

## Insulation fault HV-PTC N33/14



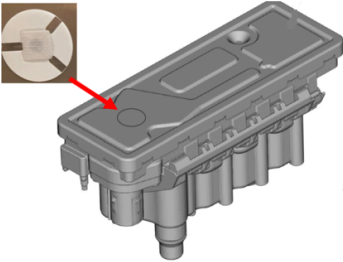
Topic number	LI83.70-P-078292
Version	1
Function group	83.70 - Auxiliary/supplementary heater
Date	8/12/24
Validity	Model series 295, 296, 297 exclusively with high voltage PTC from Eberspächer
Reason for change	Attachment update

### Complaint

Red warning message in instrument cluster: "Towing not allowed, see Operator's Manual, consult workshop without starting the engine again".

### Cause

Missing diaphragm on high voltage PTC (interior heating) N33/14 component part results in moisture buildup in the installation space for the heater and causes an insulation fault. The entry of moisture into the high voltage PTC (interior heating) N33/14 in the high voltage wiring harness to the DC/DC converter N83/1 causes a slow-acting insulation fault. This may occur sporadically only to start with before actively developing over time.

Attachments	
File	Description
<p><a href="#">Vergleich N33-14 ohne und ohne Membrane.PNG</a></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Bauteil <u>ohne</u> Membrane</p>  </div> <div style="text-align: center;"> <p>Bauteil <u>mit</u> Membrane</p>  </div> </div> <div style="text-align: center; margin-top: 20px;">  </div>	<p>Distinguishing characteristic for interior heating without and with diaphragm</p>
<p><a href="#">EVA2 Isolation measurement_HV-wiring DCDC - PTC Version GI DE V1.1.docx</a></p>	<p>Isolationmessung HV-Leitung DCDC - HV PTC Deutsch</p>
<p><a href="#">EVA2 Isolation measurement_HV-wiring DCDC - PTC Version GI EN V1.1.docx</a></p>	<p>Insulation measurement HV wiring DCDC - HV PTC English</p>

## Remedy

Exchange high voltage PTC (interior heating) N33/14 with new part with diaphragm (production date as from 22T231, see component part label). If necessary, and after further testing/measurement, replace wiring harness for DC/DC converter N83/1 to high voltage PTC (interior heating) N33/14.

Note: According to the Replacement Parts Department only high voltage PTCs (interior heating) with a diaphragm and with production date as from 22T231 are available!

<b>Symptoms</b>
Body > Air conditioning > Heater > Remains cold
Overall vehicle > Power supply > High-voltage on-board electrical system > High-voltage battery > Display message

<b>Parts</b>						
Part number	ES1	ES2	Designation	Quantity	Note	EPC
A 000 835 83 03			Water heater	1	Water heater = High voltage PTC (interior heating)	X

<b>Control unit/fault code</b>	
Control unit	Fault text
N82/2 - Battery management system (BMS) (BMS40)	<p>P2C85FA - There is a vehicle-side insulation fault in the hybrid/high-voltage on-board electrical system. _</p> <p>P2C8800 - There is an insulation warning in the hybrid/high-voltage on-board electrical system. _</p> <p>P2C8700 - There is a vehicle-side insulation warning in the hybrid/high-voltage on-board electrical system. _</p> <p>P2C8500 - There is a vehicle-side insulation fault in the hybrid/high-voltage on-board electrical system. _</p> <p>P0AA600 - There is an insulation fault in the hybrid/high-voltage on-board electrical system. _</p>
N127 - Drivetrain (PTCU) (CPC3EV297)	P154800 - There is a warning due to a detected insulation fault. _

<b>Operation numbers/damage codes</b>				
Op. no.	Operation text	Time	Damage code	Note
			8360M	Interior heating N33/14