



Rail Fact Sheet

Operation of Longer, Heavier Trains

March 2010

The Problem

Inappropriate handling and marshalling can compromise the safe operation of longer, heavier trains.

Background

Freight trains cross the country every day. The length of each train, as well as the manner in which its cars are marshalled, or put together, affects the forces involved during train handling. Lighter cars, for example, slow down and speed up more quickly than heavier ones, generating disruptive push/pull forces that can derail the train.¹ This effect is more pronounced in longer trains, particularly when empty cars are located at the front. Since 2000, the TSB has investigated at least 12 derailments² where these in-train forces have been a causal or contributing factor, and the problem is growing. Not only are trains involved in main-track derailments heavier than ever, they are longer, too—over 25 per cent from just 15 years ago.³ Some of today's longer, heavier trains stretch over three kilometres in length and contain 150 cars or more. These trains are seeing expanded use across Canada, including into the country's busiest traffic corridors.⁴ The consequences of any derailment, therefore, can become magnified, and it is important that those who identify and monitor the risks be able to mitigate them.

Solution

Following the 2007 derailment of a freight train near Cobourg, Ontario, the TSB once again drew attention to train configuration and braking, expressing concern that effective measures have not been taken to reduce the continued risks of derailment.⁵

The TSB has issued four other safety communications since 2001⁶ all dealing with the safe operation of longer, heavier trains. Despite these efforts, some railways have not taken sufficient steps required to safely manage these in-train forces.

- Railways need to take further steps to ensure the appropriate handling and marshalling of longer, heavier trains. Detailed risk assessments are required whenever operating practices change.

Our Mission

The Transportation Safety Board of Canada (TSB) is an independent agency that makes transportation safer by investigating marine, pipeline, rail, and air transportation accidents and communicating the results to Canadians.

For more information, visit the TSB website at www.bst-tsb.gc.ca or contact the TSB Communications Branch by telephone at 819-994-8053 or by e-mail at communications@bst-tsb.gc.ca.

¹ TSB Investigation Report R01M0061 and TSB Occurrence Summary R01T0026

² TSB Investigation Reports R00Q0023, R01M0061, R01T0006, R02C0050, R02W0060, R05C0082, R7T0110 and R07D0009 and TSB Occurrence Summaries R01T0026, R05T0070, R05D0039 and R05T0051

³ Between 1995 and 1999, average mass of trains involved in main-track derailments was 5130 tonnes, average length was 4097 feet, and average number of cars per train was 66. Between 2005 and 2009, average mass increased to 7163 tonnes, average length increased to 5173 feet, and average number of cars per train was 79.

⁴ Rail Safety Advisory (RSA) 02/06

⁵ Rail Safety Information letter (RSI) 14/07, RSA 08/07, RSA 09/07, Safety Concerns (i) and (ii) R07T0110

⁶ Recommendation R04-01, Safety Concern R02C0050, RSI 08-02, RSA 02-06