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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 21, 1981

Forwarded to:

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The Family Lines Rail System
500 Water Street
Jacksonville, Florida 32202

SAFETY RECOMMENDATION(S)

R-81-99 through -101

At 12:30 p.m. on May 26, 1981, southbound Amtrak train No. 97, operating over Seaboard Coast Line Railroad (SCL) track, derailed in Lochloosa, Florida. The locomotive and nine-car train derailed at a previously damaged switch leading to a siding that paralleled the main track. Nine passengers and nine Amtrak employees were injured; damage was estimated at $241,258. 1/

As train No. 97 approached Lochloosa at 75 mph, the enginecrew observed a "clear" aspect being displayed by the home signal at the north switch for the siding at Lochloosa. They acknowledged the signal as required by the rules, and the engineer advanced the locomotive's throttle to maximum power. When the train was about 250 feet from the right-hand facing point switch, the engineer observed that the west switch point was not properly closed against the rail as needed for the main track route indicated by the signal aspect. When the locomotive passed through the improperly aligned switch, the locomotive and the following nine cars derailed to the right between two tracks.

Preceding the accident on May 15, 1981, a signal maintainer determined that the circuit controller at the siding's north switch was malfunctioning. On May 20, shortly after 1 p.m., the signal maintainer arrived at the switch to replace the circuit controller. After waiting for a southbound freight train to pass Lochloosa, the maintainer began to replace the circuit controller. He stated that during the preparation he inverted the normal switch repeater relay (NWPR). About 3 p.m., after exchanging and adjusting the circuit controller, the maintainer asked the dispatcher to operate the switch to both the normal and reverse positions. The maintainer stated that he then returned the NWPR relay to its proper operating position and waited for the arrival of Amtrak train No. 98. He said that, as train No. 98 passed, the relay operated properly and that after completing his work on May 20, he did not return to the site until after the derailment on May 26.

1/ For more detailed information, read Railroad Accident Report—"Derailment of Amtrak Train No. 97, on Seaboard Coast Line Railroad Track, Lochloosa, Florida, May 26, 1981" (NTSB-RAR-81-9).

An examination of the train graph produced by the traffic control equipment in the train dispatcher's office in Jacksonville, Florida, indicated that the Lochloosa siding had not been used for train traffic between May 19 and early on May 26, 1981. About 4:10 a.m. on May 26, in a planned passing maneuver, northbound freight train No. 174 entered the siding via the south switch and exited via the north switch after southbound freight train No. 173 had passed on the main track. At 6:10 a.m., a second northbound train, No. 178, passed Lochloosa siding while operating on the main track. The locomotive crewmembers of train No. 178 indicated that they received "clear" signal aspects throughout the Lochloosa area and did not observe the switch point position at the north end of the siding. The next train movement indications on the train graph were made by train No. 97. The graph showed that southbound train No. 97 arrived at the north end of the Lochloosa siding about 12:30 p.m.--the time of the derailment.

The NWPR relay used at Lochloosa relies on gravity to hold the relay in its deenergized position. If the relay is inverted manually, the contacts will complete circuits that normally would be open when the relay's operating coil is not energized with electrical current. Therefore, a circuit controller that is designed and adjusted to indicate the position of the track switch by supplying a circuit to appropriate relays for indicating and controlling the switch and signal can be made ineffective by inverting the NWPR relay. Because of the circuit design, inverting the NWPR relay would have caused the signal to indicate "proceed," regardless of the switch position. The same relay was used to provide a normal switch position indication on the dispatcher's traffic control console.

SCL Signal Instruction Letter No. 6 explicitly detailed the procedures to be used by the signal maintainer for an equipment change, such as the circuit controller exchange at Lochloosa. The written instruction clearly indicated that when signal circuits or apparatus were being changed, signals were to be set to "stop" train movements until the work was completed. On the other hand, the wording of SCL Operating Department Rule 1181 quoted in Signal Instruction Letter No. 6 and a discussion between the train dispatcher and the maintainer indicated that trains were not to be delayed. Since the inverting of a relay was frequently observed by the maintainer during his on-the-job training, and accepted as a practice by supervisors of the Signal Department, the "no train delay" admonition of the Operating Department apparently prevailed within the Signal Department as well. As a result, the signal maintainer was faced with a dilemma--either follow the unwritten but accepted practice of inverting the relay to avoid train delay, or follow the written instructions of a departmental officer to place signals at stop. The circumstances in this accident suggest that the threat of possible disciplinary action if trains were delayed as a result of his maintenance work may have been the major factor in his decision to invert the relay. He knew that if he followed the written instruction to set the signal to "stop," train No. 98 would be delayed. The signal maintainer stated that fearing a delay to a passenger train could lead to a suspension and/or a reprimand, he chose to invert the relay. This action may have been contrary to 49 CFR 236.4 since the investigation did not disclose any actions taken by the maintainer to first ensure the safety of train operations which depended on the normal functioning of the relay. With no evidence to indicate that the accident resulted from an act of vandalism, the Safety Board concluded that the signal maintainer was the only person to have handled the NWPR relay between May 20 and May 26 and that he forgot to return the NWPR relay to its proper operating position on May 20, 1981.

As a result of its investigation of this accident, the National Transportation Safety Board recommends that the Seaboard Coast Line Railroad Company:

Establish procedures for signal maintainers that promote compliance with Federal railway signal regulations. (Class II, Priority Action) (R-81-99)

Establish a test procedure which confirms that a signal system is completely operative after equipment or circuitry has been changed. (Class II, Priority Action) (R-81-100)

Review and resolve operating department policies and written instructions to signal maintainers that may be in conflict and result in unsafe acts to avoid train delays. (Class II, Priority Action) (R-81-101)

KING, Chairman, DRIVER, Vice Chairman, and BURSLEY, Member, concurred in these recommendations. McADAMS and GOLDMAN, Members, did not participate.

By: James B. King
Chairman