

All you need to know for pre-facelift W221 S350 lumbar support leaks

Common symptoms:

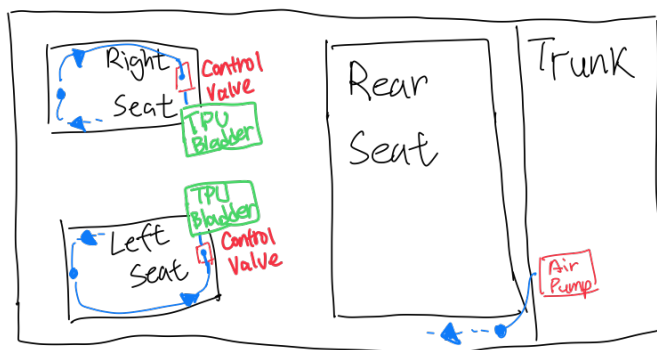
1. Lumbar support not inflating when the setting is set to above 0 and the setting returns to 0 immediately.
2. Center headrest does not fold down when the headrest button is pressed (the left and right rear headrests work fine.)

How the system works:

There are two separate air bladders inside the driver and passenger seats. They are both inflated by a DC air compressor pump inside the trunk. There are several connectors interconnect the pneumatic system from the trunk to the front seats.

When the door or trunk is open the pump will inflate (you will hear a humming noise) and if there is a leak in the closed loop system then after few seconds the pump will timeout to prevent the pump from overheating and etc. Once it is timed out you will have to lock the vehicle and wait for some time and unlock again to restart the pump.

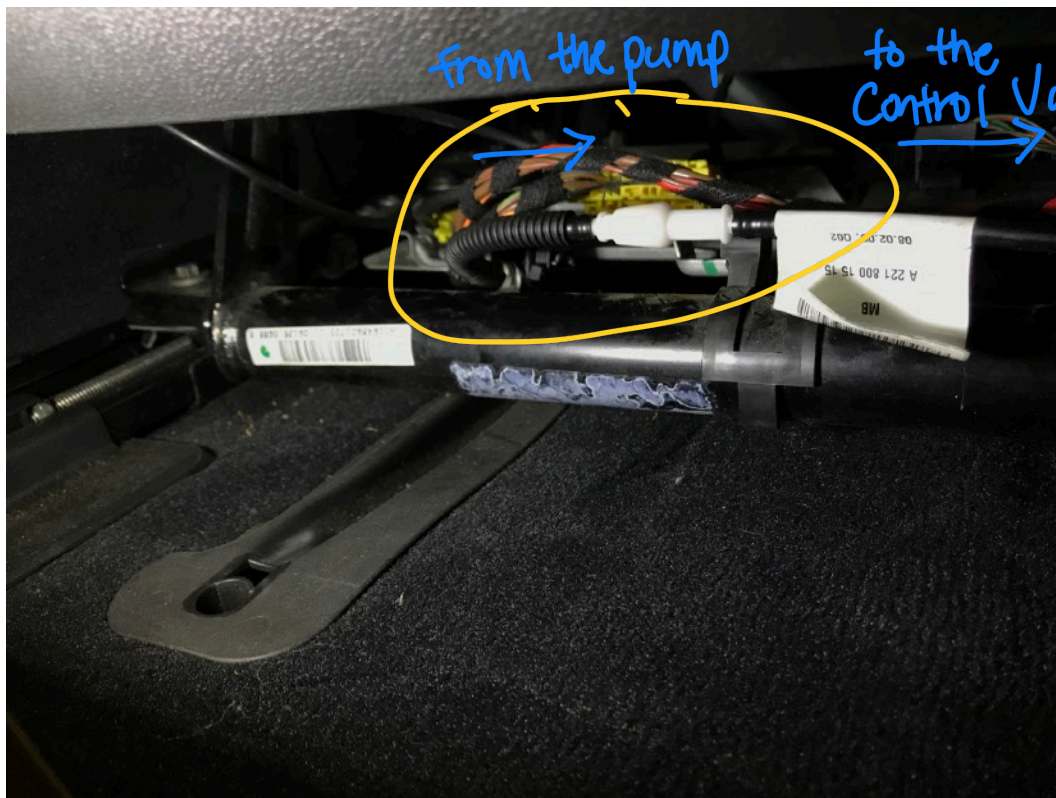
Please note, I only disassembled the sections I needed to fix. The pneumatic system is perhaps much more complicated. The blue dots are the connectors that can be disconnected by pulling the connectors upwards by hand. There are two air inlets underneath the left and right seats to the control valves behind the seats.



How to fix the lumbar support system:

It is most likely the air bladders and the pneumatic lines have leaks somewhere, or/and a bad pump.

Move the seat all the way up. Disconnect the interconnect connector underneath the seat by starting the vehicle and check if there is any air coming out. Do this before the pump timeout. If no air or weak air is coming out then you probably have a bad pump or the pneumatic line is cracked between the pump and this connector. The pneumatic line is very brittle due to aging. Be very gentle.



In my case, I had air coming out. Next step is to check the bladders behind the seats.

There are two Torx screws underneath the back of the seat. You can follow this great tutorial from the YouTube link: <https://youtu.be/fPPJZdiRm1s>

Once the panel is off you will be able to see the air bladders and have access to the control valve. If you have the fancy dynamic seat from S550 then it will look very different, however I would think the troubleshooting is similar.



In my case, I had a broken connector on the TPU bladder and cracked pneumatic line.



Remove the control valve by using a flat screwdriver to lift up the clip to slid through the “stopper”.

I believe this is a solenoid valve and without electrical signal, the valve will always hold the air inside the bladder (normally close solenoid valve) and air can only be released by disconnecting the top white connector. So if your bladders are not deflating properly then the it should be solenoid valve related.



Remove the bottom fabrics fasten to the metal clips. Remove the lumbar support holder off the metal frame.



Recline the seat all the way backward, move the front section of the bottom seat upward will open up space to pull out the fabrics.



Lift this fabric up, now you can slide your hand between the metal frame to pull out the lumbar support bladder. There are seat air bags near the shoulder area so make sure to remove everything gently.



This bladder is made of TPU (Thermoplastic Polyurethane). It is not made with vinyl such as PVC. The only way to properly seal this up is using high frequency welding (RF welding) which the material itself creates heat by friction from dipole polarization. You can buy these used from eBay but I do not recommend it because it will most likely fail again very soon. A brand new bladder is recommended.



With some luck, I have the suitable machines and parts for this project (this part can be skipped. Just buy a new bladder):

The original TPU bladder is 0.5mm which is very thick. So I decided to use a nylon reinforced TPU.



Cut the fabrics properly using an automatic cutting machine.



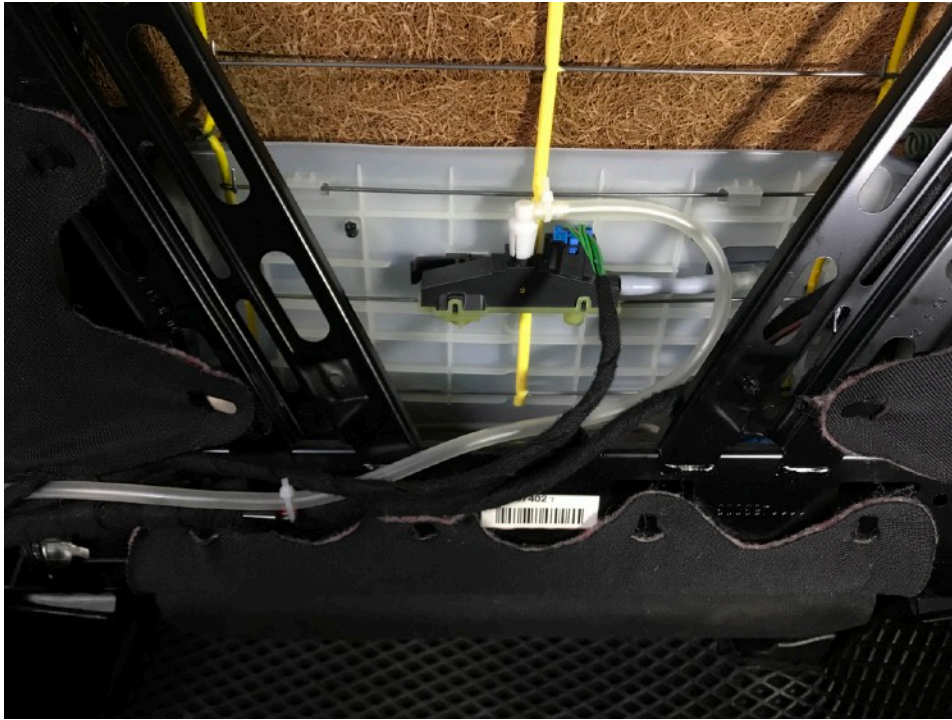
Weld the fabrics



Leaking test



Finish product comparison to the original bladder



Now put everything back together. Make sure bladder is deflated when fasten the bottom fabrics.



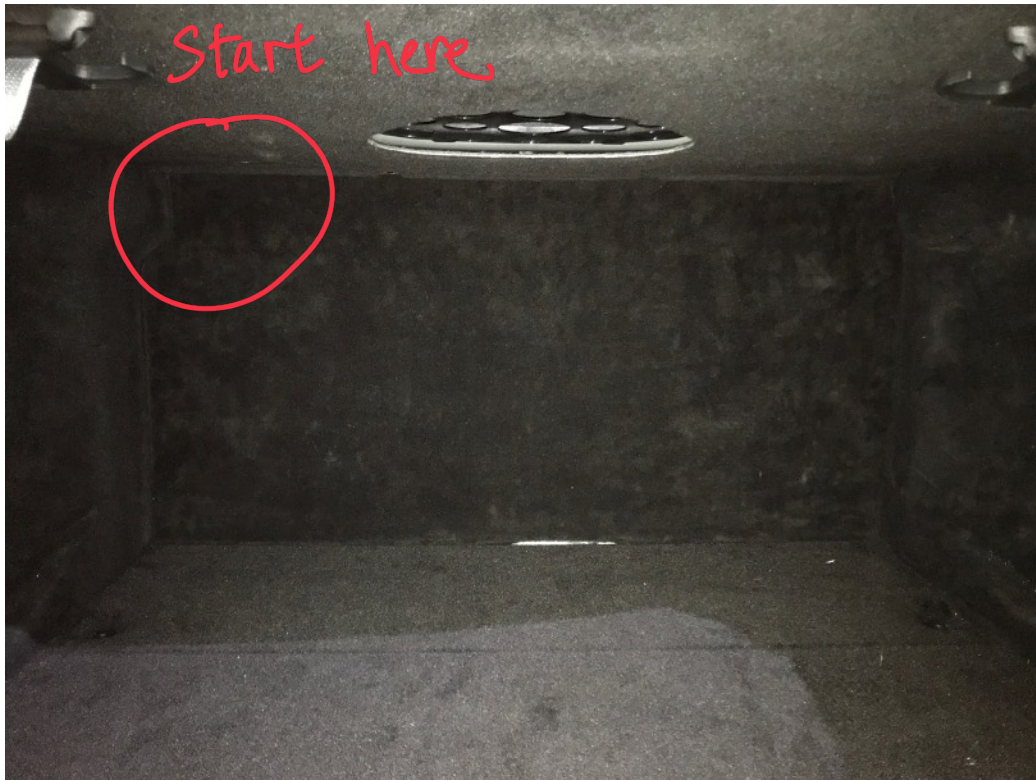
In my case, there were additional leaks between the inlet underneath to the control valve. Instead of unwrapping all the sticky wire coiler and removing the seat I just use a PVC tube to direct the air from the air inlet to the control valve.

IMPORTANT: Both driver and passenger seats must have no leaks to be able to test the functionality of your lumbar support in each step. If you replace your driver's side but have leaks in your passenger side then the pump will timeout and you will not be able to test your driver's side. I used some temporarily bladders for both driver and passenger side initially to ensure the system has no leaks.

The pump:

If you have trouble of your pump here are some helpful notes for troubleshooting.

First remove the panel in the trunk to get access to the pump. If find this very difficult in the beginning but eventually pulled the panel off from the top left corner with some force.

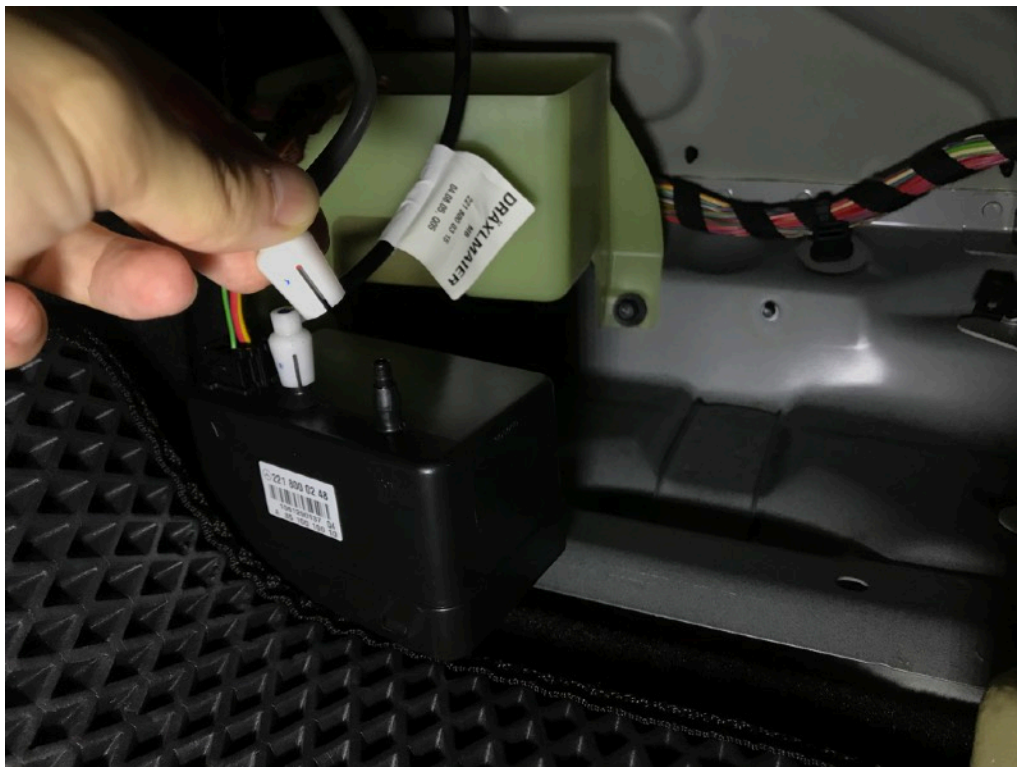




Remove the insulation and take out the compressor pump.



Open up the pump we can clearly see one outlet is for air and the outlet closer to the cables is the pressure transducer.



Disconnect the connector further away to the electrical cable and you should be able to feel strong air coming out or you can measure the pressure and if I remember it correctly it was somewhere above 150mmHg. If you are not getting 0mmHg then the pump is probably good. For mine it was a gray tube which is a different color than the pneumatic line found under and behind the seat.