

DIY 722.6 Transmission Conductor (Electrics Kit) Plate

My 1997 E320 with 100k miles finally went into (electric) Limp Home mode (2nd and reverse only). I pulled the EGS (ETC – Electronic Transmission Control Module) codes and found 013, 108, and 109. Code 013 is N3 speed sensor malfunction, 108 is a stored (pending) code for N2 speed sensor malfunction and 109 is a stored (pending) code for N3 speed sensor malfunction. So all the codes are pointing toward the two speed sensors on the conductor plate, which is on top of the valve body.

I cleared the codes and the car drove fine for about a week then it went into mechanical-hydraulic Limp Home (3rd gear only). This type of limp home mode can be cleared with a simple restart. I pulled the codes again and this time was 109 (N3 speed sensor).

Therefore I am fairly confident the speed sensors (alone) on the conductor plate are acting up. So I ordered the conductor plate, along with three pressure control valve springs that tends to fail in early 722.6 transmissions. The order came yesterday so I spend the Sunday morning replacing the conductor plate, DIY style.

This is just my experience and also the way I choose to do it. You are at your own risk and I am not responsible for anything I wrote in this DIY. Anyway, below are some procedures and notes and I hoped you find them helpful.

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1. Raise the car. Make sure you securely raise the car. As you can see, I made it redundant here. I used some heavy duty car ramps (see the braces) and a 3.5 ton jack at the front chassis listing point. Engage parking brake and also choke the rear wheels. You may find it odd that I drove car up back onto the ramp, ☺. I actually used that large jack to raise the front and then slid the ramps under the tires.



2. Drain the transmission fluid. (See G-AMG's excellent DIY on this.)
3. Disconnect the 13 pin electric connector and remove the connector spacer. This is the infamous plug that tends to leak so get a new one ready.
4. Remove the oil pan and the filter. (Again See G-AMG's excellent DIY on this.)
5. Now remove ten (10) T-30 Torx screws that secure the valve body to the transmission. Remove the valve body from underneath. The valve body is quite heavy so be prepared to eat some spinach in the morning. ☺ The picture to the right is the valve body (with the conductor plate). In this picture, you should see six (6) solenoids. They are the round shaped things: four (4) on top of the picture, and two (2) on the lower-left of the picture. They are in pairs of two (2). Each pair is secured by a leaf-spring and a T-30 torx screw. The lengths of the screws are different and the solenoids are also different so you need to layout the setup exactly as assembled so as not to mix things up.



6. Remove the torx screws, the leaf springs and the solenoids from the valve body (with the conductor plate in place). Here is what you see. Now note that where the solenoids were before are just six (6) holes and some electric contacts (each solenoid has two electric contacts). The round black thing on the top-left corner is where the infamous 13-pin connector plugs into. That 7-mm screw goes into the center of this black part.



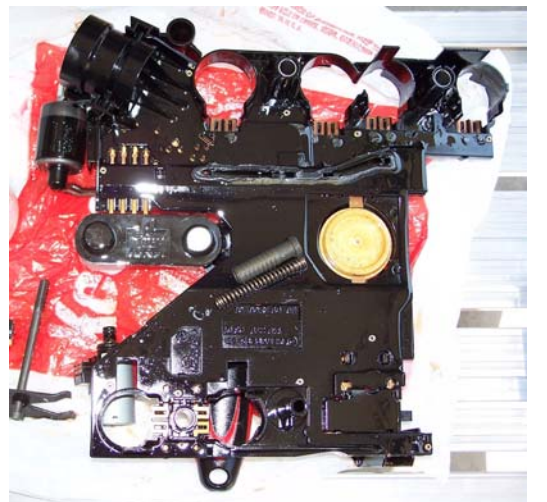
7. Here is a picture of the removed solenoids, leaf springs, and the torx screws. You see I put them as if they were on the valve body so there will be no confusion. The rotor-head ratchet is a speedy device as it can be used as a screw driver. Also note the bottle of the Mobil 1 synthetic ATF (DEX III). LOL, I am using it as a cleaner for this purpose. I changed the ATF (Mercedes 236.12 fluid) and filter about 25k mile ago and it was pretty clean then. It is very clean today. There is no graphite residue anywhere on the valve-body and also in the oil pan. This will be my last fluid/filter change for this transmission unless it just keeps running.



8. Now you can remove the conductor plate (black plastic) from the valve body (shiny aluminum). There is only one little catch on the transmission fluid temperature sensor. Just bend it a little and remove the conductor plate. You cannot miss it. With the conductor plate out, I removed the plate that covers the four valve springs (a dozen also small torx screws holding it) and examined the pressure control valve spring and other springs. My spring was not broken but I replaced it anyway. Since I ordered three of these springs, I have two left. Let me know if you need one.



9. And here is the bad conductor plate. The two round things (one black and one shiny) to the left of the big yellow wheel are the offending speed sensors. I think I know why they fail. If you look above the two speed sensors, there are four electric contacts. Good Lord, these are also the structure holding the speed sensors. It is like a horizontal fishing pole holding a heavy fish and the fishing pole itself is an electric contact. ☹️ The speed sensors are free to move up and down slightly and I bet the motion gradually caused crack in the soldering or the electric contacts themselves. The new part has re-enforcing plastic holding the sensors to the plate.



10. The rest is the reversal. Put on the new conductor plate. It snaps into the valve body. Again, bend the temperature sensor just a little so it clicks in place.
11. Now put back the six (6) solenoids, the leaf springs and the torx screws. 8 Nm is the torque value for these so they are not very tight.
12. Now install the valve body. Again be careful because it is heavy. This is actually the most challenging part for me. Starting the first two screws is not easy because it is heavy. Anyway, play with it and eventually you will get it done. These screws are also torqued to 8 Nm. Here is one thing that is extremely important but you will see when you have the valve body out. There is actually only one physical connection from the shifter to the transmission because all gears are controlled electronically. You need to engage this or the transmission would not shift and you would have to remove the pan and valve body again. This connection is to the rear on the driver side. On the valve body, there is a plunger and you need to hook that into a horizontal pin in the transmission. You can see that on the second picture, lower-right. It is the yellow plastic thing that has a slot. In that picture, you can move the yellow slot left or right and that is the only mechanical linkage from the outside. I bet one motion is for the five (5) forward gears and another motion is for reverse gears (there are two).
13. Install a new filter and install a new pan gasket and the oil pan. Put the drain plug back (20 Nm) and use a new copper washer.
14. Put back the 13-pin connector space, and the plug. Be careful not to strip the threads where the 7-mm screw goes in.
15. Now it is ready for fluid. In my case, I drained out exactly four (4) quarts so I poured in 4 quarts of Valvoline MaxLife ATF, yes, you read it right, Valvoline MaxLife ATF.
16. Test drive the car and check the fluid level. In my case, it was spot on. The car shifts smoothly for all gears. Thanks Valvoline for letting us know the MaxLife fluid meets ATF 3403 M-115 specs. dnewman, are you reading this? ☺ Thanks for your open mind.
17. Congratulate yourself and have some brew.