

Insulation fault in high-voltage on-board electrical system

Topic number	LI08.30-P-057145
Version	3
Design group	08.30 Hybrid drive system
Date	04-28-2015
Validity	MODEL 212.095/195 with ENGINE 276.9 (E400 Hybrid)
Reason for change	Measurement sheets added to attachments
Reason for block	

Complaint:

Vehicle does not start or IC message "Fault - Service Required".

Cause:

Insulation fault in HV on-board electrical system in combination with one or more of following fault codes in battery management system control unit (N82/2).

P1CA100 There is an insulation fault in the high-voltage on-board electrical system with open contactors

P1CA200 There is an insulation fault in the high-voltage on-board electrical system with closed contactors

P1CA300 There is an insulation warning in the high-voltage on-board electrical system with open contactors

P1CA400 There is an insulation warning in the high-voltage on-board electrical system with closed contactors

P1CF500 There is an insulation warning in the high-voltage on-board electrical system

The cause is reduced insulation resistance at one or more high-voltage components of the high-voltage on-board electrical system.

Remedy:

Create a PTSS case with the subject "Insulation fault in HV on-board electrical system".

Further measures, such as locating insulation faults in the high-voltage component causing the fault, will be specified by the responsible market support in coordination with GSP.

In order to process the matter, the following documents are required in the form of editable (not scanned) pdf files for all complaints:

- Control unit logs of all control units in the high-voltage on-board electrical system with logged faults
- Control unit freeze frame data of all control units in the high-voltage on-board electrical system with logged faults
- Documentation of the measurement results from the WIS document (e.g. completed measurement results log)

Important: If other components (e.g. the high-voltage battery) are faulty due to the failure of the power electronics, these must be encoded with the damage code (DC) of the power electronics (the part causing the fault).

Attachments	
File	Description
Iso 212MH.pdf	Isolation measurement sheet
Iso 222MH.pdf	Isolation measurement sheet
Iso 205MH.pdf	Isolation measurement sheet

Symptoms

Body / Air conditioning / Air conditioning / Insufficient cooling output

Power generation / Engine management / Engine management indicator lamp / Engine diagnosis / lit

Power generation / Engine management / Engine start/stop / Does not start
Power generation / Engine management / Engine start/stop / No automatic engine start
Power generation / Engine management / Engine start/stop / Engine does not turn off
Power generation / Engine management / Engine start/stop / Engine starts without obvious cause
Power generation / Engine management / Engine management indicator lamp / READY indicator / Illuminates yellow
Power generation / Engine management / Engine management indicator lamp / READY indicator / Does not illuminate
Power generation / Engine management / Boost effect / Nonfunctional
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
BMS - Battery management system (N82/2) (BMS_GEN1MOD)	P1CF500	There is an isolation warning in the high-voltage on-board electrical system.
BMS - Battery management system (N82/2) (BMS_GEN1MOD)	P1CA200	There is an isolation fault in the high-voltage on-board electrical system with closed contactors.
BMS - Battery management system (N82/2) (BMS_GEN1MOD)	P1CA400	There is an isolation warning in the high-voltage on-board electrical system with closed contactors.
BMS - Battery management system (N82/2) (BMS_GEN1MOD)	P1CA100	There is an isolation fault in the high-voltage on-board electrical system with open contactors.
BMS - Battery management system (N82/2) (BMS_GEN1MOD)	P1CA300	There is an isolation warning in the high-voltage on-board electrical system with open contactors.

Parts						
Part number	ES1	ES2	Designation	Quantity	Note	EPC
A 276 900 16 01			Power electronics control unit	1	MODEL 212.095/195 E400 Hybrid after facelift code 804	X
A 276 900 05 01			Power electronics control unit	1	MODEL 212.095/195 E400 Hybrid prior to facelift code 803	X

Validity		
Vehicle	Engine	Transmission
212.095	*	*
212.098	*	*

XENTRY

212.195	*	*
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