



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

ODI RESUME

Investigation: PE 17-004
Date Opened: 09/12/2017
Investigator: Ryan Rahimpour
Approver: Stephen Ridella
Subject: Failed School Bus Seat Back Pans

Date Closed: 12/04/2018
Reviewer: Bruce York-B

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: Navistar, Inc.
Products: 2011 Navistar IC BE, CE, RE School and Commercial Buses
Population: 12,956

Problem Description: Broken seat back pan causes lack of passenger compartmentalization protection in the event of crash.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	0	54	54
Crashes/Fires:	0	0	0
Injury Incidents:	0	0	0
Fatality Incidents:	0	0	0
Other*:	4	1,142	1,146

***Description of Other:** Tip from network contact, manufacturer warranty claims.

ACTION / SUMMARY INFORMATION

Action: This PE is closed.

Summary:

On July 7, 2017, the Office of Defects Investigation (ODI) received a report from an executive officer of the State of Iowa's Bureau of Finance, Facilities, Operations & Transportation Services, informing ODI of numerous seat back pan weld failures (pan material fatiguing at weld points) in multiple 2011 model year (MY) Navistar IC school buses.

In August 2017, ODI engineers found similar failures when they visited an Arlington, Virginia public school facility to inspect buses ranging from MY 2011 to 2015. The first MY2011 bus inspected demonstrated the same issue (broken back seat pan welds) as reported on the Iowa buses. MY2012 - MY2015 buses did not demonstrate the failed seat back pan issue. NHTSA discovered that these buses had a different seat back pan design.

ODI opened this investigation to better understand the potential risk of injury and evaluate passenger compartmentalization in the event of a crash involving a subject vehicle containing broken seat back pan welds. Navistar conducted sled testing at the Transportation Research Center of Ohio (TRC) to better understand if broken seat back pan welds could lead to a loss of passenger compartmentalization in a crash. ODI engineers were present and observed all tests done by the manufacturer.

Although the test results indicated that passengers would remain compartmentalized, upon further review, ODI became concerned that the test manikin's necks seemed to over-extend when their heads struck the seat back frame and the torso pushed into the seat back pan. There was a concern that injuries may occur as a result of the broken seat back pan welds, allowing the passenger torso to push further into the seat back than if good welds were in place. Upon NHTSA's request, Navistar ran additional sled tests with instrumented test manikins to measure injury potential in the head, neck, and chest. The tests were conducted using Federal Motor Vehicle Standard (FMVSS) 208 as a guide and reference as there are not specific standardized tests for this particular alleged defect condition. NHTSA

biomechanics and crashworthiness experts reviewed the results along with ODI and concluded that the test results were within the allowable threshold per the FMVSS.

Navistar informed ODI that the subject vehicles of this investigation were also the subject of Technical Service Information document TSI-13-47-01 and recall 13V-308 and that during these campaigns involving seat backs and seat back foam covers, many of the vehicles had already had their seat back pan welds repaired. Navistar agreed to continue to support customers through extended warranties.

Given the above facts and test results, ODI is closing the investigation as sled testing performed by the manufacturer has shown there appears to be little difference in the potential for injury between seat back pans with intact or broken welds. The closing of this investigation does not constitute a finding by NHTSA that a safety-related defect does not exist. The agency reserves the right to take further action if warranted by the circumstances.

Additional information on school bus safety and compartmentalization can be found at:
<https://www.nhtsa.gov/road-safety/school-bus-safety>.