

2000 MERCEDES S500 - WATER PUMP REPLACEMENT

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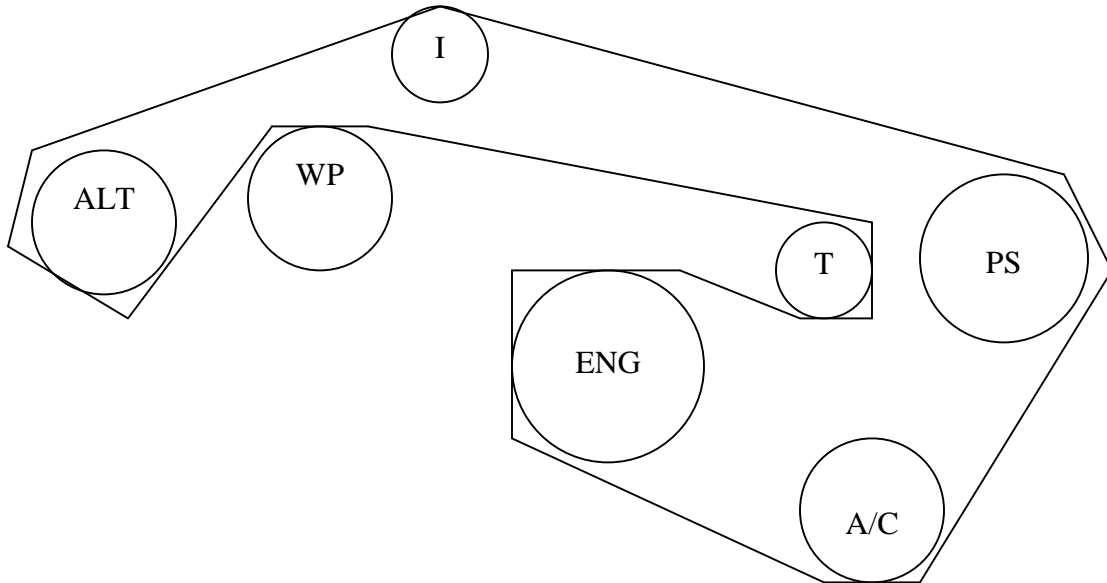
Replacing the water pump on a W220 Class Mercedes S-500 proved to be a very doable DIY repair job. I am an amateur MB enthusiast, but I could not find a procedure for this job so I just jumped in and worked this one out. The entire process took about 3-1/2 hours including time to record a few pictures. Along the way I learned some steps that will help save time if I ever need to do this again. Looking at the engine the location of the water pump was not obvious. Once I purchased a new pump and held it up to the engine, the task became clear. Note: The engine should be cold for this procedure.

STEP 1: REMOVE THE UPPER ENGINE SHROUD

This is the cheap plastic cover over the front of the engine. Lift up on the front then slide it forward and away from the engine. This step will let you see the serpentine belt and the water pump.

STEP 2: RECORD THE SERPENTINE BELT ARRANGEMENT

I did not see a diagram of the serpentine belt anywhere on the engine or in the owner's manual. I did not have a repair manual so I took the time to make a simple hand drawn diagram to ensure I replaced the belt correctly at the end of the job. Here is the best reproduction I could draw in MS Word.

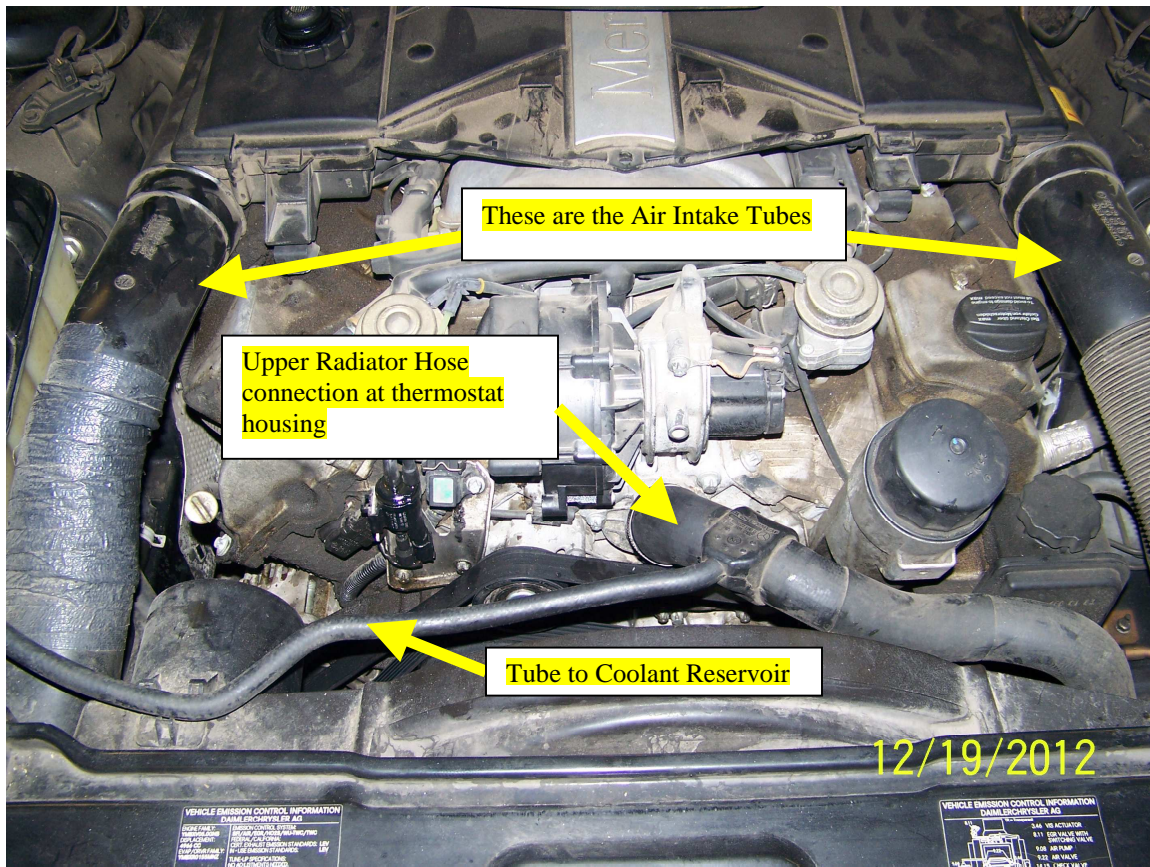


LEGEND:

- ALT = Alternator
- WP = Water Pump
- I = Idler
- T = Tensioner
- PS = Power Steering
- A/C = Air Conditioning Compressor
- ENG = Engine Vibration Damper (Main Engine Power Take off)

STEP 3: CLEAR OBSTACLES FROM TOP ACCESS

Disconnect the upper radiator hose from thermostat housing and disconnect the attached small hose from the coolant reservoir. You cannot disconnect these from the radiator so just swing them out of the way on the right. Also remove the air intake tubes on either side of the radiator. These will just be in the way as you work on the water pump. Here is a picture with the front engine shroud removed

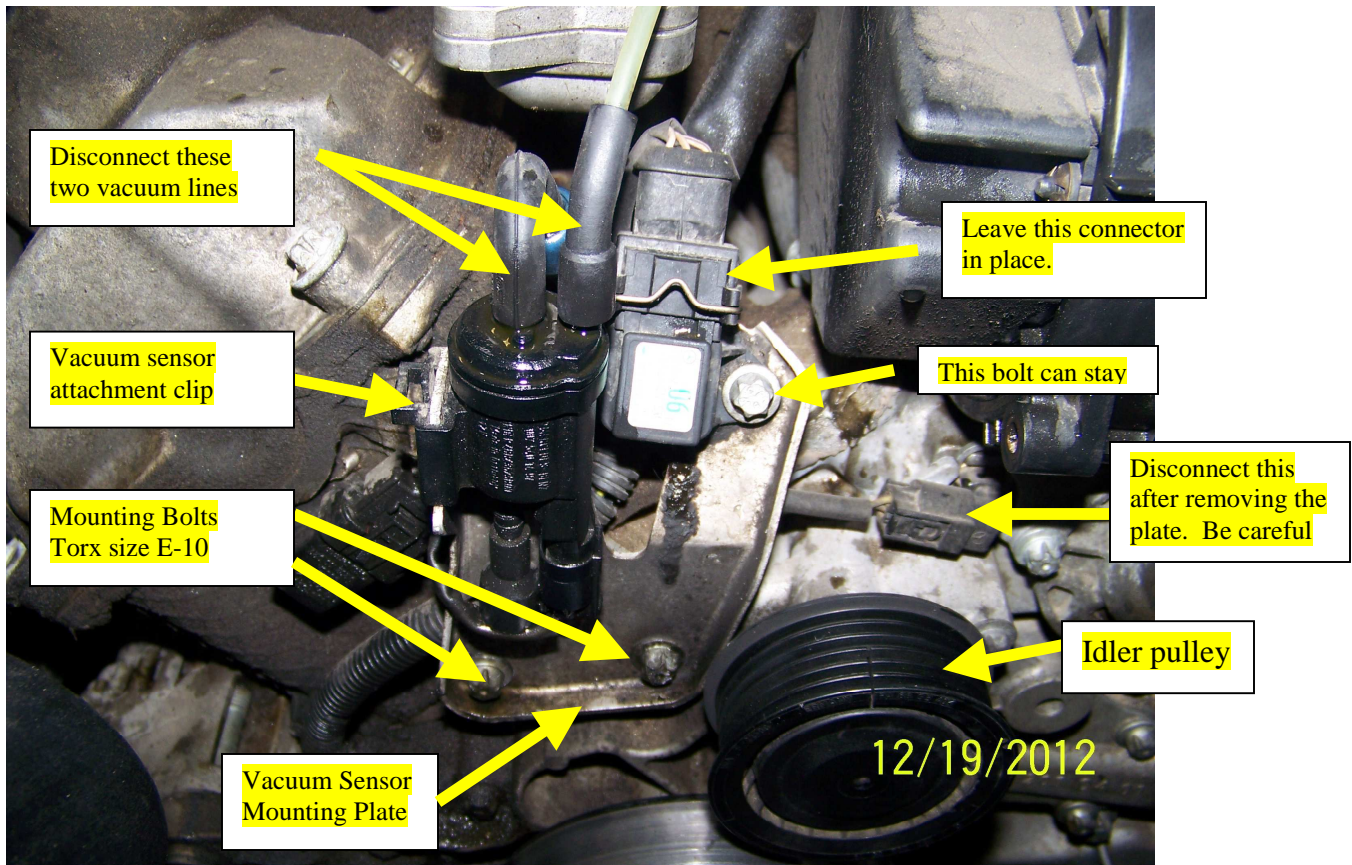


STEP 4: REMOVE THE SERPENTINE BELT AND THE WATER PUMP PULLEY

I actually did this step out of order and learned the hard way that it is easier to access the lower water pump hose once the water pump pulley is out of the way. I mention the serpentine belt in this step because you want that to remain in place until you loosen the four bolts holding the water pump pulley on the water pump so that the belt will hold the pulley while you loosen the bolts. This will take a 5mm Allen wrench or socket set wrench. Loosen the four bolts then remove the serpentine belt. The belt tensioner takes a hollow point T-50 type socket. (Note: I found a complete set of all the torx tools needed at Harbor Freight for \$15. You cannot do this job without these tools.) Release the belt tension by making about a ¼ turn counter clockwise on the tensioner. I found that I needed a second pair of hands to slip the belt off the water pump pulley while I released belt the tension. Putting it back on at the end of the job will definitely take a second pair of hands so have a helper ready to assist you.

STEP 5: REMOVE VACUUM SENSOR MOUNTED ON WATER PUMP

The picture below shows a mounting plate with a vacuum sensor on it. I don't know what this sensor does and for the purpose of this procedure I don't really care. The plate is mounted on the water pump so it has to be moved. The mounting plate is held by two E-10 size torx bolts shown here. Leave the electrical connector in place, remove the two vacuum lines, then unbolt the plate from the water pump. At that point you will find out that you cannot really swing this thing out of the way and need to further dismantle it



There is an electrical connector just to the right of the vacuum sensor mounting plate right above the idler pulley that will be in your way when you try to remove the water pump. After removing the plate carefully disconnect this and move the wire out of the way.

Next you will need to slide the vacuum sensor off of the plate so that you can swing it and the plate out of your way. The picture above shows the retainer clip. There is a release that needs to be gently pried outward. The picture below shows me removing the sensor after having released the clip.