

00V-025 (01)

January 28, 1999
L000128a

Associate Administrator for Safety Assurance (NSA-01)
National Highway Traffic Safety Administration
400 7th Street, SW
Washington, DC 20590

Re: PART 573 Defect Report, RoadRailer crossmember cracking at front of body rail.

Dear Sir or Madam:

Attached is a Part 573 Defect Report for RoadRailer semi-trailers manufactured by Wabash National. This is our initial filing for this defect and we have not yet received a recall campaign code. Any information not yet complete in the report will be forwarded to you as soon as they become available. If any additional information is needed please contact me or Frank Smidler at the address below or by phone at 765-771-5440 or 765-771-5385 (fax).

This recall covers 6233 of the 6473 units affected by our previous recall No. 99V-344. The remedy for this recall will provide the structural reinforcement and improved crossmember to slider body rail attachment at the front stop pipe so as to make the need for the remedy from Recall 99V-344 moot. The difference of 240 units between these recalls are Swift Ultra Cube trailers that have 3" crossmembers with thicker flanges on 8" centers instead of the typical 4" crossmembers on 12" centers. These 240 trailers have already been modified per recall No. 99V-344. We would like to request that the remedy for the rest of the trailers in recall No. 99V-344 be superseded by this new recall and dispense with its remedy in favor of our new recall remedy.

Thank you for your assistance in this matter.

Sincerely,

Rod Ehrlich
Vice-President, Engineering

cc: Mr. Jon White
Chief, Recall Analysis Division
Fax 202-366-7882

PART 573 Defect and Noncompliance Report

On January 24, 2000, Wabash National decided that a defect which relates to motor vehicle safety exists in the motor vehicles listed below, and is furnishing notification to the National Highway Traffic Safety Administration in accordance with 49 CFR Part 573 Defect and Noncompliance Reports.

Date this report was Prepared: **January 28, 2000**

Manufacturer's identification code for this recall: **Recall 2000-1**

Manufacturer of the vehicle being recalled:
 Wabash National Corporation
 P.O. Box 6129
 Lafayette, TN 47903

Contact corporate officer: **Rod Ehrlich, Vice-President of Engineering**
 765-771-5440
 765-771-5385 Fax

Report prepared by: **Frank Smidler, Director of Engineering**
 765-771-5440
 765-771-5385 Fax

Signature: _____ **Rodney P. Ehrlich**

II. Identify the Recall Population

Total Number of vehicles recalled potentially containing the defect: 6233

Approximate percentage of vehicles recalled containing the defect: 100%

The recall population was identified as all domestic standard RoadRailer dry van trailers with 4" - 3.19#/ft I-beam crossmembers over the suspension body rails produced by Wabash National less those that are known to have been taken out of rail service.

III. Description of the Defect

The RoadRailer semi-trailers involved in the recall are equipped with suspension bogies that can slide forward and aft to change the axle positions to meet the various state laws. The bogies slide along a pair of body rails that are welded directly to the bottom flange of the 4" tall I-beam crossmembers, located on 12" centers, that make up the floor support structure. The welds are along both edges of the crossmember flange and across the top surface of the body rails. The RoadRailer suspensions are narrower than normal highway trailers by 6" due to clearance requirements on the rail. These trailers are also specially designed to work as an inter-modal vehicle on the railroad which is done by sliding the highway bogie forward, sitting the back end of the trailer on a rail bogie and retracting the highway bogie up so that it hangs from the trailer body rails. This hanging cyclic loading is not seen on regular highway trailers.

During normal operations forklifts will enter the trailer with cargo. As they transverse the floor the I-beam crossmembers at the front of the body rails will deflect downward under the load, assuming the suspension bogie is positioned to the rear as is recommended during loading. The deflection of the crossmembers will cause a high-tension load in the bottom flange. The welding of the crossmembers bottom flange to the body rail causes an interruption that results in stress risers at the end of the welds. The transition from over the slide body rails to the bay area of the trailer will cause the crossmember over the front end of the slide body rails to see the highest stress risers. The narrower slide body rail spacing further enhances the stress risers. The use of forklift trucks with high axle loads (in excess of 16,000 lbs) can result in the stress risers causing the crossmembers to crack along the welds to the slide body rails or across its bottom flange.

In tests that we have performed the forward most crossmember over the slide rail will crack first. Once it has relieved itself the load and resulting stress will transfer to the next crossmember to the rear. Cracking is most common in the first 3 crossmembers, but if not attended to it can result in the cracking of crossmembers progressing rearward until the slide body rails and thus the suspension bogie is no longer safely attached to the trailer. In the rail mode the highway bogie hanging from the body rails will also cause tension loading of the crossmember bottom flange. This resulting cyclic tension loading, unique to RoadRailer trailers, will contribute to the crossmember cracking along the welds to the body rails or across the bottom flange. The cracking in this area can result in citation during highway inspections.

Not part of this defect recall are two other cracking conditions in the body rail area that has also been noted. First, cracks have been known to occur at the end of the side gussets radiating fore and aft to the lock pin holes of the body rail. This was discovered in 1997 and remedied through a warranty program on most of the production affected. Recently additional trailers have been found to require the same warranty remedy, which Wabash National will be taking care of. Second, cracks have occurred at the weld connection of the slide body rails weld to the rear tub of the trailer. This is not a safety-related crack, as it will not cause an operational hazard with the equipment. The crack, in testing, was found to be due to severe impacting of the rear stop by the sliding suspension bogie during improper operation. This is an abuse issue that must be addressed by the operator through operation and maintenance.

IV. Chronology in Determining Defect

June/July 1994 - Crossmember issues first surfaced at Triple Crown. The trailers in question had aluminum crossmembers forward of the suspension and were breaking during the loading of paper rolls. An investigation revealed forklift loading practices which were overloading the floors by as much as 150%. The floor system was designed for a 12,000# forklift axle load but were being loaded with forklift axle loads as high as 29,937#.

July 19, 1994 - Triple Crown was advised in a letter from K. Combs of Wabash National of the overloading and cautioning them against continuing this practice. To our knowledge this customer is continuing to use trailers in this service, although the units with aluminum crossmembers were removed from paper loading.

September, 1997 - Wabash National was notified by Triple Crown of cracking between holes of slide rails. Cracks occurred at the bottom of body rail gussets and propagated in both the fore and aft directions to the adjacent 1.83" diameter lock pin holes.

September 11, 1997 - 212 Triple Crown units were inspected and 27 (12.7%) were found to have cracks. Welding up the cracks was approved until further testing.

February 1998 - Testing revealed that in the Rail mode the side clamps instead of the lock pins as designed supported the weight of the highway suspension. This caused the entire weight of the suspension to be hung onto the body rails in an area of approximately 24" on each side thus over time fatiguing the body rails and gussets in that area.

March 1998 - A warranty program was implemented by Wabash National to change slide clamps on all RoadRailer vans in the Triple Crown and Amtrak fleet to a new style. The new clamp allows the suspension weight to be distributed to the suspension lock pins which are spaced much further apart. This program is (as of Nov. 1999) 100% complete on Amtrak units and 90-95% complete on Triple Crown units. Swift RoadRailers were believed not affected due to the use of a different highway suspension.

June 1998 – New style clamps began to be used on new production, beginning with Triple Crown PC 12276.

October 8, 1999 – Wabash National was notified by Triple Crown of a trailer which had a series of broken crossmembers which allowed the highway suspension to hang down and was detected while in a train. The unit was #TCSZ 461517 and had 6 broken and 2 cracked crossmembers.

October 12, 1999 – Wabash National inspected the Triple Crown fleet of RoadRailer trailers which revealed a high percentage of 4-6 year old units with crossmember/body rail weld cracks or crossmember cracks over the body rail.

October 14, 1999 – A second Triple Crown inspection was done with Triple Crown representatives and one representative from FRA. The results were consistent with the inspection 2 days prior.

October 27, 1999 – A third inspection at Triple Crown in Fort Wayne done with members of the FRA, PHWA and Triple Crown. This in depth inspection revealed other minor cracking of welds as well as the crossmember issues. During that meeting Wabash National presented to all present a "Report on Crossmember Issues at Triple Crown Services". This report outlined the findings to date and instructions on temporary repairs. Parts for the temporary repair was sent from Wabash National the same day to Triple Crown in Fort Wayne, IN.

October 29, 1999 – Inspection of Swift fleet on west coast. Cracking of body rail gussets and hole to hole cracking at the bottom of body rail gussets were found.

November 1, 1999 – Swift inspected RoadRailer trailers at Portland OR. facility.

November 2, 1999 – Another on site inspection was done in the Triple Crown terminal in St Louis and was attended by Triple Crown, Wabash National and FRA field inspectors.

November 2, 1999 – Swift RoadRailer inspection in City of Industry, CA. Was attended by Swift, Wabash National, FRA field inspector (Bob McCance) and Union Pacific.

November 5, 1999 – A meeting was held in Washington, DC with the FRA and Rod Ehrlich, VP Engineering, Wabash National to discuss the issues and develop an action plan going forward.

November 29, 1999 – Report on status and findings to FRA.

November 30, 1999 – Initial Forklift truck load test (at 10K and 15.5K axle weight) to determine crossmember stress distribution with tandem suspension located to the rear.

December 1, 1999 – Test conducted to determine crossmember stress's in rail & highway mode with a .3G overlay. The strain range from these two conditions would not have produced a failure as rapidly as they have occurred.

December 6, 1999 – Forklift truck load test (at 10K and 15.5K axle weight) to determine crossmember stress distribution with tandem suspension located to the front.

December 7, 1999 – Forklift truck load test with 20K axle weight, to determine crossmember stress with tandem suspension in front and rear positions. The highest stress occurred with the suspension to the rear as is normally found during loading.

December 9, 1999 – Forklift truck load test (at 10K, 15.5K and 20K) to determine gusset and stop pipe stress with tandem suspension in front and rear positions. Gussets connecting crossmember to slide body rail located at stop pipe had high stress levels.

December 13, 1999 – Forklift truck load test (at 20K) to determine front crossmember gusset stress with tandem suspension in front and rear positions. Gussets connecting crossmember to slide body rail not as high as gusset at stop pipe.

December 17, 1999 – Suspension slide bogie impact test against front and rear stop pipes. Front impact did not produce significantly high stresses. Rear impact did produce high stresses in vertical leg of slide body rail attachment to rear underframe but no significant affect on front crossmember connections.

December 21, 1999 thru January 4, 2000 – Fatigue testing of floor system (20K forklift truck axle load) over front of slide body rails (trailer VIN 554505). Cracking at second crossmember over body rails noted at 1018 cycles and crack at first crossmember noted at 1215 cycles. Crack propagated through bottom flange of first crossmember by 2080 cycles and damaged moved to adjacent crossmembers. Suspended test at 2870 cycles (TTMA test requires 3000 cycles).

December 22, 1999 – Wabash National inspected Triple Crown trailers in Ft. Wayne, IN. Gathered data on rear slide body rail attachment weld to rear underframe condition and for damage to the rear stop pipe.

January 7 thru 12, 2000 – Modified Triple Crown trailer (TCSZ 465326) that has been in operation and had some crossmember damaged already. Front three crossmembers had channels bolted on each side and gussets bolted and welded in over front stop pipe per our proposed remedy. This was cycle tested using 20K forklift truck axle load which was stopped at 2780 cycles due to floor boards breaking. Crossmember fix was intact and successful.

January 12, 2000 – Wabash National inspected Triple Crown trailers in Ft. Wayne, IN. They were looking for cracks in slide rails away from side gussets. None found.

January 15 thru 18, 2000 – Modified trailer from December 21st test (VIN 554505) with proposed remedy. Repeated 20K cyclic testing of floor system. No further cracks in sills or welds occurred. Stopped test at 1281 cycles due to floor board failure. The floor boards exceeded TTMA floor test requirement of 3000 cycles by going 4034 cycles in the two tests before failing.

January 18, 2000 – Wabash National inspected Swift RoadRailer High Cube trailers for cracking of the slide body rails connection to the rear underframe. Rear connection cracks found to be common on the vertical only, no front crossmember cracks found.

V. Identify the Remedy

The cracking of the crossmembers along its weld to the slide body rails or across its bottom flange is due to the stress risers created by the welds. The remedy must be applicable to trailers with no broken crossmembers or multiple broken crossmembers. Assuming worst case we must restore the strength of the crossmember if it is broken completely through the bottom flange and insure the proper connection of the slide body rail to the crossmembers.

Bolting a pair of channels to each of them will restore the strength of the front three crossmembers over the slide body rail. The channels are 14 ga, 80,000 psi yield steel, 84" long with 1.625" flanges and a height of slightly less than the distance between the top and bottom flange of the I-beam crossmembers. The channels will be bolted onto the crossmembers with seven (7) 3/8" grade 5 bolts. Gussets will be bolted onto the crossmember located above the stop pipe and then welded to the top of the slide body rails. The weld attachment to the to the front crossmembers will not have to be restored as long as the body rails are adequately attached and the strength of the crossmembers have been restored.

Future production will eliminate the need for this remedy by utilizing a crossmember to body rail connection at the front crossmembers that does not include the stress riser producing weld along the flange.

VI. Identify the Recall Schedule

2/14/2000 . Remedy instructions completed.

2/21/2000 – Preliminary recall notice submitted to NHTSA.

3/6/2000 – Recall notice mailed to customers.

3/20/2000 – Contact customers to organize recall schedules and locations for thier fleets.

VII. Furnish Recall Communications

The Recall Notice to the Customer is not yet prepared. A draft copy will be submitted to your office for review prior to our mailing.