DAIMLER

Daimler Trucks North America
Andy Jones
Manager
Compliance and Regulatory Affairs

December 15, 2017

Administrator
National Highway Traffic Safety Administration
Attention: Recall Management Division
1200 New Jersey Avenue S.E.
Washington D.C. 20590

Re: Petition for Exemption from Notification and Remedy Provisions of Motor Vehicle Safety Act for Noncompliance with FMVSS No. 222, School Bus Passenger Seating and Crash Protection.

Daimler Trucks North America (DTNA) has determined that certain school buses were manufactured with lap/shoulder belts that do not fully comply with the requirements for contact area and energy deflection as stated in S5.3.1.3 of Federal Motor Vehicle Safety Standard (FMVSS) 222. DTNA filed a defect information report on November 17, 2017. DTNA hereby petitions the National Highway Traffic Safety Administration for an exemption from the notice and remedy requirements of the Motor Vehicle Safety Act, pursuant to 49 U.S.C. §§ 30118(d) and 30120(h), and 49 C.F.R. part 556, because DTNA believes that the noncompliance is inconsequential as it relates to motor vehicle safety.

Attached are copies DTNA's Defect Information Report, SynTec's Defect Information Report and SynTec's Petition for inconsequentiality on this subject. In addition, DTNA provides the following information in accordance with 49 C.F.R. § 556.4(b)(3):

- Full name and address of applicant: Daimler Trucks North America LLC, 4747 N. Channel Avenue, Portland, OR 97217-7699
- Nature of organization: Limited Liability Company
- State or country under laws of which DTNA is organized: Delaware, USA

Background

SynTec Seating Solutions LLC informed DTNA that they had filed a Defect Information Report PBS100 and a Petition for Inconsequentiality concerning certain lap/shoulder belts that do not fully comply with the requirements for contact area and energy deflection as stated in S5.3.1.3 of Federal Motor Vehicle Safety Standard (FMVSS) 222.

Daimler Trucks North America, LLC
4747 N. Channel Avenue
Portland OR 97217-7699
Phone: 503-745-8000

Potential Impact on Safety

DTNA defers to SynTec as the experts as to the design and function of the lap/shoulder belts in question and as such, please see attached SynTec Defect Information Report and Petition for Inconsequentiality. As explained in the SynTec petition, the noncompliance at issue relates to front-of-seat tests designed to address features that are no longer present in school buses such as metal bars at the top of seat backs and low seat backs. Therefore, DTNA believes the noncompliance does not impact school bus safety. Moreover, the location of the plastic bezel on the lap/shoulder belts – which is the source of the noncompliance – is actually a safety improvement, in that its high position allows for maximum occupant ranges and fit, and protects the smallest seat occupants. According to SynTec, "... A typical occupant in the vehicle would have a greater chance of coming into contact with a lower bezel". As shown in Figure 1, a 6 year old child would not come into contact with the bezel in the high position. Thus, the SynTec design represents an enhanced level of safety for school bus occupants, especially younger passengers who are more vulnerable in the event of a crash. Consistent with the enhanced safety design of the SynTec lap/shoulder belt, DTNA is not aware of any complaints, injuries or reports of safety concerns regarding this issue.

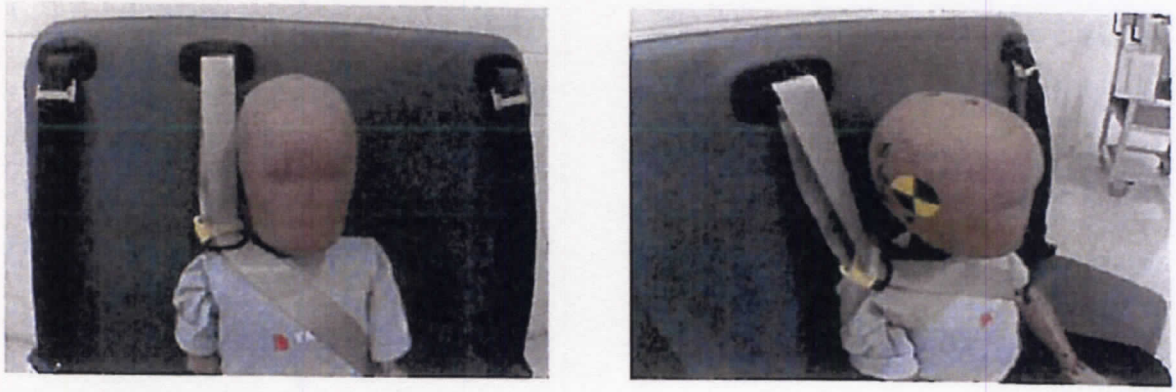

Figure 1 SynTec with high bezel and 6 year old dummy

NHTSA Precedents

DTNA notes that NHTSA has previously granted petitions for decisions of inconsequential noncompliance for a wide range of issues where a technical non-compliance exists, but does not create a negative impact on safety. In the case detailed within this petition, the lap/shoulder belt is an optional feature on the vast majority of school buses. When added, lap/shoulder belts increase the safety of the occupants as compared to a bus without passenger seatbelts. Also, as shown in Figure 1, the high bezel increases the child protection performance requirements by reducing the likelihood of an occupant coming into contact with the hard surface. The following examples are petitions for inconsequentiality that were granted by NHTSA and described within this petition to support DTNA's argument that, while technically non-compliant, NHTSA has previously granted inconsequentiality for cases where an additional level of safety above the requirements of the standard is provided.

See Docket No. NHTSA 2005-20545 (Grant of Petition for IC Corporation) for an example of a Petition for Inconsequentiality that was granted by NHTSA. In this instance, school buses were manufactured that were not compliant with FMVSS 217, but it was deemed inconsequential because it did not compromise safety. *"...The Agency agrees with IC that in this case the noncompliance does not compromise safety in terms of emergency exit capability in proportion to maximum occupant capacity, access to side emergency doors, visibility of the exits, or the ability of bus occupants to exit after an accident."*

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Also, *see* Docket No. NHTSA 98-3791 (Grant of Petition for New Flyer of America, Inc.) for another example of a Petition for Inconsequentiality that was granted. In this example, non-school buses were manufactured that were not compliant with FMVSS 217, but were granted inconsequentiality because the buses had additional safety features that were not required in the standard. The following quote is from NHTSA's consideration: *"Thus, the buses have the minimum number of emergency exits required by FMVSS No. 217. However, these exits were not distributed properly. Instead of a second emergency exit on the right side, these buses have an additional roof exit. This additional roof exit would provide for much needed emergency exit openings should the bus occupants need to evacuate due to a rollover incident. While this additional roof exit is not required by the standard, it does provide for an additional level of safety in the above situation.*
In consideration of the foregoing, NHTSA has decided that the applicant has met its burden of persuasion that the noncompliance it described above is inconsequential to motor vehicle safety."

In the case detailed within this petition, the noncompliance has been imperceptible to the occupants and test data presented in SynTec's petition show that the high placement of the bezel improved the function of the seatbelt while reducing the risk to the occupants. The overall level of safety with the SynTec design is therefore higher than that envisioned by FMVSS 222. Accordingly, DTNA respectfully requests that NHTSA grant the SynTec and DTNA petitions for inconsequential treatment.

Please contact me if you have any questions, or concerns.
Sincerely yours,

Andrew Jones

Daimler Trucks North America, LLC
4747 N. Channel Avenue
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Phone: 503-745-8000

DAIMLER

Defect Information Report

(Section 573.6)

FL-755

Date of Submission: *November 17, 2017*

Manufacturer: Daimler Trucks North America LLC
P.O. BOX 3849
Portland, Oregon 97208

Type of Report: ◯ **Safety Defect** X◯ **Non-Compliance**

Vehicle Information

Model Yr. Start: *2013* **Model Yr. End:** *2018*

Make: *Thomas Built Buses*

Model: *Saf-T-Liner C2, Saf-T-Liner EFX, Saf-T-Liner HDX, Minotour SRW, Minotour DRW*

Production Dates: **Begin:** *08/24/2012*
End: *05/01/2017*

Descriptive Information:
School buses equipped with certain SynTec lap/shoulder belts within the referenced build dates.

Number potentially involved: *3222* **Estimated percentage of involve with defect:** *100%*

Defect / Noncompliance Description

For this Defect/Noncompliance:

Describe the defect or noncompliance:

See SynTec Defect Information Report PBS100 excerpts from which state:
"SynTec is submitting this report based on technical noncompliance with FMVSS 222 as determined by a KARCO Engineering, LLC report that NHTSA provided to SynTec on Oct 25, 2017....."
"The regulations require a *head form force distribution impact* that may not be less than 4.5 joules at a velocity of 6.7m/s when any contactable surface within prescribed zones of a school bus seat is impacted from any direction. The regulations also require that, when impacted at 1.5m/s, the *head form contact area* must not be less than 1935mm2....."
"In the recent KARCO report, the equipment did not meet the *head form force distribution impact* requirement or the *head form contact area* requirement. It is, therefore, technically noncompliant with

FMVSS 222. All areas within the head protection zones defined in 5.3.1.1 meet S5.3.1.2 and 5.3.1.3 with the exception of a portion of the plastic bezel intruding into the zone on the front of the seat back."

If a noncompliance, provide the applicable FMVSS:
FMVSS 222

◯ **Check if this recall only affects products in certain geographic regions.**

Describe the safety risk:
DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the Safety Act on the grounds this noncompliance is inconsequential as it relates to motor safety.

If applicable, identify the manufacture of the defective or noncompliant component.
SynTec Seating Solutions, LLC

Chronology of Defect / Noncompliance Determination

Provide the chronology of events leading up to the defect decision or test data for the noncompliance decision.:
October 2017 DTNA received 573 report from SynTec concerning a non-compliance with FMVSS 222
November 2017 DTNA decided to initiate a voluntary recall and petition for a noncompliance inconsequentiality exemption for this issue.

Identify the Remedy

Describe the defect/noncompliance remedy program, including the manufacture's plan for reimbursement.
DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the Safety Act on the grounds this noncompliance is inconsequential as it relates to motor safety.

Identify the Recall Schedule

Describe the recall schedule for notifications.:
DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the Safety Act on the grounds this noncompliance is inconsequential as it relates to motor safety.

Planned Dealer Notification Begin Date: *mm/dd/yyyy*
Planned Dealer Notification End Date: *mm/dd/yyyy*

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Planned Owner Notification Begin Date: *mm/dd/yyyy*

Planned Owner Notification End Date: *mm/dd/yyyy*

Manufacture's identification code for this recall (if applicable): *FL-755*

DTNA Representative;

Andy Jones
Manager
Compliance and Regulatory Affairs

PBS100

PART 573 Safety Recall Report

Introduction: SynTec Seating Solutions, LLC, respectfully submits this Part 573 Safety Recall Report relating to all SynTec S3C and M2K school bus seats with lap/shoulder belts equipped with plastic "bezels" (the location where the shoulder harness exits the seatback). SynTec was notified of the noncompliance on October 25, 2017, and is filing this report on October 30, 2017. Although SynTec is submitting this report based on technical noncompliance with FMVSSS 222, the Company intends to file a 49 C.F.R. § 556 Petition for Inconsequentiality of Noncompliance since there is no risk of a safety impact. The reported noncompliance relates to two requirements designed for features of school buses that no longer exist: metal seat backs, grab rails on low back seats, and tubular luggage. The root cause of the noncompliance -- the high location of the bezel -- renders the seat safer than it otherwise would be.

Manufacturer Name: SynTec Seating Solutions, LLC

Equipment Information

Brand / Trade: S3C, M2K

Model: Lap/Shoulder Seats

Production Dates:

Begin: May 4, 2011

End: April 30, 2017

Descriptive Information:

All SynTec S3C and M2K school bus seats with lap/shoulder belts equipped with plastic "bezels" (the location where the shoulder harness exits the seatback) within the referenced build dates. In coordination with NHTSA, SynTec changed the design of the plastic bezel to a soft vinyl cover on May 3, 2017.

Part No: Various

Size: Various

Number Potentially Involved:

57,678 Seats (including 3,047 Aftermarket)

3732 Buses (including 400 Aftermarket)

Defect / Noncompliance Description

Description of the Noncompliance:

SynTec is submitting this report based on technical noncompliance with FMVSS 222 as determined by a KARCO Engineering, LLC report that NHTSA provided to SynTec on Oct 25, 2017. SynTec intends to petition the agency pursuant to 49 C.F.R. § 556 for exemption from the notice and remedy provisions of the Safety Act on the ground that this noncompliance is inconsequential as it relates to motor safety.

FMVSS 222 S5.3.1.2-3 provides for three head protection requirements. First, it mandates that certain values be attained in a *head injury criteria* ("HIC") analysis. The HIC is the predominant measure of head safety in a vehicle and the maximum HIC must be less than 1000.

Notably, the portion of the plastic bezels of the lap/shoulder harness which partially intrude into the prescribed zone on the front of the seat back (top 76mm) have HIC rates well-below the maximum. The product has never suffered a HIC failure and, in the KARCO report, the max HIC rates ranged from 74.5 to 254.1 illustrating the overall safety of the equipment.

The regulations also require a *head form force distribution impact* that may not be less than 4.5 joules at a velocity of 6.7m/s when any contactable surface within prescribed zones of a school bus seat is impacted from any direction. The regulations also require that, when impacted at 1.5m/s, the *head form contact area* must not be less than 1935mm2. These tests are now outmoded as it relates to the front of the seatback given changes to school bus seats such as the introduction of high back seats, lap/shoulder belts and integrated child seats.

In the recent KARCO report, the equipment did not meet the *head form force distribution impact* requirement or the *head form contact area* requirement. It is, therefore, technically noncompliant with FMVSS 222. All areas within the head protection zones defined in 5.3.1.1 meet S5.3.1.2 and 5.3.1.3 with the exception of a portion of the plastic bezel intruding into the zone on the front of the seat back.

Description of the Safety Risk:

As previously indicated in discussions with NHTSA, and as illustrated by the equipment's HIC values, SynTec believes that this noncompliance is inconsequential as it relates to motor safety.

The FMVSS 222 head protection zones were included to prevent manufacturers from installing objects that the bus occupant's head could come in contact with during a collision (such as metal seat backs, grab rails on low back seats, and tubular luggage racks) and to make the seat an energy absorber. Specifically, the 76 mm on the top of the front of the seat back requirement was intended to eliminate the risk from exposed metal bars and similar designs that used to be prevalent.

Due to recent and prevalent technological advancements in vehicle safety systems for school bus passenger seating, including high back seats (now mandated by NHTSA), and the advent of school bus seats equipped with lap/ shoulder belts, the requirements of S5.3.1.3 as it relates to the front of the seat back are outmoded and the failure to satisfy the *head form contact area* and *head form distribution impact* requirement have no impact on safety. Most notably, the absence of objects such as metal seat backs, grab rails, and tubular luggage, have rendered the two requirements irrelevant.

Moreover, regulators did not conceive of lap/shoulder seating when crafting these rules and could not have envisioned the placement of the bezel in the top portion of the top of the front of the seat. But, the higher location of the bezels -- the reason why the equipment is noncompliant -- improves overall safety as it is located above the head of smaller, more vulnerable occupants who make up the majority of the school bus ridership.

Applicable FMVSS: FMVSS 222

Other FMVSS Affected: None

Cause: Portion of plastic bezel intruding into head protection zone on front of seat back

Identify Warning: None

Supplier Identification

Component Manufacturer:

Name: NR

Address: NR

Country: NR

Chronology of Noncompliance Determination

Events Leading to Noncompliance Decision:

- February 1973 original FMVSS 222 proposal including S5.3.1 (remains unchanged to date).
- January 1976 FMVSS 222 published outlining test requirements for specified areas on school bus seats.
- January 2009 SynTec requests clarification from independent test lab regarding test protocol specific to head form positioning contained in FMVSS 222 test procedure. SynTec basis design of lap / shoulder seat in part based on this interpretation.
- November 2016 NHTSA initiates an investigation of all school bus seat manufacturers regarding a concern that "...items installed within 76 mm of the front of the seat back of school bus passenger seats would make compliance with paragraph S5.3.1 difficult."
- January 2017 SynTec volunteers to change bezel design regardless of outcome of NHTSA investigation.
- May 3, 2017 SynTec changes the bezel design to include a soft vinyl cover.
- November 2016 through October 2017 SynTec works with NHTSA on investigation and conducts series of internal and independent testing on front of seat back.
- October 25, 2017 NHTSA provides SynTec with KARCO report finding technical non-compliance.
- October 2017-November 2017 SynTec files this 573 Safety Recall Report and intention to file a petition for a noncompliance inconsequentiality exemption.

Identify the Remedy

Describe the Noncompliance Remedy:

Not Applicable.

How Remedy Components Differs from Recalled Components: NR

Identify How/When Recall Condition Corrected in Production: In coordination with NHTSA, SynTec implemented a design change to remove the plastic bezel and replace it with a soft vinyl cover on May 3, 2017.

Identify the Recall Schedule

Description of Recall Schedule

Not Applicable.

Planned Dealer Notification Date: NR

Planned Owner Notification Date: NR

UNITED STATES DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

In re:

SynTec Seating Solutions, LLC
NHTSA Campaign Number: 17E-065

SYNTEC SEATING SOLUTIONS LLC'S PETITION FOR INCONSEQUENTIALITY

SynTec Seating Solutions, LLC ("SynTec" or "the Company")[1] hereby petitions the National Highway Traffic Safety Administration ("NHTSA") under 49 U.S.C. §§ 30118(d) and 30120(h), and 49 C.F.R. § 556, with respect to all SynTec S3C and M2K school bus seats with lap/shoulder belts equipped with plastic "bezels" ("Affected Seats") referenced in SynTec's October 30, 2017 Part 573 Safety Recall Report ("573 Report").[2] (Exhibit A) SynTec requests that NHTSA waive the notice and remedy provisions of the Safety Act, 49 U.S.C. § 30101, on the ground that the noncompliance detailed in the 573 Report is inconsequential as it relates to motor vehicle safety. Specifically, the noncompliance relates to two front-of-seat tests which were designed for features of school buses that no longer exist and have not existed in the market for some time. Moreover, the root cause of the non-compliance -- the high location of the plastic bezel -- improves the safety of the Affected Seats.

I. BACKGROUND

A. Regulatory Framework

The modern school bus seat is fundamentally different in design than its mid-twentieth century counterpart. Most notably, between 1950 and 1970, school bus seats and the area around

[1] SynTec Seating Solutions, LLC, is incorporated in Michigan and has a primary place of business at 200 Swathmore Avenue, High Point, NC, 27263.
[2] These seats were installed on 3,749 Thomas Built Buses (58,127 total seats), between May 4, 2011 and April 30, 2017.

the school bus seat included a variety of hazards that no longer exist, including: metal seat backs, grab rails on low seat backs, and tubular luggage racks. *See* Image 1.

Image 1 (Seats from the 1950's-1970's)

In 1973, NHTSA sought to address these various school bus seat hazards with a rule designed to make "passenger seats stronger, higher, and less hostile on impact than present seats." NHTSA, Bus Passenger Seating and Crash Protection, 38 Fed. Reg. 4776 (Feb. 22, 1973) (Proposed Rule). In its review, NHTSA found that "the [older] seats fail the passengers in three principal respects: by being too weak, too low, and too hostile." *Id.* The NHTSA adopted a "compartmentalization" approach to "ensure[] that passengers are cushioned and contained by the seats in the event of a school bus crash by requiring school bus seats to be positioned in a manner that provides a compact, protected area surrounding each seat." NHTSA, Federal Motor Vehicle Safety Standards; Seating Systems, Occupant Crash Protection, Seat Belt Assembly Anchorages, School Bus Passenger Searing and Crash Protection, 73 Fed. Reg. 62744 (Oct. 21, 2008) (Final Rule) (discussing the adoption of the Bus Passenger Seating and Crash Protection Rule in the 1970's.) To that end, it adopted testing on the back of the seat to guarantee that the back "ke[pt]

the deceleration of the head form below a certain level . . . [and would] depress in a manner that absorbs energy and distributes the force of impact. *See* 38 Fed. Reg. 4776.

NHTSA's concerns as to the front of the seat were different than the agency's back of the seat concerns; they related to various hazards on the top of the seat which could come into contact with an occupant's head in the event of a crash. The rule specifically referenced the "metal bars on the seat back to be used by standees. There is evidence that these hard surfaces are often the causes of injury, particularly to the head and face." *Id.* NHTSA therefore proposed testing and regulations on the front of the seat that would "eliminate exposed metal bars and similar designs." *Id.*[3]

In 1976, NHTSA issued its final rule. NHTSA, School Bus Passenger Seating and Crash Protection, 41 Fed. Reg. 4016 (Jan. 28, 1976) (codified at 49 C.F.R. § 571.222). The school bus seat rule includes Federal Motor Vehicle Safety Standard ("FMVSS") 222 S53.1, which has been in effect without amendment since implementation. FMVSS 222 S53.1 establishes a "head protection zone," which is the zone around the school bus passenger seat that includes the top 76 mm of the front of the seat back. To promote safety, the regulation mandates that the head protection zone meet certain requirements when hitting any contactable surface at certain velocities. Specifically:

- S5.3.1.2 sets the standard for the applicable "Head Injury Criteria" (HIC). The HIC provides a quantitative judgment of the head injury risk in an accident, taking into account

[3] Before issuing the final rule, NHTSA published three additional notices to address various public comments. *See* NHTSA, School Bus Passenger Seating and Crash Protection, 40 Fed. Reg. 47141 (Oct. 8, 1975) (Proposed Rule); NHTSA, School Bus Passenger Seating and Crash Protection, 40 Fed. Reg. 17855 (April 23, 1975) (Proposed Rule); NHTSA, School Bus Passenger Crash Protection, 39 Fed. Reg. 27385 (July 30, 1974) (Proposed Rule). The most notable change occurred in 1974, which limited the regulations to school buses rather than all passenger buses.

the acceleration level and duration of the event.[4] In order to satisfy S5.3.1.2, the HIC must be less than 1,000, when the head form is struck at a high speed velocity (6.7 m/s).

- S5.3.1.3 focuses on the energy absorption of the seat by requiring an energy deflection greater than 4.5 joules when the head form is struck at a high speed velocity (6.7 m/s).
- S5.3.1.3 also sets the standard for contact surface; the space that the head would come into contact with in the event of an accident. The contact surface must be greater than 1,935 mm2 when the head form is struck at a low speed velocity (1.5 m/s).

B. *SynTec's Modern School Bus Design*

Although the relevant regulations have not changed since 1976, passenger seats used in school buses today are dramatically different in design. Most obviously, the various hazards that the 1976 regulations were designed to target near the front of the seat -- the metal seat backs, the grab rails, and the tubular luggage racks -- are no longer present in modern school bus seats.

In January 2011, SynTec introduced the M2K lap/shoulder seat in order to provide a number of additional safety features to passengers. The company sold 2,272 M2K lap/shoulder seats to Thomas Built Buses before discontinuing the product in 2012. SynTec then improved upon the M2K lap/shoulder seat design with the S3C seat, which the Company introduced in 2012. The back of these seats are substantially higher than earlier school bus passenger seats and are equipped with lap/shoulder seat belts. The seat also includes: color coding and key buckles to prevent improper buckling; a fixed buckle anchorage to prevent side occupant incursion; flip up buckles in pockets to be out of the way from debris; high shoulder anchorage; and countered seat cushion. The plastic "bezel" (the location from which the lap/shoulder harness exits the seat back)

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[4] *See* Hans-Wolfgang Henn, *Crash Tests and the Head Injury Criterion*, 17 Teaching Mathematics and its Applications No. 4 (1998), *available at* http://health.uottawa.ca/biomech/courses/apa6903/CrashTests%20and%20the%20HIC.pdf

was intentionally set high on the seat fronts to provide protection to the maximum range of occupants. Some M2K and S3C seats also are equipped with an integrated child seat. *See* Image 2.

Image 2 (SynTec's Modern Seats)

To ensure that the Affected Seats complied with all laws and regulations, SynTec contracted with a third party, MGA Research Corporation ("MGA"), to conduct certification testing under FMVSS No. 222.[5] Specifically, MGA conducted tests on the M2K seat in June 2011 and on the S3C seat in August 2012. The M2K and S3C passed the FMVSS 222 requirements with respect to the back of the seat.[6] Consistent with the industry norm and MGA's past practice, MGA did not test targets on the front of the seat. Based on its interactions and conversations with MGA, SynTec understood that back seat-only testing represents the industry norm. Front of the seat testing is not conducted due to the low risk of harm from the front, and because the small head

[5] The Company selected MGA to conduct its testing since the entity was the most experienced independent test firm that conducted FMVSS 222 testing. In fact, NHTSA was a major client of MGA for FMVSS 222 testing. The Company therefore believed that MGA could provide independent test results to ensure that the Affected Seats complied with the federal regulations.

[6] With respect to the M2K seat, early tests showed a HIC value ranging from 62 to 312. (Exhibit B). For the S3C seat, early tests results on the back of the seat yielded HIC values ranging from 82.9 to 283.6. (Exhibit C).

impact zone makes it impossible to conduct the test per the recommended test procedure.[7] Indeed, as referenced above, the testing was designed to ensure that the back of the seat was an energy absorber and that various hazards were eliminated from the top. Nonetheless, these early MGA tests results -- specifically the product's HIC values and the strong contact area and impact velocity scores on the back of the seat -- highlighted the improved safety benefits of SynTec's new seat design. *See* (Exhibits B & C).

C. *NHTSA's Investigation*

On November 2, 2016, NHTSA informed SynTec that the agency was "reviewing certification data regarding compiance with the [FMVSS]," and that it was seeking additional information on the Affected Seats. NHTSA expressed "concern[] that items installed within the top 76mm of the front of the seat back of school bus passenger seats would make compliance with S5.3.1. difficult." (Exhibit D)

SynTec responded that it "contracted with a third party to conduct certification testing" on its seats. (Exhibit E). SynTec stated that independent consultant "MGA used their previous testing experience with NHTSA and the school bus industry to choose the impact locations. Targets on the front of the seat back were not impacted for the following reasons: this is a low risk area … the small head impact zone makes it unfeasible to conduct the test per the recommended test procedure as the test form must lie entirely within the boundary of the seat." *Id.*

In January 2017, SynTec employees met with NHTSA representatives to explain the various safety features of the Affected Seats and to discuss MGA's inability to properly test the front of the seat. Critically, SynTec agreed, in cooperation with NHTSA and irrespective of the

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[7] In January 2009, MGA contacted NHTSA for clarification on the conflict between FMVSS 222 and the Test Procedure. *See* TPP 222.05. A representative from NHTSA responded that the entire head/or knee form must lie within the boundaries of the seat. This, however, precluded getting valid results from contacting the front as the head form cannot lie within the entire boundary of the seat.

findings of NHTSA's investigation, to replace the hard plastic surface of the bezels with a soft vinyl harness cover.

One month later, SynTec contacted KARCO, another independent testing facility, to inquire about the feasibility of front of seat testing under S5.3.1. KARCO, like MGA, represented that it had never done S5.3.1 testing on the front of school bus seats. Counsel for SynTec therefore wrote to NHTSA requesting guidance on how to properly test the front of the seat. (Exhibit F). That letter stated that SynTec conferred with two independent labs which "confirmed that they have conducted compliance testing exclusively on the back of the seat . . . [but] did not know how to perform testing on the front of the seat back." *Id.* at 2. Counsel therefore asked a number of specific questions seeking clarity on the test procedures.[8]

Throughout March and April 2017, SynTec continued to correspond with NHTSA about the development of its new seat. On May 3, 2017, SynTec's new fully-compliant seat design was implemented; this seat replaced the hard plastic surface bezel and increased seat back thickness by 3/8".[9] *See* Image 3.

Image 3 (May 2017 Changes to SynTec's S3C Seat)

[8] Although informal communications between SynTec and NHTSA continued, SynTec never received a formal response with the requested guidance.

[9] Between 2012-April 30, 2017, approximately 58, 127 lap/shoulder seats with plastic bezels partially intruding into the zone were manufactured and installed on 3,749 buses.

Around this same time, NHTSA also indicated that it was going to contract with KARCO to independently conduct testing on the front of the S3C seat with plastic bezels. For its part, SynTec contracted with MGA to conduct its own front and rear seat testing on the S3C product. (Exhibit G). That testing yielded HIC scores with a range between 51.7 through 252.8; well-below the 1,000 maximum. *Id.* at 4. The seat's contact surface results and energy absorption were less consistent; when the hit occurred on the plastic bezel, the scores were lower than the required standard. Overall, the contact surface range produced results ranging from 645.2 mm2 through 4329 mm2, and the energy absorption test showed data between .581j and 9.235j. *Id.* at 3-4.[10]

On September 6, 2017, NHTSA conducted its own testing through KARCO. NHTSA then provided SynTec with the results on October 25, 2017 and noted "certain areas of the seat do not meet the minimum requirements for contact area and energy deflection as stated in S5.3.1.3." (Exhibit H). Consistent with its prior HIC testing, the KARCO results exhibited positive HIC values: the maximum HIC rates ranged from 74.5 to 254.1. (Exhibit I). The results were mixed with respect to energy deflection and impact area, including some failed results.[11] *Id.* Notably, the non-compliant results occurred because of the high-location of the bezel on the seat.

Based on these results, and consistent with its discussions with the NHTSA during the investigation, SynTec concluded that the Affected Seats were in technical noncompliance with the FMVSS standards. On October 30, 2017, within five days of making the technical noncompliance determination, the Company filed a 573 Report with the NHTSA. The report emphasized the

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[10] During phone conversations and in-person meetings, SynTec and NHTSA informally agreed that a failed test during NHTSA's independent testing would be the catalyst for SynTec to file a 573 Report.

[11] In the contact area test, the seat passed with rates of 2323 mm2 and 4065 mm2, but was non-complaint with scores of 452 mm2 and 581 mm2. With respect to energy deflection, it passed at 7.5j and 5.3j, but was non-compliant at 2.0j and 1.7j.

absence of any safety impact on account of the non-compliance and indicated that the Company planned to submit a Petition for Inconsequentiality.

II. DISCUSSION

A. *Legal Standard*

The Safety Act, 49 U.S.C. § 30101, requires the manufacturer of a defective vehicle or piece of automotive equipment to provide notice to "the owners, purchases, and dealers of the vehicle or equipment," § 30118(c), and to "remedy the defect . . . without charge," § 30120(a). The Act and implementing regulations provide an exception where NHTSA concludes that the defect is "inconsequential to motor vehicle safety." § 30120(h); *see also* 49 C.F.R. § 556.4. This analysis is highly fact specific. *See, e.g., Sidump'r Trailer Co., Inc.*, 78 FR 22941-01, 2013 WL 1620464 (2013) (granting petition on the basis of the specific safety-related evidence that the Company provided to NHTSA).

NHTSA should grant the petition for two reasons. *First*, the non-compliance relates to two tests on the front of the seat that are outmoded: they were designed to precipitate the elimination of items in school buses that have, in fact, been eliminated. *Second*, the root cause of the non-compliance (the high location of the bezel), along with other improvements to SynTec's seat, renders the equipment safer than regulators could have envisioned in 1976. Indeed, the product's HIC values -- the preeminent measure of head safety -- are consistently excellent and illustrate the safety of the product.

B. ***The S53.1.3 tests are outmoded for the front of the seat and the equipment's HIC scores represent the most accurate accounting of the seat's safety.***

As highlighted above, the original intent of the contact surface test was to precipitate the elimination of metal grab bars and other hostile objects above the passenger seats that could come into contact with the occupant's head in the event of a crash. 38 Fed. Reg. 4776 (Feb. 22, 1973)

(Proposed Rule) (stating the goal of "elimina[ting] exposed metal bars and similar designs and [making] the seat itself a significant energy absorber.") Likewise, the energy deflection analysis was designed to ensure that the seat would depress and distribute the force of impact in a manner that could not be achieved with exposed metal surfaces on the seat. *Id.*

Although SynTec was non-compliant with these two tests, the requirements are now outmoded with respect to the front of the Affected Seats because the various hazards they are seeking to guard against no longer exist. Indeed, the non-compliance did not occur because of a hazard that the regulations were designed to protect against. Rather, as explained below in Section II(C), the non-compliance resulted from a high-placed bezel that actually makes the Affected Seats safer for more occupants. The two tests were crafted for a school bus seat design that was substantially different and less safe than the superior versions that exist in the market today.

Given that these tests are outmoded, the most accurate measure of head safety for the front of the seat is the product's HIC value. The HIC is the most widely accepted measure of head injury in use today.[12] Indeed, it is the standard measure of head injury throughout the Federal Motor Vehicle Safety Standards. *See, e.g.*, FMVSS 201 & 208. Similarly, HIC is the metric used by NHTSA's New Car Assessment Program. *See* 80 Fed. Reg. 78522, 78533 (2015) (noting that the HIC value "is currently in use in FMVSS No. 208 and frontal NCAP tests.") The HIC measure is particularly valuable since it accounts for energy absorption and contact area by measuring the deceleration of the head form over time. *See supra* n.2.

Over the past few years, both SynTec and NHTSA, internally and at accredited external test agencies, have conducted HIC testing on the front of the Affected Seats. During testing, the seats were positioned at various angles, and impacts were performed on multiple locations of the

[12] C. Derek & R. Willinger, *Improved Head Injury Criteria Based on Head FE Model*, International Journal of Crashworthiness, Vol. 13, 667-678 (2008).

seat within the head protection zone ("hits"), including on the portion of the plastic bezel that protrudes into the top 76 mm on the front. These test results *always* produced a HIC value well below 1,000. For instance, since March 2017 the Company has conducted 253 "hits" on the front of the seat. The average HIC value during these tests was 114.1, with a low score of 51.7 and a high HIC value of 311.8.[13] Even the product's highest HIC value falls far short of the 1,000 maximum requirement. These values illustrate the safety of SynTec's product and the inconsequentiality of the non-compliance with the other FMVSS S5.3.1.3 test requirements.

Simply stated, the tests which prompted the 573 Report are searching for hazards on the front of the seat that do not exist in the Affected Seats. *See* 38 Fed. Reg. 4776 (Feb. 22, 1973) (Proposed Rule). As the product's HIC values show, SynTec's technical non-compliance on these two tests is not relevant to the product's safety. Accordingly, the NHTSA should grant SynTec's petition for inconsequentiality.[14]

C. *The source of SynTec's non-compliance enhances the product's safety.*

SynTec's seats are safer than regulators could have envisioned in 1976. Indeed, the cause of the non-compliance, the location of the plastic bezel, renders the seat safer than it would be with a bezel that was not placed in the head protection zone. This higher positioning -- combined with higher seat backs -- provides a belt for a maximum range of occupants and keeps hard objects away from the most vulnerable passengers.

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[13] These scores include tests on both the design with the plastic bezel and the new design with the vinyl harness cover. 22 "hits" were conducted on the old design; 209 "hits" were conducted on the front. For the old design, the average HIC score was 124.3. For the new design, the HIC score was 114.1.

[14] SynTec has consistently highlighted for NHTSA the inconsistency between the regulations, CFR 49.571.222, and the Test Procedures. For its part, the CFR permits testing and impact at any location, whereas the testing procedures, TPP 222-05, sets limitations, such as seat boundaries, and require a prescribed location of the testing. These inconsistencies make it impossible to perform the test on the front of the seat back. As highlighted above, in an attempt to try to ensure compliance with the regulations, SynTec sought guidance on the question and had third parties complete testing in a manner consistent with industry standards.

SynTec utilized automotive best practices and BELFIT software from the Motor Industry Research Association to determine the optimum geometric place for the belt position. SynTec's objective was to provide maximum protection, taking into account the wide range of occupant sizes riding on a school bus. Based on this analysis, it placed the bezel at the higher portion of the seat. The position also allowed for more adjustment by the d-ring, for better torso restraint, and for a more comfortable fit (thereby encouraging use).

Notably, an independent study conducted by the University of Michigan Transportation Research Institute confirmed this analysis.[15] The study found that the maximum adjustability provided by a higher shoulder belt exit location, combined with an adjustable d-ring, ensured the best opportunity for safety and comfort. Specifically, it indicated that an anchorage location 560 mm above the h-point mitigates injuries related to belt fitment for a 12 year old occupant.

The higher shoulder harnesses also keep hard surfaces away from small occupants who are most vulnerable. A typical occupant in the vehicle would have a greater chance of coming into contact with a lower bezel. In seats with lap/shoulder belts with a lower bezel, the bezel would land in a smaller occupant's head area. Similarly, most designs that include an integrated child seat, have a hard surface that sits behind a smaller occupant's head. *See* Image 4.

Image 4 (Competitor Seats with low bezels)

[15] *See* Jingwen Hu, Jun Wu, Kathleen D. Klinich, Matthew P. Reed, Jonathan D. Rupp & Libo CaoOptimizing the Rear Seat Environment for Older Children, Adults, and Infants, Traffic Injury Prevention (2013). 14:sup1, S13-S22, DOI; Jingwen Hu, Jun Wu, Matthew P. Reed, Kathleen D. Klinich & Libo Cao Rear Seat Restraint System Optimization for Older Children in Frontal Crashes, Traffic Injury Prevention, 14:6, 614-622 (2013).

In contrast, the Affected Seat's higher bezel location places the bezel outside of a smaller occupant's head area. Likewise, for smaller occupants using integrated child seats, the bezel also falls outside of the occupant head area. *See* Image 5.

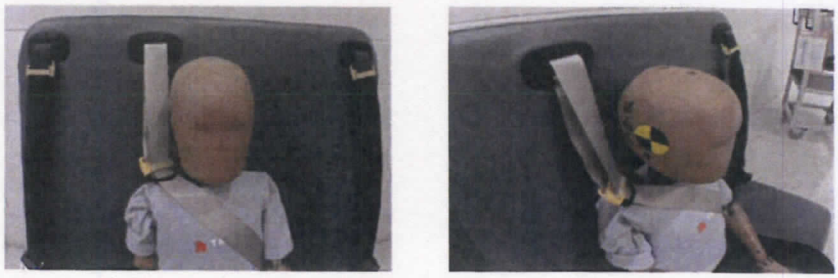

Image 5 (SynTec's S3C's higher Bezel with 6 YO Dummy)

Essentially, the higher bezel ensures better protection for the most vulnerable riders. Rather than cause any safety issues, the non-compliance (which occurred because of the location of the plastic bezels) makes the Affected Seats safer.

III. REQUEST FOR RELIEF AND CONCLUSION

The non-compliance of the Affected Seats identified in SynTec's 573 report resulted from tests that are now outmoded as to the front of the seat. The tests with which the Affected Seats do not comply were designed to further NHTSA's compartmentalization goals with regard to the back of the seat and to eliminate hazards near the occupant's head on the front of the seat. In light of the purposes of the FMVSS, and the Affected Seat's HIC values, SynTec contends that the non-compliance detailed in its Part 573 Report is inconsequential as it relates to safety. Moreover, the non-compliance is inconsequential since its root cause -- a substantial design improvement -- enhances the product's safety. SynTec therefore respectfully requests that the NHTSA waive the notice and remedy requirements of the Safety Act as it relates to the Affected Seats.

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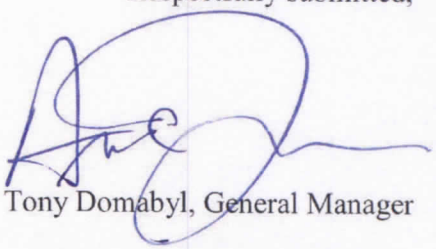
Respectfully submitted,



Tony Domabyl, General Manager

SynTec Seating Solutions, LLC

Exhibit List

Exhibit A: SynTec's October 30, 2017, 573 Report

Exhibit B: M2K 2011 High Speed Test

Exhibit C: S3C 2012 High Speed Test

Exhibit D: NHTSA November 2, 2016 Letter

Exhibit E: SynTec November 2016 Letter to NHTSA

Exhibit F: February 17, 2017 Letter to NHTSA

Exhibit G: July 7, 2017 MGA Testing

Exhibit H: October 25, 2017 NHTSA Email to SynTec

Exhibit I: September 2017 KARCO Testing Results

Part 573 Safety Recall Report 17V-731

Manufacturer Name : Daimler Trucks North America LLC
Submission Date : NOV 27, 2017
NHTSA Recall No. : 17V-731
Manufacturer Recall No. : FL755

Manufacturer Information :

Manufacturer Name : Daimler Trucks North America LLC
Address : 4747 N. Channel Avenue
Portland OR 97217-3849
Company phone : 800-745-8000

Population :

Number of potentially involved : 3,222
Estimated percentage with defect : 100 %

Vehicle Information :

Vehicle 1 : 2013-2018 Thomas Built Buses Saf-T-Liner C2
Vehicle Type :
Body Style :
Power Train : NR
Descriptive Information : School buses equipped with certain SynTec lap/shoulder belts within the referenced build dates.
Production Dates : AUG 24, 2012 - MAY 01, 2017
VIN Range 1 : Begin : NR End : NR ☐ Not sequential

Vehicle 2 : 2013-2018 Thomas Built Buses Saf-T-Liner EFX
Vehicle Type :
Body Style :
Power Train : NR
Descriptive Information : School buses equipped with certain SynTec lap/shoulder belts within the referenced build dates.
Production Dates : AUG 24, 2012 - MAY 01, 2017
VIN Range 1 : Begin : NR End : NR ☐ Not sequential

Vehicle 3 : 2013-2018 Thomas Built Buses Saf-T-Liner HDX
Vehicle Type :
Body Style :
Power Train : NR
Descriptive Information : School buses equipped with certain SynTec lap/shoulder belts within the referenced build dates.
Production Dates : AUG 24, 2012 - MAY 01, 2017
VIN Range 1 : Begin : NR End : NR ☐ Not sequential

Vehicle 4 : 2013-2018 Thomas Built Buses Minotour SRW

Vehicle Type :	
Body Style :	
Power Train :	NR
Descriptive Information :	School buses equipped with certain SynTec lap/shoulder belts within the referenced build dates.
Production Dates :	AUG 24, 2012 - MAY 01, 2017
VIN Range 1 :	Begin : NR End : NR ☐ Not sequential

Vehicle 5 :	2013-2018 Thomas Built Buses Minotour DRW
Vehicle Type :	
Body Style :	
Power Train :	NR
Descriptive Information :	School buses equipped with certain SynTec lap/shoulder belts within the referenced build dates.
Production Dates :	AUG 24, 2012 - MAY 01, 2017
VIN Range 1 :	Begin : NR End : NR ☐ Not sequential

Description of Noncompliance :

Description of the Noncompliance :	See SynTec Defect Information Report PBS100 excerpts from which state: "SynTec is submitting this report based on technical noncompliance with FMVSS 222 as determined by a KARCO Engineering, LLC report that NHTSA provided to SynTec on Oct 25, 2017....." "The regulations require a head form force distribution impact that may not be less than 4.5 joules at a velocity of 6.7m/s when any contactable surface within prescribed zones of a school bus seat is impacted from any direction. The regulations also require that, when impacted at 1.5m/s, the head form contact area must not be less than 1935mm2....." "In the recent KARCO report, the equipment did not meet the head form force distribution impact requirement or the head form contact area requirement. It is, therefore, technically noncompliant with FMVSS 222. All areas within the head protection zones defined in 5.3.1.1 meet S5.3.1.2 and 5.3.1.3 with the exception of a portion of the plastic bezel intruding into the zone on the front of the seat back."
FMVSS 1 :	222 - School bus passenger seating and crash protection
FMVSS 2 :	NR
Description of the Safety Risk :	DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the Safety Act on the grounds this noncompliance is inconsequential as it relates to motor safety.
Description of the Cause :	NR
Identification of Any Warning that can Occur :	NR

Supplier Identification :

Component Manufacturer

Name :	SynTec Seating Solutions, LLC
Address :	200 Swathmore Ave High Point NORTH CAROLINA 27263
Country :	United States

Chronology :

October 2017 DTNA received 573 report from SynTec concerning a non-compliance with FMVSS 222
November 2017 DTNA decided to initiate a voluntary recall and petition for a noncompliance inconsequentiality exemption for this issue.

Description of Remedy :

Description of Remedy Program :	DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the Safety Act on the grounds this noncompliance is inconsequential as it relates to motor safety.
How Remedy Component Differs from Recalled Component :	NR
Identify How/When Recall Condition was Corrected in Production :	NR

Recall Schedule :

Description of Recall Schedule :	DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the Safety Act on the grounds this noncompliance is inconsequential as it relates to motor safety.
Planned Dealer Notification Date :	NR - NR
Planned Owner Notification Date :	NR - NR

* NR - Not Reported