

December 6, 2023

Comments on NHTSA's Initial Decision to Declare ARC Automotive Toroidal Airbag Inflators Defective, by John Keller P.E.

Re: Docket No. NHTSA-2023-0038

Thank you for the opportunity to comment on NHTSA's Initial Decision to declare ARC's toroidal inflators built between 2001 and 2018, defective. I offer these comments as an airbag inflator expert with knowledge of this subject, and defects affecting Takata inflators. I have a Professional Engineering License in the State of Tennessee and spent a portion of my career as an Engineer, employed by Takata from 1998 to 2001, and ARC from 2001 to 2011. I also have experience as an Engineer employed by a manufacturer of CT scanners. I have no financial stake in this matter. I offer these comments out of concern for the driving public.

I applaud NHTSA for taking the position that the subject inflators manufactured by ARC Automotive between 2001 and 2018 are affected by a weld-flash-defect until proven otherwise, regardless of how many inflators that entails. In my expert opinion, the weld flash defect in this case is significantly different from defects that cause Takata inflators to rupture. Eventually all Takata PSAN inflators will be suspect of failure, including desiccated PSAN inflators which have yet to be recalled. All Takata's PSAN inflators must ultimately be replaced with a different (non-defective) inflator design due to the nature of Takata's inflator defects. This is not the case for ARC's toroidal inflator designs.

NHTSA believes a small percentage of ARC's inflators were assembled with a weld flash defect, the vast majority are otherwise not defective, and will remain so. If the weld-flash-defect could be detected for inflators in the field, only those inflators assembled with the defect would need to be replaced. In my expert opinion, a Computed Tomography (CT) scan protocol could be developed to reliably determine if the weld-flash-defect exists in the subject ARC inflators currently in the field, eliminating the need to replace tens of millions of ARC inflators that were not assembled with the defect. CT scanning offers a nondestructive way to determine if the weld-flash-defect exists in each ARC inflator.

Using a CT-scan protocol to detect this defect in the field could ultimately allow a more rapid remedy than a recall procedure that involves replacing every inflator in question, due to the time it will take to manufacture tens-of-millions of replacement inflators. The excessive time it's taken to complete the recall of 70 million Takata PSAN inflators illustrates this point. More than a dozen people have been killed by Takata PSAN

inflators during the grueling slow completion of that overarching recall initiative since it began in 2016.

I urge NHTSA to consider the benefits of using a CT-scan protocol to detect the weld-flash-defect for ARC inflators in the field. It stands to reason that such an approach is in public interest if it eliminates risk to the driving public more rapidly than allowing the recall to drag on for many years while tens of millions of replacement inflators are being manufactured. This approach would prove whether the Agency's belief about the number of defective inflators is accurate. It could also be applied to populations of ARC inflators already under recall.

In May of 2023 GM announced it would recall nearly 1 million vehicles suspected of having inflators affected by the weld-flash-defect. Validation of a CT scan protocol could begin with the inflators in these GM vehicles to determine the actual percentage of defective inflators in that statistically significant sample population.

Such a CT-scan protocol could be incorporated into field service with relatively short scan time and automated defect detection algorithms. If NHTSA considers this proposal for CT-scan detection of the defect, prior to formal approval, I urge the Agency to use its authority to ensure such CT-scan protocol is only implemented after ample due diligence, proven reliably, and rigorous quality/process controls have been demonstrated. Furthermore, the Agency should ensure such a CT-scan protocol is implemented in a way that remedies the problem more rapidly than otherwise possible. I offer these comments in hope that we never see another recall initiative drag on like Takata's, with its sustained risks to public safety continuing year after year.

This issue is being viewed by some as a recurrence of the Takata problem. An important difference is that CT technology offers potential to help NHTSA, the industry it regulates, and the driving public it serves in this case, by enabling detection of the defect. If the defect proves to be isolated to specific inflators or populations, further investigation aimed at determining why those inflators were shipped instead of scrapped, may be warranted. How can recurrence of any problem be prevented unless the underlying root cause is recognized?

Thanks for your consideration of these comments.

John Keller P.E.