STAR ONLINE PUBLICATION

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Symptom/Vehicle Issue: Service Hybrid Electric Vehicle System Warning Message And Light Are Displayed. B273C-00 - Digital Crash Input Set In HCP

Discussion: The Customer may bring their vehicle in for service because the “Service Hybrid Electric Vehicle System Warning” message and Light are displayed in the cluster. The vehicle may no longer enter Electric or Hybrid drive modes. Upon scanning for DTC’s, you may find B273C-00 set in the Hybrid Control Processor (HCP).

This issue may be caused by Electromagnetic Interference (EMI) from the High Voltage (HV) P2 Motor and associated HV harnesses which can transfer inductive voltage/electric noise onto the R41 - Airbag Deployment Signal and R414 - Airbag Deployment Signal 2 circuits. This inductive voltage/electric noise corrupts the health status signal and causes the B273C-00 – Digital Crash Input DTC to set.

Diagnosis: Connect an oscilloscope such as the Mopar PicoScope to the R41 and R414 circuits. When the P2 motor engages and begins operating, look for a distinctive change in the voltage pattern which would confirm the presence of induction voltage/ electrical noise, See Fig. 1. Some EMI on these circuits is expected during normal operation; however, some vehicles will exhibit more than others. If the electric noise is beyond the acceptable threshold, B273C-00 – Digital Crash Input will set in the HCP almost immediately after the noise is detected on the oscilloscope.

Contact STAR Center, or your Technical Assistance Center Via TechCONNECT or eCONTACT ticket if no solution is found

Fig. 1 :Electrical Noise on R41 and R414 Circuit After P2 Motor Engagement

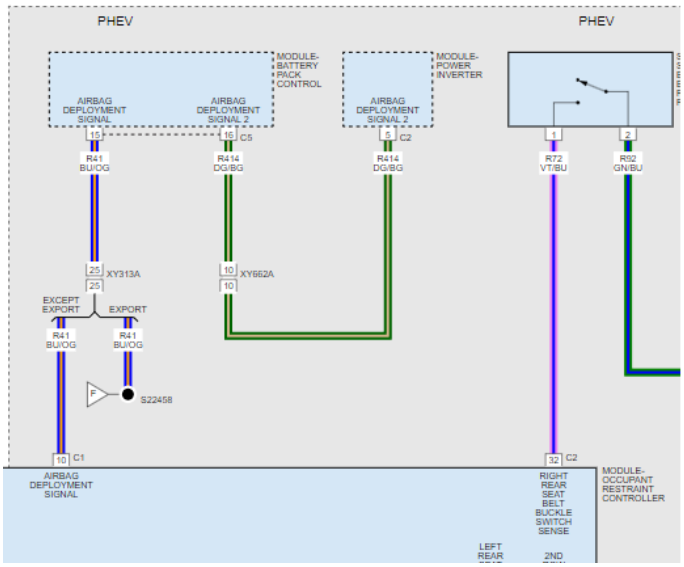

Fig 2: Airbag Deployment Signal Circuits (R41 and R414)

This document does not authorize warranty repairs. This communication documents a record of past experiences. STAR Online does not provide any conclusions about what is wrong with the vehicle. Rather, it captures all previous cases known that appear to be similar or related to the vehicle symptom / condition. You are the expert, and you are responsible for deciding on the appropriate course of action.

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Repair: As stated, some EMI is normal and will be observed on all vehicles and will not induce any faults. However, if B273C-00 only becomes Active when electrical noise is detected on R41 and R414 with an Oscilloscope. Excessive EMI on these circuits should be considered the root cause.

A HCP, AHCP and PCM software update and wiring harness repair is expected to be released in the form of a TSB/RSU in Q4 2024. This software will increase the HCPs ability to detect a valid Digital Crash Input health signal when excessive EMI is present. The wiring harness repair will help eliminate excessive EMI.

The flash files have already been validated for use in the field. For vehicles that have a high risk of buyback, it is recommended you contact your Tech Advisor (TA) either directly or via STAR escalation. The FTS electrical team can provide the VIN specific flash files to your TA which can be flashed to the appropriate modules using CDA.

In addition, If the vehicle is facing buyback, replacement of the components listed below have been found to lower EMI to an acceptable level and remedy this concern on some vehicles. Replacement of these components does not guarantee repair. These potential repairs should be performed ONLY to mitigate buy back risk.

STAR Online Cases do not authorize warranty repairs. Replace these parts at your own discretion after speaking with your dealer's management.

Components should be replaced one at a time in the **order listed below**. Verification replacement resolved the concern or not prior to replacing the next component.

1. BPCM to Battery Coolant Heater HV Harness: 68593178AC
2. P2 to PIM HV Harness: 68593176AB
3. P1 to PIM HV Harness: 68593175AB
4. BPCM to IDCM HV Harnesses: 68378608AF
5. ORC (Reference STAR Parts for Part # and review TechTip)

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Always verify you have the most current part number by referencing the vehicles VIN in STAR parts.

Note: ORC Engineering has confirmed that airbag deployment and operation is not compromised due to this fault or it's setting conditions. The vehicle can be safely released to the customer until the software update is made available. However, the "Service Hybrid Electric Vehicle System Warning" message and MIL will continue to be displayed and the vehicle will only operate while using the Internal Combustion Engine (ICE) also referred to as the E-Save mode. Electric and Hybrid drive modes will be inoperative as long as the B273C-00 – Digital Crash is Active.

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