SI B61 25 17
General Electrical Systems

May 2017
Technical Service

SME - HV BATTERY CELL MODULE VOLTAGE FAULTS

MODEL

F30 PHEV (330e iPerformance)

SITUATION

When diagnosing with ISTA or ISTA Next, a fault code (detailed below), regarding the cell voltage measurement, is entered in the battery management electronics (SME).

- 21F0C2 - High-voltage battery, cell supervision circuit 1: Voltage measurement (battery cell), line disconnection
- 21F0C3 - High-voltage battery, cell supervision circuit 2: Voltage measurement (battery cell), line disconnection
- 21F0C4 - High-voltage battery, cell supervision circuit 3: Voltage measurement (battery cell), line disconnection
- 21F0C5 - High-voltage battery, cell supervision circuit 4: Voltage measurement (battery cell), line disconnection
- 21F0C6 - High-voltage battery, cell supervision circuit 5: Voltage measurement (battery cell), line disconnection

The customer might not have reported the situation as the fault code could have no effect on the vehicle operation.

CAUSE

Erroneous fault in the fault memory of the SME, possible fault in a cell supervision circuit (CSC) or a cell module.

CORRECTION

Parts replacement depends on analysis as detailed in Procedure below

PROCEDURE

For conditions that are similar to the situation described:

1. Perform diagnosis with the latest version of ISTA.

Are any of the following conditions present?

• One of the indicated faults is currently present in the SME.

• One of the indicated faults was stored 5 or more times.

• One of the indicated faults was stored 2 or more times AND the MIL is illuminated.

YES- go to step 2.

NO – this is an erroneous fault. Ignore the fault code. Delete the fault memory and then re-evaluate the vehicle.

2. Check the HV battery CSC/communication harness for damage.

Was any damage found on the harness?

YES- replace the CSC/communication wiring harness according to repair instructions.

NO – go to step 3.

3. Check the display of the HV battery cell voltages with the Deutronic DBL1200HV module charger.

Can the correct cell voltages be displayed on the module charger?

YES- replace the affected CSC(s) according to repair instructions.

NO - replace the affected cell module according to repair instructions.

PARTS INFORMATION

Part number	Description	Quantity
61 27 8 649 866	CSC/communications wiring harness	1
61 27 8 667 593	Cell monitoring circuit	1–5
61 27 8 612 161	Cell module, high voltage battery	1–2
61 27 8 612 163	Cell module, high voltage battery	1–3
07 11 9 909 322	Self-locking hex nut	6
07 12 9 908 570	ISA screw	4
61 27 8 626 650	Sealing screw	6
61 27 8 626 643	Seal, high-voltage battery unit	1
61 27 8 625 078	Hexagon screw with torx socket	36
Bulk Materials		
83 19 2 221 349	R134a (Gas 1 oz units)	As needed
83 19 2 287 039	R1234YF (Gas 1 oz units)	As needed

WARRANTY INFORMATION

Covered under the terms of the BMW New Vehicle Limited Warranty for Passenger Cars and Light Trucks or the BMW Certified Pre-Owned Program.

A. Replace CSC/Communication Wiring Harness (Procedure Step 2 – Yes)

Defect Code	**6127108100**	**CSC/Communication Wiring Harness**
Labor Operation:	**Labor Allowance:**	**Description:**
00 00 006	Refer to KSD2	Performing “vehicle test” (with vehicle diagnosis system – checking faults) (Main work)
Or:		
00 00 556	Refer to KSD2	Performing “vehicle test” (with vehicle diagnosis system – checking faults) (Plus work)
And:		
61 21 528	Refer to KSD2	Connect an approved battery charger/power supply (indicated in KSD 2 as Charging battery)
And, as necessary:		
61 00 006	Work time (WT)	Performing vehicle diagnosis – test module
And:		
61 25 510	Refer to KSD2	Removing and installing the high voltage battery unit (Includes discharging, evacuating and filling-back air conditioner)
And:		

61 27 566	Refer to KSD2	Replace the communication wiring harness (High-voltage battery unit removed)

Or:

B. Replacing the affected Cell Supervision Circuit(s) (Procedure Step 3 – Yes)

Defect Code	**6127041200**	**Cell Supervision Circuit(s)**
Labor Operation:	**Labor Allowance:**	**Description:**
00 00 006	Refer to KSD2	Performing “vehicle test” (with vehicle diagnosis system – checking faults) (Main work)
Or:		
00 00 556	Refer to KSD2	Performing “vehicle test” (with vehicle diagnosis system – checking faults) (Plus work)
And:		
61 21 528	Refer to KSD2	Connect an approved battery charger/power supply (indicated in KSD 2 as Charging battery)
And, as necessary:		
61 00 006	Work time (WT)	Performing vehicle diagnosis – test module
And:		
61 25 510	Refer to KSD2	Removing and installing the high voltage battery unit (Includes discharging, evacuating and filling-back air conditioner)

And:

B. Replacing the First Cell Supervision Circuit

Labor Operation:	**Labor Allowance:**	**Description:**
61 27 541	Refer to KSD2	Replacing cell supervision circuit (High-voltage battery unit remove) (Top)
Or:		
61 27 543	Refer to KSD2	Replacing cell supervision circuit (High-voltage battery unit remove) (bottom)

And, as required

B. Cell Supervision Circuits 2 to 5

Labor Operation:	**Labor Allowance:**	**Description:**
00 50 000	Work time (WT)	Replacing additional supervision circuit cells as needed

Or:

C. Replacing the affected Cell Module(s) (Procedure Step 3 – No)

Defect Code	**6127011200**	**Cell Module(s)**

Labor Operation:	**Labor Allowance:**	**Description:**
00 00 006	Refer to KSD2	Performing “vehicle test” (with vehicle diagnosis system – checking faults) (Main work)
Or:		
00 00 556	Refer to KSD2	Performing “vehicle test” (with vehicle diagnosis system – checking faults) (Plus work)
And:		
61 21 528	Refer to KSD2	Connect an approved battery charger/power supply (indicated in KSD 2 as Charging battery)
And, as necessary:		
61 00 006	Work time (WT)	Performing vehicle diagnosis – test module
And:		
61 25 510	Refer to KSD2	Removing and installing the high voltage battery unit (Includes discharging, evacuating and filling-back air conditioner)
And:		
61 27 621	Refer to KSD2	Replace a cell module (after vehicle diagnosis) (high-voltage battery unit removed) (Top)
Or:		
61 27 623	Refer to KSD2	Replace a cell module (after vehicle diagnosis) (high-voltage battery unit removed) (Bottom)
And, as necessary:		
61 27 626*	Refer to KSD2	Replace each additional cell module (after vehicle diagnosis) (high-voltage battery unit removed) (Top)

*When more than one but less than “all” cell modules are replaced, claim labor operation 61 27 626 (one or more times) for each additional cell module that is replaced.

Or:

Labor Operation:	**Labor Allowance:**	**Description:**
61 27 631	Refer to KSD2	Replace all cell modules (after vehicle diagnosis) (high-voltage battery unit removed)

And:

With Items A, B and C.

Labor Operation:	**Labor Allowance:**	**Description:**
61 27 900	Refer to KSD2	Final test of the high-voltage battery unit (After repair of the high-voltage battery unit)

If you are using a Main labor code for another repair, use the Plus code labor operation 00 00 556 instead.

Refer to KSD2 for the corresponding flat rate unit (FRU) allowances.

Work time labor operation codes 61 00 006 and 00 50 000 are not considered a Main labor operations; however, they do require an individual punch times and an explanations on the repair order and in the claim comments section.

And, as necessary:

Sublet – Bulk Materials (excluding R134a or R1234YF)

Sublet Code 4	See sublet reimbursement calculation below	Reimbursement for the repair-related bulk materials (Please do not use the part numbers for claim submission)

Sublet reimbursement calculation for claiming the “used quantities” of repair-related bulk materials (BMW part numbers) is at dealer net plus your center’s handling.

Enter this material cost in sublet and itemize the amount in the claim comment section.

Overlapping Labor Procedure – Other Repairs

If invoicing the KSD2 flat rate labor operation codes for other repair work results in overlapping labor, for those flat rate labor operations that are affected, you can now:

• Replace the stated KSD2 “FRU allowance” with a “reduced FRU value” to eliminate the overlapping labor.

For help in identifying the overlapping labor, please refer to the AIR FRU Plausibility Check (Overlapping Labor Tool) that is located in the AIR Client.

Eligible other repair work being claimed under a different defect code will require separate punch times.

On the repair order and in the claim comment section, please identify and itemize those labor operations being claimed with a “reduced FRU value.”