

**WH32 - Reworking Cooling Fan Housing (Workshop Campaign)**

Vehicle Type: **Panamera 4S (971)/Panamera 4 E-Hybrid (971)**

Model Year: **As of 2017 up to 2018**

Subject:

- **Cooling fan housing**
- **Pressure hose between left charge-air cooler and throttle valve for cylinders 4–6**

Information: **There is a possibility that the pressure hose between the charge-air cooler and throttle valve for cylinders 4–6 is rubbing against the cooling fan housing on the affected vehicles.**

This can cause a leak in the pressure hose at the chafing point over the service life of the vehicle. This will result in reduced engine power and the Check Engine light will be activated.

Remedial Action: Vehicles with assigned **Scope 1**:

- Rework cooling fan housing.
- Replace pressure hose with a pressure hose with an optimised shape.

Vehicles with assigned **Scopes 2 and 3**:

- Rework cooling fan housing.
- Check pressure hose for damage.
- Depending on the result of the check, replace pressure hose (**Scope 3**)



**Information**

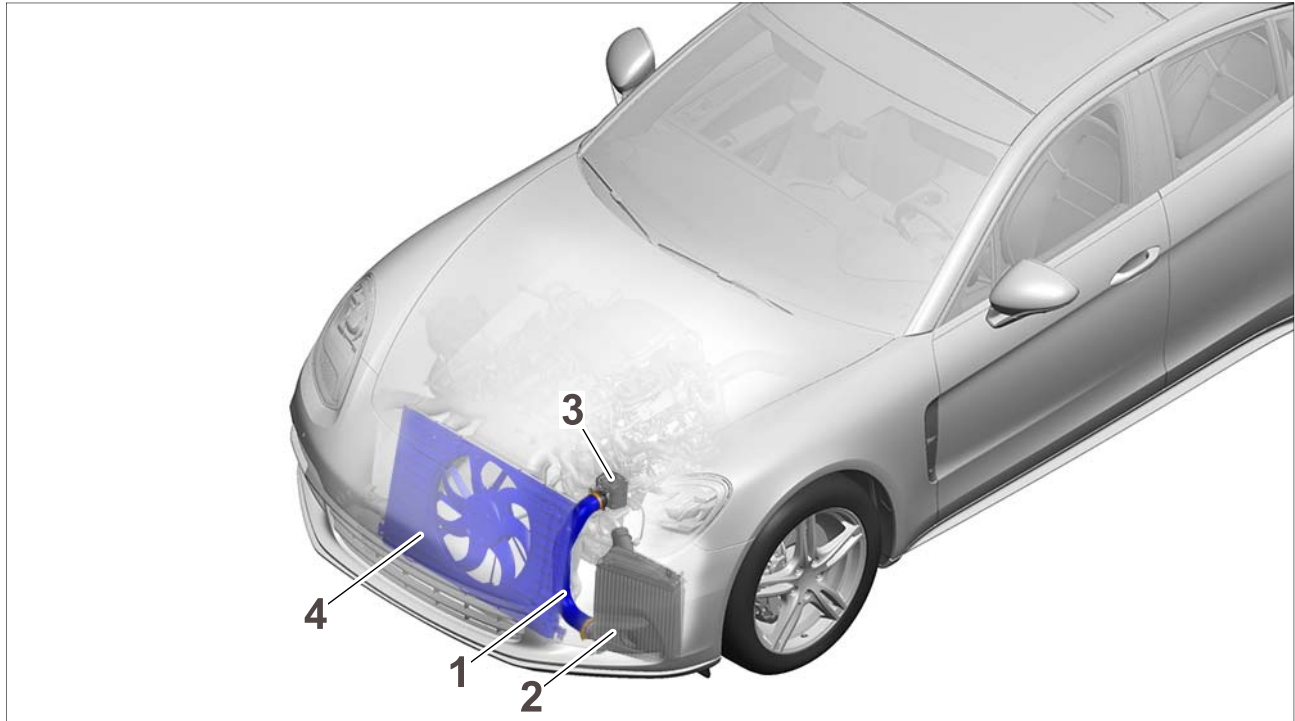
Due to different dates of introduction of the optimised pressure hose and the modified cooling fan housing, the measure to be carried out depends on when each vehicle was produced.

Each vehicle is therefore assigned either **Scope 1** or **Scopes 2 and 3**.

To find out which scopes are assigned to the vehicle, see PIWIS Vehicle information.

Affected Vehicles: Only the vehicles assigned to the campaign (see also PIWIS Vehicle information). This campaign affects 3,233 vehicles in North America.

Installation  
position:



*Installation position overview*

- 1 – Pressure hose (**replace** or **check**)
- 2 – Left charge-air cooler
- 3 – Throttle valve unit for cylinders 4–6
- 4 – Cooling fan housing (**rework**)

### Required parts and materials - vehicles with assigned Scope 1

Parts Info: **PLEASE NOTE:** Parts for this campaign will be automatically allocated for up to 80% of the vehicles that are serviced at your dealership. Parts will then remain open to normal ordering with no PTEC/PAV required once initial allocation has been used.

Part No.	Designation – Use	Qty.
00004330409	⇒ Pressure hose with clamps – Between charge-air cooler and throttle valve, cyl. 4–6	1 ea.

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

Part No.	Designation	Qty.
...	Corrosion protection wax, e.g. Part No. 99991568600 Sandpaper, coarse and fine De-greasing cleaning agent, e.g. isopropanol Non-greasy, lint-free cloths	1 ea. *

\* For warranty invoicing for Part No. WH320000001, enter "expendable items" designation as a **sublet item & additional measure** costing USD \$4.20.

### Required parts and materials - vehicles with assigned Scopes 2 and 3

Part No.: **No parts are required** for **checking** the pressure hose.

Parts required for **replacing the pressure hose**, depending on the result of the check:

Part No.	Designation – Use	Qty.
00004330409	⇒ Pressure hose with clamps – Between charge-air cooler and throttle valve, cyl. 4–6	1 ea.

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

Required for **Scope 2 and Scope 3**.

Part No.	Designation	Qty.
...	Corrosion protection wax, e.g. Part No. 99991568600 Sandpaper, coarse and fine De-greasing cleaning agent, e.g. isopropanol Non-greasy, lint-free cloths	1 ea. *

\* For warranty invoicing for Part No. WH320000001, enter "expendable items" designation as a **sublet item & additional measure** costing USD \$4.20.

### Required tools

- Tools:
- Torque screwdriver, 1.5 – 3 Nm (1 - 2 ftlb.), e.g. **VAS 6494 - Torque screwdriver**
  - 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 angle torque wrench, e.g. **9768 - Electronic torque wrench, 2 - 100 Nm/1.5 - 74 ftlb.**
  - Suitable body saw, e.g. **VAS 6780 - body saw** with cutting blade for plastic

## Preparatory work

- Procedure:
- 1 Raise the vehicle using a lifting platform ⇒ *Workshop Manual '4X00IN Lifting the vehicle'*.
  - 2 Remove cover for front underbody ⇒ *Workshop Manual '519219 Removing and installing cover for front underbody'*.
  - 3 Remove dome strut.
    - 3.1 Remove front lid seal ⇒ *Workshop Manual '553319 Removing and installing front lid seal'*.
    - 3.2 Remove cover for front lock support (carrier) ⇒ *Workshop Manual '703919 Removing and installing cover for front lock carrier'*.
    - 3.3 Remove front trim panel (engine compartment) ⇒ *Workshop Manual '700219 Removing and installing front trim panel (engine compartment)'*.
    - 3.4 Remove dome strut ⇒ *Workshop Manual '408619 Removing and installing strut (dome strut)'*.
  - 4 Remove design cover for engine ⇒ *Workshop Manual '108319 Removing and installing engine cover (design cover) (V6 Turbo)'*.

## Reworking cooling fan housing - all vehicles

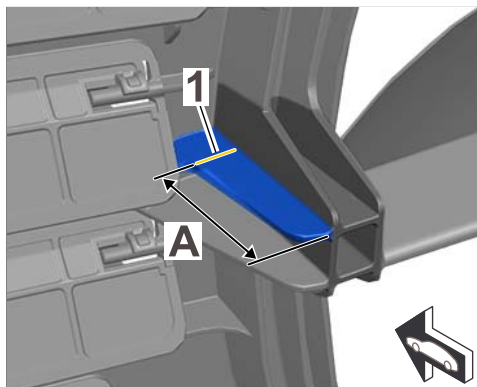
- Work Procedure:
- 1 Remove cooling fan housing (radiator frame) ⇒ *Workshop Manual '192019 Removing and installing cooling fan housing (radiator frame)'*.
  - 2 Cut reinforcing ribs ⇒ *Reinforcing ribs on electric fan holder -1-* of the center right holder (9 o'clock position) ⇒ *Reinforcing ribs on electric fan holder -2-* for the electric fan on the cooling fan housing.



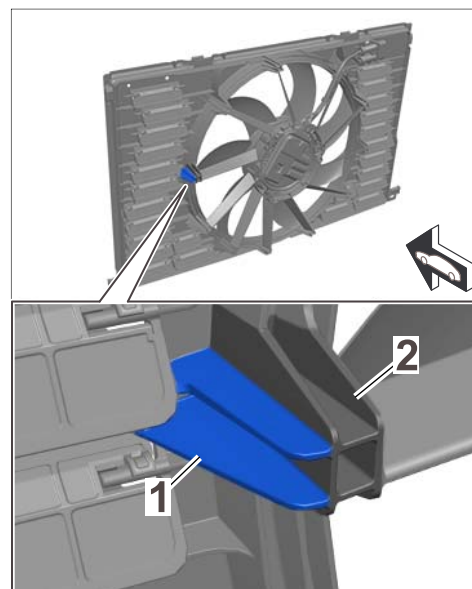
### Information

Different types of cooling fan housing were installed on the vehicles affected by this campaign. Given this, it is possible that the reinforcing ribs are already cut as described in the following steps. If this is the case, the cooling fan housing does not need to be reworked.

However, the **cut edges** must be **sanded down and sealed** even on cooling fan housings that were cut at the factory.

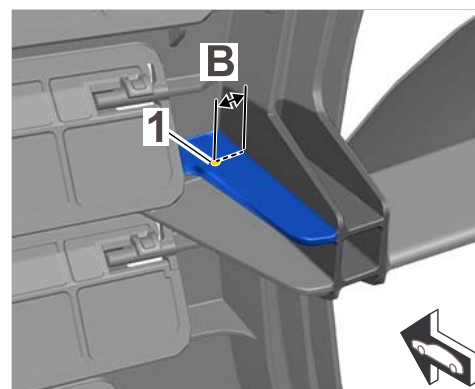


*Measuring cut: Dimension A*



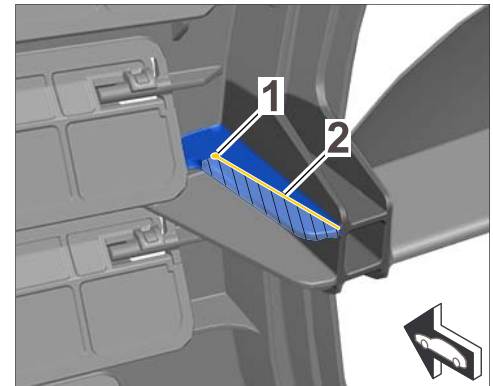
*Reinforcing ribs on electric fan holder*

- 2.1 On the **upper reinforcing rib**, measure the dimension  $\Rightarrow$  *Measuring cut: Dimension A* -**A**- = **49 mm** from the edge and mark this by applying a marking at a right angle to direction of travel  $\Rightarrow$  *Measuring cut: Dimension A-1-* on the reinforcing rib.
- 2.2 At the previously applied marking, measure the dimension  $\Rightarrow$  *Measuring cut: Dimension B* -**B**- = **11 mm** from the electric fan holder on the upper reinforcing rib and mark it with a dot  $\Rightarrow$  *Measuring cut: Dimension B-1-*.



*Measuring cut: Dimension B*

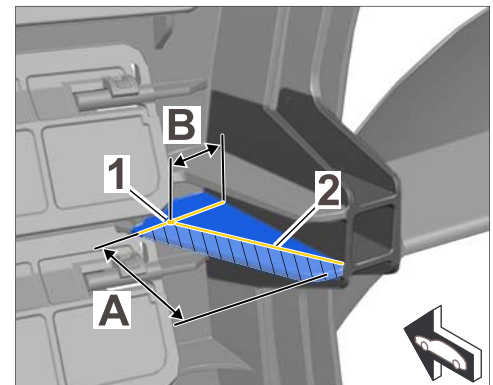
- 2.3 Mark the cut line  $\Rightarrow$  *Marking cut line on upper reinforcing rib -2-* as shown diagonally from the previously determined point of intersection  $\Rightarrow$  *Marking cut line on upper reinforcing rib -1-* to the edge.



*Marking cut line on upper reinforcing rib*

- 2.4 Repeat the procedure for finding and marking the point of intersection  $\Rightarrow$  *Marking cut line on lower reinforcing rib -1-* and the cut line  $\Rightarrow$  *Marking cut line on lower reinforcing rib -2-* as described in steps 2.1 to 2.3 on the **lower reinforcing rib**.

This time, however, use dimension  $\Rightarrow$  *Marking cut line on lower reinforcing rib -A-* = 48 mm and dimension  $\Rightarrow$  *Marking cut line on lower reinforcing rib -B-* = 10 mm.



*Marking cut line on lower reinforcing rib*

- 2.5 Cut both reinforcing ribs along the previously applied cut lines  $\Rightarrow$  *Cutting reinforcing ribs -1-* using a suitable pneumatic saw to remove the **hatched area**  $\Rightarrow$  *Cutting reinforcing ribs -2-* shown in the illustration.

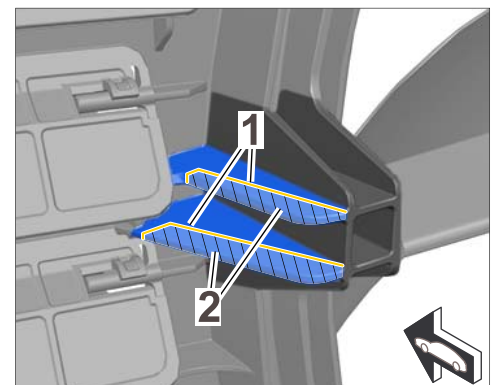
- 3 Sand down and seal cut edges of the reinforcing ribs.



#### Information

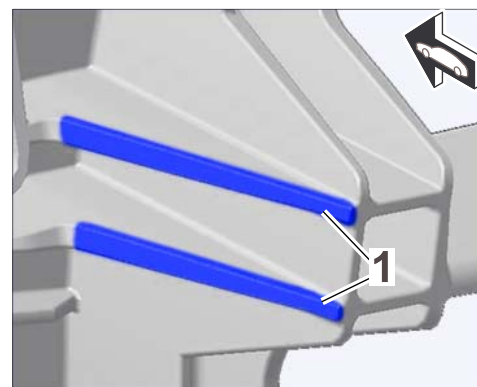
Different types of cooling fan housing were installed on the vehicles affected by this campaign. Given this, it is possible that the reinforcing ribs are already cut as described in the previous steps, but the **cut edges are not sanded down and sealed**.

The following steps must therefore be **carried out on all vehicles**.



*Cutting reinforcing ribs*

- 3.1 Sand down cut edges ⇒ *Sanding down cut edges -1-* of the reinforcing ribs using suitable sandpaper until there are no more sharp edges.
- 3.2 Clean previously sanded areas using suitable cleaning materials, e.g. isopropanol and lint-free cloths.
- 3.3 Seal cut edges ⇒ *Sanding down cut edges -1-* with commercially available protective wax, e.g. Part No. 99991568600, and remove excess wax.



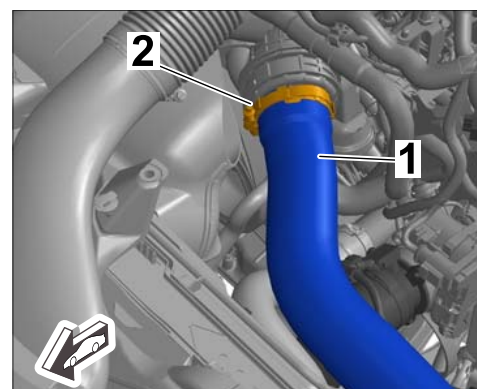
*Sanding down cut edges*

- 4 Before re-installing the reworked cooling fan housing, **replace or check** the **pressure hose** between the left charge-air cooler and throttle valve for cylinders 4–6. To do this, proceed as follows:
  - Vehicles with assigned **Scope 1**: ⇒ *Technical Information 'WH3200 Scope 1: Replacing pressure hose between charge-air cooler and throttle valve'*
  - Vehicles with assigned **Scopes 2 and 3**: ⇒ *Technical Information 'WH3200 Scope 2 and 3: Checking pressure hose between charge-air cooler and throttle valve'*

**Scope 1: Replacing pressure hose between charge-air cooler and throttle valve**

Work Procedure: 1 Remove pressure hose between left charge-air cooler and throttle valve for cylinders 4–6.

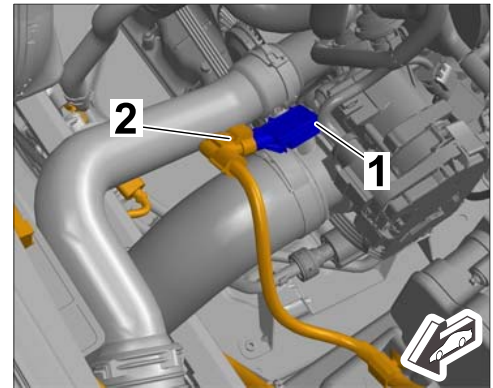
- 1.1 Disconnect pressure hose ⇒ *Pressure hose between turbocharger and charge-air cooler -1-* between turbocharger for cylinders 4–6 and charge-air cooler and move it aside. To do this, loosen clamp ⇒ *Pressure hose between turbocharger and charge-air cooler -2-* and pull off pressure hose on the left pulsation damper.



*Pressure hose between turbocharger and charge-air cooler*

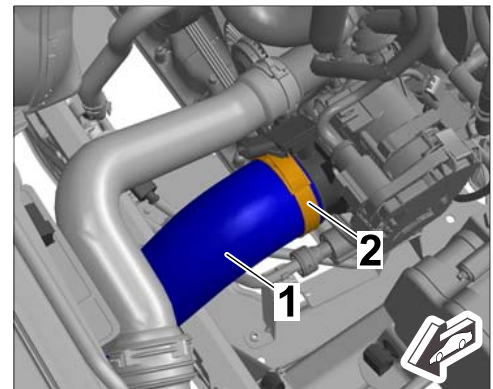


- 1.2 Release and disconnect electric plug connection ⇒ *Connector for boost pressure sensor -2-* on boost pressure sensor for cylinders 4–6 ⇒ *Connector for boost pressure sensor -1-*.



*Connector for boost pressure sensor*

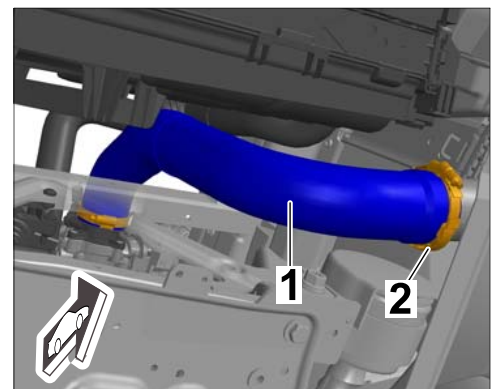
- 1.3 Loosen upper clamp ⇒ *Pressure hose on throttle valve -2-* for pressure hose ⇒ *Pressure hose on throttle valve -1-* between left charge-air cooler and throttle valve for cylinders 4–6. Then pull off pressure hose at the throttle valve.



*Pressure hose on throttle valve*

- 1.4 Loosen lower clamp ⇒ *Pressure hose on charge-air cooler -2-* for pressure hose ⇒ *Pressure hose on charge-air cooler -1-*. Then pull off pressure hose at the charge-air cooler and guide it down out of the engine compartment.

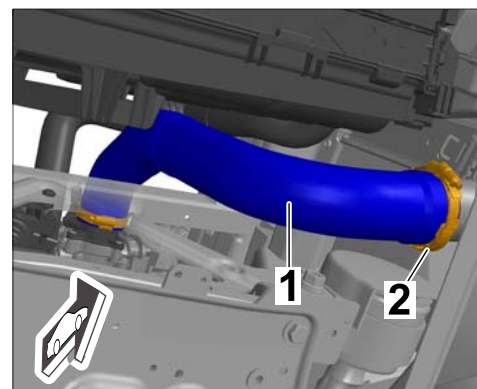
- 2 **Install new pressure hose** between left charge-air cooler and throttle valve for cylinders 4–6.



*Pressure hose on charge-air cooler*



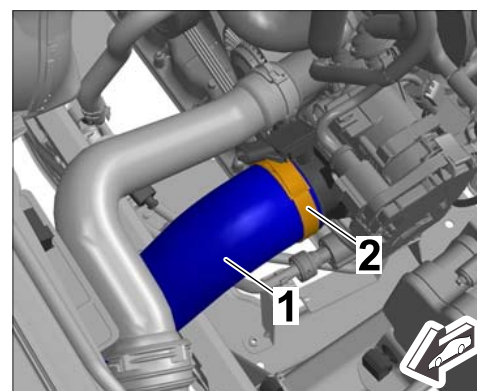
- 2.1 Guide pressure hose  $\Rightarrow$  *Pressure hose on charge-air cooler -1-* into the engine compartment from below and push it as far as it will go onto the charge-air cooler, but do not tighten the clamp  $\Rightarrow$  *Pressure hose on charge-air cooler -2-* initially.



*Pressure hose on charge-air cooler*

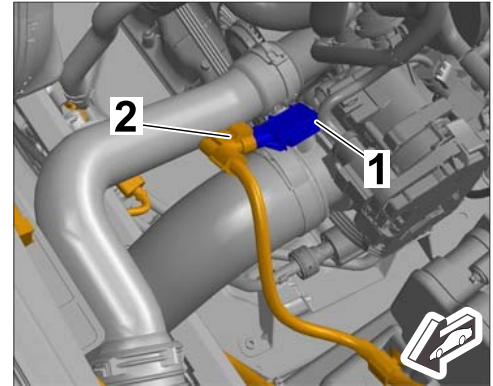
Part No.	Designation - Use	Number or quantity
00004330409	Pressure hose with clamps - Between charge-air cooler and throttle valve, cyl. 4-6	1 ea.

- 2.2 Push pressure hose  $\Rightarrow$  *Pressure hose on throttle valve -1-* as far as it will go onto the throttle valve and tighten clamp  $\Rightarrow$  *Pressure hose on throttle valve -2-*.  
**Tightening torque 5.5 Nm (4 ftlb.)**  
**+/-0.5 Nm (+/-0.3 ftlb.)**



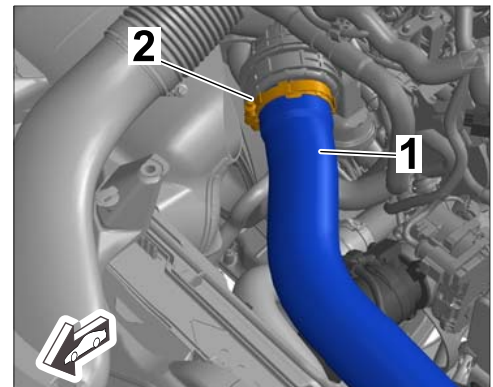
*Pressure hose on throttle valve*

- 2.3 Plug in electric plug connection  $\Rightarrow$  *Connector for boost pressure sensor -2-* on boost pressure sensor for cylinders 4-6  $\Rightarrow$  *Connector for boost pressure sensor -1-* until you hear and feel the connector engaging securely.



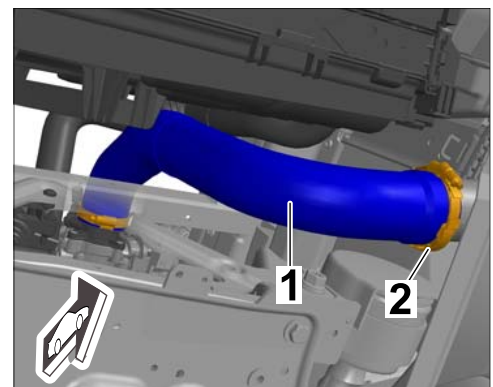
*Connector for boost pressure sensor*

- 2.4 Push pressure hose  $\Rightarrow$  *Pressure hose between turbocharger and charge-air cooler -1-* between turbocharger for cylinders 4-6 and charge-air cooler as far as it will go onto the left pulsation damper and tighten clamp  $\Rightarrow$  *Pressure hose between turbocharger and charge-air cooler -2-*.  
**Tightening torque 5.5 Nm (4 ftlb.)**  
**+/-0.5 Nm (+/-0.3 ftlb.)**



*Pressure hose between turbocharger and charge-air cooler*

- 2.5 Tighten clamp  $\Rightarrow$  *Pressure hose on charge-air cooler -2-* for the pressure hose  $\Rightarrow$  *Pressure hose on charge-air cooler -1-* on the charge-air cooler. **Tightening torque 5.5 Nm (4 ftlb.) +/-0.5 Nm (+/-0.3 ftlb.)**
- 3 Install reworked cooling fan housing (radiator frame) and complete the vehicle.  
To do this, continue with  $\Rightarrow$  *Technical Information 'WH3200 Concluding work'*.



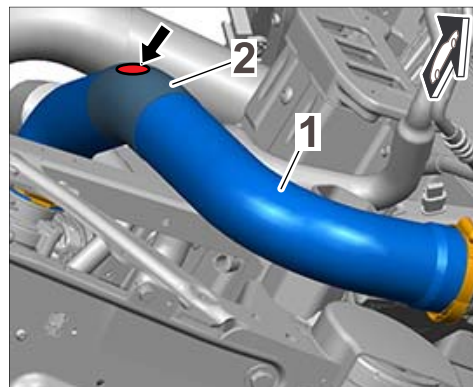
*Pressure hose on charge-air cooler*

**Scope 2 and 3: Checking pressure hose between charge-air cooler and throttle valve**

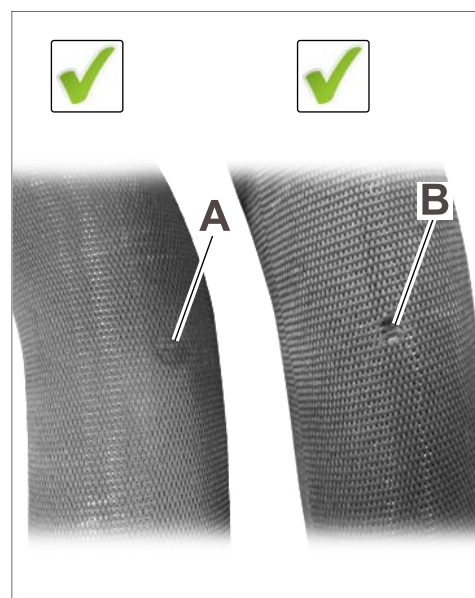
Work Procedure: 1 Check pressure hose between left charge-air cooler and throttle valve for cylinders 4–6 for damage. To do this, check the marked area ⇒ *Checking pressure hose for damage -arrow-* of the anti-chafing element ⇒ *Checking pressure hose for damage -2-* on the pressure hose ⇒ *Checking pressure hose for damage -1-* visually and by touch for damage.

The pressure hose does **not** have to be replaced if **one of the following points** applies:

- There are **no signs of contact** visible on the anti-chafing element on the pressure hose.
- Only **superficial signs** of contact with the cooling fan housing are **visible** ⇒ *Pressure hose is not damaged -A-* on the anti-chafing element on the pressure hose.
- There are significant signs of contact on the anti-chafing element, but the anti-chafing element is **not worn through** ⇒ *Pressure hose is not damaged -B-*.



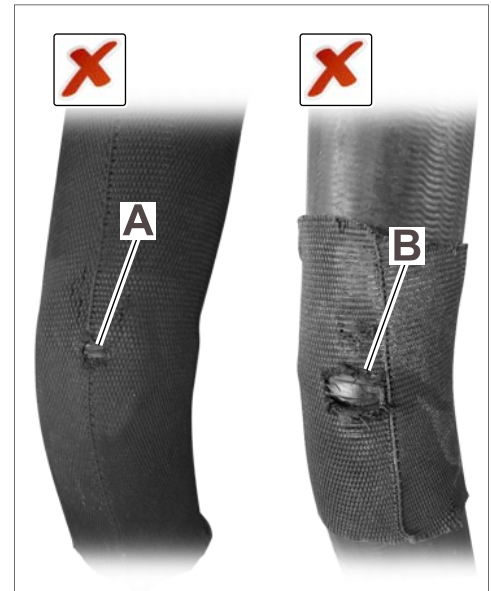
*Checking pressure hose for damage*



*Pressure hose is not damaged*

The **pressure hose must be replaced** if **one of the following points** applies:

- The anti-chafing element on the pressure hose is **worn through** ⇒ *Pressure hose must be replaced -A-*.
- The pressure hose has **obvious notches or an uneven surface** ⇒ *Pressure hose must be replaced -B-*.



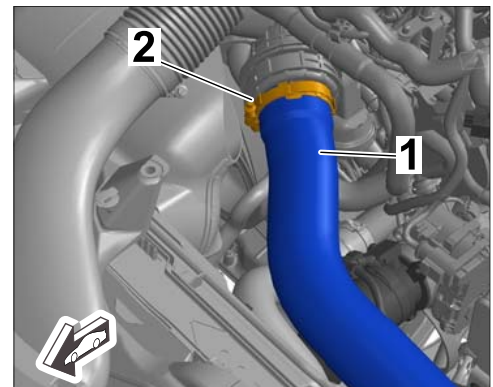
*Pressure hose must be replaced*

If the pressure hose does **not** have to be replaced, **continue with** ⇒ **Technical Information 'WH3200 Concluding work'**.

To **replace** the pressure hose, continue with **Step 2**.

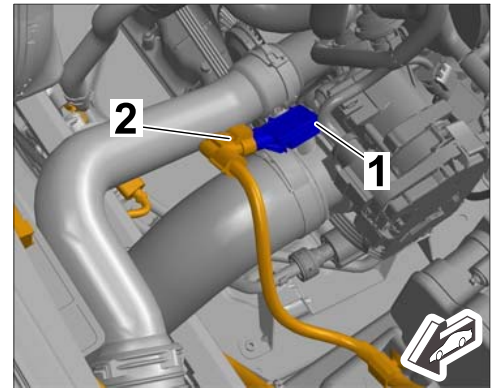
- 2 Remove pressure hose between left charge-air cooler and throttle valve for cylinders 4–6.

- 2.1 Disconnect pressure hose ⇒ *Pressure hose between turbocharger and charge-air cooler*  
**-1-** between turbocharger for cylinders 4–6 and charge-air cooler and move it aside.  
To do this, loosen clamp ⇒ *Pressure hose between turbocharger and charge-air cooler*  
**-2-** and pull off pressure hose on the left pulsation damper.



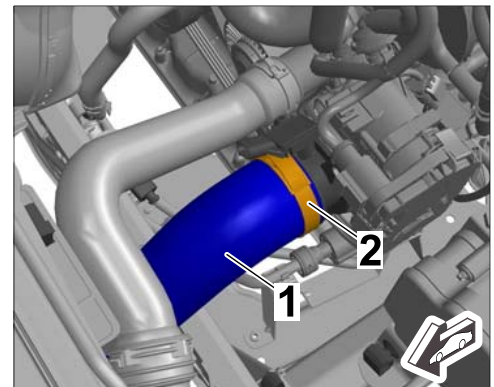
*Pressure hose between turbocharger and charge-air cooler*

2.2 Release and disconnect electric plug connection ⇒ *Connector for boost pressure sensor -2-* on boost pressure sensor for cylinders 4–6 ⇒ *Connector for boost pressure sensor -1-*.



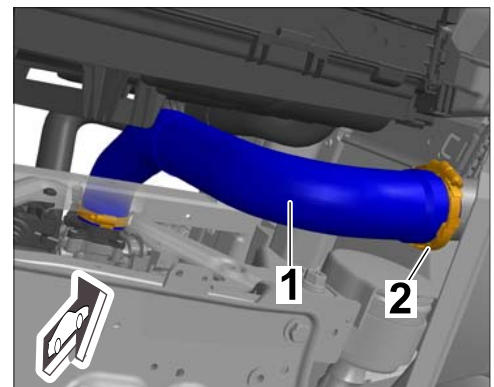
*Connector for boost pressure sensor*

2.3 Loosen upper clamp ⇒ *Pressure hose on throttle valve -2-* for pressure hose ⇒ *Pressure hose on throttle valve -1-* between left charge-air cooler and throttle valve for cylinders 4–6. Then pull off pressure hose at the throttle valve.



*Pressure hose on throttle valve*

2.4 Loosen lower clamp ⇒ *Pressure hose on charge-air cooler -2-* for pressure hose ⇒ *Pressure hose on charge-air cooler -1-*. Then pull off pressure hose at the charge-air cooler and guide it down out of the engine compartment.

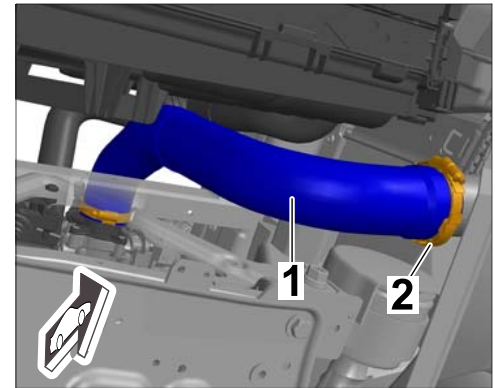


*Pressure hose on charge-air cooler*

3 **Install new pressure hose** between left charge-air cooler and throttle valve for cylinders 4–6.



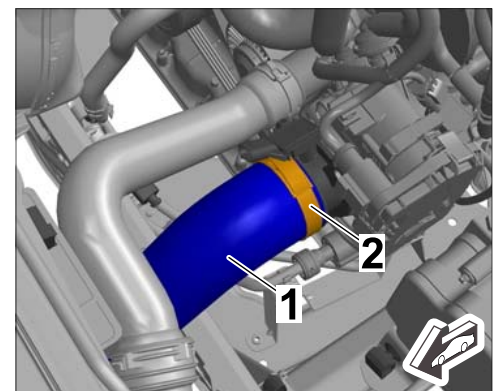
- 3.1 Guide pressure hose  $\Rightarrow$  *Pressure hose on charge-air cooler -1-* into the engine compartment from below and push it as far as it will go onto the charge-air cooler, but do not tighten the clamp  $\Rightarrow$  *Pressure hose on charge-air cooler -2-* initially.



*Pressure hose on charge-air cooler*

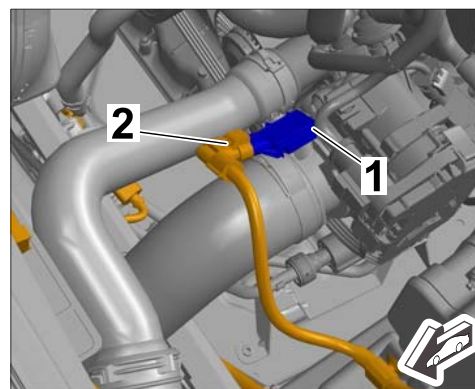
Part No.	Designation - Use	Number or quantity
00004330409	Pressure hose with clamps - Between charge-air cooler and throttle valve, cyl. 4-6	1 ea.

- 3.2 Push pressure hose  $\Rightarrow$  *Pressure hose on throttle valve -1-* as far as it will go onto the throttle valve and tighten clamp  $\Rightarrow$  *Pressure hose on throttle valve -2-*.  
**Tightening torque 5.5 Nm (4 ftlb.)**  
**+/-0.5 Nm (+/-0.3 ftlb.)**



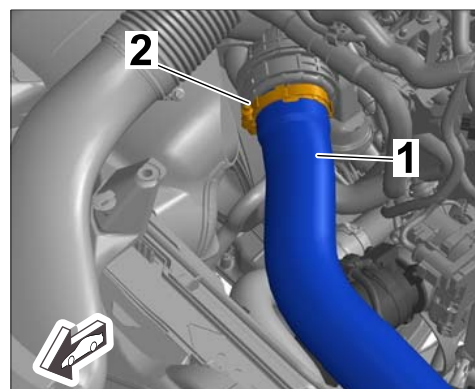
*Pressure hose on throttle valve*

- 3.3 Plug in electric plug connection ⇒ *Connector for boost pressure sensor -2-* on boost pressure sensor for cylinders 4–6 ⇒ *Connector for boost pressure sensor -1-* until you hear and feel the connector engaging securely.



*Connector for boost pressure sensor*

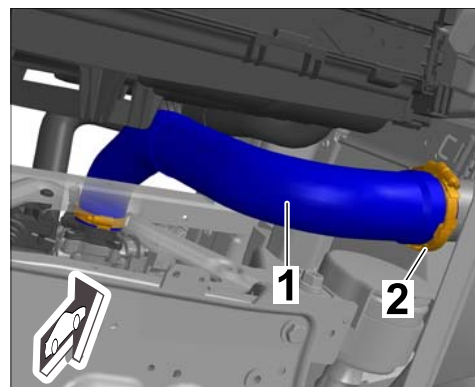
- 3.4 Push pressure hose ⇒ *Pressure hose between turbocharger and charge-air cooler -1-* between turbocharger for cylinders 4–6 and charge-air cooler as far as it will go onto the left pulsation damper and tighten clamp ⇒ *Pressure hose between turbocharger and charge-air cooler -2-*.  
**Tightening torque 5.5 Nm (4 ftlb.)**  
**+/-0.5 Nm (+/-0.3 ftlb.)**



*Pressure hose between turbocharger and charge-air cooler*

- 3.5 Tighten clamp ⇒ *Pressure hose on charge-air cooler -2-* for the pressure hose ⇒ *Pressure hose on charge-air cooler -1-* on the charge-air cooler. **Tightening torque 5.5 Nm (4 ftlb.) +/-0.5 Nm (+/-0.3 ftlb.)**

- 4 Install reworked cooling fan housing (radiator frame) and complete the vehicle.  
 To do this, continue with ⇒ *Technical Information 'WH3200 Concluding work'*.



*Pressure hose on charge-air cooler*

**Concluding work**

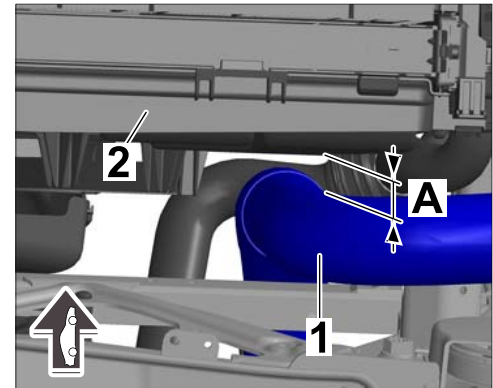
- Work Procedure: 1 Install the cooling fan housing you reworked earlier ⇒ *Workshop Manual '192019 Removing and installing cooling fan housing (radiator frame)'*.



- 2 Visually inspect the space between the pressure hose  
 ⇒ *Gap between pressure hose and radiator frame -1-* and radiator frame ⇒ *Gap between pressure hose and radiator frame -2-* to check whether there is a gap ⇒ *Gap between pressure hose and radiator frame -A-* of **at least 20 mm**.

If necessary, loosen the clamp for the pressure hose on the charge-air cooler and turn the pressure hose as far as required on the connection on the charge-air cooler until there is a sufficiently large gap. Then tighten the clamp for the pressure hose on the charge-air cooler.

**Tightening torque 5.5 Nm (4 ftlb.) +/-0.5 Nm (+/-0.3 ftlb.)**



*Gap between pressure hose and radiator frame*

- 3 Install cover for front underbody ⇒ *Workshop Manual '519219 Removing and installing cover for front underbody'*.
- 4 Install design cover for engine ⇒ *Workshop Manual '108319 Removing and installing engine cover (design cover) (V6 Turbo)'*.
- 5 Install dome strut.
- 5.1 Install dome strut ⇒ *Workshop Manual '408619 Removing and installing strut (dome strut)'*.
- 5.2 Install front trim panel (engine compartment) ⇒ *Workshop Manual '700219 Removing and installing front trim panel (engine compartment)'*.
- 5.3 Install cover for front lock support (carrier) ⇒ *Workshop Manual '703919 Removing and installing cover for front lock carrier'*.
- 5.4 Install front lid seal ⇒ *Workshop Manual '553319 Removing and installing front lid seal'*.
- 6 Lower the vehicle and remove it from the lifting platform ⇒ *Workshop Manual '4X00IN Lifting the vehicle'*.
- 7 Enter the campaign in the Warranty and Maintenance booklet.

## Warranty processing

Information:



### Information

The working times specified below were determined specifically for carrying out this campaign and may differ from the working times published in the Labor Operation List in PIWIS.

Scope 1: **Scope 1: Reworking cooling fan housing and replacing pressure hose**

**Working time:**

Reworking cooling fan housing and replacing pressure hose between charge-air cooler and throttle valve for cyl. 4–6

Labor time: **173 TU**

- Includes:
- Raising and lowering the vehicle (several times)
  - Removing and installing cover for front underbody
  - Removing and installing front lid seal
  - Removing and installing cover for front lock carrier
  - Removing and installing front trim panel (engine compartment)
  - Removing and installing dome strut
  - Removing and installing design cover for engine
  - Removing and installing cooling fan housing
  - Loosening and securing pressure hose between turbocharger and charge-air cooler

**Parts required:**

00004330409	Pressure hose with clamps	1 ea.
-------------	---------------------------	-------

**Materials required:**

WH320000001*	Expendable items:	1 ea. *
	– Corrosion protection wax	
	– Sandpaper, coarse and fine	
	– De-greasing cleaning agent, e.g. isopropanol	
	– Non-greasy, lint-free cloths	

\* For warranty invoicing for Part No. WH320000001, enter "expendable items" designation as a **sublet item & additional measure** costing USD \$4.20.

⇒ **Damage Code WH32 066 000 2**

Scope 2:

**Scope 2: Reworking cooling fan housing and checking pressure hose**

- Pressure hose between charge-air cooler and throttle valve does **not** have to be replaced

**Working time:**

Reworking cooling fan housing and checking pressure hose between charge-air cooler and throttle valve for cyl. 4–6

Labor time: **158 TU**

Includes:

- Raising and lowering the vehicle (several times)
- Removing and installing cover for front underbody
- Removing and installing front lid seal
- Removing and installing cover for front lock carrier
- Removing and installing front trim panel (engine compartment)
- Removing and installing dome strut
- Removing and installing design cover for engine
- Removing and installing cooling fan housing

**Materials required:**

WH320000001*	Expendable items:	1 ea. *
	<ul style="list-style-type: none"> <li>– Corrosion protection wax</li> <li>– Sandpaper, coarse and fine</li> <li>– De-greasing cleaning agent, e.g. isopropanol</li> <li>– Non-greasy, lint-free cloths</li> </ul>	

\* For warranty invoicing for Part No. WH320000001, enter "expendable items" designation as a **sublet item & additional measure** costing USD \$4.20.

⇒ **Damage Code WH32 066 000 2**

Scope 3:

**Scope 3: Reworking cooling fan housing and checking pressure hose**

- Pressure hose between charge-air cooler and throttle valve **must be replaced**.

**Working time:**

Reworking cooling fan housing and checking pressure hose between charge-air cooler and throttle valve for cyl. 4–6

Labor time: **176 TU**

Includes:

- Raising and lowering the vehicle (several times)
- Removing and installing cover for front underbody
- Removing and installing front lid seal
- Removing and installing cover for front lock carrier
- Removing and installing front trim panel (engine compartment)
- Removing and installing dome strut
- Removing and installing design cover for engine
- Removing and installing cooling fan housing

Removing and installing pressure hose between charge-air cooler and throttle valve for cyl. 4-6  
 Loosening and securing pressure hose between turbocharger and charge-air cooler

**Parts required:**

00004330409	Pressure hose with clamps	1 ea.
-------------	---------------------------	-------

**Materials required:**

WH320000001*	Expendable items:	1 ea. *
	- Corrosion protection wax	
	- Sandpaper, coarse and fine	
	- De-greasing cleaning agent, e.g. isopropanol	
	- Non-greasy, lint-free cloths	

\* For warranty invoicing for Part No. WH320000001, enter "expendable items" designation as a **sublet item & additional measure** costing USD \$4.20.

⇒ **Damage Code WH32 066 000 2**

**Important Notice:** Technical Bulletins issued by Porsche Cars North America, Inc. are intended only for use by professional automotive technicians who have attended Porsche service training courses. They are written to inform those technicians of conditions that may occur on some Porsche vehicles, or to provide information that could assist in the proper servicing of a vehicle. Porsche special tools may be necessary in order to perform certain operations identified in these bulletins. Use of tools and procedures other than those Porsche recommends in these bulletins may be detrimental to the safe operation of your vehicle, and may endanger the people working on it. Properly trained Porsche technicians have the equipment, tools, safety instructions, and know-how to do the job properly and safely. Part numbers listed in these bulletins are for reference only. The work procedures updated electronically in the Porsche PIWIS diagnostic and testing device take precedence and, in the event of a discrepancy, the work procedures in the PIWIS Tester are the ones that must be followed.