WSD0 - Install Upgrade to the Software Network VR28.11 (Workshop Campaign)

Important: **CRITICAL WARNING** -This campaign includes steps where control unit(s) in the vehicle will be programmed with the PIWIS Tester. The vehicle voltage must be maintained between 13.5 volts and 14.5 volts during this programming. Failure to maintain this voltage could result in damaged control unit(s). Damage caused by inadequate voltage during programming is not a warrantable defect. The technician must verify the actual vehicle voltage in the PIWIS Tester before starting the campaign and also document the actual voltage on the repair order.

Model Year: **As of 2024 up to 2025**

Model Line: **Macan Electric (XAB)**

Concerns: **Software update (Upgrade to software version VR28.11)**

Cause: **Additional software optimizations are available for various control units for the Macan Electric.**

An overview of the changes that will be implemented with the software update can be found in the appendix under ⇒ *Technical Information 'Overview of software update changes'*.

Action: Perform reprogramming of the affected vehicle using the PIWIS Tester on the incremented software network VR28.11.

Information
The minimum programming requirement is the PIWIS Tester software release **43.300.010** (or higher).

Information
The prerequisite for this action is the **successful implementation** of the campaign **WRM0 – Update to software network VR28.11**.
If software network 28.11 has not yet been installed on the respective vehicle, this must be done before carrying out the present action here. Read TI WRM0 for details on this.

Affected Vehicles: Only vehicles assigned to the campaign (also see PCSS Vehicle Information).

Required tools

Tool:

- **P90999 - PIWIS Tester 4**
- Battery charger with a current rating of **at least 90 A**, 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 Charge battery and vehicle electrical system'*

Update to incremented software network VR28.11

NOTICE

Sitting inside the vehicle during the update

- **Abort update by automatically activating the ignition**

⇒ **Avoid sitting inside the vehicle during the update.**

NOTICE

The specified update process was not followed.

- **Update cancelled**
- **Destruction of control units**

⇒ **Observe and follow the process displayed for the update and instructions for the PIWIS Tester**

⇒ **Do not switch off the ignition without instructions by the PIWIS Tester**

⇒ **Do not repeat the programming unless a failed update result is displayed on the PIWIS 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 on PIWIS Tester 4 and PiUS available
- Vehicle is fully constructed
- VCI and PIWIS Tester 4 must be connected to each other via workshop Wi-Fi
- The user must be logged in to the PIWIS Tester 4 in the PPN
- Vehicle must be supported with an external charger
- Seat heating and seat ventilation are not active
- Place the original hand-held transmitter in the emergency start tray (see Workshop Manual)

The vehicle performs the update independently. The current status can be retrieved on the diagnostic tester or on the front display and control panel (R238) under Messages (RPC+).

Information

For this update procedure, the respective vehicle no longer needs to be in transport mode.
If necessary, the vehicle must be commissioned before carrying out the present action in order to deactivate the transport mode.

Work Procedure: 1 Observe preconditions for control unit programming.
⇒ *Technical Information '9X10IN Basic instructions and procedure for control unit programming using the PIWIS Tester'*

Information

An **active** Internet connection with the PIWIS Tester must be maintained.

The technician **must** log in to PPN with the PIWIS tester.

The PIWIS 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.
Subsequently, after starting the diagnosis, the VCI is automatically initialized and the control unit data is loaded.

For additional information on the programming procedure and if the process is aborted, see ⇒ *Technical Information '9X10IN FAQs on control unit programming and coding'*.

2 Updating the software of various control units to incremented software network VR28.11.

2.1 Start new logging via P2 .

2.2 As soon as the control unit overview is displayed, open the additional menu F7 .

An overview of all campaigns to be carried out for the respective vehicle is then displayed automatically.

2.3 Confirm the campaigns to be carried out for the respective vehicle by pressing F12 , but do not start for the time being.

2.4 Create Vehicle Analysis Log. Flag the created VAL with "Pre-VAL".

2.5 During the **automatic integration test** on the PIWIS Tester, press F11 to **cancel** it.

3 Update the software of various control units to incremented software network VR28.11.

In the displayed additional menu, select and confirm the **"Control unit programming and coding (campaign)"** menu item.
The required updates to the incremented software network VR28.11 are then displayed.
Start the software update with F8 and program as per the menu.

After updating is complete, a corresponding confirmation is displayed on the PIWIS Tester.

Information

The entire **update process** for this action takes **approx. 30 minutes**.
However, the download speed of the update package depends on the performance of the local network and can vary accordingly.

Information

During the update process, all displays in the vehicle (instrument cluster, central display and passenger display) are occasionally switched off. Programming nevertheless continues. **The ignition must not be switched off without Tester instruction.**.

If WiFi coverage is insufficient, the connection between the PIWIS Tester and VCI can be interrupted (battery charge indicator inactive on the Tester display at the top right). The vehicle will nevertheless continue programming **independently**. In the meantime, no entry must be made on the PIWIS Tester, and the programming must not be restarted. In such a case, the progress of the update can still be followed inside the vehicle via the central display by activating the **"Messages"** tile.

Update progress on the central display

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

Required PIWIS Tester software release:	**43.300.010** (or higher)
Type of control unit programming:	Control unit programming via the **"Programming and coding control units (campaign)"** function.
Programming sequence:	Read and follow the **information and instructions on the PIWIS Tester** during the guided programming sequence. **Do not interrupt the programming and coding process.** A backup documentation process for the re-programmed software releases starts after programming and coding.
Programming time (up to):	**25 minutes** Only China / Hong Kong: 50 minutes
Control units programmed as part of this campaign:	See ⇒ *Technical Information '9X10IN Overview of the new features of the software update'*.

Procedure if error messages appear during programming sequence:	⇒ *Technical Information '9X10IN Basic instructions and procedure for control unit programming using the PIWIS Tester'*
Procedure in the event of a termination in the control unit programming:	**Continue the campaign sequence to the end, then carry out the integration test again when the test is complete and restart programming by entering the programming code.** Specific information on how to proceed if aborted: ⇒ *Technical Information '9X10IN FAQs on control unit programming and coding'*

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

4.1 Go back to the control unit overview by pressing F11 .

4.2 End the readiness for operation of the vehicle (ignition off).

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

4.4 Establish readiness for operation (ignition on).

5 Check readiness for driving the vehicle.

5.1 Operate the footbrake and keep it pressed.

5.2 Use the selector lever to engage driving gears D and R one after the other. The selected gear must be displayed in the gear indicator on the instrument cluster.

5.3 Activate the parking lock via button P.

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

7 Read out and delete fault memory.

Information

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

Information

Due to the vehicle diagnosis and coding, fault memory entries that do not indicate an actual fault in the vehicle can be stored.
These fault memory entries can be deleted for the most part after repeated starting and a test drive.

The following fault memory entry is always stored as part of a vehicle diagnosis with the PIWIS Tester and does not represent an actual fault:

Control unit	Fault code	Description
"various" control units	B184C00	Protection of vehicle diagnostics, actuation 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

7.1 If necessary, restore communication of the PIWIS Tester with the vehicle.

7.2 Press F7 to call up the additional menu on the PIWIS Tester.

7.3 Select and confirm the menu item "**Read / delete all fault memories**" and press to confirm.

7.4 Press F8 to delete the displayed fault memory entries.

8 Perform a new integration test using the Diagnosis Tester.
The vehicle may only be handed over to the customer with a **fully compliant software / hardware network**.

8.1 Access control unit overview on the tester.

8.2 Start integration test with F3 and follow as per the menu.

9 Create Vehicle Analysis Log. To do this, press F7 to access the additional menu and select create protocol.
Flag the created VAL with "Post-VAL".

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

11 Switch off and disconnect the battery charger.

12 Enter campaign in the Warranty and Maintenance logbook.

Warranty processing

Information

The specified labor times were determined specifically for carrying out this campaign and include all necessary preliminary and subsequent rework. The labor times may differ from those published in the Labor Operation List in the PCSS.

Scope 1: **Carry out update on incremented software network VR28.11**

Labor time:

Carry out update on incremented software network VR28.11 — Labor time: **147 TU**

Includes:
- Connect and disconnect battery charger
- Connect and disconnect PIWIS Tester
- Read out and delete fault memory
- Create Vehicle Analysis Log (VALs) before and after campaign

⇒ **Damage number WSD0 066 000 1**

Overview of changes due to this software update

Overview:

Control unit	Description
Main control unit for gateway HCP5 (J1273)	Robustness measure: HCP5 programming and coding ▪ Rectification of intermittent yellow or red warning messages for "vehicle electrical system" due to HCP5 communication failures within the control unit network
Main control unit for body electronics HCP4 (J519)	Robustness measure: HCP4 programming ▪ Correcting the fault: Asynchronous starting of the microcontroller in the HCP4 main control unit after bus idling intermittently prevents terminal 15 from switching on. As a result, the vehicle cannot be started or unlocked using a key remote. ▪ Correcting the fault: Intermittent communication breakdowns in the HCP4 hardware security module prevent terminal 15 from switching on. Customer satisfaction measure: HCP4 coding ▪ Optimized control of the high-voltage heater to prevent back-up heat in the heater area. This eliminates potential odor complaints from the cabin air vents.

High-voltage battery control unit (J1120)	Robustness measure: Programming BMCe ▪ Optimized diagnosis to detect stuck HV contactors. Faulty and incorrectly detected position of the HV contactors leads to the HV system shutting down or a charging process being disrupted. ▪ Optimized battery capacity calculation to improve range, charging power and SoC display.
External communication control unit (J949)	China, Hong Kong market only: Programming ConMod ▪ Troubleshooting for online functions to ensure long-lasting online navigation, POI search and dynamic online route planning

Return to the introduction ⇒ *Technical Information '9X10IN Introduction'*.

FAQs on control unit programming and coding

Information

If individual programming or rework procedures could not be carried out correctly, please refer to the Workshop Manual for the basic procedure for control unit programming with the PIWIS tester. ⇒ *Technical Information '9X10IN Basic information and procedure for control unit programming with the PIWIS tester. Information'*:

In the event of a fault, **always** create a log with the PIWIS tester during programming with P2 .

Work procedure: **General:**

Fault indication	Cause	Source of fault	Remedial action
Control unit programming	The affected control unit did not respond or did not respond completely when the vehicle information was read out.	Vehicle	▪ Cancel procedure ▪ Close diagnosis ▪ Terminal 15 change ▪ Restart procedure

Before the update:

Fault indication	Cause	Source of fault	Remedial action
Diagnostic application crashes (JAVA error message)		Diagnostic application	▪ Restart diagnostic application
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, reinsert VCI and try again ▪ Ensure that WiFi connection is stable, moving vehicle to a suitable position in workshop if necessary

During the update:

Fault indication	Cause	Source of fault	Remedial action
Diagnostic application crashes (JAVA error message)		Diagnostic application	▪ Checking update progress in vehicle is mandatory ▪ **No ignition cycle during update** ▪ Do not restart Tester until **update** has been completed in vehicle (“Messages” tile --> installation "successful") ▪ When the update is concluded in the vehicle, verify that the update is complete. To do this, restart the **integration test** using the PIWIS Tester.
The following fault occurs at the step **"Attempting to connect to SOD"**: **"The release versions of Tester and PIUS do not match."**	PIWIS Tester 4 did not receive the required release update. Since the PIUS installs the updates automatically, the release versions no longer match.	PIWIS Tester and PiUS	▪ Install current release on PIWIS Tester 4 ▪ Check availability of current release on PiUS workshop server

PIWIS Tester 4 cannot establish communication with diagnostic tester; error message on first attempt to establish communication	Date / time in vehicle is incorrect after disconnecting / re-connecting 12-V battery (terminal 30)	Vehicle	Correct date / time in vehicle: ▪ Open **"Control unit overview"** ▪ Access **"Gateway HCP5"** main control unit ▪ Open **"Service / Maintenance"** menu ▪ Select and execute **"Set time"** menu item
When the update calculation result is displayed, the following fault occurs in all control units to be programmed / coded: **"Fault in determining target state for coding / programming"**	Fault while calculating in backend system	Backend system	▪ Lock vehicle and wait for bus rest ▪ Repeat update
On PIWIS Tester 4, the progress of the vehicle update is shown **only after approx. 27%** has been completed.	Diagnostic service (RPC+) will not forward the progress of the update to the Tester until it is approx. 27% complete.	Vehicle	▪ Wait until progress is displayed
Charging communication 1 (J1245) **or** charging communication 2 (J1246) in **update attempt not OK --> communication error**.		Vehicle, GOBW	▪ Final integration test reports a communication error ▪ Pull fuse from affected control unit ▪ Remove fuse ▪ Wait for 30 seconds ▪ Re-insert fuse ▪ Re-attempted update
Programming or coding aborts at approx. 30%.	Cleaning of the systems in the background prevents the programming or coding from being completed.	Backend system	▪ Repeat routine

After the update:

Fault indication	Cause	Source of fault	Remedial action
Delete the fault from the fault memory.		Vehicle	▪ Fault can be ignored
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, reinsert VCI and try again ▪ Ensure that WiFi connection is stable, moving vehicle to a suitable position in workshop if necessary
Diagnostic application crashes (JAVA error message)		Diagnostic application	▪ Restart diagnostic application
Passive fault memories from high-voltage control units cannot be erased.			▪ Switch ignition off and on ▪ Re-reading and deleting fault memory

Valid error codes after the incremented software network VR28.11

Control unit	Fault code	Description	Remedy
"various" control units	B184C00	Protection of vehicle diagnostics, actuation active	▪ Valid fault memory entry
Brake electronics (J104)	C13F7F1	Bedding-in function, active	▪ Valid fault memory entry after vehicle handover
Front camera (R242)	U198C00	Road graph, received fault value	▪ After approval drive: DTC passive
Front camera (R242)	B200FF2	Implausible signal	▪ After approval drive: DTC passive
Front camera (R242)	U12EF00	Front camera for driver assistance systems, implausible signal	▪ After approval drive: DTC passive
Front camera (R242)	U147C00	Emergency call module and communication unit, implausible signal	▪ Remove flight mode ▪ After approval drive: DTC passive

Front camera (R242)	U194E00	Application server 3 for system 1 (HCP3), Infotainment, implausible signal	▪ After approval drive: DTC passive
Drive and chassis main control unit HCP1 (J1312)	U202300	Drive torque longitudinal distribution, recuperation, bedding-in function active	▪ Valid fault memory entry after vehicle handover
Drive and chassis main control unit HCP1 (J1312)	U045D00	Driver assistance main control unit HCP2 (J1274), ETHERNET data bus driver assistance, implausible signal	▪ After approval drive: DTC passive
Driver assistance main control unit HCP2 (J1274)	B200FF2	Implausible signal	▪ After approval drive: DTC passive
External communication (J949)	U13EB00	Flight mode active	▪ Deactivate flight mode