

Display of “Coolant temperature too high” in Group V6 and V8 Engines

Vehicles Affected

Models	Model Year	Model Type	VIN Range	Vehicle-Specific Equipment
Panamera	2017 - 2021	971	n/a	n/a
Macan	2019 - 2021	95B	n/a	all, except 4-cylinder
Cayenne	2019 - 2021	9YA, 9YB	n/a	n/a

Revision History

Revision	Release Date	Changes
0	April 1, 2023	Original document

Condition

Customer complains about “Coolant temperature too high” warning message, Instrument Cluster fault code B19A750.

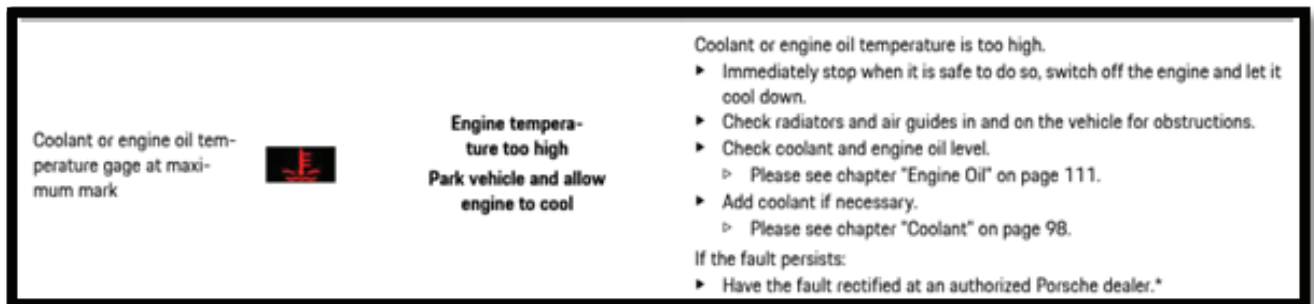


Figure 1 - Owner's Manual Information for Over-Temperature Warning (B19A750)

Technical Background

The aforementioned warning message in the instrument cluster (IC) only displays when the coolant temperature exceeds the warning threshold. The vacuum changeover valve controlling the water pump's sleeve in the aforementioned engines is known to intermittently stick, thus causing the overheat warning in the IC.

Figure 2 simulates an overheat condition by overriding the changeover valve for the coolant pump sleeve. For this simulation, the valve's electrical connection to the DME remained intact, but the simulation removed the valve from the vacuum lines, forcing the coolant pump's sliding sleeve to remain in the blocked flow position (no coolant circulation). Thus, the simulation's data of Figure 2 shows a 'forced' overheat condition from cold-start. In this simulation, the DME commands the changeover valve to switch, opening the pump's sleeve, allowing coolant to circulate (if the valve was connected). The blue series line shows this switch around 500 seconds of engine run time. Because the valve is not in-line with pump's vacuum supply (removed except electrically), the sleeve never opens, and the IC warning "Display of coolant temperature too high, active" results after approximately 25 minutes.

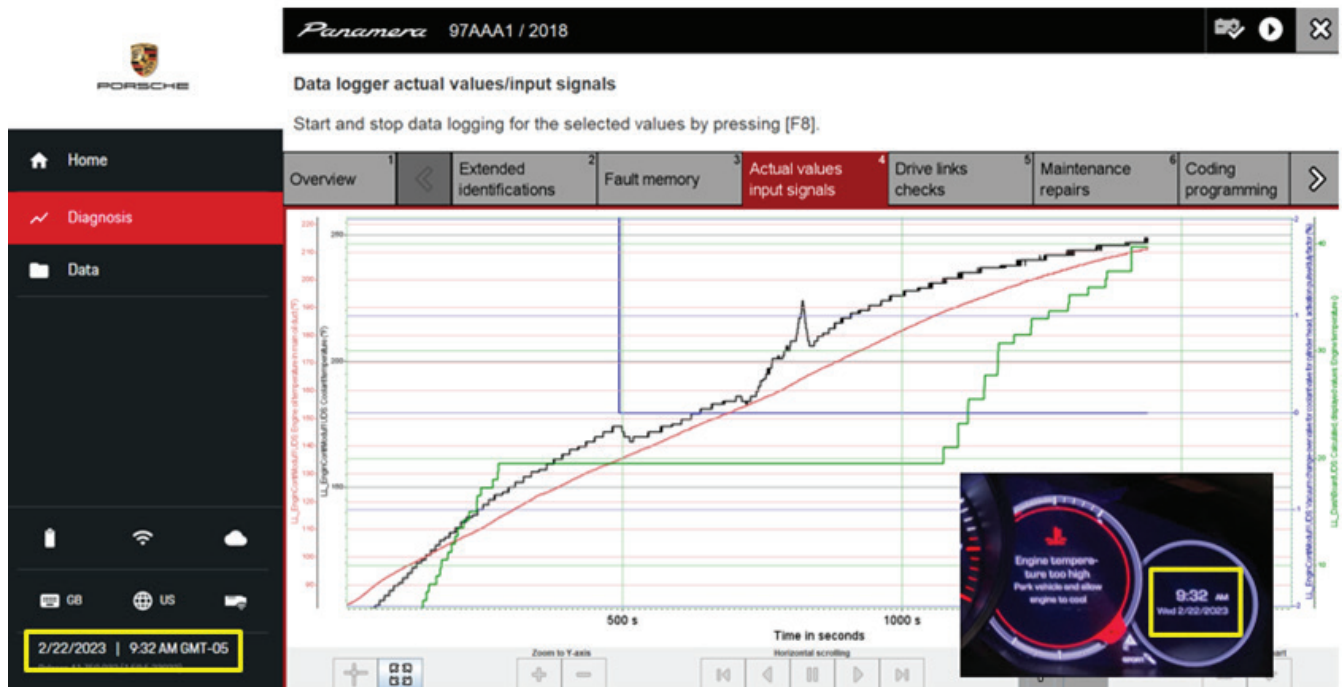


Figure 2 - Tester Tracing of Forced Overheating from Overridden Water Pump Changeover Valve

B19A7F0 - Display of coolant temperature too high, active	
Open Guided Fault Finding	
Fault	EA6603
Hinweis_Prio	6
Fault status	Passive
10_Unique fault path (DFCC)	15361539
12_Fault status - last test cycle	Passive
16_Fault detected in current operating cycle	No
Pending DTC	Malfunction in current or last driving cycle not detected
11_Fault status - current test cycle	active
15_Diagnostics since fault memory was last cleared	locked
17_Fault detected since fault memory was last cleared	No
14_Diagnostics in current operating cycle	locked
13_Fault display in the instrument cluster	Off
Fault priority	6
36_Fault frequency counter	1
20_Fault occurrence - time stamp: 37_Fault shedding counter	134
20_Fault occurrence - time stamp: Mileage	22882 miles
20_Fault occurrence - time stamp: 2_Year	2023
20_Fault occurrence - time stamp: 3_Month	2
20_Fault occurrence - time stamp: 4_Day	22
20_Fault occurrence - time stamp: 20_Fault occurrence - time stamp - 5_Hour	9
20_Fault occurrence - time stamp: Minute	32

$255 - 121 = 134$
 121 ignition cycles
 Without warning.

Figure 3 - Fault Code B19A750 in the Instrument Cluster

The intent of Figure 3 is to help Service Departments interpret VALs when the fault B19A750 is in the instrument cluster's fault memory. Intuitively, Box 1.1 within Figure 3 shows the corresponding environmental fault data which results when the engine temperature does not exceed the warning threshold at the time of VAL. Box 1.2, "13_Fault display in the instrument cluster" shows the warning is not active in the IC at the time of the VAL. Nonetheless, it is certain the fault displayed to the operator when the engine's temperature exceeded the warning threshold, as shown in Figure 2. Box 1.3 "20_Fault occurrence – time stamp: 37_Fault shedding counter" indicates the number of ignition cycles (KL 15) since the fault last occurred. When the fault first occurs, the value for this environmental data label begins at 255. Each successive KL 15 DME switch-on condition in which the fault is not active causes this counter to index downwards. In the example of Figure 3, we can observe that it has been 121 ignition cycles since the warning last occurred.

Service Information

Please follow the function test as outlined in "TI, 1950 Warning Message "Coolant Temperature Too High": Checking Coolant Pump and Change-Over Valve (173/21)" The vacuum changeover valve controlling the water pump's sleeve in the aforementioned engines is known to intermittently stick, thus causing the overheat warning in the IC. Therefore, it is imperative to check its function as thoroughly as possible under various temperature conditions, because temperature can play a role in its behavior.

Please follow the referenced TI and appropriate workshop manuals for any work deemed necessary.

Warranty

As always, please document the repair completely in PQIS.

For this repair, please code the "cause" as follows:

Cause location: 19500 Coolant pump

Cause symptom: 1611 No function

Search Items

Coolant leak, water pump, change-over valve, switching valve, overheating, temperature.

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