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February 19, 2010

Mr. George Person, Chief  
Recall Management Division  
Office of Defects Investigation  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Re: RQ09-004; NVS-215/jtt

Dear Mr. Person:

TK Holdings, Inc. (Takata) is providing this comprehensive response to the agency's November 20, 2009 letter seeking information concerning the airbag inflators in vehicles subject to recalls 08V-593 and 09V-259 conducted by American Honda Motor Company (Honda). As you are aware, with your permission, Takata filed its initial, partial response to that letter on December 23, 2009. Rather than simply supplement that initial response, in this response Takata will provide its comprehensive response to all of the questions that you have posed. We appreciate your office's agreement to extend the response date until today.

It is important to recognize, as NHTSA was informed at the initiation of 08V-593 and 09V-259, that not all of the vehicles identified by Honda in its Part 573 defect information reports for these two recalls actually were included within Honda's defect determinations. Rather, in both recalls, in accordance with Takata's recommendation, Honda agreed to request owners of additional vehicles not covered by the defect determinations to return their vehicles to a dealership to have the driver air bag inflator replaced at no charge. The purpose of this was to obtain inflators from outside of the scope of the defect determinations for further analysis. This is explained in greater detail below.

1. Did Takata manufacture, distribute or sell the same or substantially similar airbag inflators, in terms of design, production, or manufacturing, as are involved in either Safety Recall 08V-593 or 09V-259, for or to anyone other than Honda? If so, please identify each such entity by name, address, and phone number and provide your contact at that entity's name, address, and phone number. Also, for each such entity, state the total number of inflators that were distributed and the beginning and ending dates of

their manufacture, serial or other identifying numbers. Identify all design or production changes, or any other factors, that determine those beginning and ending dates. Also, please explain whether or not Takata believes these inflators present the same or similar safety defect as those involved in Safety Recalls 09V-259 and 08V-593. Provide any supporting information or documentation that supports this opinion.

**ANSWER 1:**

Takata has not provided any air bag inflators that are the same or substantially similar to the inflators in vehicles covered by Recalls 08V-593 and 09V-259 to any customers other than Honda. The physical characteristics of the inflator housing used in the Honda vehicles subject to these recalls are unique to Honda.

2. Honda informed NHTSA that based on information from Takata, it understands the cause of the defect to be related to a production process involving one of several compression presses used to form the propellant into wafers that were then installed into the inflator modules. Please identify and explain in detail what this production process was, and produce any pictures, diagrams, or other documentation necessary to help understand the process. Please state whether Takata agrees with Honda's assessment that this production process is the cause of the safety defect Honda identified and provide the reason(s) for Takata's opinion.

**ANSWER 2:**

As explained in detail below, based on currently-available information and extensive analysis of numerous inflators, Takata and Honda reached the conclusion in cooperation that the defect identified in Recall 09V-259 is generally related to problems with one specific compression press that was used to form propellant into tablets that were subsequently used in the inflators installed in the subject vehicles. However, as explained in the answer to Question 4, Takata's initial assessment of these issues, which was performed prior to the defect determination that led to Recall 08V-593 and which was based on less data than is currently available, led it to believe that there was a different cause for the defect. Moreover, Takata notes that – as explained in the answer to Question 6 – in conformity with Takata's recommendation, Honda also included in Recall 09V-259 a relatively small number of vehicles with propellant processed on different compression presses and inflators produced with reprocessed propellant, due to an inability verify their performance at the time the scope of 09V-259 was established.

This answer will describe the process used by Takata to produce propellant tablets used in its air bag inflators. A description of the analysis used by Takata to reach its conclusions with respect to the cause of the defect is contained in the answer to Question 6.

The process that Takata used to convert chemical components into the propellant that was used in the inflators that were in the vehicles recalled by Honda in 2008 and 2009 included a number of steps that are identified in the following diagram:

**REDACTED**

In the case of the propellant produced for use in the inflators for the Honda vehicles in the subject period, presses from two different manufacturers were utilized, a single Stokes press and three Gladiator presses. While they operated in a similar fashion in that the presses all compressed the granulated chemical powder mixture into tablet form, there were significant differences in how they accomplished this process, and how this process was controlled.

**REDACTED**

**REDACTED**

It should also be noted that throughout the period when the propellant tablets for the Honda inflators were being produced, Takata maintained a policy of continuous review and continuous improvement of its production methods to improve quality and to increase efficiency. The changes resulting from this policy were more frequent during the early stages of production.

**REDACTED**

3. Did Takata manufacture, distribute or sell any airbag inflators that were subject to the same propellant chemistry or production process involved in the production of the Honda airbag inflators involved in Recalls 08V-593 or 09V-259, to anyone other than Honda? If so, please identify each such entity by name, address, and phone number and provide your contact at that entity's name, address, and phone number. Also, for each such entity, state the total number of inflators that were distributed and the beginning and ending dates of their manufacture, serial or other identifying numbers. Identify all design or production changes, or any other factors, that determine those beginning and ending dates.

Also, please explain whether or not Takata believes these inflators present the same or similar safety defect as those involved in Safety Recalls 09V-259 and 08V-593. Provide any supporting information or documentation that supports this opinion.

## REDACTED

### ANSWER 3:

With regard to the propellant chemistry that is used in the subject inflators, Takata has used this propellant chemistry in more than 100,000,000 air bag inflators sold to most major vehicle manufacturers over the past 10 years. However, Takata did not utilize the same process in the production of the propellant for the suspect inflators (as opposed to surveillance inflators) in the Honda vehicles involved in recalls 08V-593 or 09V-259 for inflators sold to any other vehicle manufacturer.

As ODI is aware, on February 9, 2010, Honda submitted a Part 573 Report notifying the agency that it was expanding Recall 09V-259 to cover additional vehicles. (Rather than expand the population of Recall 09V-259, ODI has designated this as a separate recall, No. 10V-041.) These additional vehicles were all manufactured with inflators that contain propellant tablets produced by the Stokes press. Although those vehicles were not addressed in this question, for the sake of completeness, Takata wishes to point out that it did manufacture approximately 2,400 inflators during early October of 2001 that contained propellant exclusively produced for the same production process as the surveillance inflators. These inflators were sold to . . . . To the best of Takata's knowledge, 448 vehicles equipped with those inflators were exported to the United States. Takata needs to emphasize that while these inflators contained the same propellant as those that were supplied to Honda, the inflators supplied . . . . were of a different design than the inflators used in the covered Honda vehicles, and there have been no reported incidents involving malfunctions of these inflators. Therefore, Takata is convinced that the inflators sold . . . . contain no safety-related defect.

4. Honda informed NHTSA that it determined the vehicle population for Safety Recall 08V-593 based on information from Takata concerning the causal factors and production history of the inflators. Honda reported that it understood the causal factors to be related to the airbag propellant and its handling during the inflator module's assembly. Please identify and describe in detail the sources or causes Takata believed to have contributed to the safety defect in the inflators involved in 08V-593, including in that description any pictures, diagrams, or other information helpful in understanding how Takata came to its opinion at the time. Please also state when Takata shared information with Honda concerning its opinions on the source or cause of the safety defect and produce copies of any communications, presentations, or other documentation that evidence this date.

### ANSWER 4:

As noted in the answer to Question 2, Takata's initial assessment of the causal factors related to this defect is different from its current understanding. The following discussion describes the analysis performed by Takata that provided the basis for Recall 08V-593. A discussion of Takata's subsequent analysis, and its revised assessment of those causal factors, is set out in the answer to Question 6.

Honda initially advised Takata of three incidents of inflator malfunctions that occurred during the first half of 2007. Each of these incidents involved inflators assembled between October 31

and November 15, 2000, all of which contained propellant tablets manufactured during October and early November of that year. Takata believed that it was likely that these inflator malfunctions resulted from an over-pressure situation (i.e., overly aggressive combustion) during deployment of the air bag. Given the very narrow time period during which these three faulty inflators were produced, Takata initially focused its attention on inflators and propellant produced during that time period, and it attempted to identify any process issues in and around that time period that could have led to these malfunctions.

Takata identified two processes that, taken together, could have resulted in elevated moisture levels in the propellant. Elevated propellant moisture levels, when coupled with thermal cycling in automobiles, could cause the propellant density to decline over time, and such a decline in density could lead to overly energetic combustion during deployment of the air bag.

**REDACTED**

This initial hypothesis was presented to Honda at a briefing held on September 28, 2007 (see Attachment A).

To allow it to test this hypothesis and to conduct further analysis, Takata collected 42 inflators from salvage yards. In addition, Honda provided Takata with 86 inflators that contained propellant from the propellant lots used in the three malfunctioning inflators ("event lots").

**REDACTED**

**REDACTED**

Therefore, on October 2, 2008, Takata recommended that Honda recall the vehicles equipped with propellant from the four suspect propellant lots (see pages 27-28 of Attachment B), and Honda agreed to do so in order to remove vehicles from the road which Honda had any reason to suspect might not perform properly.

Further, Takata recommended and Honda agreed that Honda would also use the recall process to collect additional inflators that were manufactured around this time period for additional analysis to confirm the root cause hypothesis. Takata received 336 inflators for analysis. The analysis of the propellant from these inflators is described in the answer to Question 6.

5. Honda informed NHTSA that there is no design or other difference between the inflators involved in Safety Recalls 08V-593 and 09V-259. Please state whether or not Takata believes that this statement is correct? If not, please identify and describe in detail any differences, including in that description a copy of any pictures, diagrams, chemical composition, or other information helpful in understanding the differences.

**ANSWER 5:**

There are no substantive design differences between inflators from each of the two recalls. However, there were differences in the production processes, including the production control system, applicable to inflators and propellant tablets produced during the time period covered by recall 08V-593 and the inflators and propellant tablets manufactured before and after that period. Given Takata's continuous improvement policy, there were numerous process improvements during this period, many of which improved the quality of the propellant and the inflators and enhanced the consistency of inflator performance.

Notwithstanding the above, the difference in the scope of 08V-593 and 09V-259 was based on the understanding of the root cause at the time the scope for each recall was established.

6. Honda informed NHTSA that it and Takata now believe that any differences between the two vehicle populations in the two safety recalls, as well as any differences between the vehicles included in Safety Recall 09V-259 and those excluded from that campaign,

relate to production of the airbag propellant prior to assembly of the inflators, as opposed to handling of the propellant during inflator assembly. Is that correct? If so, how and when did Takata come to discover that the defect was due to a production process before assembly, and not handling of the propellant during assembly? State when Takata shared this information with Honda and with whom at Honda and produce copies of any communications, presentations, or other documentation that evidence this. Also, identify and describe any differences relating to production of the propellant prior to assembly between first, the inflators involved in Safety Recall 08V-593 and 09V-259, and then second, the inflators involved in 09V-259 and those excluded from that recall. If not, explain why Takata does not agree with this assessment, include in your explanation a copy of any pictures, diagrams, or other information helpful in understanding Takata's opinion. Then state whether Takata shared its opinions with Honda, identify when it did so and with whom, and produce copies of any communications, presentations, or other documentation that evidence this. To the extent not already explained earlier in response to this question, identify and describe any differences relating to production of the propellant prior to assembly between first, the inflators involved in Safety Recall 08V-593, and then second, the inflators involved in 09V-259 and those excluded from that recall.

**ANSWER 6:**

It is correct that Takata and Honda now believe that the differences between the vehicles included in Recall 09V-259 and those excluded from that campaign relate to production of the propellant prior to assembly of the inflators, as opposed to handling of the propellant during inflator assembly. Takata initially came to that conclusion primarily on the basis of its analysis of the propellant in the surveillance inflators obtained by Honda in connection with Recall 08V-593, and it was confirmed by its analysis of the surveillance inflators obtained in connection with Recall 09V-259 (i.e., inflators manufactured with propellant tablets produced through October 16, 2001).

Takata's analysis of the initial set of surveillance inflators led it to reexamine its initial theory of the cause of the problem. Specifically, Takata began to consider the possibility that the problem might have originated during propellant production rather than during inflator assembly. Takata therefore began an intensive review of its propellant production process.

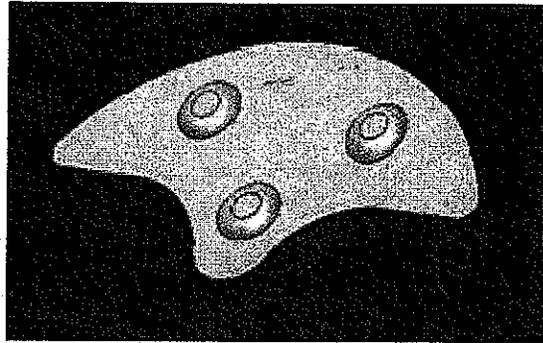
**REDACTED**

1

**REDACTED**

**FIGURE 2**

**BATWING-SHAPED PROPELLANT TABLET**



**REDACTED**

**REDACTED**

ENTIRE PAGE REDACTED AS CONFIDENTIAL BUSINESS INFORMATION

**FIGURE 4**

**REDACTED**

**REDACTED**

**REDACTED**

Based upon \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_, Takata recommended  
to Honda that it expand the scope of Recall 08V-593. Takata believed –

– that expanding the recall to include all  
vehicles equipped with inflators manufactured with Stokes propellant produced through and  
including February 28, 2001 would capture all inflators with tablets that had a risk of producing

overly energetic combustion.<sup>3</sup> This recommendation, as well as the analysis that supported it, was presented to Honda on June 12, 2009. See Attachment D. (A preliminary status report describing Takata's initial analysis of the surveillance inflators had been presented to Honda on March 12, 2009. See Attachment C.)

As with the first recall, at Takata's request, Honda recalled approximately 10,000 additional vehicles – primarily those manufactured with propellant produced after February 28, 2001. The purpose was to allow the companies to assess whether the second recall in fact addressed all vehicles that could possibly have a problematic inflator.\*

To date, Takata has examined over 1,000 inflators from the second set of surveillance inflators and the propellant found in those inflators. Although the agency's November 20, 2009 letter does not ask about the results of that analysis, Takata notes that :

**REDACTED**

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**REDACTED**

## FIGURE 5

REDACTED

There have been no reports of malfunctions of inflators manufactured with propellant produced after February 28, 2001. However, because Honda “. . . decided we cannot entirely rule out the possibility that parts in this expanded population could be out of specification and thus potentially perform improperly,” it decided to expand the scope of Recall 09V-259 to include all vehicles with propellant tablets manufactured using the Stokes press.

7. Describe any responsibilities Takata had in identifying which inflators were affected by the safety defect in either or both Safety Recall 08V-593 and 09V-259, including in your description how Takata discriminated between an affected inflator and other inflators. State when Takata undertook its responsibilities, when it completed those responsibilities, and when it informed Honda of the identities of the affected inflators.

### ANSWER 7:

Takata is not certain what NHTSA means by the term “responsibilities” in this question. As the manufacturer of the inflators at issue, Takata took a primary role in the analysis of the issues, the efforts to identify the cause of the problem, and the efforts to identify the scope of the problem. Takata began to work on these issues in June 2007. As described in the answers to Question 4 and Question 6, as the work progressed, Takata provided timely and contemporaneous reports to Honda of its progress and of Takata’s theories and conclusions. See Attachments A-D.

Promptly after the scope of each of the recalls was determined (based on the identification of propellant lots that were deemed to be potentially defective), Takata identified individual air bag modules that contained the subject propellant, and it also identified other air bag modules to be collected for additional analysis. Takata provided the serial numbers of the modules to be recalled to Honda in November and December of 2008 for Recall 08V-593 and in June and July of 2009 for Recall 09V-259. Honda then utilized those serial numbers to determine the VINs of the vehicles to be covered by the two recalls.

8. State the date and produce copies of each communication, including emails and presentations, in which Takata and Honda discussed whether there was a defect in the airbag inflators outside of those involved in Safety Recall 08V-593.

**ANSWER 8:**

Takata has conducted a search of the files and e-mail accounts of all of the individuals within the company (both in the United States and in Japan) who would be expected to have any communications that are responsive to this question. The search was confined to communications that had been made as of November 20, 2009, the date of the agency's letter.

The communications described below reflect the results of that search to date. Although Takata believes that it has identified all responsive documents and e-mails, it is possible that others may be located, or identified as responsive in the future. If so, they will be provided to NHTSA promptly.

PowerPoint presentations describing Takata's analyses, assessments, and recommendations that were presented to Honda are enclosed as Attachments A-D. (By letter to the Office of Chief Counsel, Takata is requesting confidential treatment for most of the information in those presentations.)

In addition, Takata has identified several e-mails that are arguably responsive to this question. See Attachment E. (Takata is requesting confidential treatment for some of the information in those e-mails.)

9. State the date and produce copies of each communication, including emails and presentations, in which Takata and Honda discussed whether the defect in the airbag inflators outside of those involved in Safety Recall 08V-593 was safety-related and/or the severity of the defect upon safety.

**ANSWER 9:**

Takata has not identified any communications, including e-mails and presentations, in which Takata and Honda discussed whether the defect in any of the air bag inflators at issue here was safety-related and/or the severity of the defect upon safety.

10. Separately for Safety Recall 08V-593 and 09V-259, please state the beginning and ending dates for shipments from Takata to Honda of the defective inflators.

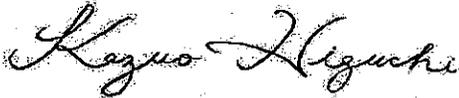
ANSWER 10:

Although this question refers to "shipment dates," Takata's response will be based on inflator manufacturing dates, because of the way that Takata's records are kept. The inflators covered by Honda's defect determinations that led to Safety Recall 08V-593 and 09V-259, and the inflators that Honda and Takata sought to retrieve for surveillance and further analysis, were manufactured between the dates shown below:

	Earliest Mfg. Date	Latest Mfg. Date
Recall 08V-593		
Defect Determination	10/29/00	12/01/00
Surveillance	10/16/00	12/14/00
Recall 09V-259		
Defect Determination	Start of Production (Approx. 06/01/00)	05/16/01
Surveillance	10/18/00	11/26/01

If you have any additional questions, please contact the undersigned.

Sincerely yours,



Kazuo Higuchi  
Senior Vice President