

**AMB5 - Re-Programming Power Electronics (Stop Delivery/Recall Campaign)**

Revision: This bulletin replaces bulletin Group 9 106/21 AMB5 (Y1A, Y1B), dated July 14, 2021.

Model Year: **2021**

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 Line: **Taycan (Y1A)**  
**Taycan Cross Turismo (Y1B)**

Concerns: **Power electronics and engine electronics (DME)**

Information: **Due to an internal software error in the high-voltage power electronics, there is a possibility that the warning message "Drive system control fault Park vehicle safety" will be displayed in the instrument cluster on the affected vehicles.**

If this is the case, the possibility of the drive system switching off sporadically while driving cannot be ruled out and it may be necessary to park the vehicle safely. The customer can start the vehicle again after switching the ignition off and on again.

- Action required:
- Re-program the power electronics and engine electronics (DME control unit) using the PIWIS Tester with test version **40.550.040** (or higher) installed.
  - Depending on the software version of the individual control units installed in the vehicle, other control units must also be re-programmed or coded.



**Information**

Each vehicle affected by this measure has been assigned **exactly one scope**, which includes the measures required for updating the software.

For details of the exact scope of this campaign that is assigned to each vehicle, see PCSS Vehicle Information.

An overview of the corresponding action required for each scope can be found in the table below.

Overview of scopes:

Allocation	Scope of work for control unit programming
Scope 1:	<ul style="list-style-type: none"> <li>• VR8.6</li> <li>• VR8.7</li> <li>• VR12.1.1</li> <li>• Power electronics</li> </ul>
Scope 2:	<ul style="list-style-type: none"> <li>• VR8.7</li> <li>• VR12.1.1</li> <li>• Power electronics</li> </ul>
Scope 3:	<ul style="list-style-type: none"> <li>• VR12.1.1 - Model year 2020 vehicles</li> <li>• Power electronics</li> </ul>
Scope 4:	<ul style="list-style-type: none"> <li>• VR12.1.1 - Model year 2021 vehicles</li> <li>• Power electronics</li> </ul>
Scope 5:	<ul style="list-style-type: none"> <li>• Power electronics</li> </ul>



#### Information

After **each** completed programming session, a working log **must** be created and, after the campaign has been completed, will be uploaded to the quality line using the PIWIS Tester.

Affected vehicles:

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

#### Required tools



#### Information

The Taycan (Y1A/Y1B) is equipped as standard with a **lithium starter battery**.

**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 **also** with 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 version **40.550.040** (or higher) installed.
- **USB storage medium, type A+C 32 GB (for PCM update)**, Part No. V04014999WW000



**Information**

The central computer (PCM) software update is performed using a USB storage medium. The software version that is specific to each region must be **downloaded** using the software tool **PiUS** (Porsche integrated Update Service) and **installed** on a blank USB storage medium.

**Pay particular attention** to the following:

- For this PCM software update, the USB storage medium USB Type A+C 32 GB with the part number V04014999WW000 must be used.
- To use the software tool, **one** blank or re-writable USB storage medium is required for **each** individual software.
- The software available in PiUS must **only** be used in accordance with the instructions provided in a Technical Information published for this purpose.

The software mentioned here must **only** be used on the **vehicles assigned to the campaign**. Damage to the central computer cannot be ruled out if the software is used on other vehicles.

You will find further information on how to install and use the PiUS software tool in the PPN portal under **\*PiUS (Porsche integrated Update Service) goes live\***.

Overview of PiUS software versions – PCM update VR12.1.1		
Part No.	Designation – Region	Vehicle allocation
9J1919360C	<b>PCM update</b> software – Europe – RoW	I-no. ER1/ER2
9J1919360D	<b>PCM update</b> software – North America – Mexico	I-no. ER3/ER4
9J1919360E	<b>PCM software update</b> – Japan – China – Korea – Taiwan	I-no. ER5/ER6/ER7/ER8

**Preparatory work - all scopes**

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

**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**

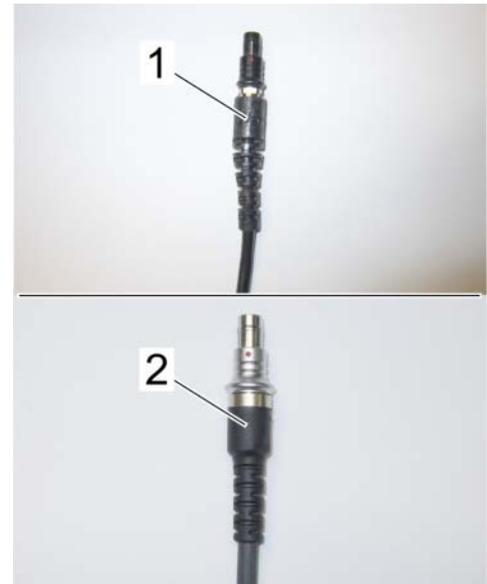
To carry out the campaign, the PIWIS Tester must be online and logged into the Porsche Partner Network (PPN).



**Information**

Use the **new** PIWIS Tester data cable to carry out the campaign. The difference between the old ⇒ *PIWIS Tester data cable -1-* and new ⇒ *PIWIS Tester data cable -2-* data cable is shown in the illustration.

If the connection between the vehicle and PIWIS Tester is interrupted, check the data cable for the PIWIS Tester for signs of damage. If the data cable is damaged, it **must** be **replaced**. To do this, follow the instructions in the PPN for "Returning faulty USB cable caps" (PPN portal > Dr Ing. h.c. Porsche AG > Aftersales > Workshop > PIWIS > Documents).



*PIWIS Tester data cable*



**Information**

The procedure described here is based on the PIWIS Tester 3 software version **40.350.035**.

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.



**Information**

To prevent any excessive and potentially noticeable heating of the charging clamp of the negative cable while charging the 12-volt vehicle electrical system battery using an external battery charger, always check the following points:

- Always connect the charging terminal of the negative cable vertically from above to the ground point for the external power connection. Make sure that the charging clamp cable is routed loosely to prevent the charging clamp from tilting sideways at the ground point.
- When connecting the charging clamp, make sure that it is a sufficient distance away from peripheral parts (e.g. pneumatic supply line for air-spring strut).
- Before raising the vehicle using a lifting platform, always disconnect the battery charger completely from the vehicle in order to prevent the connecting line of the charging terminal from becoming taut and the charging terminal tipping sideways at the ground point as a result.

- 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.  
**Operate the PIWIS Tester via the power supply unit** due to the long programming time.



*Emergency start tray*

- 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.
- 6 Create vehicle analysis log (VAL) using the PIWIS Tester.  
Mark the vehicle analysis log you have just created with the attribute "**Pre-VAL**" and after carrying out the campaign, return it using the PIWIS Tester.  
**Then, perform the control unit update in accordance with the scope that is uniquely assigned to the respective vehicle.**  
For details of the exact scope of this campaign that is assigned to each vehicle, see PCSS Vehicle Information.
- 7 Delete the working logs currently stored on the Tester.
  - 7.1 In the control unit overview, select •F10" ('Logs') in the menu bar **at the bottom** and select the **working log**.
  - 7.2 Mark and erase the stored working logs.

Allocation	Software release	Action required
<b>Scope 1:</b>	<ul style="list-style-type: none"> <li>• VR8.6</li> <li>• VR8.7</li> <li>• VR12.1.1</li> <li>• Power electronics</li> </ul>	Not relevant for this model year.
<b>Scope 2:</b>	<ul style="list-style-type: none"> <li>• VR8.7</li> <li>• VR12.1.1</li> <li>• Power electronics</li> </ul>	Not relevant for this model year.

Scope 3:	<ul style="list-style-type: none"> <li>• VR12.1.1</li> <li>• Power electronics</li> </ul>	Not relevant for this model year.
Scope 4:	<ul style="list-style-type: none"> <li>• VR12.1.1</li> <li>• Power electronics</li> </ul>	⇒ <i>Technical Information '270689 Updating software for various control units - Scope 4'</i>
Scope 5:	<ul style="list-style-type: none"> <li>• Power electronics</li> </ul>	⇒ <i>Technical Information '270689 Programming power electronics - Scope 5'</i>

### Updating software for various control units - Scope 4



**WARNING**

#### 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.



#### Information

To ensure that no user-specific settings from **Cloud-based services (Porsche Connect & My Porsche)** are lost during the update, activate Privacy mode before carrying out the update. When Privacy mode is activated, communication between the vehicle and the Porsche Connect app and My Porsche is disabled. No vehicle-specific information is transferred. As a result, settings cannot be configured on the vehicle using the Porsche Connect app or My Porsche.

When the **instrument cluster** and **central computer** are re-programmed, the **individual settings** implemented **in the vehicle** by the customer will be lost and reset to the **default values** of the country version that applies to the vehicle.

After carrying out the campaign, please inform customers that personal settings they have implemented in the instrument cluster and central display of the central computer will have to be **set again** and provide them with any **help and support** they need for setting the relevant options.

This affects the following settings, for example:

- Individual settings for tubes 1 to 3 of the instrument cluster as well as the extended map view or reduced view of the instrument cluster
- Selected functions of individual tubes in the instrument cluster, e.g. auto zoom, 3D map and satellite map
- Arrangement of tiles in the home screen and MyScreen on the central display

**Information**

The programming sequences used during this campaign include **all control units** from software release VR12.1.1. In the programming sequence, the software versions of the individual control units are initially compared with the required status of software release VR12.1.1. If the actual status already matches, the programming of the relevant control unit is automatically skipped, and so the scope of the control units programmed may vary depending on the vehicle.

The individual programming sequences 1 to 4 can be carried out on different days.

Overview of control units included in the programming sequence: ⇒ *Technical Information '270689 Overview of control units for software version VR12.1.1'*

- Work Procedure: 1 Select **Guest account** from the central display (PCM) and activate **Privacy mode** (available in some countries).
- 2 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'*.

**Information****Special features of sequence 1:**

Manual intermediate steps are required after programming the central control unit for assistance systems (zFAS). For safety reasons, the airbag is unlocked during a guided procedure prior to coding and is then locked again when coding is complete. Follow the instructions on the PIWIS Tester.

If the guided airbag procedure is cancelled, the airbag must be locked again manually after completing sequence 1. For instructions, see: ⇒ *Workshop Manual '695355 Replacing airbag control unit'*

**Sequence 1:**

**For specific information on control unit programming in this sequence, see the table below:**

Required PIWIS Tester software version:	<b>40.550.040</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>K4M1S</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>
Programming time (approx.):	<b>100 minutes</b>
Software version programmed during this sequence:	<ul style="list-style-type: none"> <li>Central control unit for assistance systems (zFAS) 0365</li> </ul> <p>Sequence 1 includes other control units from the software release VR12.1.1, which are only re-coded.</p> <p>Following control unit programming, the software version can be read out of the relevant control unit in the 'Extended identifications' menu using the PIWIS Tester.</p>
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 the fault memory ⇒ <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, whereby extended logging must be started using the key combination •Ctrl" + •L" .</li> <li>Extended logging records diagnostic software data, particularly vehicle communication data, which is required for analysing the issues that caused programming to be aborted.</li> <li>If control unit programming is aborted a second time, stop operational readiness for approx. 15 minutes (switch off ignition) and repeat the procedure described here 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> .

- 3 Create new working log.
  - 3.1 After programming has been performed, confirm with •F4" ('Save') in the campaign menu at the bottom.
  - 3.2 Select •F10" ('Logs').
  - 3.3 Select the log type **Working log**.

- 3.4 Rename and store the working log you have just created with the designation of the sequence carried out.
- 3.5 Mark the working log and use •F10" ('Display').
- 3.6 Select the Printer icon at the top right of the selection bar.
- 3.7 Select printer ('PDF').
- 3.8 Print the working log, saving it automatically to the Tester.



### Information

#### Points to note in Sequence 2:

After programming the 22 kW high-voltage charger (OBC), the **central computer (PCM) settings** must be reset to factory settings.

**After carrying out the campaign**, please remind customers that their personal settings must be **set again** in the PCM and **help** them to set the relevant options if necessary.

This affects the following settings in the Vehicle menu, for example:

- Lowering of exterior mirror on passenger's side during parking manoeuvres
- Locking settings
- Light & Visibility settings
- Units (kilometres/miles, Celsius/Fahrenheit, ...)
- Language

4

Start control unit programming **sequence 2**.

**For specific information on control unit programming in this sequence, see the table below:**

Required PIWIS Tester software version:	<b>40.550.040</b> (or higher)
Type of control unit programming:	Control unit programming using the ' <b>Campaign</b> ' function <b>in the Additional menu</b> on the PIWIS Tester by entering a programming code.
Programming code:	<b>K4M2S</b>
Programming sequence:	Read and follow the <b>information and instructions on the PIWIS Tester</b> during the guided programming sequence.  <b>Do not interrupt programming and coding.</b>  A backup documentation process for the re-programmed software versions starts as soon as programming and coding is complete.
Programming time (approx.):	<b>70 minutes</b>

<p>Software versions programmed during this sequence:</p>	<ul style="list-style-type: none"> <li>• Power electronics, front and rear 0012</li> <li>• Engine electronics (DME) control unit 0014</li> <li>• High-voltage charger (OBC) 11 kW 1083</li> </ul> <p>or (depending on equipment)</p> <ul style="list-style-type: none"> <li>• High-voltage charger (OBC) 22 kW 1256</li> </ul> <ul style="list-style-type: none"> <li>• High-voltage battery control unit (BMCe) 1441 (H13)</li> </ul> <p>or (depending on equipment)</p> <p>1442 (H14)</p> <ul style="list-style-type: none"> <li>• High-voltage DC charger (booster) 1250</li> <li>• HV voltage converter 1230</li> <li>• Head-up display 1208</li> <li>• Instrument cluster 0595</li> <li>• Over-the-air (OTA) control unit 1221</li> </ul> <p>Sequence 2 includes other control units from the software release VR12.1.1, which are only re-coded.</p> <p>Following control unit programming, the software version can be read out of the relevant control unit in the 'Extended identifications' menu using the PIWIS Tester.</p>
<p>Procedure in the event of abnormal termination of control unit programming:</p>	<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 the fault memory ⇒ <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, whereby extended logging must be started using the key combination •Ctrl" + •L" .</li> <li>• Extended logging records diagnostic software data, particularly vehicle communication data, which is required for analysing the issues that caused programming to be aborted.</li> <li>• If control unit programming is aborted a second time, stop operational readiness for approx. 15 minutes</li> </ul>

	(switch off ignition) and repeat the procedure described here again.
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> .

- 5 Create new working log.
  - 5.1 After programming has been performed, confirm with •F4" ('Save') in the campaign menu at the bottom.
  - 5.2 Select •F10" ('Logs').
  - 5.3 Select the log type **Working log**.
  - 5.4 Rename and store the working log you have just created with the designation of the sequence carried out.
  - 5.5 Mark the working log and use •F10" ('Display').
  - 5.6 Select the Printer icon at the top right of the selection bar.
  - 5.7 Select printer ('PDF').
  - 5.8 Print the working log, saving it automatically to the Tester.
  
- 6 Start control unit programming **sequence 3**.

**For specific information on control unit programming in this sequence, see the table below:**

Required PIWIS Tester software version:	<b>40.550.040</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>K4M3S</b>
Programming sequence:	Read and follow the <b>information and instructions on the PIWIS Tester</b> during the guided programming sequence.  <b>Do not interrupt programming and coding.</b>  A backup documentation process for the re-programmed software versions starts as soon as programming and coding is complete.
Programming time (approx.):	<b>30 minutes</b>

<p>Software version programmed during this sequence:</p>	<ul style="list-style-type: none"> <li>Door control unit, front and rear 0390</li> </ul> <p>Sequence 3 includes other control units from the software release VR12.1.1, which are only re-coded.</p> <p>Following control unit programming, the software version can be read out of the relevant control unit in the 'Extended identifications' menu using the PIWIS Tester.</p>
<p>Procedure in the event of abnormal termination of control unit programming:</p>	<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 the fault memory ⇒ <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, whereby extended logging must be started using the key combination •Ctrl" + •L" .</li> <li>Extended logging records diagnostic software data, particularly vehicle communication data, which is required for analysing the issues that caused programming to be aborted.</li> <li>If control unit programming is aborted a second time, stop operational readiness for approx. 15 minutes (switch off ignition) and repeat the procedure described here again.</li> </ul>
<p>Procedure in the event of error messages appearing during the programming sequence:</p>	<p>⇒ <i>Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester - section on "Fault finding"</i>.</p>

- 7 Create new working log.
  - 7.1 After programming has been performed, confirm with •F4" ('Save') in the campaign menu at the bottom.
  - 7.2 Select •F10" ('Logs').
  - 7.3 Select the log type **Working log**.
  - 7.4 Rename and store the working log you have just created with the designation of the sequence carried out.
  - 7.5 Mark the working log and use •F10" ('Display').
  - 7.6 Select the Printer icon at the top right of the selection bar.
  - 7.7 Select printer ('PDF').
  - 7.8 Print the working log, saving it automatically to the Tester.

- 8 Standardize front and rear doors consecutively.
  - 8.1 Select all four **door control units** in the control unit selection screen ('**Overview**' menu) and press •F12" ('Next') to confirm your selection.
  - 8.2 Once the door control units have been found and are displayed in the overview, select the '**Maintenance/repairs**' menu.
  - 8.3 Select the '**Standardization run**' function for the first of the four door control units and press •F12" ('Next') to confirm.
  - 8.4 Read the instructions and confirm by pressing •F12" ('Next').
  - 8.5 Meet the displayed conditions that must be checked manually, tick the relevant '**Status**' box, and press •F12" ('Next') to confirm.
  - 8.6 Select the **Door \ Power window standardization** function and press •F8" ('Execute') to start the procedure.
  - 8.7 Standardize the other three door control units in succession.  
To do this, repeat **Steps 5.3 - 5.6** for the relevant door control units.
  - 8.8 Once all four door control units have been coded, select the '**Overview**' menu to return to the control unit selection screen.
- 9 Re-program the central computer (PCM) (**sequence 4**).
  - 9.1 Select the guest account from the central display (PCM) and activate Privacy mode (available in some countries).
  - 9.2 Open the armrest and remove the external device, e.g. iPod, USB storage medium, from the USB interface if necessary.

**NOTICE**

Using the software on vehicles that are not assigned to this campaign:

- **Risk of damage to control unit**

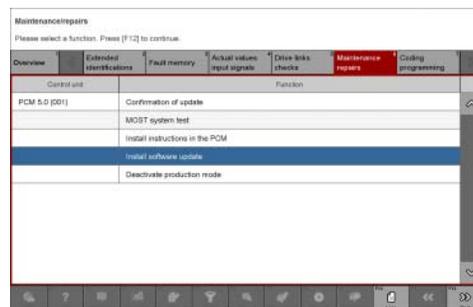
⇒ **Use the listed software versions only for the vehicles assigned to the campaign.**

- 9.3 Insert the **USB storage medium** with the software version specific to the respective region for the **PCM update** into the **USB interface**.

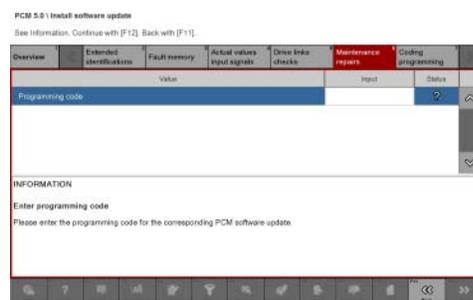
Part No.	Designation – Region	Vehicle assignment
9J1919360C	USB storage medium for PCM update – Europe – ROW	I-no. ER1/ER2

9J1919360D	USB storage medium for PCM update – North America – Mexico	I-no. ER3/ER4
9J1919360E	USB storage medium for PCM update – Japan – China – Korea – Taiwan	I-no. ER5/ER6/ER7/ER8

- 9.4 See Technical Information **TI 101/20** if programming is aborted during central computer (PCM) software updates ⇒ *Technical Information '915200 Complaint - PCM update cannot be performed/stops. Observe specified procedure (101/20)'*.
- 9.5 Start the central computer (PCM) software update (**sequence 4**) using the PIWIS Tester.
- 9.6 Select the **central computer (PCM)** control unit in the control unit selection screen ('**Overview**' menu) and press •F12" ('Next') to confirm your selection.
- 9.7 Once the PCM central computer control unit has been found and is displayed in the 'Overview', select the '**Maintenance/repairs**' menu.
- 9.8 Select the '**Install software update**' function and press •F12" ('Next') to perform the software update ⇒ *Installing PCM 6.0 software update*.
- 9.9 Confirm the information that is displayed by pressing •F12" ('Next').
- 9.10 After meeting the preconditions, confirm by ticking the 'Status' column. Then, press •F12" ('Next') to continue.
- 9.11 Enter the programming code **K4M4S** in the relevant column ⇒ *Entering PCM 6.0 programming code* and press •F12" ('Next') to confirm ⇒ *Entering PCM 6.0 programming code*.
- 9.12 Press •F8" ('Start') to start.
- 9.13 After checking the software data, press •F8" ('Start') to start programming.



*Installing PCM 6.0 software update*



*Entering PCM 6.0 programming code*

Once the update has started, the PCM is restarted in the Update menu and the individual components are then updated.

**The update can take up to 60 minutes.**

Read and follow the instructions displayed on the PIWIS Tester during the update. The PCM is restarted several times. The PCM screen remains dark for up to 3 minutes.

- 9.14 Once the update is complete, an overview is displayed showing processes that have been completed successfully marked with a tick in the Status box. Press •F12" ('Next') to confirm.

#### Software versions programmed during this sequence

- Central computer (PCM): **3397**

Following control unit programming, the software version can be read out of the PCM central computer control unit in the 'Extended identifications' menu using the PIWIS Tester.

- 9.15 Open the armrest and remove the USB storage medium from the USB interface.
- 10 Re-code the loudspeaker booster and inductive charger for mobile devices (**depending on equipment**).
- 10.1 Select the **loudspeaker booster** and **inactive charger for mobile devices** control units in the control unit selection screen ('**Overview**' menu) and press •F12" ('Next') to confirm.
- 10.2 Once both control units have been found and are displayed in the overview, select the '**Coding/programming**' menu.
- 10.3 Select the '**Automatic coding**' function and press •F12" ('Next') to start.
- 10.4 Once both door control units have been coded, select the '**Overview**' menu to return to the control unit selection screen.

### Concluding work - Scope 4



#### WARNING

#### 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 Establish bus idle for at least 15 minutes.

- 1.1 End operational readiness (switch off ignition).
- 1.2 Disconnect the PIWIS Tester diagnostic connector from the diagnostic socket.
- 1.3 Lock the vehicle using the driver's key and remove the driver's key from the proximity of the vehicle (approx. 10 metres).

- 1.4 Unlock the vehicle again after waiting for at least 15 minutes.
  - 1.5 Plug the PIWIS Tester diagnostic connector into the diagnostic socket again and restore communication with the vehicle.
- 2 Reset PCM to factory settings.  
**Only necessary for 22kW OBC**
    - 2.1 Select the "**Central computer**" control unit in the control unit selection screen ('Overview' menu) and open the "**Maintenance/repairs**" screen.
    - 2.2 Select the "**Reset to factory settings**" function and follow the instructions on the screen.
- 3 Manually retract the rear spoiler, which extended automatically during programming.
    - 3.1 Select the '**Rear spoiler**' control unit in the control unit selection screen ('**Overview**' menu) and press •F12" ('Next') to confirm.
    - 3.2 Once the rear spoiler control unit has been found and is displayed in the overview, select the '**Maintenance/repairs**' menu.
    - 3.3 Select the function '**Teach rear spoiler**' and press •F12" ('Next') to confirm.
    - 3.4 Read the instructions and confirm by pressing •F12" ('Next').
    - 3.5 Meet the displayed conditions that must be checked manually and tick the relevant '**Status**' box.
    - 3.6 Select the **Teach rear spoiler** function and press •F8" ('Execute') to confirm.
    - 3.7 Once the rear spoiler has been taught and retracted fully, select the '**Overview**' menu to return to the control unit selection screen.
- 4 Only relevant if the message "**Tire pressure monitoring fault - Service necessary**" is displayed: Teach Tire Pressure Monitoring (TPM) system using the PIWIS Tester. ⇒ *Workshop Manual '443225 Teaching wheel electronics'*

**Information**

In the menu-guided procedure, check the '**Teach wheel IDs**' menu item after confirming with •F12" to make sure that the function '**Teach 2nd wheel IDs without driving**' is selected. Then, select the function '**2nd wheel IDs unknown**' and continue the procedure according to menu guidance.
- 5 Read out and erase the fault memories of all control units.
    - 5.1 Press •F7" in the control unit selection screen ('Overview' menu) to call up the Additional menu.

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

The fault memories of the control units are read out.

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



#### 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.

- 5.4 Press •F8" to delete fault memory entries.

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

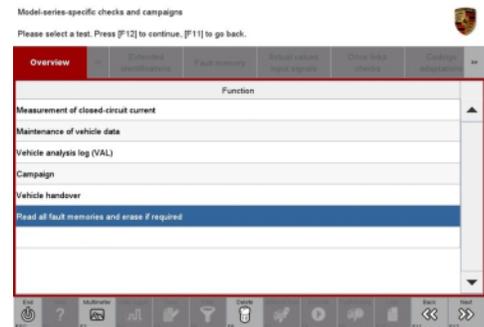
The faults stored in the fault memories of the various control units are deleted.



#### Information

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

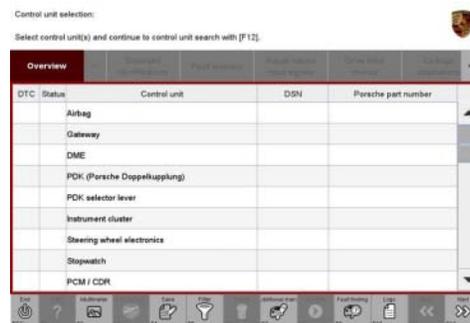
- End operational readiness (switch off ignition).
- Disconnect the PIWIS Tester diagnostic connector from the diagnostic socket.
- Lock the vehicle using the driver's key and remove the driver's key from the proximity of the vehicle (approx. 10 meter/ 32.8 ft).
- Unlock the vehicle again after waiting for at least 15 minutes.
- 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.



*Erasing fault memories*

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

6 Create vehicle analysis log (VAL) using the PIWIS Tester.  
Mark the vehicle analysis log you have just created with the attribute **"Final VAL"** and after carrying out the campaign, return it using the PIWIS Tester.



*Control unit selection*

7 Attach the working log to the PQIS line.

7.1 Select the PCCS button under **Applications** in the PIWIS Tester.

7.2 Log in using the PIWIS Tester and complete the relevant process in the PCCS.

7.3 Select File Upload in the PIWIS Tester.

7.4 Select **Pdf Prints** in the selection menu.



**Information**

The relevant timestamps of the process logged are displayed on the Tester.

7.5 Attach the work logs you have just created to the quality line.

8 End operational readiness (switch off ignition).

9 Disconnect the PIWIS Tester from the vehicle.



**Information**

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

10 Switch off and disconnect the battery charger.

11 Enter the campaign in the Warranty and Maintenance booklet.

**-End of action required -**

For warranty processing, see **Scope 4** under ⇒ *Technical Information '443225 Warranty processing'*

## Programming power electronics - Scope 5

**Information**

When the front and rear power electronics is programmed, the DME control unit is also **re-programmed automatically**. It takes **approx. 10 minutes** in total to **program** these control units.

Before starting programming and after the control units have been programmed successfully, the procedure for sending **backup documentation** of the software versions installed on the control units to the PAG systems will be started **automatically**.

Work Procedure: 1 **Re-program power electronics and engine electronics (DME) control unit.**

General preliminary work and the basic procedure for programming a control unit 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>40.550.040</b> (or higher)
Type of control unit programming:	Control unit programming using the ' <b>Automatic programming</b> ' function for the DME control unit:  'DME' control unit – ' <b>Coding/programming</b> ' menu – ' <b>Automatic programming</b> ' function.
Programming sequence:	Read and follow the <b>information and instructions on the PIWIS Tester</b> during the guided programming sequence. First the <b>DME control unit</b> and then the <b>front power electronics</b> and <b>rear power electronics</b> are <b>re-programmed</b> during the programming sequence.  The control units are then <b>re-coded automatically</b> .  <b>Do not interrupt programming and coding.</b>  Once the control units have been programmed and coded, you will be prompted to end and then restore operational readiness after a certain waiting time.  Backup documentation of the new software versions is then performed.
The programming sequence takes (approx.):	<b>10 minutes</b>

<p>Software version programmed during this campaign:</p>	<p><b>Power electronics, front and rear</b></p> <p>Software version: <b>0012</b></p> <p><b>Engine electronics (DME)</b></p> <p>Software version: <b>0014</b></p> <p>Following control unit programming, the software version can be read out of the relevant control unit in the 'Extended identifications' menu using the PIWIS Tester.</p>
<p>Procedure in the event of <b>abnormal termination</b> of control unit programming:</p>	<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 the fault memory ⇒ <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, whereby extended logging must be started using the key combination <b>•Ctrl" + •L"</b>.</li> <li>• Extended logging records diagnostic software data, particularly vehicle communication data, which is required for analysing the issues that caused programming to be aborted.</li> <li>• If control unit programming is aborted a second time, end operational readiness for approx. 15 minutes (switch off ignition) and repeat the procedure described here again.</li> </ul>
<p>Procedure in the event of <b>other error messages</b> appearing during the programming sequence:</p>	<p>⇒ <i>Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester - section on "Fault finding"</i>.</p>

- 2 Create new working log.
  - 2.1 After programming has been performed, go back to the control unit overview.
  - 2.2 Select the DME control unit.
  - 2.3 Select control unit information.
  - 2.4 Select power electronics on rear axle.
  - 2.5 Select control unit information.
  - 2.6 Select power electronics on front axle (if available).
  - 2.7 Select control unit information.

- 2.8 Go back to the control unit overview and confirm with •F4" ('Save') at the bottom.
- 2.9 Select •F10" ('Logs').
- 2.10 Select the log type **Working log**.
- 2.11 Rename and store the working log you have just created with the designation of the sequence carried out.
- 2.12 Mark the working log and use •F10" ('Display').
- 2.13 Select the Printer icon at the top right of the selection bar.
- 2.14 Select printer ('PDF').
- 2.15 Print the working log, saving it automatically to the Tester.

### Concluding work - Scope 5



#### 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: 3 Manually retract the rear spoiler, which extended automatically during programming.
- 3.1 Select the **'Rear spoiler'** control unit in the control unit selection screen (**'Overview'** menu) and press •F12" ('Next') to confirm.
  - 3.2 Once the rear spoiler control unit has been found and is displayed in the overview, select the **'Maintenance/repairs'** menu.
  - 3.3 Select the function **'Teach rear spoiler'** and press •F12" ('Next') to confirm.
  - 3.4 Read the instructions and confirm by pressing •F12" ('Next').
  - 3.5 Meet the displayed conditions that must be checked manually and tick the relevant **'Status'** box.
  - 3.6 Select the **Teach rear spoiler** function and press •F8" ('Execute') to confirm.
  - 3.7 Once the rear spoiler has been taught and retracted fully, select the **'Overview'** menu to return to the control unit selection screen.
- 4 Read out and erase the fault memories of all control units.

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

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

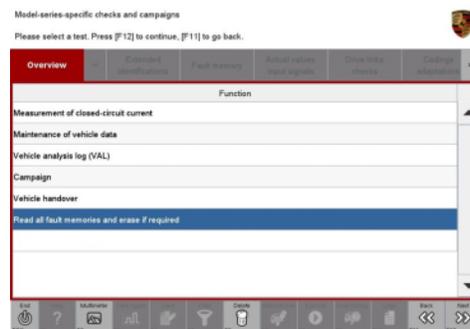
The fault memories of the control units are read out.

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



**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.



*Erasing fault memories*

4.4 Press **•F8** to delete fault memory entries.

4.5 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 meter/ 32.8 ft).
- Unlock the vehicle again after waiting for at least 15 minutes.
- 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.

- 4.6 Once you have erased the fault memories, select the **'Overview'** menu to return to the control unit selection screen ⇒ *Control unit selection*.
- 5 Create vehicle analysis log (VAL) using the PIWIS Tester.  
Mark the vehicle analysis log you have just created with the attribute **"Final VAL"** and after carrying out the campaign, return it using the PIWIS Tester.
- 6 Attach the working log to the PQIS line.
- 6.1 Select the PCCS button under **Applications** in the PIWIS Tester.
- 6.2 Log in using the PIWIS Tester and complete the relevant process in the PCCS.
- 6.3 Select File Upload in the PIWIS Tester.
- 6.4 Select **Pdf Prints** in the selection menu.



Control unit selection

- i** **Information**  
The relevant timestamps of the process logged are displayed on the Tester.
- 6.5 Attach the work logs you have just created to the quality line.
- 7 End operational readiness (switch off ignition).
- 8 Disconnect the PIWIS Tester from the vehicle.
- i** **Information**  
Connect the PIWIS Tester to a network as soon as possible and log into the PPN in order to transfer the backup documentation created during this campaign to the PAG systems.
- 9 Switch off and disconnect the battery charger.  
**– End of action required –**  
For warranty processing, see **Scope 5** under ⇒ *Technical Information '9X00IN Warranty processing'*

## Warranty processing



### Information

The specified working time was determined specifically for carrying out this campaign and includes all necessary preliminary and subsequent work.  
The working time may differ from the working times published in the Labor Operation List in the PCSS.



**Information**

**Information on the working time:**

Generally, the working time includes all work that requires the active participation of the service technician.

This also covers all required preliminary work and subsequent work.

The working time includes the following activities during control unit programming:

- All required steps for starting or finishing programming
- Required interaction during a programming sequence
- Waiting times until programming starts
- Random check of programming status

If no further interaction by the service technician is required once control unit programming has started because programming is performed automatically, there is no need for the service technician to remain at the vehicle for the entire programming time.

These waiting times are not included in the working time if the total programming time is more than 15 minutes.

If programming takes up to 15 minutes, the full waiting time is included in the working time.

Scope 1-3: **Not relevant for this model year**

Scope 4: **Re-programming power electronics and engine electronics**

**Working time:**

Re-programming power electronics and engine electronics

Labor time: **248 TU**

- Includes:
- Connecting and disconnecting battery charger
  - Connecting and disconnecting PIWIS Tester
  - Reprogramming various control units to software version VR12.1.1
  - Standardising doors and power windows
  - Coding loudspeaker booster and inductive charger for mobile devices
  - Retracting rear spoiler manually
  - Teaching Tire Pressure Management system (TPM)
  - Reading out and erasing fault memories
  - Creating vehicle analysis logs (VALs) before and after the campaign
  - Creating working logs and attaching to the quality line

⇒ **Damage Code AMB5 099 000 1**

Scope 5: **Re-programming power electronics****Working time:**

Re-programming power electronics and engine electronics (DME)

Labor time: **110 TU**

Includes:

- Connecting and disconnecting battery charger
- Connecting and disconnecting PIWIS Tester
- Retracting rear spoiler manually
- Reading out and erasing fault memories
- Creating vehicle analysis logs (VALs) before and after the campaign
- Creating working logs and attaching them to the quality line

⇒ **Damage Code AMB5 099 000 1****Overview of control units for software version VR12.1.1**

Overview:

Overview of control units for software version VR12.1.1			
Control unit	Programming time	Action required	
		program	code
<b>Sequence 1:</b> Combined software update for various control units (update via PIWIS Tester)  <b>Includes:</b> <ul style="list-style-type: none"> <li>• Distance measuring sensor control unit (ACC)</li> <li>• Front-end electronics (BCM1) control unit</li> <li>• Rear-end electronics (BCM 2) control unit</li> <li>• Radar sensor for front corner radar, left and right</li> <li>• Lane Change Assist, left and right</li> <li>• Central assistance systems (zFAS)</li> <li>• Airbag control unit</li> <li>• Reversing camera</li> </ul>	approx. 100 minutes	■	■ ■ ■ ■ ■ ■ ■ ■
<b>Sequence 2:</b> Combined software update for various control units (update via PIWIS Tester)  <b>Includes:</b> <ul style="list-style-type: none"> <li>• High-voltage charger (OBC) 11 kW/22 kW</li> <li>• High-voltage battery control unit (BMCe)</li> </ul>	approx. 70 minutes	■ ■	■ ■



<ul style="list-style-type: none"> <li>• Brake booster control unit (eBKV)</li> <li>• Night vision system control unit</li> <li>• Control unit for Tire Pressure Monitoring (TPM)</li> <li>• Control unit for rear spoiler</li> <li>• Inductive charger for mobile devices</li> </ul>			<ul style="list-style-type: none"> <li>■</li> <li>■</li> <li>■</li> <li>■</li> <li>■</li> </ul>
<p><b>Sequence 4:</b> Combined software update for various control units (update via PIWIS Tester and USB storage medium)</p> <p><b>Includes:</b></p> <ul style="list-style-type: none"> <li>• Central computer (PCM)</li> <li>• Loudspeaker booster</li> <li>• Front display and operator control unit</li> </ul>	approx. 50 minutes	■	<ul style="list-style-type: none"> <li>■</li> <li>■</li> <li>■</li> </ul>

### Overview of new features implemented by the software updates

Overview:

Function	Description
Charging	<ul style="list-style-type: none"> <li>• At-home charging is improved. Stability during charging is improved and the timer charging function is further optimized.</li> <li>• Home charging with third-party charging equipment is improved. Discharge of the 12-volt vehicle electrical system battery during charging is prevented.</li> <li>• Calculation of the state of charge (SoC) of the high-voltage battery is further optimized. Incorrect calculation of the state of charge is avoided.</li> </ul>
Chassis and driving comfort	<ul style="list-style-type: none"> <li>• Starting comfort is further optimized.</li> <li>• Traffic sign recognition at double the time-dependent speed limits is further improved.</li> <li>• Any personalized settings are retained, even after a bus idle and account change.</li> </ul>
Digital cockpit display (instrument cluster)	<ul style="list-style-type: none"> <li>• The starting behavior and performance of the instrument cluster are further improved.</li> <li>• Sporadic loading spinners and resets are avoided.</li> <li>• Various software optimizations prevent the sporadic display of different error messages.</li> </ul>
Porsche Communication Management (PCM)	<ul style="list-style-type: none"> <li>• The functionality of the navigation system is optimized and system stability is improved.</li> <li>• The starting behavior and performance of the central display are improved.</li> </ul>

**Additional instructions if programming is aborted**



**Information**

If individual programming steps or subsequent work could not be carried out correctly, see Workshop Manual for the basic procedure for control unit programming using the PIWIS Tester ⇒ *Workshop Manual '9X00IN Basic instructions and procedure for control unit programming using the PIWIS Tester - section on "Fault finding"*. :

You will also find further information and instructions specifically for the VR12.1.1 update in the table below:

**Situation:** SiriusXM is not available as a source in the PCM. The option for SiriusXM is greyed out. The user interface within the PCM screen does not allow the PCM to confirm SiriusXM service is available, presenting a "deadlock" condition.

- Action required:**
1. Press the Joker-key ('♦' button) on the steering wheel. This will allow you to assign a function to the Joker-key. A popup should appear on the PCM center display.
  2. Press the button labeled "change button assignment."
  3. Choose "steering wheel button."
  4. Choose "change source."
  5. Go to Media on the PCM screen.
  6. Change the source to SiriusXM via the Joker-key on steering wheel. Confirm the source is available and no longer greyed out.

Work Procedure:

<b>Control unit:</b>	<b>Situation:</b>	<b>Action required:</b>
Central computer (PCM):	Programming of central computer (PCM) has failed.	See Technical Information <b>TI 101/20</b> if programming is aborted during central computer (PCM) software updates ⇒ <i>Technical Information '915200 Complaint - PCM update cannot be performed/stops. Observe specified procedure (101/20)'</i>

Control unit for assistance systems (zFAS):	Fault memory entry <b>B170AF1</b> or <b>B200FF3</b> after coding and bus idle.	Perform Assistance systems drive link. <ul style="list-style-type: none"> <li>Select the Assistance systems control unit in the overview.</li> <li>Select the Drive links/checks menu.</li> <li>Select and start the <b>Data input, Step 2</b> drive link and then follow the instructions on the PIWIS Tester.</li> </ul>
	The central computer freezes while loading:	<ul style="list-style-type: none"> <li>Start sequence 2 again in order to program the gateway control unit and OTA control unit again. The central computer (PCM) then starts as usual.</li> </ul>
	Navigation data errors: Fault memory entries <b>B126CF0 (000A02)</b> or <b>B126CF1 (000A03)</b>	<ul style="list-style-type: none"> <li>Re-program the navigation database using a USB stick ⇒ <i>Technical Information '915200 Complaint about central computer: Some navigation regions not available following software updates (138/21)'</i>.</li> </ul>
Front corner radar control unit:	Fault memory entry after bus idle due to incorrect calibration of front corner radar.	Calibrate front corner radar again ⇒ <i>Workshop Manual '916625 Calibrating front corner radar'</i> .
Parking brake (PSM):	Parking brake position lost after coding.	<p>Read the information on the instrument cluster and follow the instructions on the central display:</p> <ul style="list-style-type: none"> <li>Press the brake pedal completely.</li> <li>Move selector lever to "N" and wait 5 seconds.</li> <li>After a waiting time of 5 seconds, apply the parking brake.</li> </ul> <p>If the "Brake" warning light in the instrument cluster still comes on, perform calibration again and wait for longer.</p>

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