

BMW 540 Alternator Swap

This article covers replacing the alternator on a 1998 BMW 540 with 133,000 miles. I had never done this project before and used the Bentley manual as my guide. Bentley as usual covered the basics but didn't get as detailed as it should have. BMW didn't do us any favors on this one either, no room to work and actually get the job done. I'll cover how I "created" some room.

One quick point if you don't really need to change your alternator yet, clean your alternator air ducting before it blocks the airflow! That is what caused my alternator to fail. When I got the alternator out, it had leaves and mud blocking the airflow into the alternator. Further investigation showed a lot more leaves and dirt in the ductwork.

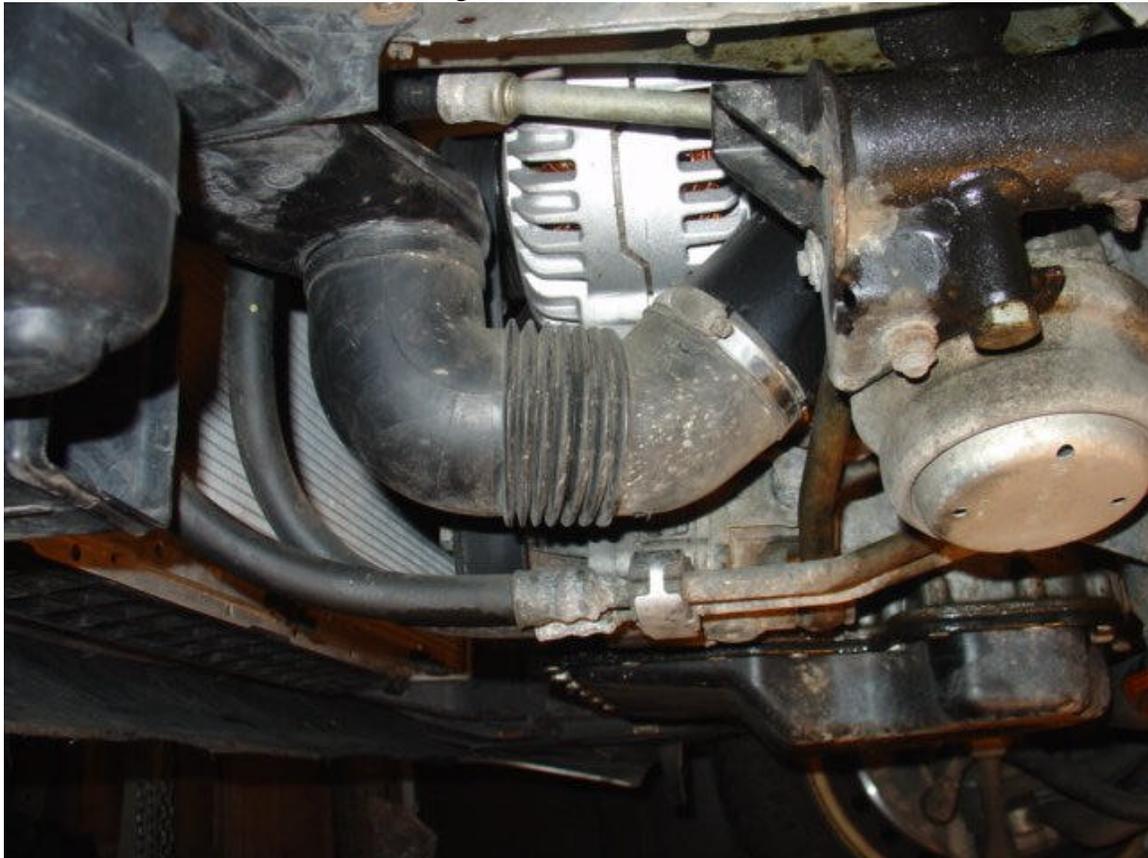


Follow the steps in Bentley starting on page 121-16. Disconnecting the battery is simple. Page 170-14 is next directing the removal of the fan and fan shroud. Don't worry about the "special" BMW tool to hold the fan while you use the wrench. Use a VERY large flat blade screw drive between the hub bolts and the 32mm nut. Of course you have the wrench positioned to loosen the "reverse threads" (clockwise loosens). Pull the fan out and then work the fan shroud out.

At this point you go back to Bentley page 020. You are loosening and removing the fan belt. Two 13mm nuts hold the tensioner in place. Just loosen them, the belt should come loose.

Back to Bentley page 121-16. Bentley says to pull the plastic cover off the left cylinder head. I missed this step. Then they have you disconnect the positive lead from the jump start post. I didn't find that this wire needed to be loose, do as you feel right, your car may have different amounts of slack in the cable runs. Mine didn't need to be loose.

Continue on page 121-17. Jack and support the car so you can crawl underneath. You can disconnect the alternator cooling duct.



Take out the three alternator mounting bolts (from above). Now you are supposed to be able to pull the alternator forward. On my car it wouldn't pull forward more than a 1/2 inch. It turns out there are two large cables connected to the alternator output. One goes up to the jump-start post, the other cable goes directly to the rear away from the alternator. The "clip" mentioned in Bentley is actually 6-8" behind the alternator. (It was so tight in this area I couldn't get a picture that showed anything)

The clip holds the cable to the frame structure so it doesn't fall against the exhaust of something. The trick is to use a LARGE, LONG screw driver to push the cable up and out of the clip. Once out of the clip you can pull the alternator forward enough to roll it upward so you can loosen the nut connecting the cables to the alternator output post. You will be underneath looking up as you loosen this nut.

In Bentley it warns you to put some cardboard or something on the back of the radiator to protect the fins. I of course knew I would be careful. Of course I mashed a bunch of fins pulling the alternator out.



Before I put the new alternator back in I took 3 minutes and drilled two holes in the end of a piece of paneling, two lengths of wire and I could hang it on the back of the radiator. It took 3 MINUTES! Learn from my mistake. TAKE 3 MINUTES!!!



According to Bentley, the above is all it takes to get the alternator out. Finding that clip took me over ½ hour. To say I was frustrated is putting it mildly. Without finding that clip, you won't get enough slack to get the alternator out.

I mentioned at the beginning that the alternator cooling ducts had lots of dirt and leaves in them. These can be removed and cleaned even without removing the alternator. I actually removed a bunch of this stuff in order to try to get extra room for getting to the alternator.

To get the alternator cooling duct loose you have to take the forward-lower inner plastic fender liner loose. Remove the four screws that hold it in place. Once you take the screws out, you can pull it out. Be careful, it interlocks with the brake cooling duct underneath.



Once the forward-lower fender liner is out, take out the three screws holding the brake cooling duct. Remove the brake cooling duct.

Alternator Cooling Duct



There are three screws holding the alternator cooling duct in place. The forward one is hard to get. I have a universal joint for my 1/4" socket set. It makes this screw much easier to remove. Remove the duct.



At this point you can clean the alternator cooling duct.

Done. Ducts cleaned, alternator replaced.

“Installation is reverse of removal” (Bentley page 121-17)

Good Luck!

Dan Nicoson A6intruder@myo-p.com