

# 2016 Forester B1650/B1760 QRA

by Bertucci, Anthony

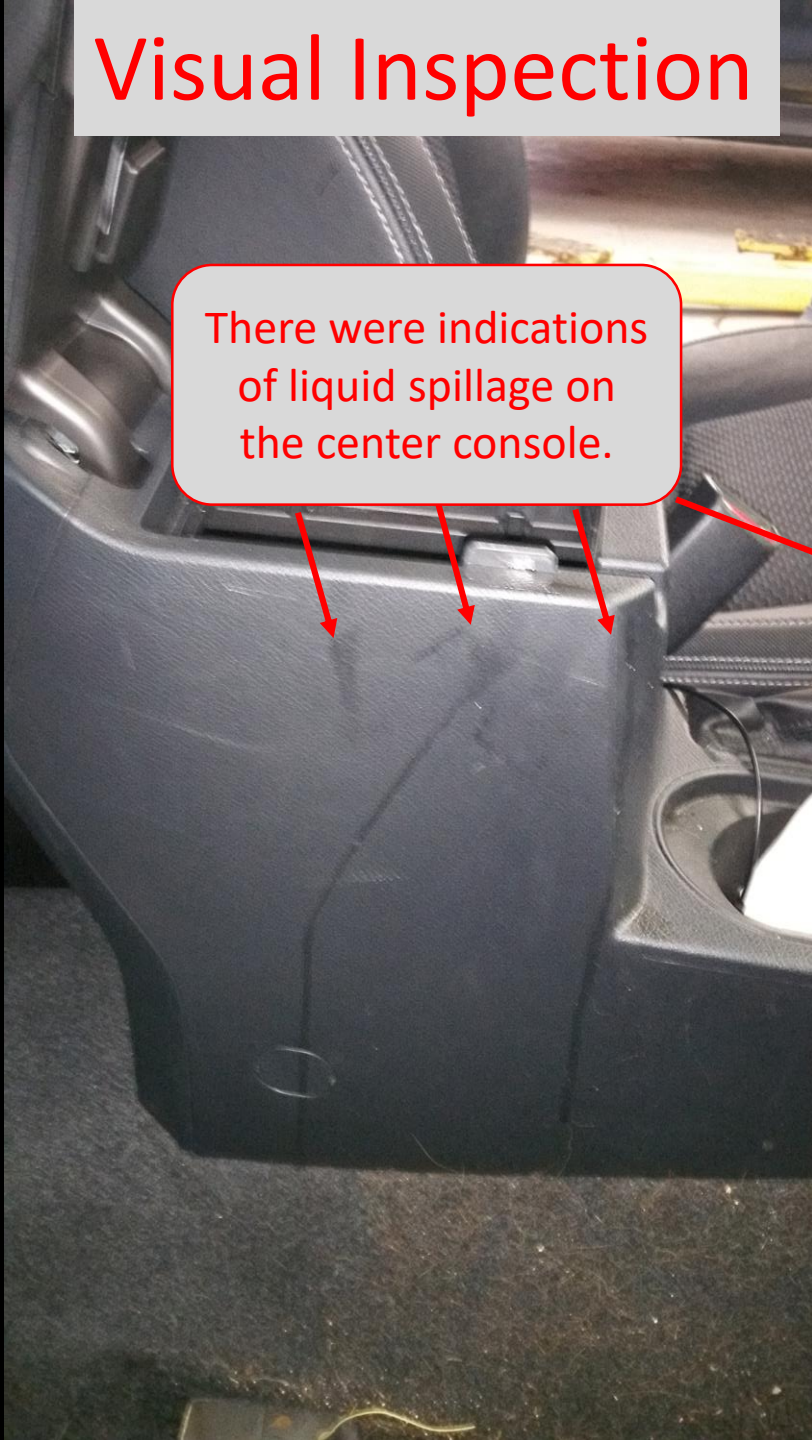
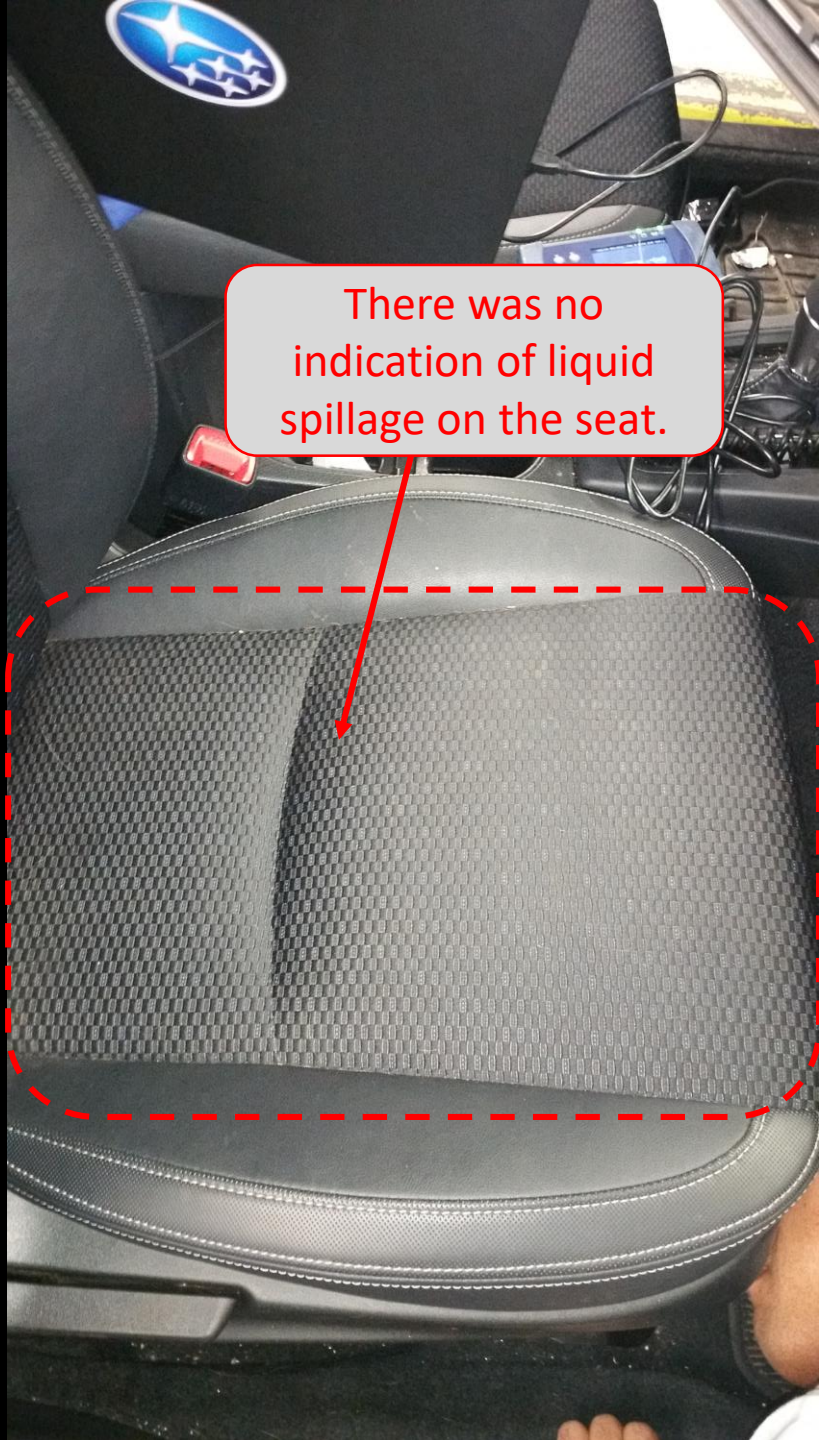
# Customer states Air Bag Indicator on.

FSE was requested to assist in QRA along with ODS supplier Delphi and NASI Engineer. Upon initial arrival the team confirmed the Red Airbag indicator lamp on. All systems check was performed to check for all codes. Two codes were present in the airbag module- B1650 Occupant Classification System Error and B1760 Sensor Mat Abnormal were both Current Codes. A visual inspection was performed on the seat and surrounding areas looking for any liquid spills that could have possibly caused the codes. There was indications of a liquid spill on the surrounding trim panels (Center console). Rust was also found on the seat frame but upon further investigation of the actual seat bottom where the sensor mat is installed, there was no indication of liquid. (See pictures for details) The seat was then removed for further investigation. Before removal, all connector installation was confirmed. It is important to note that the team did NOT touch the connectors, but did visually inspect the connectors for proper installation. Before the seat was removed, visually, all connectors were installed. The connectors were then disconnected and the seat was removed. The supplier brought a special tool to power up the ODS system and check for Sub Codes. Upon checking for sub codes with the Delphi equipment, there was no current active codes but there were 2 codes in the history. The first history code indicated an open circuit in the sensor mat and the second history code indicated an open circuit in the shield within the mat. Since the codes were now in history, the team tried to manipulate the connectors to try and duplicate the concern. We were unable to duplicate any codes by shaking/wiggling connections and harnesses. We monitored the ODS Frequency PIDs within the Delphi software and were unable to see any abnormalities. Due to the codes going from an active status to a history status, it was decided to reinstall the seat in the vehicle to try and eliminate the vehicle side as a possible fault. The seat was reinstalled and codes were checked but no codes were active. The seat was removed again and hooked up to the Delphi equipment again and duplication tests were attempted. Pressure was applied on the mat in different areas but no duplication was possible. The ODS module was shook and tapped but no codes returned. The ODS Mat connector was disconnected and the capacitance was checked. Capacitance showed at 7.6nF (Spec 7-8nF) At this time, it was thought that when the Delphi rep was installing special tools during initial removal, he may have touched or manipulated a poor connection. Due to not being able to duplicate the issue at this time, NASI recommended replacing the seat bottom. The seat bottom was then replaced, the codes were cleared and system was recalibrated successfully. No codes were present after replacement.

# Visual Inspection

There was no indication of liquid spillage on the seat.

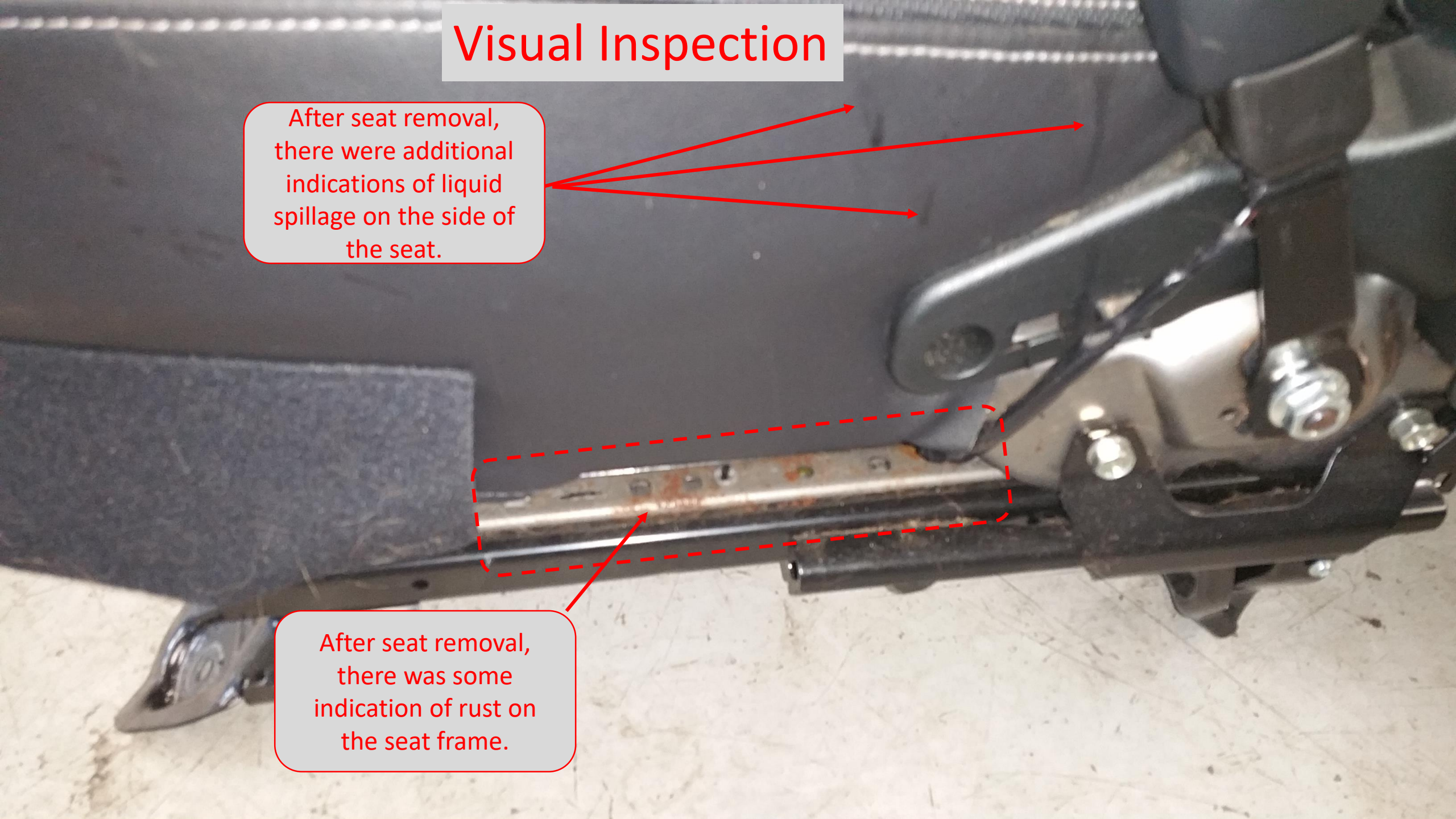
There were indications of liquid spillage on the center console.



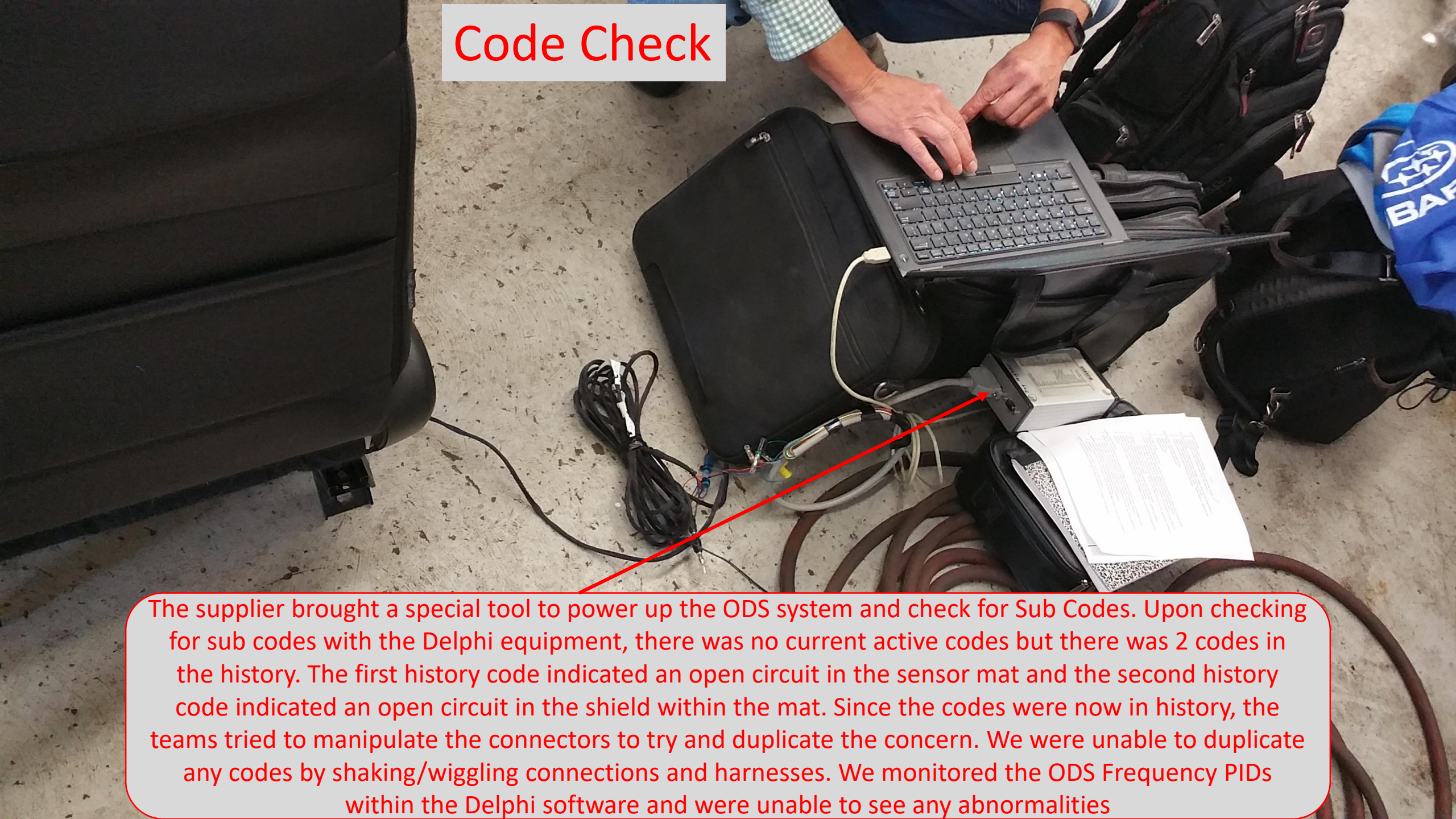
# Visual Inspection

After seat removal, there were additional indications of liquid spillage on the side of the seat.

After seat removal, there was some indication of rust on the seat frame.



## Code Check

A person is kneeling on a concrete floor, working on a vehicle's ODS system. They are using a laptop connected to a diagnostic tool. A red arrow points from the text box to the diagnostic tool. The scene is outdoors, with a black car on the left and various bags and equipment on the right.

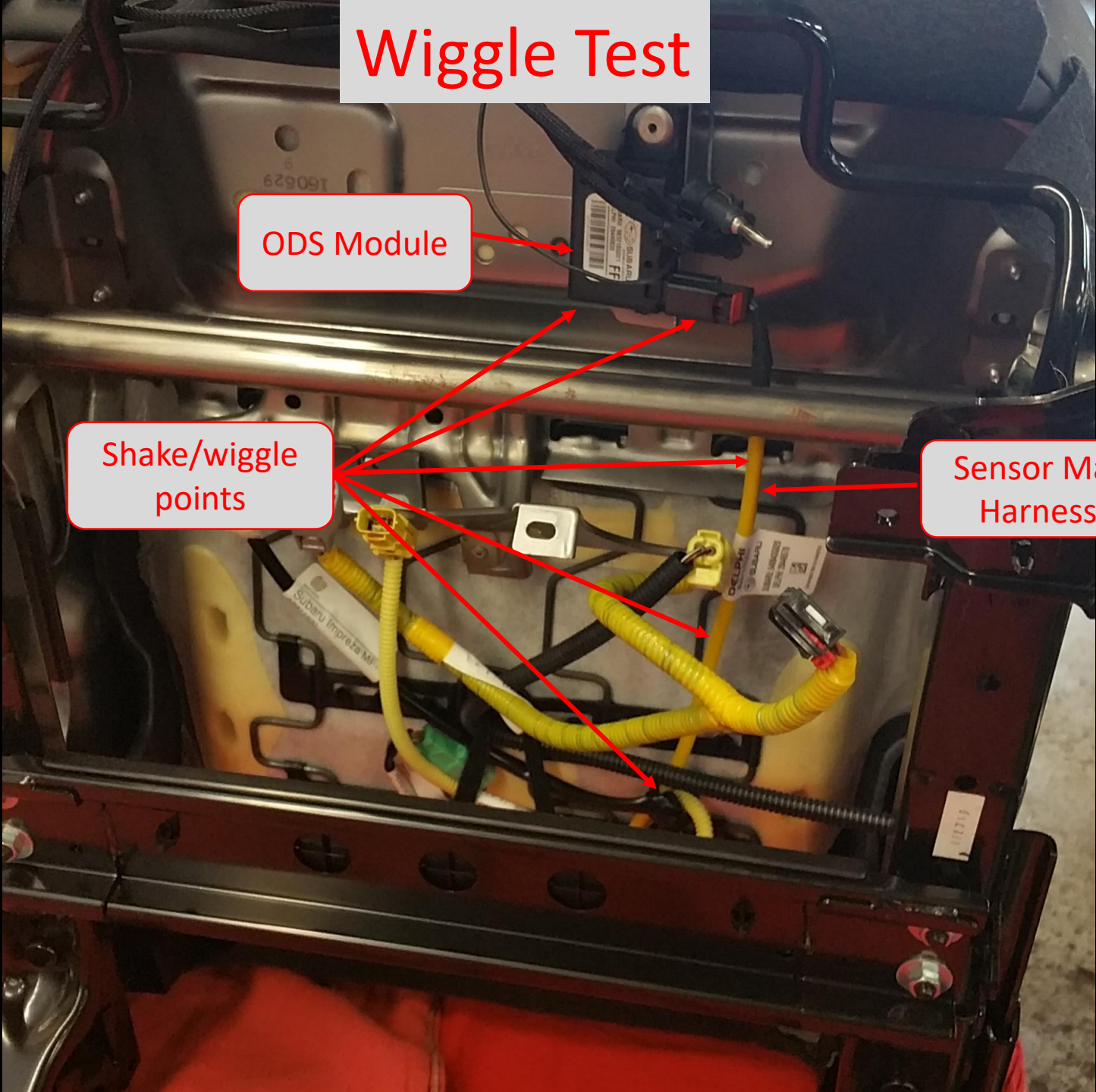
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# Wiggle Test

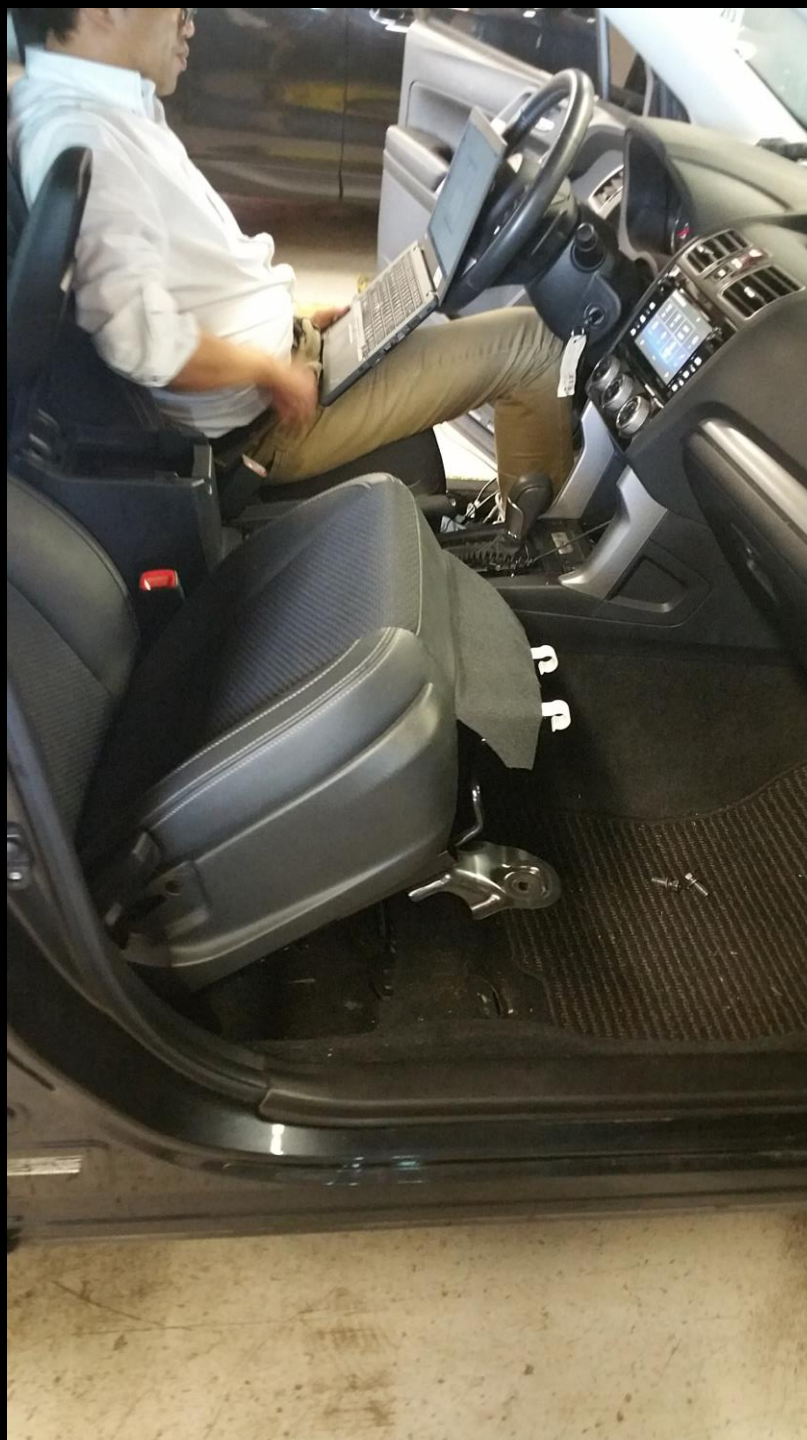
ODS Module

Shake/wiggle points

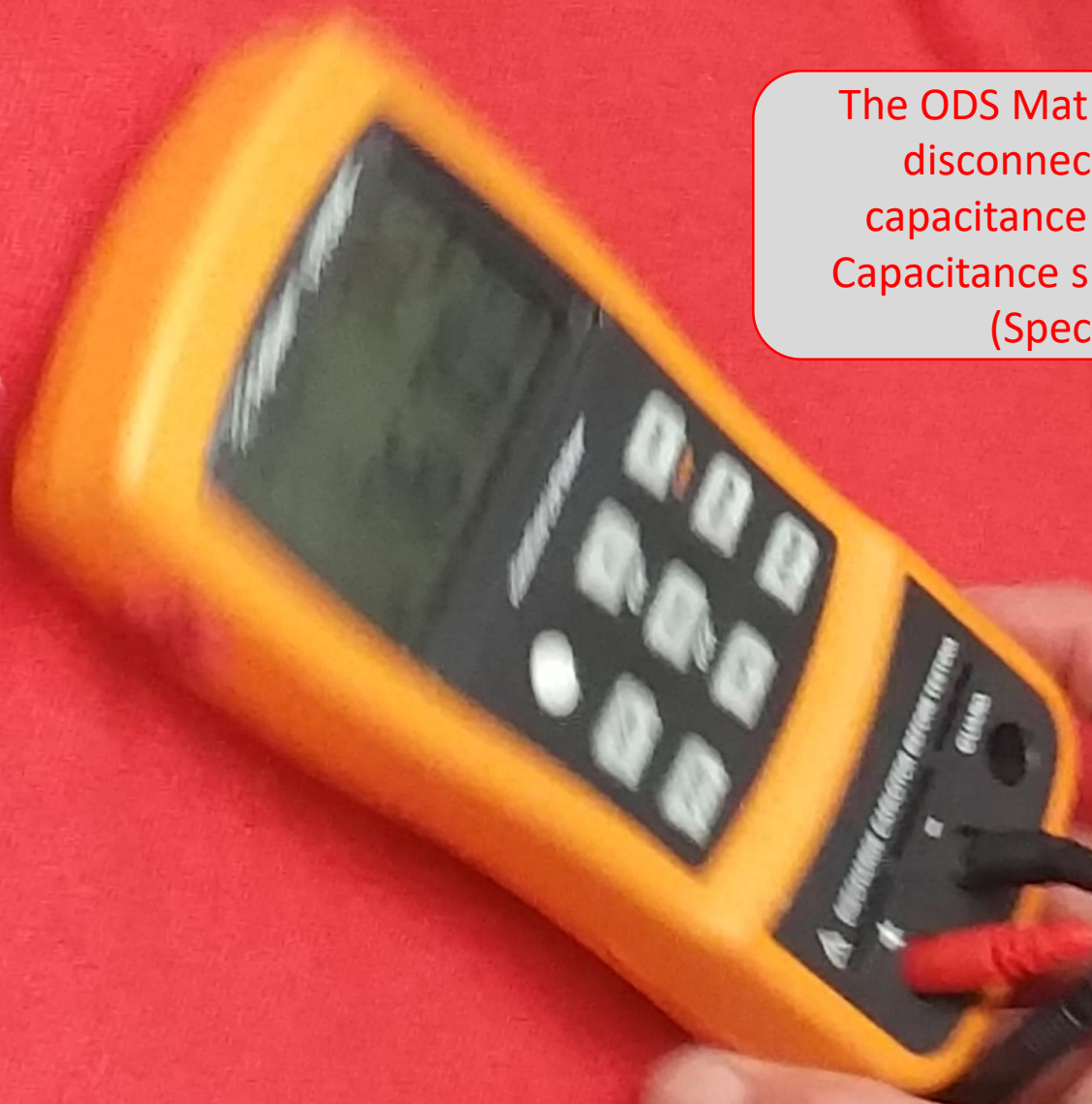
Sensor Mat Harness

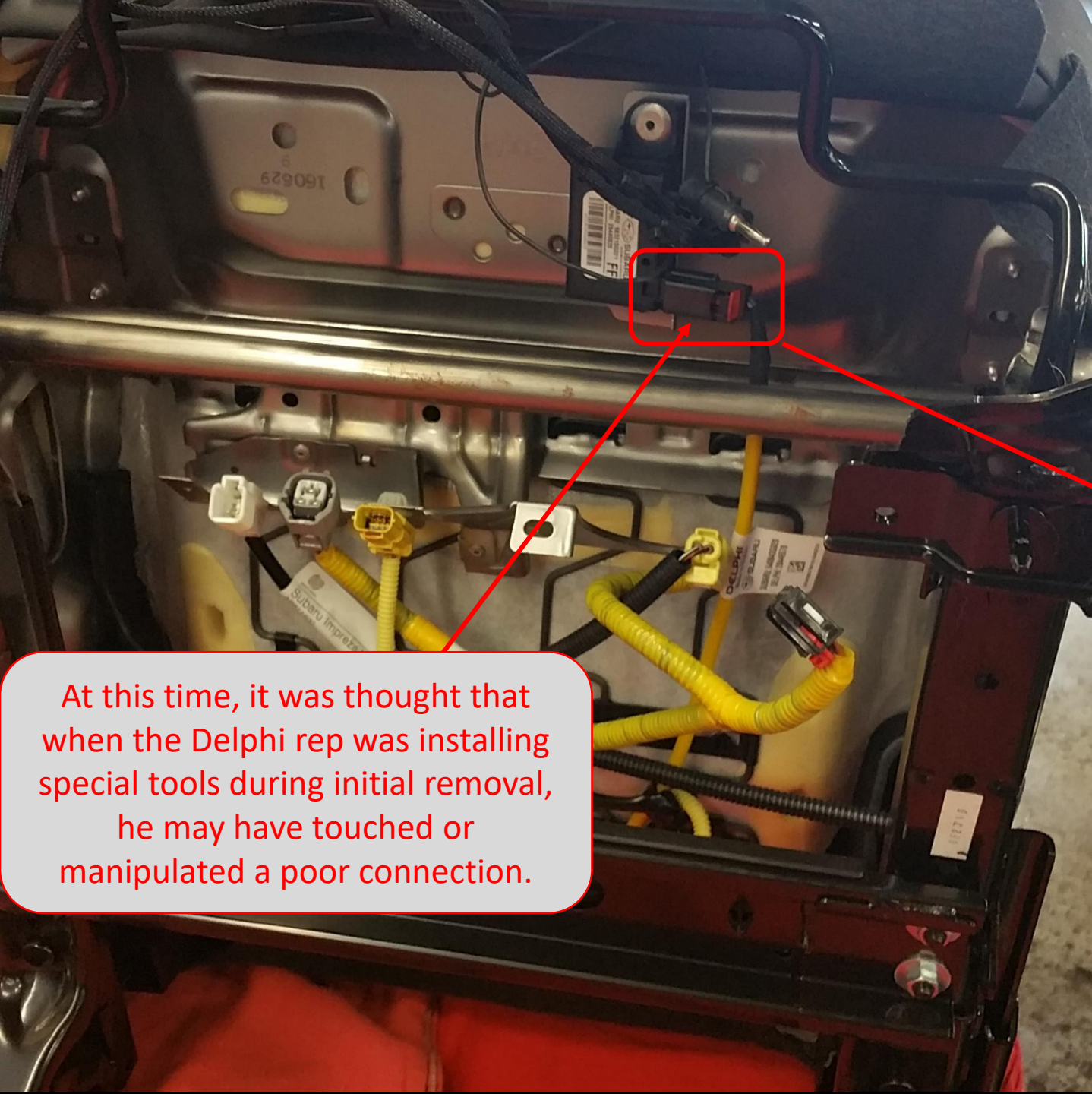


Due to the codes going from an active status to a history status, it was decided to reinstall the seat in the vehicle to try and eliminate the vehicle side as a possible fault. The seat was reinstalled and codes were checked but no codes were active.

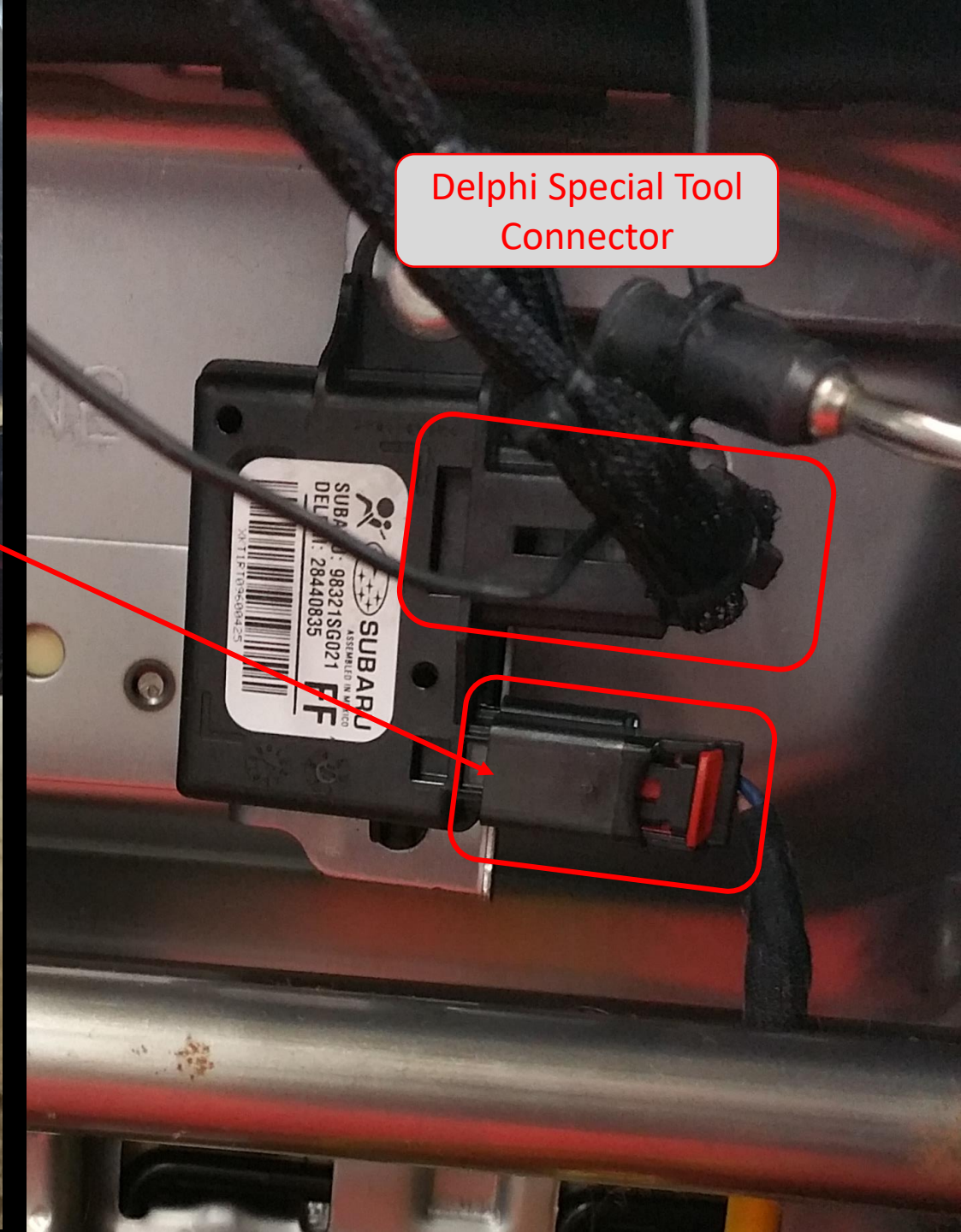


The ODS Mat connector was disconnected and the capacitance was checked. Capacitance showed at 7.6nF (Spec 7-8nF)

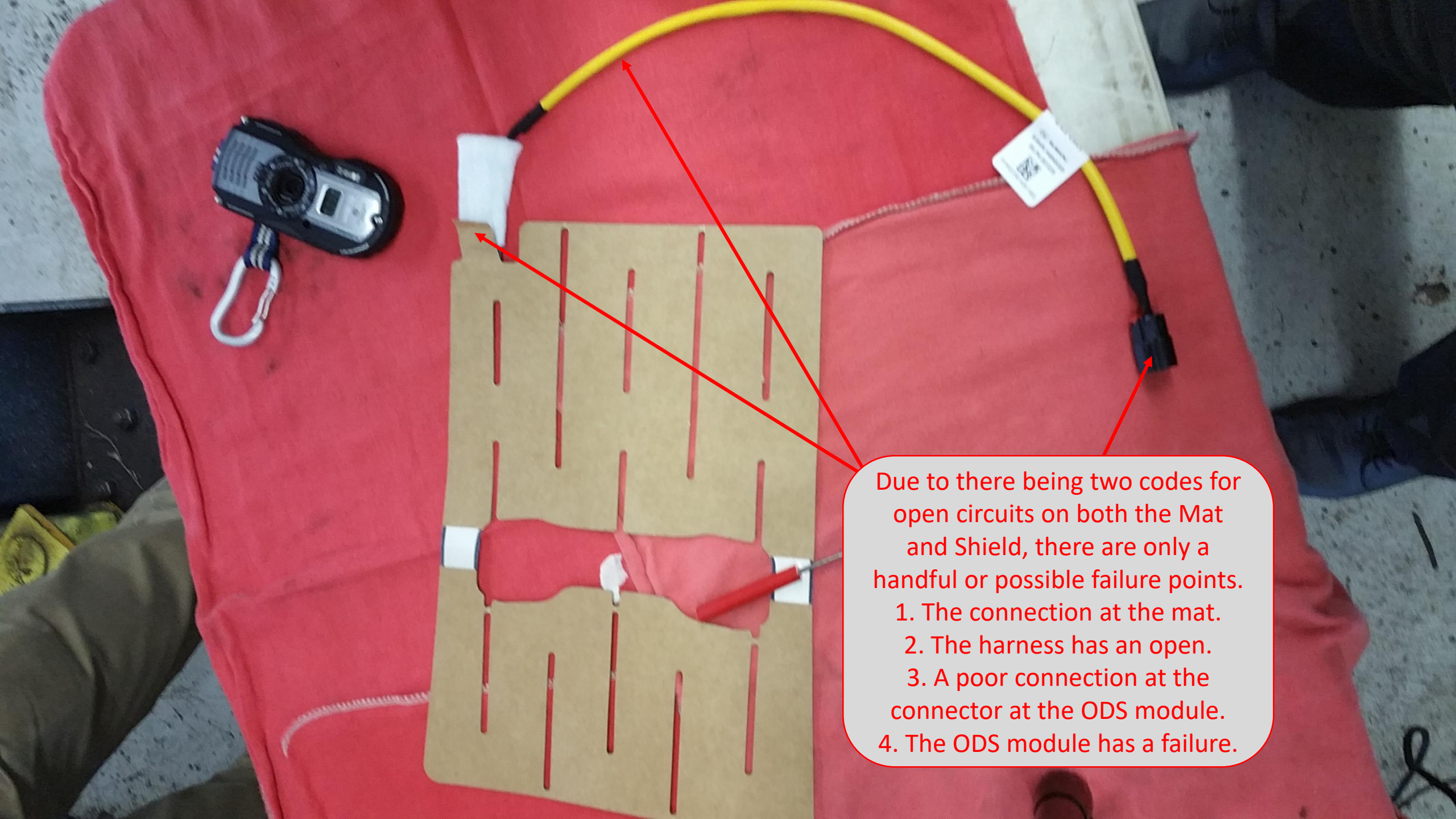




At this time, it was thought that when the Delphi rep was installing special tools during initial removal, he may have touched or manipulated a poor connection.



Delphi Special Tool Connector



Due to there being two codes for open circuits on both the Mat and Shield, there are only a handful of possible failure points.

1. The connection at the mat.
2. The harness has an open.
3. A poor connection at the connector at the ODS module.
4. The ODS module has a failure.