

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

**Change overview:**

Release	Date	Change
0	12/19/2022	▪ First publication
1	03/12/2024	▪ Test sequence adjusted
2	01/07/2025	▪ Addition of PAB121237 for V8 Biturbo

Model Line: **Panamera (971)**

Model Year: **As of 2017 up to 2024**

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
<b>and/or</b>		
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
<b>and/or</b>		
PAB121014C	⇒ Coolant pump	1 piece
<b>Additional parts required for replacing the coolant pump:</b>		
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

PAB121237	⇒ Connecting tube – Coolant distributor housing	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**

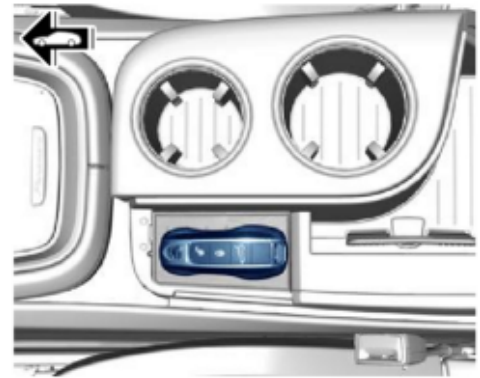
### Additionally required tools for draining and refilling coolant:

- **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 "**Diagnos**tics" application.

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

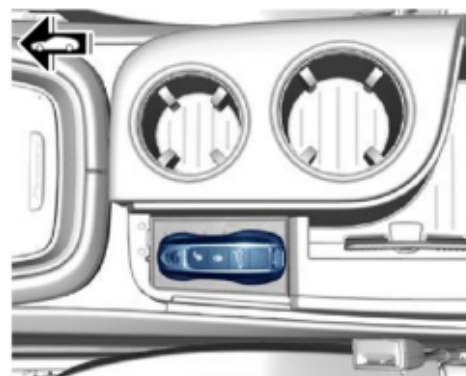


Emergency start tray

**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.
- 5 Switch on ignition.
- 6 On the PIWIS Tester start screen, call up the "**Diagnos**tics" application.



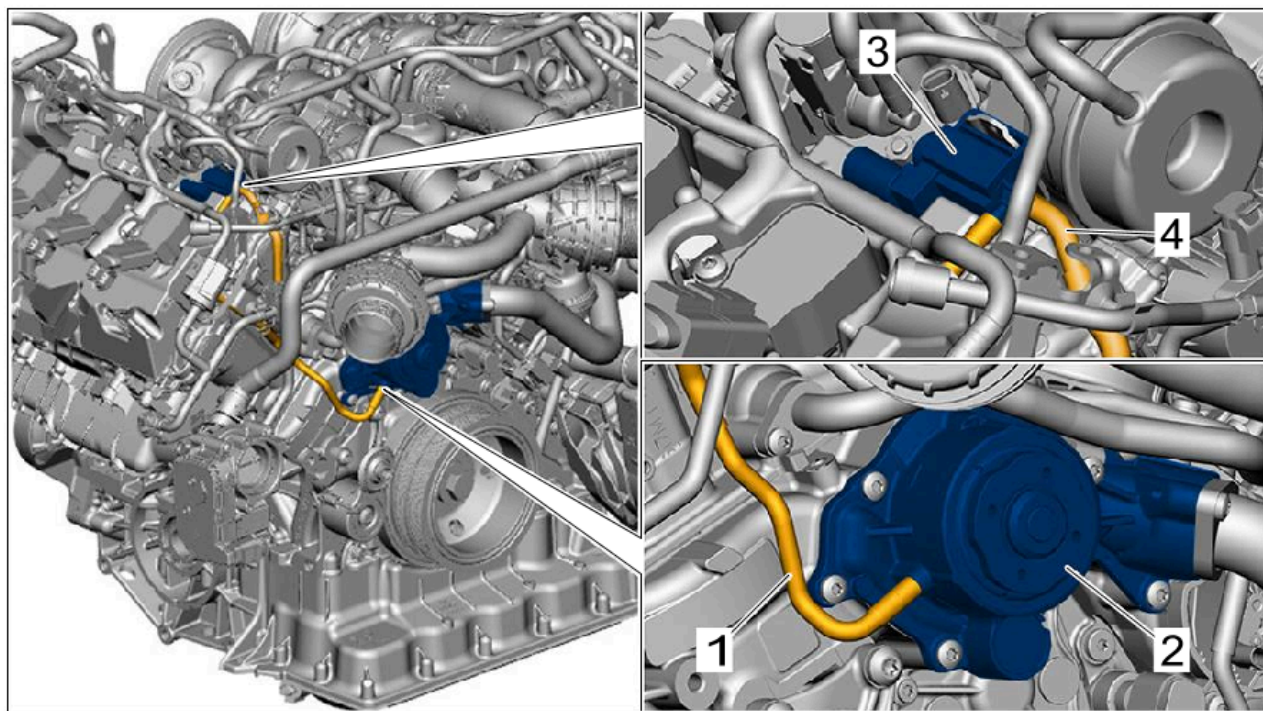
Emergency start tray

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

## 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**

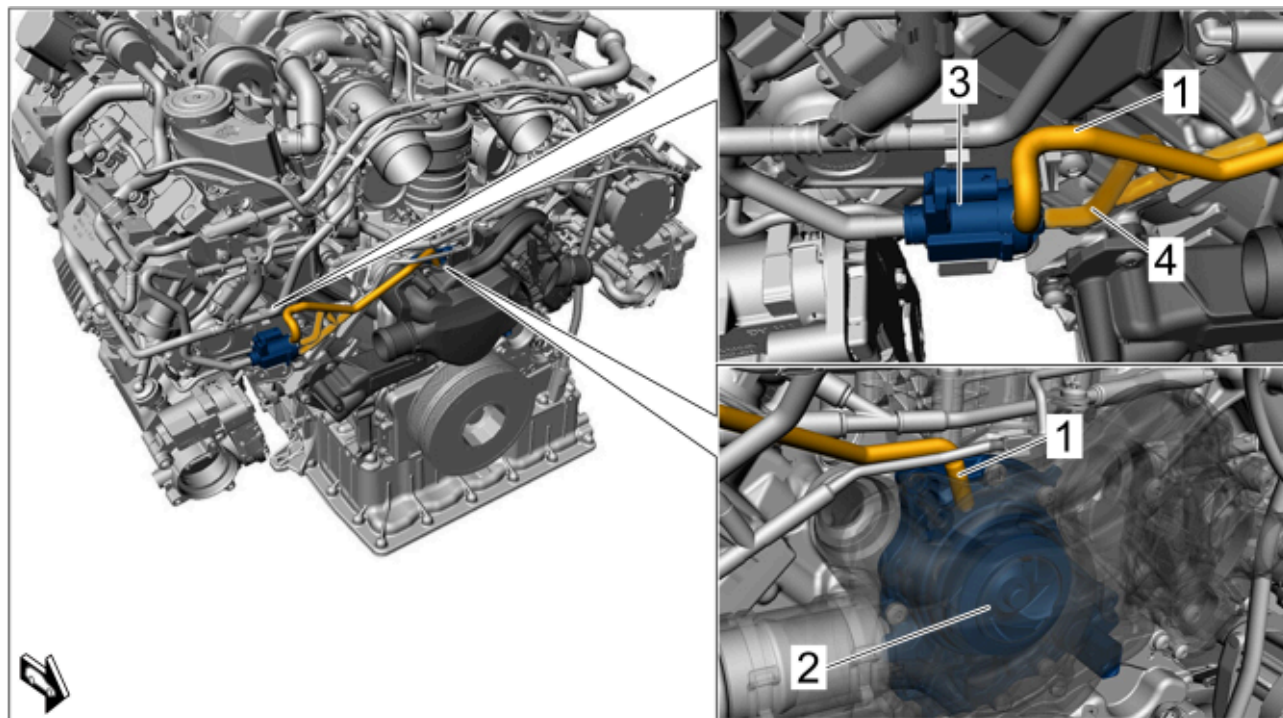
Stop the test procedure if a vacuum cannot be built up. In this case, the change-over valve is faulty and must be replaced. Continue with Step 5. If a vacuum can be built up, continue with Step 4.

- 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.

- 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 (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)'*
  - 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:

<b>Location (FES5)</b>	19500	Coolant pump
<b>Damage type (SA4)</b>	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:

<b>Location (FES5)</b>	19500	Coolant pump
<b>Damage type (SA4)</b>	5000	leakages

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