

Log R-452

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: September 13, 1983

Forwarded to:
Mr. R. N. Whitman
Chairman of Board & Chief Executive Officer
Missouri-Kansas-Texas Railroad Company
701 Commerce Street
Dallas, Texas 75202

SAFETY RECOMMENDATION(S)
R-83-96 through -100

About 4:10 p.m., on March 17, 1983, after receiving a clear signal indicating a clear main track route, Missouri-Kansas-Texas Railroad Company (MKT) train No. 103, entered a misaligned track switch leading from the main track to an interchange track and collided with standing freight cars on the interchange track. A signal maintainer was working on the switch circuit controller and had disconnected the shunt wires while working at that location. The engineer of train No. 103 received serious injuries, and the fireman and brakeman received minor injuries. Damage was estimated to be about \$2,443,295. 1/

The shunt circuit involved in this accident was not designed on the closed-circuit principle and therefore did not have the inherent fail-safe feature of causing the most restrictive signal aspect (red--stop and proceed) when a part of the protection system was not able to function. If a series break-type circuit had been installed at the main track switch, the signal maintainer's disconnection of the shunt wires would have interrupted the signal control circuit and caused the signal to display a red (stop and proceed) aspect. The fireman and engineer would have been able to see the red aspects at the previous signals (No. 8829 and 8817) and could have brought train No. 103 to a safe stop, thus, preventing the accident. The Safety Board notes that the MKT has initiated a program of replacing its track shunt circuit protection systems with series break-type circuits on that portion of the MKT on which passenger trains are operated and commends the MKT for its program. However, we urge the MKT to extend the program to its entire system.

The MKT did not establish any standard plans or procedures regarding the track shunt circuit protection systems, and it did not establish any procedures regarding the relocation of the switch circuit controllers. This failure of the MKT to establish such plans and/or procedures forced the signal maintainers to devise and implement their own means of performing the maintenance and relocation functions. Although this absence of procedural guidance may not have hampered an experienced signal maintainer, the Safety Board believes that this lack of procedural guidance by the MKT may have been a factor detrimental to the performance of the relatively inexperienced signal maintainer involved in this accident.

1/ For more detailed information, see Railroad Accident Report--"Collision of Missouri-Kansas-Texas Railroad Company Train No. 103 With Standing Freight Cars, Near Temple, Texas, March 17, 1983" (NTSB-RAR-83-8).

The MKT's Engineer of Communication and Signals (C&S) acknowledged the inexperience of the signal maintainer and indicated that inexperienced employees require an extra level of procedural instruction and supervision. However, the level of procedural instruction and supervision that had been afforded the signal maintainer by the MKT had not impressed upon him the rationale or the specifics of MKT's rules, or the applicable requirements of the Federal Railroad Administration's Rules, Standards, and Instructions (RS&I). Further, the lack of a periodic review by MKT of its operating and safety rules and the RS&I effectively negated the opportunity of impressing upon the signal maintainer the importance of safety requirements when performing work on tracks while trains are being operated. The Safety Board believes that such periodic reviews of rules are beneficial to safety and should be instituted by the MKT's C&S department. The signal maintainer also had not been taught the importance of obtaining and using train lineups to avoid endangering trains or himself while performing work on tracks while trains are being operated. Since the signal maintainers were not required to submit the train lineups that were obtained each day, the MKT's C&S department supervision was probably not fully aware of the extent to which the signal maintainers were or were not using train lineups. A requirement to submit the lineups to their supervisors at day's end would better assure that signal maintainers working on or about the tracks would obtain the required train lineups and keep themselves apprised of train movements in their work locations and would thereby benefit safety.

The statement by the senior signal supervisor that he would not have protected train movements had he been performing the same work is evidence of an unacceptable attitude on the part of management toward safety risks. This statement, however, suggests that management may be emphasizing the avoidance of train delays to the point of compromising safety. The actions of the signal maintainer on the day of the accident, and on the 10 other occasions when he did not protect train movements, may reflect the attitude toward safety risks manifested by his supervisor. The Safety Board believes that it is unrealistic for management to expect the safety performance of employees to exceed the examples set forth by the supervisors of those employees.

Although several MKT rules and Federal regulations are in effect regarding protection of train movements while performing work on signal equipment, the signal maintainer did not take the necessary precautions that would have prevented the accident. Although the MKT may have provided the signal maintainer with an acceptable level of training in the technical aspects of his position, the signal maintainer's performance on the day of the accident indicates a lack of understanding of the safety risks involved when working on tracks while trains are being operated. This is understandable when viewed in the context of the senior signal supervisor's attitude in that he would have protected train movements in similar circumstances. The Safety Board believes that this emphasizes the need for detailed procedural instructions for signal maintainers. A signal maintainer normally spends his tour of duty working alone and largely unobserved. He relies on his individual judgment and receives only occasional supervision. The Safety Board concludes that an inexperienced signal maintainer entrusted with providing for safe train movements should be provided with documented procedural instruction and close supervision in order to perform his assigned duties safely.

As a result of its investigation of this accident, the National Transportation Safety Board recommends that the Missouri-Kansas-Texas Railroad Company:

Replace, as soon as practicable on a priority basis, track shunt circuit switch protection not equipped with series break-type circuits with series break-type circuits. (Class II, Priority Action) (R-83-96)

Establish a system of standard plans and procedures to be followed by employees of the Communications and Signals Department so that work performed on signal equipment will not result in an improper functioning of the signal system. (Class II, Priority Action) (R-83-97)

Review and revise, where necessary, supervisory procedures regarding the proper functioning of signal equipment in the Communications and Signals Department to better comply with Missouri-Kansas-Texas Railroad Company rules and Federal regulations. (Class II, Priority Action) (R-83-98)

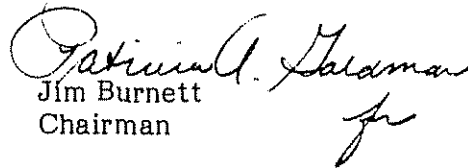
Establish a scheduled periodic review of the Missouri-Kansas-Texas Railroad Company rules and Federal regulations regarding signal systems for all employees of the Communications and Signals Department. (Class II, Priority Action) (R-83-99)

Establish a procedure so that employees required to obtain current train lineups in the course of their duties maintain such train lineups for the entire time necessary for the safe performance of their duties. (Class II, Priority Action) (R-83-100)

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." (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations. Therefore, we would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and McADAMS, BURSLEY, and ENGEN, Members, concurred in these recommendations.

By: Jim Burnett
Chairman



Patricia A. Goldman
for