

**Spare Parts Requirements for High-Voltage Battery: Follow special instructions (88/19)**

Vehicle Type: **Panamera S E-Hybrid (970)**

Model Year: **As of 2014 up to 2016**

Subject: **High-voltage battery**

Information: **Due to a reduced number of high-voltage battery variants in AfterSales, the high-voltage battery for the Cayenne S E-Hybrid (92A) must be used from now on if the high-voltage battery for the Panamera S E-Hybrid (970) needs to be replaced. The procedure described below must always be followed.**

Remedial Action: Convert the high-voltage battery of the Cayenne S E-Hybrid for use in the Panamera S E-Hybrid and then install it. Also re-program the control unit for the high-voltage battery.

**Required spare parts**

Parts Info:	Part No.	Designation	Qty.
	958611590DX	⇒ High-voltage battery	1 ea.

Materials:	Part No.	Designation	Qty.
	00004330516	⇒ Coolant additive	20-liter container (approx. 1 liter required per vehicle)

**Required tools**

- Tools:
- 3033 - Lifting tackle
  - 9860 - Adapter plate
  - VAS 6100 - Workshop Crane
  - 9703 - Flexible screwdriver
  - VAS 6890 - Spring Band Clamp Pliers
  - V.A.G 1274B - Tester for Cooling System
  - 9696 - Filling device
  - VAS 6096/2 - Vacuum pump
  - VAS 6562 - Porsche Adapter Set for Cooling System Tester
  - 9900 - PIWIS Tester 3

- Torque wrench, 0.4 - 2 Nm (0.3 - 1.5 ftlb.), e.g. **VAS 6253A - Torque wrench, 0.4 - 2 Nm (0.3 - 1.5 ftlb.)**
- 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, 6 - 50 Nm (4.5 - 37 ftlb.), e.g. **V.A.G 1331A - Torque wrench, 6-50 Nm (4.5-37 ftlb.)**
- Torque wrench, 20 - 100 Nm (15 - 74 ftlb.), e.g. **VAS 5820 - Torque wrench, 20-100 Nm (15-74 ftlb.)**

### Converting and replacing high-voltage battery



#### WARNING

#### Incorrect handling of high-voltage components

- Electric shock
  - Short circuit
  - Fire
  - Explosion
- ⇒ Only appropriately trained and authorized persons are permitted to work on high-voltage vehicles and components.
- ⇒ Required qualification: High-voltage technician or high-voltage expert.
- ⇒ Observe all safety regulations.
- ⇒ Always use insulated tools, e.g. **VAS 6883 High-voltage tool set**, when working on these components.
- ⇒ Observe general warning notes for working on the high-voltage vehicle electrical system. ⇒ *Workshop Manual '2X00IN General warning notes for working on the high-voltage vehicle electrical system'*



#### WARNING

#### Danger of fire, explosion

- Insulation fault as a result of coolant leaking into high-voltage battery
- ⇒ Always drain the high-voltage battery cooling lines completely before transporting/handling the high-voltage battery.



#### Information

A log must be filled out during the repair measure and this must be attached to the warranty claim. To do this, use the document "**Attachment for TI 88/19: Rework log – Replacing high-voltage battery**".

**Work Procedure: 1 Create vehicle analysis log (VAL) using the PIWIS Tester.**

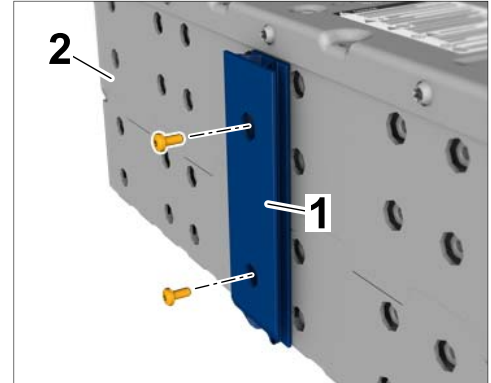
Mark the vehicle analysis log you have just created with the attribute "Initial VAL" and after carrying out the campaign, return it using the PIWIS Tester.

**2 Remove high-voltage battery.**

- 2.1 Observe warning notes ⇒ *Workshop Manual '2X00IN General warning notes for working on the high-voltage vehicle electrical system'.*
- 2.2 Carry out classification of high-voltage battery ⇒ *Workshop Manual '2X00IN Classification of high-voltage battery'.*
- 2.3 Isolate the high-voltage system from the power supply and complete the relevant documentation ⇒ *Workshop Manual '2X00IN Isolating high-voltage system from power supply/Starting high-voltage system'.*
- 2.4 Remove subwoofer ⇒ *Workshop Manual '2X00IN Removing and installing subwoofer (hybrid)'.*
- 2.5 Remove luggage compartment cover ⇒ *Workshop Manual '2X00IN Removing and installing centre luggage compartment trim panel (luggage compartment cover)'.*
- 2.6 Remove C-pillar trim panel ⇒ *Workshop Manual '2X00IN Removing and installing C-pillar trim panel'.*
- 2.7 Remove side trim panel for rear luggage compartment ⇒ *Workshop Manual '2X00IN Removing and installing side trim panel for rear luggage compartment'.*
- 2.8 Remove cover for rear lock support ⇒ *Workshop Manual '2X00IN Removing and installing cover for rear lock support'.*
- 2.9 Remove vehicle electrical system battery ⇒ *Workshop Manual '2X00IN Removing and installing battery'.*
- 2.10 Remove antenna for Porsche Entry & Drive in the luggage compartment ⇒ *Workshop Manual '2X00IN Removing and installing KESSY antenna'.*
- 2.11 Remove high-voltage charger ⇒ *Workshop Manual '2X00IN Removing and installing high-voltage charger'.*
- 2.12 Remove high-voltage battery ⇒ *Workshop Manual '2X00IN Removing and installing high-voltage battery'.*

### 3 Convert new high-voltage battery.

- 3.1 Check the new high-voltage battery ⇒ *Hollow section -2-* and if the hollow section ⇒ *Hollow section -1-* is fitted, this must be removed. To do this, unscrew the two fastening screws for the hollow section.



*Hollow section*

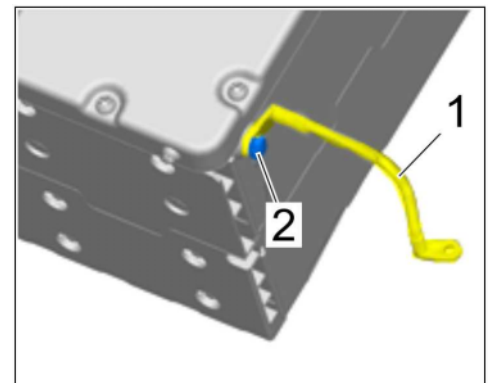
- 3.2 Remove equipotential bonding line ⇒ *Equipotential bonding line -1-* from the removed high-voltage battery and fit it on the new high-voltage battery.

**Tightening torque 17 Nm**



#### Information

The fastening screws for the battery cross member will be re-used.



*Equipotential bonding line*

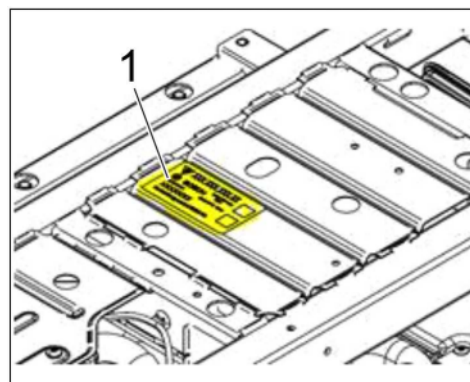
### 4 Replace high-voltage battery.

Remove battery cross member together with the heater for the high-voltage battery from the removed high-voltage battery and fit them on the new high-voltage battery.

For instructions, see ⇒ *Workshop Manual '2X00IN Replacing high-voltage battery'*.

Part No.	Designation	Qty.
958611590DX	High-voltage battery	1 ea.

- 5 Carefully pull off the existing part identification sticker from the battery cross member ⇒ *Part identification on battery cross member-1-*. Carefully remove any adhesive residue left behind.



*Part identification on battery cross member*

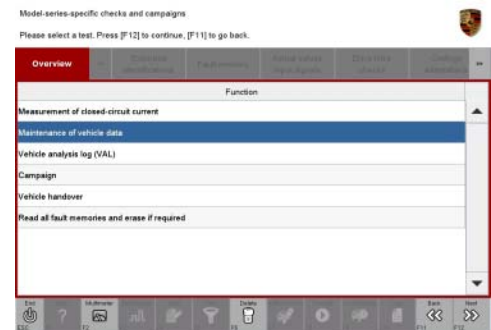
**6 Install new high-voltage battery.**

- 6.1 Install high-voltage battery ⇒ *Workshop Manual '2X00IN Removing and installing high-voltage battery'*.
- 6.2 Install high-voltage charger ⇒ *Workshop Manual '2X00IN Removing and installing high-voltage charger'*.
- 6.3 Install vehicle electrical system battery ⇒ *Workshop Manual '2X00IN Removing and installing battery'*.
- 6.4 Install antenna for Porsche Entry & Drive in the luggage compartment ⇒ *Workshop Manual '2X00IN Removing and installing KESSY antenna'*.
- 6.5 Install C-pillar trim panel ⇒ *Workshop Manual '2X00IN Removing and installing C-pillar trim panel'*.
- 6.6 Install side trim panel for rear luggage compartment ⇒ *Workshop Manual '2X00IN Removing and installing side trim panel for rear luggage compartment'*.
- 6.7 Install cover for rear lock support ⇒ *Workshop Manual '2X00IN Removing and installing cover for rear lock support'*.
- 6.8 Install luggage compartment cover ⇒ *Workshop Manual '2X00IN Removing and installing centre luggage compartment trim panel (luggage compartment cover)'*.
- 6.9 Install subwoofer ⇒ *Workshop Manual '2X00IN Removing and installing subwoofer (hybrid)'*.
- 6.10 Start the high-voltage system and complete the documentation ⇒ *Workshop Manual '2X00IN Isolating high-voltage electrical system from power supply/Starting high-voltage electrical system'*.

**7 Adapt vehicle data.**

- 7.1 In the control unit selection screen ('**Overview**' menu), press **•F7** to call up the Additional menu.

- 7.2 Select '**Maintenance of vehicle data**' and press •F12" ('Next') to confirm your selection ⇒ *Maintenance of vehicle data*.
- 7.3 Press •F12" ('Next') to skip the displays containing information about vehicle description, colors/materials and X numbers.
- 7.4 Add the coding value '**ST1 - Installing E2 HV battery (28 Ah cells)**' to the vehicle data on the second page of the M numbers. To do this, click in the "Installed" field for the relevant coding value to select the value. Make sure that the 'Installed' column is then **ticked** and that the pen symbol appears in the 'Changed' column. Then press •F12" ('Next') to exit the PR numbers display.
- 7.5 Press •F8" in the overview that is then displayed to save the changed vehicle data.
- 7.6 Once you have saved the vehicle data, press •F11" ('Back') to return to the control unit selection screen.



*Maintenance of vehicle data*

## 8 Re-program control unit for high-voltage battery.

The basic procedure for control unit programming is described in the Workshop Manual ⇒ *Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester'*.

**For specific information on control unit programming during this campaign, see table below.**

Required PIWIS Tester software version:	<b>38.750.000</b> (or higher)
Type of control unit programming:	Control unit programming using the " <b>Campaign</b> " function in the <b>Additional menu</b> on the PIWIS Tester by entering a programming code.
Programming code:	<b>T2L5V</b>
Programming sequence:	Read and follow the <b>information and instructions on the PIWIS Tester</b> during the guided programming sequence. The <b>high-voltage battery control unit</b> is <b>re-programmed</b> and then <b>re-coded automatically</b> during the programming sequence. <b>Do not interrupt programming and coding.</b>
Programming time (approx):	<b>6 minutes</b>

Software version programmed during this campaign:	<b>1200</b> Following control unit programming, the software version can be read out of the high-voltage battery control unit in the 'Extended identifications' menu using the PIWIS Tester.
Procedure in the event of error messages appearing during the programming sequence:	⇒ <i>Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester - section on "Fault finding"</i> .

9 **Read out and erase fault memories.**

9.1 In the control unit selection screen ('Overview' menu) ⇒ *Control unit selection*, press •F7" to call up the '**Additional menu**'.

9.2 Select the function "**Read all fault memories and erase if required**" and press •F12" ("Next") to confirm your selection ⇒ *Erasing fault memories*.



Control unit selection

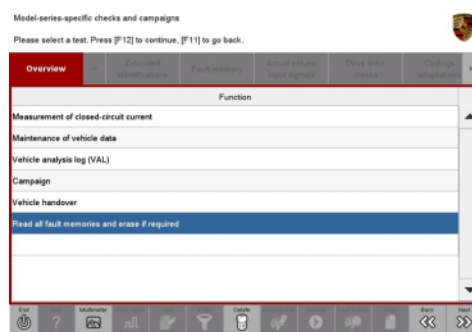
The fault memories of the control units are read out.

9.3 Once you have read out the fault memories, check the fault memory entries.

9.4 Press •F8" to delete fault memory entries.

9.5 Press •F12" ("Yes") in response to the question as to whether you really want to delete all fault memory entries.

The faults stored in the fault memories of the various control units are deleted.



Erasing fault memories

10 **Create a vehicle analysis log (VAL) using the PIWIS Tester.**

Mark the vehicle analysis log you have just created with the attribute "Final VAL" and return it using the PIWIS Tester.

11 **Complete the rework log and attach it to the warranty claim.**

To do this, use the document "**Attachment to TI 88/19: Rework log – Replacing high-voltage battery**".

**Information**

After carrying out the repair measure described here, **pay particular attention** to the following:

- **Capacity of the installed high-voltage battery**

The capacity of the high-voltage battery is set to **24 Ah** following installation in the Panamera S E-Hybrid and thus corresponds to the capacity of the high-voltage battery originally installed in the Panamera S E-Hybrid.

- **Electric range display**

When driving using electric power only in the "E-Power" driving programme, the internal combustion engine may be switched on although the remaining electric range displayed is still up to 2.5 miles (4 km). This is not a malfunction because the electric range is estimated. The electric range depends on driving style, climatic conditions and the use of energy-intensive electrical loads. Please inform the customer about this.

**Invoicing**

Invoicing: For documentation and warranty invoicing, enter the labor operation, PQIS coding and part number specified below in the warranty claim:

APOS	Labor operation	I No.
27083119	Converting high-voltage battery (581 TU)	

PQIS coding:

Location (FES5)	27080	High-voltage battery
Damage type (SA4)	1824	Severe wear

Parts Info:

Part No.	Designation	Qty.
958611590DX	High-voltage battery	1 ea.
00004330516	Coolant additive	0.05 ea. (= approx. 1 liters)

- References:
- ⇒ *Workshop Manual '9X00IN General warning notes for working on the high-voltage vehicle electrical system'*
  - ⇒ *Workshop Manual '9X00IN Classification of high-voltage battery'*
  - ⇒ *Workshop Manual '9X00IN Isolating high-voltage system from power supply/Starting high-voltage system'*
  - ⇒ *Workshop Manual '9X00IN Removing and installing subwoofer (hybrid)'*
  - ⇒ *Workshop Manual '9X00IN Removing and installing centre trim panel for luggage compartment (luggage compartment cover)'*
  - ⇒ *Workshop Manual '9X00IN Removing and installing C-pillar trim panel'*
  - ⇒ *Workshop Manual '9X00IN Removing and installing side trim panel for rear luggage compartment'*
  - ⇒ *Workshop Manual '9X00IN Removing and installing cover for rear lock support'*
  - ⇒ *Workshop Manual '9X00IN Removing and reinstalling battery'*
  - ⇒ *Workshop Manual '9X00IN Removing and installing Kessy antenna '*
  - ⇒ *Workshop Manual '9X00IN Removing and installing high-voltage charger'*
  - ⇒ *Workshop Manual '9X00IN Removing and installing high-voltage battery'*
  - ⇒ *Workshop Manual '9X00IN Replacing high-voltage battery'*
  - ⇒ *Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester'*

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