

File



Navistar, Inc.
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APR 03 2019

April 2, 2019

Bruce B. York, Chief
Medium/Heavy Duty Vehicles Division
Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Ave. S.E.
Washington, D.C. 20590

Ref.: NEF-106rr
PE18-015

Dear Mr. York:

This letter is in response to your letter of February 19, 2019 concerning the request for information for a Preliminary Evaluation of allegations of AMSAFE two-point seat belts not latching as a result of a broken cover on the steel insert in model year (MY 2011 – 2016) IC school buses manufactured by Navistar.

The following information is submitted in itemized format corresponding to your numeric requests:

1. State, by model and model year, the number of subject vehicles Navistar has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by Navistar, state the following:
 - a. Vehicle identification number (VIN);
 - b. Make;
 - c. Model;
 - d. Model Year;
 - e. Subject component part number and design version installed as original equipment;
 - f. Manufacturer of the subject component identified in the preceding request;
 - g. Date of manufacture;
 - h. Date warranty coverage commenced; and
 - i. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Response 1:

There were 10,105 MY 2011 thru 2016 IC School Buses built from March 22, 2010 through March 4, 2015 with the suspect AMSAFE seats belts sold in 47 different states in the U.S plus the District of Columbia and Puerto Rico. The summary table below shows the bus Models and MY of the affected population.

Bus Model	MY 2011	MY 2012	MY 2013	MY 2014	MY 2015	MY 2016	Total
AE School Bus			10	76	91		177
BE School Bus	87	156	138	42	31		454
CE School Bus	948	1,746	1,585	1,901	2,180	962	9,322
RE School Bus	4	51	50	34	13		152
Grand Total	1,039	1,953	1,783	2,053	2,315	962	10,105

Please refer to the Excel file titled "REQUEST#1 Production Data-VIN" located on the non-confidential USB flash drive for further detail.

Source: Navistar Database

Last date information was gathered: 03/20/2019

2. State the number of each of the following, received by Navistar, or of which Navistar is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:
 - a. Consumer complaints, including those from fleet operators;
 - b. Field reports, including dealer field reports;
 - c. Reports involving a crash, injury or fatality;
 - d. Reports involving a fire;
 - e. Property damage claims;
 - f. Third-party arbitration proceedings where Navistar is or was a party to the arbitration; and
 - g. Lawsuits, both pending and closed, in which Navistar is or was a defendant or codefendant.

For subparts "a" through "f, / g," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f, / g," provide a summary description of the alleged problem and causal and contributing factors and Navistar's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e/f" and "f, / g," identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

Response 2:

- a) Navistar has received (2) consumer complaints related to the alleged defect;
- b) Navistar has received (1) field report related to the alleged defect;
- c) Navistar has received (0) reports involving a crash, injury or fatality;
- d) Navistar has received (0) reports of fire related to the alleged defect;
- e) Navistar has received (0) property damage claims;
- f) Navistar is not involved in any third-party arbitration proceedings relating to the alleged defect.
- g) Navistar is not and has not been a defendant or co-defendant in lawsuits relating to the alleged defect.

Source: Navistar Database

Last date information was gathered: 03/21/2019

3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:
 - a. Navistar's file number or other identifier used;
 - b. The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);
 - c. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
 - d. Vehicle's VIN;
 - e. Vehicle's make, model and model year;
 - f. Vehicle's mileage at time of incident;
 - g. Incident date;
 - h. Report or claim date;
 - i. Whether a crash is alleged;
 - j. Whether a fire is alleged;
 - k. Whether property damage is alleged;
 - l. Number of alleged injuries, if any; and
 - m. Number of alleged fatalities, if any.

Response 3:

Please refer to the Excel file titled "REQUEST# 3 Production Data" located on the non-confidential USB flash drive for the requested details on the 2 consumer complaints and 1 Field Report.

Source: Navistar Database

Last date information was gathered: 03/22/2019

4. Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.)

and describe the method Navistar used for organizing the documents. Describe in detail the search methods and search criteria used by Navistar to identify the items in response to Request No. 2.

Response 4:

There were two customer complaints filed and one field report concerning the alleged seat belt defect. Listed below are copies of VOQ [REDACTED] Case File [REDACTED] (Customer Service), and Case File [REDACTED] (Field Report)

VOQ Criteria	VOQ Data
NHTSA'S INTERNAL UNIQUE SEQUENCE NUMBER.	[REDACTED]
NHTSA'S INTERNAL REFERENCE NUMBER.	[REDACTED]
MANUFACTURER'S NAME	Navistar, Inc.
VEHICLE/EQUIPMENT MAKE	INTERNATIONAL
VEHICLE/EQUIPMENT MODEL	CE
MODEL YEAR,	2015
WAS VEHICLE INVOLVED IN A CRASH	N
DATE OF INCIDENT	20180801
WAS VEHICLE INVOLVED IN A FIRE	N
NUMBER OF PERSONS INJURED	
NUMBER OF FATALITIES	
SPECIFIC COMPONENT'S DESCRIPTION	SEAT BELTS
CONSUMER'S CITY	TOMS RIVER
CONSUMER'S STATE CODE	NJ
VEHICLE'S VIN#	4DRBUC8NXFB [REDACTED]
DATE ADDED TO FILE	20180906
DATE COMPLAINT RECEIVED BY NHTSA	20180906
VEHICLE MILEAGE AT FAILURE	78640
NUMBER OF OCCURRENCES	1
DESCRIPTION OF THE COMPLAINT	SEAT BELTS, MANUFACTURED BY AMSAFE PART NUMBER 80149205 ARE DEFECTIVE AND WILL NOT LATCH. *TT *DT *TR 8 VIN NUMBERS FOR INTERNATIONAL BUSES EQUIPPED WITH DEFECTIVE SEAT BELTS UPDATED 10/3/18*JB; 10/10/18*JB BROKEN SEAT BELT UPDATED 10/3/18*JB
SOURCE OF COMPLAINT CODE:	EVOQ
WAS INCIDENT REPORTED TO POLICE	N
DATE PURCHASED	
WAS ORIGINAL OWNER	N
ANTI-LOCK BRAKES	N
CRUISE CONTROL	N
NUMBER OF CYLINDERS	6
DRIVE TRAIN TYPE	RWD
FUEL SYSTEM CODE:	
FUEL TYPE CODE:	DS

DEALER'S NAME	
DEALER'S CITY	
DEALER'S STATE CODE	
PRODUCT TYPE CODE	V
WAS DEFECTIVE TIRE REPAIRED	
WAS MEDICAL ATTENTION REQUIRED	N
WAS VEHICLE TOWED	N

Case Summary

Case #:	██████████
Case Type:	CUSTOMER SERVICE
Open Date & Time:	11/12/2013 14:40
Original Customer Name:	Paramus Board of Education
Status ID:	CLOSED
Assigned To:	Jon Garver
Group:	PROTOCOL
Incident Description:	Customer states that there is a safety concern on his buses where the plastic cover on the seat belts cracking and falling off. Customer states that on the 3 buses he has, there are 49 broken belts. Customer would like to speak to a CSE about this issue and why it's happening and what can be done. Customer won't take the buses to a dealer until he speaks with Navistar about this.
Incident Resolution:	November 15, 2013 9:19 AM Subject: Customer Service Case File ██████████ has been updated (Do not reply to this email) Case ██████████ has been updated. The following note was added: 11/15/2013 @ 10:15 am I called and spoke with Cal Keonig referencing the seat belt issue. He said he has several buses with the plastic on each belt breaking and once it breaks the belt will not latch properly and stay latched. I informed Cal i would order 12 replacement belts, so i can send a group of the belts back to our supplier for testing. Also i spoke with Rob Schwab of Wolfington about the customers concerns, he spoke with Cal earlier this morning and had no idea of the issue. I passed along the concerns and asked Rob to order 12 belts and let me know when they are replaced so i can provide the instructions of where to ship them. Also, i instructed both Cal and Rob to please keep the belts in pairs when they are removed, which they agreed they will. Cal seemed ok with the direction we would proceed to investigate the concerns.
Dealer Information	
Dealer Account:	██████████
Dealer Location:	0
Dealer Name:	WOLFINGTON BODY CO INC
Dealer Phone Number:	██████████
Dealer City:	UWCHLAND

Dealer State:	PA
Dealer Zip:	19480
Dealer Personnel ID:	
Dealer Personnel Name:	
Vehicle Information	
VIN #:	4DRBUAAN1CB [REDACTED]
Engine Hours:	
Estimated Mileage:	111111
Vehicle Build Date:	5/11/2011
Model Description:	INTEGRATED CE S BUS
Model Code:	PB105
Engine Serial #:	[REDACTED]
Engine Description:	0012NUM MAXXFORCE DT 230HP/2400 GOV
Engine Build Date:	
Warranty Start Date:	10/28/2011
DEALER'S NAME	
DEALER'S CITY	
DEALER'S STATE CODE	
PRODUCT TYPE CODE	
WAS DEFECTIVE TIRE REPAIRED	
WAS MEDICAL ATTENTION REQUIRED	
WAS VEHICLE TOWED	

Case Summary	
Case #:	[REDACTED]
Case Type:	FIELD REPORT
Open Date & Time:	11/2/2018 6:16
Vehicle Status:	
Original Customer Name:	Kingsway Regional Board of Education
Status ID:	CLOSED
Assigned To:	Brandon Akridge
Group:	SERVICE ENGINEERING
Major System:	BUS BODY
Minor System:	
SubGroup:	
Incident Description:	Urgency Entered: HIGH Description: The tabs on IC School Bus seat belts are failing and when this occurs the seat belts will not latch. When the belts do not latch the passengers , primarily, school children cannot be secured. There are several current customers in NJ and NY who are asking for assistance with replacing their failed seat belts. I have included a vin list below of one customer, Kingsway Regional, request for assistance.
Incident Resolution:	The customer is replacing the failed seat belts, old style with the new, improved, style. The original seat belt vendor from what I have found out is no longer in operation and a different supplier now manufactures the replacement belt. ilmpove 3230 and IK2200132 address this issue.

Dealer Information	
Dealer Account:	100
Dealer Location:	0
Dealer Name:	Field Personnel
Dealer Phone Number:	260-461-1800
Dealer City:	Fort Wayne
Dealer State:	IN
Dealer Zip:	
Dealer Personnel ID:	U00DEMF
Dealer Personnel Name:	Dennis Moughemer
Vehicle Information	
VIN #:	4DRBUAAN7CB [REDACTED]
Engine Hours:	
Estimated Mileage:	
Vehicle Build Date:	6/14/2011
Model Description:	INTEGRATED CE S BUS
Model Code:	PB105
Engine Serial #:	[REDACTED]
Engine Description:	0012NUK MAXXFORCE DT 215HP/2400 GOV
Engine Build Date:	
Warranty Start Date:	10/3/2011

The Search Method used to locate these files included:

- Running a report query in Navistar’s casefile database using the following criteria
 - Including all school bus models
 - Including dates when the case file was generated
 - 1/1/2010 thru 3/15/2019
 - Using the following words to pull the data using 4 different reports using one word for each report
 - “A” (which collected all case files with the criteria listed above), then searched for the following words creating three files:
 - Seat
 - Belt
 - Buckle
 - Combining the data into one file
 - Reading through the casefiles to determine if the case file was related to this investigation
 - Keeping all case files that were related to this investigation

Source: Navistar Database

Last date information was gathered: 03/22/2019

5. State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Navistar to date that relate to, or may relate to, the alleged defect in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. Navistar’s claim number;
- b. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer’s or facility’s name, telephone number, city and state or ZIP code;
- g. Labor operation number(s);
- h. Problem code(s);
- i. Diagnostic trouble code(s);
- j. Replacement part number(s) and description(s);
- k. Concern stated by customer;
- l. Cause as stated on the repair order;
- m. Correction as stated on the repair order; and
- n. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Response 5:

A search of our warranty claim database was performed on issues related to both bus body and bus seat claims. The search resulted in 79 warranty claims on subject vehicles. Problem codes used included; Binds/Sticks, Broken, Inoperative, and Part Improperly Installed/Not Connected.

SCHOOL BUS SEAT BELT BUCKLE CLAIMS BY MY

	MY 2011	MY 2012	MY 2013	MY 2014	MY 2015	MY 2016	Grand Total
Count of Navistar Warranty Claim Number	25	17	17	5	13	2	79

Please refer to the Excel file titled “REQUEST# 5 Warranty Data” located on the non-confidential USB flash drive for the complete set of warranty claim data related to the alleged AMSAFE seat belt defect.

Source: Warranty claim database

Last date information was gathered: 03/22/2019

6. Describe in detail the search methods and search criteria used by Navistar to identify the claims in response to Request No. 5, including the labor operations, problem codes, diagnostic trouble codes, part numbers and any other pertinent parameters used.

Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions, diagnostic trouble codes and diagnostic trouble code descriptions applicable to the alleged defect in the subject vehicles. State whether the diagnostic trouble codes are automatically reported to the warranty database electronically or manually entered into the warranty database by a claims administrator.

State, by make and model year, the terms of the new vehicle warranty coverage offered by Navistar on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) that Navistar offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.

Response 6:

Search Method and Criteria used for Request No. 5:

Navistar's Warranty Intensive Analysis System was used to pull the warranty data using the following criteria
Included all bus models
Included all buses built from 1/1/2008
Included all seat belt part numbers that were used for buses during the time period requested
Included all types of warranty claims, standard warranty claims, extended warranty claims, and good will claims
Reviewed all warranty claims for replacement of passenger seat belts for verbiage relating to the buckle, plastic fingers, plastic and the tongue portion of the belt
The results are shown in the data for question 5

Labor Operation	Labor Operation Description	Comment
A12-T1	RAN DIAGNOSTIC ON SEAT BELTS L	
A19-630	SEAT BELT AND/OR RETRACTOR, REPLACE	
A40-13906-2	REPLACE TWO SEATBELT RETACTORS	
A40-13906-3	REPLACE TWO SEATBELT RETACTORS	
A40-13908-2	Replace one seat belt retractor (either side)	
G60-140	SEAT BELTS, PASSENGER (BUS), REPLACE	
G60-200	DRIVER'S SEAT, STANDARD (BUS),	

G60-230	SEAT BELT, DRIVER'S (BUS), REP	Incorrect Labor operation used
G60-T1	ADDITIONAL LABOR REPLACE 5 MOR	
G65-140	STOP ARM LIGHTS, REPLACE	Incorrect Labor operation used
GA60-1684A	SEAT BELTS, PASSENGER (BUS), REPLACE	
GA60-1684A-11	SEAT BELTS, PASSENGER (BUS), Replace	
GA60-1684A-21	SEAT BELTS, PASSENGER (BUS), Replace	Incorrect Labor operation used
Parts only, Customer installed	Parts only, Customer installed	

Problem Code with Description
B - Broken
G - Part Improperly Installed/Not Connected
J - Binds/Sticks
Q - Cracked
T - Inoperative

Part Number	Description
3690417C2	Belt, Seat Passenger Blue
3690418C2	Belt, Seat Passenger Maroon
3690419C2	Belt, Seat Passenger Brown
3690420C2	Belt, Seat Passenger Blue
3690420C3	Belt, Seat Passenger Blue
3690420C4	Belt, Seat Passenger Blue
3690421C2	Belt, Seat Passenger Maroon
3690421C3	Belt, Seat Passenger Maroon
3690421C4	Belt, Seat Passenger Maroon
3690422C2	Belt, Seat Passenger Brown
3690422C3	Belt, Seat Passenger Brown
3690422C4	Belt, Seat Passenger Brown

Model	Bus Model Years	Warranty Coverage
AE School Bus	2010 - 2019	12 months with unlimited miles and hours
BE School Bus	2010 - 2019	12 months with unlimited miles and hours
CE School Bus	2010 - 2019	12 months with unlimited miles and hours
RE School Bus	2010 - 2019	12 months with unlimited miles and hours

Warranty Coverage is shown by the VIN (below is the warranty for a school bus). Seat Belt warranty is part of the Basic Vehicle Warranty.

VIN : 4DRAP5KK38B336163				
Standard Warranty Coverage				
Search Standard Warranty Coverage				
Date <input type="text"/>		Odometer <input type="text"/> Miles	Hours <input type="text"/>	<input type="button" value="Search"/>
Standard Coverage Component	Coverage Duration	Coverage Distance	Hours	Status
Basic Vehicle Warranty	8/15/2011 - 8/15/2012	Unlimited	Unlimited	Expired
Frame Rails and Crossmembers	8/15/2011 - 8/15/2016	Unlimited	Unlimited	Active
Body/Cowl Structure (Roof, Metal Floor, Sides and Rear Sections)	8/15/2011 - 8/15/2016	Unlimited	Unlimited	Active
Body/Cowl Perforation Corrosion	8/15/2011 - 8/15/2016	Unlimited	Unlimited	Active
Body/Cowl/Hood Paint Delamination	8/15/2011 - 8/15/2016	Unlimited	Unlimited	Active
IC Bus manufactured Seats Only - Foam	8/15/2011 - 8/15/2015	1,696 - 51,696 Miles	Unlimited	Active
IC Bus manufactured Seats Only - Upholstery	8/15/2011 - 8/15/2013	1,696 - 25,696 Miles	Unlimited	Expired
IC Bus manufactured Seats Only - Frame and Barriers	8/15/2011 - 8/15/2016	Unlimited	Unlimited	Active
MaxxForce 7 Engine	8/15/2011 - 8/15/2016	Unlimited	Unlimited	Active
MaxxForce 7 glow plugs, relay, harness & connector (07 EPA)	8/15/2011 - 8/15/2014	Unlimited	Unlimited	Expired
Spicer-3 Part Dana Drivetrain (Front&Rear Axles, Propeller Shaft, When Used with Allison Trans Only)	8/15/2011 - 8/15/2015	1,696 - 51,696 Miles	Unlimited	Active
First 90 days from delivery to User (DTU) + Towing	8/15/2011 - 11/15/2011	Unlimited	Unlimited	Expired
Federal Emissions Coverage- Light Heavy Duty Diesel Engine	8/15/2011 - 8/15/2016	1,696 - 51,696 Miles	Unlimited	Active
CARB Emissions Coverage- Light Heavy Duty Diesel Engine	8/15/2011 - 8/15/2016	1,696 - 101,696 Miles	3000	Active

There were no extended warranty coverage option(s) offered for the subject vehicles that would cover the two-point passenger seat belts.

Source: Navistar Database

Last date information was gathered: 03/21/2019

7. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that Navistar has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that Navistar is planning to issue within the next 120 days.

Response 7:

Navistar released a Technical Service Information document dated December 2009 which has a section pertaining specifically to plastic materials which should only be cleaned with a warm water and mild soap solution to avoid chemical solutions which could compromise the ABS materials used in seat belts. This document would support the initial root cause suggested by AMSAFE's failure analysis from a third party testing lab (Element) in 2014.

Navistar also released an article on July 10, 2014 (IK2200132) to remind bus owners to inspect the seat belts as part of Periodic Maintenance at 6 months and again at 12 months as stated in the Owner's Manual.

Please refer to the “REQUEST# 7 TSI-09-47-03 Cleaning an IC Bus” and “REQUEST# 7 iKNow 2200132 Driver and Passenger Seat Belts” pdf documents located on the non-confidential USB flash drive

Source: International Service Portal

Last date information was gathered: 03/22/2019

8. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, “actions”) that relate to, or may relate to, the alleged defect in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Navistar. 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 conducting the action; and
 - f. A brief summary of the findings and/or conclusions resulting from the action.

For each action identified, provide 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.

Response 8:

On November 4, 2013, a customer contacted Navistar stating that they had some seat belts that did not latch properly (Vin# CB [REDACTED]). The common issue was determined to be that the plastic spring clips (plastic fingers) were broken off of the tongue portion of the seat belt which increases the force required to latch the buckle. The seat belts were sent to AMSAFE for evaluation. AMSAFE sent the samples to an outside lab for evaluation and the conclusion was determined to be degradation of the ABS material likely due to the use of inappropriate cleaning solutions causing embrittlement of the plastic fingers which lead to the cracking failures. See test report referenced below “Lap Belt Failure Analysis AMSAFE_Element Rprt.” Navistar closed the investigation after issuing the service bulletin mentioned in response 7.

On September 11, 2018, the Office of Defects Investigation alerted Navistar of VOQ [REDACTED] regarding a complaint from a vehicle maintenance department of a school district in New Jersey that 8 of their MY2015 IC CE school buses had passenger seat 2-point seat belts that could not latch. Navistar re-opened the investigation into the issue conducting both internal and third party testing of returned seat belts with the alleged defect. On February 19, 2019, Navistar received a copy of the PE18-015 request to investigate the allegations of AMSAFE two-point seat belts not latching as a result of a broken cover on the steel insert in model year (MY2011-2016) IC school buses from the ODI office.

Tests Completed:

September 29, 2010 - FMVSS 209 Test– For AMSAFE ERA Hybrid Buckles described as “Web Mount with Adjust Tongue”

Conclusion: The Web Mount with Adjust Tongue Seat Belt met all FMVSS 209 Requirements

July 8, 2013 - FMVSS 209 PVP&R and Test Flow for Navistar School Bus Buckle Change for AmSafe PN 80148904

Conclusion: AmSafe PN 80148904 Seat Belt met all FMVSS 209 Requirements

July 8, 2013 - Certificate of Compliance for AMSAFE Seat Belt PN’s 3690417C2, 3690418C2, 3690419C2, 3690420C2, 3690421C2, 3690422C2, 2237330C2, 2239139C2, L004102C2, and L004103C2

Conclusion: These Certificates confirm that the Navistar Seat Belt PN’s listed met all CMVSS / FMVSS 209 & 302 requirements where applicable.

March 5, 2014 - Fractographic Examination of Cracked Plastic fingers Report from Element Materials Technology - report requested by AMSAFE

Conclusion: The Element test summary reported that:

- Plastic fingers on all three buckles failed via brittle fracture associated with environmental stress cracking (ESC).
- Multiple origins were discovered in each failure, along either the rounded outside surface or at the corner where the rounded outside surface and flat portion of the plastic finger come into contact with the metallic portion of the buckle. From these points, cracking propagated across the part wall in a stepwise manner until completion.
- The most likely sources of stress were identified by Amsafe Commercial Products personnel as being those the buckles normally encounter while in service.
- The chemical agent responsible for the observed cracking was not identified within the scope of this project.

October 3, 2018 - Failure Analysis of Seat Belt Buckle - Navistar Interim Presentation

Summary:

- Multiple fractures observed:
 - Coming out of the radius on both the RHS and LHS fingers (RHS finger was separated in two and not recovered).
 - Along approximately 2/3 of the welded seam between the upper and lower shell.
 - Along the positioning lip on the lower shell.
- Lack of plastic deformation at any of the fracture locations indicates they were:

- Low stress intensity, brittle fractures
- The result of multiple load cycles (not a single overload)
- These features are consistent with environmental cracking (either from chemical or UV exposure). Weld line attack in particular is something we've seen before with environmental failures.
- Other possibility is a simple fatigue failure resulting from many loading cycles. This could explain the 'finger' failure but doesn't seem to explain the weld and lip fractures. Those areas don't appear to be subjected to fatigue loading.

November 16, 2018 - Failure Analysis of Seat Belt Buckle Report from ESi - report requested by Navistar

Conclusion: The ESi test summary reported that:

- The microscopic examination of the fracture surface features indicate that the ABS material failure is resulting from exposure to high mechanical loads experienced in service both from cyclic fatigue and assembly. The root-cause for the failure is either design of the belt buckle housing or the specific grade of ABS material used is of low strength compared to grades that may be formulated to provide high impact strength and tensile strengths.
- The FTIR, DSC, TGA, and melt flow analyses performed on failed parts and an exemplar part, revealed no major material differences in parts from different time periods of manufacture.

January 9, 2019 - Seat Belt Tongue Durability Report by Navistar (18-80700)

Conclusion:

- Seat belt buckles tested at 1 and 2 mm displacement passed the minimum cycle count requirement established by Navistar as 50,000 cycles without failure, buckles tested at 3 mm displacement did not meet the required cycle count. (Note: Subsequent discussions with Shield challenged Navistar's method of determining the maximum displacement of 3 mm without the receiver)

January 14, 2019 - Seat Belt Strain to Force Report by Navistar (18-82198)

Conclusion:

- The force and displacement required to achieve the proper strain was much higher than the force and displacement during durability testing. If the strain numbers were in fact correct then it can be concluded that these force and displacement numbers will not last the required number of cycles (50,000), since we observed failures at an average of 5,586 cycles with a 3 mm oscillating displacement.

February 20, 2019 - Seat Belt Fit Evaluation Report by Navistar (18-81847)

Conclusion:

- Strain data was collected from 13 subjects, ranging in age from 6 to 14. Peak strain recorded

was 15,000 micro strains for the driver side and 12,193 for the passenger. This information will be stored for future reference. (Note: The data from this test is under review due to data that does not match the strain measurements from the Seat Belt Strain to Force test (18-82198))

Please refer to the Excel file titled "Seat Belt Testing Analysis Summary" located on the confidential USB flash drive for a summary of all testing performed on the suspect seat belts on MY 2011 through MY 2016 IC school buses.

Refer to the following list of files located on the confidential USB flash drive for the detailed reports and presentations.

- "REQUEST# 8 FMVSS 209 Test AMSAFE_SGS"
- "REQUEST# 8 FMVSS 209 (PN 801489) 2PT Seatbelt System w Floppy Buckle PV Test Rprt"
- "REQUEST# 8 Lap Belt Failure Analysis AMSAFE_Element Rprt"
- "REQUEST# 8 Navistar School Bus Buckle Change PVP&R"
- "REQUEST# 8 Navistar School Bus Buckle Change Test Flow"
- "REQUEST# 8 801489 Certificate of Compliance 7-8-13"
- "REQUEST# 8 801492 Certificate of Compliance 7-8-13"
- "REQUEST# 8 802860 Certificate of Compliance 7-8-13"
- "REQUEST# 8 803195 Certificate of Compliance 7-8-13"
- "REQUEST# 8 803494 Certificate of Compliance 7-8-13"
- "REQUEST# 8 Lap Belt Failure Investigation - Navistar I"
- "REQUEST# 8 Lap Belt Failure Investigation - ESI"
- "REQUEST# 8 Lap Belt Failure Analysis - Navistar II"
- "REQUEST# 8 Seat Belt Tongue Durability Navistar I (12-3-18)"
- "REQUEST# 8 Seat Belt Tongue Durability Navistar II"
- "REQUEST# 8 Seat Belt Latch_Unlatch Evaluation - Navistar"
- "REQUEST# 8 Seat Belt Strain to Force & Displacement Evaluation - Navistar"

Source: Navistar and Shield Databases

Last date information was gathered: 03/22/2019

9. Describe all modifications or changes made by, or on behalf of, Navistar in the design, material composition, manufacture, quality control, supply, or installation of the subject

component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. 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 vehicle production;
- b. A detailed description of the modification or change;
- c. The reason(s) for the modification or change;
- d. The part number(s) (service and engineering) of the original component;
- e. The part number(s) (service and engineering) of the modified component;
- f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
- g. When the modified component was made available as a service component; and
- h. Whether the modified component can be interchanged with earlier production components.

Also, provide the above information for any modification or change that Navistar is aware of which may be incorporated into vehicle production within the next 120 days.

Response 9:

Note that any changes to the seat belt assemblies for the AMSAFE belt were performed by the supplier Shield. Please refer to the PDF document titled "Request# 9 Production Changes" located on the confidential USB flash drive for the list of seat belt modifications.

Source: Navistar Database

Last date information was gathered: 03/26/2019

10. State the number of each of the following that Navistar has sold that may be used in the subject vehicles by component name, part number (both service and engineering/production), model and model year of the vehicle in which it is used and month/year of sale (including the cut-off date for sales, if applicable):
 - a. Subject component;

For each component part number, provide the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles of which Navistar is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

Response 10:

Please refer to the Excel file titled “Request# 10 Service Parts Table” located on the non-confidential USB flash for the list of seat belts sold as service parts over the timeframe in question. Note that these service part numbers could be installed on any model bus regardless of age that would have a seat belt compatible seat, therefore part usage by itself may not be a good indicator of a product issue. Starting in 2010 all IC bus seats installed in IC buses were designed to be retrofittable with seat belts at a later date. Therefore, many of the belts sold through service parts are customers taking advantage of this retrofittable feature.

Source: Navistar Database

Last date information was gathered: 03/25/2019

11. Furnish Navistar’s assessment of the alleged defect in the subject vehicle, including:

- a. The causal or contributory factor(s);
- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The risk to motor vehicle safety that it poses;
- e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring, or subject component was malfunctioning; and
- f. The reports included with this inquiry.

Response 11:

- a) It was determined from third party testing in 2014 and 2018 that there may be multiple contributing factors in the assembly, use, and maintenance of the seat belts that could result in the plastic finger breakage:
 - Testing performed on belts with broken plastic fingers in 2014 suggested:
 - Brittle morphology
 - Arrest markings
 - Banding pattern (characteristic of chemical interaction during an environmental stress cracking event)
 - Failure analysis testing performed on seat belts with broken plastic fingers in 2018 suggested:
 - Exposure to high mechanical loads in assembly or cyclical fatigue loading while in use.
 - Cyclic crack propagation

As mentioned above, user abuse contributes to broken plastic fingers on the cover of the tongue. During inspections we found many cases where the belts were hanging through the bottom of the seat and impacting the floor. This makes them vulnerable to being stepped on by the occupant(s) in the seat behind. Based on interviews with drivers, many times the belts are not used during a bus route even though the seats are occupied. In this situation the user can bend the plastic fingers while the bus is on a route. Also, we found examples of the buckles

and tongues being crushed between the flip up cushion and the frame.

- b) Based on the 2014 third party report from AMSAFE and the 2018 report by Navistar the failure mechanisms appear to be different. The 2014 report suggests chemical exposure whereas the 2018 report suggests high stress and cyclic crack propagation.
- c) The failure mode is the difficulty or inability to latch the seat belt within the full operational life of the bus if the plastic fingers on the seat belt tongue cover break.
- d) Navistar's current assessment is that there is not an unreasonable risk of safety associated with broken plastic fingers on 2-point seat belts in a school bus because the seats are designed to protect the occupants in the event of a crash through compartmentalization. In other words, the safety of the occupant is maintained even if the seat belts are broken or not used.

Navistar understands that the concept of compartmentalization has been debated both by NHTSA and industry for many years. However, in the most recent FMVSS 222 NPRM and final rule in 2008, NHTSA and the industry continue to support that compartmentalization still ensures a high level of crash protection to the seat occupants on large school buses. NHTSA quotes from most recent rulemaking's and petitions are provided below:

"Bearing in mind the already excellent safety record of large school buses and the real-world demands on pupil transportation providers, we did not believe that the available information indicated that seat belts on large school buses would address an unreasonable risk of injury or fatality, and so we did not propose in the NPRM that they be required by the FMVSS to be installed on these vehicles." ¹

"We stated that our examination of NY State school bus crash data for lap belt equipped and non-belt equipped buses could not conclude that lap belts either helped or hurt occupant injury outcomes." ¹

"The compartmentalization approach ensures that high levels of crash protection are provided to each passenger independent of any action on the part of the occupant to buckle up." ²

"After considering all available information, NHTSA was not able to conclude that there exists an unreasonable risk of death or injury in an accident that justified an FMVSS requirement for seat belts on large school buses." ²

1. Ref.: 2007 NPRM and 2008 final rule documents of RIN 2127-AK09 and RIN 2127-AK49

RIN = regulation identifier number

2. Ref.: Federal Register / Vol. 76, No. 165 / Thursday, August 25, 2011 / Proposed Rules

Note that for the 10,105 vehicles within the subject population, there were no reported injuries related to the broken or non-use of seat belts and out of over 500,000 seat belts in the field, there were only 79 warranty claims associated with broken plastic fingers that may prevent the belt from latching. It should also be noted that IC built an additional 40,458 buses in the suspect time frame that are operating with no passenger seat belts at all.

- e) The warning that a driver has in this case would be in 1) their observance of the passengers not using their seat belt or, 2) students asking for help latching their seat belt. Both the IC Bus operator's manuals and the service bulletins referred to above indicate the importance of periodic inspections of the passenger seat belts and the importance of proper cleaning and replacement of belts found to be damaged.
- f) The 2014 test conclusion suggests that there may have been a chemical cleaning solution that could have affected the plastic ABS material causing it to become more brittle which could cause the plastic fingers to break under standard loads. The most recent testing suggests cause could be related to long term cyclical fatigue...failure analysis report indicates the failure is either in the belt buckle housing or the specific type of ABS material used. In working with Shield, the only drawing change we could find that may have had an impact on the plastic finger engagement was an AMSAFE design change for production on 2/8/2011 which shortened the distance from the hole to the latch edge in the metal tongue to allow engagement without interference from the spring plastic fingers when latching the belt. Reference the test reports included in response #8.

In summary, based on the information currently available, Navistar believes the issue with broken plastic fingers on the seat belt tongue cover for the MY 2011 thru MY 2016 IC school bus does not pose an unreasonable risk of injury to the seat occupant in a vehicle crash on large school buses because the seating is designed for compartmentalization and is not dependent on the function of a seat belt. Therefore, reported incidents are currently being handled as a customer satisfaction issue. It is Navistar's belief that this issue poses no additional safety risks to the bus occupants due to the passenger seats being specifically designed for compartmentalization with the tall seat backs padded with energy-absorbing construction covering all metal parts and spacing that is closer than typically found in passenger vehicles.

Navistar would also like to point out that the data provided with this response does not indicate an unreasonable risk to vehicle safety based on the following in summary:

- The warranty data search found a total of 79 cases for the replacement of seat belts out of the suspect population of 10,105 IC School Buses.
- Early failures based on warranty data were very low.
- Outside of the 79 warranty claims the seat belt from the field report and the two customer complaints showed that plastic finger failures were observed later in the seat belts life.
- There are only two recorded customer complaints and one field report
- There were no reported injuries or deaths related to the broken or non-use of seat belts out of over 500,000 suspect seat belts in the field.
- Failure analysis from the two outside independent test labs resulted in differing conclusions which suggests that the failure could be due to a combination of factors including belt abuse and maintenance.
- The Technical Service Information for cleaning an IC Bus dated December 2009 clearly

states that the seat belts used in school buses must be cleaned with the appropriate mild soap & water solution to avoid compromising the ABS material.

- The iKNow article from 7/10/2014 reminds the customer to check non-retractable seat belts for any signs of damage at 6 months and 12 months as recommended in the Operator's Manual. The article also states that belt damage can be minimized by placing the passenger seat belts over the back of the seat after the passengers depart the bus.

The undersigned should be contacted for any additional information regarding this issue on [REDACTED]
[REDACTED]

Sincerely,

[REDACTED]
R. L. Van Laar
Product Compliance Manager
Navistar, Inc.

Response # 1 Attachment
(on non-confidential USB Flash Drive)

PRODUCTION DATA – VIN

Response # 3 Attachment
(on non-confidential USB Flash Drive)

PRODUCTION DATA

Response # 5 Attachment
(on non-confidential USB Flash Drive)

WARRANTY DATA

Response # 7 Attachment
(on non-confidential USB Flash Drive)

iKNow 2200132 Driver and Passenger Seat Belts

TSI-09-47-03 Cleaning an IC Bus

Response # 8 Attachment

(on confidential USB Flash Drive)

FMVSS 209

Certificate of Compliance for PN's:
3690417C2, 3690418C2, 3690419C2
3690420C2, 3690421C2, 3690422C2
2237330C2, 2239139C2, L004102C2,
L004103C2

Fractographic Examination of Cracked Plastic Fingers –
AMSAFE_Element

Seat Belt Testing Analysis Summary

Lap Belt Failure Investigation – Navistar I (Interim
Presentation)

Lap Belt Failure Investigation -ESi (Final Report)

Lap Belt Failure Investigation – Navistar II (Final Report)

Seat Belt Tongue Durability – Navistar I (Interim Presentation)

Seat Belt Tongue Durability – Navistar II (Final Report)

Seat Belt Latch_Unlatch Evaluation – Navistar

Seat Belt Strain to Force & Displacement Evaluation – Navistar

Response # 9 Attachment
(on confidential USB Flash Drive)

Production Changes

Response # 10 Attachment
(on non-confidential USB Flash Drive)

Service Parts Table

