



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: PE 14-023
Date Opened: 07/22/2014
Investigator: Emily Reichard
Approver: Frank Borris
Subject: Seat Belt Buckle Electrical Malfunction
Date Closed: 12/01/2014
Reviewer: Scott Yon

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: Hyundai Motor America
Products: 2006-2008 Hyundai Sonata
Population: 394,262

Problem Description: An electrical circuit in the seat belt stalk assembly may experience a failure (high resistance) potentially leading to a malfunction of the stalk-based seat belt pretensioner.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	131	764	884**
Crashes/Fires:	0	0	0
Injury Incidents:	0	0	0
Fatality Incidents:	0	0	0
Other*:	0	19,847	0

***Description of Other:** Warranty claims related to an electrical failure in the front seat belt stalk assembly causing a fault in the stalk-based seat belt pretensioner circuit.

** Total eliminates duplicates received by ODI and manufacturer.

ACTION / SUMMARY INFORMATION

Action: This Preliminary Evaluation has been closed.

Summary:

On July 22, 2014 the Office of Defects Investigation (ODI) opened a preliminary evaluation to further analyze allegations of seat belt pretensioner malfunctions on model year (MY) 2006-2008 Hyundai Sonata vehicles. ODI received 131 unique reports alleging a failure within the seat belt pretensioner system, which was typically preceded by SRS light illumination. ODI requested more information from Hyundai in order to understand the nature of the failure and how the airbag deployment algorithm, the seat belt pretensioners, and/or the airbag function may be affected.

In response to ODI's information request (IR), Hyundai submitted 764 unique consumer and field reports and 19,847 warranty claims related to a failure in the front seat belt buckle assembly potentially causing a malfunction of the seat belt pretensioners. In it's response, Hyundai advised that if the resistance specifications for the seat belt buckle pretensioner circuit, located in the seat belt stalk, exceed the nominal range, a diagnostic trouble code will be set and the SRS warning indicator lamp will illuminate. The presence of this stored code will not affect the ability of the SRS Control Module (SRSCM) to detect a collision and command deployment of the pretensioners and airbags, if warranted. In fact, the wiring harness connector may be unplugged from the seat belt buckle pretensioner, and the signal to deploy the pretensioner will still be commanded and recorded.

MY 2006-2008 Sonata's utilize a dual pretensioner system by incorporating pretensioners into both the driver and front passenger seat belt retractor and the seat belt buckle assembly. The retractor pretensioner is located inside the B-pillar and winds (pretensions) the seat belt webbing back into the retractor housing during a collision, helping to remove seat belt slack and restrain the upper torso and hips. In contrast, the buckle pretensioner is located within the

stalk of the seat belt assembly and acts to supplement lower limb protection. Both pretensioners are controlled by the SRSCM but utilize separate wiring and connectors. The seat belt retractor pretensioner circuitry and operation is independent of the seat belt buckle pretensioner connector and circuitry. Hyundai produced analysis indicating that increased resistance in the seat belt pretensioner which occurs in vehicle service does not result in a loss of buckle pretensioner. Hyundai further advised that in the unlikely event that a seat belt buckle pretensioner may not deploy due to increased resistance, the retractor pretensioner would still activate. Hyundai advised that the subject vehicles maintain their 5 STAR NHTSA safety rating using the retractor based pretensioner only. ODI notes that MY 2009-10 Sonatas reverted back to a single pretensioner system, and do not utilize seat belt buckle pretensioners.

Hyundai advised its intention to initiate a warranty extension program to address concerns with the seat belt buckle pretensioner faults in MY 2006-2008 Hyundai Sonata vehicles. This action will extend the warranty coverage for this issue for 15 years or 250,000 miles, whichever occurs first. Given Hyundai's action and the minimal safety consequence this issue presents, further use of agency resources does not appear to be warranted. Accordingly, this investigation is closed. The closing of this investigation does not constitute a finding by NHTSA that a safety-related defect does not exist. The agency will monitor the issue and reserves the right to take further action if warranted by the circumstances.

The ODI complaints cited above can be reviewed at <http://www-odi.nhtsa.dot.gov/owners/SearchNHTSAID>, see the PE14-023 investigative file for a list of the ODI numbers.

PE14-23 VOQ #s

10256002, 10258877, 10283190, 10283762, 10286294, 10290196, 10297700, 10304481, 10306317, 10310464, 10315909, 10330087, 10355606, 10356598, 10360380, 10369825, 10370350, 10370657, 10377062, 10378503, 10393973, 10398205, 10399875, 10402904, 10404406, 10405598, 10408660, 10410215, 10411792, 10415672, 10426896, 10428859, 10428991, 10436650, 10441258, 10441531, 10444646, 10445962, 10447518, 10455086, 10458612, 10461322, 10471657, 10475442, 10489290, 10490497, 10490635, 10493520, 10496701, 10499327, 10500137, 10508117, 10510286, 10510932, 10510952, 10511401, 10511737, 10514801, 10536182, 10541982, 10542434, 10548434, 10550081, 10550767, 10552361, 10552865, 10553099, 10554292, 10555471, 10556494, 10556625, 10556923, 10558372, 10558445, 10560756, 10561273, 10566729, 10569331, 10573166, 10573304, 10575493, 10576524, 10576844, 10578400, 10593489, 10595062, 10598225, 10607865, 10609140, 10614576, 10616177, 10616332, 10616575, 10617106, 10617112, 10617882, 10619141, 10620637, 10620656, 10621510, 10621650, 10622258, 10626638, 10626679, 10627205, 10627325, 10627853, 10628185, 10628207, 10628642, 10628662, 10629893, 10630947, 10632905, 10633577, 10637303, 10637434, 10637476, 10637990, 10639531, 10640031, 10640077, 10640265, 10641096, 10643413, 10644584, 10644990, 10648338, 10649953, 10650676, 10654237, 10655313, 10658618, 10659221