

From: [Hiller Michael](#)
To: [Antonio Perez](#)
Cc: [Joshua Coran](#); [Turpin Ted](#); [Rhine Don \(Joey\)](#); "[Gary Fairbanks](#)"
Subject: NTSB Information Request RRD18MR001 DuPont, WA
Date: Monday, July 16, 2018 1:45:00 PM
Attachments: [image001.png](#)

Dear Mr. Antonio Perez,

The NTSB is requesting additional information related to the Talgo Series VI trainset. As you may be aware, a selection of intact safety straps from the accident train set and from an exemplar train set were retained by the NTSB Materials Laboratory for further examination and mechanical testing. Tests to determine the tensile breaking strength for each of the submitted straps were completed. Results of the testing, documented in Materials Laboratory Factual Report 18-042, showed the straps fractured at loads that were approximately 10% to 50% of the breaking strength of 38,500 pounds force (design load of 5,512 pounds force with a safety factor of 7). Full results of the testing are documented in Materials Laboratory Factual Report 18-042.

I am requesting any maintenance or inspection procedure(s) in place prior to the derailment of train 501 of the rolling assembly safety straps that were installed as a requirement of grandfathering agreement with the FRA. Should such a procedure be available, I would also request any maintenance intervention records over the past five (5) years that would otherwise demonstrate the maintenance specific to the straps was completed and what the usage/replacement rate was. Please provide this information by COB July 30, 2018.

I have reviewed a number of Talgo Series VI maintenance records available in the Accellion database however, none of these records contain a line item specific to the inspection of the safety strap.

Further, based on my observations during NTSB's return trip in March, 2018, I observed maintainers replacing safety straps. I am also requesting the maintenance records that show this replacement. Please provide this information by COB July 30, 2018.

Please let me know if you have any questions regarding my request.

Thank you,

Michael Hiller
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August 3, 2018

Michael Hiller
NTSB

Dear Mr. Hiller,

This email is in response to your 7/16/18 email request to Antonio Perez consisting of two items related to the “safety straps” used to attach rolling assemblies to the cars:

- An explanation for the disparity between the lab test results and the strength assumed in the Talgo design
- The status of strap inspection prior to the derailment and that of the current replacement program.

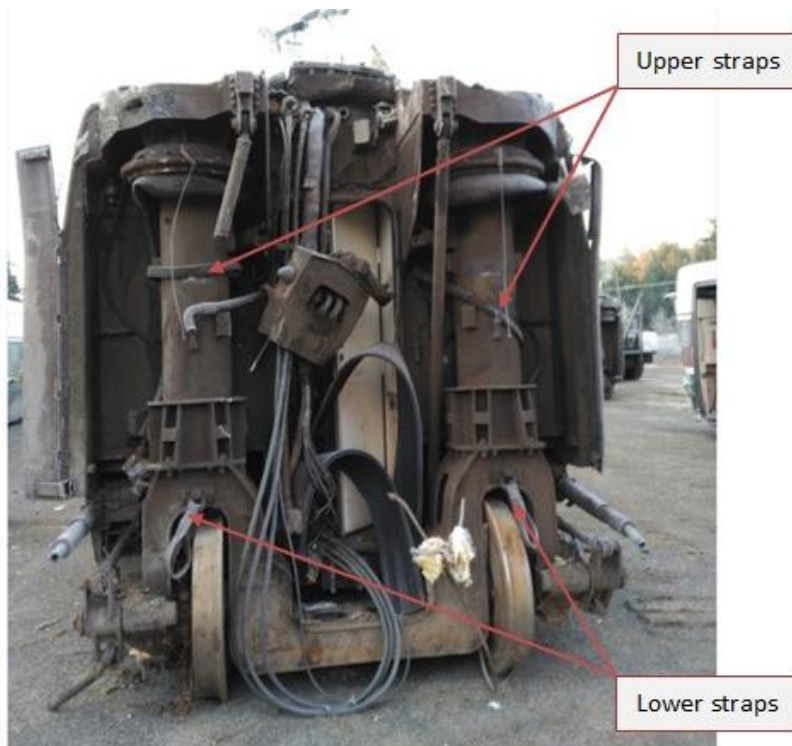
Laboratory Testing of Sample Straps

The way the safety straps were tested (as shown in “Materials Laboratory Factual Report 18-042”) is not comparable to the way in which they were applied to the rolling assemblies. In the lab, the straps were tested in simple tension as shown in the photo below, taken from the report.



Lab setup loading the strap in simple tension

In the actual application the upper straps surround the tower, and the lower straps surround the hooks attached to the rolling assembly. These applications can be seen in the photos below.



Safety strap attachment



Upper strap detail



Lower strap detail

As can be seen from the manufacturer's data (snip below), the maximum load for this "basket" configuration is two times that for "straight lifting", the way the lab results were obtained.

SAFETY STRAPS AND WEIGHT BEARING BARS
FURTHER INFORMATION

1.1 Technical description of application

WEB SLINGS

Manufacturer: SpanSet
Reference: CS
DIN Norm: Security Factor 7:1, DIN 61360, lifting sling with 4 lays.
Material: Polyester high tenacity, TIO2 < 0,05%.
Webbing's Treatment: Special treatment for abrasion.

Ref.	CS-50	CS-60
Technical Information		
Straight lifting	2.500	3.000
Basket lifting	5.000	6.000
Choked lifting	2.000	2.400

Therefore the lab results should be doubled, resulting in loads that would be much closer to those assumed by the Talgo design.

Safety Strap Inspection and Replacement

The inspection Talgo performs as required by 49 CFR 238.303 (Exterior calendar day mechanical inspection of passenger equipment) will now specifically include inspection of safety straps. Inspections in the past have found defective straps. Our warehouse records show that two were replaced in the past three years. (Prior year information was maintained on a different system not readily accessible now.) We have not found documentation indicating to which location the new straps had been applied. We are modifying our maintenance tracking system to assure future replacements are properly documented.

Because damage to straps is difficult to assess on a visual inspection Talgo has undertaken a fleet-wide renewal of all straps. As of the morning of July 30 the status of this renewal program was as follows:

- Upper safety straps: 15 % complete (15 of the 96 in the fleet)
- Lower safety straps: 20% complete (44 of the 224 in the fleet)

We hope this information answers the questions you asked in the July 16 email. Please address any questions that remain to the undersigned.

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