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

NHTSA

January 15, 2025

Mr. Steve Gold
President, ARC Thailand
Global Vice-President – Product Integrity
ARC Automotive, Inc.
1729 Midpark Road
Knoxville, Tennessee 37921

Subject: Information Request ID EA16003-54

Dear Mr. Gold:

As you are aware, the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has an ongoing Engineering Analysis (EA16-003) to investigate allegations of ruptures involving toroidal shaped hybrid air bag inflators, both passenger and driver side, manufactured by ARC Automotive, Inc. (ARC). ODI is requesting additional information from ARC to facilitate its investigation of the potential risk of a deployment-related field rupture of the toroidal shaped hybrid front air bag inflators in the U.S. market.

The scope of this Information Request is defined as all toroidal air bag inflators manufactured during a certain production time frame. The production time frame is defined by the Start of Production (SOP) June 2000 to the present. This Information Request is separate from, and requests information supplemental to, the long-established and ongoing processes the Agency has in place to monitor field rupture event allegations and ARC production anomalies through the issuance of two Standing General Orders (SGOs).[1]

Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject Component:** Hybrid toroidal shaped frontal air bag inflators manufactured by ARC that were subsequently supplied to a Tier 1 supplier or other manufacturers of air bag modules to be installed in passenger vehicles manufactured for sale or lease in the United States, including, but not limited to, the District of Columbia, and current U.S. territories and possessions.

- **Alleged Defect:** Rupture of a Subject Component during frontal air bag deployment resulting in metal fragments being propelled into the passenger compartment.

[1] The SGOs can be found on NHTSA.gov.

- **Production Time Frame of Interest:** Start of Production (SOP) June 2000 to the present.

- **ARC:** ARC Automotive, Inc., all of its past and present officers and employees, whether assigned to its principal offices or any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of ARC (including all business units and persons previously referred to), who are or, in or after 2000, were involved in any way with any of the following related to the alleged defect in the subject vehicles:

  a. Design, engineering, analysis, modification, or production (e.g., quality control);
  b. Testing, assessment, or evaluation;
  c. Consideration, or recognition of potential or actual defects, reporting, record-keeping, and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, lawsuits, or arbitrations; or
  d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.

- **Document:** "Document(s)" is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, documents generated through litigation, arbitration, or mediation, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by ARC, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other

documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by ARC or not. If a document is not in the English language, provide both the original document and an English translation of the document.

- **Other Terms:** To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "fire," "fleet," "good will," "make," "model," "model year," "notice," "property damage," "property damage claim," "rollover," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or in plural form, have the same meaning as found in 49 C.F.R. § 579.4.

In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as ARC has previously provided a document to ODI, ARC may produce it again or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the organization of this information request letter (including all individual requests and subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

Please repeat the applicable request verbatim above each response. After ARC's response to each request, identify the source of the information and indicate the last date the information was gathered. **Further, should the response provided by ARC in answer to a previous Information Request supply all or part of a response to this Request, cite the date the information was submitted to the agency and the file name ARC assigned the document. To the extent the information has changed or been updated please provide the updated information.**

1. Identify all Subject Component part numbers ARC produced and provided to Tier 1 suppliers for the Production Time Frame of Interest. Separately, for each part number and by calendar year, provide the following additional information regarding Subject Component part number, for the Production Time Frame of Interest, in tabular form entitled "ARC PRODUCTION DATA" using the supplied Excel spreadsheet. Include tolerances where appropriate.

    a. Part Number
    b. Alpha Product Code/Model

c. Inflator Type (DAB vs PAB)
d. Single or Dual Stage
e. Manufacturing Plant
f. Manufacturing Line
g. Production Dates
h. Friction Welder Manufacturer
i. Friction Welder Serial Number
j. Friction Welder Type
k. Manufacturing Operation
l. Spindle Speed
m. Scrub Pressure
n. Scrub Time
o. Burn Pressure
p. Burn Time
q. Forge Pressure
r. Forge Time
s. Total number of inflators produced by calendar year.

2. Describe, in detail, the approach and process ARC used to gather the information reported in the response to Request 1 and explain why ARC believes the process is accurate and appropriate.

3. Identify all Tier 1 companies and/or air bag module manufacturers to whom ARC provided the Subject Component for the Production Time Frame of Interest as defined above. Separately for each Tier 1 or air bag module manufacturer provide the following information by part number and by calendar year in tabular form entitled "ARC CUSTOMER DATA" using the supplied excel spreadsheet.

    a. ARC Part Number
    b. ARC Alpha Product Code / Model
    c. Inflator Type (PAB vs DAB)
    d. Single or Dual Stage
    e. Customer Name
    f. Customer Part Number
    g. ARC Manufacturing Plant
    h. ARC Manufacturing Line
    i. Final stage user / OEM – if known
    j. Total number of parts provided by calendar year.

4. For each part number identified in response to Request 1, provide the following data regarding the energetics used to excite the internal pressurized gas and fill the air bag cushion. Supply this information in tabular form entitled "ARC PROPELLANT DATA" using the supplied excel spreadsheet. Include tolerances where appropriate.

    a. Part Number
    b. Alpha Product Code / Model

c. Inflator Type (PAB vs DAB)
d. Single or Dual Stage
e. Production Dates
f. Exit Orifice Diameter
g. Primary Propellant Weight
h. Primary Propellant Geometry
i. Secondary Propellant Weight
j. Secondary Propellant Geometry
k. Primary Booster Weight
l. Primary Booster Geometry
m. Secondary Booster Weight
n. Secondary Booster Geometry
o. Internal Gas Pressure
p. Internal Gas Mixture

5. For each part number identified in response to Request 1, provide the material specifications for the following inflator components. Supply this information in tabular form entitled "ARC INFLATOR COMPONENT MATERIAL SPECS" using the supplied excel spreadsheet:

a. Part Number
b. Alpha Product Code / Model
c. Production Dates
d. Upper Pressure Vessel
e. Lower Pressure Vessel
f. Center Support
g. Initiator Sleeve
h. Initiator O-Ring
i. Primary Initiator
j. Secondary Initiator
k. Initiator Support
l. Primary Main Propellant
m. Primary Booster Propellant
n. Autoignition Cartridge
o. Secondary Main Propellant
p. Secondary Booster Propellant
q. Disk Holder
r. Generator Disk
s. Booster Baggie
t. Grain Basket
u. Shorting Clip
v. Manifold

6. For each part number identified in response to Request 1, provide the following data regarding inflator component dimensions, including dimension tolerances. Supply this

information in tabular form entitled “ARC INFLATOR COMPONENT DIMENSIONS” using the supplied excel spreadsheet:

a. Part Number
b. Alpha Product Code / Model
c. Production Dates
d. Upper Pressure Vessel Inner Diameter
e. Upper Pressure Vessel Outer Diameter
f. Upper Pressure Vessel Height
g. Lower Pressure Vessel Inner Diameter
h. Lower Pressure Vessel Outer Diameter
i. Lower Pressure Vessel Height
j. Center Support Inner Diameter
k. Center Support Outer Diameter
l. Center Support Height
m. Initiator Assembly Diameter
n. Initiator Assembly Height
o. Primary Propellant Number of Wafers
p. Secondary Propellant Number of Wafers
q. Generator Disk Diameter
r. Exit Orifice Diameter
s. Manifold Inner Diameter
t. Manifold Outer Diameter
u. Manifold Height
v. Inflator Assembly Height without Manifold
w. Inflator Assembly Height with Manifold

7. Separately for the driver and passenger side and single and dual stage inflators, describe in detail the basic design and construction of the Subject Component including the major hardware components and energetic materials incorporated to produce the gas used to inflate an air bag.

8. Describe in detail the differences in basic design and construction between the driver side and passenger side and single and dual stage, Subject Components including major hardware components and the energetic materials incorporated to produce the gas used to inflate an air bag. Describe in detail how these differences may affect the Alleged Defect and include all supporting evidence. Include in your answer, but do not limit it to, the likelihood of the occurrence and effects of the occurrence of the Alleged Defect.

9. Describe in detail how primary and secondary propellant, primary and secondary booster weight, propellant geometry, exit orifice diameter and/or the pressurized gas mixture are used to tailor inflator performance of the Subject Component. Describe in detail how these parameters can affect the Alleged Defect. Include all supporting evidence. Include in your answer, but do not limit it to, the likelihood of the occurrence and effects of the occurrence of the Alleged Defect.

10. Separately for the driver and passenger side and single and dual stage inflators, describe in detail the design intent sequence of events that lead to the ideal performance of the Subject Component (i.e., a step by step description of how the inflator is intended to work) including the precise timing and tolerances of each event relative to initiation of the deployment.

11. Describe in detail the differences in the design intent sequence of events that lead to the ideal performance between the driver and passenger and single and dual stage Subject Components including the precise timing and tolerances of each event relative to initiation of the deployment.

12. Describe in detail the effects on inflator performance of a blocked or obstructed exit orifice for the passenger and driver and single and dual stage Subject Component.

13. Describe in detail the difference in the inflator performance of the driver and passenger and single and dual stage Subject Component with a blocked or obstructed exit orifice. Is one more susceptible to rupture than the other? Include all supporting evidence.

14. Separately for the driver and passenger side and single and dual stage inflators, describe in detail any known or potential failure modes, other than exit orifice blockage, that may result in or cause the Alleged Defect in the Subject Component. Include all supporting evidence.

15. For each ARC manufacturing plant and manufacturing line that produces or has produced the Subject Components, describe in detail the manufacturing processes ARC uses/used to manufacture the Subject Component during the Production Time Frame of Interest. Each plant and line should have its own detailed description. Describe or otherwise provide detailed information for any processes or specialized equipment ARC uses/used to address the prevention of the Alleged Defect from occurring.

16. Describe in detail the differences in manufacturing processes and procedures for

    a. Driver and passenger side Subject Components
    b. Single and dual stage Subject Components
    c. ARC Manufacturing plants
    d. Manufacturing lines within an ARC manufacturing plant
    e. Manufacturing lines between different manufacturing plants.
    f. Reasons for the differences.
    g. How the differences affect ideal performance of the Subject Components, include supporting evidence.

17. For all Subject Component manufacturing lines that were in operation during the Production Time Frame of Interest and/or are currently in operation, provide the following information regarding borescope usage in tabular form entitled “ARC BORESCOPE USAGE DATA” using the supplied excel spreadsheet.

a. Manufacturing Plant
b. Manufacturing Line
c. Borescope Use Start Date
d. Borescope Use End Date
e. Reason for Ending Borescope Use

18. Describe all modifications or changes made by, or on behalf of, ARC in the design, manufacture (including operations and/or production equipment), monitoring and/or maintenance processes of production equipment, or material composition of the Subject Component during the Production Time Frame of Interest. For each such modification or change provide the following information:

    a. The date or approximate date on which the modification or change was incorporated into the Subject Component manufacture:
    b. A detailed description of the modification or change
    c. The part number(s) of the original component – for design modifications or changes;
    d. The part number(s) of the modified component – for design modifications or changes;
    e. Whether and when the original unmodified component was withdrawn from production and/or sale – for design modifications or changes;
    f. When the modified component was made available as a service component – for design modifications and changes; and
    g. Whether the modified component can be interchanged with earlier production components – for design modifications or changes.

19. Describe how the modifications or changes cited in Request 14 relate or may relate to the Alleged Defect in the Subject Component and whether they increase or decrease the likelihood of the Alleged Defect. Include all supporting evidence.

20. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquires and/or evaluations (collectively, "actions") that relate to or may relate to the Alleged Defect in the Subject Components that have been conducted, are being conducted, are planned or are being planned by or for ARC. For each such action, provide the following information:

    a. Action title or identifier;
    b. The actual or planned start date;
    c. The actual or expected end date;
    d. Brief summary of the subject and objective of the action;
    e. Engineering group(s)/supplier(s) responsible for designing and for conduction the action;
    f. A brief summary of the findings and/or conclusions resulting from the action; and
    g. Copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. **Organize the documents chronologically by action.**

21. Using the information from the Requests above and any other relevant information, provide ARC's assessment of the cause(s) of the Alleged Defect in the Subject Component. Provide any other findings, conclusions, observations, or assessments ARC has made from the study of data that are deemed pertinent to Subject Component safety and reliability that address the Alleged Defect.

22. Under the Licensing Agreement between ARC and Delphi dated on or about July 17, 2001:

    a. Did Delphi exercise its option under paragraphs 3.01 and 3.02 of the Agreement to obtain ARC Technical Information;
    b. Did Delphi disclose any improvements or developments under paragraph 3.04 or otherwise?

23. State who sets the specifications for inflator performance and component design, ARC, Tier 1 Suppliers, or Vehicle Manufacturers.

24. For all U.S. field ruptures of the Subject Component, provide a detailed summary of ARC's analysis of the incident including ARC's theory of the root cause of the rupture with supporting evidence. Provide copies of all documents related to the analysis and final conclusion of root cause of the rupture including, but not limited to, all presentations and reports, internal and external.

25. Based on your review of the investigative file as shared with you pursuant to the August 24, 2023 protective agreement and its October 10, 2023 and May 21, 2024 amendments, list any of ARC's records that you contend are missing from the file. To the extent that you identify records responsive to this request, please provide copies of each file identified.

Legal Authority for This Request

This letter is being sent to ARC pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to request reports. It constitutes a new request for information.

Civil Penalties

ARC's failure to respond promptly and fully to this letter could subject ARC to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. (Other remedies and sanctions are available as well.) The Vehicle Safety Act, 49 U.S.C. § 30165(a)(3), provides for civil penalties of up to $27,874 per violation per day, with a maximum of $139,356,994 for a related series of daily violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. *See* 49 C.F.R. § 578.6(a)(3). This includes failing to respond completely, accurately, or in a timely manner to ODI information requests.

If ARC cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, ARC does not submit one or more requested documents or items of information in response to this information request, ARC must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

Confidential Business Information (CBI)

If ARC's response contains any information that you claim is confidential business information, ARC must submit its request for confidential treatment and any files containing CBI to NHTSA's Office of the Chief Counsel via a secure electronic file transfer link. Please see Enclosure 1 for additional instructions on submitting a request for confidential treatment that is compliant with 49 C.F.R. Part 512 (specifically, a request for confidential treatment must include the four required parts that are discussed in enclosure 1).

Should you require a secure electronic file transfer link, please notify the investigator referenced in this IR to ensure that the secure file transfer link for your request for confidential treatment and any files containing CBI are directed to the Office of the Chief Counsel accordingly.

In addition to submitting a request for confidential treatment and files containing CBI directly to NHTSA's Office of the Chief Counsel, ARC must also submit its request for confidential treatment, the files containing CBI, and their corresponding redacted versions directly to ODI via the Safety Defect Investigations (SDI) Portal. The requests for confidential treatment and certification documents are not confidential so these documents should be uploaded as non-confidential files.

Please refer to EA16003-54 in ARC's response to this letter and in the request for confidential treatment that ARC may submit.

Due Date

ARC's response to this letter must be submitted to this office by **February 28, 2025**. If ARC finds that it is unable to provide all the information requested within the time allotted, ARC must request an extension from me at (202) 366-9590 no later than five business days before the response due date. If ARC is unable to provide all the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information ARC then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Sharon Yukevich of my staff at (202) 836-3605.

Sincerely,

Tanya Topka

Tanya Topka, Director
Office of Defects Investigation

Enclosure 1, Information for Requests for Confidential Treatment.

ENCLOSURE 1 – INFORMATION FOR REQUESTS FOR CONFIDENTIAL TREATMENT

If you believe that your response contains any material that you claim is confidential business information, submit these materials to NHTSA's Office of the Chief Counsel in accordance with 49 C.F.R. Part 512. **All requests for confidential treatment must be submitted directly to the Office of the Chief Counsel via the Confidential Business Information (CBI) Portal or a secure file transfer link for your submission addressed to the Office of the Chief Counsel. If you are not currently registered for the CBI Portal, you may send a registration request to cbi-helpdesk@dot.gov. In addition to directly submitting the files to the Office of the Chief Counsel, you will also need to submit your request, the files containing CBI, and their corresponding redacted versions directly to ODI through the Safety Defect Investigations (SDI) Portal.**

Requests for confidential treatment are governed by Part 512. A current version of this regulation is available on the internet at http://www.ecfr.gov by selecting Title 49 "Transportation," selecting "Parts 500 – 599" and then selecting Part 512 "Confidential Business Information."

How to request confidential treatment:

NHTSA is currently treating electronic submission as an acceptable method for submitting confidential business information to the agency under Part 512. If you claim that any of the information or documents provided in your response constitutes confidential business information within the meaning of 5 U.S.C. § 552(b)(4) or are protected from disclosure pursuant to 18 U.S.C. § 1905, you must request a secure file transfer link from the ODI contact listed in your Information Request. ODI will copy a representative from the Office of the Chief Counsel on the secure file transfer link for your request for confidential \treatment. You must submit supporting information together with the materials that are the subject of the confidentiality request, in accordance with Part 512, to the Office of the Chief Counsel. Do not send a hardcopy of a request for confidential treatment to NHTSA's headquarters.

Your request must include a request letter that contains supporting information, pursuant to Part 512.8. Your request must also include a certificate, pursuant to Part 512.4(b) and Part 512, Appendix A.

You are required to submit one unredacted "confidential version" of the information for which you are seeking confidential treatment. Pursuant to Part 512.6, the words "ENTIRE PAGE CONFIDENTIAL BUSINESS INFORMATION" or "CONFIDENTIAL BUSINESS INFORMATION CONTAINED WITHIN BRACKETS" (as applicable) must appear at the top of each page containing information claimed to be confidential. In the latter situation, where not all information on the page is claimed to be confidential, identify each item of information for which confidentiality is requested within brackets: "[ ]."

You are also required to submit one redacted "public version" of the information for which you are seeking confidential treatment. Pursuant to Part 512.5(a)(2), the redacted "public version" should include redactions of any information for which you are seeking confidential treatment (i.e., the only information that should be unredacted is information for which you are **not** seeking confidential treatment).

For questions about a request for confidential treatment, please contact Dan Rabinovitz in the Office of the Chief Counsel at Daniel.Rabinovitz@dot.gov or (202)366-8534.