Warning Message “Coolant Temperature Too High”: Checking Coolant Pump and Change-Over Valve (173/21)

Revision: This bulletin replaces bulletin Group 1 173/21, dated December 19, 2022.

Model Year: **As of 2018 up to 2023**

Model Line: **Macan S (95B) / Macan GTS (95B) / Macan Turbo (95B)**

Cayenne (9YA / 9YB)

Equipment: V6 Turbo engine

Concerns: **Change-over valve for coolant pump**

Cause: The customer complains about a warning message **“Coolant temperature too high”**. A faulty coolant pump is detected as the cause. Internal tests have shown that in some cases, the cause of a defective coolant pump is a faulty change-over valve for the coolant pump.

Action required: If the coolant pump is faulty or leaking, also check the change-over valve for the coolant pump and replace it if necessary.

Model Line: **Cayenne (9YA / 9YB)**

Equipment: 4.0-liter V8 Biturbo engine

Concerns: **Change-over valve for coolant pump**

Cause: The customer complains about a warning message **“Coolant temperature too high”**. A faulty coolant pump is detected as the cause. Internal tests have shown that in some cases, the cause of a defective coolant pump is a faulty change-over valve in the coolant pump.

Action required: If the coolant pump is faulty or leaking, also check the change-over valve for the coolant pump and replace it if necessary.

Required tools, parts and material (V6 Turbo)

Tools:

- **P90999 - PIWIS Tester 4**
- Hand vacuum pump, e.g. **VAS 6213 - Hand vacuum pump**
- Battery charger with a current rating of **at least 90 A** and - if required - **also** with a **current and voltage controlled charge map** for lithium starter batteries, e.g. **VAS 5908 90 A battery charger**

For further information about the battery chargers to be used, see the corresponding Workshop Manual.
⇒ *Workshop Manual '270689 Charging vehicle electrical system battery'*

Parts Info: **Required parts:**

Part No.	Designation – Location	Number
PAB906283	⇒ Change-over valve – Coolant pump	1 piece
	and / or	
9A712101304	⇒ Coolant pump	1 piece
	Additional parts required for replacing the coolant pump:	
9A712111903	⇒ Seal – Coolant pump	1 piece
9A712117100	⇒ Sealing ring – Coolant pipe above coolant pump	1 piece
9A700565200	⇒ O-ring (17 x 3) – Coolant pipe above coolant pump	1 piece
9A712143713	⇒ Sealing ring (41.8 x 1.85) Disconnect coolant pipe for coolant pump	1 piece
9A700792000	⇒ O-ring (31.34 x 3.53-N) Disconnect coolant pipe for coolant pump	1 piece

Materials: **Required materials** (usually already available in the Porsche Center):

Part No.	Designation – Location	Quantity
00004330501	⇒ Grease – O-rings	5 grams/ 0.176 oz
00004330516	⇒ Coolant additive	0.5 liter/ 16.9 fl oz

Required parts and materials (V8 Biturbo)

Parts Info:

Part No.	Designation – Location	Number
9A7906283	⇒ Change-over valve – Change-over valve coolant pump	1 piece
	and / or	

PAB121014C	⇒ Coolant pump	1 piece

Additional parts required for replacing the coolant pump:

9A712122801	⇒ Seal – Coolant pump	1 piece
9A700781400	⇒ O-ring (55 x 5.33) – Coolant distributor housing on coolant pump	1 piece
9A712113900	⇒ Seal – Coolant distributor housing outer	2 pieces
9A700780900	⇒ O-ring (80 x 4) – Coolant distributor housing center	1 piece
95510742700	⇒ Round seal (12 x 2) – Guide tube for oil dipstick	1 piece
N 90774002	⇒ Hexagon-head bolt (combination) (M16 x 1.5 x 75) – Crankshaft vibration damper	1 piece
9A726093806	⇒ Deflection roller with screw – V-ribbed belt for air-conditioning compressor	1 piece

Valid for vehicles **with** Porsche Dynamic Chassis Control (PDCC) **(M-No. 1P7)** and **without** engine underprotection **(M-No. 1SF)**

PAF00072900	⇒ Hexagon socket head bolt – Front section of front underbody cover	3 pieces

or

Valid for vehicles **with** engine underprotection **(M-No. 1SF)**

N 10082912	⇒ Hexagon flange bolt (combination), M6 x 16 – Front engine protection on holder	3 pieces

Additional parts required for adjusting the chassis:

PAF91237901	⇒ Hexagon flange bolt (combination) (M14 x 1.5 x 100) – Front axle carrier on body rear	4 pieces
PAF91184301	⇒ Hexagon-head bolt (M12 x 1.5 x 90) – Front axle carrier on body front	4 pieces
PAF005372	⇒ Cheese head bolt with multiple-tooth head (M12 x 1.5 x 51) – Front axle support to front axle carrier	2 pieces

PAF911511	⇒ Hexagon-head bolt (combination) (M12 x 1.5 x 42) – Front axle support to front axle carrier	4 pieces
WHT002305	⇒ Square nut (M12 x 1.5) – Front axle support to front axle carrier	4 pieces

Materials: **Required materials** (usually already available in the Porsche Center):

Part No.	**Designation – Location**	**Quantity**
00004330501	⇒ Grease – O-rings	5 grams/ 0.176 oz
00004330516	⇒ Coolant additive	0.5 liter/ 16.9 fl oz

Required tools (V8 Biturbo)

Tool:

- Torque wrench, 2-10 Nm (1.5-7.5 ftlb.), e.g., **V.A.G 1783 - torque wrench, 2-10 Nm (1.5-7.5 ftlb.)**
- Torque wrench, 20-100 Nm (15-74 ftlb.), e.g., **VAS 5820 - torque wrench, 20-100 Nm (15-74 ftlb.)**
- Torque wrench, 40-200 Nm (30-148 ftlb.), e.g., **V.A.G 1332A - torque wrench, 40-200 Nm (30-148 ftlb.)**
- Hand vacuum pump for checking the changeover valve of the coolant pump, e.g. **VAS 6213 - Hand vacuum pump**
- **VAS 6890 - Spring band clamp pliers**
- **T40330 - Counter-hold tool**
- **T40363 - Socket wrench a/f 24**
- **P90999 - PIWIS Tester 4**
- Battery charger with a current rating of **at least 90 A**, e.g., **VAS 5908 - battery charger 90 A**

Additionally required tools for draining and refilling coolant:

- **9696 - Filling device**
- **3094 - Hose clamp**
- **VAS 6096/2 - Vacuum pump**

Additionally required tools for measuring and adjusting the assist systems:

- **9229/1 - Puller hook**
- **T40183 - Insertion tool**
- **VAS 6826 - Steering wheel balance**
- **VAS 6918 - Quick-clamping unit**
- **VAS 6430/1A - Adjustment device with reflector**
- **VAS 6430/3 - Mirror for adjustment device**

- **VAS 6350A - Calibration unit**
- **VAS 6430/6 - Night View Assist calibration unit**
- **VAS 6430/4 - Lane Keep Assist calibration board**
- **VAS 6350/2A - Spacing laser**
- **VAS 721 001 - Calibration System**

Additionally required Tools for adjusting the main headlights:

- LED headlights: **VAS 5209B - Headlight aiming device**
- Setting LED headlights or Matrix LED headlights: **VAS 5208A - Headlight aiming device**
- MATRIX LED headlights: **VAS 621 001 - Headlight adjusting unit**

Preparatory work (V6 Turbo)

Work Procedure: 1 Remove belt pulley. ⇒ *Workshop Manual '195319 Removing and installing pulley (V6 turbo)'*

2 Connect a suitable battery charger with a current rating of **at least 90 A**, e.g. **battery charger 90 A**, to the jump-start terminals in the luggage compartment and switch it on. ⇒ *Workshop Manual '270689 Charging vehicle electrical system battery'*

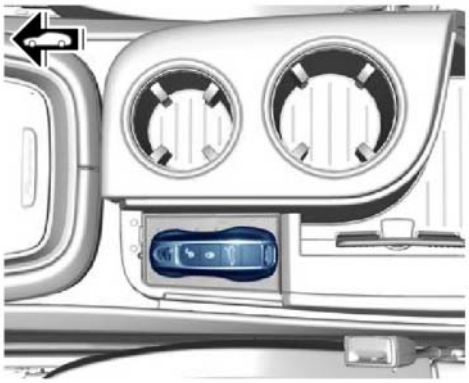
3 Place driver's key in emergency start tray.

4 Connect **P90999 - PIWIS Tester 4** to the vehicle communication module (VCI) via the **USB cable**, connect communication module to the vehicle and switch on PIWIS Tester.

5 Switch on ignition.

6 On the PIWIS Tester start screen, call up the **"Diagnostics"** application.

The vehicle type is then read out, the diagnostic application is started and the control unit selection screen is populated.



Emergency start tray

Preparatory work (V8 Biturbo)

Work Procedure: 1 Remove moulded hose. ⇒ *Workshop Manual '213919 Removing and installing moulded hose (V8 Biturbo)'*

2 Connect a suitable battery charger with a current rating of **at least 90 A**, e.g. **battery charger 90 A**, to the jump-start terminals in the luggage compartment and switch it on. ⇒ *Workshop Manual '270689 Charging vehicle electrical system battery'*

3 Place driver's key in emergency start tray.

4 Connect **P90999 - PIWIS Tester 4** to the vehicle communication module (VCI) via the **USB cable**, connect communication module to the vehicle and switch on PIWIS Tester.

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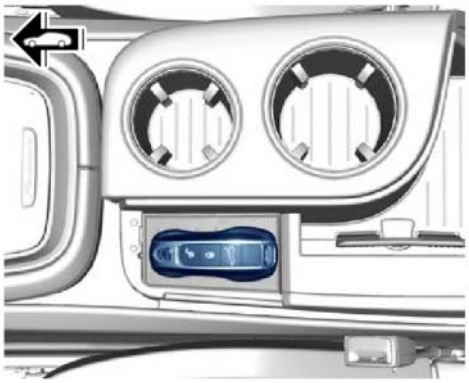
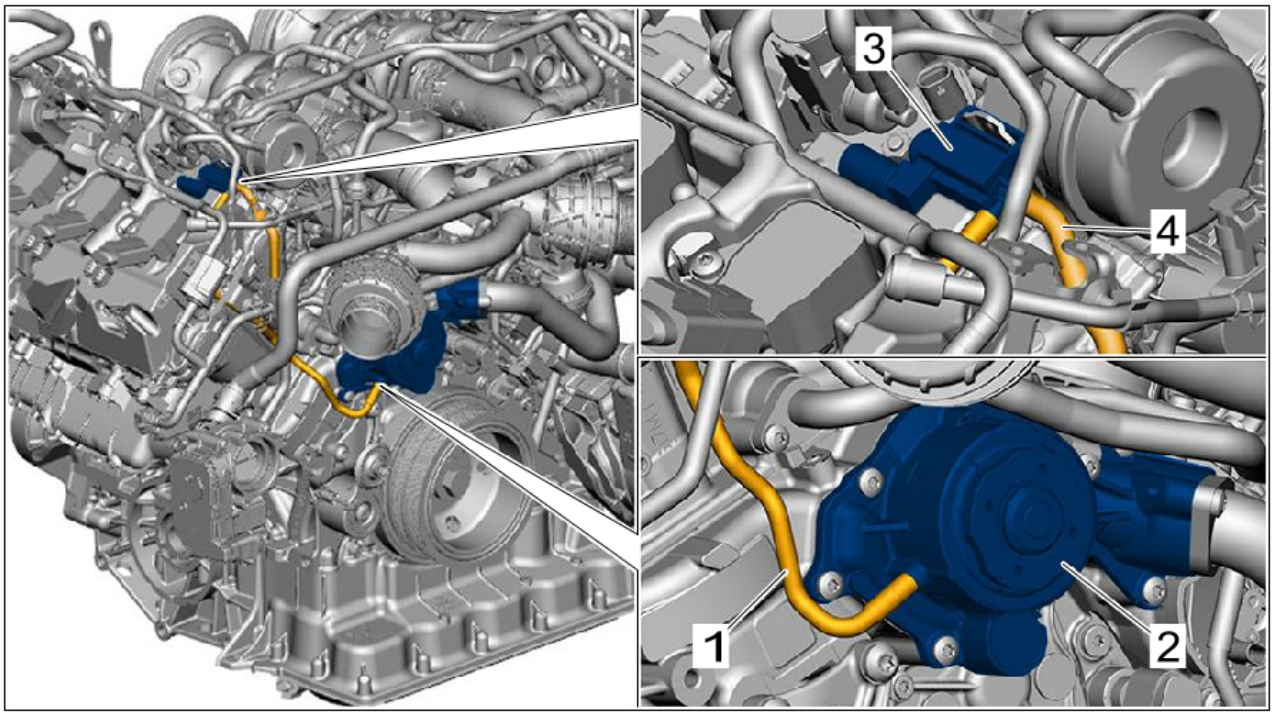


Emergency start tray

Checking change-over valve for coolant pump and replacing it if necessary (V6 Turbo)

Work Procedure:



Position of change-over valve and coolant pump

1 Pull vacuum hose ⇒*Position of change-over valve and coolant pump* **-1-** off the coolant pump ⇒*Position of change-over valve and coolant pump* **-2-**.

2 Pull off vacuum hose ⇒*Position of change-over valve and coolant pump* **-4-** from the control valve ⇒*Position of change-over valve and coolant pump* **-3-**.

3 **VAS 6213 - Hand vacuum pump** must be ⇒*Position of change-over valve and coolant pump* **-3-** connected to the change-over valve ⇒*Position of change-over valve and coolant pump* **-4-** on the vacuum hose connection. Then build up vacuum.

Information

Stop the test procedure if a vacuum cannot be built up. In this case, the change-over valve is faulty and must be replaced. Continue with Step 5. If a vacuum can be built up, continue with Step 4.

4 Perform drive link test:

4.1 Select **"Motor electronics (DME)"** control unit.

4.2 Select the **"Drive links / checks"** menu.

4.3 Select **"Drive links"** and press •F12 " Next to confirm.

4.4 Select **"Activation of vacuum switchover valve for main coolant pump"** and press •F8 " to start.

- If the vacuum in the vacuum pump display changes, the change-over valve ⇒*Position of change-over valve and coolant pump* **-3-** is intact. Continue with Step 5. In this case, only ⇒*Position of change-over valve and coolant pump* **-2-** replace the coolant pump if it is faulty.
- If the vacuum in the vacuum pump display does not change, the change-over valve ⇒*Position of change-over valve and coolant pump* **-3-** and, if necessary, the coolant pump ⇒*Position of change-over valve and coolant pump* **-2-** must be replaced, if the coolant pump is ⇒*Position of change-over valve and coolant pump* **-2-** also faulty.

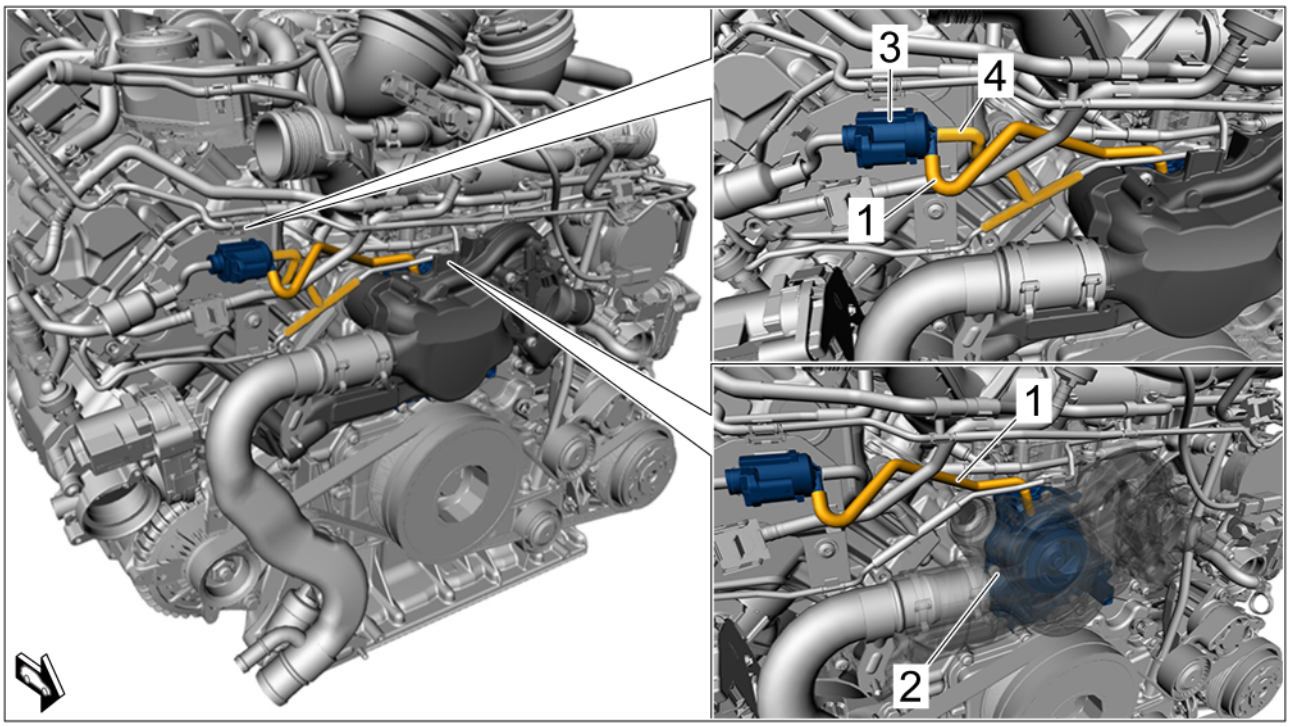
⇒*Workshop Manual '195019 Removing and installing coolant pump (V6 biturbo)'*

5 Disconnect **VAS 6213 - hand vacuum pump** from the vacuum hose ⇒*Position of change-over valve and coolant pump* **-1-**.

6 Install vacuum hose ⇒*Position of change-over valve and coolant pump* **-1-** on coolant pump ⇒*Position of change-over valve and coolant pump* **-2-**.

Checking change-over valve for coolant pump and replacing it if necessary (V8 Biturbo)

Work Procedure:



Position of change-over valve and coolant pump

1 Pull vacuum hose ⇒*Position of change-over valve and coolant pump* **-1-** off the coolant pump ⇒ *Position of change-over valve and coolant pump* **-2-**.

2 Pull off vacuum hose ⇒*Position of change-over valve and coolant pump* **-4-** from the control valve ⇒*Position of change-over valve and coolant pump* **-3-**.

3 **VAS 6213 - Hand vacuum pump** must be ⇒*Position of change-over valve and coolant pump* **-3-** connected to the change-over valve ⇒*Position of change-over valve and coolant pump* **-4-** on the vacuum hose connection. Then build up vacuum.

Information

Stop the test procedure if a vacuum cannot be built up. In this case, the change-over valve is faulty and must be replaced. Continue with Step 5. If a vacuum can be built up, continue with Step 4.

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⇒*Workshop Manual '195019 Removing and installing coolant pump (V8 Biturbo)'*

5 Disconnect **VAS 6213 - hand vacuum pump** from the vacuum hose ⇒*Position of change-over valve and coolant pump* **-1-**.

6 Install vacuum hose ⇒*Position of change-over valve and coolant pump* **-1-** on coolant pump ⇒*Position of change-over valve and coolant pump* **-2-**.

Follow-up actions (V6 Turbo)

Work Procedure: 1 Switch off ignition.

2 Disconnect **P90999 - PIWIS Tester 4** from the vehicle.

3 Remove the driver's key from the emergency start tray.

4 Switch off and disconnect the battery charger.

5 Install belt pulley. ⇒*Workshop Manual '195319 Removing and installing pulley (V6 turbo)'*

Follow-up actions (V8 Biturbo)

Work Procedure: 1 Switch off ignition.

2 Disconnect **P90999 - PIWIS Tester 4** from the vehicle.

3 Remove the driver's key from the emergency start tray.

4 Switch off and disconnect the battery charger.

5 Install moulded hose. ⇒*Workshop Manual '213919 Removing and installing moulded hose (V8 Biturbo)'*

Labor position and PCSS encryption (V6 Turbo)

Labor position:

APOS	Labor operation	I No.
19505550	Replacing coolant pump (checking change-over valve)	
19505551	Replacing coolant pump (checking, removing and installing change-over valve)	

PCSS encryption:

Location (FES5)	19500	Coolant pump
Damage type (SA4)	5000	leakages

References: ⇒ *Workshop Manual '270689 Charging vehicle electrical system battery'*

⇒ *Workshop Manual '195319 Removing and installing pulley (V6 turbo)'*

⇒ *Workshop Manual '195019 Removing and installing coolant pump (V6 biturbo)'*

Labor position and PCSS encryption (V8 Biturbo)

Labor position:

APOS	Labor operation	I No.
19505540	Replacing coolant pump (checking change-over valve)	
19505541	Replacing coolant pump (checking, removing and installing change-over valve)	
44950300	Performing vehicle at front + rear	
19381750	Draining and filling coolant	
19010140	Check cooling system	
94151650	Adjusting headlights	
91722550	Calibrating Surround View camera	
91662652	Calibrating front corner radar	
91662653	Calibrating front corner radar	
90802550	Calibrating infrared camera	
27851550	Adjusting distance measuring sensor control unit	

PCSS encryption:

Location (FES5)	19500	Coolant pump
Damage type (SA4)	5000	leakages