



24S06 – CERTAIN 2018-2020 FORD EXPEDITION AND LINCOLN NAVIGATOR VEHICLES –
DRIVER AND FRONT PASSENGER SEATBELT RETRACTOR PRETENSIONERS

Chronology of Defect / Noncompliance Determination

Provide the chronology of events leading up to the defect decision or test data for the noncompliance decision.

On September 30, 2021, Ford's Critical Concern Review Group (CCRG) opened an investigation into reports of inadvertent deployment of seatbelt retractor pretensioners on 2019 model year (MY) Expedition vehicles in Middle East regions. There were four reports of inadvertent deployment of seatbelt retractor pretensioners that occurred during July through September 2021.

Between October 2021 and January 2022, Ford and its Tier-1 supplier obtained field returned retractor pretensioners for analysis. The CCRG investigation identified that corrosion was present on the pretensioner squib pins where the bridge wire (heating element of pyro-technic device) is welded. However, no anomalies were identified during ballistic testing, helium leak testing and wiring reviews.

In February 2022, Ford conducted computer-aided-engineering (CAE) analysis and concluded that the system would meet regulatory requirements even if the retractor pretensioner did not correctly fire.

Between March and May 2022, long-term corrosion testing conducted with the Tier-2 supplier did not recreate the corrosion observed in the squibs of field returned parts.

In monitoring the warranty data from June 2022 to October 2022, CCRG observed that the rates of inadvertent deployments remained low. CCRG noted that incidents were occurring primarily within a clearly defined window of production from October 2018 through June 2019, indicating it could be a supplier quality concern. Additionally, the inadvertent deployments occurred only during the summer months.

Between October 2022 and February 2023, Ford verified that the Restraints Control Modules (RCMs) functioned as intended and the diagnostic signals increased the current within the pre-defined range in response to a high resistance or open circuit in the seatbelt retractor pretensioner squib, which would illuminate the airbag warning light. Other data indicated that the airbag warning light was on for an average period of 5.5 weeks prior to an inadvertent deployment, should one occur.

In March 2023, Ford engaged additional engineering resources to conduct further root cause analysis of inadvertent activation of the seatbelt retractor pretensioner. Ford needed to test several hypotheses on how corrosion was developing and why only some pretensioners in warmer climates were experiencing an inadvertent deployment while others only received an illumination of the airbag warning light. Through November 2023, additional testing and analyses were conducted on returned parts, new parts, and in-vehicle testing. Through this

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process, CCRG learned that the main causal factors were likely (a) a byproduct of corrosion which requires a high moisture/water content sealed in the squibs and (b) partial separation at the weld between the inner pin and platinum bridge wire, whereby the RCM diagnostic signal has the ability to trigger an inadvertent deployment. However, the question remained as to how moisture could arrive inside the squibs and the team continued to test several hypotheses.

In November 2023, Ford met with NHTSA personnel from the Office of Defects Investigation and provided information on the status of its ongoing CCRG investigation and findings to date. Later in the month, NHTSA opened PE23-021 to further evaluate this topic.

In December 2023, CCRG undertook additional work to analyze vehicle environment factors that may contribute to the corrosion in the squib pins of the seatbelt retractor pretensioner. The CCRG team reviewed a drain seal change that occurred at the Start of Production in 2019. Although unproven, the CCRG theorizes that a water leak related to a drain seal on the right front floor related to air-conditioning usage may increase humidity when Max A/C is used for extended periods and contribute to pretensioner squib pin corrosion.

As of January 12, 2024, Ford is aware of 140 reports (119 unique VINs) for all markets, received from July 05, 2021, to January 06, 2024, for inadvertent retractor pretensioner deployment, primarily in warm-weather regions. The lifetime warranty projection was updated and indicated an elevated rate for inadvertent deployment for this defined sub-population of 2018-2019 model year Expeditions and Navigators.

On February 02, 2024, Ford's Field Review Committee reviewed the concern and approved a field action.

Ford is aware of six reports of unspecified injury and five Vehicle Owner Questionnaires (VOQs) alleging injury pertaining to inadvertent deployment of seatbelt pretensioners. Ford is not aware of any reports of accident related to this condition.

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