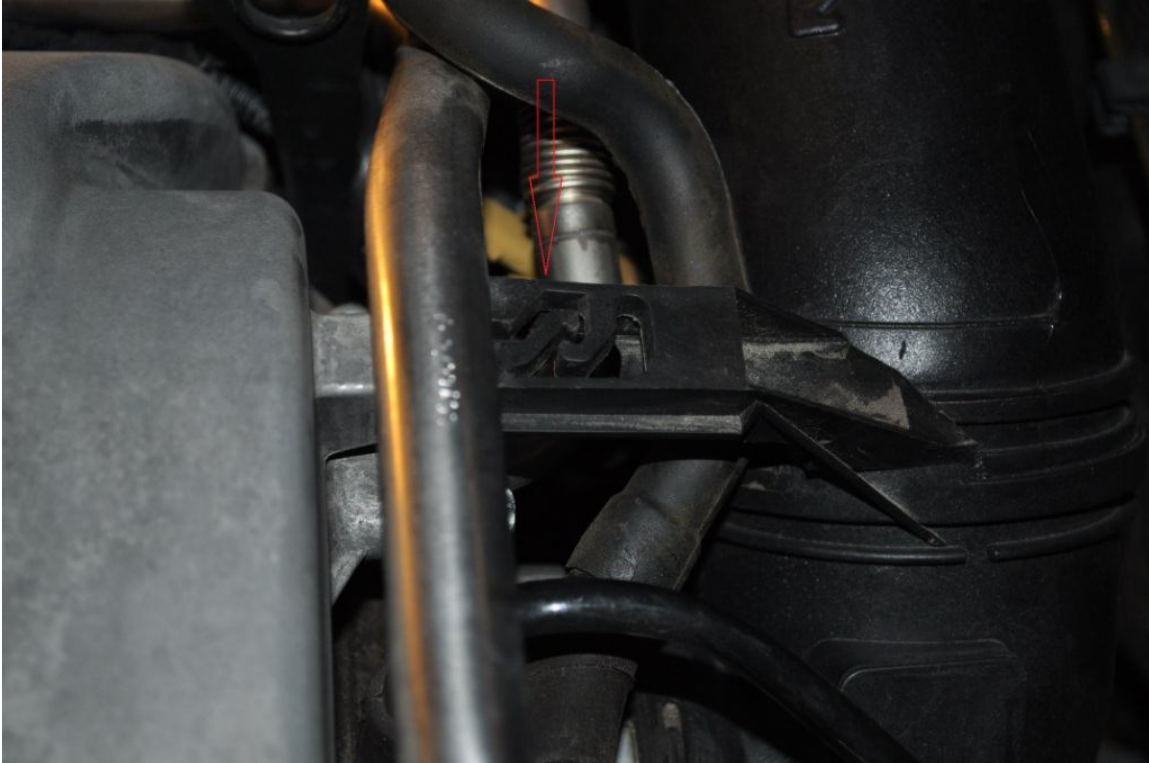


You will probably need the following tools to get to the bolt.

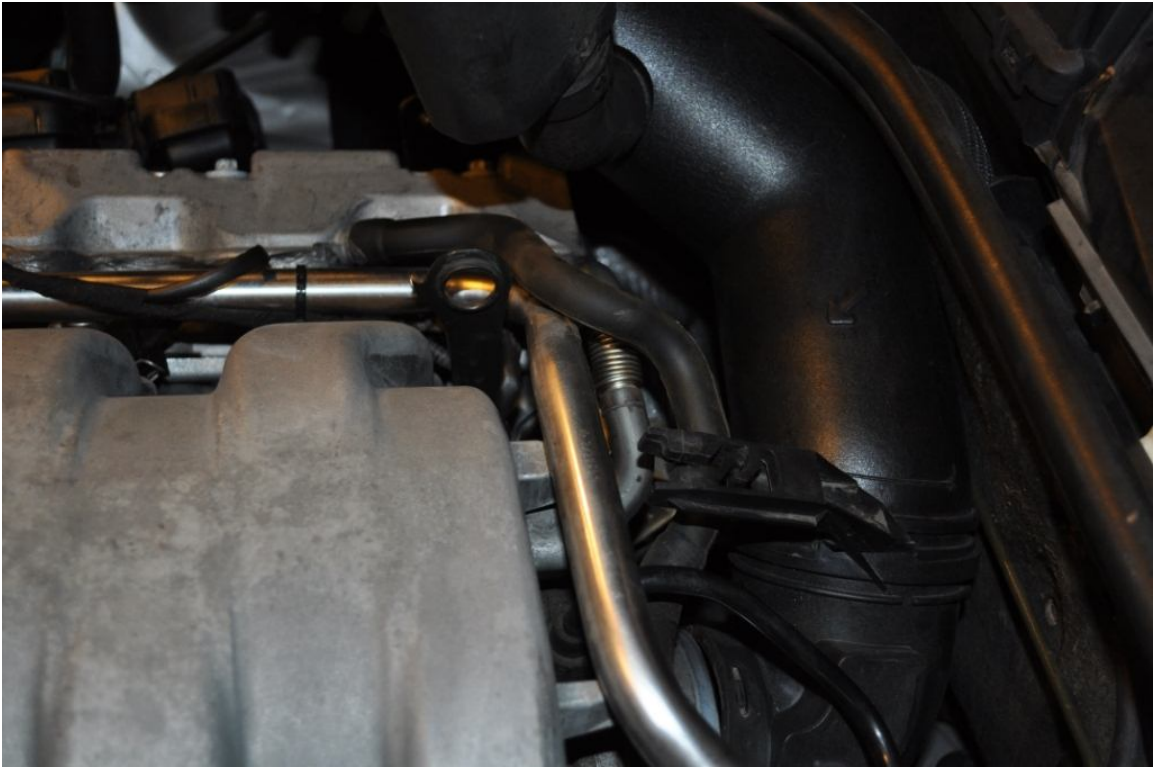




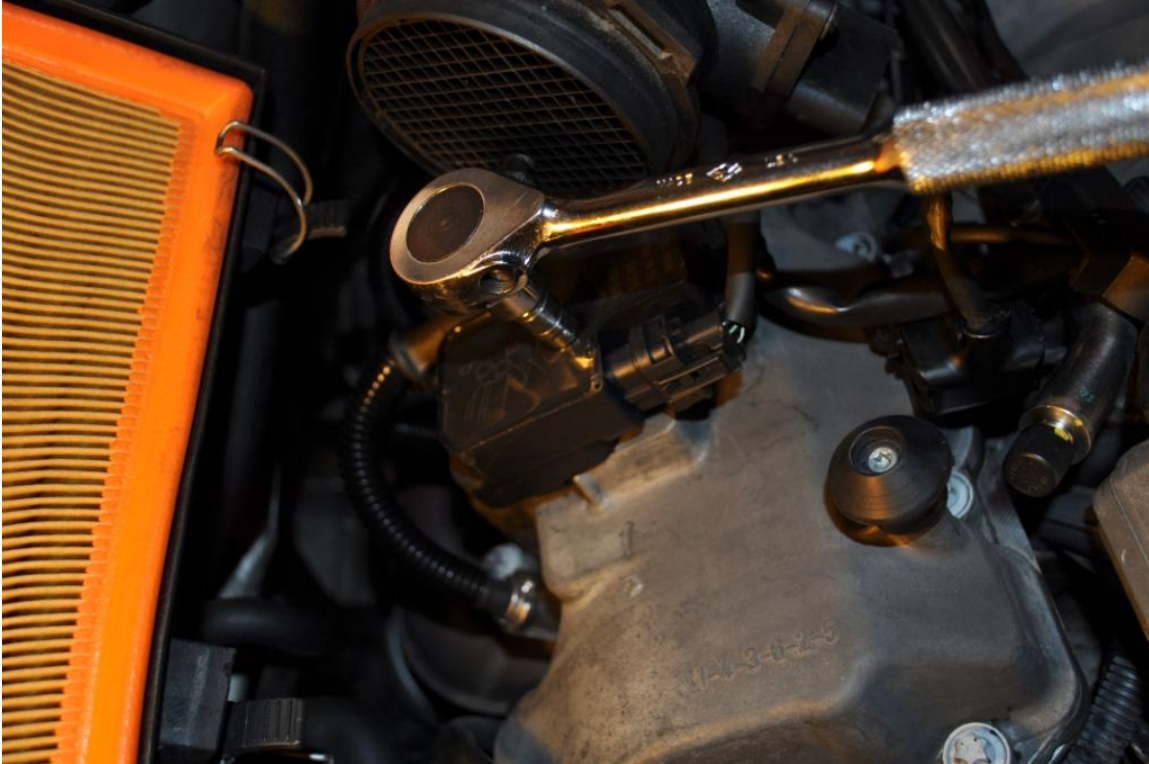
Once the bolt has been removed, you can swivel the intake pipe up and backwards to give you better access to the breather cover. The intake pipe is held in place by the clip on the top, indicated in the photograph below. It is also fixed by another clip at the bottom which you don't need to worry about since you don't need to remove the intake pipe fully. Note that although it looks as if the clip separates in the middle, it does not. You just pull it away where it hooks into the engine block.



The next picture shows the pipe swiveled back and the unhooked clip.

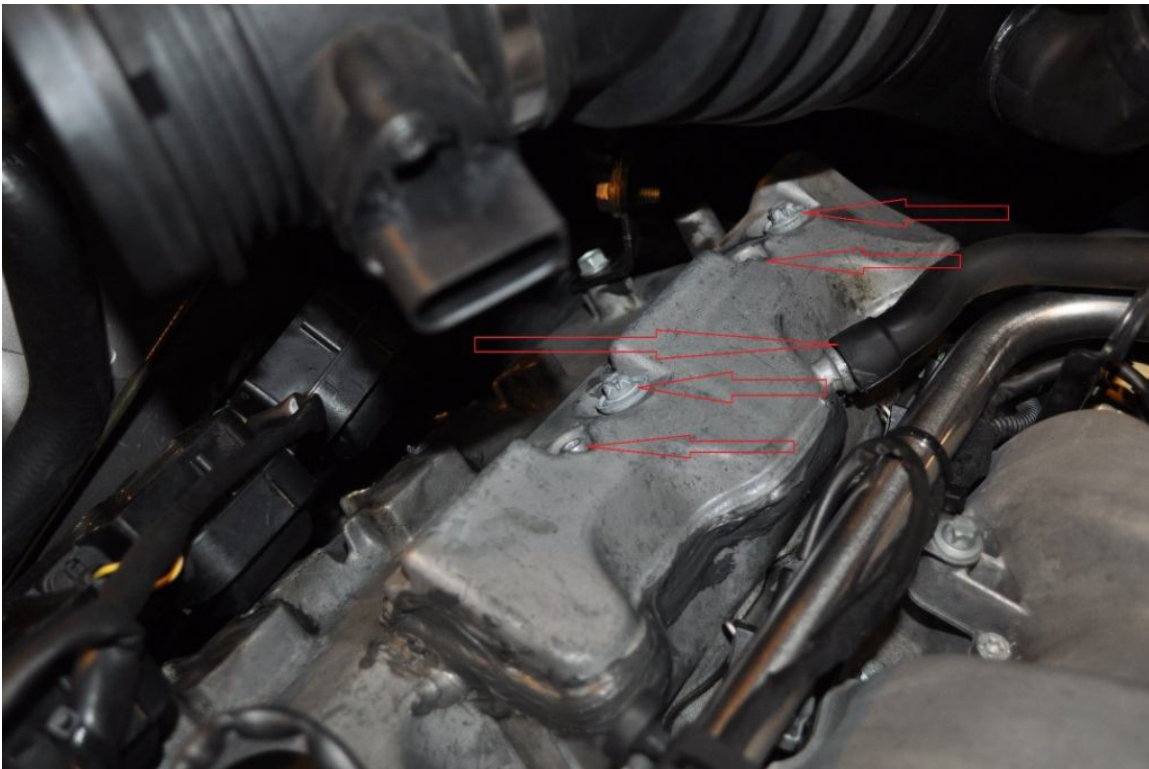


The next step is to remove the coils to clean up beneath them and to provide more space. You don't have to unplug anything, just remove one internal Torx bolt per coil and let them slip down. (Picture below)

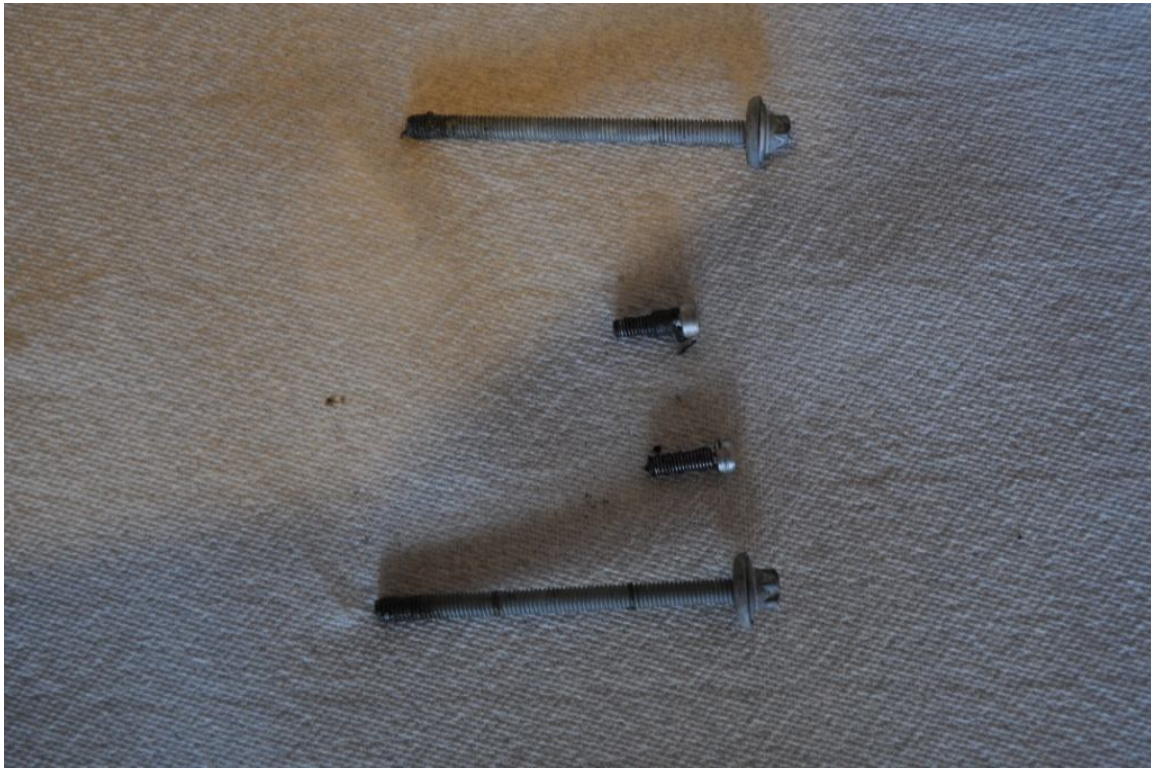




With the intake pipe swiveled back and the coils unbolted from the cam cover, you can now remove the breather pipe (indicated in the photograph below). If it is very tight, use a wide screwdriver to insert between the end of the pipe and the collar and turn it from side to side while pulling back on the pipe. N.B! Don't press down or pull up very hard, since you may break the fitting cast into the breather cover! Just pull straight with a slight twisting motion. You must also remove the two internal Torx bolts and the two external torx bolts indicated by the arrows.



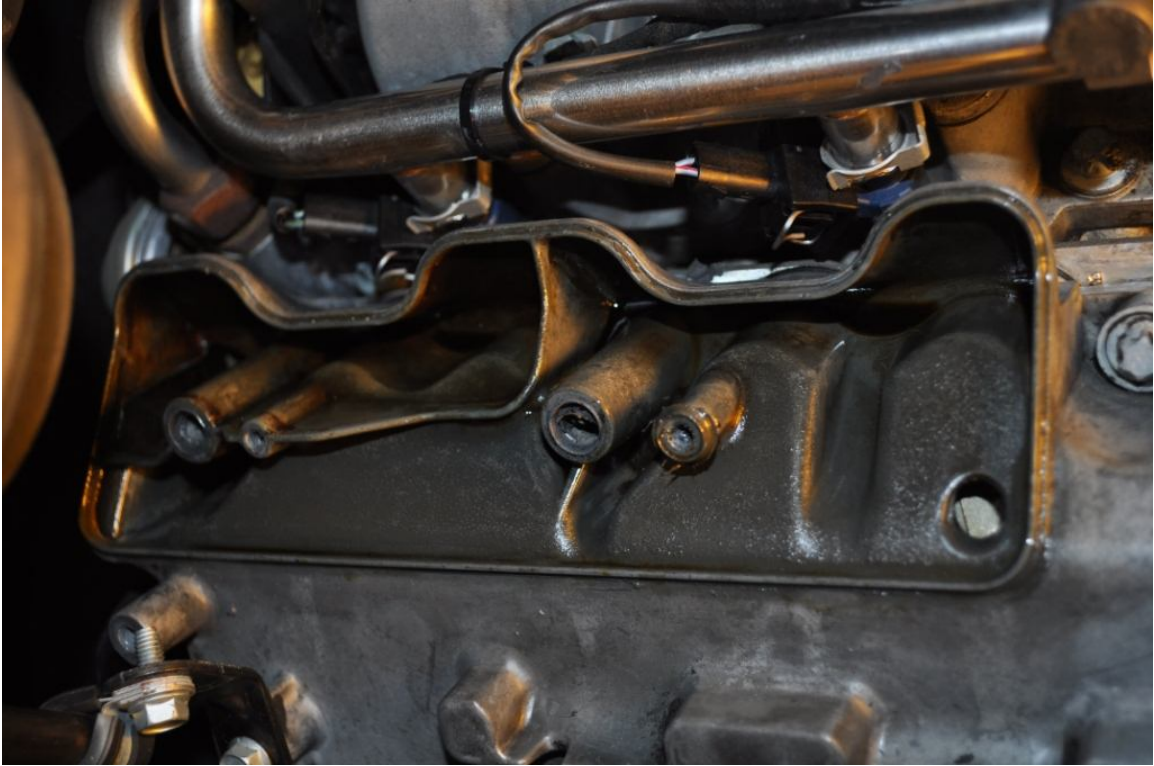
In the picture below you can see the 2 long bolts (external Torx) and the two short bolts (internal Torx).



The next step is to physically remove the breather cover. First make sure that the area is properly cleaned, since you don't want any muck to drop into the engine. And although it may be tempting to pull on the casting where you removed the breather pipe, DON'T!! It is a fragile casting and may break!! If you look at the spot where you had earlier removed the bolt next to the gearbox dipstick tube, it provides a nice leverage point for a short wide screwdriver to rest the shaft on the protrusion for the bolt and lever the flat end against the side of the breather cover. The breather cover side actually has a small rough edge in the casting at that point which allows to screwdriver to catch. Use a slow, gentle, but increasing pressure and it will yield. Below is the breather cover after it has been removed. Still nice and clean inside. Also see the bits of old sealant popping out of the center channel!



And the top of the cam cover, where the breather cover has been removed. Also still nice and clean and no gunk. Notice the stud in the lower left corner that can be used for leverage to remove the breather cover.





Next clean both the engine side and the breather cover itself. On the engine side, I had plugged the holes onto the cam cover with some paper towels (cut by scissors, not torn on the perforations) and cleaned from the inside to the outside of the 'box'. Finally I used a small vacuum cleaner to suck out any debris that may have dropped in the 'box', removed the paper towels and give it a final clean with a micro-fiber cloth. Be careful not to drop any old sealant into the passages.

For the breather cover, I started by slowly pulling on the old sealant. If you do it slow enough, large portions will actually come out of the channels without breaking. Jerk it fast and it will snap into small pieces. After that I used a very small screwdriver to clean out the channels. Don't make any gouges; just lift up the old sealant. After that I used a can of brake cleaner to clean it the cover, both inside and outside. Since I was worried that the brake cleaner may leave a residue that can react with the new sealant, I gave it a final rinse in some distilled water that I had left over from my last coolant change and then dried it with a hairdryer. Maybe overkill, but the last two steps didn't add much time to the process. Also ensure that the breather hole is open. Clean it but do not enlarge it! Below is a picture of the breather cover after cleaning.





Below is a picture of the MB sealant (part A 003 989 98 20 10) and replacement bolts. It's probably not necessary to replace the two long bolts (A 001 990 84 22), but it is best to replace the two small bolts (part N000000 004436). The small ones are rather fragile and they are cheap enough. The new small bolts were slightly longer than the ones removed, but they still seemed to work without bottoming out. Before you start applying the sealant, take the four bolts and run them fully into their respective holes on the cam cover. The reason is that some old sealant may have dropped into the holes and if you discover this while fitting the treated cover, you'll have to remove the cover and re-treat it again. Also practice replacing the breather cover on the engine. Once you have applied the sealant, you would like to place it straight down in the correct position and not move it around to find the position.



To apply the sealant, cut the plastic applicator to a size only slightly smaller than the channel. Too small and it's very difficult to get the sealant out. Too big and the sealant will overflow the channel. Start the sealing process in the center channels, the reason being that once you have filled the outside channels, it is very difficult to hold the cover. Also apply sealant around the bolt holes. To apply the sealant, push down on the plunger and pull the applicator slowly backward. The correct speed is if it makes very small 'waves' in the channel. Too fast and it will not fill the channel, too slow and it will overflow. Start on a straight channel to get the 'feeling', since corners are more difficult to do well. Fill the channel completely; let it make a slight bulge above the channel rims.

Below is a picture of the treated cover.



The instructions is not clear how long to wait between applying the sealant and replacing the cover. It reads “replace within minutes”, so it must be longer than 1 minute and less than 1 hour. ☹ So I waited for about 5 minutes.

Try to place the cover down in exactly the right place, so that you don’t have to move it around and damage the sealant applied or smear the sealant all over the inside of the breather box. That is why I recommended practicing with the cover before applying the sealant.

Replace the bolts and torque the long ones to 8NM, (6Ft/Lb). I don’t have the setting for the small bolts, but I know from experience that they break very easily. I used about 20 INCH/Lb, but that was purely a guesstimate. So use whatever you want at your own risk!!!

And below is the cover after being replaced. The sealant will bead slightly on the outside of the cover as you tighten the bolts. My personal feeling is that if it doesn't bead on the outside, you probably did not fill the channel sufficiently. Never mind, you can redo it if it starts to leak again, the second time around it is much easier. ☺ I've just left it as is, but if you want to clean it up, I would suggest waiting 24 hours and then cutting (not pulling) the excess off.



Replacing the rest of the pieces removed is just the reverse of the removal process. One tip I would like to share: When replacing the bolt next to the transmission tube that is holding the air pipe, first swivel down the baffle and push it down over the connector. You have to work on feeling and in a limited space to replace the bolt and the baffle helps to position the intake pipe so that the bolt can take.

There is also no information on the curing time for the MB sealant. Most other sealant claims to reach working strength in 4 – 6 hours and full strength in 24 hours. I re-torqued the bolts after 4 hours and only started the engine after 24 hours. Maybe again overkill, since I'm sure that you will get it back from the dealer the same day if you took the car in. But I would suggest to wait at least a few hours.

The MB sealant tube contains enough sealant for two covers. To save the remainder, just push a small bit out at the top of the applicator. Leave it like that to dry. When you want to use the sealant again, just pull out the hardened bit at the top of the applicator. The rest of the sealant is then fine to use.