SI B61 22 16
General Electrical Systems

November 2016
Technical Service

SME FC 21F284 “HIGH-VOLTAGE BATTERY UNIT, CELL SUPERVISION CIRCUIT: SAFETY CIRCUIT ACTIVATED”

MODEL

I01 (i3 and i3 REx)

SITUATION

Vehicle is not able to be put in a driving readiness state.

Possible power reduction with “Drivetrain Malfunction” message while driving.

Fault code (FC) “21F284 –:”High-voltage battery unit, cell supervision circuit: Safety circuit activated” is entered in the fault memory (FM) of the battery management electronics (SME)

CAUSE

A fault in one or more of the following components:

- cell supervision circuit (CSC)
- CSC wiring harness
- cell module temperature sensor
- 12 volt connector of cell module

CORRECTION

Replace cell module(s), CSC(s) or CSC wiring harness as necessary.

PROCEDURE

For conditions that are similar to the situation described:

1. Read out the fault memory of the vehicle.

   Are the following two additional fault codes only, stored in the fault memory of the SME?

   • 21F13D -High-voltage battery, switch contactors: Switch-off after a fault

   • 21F153 -High-voltage battery, safety concept 2: Safety circuit to switch off the switch contactors, switch-off detected

YES- Go to Step 2.

NO – If no other codes or multiple additional codes, follow the ISTA/D diagnostics troubleshooting test plan.

Note: The overall temperature of the HV battery must be at 18°C or above before performing next steps. (Ambient temperature of workshop)

2. Check the module temperatures of each cell module (using Deutronic high-voltage module charger).

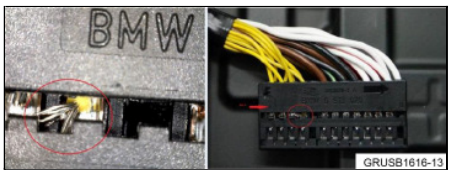
   Is any cell module temperature (T1, T2, T3 or T4) excessively high (89ºC or 99ºC) or more than 4 ºC different than other temperature (T1, T2, T3 or T4) within the cell module?

   YES- Replace the suspect cell module, the corresponding CSC and the CSC wiring harness according to repair instructions.

   NO – Continue to Step 3.

3. Check the crimping of the pins at the cell module 12 volt connector.

   Does the crimping show evidence of misalignment or possible shorting (see graphic)?



YES- Replace the suspect cell module, the corresponding CSC and the CSC wiring harness according to repair instructions.

NO - Replace all CSC's and the CSC wiring harnesses according to repair instructions.

4. Program and encode the complete vehicle using most recent version of ISTA/P.

   Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

   Always connect a BMW approved battery charger/power supply (SI B04 23 10).

   For information on programming and coding with ISTA/P, refer to CenterNet / TIS / Technical Documentation / Diagnostics and Programming / Programming Documentation.

   Note: Prior to replacing any parts, refer to SI B00 03 06 to determine if a TC PuMA case is required.

PARTS INFORMATION

i3 60Ah

Part number	Description	Quantity
61 27 7 625 066	Cell Module, high-voltage battery	1-8
61 27 7 648 785	Cell monitoring circuit	1-8
61 27 8 645 168	CSC wiring harness	1
61 27 7 625 062	Cover for high-voltage battery	1
61 27 7 622 121	Seal Screw	4
61 27 7 625 086	Warning sticker for HV storage system	1

Bulk Materials

83 19 2 221 349	R134a (Gas 1 oz units)	As needed

i3 94Ah

Part number	Description	Quantity
61 27 8 647 912	Cell Module, high-voltage battery	1-8
61 27 7 648 785	Cell monitoring circuit	1-8
61 27 8 645 168	CSC wiring harness	1
61 27 7 625 062	Cover for high-voltage battery	1
61 27 7 622 121	Seal Screw	4
61 27 7 625 086	Warning sticker for HV storage system	1

Bulk Materials

83 19 2 287 039	R1234YF (Gas 1 oz units)	As needed

WARRANTY INFORMATION

This service information bulletin provides technical, diagnostic and/or repair-related information.

Eligible and Covered Work/Repairs

The repair procedures outlined in this bulletin are covered under the “applicable terms” of the BMW New Vehicle Limited Warranty for Passenger Cars and Light Trucks.

To submit a claim, please following the established and applicable warranty policy and procedures together with the using corresponding defect code and labor operations provided in the KSD2.

Note: Only one Main labor operation can be claimed per repair visit. All other labor operation codes for the same repair line item or other repair line items must be claimed using the corresponding Plus and/or Associated labor operation codes as applicable.

Sublet – Bulk Materials (excluding R134a and 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 – Associated and/or Other Repairs

If invoicing KSD2 flat rate labor operation codes for the additional repair work results in overlapping labor being claimed, invoice work time labor operation 00 50 000 for the additional time (FRU) minus the overlap instead.

On the repair order and in the claim comment section, please identify the labor operations that labor operation code 00 50 000 replaces and itemize the claimed FRU amount.

Work time labor operation code 00 50 000 is not considered a Main labor operation.

Associated Repairs: When work time labor operation 00 50 000 is used as an extension of the repair outlined in this bulletin, a separate defect code and punch time(s) are not required.

Other Repairs: When work time labor operation 00 50 000 is used for work that will be claimed under a different defect code, separate punch time(s) are required.

Vehicle Programming and Coding

When ISTA/P automatically reprograms and codes all the vehicle control modules that currently do not have the latest software and if control module failures occur during this programming:

- Please claim these consequential control module repair work under the defect code for the repair that required vehicle programming procedure using the applicable KSD2 labor operations.

Other Repairs

Control module failures that occurred prior to this programming and/or additional work that is performed as a result of performing the ISTA diagnostics and related test plans:

- When covered under an applicable limited warranty, claim the control module and/or other repairs using the applicable defect code and labor operations in KSD2.