WTL1 – Re-Programming High-Voltage Pulse Inverter at the Front(JX4) and Rear(JX1) (Workshop Campaign)

Model Line:	**Macan Electric (XAB)** **Cayenne Electric (X1A, X1B)**
Concerns:	**Front (JX4) and rear (JX1) high-voltage pulse inverter**
Information:	**Due to insufficiently robust self-diagnosis of the pulse inverter (PWR), the warning message "Drive control error - stop vehicle in a safe place" and loss of propulsion may occur in the affected vehicles during vehicle start-up.**
Action:	• Updating software for front (JX4) and rear (JX1) high-voltage pulse inverters • Minimum requirement: Release **44.300.020** (or higher)
Affected Vehicles:	Only vehicles assigned to the campaign (see also PCSS Vehicle Information).

Required tools

Tools:

- › P90999 – Porsche Tester 4th generation
- Battery charger with a rated current of **at least 90 A**, additionally with a current and voltage-controlled charging curve for lithium starter batteries if necessary, e.g. › VAS 5908 - Battery charger 90A For further information on the battery chargers to be used, please refer to the relevant Workshop Manual **270689 Charge vehicle electrical system battery**

Updating the software for the high-voltage pulse inverters on the front axle (JX4) and rear axle (JX1)

NOTICE

Sitting inside the vehicle during the update

- **Update cancelled due to automatic ignition activation**

  → Avoid sitting inside the vehicle during the update.

NOTICE

The specified update process was not followed

- **Cancelling the update and destroying control units**

  → Observe and follow the displayed update procedure and the instructions from the Porsche Tester
  → Do not switch the ignition on or off without instruction from the Porsche Tester
  → Repeat the programming only if a failed update is displayed on the Porsche Tester

Information

Vehicle update – general information

The entire vehicle network will be checked for a necessary update or computed to ensure fault-free functioning of the vehicle. For this purpose, the following preparations are to be made:

- Latest release available on Porsche Tester 4 and PiUS
- Vehicle is fully constructed
- **To prevent potential faults due to insufficient data transfer, carry out the software update using a cable (between VCI and Porsche Tester). Only if sufficient WLAN availability is ensured in the workshop can a wireless update be performed**
- The user must be logged into Porsche Tester 4 in the PPN
- Vehicle must be supported with an external charger
- Seat heating and seat ventilation are not active
- Place the original remote control in the emergency start tray (see Workshop Manual)

For this update procedure, the respective vehicle no longer needs to be in transport mode

Procedure for new vehicles with active transport protection:
Perform the **"Vehicle handover"** routine according to the Porsche Tester instructions **to deactivate transport protection**.
Always make sure To answer the question of "Is this a new vehicle?" asked by the Tester with **No**!

As a result, no complete vehicle commissioning is carried out and only transport protection can be deactivated.

Work Procedure:

1 Observe safety and repair instructions for every repair. **0001IN Information on safety and repair instructions**

2 Observe preconditions for control unit programming. **9X10IN Basic instructions and procedure for control unit programming using the Porsche Tester Information**

Information

An **active** Internet connection with the Porsche Tester must be ensured.

The technician **must** log in to PPN with the Porsche Tester.

The Porsche Tester must not be charged using the cigarette lighter!

Information

Before starting the diagnosis, it is essential for an ignition change to be performed on the vehicle.
After starting the diagnosis, the VCI is automatically initialized and the control unit data is loaded.

For additional information on the programming procedure and when the process is aborted, see the chapter "Additional notes on control unit programming and coding".

3 Re-program high-voltage pulse inverter control unit on front axle (JX4) and rear axle (JX1)

3.1 Start new logging via P2.

3.2 In the control unit overview, start the integration test with F3.
The required updates are displayed automatically as per the integration test for the respective vehicle.

3.3 Start the software update with Campaign F5 and program as per the menu.

After the update has been completed, a corresponding confirmation is displayed on the Porsche Tester. All affected control units should now be successfully programmed or checked in the results view showing the control units and their status.

Information

If a deviation in the integration test is still indicated despite the programming carried out, this must be repeated. If the deviation persists, contact Technical Support.

Information

During the update process, all displays in the vehicle (instrument cluster, central display and passenger display) can be temporarily switched off. Nevertheless, the programming is ongoing; **the ignition must not be switched on/off**, as this can result in the destruction of the control units.

If Wi-Fi coverage is insufficient, the connection between the Porsche Tester and VCI can be interrupted (battery charge indicator at the top right inactive on the Tester display). The vehicle will nevertheless continue programming **independently**. In the meantime, no entry may be made on the Porsche Tester, and the programming must not be restarted. In this case, the update progress can still be checked in the vehicle in the front display and control panel (R238) by going to the **"Messages" (RPC+)** tile.

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

Required Porsche Tester software releases:	**44.300.020** (or higher)
Type of control unit programming:	Start control unit programming in the integration test using the Campaign function with F5.
Campaign to be carried out: **WTL1**	
Programming sequence:	Read and follow the **information and instructions on the Porsche Tester** during the guided programming sequence. **Do not interrupt programming and coding.** A backup documentation process for the re-programmed software releases starts as soon as programming and coding is complete.
Programming time (up to):	**10 minutes** (depending on equipment)
Control units programmed as part of this campaign:	• **All:** Rear high-voltage pulse inverter control unit (JX1) • **All-wheel drive only:**Front high-voltage pulse-controlled inverter control unit (JX4)
Procedure if error messages appear during the programming sequence:	9X10IN Basic instructions and procedure for control unit programming using the Porsche Tester Information
Procedure in the event of a termination of control unit programming:	**Continue the programming sequence to the end and, once it is completed, perform the integration test again and restart the programming.**

Specific information on how to proceed if aborted: Chapter "Additional information on control unit programming and coding".

4 After the software update is complete, perform a vehicle bus idle.

Information

> Bus idle is always required after a software update has been completed.
> However, the duration of the required bus idle depends on the number and type of control units previously updated.
> For this reason, please always refer to the information on the duration of the required bus idle in this Technical Information

4.1 Return to the control unit overview by pressing F11.

4.2 End vehicle's readiness for operation (ignition off). Central computer (PCM) screen switches off.

4.3 Wait for **5 minutes** with the driver's door open.

5 Review the vehicle's readiness for driving.

5.1 Establish readiness for operation (ignition on).

5.2 Operate the footbrake and keep it pressed.

5.3 Use the selector lever to successively engage driving gears D and R. The selected gear must be displayed in the gear indicator on the instrument cluster.

5.4 Activate the parking lock via button P.

6 End readiness for operation (ignition off) and restore it after waiting 30 seconds (ignition on).

7 Read out and erase fault memory.
Due to the vehicle diagnosis and vehicle condition (new vehicles), fault memory entries can be stored that do not indicate an actual fault in the vehicle.
These fault memory entries can be deleted largely after a complete vehicle handover and a test drive.
The following fault memory entry is always stored in the context of a vehicle diagnosis using the Porsche Tester and does not constitute an actual fault.

Control unit	Fault code	Description
various control units	B184C00	Protection of vehicle diagnostics, deactivation active
Brake electronics (J104)	C13F7F1	Bedding-in function, active
Main control unit for gateway HCP5 (J1273)	U17A000	Diagnostic filter, access protection deactivated
Drive and chassis main control unit HCP1 (J1312)	C140DF0	Vehicle Protected Environment (VPE), vehicle protection activated

Main control unit for gateway HCP5 (J1273)	U014B00	All-wheel drive control unit, CAN data bus electric system 1, no communication
Drive and chassis main control unit HCP3 (J794)	U146700	Data bus no communication
Main control unit for gateway HCP5 (J1273)	P1CB500	Control unit, Plug and Charge, vehicle certificate

7.1 Press F7 to call up the additional menu on the Porsche Tester.

7.2 Select and confirm the menu item **Read/delete all fault memories** and confirm.

7.3 Press F8 to delete the displayed fault memory entries.

8 **For new vehicles only** commission the vehicle; for this, carry out the **Vehicle handover** routine in full according to the Porsche Tester instructions.

9 End logging and attach to PRMS ticket in the event of a fault.

10 End the diagnostic application. Switch off ignition. Disconnect the Tester from the vehicle.

11 Switch off and disconnect the battery charger.

Information

During the test drive, the GPS is reconnected, and the tire settings must be checked and, if necessary, adjusted again.

The activities performed during and after the test drive do **not** have to be carried out by the technician.

12 Perform a test drive.

13 Enter the campaign in the Warranty and Maintenance logbook.

Warranty invoicing

Information

The specified labor times have been determined specifically for carrying out this campaign and include all of the necessary preliminary and subsequent work. The labor times can differ from those published in the Labor Operation List in the PCSS.

Scope 1 Re-program front (JX4) and rear (JX1) high-voltage pulse inverter

Labor time

Connecting and disconnecting battery charger
Connecting and disconnecting Porsche Tester
Check vehicle road worthiness
Reading out and erasing fault memories

Damage number WTL1 066 000 1

Additional information on control unit programming and coding

Work Procedure:

General:

Fault indication	Cause	Source of fault	Remedial action
After the first update cycle, one or more control units report **coding required** or **programming required**	The affected control unit was not successfully programmed or coded	Vehicle	• Restart update by pressing F8 • After successful implementation, continue with work step 3

Before the update:

Fault indication	Cause	Source of fault	Remedial action
Diagnostic application crashes or the VCI connection has been aborted (the diagnosis has no information on battery voltage – see the battery symbol at the top right on the Tester display)		VCI has poor Wi-Fi connection	• Restart Tester, connect VCI with cable and try again • or: ensure that a stable Wi-Fi connection is available; move the vehicle to a suitable position in the workshop if necessary

During the update:

Fault indication	Cause	Source of fault	Remedial action
Diagnostic application crashes or the VCI connection has been aborted (the diagnosis has no information on battery voltage – see the battery symbol at the top right on the Tester display)		Diagnostic application	• Checking the update progress in the vehicle is mandatory • **No ignition change during update** • Do not restart the Tester until **after the update has been completed** in the vehicle (tile “Messages” → Installation “successful”) • When the update is concluded in the vehicle, verify that the update is complete. For this purpose, start control unit programming in the integration test using the ‘Repair’ function F8 on the Porsche Tester
The progress of the vehicle update is shown on the Porsche Tester **only from approx. 30% completion**. This can be up to 30 minutes after the download	Diagnostic service (RPC+) will not forward the progress of the update to the Tester until it is approx. 30% complete	Vehicle	• Correct behavior, no intervention necessary • Wait until the progress is displayed

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