U.S. Department of Transportation

National Highway Traffic Safety Administration

ODI RESUME

OFFICE OF DEFECTS INVESTIGATION
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Investigation: PE 15-027
Date Opened: 07/13/2015
Date Closed: 08/25/2016
Investigator: Sharon Yukevich
Reviewer: Scott Yon
Approver: Michael Brown
Subject: Air Bag Inflator Rupture

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: ARC Automotive, Inc.
Products: ARC hybrid air bag inflators
Population: 490,000 (Estimated)

Problem Description: The driver inflator may rupture during frontal air bag deployment resulting in metal fragments being propelled into the passenger compartment.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	1	2	2**
Crashes/Fires:	0	0	0
Injury Incidents:	2	2	2**
Number of Injuries:	2	2	2**
Fatality Incidents:	0	0	0
Other*:	1	0	1

***Description of Other:** Canadian fatal incident, reported by Transport Canada, involving a 2009 Hyundai Elantra equipped with a single stage driver air bag inflator manufactured at ARC's facility in China on November 26, 2008.

** Total eliminates duplicates received by ODI and manufacturer.

ACTION / SUMMARY INFORMATION

Action: This PE is being closed and upgraded to an Engineering Analysis, EA16-003.

Summary:

The Office of Defects Investigation (ODI) has upgraded its Preliminary Evaluation (PE15-027) of ARC Automotive Inc. (ARC) air bag inflators to an Engineering Analysis. ODI opened PE15-027 in July 2015 based on two injury incidents involving a driver air bag inflator rupture. One incident involved a 2002 Chrysler Town & Country that utilized a dual-stage air bag inflator. The other involved a 2004 Kia Optima that utilized a single-stage inflator. Both driver air bag inflators were manufactured by ARC, a tier-two supplier of automotive air bag systems, at their manufacturing facility in Knoxville Tennessee. All ARC driver air bag inflators are a hybrid design that fills the air bag by releasing an inert gas mixture stored in the inflator at high pressure. The gas mixture is augmented by an ammonium nitrate based propellant. The pressurized gas mixture and propellant are contained entirely within a hermetically sealed steel housing isolated from external atmospheric conditions.

During the course of PE15-027, ODI requested information from ARC about which air bag module manufacturers used the subject ARC inflators. Based on the information received from ARC, ODI requested information from the identified air bag module manufacturers about which vehicle manufacturers used modules with the subject ARC inflators. That process identified two additional affected vehicle manufacturers, General Motors and Hyundai.

Based on the age of the vehicles involved in the two incidents in the U.S., ODI focused on single- and dual-stage

inflators manufactured by ARC from the start of production to September 2004. It is estimated that approximately 8 million inflators, both single- and dual-stage, were manufactured for use in vehicles produced by Chrysler, GM, Kia and Hyundai for sale or lease in the United States during that time frame.

In addition to identifying models using the subject ARC air bag inflator, ODI requested that the affected vehicle manufacturers supply the details for any type of complaint, field report, lawsuit, arbitration or other report involving any vehicle manufactured for sale or lease in the United States equipped with air bag modules utilizing an air bag inflator manufactured by ARC regardless of inflator type (dual vs. single) or position (i.e. driver, passenger, side, etc.). No additional field failures were reported to ODI by the vehicle manufacturers. Additionally, ODI received information from ARC regarding the design, manufacture and testing of the single- and dual-stage driver air bag inflators.

In July 2016, ODI was informed by Transport Canada of a fatal incident involving a driver air bag rupture in a 2009 Hyundai Elantra. It was determined that incident inflator was manufactured by ARC and had ruptured in substantially the same manner as the two previous incidents known to ODI. The driver air bag module in the subject 2009 Hyundai Elantra utilized a single-stage inflator manufactured at ARC's facility in China. ARC confirmed that the inflator in the 2009 Hyundai Elantra was substantially the same design as the single-stage inflator in the 2004 Kia Optima and was assembled using substantially the same manufacturing process.

The U.S. market model 2009 Hyundai Elantra did not use the single-stage driver air bag inflator produced by ARC in China. It is unknown at this time if any of the inflators manufactured in China were used in vehicles produced for sale or lease in the United States.

Accordingly the PE is now closed and upgraded to an Engineering Analysis. Further details can be found in the EA16-003 investigative file at SaferCar.gov.