Lower temp thermo-switch for S4 after-run system.....(RESULTS ADDED)

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Purpose:
The S4 came equipped with an after-run system from the factory. The system utilizes a coolant pump to run coolant through the system for up to 10 minutes after the car has been shut off. The system also runs the electric radiator fan on low speed during this time. This is a great feature for a turbocharged car; however, Audi installed a pretty high temp thermo-switch to activate the system. The system from the factory was installed with a thermo-switch that activates at 112C (234F). This causes the system to VERY rarely activate. In order to allow best use of this system a lower temperature thermo-switch should be installed to activate the system on a regular basis.

The following is a write-up on installing a thermo-switch that activates at 93C (198F), insuring operating of the after-run system almost anytime the car is brought up to operating temperature.

Parts Needed:
021 919 369 - Thermo-switch
N 903 168 02 - O-ring

Parts should cost around $20-$30 from your local dealer

A special thanks to Modified A4 for finding the low temp thermo-switch part number.

Tools Needed:
Phillips screwdriver
Needle-nose pliers
Flat head screwdriver (optional)

Procedure:
Step 1:
Remove the expansion tank cap to relieve pressure, then re-install cap. Next, remove the coolant expansion tank by removing the 3 phillips screws. Once the screws are out slowly move the tank until you can disconnect the level sensor at the bottom of the tank (not pictured). Move the coolant expansion tank of the side.

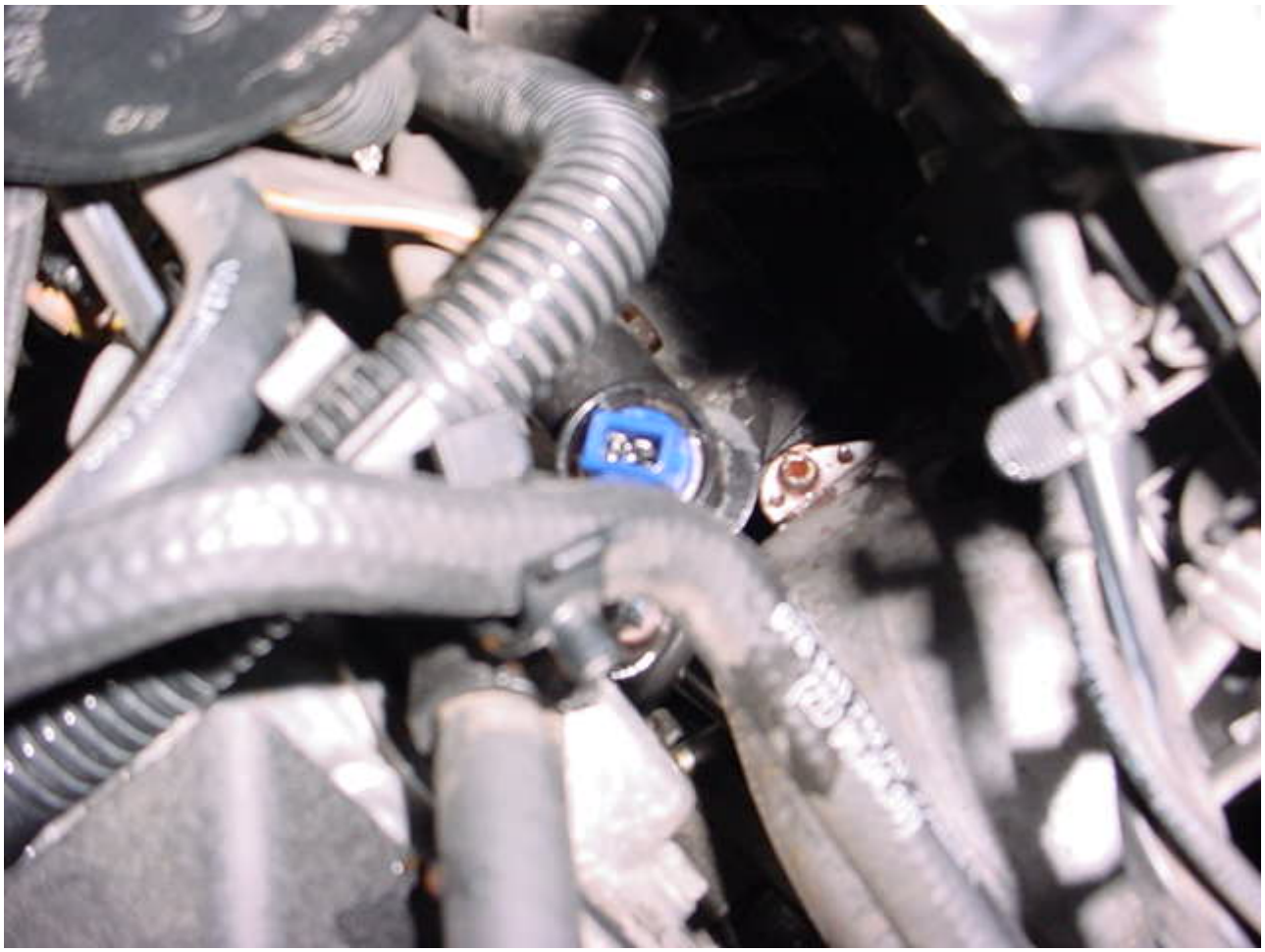
Step 2:
Now you have access to the thermo-switch. Using a needle-nose pliers reach in and pull the metal retaining tab that holds the connector to the thermo-switch body. Once the retaining clip is out you can pull the connector off.

Step 3:
The thermo-switch is held in the coolant pipe with a black metal clip that slides over the sensor. Slide out the metal clip, in the direction of the arrow, to free the thermo-switch. The clip should slide out pretty easy, if you have trouble you can use a flat head screw driver to pry the clip out.

Step 4:
To remove the thermo-switch you just pull it straight out. My thermo-switch was a little hard to get out but eventually it just pulled out. When you first pull the thermo-switch out a little bit of coolant will escape (not much should escape if you released the pressure though).

I didn't have a new o-ring so I re-used the existing one, seems to be working so far. The factory thermo-switch has a green body, the new thermo-switch has a blue body. Put the o-ring on the new thermo-switch then press it into the coolant pipe. Installation is reverse of removal.

Make sure you re-connect your coolant level sensor connector and put your coolant overflow hose on the outside (towards the wheel) of the heat shield. This procedure should only take 5-10 minutes to complete.



Results:
Here's some (highly unscientific) testing I did. I took the car for a drive with each thermo-switch. The drives were a day apart, the car was run from a cold condition both times. I took the same route (about 10-15 mins) and really never even got in the boost on either trip.

What I did:
I measured temps after I got back and shut the car off. I checked temps right as I shut the car off. I then left the car off and came back and checked temps 5, 10, and 15 minutes after I turned the car off. Oil temp was from gauge, all others were from VAG. Car was parked in my small 1-car garage with the garage door left open. Results are as follow.

Results with **factory** thermo-switch; after-run pump did NOT operate. **Outside Temp: 70F**

On shut-down:
Oil - 200F (93C)
Coolant - 200F (93C)
IAT - 99F (37C)

5 mins after shut-down:
Oil - ~195F (91C)
Coolant - 212F (100C)
IAT - 122F (50C)

10 mins after shut-down:
Oil - ~180F (82C)
Coolant - 207F (97C)
IAT - 144F (62C)

15 mins after shut-down:
Oil - ~175F (79C)
Coolant - 203F (95C)
IAT - 153F (67C)

Results with **LOW TEMP** thermo-switch; after run pump DID activate. **Outside temp: 77F**

On shut-down:
Oil - 200F (93C)
Coolant - 200F (93C)
IAT - 108F (42C)

5 mins after shut-down:
Oil - ~190F (98C)
Coolant - 207F (97C)
IAT - 129F (54C)

10 mins after shut-down:
Oil - ~175F (79C)
Coolant - 199F (93C)
IAT - 136F (58C)

15 mins after shut-down:
Oil - ~170F (77C)
Coolant - 198F (92C)
IAT - 145F (63C)

I'll let you guys compare the numbers and take them for what they're worth. Only item that I'll point out is that it was actually warmer out on the drive with the low temp thermo-switch.

Keywords:
low temp, temperature, thermoswitch, thermo-switch, after-run, afterrun, coolant pump, secondary, electric

Disclaimer:
This is the procedure I used on my 2000 S4, 6-speed. This procedure should work for other B5 S4's. Attempt at your own risk, the author is not responsible for others that attempt this procedure.

Note: Cars equipped with secondary air injection systems (S4 autos) could cause some additional difficulty in accessing the thermo-switch.