



## REASSESSMENT OF THE RESPONSE TO RAIL SAFETY RECOMMENDATION R13-03

### Crashworthiness standards for rebuilt passenger and freight locomotives

#### Background

On 26 February 2012, VIA Rail Canada Inc. passenger train No. 92 (VIA 92) was proceeding eastward from Niagara Falls to Toronto, Ontario, on track 2 of the Canadian National Oakville Subdivision near Burlington, Ontario. VIA 92, which was operated by 2 locomotive engineers and a locomotive engineer trainee, was carrying 70 passengers and a VIA service manager. After a stop at the station at Aldershot, Ontario, (Mile 34.30), the train departed on track 2. The track switches were lined to route the train from track 2 to track 3, through crossover No. 5 at Mile 33.23, which had an authorized speed of 15 mph. At 1525:43 Eastern Standard Time, VIA 92 entered crossover No. 5 while travelling at about 67 mph. Subsequently, the locomotive and all 5 coaches derailed. The locomotive rolled onto its side and struck the foundation of a building adjacent to the track. The operating crew was fatally injured and 45 people (44 passengers and the service manager) sustained various injuries. The locomotive fuel tank was punctured and approximately 4300 litres of diesel fuel was released.

There are no Canadian locomotive crashworthiness standards. Current industry standards rest with both the Federal Railroad Administration (FRA) and the Association of American Railroads (AAR).

In the United States, parts 229 and 238 of the FRA Title 49 of the Code of Federal Regulations – final rule on locomotive crashworthiness (2006) require that locomotives manufactured or remanufactured (rebuilt) on or after 01 January 2009 must meet the crashworthiness standards. However, there is no such requirement contained in the TC-approved Railway Locomotive Inspection and Safety Rules (Locomotive Safety Rules).

VIA's GM F40PH-2D locomotives were originally built prior to the establishment of crashworthiness standards and the Locomotive Safety Rules. Because the Locomotive Safety Rules only apply to new locomotives, there was no regulatory requirement for VIA to rebuild the locomotives in accordance with current crashworthiness standards. Therefore, despite opportunities to upgrade the cab structure, fuel tank and truck securement during the rebuild program, the locomotives were rebuilt in accordance with the minimum requirements of the Locomotive Safety Rules.

Rebuilding can extend the service life of railway locomotives up to 40 years or longer and presently over 90% of road locomotives operated by major Canadian railways were built prior to the establishment of the current more comprehensive crashworthiness standards. If these locomotives were to be rebuilt in Canada sometime in the future, under the current Locomotive Safety Rules, none of them would be required to meet current crashworthiness standards.

In this case, the absence of a regulatory requirement to upgrade locomotive crashworthiness during a major rebuild increased the risk that the rebuilt locomotives would be susceptible to cab structural failure, fuel tank failure and truck securement failure during derailments, each of which occurred during this accident. Therefore, the Board recommends that:

The Department of Transport require that crashworthiness standards for new locomotives also apply to rebuilt passenger and freight locomotives.

**TSB Recommendation R13-03**

**Transport Canada's response to Recommendation R13-03 (September 2013)**

TC accepts the recommendation. The current Railway Locomotive Inspection and Safety Rules (revised on February 4, 2010) incorporate by reference the Association of American Railroads Manual of Standards and Recommended Practices Locomotive Crashworthiness Requirements, Standard S-580.

TC Rail Safety will solicit the Railway Association of Canada and its member railways to formulate rules by March 2014 in order that the Association of American Railroads crashworthiness standards will not only apply to new locomotives, but also to remanufactured passenger and freight locomotives.

**Board assessment of the response to Recommendation R13-03 (September 2013)**

TC has accepted the recommendation and is planning to initiate the rule making process to mitigate this deficiency. However, the process takes time and the outcome cannot be known until the process is finalized.

Therefore, the Board assesses the response to Recommendation R13-02 as having **Satisfactory Intent**.

**Transport Canada's response to Recommendation R13-03 (January 2014)**

Transport Canada Rail Safety solicited the Railway Association of Canada and its member railways to formulate rules in order for the Association of American Railroads crashworthiness standards, to not only apply to new locomotives, but also to remanufactured passenger and freight locomotives. TC is waiting for the new rule submission.

**Board reassessment of the response to Recommendation R13-03 (April 2014)**

Transport Canada Rail Safety has requested the Railway Association of Canada to formulate and submit rules that would apply AAR crashworthiness standards to new and remanufactured locomotives. However, the proposed rules have not yet been reviewed by TC and the outcome cannot be known until the process is finalized.

Therefore, the Board reassesses the response to Recommendation R13-02 to remain as having **Satisfactory Intent**.

## Transport Canada's response to Recommendation R13-03 (February 2015)

Transport Canada approved the *Railway Locomotive Inspection and Safety Rules* formulated and submitted by the Railway Association of Canada, which state in part:

### 10. GENERAL DESIGN

10.1 The locomotive shall be designed and constructed to provide for safe operation and protection of the operating crews and property from accidents caused by functional failure of locomotives.

#### 10.2 (a) Freight Locomotives

After January 1, 2015 new and remanufactured locomotives travelling at speeds exceeding 25 MPH (40 KPH) shall be designed and constructed as a minimum in accordance with the latest revision of the "Association of American Railroads Manual of Standards and Recommended Practices" (S-580) or to an equivalent standard to provide for safe operation and for the protection of operating crews, and property from accidents caused by functional failure of locomotives. Such standard shall be kept on file by the railway company and made available to the Department upon request. (Appendix II)

#### (b) Passenger Locomotives

After January 1, 2015 new and remanufactured locomotives travelling at speeds exceeding 25 MPH (40 KPH) shall be designed and constructed as a minimum in accordance with the latest revision of the "American Public Transit Association" (APTA), the Association of American Railroad Manual of Standards and Recommended Practices or equivalent standard.

## Board reassessment of the response to Recommendation R13-03 (March 2015)

The new *Railway Locomotive Inspection and Safety Rules*, No. 10 General Design, ensures that new and remanufactured locomotives will have locomotive cabs which meet the requirements of industry crashworthiness standards. The prescribed collision posts, anti-climber arrangement, cab corner posts, significantly stronger sheet metal and emergency egress requirements will help limit crew exposure in the event of an accident involving the locomotive cab. With the renewal of the locomotive fleet and the remanufacture of older locomotives, the number of locomotives with improved cab crashworthiness will increase. These actions will substantially reduce the risk to train crews during derailments and collisions involving the locomotive.

Therefore, the response to the recommendation is considered to be **Fully Satisfactory**.

### Next TSB action

This deficiency file is **Closed**.