



Inside **THE** RAIL

From NASA's Confidential Close Call Reporting System



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“That’s How We’ve *Always* Done It!”

It is a very common phrase in business and synonymous with, “If it ain’t broke, don’t fix it!” These phrases have been prevalent in the rail industry in America since the first passenger and freight line was established in 1827 with the Baltimore and Ohio Railroad. The phrases are usually said with the best of intentions and are often harmless. However, when it comes to railroad safety, we cannot depend on old processes and rules simply because “That’s how we’ve always done it!” In fact, many processes and rules can be decades old, even though new and updated equipment may have made old processes outdated and, in some cases, dangerous.

Hand brake usage is a good example of a new type of equipment making an old process insufficient. Old brake systems acted much differently than newer quick-set and quick-release brakes, and old railroad rules stated, “Apply a sufficient number of hand brakes,” leaving the number of brakes required to secure a train up to the employees and their ability to read and understand the applicable rules. In 2013, one of the most disastrous examples occurred on the Montreal, Maine and Atlantic Railway (MMA) in Lac-Mégantic, Quebec, Canada, in which a 73-car train carrying crude oil rolled down a 1.2% grade, derailling in the downtown center killing dozens of people and burning more than 30 buildings. One of the causes identified in the rollout was a failure to set enough hand brakes for an unattended train. The incident led to an Emergency Order from the FRA establishing additional requirements for the securement of certain freight trains.

Hand brake usage is not always about securing a train and an employee not applying sufficient hand brakes, but it is also about the removal of hand brakes prior to departure, which can result in overheated wheels. Overheated wheels change the metallurgic makeup of the wheels and can cause them to become brittle, develop flat spots, and an inability to negotiate tight curves, turnouts, and switch points, which can lead to a derailment.

In this issue, C³RS provides close-call events related to hand brake usage in locomotives and railcars. This newsletter highlights what led up to and may have contributed to the events, all from first-hand accounts of reporters.

Nature’s Calling!

Distractions and human factors play critical roles in many close-call events. Below, an Engineer describes how nature can be a distraction as well.

■ *We were asked to shove the Train from the station around the wye and into the yard. We did our brake test and tested the backup hose. I had to use the bathroom while the Student Engineer was recovering the air, and when he charged up the air system and had the Positive Train Control (PTC) initialized, we proceeded out of the station. When we cleared the signal in the wye, I realized I never took off the hand brake on the last car. I took it off before we received the signal on the wye. I asked the Engineer if the train was shoving hard or if the Student Engineer had mentioned anything, and he said no, and I explained what had happened. These types of Cars are notorious for not being able to hold cars when we do securement tests. I just completely forgot about the hand brake.*

I’ve Got a Feeling!

This next example explains how distractions while instructing can lead to great teaching moments. Luckily, an Instructing Engineer knew something wasn’t quite right when the train departed the yard.

■ *On a deadhead Train, on a Track in the Yard, I was observing a Student Engineer. The Student Engineer did the pre-departure brake test, and while I was observing the Student Engineer, we were talking and answering questions. Upon movement of the train, probably half a car or less, I felt the movement of the train to feel like it was dragging. I told the Student Engineer to stop, and upon further inspection, I noticed the parking brake was still applied. We took off the parking brake and did another brake test. We took no exceptions to the train after repeating the brake test, and we then proceeded out of the yard. I must have missed not seeing the brake release light and observing that the parking brake was still applied while we were talking and I was answering questions.*

Can You Hear Me Now?

Communication is key for accomplishing tasks. The Conductor below describes how radio issues created a distraction and led to a hand brake being left on the train.

■ *While towing Engine A plus seven cars with Engine B, we departed Station X with an extra hand brake applied. Equipment originated on Track X, where more than one hand brake was required. We initially struggled for nearly 30 minutes to establish communication via radio due to a dead spot. After finally determining the brakes were functioning properly, I was told to knock off the hand brake and head to*

the north end to assist in signal calling. I forgot to check for the extra hand brake due to feeling hurried and frustrated because of our struggle for communication establishment. I had also never performed a tow move, so I was admittedly nervous about the move. Mechanical personnel were present on the north end, performed a roll-by inspection, and took no exceptions. While passing through the Area, specifically between Station Y and Station Z, Engineer observed minor smoke coming from the rear of the train. We stopped the train to inspect the equipment. I walked back and found the hand brake applied in the second rear car. I popped off the hand brake and remained on the train so we could proceed north and let the Dispatcher route another Train around us.

Close Only Counts in Horseshoes and Hand Grenades!

Next up, an Assistant Conductor did not release a hand brake completely, and the train was seen throwing sparks as it was moving.

■ After walking the entire train for the brake test, our crew was notified approximately half a mile down the road that we had a sticking brake. After inspecting the train, we found that a hand brake was still partially on in the middle of a 13-car train. The train was shoved back into a Mechanical Facility and the car was switched out. We then left the remaining 12 cars and Engine on the Track, inside of the yard.

C³RS Expert Analyst's Callback Summary:

The reporter, a Conductor, was working a work train and was advised that the crew performed a brake application and release test. The reporter walked the 13 cars twice and released nine hand brakes in the process. The remaining hand brake was in the middle of the train and caused two to two and a half inch flat spots and shelling on the wheel. The Conductor cut out the brakes on the car and switched it out in the yard. The reporter said that there was an Assistant Conductor on the crew, but was new and unsure of things. Additionally, the reporter's personal habit is to double check the equipment. Deviating from that habit contributed to the incident, along with not using a flashlight to inspect the train.

Expect the Unexpected!

Humans like routines. Even the slightest change in those routines can cause big problems. A Conductor explains that the regular inbound crew on the train only applies one hand brake. In this case, an extra crew applied two hand brakes.

■ The assigned Engineer had a Student Engineer. The brake test was performed, and the Assistant Conductor removed

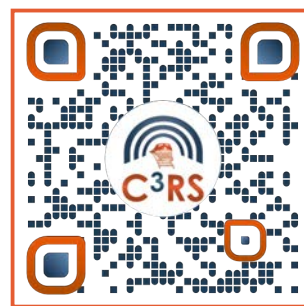
the hand brake. I failed to remove the second hand brake. The hand brake indicator was working, but with sun glare, the Student Engineer didn't notice it. The Student Engineer had little experience with multiple-unit equipment and hadn't run them in a while. We left the Station and headed west. As we passed the Mechanical Facility, someone said on the radio, "Train passing, you have a smoke condition!" I immediately removed the hand brake. There was a little smoke and smell in the second car. I inspected the truck, and there were no defects or damage. There were no exceptions going over the hotbox detector.

C³RS Expert Analyst's Callback Summary:

The reporter, a Conductor, provided that the regular inbound crew hands over the train to the reporter and normally ties on one hand brake. The regular crew was off, and two hand brakes were tied on the equipment. The train went three to four miles before radio notification advised there was smoke coming from the train. The brakes were released, and no exceptions were found. The reporter stated carelessness between the Conductor and Brakeman and not checking the hand brakes were contributing factors. The reporter offered physically pulling the hand brake release before moving as a preventive measure.

Did You Know? – If you submit a C³RS report, a NASA C³RS Expert Analyst may call you if you do not include enough information or to better understand the safety issues you are sharing. All Expert Analysts have over 10 years of rail industry experience and look forward to learning more about your safety concerns. It is very important that you return our call within three days so that your identification (ID) strip (sent by the U.S. Mail) can be returned to you quickly.

The more information you include in your report, the faster the ID strip can be returned to you!



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SCAN ME

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