

**Complaint - Driving Readiness Cannot be Established or 12-Volt Battery is Discharged (215/20)**

Model Line: **Taycan (Y1A)**

Model Year: **As of 2020 up to 2021**

Concerns: **High-voltage battery control unit (BMC)**

Information: **An error in the High-voltage battery control unit bootloader can result in a discharged 12V battery or loss of driving readiness in the vehicle. A discharged 12V battery or loss of driving readiness can be attributed to this BMC bootloader error by checking the Vehicle Analysis Log (VAL) for four specific fault codes in the Gateway control unit:**

- **U112100 (FF0047)** - Data bus – missing message
- **U112100 (FF004A)** - Data bus – missing message
- **U011200 (FF0004)** - High-voltage battery control unit – no communication
- **U011200 (FF0071)** - High-voltage battery control unit – no communication

If the exact four fault codes above are not found in the Gateway, then the bootloader software error described here is not the cause of the 12V discharge or loss of driving readiness and additional diagnosis of the vehicle will be necessary.

This bootloader error should be considered independently from the larger-scale 12V battery discharge concern described in TI 209/20 "Complaint - Discharged 12-Volt Battery after Charging the High-Voltage Battery (209/20)".

The software solution mentioned in TI 209/20 remains in development and is still expected to be available in the first quarter of 2021. Review that TI in detail for additional information concerning a discharged 12V battery.

Action Required: Re-program the high-voltage battery control unit with the PIWIS tester software version 39.900.015 (or higher).

This re-programming updates the BMC software in both model year 2020 and 2021 vehicles.

The BMC software version number in 2020 vehicles may not change with this reprogramming, because only the bootloader is re-programmed before the old application software (**version E870**) is then re-installed. Therefore, the programming action must still be carried out on 2020 vehicles even if the BMC software version E870 is found in advance.

The BMC software in 2021 vehicles is programmed to **version 1441** with this programming action.

## Required tools



### Information

The vehicle is equipped with a **lithium starter battery** as standard.

**Lithium starter batteries** must only be charged using a **suitable battery charger** that has a current and voltage-controlled charge map.

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

### Tools:

- Battery charger with a current rating of **at least 90 A** and a **current and voltage-controlled charge map** for lithium starter batteries, e.g. **VAS 5908 Battery charger 90 A**
- **9900 - PIWIS Tester 3** with test software version **39.900.015** installed
- VCI connected to the PIWIS Tester 3 via USB cable

## Preparatory work

### NOTICE

Fault entry in the fault memory and control unit programming aborted due to undervoltage.

- Increased current draw during diagnosis or control unit programming can cause a drop in voltage, which can result in one or more fault entries and the abnormal termination of the programming process.
- ⇒ Before starting control unit programming, connect a suitable battery charger with a current rating of at least 90 A to the vehicle.

### NOTICE

Control unit programming will be aborted if the WLAN connection is unstable.

- An unstable WiFi connection can interrupt communication between the PIWIS Tester and the vehicle communication module (VCI). As a result, control unit programming may be aborted.
- ⇒ During control unit programming, always connect the PIWIS Tester to the vehicle communication module (VCI) via the USB cable.

### NOTICE

Control unit programming will be aborted if the driver's key is not recognized

- If the driver's key is not recognized in the vehicle, programming cannot be started or will be interrupted.
- ⇒ Place the driver's key with the back facing down in the area in front of the storage compartment under the armrest (emergency start tray) in order to guarantee a permanent radio link between the vehicle and driver's key.

**NOTICE**

**Programming interrupted**

- Malfunctions in control unit
  - Risk of damage to control unit
- ⇒ Route the line between the vehicle communication module (VCI) and diagnostic socket on the vehicle without tension and make sure that the connector is inserted fully into the diagnostic socket.
- ⇒ Check that the rechargeable battery for the PIWIS Tester is charged sufficiently. Connect the PIWIS Tester to the power supply unit if necessary.



**Information**

The procedure described here is based on the PIWIS Tester 3 software version **39.900.015**.

The PIWIS Tester instructions take precedence and in the event of a discrepancy, these are the instructions that must be followed.

A discrepancy may arise with later software versions for example.

Work Procedure: 1 Connect a suitable battery charger, e.g. **Battery charger 90A**, to the jump-start terminals in the luggage compartment and switch it on.

2 Position the **driver's key** with the back facing forward, upright, between the holding struts in the rear cupholder (**emergency start tray**) to guarantee a permanent radio link between the vehicle and remote control ⇒ *Emergency start tray*.

3 Connect **9900 - PIWIS Tester 3** to the vehicle communication module (VCI) via the **USB cable**. Then connect the communication module to the vehicle and switch on the PIWIS Tester.

4 Establish operational readiness (switch on ignition).

5 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*

**Re-programming high-voltage battery control unit**



**Electrically moved side windows and rear spoiler**

- **Danger of limbs being trapped or severed**
  - **Risk of damage to components**
- ⇒ **Do not reach into the danger area.**
- ⇒ **Keep third parties away from the danger area.**
- ⇒ **Do not move components or tools into the danger area.**

Work Procedure: 1 **Re-program the high-voltage battery control unit.**

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 as part of this programming process, see the table below:**

Required PIWIS Tester software version:	<b>39.900.015</b> (or higher)
Type of control unit programming:	Control unit programming using the <b>'Campaign' function in the Additional menu</b> on the PIWIS Tester by entering a programming code.
Programming code:	<b>K5N6Y</b>
Programming sequence:	<p>Read and follow the <b>information and instructions on the PIWIS Tester</b> during the guided programming sequence.</p> <p><b>Do not interrupt programming and coding.</b></p> <p>A backup documentation process for the re-programmed software versions starts as soon as programming and coding is complete.</p>
Software version programmed during programming:	Model year L (2020) <b>E870</b>
	Model year M (2021) <b>1441</b> <ul style="list-style-type: none"> <li>• On vehicles with model year L (2020), the software version does not change because only the bootloader is re-programmed and then the old application software (version E870) is re-installed. The measure must therefore be carried out even if the software version E870 was already read out in advance using the PIWIS Tester.</li> <li>• Following control unit programming, the software version can be read out of the</li> </ul>

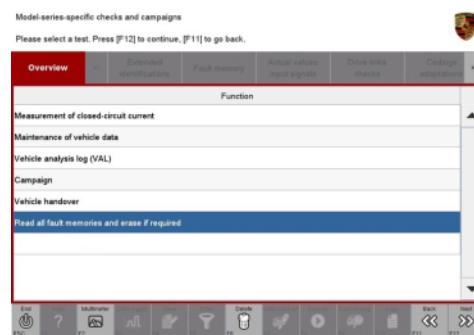
	high-voltage battery control unit in the 'Extended identifications' menu using the PIWIS Tester.
Programming time (approx.):	<b>approx. 10 minutes</b>
Procedure in the event of abnormal termination of control unit programming:	<ul style="list-style-type: none"> <li>• End and restore operational readiness (switch ignition off and then on again).</li> <li>• Read out and erase fault memories ⇒ <i>Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester'</i>.</li> <li>• Repeat control unit programming by entering the programming code again.</li> </ul>
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> .

**Concluding work**

Work Procedure: 1 Read out and erase the fault memories of all control units.

1.1 Press •F7" in the control unit selection screen ('Overview' menu) to call up the Additional menu.

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



*Erasing fault memories*



**Information**

If control units are found to have faults that are **not** caused by control unit programming, these must first be **found** and **corrected**. This work **cannot** be invoiced under the workshop campaign number.

1.4 Press •F8" to delete fault memory entries.

1.5 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.

**Information**

If fault memory entries for individual control units cannot be deleted, proceed as follows:

- End operational readiness (switch off ignition).
- Disconnect the PIWIS Tester diagnostic connector from the diagnostic socket.
- Lock the vehicle using the driver's key and remove the **driver's key from the proximity of the vehicle** (approx. 10 metres).
- **Wait approx. 15 minutes** before unlocking the vehicle again.
- Restore operational readiness (switch on ignition).
- Plug the PIWIS Tester diagnostic connector into the diagnostic socket again and restore communication with the vehicle.
- Read out the fault memory again and delete any fault memory entries that are stored.

- 1.6 Once you have erased the fault memories, select the '**Overview**' menu to return to the control unit selection screen ⇒ *Control unit selection*.

- 2 End operational readiness (switch off ignition).
- 3 Disconnect the PIWIS Tester from the vehicle.

**Information**

Connect the PIWIS Tester to a network as soon as you can and log into the PPN in order to transfer the backup documentation created during this campaign to the PAG systems.

- 4 Switch off and disconnect the battery charger.



*Control unit selection*

**Invoicing**

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

APOS	Labour operation	I No.
27942550	Re-programming the high-voltage battery control unit	

PQIS coding:

Location (FES5)	27940	Control unit for high-voltage battery
Damage type (SA4)	1614	Function not as specified

- References:
- ⇒ *Workshop Manual '270689 Charging battery/vehicle electrical system'*
  - ⇒ *Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester - section on "Fault finding"'*
  - ⇒ *Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester'*

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