

Residual Range Display Implausible: Checking Instrument Cluster and Re-Coding if Necessary (92/24)

Change overview:

Release	Date	Change
0	07/08/2024	• First publication
1	07/26/2024	• Update of step 5

Vehicle Type: **911 Carrera 4 (992) / 911 Carrera 4S (992) / 911 Carrera 4 GTS (992) / 911 Targa 4 (992) / 911 Targa 4S (992) / 911 Targa 4 GTS (992) / 911 Dakar (992) / 911 Turbo (992) / 911 Turbo S (992)**

Model Year: **As of 2020 up to 2024**

Equipment: **All-wheel drive (M No. 1X1)**

Concerns: **Fuel level sender**

Cause: **Customer complains about an implausible remaining range (too high) displayed on the instrument cluster.**

Cause: Due to the specific design of the fuel tank in all-wheel drive derivatives, the fill level can only be measured by the tank sensor up to a certain filling capacity due to the installation space. The filling capacity of the fuel tank is calculated using the fuel consumption signal from the engine control system. In rare cases, component tolerances and temperature influences can lead to a slightly different positioning of the tank sensor in the fuel tank. This can lead to a higher filling capacity being assumed for calculating the remaining range than what is actually present in the fuel tank.

Action: In the event of a complaint, first check individual measured values on the instrument cluster using the vehicle analysis log to confirm the fault pattern.

Only adjust the vehicle order **if the fault pattern is confirmed**, and then re-code the instrument cluster to set a correction value for the tank sensor.



Information

Before starting the action, make sure that the fuel level of the vehicle is less than 16 liter.

If the vehicle has been refuelled in the meantime, the fuel tank must be emptied to a content of less than 16 liter before starting the action and then refilled after completion.

Required Tools

- Tools:
- **P90999 - PIWIS Tester 4** with PIWIS Tester software release **42.800.010** (or higher) installed
 - 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 Charging battery and vehicle electrical system'*

Required tools if the fuel tank needs to be emptied and refilled:

- Fuel extraction unit, e.g., **VAS 5190A - Fuel extraction unit**
- Pin wrench, e.g., **9731/1 - Pin wrench**
- Connection line, e.g., **9705/3 - Connection line**
- Steering wheel balance, e.g., **VAS 6826 - Steering wheel balance**

Checking instrument cluster and re-coding if necessary

Work Procedure:



Information

Test prerequisites: Fuel level of the vehicle below 16 liter.

- 1 **If required:** Drain fuel.
⇒ *Workshop Manual '200317 Drain and fill fuel'*
- 2 Connect and switch on the battery charger.
⇒ *Workshop Manual '270689 Charging battery/vehicle electrical system'*
- 3 Connect **P90999 - PIWIS Tester 4** to the vehicle and start it. Switch on the ignition.
- 4 Create the vehicle analysis log.
- 5 Check the following measured values in the vehicle analysis log (VAL) under "Instrument cluster" or "Rear-end electronics" >> "Measured values":
 - Displayed values – tank content (instrument cluster control unit)
 - Fuel level sensor 1: Resistance 1 (rear-end electronics control unit)

Assessment	Action
The "tank capacity" measured value displayed is less than 16 liter and The "Tank content - input data for tank sensor 1" measured value is less than 280 (ohms)	Measured values of fuel supply sensor implausible. Continue with ⇒ 6.
The "tank capacity" measured value displayed is less than 16 liter and	Measured values of fuel supply sensor OK. If the complaint is not rectified by this technical information, resume troubleshooting.

The "Tank content - input data for tank sensor 1" measured value is **greater than or equal to 280 (ohms)**

If required: Refill the previously drained fuel.
 ⇒ *Workshop Manual '200317 Drain and fill fuel'*
End of action.



Information

Action step 6 may only be carried out on vehicles in which the measured values of the fuel supply sensor are implausible.

Only in this case can it be assumed that the fault pattern with regard to slightly different positioning of the fuel supply sensor exists as described in this technical information and that subsequent adjustment of the vehicle order and coding of the instrument cluster will be expedient.

- 6 Add control number "BIO - FUEL TANK. + DEV. CHARACTERISTIC CURVE ONLY KD" to vehicle order.



Information

The vehicle data is maintained via a guided Tester procedure.
 Pay particular attention to the following:

- A connection to the internet is required for the Tester procedure.
 - Depending on the changes made to the vehicle data, automatic coding and backup documentation of the affected control units is performed after saving these changes.
 - Read and follow the **information and instructions on the PIWIS Tester** during the guided procedure.
 - Do not interrupt the coding process. When coding is complete, the message "Coding has been completed successfully" is displayed and a tick will then appear in the 'Status' box.
- 6.1 In the control unit selection ('**Overview**' menu) press •F7" to call up the Additional menu.
 - 6.2 Select the '**Vehicle data maintenance with PIWIS ONLINE**' function and press •F12" ('Next') to confirm.
 - 6.3 Press •F12" ('Next') to skip the displays containing information about vehicle description, colors / materials and X numbers.
 - 6.4 On the second page of M numbers, place the coding value "**BIO - FUEL TANK. + DEV. CHARACTERISTIC CURVE ONLY KD**" with the vehicle data. To do this, select the corresponding coding value via the drop-down menu in the "PR number family" fuel tank. The value "0I3 - FUEL CONTAINER 3" is defined **by the value "BIO - FUEL TANK. + DEV. CHARACTERISTIC CURVE ONLY KD" replaced.**
 Make sure that the 'Installed' column is **ticked** and that the pen symbol is displayed in the 'Changed' column.
 Then press •F12" ('Next') to close the PR numbers display.

- 6.5 Press •F8“ in the overview that is then displayed to save the changed vehicle data.
- 6.6 Once you have saved the vehicle data, press •F11“ ('Back') to return to the control unit selection screen.



Information

Before automatic coding of the instrument cluster, it is absolutely necessary for the vehicle order "BIO - FUEL TANK. + DEV. CHARACTERISTIC CURVE ONLY DV" to have been added successfully.

- 7 Re-coding instrument cluster.
For procedure, see: ⇒ *Workshop Manual '902555 Replacing instrument cluster'*
- 8 Read out and delete all control unit fault memories.
- 9 Create the vehicle analysis log.
- 10 Exit the diagnostic application. Switch off ignition. Disconnect **P90999 - PIWIS Tester 4** from the vehicle.
- 11 Switch off and disconnect the battery charger.
⇒ *Workshop Manual '270689 Charging battery/vehicle electrical system'*
- 12 **If required:** Refill the previously drained fuel.
⇒ *Workshop Manual '200317 Drain and fill fuel'*

Labor position and PCSS encryption

Labor position:

APOS	Labor operation	I No.
90252591	Programming instrument cluster	
90252592	Programming instrument cluster	

PCSS encryption:

Location (FES5)	20150	Fuel supply sensor
Damage type (SA4)	4041	Wrong display

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