## FCA US LLC Chronology 2017 Jeep Renegade Fuel Pump Cavitation Submitted on October 17, 2018

- From March 6, 2018 through March 13, 2018, FCA US provided warranty data and repair order claims for fuel pump replacement on the flex fuel 85% ethanol ("E85") 2.4L, ED6 4-cylinder engine vehicles to FCA Italy.
- On April 11, 2018, FCA US Fleet Service Operations provided feedback that a specific fleet customer was experiencing fuel pump issues and were replacing fuel pumps as a result.
- On April 19, 2018, FCA US, FCA Italy, Supplier Purchasing and the supplier representative reviewed analysis for the 2.4L, ED6 4-cylinder engine vehicles fuel pump that suggested sintered metal fuel pump impeller edge condition and flatness may affect fuel pressure.
- From May 10, 2018 through May 20, 2018, FCA US continued to monitor quality indicators and supplier quality data.
- From May 21, 2018 through May 27, 2018 FCA Italy performed an assessment of supplier quality data of a potential deviation on the tier 2 supplier sintering process.
- From May 28, 2018 through May 31, 2018 FCA Italy requested warranty return parts to determine whether there is a correlation to the sintering process on customer complaints of engine hesitation or loss of power.
- From June 1, 2018 through June 25, 2018 FCA Italy supplier quality conducted an audit of the fuel pump supplier and associated tier 2 supplier for fuel pump impeller sintering process.
- From June 26, 2018 through June 30, 2018, FCA Italy requested fuel pumps from MOPAR service stock to test samples for variability to environmental conditions.
- From July 12, 2018 through July 25, 2018, FCA US received warranty return parts at the Quality Engineering Center in Auburn Hills, Michigan.
- From August 4, 2018 through August 14, 2018, FCA Italy conducted testing on warranty return parts to understand potential interaction with fuel type, temperature and atmospheric pressure.
- From August 15, 2018 through August 26, 2018, FCA Italy conducted testing on MOPAR service stock part to understand potential interaction with fuel type.
- From August 26, 2018 through September 5, 2018, FCA Italy conducted testing on 4x4 fuel pumps (non-E85 compatible) to understand potential interaction with fuel type.
- From September 6, 2018, FCA US provided updated warranty and repair order claims for fuel pump replacement on 2.4L, ED6 4-cylinder engine vehicles.
- From September 6, 2018 through September 13, 2018, FCA Italy conducted full vehicle testing to understand in-vehicle interaction with fuel type.
- From September 14, 2018 through September 25, 2018, FCA Italy conducted testing of MOPAR fuel pump sample under conditions of fuel type, temperature and atmospheric pressure.
- From September 26, 2018 through October 5, 2018, FCA Italy conducted testing of warranty return fuel pump samples under conditions of fuel type, temperature and atmospheric pressure.
- From October 5, 2018 through October 9, 2018, FCA Italy conducted a vehicle test in a climatic cell (FCA US CTC) with a pump produced prior to and during the process deviation timeframe.
- On October 9, 2018, FCA Italy was able to reproduce the failure on the pumps (both on vehicle and bench) that were produced during the process deviation timeframe.
- As of October 10, 2018, FCA Italy has identified approximately 60 CAIRs, 10 VOQs and 42 field reports related to this issue.
- As of October 10, 2018 FCA Italy has identified approximately 145 warranty claims related to this issue.

- As of October 10, 2018, FCA Italy is aware of no accidents and no injuries potentially related to this issue.
- On October 10, 2018, FCA Italy determined, through the Vehicle Regulations Committee, to conduct a voluntary safety recall of the affected vehicles.