

J1- Measuring the Capacitance of High-Voltage Power Electronics

Vehicles Affected

Models	Model Year	Model Type	VIN Range	Vehicle-Specific Equipment
Taycan	As of 2020 up to 2024	Y1A, Y1B, Y1C	N/A	Power Electronics

Revision History

Revision	Release Date	Changes
0	September 5, 2025	▪ Original document
1	September 10, 2025	▪ Update to Notes section under Service Information ▪ VAS special tool number corrected under Service Information
2	April 16, 2026	▪ Update to Service Information
3	May 11, 2026	▪ Update to Service Information

Condition

Customer complains of a red "Engine control error" in the instrument cluster (Figure 1). The workshop may find the following faults stored in the front and/or rear high-voltage power electronics CU and/or the DCDC Converter:

Front and/or rear high-voltage power electronics CU:

- P061B00_00AC80 - Internal Control Module Torque Calculation, Performance
- POE9D00_00AC8E - DC/DC converter current sensor 2 - short circuit to ground
- P061A00_00ACFC - Internal Control Module Torque Performance

DCDC Converter (**NOTE:** these faults can be reproduced under full load acceleration):

- C113AF5_E10FF0 - HV voltage converter – control unit defective
- C113AF5_E11FF0 - HV voltage converter – control unit defective
- C113AF5_E12FF0 - HV voltage converter – control unit defective



Figure 1
“Engine control error” in instrument cluster

Technical Background

The power electronics (PE) may lose capacitance over time due to electrical fatigue. This results in voltage fluctuations in the HV system that can cause HV components to shut off in addition to the above-mentioned fault codes.

Service Information

If the above-mentioned condition and fault code(s) exist, please measure the capacitance of both the front and rear high-voltage PE using a multimeter. Please start with the measurement of the front PE and then proceed to the measurement of the rear PE.

Notes:

- Observe general warning notes for working on the high-voltage vehicle electrical system.
- VAS 6558A/38A-2 MUST be used instead of VAS 6558A/38A due to the absence of insulation resistors. The insulation resistors in VAS 6558A/38A will result in an inaccurate capacitance measurement.
- A multimeter with a measuring range up to 1,000 μF and measuring accuracy 1.2% must be used.
 - Fluke 179/175 true RMS multimeter or an alternative multimeter with same measuring range and accuracy may be used.
 - Snap-On Enhanced Multimeter EEDM535F (minimum required tool) is also acceptable.
- In cases where fault POE9D00 is present AND the power electronics control units measure within tolerance, please refer to TI 53/25 (part ID 2791) for repair instructions.

Procedure:

1. Measure Front Power Electronics CU:
 - a. De-energize HV system with the service disconnect in the front trunk area and secure against reactivation. Verify absence of electrical charge.

- b. Remove front luggage compartment trim panels and front luggage compartment liner (panels (front) plenum panel cover, front trim panel (engine compartment), tool kit support, and luggage compartment liner).
- c. Remove the dome strut in the front trunk area (Reference: WM, 408619A2 Removing and installing strut (dome strut)) (Figure 2).

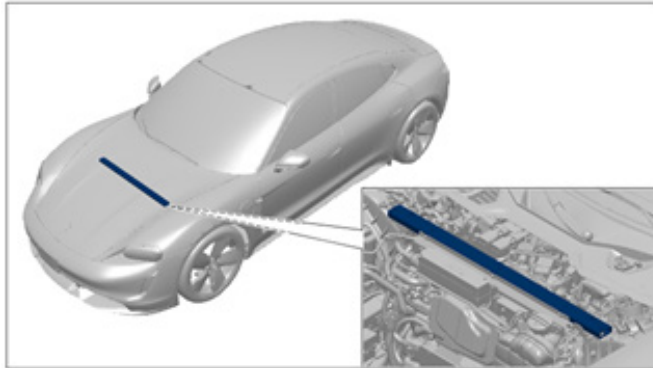


Figure 2 - Dome Strut

- d. Disconnect front HV PE traction cable connector (high-voltage connector).
- e. Install special tool VAS 6558A/38A-2 to front HV PE traction cable connector.
- f. Set multimeter to the capacitance measurement setting. Insert the red and black probes of the multimeter to the special tool leads labeled 1 and 2, respectively (Figure 3).
- g. Wait at least 10 seconds for the measurement to stabilize. Record the capacitance value once stabilized.
- h. Reinstall all components in reverse order.



Figure 3 - Measuring Capacitance on Front PE

2. Measure Rear Power Electronics CU:

- a. Observe general warning notes for working on the high-voltage vehicle electrical system.
- b. Remove rear cargo anchoring system eyelets.
- c. Remove rear luggage compartment cover and insulating mat underneath.
- d. Open access port lid (body cover) to access rear PE.
- e. Disconnect HV PE traction cable connector (high-voltage connector) and install HV cable 9J1971015B.
- f. Set multimeter to capacitance measurement setting. Insert the red and black probes of the multimeter to the red and black leads of the HV cable (9J1971015B), respectively.
- g. Wait at least 10 seconds for the measurement to stabilize. Record the capacitance value once stabilized.
- h. Reinstall all components in reverse order.



Figure 4 - Measuring Capacitance on Rear PE

- 3. Compare measurements to the chart below (Table 1). Replace any PE with a capacitance measurement that does not meet or exceed the lower tolerance limit. Please document the capacitance measurements in the PCSS job.

Table 1: Reference Capacitance Values for Front and Rear PE

Power Electronics	Model	Factory Setpoint (µF)	Lower Tolerance Limit (µF)
Front axle	All (except Turbo S)	420	320
Front axle	Turbo S	840	640
Rear axle	All	840	640

Warranty

The following labor operations may only be claimed **as needed**:

APOS	Labor operation	I No.
03350053	On board diagnostic	
40861903	Strut remove and reinstall	
27915501	Power electronics replace (front)	
27915503	Power electronics replace (rear)	

Additional labor operations may also be claimed **only as needed**.

PCSS encryption:

Location (FES5)	27910	Power electronics
Damage type (SA4)	1613	No function occasionally

Search Items

J1, Taycan, power electronics, measurement, capacitance, high-voltage power electronics, dc/dc converter

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