

May 11, 2023

Via E-Mail

Stephen A. Ridella, Ph.D.
Director, Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: EA 16-003: ARC Automotive Response to Recall Request Letter,
NEF101-sly

Dear Mr. Ridella:

I write on behalf of ARC Automotive, Inc. (“ARC”) in response to the Agency’s April 27, 2023 recall request letter (RRL) to ARC advising that the Agency has “tentatively concluded” that certain frontal driver and passenger airbag inflators manufactured by ARC contain a safety-related defect and requesting that ARC issue a Part 573 Recall Report addressing that defect.

The safety of the motoring public is a cornerstone of our business. NHTSA estimates that airbags have saved tens of thousands of lives and avoided countless serious injuries since their adoption. For more than 50 years, ARC has been dedicated to automotive safety as a leading independent designer and manufacturer of advanced airbag inflator technology. Based in Knoxville, Tennessee, ARC’s culture of innovation has resulted in continuous product development and technological leadership in the design and manufacturing of advanced inflators for driver, passenger, side-impact, seat, and curtain airbag applications. ARC is an expert in system friendly, hybrid-inflator technology with a mission of promoting automotive safety.

ARC takes any potential issue with its products very seriously.¹ As discussed in further detail below, however, ARC strongly disagrees with the Agency’s “tentative conclusion” that a safety defect exists in the 67 million toroidal driver and passenger inflators² produced during the 18-year period prior to January 2018.

I. Introduction

Despite a lengthy investigation, the Agency’s current position is not based upon any objective technical or engineering conclusion regarding the existence of a defect, but rather conclusory statements regarding hypothesized blockage of the inflator orifice from “weld slag”

¹ ARC is a Tier 2 supplier that sells the subject toroidal-shaped, hybrid inflators to Tier 1 manufacturers that produce air bag modules. The Tier 1 manufacturers sell air bag modules equipped with ARC inflators to the vehicle manufacturers. Although the vehicle manufacturers are not ARC’s direct customers, multiple vehicle manufacturers worked directly with ARC during the course of NHTSA’s investigation.

² We have not been able to reconcile the 67 million figure with ARC’s records. As NHTSA notes, however, approximately 11 million of these inflators were manufactured by Delphi, not ARC. ARC is not responsible for this population under the Safety Act or NHTSA’s regulations, as ARC was neither the manufacturer nor importer of these 11 million inflators.

and a subjective inference that a defect exists based upon the occurrence of seven (7) field ruptures in the U.S. The Agency then asks ARC to prove a negative – that the 67 million inflators in this population *are not defective*.

Moreover, while weld slag has not been confirmed as the root cause in *any* of the seven incidents, weld slag was found ***not to be the root cause*** in two of these seven ruptures. In any event, the existence of seven (or, more accurately, *five*) field incidents among the 67 million toroidal driver and passenger inflators produced for the U.S. market during the 18-year period referenced in the RRL across multiple manufacturing lines in different plant locations does not support a finding that a systemic and prevalent defect exists across this population.³

Concerns regarding potential inflator rupture incidents prompted a years-long investigation, which was conducted jointly among NHTSA, vehicle manufacturers, Tier 1 air bag module suppliers, and ARC. After nearly eight years of intensive scrutiny, none of these manufacturers has identified a systemic or prevalent defect across this inflator population. To the extent any root cause could be identified in these ruptures, ARC believes they resulted from random “one-off” manufacturing anomalies that were properly addressed by vehicle manufacturers through lot-specific recalls, all with NHTSA’s approval. In fact, as discussed below, testing of inflators from those recalled lots did not reveal a single additional defective inflator in those lots, thus further suggesting that these ruptures were isolated events. Prior to receiving the RRL, NHTSA had never suggested to ARC (or, as far as ARC is aware, any other manufacturer whose vehicles contain these inflators) that a defect of the scope suggested in your letter existed in this inflator population.

Under the Safety Act,⁴ a “defect” means more than the occasional or isolated failures that are an inevitable part of any volume manufacturing process. Here, the Agency’s RRL falls well short of establishing a common root cause or that these failures were anything other than occasional or isolated.

We were also very surprised by the timing and manner of the Agency’s request. ARC has been working cooperatively and collaboratively with the Agency, the Tier 1 air bag module suppliers, and vehicle manufacturers since this investigation commenced in 2015. In December 2022, the Agency issued new information requests to the manufacturers to gather deployment data so that a proper risk evaluation could be conducted. This evaluation had not yet even been published to ARC or, to our knowledge, the Tier 1s or vehicle manufacturers, when we were notified on April 25, 2023, that a multi-disciplinary panel (MDP) would be convened the next day to consider whether to issue an RRL. On the following day, we were advised that the MDP decided to issue the RRL, which ARC received the next day. The Agency did not afford ARC– or any of the other potentially affected manufacturers – an opportunity to provide views on the matter, as has been the Agency’s standard practice.

³ ARC started production of the compact advanced hybrid driver (CADH) inflator in 2000. ARC started production on the passenger-hybrid 7 (PH7) inflator in 2010.

⁴ The National Traffic and Motor Vehicle Safety Act of 1966, as amended (49 U.S.C. 30101 *et seq.*)

ARC also takes issue with the Agency’s demand that ARC “issue a Part 573 Recall Report” and “conduct a safety recall” of the subject inflators. As the Agency is fully aware, NHTSA’s authority to require certain manufacturers to conduct safety recalls does not extend to manufacturers of original equipment, such as ARC. Rather, the Safety Act and NHTSA’s implementing regulations expressly provide that *vehicle manufacturers*, not original equipment manufacturers, shall have recall responsibility for any defects found in original equipment installed in their vehicles. While original equipment manufacturers may be required to *notify* NHTSA of a defect in their equipment under certain circumstances, they cannot be compelled to conduct a safety recall. Because ARC cannot be compelled to conduct a safety recall, the only possible objective of NHTSA’s RRL is to force ARC to make a statement back to NHTSA that the inflators are defective, a statement that has no regulatory significance or effect. As such, NHTSA’s demand for ARC to issue a “recall” of the subject inflators is misguided, not in accordance with law, and exceeds its statutory authority.

While we do not agree that a defect within the meaning of the Safety Act exists in the population of toroidal driver and passenger inflators from start of production through January 2018 as the Agency suggests, or that the Agency can compel ARC to conduct a safety recall of its original equipment, ARC remains deeply committed to further cooperation with the Agency and ARC’s customers to address any concerns. In this regard, ARC and General Motors have had discussions regarding the three Chevy Traverse incidents listed in your letter and addressed below. While no root cause for those ruptures has been identified by ARC or GM (and with the inspection of the third incident having only recently occurred), we have been advised that GM is initiating a recall of a population of approximately 994,000 MY 2014 – 2017 vehicles equipped with the “MC” inflator variant produced by ARC. This is an expansion of its two prior recalls (Recall Nos. 21V782 and 22V246). We understand that this action is being taken out of an abundance of caution to address *potential* concerns about the inflators in this population of vehicles while the manufacturers continue their analysis of these incidents. This decision is tailored to address a specific population and bears some relationship to a potential pattern of field ruptures that has emerged (as three of the seven incidents listed in your RRL involved MY 2015 – 2017 Chevy Traverse vehicles). ARC is assessing the scope of GM’s recall and evaluating it against the subject inflator population.

II. Background and Investigation History

To put the Agency’s RRL and ARC’s response in the proper context, we briefly summarize below the nearly eight-year history of this investigation and ARC’s full cooperation.

A. NHTSA Initiates a Preliminary Evaluation

On July 13, 2015, NHTSA’s Office of Defects Investigation (ODI) opened a Preliminary Evaluation (PE) related to driver-side inflators manufactured by ARC between 2002 and 2004. *See* NHTSA PE15-027. As stated in the opening resume, ODI opened the inquiry based on two field incidents involving alleged over pressurization of driver-side inflators, one involving a dual-level inflator design in a 2002 Chrysler Town and Country minivan (which occurred in 2009) and one involving a single-level inflator design in a 2004 Kia Optima (which occurred in 2014). The opening resumé further stated that the subject inflators’ designs utilize “a hybrid design that fills

the air bag by releasing an inert gas mixture stored in the inflator at high pressure.” See NHTSA’s Opening Resumé, PE 15-027.

During the PE phase of the Agency’s investigation, ARC responded to two formal information requests (“IRs”) issued by NHTSA – a July 17, 2015 IR seeking general background information on ARC and a follow-up request on August 25, 2015 seeking detailed descriptions of design, manufacturing and quality control processes covering driver-side inflators produced between the start of production and October 2004, along with analyses of the two reported field failures. In addition to responding to these formal IRs, ARC initiated several in-person meetings, multiple phone conference calls, and numerous e-mail exchanges with NHTSA, all to ensure that the Agency had the documents and information it needed to conduct its investigation and that the investigators clearly understood the information provided.

On July 27, 2015, NHTSA issued two standing general orders (“SGOs”) under PE 15-027 (this investigation) and EA 15-005 (regarding Takata air bag inflators) directing vehicle manufacturers (SGO 2015-01) and original equipment suppliers of air bag module and inflators (SGO 2015-01A) to report certain field incidents related to inflator ruptures. On August 17, 2015, NHTSA superseded SGO 2015-01 and SGO 2015-01A with SGO 2015-02 and SGO 2015-02A to clarify the reporting obligations. Essentially, these SGOs required the identified manufacturers (which included ARC) to report certain information related to alleged field ruptures of which the manufacturer received notice. Both SGOs remain in place today.

In March 2016, NHTSA attended an extensive, in-person briefing in Knoxville, Tennessee at ARC’s offices addressing ARC’s evaluation of the potential root causes of the field incident involving a 2004 Kia Optima. The briefing, which was also attended by representatives from the Tier 1 supplier and vehicle manufacturer, included a tour of ARC’s Knoxville manufacturing lines.

Following that briefing, the Agency explored methods for collecting additional data to aid its evaluation. To this end, ODI and ARC, along with the Tier 1 suppliers and vehicle manufacturers that installed driver-side inflators from the relevant production period⁵ and the same manufacturing line⁶ into their products, discussed a voluntary program whereby the manufacturers would collect inflators from the field for testing. As conceived by ODI and its statisticians, the manufacturers could evaluate the potential field risk using concepts from reliability engineering by firing inflators collected from the field to establish 99% reliability at a 99% confidence level. According to ODI, NHTSA’s statisticians estimated that this target reliability and confidence level could be established for the two inflator designs (the single-level CADH and dual-level CADH inflators) by firing 459 units of each type without a rupture.

⁵ During the PE phase, NHTSA focused its investigation on ARC’s “compact advanced driver hybrid” inflators, or CADH, that were produced from the start of production to October 2004. As NHTSA explained in the August 25, 2015, IR, “[t]his time frame is based on the dates of manufacture of the two inflators known to have ruptured in field incidents,” i.e., the 2002 Chrysler Town and Country minivan in Ohio and the 2004 Kia Optima in New Mexico that NHTSA identifies on page 4 of the RRL.

⁶ ARC manufactured the dual-level CADH inflator in the Town & Country minivan on May 13, 2002, on Line E of ARC’s Knoxville facility. ARC also manufactured the single-level CADH inflator in the Kia Optima August 27, 2003, on Line E in ARC’s Knoxville facility.

ARC, Tier 1 manufacturers, and vehicle manufacturers voluntarily agreed to conduct the field recovery program. The agreed-upon field recovery program aimed to fire 459 single-level inflators and 459 dual-level inflators collected from salvage yards around the United States. To collect the parts, ARC would ensure the parts were produced relatively close in time to the production dates of the parts involved in the two field incidents under evaluation (i.e., MY 2002 Chrysler Town & Country and MY 2004 Kia Optima). Initially, ARC identified the serial numbers for the 25,000 inflators produced immediately before and after each of the production dates, for a total of 100,000 serial numbers. The Tier 1 and the vehicle manufacturers used the 100,000 serial numbers to trace the inflators to specific VINs.

After the Tier 1 and vehicle manufacturers identified relevant VINs, the manufacturers and ODI agreed to a testing process. In October 2016, ARC used a NHTSA-recommended vendor to search salvage yards for relevant inflators. Between November and December 2016, the vendor began shipping parts to ARC's engineering lab in Knoxville, Tennessee, for inspection and testing.⁷ To test the inflators, ARC inspected and x-rayed each inflator,⁸ deployed the inflators in test tanks, recorded whether parts ruptured during testing, and periodically shared the cumulative results with NHTSA and the other manufacturers.⁹ To speed the collection of parts, two additional vendors began collecting and shipping inflators for testing in the first half of calendar year 2017.

By the fall of 2017, the program had exhausted the 100,000 inflator serial numbers initially targeted, but the field recovery program had not yet reached the targeted number of inflators. After discussions with NHTSA and the field recovery group, the group agreed to expand the production window, which allowed the vehicle manufacturers to identify additional vehicles that used subject inflators. The field recovery group and NHTSA agreed to conduct a second round of collection that included additional vehicles. With the expanded search, the second round of collection allowed the manufacturers to reach the target of 459 single-level and 459 dual-level inflators.

On May 10, 2018, ARC finished testing all the field collected inflators and submitted the results to NHTSA. None of the 918 inflators ruptured in the tests. Accordingly, the test program demonstrated with 99% reliability and 99% confidence that the inflators in the subject population would deploy without rupturing. At that time, the results were consistent with ARC's prior analysis of production data, quality controls, and investigations of the two units from the field reports: the available data did not identify a systemic issue with these inflators. Moreover, we note that, at that time of this recovery program, inflators from this production period had experienced between approximately 12 and 16 years of field exposure with no other reported ruptures. This population is now up to 21 years old with no other reported ruptures.

⁷ ARC kicked off testing in the field recovery processes at an in-person meeting in Knoxville that was attended by NHTSA and representatives from the involved Tier 1 and vehicle manufacturers. The kick-off meeting included a live test observed by those attending the meeting.

⁸ Where an inflator x-ray appeared to have an above average amount of weld flash, ARC CT scanned the inflator prior to testing the inflator.

⁹ Respecting the confidentiality of the individual manufacturer's test results, ARC shared results for specific inflators only with the respective manufacturer to which the inflator was initially supplied. All results, including inflator-specific results, were shared confidentially with NHTSA.

Despite the foregoing, including the fact that the field recovery program satisfied the confidence and reliability levels established by NHTSA’s statisticians, the Agency is now demanding that ARC declare these inflators defective.

B. NHTSA Upgrades the PE to an Engineering Analysis

As the parties were conducting the field recovery program, NHTSA alerted ARC to a field incident in Newfoundland, Canada involving a single-level CADH inflator in a 2009 Hyundai Elantra. Shortly after learning of this incident, NHTSA upgraded its investigation to an Engineering Analysis (NHTSA No. EA16-003) and expanded the scope of its investigation to “various models equipped with ARC air bag inflators.” *See* NHTSA EA16-003, Opening Resumé, August 4, 2016. On August 9, 2016, NHTSA issued a third information request to ARC, which required ARC to identify to which Tier 1 customers ARC supplied toroidal inflators for use in passenger vehicles from the start of production to the date of the letter.¹⁰ The expansive request sought worldwide production numbers and detailed customer information including part and serial numbers, manufacturing locations, and shipping addresses as well as any information ARC had related to the intended vehicle manufacturer and the market where the vehicles would be sold.

After ARC identified its customer list of Tier 1 suppliers in September 2016, the Agency issued a series of IR letters to the Tier 1 suppliers and, subsequently, to the vehicle manufacturer customers identified by the Tier 1 suppliers. These IR letters sought detailed information related to production numbers (broken out by year) for all hybrid, toroidal-shaped frontal (driver or passenger) air bag modules using ARC inflators. After receiving customer information from the Tier 1 suppliers, NHTSA issued IR letters to the identified vehicle manufacturers seeking further information to identify vehicles equipped with ARC frontal (driver or passenger) inflators. The IR letters also sought related information such as a list of all suppliers of inflators used by the manufacturers and descriptions of quality processes to ensure inflators adhered to design, performance, and test parameters. NHTSA further sought data related to any testing failures, root causes, and countermeasures implemented.¹¹

C. NHTSA Issues SGO 2016-01 and SGO 2017-01 Seeking Reports of Quality Testing that Involved Inflator Ruptures

After NHTSA learned of instances of lot acceptance testing (LAT) that involved poor welds on passenger hybrid 7 (PH7) inflators, NHTSA informed ARC that it wanted to receive information related to any future LAT testing that involved a potential inflator rupture. On October 11, 2016, ARC received NHTSA’s SGO 2016-01, which the Agency directed only to ARC, seeking certain information related to quality testing that involved an “inflator rupture,” whether in the United States or abroad.¹² On October 14, 2016, ARC submitted its first report under SGO

¹⁰ ARC provided data related to CADH and PH7 inflators, as well as its DH8 hybrid inflator, a low-volume inflator not sold in the United States.

¹¹ ARC understands that at least portions of the responses to these IR letters from the Tier 1 and vehicle manufacturers were submitted under requests for confidential treatment in accordance with 49 C.F.R. Part 512. While ARC provided supporting data (such as serial and lot numbers and related information) to the Tier 1 suppliers to assist in their responses to NHTSA, the information in their responses has not been shared with ARC. Consequently, ARC’s knowledge is limited to those portions of these responses that NHTSA has placed into the public investigation files.

¹² SGO 2016-01 broadly defined inflator rupture as any incident (or alleged incident) “by which some mechanism (e.g., excessive internal pressure inside the inflator) causes the inflator body to burst or break apart at any time.” The incidents included “all

2016-01. After receiving SGO 2016-01, ARC met in person with personnel from NHTSA's Office of Chief Counsel to discuss the requirements of the newly issued SGO.

ARC continued submitting reports under SGO 2016-01 and, on April 7, 2017, NHTSA issued an amended order, SGO 2017-01, based upon reports submitted to NHTSA and discussions with ARC, requesting additional information related to certain categories of conformance testing, as well as clarifying requested information and amending the requirements for additional monthly reports. *See* SGO 2017-01.

D. NHTSA's April 7, 2017 Special Order

Also on April 7, 2017, the Acting Chief Counsel issued an expansive special order to ARC. The special order contained 56 requests seeking a broad range of information covering all inflators ARC produced for any market in the world. The requests sought detailed information on ARC's manufacturing processes, quality systems, maintenance procedures and records, machinery used in welding, quality control processes and testing, and lists of inflator ruptures in the field and during quality checks, along with any reports or analysis of these events. ARC provided thousands of documents (~2 TB) from all manufacturing plants worldwide in its response. NHTSA never advised ARC of any conclusions the Agency reached, if any, based upon this data.

E. Collaboration Team Formed

In May 2017, at ODI's request, a group of vehicle manufacturers, Tier 1 suppliers, a third-party friction welding consultant, ARC, and NHTSA formed the Collaboration Team (also referred to as the ARC Joint Task Force) to investigate ruptures that occurred during certain quality tests of *passenger-side* inflators as early as January 2017. The Collaboration Team, led by a Tier 1 supplier, included several Tier 1 suppliers and vehicle manufacturers, as well as NHTSA and Transport Canada, to investigate the root cause of LAT failures that resulted in over pressurization.

As a party to the Collaboration Team, NHTSA was granted access to the confidential design and investigation information and the analyses that were used or generated by this team. This information included regular updates related to the investigations into the root cause of the test-related ruptures. Moreover, ODI personnel participated in the Collaboration Team conference calls, which included updates on the investigation, and the team's conclusions were presented to NHTSA.

Consistent with the team's conclusions, ARC implemented changes to the weld schedules of the existing IFW friction welders and implemented an automated borescope inspection system. There were no identified issues, problems, or concerns related to the weld schedule changes to the IFW systems. Subsequently, ARC invested in capital improvements through the acquisition of state-of-the-art Izumi friction welders. All participants, including NHTSA, agreed to the corrective actions. The Collaboration Team's work was concluded without further activities. To ARC's

incidents or alleged incidents other than a field rupture as defined by [SGO] 2015-02A, including but not limited to ruptures occurring during testing." SGO 2016-01 *Definitions* No. 3. Further, NHTSA broadly defined "notice" of a rupture to include information received from any source and in any form "about an incident in which an inflator ruptured or is alleged to have ruptured," but excluded "rumors or allegations from third parties that are not widely disseminated." *Id.* at *Definition* No. 4.

knowledge, NHTSA did not ask any party to conduct a recall based upon the work of the Collaboration Team.

F. NHTSA Issued Additional Information Requests

On August 18, 2020, NHTSA issued another information request to ARC seeking production information and test deployments related to PH7 inflators. Among this information, NHTSA requested quantities of successful deployments of PH7 inflators during testing at ARC. In September 2020, similar requests were submitted to the Tier 1 and vehicle manufacturers that ARC identified in its response to the August 2020 IR.

On August 31, 2022, NHTSA held a meeting (including both in-person and remote participants) with representatives from ARC and what we believe included all Tier 1 and vehicle manufacturers using CADH or PH7 inflators. During the meeting, NHTSA outlined the history of its investigation and discussed collecting additional data to support its investigation. To facilitate collection of this additional data, NHTSA advised that it would be issuing additional information requests seeking data for the CADH inflators similar to the 2020 information request that covered PH7 inflators, including successful deployments and the OEMs' opinion on field quantities of successful field deployments. NHTSA issued those information requests in December 2022, with response dates in approximately February 2023.

In December 2022, NHTSA issued two information requests to ARC: the request for deployment data related to CADH inflators (referenced in the preceding paragraph) and a request seeking detailed information related to process changes ARC implemented, including an automated borescope check recommended by the Collaboration Team. The information also included details on the borescope accept/reject quantities from the start of its use and dates the process was implemented on each manufacturing line. ARC provided its responses to both requests during February 2023.

ARC understands that the additional data NHTSA requested in December 2022 was submitted by the respective manufacturers in approximately February 2023. The responses would have included deployment numbers that would be critical to any type of rate analysis necessary to evaluate statistical risk. If NHTSA has evaluated these responses and determined an overall deployment rate, the Agency has not shared any such analysis with ARC (or, as far as we are aware, any of the other manufacturers). ARC requests that NHTSA share this data with ARC to enable it to evaluate and address it. (We note that the RRL does not make reference to this data, which we believe would be critical in properly assessing field risk.)

III. NHTSA's RRL Is Procedurally Faulty: As a Manufacturer of Original Equipment, ARC Cannot Be Compelled to Conduct a Recall Campaign

The stated purpose of NHTSA's RRL is to "demand that ARC immediately submit a Part 573 Recall Report" and "conduct a safety recall." RRL at p. 5. Even if a defect were determined to exist in this broad population of inflators, there is no legal basis for NHTSA's "demand" that ARC conduct a safety recall. NHTSA's authority to require manufacturers to conduct safety recalls does not extend to manufacturers that supply original equipment for installation in new motor vehicles. Rather, the Safety Act and NHTSA's implementing regulations expressly provide that

vehicle manufacturer, not the manufacturer of original equipment, shall have recall responsibility for any defects found in original equipment installed in their vehicles. While manufacturers of original equipment may be required to *notify* NHTSA of a defect that has been determined to exist in their equipment by the vehicle manufacturers under certain circumstances, they cannot be compelled to conduct safety recalls. As such, NHTSA’s demand for ARC to issue a recall of the subject inflators is improper.

The starting point for understanding the allocation of recall responsibility among vehicle manufacturers, original equipment manufacturers and replacement equipment manufacturers is 49 U.S.C. Section 30102(b)(1)(C), which defines “original equipment” as “motor vehicle equipment (including a tire) installed in or on a motor vehicle at the time of delivery to the first purchaser.”¹³ The statute further provides that “a defect in original equipment, or noncompliance of original equipment with a motor vehicle safety standard prescribed under this chapter, is deemed to be a defect or noncompliance of the motor vehicle in or on which the equipment was installed at the time of delivery to the first purchaser.” Section 30102(b)(1)(F).

These provisions reflect Congress’s explicit intent that *vehicle manufacturers* would be responsible for safety-related defects involving original equipment installed in their vehicles. This allocation satisfies an important policy objective. Congress recognized that the vehicle manufacturer selects the components, assemblies, and systems that are incorporated into the completed vehicle, specifies their design and performance requirements, and is responsible for integrating the thousands of parts contained in a vehicle. Moreover, the vehicle manufacturer often possesses the relevant facts and data necessary to make a proper defect determination and the good faith evaluation of the safety risk that the Safety Act requires, including access to warranty data, consumer complaints, field reports and other relevant information. Suppliers typically do not have access to such information. Indeed, some suppliers may not know in which vehicle makes and models their components are installed by the vehicle manufacturer. Additionally, beyond making the requisite safety defect determination, the vehicle manufacturers are in the best position to implement the recall campaign, as they have access to VIN information necessary to identify affected vehicles, warranty relationships with owners, and the dealer/service network necessary to provide the remedy. Tier 2 suppliers such as ARC do not have access to such information or networks.

Consistent with this intent, other Safety Act provisions – the defect notification provisions (§§ 30118 and 30119) and the remedy provision (§ 30120) – affirmatively establish that manufacturers of original equipment do not have recall responsibility. Section 30118(c) contains the provision that requires a manufacturer to report to NHTSA when the manufacturer identifies a safety-related defect, but that provision expressly applies only to manufacturers of motor vehicles and replacement equipment: “A manufacturer of a motor vehicle or replacement equipment shall notify the Secretary . . . if the manufacturer – (1) learns the vehicle or equipment contains a defect and decides in good faith that the defect is related to motor vehicle safety; or (2) decides in good

¹³ 49 U.S.C. § 30102(b)(2) authorizes NHTSA to modify these definitions by regulation and NHTSA exercised this authority in 1978 by modifying the definition of “original equipment” to exclude tires. 43 *Fed. Reg.* 60165 (Dec. 26, 1978). The effect of this amendment was to make tire manufacturers (rather than vehicle manufacturers) solely responsible for defects and noncompliances in original equipment tires as well as replacement tires. Thus, when discussing the obligation of manufacturers of original equipment throughout this letter, we are referring to original equipment other than tires.

faith that the vehicle or equipment does not comply with an applicable motor vehicle safety standard . . .” (Emphasis added.) Manufacturers of original equipment are not covered by this requirement.

Likewise, Section §30120 states that “the manufacturer of the defective or noncompliant motor vehicle or replacement equipment shall remedy the defect or noncompliance without charge when the vehicle or equipment is presented for remedy.” (Emphasis added.) Again, Congress expressly limited the application of this section to manufacturers of motor vehicles and replacement equipment; it does not apply to manufacturers of original equipment.

NHTSA’s regulations are consistent with this statutory allocation of recall responsibility. Part 573 (of 49 C.F.R.) requires reporting to NHTSA in the event a defect has been determined to exist as required by 49 U.S.C. § 30118. Section 573.3(e) states that, for original equipment used in the vehicles of only one manufacturer, reporting to NHTSA may be made by either the manufacturer of the original equipment or the vehicle manufacturer. Section 573.3(f) states that, for original equipment used in the vehicles of two or more manufacturers, both the equipment manufacturer and the affected vehicle manufacturers must submit a report to NHTSA.¹⁴ But these provisions merely determine which entity or entities must notify NHTSA if a defect is determined to exist. That determination is required by § 30118, which (for the practical reasons discussed above) applies only to vehicle manufacturers and manufacturers of replacement equipment. The provisions of Part 573 do not themselves impose an obligation on the manufacturer of the original equipment to make such a determination or to conduct a safety recall. In fact, § 573.5, entitled “Defect and Noncompliance Responsibility,” makes this abundantly clear: “(a) Each manufacturer of a motor vehicle shall be responsible for any safety-related defect or any noncompliance determined to exist in the vehicle or in any item of original equipment.”

The owner notification and recall procedures contained in 49 C.F.R. Part 577 are consistent with this regulatory scheme. First, Part 577’s “Application” section (§577.3) states that these procedures apply only to manufacturers of vehicles and replacement equipment. Second, §577.5, which sets forth the owner notification requirements, provides:

- (a) When a manufacturer of motor vehicles or replacement equipment *determines* that any motor vehicle or item of replacement equipment produced by the manufacturer contains a defect that relates to motor vehicle safety, or fails to conform to an applicable Federal motor vehicle safety standard, the manufacturer shall provide notification in accordance with paragraph (a) of § 577.7 . . . (emphasis added).

There is no reference to a manufacturer of *original equipment* determining that its equipment contains a defect. This absence reflects NHTSA’s acknowledgment that manufacturers of original equipment are not statutorily required to make such determinations, leaving it to the vehicle manufacturers to decide whether their vehicles containing that equipment have a safety defect.

¹⁴ NHTSA requires reports from original equipment suppliers under these circumstances so that the agency can take appropriate action with respect to other potentially affected vehicle manufacturers (e.g., contact them to inquire whether they agree with the supplier’s defect/noncompliance determination, urge them to conduct a recall, monitor recall effectiveness, etc.).

Finally, the statutory and regulatory procedures for NHTSA to make an initial or final decision that a safety defect exists and to order a recall apply only to manufacturers of motor vehicles and replacement equipment. *See* 49 USC 30118(a).

As we acknowledge above, Part 573 does impose a limited information reporting obligation on manufacturers of original equipment under certain circumstances, but, again, it does not impose an affirmative obligation for such manufacturers to make safety defect determinations or to conduct safety recalls. As applicable to manufacturers of original equipment, these reporting requirements are merely informational.¹⁵ To the extent the Agency is requesting that ARC file a Part 573 report in order to provide information related to ARC's customers for various inflator models, we note that this information has been previously provided to the Agency.

Because ARC cannot be compelled to conduct a safety recall, the only possible objective of NHTSA's RRL is to force ARC to make a statement back to NHTSA that the inflators are defective, a statement that has no regulatory significance or legal effect on the vehicle manufacturers that installed these inflators. Each of these manufacturers must make its own safety defect determination.

As such, NHTSA's demand for ARC to conduct a safety recall of the subject inflators is misdirected, not in accordance with law, and exceeds its statutory authority.

IV. ARC Has Not Determined that the Toroidal Inflator Designs Contain a Safety-Related Defect Under the Safety Act from the Start of Production Through January of 2018

As the discussion above demonstrates, ARC has cooperated extensively with ODI personnel and submitted voluminous amounts of data to the Agency. ARC has also worked extensively with its Tier 1 customers and the vehicle manufacturers throughout this investigation in an effort to determine the possible root cause(s) of the field failures. As the Agency noted in its RRL, vehicle manufacturers have recalled specific lots associated with certain ruptures that indicated a potential defect in additional inflators within the same lot. ARC has cooperated with the vehicle manufacturers that made these determinations. This "lot" recall approach was not only satisfactory to NHTSA, but the Agency endorsed such an approach. In fact, as far as ARC is aware, the Agency has never pressed a vehicle manufacturer to conduct a more expansive recall based upon these rupture events.

¹⁵ There are provisions elsewhere in NHTSA's regulations that apply to manufacturers of original equipment. For example, 49 C.F.R. § 579.5 requires all manufacturers of vehicles and motor vehicle equipment (both original and replacement) to provide copies of bulletins, notices, and other communications the manufacturer sends to two or more customers, dealers, manufacturers, etc. relating to non-safety related defects (§ 579.5(a)) or relating to non-safety campaigns (§ 579.5(b)). And NHTSA's early warning reporting regulation (adopted pursuant to the TREAD Act) requires all equipment manufacturers, including original equipment suppliers, to report to NHTSA certain fatality claims and notices received by the manufacturer. § 579.27. These obligations are likewise intended to facilitate NHTSA's investigative function. Obtaining this information from these suppliers enables NHTSA to evaluate whether the vehicles in which the equipment is installed may contain a safety-related defect or noncompliance. But none of these provisions extend defect determination or recall obligations to original equipment manufacturers.

ARC does not believe that there is a safety-related defect within the meaning of the Safety Act in all frontal driver and passenger, toroidal inflators that ARC produced from the start of production until implementation of its automated borescope process.¹⁶ Neither ARC nor NHTSA has identified a defect in construction, component, or material that is systemic or prevalent across all CADH and PH7 inflators produced prior to implementing the automated borescope process. NHTSA's RRL describes a possible root cause related to abnormal weld flash that, if it is loose, could theoretically block the exit orifice of the inflator and potentially result in an inflator rupture. This potential root cause of inflator ruptures was evaluated by the Collaboration Team.¹⁷ Under the direction of the Collaboration Team, ARC conducted tests to determine the root cause for the formation of abnormal weld flash sufficient to cause blockage and rupture. ***As NHTSA is aware, the studies and experiments conducted under the Collaboration Team were unable to replicate abnormal weld flash sufficient to cause blockage that would result in an inflator rupture.***

Moreover, there have been several testing programs that deployed inflators collected from the field, *but not a single rupture occurred during these tests*. These testing programs include ARC's Field Recovery Program for CADH inflators that deployed 918 inflators (discussed at length above), a testing program conducted by Transport Canada that mirrored the U.S. field recovery program¹⁸ and deployed approximately 600 inflators, a program by Volkswagen Group that deployed approximately 1,200 PH7 inflators collected during a recall campaign in Europe,¹⁹ and a collection program that deployed approximately 300 inflators collected under Recall No. 21V-782 (and GM is continuing this program to collect inflators that will be tested by an independent third party). ***ARC is not aware of any ruptures that have occurred during any of these testing programs.***

During the 18 year-period prior to January 2018, approximately 67 million of the subject inflators were produced for the U.S. market on multiple production lines across different plants. These inflators were supplied to six Tier 1 suppliers and 12 vehicle manufacturers for use in dozens of vehicle models. While any field rupture is an unfortunate event, following the extensive investigation described above, none of these manufacturers has concluded that a systemic defect exists across this broad population. Yet, NHTSA's RRL takes the position that the seven field incidents in the United States "are more than *de minimis*" and justify a potential recall of up to 67 million vehicles.

¹⁶ ARC would like to clarify to the Agency that ARC began implementing the automated borescope process on lines producing PH7 inflators between August 2017 and January 2018. ARC implemented the automated borescope process on the remaining lines producing toroidal inflators between March 2018 and June 2018. This information was shared with the Agency in ARC's Response to NHTSA's December 13, 2022 IR. See ARC Automotive Written Response to Req. No. 1 (submitted to NHTSA on February 28, 2023).

¹⁷ As discussed above, the Collaboration Team was a task force of Tier 1 suppliers, vehicle manufacturers, NHTSA, and ARC. NHTSA participated in the Collaboration Team's regular updates, and it received information related to the task force's work.

¹⁸ Transport Canada (TC) is the Canadian agency that regulates motor vehicle safety analogous to NHTSA in the United States. TC collected parts from the field recovered by Hyundai that were equipped with single-level CADH inflators produced during the same production period as the inflator in the 2009 Hyundai Elantra involved in a fatal accident. ARC understands that TC conducted these deployments at a Canadian government lab. We also understand that TC also conducted inflator tear downs as part of its investigation.

¹⁹ VW conducted a recall of PH7 inflators following the rupture in Turkey, which ARC understands did not involve any injuries.

NHTSA appears to be relying on the D.C. Circuit's decision in *United States v. General Motors Corp.*, 518 F.2d 420 (D.C. Cir. 1975) ("*Wheels*"). As relevant here, the court stated:

Where the Government introduces evidence of a significant number of failures as to which causes like age and expected wear and tear have been negated, it is entitled to rely on a presumption that such failures occurred under conditions of operation that were either within the parameters specified by the manufacturer or reflect reasonably-to-be expected vehicle abuse (ordinary abuse) or failure to maintain. Where, as here, the relevant component is designed to function without replacement or repair for the life of the vehicle, a prima facie case of defect can be made simply by showing a significant number of failures.

Id. at 438 (emphasis added). Regarding the meaning of the phrase "significant number of failures," the court explained:

We use the term "significant" to indicate that there must be a non-*de minimus* [*sic*] number of failures. The question whether a "significant" number of failures have taken place must be answered in terms of the facts and circumstances of each particular case. Relevant considerations include the failure rate of the component in question, failure rates of comparable components, and the importance of the component to the safe operation of the vehicle. The number of failures need not be and normally will not be a substantial percentage of the total number of components produced.

Id. n.84. It is noteworthy that in referring to "*de minimis*," the court in *Wheels* had before it a case where there were estimated to be as many as 1,503 claims among a vehicle population of 200,000 vehicles. Even factoring in four wheels per vehicle (thus, 800,000 wheels), this translates to a PPM of 1,879 (or 0.19%). It is not difficult to see why the court would find this figure to be non-*de minimis*. By contrast, there have been seven field ruptures among the 67 million inflators produced during the relevant time period.

Judge Leventhal, who authored the *Wheels* decision, shed further light on the meaning of the term "defect" in a separate opinion issued two years later in which he explained:

Out of any manufacturing process, *some* products are bound to be "lemons." These failures may be due to flaws in the design, construction (including occasional human error on the production line) or inspection process. When the defects are *occasional or isolated*, the risk associated with them is part of the ordinary danger of operating an automobile; minimizing them is one aspect of the quality of a manufacturer's product which consumers choose to pay for. Total elimination of this risk would require a standard of design, construction, and testing that would produce a purchase price so prohibitive that it cannot be taken as the contemplation of Congress. And that obtains even though such a defect may be in a vital component and result in a safety risk. However, the matter stands quite differently where it appears that the defect is *systematic* and is *prevalent* in a particular class of cars.

561 F.2d 923, 929 (D.C. Cir. 1977) (Leventhal, J., dissenting in part) (emphasis added), *cert. denied*, 434 U.S. 1033 (1978).²⁰

ARC does not agree that the seven incidents demonstrate the existence of a systematic and prevalent defect within the meaning of the Safety Act when viewed in light of the total population. Nor has NHTSA provided any objective criteria upon which it bases its tentative conclusion that seven domestic field events involving driver and passenger inflators are more than *de minimis*.

Moreover, at least two of these field incidents – the 2002 Town & Country and the 2010 Chevy Malibu – involved distinctly different failure modes or root causes than the weld-flash concern cited by the Agency in the RRL. A review of these two incidents follows:

- **The 2010 Chevrolet Malibu Inflator Rupture Had a Different Failure Mode**

The root cause of the inflator rupture in the 2010 Chevrolet Malibu did not relate to blockage of the exit orifice. The inflator separation did not occur in the center support and the center support was not elongated, as would be the case if the inflator had over pressurized, which is the failure mode that would result from blockage of the exit orifice. In contrast, the inflator separated near the initiator holders, which is not consistent with a rupture due to over pressurization. None of the other six field incidents involved the inflator separating in this area of the inflator.

Accordingly, this failure was an isolated occurrence that resulted from a distinct failure mode.

- **The 2002 Chrysler Town & Country Had a Unique Root Cause**

The root cause of the inflator rupture in the 2002 Chrysler Town & Country minivan was concluded to be a manufacturing anomaly that resulted in foreign material in the inflator center support. For the CADH design, the center support is friction welded to the upper pressure-vessel. During this welding process, a pin is inserted into the top of the center support so that the flash created during the welding process forms in a shape and pattern that does not restrict or block the exit orifice. After the welding operation is complete, the pin (referred to as the flash-dam pin) is removed from the top of the center support of the recently welded piece and then inserted into the next unit on the manufacturing line that will go through this friction weld process.

An inspection of the exit orifice of the inflator indicated that a piece of metal had been lodged near the exit orifice, likely causing the inflator to rupture. The metal piece appeared to be a foreign material and likely the flash-dam pin.²¹ The material was not “weld

²⁰ The *per curiam* opinion comprises only six sentences of a 15-page opinion. The rest of the opinion consists of Judge Leventhal’s partial dissent, which was largely embraced by the majority. Judge Leventhal disagreed with the majority only on the ultimate issue of whether the government was entitled to summary judgment on the issue of safety-relatedness.

²¹ During an evaluation of the center support, the metal fragment was dislodged from the exit orifice for inspection. ARC understands that NHTSA came to possess the center support fragments involved in this field incident several years after the incident. But the metal fragment that had been lodged near the exit orifice was lost and could not be tested to confirm its composition.

slag.” None of the other field ruptures ARC has inspected had a similar object lodged near the exit orifice.

Furthermore, this incident was one of the two subjects of the Field Recovery Program conducted by the manufacturers and NHTSA.²² As discussed above, this test program demonstrated with 99% reliability at a 99% confidence level that no systemic defect existed in this specific population.

Because none of the other field ruptures involved a similar root cause, this incident is an isolated manufacturing anomaly with a distinct root cause. This conclusion is also supported by results of the Field Recovery Program and the fact that there have been no additional ruptures in any vehicle with this same distinct root cause.

Regardless of whether the number of relevant field incidents is five or seven, in the context of the overall population, there is no basis for concluding that a systemic or prevalent defect exists in this substantial inflator population that would warrant a safety recall of all vehicles equipped with these parts. We address the remaining field ruptures below.

- **Testing Programs Related to the Two Non-U.S. Incidents Cited in the RRL Did Not Reveal Any Defects**

NHTSA’s RRL cited two field incidents that occurred outside the United States: a July 11, 2016, *single-level* CADH (driver) that ruptured in a 2009 Hyundai Elantra in Canada and an October 16, 2017, PH7 (passenger) rupture in a 2015 Volkswagen Golf in Turkey.

A field recovery program was instituted by Transport Canada to test inflators manufactured from the respective line and manufacturing period. Transport Canada worked with Hyundai to collect field parts and it deployed approximately 600 inflators at both a Canadian laboratory and ARC. None of the inflators ruptured during deployment. Additionally, we note that the single-level CADH inflator in the Elantra was manufactured on a line in ARC’s manufacturing facility in Xi’an, China. This manufacturing line did not produce inflators intended for the U.S. market.

Similarly, Volkswagen Group conducted a recall of PH7 inflators in Europe following the incident in Turkey. We understand that VW collected approximately 1200 returned parts during this recall and that all were evaluated and tested, with no defects identified. Moreover, this single-level PH7 inflator (passenger), which was manufactured in ARC’s Knoxville plant, was not manufactured for use in the U.S. market.²³

²² The other subject was the MY 2004 Kia Optima (New Mexico incident), discussed below.

²³ Of course, if the Agency intends to rely on these non-U.S. incidents to support its “non-de minimis” position, these incidents must then be considered in the context of the *full worldwide population* of ARC inflators (vs. the U.S. population of 67 million).

- **Two Field Incidents Listed in NHTSA's RRL Are Remote in Time or Involve Different Inflator Types**

The April 8, 2014, incident in a 2004 Kia Optima in New Mexico involved a *single-level* CADH that was manufactured on August 27, 2003, in Knoxville, Tennessee. The December 18, 2021, incident in a 2016 Audi A3 in California involved a PH7 (*passenger*) inflator that was manufactured on October 13, 2015, in Reynosa, Mexico. None of the remaining five ruptures involved a single-level CADH or PH7 inflator.

As discussed in detail above, the Field Recovery Program tested nearly 1,000 parts that were manufactured on the same manufacturing line as the Kia Optima part between October 2000 and July 2006 (including 65 single-level CADH inflators produced between July 2003 and September 2003, of which 22 were produced on the same production day). None of the inflators deployed in this program ruptured, further suggesting that no systemic defect existed in this population.

- **Field Ruptures Involving Three Chevy Traverse Vehicles**

Three of the seven field ruptures cited in your letter involved MY 2015 – 2017 Chevy Traverse vehicles:

- The August 15, 2021, CADH rupture in a 2015 Chevrolet Traverse in Michigan, with an inflator manufactured on November 16, 2016
- The October 20, 2021, CADH rupture in a 2015 Chevrolet Traverse in Kentucky, with an inflator manufactured on October 5, 2014
- The March 22, 2023, CADH rupture in a 2017 Chevrolet Traverse in Michigan, with an inflator manufactured on May 2, 2016

On March 28, 2023, ARC was advised by NHTSA of the third alleged inflator rupture, and on April 25, 2023, ARC (along with NHTSA, General Motors, and the Tier 1 air bag module supplier) attended a vehicle inspection. ARC visually inspected the part and confirmed that the inflator experienced a rupture. As this was the third such incident in the same vehicle make and model, we understand that NHTSA may have concerns as related to this particular subset of the inflator population.

While we do not agree that a defect exists in the population of toroidal driver and passenger inflators from start of production through January 2018 as the Agency suggests, ARC remains deeply committed to further cooperation with the Agency and ARC's customers to address any concerns about our products. In this regard, ARC and General Motors have had discussions regarding the Chevy Traverse incidents listed in your letter and addressed below. These discussions continued following the third incident. The investigation into these inflator ruptures is continuing, but no root cause for has been identified to date by ARC or GM. We note, however, that during the time period covered by GM's recall, ARC produced approximately 3.2 million dual-level CADH inflators on the same line. Among this population, approximately 457,316 of these inflators were supplied to the Tier 1 supplier for use in Chevy Traverse vehicles, which have

experienced three ruptures. In comparison, approximately 2.74 million inflators from this line were supplied to GM and other vehicle manufacturers with zero (0) ruptures reported.

Although no root cause(s) of the three Traverse ruptures has (have) been identified, on May 10, 2023 GM submitted a Part 573 Defect Information Report to initiate a recall of a population of approximately 994,000 MY 2014 – 2017 Traverse, Acadia, and Enclave vehicles that were equipped with the “MC” inflator variant produced by ARC. According to GM, this recall will be an expansion of its two prior recalls related to the first and second Traverse incidents (i.e., Recall Nos. 21V782 and 22V246). The referenced vehicle population generally corresponds with an inflator production date range of approximately 2013 to 2016, but this information will be confirmed by ARC.

We understand that GM’s action is being taken out of an abundance of caution to address *potential* concerns about the inflators in this population of vehicles while the manufacturers continue their comprehensive analysis of these incidents, including the continuation of a test program being conducted by an independent third-party. This decision is tailored to address a specific population and, as described above, bears some relationship to a potential pattern of field ruptures that has emerged, i.e., three of the seven incidents involved MY 2015 – 2017 Chevy Traverse vehicles equipped with a specific inflator model produced during the production range. ARC continues to work with GM to evaluate the data collected and any next steps. We will continue to be transparent with the Agency as the parties’ investigation progresses.

V. Conclusion

ARC remains fully committed to continuing to work with NHTSA, the vehicle manufacturers, and Tier 1 suppliers to evaluate these ruptures and, more broadly, any concerns regarding ARC’s inflator products. ARC would be pleased to meet with the Agency to further discuss the rupture incidents cited in the Agency’s Recall Request Letter and this response.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Gold", with a long horizontal flourish extending to the right.

Steve Gold
Vice-President – Product Integrity
ARC Automotive, Inc.

cc: Sharon Yukevich (NHTSA ODI) (via email)