

### E-Hybrid – OBC and BMC Faults for Control Pilot (Communication Line)

#### Vehicles Affected

Models	Model Year	Model Type	VIN Range	Vehicle-Specific Equipment
Cayenne	2015 - 2022	E-Hybrid and Turbo S E-Hybrid (92A, 9YA, 9YB)	n/a	n/a
Panamera	2014 - 2022	E-Hybrid and Turbo S E-Hybrid (970, 971)	n/a	n/a

#### Revision History

Revision	Release Date	Changes
0	August 15, 2022	Original document

#### Condition

The workshop finds various fault codes related to the Control Pilot (CP) communication line in the On-Board Charger (OBC) and/or the High-Voltage Battery control unit (BMC). The workshop observes no issues during and after the charging process. The faults are reproducible through typical AC charging using either Porsche or non-Porsche AC chargers.

#### Related Fault Codes

**High-voltage charger (OBC)** (3.6 and 7.2 kW variants)

**P33E300**, DTC 200200 – No communication via Control Pilot (communication line) -or- Charging socket, communication error

**U15AC00**, DTC varies – High-voltage charger, internal error -or- Timeout Step 9 Match Req (SLAC)  
**U15BF00**, DTC varies – Smart Charging Function, no communication -or- Intelligente Ladefunktion, fehlerhafte Kommunikation –or– Fehler beim Auslesen der Contract Certificate chain size aus

#### High-voltage battery (BMC)

**POCF400**, DTC **00A93A** – High-voltage charger, Control Pilot (communication line) – signal implausible

**POCF400**, DTC **00C004** – High-voltage charger, Control Pilot – signal implausible

**NOTE:** The DTC and fault text observed may vary slightly depending upon control unit hardware and software versions and PT3G diagnostic software version.

### Technical Background

The OBC built into PHEVs and BEVs communicate with Electric Vehicle Supply Equipment (EVSE; “the charger”) to manage incoming power for HV battery charging. With typical “Mode 2” AC charging, the OBC and the EVSE use industry standard communication protocols such as those of standard IEC 61851, with PWM signals transmitted over the single CP communication line found in all cars equipped with a standard charge connection such as the “Type 1” SAE J1772 charge port.

Newer chargers and vehicles are capable of digital communication over the CP line, which starts when the duty-cycle of the pulse width modulation (PWM) signal is set to 5%, as defined in IEC 61851. That digital communication follows the ISO 15118 protocol, built upon IEC 61851, and provides expanded capability for intelligent charging functions like Plug and Charge. This secure digital communication can be used for vehicle authentication in both public and private charging settings, enabling vehicles to be “white listed” and avoid the need for a PIN on the PMCC, for example. It can also be used to communicate additional vehicle data for display on the EVSE, such as the State of Charge (SOC) of the vehicle and remaining charging time.

The ability of a vehicle to handle digital communication over the CP communication line will vary by manufacturer and installed software. Similarly, the communication protocols used in all OBCs will vary by manufacturer and installed software. In addition, the interpretation of fault codes and information messages stored within a control unit depends upon the software installed in the PIWIS Tester.

Example 1: Model Year 2022 Porsche PHEV stores a CP fault code in the OBC if the AC charger is not using High-Level Communication (HLC) between the charger and the vehicle.

Example 2: PIWIS Tester version 41.200.031 connected to Model Year 2016 Porsche PHEV indicates the OBC has stored CP faults. In reality, these are informational messages, not fault codes.

### Service Information

Verify normal operation of the vehicle and charging hardware, if provided. If the vehicle charges as expected with no warnings or errors observed, then the above related fault codes can be ignored.

### Warranty

Customer complaint cases must be documented in accordance with published policies and procedures.

### Search Items

e-hybrid, Cayenne, Panamera, OBC, PHEV, P33E300, POCF400

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