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 2017 up to 2024**

Model Line: **Panamera (971)**

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.

Required tools, parts and material (V6 Turbo)

Tool:

- **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**
06H906283B	⇒ Solenoid 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 90344501	⇒ O-ring (45 x 3) – Pressure pipe	2 pieces

9A700872900	⇒ O-ring (14 x 3) – Suction jet pump valve	2 pieces
N 90774002	⇒ Hexagon-head bolt (combination) (M16 x 1.5 x 75) – Crankshaft vibration damper	1 piece
N 90666003	⇒ O-ring (11.5 x 3) - ATF lines (front section) to transmission oil cooler	2 pieces
9A700819800	⇒ O-ring (15 x 3.6) - ATF lines (front section) at connection point	2 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)

Tools:

- 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**
- **VAS 6562 - Porsche adapter set for cooling system tester**
- **V.A.G 1274B - Cooling system testing unit**
- **VAS 6096/2 - Vacuum pump**

Preparatory work (V6 Turbo)

Work Procedure: 1 Remove air guide. ⇒ *Workshop Manual '243619 Removing and installing air guide (V6 turbo)'*

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

3 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'*

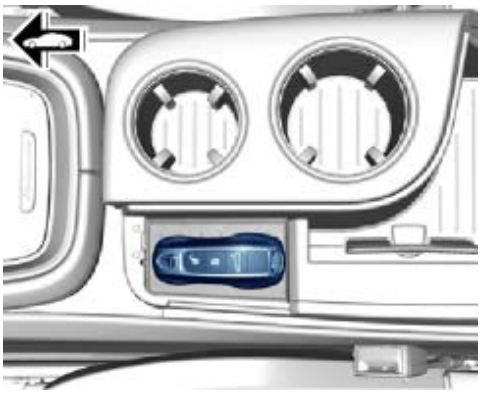
4 Place driver's key in emergency start tray.

5 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.

6 Switch on ignition.

7 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 pressure pipe on the right. ⇒ *Workshop Manual '214119 Removing and installing pressure pipe (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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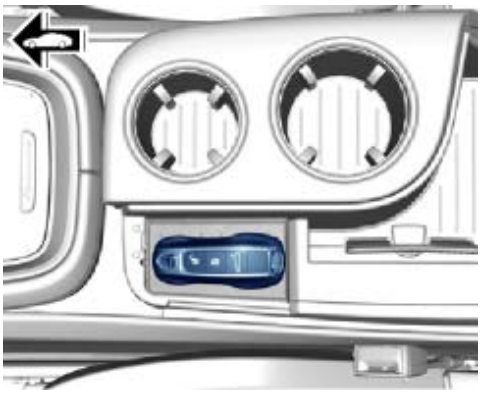
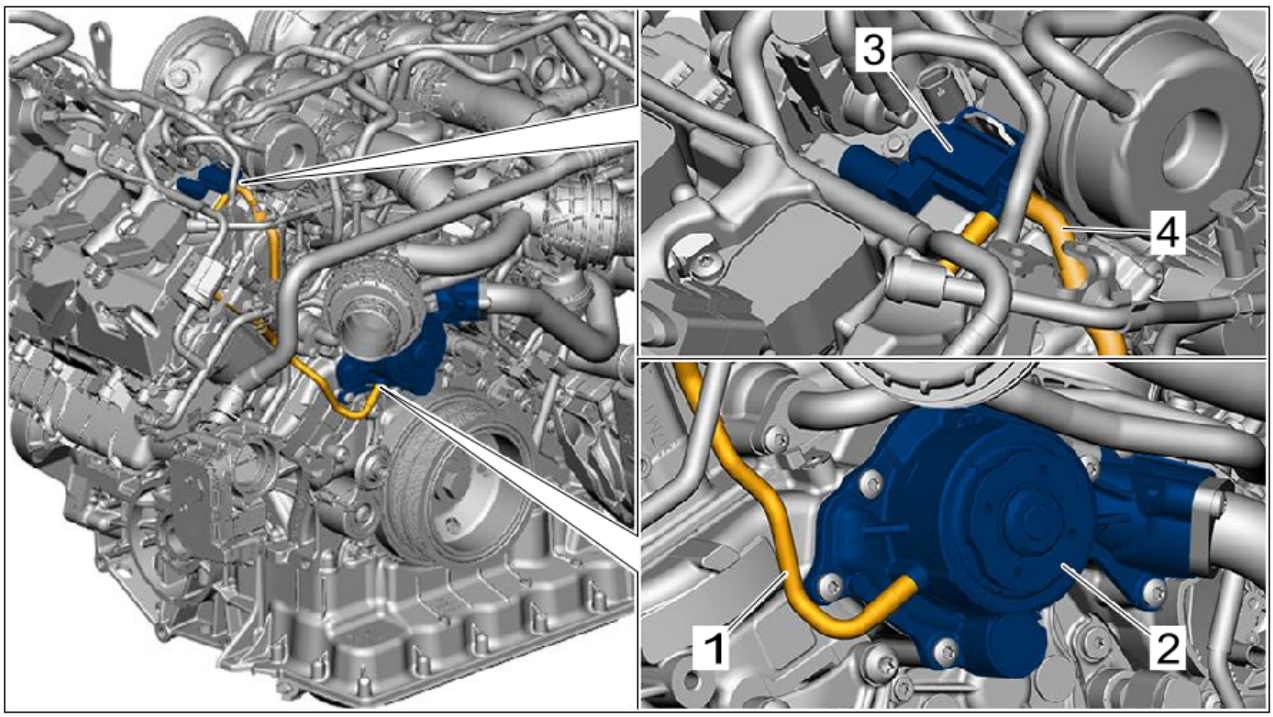


Emergency start tray

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.

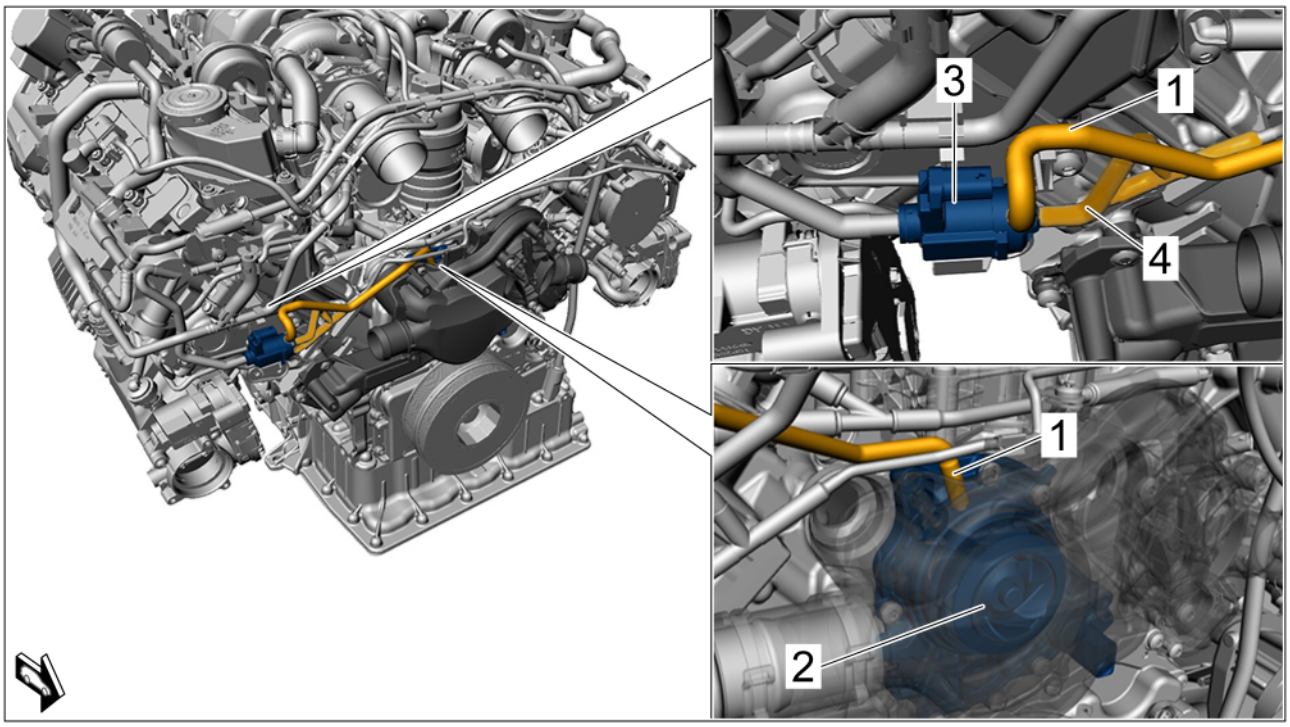
⇒*Workshop Manual '195019 Removing and installing coolant pump (V6 biturbo)'*

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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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)'*

6 Install air guide. ⇒*Workshop Manual '243619 Removing and installing air guide (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 pressure pipe on the right. ⇒*Workshop Manual '214119 Removing and installing pressure pipe (V8 Biturbo)'*

Labor position and PCSS encryption (V6 Turbo)

Labor position:

APOS	Labor operation	I No.
19505520	Replace coolant pump	
19505521	Replace coolant pump	

PCSS encryption:

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

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

⇒ *Workshop Manual '243619 Removing and installing air guide (V6 turbo)'*

⇒ *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)	

PCSS encryption:

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