

BHW Engine Coolant Temperature Replacement

NEVER perform this procedure on a hot engine.

Parts:

059 919 501 A dual temperature sensor
032 121 142 retaining spring
N 903 168 02 sensor round seal
N 905 216 04 throttle round seal
G12 or G13 coolant and distilled water

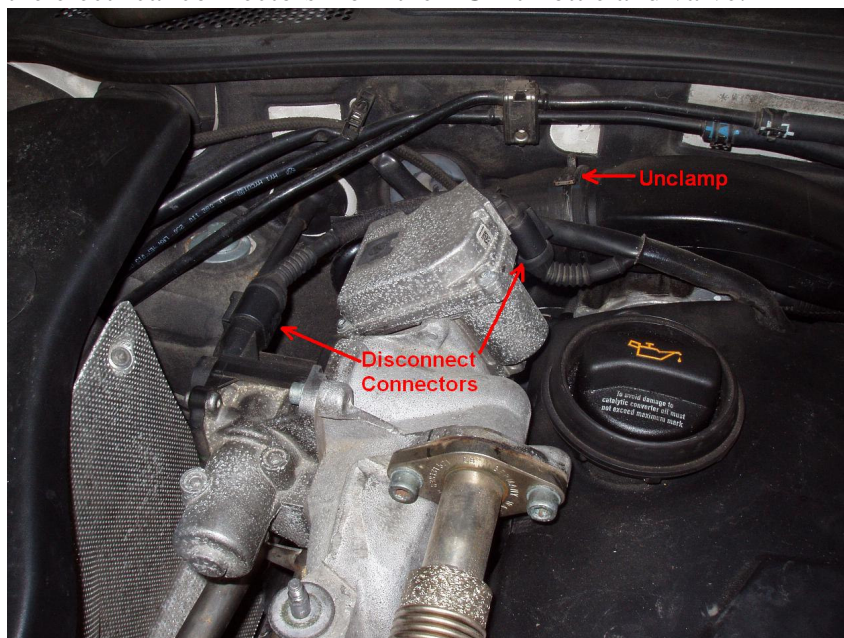
Tools:

Remote band clamp pliers
Short flat blade screwdriver
8mm triple square bit and socket ratchet, or other appropriate 8mm triple square tool

Start by removing the front bumper cover. This is documented in the first part of the TDICLUB thread <http://forums.tdiclub.com/showthread.php?t=241307>.

Drain the coolant from a cold engine. On a stock radiator there is a red drain cock knob to turn with a flat blade screwdriver and a 10mm nipple for a hose. If you have an aftermarket radiator, you may not have a drain on the radiator and you'll have to disconnect the lower radiator hose.

Disconnect the electrical connectors from the EGR throttle and valve.



You will want to unbolt the rigid intake pipe near the coolant expansion bottle. This will allow you to more easily remove it from the elbow hose.

Loosen the elbow hose clamp and separate the rigid pipe from it.

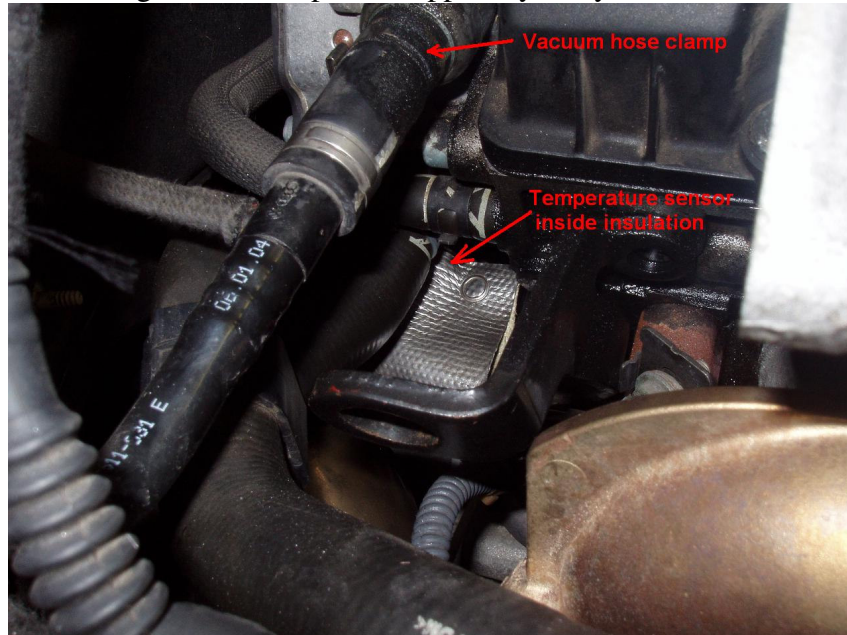


Place the elbow hose retaining clip in the service position as shown. Remove the elbow hose from the throttle.

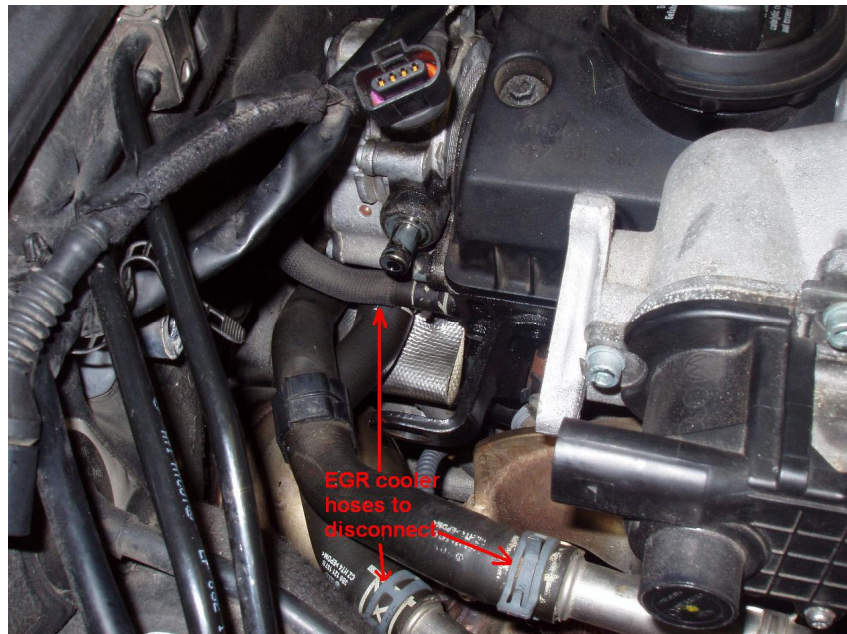


Remove the throttle. There are three bolts attaching the throttle. Use a 8mm triple-square (XZN) bit to remove them. I highly recommend the Metalnerd bit MNXZ8S for this since it is just the right length.

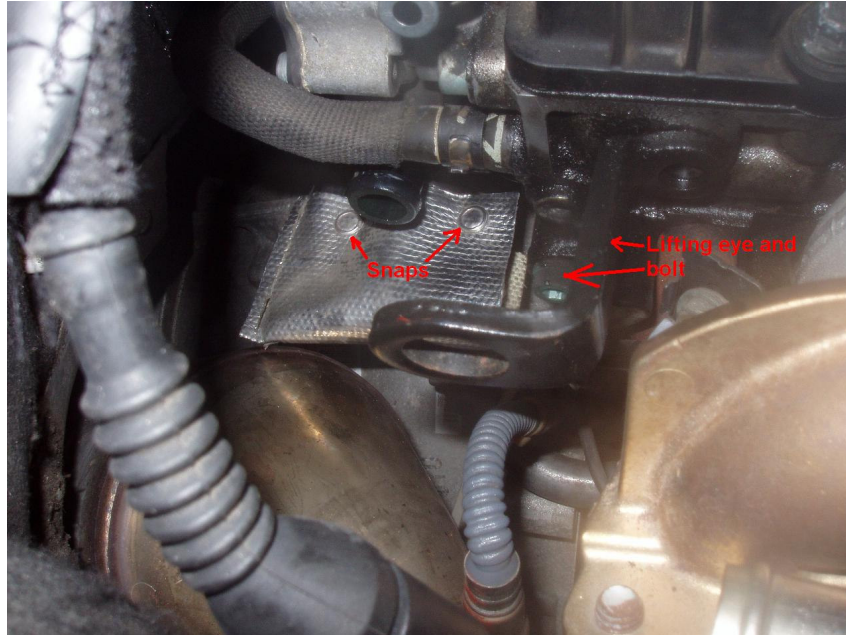
Unclamp the large vacuum hose from the pump, and disconnect the hose. Pull the vacuum tube from the grommet. Lay the hose aside. There is no need to remove the small vacuum hose. You might break the plastic nipple if you try to remove it.



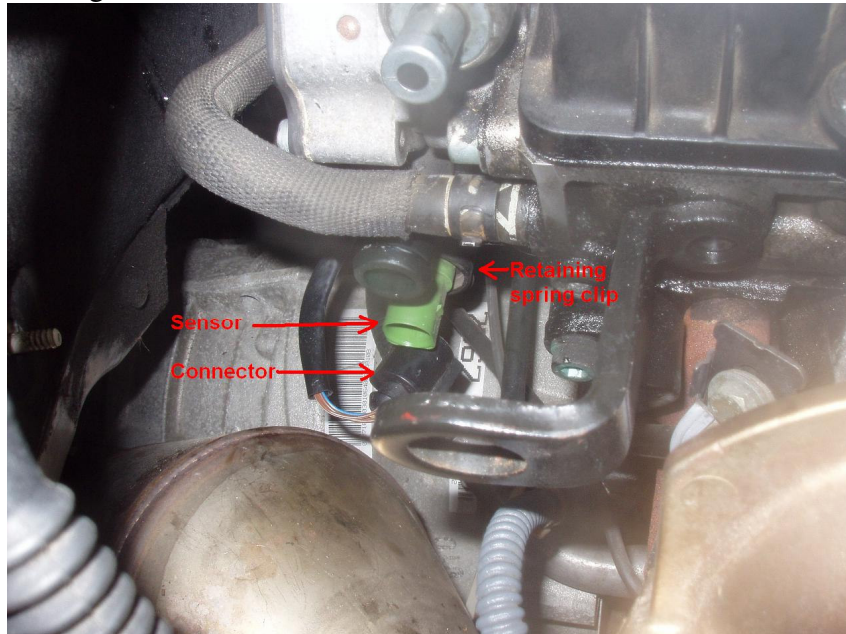
Loosen the clamps on the hoses connected to the EGR cooler and disconnect the hoses. Loosen the clamp holding the coolant hose to the housing above the sensor and disconnect the coolant hose.



Remove the bolt attaching the lifting eye (6mm hex bit/key required) and remove the lifting eye for more hand room.
If still present, unsnap the insulator and slide it back on the wiring harness or remove it.



Disconnect the electrical connector from the sensor.
Use a short flat blade screwdriver and pry the retaining spring (plastic clip) down out of the coolant housing.



Pull out the sensor.
Remove the o-ring seal if it did not come out with the sensor.
Obviously, this is where I decided it was easier with the lifting eye removed.

Installation is the reverse of removal.

Put the replacement sensor seal on the sensor and push the sensor straight into the housing until it stops.

Carefully position the retaining clip underneath, in the slots on the housing, and push it up until it snaps into place.

If correctly done, the clip won't break and the sensor cannot be pulled out of the housing.

After reconnecting all the coolant hoses, I pressurize the cooling system with VW tool VAG 1274 B. This will test if the seal is properly sealing before putting coolant back in. Most people don't have that tool, so you'll just have to hope it seals.



Filling the cooling system is a matter of pouring coolant in, and letting air out. Start by making sure the small hose that connects to the top of the expansion bottle does not have coolant in it. Pull back the heater core hose to allow air out through the bleed hole. Slowly fill the system with coolant until the expansion bottle is filled to the seam.

You can further fill the system until coolant comes out the bleed hole by the procedure at this TDICLUB post: <http://forums.tdiclub.com/showpost.php?p=1808372&postcount=11>

I use the VAG 1274 B to push coolant through the system until it comes out the bleed hole.

Reconnect and clamp the heater core hose.

The system is mostly full at this point. Start the engine and run it until fully warmed up. You will hear "gurgling" at first. Run the engine at higher RPMs to get the water pump to fully circulate the coolant. Allow the car to cool down. Top up with coolant, and re-bleed the system through the heater core hose. Repeat as necessary.