



# Inside THE RAIL

From NASA's Confidential Close Call Reporting System



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## FAA Sterile Cockpit Rule – FRA Quiet Cab?

The Sterile Cockpit Rule is a Federal Aviation Administration (FAA) regulation requiring pilots to refrain from non-essential activities during critical phases of flight,<sup>1</sup> normally below 10,000 feet (3,048 meters).

In 1979, the NASA Aviation Safety Reporting System (ASRS) conducted a review of reports submitted by crews engaged in non-essential activities at critical times. This was instrumental as part of a Notice of Proposed Rulemaking in 1980.<sup>2</sup> The FAA imposed the rule in 1981 after reviewing a series of accidents related to flight crews who were distracted from their flying duties when engaging in non-essential conversations and activities during critical phases of the flight.<sup>3</sup> One such notable accident was Eastern Air Lines Flight 212, which crashed just short of the runway at Charlotte/Douglas International Airport in 1974 while conducting an instrument approach in dense fog. The National Transportation Safety Board (NTSB) concluded that a probable cause of the accident was distraction due to talking among the flight crew during the approach phase of the flight.<sup>4</sup>



Although there is no similar railroad regulation for employees in the operating cabs of trains, a few carriers have started their own programs to encourage employees to be more focused under certain operating conditions. One critical example is, anytime a train is operating under a condition which would require a stop prior to passing the next signal. This would require focus, keep conversations related to the operating condition and not allow any other distractions until operating conditions become more favorable or the train has stopped. Even if or when rules and regulations are in place instructing crews' conduct in the cab during certain operating conditions, ultimately it remains the crew's responsibility to take appropriate measures to ensure the safe operation of their train at all times.

### Questions Anyone?

An Engineer was distracted by an inquisitive Student Engineer before entering a Temporary Speed Restriction.

■ *Entered Temporary Speed Restriction of X MPH about Y MPH [9 MPH overspeed] with maximum braking. I missed the approach sign when I became distracted by a Student Engineer who had just entered the cab after getting on at previous station. He began immediately asking questions. I believe that I should not engage with anyone in this situation until the next station stop. Also this was non emergent as the train's speed reduced quickly.*

### Small Talk

Distracted with chatter before entering a speed restriction, an Engineer operated his train overspeed.

■ *[I was operating] an express train and got distracted talking to my Conductor. I was at MAS (maximum authorized speed) of X MPH when I saw the speed sign. Put into maximum brake, hit the speed sign at Y MPH [20 MPH overspeed]. I got down to the prescribed speed of Z MPH about 5 car lengths in.*

### Where Are We?

An Engineer and his Student Engineer lost focus on the bridge strike restriction and did not fully comply.

From the Student Engineer's report:

■ *I am a Student Engineer qualifying and learning on this line. This is my second day learning the line and I chose to observe the Engineer and take notes while on the deadhead train that turns for revenue service at MP X. While en route to the turn location, the Train Dispatcher instructed the Engineer to receive a bridge strike en route. To practice radio communication, I received the bridge strike from the Train Dispatcher and repeated it back and job briefed along with giving the location, speed and limits of the strike to the Engineer. While proceeding to the location we were following a train ahead and were proceeding on restricted and medium signals. While en route, myself and the Engineer were briefing and discussing the territory characteristics of the line and realized that we have traveled past the limits of the bridge strike losing focus of the bridge strike location and speed therefore do not know if we were in compliance to the speed associated with the bridge strike.*

From the Engineer's report:

■ I had a Student Engineer who was beginning his training on this line. He asked to observe only so I operated my train. En route we received a bridge strike order. We continued following another non-revenue train. We were getting signal drops as we followed. During this time I was still discussing with the student physical characteristics as well as track speeds etc. Lost focus on the bridge strike location and was past it before acting on the restriction. My signals varied through this area from a limited to medium and restricted due to following the train ahead. I may have gone through restriction on a restricted [signal] which would have complied, but was not 100 percent sure due to losing focus.

## Speeding

Along with being able to stop where stop is required, another critical factor is operating at the correct speeds. Speeds are set by engineering standards for Maximum Authorized Speed and



also by any maintenance or track defects that may be present. Exceeding the speeds – Maximum Authorized Speed, Permanent Speed Restriction or Temporary Speed Restriction – could result in possible derailment or in worst case scenario, injury to passengers and or crew.

## Which One Was It?

Confused with the Temporary Speed Restriction with a Milepost Number, an Engineer went through the Temporary Slow Order overspeed.

■ I was given a Temporary Slow Order of X MPH that I copied and repeated back correctly to the Dispatcher. Upon arriving at [the location] I proceeded at 20 MPH overspeed. I believe that focusing on the milepost made me replace in my mind the X MPH restriction with Y MPH.

## Mind Numbing Day

After a lengthy day, an Engineer entered a Temporary Speed Restriction overspeed.

■ The normal speed limit is X MPH. There was a Temporary Speed Restriction (TSR) of Y MPH [30 MPH less than X MPH]

over a siding switch. Conductor reminded me of the TSR just before I got to it. He might as well [have] not reminded me of it at all. I had just slowed to Z MPH [10 MPH less than X MPH] over a railroad crossing. I then brought the train back up to speed, X MPH, like I always do. Just before hitting the switch, about a mile later, I remembered the Y MPH TSR. I slowed to Z MPH [20 MPH overspeed] over the switch because that's all I could get the train down to in such a short space. It had been a long day. I do not get a break on this job. After 10 hours and nearly 200 miles, mind numbness starts to set in.

## Panic Ahead!

An Engineer realized he entered a Temporary Speed Restriction overspeed and accidentally engaged the Emergency Brakes when attempting to slow down to compliance.

■ Was traveling in X MPH territory coming up to Y MPH Temporary Speed Restriction, sign was down, got down to [20 MPH overspeed] before entering area. Put train accidentally into emergency.

## Radi-O-No!

Distracted by radio issues, an Engineer and Student Engineer (operating the equipment) exceeded bridge strike Maximum Authorized Speed.

■ The crew received an addition to the daily bulletins indicating that a bridge strike had occurred. The Student Engineer (SE) and I copied the addition, but there were communication issues with the Conductor. After the read back, the Conductor came to the head end of the train as we were approaching a Temporary Speed Restriction (TSR) that was near the bridge strike. The SE complied with the TSR, but then continued to accelerate as we cleared the TSR. I was distracted by the Conductor, who was talking about his radio problem. As a result, we exceeded the [bridge strike] Maximum Authorized Speed [75+ MPH overspeed]. We realized it after we were already past the restriction.

1. 14 CFR 121.542 - Flight Crewmember Duties (rgl.faa.gov).
2. Federal Register, Notice of Proposed Rulemaking, Vol. 45, No. 169, August 28, 1980, p. 57684 and <https://asrs.arc.nasa.gov>.
3. Robert Baron (1995). "The Cockpit, the Cabin, and Social Psychology". (airlinesafety.com) Archived from the original on 2013-12-04.
4. EAL 212 NTSB Report, May 23, 1975.

Report Intake By Craft January to November 2017	
Transportation	3,419
Mechanical	136
Engineering	68
Unspecified	4

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