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2004 SEP 21 P 12: 29

September 10, 2004

OFFICE OF  
DEFECTS INVESTIGATION

Tom Bowman  
National Highway Traffic Safety Administration  
ROOM 5319  
400 7<sup>th</sup> Street S.W.  
Washington DC 20590

10073876

Subject: Norfleet Axle Failure

Dear Tom,

As I related to you on the phone, we picked-up the two Dexter #10 Torflex axles in question from owner Steven Norfleet of Lafayette, IN. One axle had a fractured inner bar. Mr. Norfleet reported this was the front axle and right hand side of axle. The serial number of the axle, 0306981, shows the axle was manufactured in 8/30/96. The following tests were conducted:

1. Visual Examination of the fracture indicated that the fracture started at the front corner of the inner bar and progressed rearward. The fracture did exhibit a large amount of secondary cracking indicating a high stress, low cycle fracture. A low stress, high cycle fatigue fracture would have exhibited a considerably smaller area of secondary cracking.
2. We sectioned the inner bar near the fractured surface for chemistry, microhardness, and microstructure analysis. All three characteristics meet the design specifications established by Dexter Axle.

While these axles were long out of warranty, we offered to perform these same tests for Mr. Norfleet when he first advised us of the failure. Mr. Norfleet refused to provide the axles unless we gave him a new set of axles free of charge. When we did not comply with his demands and he chose to contact you.

As the materials met our specifications and the axle bar failure mode was indicative of a severe, single application stress (such as a severe pothole or curbing incident) we do not believe that any special warranty consideration is due. The axle's will be shipped back to the owner.

You also asked about similar occurrences for the period Jan 1, 2003 to Dec 31, 2003. I have reviewed our service and warranty records for that period and found two claims:

The first claim was for a Dexter #11 Torflex axle that was returned for warranty evaluation on 1/27/03. The serial tag was missing which prevented us from ascertaining the actual date of manufacture although the mounting brackets were of a design that predates 2/97. This claim was very similar to Mr. Norfleet's. Visual examination showed the fracture occurred on the right side of the axle. The fracture started at the bottom corner of the inner bar and progressed upward. Again, there was a large amount

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of secondary cracking indicating a high stress, low cycle fracture. We sectioned the inner bar near the fractured surface for chemistry, microhardness, and microstructure analysis. All three characteristics met the design specifications established by Dexter Axle. This claim was denied.

The second claim was for a Dexter #9 Torflex axle that was returned for warranty evaluation on 2/19/03. The serial tag was also missing. Again, the design of the mounting brackets on this axle predates 2/97. While gross visual examination showed the fracture occurred on the right side of the axle, any detailed analysis was impeded by the rusty condition of the fracture surface. We sectioned the inner bar near the fractured surface for chemistry and microhardness analysis. These characteristics met the design specifications established by Dexter Axle. Since the fracture analysis couldn't be done conclusively we made a small warranty concession by providing the customer a replacement beam at no cost.

Dexter Axle produces about 1.5 million axles annually and while we design our products in anticipation of some abuse there is no question that trailers can sometimes encounter stresses and impacts that far exceed any reasonable design factors.

Sincerely,

A handwritten signature in cursive script that reads "Bruce Bailey".

Bruce Bailey  
Acting Engineering Manager  
Dexter Axle Company

Cc: Bill Dunlap