



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 29, 1999

In reply refer to: R-99-29

Mr. Bjorn E. Olsson
President and Chief Executive Officer
Harmon Industries
1300 Jefferson Court
Blue Springs, Missouri 64015

On March 25, 1998, about 4:48 a.m. eastern standard time, southbound Norfolk Southern Corporation (Norfolk Southern) train 255L5, which was en route to Fort Wayne, Indiana, struck eastbound Consolidated Rail Corporation (Conrail) train TV 220, which was en route to Columbus, Ohio.¹ The collision occurred where the Norfolk Southern Huntington District and the Conrail Chicago main lines cross at grade at the east end of the town of Butler, Indiana. Both locomotives and five cars from the Norfolk Southern train derailed, and three cars from the Conrail train, two with multiple stacked platforms, derailed. The Norfolk Southern conductor was killed; the engineer and student engineer sustained minor injuries. The two Conrail crewmembers were not injured.

No hazardous materials were released, but both Norfolk Southern locomotive fuel tanks ruptured and released approximately 7,000 gallons of fuel oil. Norfolk Southern estimated total damages of \$264,000 (\$187,000 to equipment, \$18,000 to track and signals, and \$59,000 to cargo). Conrail estimated total damages of \$352,200 (\$314,000 to equipment, \$33,500 to track and signals, and \$4,700 to cargo).

The National Transportation Safety Board determined that the probable cause of this accident was the failure of the engineer and conductor of train 255L5 to comply with operating rules (specifically, their failure to observe and confirm signal aspects and their failure to continuously and directly supervise the student engineer) and the failure of Norfolk Southern Corporation to ensure employees' compliance with operating rules. Contributing to the accident was Norfolk Southern Corporation's failure to ensure that its locomotive engineer training program provided effective, timely training; oversight; and feedback to ensure that students were adequately prepared for operational situations. Also contributing to the probability of this accident occurring was the failure of Norfolk Southern Corporation's signal maintenance program to respond to a reported signal deficiency.

¹ For additional information, read Railroad Accident Report—*Collision of Norfolk Southern Corporation Train 255L5 With Consolidated Rail Corporation Train TV 220 in Butler, Indiana, on March 25, 1998* (NTSB/RAR-99/02).

An additional concern identified during the accident investigation involved the adequacy of Harmon Industries' signal component repair and replacement program. Signal 111, which was missed by the Norfolk Southern crewmembers, was observed going dark at random intervals during the postaccident investigation; consequently, the Electro Code 4 unit containing the lighting module was removed and bench tested. Bench tests identified failed internal aluminum electrolytic capacitors that caused the signal to go dark for 10 to 24 seconds.

Field inspections of other Harmon Electro-Code 4 units in the Lake Division found evidence of capacitor failures on the 212A modules manufactured from 1987 to 1988. On May 15, 1998, almost 2 months after the accident, Harmon Industries issued a product improvement announcement detailing the failure of the capacitor and explaining how to exchange the 212A module for a replacement. The company also offered components and modification instructions to railroads preferring to and capable of making their own modifications.

Harmon Industries provided field technicians to aid Norfolk Southern in a systemwide program to identify and replace all modules manufactured from 1987 to 1988. During Safety Board depositions held in October 1998, Norfolk Southern Signal Department officials stated this program was complete for all Norfolk Southern divisions.

Harmon Industries estimates that of the Electro Code 4 units manufactured from 1987 to 1988, approximately 25,000 are currently installed on the nation's railroads. The Safety Board concluded that although the product improvement announcement issued by Harmon Industries addresses the capacitor problem, replacement of the capacitors is not just an improvement but needs to be made a requirement for the safe operation of Electro Code 4 units. Therefore, in addition to recommending that the Federal Railroad Administration direct Harmon Industries and the railroad carriers to identify and replace all faulty Electro Code 4 capacitors and to ensure, through followup inspections, that corrective actions have been taken, the National Transportation Safety Board also recommends that Harmon Industries:

Identify and contact all customers who purchased Electro Code 4 units manufactured from 1987 to 1988, and institute a systematic corrective program for the repair or replacement of faulty electrolytic capacitors. (R-99-29)

The Safety Board also issued recommendations to the Federal Railroad Administration, Norfolk Southern Corporation, the Class I railroads and Amtrak, the American Short Line and Regional Railroad Association, the Brotherhood of Locomotive Engineers, the United Transportation Union, and the DeKalb County Emergency Management Agency.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you within 90 days regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation R-99-29 in your reply. If you need additional information, you may call (202) 314-6435.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in this recommendation.

By: Jim Hall
Chairman