Various fault codes logged in power electronics control unit

Topic number	LI08.30-P-057146
Version	7
Function group	08.30 Hybrid drive system
Date	12-04-2017
Validity	MODEL 212.095/195 with ENGINE 276.9 (E400 Hybrid) up to 12/2014 MODEL 212.098/298 with ENGINE 651.9 (E300 Hybrid) up to 12/2014 MODEL 222.057/157 with ENGINE 276.9 (S400 Hybrid) up to 02/2015 MODEL 222.004/104 with ENGINE 651.9 (S300 Hybrid) up to 02/2015
Reason for change	Software already available
Reason for block	

Complaint:

The READY indicator in the multifunction display remains permanently yellow and does not change to green.

The display message "The hybrid system has a malfunction." appears in the multifunction display.

All hybrid functions (e.g. boost, regenerative braking and electric drive mode) are unavailable.

The following faults may be logged in the power electronics control unit (electric motor control unit, N129/1):

* P0AFB00 The voltage supply of the high-voltage on-board electrical system is too high.

* P1B9000 The current draw from the on-board electrical system or the current supply to the on-board electrical system is too high.

* P0A9400 The control unit 'DC/DC converter' has a malfunction. _

* P0A4600 Electrical machine B position sensor has a malfunction

* P160600 The control unit has a malfunction due to redundant monitoring.

* P0A3D00 Electrical machine B power inverter has overtemperature

* P0C7300 Circulation pump 1 for the low-temperature circuit has a malfunction.

* P0C7400 Circulation pump 2 for the low-temperature circuit has a malfunction.

Cause:

In certain driving situations the software of the power electronics can trigger the attached fault code, which does not justify the replacement of the component.

Remedy:

1. Generate quick test report with fault freeze frame data (via Print; Output to File)

2. Generate control unit log of power electronics (electric motor control unit, N129/1) (via Print, Output to File)

3. Erase fault memory

4. Update power electronics to the latest software release if necessary

5. Perform a test drive

6. Read out fault memory. If no faults are stored, the vehicle can be handed over to the customer.

7. If faults return stored again, generate a quick test report with fault freeze frame data and a control unit log of the power electronics (electric motor control unit, N129/1) and create a PTSS case with the data from steps 1 + 2.

Symptoms
Overall vehicle / Power supply / Alternator / Function / Does not charge
Overall vehicle / Power supply / Battery/On-board electrical system / Battery/on-board electrical system indicator lamp / Battery charge indicator/consumer shutoff / Illuminates red
Overall vehicle / Power supply / Battery/On-board electrical system / Battery/on-board electrical system indicator lamp / Battery charge indicator/consumer shutoff / Illuminates white
Power generation / Engine management / Indicator lamp / Engine diagnosis / lit
Overall vehicle / Power supply / Battery/On-board electrical system / Battery function / Battery cannot be charged
Power generation / Engine management / Engine start/stop / Does not start
Power generation / Engine management / Engine performance / No/poor output
Power generation / Engine management / Indicator lamp / READY indicator / Illuminates yellow
Power generation / Engine management / Indicator lamp / READY indicator / Does not illuminate
Power generation / Engine management / Electric drive / Electric machine / Nonfunctional
Power generation / Engine management / Electric drive / Regenerative braking / Nonfunctional
Overall vehicle / Power supply / High-voltage on-board electrical system / High-voltage battery / Nonfunctional
Overall vehicle / Power supply / High-voltage on-board electrical system / High-voltage battery / Display message

Control unit/fault code		
Control unit	Fault code	Fault text
N129/1 - Power electronics (SG-EM) (LE_TUBE)	P0A9400	The control unit 'DC/DC converter' has a malfunction. _
N129/1 - Power electronics (SG-EM) (LE_TUBE)	P0C7300	Circulation pump 1 for the low-temperature circuit has a malfunction. _
N129/1 - Power electronics (SG-EM) (LE_TUBE)	P0C7400	Circulation pump 2 for the low-temperature circuit has a malfunction. _
N129/1 - Power electronics (SG-EM) (LE_TUBE)	P0A4600	Position sensor 'Electric machine B' has a malfunction. _
N129/1 - Power electronics (SG-EM) (LE_TUBE)	P160600	The control unit has a malfunction due to redundant monitoring. _
N129/1 - Power electronics (SG-EM) (LE_TUBE)	P0AFB00	The power supply of the high-voltage on-board electrical system is too high. _
N129/1 - Power electronics (SG-EM) (LE_TUBE)	P0A3D00	Inverter 'Electric machine B' has overtemperature. _

N129/1 - Power electronics (SG-EM) (LE_TUBE)	P1B9000	The power consumption from the on-board electrical system or the current supply into the on-board electrical system is too high. _

Operation numbers/damage codes				
Op. no.	Operation text	Time	Damage code	Note
54-1011	PERFORM QUICK TEST		04005 90	