



U.S. Department
of Transportation

Memorandum

**National Highway
Traffic Safety
Administration**

Subject: Test Request: Analysis of Improper Deployment of Side Curtain Air Bags Date: December 18, 2012

From: Frank Borris, Director Reply to: NVS-212mjl
Office of Defects Investigation Attn of: EA12-008

To: Roger Saul, Director
Vehicle Research and Test Center

This memorandum requests the Vehicle Research and Test Center (VRTC) to conduct the testing as described below.

BACKGROUND: The Office of Defects Investigation (ODI) is conducting an Engineering Analysis (EA12-008) concerning the potential improper deployment of the side curtain air bags (SCAB) in certain model year (MY) 2012 Hyundai Elantra vehicles. ODI is aware of one incident of an improper deployment of a SCAB that deployed as a result of a crash involving a MY 2012 Elantra. An inspection of this vehicle showed that a metal bracket (stiffener) in the headliner assembly had detached and was forced downward by the deploying air bag. The metal bracket caused a laceration injury to the driver. Approximately 75,000 MY 2012 Elantra vehicles, built in Korea and sold in the U.S., have stiffeners in the headliners while the MY 2012 Elantra vehicles built in the U.S. utilize a different headliner design that does not use a stiffener. Thus, the latter vehicles are not included in the investigation.

OBJECTIVES: The primary objectives of this test program are as follows:

- 1) Perform a detailed forensic analysis of the headliner and SCAB from the field incident vehicle to identify any indications of improper manufacturing or performance of the assembly.
- 2) Inspect to identify whether any SCAB or another component in the vehicle may interfere with the metal bracket in the headliner during deployment and cause a failure similar to the field failure.
- 3) Conduct SCAB deployment testing in attempts to replicate the field failure.
- 4) Inspect and/or test a representative sample, a size of which will be determined through analysis and discussion between ODI and VRTC, of headliner and SCAB assemblies from subject vehicles built at around the same time period as the field incident vehicle, as well as those vehicles built at other time periods.

TEST SAMPLES: Headliner and SCAB assemblies for inspection and testing shall be from subject vehicles built at around the same time period as the field incident vehicle that was built on January 16, 2012. A total of 390 of vehicles were built on this date and sold in the U.S. In addition, several test samples shall be from subject vehicles built about one week, one month and four months before and after the field incident vehicle was built. ODI will seek to engage Hyundai in the effort to collect the samples for inspection and testing.

TEST PROCEDURE/METHODOLOGY: VRTC should prepare a test plan designed to meet the above test objectives. A flexible approach may be taken, but the ODI test monitor, Michael Lee, should be kept informed of all major developments that might require substantial changes to the original test plan. Michael can be reached at michael.lee@dot.gov or (202) 366-5236.

ADDITIONAL INFORMATION: The project engineer at ODI is Michael Lee who will discuss the details of the testing with your engineers.

SCHEDULE: We would like to have the testing completed by February 15, 2013, or earliest date possible.